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Attachment 1 Summary of Basic Data Collection

		Pilot City/Province				Semi-Pilot Province		
		Ha Noi	**Hung Yen**	**Hai Duong**	**Ha Nam**	**Thai Binh**	**Phu Tho**	**Vinh Phuc**
1. Basic Information								
Natural condition	Land Area(km^2)	3,344.6	930.2	1,656.0	860.5	1,570.5	3,533.3	1,238.6
	Rainfall (mm)	1,800 – 2,200 mm	1,500 mm – 1,600 mm	1400-1700mm	1800-1900mm	1700 - 2200 mm	1600-1800mm/year	1.500-1.700mm
	Temperature and humidity	Average temperature is 23-23.8°C	average annual temperature is 23.2°C. Average annual humidity ranges from 80 - 90%. Highest humidity is in February and minimum is in November and December.	Average temperature is 23.3°C. Average annual humidity from 80 to 90%	Average temperature is 23-24°C	Average temperature: 23-24oC; Average humidity 80- 90	Average temperature: 23,4 độ Độ ẩm: 85%	Annual average temperature 23.2°C– 25°C Average humidity 84-85%
Social economic condition	Population (000 person)	7523 (2016)	1,151.6	1,747.5	802.7	1,788.4	1,351.0	1,029.4
	Working population	2.41 million (rural population, 2009) 1.25 million (agricultural labors, 2009)	362,878 (male) and 385,789 (female); Urban 87,941 and Rural 660,726 (2015)	986,700	472,000	(2017): rural population 1,520.5 (83,6%); urban population: 270,000 (4%)	Labor above 15 years old: 759.8 thousand people	311,917 (male) and 317,919 (female); ueban: 130,852 and rural: 498,984 (2017)
	Production by industry	Agro-forestry and fishery: 19280 billion VND, I(ndustry and construction: 177919 billion VND, Service: 343193 billion VND (2016)	Agriculture, forestry and fisheries: VND 6,373,226 million, Industry and Construction: VND 23,047,942 million, Services: VND 17,632,744 million. (2015)	Industry and construction: 203,322 Billion VND. Agriculture: 18,348 billion VND. Commerce-service: 36,270 billion VND	Agriculture, forestry and fisheries: VND 7,242 million, Industry and Construction: VND 48,705 million, Services: VND 9,359 million.	Industry: 33,840 billion VND: Agro - forestry and fishery: 24,283 billion VND	Agro-forestry and fishery: 26.79%; Construction-industry: 36.02%; Service: 37.19%	Agroforestry and fishery 4,545 billion VND Industry-construction: 35,670 billion VND Service: 15,575 billion VND
	Household income	Percapita income: 85-87 million VND per year (2016)	VND 2,352,000/person/month, of which: Urban: VND 2,900,000; Rural: VND 2,272,000.	Percapta inclome 46.812 million VND, in which rural percapita income: 41 million VND	VND 42.41million per head, VND 29 million/person/year in rural	Average percapita income: 29.27 million VND per year	GDP per capita is 29.45 million dong (equal to 1,402 USD)	Percapita income:79.05 million VND/person/year (năm 2017)
Basic Infrastructure	Road, Electricity, Irrigation	National roads:NH1, NH2, NH3, NH5, NH6, NH18	National roads run through Hung Yen province; 5A, 39A, 38, and 38B. Provincial road is connecting the highway 5B and Cau Gie - Ninh Binh highway. Electricity supply is sufficient from 175 Line of Pha Lai thermal power plant, 171 E28.1 Line, 173 E28.1 Line. Irrigated area: 46,990 ha.	Road network: NH5, NH18, NH10, NH37, NH38, Hanoi – Hai Phong expressway,	Road network: NH1A, NH21A, NH21B, NH38 Irrigation: 452 pumping stations	Inland: National road 10 to Nam Định and Hải Phòng; National road 39 connecting Hưng Yên - Hưng Hà - Đông Hưng and Thái Bình City - provincial road DiêmĐiền; Road 217 to Hải Dương, National road 37 connecting Diêm Điền port with Sơn La province. Water way: Diêm Điền port is invested to build for receiving 1,000 tones capacity vessels. Hiệp bridge connecting 2 provinces Thái Bình and Hải Dương, leghth of bridge 542,5 m, width 12m,	Road: Highway Nội Bài - Lào Cai with length 60km and 5 intersections; national road 32 Electricity: 550KV, 220KV, 110KV Irrigation: Irrigation works system with 1,777 dams, 263 pumping stations, around 30 reservoirs supplying water for agricultural production	National road Q l2A, irrigaion system have been basically completed to serve agricultural production.
Institution	Annual budget	Budget of city : 107844 billion VND (2016)	Provincial budget is VND 6,628,617 million. (2015)	Annual budget allocated by PPC to DARD is around VND 6.515 billion / year. Budget trend is stable over the period 5 years and develop detail budget planning for each year, usually the plan is formulated in October annually for the following year's plan.	Provincial budget is VND 6,592.4 billion (2015)	Around 20 billion VND for crop cultivation sector	Annual budget 5,443 billion VND	
	Concerned Organization Structure in DARD	1) DARD's professional divisions: - DARD cabinet (office); - Organization and Personnel Division; - Planning and Investment Division; - Accounting and Financial Division; - Crop Production Division; 2))Sub-departments under DARD: - Rural Development Sub-department; - Plant Protection Sub-department; - Sub NAFIQAD - DARD inspectorate - Fishery Sub-department - Dyke management Sub-department - Irrigation Sub-Department - Livestock and Animal health sub-department 3) DARD's centers: - Center for rural water supply and sanitation; - Agricultural services center; - Crop development center; - Agricultural trade promotion center - Center for analysis and validation of agricultural product quality	1) Functional divisions: - Department's Office - Personnel Division - Department's Inspectorate - Planning – Finance – Agricultural information Division - Cultivation division 2) Sub-Departments: - Plant Protection Sub-Department - Rural Development Sub-Department - Agriculture, forestry and fishery quality assurance Sub-Department 3) Public service units: - Agriculture, fishery extension center - Agriculture and Rural Development Projects Management Board	1) SPECIALIZED OFFICES - Office - Office of finance and planning - Investigation office 2) ADMINISTRATIVE UNITS - Plant protection department. - Department of rural development. - Department of agro-forestry-fisheries quality assurance department. 3) BUSINESS UNITS - Center for agriculture extension. - Center for plant testing. - Management board of agriculture and rural development projects	1) DARD office - DARD office - DARD's inspectorate; - Planning and Finance Division - Organization and Personnel Division 2) DARD's sub-departments: - Crop Production and Plant Protection Sub-department (CPPP): - Rural Development Sub-department: - AFF product quality management sub-department: 3) Affiliated public services providers: Extension Centers, Seed Center (crops, livestock, fisheries);	1) Functional divisions: - Department's Office - Personnel Division - Department of construction works management - Department's Inspectorate - Planning – Finance – Agricultural information Division - Cultivation division 2) Sub-Departments: - Plant Protection Sub-Department - Rural Development Sub-Department - Agriculture, forestry and fishery quality assurance Sub-Department 3) Public service units: - Agriculture, fishery extension center - Agriculture and Rural Development Projects Management Board - Agriculture school	1) Functional divisions: - Department's Office - Personnel Division - Department of construction works management - Department's Inspectorate - Planning – Finance – Agricultural information Division 2) Sub-Departments: - Plant Protection Sub-Department - Rural Development Sub-Department - Agriculture, forestry and fishery quality assurance Sub-Department 3) Public service units: - Agricultural extension center - Agriculture school - Viêt Nam High tech seeding company	1) Functional divisions: - Department's Office - Personnel Division - Department of construction works management - Department's Inspectorate - Planning – Finance – Agricultural information Division 2) Sub-Departments: - Plant Protection Sub-Department - Rural Development Sub-Department - Agriculture, forestry and fishery quality assurance Sub-Department 3) Public service units: - Agriculture, fishery extension center - Agriculture and Rural Development Projects Management Board - Agriculture forestry development center - Rural and agricultural works monitoring center - Soil and agro-material control and certification center - Crop varieties center - Agricultural and rural development information center - Agro-products quality analysis and certification center
2. Agriculture Production and Marketing								
Agriculture production	Agricultural area (ha)	188,601	54,452	107,536	90,055	108,078	297,320	55,259
	Vegetable productiom area (ha)	12,041	12,160	32,000	8,232	38,000	12,600	9,017
	Number of vegetable farmer (person)	80,000	54,000-60,000 (estimated)	1,346,903 (total farmers)	Approximately 120,000 vegetable producers	200,000 (people)	13,500	
Distribution and marketing	Market system	Market: 418 market, including Grade 1 market 12, Grade 2 market 68, Grade 3 market 309, Non-grade 29, 8 primary processing facilities, 64 small primary processing	90 markets, including: Grade 1 markets 2, Grade 2 markets 10, Grade 3 markets 78	The system of open markets is constructed in all hamlets, communes and at the center of a rural district. There is 3-5 centered markets.	Selling to supermarket in Hanoi - Sell to 14 safe vegetables shops in province - Sell to 6 vegetable trading companies - Sell in 78 markets	Market system have been installed in all communes and district centers. There are 3 wholesale markets	There are 260 markets distributing in districts, communes. There are about 20 district markets.	Market system have been installed in all communes and district centers. There are 3 center markets and 2 supermarkets
Producer organization	Number of producer organizations	996 cooperative	168 cooperatives	285 cooperatives	278 cooperatives	330 cooperatives	265 cooperatives	About 20 cooperatives, companies, groups produce safe vegetables
Agricultural finance	Name of financial institution	Agribank, Ha Noi People's Credit fund: Agro-extension credit fund	Agriculture bank and people's credit	Agriculture bank and people's credit	Agribank, People's Credit fund	People's Credit fund	Agribank, People's Credit fund, policy bank	Agribank, People's Credit fund, policy bank
3. Safe Crop Production and Marketing								
3.1 Present conditions of safe crop production and marketing								
Safe crop production area	Certified area of safe crop production	5,044 ha (Estimated annual safe vegetable production is 400,000 ton)	82.47 ha (vegetable 27ha)	5,000 ha (including lychee, guava, orange, custard apple and vegetables)	19.5 ha	20 ha	49 ha	828 ha
	Number of certified groups	184 units	10 units (including the units under Basic GAP or VietGAP)	6 vegetable units (131.5ha)	6 units	5 units	9 units	15 units (3,038farmers)
VietGAP	VietGap certified land area (ha)	224 ha for vegetable	21.5ha for vegetable	472.44 ha (98.4 ha for vegetable)	40 ha (VinEco 30ha)	0 ha	31.73 ha	288 ha
	VietGAP certified production groups	32 groups	3 units	87,84 ha	8 groups (cooperatives)		5 units	14 units
Distribution and marketing	Distribution channel and major buyers of safe vegetable	Joint sales for safe vegetable: 4.8% - supermarkets 1.5%; - retail shops 1.5%; - contracts 1.8% (signed with canteens and so on). Individual sales: 95.2% - Traders 12.6%; - Producers selling in open markets 26.8% - Wholesales markets 55.8%	Distribution channels: - Majority of products sold in traditional channels (via collectors to sell to provinces through agro wholesale markets). - A small part supplied to safe product stores and canteens. Selling price: - Selling price of safe vegetables increased 15-20% as compared with market price.	Distribution channels: - Through supermarkets, wholesale markets, safety food shops. Supermarket is Big C only (300-400kg/day) - Buyers are traders, businesses, in general price of VietGap products is higher than normal crops around 10-20%. - Difficult to trade with buyers in Hanoi due to distance.	Distribution channel: - Majority of products sold in local market. - There is a contract farming in large vegetable production area. - A small part supplied to supermarket outside of province. - Safe vegetale sold to the market in Hanoi and export market which producers directly connects.	Distribution channels: - Contract farming with canteens of industrial zone, school, nursery schook, hospital, business entity, etc. - Traders - safe vegetable shops - individual sales by farmers - Safe vegetable price is 10-15% higher than normal vegetables.	Distribution channles: - Individual selling in wholesale or retail markets: 70- 80% of total production - Direct sales at field: 5- 7% - Sales to collectors: some collectors in the province collect products from the farmers and bring to nearby provinces: 10-15% - Contract farming has not been widely applied. Price of vegetable is not stable. According to the research, the price is often high at the beginning and at the end of crop season (1.5 to 2 times higher than in the middle of season). There is no difference between safe and normal vegetables.	Distribution channels: - Sales to collectors: 60% - Direct sales to retailer, restaurant, canteens: 40% - 30-40% of safe vegetables are produced as contract farming.
3.2 Government policy and activities for safe crop production and marketing								
Government policy and plan		- Decision 16/2012/QĐ – UBND dated 6/7/2012 (which some clause have been changed and adjusted in accordance with Decision 10/2013/QĐ – UBND made on 11 March 2013) regarding regulations on piloting some incentive policies on agricultural development, construction of rural infrastructure in Hanoi City in 2012 – 2016; - Decision 2582/QĐ-UBND dated 05/6/2015 on appointment, decentralization of agricultural inputs management and AFF production safety under Hanoi City's management; - Plan No. 68/KH-SNN dated 27/11/2015 on the implementation of food safety action in crop production and plant protection.	- Decision No. 1854 / QD-UBND dated 12/11/2014 of Hung Yen Province People's Committee approved the proposal to restructure the agricultural and rural development sector in Hung Yen province towards value added and sustainable development. - Decision 3075 / QD-BNN-QLCL dated 20/7/2016 promulgating guidelines on confirmation of the safe food supply chain. - Decision 2162 / QD-UBND dated 30/10/2015 of Hung Yen Province People's Committee on approving project on formulation and encouragement the development of the production chain model (vegetables, fruits, meat, fish) to ensure food safety in Hung Yen province in period 2016-2020.	Decision No. 2576 / QD-UBND dated September 21, 2016 of Hai Duong People's Committee promulgating the Scheme on Developing centralized agricultural production, enhancing added value and sustainable development period 2016-2020	No: 550/QĐ-UBND dated on May 28, 2013 for approval of Sustainable development planning of Ha Nam province by 2020	No. 2623 / QD- UBND dated September 28, 2016 of Thai Binh province for approving the project "Construction of Safe Plant Production Area by the Period of 2016 - 2020"	Plan No. 6026 / KH-UBND on building safe agricultural, forestry and fishery supply chains in the province in the period of 2017-2020	- Decision No. 1674/QD- UBND, dated on July 20th 2012 on projecting area for safe vegetables production in Vinh Phuc province up to 2020 - Decision No. 06/QD- UBND, dated on February 4th 2016 of PPC on regulating the supports for the application of good agricultural practices in agriculture and fishery, as well as supporting to increase the effectiveness of farming in the province, period 2016- 2020. - Direction No. 03/CT- UBND, dated February 15th 2016 of PPC on increasing the methods to ensure the food safety in the province
Production support		DARD supports training, input, seeds, breeding, credit promotion services. Training for food safety, IPM, TOT and vegetable production technologies. Sub department of plant protection and crop production center provide intensive supports for safe vegetable production as project basis. Extension center support production technologies as regular basis. Sub department of plant protection issues certificate of safe production area and supports for acquisition of VietGAP certificate. The sub department also developed 11 value chains with application of PGS system. 150 staff check the production condition as daily basis.	- Responsible departments: DARD - Number of in-charge staff (at provincial, district and commune): Provincial level: 4 people. District level: 1 staff in charge. Commune-level: 1 staff in-charge. - Types of support provided, including training, extension services or financial support, and other materials: - Extension center provides VietGAP training. - Sub department of plant protetion provides IPM training - Sub NAFIQAD supports supply chain development model of safe vegetable (10 models to be developed by 2016)	- Annualy DARD develops and advises the PPC about crops production plan for each specific region. The number of full-time staff at provincial, district and commune: 232. - Types of support: Support by seeds, inputs (fertilizers, pesticides), training, study tours. - Provincial government plans to develop 3,000 ha as safe vegetable production area and support for VietGAP certification for 100-150 ha every year by 2020.	In 2014 Ha Nam provincial agricultural extension services built demonstrative safe vegetables model in Thanh Tuyen cooperative in Thanh Liem district By end 2015, 6 agrobusinesses were granted with certificates for safe vegetable production in accordance with Circulr 59/2012/TT-BNNPTNT and Circular 45/2014/TT-BNNPTNT which total area was 19.5 ha	Provide training on food safety and safe crop production including Basic GAP In 2015, DARD organized 500-600 training classess.	Awareness of farmers on safe vegetables production has been conducted, especially in the utilization of fertilizers, chemicals, plant protection drugs as the guidance, ensuring the safety and recording the cultivation diary as the basis of traceability. Provincial government approved joint production area for safe crop in 2012, and supported safe crop project with subsidy of 50% cost. Sub-department of plant protection division provided IPM training for 340 farmers in 2016.	Conducted 84 classes of Basic GAP training for total 5,460 farmers in Jan-Aug 2016. Conducted other training courses for more than 50,000 farmers in total.

Attachment 1 Summary of Basic Data Collection

		Pilot City/Province				Semi-Pilot Province		
		Ha Noi	**Hung Yen**	**Hai Duong**	**Ha Nam**	**Thai Binh**	**Phu Tho**	**Vinh Phuc**
Monitoring and testing of safe crop production		- Inspection of agrochemicals usage of shops and companies by Sub-department of plant protection. - Inspection of food processing company and vegetable traders by Sub- deparment of plant protection. - Inspection of food stuff except for vegetable is done by Sub- NAFIQAD.	Responsiblle body: Sub NAFIQAD Number of in-charge staff monitoring and inspection: Provincial level 4 staff, District level 1 staff, Commune level 1 staff. Methods and mechanisms for monitoring implementation: - Establishing mission to monitor the performance of establishments participating in safe crop cultivation models, inspect record keeping, inspect samples of products during harvesting. - conducts quick test for residues of vegetables, fruit and root vegetables for nitrates, pesticides, etc. - Number of surveillance and inspection conducted in 2015-16: 02 times/model/year.	- Annually Sub-department of Agriculture, Forestry and Fisheries Quality Assurance prepares detail plan, monitors and inspects activities of the production facilities certified as eligible food safety facilities and establishments are certified VietGap on their observance of regulations on safe production. - Number of full-time staff at local levels (province, district): 47 people - Methods and mechanisms for monitoring: + Periodically check, monitor as planned or unscheduled inspection and monitoring, sampling for analysis (if there is questionable).	- Sub department of plant protection conducted inspection at the site of production, sales and transportation. (179 inspections in 2015-16) - Sub-NAFIQAD conducted pesticide residue tests for 22 samples in 2015-16. (all samples were safe.)	- Inspection is done only for model site. - Sub-NAFIQAD conducts sampling and testing for soil and water at model site and also conducts sampling and testing for pesticide residue of vegetables at both model site and normal production area.	- Pesticide residue test was conducted for 25 samples in 2016, and all of samples satisfied the criteria. - Quick test for pesticide residue was also conducted for 150 samples, and only 1 sample exceeded MRL.	- Sub-NAFIQAD conducts inspection and monitoring. - According to the Circular No. 45/2014/TT-BNNPTNT dated 3/12/2014 issued by MARD, Sub-NAFIQAD assesses the producers by ranking system.
Marketing support		- Marketing support by Hanoi trade promotion center. The center will be merged with Hanoi city investment, trading and service promotion center after Jan 2017. - The center organizes weekly events, workshops, and exhibitions as well as matching between producers and buyers.	Responsible body for marketing support; - Department of Agriculture and Rural Development and Department of Industry and Trade. Number of staff in -charge: - Provincial level: DOIT 3, DARD 2 - District level: Industrial and Commercial division 1, Division of Agriculture and Rural Development 1. - Commune level: 1 person in charge. Existing privileges and facilities / equipment, services: - Organizing trade promotion conference, - Product sales in the Safe Agriculture Convention, - Support for kiosk rental and equipment to introduce product, - Promote/advertise products on channels, magazines, newspapers, TV, etc. Number of activities performed in the year 2015-2016: - Conducted 10 trade promotion events, sale and introduction of products at Trade Fairs, publishing 21,000 marketing newspapers / year.	Responsible body for marketing support: - DARD prepares annal plan for agricultural products trading promotion and submits to PPC for approval. - DARD also organizes, participates into domestic and international agricultural trade fairs. Number of activities in 2015-2016: - held a conference to promote consumption of lychee in Hai Duong, as well as participate in the promotion conference in major cities of Hanoi, Ho Chi minh, Lao Cai, Lang Son. - held 6 conferences to promote consumption of Hai Duong's fruits - held 2 promotion events of VietGAP vegetable sales	Responsible body for marketing support: - Sub NAFIQAD Marketing activities - invitation of buyers to the production site - market survey - attending workshop and seminar - participation into exhibition and promotion events. - orientation of safe vegetable shop operation	- Marketing support by organizing an exhibition. - PPC will provide a quality assurance of the products when cooperative makes contract with buyer.		- Extension center promote VietGAP vegetables on trade promotion events. - There is a sales outlet where collects vegetables produced in province and sells outside of province.
Awareness activities		- Extension center develops awareness program tools and connection with media under supervision of Sub department of plant protection - In 2015-16, Hanoi DARD concucted 300 times of awareness acivities, targeting for 24 thousand consumers through mass media (VTV, VOV, Hanoi TV), newspaper, leaflet, and warning board. - There are other media sources, such as magazine, website, switchboard, etc.	Frequency of operation: 1 time/month on media, documents and events: Number of activities were carried out in 2015-2016: 12 training courses for production and business facilities Awareness of producers on food safety: - Training for establishments participating in VietGAP safe production models, - develop reportage clip on Hung Yen television, - introducing on newspapers about typical certified safe production and efficient production cases in order to introduce the safe production facilities to supply for consumers.	Frequency of activities to raise awareness about food safety: - 1400-1500 training class each year, - Awareness of safe crop production for farmers through integrated programs to build safe production model, through seminars and training. - Communication to raise awareness through provincial TV, propaganda workshops. - 90% of producers have correct understanding and conciousness on production to assure food safety.		- develop and distribute a leaflet for farmers regarding safe production procedure for particular products.	- Sub NAFIQAD and extension center provide trainings on safe production procedure and food safety and awareness program through mass media.	- Conduct a campaign "Say No to dirty food" under MARD
4. Other references								
Past donor's assistance		ADB、CIDA	JICA (Safe crop project Phase-1)	ADB、CIDA	JICA (Safe crop project Phase-1)	JICA (Safe crop project Phase-1)	VECO (PGS and Basic GAP)	ADB
Other reference		Out of all vegetables consumed in Hanoi, about 60% of vegetable are supplied by farmers in Hanoi and remaining 40% are from other provinces, such as - 30% from Hung Yen - 20% from Hai Duong - 15% from Vinh Phuc - 10% from Bac Ninh and Bac Giang		ADB QSEAP project supported for 5 units in Hai Duong for acquisition of VietGAP certificate and infrastructure development like road and irrigation.	Incentive for private company to invest in agriculture sector by supporting for land lease. Two companies already invested. A Japanese company, Fuhitsu conducts pilot farming . Created 500ha of high technology agriculture park, 100ha was already leased. VinEco started VietGAP vegetable production in 54.5ha. Ha Nam discloses "10 committments" for private investors, like 7/24 electricity, policy consistency, withi 3days approval, etc.	DARD provide sevices to private investors not only technical advise but also introduction of land and producers. In Hai Duong, there are contract farming of radish, leafy vegetables, chillies, carrot, cucumber, etc. There is a food processing company, which processes maize for exporting.	VECO supports PGS with Basic GAP for model farms, Tan Doc company and Tu Xa cooperative. ADB QSEAP project supported tea production under VietGAP. DARD supports for safe vegetable production. A Japanese company (Tsukiyono mushroom farm) produces mushroom.	ADB QSEAP project supported 8 units. Vin group invested for VietGAP vegetable production in 62ha, VinEco Tam Dao company will produce and sell to group company. A Japanese company contacts DARD for soybean production.
Issues	Production	- Difficult for control safe production due to small land plot - Farmers are not aware of safe production technologies. - There is a shortage of human resource for training and monitoring - Traceability is insufficient.	- High cost for safe vegetable production compared with normal production (1.5-1.7 times higher) - Yield of safe vegetable is lower than that of normal vegetable. - vegetable lands are small and scattered. - production technologies and awareness on food safety of farmers are insufficinet. - Lack of management capacity of cooperative	- Difficult to collect sufficient amount of vegetables since vegetable lands are small and scattered. - There is a shortage of labors as industrial zone provides attractive job opportunities.	- There is no differentiation between safe vegetables and normal vegetables in price and quality. 1) consumer's awareness should be improved adn 2) enterprises should be pioneer for quality assurance. - Fragmented and small scale production is not suitable for safe vegetable production. The province should make incentive policies to attract enterprises' investments in the production.	- Production volume of safe vegetable is still small - Vegetable lands are small and scattered, there is no large and consolidated area for productoin. - Productivity and awareness of farmers are low.	- small production scale and scattered lands affect negatively on application of advanced technologies as well as linkage between production and marketing in big scale. - Due to limitation in budget and support, it is difficult to encourage the investment of organizations and individuals in the production of safe vegetables following VietGAP or GAP. - Checking and supervising the quality of products and food safety on vegetables and fruits have many difficulties due to limitation in human resource and advanced facilities and equipment.	- Difficult to control and supervise safety and quality due to small and scattered land. - Shortage of management capacity of procurement of agricultural materials - Shortage of capacity on quality and safety inspection and monitoring
	Sales	- Shortage of safe vegetable traders - Traders hesitate to invest for labelling due to high risk on sales and reputation. - Shortage of supports for safe vegetable sales - Lack of inspection mechanizm on safety in wholesale market, etc.	Most of companies engaged in purchasing, pre-processing and trading vegetables are not eligible to ensure adequate food safety conditions as prescribed. Products are mainly sold through local traders and transported to other provinces like Hanoi.	- Difficult to sell due to small quantity with limited varieties. - There is no price incentive of safe vegetables compared with normal ones. - Weak linkage and networking with buyers - Consumermers are not aware about safe vegetable production.	Instead of selling products of medium quality grade and single market, high quality vegetables that supply the supermarkets or exported to the Japanese and European markets shall be produced.	- Shortage of market information - lack of awareness of consumers on safe vegetable - There is no price incentive on safe vegetable production.	Safe vegetables production in particular in Phu Tho province is still in small scale. The linkage between production and marketing has not been formed yet. Awareness of the consumers on producing and marketing safe vegetables is still limited. Production of vegetables in general just pay attention to productivity and production, not quality and food safety. Vegetables are mostly sold in domestic market, with limitation in purchasing, unstable price. There is no transparency between safe and normal vegetables, the selling price of safe vegetables is not high while the producing cost is higher than normal vegetables. With such reasons, the producers seem to come back with traditional cultivation, they don't prefer with the trained methods of producing safe vegetables. Marketing skill and knowledge of staffs and ACs are still weak and limited.	- Safe vegetable is not distinguished from others, it is difficult to sell in higher price. - There is a shortage of linkage between producer nad buyers. - Trademark registration should be maintained properly for stable supply of safe vegetable.
	Institution	VietGAP certificate system is complicated and high cost for small scale farmers, who are difficult to apply.	Need more investment for infrastructure to support safe vegetable production and sales	VietGAP certification requires high cost.		- shortage of infrastrucutre for safe vegetable production, - shortage of financial support for safe vegetable production, especially in packaging, labeling, advertisement, marketing. - High acquisition cost for VietGAP	- Safe vegetables production is not promoted sufficiently due to shortage of budget and supporting mechanizm.	shortage of infrastructure for safe vegetable production and sales
Government policy and plan	Central government	- Directive 08/CT/TW dated 21/10/2011 of the Central Communist Party Committee's Secretariat on "Enhancing the Party's leadership on food safety issues in the new situation". - Circular No. 47/2009 /TT-BNN and Circular No. 03/2012/TT-BNN of the Ministry of Agriculture and Rural Development issued the national technical standards, technical regulations on conditions to ensure agricultural, forestry and fisheries food safety. - Circular No. 48/2012/TT-BNN dated 26/09/2012 of the Ministry of Agriculture and Rural Development stipulates for certification of fishery, farming, livestock products produced and processed properly in good agricultural production practices process. - Decision No. 3073/QD-BNN-QLCL dated 27/12/2013 of the Ministry of Agriculture and Rural Development on the approval of the project "Formulation and development of nationwide safe agricultural, forestry and fisheries foods supply chain model"; - Circular No. 45/2014/TT-BNNPTNT, dated 3/12/2014 of the Ministry of Agriculture and Rural Development regulates the inspection of agricultural materials production and trading facilities; inspection and certification of agricultural, forestry and fisheries production and business facilities are eligible for food safety - Decision No. 354/QD-BNN-QLCL dated 04/3/2014 of Ministry of Agriculture and Rural Development approving the Plan for implementing the project " Formulation and development of nationwide safe agricultural, forestry and fisheries foods supply chain model";						
	Hanoi	- Resolution 04/2012/NQ-HĐND dated 05/4/2012 on piloting some incentive policies on agricultural development, construction of rural infrastructure in Hanoi City in 2012-2016; - Resolution 25/2013/NQ-HĐND on incentive policies on development of concentrated specialized agricultural production areas in Hanoi in 2014-2020; incentive polices on development of trade villages in Hanoi; incentive policies on investment supports in rural water supply schemes in Hanoi; - Decision 2083/QĐ- UBND dated 05/5/2009, approved Project for production and consumption of safe vegetables in Hanoi city in 2009 - 2015; - Decision 16/2012/QĐ – UBND dated 6/7/2012 (which some clause have been changed and adjusted in accordance with Decision 10/2013/QĐ – UBND made on 11 March 2013) regarding regulations on piloting some incentive policies on agricultural development, construction of rural infrastructure in Hanoi City in 2012 – 2016; - Decision 2582/QĐ-UBND dated 05/6/2015 on appointment, decentralization of agricultural inputs management and AFF production safety under Hanoi City's management; - Resolution 03/2015/NQ-HĐND dated 8/7/2015 on some policies on the implementation of Program for agricultural development that applies high-tech in Hanoi in 2016-2020; - Plan No. 68/KH-SNN dated 27/11/2015 on the implementation of food safety action in crop production and plant protection.						
	Hung Yen	- Directive No. 10/CT- UBND dated 24/8/2011 of Hung Yen Province People's Committee on strengthening quality management and agriculture, forestry and fisheries food safety. - Decision No. 1854 / QD-UBND dated 12/11/2014 of Hung Yen Province People's Committee approved the proposal to restructure the agricultural and rural development sector in Hung Yen province towards value added and sustainable development. - Decision 3075 / QD-BNN-QLCL dated 20/7/2016 promulgating guidelines on confirmation of the safe food supply chain. - Circular No. 02/2013 / TT-BNNPTNT dated 05/01/2013 regulating risk analysis and food safety management according to agricultural, forestry, aquaculture and salt production and trading chain. - Decision 2162 / QD-UBND dated 30/10/2015 of Hung Yen Province People's Committee on approving project on formulation and encouragement the development of the production chain model (vegetables, fruits, meat, fish) to ensure food safety in Hung Yen province in period 2016-2020.						
	Vinh Phuc	- Decision No. 1674/QD- UBND, dated on July 20th 2012 on projecting area for safe vegetables production in Vinh Phuc province up to 2020 - Plan No. 8338/KH- UBND, dated on December 29th 2015 of PPC on ensuring food safety in Tet Holiday and Spring Festival 2016 - Decision No. 06/QD- UBND, dated on February 4th 2016 of PPC on regulating the supports for the application of good agricultural practices in agriculture and fishery, as well as supporting to increase the effectiveness of farming in the province, period 2016- 2020. - Direction No. 03/CT- UBND, dated February 15th 2016 of PPC on increasing the methods to ensure the food safety in the province - Plan No. 2091/KH- BCDLNVSATTP, dated April 8th 2016 of Food Safety Steering Committee regarding the implementation of "Month for food safety" in 2016 - Plan No. 3065/KH- UBND, dated on May 15th 2016 of PPC on activities in the year of food safety in agricultural sector.						
Government Regulation	Central government	The laws, regulations and incentives related to the safe crop production and marketing including subsidies for certification and granting certificate: - Decision No. 01/2012 / QD-TTg dated 09/01/2012 of the Prime Minister on some policies to support the application of good agricultural production practices in agriculture, forestry and fisheries. - Joint Circular No. 42/TTLT-BNN-BTC-BKH&DT dated 16/10/2013 on guiding the implementation of Decision No 01/2012/QD-TTg dated 09/01/2013 of the Prime Minister on some policies to support the application of good agricultural production practices in agriculture, forestry and fisheries. - Decree No. 210/2013/ND-CP dated 19/12/2013 of the Government on policies to encourage enterprises to invest in agriculture and rural areas. - Decision 72/2010/QD-TTg dated 15/11/2010 issued regulations on development, management and implementation of programs to promote national trade.						
	Hanoi	- Announcement 06-TTr/TU dated 18/01/2012 by Hanoi Party's Committee on strengthening the Party's leadership on food safety under new context; - Decision 16/2012/QĐ – UBND dated 6/7/2012 (which some clause have been changed and adjusted in accordance with Decision 10/2013/QĐ – UBND made on 11 March 2013) regarding regulations on piloting some incentive policies on agricultural development, construction of rural infrastructure in Hanoi City in 2012 – 2016; - Resolution 25/2013/NQ-HĐND on incentive policies on development of concentrated specialized agricultural production areas in Hanoi in 2014-2020; incentive polices on development of trade villages in Hanoi; incentive policies on investment supports in rural water supply schemes in Hanoi; - Resolution 03/2015/NQ-HĐND dated 8/7/2015 on some policies on the implementation of Program for agricultural development that applies high-tech in Hanoi in 2016-2020; - 2016 Plan 72/KH-SNN dated 14/12/2015 by Hanoi DARD on input management and food safety in agricultural and rural development sector in Hanoi;						

Reference: PPMU report and interview data, 2016.

Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Selection of Target Groups

April, 2017

JICA Project Team

1. Confirmation of Selection Criteria for Target Groups

7 Criteria are applied according to Record of Discussion and specific indicators for each criterion are set by Project team as below.

No	Item	Evaluation Criteria		Indicator
1	Target area/zone	Vegetable production area (ha)	1-1	Specialized vegetable area/zone
			1-2	Land area is more than 1ha.
2	Location and environment	Favorable natural environment	2-1	Land is certified as safe production area
		Economical and social environment	2-2	There is no existence of chemical industry nearby
		Suitable area for safe vegetable	2-3	Suitability of land condition (Field observation)
3	Knowledge and techniques	Knowledge and techniques of BasicGAP and/or other safe crop production	3-1	BasicGAP and/or VietGAP is applied.
			3-2	Farming practice (Field observation)
4	Number of farmer group and production volume	Certain number of farmer groups members	4-1	No. of farmers for safe crop production is more than 5.
5	Willingness and eagerness	Willingness and eagerness of producers	5-1	Leadership and independency (Field observation)
6	New model	Desirable new agriculture cooperative model	6-1	New model group
7	Vegetable production	Safe vegetable production and distribution	7-1	Experience of market channel development

2. Nomination of Candidate Target Groups

No.	Group Name	Type	Member ship	Vegetable area	Safe area
Ha Nam					
HN-N1	Phu Van agriculture product cooperative	Coop	11	1	1
HN-N2	Thanh Tuyen agriculture service cooperative	Coop	35	3	3
HN-N3	Ha Vi agriculture service cooperative	Coop	20	11.4	5
HN-N4	Cat Lai agriculture service cooperative	Coop	48	30	6
HN-N5	Trac Van agriculture service cooperative	Coop	40	23	5
HN-N6	Duc Huy service cooperative	Coop	12	5	5
HN-N7	Pham Hoang Hiep farmers group	FG	3	2.5	2.5
HN-N8	Tran Thị Lieu farmers group	FG	3	0.3	0.1
Hai Duong					
HD-N1	Tan Minh Duc agriculture service cooperative	Coop	168	27	27
HD-N2	Pham Kha agriculture service cooperative	Coop	200	25	25
HD-N3	Tam Ky agriculture service cooperative	Coop	28	25	25
HD-N4	Thanh Ha safe fruit and vegetable company	A Com	59	20	20
HD-N5	Duc Chinh Agriculture service cooperative	Coop	1,636	360	200
HD-N6	Green Farm Vegetable and fruit production company	A Com	2	1.8	1.8
Hung Yen					
HY-N1	Trung Nghia agriculture service and trading cooperative	Coop	62	10	10
HY-N2	Japan-Vietnam fruit and vegetable cooperative	A Com	5	1	1
HY-N3	Nguyen Thi Thanh safe vegetable production team	FG	8	0.7	0.7
HY-N4	Yen Phu agriculture service cooperative	Coop	197	15.5	15.5
HY-N5	Phu Thinh trading and safe vegetable cooperative	Coop	21	5	5

Cooperative	13
Agri. Company	3
Farmers Group	3
Total	19

3-1. Evaluation of Candidate Target Groups (Ha Nam)

No.	Group name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	7. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Land area is more than 1ha.	Certified as safe production area	No chemical industry nearby	Suitablity of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers is more than 3.	Leadership and independency	New model group	Experience of market channel development	
HN-N1	Phu Van agriculture product cooperative	Yes	1	Certified	No	Too small as a model farm, many varieties in micro farm area	(Organic)	Low, but difficult to assess such organic farming	11	High in organic farming	New cooperative	Niche but stable market as organic	
HN-N2	Thanh Tuyen agriculture service cooperative	Yes	3	Certified	No	Many vaireties in small area, invested two net houses with subsidy.	-	Medium low, no uniformity of seed, farmers cultivate as desired	35	Low leadership	New cooperative	No joint sales	
HN-N3	**Ha Vi agriculture service cooperative**	Yes	11.4	Certified	No	Good infrastructure, small but sufficient land area	BasicGAP	Medium, improve uniformity of seed varieties	20	High eagerness for joint sales	New cooperative	No joint sales	**Target group**
HN-N4	Cat Lai agriculture service cooperative	Yes	30	Certified	No	Good infrastructure, small but sufficient land area	-	Medium, improve uniformity of seed varieties	48	Low, newly registered but old style cooperative	New cooperative	No joint sales	
HN-N5	Trac Van agriculture service cooperative	Yes	23	Certified	No	Sufficient land area as organic farming	(Organic)	Medium, organic farming with many trials such as compost	40	High, challenging something new continuously	New cooperative	Difficult to apply Basic GAP and organic at same time due to avoid mis-understand among customers	
HN-N6	Duc Huy service cooperative	Yes	5	Certified	No	Newly established, no products yet	-	-	12	-	New cooperative	-	
HN-N7	**Pham Hoang Hiep farmers group**	Yes	2.5	Certified	No	Sufficient land, but potential risk of flooding	-	Medium high, invest a net house, apply new techniques	3	High	Farmers group	Sales as a company	**Target group**
HN-N8	Tran Thi Lieu group of farmers	Yes	0.3	Certified	No	Too small as a model farm	-	-	3	-	Farmers group	-	

3.2 Evaluation of Candidate Target Groups (Hai Duong)

No.	Group name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	7. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Land area is more than 1ha.	Certified as safe production area	No chemical industry nearby	Suitablity of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers is more than 3.	Leadership and independency	New model group	Experience of market channel development	
HD-N1	**Tan Minh Duc agriculture service cooperative**	Yes	27	Certified	No	Good infrastructure, small but sufficient land area, good soil condition	VietGAP	Medium high,	168	High	New cooperative	Start contracts with 3 buyers, but pre-processing center is not utilized	**Target group**
HD-N2	Pham Kha agriculture service cooperative	Yes	25	Certified	No	Good infrastructure, small but sufficient land area	BasicGAP VietGAP	Medium high,	200	Low leadership	New cooperative	No joint sales	
HD-N3	Tam Ky agriculture service cooperative	Yes	25	Certified	No	Good infrastructure, small but sufficient land area	BasicGAP VietGAP	Medium,	28	Low leadership	New cooperative	No joint sales	
HD-N4	**Thanh Ha safe fruit and vegetable company**	Yes	20	Certified	No	Sufficient land area cultivated by contract farmers	BasicGAP VietGAP	Medium high, uniforming in crop and seed, trial for new varieties	59	High and well managed	Agriculture company	Joint sales for supermarket, well branded, invest in pre processing facility	**Target group**
HD-N5	**Duc Chinh agriculture service cooperative**	Yes	360	Certified	No	Main production area for carrot	-	High in carrot cultivation with 40 years experiences	1,636	High eagerness to apply BasicGAP for safe production	New cooperative	Joint sales for wholesale and export market, invest in pre processing facility	**Target group**
HD-N6	Green Farm vegetable and fruit proudction company	Yes	1.8	Certified	No	Sufficient land area with infrastructure investment	-	Medium low, need to improve but trials for compost and net house	2	High motivation with capital investment	Agriculture company	Well designed marketing, own safe food shop	

3-3. Evaluation of Candidate Target Groups (Hung Yen)

No.	Group name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	7. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Land area is more than 1ha.	Certified as safe production area	No chemical industry nearby	Suitablity of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers is more than 3.	Leadership and independency	New model group	Experience of market channel development	
HY-N1	Trung Nghia agriculture service and trading cooperative	Yes	10	Certified	No	Many vaireties in micro/ small area	BasicGAP	Medium low, observed applying much urea	62	Low leadership	New cooperative	No joint sales	
HY-N2	**Japan-Vietnam fruit and vegetable cooperative**	Yes	1	Certified	No	Sufficient land area	VietGAP	High with advanced knowledge, utilize greenhouse, mulch sheet, other equipments	5	High	Agriculture company	Well designed marketing, own brand logo	**Target group**
HY-N3	Nguyen Thi Thanh safe vegetable production team	Yes	0.7	Certified	No	Too small as a model farm	-	-	8	-	Farmers group	-	
HY-N4	**Yen Phu agriculture service cooperative**	Yes	15.5	Certified	No	Many vaireties in small area	BasicGAP VietGAP	Medium, low quality in seedling	197	High, willing to start seedling business as a cooperative	New cooperative	Many experiences of joint sales	**Target group**
HY-N5	Phu Thinh trading and safe vegetable cooperative	Yes	2	Certified	No	Sufficient land area owned by one owner	VietGAP	Medium, investing greenhouse but need to improve cultivation	14	High eagerness to find market	New cooperative	Namely cooperative but sales as a company in fact	

3-4. Confirmation of Target Groups

Based upon the criteria agreed in Record of Discussions of the project, 7 target groups in 3 pilot provinces are selected.

No.	Group Name	Group Type	Member ship	Safe Prod. area
Ha Nam				
HN-N3	Ha Vi agriculture service cooperative	Cooperative	20	5
HN-N7	Pham Hoang Hiep farmers group	Farmers Group	3	2.5
Hai Duong				
HD-N1	Tan Minh Duc agriculture service cooperative	Cooperative	168	27
HD-N4	Thanh Ha safe fruit and vegetable company	Agri. Company	59	20
HD-N5	Duc Chinh Agriculture service cooperative	Cooperative	1,636	200
Hung Yen				
HY-N2	Japan-Vietnam fruit and vegetable cooperative	Agri. Company	5	1
HY-N4	Yen Phu agriculture service cooperative	Cooperative	197	15.5
Total			2,088	271

Producer's Profile

Province: Ha Nam	ID Number: HN-N3
Name of Unit	
Ha Vi Agriculture Service Cooperative	
Established year	**2013**
Number of members	**20**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**72.6 ha/ 11.4 ha**
Estimated annual safe vegetable output	**460 tons**
Protocol applied	**Safe vegetable (certified as safe prod. area), VietGAP, basic GAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Cabbage	325 tons	X	X	X	X	X					X	X	X
Broccoli	80 tons	X	X	X	X	X					X	X	X
Bean	39 tons						X	X	X	X			
Tomato	4.8 tons						X	X	X	X			

Perspective of Unit

-Committee to product quality; provide customers with safe products with best price.
-Collect and find stable markets for member's products;
-Have strategies: extend safe vegetable area; Transfer scientific techniques to farmers; develop vegetable brand of Ha Vi.

Producer's Profile

Province: Ha Nam	ID Number: HN-N5

Name of Unit

Pham Hoang Hiep farmers group

Established year	**2/2016**
Number of members	**20**
Form of management	**Farmers group**
Total vegetable land/ Safe vegetable area	**2.5 ha / 2.5 ha**
Estimated annual safe vegetable output	**120 tons**
Protocol applied	**Safe vegetable (certified as safe production area)**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Cabbage	60	X	X	X						X	X	X	X
Morning glory	30	X	X	X	X	X	X	X	X	X	X	X	X
"Mơ" mustard	30	X	X	X	X				X	X	X	X	X
Tomato	30	X	X	X	X				X	X	X	X	X

Perspective of Unit

-Extend the area up to 10 ha to improve quality and productivity. It is expected to develop pre-processing house.
-Target customers are clean food stores in Hanoi and kitchens.

Producer's Profile

Province: Hai Duong	ID Number: HD-N1

Name of Unit

Tan Minh Duc Agriculture Cooperative

Established year	**8/2014**
Number of members	**168**
Form of management	**Cooperative**
Total vegetable land/ safe vegetable area	**27 ha/ 27 ha**
Estimated annual safe vegetable output	**2,468 tons**
Protocol applied	**Safe vegetable (certified as safe production area), VietGAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Kohlrabi	16,128 tons	X	X	X	X	x					X	X	X
Pear-shaped melon	560 tons						X	X	X	X			
Cabbage	252 tons	X	X	X	X	X					X	X	X
Watermelon	56 tons						X	X	X	X			

Perspective of Unit

-Collaborate with export enterprises, supermarkets, trading groups and companies to facilitate the production and consumption of products.
-Hope to have more such customers as processing and exporting units.
-Try to achieve: 100% members will apply VietGAP in their production.
-Try to develop logo, branding, code, label, etc for vegetable products of the commune.

Producer's Profile

Province: Hai Duong	ID Number: HD-N4
Name of Unit	
Thanh Ha Safe Fruit and Vegetable Company	
Established year	**2006**
Number of members	**59**
Form of management	**One Member Ltd.Co**
Total vegetable land/ safe vegetable area	**30 ha/ 20 ha**
Estimated annual safe vegetable output	**1,300 tons**
Protocol applied	Safe vegetable (certified as safe prod area), basic GAP, VietGAP

Vegetables with strengths

Vegetable Name	Volume (ton)	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Gailum	400	x	x	x	x	x	x	x	x	x	x	x	x
Morning glory	388						x	x	x	x			
Cabbage	333										x	x	x
Kohlrabi	152										X	X	X
Malabar nightshade	138	X	X	X	X	X							

Perspective of Unit

-Tightly collaborate with households of safe vegetable area to produce and provide markets with safe vegetable.

-Focus on wholesale to supermarkets and oversea markets.

Producer's Profile

Province: Hai Duong	ID Number: HD-N5
Name of Unit	
Duc Chinh Agriculture service Cooperative	
Established year	**1998**
Number of members	**1,636**
Form of management	**Cooperative**
Total vegetable land/ safe vegetable area	**360 ha/ 200 ha**
Estimated annual safe vegetable output	**27,200 tons**
Protocol applied	**Safe vegetable (certified as safe prod.area)**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Carrot	14,700 tons										x	x	x
Watermelon	10,000 tons	X	X	X	X	X							
Radish	2,200 tons						x	X	X	X	X		
Corriander	278 tons						x	X	X	X	X		

Perspective of Unit

-Hope to collaborate with national & international companies from production to consumption to provide markets with products of food safety assurance and reasonable prices.

- Try to achieve 80% of vegetable area certificated under VietGAP.

- In 2008, safe carrot label of Duc Chinh is granted by National Office of Intellectual Property; code for safe carrot was granted by Directorate for Standards, Metrology and Quality.

-Step by step develop the reputation and lable for Duc Chinh carrot

-Logo and label are to be designed to be registered at National Office of Intellectual Property.

Producer's Profile

Province: Hung Yen	ID Number: HY-N2

Name of Unit

Japan-Vietnam fruit and vegetable Company

Established year	**2016**
Number of members	**5**
Form of management	**Joint stock Company**
Total vegetable land/ safe vegetable area	**1 ha/ 1 ha**
Estimated annual safe vegetable output	**80 tons**
Protocol applied:	Certified as VietGAP production area

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Gailum	8 tons						x	X	X	X			
Cabbage	7 tons	x	x	x	x	x					x	x	x
Mustard	4 tons						x	X	X	X			
Kohlrabi	3.8 tons	x	x	x	x	x					x	x	x

Perspective of Unit

-In 2017, increase cultivation area up to 3 ha and more net-house areas.

-Step by step develop brand in a stable manner against product quality standards. Advertise products via mass media and direct visit to customers. Listen to customer's opinion and feedback.

-Target customer group: Those who have at least quite good income and those who interested in safe vegetables

Producer's Profile

Province: Hung Yen	ID Number: HY-N4

Name of Unit

Yen Phu Agriculture Service Cooperative

Established year	**1997**
Number of members	**197**
Form of management	**Cooperative**
Total vegetable land/ safe vegetable area	**250 ha/ 15.5 ha**
Estimated annual safe vegetable output	**810 tons**
Protocol applied	**Safe vegetable (certified as safe pro.area), basic GAP, VietGAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Gailum	186 tons	x	x	x	x	x	x	x	x	x			
Mustard	60 tons	x	x	x	x	x							
Spong gourd	60 tons						x	x	x	x			
Kohlrabi	60 tons										x	X	X
Tomato	50 tons										X	X	x

Perspective of Unit

-Reach such customers as stores, supermarkets, company canteens, schools, hospitals, etc.

-Sign long-term contracts with partners.

- Complete application to get product code so that buyers can trace product origin and production procedure.

Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Selection of target groups in semi-pilot provinces and additional selection in pilot provinces

September, 2018

JICA Project Team

1. Confirmation of Selection Criteria for Target Groups

7 Criteria are applied according to Record of Discussion and specific indicators for each criterion are set by Project team as below.

No	Item	Evaluation Criteria		Indicator
1	Target area/zone	Vegetable production area (ha)	1-1	Specialized vegetable area/zone
			1-2	Land area is more than 1ha.
2	Location and environment	Favorable natural environment	2-1	Land is certified as safe production area
		Economical and social environment	2-2	There is no existence of chemical industry nearby
		Suitable area for safe vegetable	2-3	Suitability of land condition (Field observation)
3	Knowledge and techniques	Knowledge and techniques of BasicGAP and/or other safe crop production	3-1	BasicGAP and/or VietGAP is applied.
			3-2	Farming practice (Field observation)
4	Number of farmer group and production volume	Certain number of farmer groups members	4-1	No. of farmers for safe crop production is more than 5.
5	Willingness and eagerness	Willingness and eagerness of producers	5-1	Leadership and independency (Field observation)
6	New model	Desirable new agriculture cooperative model	6-1	New model group
7	Vegetable production	Safe vegetable production and distribution	7-1	Experience of market channel development

Selection of target groups in semi-pilot provinces

2. Nomination of Candidate Target Groups (semi-pilot provinces)

No.	Group Name	Type	Member ship	Vegetable area	Certified Safe area
Phu Tho					
PT-N1	Hương Nộn Agriculture Service Cooperative	Coop.	86	13.8	3.2
PT-N2	Văn Phú – Sai Nga craft village for safe vegetable growing	Farmer Group	199	12	12
PT-N3	Lô River Agriculture Cooperative	Coop.	43	3	3
PT-N4	Vegetable production service Cooperative in Tan Duc commune	Coop.	270	14	14
PT-N5	Agriculture Service Cooperative in Truong Thinh Ward	Coop.	19	24	12
Vinh Phuc					
VP-N1	Visa Safe Vegetable Cooperative	Coop.	8	21	21
VP-N2	Đại Lợi Safe Vegetable Cooperative	Coop.	14	10.1	10.1
VP-N3	An Hòa Agroproduct production and trading cooperative	Coop.	57	5.5	5.5
VP-N4	Thanh Hà Safe vegetable cooperative	Coop.	25	4.6	4.6
VP-N5	Vân Hội Xanh Safe vegetable cooperative	Coop.	27	10	10
VP-N6	Vĩnh Phúc Safe vegetable cooperative	Coop.	50	4.78	4.78
Thai Binh					
TB-N1	Đoàn Trường Vinh	Household	5	8.3	0
TB-N2	Quỳnh Hải Agricultural production and service cooperative	Coop.	7	200	8
TB-N3	Thanh Tân agricultural production and service cooperative	Coop.	7	180	6
TB-N4	Đức Nam Export – Import Company	Company	3	3	0

3-1. Evaluation on proposed target groups (Phu Tho)

No.	Group	1. Target area/region		2. Location and environment			3. Knowledge and techniques		4. Number of farmer groups and volume	5. Volunteer and willingness	6. New model	7. Vegetable production and marketing	Evaluation
		Region specialized in vegetable	Production land area more than1 ha	Certificate on safety of production area	Not near chemical industrial zones	Favorable soil conditions	Apply Basic Gap and/ or Viet GAP	Cultivation practices	Number of farmers is more than 5 people	Leadership ability and independence	New model group	Experience on developing market channels	
PT-N1	Hương Nộn Agriculture Service Cooperative	Yes	3.2 ha	Certified	No	Good infrastructure, small land area, but sufficient for production and good soil condition	VietGAP was expired because could not pay certification fee	Average Quite good	86	Leadership ability is at average, quite good level	New Cooperative Model	No joint sale, farmers find buyers by themselves. Main buyers are local wet market.	**Target group**
PT-N2	Văn Phú – Sai Nga craft village for safe vegetable growing	Yes	12 ha	Certified	No	Good infrastructure, small land area, but sufficient for production and good soil condition	VietGAP	Average Quite good	199	Leadership ability is at average, quite good level, high level of independence	Craft village	No joint sale, farmers find buyers by themselves	
PT-N3	Lô River Agriculture Cooperative	Yes	3 ha	Certified	No	Good infrastructure, good soil condition	Had VietGAP, but expired	Average	43	Leadership ability is at average, quite good level	New Cooperative Model	No joint sale, farmers find buyers by themselves	
PT-N4	Vegetable production service Cooperative in Tan Duc commune	Yes	14 ha	Certified	No	Good infrastructure, good soil condition	Basic GAP	Average Quite good	270	High level of leadership ability and high level of independence	New Cooperative Model	No joint sale, farmers find buyers by themselves	
PT-N5	Agriculture Service Cooperative in Truong Thinh Ward	Yes	Total 10ha (Project area will be 3ha with VietGAP)	Certified	No	Good infrastructure, good soil condition	7.7 ha is certified as VietGAP Supported by VECO	Average	19	Average level of leadership ability	New Cooperative Model	No joint sale, farmers find buyers by themselves	**Target group**

3-2. Evaluation of proposed target groups (Vinh Phuc)

No	Group's name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	77. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Production area	Certified as safe production area	No chemical industry nearby	Suitability of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers	Leadership and independency	New model group	Experience of market channel development	
VP-N1	Visa Safe Vegetable Cooperative	Yes	5.23	Certified	No	Good infrastructure, small area but good fertile soil	VietGAP	Fairly good,	300	Good management capacity	New style cooperative	A part of the food for schools in the province, market access is limited	**Target group**
VP-N2	Đại Lợi Safe Vegetable Cooperative	Yes	10.1	Certified	No	Good infrastructure, small area but sufficient, good fertile soil	Basic GAP + VietGAP	Fairly good	60	Good leading capacity	New style cooperative	Partial sale for VinEco, Hanoi market, market access is limited	**Target group**
VP-N3	An Hòa Agroproduct production and trading cooperative	Yes	5.5	Certified	No	Cucumber production area	Basic GAP + VietGAP	Fairly good	57	Good leading capacity	New style cooperative	Part sellers focus for traders, market stitch is limited	
VP-N4	Thanh Hà Safe vegetable cooperative	Yes	4.6	Certified	No	Good infrastructure, small area but sufficient, good fertile soil	Basic GAP + VietGAP	Fairly good,	25	Fair leading capacity	New style cooperative	A sale focused for traders, market forces are limited	
VP-N5	Vân Hội Xanh Safe vegetable cooperative	Yes	10	Certified	No	Good infrastructure, small area but sufficient, good fertile soil	Basic GAP + VietGAP -	Good in cultivation with much experience	27	Good management capacity	New style cooperative	There are limited retail stores	
VP-N6	Vĩnh Phúc Safe vegetable cooperative	Yes	4.78	Certified	No	Sufficient production area with good investment in infrastructure. Gourd and chayote production area	VietGAP	Fairly good	50	Good management capacity	New style cooperative	A part sold to the industrial kitchen	**Target group**

3-3. Evaluation of proposed target groups (Thai Binh)

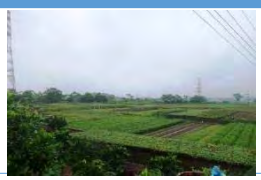
No	Name of group	1. Target area/region		2. Location and environment			3. . Knowledge and techniques		4. Number of farmer groups and volume	5. Volunteer and willingness	6. . New model	7. Vegetable production and marketing	Evaluation
		Region specialized in vegetable	Production land area more than1 ha	Certificate on safety of production area	Not near chemical industrial zones	Favorable soil conditions	ÁApply Basic Gap and/ or Viet GAP	Cultivation practices	Number of farmers is more than 5 people	Leadership ability and independence	New model group	Experience on developing market channels	
TB-N1	Đoàn Trường Vinh	Yes	8.3	Not certified	No	Carrot production area Good infrastructure, small land area but qualified for production	No	Average	30	Low	Household (No registration)	Contract with buyers	
TB-N2	Quỳnh Hải Cooprative	Yes	200	Certified	No	Large production area, concentrated area	Not, but receive trainings	Fair good (highly intensive, well mechanized	800	High	Traditional style cooperative	Joint sale, retail sale	**Target group**
TB-N3	Thanh Tân Cooperative	Yes	180	Certified	No	Large production area, good infrastructure	Basic GAP	Fair good (intensive, well mechanized, active irrigation)	20	High	New style cooperative	For safe vegetable production area: joint sale of vegetables to Hanoi For normal vegetables production area: wholesale and retail	**Target group**
TB-N4	Đức Nam Exp-Imp. company	Yes	5	Not certified	No	Production area is small, but soil fertile is suitable	No	Average	3	Low	Company	Company purchases	

3-4. Confirmation of Target Groups (semi-pilot provinces)

Based upon the criteria agreed in Record of Discussions of the project, 8 target groups in 3 semi-pilot provinces are selected.

No.	Group Name	Group Type	Member ship	Vegetable area	Certified Safe area
Phu Tho					
PT-N1	Huong Non Agriculture Service Cooperative	Cooperative	86	13.8	3.2
PT-N5	Truong Thinh Agriculture Service Cooperative	Cooperative	19	24	12
Vinh Phuc					
VP-N1	Visa Safe Vegetable Cooperative	Cooperative	300	21	21
VP-N2	Dai Loi Safe Vegetable Cooperative	Cooperative	60	25	10.1
VP-N6	Vinh Phuc Safe Vegetable Cooperative	Cooperative	50	35	4.78
Thai Binh					
TB-N2	Quynh Hai Agricultural Production and Service Cooperative	Cooperative	800	200	8
TB-N3	Thanh Tan Agricultural Production and Service Cooperative	Cooperative	20	180	6
Total			1,335	498.8	65.08

Producer's Profile

Province: Phu Tho	ID Number: PT-N1
Name of Unit	
Huong Non Agriculture Service Cooperative	 
Established year	**1986**
Number of members	**86**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**13.8 ha/3.2 ha**
Estimated annual safe vegetable output	**146.9 tons**
Protocol applied	**VietGAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Cabbage											x	x	x
Snake gourd							x	x	x	x			
Green mustard							x	x	x	x	x		
Tomato							x	x	x	x	x	x	x

Perspective of Unit

- Cooperative is looking for target buyers including: Industrial canteens, school canteens in local area, government officers
- Desire to develop Huong Non safe vegetable brand.

Producer's Profile

Province: Phu Tho	ID Number: PT-N5
Name of Unit	
Truong Thinh Agriculture Service Cooperative	
Established year	**1998**
Number of members	**19**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**24 ha/12 ha**
Estimated annual safe vegetable output	**N.A**
Protocol applied	**VietGAP**

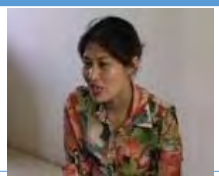
Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Cabbage											x	x	x
Tomato		x	x	x	x	x					x	x	x
Green mustard							x	x	x	x	x		
Cauliflower											x	x	x

Perspective of Unit

- Cooperative is looking for target buyers including: Industrial canteens, school canteens in local area, government officers.
- Cooperative has a safe vegetable shop at ME market, Phu Tho town.
- Desire to develop Truong Thinh safe vegetable brand

Producer's Profile

Province: Vinh Phuc	ID Number: VP-N1
Name of Unit	
Visa Safe Vegetable Cooperative	 
Established year	**2017**
Number of members	**300**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**21 ha/21ha**
Estimated annual safe vegetable output	**2000 tons**
Protocol applied	**Basic GAP, VietGAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Squash	200 tons				X	X							
Morning glory	110 tons	X	X	X	X	X	X	X	X	X	X	X	X
Shrinkage Vege.	80 tons	X	X	X	X	X	X	X	X	X	X		
Malabar nightsade	72 tons	X	X	X	X	X	X	X	X	X	X	X	X

Perspective of Unit

Cooperative is targeting customers including shops, supermarkets, industrial canteens, schools, hospitals, households in apartments, luxury villas, etc.
Direction in the consumption link is to sign long-term consumption contracts with partners. Establish a vegetable shop and promote the brand to sign the contract and desire to be able to export products to the overseas market.

Producer's Profile

Province: Vinh Phuc	ID Number: VP-N2
Name of Unit	
Dai Loi Safe Vegetable Cooperative	 
Established year	**2011**
Number of members	**60**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**25 ha/10.1 ha**
Estimated annual safe vegetable output	**1160 tons**
Protocol applied	**Basic GAP, VietGAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Morning glory	130	X	X	X	X	X	X	X	X	X	X	X	X
Kohlrabi	120	X	X	X	X					X	X	X	X
Green mustards	120	X	X	X	X	X	X	X	X	X	X	X	X
Shallot	100	X	X	X	X	X	X	X	X	X	X	X	X

Perspective of Unit

The cooperative plans to open a number of safe vegetable shops in Hanoi, at the Rest Stations on highways to promote the brand and provide products to consumers.
The cooperative is targeting the customers including shops, supermarkets, industrial canteens, schools, hospitals,.
Direction in the consumption is to sign long-term consumption contracts with partners.
Continue to maintain the packaging, labeling, bar code, QR Code for the products

Producer's Profile

Province: Vinh Phuc	ID Number: VP-N6
Name of Unit	
Vinh Phuc Safe Vegetable Cooperative	 
Established year	**2014**
Number of members	**50**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**4.78 ha/ 4.78 ha**
Estimated annual safe vegetable output	**710 tons**
Protocol applied	**VietGAP**

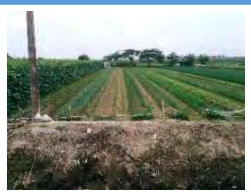
Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Chayote fruit	220	X	X	X	X	X							X
Spong gourd	100				X	X	X	X	X	X			
Chayote sprout	80	X	X	X	X	X	X					X	X
Choysum	90	X	X	X	X	X	X	X	X	X	X	X	X

Perspective of Unit

Continue to strictly manage all stages from production - harvest - consumption of products to ensure all products of cooperatives when supplying to the market meet the targets of food safety.
Strengthen linkages with existing clients of the cooperative. At the same time, promote trade promotion, market development to find, associate with new customers. As a result, production area and consumption of products for the associated households will be expanded.

Producer's Profile

Province: Thai Binh	ID Number: TB-N2
Name of Unit	
Quynh Hai Agricultural Production and Service Cooperative	 
Established year	**Before 1995**
Number of members	**800**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**200 ha/ 8 ha**
Estimated annual safe vegetable output	**200 ha of save vegetables**
Protocol applied	**Basic GAP, Safe vegetable**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Spice vegetables	30 tons	X	X	X	X	X	X	X	X	X	X	X	X
Cabbage, kohlrabi	80 tons									X	X	X	X
Leafy vegetables	50 tons	X	X	X	X	X	X	X	X	X	X	X	X

Perspective of Unit

- The cooperative is aimed at the customer groups including industrial canteens, hospitals, schools ....
- Orientation in the consumption link is to sign long-term consumption contracts with partners.

Producer's Profile

Province: Thai Binh	ID Number: TB-N3
Name of Unit	
Thanh Tan Agricultural Production and Service Cooperative	 
Established year	**Before 1995**
Number of members	**20**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**180 ha/6 ha**
Estimated annual safe vegetable output	**18 tons of safe vegetables**
Protocol applied	

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Chili	2 tons			X	X	X	X						
Tomato	3 tons	X										X	X
Purple egg plant	2 tons			X	X								

Perspective of Unit

-Cooperative is targeting at safe vegetable shops

Additional selection of target groups in pilot provinces

2. Nomination of Candidate Target Groups

No.	Group Name	Type	Member ship	Vegetable area	Certified Safe area
Hai Duong					
HD-N1	Gia Gia food joint stock Company	Company	14	5.3	5.3
HD-N2	Green farm vegetables production group	Company	17	5.1	5.1
HD-N3	Lua farmers group	Farmer group	143	28.7	27.5
HD-N4	V-Phuc Green agriculture Cooperative	Coop.	14	10	0
HD-N5	Viet A Chau Cooperative	Coop.	28	13	0
Ha Nam					
HN-N1	Thanh Son Cooperative	Coop.	50	12	5
HN-N2	Cat Lai Cooperative	Coop.	30	47.25	4
HN-N3	Thanh Tan Cooperative	Coop.	6	12	1
Hung Yen					
HY-N1	Chien Thang Safe vegetable Cooperative	Coop.	27	5	5
HY-N2	Phu Cu New style cooperative	Coop.	16	5	5
HY-N3	TTM FARM Investment and Development Company	Company	41	5	5

3-1. Evaluation of Candidate Target Groups (Hai Duong)

No.	Group name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	7. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Land area is more than 1ha.	Certified as safe production area	No chemical industry nearby	Suitablity of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers is more than 3.	Leadership and independency	New model group	Experience of market channel development	
HD-1	Gia Gia Food Joint Stock Company	Yes	5.3	Certified	No	Good infrastructure, small production area but sufficient	BasicGAP VietGAP	Fair good,	10	High leadership	Agri. Company	Newly starting joint sale	Target group
HD-2	Green Farm safe vegetable, fruit and root vegetables production group	Yes	7	Certified	No	Sufficient production area with good infrastructure investment	Safe production, organic	Fair good,	2	High leadership and good capacity in capital mobilization	Agri. company	Good marketing, having own safe vegetable shop	Target group
HD-3	Safe vegetable production group in Lua Village, Doan Thuong commune	Yes	27.54	Certified	No	Good infrastructure, small land area but sufficient	BasicGAP VietGAP	Good	147	Low leadership	Farmer group	Joint sale	Target group
HD-4	V-Phuc Green agriculture Cooperative	No	10	No	No	Poor infrastructure	Normal	Traditional	14	Low leadership	New cooperative	Joint sale (acts as collector)	
HD-5	Viet A Chau Cooperative	No	13		No	Good infrastructure, have processing facility (dry shallot)	ISO 22000	Traditional	28	Low leadership	New cooperative	Not involved in farming, Collection for processing	

3-2. Evaluation of Candidate Target Groups (Ha Nam)

No.	Group name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	7. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Land area is more than 1ha.	Certified as safe production area	No chemical industry nearby	Suitablity of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers is more than 3.	Leadership and independency	New model group	Experience of market channel development	
HN-1	Thanh Son agriculture service cooperative	Yes	5	Certified	No	Good infrastructure, small but sufficient land area	Safe production	Farmers have long experience in intensive farming	120	Low, newly registered but old – style cooperative	New cooperative	No joint sales	
HN-2	Cat Lai agriculture cooperative	Yes	4	Certified	No	Land condition is sufficient for safe production condition	Basic GAP	Self-reliance learning and applying farming techniques	30	Fair low leadership	Want to apply New cooperative style	No joint sales, no matching, mainly sell to collector/trader	**Target group**
HN-3	Thanh Tan Safe agriculture production group	Yes	1	Pending for Certification	No	Medium infrastructure, local authorities are willing to overcome difficulties in infrastructure; Good soil, able to expand the area	VietGAP	Fair good	6	High leadership, good independence	Collective group (New style)	No joint sales, associate to sell once receive order	**Target group**

3-3. Evaluation of Candidate Target Groups (Hung Yen)

No.	Group name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	7. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Land area is more than 1ha.	Certified as safe production area	No chemical industry nearby	Suitability of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers is more than 3.	Leadership and independency	New model group	Experience of market channel development	
HY-1	Chiến Thắng Safe vegetablqe cooperative	Yes	5 ha	On process to prepare document applied for certificate of production safety condition	DPC plan the production area not being affected by chemical industry	Land is suitable for safe vegetable production	DARD Hưng Yên supports	Good	27	High leadership, proactive and independence	New style cooperative	Newly starting joint sale, supplying to canteens, shops and buyers	**Target group**
HY-2	Phù Cừ New style cooperative	Yes	5 ha	Certificate of safety production condition	No affect by chemical industry	Land is suitable for safe vegetable production	DARD Hưng Yên supports	Good	20	Independence but Low leadership	New-style cooperative	Joint sales for all products of cooperative	
HY-3	Công ty TNHH TTM FARM	Yes	5 ha	Certificate of safety production condition	No affect by chemical industry However the area is subjected to be revoken and reallocated to Hoa Phats Group	Land is suitable for safe vegetable production	VietGAP	Good	10	High leadership and independence	Production and trading company	Joint sale, stable trading with VinEco	

3-4. Confirmation of Target Groups (pilot provinces)

Based upon the criteria agreed in Record of Discussions of the project, 6 target groups in 3 pilot provinces are additionally selected.

No.	Group Name	Type	Member ship	Vegetable area	Certified Safe area
Hai Duong					
HD-N1	Gia Gia food joint stock Company	Comp	10	5.3	5.3
HD-N2	Green farm vegetables production group	Comp	17	5.1	5.1
HD-N3	Lua farmers group	FG	143	33	27.5
Ha Nam					
HN-N2	Cat Lai Cooperative	Coop	30	47.25	4
HN-N3	Thanh Tan Cooperative	Coop	6	12	1
Hung Yen					
HY-N1	Chien Thang Safe vegetable Cooperative	Coop	27	5	5
Total			**233**	**107.65**	**47.9**

Producer's Profile

Province: Hai Duong	ID Number: HD-N1
Name of Unit	 
Gia Gia food joint stock Company	
Established year	**2015**
Number of members	**10**
Form of management	**Company**
Total vegetable land/ Safe vegetable area	**5.3 ha/5.3 ha**
Estimated annual safe vegetable output	**10 tons**
Protocol applied	**VietGAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Mesh melon	5 tons						X	X	X				
Taro shoot	5 tons	X	X	X	X	X	X	X	X	X	X	X	X

Perspective of Unit

- The president is conscious of food safety and enthusiastic on processing and sales promotion.
- Desire to have more customers

Producer's Profile

Province: Hai Duong	ID Number: HD-N2
Name of Unit	
Green farm vegetables production group	 
Established year	**2014**
Number of members	**17**
Form of management	**Company**
Total vegetable land/ Safe vegetable area	**75.1ha/ 5.1 ha**
Estimated annual safe vegetable output	**80 tons**
Protocol applied	**Certificate of safe production condition**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Cauliflower	20 tons	X	X	X	X	x					X	X	X
Leafy vegetables	15 tons	X	x	x	x	x	X	X	X	X	x	x	x
Cabbage	30 tons	X	X	X	X	X					X	X	X
Melons	15tons						X	X	X	X			

Perspective of Unit

- Cooperate with import-export businesses, supermarkets, trading groups and companies to promote production and marketing.
- Desire to have more customers are purchasing, processing, export facilities.
-Expect to have more customers in supermarket system, hotels, restaurant and canteens

Producer's Profile

Province: Hai Duong	ID Number: HD-N3
Name of Unit	
Lua farmers group	 
Established year	**2012**
Number of members	**143**
Form of management	**Farmer group**
Total vegetable land/ Safe vegetable area	**33 ha/27.54 ha**
Estimated annual safe vegetable output	**370 tons**
Protocol applied	**VietGAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Kohlrabi	200	X	X	X	X	x				x	X	X	X
Pear-shaped melon	20 tons						X	X	X	X			
Cabbage	100 tons	X	X	X	X	X					X	X	X
Water melon	70 tons						X	X	X	X			

Perspective of Unit

- Cooperate with import-export businesses, supermarkets, trading groups and companies to promote production and marketing.
- Desire to have more customers are purchasing, processing, export facilities.
- Target of production households is 100% members in the production group applying vegetable production in accordance with VietGAP.
- Branding development: logo, brand, bar code, collective label for vegetable products of the commune

Producer's Profile

Province: Ha Nam	ID Number: HN-2
Name of Unit	
Cat Lai Cooperative	 
Established year	**1998**
Number of members	**30**
Form of management	**Production group**
Total vegetable land/ Safe vegetable area	**47.25 ha/4 ha**
Estimated annual safe vegetable output	**300 tons**
Protocol applied	**PGS with Basic GAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Kohlrabi	30	X	X	X							X	X	X
Cabbage	30	X	X	X							X	X	X
String beans	10			X	X	X	X	X					
Shallot	100	X	X	X	X	X	X	X	X	X	X		

Perspective of Unit

-Desire to develop joint production and joint sale

Producer's Profile

Province: Ha Nam	ID Number: HN-N3
Name of Unit	
Thanh Tan Cooperative	 
Established year	**2017**
Number of members	**6**
Form of management	**Collective group**
Total vegetable land/ Safe vegetable area	**12 ha/1 ha**
Estimated annual safe vegetable output	**40 tons**
Protocol applied	**PGS with Basic GAP**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Cabbage	20	X	X	X							X	X	X
Leafy vegetable	3	X	X	X	X	X	X	X		X	X	X	X
Squash	5	X	X	X	X	X					X	X	X
Tomato	4	X	X	X	X						X	X	X

Perspective of Unit

Cooperative has a experience to sell to canteen in District.

Desire to find stable market like safe vegetable shops and canteens, and develop a brand to sell high price products.

Producer's Profile

Province: Hung Yen	ID Number: HY-N1
Name of Unit Chien Thang Safe vegetable Cooperative	 
Established year	**Mar. 2018**
Number of members	**27**
Form of management	**Cooperative**
Total vegetable land/ Safe vegetable area	**5 ha/5 ha**
Estimated annual safe vegetable output	**210 tons of safe vegetables**
Protocol applied	**Certificate of safe production condition(in process), VietGAP(in process)**

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Bokchoy	30 tons	X	X	X	X	X	X	X	X	X			
Tomato	50 tons										X	X	X
Cabbage	35 tons							X	X	X	X	X	
Spice vegetables	40 tons	X	X	X		X	X	X	X	X	X	X	X

Perspective of Unit

Cooperative is targeting customers including safe vegetable shops, supermarkets, industrial canteens, schools, hospitals, etc.,
Orientation in the consumption link is to sign long-term consumption contracts with partners.
Branding and applying barcodes to help buyers identifying the source and the production process of the product.
Establishment of specialized cultivation areas for export agricultural products when contracting with partners

Summary of target groups in pilot provinces and semi-pilot provinces in Phase 2 (Oct.2018 - Apr.2021)

Summary of target groups in pilot provinces

No.	Group Name	Type	Member ship	Vegetable area	Certified Safe area
Hai Duong			2,038	450.4	284.9
HD-1	Tan Minh Duc agriculture service cooperative	Coop.	168	27	27
HD-2	Thanh Ha safe fruit and vegetable company	Company	59	20	20
HD-3	Duc Chinh Agriculture service cooperative	Coop.	1,636	360	200
HD-4	Gia Gia food joint stock Company	Comp	15	5.3	5.3
HD-5	Green farm vegetables production group	Comp	17	5.1	5.1
HD-6	Lua farmers group	Farmers group	143	33	27.5
Ha Nam			59	73.2	12.5
HN-1	Ha Vi agriculture service cooperative	Coop.	20	11.4	5
HN-2	Pham Hoang Hiep farmers group	Company	3	2.5	2.5
HN-3	Cat Lai Cooperative	Coop	30	47.25	4
HN-4	Thanh Tan Cooperative	Coop	6	12	1
Hung Yen			229	23.5	23.5
HY-1	Japan-Vietnam fruit and vegetable cooperative	Company	5	3	3
HY-2	Yen Phu agriculture service cooperative	Coop.	197	15.5	15.5
HY-3	Chien Thang Safe vegetable Cooperative	Coop	27	5	5
Total			2,325	542.8	320.9

Summary of target groups in semi-pilot provinces

No.	Group Name	Group Type	Member ship	Vegetable area	Certified Safe area
Phu Tho			105	37.8	15.2
PT-1	Huong Non Agriculture Service Cooperative	Cooperative	86	13.8	3.2
PT-2	Truong Thinh Agriculture Service Cooperative	Cooperative	19	24	12
Vinh Phuc			410	81	35.88
VP-1	Visa Safe Vegetable Cooperative	Cooperative	300	21	21
VP-2	Dai Loi Safe Vegetable Cooperative	Cooperative	60	25	10.1
VP-3	Vinh Phuc Safe Vegetable Cooperative	Cooperative	50	35	4.78
Thai Binh			820	380	14
TB-2	Quynh Hai Agricultural Production and Service Cooperative	Cooperative	800	200	8
TB-3	Thanh Tan Agricultural Production and Service Cooperative	Cooperative	20	180	6
Total			1,335	498.8	65.08

Summary of target groups in pilot and semi-pilot provinces

Phase1 (Apr.2017-Sep.2018)

Province	No. of groups	Membership	Vegetable area	Certified Safe area
Hai Duong	3	1,863	407	247
Ha Nam	2	23	13.9	7.5
Hung Yen	2	202	16.5	16.5
Total	7	1,886	423.5	247

Phase2 (Oct.2018-Apr.2021)

Province	No. of groups	Membership	Vegetable area	Certified Safe area
Hai Duong	6	2,038	450.4	284.9
Ha Nam	4	59	73.15	12.5
Hung Yen	3	229	23.5	23.5
Sub-Total (pilot provinces)	13	2,326	547	321
Phu Tho	2	105	37.8	15.2
Vinh Phuc	3	410	81	35.88
Thai Binh	2	820	380	14
Sub-Total (semi-pilot provinces)	7	1,335	498.8	65.08
Total	20	3,661	1,045.8	386.08

Socialist Republic of Viet Nam
Ministry of Agriculture and Rural Development

Socialist Republic of Viet Nam
Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Baseline Survey Report

March 2019

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.
Kaihatsu Management Consulting, Inc.

Socialist Republic of Viet Nam
Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Baseline Survey Report

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1. Outline of Baseline Survey

Item	Details
Survey Item	<u>For Group Leaders</u> 1) group outline (registration, name of representatives, number of members, etc.) 2) facilities (washing place, trash can and collection and distribution space) 3) agricultural production (crop name, production area and production volume) 4) cultivation of safe crop (crop name, production area and production volume) 5) attendance on agricultural extension and training about safe crop 6) joint purchase (record of joint purchase, purchased material, etc.) 7) joint sales (record of joint sales, name of crop sold, sale destination, etc.) <u>For Individual Farmers</u> 1) household information (numbers of family, income sources, etc.) 2) farming situation (cultivation crop, planting record, selling price, etc.) 3) cultivation situation of safe crop (cultivation crop, planted acreage, selling price, etc.) 4) input material (use situation, procurement source, name, purchase price, et.) 5) agricultural extension (attendance of training, training contents, etc.) 6) agricultural distribution and marketing (Sale destination and sale methods etc.) 7) acquisition method of market information 8) agricultural financing (used financial institution and the present loan amount) 9) women participation (roles of women in farming activity) 10) ICT use (usage of smart phone and educational level of ICT)

2. Candidate Target groups

No.	Group Name	Type	Member	Vege (ha)	Safe (ha)
Ha Nam					
HN-N1	Phu Van agriculture product cooperative	Coop	11	1	1
HN-N2	Thanh Tuyen agriculture service cooperative	Coop	35	3	3
HN-N3	Ha Vi agriculture service cooperative	Coop	20	11.4	5
HN-N4	Cat Lai agriculture service cooperative	Coop	48	30	6
HN-N5	Trac Van agriculture service cooperative	Coop	40	23	5
HN-N6	Duc Huy service cooperative	Coop	12	5	5
HN-N7	Thi Sơn - Kim Bảng group of farmers	FG	2	2.5	2.5
HN-N8	Trần thị Liệu group of farmers	FG	3	0.3	0.1
Hai Duong					
HD-N1	Tan Minh Duc agriculture service cooperative	Coop	168	27	27
HD-N2	Pham Kha agriculture service cooperative	Coop	200	25	25
HD-N3	Tam Ky agriculture service cooperative	Coop	28	25	25
HD-N4	Thanh Ha safe fruit and vegetable company	A Com	59	20	20
HD-N5	Agriculture service cooperative in Duc Chinh commune	Coop	1,636	360	200
HD-N6	Vegetable and fruit proudction units of Green Farm company	A Com	2	1.8	1.8
Hung Yen					
HY-N1	Trung Nghia agriculture service and trading cooperative	Coop	62	10	10
HY-N2	Japan-Vietnam fruit and vegetable cooperative	A Com	5	1	1
HY-N3	Nguyen Thi Thanh safe vegetable production team	FG	8	0.7	0.7
HY-N4	Yen Phu agriculture service cooperative	Coop	197	15.5	15.5
HY-N5	Phu Thinh trading and safe vegetable cooperative	Coop	21	5	5

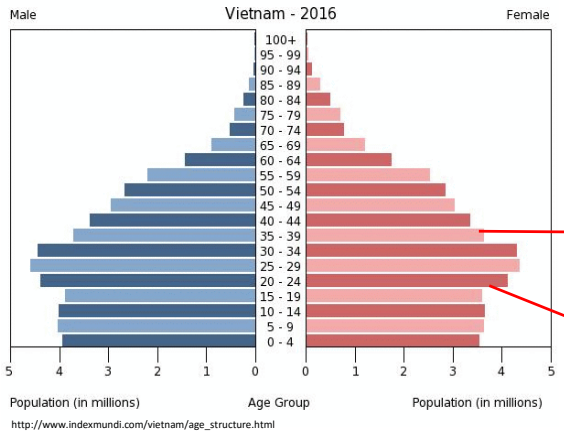
Group size is rather big in cooperative (11 – 4,500 members) compared with agri. company and farmers group (2 - 59).

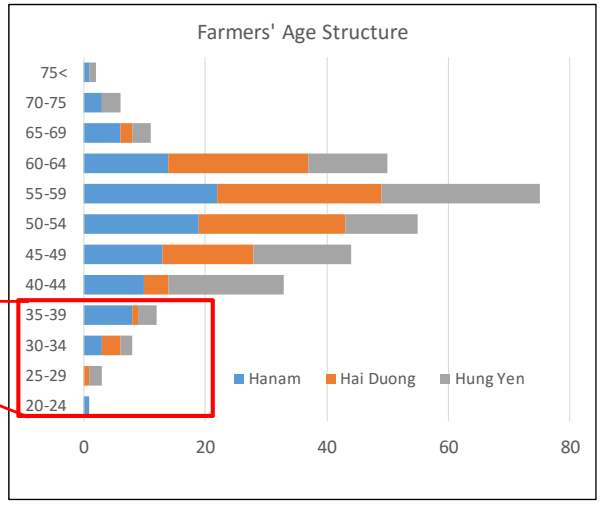
Cooperative	13
Agri. Company	3
Farmers Group	3
Total	19

3. Observations

Household Information

Item		Province		
		Ha Nam	Hai Duong	Hung Yen
Farmer's age (average)		**52**	**54**	**52**
	Below 40 yrs	**12%**	**5%**	**7%**
	Above 50 yrs	65%	76%	58%
Engagement in farming	Full time	97%	95%	90%
	Part time	3%	5%	10%





Young generations are rare in field.

3. Observations

Household Information

Item		Province		
		Ha Nam	Hai Duong	Hung Yen
Agriculture land	Own land (m^2)	1,456	2,025	1,535
	Rental (m^2)	728	1,590	1,023
	Total (m^2)	**2,184** (320 - 7,632)	**3,615** (400 - 27,360)	**2,558** (360 - 37,080)
Vegetable cultivation area (m^2)		**1,678**	**7,398**	**3,900**
Total production (kg)		2,984 kg	25,510 kg	10,129 kg
Selling price in average (VND/kg)		VND 7,835	VND 4,656	VND 4,692

Average agriculture land area per farmer is around 2,100 – 3,600m^2.
Vegetable cultivation area is more in Hai Duong (7,400m^2) than in others.

3. Observations

Main vegetables cultivated per season <as Safe Vegetable>

	Spring Season (Jan-May)	Summer Season (Jun-Oct)	Winter Season (Oct-Dec)
Ha Nam	**tomato (3)** **malabar nightshade (3),** **mustard (2)** **cabbage (2)** **String bean (2)** **morning glory (2)** kohlrabi (1) cucumber (1) melon (1)	**mustard (5)** **String bean (3)** **malabar nightshade (3)** **morning glory (3)** **tomato (2)** gailum (1) jute (1) squash (1)	**cabbage (5)** **mustard (3);** **kohlrabi (3);** **tomato (2);** cucumber (1); radish (1); string bean (1)
Hai Duong	**onion (2);** cabbage (1); mustard (1); kohlrabi (1); gailum (1) goud melon (1)	**mustard (2);** **melon (2);** vegetable shrinkage (1), morning glory (1); garlic (1); coriander (1)	**cabbage (4);** **kohlrabi (4);** carrot (1); garlic (1); lettuce (1)
Hung Yen	**kohlrabi (2);** **cabbage (2);** **mustard (2);** cucumber (1); gailum (1) morning glory (1)	**mustard (5);** **gailum (2);** **gourd (2);** malabar nightshade (1)	**kohlrabi (5);** **cabbage (3);** tomato (1); cucumber (1)

Target groups cultivate leafy vegetables especially in winter, compared with fruit and rood vegetables.

3. Observations

Awareness of Safety

Type	No. of certified group	Logo Holder	Record keeping	Pesticide Residue check	Soil and water check	Internal audit
Organic	**2** *11%*	**0** *0%*	**2** *100%*	**2** *100%*	**2** *100%*	**1** *50%*
VietGAP	**8** *42%*	**4** *50%*	**4** *50%*	**3** *38%*	**4** *50%*	**7** *88%*
Basic GAP	**6** *32%*	**3** *50%*	**2** *33%*	**3** *50%*	**3** *50%*	**5** *83%*
Safe crop area certified	**18** *95%*	**6** *33%*	**7** *39%*	**11** *61%*	**12** *67%*	**12** *67%*
Total groups	**19** *100%*	**7** *37%*	**8** *42%*	**12** *63%*	**13** *68%*	**13** *68%*

95% groups receives certificates of safe crop production area

Only 33-50% of groups follow the guidance of VietGAP/ BasicGAP properly.

Internal audit seems organized well.

Recording is not practiced well even in VietGAP groups. How to regularize such practices is one of major challenges.

3. Observations

Marketing activities

- 74% (14/19) of groups have experiences of joint sales and 6 - 7 buyers in average purchase from each group.

- 79% (15/19) of groups are satisfied with current buyers who;
  - Buy big amount — 93% *(14/15)*
  - Keep promise — 80% *(12)*
  - Pay quickly — 80% *(12)*
  - Buy in long period/ every year — 73% *(11)*
  - Pay High price — 47% *(7)*

→ *Farmers put attention more on regular trading and payment than on price.*

- Average price gap between safe vegetable and normal vegetable are around 0 – 30% (Ave. 17%). Organic vegetables are sold 50% higher than normal ones (2 groups).

→ *Safe vegetable is recognized as a valuable product in the market.*

- 84% (16/19) of groups are facing problem on joint sales about;
  - Coordination with buyers/ member farmers (53%), low price (37%), limited demand (32%).

→ *Creation of new market channel is the challenge internally and externally.*

3. Observations

Marketing activities

Joint sales		Province		
		Ha Nam	Hai Duong	Hung Yen
Joint sales	Join	26%	**55%**	27%
	Not Join	**74%**	45%	**73%**
Problem of joint sales	Low Price	**49%**	12%	15%
	Limited Demand	**22%**	**31%**	**26%**
	Limited buyer	19%	**22%**	4%
	Coordination with buyer/ member	**26%**	18%	5%

Main distribution channel <individual sales>	Province		
	Ha Nam	Hai Duong	Hung Yen
Collector	**41%**	**62%**	**71%**
Wholesale market	25%	10%	15%
Restaurant	5%	0%	0%
Retail store	29%	0%	19%
Others	6%	20% (company)	-

Participation of joint sales are low in Ha Nam and Hung Yen, because of low price, limited demand and coordination problems.
As individual sales, farmers mainly sell to collectors.

3. Observations

Access to Agricultural Extension Services

Item		Province		
		Ha Nam	Hai Duong	Hung Yen
Attendance of training	Attended	**96%**	**98%**	**66%**
	Not any training attended	4%	2%	34%
Training contents	Protection from disease and insect	**73%**	**80%**	46%
	Cultivation method	**76%**	**98%**	**64%**
	GAP method	**56%**	**88%**	**52%**
	Marketing	*21%*	*25%*	*14%*
	Method to protect farmer's health	49%	**78%**	20%
	Financial management	7%	0%	1%
	Management of organization	2%	17%	0%
Source of trainer	Government like DARD, Province	**95**	**97**	**65**
	International cooperation agency	16	20	17
	Agrichemical company	16	**78**	35
	Fertilizer company	25	**77**	32
	Seed company	27	**82**	27
	Material supplyer	3	44	1
	Buyer	2	3	0

Most of farmers have experiences to receive any kind of training.
Most of trainings received focus on production side, marketing training is provided to limited farmers.
Private companies are providing trainings actively in Hai Duong.

3. Observations

Access to Agricultural Financing

Item	Province		
	Ha Nam	Hai Duong	Hung Yen
Access to financial institution	22%	15%	7%
- Loan from Agricultural Bank	8	8	2
- Loan from Social Policy Bank	14	5	2
- Loan from Agricultural Cooperative	-	1	-
- Family/ Friend	-	2	-
- Material Supplier	-	2	-
- Others	-	1	3

ICT Literacy

Item	Province		
	Ha Nam	Hai Duong	Hung Yen
Smart phone holders	6%	10%	7%
farmers receive ICT training	2%	40%	1%
farmers use ICT in farming	2%	13%	2%

7-22% of farmers access to financial institutions, mainly agricultural bank and social policy bank.
Smart phone holders in interviewees are limited (6-10%), spending VND 13,000 – 15,000/month in average.

4. Implications for Pilot Project

- Selection criteria of target groups/ farmers
  - Target groups/farmers can be selected based on the criteria shown in R/D, but the generation of farmers should be also considered for sustainability.
- Target crops
  - Candidate groups cultivate leafy vegetables mainly as safe vegetable. But root and fruit vegetables such as carrot, water melon and tomato are also to be considered as potential crops to achieve higher value addition.
- Re-activation of GAP
  - Even the groups holding VietGAP certificate are not practicing record keeping and pesticide residue check. Crop production system in pilot project put more focus on monitoring regular activities based on BasicGAP.
- Creation of new market channel
  - Coordination among farmers and buyers are the key issues when farmers start something new. Willingness of farmer makes change.
- “Basic GAP” is not still familiarized by stakeholders.
  - How to tell farmers/ buyers/ consumers about BasicGAP?

PART I: Baseline Survey

CHAPTER 1 Survey Outline

1.1 Objective

- To understand the actual condition of crop production of candidate target groups.
- To fix the indicators and measuring method for Project Design Matrix (PDM).

1.2 Target Area

The survey was conducted in the pilot provinces; Hung Yen, Ha Nam and Hai Duong Provinces.

1.3 Methodology

(1) Survey Method

Baseline survey was conducted by two types of interviews; group interview for candidate target groups and individual interview with each farmer. For effective and efficient data collection, both interviews were conducted with questionnaire formats (see Attachment 1 and 2), and sufficient number of surveyors were recruited directly by JICA project team.

(2) Selection of Candidate Target Group and Interviewees

Candidate target groups were nominated by PPMU of each province with consideration of the following criteria which was agreed on Record of Discussion between MARD and JICA signed on 29 February 2016.

Table 1.3.1 Selection Criteria for Candidate Target Group

Item	Evaluation Criteria	Indicator
Target area/zone	Prefer specialized vegetable production area/zone	- Specialized area/zone
Location and environment	Preferable location whether the areas are suitable for safe vegetable: Favorable natural environment (soil, water, air) Economical and social environment	- Lower than national standard of soil and water quality - good basic infrastructure - no existence of heavy chemical industrial estates nearby
Vegetable production	Safe vegetable production and distribution	- production collection, cleaning, sorting, joint transport situation, joint sales)
Knowledge and techniques	Accumulated knowledge/ techniques on basic GAP and/or any other safe crop production	- safe vegetable procedure, record keeping, input usage, using waste box/washing facility, etc.)
Number of farmer group and production volume	Certain number of farmer groups members	- secure scale merit and affordable supply according to market
Willingness and eagerness	Willingness and eagerness of producers	- leadership, independency, business sense, joint selling experiences, management with flexibility/ adjustment)
New model	Desirable 'New agriculture cooperative model'	- registration of agriculture cooperatives

Source: JICA Survey Team

Based on the nominated list of candidate target groups, 19 groups were selected through the discussion with PPMU of each province and JICA Project team; 8 groups from Ha Nam, 6 groups from Hai Duong, 5 groups from Hung Yen province.

In order to collect proper information of the group, suitable 2-5 members were selected as the responsible interviewees according to the following criteria;

- Who understand well regarding to general information of organization (number of member, tax number, condition for safe vegetable, etc).
- Who understand well regarding to cultivation of organization (area, yield, insect, suppliers of agricultural material, safe vegetable, normal vegetable, problem of cultivation, etc).
- Who understand well regarding to sell vegetable of organization (buyer, price, amount, condition, problem of sell, etc).

(3) Selection of Individual Interviewees

For the individual interview, 20 farmers per one group were nominated according to the following criteria in the table bellows.

Table 1.3.2 Selection Criteria for Individual interviewees

Item	Evaluation Criteria
Vegetable production	• Involved in safe vegetable production
Knowledge and techniques	• Hold accumulated knowledge/ techniques on basic GAP and/or any other safe crop production
Record keeping	• Capable of writing • Confident to maintain records regularly according to GAP
Willingness and eagerness	• Hold willingness and eagerness to participate in the pilot project for safe crop production • Willingness to obtain new technologies
Reliability and honest	• Keep promise with honest
Constructive behavior	• Comment constructively without criticism

Source: JICA Survey Team

According to the above selection procedures, the following groups and individuals were selected for baseline survey.

- Group interview : 19 samples; Ha Nam (8), Hai Duong (6), and Hung Yen (5).
- Individual interview: 300 samples; 100 samples per province (20 farmers/group.

Table 1.3.3 Sample Size of Baseline Survey

No	Group Name	Group	Individual
	Ha Nam		
HN-01	Phu Van agriculture product cooperative	1	20
HN-02	Thanh Tuyen agriculture service cooperative	1	20
HN-03	Ha Vi agriculture service cooperative	1	20
HN-04	Cat Lai agriculture service cooperative	1	20
HN-05	Trac Van agriculture service cooperative	1	20
HN-06	Duc Huy service cooperative	1	-
HN-07	Nguyen Van Hiep farmers group	1	-
HN-08	Tran Thị Lieu farmers group	1	-
	Sub Total	8	100
	Hai Duong		
HD-01	Tan Minh Duc agriculture service cooperative	1	20
HD-02	Pham Kha agriculture service cooperative	1	20
HD-03	Tam Ky agriculture service cooperative	1	20
HD-04	Thanh Ha safe fruit and vegetable company	1	20
HD-05	Duc Chinh Agriculture service cooperative	1	20
HD-06	Green Farm Vegetable and fruit production company	1	-
	Sub Total	6	100
	Hung Yen		
HY-01	Trung Nghia agriculture service and trading cooperative	1	20
HY-02	Japan-Vietnam fruit and vegetable cooperative	1	20
HY-03	Nguyen Thi Thanh safe vegetable production team	1	20
HY-04	Yen Phu agriculture service cooperative	1	20
HY-05	Phu Thinh trading and safe vegetable cooperative	1	20

	Sub Total	5	100
	Total	19	300

Source: JICA Survey Team

(4) Preliminary survey (Pre-test)

In order to standardize the interview method among surveyors and to confirm the eligibility of survey format, a preliminary survey was carried out by JICA Project team together with surveyors.

(5) Group Interview Procedures

Prior to the interview survey, a notice was provided to the groups to bring relevant documents, such as;

- Registration certificate of organization
- Certificate of tax number (if any)
- Certificate of safe production area,
- Certificate of VietGAP, GlobalGAP and/or other certificate if any
- Contract documents with buyers
- Record books, and
- Cultivation calendar (if any)

The surveyors were advised to fill in the form according to the instruction provided by JICA Project team and also to take photographs of interviewees and relevant documents as evidences.

(6) Conduct individual interview with individual farmers

Prior to the interview survey, a notice was provided to the farmers to bring relevant documents, such as;

- record books, and
- cultivation calendar (if any)

The surveyors were advised to fill in the form according to the instruction provided by JICA Project team and also to take photographs of interviewees and relevant documents as evidences.

(7) Data aggregation and input in excel sheet

The surveyors were advised to review the questionnaire sheet again to check the form filled properly. They were also advised to input questionnaire information into the excel sheet provided by JICA Project team.

1.4 Survey Schedule

From 7- 11 November:

- Select candidate groups and individual farmers;
- Trial survey for 3 farmers/province, and finalize the questionnaire

From 14 November- 2 December:

- Conduct baseline survey
- Data input in excel sheet and send to Project office
- Checking of input data

From 5- 16 December:

- Data analysis
- Choose prospective target groups based on the survey results

From 18- 30 December:

- Visit the prospective target groups to verify the survey results and confirm the feasibility of pilot activities
- Reporting for Baseline Survey

1.5 Survey Items

Survey items are described as below.

Group interview:

- group outline (registration, name of representatives, number of members, etc.)
- facilities (washing place, trash can and collection and distribution space)
- agricultural production (crop name, production area and production volume)
- cultivation of safe crop (crop name, production area and production volume)
- attendance on agricultural extension and training about safe crop
- joint purchase (record of joint purchase, purchased material, etc.)
- joint sales (record of joint sales, name of crop sold, sale destination, etc.)

Individual interview:

- household information (numbers of family, income sources, etc.)
- farming situation (cultivation crop, planting record, selling price, etc.)
- cultivation situation of safe crop (cultivation crop, planted acreage, selling price, etc.)
- input material (use situation, procurement source, name, purchase price, et.)
- agricultural extension (attendance of training, training contents, etc.)
- agricultural distribution and marketing (Sale destination and sale methods etc.)
- acquisition method of market information
- agricultural financing (used financial institution and the present loan amount)
- women participation (roles of women in farming activity)
- ICT use (usage of smart phone and educational level of ICT)

The detailed survey items are described in Attachment 1 for Group questionnaires and in Attachment 2 for individual questionnaires.

CHAPTER 2 Survey Results

2.1 Group interview

(1) Group outline

General information of 19 candidate target groups such as registration type, membership, vegetable area and safe production area is identified as the table below.

Table 2.1.1 General Information of Candidate Target Groups

No.	Group Name	Type	Member ship	Vegetable area	Safe area
Ha Nam					
HN-N1	Phu Van agriculture product cooperative	Coop	11	1	1
HN-N2	Thanh Tuyen agriculture service cooperative	Coop	35	3	3
HN-N3	Ha Vi agriculture service cooperative	Coop	20	11.4	5
HN-N4	Cat Lai agriculture service cooperative	Coop	48	30	6
HN-N5	Trac Van agriculture service cooperative	Coop	40	23	5
HN-N6	Duc Huy service cooperative	Coop	12	5	5
HN-N7	Nguyen Van Hiep farmers group	FG	2	2.5	2.5
HN-N8	Tran Thị Lieu farmers group	FG	3	0.3	0.1
Hai Duong					
HD-N1	Tan Minh Duc agriculture service cooperative	Coop	168	27	27
HD-N2	Pham Kha agriculture service cooperative	Coop	200	25	25
HD-N3	Tam Ky agriculture service cooperative	Coop	28	25	25
HD-N4	Thanh Ha safe fruit and vegetable company	A Com	59	20	20
HD-N5	Duc Chinh Agriculture service cooperative	Coop	1,636	360	200
HD-N6	Green Farm Vegetable and fruit production company	A Com	2	1.8	1.8
Hung Yen					
HY-N1	Trung Nghia agriculture service and trading cooperative	Coop	62	10	10
HY-N2	Japan-Vietnam fruit and vegetable cooperative	A Com	5	1	1
HY-N3	Nguyen Thi Thanh safe vegetable production team	FG	8	0.7	0.7
HY-N4	Yen Phu agriculture service cooperative	Coop	197	15.5	15.5
HY-N5	Phu Thinh trading and safe vegetable cooperative	Coop	21	5	5

Source: JICA Survey Team

Remarks: Coop: Agriculture cooperative, FG: Farmers group, A Com: Agriculture company

Breakdown of registration types of 19 candidate target groups are;

- Agriculture Cooperative : 13
- Farmers Group : 3
- Agriculture Company : 3

Group sizes of agriculture cooperatives are relatively bigger (11-1,636 members) than the sizes of farmers groups and agriculture companies (2-59 members).

(2) Agricultural production

Main vegetables cultivated as safe vegetables are identified per province per season as the table below.

Table 2.1.2 Main Vegetables Cultivated Per Season

	Spring Season (Jan-May)	Summer Season (Jun-Oct)	Winter Season (Oct-Dec)
Ha Nam (n=8)	**tomato (3)** **malabar nightshade (3)** **mustard (2)** **cabbage (2)** **String bean (2)** **morning glory (2)** kohlrabi (1) cucumber (1) melon (1)	**mustard (5)** **String bean (3)** **malabar nightshade (3)** **morning glory (3)** **tomato (2)** gailum (1) jute (1) squash (1)	**cabbage (5)** **mustard (3)** **kohlrabi (3)** **tomato (2);** cucumber (1); radish (1); string bean (1)
Hai Duong (n=6)	**onion (2)** cabbage (1) mustard (1) kohlrabi (1) gailum (1) (Choysum) gourd melon (1)	**mustard (2)** **melon (2)** vegetable shrinkage (1) morning glory (1) garlic (1) coriander (1)	**cabbage (4)** **kohlrabi (4)** carrot (1); garlic (1); lettuce (1)
Hung Yen (n=5)	**kohlrabi (2)** **cabbage (2)** **mustard (2)** cucumber (1) gailum (1) morning glory (1)	**mustard (5)** **gailum (2)** **gourd (2)** malabar nightshade (1)	**kohlrabi (5)** **cabbage (3)** tomato (1) cucumber (1)
Total (n=19)	**Mustard (5)** **Cabbage (5)** **Kohlrabi (4)** **Tomato (3)** **Malabar nightshade (3)** **Morning glory (3)** **String bean (2)** **Cucumber (2)** **Onion (2)** **Gailum (2)** Melon (1) Gourd melon (1)	**Mustard (12)** **Malabar nightshade (4)** **Morning glory (4)** **String bean (3)** **Gailum (3)** **Tomato (2)** **Melon (2)** **Gourd (2)** Jute (1) Squash (1) Vegetable shrinkage (1) Garlic (1) Coriander (1)	**Cabbage (12)** **Kohlrabi (12)** **Mustard (3)** **Tomato (3)** **Cucumber (2)** Radish (1) String bean (1) Carrot (1) Garlic (1) Lettuce (1)

Source: JICA Survey Team

Remark: the number in closing parentheses () indicates the number/s of farmers groups which cultivate the subject vegetable. Each farmer group answered three main vegetables for each season.

In general, leafy vegetables such as cabbage, kohlrabi and mustard are cultivated by target groups compared with fruit vegetables (tomato, cucumber, etc.) and root vegetables (onion, carrot, etc.)

In winter season, target groups cultivate mainly two vegetables; cabbage (12 groups) and kohlrabi (12). Production area and volumes of those vegetables are assumed bigger than those of other vegetables. In summer season, mustard is cultivated by 12 groups as main vegetable followed by malabar nightshage (4) and morning glory (4). In spring season, in tern, vegetables cultivated vary among target groups, mustard (5), cabbage (5), kohlrabi (4).

(3) Cultivation of safe crop

Safety control practices by candidate target groups are identified as the table below.

Table 2.1.3 Safety Control Practices by Candidate Target Groups

Type	No. of certified group	Logo Holder	Record keeping	Pesticide Residue check	Soil and water check	Internal audit
Organic	2 *11%*	0 *0%*	2 *100%*	2 *100%*	2 *100%*	1 *50%*

VietGAP	8 *42%*	4 *50%*	4 *50%*	3 *38%*	4 *50%*	7 *88%*
Basic GAP	6 *32%*	3 *50%*	2 *33%*	3 *50%*	3 *50%*	5 *83%*
Safe crop area certified	18 *95%*	6 *33%*	7 *39%*	11 *61%*	12 *67%*	12 *67%*
Total groups	19 *100%*	7 *37%*	8 *42%*	12 *63%*	13 *68%*	13 *68%*

Source: JICA Survey Team

Regarding number of certified group, 18 groups (95%) receive certificates for safe crop production area issued by DARD. 8 groups (4%) hold certificates of VietGAP. 6 groups (32%) answered following basic GAP procedures and 2 groups (HN-N1: Phu Van and HN-N5: Trac Van) also answered following organic practices.

Regarding logo holder, 7 groups (37%) hold their own logos. Out of 8 VietGAP-certified groups, 4 groups (50%) has developed the logos to promote their safe vegetable sales.

Regarding record keeping, pesticide residue check and soil and water check, it is identified that limited groups practice safety control even in VietGAP-certified groups. Out of 8 VietGAP-certified groups, 4 groups (50%) answered they do not practice record keeping properly even though it is compulsory to do as certified group. Some of group leaders answered the reason not following VietGAP procedures as farmer groups were unable to find any buyer who buy safe vegetable from them and farmers were reluctant to do. On the other hand, a group which practice record keeping answered the internal inspector visit farmers to check the records regularly. How to regularize the practices is said one of major challenges in this project.

On the other hand, internal audit is organized well, especially by VietGAP-certified groups (7 groups, 88%) and basic GAP groups (5 groups, 83%). Though current conditions of internal audits should be carefully assessed, it is said that any kind of internal meeting seems organized regularly.

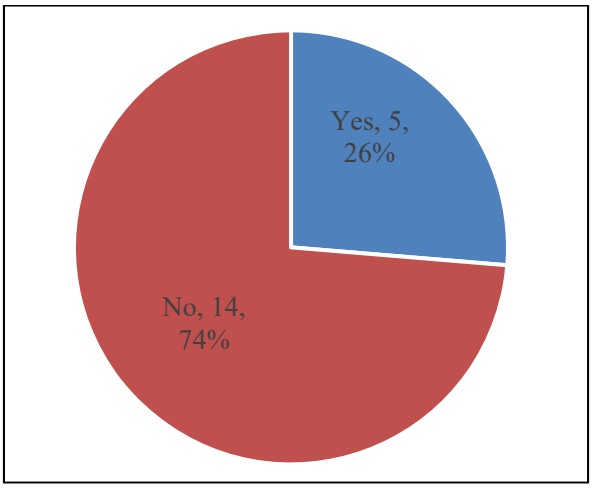


Figure 2.1.1 Practice of Cultivation Calendar

Cultivation calendar is a plan which includes information of fertilizer and agrichemical (ex. moment, amount, type to use). Regarding the practice of cultivation calendar, 5 groups (26%) out of 19 groups answered utilizing cultivation calendar. Out of 5 groups, 2 groups are agricultural companies (Thanh Ha and Green Farm) and 3 groups are cooperatives (Cat Lai, Trac Van and Duc Chinh).

(4) Facilities

Equipped facilities on candidate target groups are shown in table below.

Table 2.1.4 Equipped Facilities on Candidate Target Groups

Item	Total (n=19)
Garbage can	17 (89%)
Scale	14 (74%)
Washing space	13 (68%)
Warehouse	13 (68%)
Community house	13 (68%)

Source: JICA Survey Team

Out of 19 target groups, garbage can is equipped for 17 groups (89%), scale is for 14 groups (74%), washing space, warehouse and community house are for 13 groups (68%).

(5) Joint sales

Regarding the experiences of joint sales among 19 candidate target groups, 14 groups (74%) answered they have experiences of joint sales. All of 3 companies and all of 3 farmers groups have experiences, though 8 out of 13(62%) have in cooperative model.

Table 2.1.5 Experience of Joint Sales

Model	Experience of Joint sales
Cooperative (n=13)	8 (62%)
Company (n=3)	3 (100%)
Farmer Group (n=3)	3 (100%)
Total (n=19)	14 (74%)

Source: JICA Survey Team

Remarks: Two organic production groups answered their prices are 50% higher than the price of normal vegetable.

Regarding the price difference between safe vegetables and normal vegetables, the price of safe vegetable is average 18% higher than the price of normal vegetable.

Table 2.1.6 Price Difference between Safe Vegetable and Normal Vegetable

Model	Price Difference between Safe Vegetable and Normal Vegetable
Cooperative (n=13)	22% (0-50%)*
Company (n=3)	12% (5-20%)
Farmer Group (n=3)	15% (10-20%)
Total (n=19)	18% (0-50%)

Source: JICA Survey Team

Remarks: Two organic production groups answered their prices are 50% higher than the price of normal vegetable.

Especially, two organic production groups answered their prices are 50% higher than the price of normal vegetable. However, one cooperative (Duc Chinh) answered there was no price gap between safe and normal. One company (Thanh Ha) also answered the price gap was only 5% due to the competitive market environment. Thanh Ha company sells the vegetables to the canteens in industrial zones but buyers select suppliers through bidding.

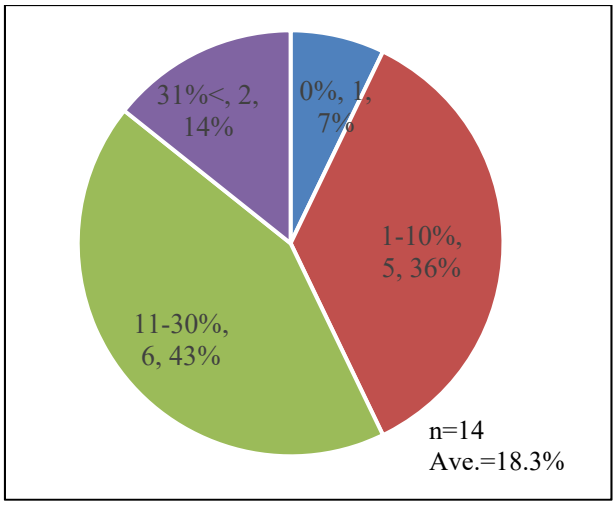


Figure 2.1.2 Price Difference between Safe Vegetable and Normal Vegetable

Type of agreement on joint sales are shown in the table below.

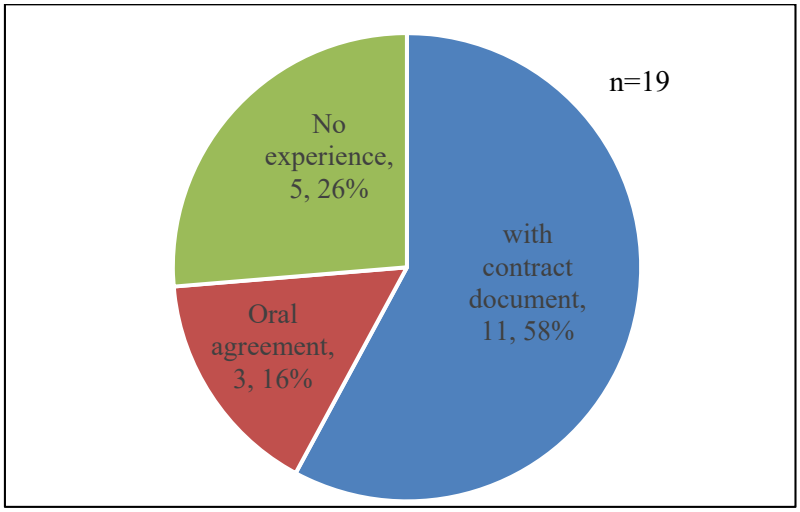


Figure 2.1.3 Type of Agreement on Join Sales

11 groups (58%) out of 19 groups answered they prepared a contract document for trade agreement, though 3 groups (16%) made agreement without document.

The distribution of buyers on joint sales are shown in the table below.

Table 2.1.7 Buyers of Joint Sales

	Collector	Wholesaler	Direct sale shop	Restaurant	Retail store (supermarket etc.)	others
With Contract document (n=11)	3	3	6	4	2	2*
Oral agreement (n=3)	2	2	2	2	2	0
Total (n=14)	5 (36%)	5 (36%)	8 (57%)	6 (43%)	4 (29%)	2 (14%)

Source: JICA Survey Team
Remark: Others = wholesale market

Out of 14 groups, 8 groups (57%) sell the vegetable to direct sale shop, followed by restaurant (6 groups, 43%), collector and wholesaler (5 groups, 36%) and retail store (4 groups, 29%).

The locations of hand-over the products to buyers are shown in the table below.

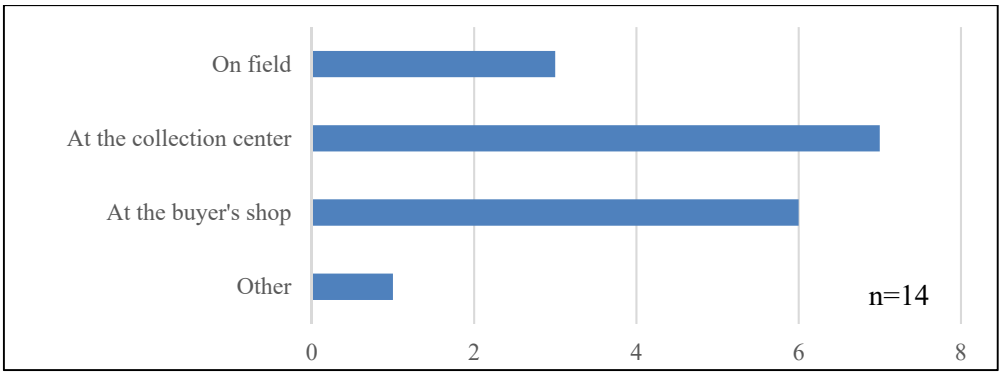


Figure 2.1.4 Location of hand-over the products

Out of 14 groups which have experiences of joint sales, 7 groups (50%) answered they handed over the products at the collection center in the commune. 6 groups (43%), in turn, hand over the products at the buyer's shop, which means the group transports the products. Only 3 groups (21%) answered they hand over the products on filed.

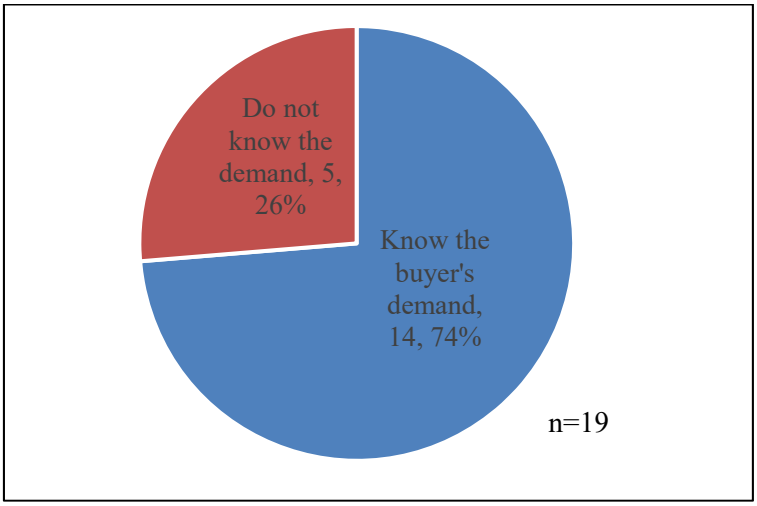


Figure 2.1.5 Recognition of buyer's demand

Regarding the recognition of buyer's demand, 14 groups (74%) out of 19 groups answered they knew the buyer's demand as they succeeded to practice joint sales.

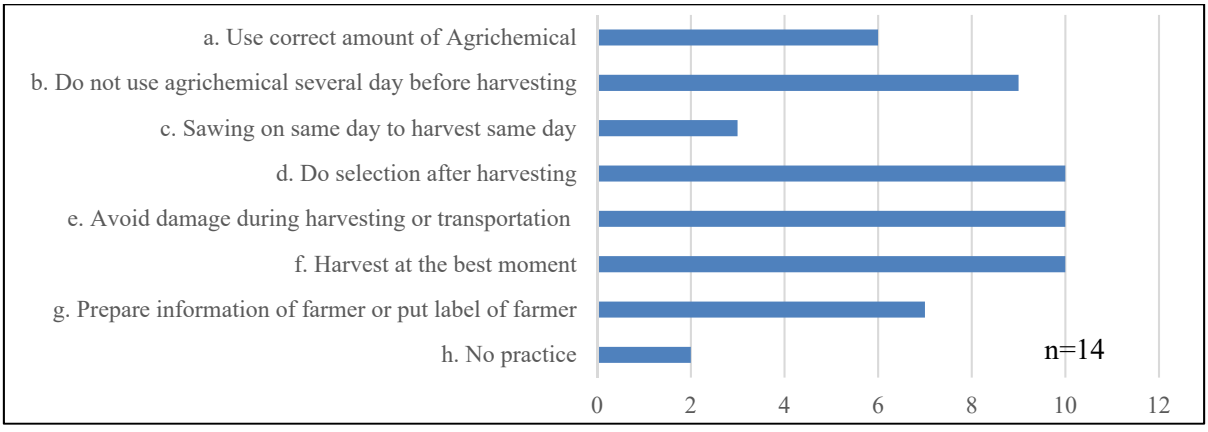


Figure 2.1.6 Farmers' practices to meet buyer's requirement

In order to meet the buyer's requirement, 10 groups (71%) out of 14 groups answered they practiced

"Selection/ sorting after harvesting", "avoid damage during harvesting and/or transportation" and "harvest at the best timing". 9 groups (64%) answered "not apply agro-chemicals before harvesting". However, the cultivation planning such as controlling of sawing timing is practiced by limited groups (3 groups, 21%).

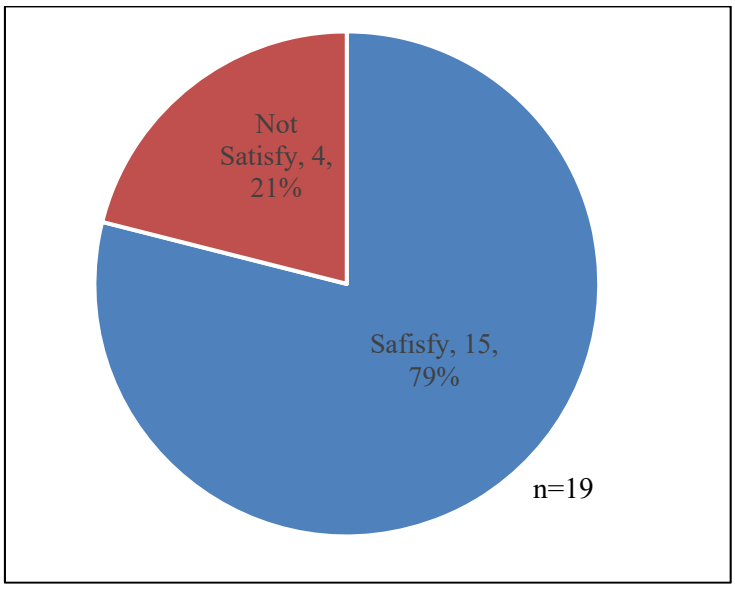


Figure 2.1.7 Satisfaction with Current Buyers

Regarding satisfaction with current buyers, 15 groups (79%) answered they were satisfied with current buyers though 4 groups were not. The main reasons of satisfaction are; "buy bigger amount" (14 groups, 93%), "keep promise" and pay quickly (12 groups, 80%), and "buy longer period" (11 groups, 73%). However, "pay higher price" (7 groups, 47%) is slightly minor compared with above reasons.

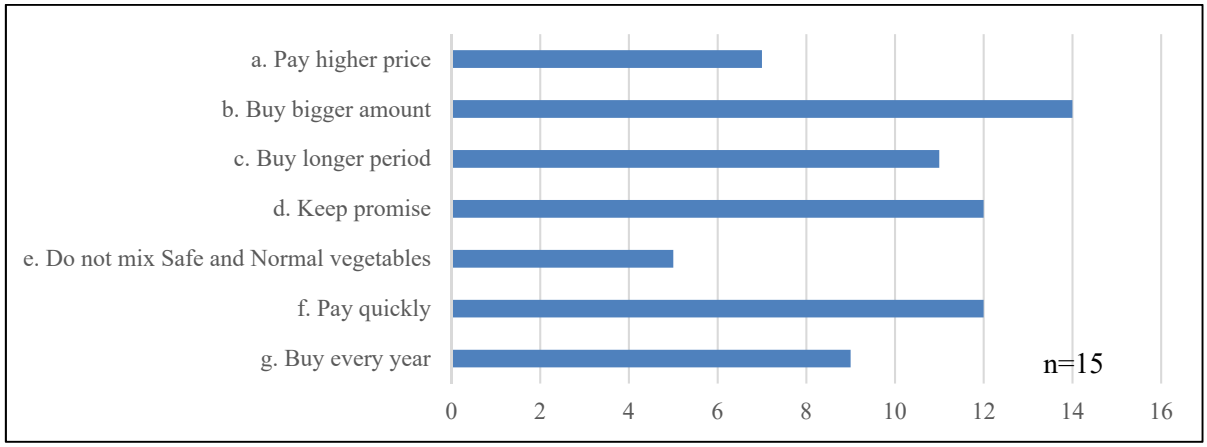


Figure 2.1.8 Reasons of Satisfaction with Current Buyers

The result of experiences on comparison of own vegetables with others are shown in table below.

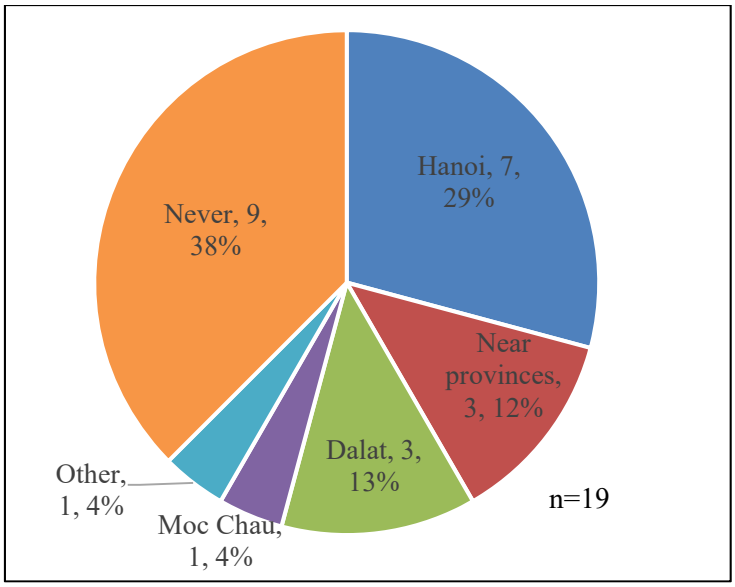


Figure 2.1.9 Experience of Comparison of Own Vegetable with Others Area's One

Main experience of comparison is "Never compared" (9 groups, 38%), followed by "Hanoi vegetables" (29%), "neighbor provinces' vegetables" (12%) and "dalat vegetables" (12%). Producers in three pilot provinces recognize the producers in Hanoi as the main competitors and/or good models to follow.

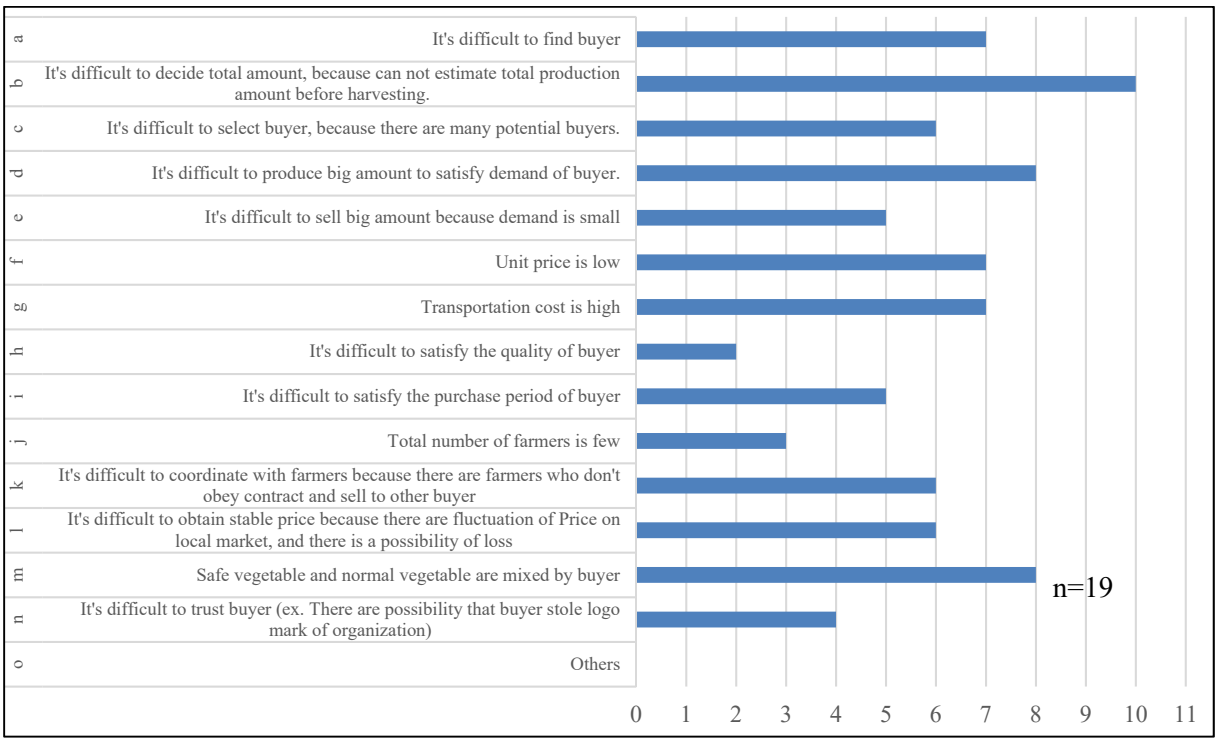


Figure 2.1.10 Problems on Joint Sales

Regarding the problems on joint sales varies among the groups. The major problem is "difficult to estimate the production volume before harvesting" (10 groups, 53%). One of the reasons is assumed disease and pest damages during the production stage, but another reason is supposed weakness of cultivation planning before planting. "Difficult to produce big amount to satisfy the buyer's demand" is the second major problem (8 groups, 42%). It is assumed that cooperatives face difficulties to coordinate among farmers to collect vegetables with required amount. Planning and coordination based on the attractive market demands are the key to encourage joint sales.

(6) Joint purchase

Regarding the experiences of joint purchase, 12 groups (63%) out of 19 groups have experiences. They purchased agriculture inputs such as organic fertilizer, chemical fertilizer, pesticide, seeds, etc. According to the survey, the groups succeed to purchase those inputs 4-7 % cheaper in average than the market price.

Table 2.1.8 Experiences of Joint Purchase

Model	Join purchase
Cooperative (n=13)	8 (62%)
Company (n=3)	2 (67%)
Farmer Group (n=3)	2 (67%)
Total (n=19)	12 (63%)

Source: JICA Survey Team

Regarding the problems on joint purchase, the major problem was “number of participating farmers are few” (5 groups, 42%), followed by “difficult to coordinate with supplier” and “high transportation cost” (3 groups, 25%).

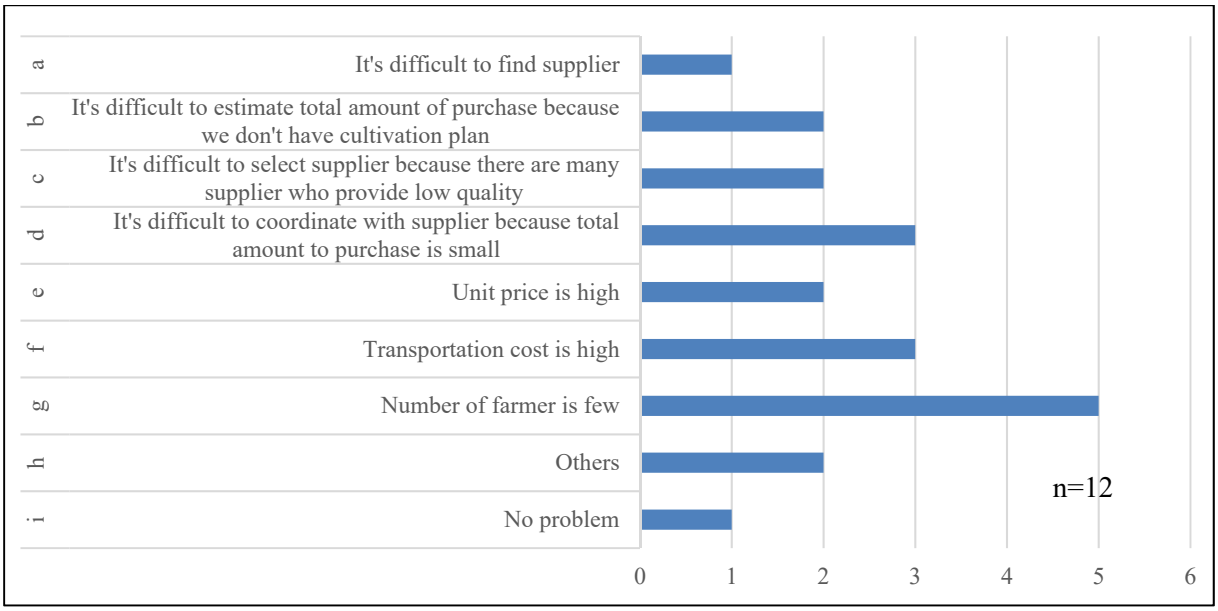


Figure 2.1.11 Problems on Joint Purchase

2.2 Individual farmers interview

(1) Household information

Table 2.2.1. Household information in three provinces

Household information	Province		
	Ha Nam	Hai Duong	Hung Yen
Number of family member (person)	3-4	4	4-5
Number of family member engaged in agriculture (person)	2-3	3	2-3
Average of farmer age (year old)	52	54	52
Main income sources	97% is full-time farmer	95% is full-time farmer	90% is full-time farmer

Source: JICA Survey Team

- There are 2-3 family members engaged in agriculture. They are old persons with the average age is about 52-54 year old
- From 90% to 97% of farmers answer main income from working as full-time farmer.

(2) Cultivation situation

Table 2.2.2. Cultivation situation

Farming situation	Province		
	Ha Nam	Hai Duong	Hung Yen
Agriculture land area (m^2)	2071	3615	2558
Vegetable cultivation area (m^2)	1678	7398	9574
Total vegetable production (in average/household, kg)	2984	25510	9122
selling price (in average/ VND/kg)	7835	4656	3880
Vegetable production income (in average/household, VND)	25,471,363	147,747,209	46,937,950
Planting record	- 21% farmer keep planting record	- 22% farmer keep planting record	- 10% farmer keep planting record

Source: JICA Survey Team

- In average, a household own 2071(m2) agriculture land in Ha Nam; 3615 (m2) in Hai Duong; and 2558 (m2) in Hai Hung Yen
- Hai Duong produces biggest vegetable production. In average, a household produce 25510 kg/ year; Hung Yen is 9122 kg/ year; Ha Nam is 2984 kg/ year.
- Farmers in Ha Nam sell vegetable at highest price, in average of 7,835 VND/kg. Meanwhile, farmers in Hai Duong sell at price is 4,656 VND/kg; Hung Yen is 4,692 VND/kg. The reasons for Ha Nam can sell at high price is there are two organic cooperatives where the farmer sell organic vegetable 42% higher than normal vegetable (in average).
- Hai Duong has highest agricultural income (in average/household) is 147,747,209 VND/ year; Hung Yen is 56,793,416 VND/ year; Ha Nam is 25,471,363 VND/year.
- There are 02 groups having organic certification, 08 groups having VietGAP certification, and 06 groups applying basic GAP. All organic production, basic GAP and especially VietGAP standards require planting record. However, there is a low percentage of farmers keep planting record. It accounts for 10-21% of farmers. Hung Yen is lowest percentage (10%) of farmers who keep planting record.

(3) Main vegetables

Table 2.2.3. Statistic of frequency vegetables grown in each province

Ha Nam		**Hai Duong**		**Hung Yen**	
Vegetable	**Frequency**	**Vegetable**	**Frequency**	**Vegetable**	**Frequency**
Spring Season (Jan-May)					
mustard	25	coriander	30	mustard	37
malabar nightshade	17	onion	21	onion	22
tomato	13	galic	20	gailum	17
bean	12	lettuce	20	coriander	12
gailum	11	pear-shaped melon	20	cucumber	8
morning glory	11	melon	19	morning glory	6
vegetable shrinkage	10	morning glory	10	gourd	5
cabbage	6	mustard	9	cabbage	4
kohlrabi	6	gailum	4	malabar nightshade	2
Summer- Autumn (Jun-Oct)					
mustard	19	coriander	30	mustard	39
malabar nightshade	17	lettuce	25	onion	22
cabbage	15	kohlrabi	25	gailum	16
morning glory	13	leek	22	tomato	13
tomato	12	Onion	21	cabbage	11
gailum	11	mustard	18	cucumber	5

kohlrabi	10	cabbage	18	morning glory	5
bean	9	melon	15	kohlrabi	5
cucumber	3	pear-shaped melon	15	gourd	5
Winter Season (Oct-Dec)					
kohlrabi	44	coriander	30	cabbage	50
cabbage	42	kohlrabi	27	kohlrabi	49
tomato	29	lettuce	25	mustard	47
mustard	24	cabbage	24	onion	22
bean	16	leek	22	tomato	16
malabar nightshade	13	spring onion	21	coriander	12
gailum	13	carrot	20	cucumber	8
cucumber	7	mustard	18	gourd	4
morning glory	7	morning glory	7	morning glory	4

Source: JICA Survey Team

- In Spring Season (Jan-May), most of farmers in Ha Nam, Hai Duong and Hung Yen grow leafy vegetable such as mustard, gailum, lettuce, malabar nightshade, morning glory. In Ha Nam, main vegetables grown by farmers are mustard (25 answers), malabar nightshade (17), tomato (13), and bean (12). In Hai Duong, main vegetables grown by farmers in spring season are coriander (30 answers), onion (21), galic (22), and lettuce (20. In Hung Yen, main vegetables grown by farmers are mustard (37 answers), onion (22), gailum (17), and coriander (12).
- Summer- Autumn Season (Jun-Oct: farmers in Ha Nam, grow mainly temperature and tropical leafy vegetables such as mustard, malabar nightshade, morning glory. In Hai Duong, main vegetables grown by farmers in Summer- Autumn Season are coriander (30 answers), onion (21), lettuce (25), and galic (22). In Hung Yen, main vegetables grown by farmers are mustard (39 answers), onion (22), gailum (16), and tomato (13).
- In Winter, season, cabbage, kohlrabi, and temperature leafy vegetables (mustard, gailum, and lettuce) are main vegetables grown in all three provinces. Especially, carrot is special vegetable in Duc Chinh cooperative in Winter season.

(4) Agricultural extension (attendance of training courses, source of trainers)

Table 2.2.4. Agricultural extension

Agricultural extension		Province		
		Ha Nam	Hai Duong	Hung Yen
Attendance of training		96%	98%	66%
Training contents (% farmers)	Protection from disease, insect	73%	80%	46%
	Cultivation method	76%	98%	64%
	GAP method	56%	88%	52%
	Marketing	21%	25%	14%
	Method to protect health of farmer	49%	78%	20%
	Management of capital organization/ group/ company	7%	0%	1%
	Management of organization/ group/ company	2%	17%	0
Source of trainer (%)	Government like DARD, Province	95	97	65
	International cooperation agency	16	20	17
	Agrichemical company	16	78	35
	Fertilizer company	25	77	32
	Seed company	27	82	27
	Material supplier	3	44	1
	Buyer	2	3	0

Source: JICA Survey Team

- Almost all farmers in Ha Nam and Hai Duong provinces received any kind of training on protection from disease, insect and cultivation method. However, only 66% of farmers in Hung Yen received any kind of training.

- 88% of farmer in Hai Duong received training on GAP; meanwhile, Ha Nam is 56%, and Hung Yen is 52% of farmers received training on GAP
- A low number of farmers participated on marketing training. It is about 14%-25% farmers in three provinces.
- Almost all training courses were provided by Government organizations (DARD, District extension centers)
- In Hai Duong, private agricultural input companies (agrichemical company, fertilizer company, seed company) provided cultivation techniques related to agricultural input application for almost farmers (from 77-82% farmers).

(5) Status of safe vegetable sales

Table 2.2.5. Status of safe vegetable sales

Safe Vegetable Sales	Province		
	Ha Nam	Hai Duong	Hung Yen
Sales through Join Selling (%)	23.5	38.1	11.0
Individual sales (%)	76.5	61.9	88.0
Price gap between safe vegetable and normal one (%)	18.3%*1 42%*2	17.6	15.0

Source: JICA Survey Team

Remarks: *1 general safe vegetables, *2 Organic vegetables

- A low percentage of vegetable production sell through Joint Sell (sell vegetable as group) in all three provinces. In average, 23.5% of vegetable production sell through Joint Sell in Ha Nam; Hai Duong is 38.1%, and Hung Yen is 11%.
- Average price gap between safe vegetable and normal vegetable are around 15.0 – 18.3% (Ave. 17%). Organic vegetables in two organic vegetable cooperatives in Ha Nam are sold 42% higher than normal ones.

(6) Agricultural distribution and marketing (Sale destination and sale methods)

Table 2.2.6. Distribution and markets

Distribution and Markets	Province		
	Ha Nam	Hai Duong	Hung Yen
Collector (% farmer sell to)	41	62	71
Wholesale market (% farmer sell to)	25	10	15
Restaurant (% farmer sell to)	5	0	0
Retail store (% farmer sell to)	29	0	19
Others (%)	6	20*1	

Source: JICA Survey Team

Remarks: *1 farmers sell to Thanh Ha safe vegetable company

- High number of farmer sell their product to collectors (71% in Hung Yen; 62% in Hai Duong, and 41% in Ha Nam)
- Percentage of farmer sell at wholesale market is 25% in Ha Nam; 10% in Hai Duong, and 15% in Hung Yen
- Percentage of farmer sell to Retail store is 29% in Ha Nam; 19% in Hung Yen; meanwhile in Hai Duong is 0%.

(7) Satisfied to buyers (In case of individual sell)

Table 2.2.7. Satisfied to buyers

Satisfactory with buyers		Province		
		Ha Nam	Hai Duong	Hung Yen
Percentage of farmer satisfied to buyers (%)		91	100	82
What is the reason for farmer satisfied to buyers	They can pay higher price	39	16	15
	They can buy big amount	58	97	55
	They can receive products during	52	55	17

(% farmers)	long period			
	They keep promise (Price, Amount, Quality)	31	81	13
	They don't mix Safe vegetable and Normal vegetable	14	6	10
	They can pay quickly	72	100	78
	They can buy every year	37	66	40

Source: JICA Survey Team

- High percentage of farmer satisfied to buyers (Ha Nam is 91%; Hai Duong, 100%, and Hung Yen is 82%.
- Farmers pay attention on satisfied to buyers with selling of big amount, quick payment, and keep promise in buying with condition (price, amount, and quality).

(8) Problem for Joint Selling

Table 2.2.8. The problem for Join Selling

Items	Province		
	Ha Nam	Hai Duong	Hung Yen
Price is low	49	12	15
Demand is limited	22	31	26
Information of buyer is limited	19	22	4
Spend time to coordination with buyer	19	16	5
Spend time to coordination with member of producers	21	18	4

Source: JICA Survey Team

- Individual farmers put attention more on regular trading (individual sell).
- Famers do not satisfied to Join Selling because of low price, limited demand, limited Information of buyer and spending time to coordination with buyer.

(9) Acquisition method of market information

Table 2.2.9. Acquisition method of market information

Acquisition method of market information		Province		
		Ha Nam	Hai Duong	Hung Yen
know the demand of buyer (% farmer know)		62	42	60
Which information about demand (% farmers)	Type of vegetable	57	29	58
	Quality	57	36	41
	Amount	37	37	46
	Period of time to sell	18	13	4
	Safety	39	10	21

Source: JICA Survey Team

- About 62% farmers in Ha Nam know demand of buyer; in Hai Duong is 42%; and there is 60% farmers in Hung Yen know demand of buyer. The demand of buyer are type of vegetables; quality, safety, amount and period to sell.

(10) Agricultural financing (used financial institution and the present loan amount)

Table 2.2.10. Agricultural financing

Agricultural financing		Province		
		Ha Nam	Hai Duong	Hung Yen
Used financial institution		22% farmer use loan service	15% farmer use loan service	7% farmer use loan service
Loan from Agricultural Bank	% of farmers	8	8	2
	mount of loan (VND)	25,625,000	60,555,556	32,500,000
Loan from Social Policy Bank	% of farmers	14	5	2
	Amount of loan (VND)	16,514,285	35,600,000	67,500,000

Loan from Agricultural Cooperative	% of farmers	-	-	-
	Amount of loan (VND)	-	-	-
Family/ Friend	% of farmers		2	
	Amount of loan (VND)	-	30,000,000	-

Source: JICA Survey Team

- Few farmers use agricultural financing; 22% farmer use loan service in Ha Nam; 15% farmer in Hai Duong, and in Hung Yen only 7% farmer use loan service.
- The farmers get loan from Agricultural Bank and Social Policy Bank. One farmer can loan from 15,000,000 VND to 60,000,000 VND (in average).

(11) ICT use (usage of smart phone and educational level of ICT)

Table 2.2.11. Status of ICT use

ICT use		Province		
		Ha Nam	Hai Duong	Hung Yen
Percentage of farmer usage of smart phone (%)		6	10	7
Percentage of farmer receive training ICT	Have received the training (%)	2	40	1
	Have not (%)	98	60	99

Source: JICA Survey Team

- A few farmers have smart phone (6% farmer in Ha Nam usage of smart phone; in Hai Dung is 10% and 7% of Hung Yen)

(12) Women participation (roles of women in farming activity)

Table 2.2.12. Roles of women in farming activity

Roles of women in farming activity	Province		
	Ha Nam	Hai Duong	Hung Yen
Percentage of female in family decides grow vegetables (%)	76	43	61
Percentage of female in family decide to send member of family to attend training (%)	80	62	60

Source: JICA Survey Team

- Women in family are at least equal or nominated with men in decision of grow vegetables and make decision to send member of family attending training

CHAPTER 3 Key Findings and Implications for Pilot Project

3.1 Key Findings

- Group size is rather big in old style cooperative (commune cooperative) compared with new established cooperatives, agri. company and farmers group.
- Young generations are rare in field
- Average agriculture land area per farmer is around 2,100 – 3,600m2.
- Vegetable cultivation area is more in Hai Duong (7,400m2) than in others.
- Target groups cultivate leafy vegetables especially in winter, compared with fruit and rood vegetables.
- Recording is not practiced well even in VietGAP groups. How to regularize such practices is one of major challenges.
- Safe vegetable is recognized as a valuable product in the market
- Participation of joint sales is low in Ha Nam and Hung Yen, because of low price, limited demand and coordination problems.
- As individual sales, farmers mainly sell to collectors.
- Farmers put attention more on regular trading and high percentage of farmer satisfied to buyers (Ha Nam is 91%; Hai Duong, 100%, and Hung Yen is 82%.
- Farmers pay attention on satisfied to buyers (In case of individual sell) with selling of big amount, quick payment, and keep promise in buying with condition (Price, Amount, Quality).
- Famers do not satisfied to Join Selling because of low price, limited demand, limited Information of buyer and spending time to coordination with buyer.
- Creation of new market channel is the challenge internally and externally
- Most of farmers have experiences to receive any kind of training.
- Most of trainings received focus on production side, marketing training is provided to limited farmers.
- Private companies are providing trainings actively in Hai Duong.
- 7-22% of farmers access to financial institutions, mainly agricultural bank and social policy bank.
- Smart phone holders in interviewees are limited (6-10%), spending VND 13,000 – 15,000/month in average.

3.2 Implications for Pilot Project

(1) Selection criteria of target groups/ farmers

- Target groups/farmers can be selected based on the criteria shown in R/D, but the generation of farmers should be also considered for sustainability.

(2) Target crops

- Candidate groups cultivate leafy vegetables mainly as safe vegetable. However, root and fruit vegetables such as carrot, water melon and tomato are also to be considered as potential crops to achieve higher value addition.

(3) Re-activation of GAP

- Even the groups holding VietGAP certificate are not practicing record keeping and pesticide residue check. Crop production system in pilot project put more focus on monitoring regular activities based on basic GAP.

(4) Creation of new market channel

- Coordination among farmers and buyers are the key issues when farmers start something new. Willingness of farmer makes change.

(5) Awareness of basic GAP

- "basic GAP" is not still familiarized by stakeholders. Effective awareness program of basic GAP to farmers/ buyers/ consumers should be conducted connected with communication activities.

PART II: Gender Survey

CHAPTER 1 Background

1.1 Objective

- To confirm roles and responsibilities of male and female in production safe vegetables
- To clarify the problems in order to give the equal opportunity of attending trainings to male and female

1.2 Methodology

The survey was conducted in the pilot provinces; Hung Yen, Ha Nam and Hai Duong Provinces. The selection criteria of the sample interviewees were as follows;

- A farmer who belongs to the cooperatives/ farmers group nominated by the Government as the candidate target groups for the project
- A farmer who is over 20 years old.
- A farmer who is interested in safe crop productions

The number of samples is maintained to consider gender balance as shown in the table below.

Table 1.2.1 Number of samples of each pilot provinces

	Hung Yen	Ha Nam	Hai Duong	Total
Male	6	4	6	16
Female	6	8	6	20
Total	12	12	12	36

Source: JICA Survey Team

In order to collect both quantitative and qualitative information, the survey was conducted in one-on-one interview with the questionnaire (see Attachment 1).

1.3 Survey Item

The survey items are as below.

- Roles and responsibilities on farm works and house works
- Participation of community meeting
- Daily activities
- Decision making (access and control)
- Participation of gender training
- Participation of agricultural extension training
- Access to marketing information

In general, women engage in house work. It is very essential of women's participation on decision making of agriculture activities in order to promote safe vegetable production. However, women in village are said generally not involved in such decision making since they have housework and other business besides farming activities.

These question items are selected in order to grasp present condition of women's participation in activities.

1.4 Survey Schedule

The field survey and data analysis were conducted from November to December 2016.

CHAPTER 2 Survey Result

2.1 Basic information

(1) Age distribution of interviewees

First sample was tried to gather same number of young generation (less than 40 years old) and old generation (more than 40 years old) but that was really difficult. Young generation sample were one third of old generation. Within the old generation 50's is most, whose children is already graduate their school and still have physical power.

Table 2.1.1 Number of samples of each age and gender

		Hung Yen	Ha Nam	Hai Duong	Total
Male	~40	3	1	1	5
	~50	0	1	0	1
	~60	3	1	4	8
	61~	0	1	1	2
	Total	6	4	6	16
Female	~40	3	3	1	7
	~50	3	2	2	7
	~60	0	3	3	6
	61~	0	0	0	0
	Total	6	8	6	20
Total		12	12	12	36

Source: JICA Survey Team

(2) Involvement in Agriculture

86% of all interviewee are full time farmers. Other jobs of part time farmers are cooperative staffs, small shop managers.

Table 2.1.2 Involvement of farming of samples

Involvement of farming	Gender	Total	
Full time	Male	14(88%)	31(86%)
	Female	17(85%)	
Part time	Male	2(12%)	5(14%)
	Female	3(15%)	
Total	Male	16(100%)	36(100%)
	Female	20(100%)	

Source: JICA Survey Team

(3) Education

Almost all interviewee is educated more than 5years and they can write and read. 2 men graduate agriculture collage/ university and conduct farming.

Table 2.1.3 Education level of samples

Education level	Gender	Total	
Class1-5	Male	0 (0%)	2 (6%)
	Female	2 (10%)	
Class6-9	Male	11 (69%)	23 (64%)
	Female	12 (60%)	
Class10-12	Male	3 (19%)	9 (25%)
	Female	6 (30%)	
Collage/ University	Male	2 (13%)	2 (6%)
	Female	0 (0%)	

Total	Male	16 (100%)	36 (100%)
	Female	20 (100%)	

Source: JICA Survey Team

(4) Land and house ownership and Inheritance

72% ownership of Land and 67% ownership of house are shared by husbands and wives.

Table 2.1.4 Ownership of land and house

Ownership	Land	House
Male	3(8%)	8 (22%)
Female	4 (11%)	4 (11%)
Share	26 (72%)	24 (67%)
Not own (Rent)	3 (8%)	0 (0%)
Total	36 (100%)	36 (100%)

Source: JICA Survey Team

(5) Experience to attend community meeting

All interviewees attend at meetings at least one meeting. Frequency of attending meeting is not so difference between male and female.

For male all interviewees attend village meetings and for female all interviewees attend women's union meetings.

Role of attending meeting is not fixed female or male. Attendance of the meeting will be decided by the contents of meeting and based on discussion between husband and wife.

Table 2.1.5 Attendance proportion and frequency to meetings

Meeting	Gender	Number of participant	Total
Village Meeting	Male	16 (100%)	32
	Female	16 (80%)	
Women's Union	Male	5 (31%)	25
	Female	20 (100%)	
farmers Meeting	Male	13 (81%)	27
	Female	14 (70%)	
Others	Male	2 (13%)*1	3
	Female	1 (5%)*2	
Frequency (times/year)	Male	5.9	
	Female	5.5	

Source: JICA Survey Team

Remarks: *1 Army Service, *2 Red cross.

2.2 Roles and responsibility

(1) On Farm Work

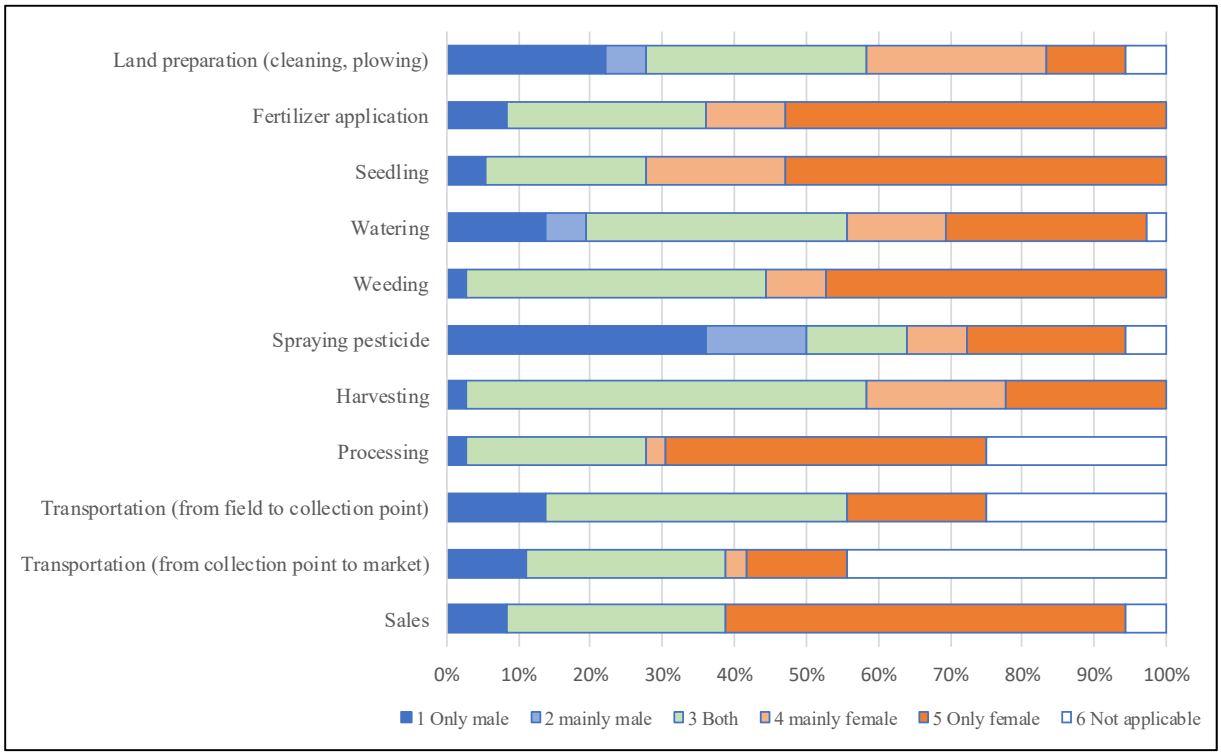
Table 2.2.1 and Figure 2.2.1 show Roles and responsibilities on farm work

Table 2.2.1 Roles and responsibilities on farm work

	1	2	3	4	5	6
Land preparation (cleaning, plowing)	8	2	11	9	4	2
Fertilizer application	3	0	10	4	19	0
Seedling	2	0	8	7	19	0
Watering	5	2	13	5	10	1
Weeding	1	0	15	3	17	0
Spraying pesticide	13	5	5	3	8	2
Harvesting	1	0	20	7	8	0
Processing	1	0	9	1	16	9
Transportation (from field to collection point)	5	0	15	0	7	9
Transportation (from collection point to market)	4	0	10	1	5	16
Sales	3	0	11	0	20	2

Source: JICA Survey Team

Remarks: 1 Only male, 2 mainly male, 3 Both, 4 mainly female, 5 Only female, 6 Not applicable
Numbers of Samples are 16 for male and 20 for female.



Source: JICA Survey Team

Figure 2.2.1 Roles and responsibilities on farm work

Including the “activity conducted by mainly male” females engaged almost all activities of farm work. Especially for fertilizer application, seeding, weeding, processing, sales percentage of being conducted by only female is high. Some interviewees answered that females are good at seeding, weeding and processing because they are good with their hands. Also females are more suitable for sales than males because customers of shops are mainly females.

But many activities are conducted by both of males and females, especially for harvesting, weeding and transportation (from field to collection point) percentage of being conducted by both of males and females is high (more than 40%).

On the other hand, for Land preparation, spraying pesticide percentage of being conducted by only male

and mainly male is high. Especially for spraying pesticide, percentage of being conducted by only male and mainly male is 50%. Some interviewees answered that if possible pesticide spraying should be conducted by males because of preventing health harm of women from pesticide. Among them it was considered that it is possible that spraying pesticide will be a bad influence on female who is pregnant and breast-feeding. Also it was considered that women' skin is weaker than men's one so women are keenly influenced by pesticide. But females who conducted all farming activity without husband's help have to splay pesticide by themselves. Among them there is woman who knows that pesticide does not harm health as long as they conduct with proper usage.

Some interviewees answered that some farm works are replacing by machine. For land preparation, there are customer service for preparation land with for profit in some area. For watering, in areas where irrigation system such as ditch, sprinkler and drip irrigation system are installed farmers don't have to conduct watering. Such technology really helps for reduction of farm work. In such area farmer don't watering work. Such effective usage of service and technology helps for reduction of farm work. Accordingly, such technology and service usage leads to reduction of female's work amount.

In some area, collectors conduct processing and transportation. In such area, farmers can sell their product at their field without any processing. Such a new distribution also helps for reduction of farm work and female's work amount.

(2) On House and Social Works

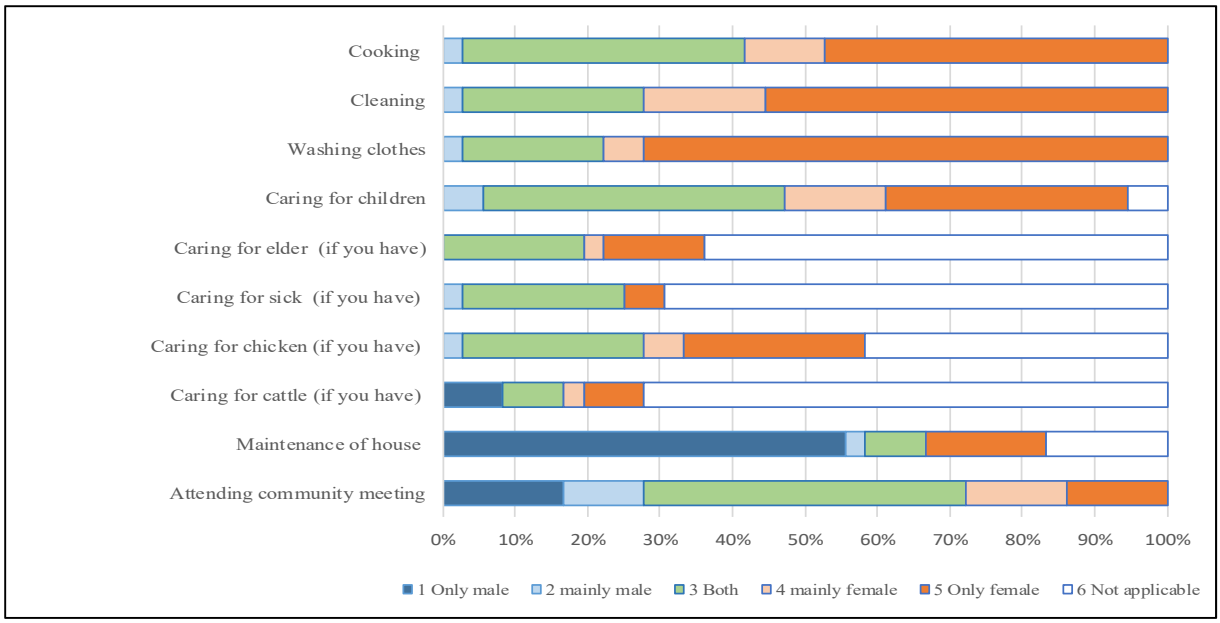
Table 2.2.2 and Figure 2.2.2 show Roles and responsibilities on house and social work.

Table 2.2.2 Roles and responsibilities on house work

	1	2	3	4	5	6
Cooking	0	1	14	4	17	0
Cleaning	0	1	9	6	20	0
Washing clothes	0	1	7	2	26	0
Caring for children	0	2	15	5	12	2
Caring for elder	0	0	7	1	5	23
Caring for sick	0	1	8	0	2	25
Caring for chicken	0	1	9	2	9	15
Caring for cattle	3	0	3	1	3	26
Maintenance of house	20	1	3	0	6	6
Attending community meeting	6	4	16	5	5	0

Source: JICA Survey Team

Remarks: 1 Only male, 2 mainly male, 3 Both, 4 mainly female, 5 Only female, 6 Not applicable
Numbers of Samples are 16 for male and 20 for female.



Source: JICA Survey Team

Figure 2.2.2 Roles and responsibilities on house and social work

Including the "activity conducted by mainly male" females engaged almost all activities of house work too. Especially for Cooking, Cleaning and Washing clothes, percentage of being conducted by only female is more than 45%.

For maintenance of house, percentage of being conducted by only male is high (more than 55%).

Both women and men attend meetings.

2.3 Daily activity profile

Table 2.3.1 shows daily schedule of farming season. In off season, lunch time is longer than it in farming season but almost all daily schedule is same as farming season. There is not so much difference between female daily schedule and male one. Almost all interviewers have farm work whole years. some interviewer answered that they don't go to the field only in rainy day. Also some interviewer answered they are busy for shipping and preparation of shipping in morning time and evening time. So it is suitable to conduct training from 10am to 4pm.

Table 2.3.1 Daily activity profile

Time	Schedule
4:00~5:00	Wake up
6:00	Go to the field, go to markets, hand over the product to collectors, taking care of children
7:00	
8:00	
9:00	Having breakfast, cleaning house, cooking food, taking care of cattle
10:00	
11:00	Having lunch, Taking nap
12:00	
13:00	
14:00	
15:00	Go to the field, prepare for shipping hand over the product to collectors
16:00	
17:00	
18:00	Cooking food, having meal
19:00	Washing clothes, Chat with neighbors, taking care of children
20:00	

Time	Schedule
21:00~22:00	Sleep

Source: JICA Survey Team

2.4 Decision Making (Access and Control)

Access is defined to use some resources and control is to decide how to use the resources. For example, attendance of a training, access means to attend the training actually and control means to make decision who should attend the training.

Tables 2.4.1 and 2.4.2 and Figures 2.4.1 and 2.4.2 show results of access and control of resources.

Table 2.4.1 Access of resources

	1	2	3	4	5	6
Farm land	2	1	23	0	7	3
Farming tools	1	1	22	0	9	3
Fertilizer	2	2	8	1	19	4
Pesticide	11	1	8	0	11	5
Cattle	1	1	3	0	3	28
Chicken	0	0	4	2	10	20
Products selling	3	1	14	0	15	3
House expenditure	0	1	17	1	13	4
Training	1	2	13	2	15	3
Finance	12	0	13	0	1	10

Source: JICA Survey Team

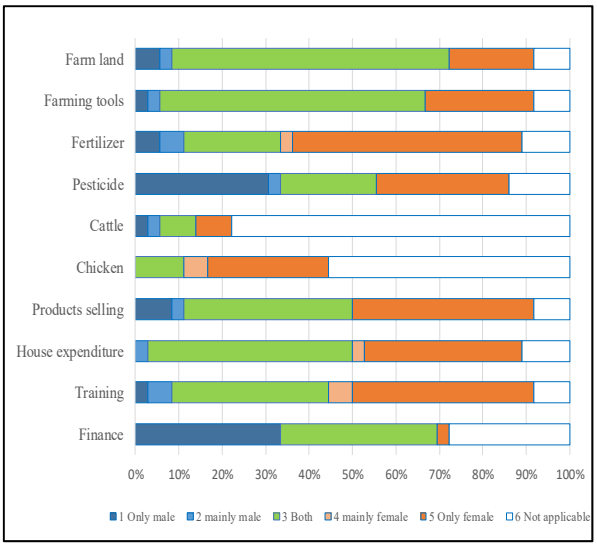
Remarks: 1 Only male, 2 mainly male, 3 Both, 4 mainly female, 5 Only female, 6 Not applicable
Numbers of Samples are 16 for male and 20 for female.

Table 2.4.2 Control of resources

	1	2	3	4	5	6
Farm land	7	1	13	1	11	3
Farming tools	5	0	18	1	9	3
Fertilizer	7	1	4	2	18	4
Pesticide	10	1	7	0	13	5
Cattle	3	1	4	0	0	28
Chicken	2	0	5	3	7	19
Products selling	5	0	11	1	16	3
House expenditure	4	1	13	3	12	3
Training	4	2	13	2	12	3
Finance	9	2	14	0	1	10

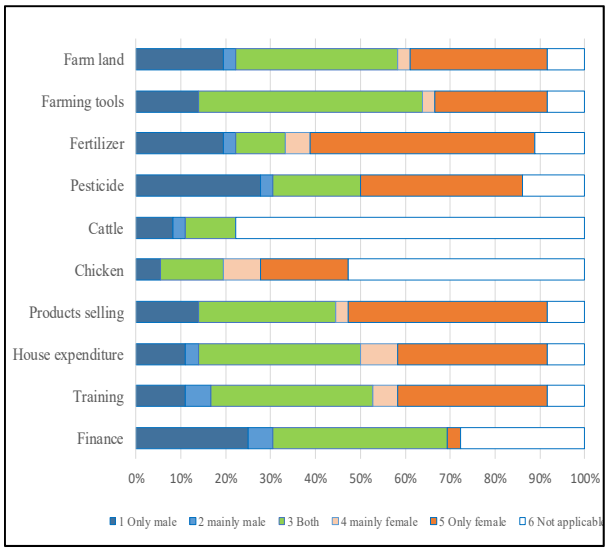
Source: JICA Survey Team

Remarks: 1 Only male, 2 mainly male, 3 Both, 4 mainly female, 5 Only female, 6 Not applicable
Numbers of Samples are 16 for male and 20 for female.



Source: JICA Survey Team

Figure 2.4.1 Access of Resources



Source: JICA Survey Team

Figure 2.4.2 Control of Resources

On access of farmland, farming tools and house expenditure, percentages of access by "both" male and female are highest, about 45-65%. On access of pesticide and finance, percentages of access by "only male" are higher than the percentages in other resources. Access to financial institutions seems requiring the attendance of males. Other than the above resources, percentages of access by "only female" are higher than both and only male, especially fertilizer and chicken are mainly maintained by female.

Control of resources has similar symptom with access of resources, but the percentage of "only male" of each resource is higher than the one in access except for pesticide and finance, which means decision making by male to access each resources relatively higher than the actual access of male. However, decision making by "only female" in each resource is higher than by "only male" except for cattle and finance. At least, the result says that females are actively participating in control of resources by "only female" or "both".

2.5 Gender training

Objective of the gender training is to mainstream gender issues. The general contents of the gender training includes; family plan, family violence, woman's health (reproductive health), food security and other relevant family issues. In Vietnam, the gender training is normally conducted by Women's Union and/or public organizations.

Table 2.5.1 Experience of Attendance to Gender Training

Gender	Attended	Never	Total
Male	5	11	16
Female	15	5	20
Total	20	16	36

Source: JICA Survey Team

According to the interview result, 75% of female (15/20) and 31% of male (5/16) answered that they had an experience to attend any gender training.

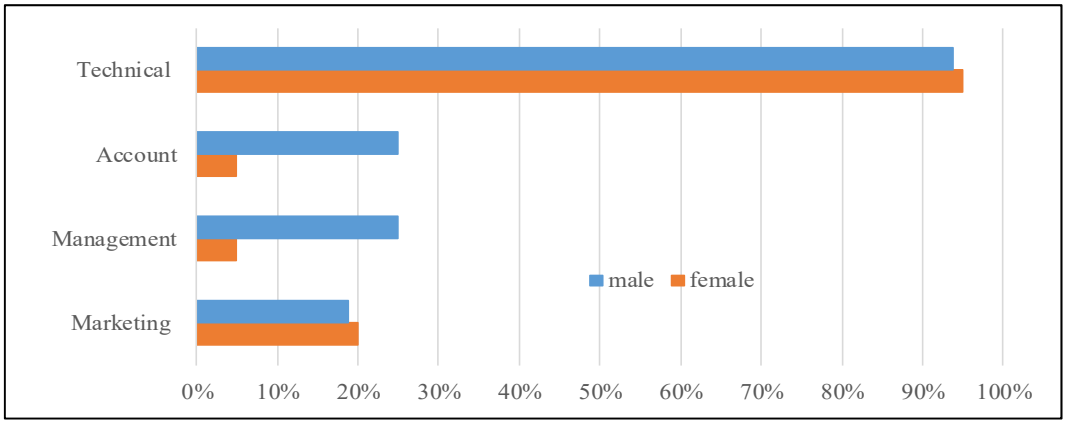
2.6 Agricultural Services

Table 2.6.1 and Figure 2.6.1 show experience of attendance to agricultural trainings.

Table 2.6.1 Experience of Attendance to Agricultural Training

Training	Gender	Attendance	
Technical	Male	15 (94%)	34 (94%)
	Female	19 (95%)	
Account	Male	4 (25%)	5 (14%)
	Female	1 (5%)	
Management	Male	4 (25%)	5 (14%)
	Female	1 (5%)	
Marketing	Male	3 (19%)	7 (19%)
	Female	4 (20%)	

Source: JICA Survey Team



Source: JICA Survey Team

Figure 2.6.1 Experience of Attendance to Agricultural Training

95% of female and 94% of male answered that they had experience to attend technical training, it means both male and female are trained such as how to grow new variety, how to apply fertilizer and pesticide. The percentage of attendance to management and marketing trainings, in turn, is lower than the one of technical training, especially in female. However as shown in Figure 2.4.1 and 2.4.2, the access and control of farm inputs and products sales mainly belong to female. It is crucial to mobilize female to attend account and management trainings. These trainings are normally conducted by public organizations, donors' projects and private companies, but the trainer institution should carefully choose the attendance in consideration with gender. For the marketing training, the attendance of both male and female are low, which is caused due to lack of provision of marketing training itself.

Table 2.6.2 Experience on receiving agricultural extension services and market information

Gender	Agri. extension services		Market Information		
	Yes	No	Yes	Means	No
Male	15	1	13	Neighbor (9), Collector (8), Web (3), Others (2: VTV)	3
Female	19	1	16	Collector (13), Neighbor (9), Web(4), Others (3: VTV, Market)	1

Source: JICA Survey Team

Table 2.6.2 show the experience on receiving agricultural extension services and market information. Almost all of male and female answered they had experience on receiving agricultural extension services and market information. The means of market information varies; collector (21), neighbor (18), Web (7), VTV (5), and etc.

CHAPTER 3 Key Findings and Implications for Plot Activities

3.1 Key Findings

- Ownerships of Land and house are often shared by husbands and wives. 72% of land ownership and 67% of house ownership are shared.
- Attendance of village meeting is high both male and female, attendance is not fixed female or male. Attendance of the meeting seems to be decided by the contents of meeting and based on discussion between husband and wife.
- Females actively engage almost all the activities of farm work, especially for fertilizer application, seeding, weeding, processing and sales since females are good at manual works in field and suitable for sales communication with buyers. Though Females are busy in field compared with males, effective usage of service and technology helps for reduction of farm work.
- Farmers are busy for field works in the early morning and again busy for shipping in the morning and the evening. It is assumed that the suitable timing of a training is from 10am to 4pm.
- Females are actively participating in decision making of farming activities compared with males.
- 75% of females and 31% of males have experiences to attend a gender training.
- 95% of females and 94% of males have experiences to attend a technical training. But the percentage of attendance to account, management and marketing trainings are below 25% in both male and female, especially participation of female in account and management trainings are only 5%. training institutions should carefully choose the attendance in consideration with gender.

3.2 Implications for Plot Activities

Through the gender survey, the implications for the pilot project are summarized as below.

- To ease women to attend the trainings in consideration with suitable time and location of trainings. It is recommended to organize a training between 10am to 4pm. It is also recommended to develop training materials with attractive visual images in order for women and elder farmers to understand the contents easily.
- To encourage women to be board members of the target farmers' groups in order to reflect the ideas of women into the pilot project. It is recommended to facilitate farmers' groups to share roles and responsibilities among members in consideration with gender balance.
- To encourage women to involve in group activities such as accounting, record keeping and auditing. Generally, women are more careful than men in management for accounting and record keeping.
- To involve Women's Union and/or a kind of women's group into the project in order to accelerate the participation of women. According to the interviews and surveys, it is identified that Women's Union is active from national level to commune level and the union has experiences to join safe crop production and distribution. In order to facilitate women's participation into the project, it is recommended to cooperate with Women's Union and/or a kind of women's group in production and/or marketing.

Annex 1 Questionnaire Format for Group

No. of Questionnaire:	
Date:	
Name of Interviewer:	

1 General Information

Condition of the Organization

Name of Investor:				
Province:	District:	Commune:		
Name of Organization				
Name of representative				
No. Telephone				
E-mail address				
Board member	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	Total	Total number	, including	of females

* Should attach List of participant

1.1 Question for all.

Do you have any certification/ activity for safe vegetable cultivat (Select only 1 answers)

a. □ Certificated as Organic Product
b. □ Certificated as Viet GAP or Global GAP
c. □ Implement of Basic GAP
d.□ Certificated by Sub-Department of Plant Protection of DARD
e. □ Don't have certification/ activity

1.2 Organizational form (Select only 1 answers)

a. □ HTX
b. □ Agricultural company
c. □ Farmers' group

1.3 Official Registration (Select only 1 answers)

a. □ Registered （Registration Number： ）*Should take picture of registration
b. □ Under process of registration
c. □ Not yet Registered

1.4 Tax number (Select only 1 answers)

a. □ Registered （Registration Number： ）*Should take picture of registration
b. □ Under process of registration
c. □ Not yet Registered

1.5 Number of Registered member (Select only 1 answers)

a. Male:
b. Female:
c. Total:

1.6 Main activities (Can select several answers)

a. □ Joint sell of crop
b. □ Joint purchase of agricultural materials
c. □ Extension service
d. □ Protection for disease/ insect（Plant Protection）
e. □ Irrigation service
f. □ Farmland Conservation
g. □ Extermination of rat
h. □ Others

1.7 How many times do you have routine activities?

a. Meeting of board member （frequency: times/month)
b. Meeting of all members （frequency: times/month)

1.8 Does organization pay remuneration for board member? (Select only 1 answers)

a. □ Yes
b. □ No

1.9 Does organization have own logo mark? (Select only 1 answers)

a. □ Yes
b. □ No

1.10 Does organization have own Vision/ Goal? (Select only 1 answers)

a. □ Yes → Go to 1.11
b. □ No → Go to 1.12

1.11 If you answered "a" on 1.10, please answer.
What is the Vision/ Goal?

1.12 What is your main resource for capital? (Can select several answers)

a. □ Membership fee → How much is it for one member, one month? _____ VND/year
b. □ Subsidy from the government （ VND/ year)
c. □ Commission by Join sell/ Join purchase （ VND/ year)
d. □ Others

1.13 Can organization issue Red Invoice? (Select only 1 answers)

a. □ Yes
b. □ No

1.14 Does organization manage record book of members? (Select only 1 answers)

a. □ Yes * Should take picture
b. □ No

1.15 Does organization manage cultivation calendar? Cultivation calendar is a plan which includes information of fertilizer and agrichemical (ex. moment, amount, type to use)

a. □ Yes * Should take picture (Select only 1 answers)
b. □ No

1.16 How does organization check that members apply agrichemical by keep low ?

1.17 Does organization analyze agrichemical residue? (Select only 1 answers)

a. □ Yes → Go to 1.18
b. □ No → Go to 1.19

1.18 If answered "b" on 1.17, please answer for detailed information

a. Name of vegetable _____
b. Frequency _____ times/year
c. Sample Number _____ samples/analysis
d. Cost _____ VND/time
e. Cost paid by
   e-1. □ Cooperative/ comp (Can select several answers)
   e-2. □ Individual farmers
   e-3. □ Both organization and farmer
   e-4. □ Buyer
f. Name of institution who analyses _____
   f-1. □ Public institution (Can select several answers)
   f-2. □ Private institution

1.19 Does organization analyze soil? (Select only 1 answers)

a. □ Yes → Go to 1.20
b. □ No → Go to 1.21

1.2 If answered "a" on 1.20, please answer for detailed information

a. Frequency _____ times/year
b. Sample Number _____ samples/analysis
c. Cost _____ VND/time
d. Cost paid by
d-1. □ Cooperative/ comp (Can select several answers)
d-2. □ Individual farmers
d-3. □ Both organization and farmer
e-4. □ Buyer
e. Name of institution who analyses _____
e-1. □ Public institution (Can select several answers)
e-2. □ Private institution

1.21 Does organization analyze water? (Select only 1 answers)

a. □ Yes
b. □ No

1.22 If answered "a" on 1.21, please answer for detailed information

a. Frequency _____ times/year
b. Sample Number _____ samples/analysis
c. Cost _____ VND/time
d. Cost paid by
d-1. □ Cooperative/ comp (Can select several answers)
d-2. □ Individual farmers
d-3. □ Both organization and farmer
d-4. □ Buyer
e. Name of institution who analyses _____
e-1. □ Public institution (Can select several answers)
e-2. □ Private institution

1.23 Does organization implement Internal Audit for GAP? (Select only 1 answers)

a. □ Yes → Go to 1.24
b. □ No → Go to 1.25

1.24 If answered "a" on 1.23, please answer for detail information

a. Number of person who are in charge of internal audit: _____ persons
b. Frequency _____ times/year
c. Number of farmer to be audited _____ farmers/time

1.25 Which facilities does organization have? (Can select several answers)

a. □ Washing place
b. □ Collecting/ shipment center
c. □ Means of transport (ex: track)
d. □ Garbage can
e. □ Community land
f. □ Community house (for offices/ meeting)
g. □ Warehouse (for storage, such as fertilizer)
h. □ Scales
i. □ Basket for shipping
k. □ Others

1.26 If you answered "a" on 1.25, please answer.
How do you discard the garbage? (Can select several answers)

a. □ Hand over to processing agency as normal garbage
b. □ Hand over to processing agency as special garbage
c. □ Leave on field
d. □ Others

2. Cultivation and Join Sell
2.0 General Information

2.01. Total Cultivation area: ha, Number of farmer:

2.02. Total Cultivation area of vegetable: ha, Number of farmer:

2.03. Total cultivation area of vegetable which certificated as VietGAP: ha, Number of farmer:

2.04.Total cultivation area of vegetable which certificated as Safe Crop Production by DAI ha, Number of farmer:

2.05. Total cultivation area of vegetable which are implemented Base GAP ha, Number of farmer:

2.1 Spring Season (Jan-May) Safe vegetable

2.1.1

	Spring Season (Jan-May)		
	Name of vegetable	Area	
A		ha	* Please write detail above, about vegetable A
B		ha	* Please write detail above, about vegetable B
C		ha	
D		ha	
E		ha	
	Total	ha	

2.1.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
A		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
B		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
				*3 If there are several holes/spots of disease, it should be counted as "with disease"	*4 If there are several holes of insect, it should be counted as "with damage by insect"

2.2 Summer-Autumn Season (Jun-Oct) Safe vegetable

2.2.1

	Summer-Autumn Season (Jun-Oct)		
	Name of vegetable	Area	
F		ha	* Please write detail above, about vegetable F
G		ha	* Please write detail above, about vegetable G
H		ha	
I		ha	
J		ha	
	Total	ha	

2.2.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
F		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
G		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.3 Winter Season (Oct-Dec) Safe vegetable

2.3.1

	Winter Season (Oct-Dec)		
	Name of vegetable	Area	
K		ha	* Please write detail above, about vegetable H
L		ha	* Please write detail above, about vegetable I
M		ha	
N		ha	
O		ha	
	Total	ha	

2.3.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
K		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
L		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.4 Spring Season (Jan-May) Normal Vegetable

2.4.1

	Spring Season (Jan-May)		
	Name of vegetable	Area	
P		ha	* Please write detail above, about vegetable J
Q		ha	* Please write detail above, about vegetable K
R		ha	
S		ha	
T		ha	
	Total	ha	

2.4.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
P		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
Q		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.5 Summer-Autumn Season (Jun-Oct) Normal Vegetable

2.5.1

	Summer-Autumn Season (Jun-Oct)	
	Name of vegetable	Area
U		ha
V		ha
W		ha
X		ha
Y		ha
	Total	ha

* Please write detail above, about vegetable O

* Please write detail above, about vegetable P

2.5.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
U				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
V				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.6 Winter Season (Oct-Dec) Normal Vegetable

2.6.1

	Winter Season (Oct-Dec)	
	Name of vegetable	Area
Z		ha
AA		ha
BB		ha
CC		ha
DD		ha
	Total	ha

* Please write detail above, about vegetable T

* Please write detail above, about vegetable U

2.6.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
Z				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
AA				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.7 Does organization realize Joint Sell?

a. □ Yes Total number of buyer: _____ Total number of farmer who participate: _____

b. □ No

2.8 If answered "a" on 2.7, please answer.
Please write detail of Joint Sell

Name of vegetable	Official contract	Buyer *select "choose" above, and	Place to handover *Select "choose" above	Condition *Select "choose" above
a				
b				
c				
d				
e				

Does organization have Official Contract?	Choice for Buyer (Can select several answers)	Choice for Place to handover (Can select several answers)	Choice for Condition (Can select several answers)
a. have official contract on paper b. only have promise	a. Collector b. Wholesaler c. Direct sale shop d. Restaurant e. Retail store f. Others (write concrete)	a. On the field of farmer b. On the shipping center c. On the shop of buyer d. Others (write concrete)	a. Without treatment b. Wash c. Pack in bags of _____kg *Write size of bag, too d. Pack in box of _____kg *Write size of box, too e. Put label f. Selection g. Others (write concrete)

2.9 Do you know the demand of buyer? (Select only 1 answers)

a. □ Yes →Go to 2.10

b. □ No →Go to 2.13

2.10 If answered "a" on 2.9, please answer.
Which information do you know? (Can select several answers)

a. □ Type of vegetable
b. □ Quality
c. □ Amount
d. □ Period or time to sell
e. □ Safety

2.11 If answered "a" on 2.7, please answer.
To obtain buyer's demand, do you devise a way to produce/sell?
Ex) improvement of cultivation method, coordination for harvest date etc. (Select only 1 answers)

a. □ Yes →Go to 2.12

b. □ No →Go to 2.13

2.12 If answered "a" on 2.11, please answer.
What kind of ideas do you realize? (Can select several answers)

a. □ Use correct amount of Agrichemical
b. □ Do not use agrichemical several day before harvesting
c. □ Sawing on same day to harvest same day
d. □ Do selection after harvesting
e. □ Avoid damage during harvesting or transportation
f. □ Harvest at the best moment
g. □ Prepare information of farmer or put label of farmer
h. □ Others

2.13 Do you satisfy to buyer? (Select only 1 answers)

a. □ Yes →Go to 3.14

b. □ No →Go to 3.15

2.14 If answered "a" on 2.13, please answer.
What is the reason? (Can select several answers)

a. □ They can pay higher price
b. □ They can buy big amount
c. □ They can receive products during long period (Shipping period is long)
d. □ They keep promise (ex: Keep condition regarding to Price, Amount, Quality
e. □ They don't mix Safe vegetable and Normal vegetable
f. □ They can pay quickly
g. □ They can buy every year
h. □ Others

2.15 If answered "b" on 2.13, please answer.
What is the reason? (Can select several answers)

a. □ They can NOT pay higher price
b. □ They can NOT buy big amount
c. □ They can NOT receive products during long period (Shipping period is long)
d. □ They do NOT keep promise (ex: Keep condition regarding to Price, Amount, Quality
e. □ They mix Safe vegetable and Normal vegetable
f. □ They can NOT pay quickly
g. □ They can NOT buy every year
h. □ Others

2.16 Have you compared your vegetable with vegetable of other area? (Select only 1 answers)

a. □ Yes In which province is vegetable cultivated in? (Can select several answers)
□1 Ha Noi、□2 Dalat、□3 Moc Chau、□4 near provinces、□5 Others_____
b. □ No

2.17 **What is the problem for Join Selling?** (Can select several answers)

a. □ Price is low
b. □ Demand is limited
c. □ Information of buyer is limited
d. □ Spend time to coordination with buyer
e. □ Spend time to coordination with member of producers
f. □ No exist problem
g. □ Others

2.18 How many % can you sell Safe vegetable as Safe vegetable?
_____ %

2.19 If you could sell "Safe vegetable" as "Safe vegetable",
How many % is Unit price of Safe vegetable higher than Normal vegetable?
_____ %

2.20 If you could not sell "Safe vegetable" as "Safe vegetable",
How many % is Unit price of Safe vegetable higher/lower than Normal vegetable?
_____ %

2.21 How many times does organization have coordination meeting with one buyer?
_____ times/ year

2.22 Which theme is difficult to coordinate with buyer? (Can select several answers)

a. □ Amount
b. □ Quality (Appearance)
c. □ Shipment period
d. □ Safety
e. □ Way/ moment to pay
f. □ Place to handover
g. □ Price
h. □ Transportation
i. □ Others

2.23 Does organization have confidence with buyer? (Select only 1 answers)

a. □ Yes
b. □ Can not say Yes or No
c. □ No

2.24 In the case that unit price on the local market increases higher than contract which already done, what kind of countermeasure does organization have to avoid the situation that farmers sell products to other buyer?

2.25 In the case that unit price on local market decrease lower than contract which already done, what kind of countermeasure does organization have to avoid the situation that organization can not buy to buyer?

2.26 Question for all.

What is the problem for Join Sell? (Can select several answers)

a. □ It's difficult to find buyer
b. □ It's difficult to decide total amount, because can not estimate total production amount before harvesting
c. □ It's difficult to select buyer, because there are many potential buyers
d. □ It's difficult to produce big amount to satisfy demand of buyer
e. □ It's difficult to sell big amount because demand is small
f. □ Unit price is low
g. □ Transportation cost is high
h. □ It's difficult to satisfy the quality of buyer
i. □ It's difficult to satisfy the purchase period of buyer
j. □ Total number of farmers is few
k. □ It's difficult to coordinate with farmers because there are farmers who don't obey contract and sell to other buye
l. □ It's difficult to obtain stable price because there are fluctuation of Price on local market, and there is a possibility of los
m. □ Safe vegetable and normal vegetable are mixed by buye
n. □ It's difficult to trust buyer (ex. There are possibility that buyer stole logo mark of organization
o. □ Others

3. Joint purchase

Does your organization realize Joint purchase?

a. □ Yes Number of farmers who participate: _____ →Go to 3.1

b. □ No →Go to 3.7

3.1 If answered "a" on 3, please answer below questions.

Please write detail information.

	Name of material	Quantity	Supplier (Name, address and No. telephone)	Unit Price	Difference between normal price and Joint Purchase price
a.					% reduced
b.					% reduced
c.					% reduced
d.					% reduced
e.					% reduced

3.2 Which theme is difficult to coordinate with supplier?

a. □ Amount
b. □ Quality (Appearance)
c. □ Shipment period
d. □ Safety
e. □ Way/ moment to pay
f. □ Place to handover
g. □ Price
h. □ Transportation
i. □ No problem
k. □ Others

3.3 How many times does organization have coordination meeting with one supplier?

_____ times/year

3.4 Does organization have confidence with supplier?

a. □ Yes
b. □ Can not say Yes or No
c. □ No

3.5 What idea does organization realize to reduce unit price?

a. □ To increase total amount for purchase
b. □ To purchase on the month which price decrease
c. □ To devise a way to payment (ex: pay by cash)
d. □ To take some quotations
e. □ To devise a way to transportation
f. □ Others

3.6 Questions for all.

What is the problem of Joint Purchase?

a. □ It's difficult to find supplier
b. □ It's difficult to estimate total amount of purchase because we don't have cultivation plan
c. □ It's difficult to select supplier because there are many supplier who provide low quality
d. □ It's difficult to coordinate with supplier because total amount to purchase is small
e. □ Unit price is high
f. □ Transportation cost is high
g. □ Number of farmer is few
h. □ Others

Annex 2 Questionnaire Format for Individual Farmers

Name of Interviewer: Date:

1 General Information of Farmer

Province:	District:	Comune:
Name of Farmer:		
Gender:		Age of Farmer:

What is your final education level? **(Select only 1 answer)**

a. □ Primary
b. □ Secondary
c. □ High school
d. □ College/University
e. □ Others (Detail)

1.1 HOUSEHOLD (HH) PROFILE:

Number of Family Member			Number of Adult and Children			Number of Family Member at Agricultural Working age		
a.	Total		d.	Total		g.	Total	
b.	Male		e.	Adult		h.	Male	
c.	Female		f.	Children		I.	Female	

1.2 Cultivation

1.2.1 Which organization are you belonging to ? **(Select only 1 answer)**

a. □ HTX (Name :)
b. □ Agricultural company (Name :)
c. □ Individual Farmer

1.2.2 Your head of household is.. **(Select only 1 answer)**

a. □ Full-time farmer
b. □ Part-time farmer

1.2.3 How many m2 of farm lands do you have?

	Own land	Rental land	Total
Farm land area	a (m2)	b (m2)	c (m2)

1.3 Income

1.3.1 Agricultural Income (Total of Safe vegetable and Normal Vegetable)

	Main vegetable *1	Cultivation area (m2)	Total production (kg)	Unit price for sale (VND/kg)	Cultivation Season
1	a	b	c	d	e
2	f	g	h	i	j
3	k	l	m	n	o
4	p	q	r	s	t
5	u	v	w	x	y
	*1: Select 5 vegetables which have the largest cultivation area. Cultivation area is total area of safe vegetable and normal vegetable/	*2: If cultivate several times during one cultivation season, write sum of all cultivation area.	*3: If cultivate several times during one cultivation season, write sum of all production.	*4: Average price.	Select one a. Spring Season (Jan-May) b. Summer-Autumn Season (Jun-Oct) c. Winter Season (Oct-Dec)

1.3.2 Agricultural Income (Except for vegetable)

a.	Fruit	VND/year	
b.	Flower	VND/year	
c.	Livestock	VND/year	
d.	Fishery	VND/year	

*If farmer doesn't have activity, write "No"
If farmer has activity but can not obtain income, write "0'

1.3.3 What is the main Income, Except for Agriculture (Can select several answers)

a. □ Work in Local (Concrete: VND/year)
*Including work as collector
b. □ Work in city (Concrete: VND/year)
c. □ Rent of real estate (land and buildings) VND/year)
d. □ Rent of equipment VND/year)
e. □ Receive the allowance from the family VND/year)
f. □ Others

2. Awareness of safety

2.0 Which is your actual situation? (Can select several answers)

a. □ Member of organization which has Organic Certification→Go to 2.2
(Participating from (write year and month))

b. □ Member of organization which has Certification of Viet GAP/ Global GAP →Go to 2.2
(Participating from (write year and month))

c. □ Practice of Basic GAP →Go to 2.2
(Participating from (write year and month))

d. □ Certificated field by Sub-Department of Plant Protection of DARD →Go to 2.2
(Participating from (write year and month))

e. □ Do not belong to organization which certificated as safe vegetable productio
/ do not apply safe vegetable production→ Go to 2.1

2.1 If you answered "e" on 2.0, please answer this question.
Why do you NOT cultivate Safe vegetable? (Can select several answers)

a. □ Unit selling price is low
b. □ Cultivation cost is high
c. □ Certification fee is high
d. □ Analyzing cost for Pesticide residue, soil, water quality are high
e. □ Office procedures is the complicated →Go to 2.5
f. □ Cultivation is difficult (ex. Occurrence of disease, insect)
g. □ Can not sell safe vegetable
h. □ I don't know how to cultivate safe vegetable
i. □ I don't have interest
j. □ Others

2.2 If you answered "a - d" on 2.0, please answer this ques (Can select several answers)
Why do you cultivate Safe vegetable?

a. □ Unit selling price is high
b. □ Demand for safe vegetable is big
c. □ Received guidance to cultivate safe vegetables from governmen
d. □ Safety vegetables is good for the health of the consume
e. □ Safety vegetables is good for the health of producers
f. □ Material costs is low
g. □ Labor costs is low
h. □ Others

2.3 If you answered "a - d" on 2.0, please answer this question.
What is the demerit to cultivate safe vegetable? (Can select several answers)

a. □ Unit selling price is low
b. □ Cultivation cost is high
c. □ Certification fee is high
d. □ Analyzing cost for Pesticide residue, soil, water quality are high
e. □ Office procedures is the complicated
f. □ Cultivation is difficult
g. □ Can not sell safe vegetable
h. □ Cultivation is difficult (ex. Occurrence of disease, insect)
h. □ Others

2.4 Question for all.
Which vegetable do you eat at home? (Can select several answers)

a. □ Cultivated by using Safe vegetable cultivation method, such as Viet GAI
/ Certificated by Sub-Department of Plant Protection of DARD
b. □ Cultivated by normal cultivation method
c. □ Cultivated by special cultivation method for home consumption

2.5 Question for all.
Do you have confidence for safety of your vegetable? (Select only 1 answers)

a. □ Yes →Go to 2.6
b. □ If I had to choose one, yes →Go to 2.6
c. □ Neither yes or no →Go to 2.7
d. □ If I had to choose one, no →Go to 2.7
e. □ No →Go to 2.7

2.6 If you answered "a or b" on 2.5, please answer this question.
What is the reason? (Can select several answers)

a. □ I'm applying the method of PGS, Viet GAP, Basic GAP, or cultivating at Certificated field by Sub-Department of Plant Protection of DARD
b. □ I received training for safe vegetable production
c. □ I follow cultivation method of other farmers
d. □ I cultivate by my experience
e. □ Others

2.7 If you answered "c, d, e" on 2.5, please answer this question.
What is the reason? (Can select several answers)

a. □ I'm NOT applying the method of PGS, Viet GAP, Basic GAP, or cultivating at Certificated field by Sub-Department of Plant Protection of DARD
b. □ I have NOT received training for safe vegetable production
c. □ I haven't checked/analyzed safety of vegetable
d. □ There is a possibility that agrichemical scattering from other field
e. □ Others

2.8 If you answered "a-d" on 2.0, please answer regarding to Safe Vegetable.
If you answered "e" on 2.0, please answer regarding to Normal Vegetable.

Farmers who cultivate Safe vegetable：Do you record information of your activity which required by Safe vegetable production method?
Farmers who cultivate Normal vegetable：Do you record information of your activity, Agrichemical and Fertilizer?

a. □ Yes (Take picture of Record!) →Go to 2.9
b. □ No →Go to 2.13

2.9 If you answered "a" on 2.8, please answer. Who mainly record? (Select only 1 answers)

a. □ Male
b. □ Female
c. □ Both

2.10 If you answered "a" on 2.8, please answer. What is the Advantages of recording? (Can select several answers)

a. □ Forms that record easily
b. □ Convenient for calculating income
c. □ Convenient for adjusting productionactivities
d. □ Convenient for setting up production plans
e. □ Convenient for product distribution and seeking buyers
f. □ Convenient for traceability

2.11 If you answered "a" on 2.8, please answer. What is the Disadvantages of recording? (Can select several answers)

a. □ Not used before
b. □ Forms that record difficulty
c. □ Time consuming
d. □ Difficult to remember the names of materials (pesticides, fertilizers, ...)
e. □ Not necessary

2.12 If you answered "a" on 2.8, please answer. Before implementing the next activities (fertilizer application, pesticide use, ...), do you check with the recording notebook? (Select only 1 answers)

a. □ Yes
b. □ No

2.13 If you answered "b" on 2.8, please answer.
Why do you NOT record?

a. □ There is no penalty even if not recorded
b. □ No one confirm even if not recorded
c. □ I don't know how to record
d. □ There is no effect for price or amount to sell even if not recorded
e. □ It's spend time to record

2.14 Do you have "Cultivation calendar"? (Select only 1 answers)
Cultivation calendar is a plan which includes information of fertilizer and agrichemical (ex. moment, amount, type to use

a. □ Yes (*Take picture of the Cultivation Calendar)
b. □ No

2.15 Which is correct to use agrichemical? (Select only 1 answers)

a. □ There is a negative effect for human even if use just a little, so, it's better to reduce amount as little as possibl
b. □ There is no effect for human, if use appropriate amount/ correct amoun
c. □ There is no negative effect for human even if use a lot

2.16 Which is correct to use organic-agrichemical? (Select only 1 answers)

a. □ There is a negative effect for human even if use just a little, so, it's better to reduce amount as little as possibl
b. □ There is no effect for human, if use appropriate amount/ correct amoun
c. □ There is no negative effect for human even if use a lot

2.17 Do you know that there are 2 types of agrichemical, (1) registered to use, (2) not registered to use.
ex) Agrichemical "A" is registered to use, but agrichemical "B" is not registered. (Select only 1 answers)

a. □ Yes
b. □ No

2.18 Even if same agrichemical, there are "vegetables which are registered to use that agrichemical" an
Vegetables which are not registered to use that agrichemical. Do you know that
ex) Agrichemical "A" is registered for cabbage, but not registered for tomato (Select only 1 answers)

a. □ Yes
b. □ No

2.19 What have you based on to choose pesticides? (Can select several answers)

a. □ Experiences
b. □ Ideas of other farme
c. □ Sellers' guidance
d. □ Guidance of technical staff
e. □ Others (Detail)

2.20 How is the moment of using pesticides? (Can select several answers)

a. □ When discovering pests and diseases
b. □ Following people around you
c. □ Using periodically
d. □ Following technical staff
e. □ Others

2.21 How is the concentration of using pesticides? (Select only 1 answers)

a. □ Following the instructions on the packaging
b. □ Increasing from 1.5 to 2 times
c. □ Increasing more than 2 times
d. □ Following people around you
e. □ Guidance of technical staffs/ Guidance of package

2.22 To compare total amount of agrichemical between Safe vegetable cultivation and Normal vegetable cultivation, which do you use more amount? (Select only 1 answers)

a. □ Use more agrichemical for Safe vegetable
b. □ Same
c. □ Use less agrichemical for Safe vegetabl

2.23 How do you select "final day" to use agrichemical before harvest? (Select only 1 answers)

a. □ Guidance on package
b. □ Technical staff guidance
c. □ Experience
d. □ Following people around you
e. □ No reply

2.24 When spraying pesticides for vegetables, what type of clothes do you wear? (Can select several answers)

a. □ Wear raincoats
b. □ Wear working clothes and mask
c. □ Others

3. Marketing

If you answered "a-d" on 2.0, please answer regarding to Safe Vegetable.
Please answer the % for Safe Vegetable cultivation and Normal Vegetable cultivation.

a.□ Safe vegetable: _____%
b.□ Normal vegetable: _____%

3.1 If you could sell "Safe vegetable" as "Safe vegetable",
How many % is Unit price of Safe vegetable higher than Normal vegetable?
_____%

3.2 If you could not sell "Safe vegetable" as "Safe vegetable",
How many % is Unit price of Safe vegetable higher/lower than Normal vegetable?
_____%

3.3 If you answered "a-d" on 2.0, please answer regarding to Safe Vegetable.
If you answered "e" on 2.0, please answer regarding to Normal Vegetable.

Please answer the % of Join Sell (sell vegetable as group) and Individual Sell of your vegetable

a. □ Joint sell _____%
b. □ Individual sell _____% → In Individual sell, safe vegetables is c□_____%, normal vegetable is d.□___

3.4 Who is the main buyer? (In case of individual sell) (Select only 1 answers)

a. □ Collector
b. □ Wholesale market
c. □ Restaurant
d. □ Retail store
e. □ Others

3.5 What is the main post-harvesting activity? (In case of individual sell) (Can select several answers)

a. □ Washing Name of Vegetable : → Go to 3.6
b. □ Selection → Go to 3.8
c. □ Packing → Go to 3.8
d. □ Without post-harvesting activity → Go to 3.8
e. □ Others → Go to 3.8

3.6 If answered "a" on 3.5, please answer.
where do you wash products? (Select only 1 answers)

a. □ At post harvest handling zones
b. □ Wash at home
c. □ Wash in the field

3.7 If answered "a" on 3.5, please answer.
After washing the products, where do you put the product in/on? (Select only 1 answers)

a. □ On the floor
b. □ On the sheet/ in the box
c. □ Other

3.8 Do you know the demand of buyer? (Select only 1 answers)

a. □ Yes →Go to 3.9
b. □ No →Go to 3.12

3.9 If answered "a" on 3.8, please answer.
Which information do you know? (Can select several answers)

a. □ Type of vegetable
b. □ Quality
c. □ Amount
d. □ Period or time to sell
e. □ Safety

3.10 If answered "a" on 3.8, please answer.
To obtain buyer's demand, do you try any ingenuity?
Ex) improvement of cultivation method, coordination for harvest date etc. (Select only 1 answers)

a. □ Yes →Go to 3.11
b. □ No →Go to 3.12

3.11 If answered "a" on 3.10, please answer.

What kind of ideas do you realize? (Can select several answers)

a. □ Use correct amount of Agrichemica
b. □ Do not use agrichemical several day before harvestin
c. □ Sawing on same day to harvest same da
d. □ Do selection after harvestin
e. □ Avoid damage during harvesting or transportation
f. □ Harvest at the best momen
g. □ Prepare information of farmer or put label of farme
h. □ Others

3.12 Do you satisfied to buyer? (Select only 1 answers)

a. □ Yes →Go to 3.13
b. □ No →Go to 3.14

3.13 If answered "a" on 3.12, please answer.
What is the reason? (Can select several answers)

a. □ They can pay higher price
b. □ They can buy big amount
c. □ They can receive products during long period (Shipping period is long
d. □ They keep promise (ex: Keep condition regarding to Price, Amount, Quality
e. □ They don't mix Safe vegetable and Normal vegetabl
f. □ They can pay quickly
g. □ They can buy every yea
h. □ Others

3.14 If answered "b" on 3.12, please answer.
What is the reason? (Can select several answers)

a. □ They can NOT pay higher price
b. □ They can NOT buy big amount
c. □ They can NOT receive products during long period (Shipping period is long
d. □ They do NOT keep promise (ex: Keep condition regarding to Price, Amount, Quality
e. □ They mix Safe vegetable and Normal vegetabl
f. □ They can NOT pay quickly
g. □ They can NOT buy every yea
h. □ Others

3.15 Do you compare your vegetable with vegetable of other area? (Select only 1 answers)

a. □ Yes In which province is vegetable cultivated in? (Can select several answers)
□ 1. Ha Noi、□ 2. Dalat、□ 3. Moc Chau、□ 4. near provinces、□ 5. Others_____
b. □ No

3.16 What is the problem for Join Selling? (Can select several answers)

a. □ Price is low
b. □ Demand is limited
c. □ Information of buyer is limited
d. □ Spend time to coordination with buyer
e. □ Spend time to coordination with member of producers
f. □ No exist problem
g. □ Others

4. Health, Emviroment

4.1 If you select "a-d" on 2.0, please answer.
In case of Safe Vegetable Cultivation. Have you felt bad (Nausea, dizziness, headache etc) or have you had Abnormality on skin, eye, nose, when you use agrichemical? (Select only 1 answers)

a. □ Yes
b. □ No
c. □ I don't know

4.2 If you select "a-d" on 2.0, please answer.
In case of Safe Vegetable Cultivation. Do you think number of insect (good insect), fish, small animal, bird are reduced by using agrichemical? (Select only 1 answers)

a. □ Yes
b. □ No
c. □ I don't know

4.3 If you select "a-d" on 2.0, please answer.
In case of Safe Vegetable Cultivation. Do you have feeling that using fertilizer cause water/ soil pollution? (Select only 1 answers)

a. □ Yes
b. □ No
c. □ I don't know

4.4 Question for all.
In case of Normal Vegetable Cultivation. Have you felt bad (Nausea, dizziness, headache etc) or have you had Abnormality on skin, eye, nose, when you use agrichemical? (Select only 1 answers)

a. □ Yes
b. □ No
c. □ I don't know

4.5 Question for all.
In case of Normal Vegetable Cultivation. Do you think number of insect (good insect), fish, small animal, bird are reduced by using agrichemical? (Select only 1 answers)

a. □ Yes
b. □ No
c. □ I don't know

4.6 Question for all.
In case of Normal Vegetable Cultivation. Do you have feeling that using fertilizer cause water/ soil pollution? (Select only 1 answers)

a. □ Yes
b. □ No
c. □ I don't know

4.7 Do you trash package/ bottle of argichemical into garbage box in public spase or in your home? (Select only 1 answers)

a. □ Yes
b. □ No

5. Training

5.1 When you have question to cultivation, to whom do you ask? (Can select several answers)

a. □ Technician for extension
b. □ Person in charge for cultivation in your organization
c. □ Familiry/ friend
d. □ Shop which bought agrichemical, fertilizer, seed etc
e. □ Buyer
f. □ Study meeting of farmers
g. □ Not ask

5.2 Have you received training regarding cultivation method? (Select only 1 answers)

a. □ Yes →Go to 5.3
b. □ No →Go to 5.5

5.3 If you select "a" on 5.2, please answer.
What was the thema? (Can select several answers)

a. □ Protection from desease, insec
b. □ Cultivation method, except Protection from desease, insec
c. □ GAP method
d. □ Marketing
e. □ Method to protect health of farmer (ex: correct mehod to use agrichemical
f. □ Manegement of capital organization/ group/ company
g. □ Manegement of organization/ group/ company
h. □ Others

5.4 If you select "a" on 5.2, please answer.
Who organized the training? (Can select several answers)

a. □ Government like DARD, Province
b. □ International cooperation agency
c. □ Agrichemical company
d. □ Fertilizer company
e. □ Seed company →Go to 5.6
f. □ Material supplyer
g. □ Buyer
h. □ I don't know/ remember
i. □ Others

5.5 If you select "b" on 5.2, please answer.
What is the reason? (Can select several answers)

a. □ Training have not held.
b. □ Training have held, but I have not interested in
c. □ Training have held, but I have been busy
d. □ I already have enough acnwledge
e. □ Others

5.6 Question for all.
Do you want to receive trining regarding to cultivatin/ marketing of vegetable, in future?

a. □ Yes (Select only 1 answers)
b. □ Can not say Yes or No
c. □ No

6. Financing

6.1 Have you used agricultural financing/loan serveice? (Select only 1 answers)

a. □ Yes →Go to 6.2
b. □ No →Go to 6.3

6.2 If you anwered "a" on 6.1, please answer. (Can select several answers)
Where do you receive get loan service?

a. □	Agriculturarl Bank	Total amount of loan:	VND
b. □	Social Policy Bank	Total amount of loan	VND
c. □	Agricultural Cooperative	Total amount of loan	VND
d. □	Familiy/ Friend	Total amount of loan	VND
e. □	Material supplyer	Total amount of loan:	VND
f. □	Buyer	Total amount of loan	VND
g. □	Others	Total amount of loan	VND

6.3 If you anwered "b" on 6.1, please answer.
What is the reason? (Can select several answers)

a. □ No need to receive service
b. □ Don't know where can I receive the service
c. □ Don't know how can I receive the service
d. □ Interest rate is high
e. □ I don't have guarantee/ guarantor
f. □ Others

7 ICT(Information and Communication Technology)

ICT is activity to Recod of field work, analysing desease and insect occurrence etc.

7.1 Do you have smart phone? (Select only 1 answers)

a. □ Yes →Go to 7.2
b. □ No →Go to 7.3

7.2 If you answered "a" on 7.1, please answer question. How much do you pay for internet service of smart phone?

(VND/monthk)

7.3 Question for all. Have you had training regatding to ICT? (Select only 1 answers)

a. □ Yes, I have received the training now
b. □ Yes, I had training, but receiveing now.
c. □ No, I have not.

7.4 Question for all. Have you introduced ICT for agriculture? (Select only 1 answers)

a. □ Yes, I have introduced ICT now.
b. □ Yes, I had introduced, but have not introduce now
c. □ No, I have not.

7.5 Who decide grow vegetables ? (Select only 1 answers)

a. □ Husband
b. □ Wife

7.6 Who decide to send member of family to attend training? (Select only 1 answers)

a. □ Husband
b. □ Wife

Annex 3 Questionnaire Format for gender survey

No _____

Questionnaire for Gender Survey phiếu khảo sát về giới

1.	General information thông tin chung		
a.	Farmer's Name tên người nông dân		
b.	Age tuổi		
c.	Sex giới tính	1. Male nam 2. Female nữ	
d.	Village Name		
e.	Cooperative tên hợp tác xã (nhóm)		
f	Area diện tích đất nông nghiệp	ha	
g.	Ownership of the land quyền sở hữu đất	1. Man nam, 2. Woman nữ, 3. Both cả hai	
h.	Ownership of the house Quyền sử dụng nhà, đất ở	1. Man nam, 2. Woman nữ, 3. Both cả hai	
2.	Background information thông tin cơ bản		
a.	Involved in agriculture or not? Tham gia vào nông nghiệp hay không	1. Full-time farmer, nông dân toàn thời gian 2. Part-time farmer, nông dân bán thời gian 3. Collector, người thu gom 4. Another job công việc khác ( )	
b.	Education/literacy trình độ:	1. Class trình độ ( ) 2. Can read or Just literate, biết đọc biết đọc và viết	
3.	Community meeting họp cộng đồng		
a.	Do you attend community meeting? Anh/chị có tham gia họp cộng đồng không	1. Village meeting, họp xã 2. Women's Union, hội phụ nữ 3. Farmer's Union, hội nông dân 4. Others khác ( )	
B	How often tần suất	( )	
c.	If no, why? Nếu không thì tại sao		
4.	Roles and responsibilities on farm work vai trò và trách nhiệm trong việc làm nông:		
		Male nam	Female nữ
a.	Land preparation (cleaning, plowing) chuẩn bị đất (dọn dẹp, cày xới)		
b.	Fertilizer application bón phân		
c.	Seed giao hạt, cấy (bằng tay hoặc máy		
d.	Watering tưới nước		
e.	Weeding dọn cỏ (bằng tay hoặc máy)		
f.	Spraying phun thuốc		
g.	Harve. thu hoạch (bằng tay hoặc máy)		
h.	processing sau thu hoạch/chế biến (đóng gói/dọn dẹp)		
i.	Transportation vận chuyển (từ ruộng đến nhà sử dụng phương tiện cá nhân hoặc công cộng		
J	Transportation vận chuyển (từ nhà đến chợ) sử dụng phương tiện cá nhân hoặc công cộng		
k	Sales bán hàng		

No _____

5.	Roles and responsibilities on house and social work vai trò và trách nhiệm trong việc nhà và công tác xã hội	Male nam	Female nữ
a.	Cooking nấu ăn		
b.	Cleaning dọn dẹp		
c.	Washing clothes giặt quần áo		
d.	Caring for children (if you have) chăm sóc con (nếu có)		
e.	Caring for elder (if you have) chăm sóc người già (nếu có)		
f.	Caring for sick (if you have) chăm sóc người ốm (nếu có		
g.	Caring for chicken (if you have) nuôi gà (nếu có)		
h.	Caring for cattle (if you have) nuôi gia súc (nếu có)		
i.	Maintenance of house sửa chữa nhà cửa		
j	Attending community meeting tham gia họp cộng đồng		

6. About your daily activities from morning to evening mô tả ngắn gọn hoạt động hang ngày từ sang đến tối

	Farming season mùa thu hoạch ( )		Off season ngoài mùa thu hoạch ( )	
	Time thời gian	Activity hoạt động	Time thời gian	Activity hoạt động

7. decision making on the following items ai là người đưa ra quyết định các mục dưới đây

Resources/property tài sản		Who can use it?(access) ai có thể sử dụng (tiếp cận)		Who decide on it?(control) ai quyết định mục này (kiểm soát)	
		Male nam	Female nữ	Male nam	Female nữ
a.	Farm land đất làm nông, trồng trọt				
b	Farming tools công cụ làm nông				
c.	Fertilizer, đầu vào (phân bón)				
d.	Pesticide, đầu vào (thuốc trừ sâu)				
e.	Cattle gia súc				
f.	Chicken gà				
g.	Products sell sản phẩm nông nghiệp				
h.	House expenditure chi tiêu trong nhà				
i.	Training đào tạo				
j.	Fin tài chính (vd. Vay tiền ngân hàng)				

No _____

8.	Have you ever received any training in gender? Anh/chị đã từng tham gia tập huấn về bình đẳng giới	
a.	When khi nào	
b.	How long trong bao lâu	1. Half day nửa ngày, 2. 1day 1 ngày, 3. 2days 2 ngày, 4. More dài hơn
c.	By whom do cơ quan nào tổ chức	1. Woman Union Hội phụ nữ, 2. Project dự án, 3. Public organization tổ chức công 4. Others khác
d.	Contents nội dung	1. Family plan kế hoạch hóa gia đình, 2. Others khác( )
9.	Agricultural Extension Hoạt động khuyến nông (anh/chị đã bao giờ tham gia hoạt động khuyến nông chưa?)	
a.	Contents nội dung	1. Technical kỹ thuật 2. Financial tài chính, 3. Management quản lý 4. Marketing tiếp thị, 5. Others khác ( )
b.	Trainer belonging to? Cán bộ hướng dẫn đến từ đâu	1. Public tổ chức công 2. Private tổ chức tư 3. Others khác ( )
c	Is trainer men or women Giảngviên là nam hay nữ	1. Male nam 2. Female nữ
d	What is the % of women? Tỷ lệ học viên nữ là baonhiêu	Women is ( ) %
e	Why is the low ratio of women low? Tại sao tỷ lệ nữ tham gia thấp	
f	Did you apply the new technique to your field? Anh/ chị đã áp dụng kỹ thuật mới vào sản xuất	1. Yes có 2. No không
g	Why no? Tại sao Không	
h.	Which is the best way of advice phương thức tư vấn nào tốt nhất	1. Telephone điện thoại, 2. On field ngoài ruộng, 3. Email, 4. Facebook, 5. others ( )
I	When is the most suitable time for training thời gian phù hợp nhất để tham gia tập huấn?	1. weekday morning,/ buổi sáng cuối tuần 2. weekday afternoon, buổi chiều, cuối tuần 3. evening/ buổi tối 4. holiday/ ngày nghỉ 5. others/ khác ( )
10.	Marketing information thông tin tiếp thị	
a	Using market information kinh nghiệm sử dụng thông tin tiếp thị:	1. Yes có (how often mức độ thường xuyên? Occasionally), 2. No không
b	Means to get information phương thức tiếp cận thông tin	1. Web site, 2. From neighbors từ hàng xóm, 3. From collectors từ người thug om 4. Others khác

Socialist Republic of Viet Nam
Project for Improvement of Reliability of Safe Crop Production
in the Northern Region

Baseline Survey Report for Semi-pilot provinces
(Vinh Phuc, Phu Tho and Thai Binh)

Table of Contents

CHAPTER 1 Survey Outline

1.1 Objective

To understand the actual condition of candidate target groups in semi-pilot provinces.

1.2 Target Area

The survey was conducted in the semi-pilot provinces; Phu Tho, Vinh Phuc and Thai Binh Provinces.

1.3 Methodology

(1) Survey Method

Baseline survey was conducted by group interview for candidate target groups. For effective and efficient data collection, interviews were conducted with questionnaire format and sufficient numbers of surveyors were dispatched by DARD of semi-pilot provinces.

(2) Selection of Candidate Target Group and Interviewees

Candidate target groups were nominated by PPMU of each province with consideration of the following criteria which was agreed on Record of Discussion between MARD and JICA signed on 29 February 2016.

Table 1.3.1 Selection Criteria for Candidate Target Group

Item	Evaluation Criteria	Indicator
Target area/zone	Prefer specialized vegetable production area/zone	- Specialized area/zone
Location and environment	Preferable location whether the areas are suitable for safe vegetable: Favorable natural environment (soil, water, air) Economical and social environment	- Lower than national standard of soil and water quality - good basic infrastructure - no existence of heavy chemical industrial estates nearby
Vegetable production	Safe vegetable production and distribution	- production collection, cleaning, sorting, joint transport situation, joint sales)
Knowledge and techniques	Accumulated knowledge/ techniques on basic GAP and/or any other safe crop production	- safe vegetable procedure, record keeping, input usage, using waste box/washing facility, etc.)
Number of farmer group and production volume	Certain number of farmer groups members	- secure scale merit and affordable supply according to market
Willingness and eagerness	Willingness and eagerness of producers	- leadership, independency, business sense, joint selling experiences, management with flexibility/ adjustment)
New model	Desirable 'New agriculture cooperative model'	- registration of agriculture cooperatives

Source: JICA Project team

Based on the above criteria, PPMU nominated 15 groups; 5 groups from Phu Tho, 6 groups from Vinh Phuc, and 4 groups from Thai Binh province as below.

Table 1.3.2 Candidate Target Group List for Baseline Survey

No	Group Name	Group
PT-N1	Hương Nộn Agriculture Service Cooperative	1
PT-N2	Văn Phú – Sai Nga craft village for safe vegetable growing	1
PT-N3	Lô River Agriculture Cooperative	1
PT-N4	Vegetable production service Cooperative in Tan Duc commune	1

PT-N5	Agriculture Service Cooperative in Truong Thinh Ward	1
	Sub Total	5
VP-N1	Visa Safe Vegetable Cooperative	1
VP-N2	Đại Lợi Safe Vegetable Cooperative	1
VP-N3	An Hòa Agroproduct production and trading cooperative	1
VP-N4	Thanh Hà Safe vegetable cooperative	1
VP-N5	Vân Hội Xanh Safe vegetable cooperative	1
VP-N6	Vĩnh Phúc Safe vegetable cooperative	1
	Sub Total	6
TB-N1	Đoàn Trường Vinh	1
TB-N2	Quỳnh Hải Agricultural production and service cooperative	1
TB-N3	Thanh Tân agricultural production and service cooperative	1
TB-N4	Đức Nam Export – Import Company	1
	Sub Total	4
	Total	15

Source: JICA Project team

(3) Group Interview Procedures

Prior to the interview survey, a notice was provided to the groups to bring relevant documents, such as;

- Registration certificate of organization
- Certificate of tax number (if any)
- Certificate of safe production area,
- Certificate of VietGAP, Global GAP and/or other certificates if any
- Contract documents with buyers
- Record books, and
- Cultivation calendar (if any)

The surveyors were advised to fill in the form according to the instruction provided by JICA Project team and to take photographs of interviewees and relevant documents as evidences.

(4) Data aggregation and input in excel sheet

The surveyors were advised to check the form filled properly and to input the collected information into the excel sheet provided by JICA Project team.

1.4 Survey Schedule

Survey was conducted by DARD of each semi-pilot province. Therefore, the survey schedule was arranged as per the convenience of each semi-pilot province between August 2017 and April 2018.

1.5 Survey Items

Survey items for this group interview are same items for group interview in the first baseline survey conducted in 2016 and described as below.

Group interview:

- group outline (registration, name of representatives, number of members, etc.)
- agricultural production (crop name, production area and production volume)
- cultivation of safe crop (crop name, production area and production volume)
- facilities (washing place, trash can and collection and distribution space)
- joint sales (record of joint sales, name of crop sold, sale destination, etc.)
- joint purchase (record of joint purchase, purchased material, etc.)

CHAPTER 2 Survey Results

2.1 Group interview

(1) Group outline

General information of 15 candidate target groups such as registration type, membership, vegetable area and safe production area is identified as the table below.

Table 2.1.1 General Information of Candidate Target Groups

No.	Group Name	Type	Membership	Vegetable area	Certified Safe area
Phu Tho					
PT-N1	Hương Nộn Agriculture Service Cooperative	Coop.	86	13.8	3.2
PT-N2	Văn Phú – Sai Nga craft village for safe vegetable growing	FG	199	12	12
PT-N3	Lô River Agriculture Cooperative	Coop.	43	3	3
PT-N4	Vegetable production service Cooperative in Tan Duc commune	Coop.	270	14	14
PT-N5	Agriculture Service Cooperative in Truong Thinh Ward	Coop.	19	24	12
Vinh Phuc					
VP-N1	Visa Safe Vegetable Cooperative	Coop.	8	21	21
VP-N2	Đại Lợi Safe Vegetable Cooperative	Coop.	14	10.1	10.1
VP-N3	An Hòa Agroproduct production and trading cooperative	Coop.	57	5.5	5.5
VP-N4	Thanh Hà Safe vegetable cooperative	Coop.	25	4.6	4.6
VP-N5	Vân Hội Xanh Safe vegetable cooperative	Coop.	27	10	10
VP-N6	Vĩnh Phúc Safe vegetable cooperative	Coop.	50	4.78	4.78
Thai Binh					
TB-N1	Đoàn Trường Vinh	Household	5	8.3	0
TB-N2	Quỳnh Hải Agricultural production and service cooperative	Coop.	800	200	8
TB-N3	Thanh Tân agricultural production and service cooperative	Coop.	20	180	6
TB-N4	Đức Nam Export – Import Company	A Com.	3	3	0

Remarks: Coop: Agriculture cooperative, FG: Farmers group, A Com: Agriculture company
Source: JICA Project team

Breakdown of registration types of 15 candidate target groups are;

- Agriculture Cooperative : 12
- Farmers Group : 1
- Agriculture Company : 1
- Household : 1

Out of 15 candidate groups, 12 groups are agriculture cooperative. Number of memberships of cooperatives varies from 8 to 800 and vegetable production area also varies from 3ha to 200ha. Besides cooperatives, there are 3 groups, 1 farmer group, 1 agriculture company and 1 household. Both an agriculture company and a household have no certificate for safe production area.

(2) Agricultural production

Main vegetables cultivated as safe vegetables are identified per province per season as the table below.

Table 2.1.2 Main Vegetables Cultivated Per Season

	Spring Season (Jan-May)		Summer Season (Jun-Oct)		Winter Season (Oct-Dec)	
Phu Tho (n=5)	**Gourd**	**3**	Cabbage	2	**Kohlrabi**	**5**
	Malabar nightshade	**3**	Cauliflower	2	**Tomato**	**5**
	Cucumber	2	Gourd	2	**Cabbage**	**4**
	Pumpkin	2	Long bean	2	**Cauliflower**	**3**
	Tomato	2	Malabar nightshade	2	**Mustard**	**3**
	Amaranthus	1	Mustard	2	**Soybean**	**3**
	Cabbage	1	String bean	2	Carrot	1
	carrot	1	Tomato	2	Cucumber	1
	Chayote	1	Amaranthus	1	Leafy vegetable	1
	Cowpea	1	Cucumber	1	Spicy vegetable	1
	Kohlrabi	1	Eggplants	1	Zucchini	1
	Melon	1	Flower choysom	1		
	Morning glory	1	Kohlrabi	1		
	Mustard	1	Melon	1		
	Spicy vegetable	1	Morning glory	1		
	Spinach	1	Onion	1		
	String bean	1	Pear shape melon	1		
	Vegetable shrinkage	1	Pumpkin	1		
	Zucchini	1	Spicy vegetables	1		
			Spinach	1		
			Sponge gourd	1		
			Vegetable shrinkage	1		
			Watermelon	1		
Vinh Phuc (n=6)	Chayote	2	**Gourd**	**3**	**Malabar nightshade**	**3**
	Cucumber	2	**Malabar nightshade**	**3**	**Mustard**	**3**
	Malabar nightshade	2	**Morning glory**	**3**	Cucumber	2
	Morning glorly	2	Cucumber	2	Chayote	2
	Mustard	2	Mustard	2	Cabbage	1
	Chlli	1	Basil	1	Cauliflower	1
	Egg plant	1	Beans	1	Chlli	1
	Gourd	1	Chlli	1	Egg plant	1
	Lemon grass	1	Choysum	1	Gourd	1
	String bean	1	Egg plant	1	Green bean	1
			Lemon grass	1	Kohlrabi	1
			Raddish	1	Lemon grass,	1
			Vegetable shrinkage	1	Morning glory	1
					Pumpkin	1
Thai Binh (n=4)	Beans	2	Melon	2	Cabbage	1
	Gourd	2	Squash	2	Carrot	1
	Leafy vegetable	2	Carrot	1	Cauliflower	1
	Zucchini	2	Celery	1	Chilli	1
	Cucumber	1	Green onion	1	Kohlrabi	1
	Green onion	1	Leafy vegetable	1	Melon	1
	Maize	1	Leeks	1	Potato	1
	Melon	1	Morning glory	1	Squash	1
	Morning glory	1	String bean	1	String beans	1
	Mustard	1				
	Okra	1				
	Potato	1				
	Squash	1				
	String bean	1				
	Tomato	1				
Total (n=15)	**Gourd**	**6**	**Gourd**	**5**	**Kohlrabi**	**7**
	Cucumber	**5**	**Malabar nightshade**	**5**	**Cabbage**	**6**
	Malabar nightshade	**5**	**Morning glory**	**5**	**Mustard**	**6**
	Morning glorly	**4**	**Mustard**	**4**	**Cauliflower**	**5**
	Mustard	**4**	**Cucumber**	**3**	**Tomato**	**5**

	Chayote	**3**	**Melon**	**3**	**Cucumber**	**3**
	String bean	**3**	String bean	3	**Malabar nightshade**	**3**
	Tomato	**3**	Cabbage	2	**Soybean**	**3**
	Zucchini	**3**	Cauliflower	2	Carrot	2
	Beans	2	Egg plant	2	Chayote	2
	Leafy vegetable	2	Long bean	2	Chilli	2
	Melon	2	Tomato	2	Egg plant	1
	Pumpkin	2	Vegetable shrinkage	2	Gourd	1
	Amaranthus	1	Amaranthus	1	Green bean	1
	Cabbage	1	Basil	1	Leafy vegetable	1
	carrot	1	Beans	1	Lemon grass,	1
	Chlli	1	Carrot	1	Melon	1
	Cowpea	1	Celery	1	Morning glory	1
	Egg plant	1	Chlli	1	Potato	1
	Green onion	1	Choysum	1	Pumpkin	1
	Kohlrabi	1	Flower choysom	1	Spicy vegetable	1
	Lemon grass	1	Green onion	1	Squash	1
	Maize	1	Kohlrabi	1	String beans	1
	Okra	1	Leafy vegetable	1	Zucchini	1
	Potato	1	Leeks	1		
	Spicy vegetable	1	Lemon grass	1		
	Spinach	1	Onion	1		
	Squash	1	Pear shape melon	1		
	Vegetable shrinkage	1	Pumpkin	1		
			Raddish	1		
			Spicy vegetables	1		
			Spinach	1		
			Sponge gourd	1		

Remark: the numbers in table indicate the numbers of farmers groups which cultivate the subject vegetable.
Source: JICA Project team

In Phu Tho province, Kohlrabi and Tomato are cultivated by all 5 groups in winter season, followed by Cabbage by 4 groups, Cauliflower, Mustard and Soybean by 3 groups. Compared with winter season, vegetables in spring season and in summer season were diversified. In Vinh Phu province, Malabar nightshade and Mustard in winter season and Gourd, Malabar nightshade and Morning glory in summer season are popular vegetables. In Thai Binh province, cultivated vegetables are diversified among 4 groups, there is no duplication of cultivated vegetable among groups in winter season.

Each province has unique vegetables which are not cultivated in other provinces. For example, spice vegetable is only available in Phu Tho, chayote is only in Vinh Phuc, green onion and potato are only in Thai Binh.

(3) Cultivation of safe crop

Safety control practices by candidate target groups are identified as the table below.

Table 2.1.3 Condition of Safe Crop Production among Candidate Target Groups

Type	Phu Tho (n=5)	Vinh Phuc (n=6)	Thai Binh (n=4)	Total (n=15)
Organic	0	0	0	0(0%)
VietGAP	4	6	0	10(67%)
Basic GAP	0	1	2	3(20%)
Certification of Safe Production Area	1	5	2	8(53%)
No certification	1	0	2	3(20%)

Source: JICA Project team

There are 10 groups holding VietGAP certificate, 3 groups apply Basic GAP, and 8 groups have

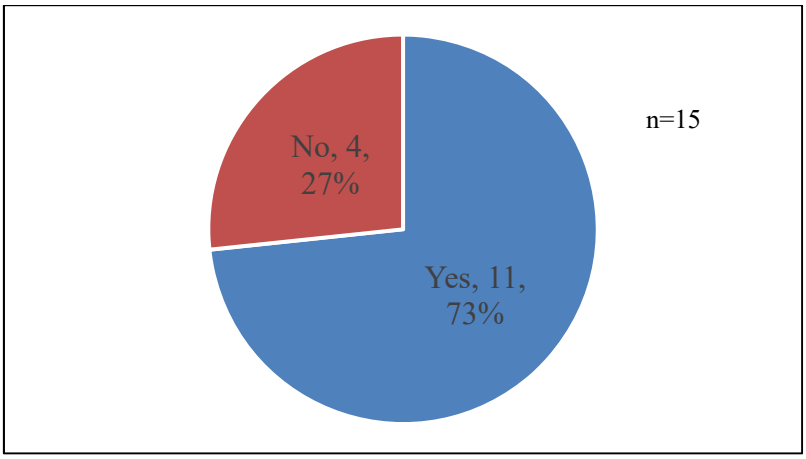
certificate of safe production area.

Table 2.1.4 Safety Measures by Candidate Target Groups

Type	No. of certified group	Logo Holder	Record keeping	Pesticide Residue check	Soil and water check	Internal audit
Organic	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
VietGAP	10	6 (60%)	9 (90%)	7 (70%)	7 (70%)	8 (80%)
Basic GAP	3	2 (67%)	3 (100%)	2 (67%)	2 (67%)	1 (33%)
Safe crop area certified	8	7 (88%)	8 (100%)	6 (75%)	6 (75%)	5 (72%)
Total groups	15	8 (53%)	12 (80%)	8 (53%)	9 (60%)	9 (60%)

Source: JICA Project team

Out of 10 VietGAP certified groups, 9 groups keep recording, 8 groups organize internal audit, 7 groups conduct pesticide residue check and soil and water checks. Out of total 15 candidate groups, 12 groups (80%) keep recording, 8 groups conduct pesticide residue check, 9 groups conduct soil and water checks, and 9 groups organize internal audit.



Source: JICA Project team

Figure 2.1.1 Practice of Cultivation Calendar

Cultivation calendar is a plan which includes information of fertilizer and agrichemical (ex. moment, amount, type to use). Regarding the practice of cultivation calendar, 11 groups out of all 15 groups answered to use cultivation calendar.

(4) Facilities

Equipped facilities on candidate target groups are shown in table below. Out of 15 target groups, garbage can and scale are equipped for 13 groups (87%), followed by community house (11 groups, 73%), warehouse (10 groups, 67%) and washing space (9 groups, 60%).

Table 2.1.5 Equipped Facilities on Candidate Target Groups

Item	Total (n=15)
Garbage can	13 (87%)
Scale	13 (87%)

Washing space	9 (60%)
Warehouse	10 (67%)
Community house	11 (73%)

Source: JICA Project team

(5) Joint sales

Regarding the experiences of joint sales among 15 candidate target groups, 9 groups (60%) answered they have experiences of joint sales.

Table 2.1.6 Experience of Joint Sales

Model	Experience of Joint sales
Cooperative (n=12)	7 (58%)
Agriculture Company (n=1)	1 (100%)
Farmer Group (n=1)	0 (0%)
Household (n=1)	1 (100%)
Total (n=15)	9 (60%)

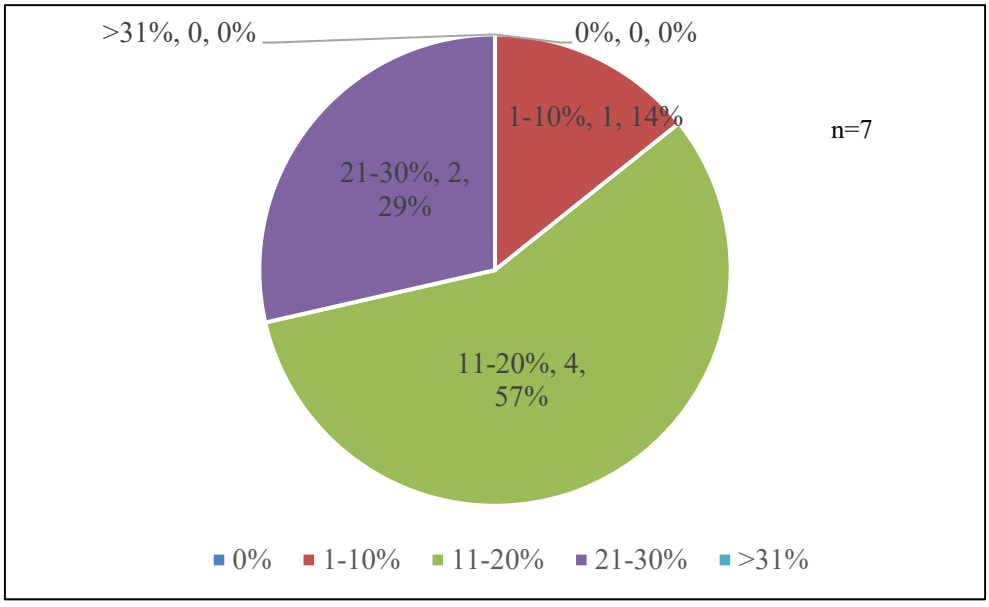
Source: JICA Project team

Regarding the price difference between safe vegetables and normal vegetables, 7 groups out of 15 candidate target groups answered they sold vegetables as safe vegetable. Among 7 groups, all 7 groups answered that there are price difference at least 10% from normal price. In average, the price of safe vegetable was 18% higher than the price of normal vegetable.

Table 2.1.7 Price Difference between Safe Vegetable and Normal Vegetable

Model	Price Difference between Safe Vegetable and Normal Vegetable
Cooperative (n=7)	18% (10-30%)
Agriculture Company (n=0)	0% (-)
Farmer Group (n=0)	0% (-)
Household (n=0)	0% (-)
Total (n=7)	18% (10-30%)

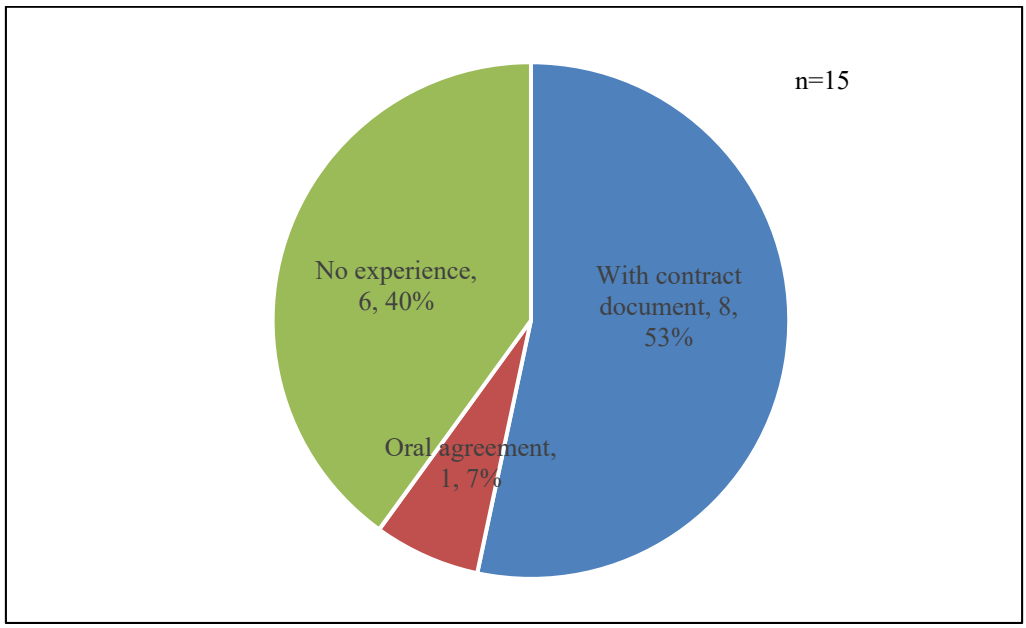
Source: JICA Project team



Source: JICA Project team

Figure 2.1.2 Price Difference between Safe Vegetable and Normal Vegetable

Types of agreement on joint sales are shown in the figure below. 8 groups (53%) out of 15 groups answered they had contract documents on trading, though 1 group (7%) made oral agreement without document and 6 groups (40%) had no experience on joint sales.



Source: JICA Project team

Figure 2.1.3 Type of Agreement on Join Sales

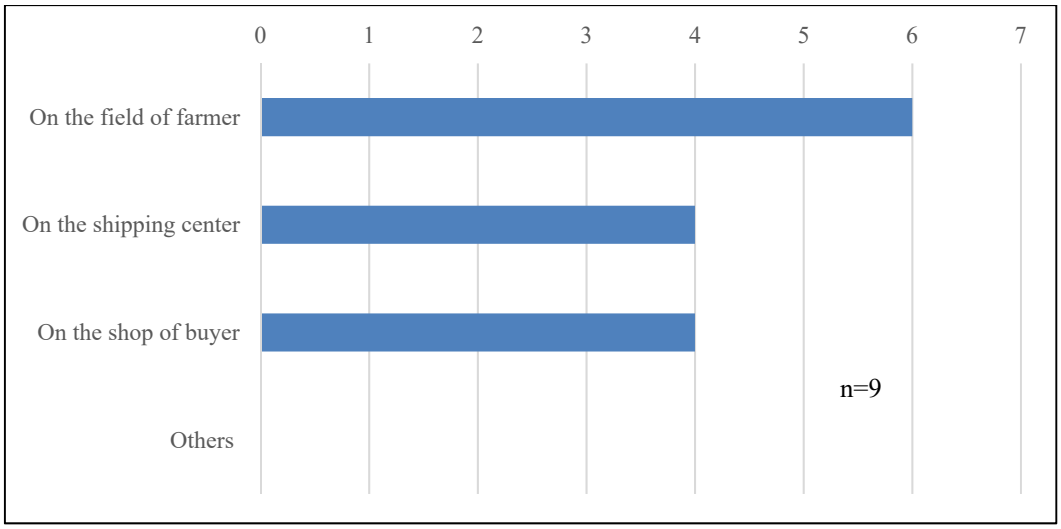
The distribution of buyers on joint sales is shown in the table below. Out of 9 groups, 5 groups (55%) sell vegetables to collectors and wholesalers, followed by retail stores (4 groups, 44%), direct sale shops (2 groups, 22%).

Table 2.1.8 Buyers of Joint Sales

	Collector	Wholesaler	Direct sale shop	Restaurant	Retail store (supermarket etc.)	others
With Contract document (n=8)	4	4	2	1	4	2*
Oral agreement (n=1)	1	1	0	0	0	0
Total (n=9)	5 (55%)	5 (55%)	2 (22%)	1 (11%)	4 (44%)	2 (22%)

Remark: Others = Exporter, Industrial park
Source: JICA Project team

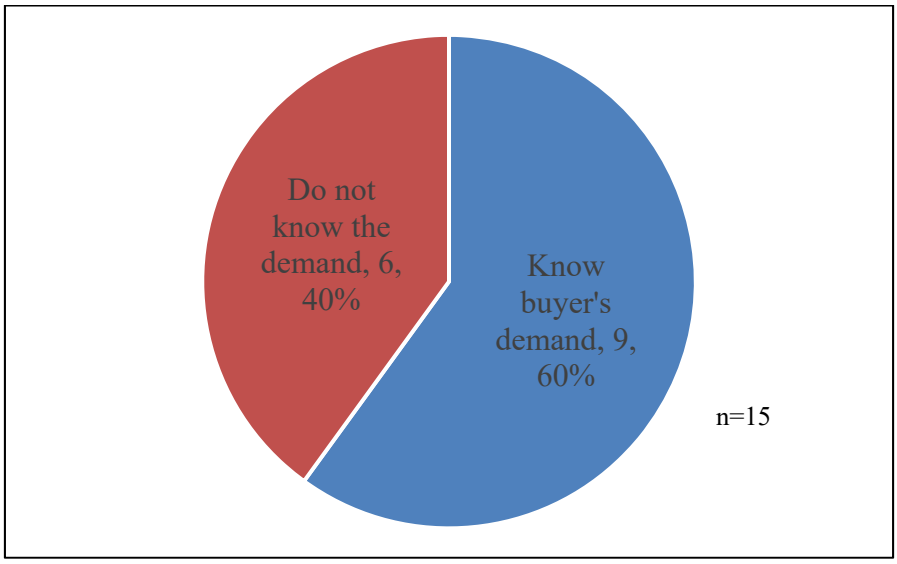
The locations of hand-over of the products to buyers are shown in the figure below. Out of 9 groups which have experiences of joint sales, 6 groups (67%) answered they handed over the products in the field. 4 groups (44%), in turn, hand over the products at the shipping center and 4 groups at the buyer's shop, which means the group transports the products.



Source: JICA Project team

Figure 2.1.4 Location of hand-over the products

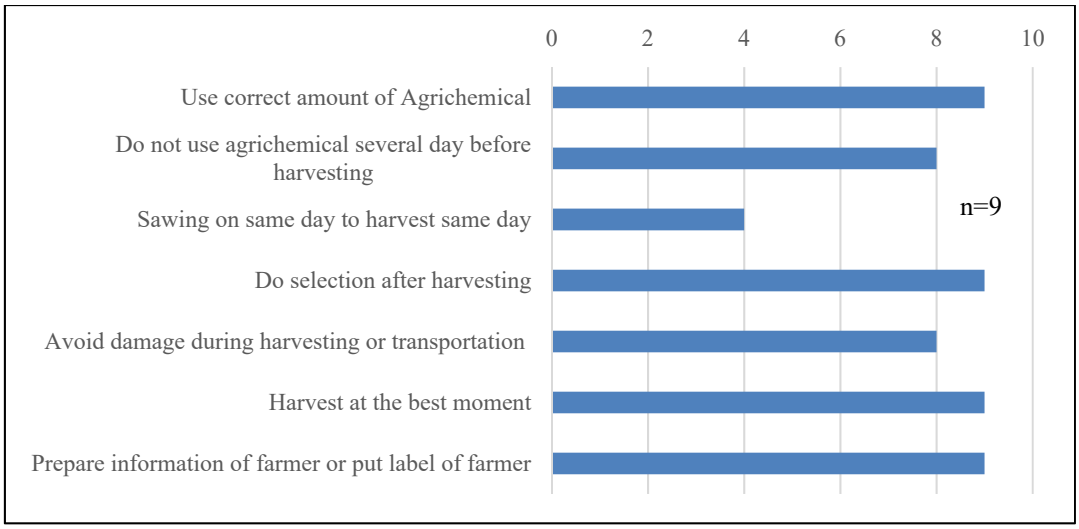
Regarding the recognition of buyer's demand, 9 groups (60%) out of 15 groups answered they knew the buyer's demand as they succeeded to practice joint sales.



Source: JICA Project team

Figure 2.1.5 Recognition of buyer's demand

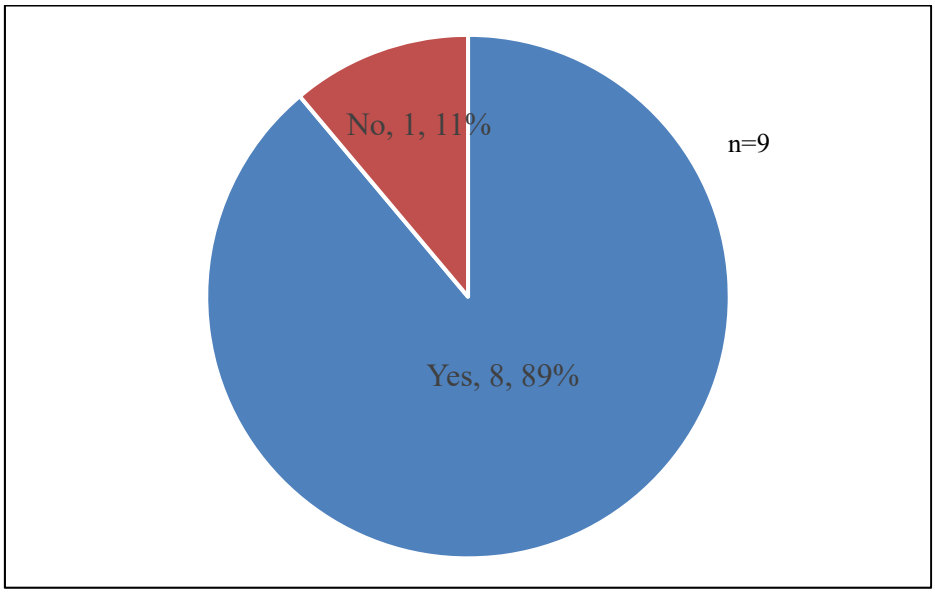
In order to meet the buyer's requirement, groups practice many kinds of actions. Out of 9 groups, all groups answered practicing "Use correct amount of Agrichemical", "Do selection after harvesting", "Harvest at the best moment" and "Prepare information of farmer or put label of farmer". 8 groups answered practicing "Do not use agrichemical several days before harvesting" and "Avoid damage during harvesting or transportation"



Source: JICA Project team

Figure 2.1.6 Farmers' practices to meet buyer's requirement

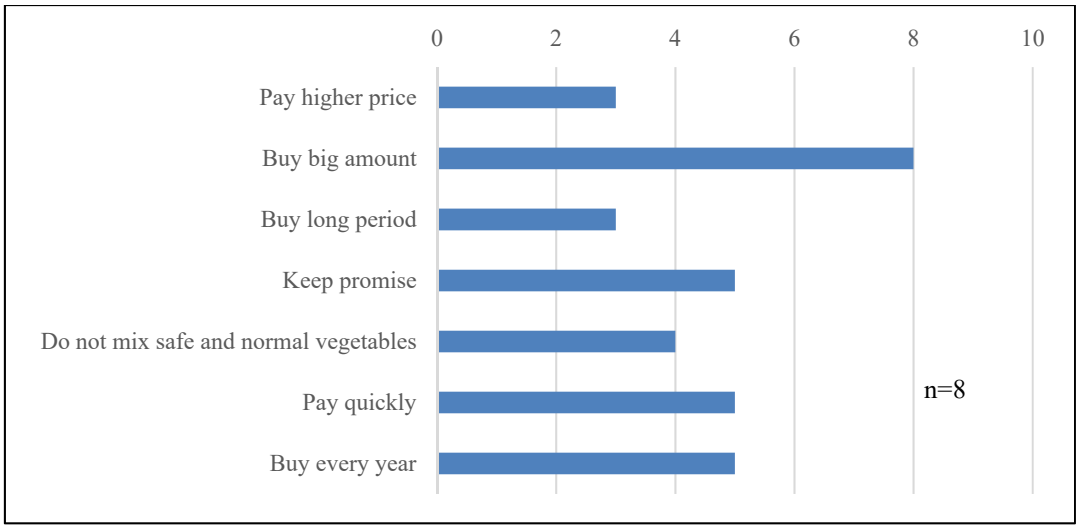
Regarding satisfaction with current buyers, 8 groups (89%) answered they were satisfied with current buyers though only 1 group was not.



Source: JICA Project team

Figure 2.1.7 Satisfaction with Current Buyers

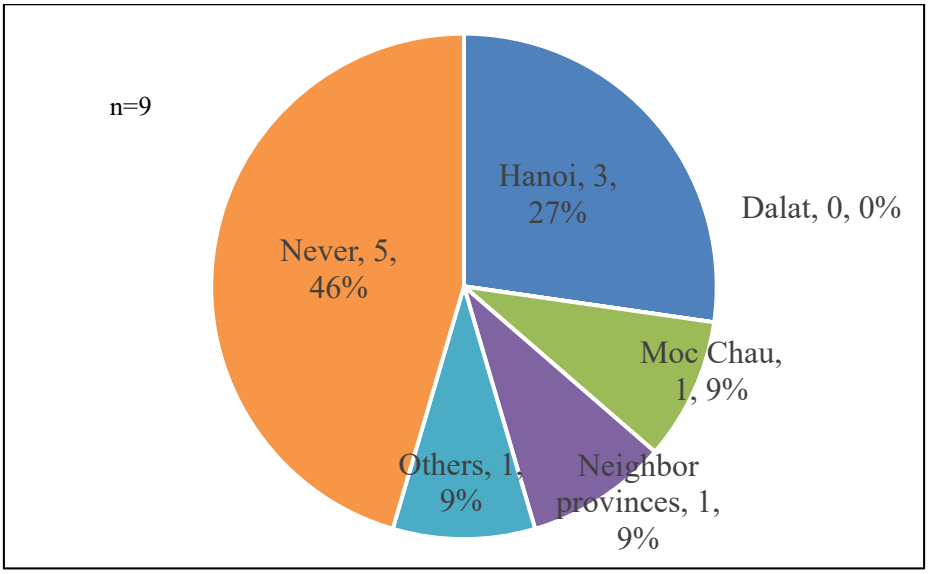
Among the 8 groups answered "Yes" in above figure, the main reasons of satisfaction were; "buy bigger amount" (8 groups, 100%), followed by "keep promise", "pay quickly" and "buy every year" (5 groups, 63%). However, "pay higher price" and "buy long period" (3 groups, 38%) were relatively minor answers compared with above ones.



Source: JICA Project team

Figure 2.1.8 Reasons of Satisfaction with Current Buyers

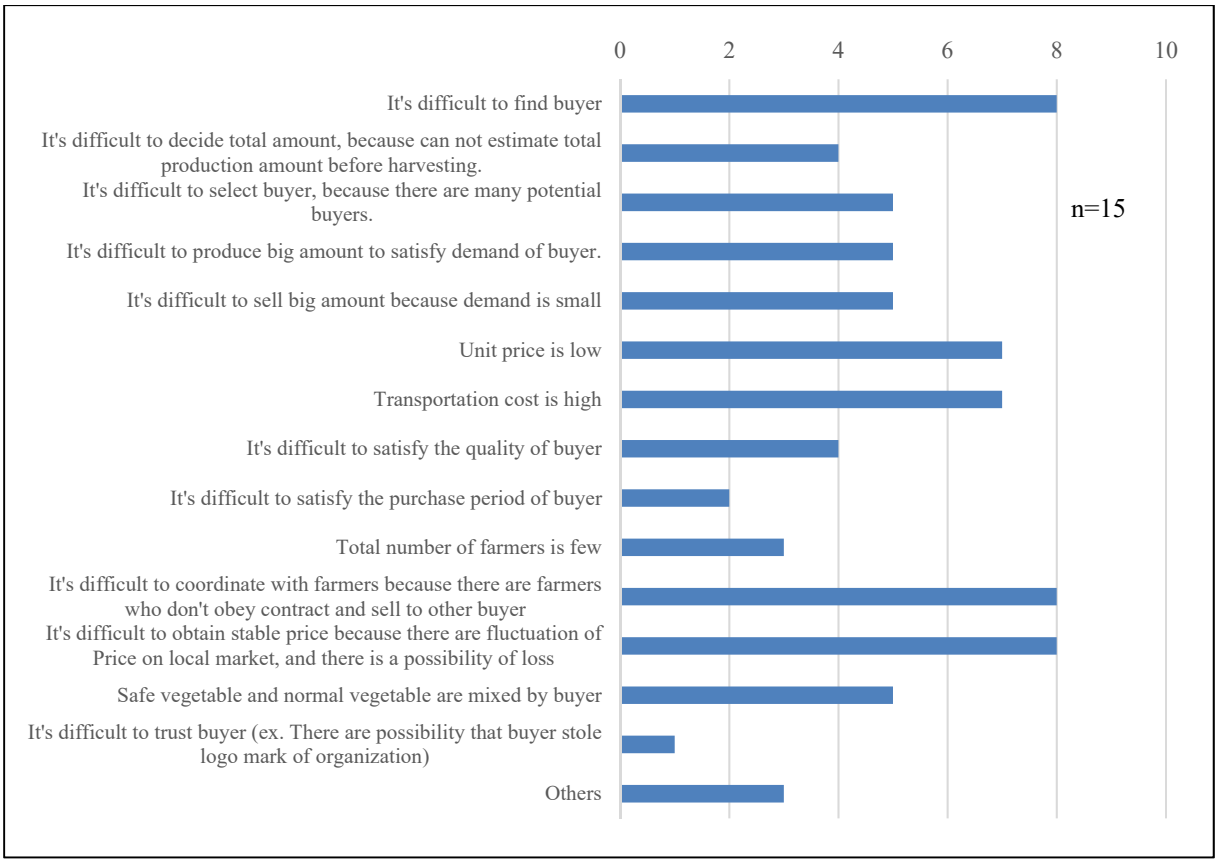
The result of experiences on comparison of own vegetables with others is shown in figure below. Out of 9 groups practicing joint sales, 5 groups (46%) answered "Never compared", followed by "Hanoi vegetables" (3 groups, 27%), "neighbor provinces", "Moc Chau" and "other" (1group, 9%).



Source: JICA Project team

Figure 2.1.9 Experience of Comparison of Own Vegetable with Others Area's One

The problems on joint sales varies among the groups. The most major problems were "to find buyer", "to coordinate with farmers because there are farmers who do not obey contract", and "to obtain stable price because there are fluctuation of price on local market" (8 groups, 53%), followed by "unit price is low" and "transportation cost is high" (7 groups, 47%). It is assumed that many groups face difficulties not only finding buyers but also coordinating with farmers to collect vegetables with required amount. Planning and coordination based on the attractive market demands are the key to encourage joint sales.

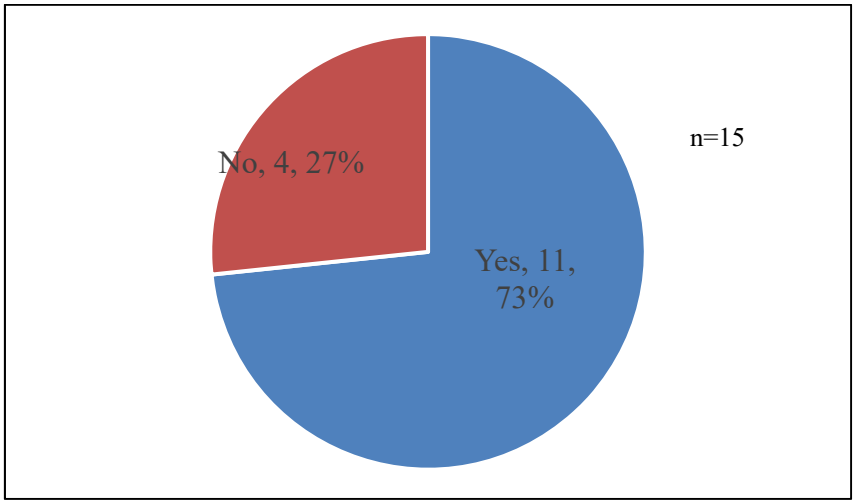


Remark: Others = Sales volume is limited, Low and unstable price, High shipping cost, No label
Source: JICA Project team

Figure 2.1.10 Problems on Joint Sales

(6) Joint purchase

Regarding the experiences of joint purchase, 11 groups (73%) out of 15 groups answered they had experiences of joint purchase and the groups purchased agriculture inputs such as organic fertilizer, chemical fertilizer, pesticide, seeds, etc.

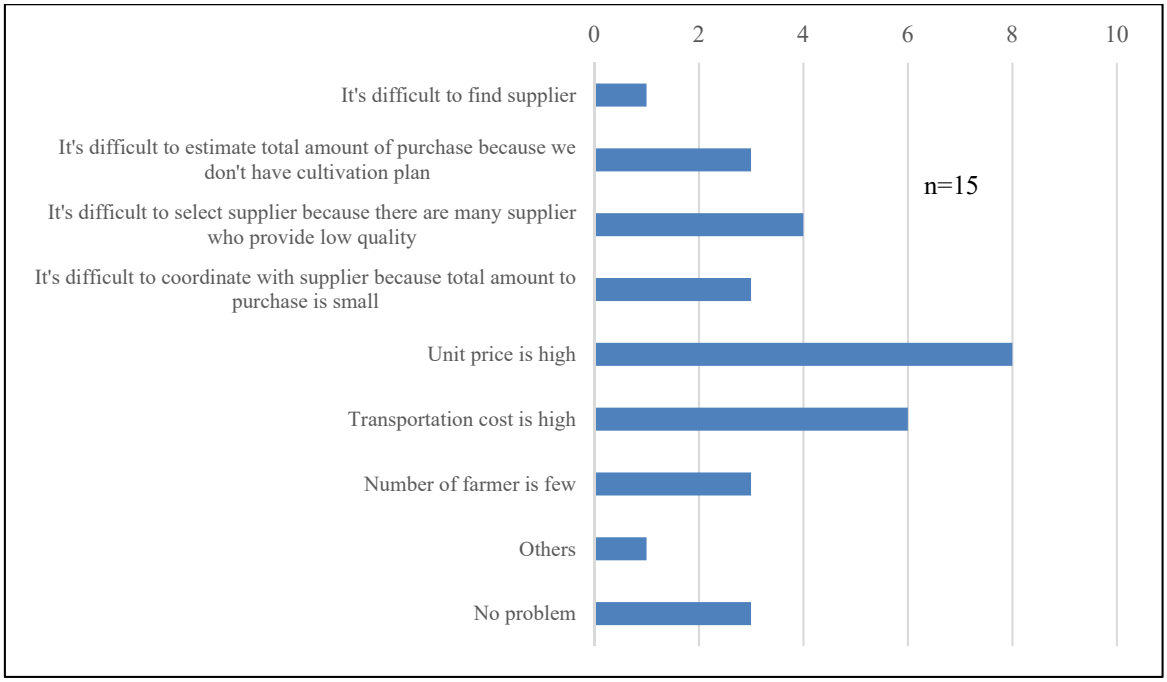


Source: JICA Project team

Figure 2.1.11 Experiences of Joint Purchase

Regarding the problems on joint purchase, the major problem was “unit price is high” (8 groups, 53%),

followed by “high transportation cost” (6 groups, 40%).



Remark: Other = Some households want to use other pesticides
Source: JICA Project team

Figure 2.1.12 Problems on Joint Purchase

CHAPTER 3 Key Findings and Implications for Pilot Project

3.1 Key Findings

- Out of 15 candidate groups, 12 groups are agriculture cooperative. Among 12 cooperatives, number of memberships of cooperatives varies from 8 to 800 persons, and vegetable production area also varies from 3ha to 200ha.
- Each province has unique vegetables which are not cultivated in other provinces. Therefore, there is a possibility to promote such unique vegetables productions differentiating with others.
- There are 10 groups received VietGAP certification. Among them, 9 groups kept recording, 8 groups organized internal audit, 7 groups conducted pesticide residue check and soil and water checks. As this is the interview survey to the group directors, it should be carefully assessed before starting pilot project.
- Regarding the practice of cultivation calendar, 11 groups out of 15 groups (73%) answered to use cultivation calendar.
- Regarding the equipment and facility for food safety condition, garbage can and scale are equipped for 13 groups (87%), followed by warehouse (10 groups, 67%) and washing space (9 groups, 60%).
- Regarding the experiences of joint sales among 15 candidate target groups, 9 groups (60%) answered they have experiences of joint sales.
- 7 groups out of 15 candidate target groups answered they sold vegetables as safe vegetable. Among 7 groups, all 7 groups answered that there were price differences at least 10% from normal price. In average, the price of safe vegetable was 18% higher than the price of normal vegetable.
- In order to meet the buyer's requirement, all 9 groups had experiences of joint sales answered practicing "Use correct amount of Agrichemical", "Do selection after harvesting", "Harvest at the best moment" and "Prepare information of farmer or put label of farmer".
- The most major problems were "to find buyer", "to coordinate with farmers because there are farmers who do not obey contract", and "to obtain stable price because there are fluctuation of price on local market" (8 groups, 53%). It is assumed that many groups face difficulties not only finding buyers but also coordinating with farmers to collect vegetables with required amount. Planning and coordination based on the attractive market demands are the key to encourage joint sales.
- Regarding the experiences of joint purchase, 11 groups (73%) out of 15 groups answered they had experiences of joint purchase and the groups purchased agriculture inputs such as organic fertilizer, chemical fertilizer, pesticide, seeds, etc. The major problem on was "unit price is high" (8 groups, 53%), followed by "high transportation cost" (6 groups, 40%).
- Group size is rather big in old style cooperative (commune cooperative) compared with new established cooperatives, agri. company and farmers group.

Annex 1 Questionnaire Format for Group

No. of Questionnaire:	
Date:	
Name of Interviewer:	

1 General Information

Condition of the Organization

Name of Investor:				
Province:	District:	Commune:		
Name of Organization				
Name of representative				
No. Telephone				
E-mail address				
Board member	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	・Position:	Total number	, including	of females
	Total	Total number	, including	of females

* Should attach List of participant

1.1 Question for all.

Do you have any certification/ activity for safe vegetable cultivat (Select only 1 answers)

a. □ Certificated as Organic Product
b. □ Certificated as Viet GAP or Global GAP
c. □ Implement of Basic GAP
d.□ Certificated by Sub-Department of Plant Protection of DARD
e. □ Don't have certification/ activity

1.2 Organizational form (Select only 1 answers)

a. □ HTX
b. □ Agricultural company
c. □ Farmers' group

1.3 Official Registration (Select only 1 answers)

a. □ Registered （Registration Number： ）*Should take picture of registration
b. □ Under process of registration
c. □ Not yet Registered

1.4 Tax number (Select only 1 answers)

a. □ Registered （Registration Number： ）*Should take picture of registration
b. □ Under process of registration
c. □ Not yet Registered

1.5 Number of Registered member (Select only 1 answers)

a. Male:
b. Female:
c. Total:

1.6 Main activities (Can select several answers)

a. □ Joint sell of crop
b. □ Joint purchase of agricultural materials
c. □ Extension service
d. □ Protection for disease/ insect（Plant Protection）
e. □ Irrigation service
f. □ Farmland Conservation
g. □ Extermination of rat
h. □ Others

1.7 How many times do you have routine activities?

a. Meeting of board member （frequency: times/month)
b. Meeting of all members （frequency: times/month)

1.8 Does organization pay remuneration for board member? (Select only 1 answers)

a. □ Yes
b. □ No

1.9 Does organization have own logo mark? (Select only 1 answers)

a. □ Yes
b. □ No

1.10 Does organization have own Vision/ Goal? (Select only 1 answers)

a. □ Yes → Go to 1.11
b. □ No → Go to 1.12

1.11 If you answered "a" on 1.10, please answer.
What is the Vision/ Goal?

1.12 What is your main resource for capital? (Can select several answers)

a. □ Membership fee → How much is it for one member, one month? _____ VND/year
b. □ Subsidy from the government （ VND/ year)
c. □ Commission by Join sell/ Join purchase （ VND/ year)
d. □ Others

1.13 Can organization issue Red Invoice? (Select only 1 answers)

a. □ Yes
b. □ No

1.14 Does organization manage record book of members? (Select only 1 answers)

a. □ Yes * Should take picture
b. □ No

1.15 Does organization manage cultivation calendar? Cultivation calendar is a plan which includes information of fertilizer and agrichemical (ex. moment, amount, type to use)

a. □ Yes * Should take picture (Select only 1 answers)
b. □ No

1.16 How does organization check that members apply agrichemical by keep low ?

1.17 Does organization analyze agrichemical residue? (Select only 1 answers)

a. □ Yes → Go to 1.18
b. □ No → Go to 1.19

1.18 If answered "b" on 1.17, please answer for detailed information

a. Name of vegetable _____
b. Frequency _____ times/year
c. Sample Number _____ samples/analysis
d. Cost _____ VND/time
e. Cost paid by
   e-1. □ Cooperative/ comp (Can select several answers)
   e-2. □ Individual farmers
   e-3. □ Both organization and farmer
   e-4. □ Buyer
f. Name of institution who analyses _____
   f-1. □ Public institution (Can select several answers)
   f-2. □ Private institution

1.19 Does organization analyze soil? (Select only 1 answers)

a. □ Yes → Go to 1.20
b. □ No → Go to 1.21

1.2 If answered "a" on 1.20, please answer for detailed information

a. Frequency _____ times/year
b. Sample Number _____ samples/analysis
c. Cost _____ VND/time
d. Cost paid by
d-1. □ Cooperative/ comp (Can select several answers)
d-2. □ Individual farmers
d-3. □ Both organization and farmer
e-4. □ Buyer
e. Name of institution who analyses _____
e-1. □ Public institution (Can select several answers)
e-2. □ Private institution

1.21 Does organization analyze water? (Select only 1 answers)

a. □ Yes
b. □ No

1.22 If answered "a" on 1.21, please answer for detailed information

a. Frequency _____ times/year
b. Sample Number _____ samples/analysis
c. Cost _____ VND/time
d. Cost paid by
d-1. □ Cooperative/ comp (Can select several answers)
d-2. □ Individual farmers
d-3. □ Both organization and farmer
d-4. □ Buyer
e. Name of institution who analyses _____
e-1. □ Public institution (Can select several answers)
e-2. □ Private institution

1.23 Does organization implement Internal Audit for GAP? (Select only 1 answers)

a. □ Yes → Go to 1.24
b. □ No → Go to 1.25

1.24 If answered "a" on 1.23, please answer for detail information

a. Number of person who are in charge of internal audit: _____ persons
b. Frequency _____ times/year
c. Number of farmer to be audited _____ farmers/time

1.25 Which facilities does organization have? (Can select several answers)

a. □ Washing place
b. □ Collecting/ shipment center
c. □ Means of transport (ex: track)
d. □ Garbage can
e. □ Community land
f. □ Community house (for offices/ meeting)
g. □ Warehouse (for storage, such as fertilizer)
h. □ Scales
i. □ Basket for shipping
k. □ Others

1.26 If you answered "a" on 1.25, please answer.
How do you discard the garbage? (Can select several answers)

a. □ Hand over to processing agency as normal garbage
b. □ Hand over to processing agency as special garbage
c. □ Leave on field
d. □ Others

2. Cultivation and Join Sell
2.0 General Information

2.01. Total Cultivation area: ha, Number of farmer:

2.02. Total Cultivation area of vegetable: ha, Number of farmer:

2.03. Total cultivation area of vegetable which certificated as VietGAP: ha, Number of farmer:

2.04.Total cultivation area of vegetable which certificated as Safe Crop Production by DAI ha, Number of farmer:

2.05. Total cultivation area of vegetable which are implemented Base GAP ha, Number of farmer:

2.1 Spring Season (Jan-May) Safe vegetable

2.1.1

	Spring Season (Jan-May)		
	Name of vegetable	Area	
A		ha	* Please write detail above, about vegetable A
B		ha	* Please write detail above, about vegetable B
C		ha	
D		ha	
E		ha	
	Total	ha	

2.1.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
A		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
B		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
				*3 If there are several holes/spots of disease, it should be counted as "with disease"	*4 If there are several holes of insect, it should be counted as "with damage by insect"

2.2 Summer-Autumn Season (Jun-Oct) Safe vegetable

2.2.1

	Summer-Autumn Season (Jun-Oct)		
	Name of vegetable	Area	
F		ha	* Please write detail above, about vegetable F
G		ha	* Please write detail above, about vegetable G
H		ha	
I		ha	
J		ha	
	Total	ha	

2.2.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
F		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
G		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.3 Winter Season (Oct-Dec) Safe vegetable

2.3.1

	Winter Season (Oct-Dec)		
	Name of vegetable	Area	
K		ha	* Please write detail above, about vegetable H
L		ha	* Please write detail above, about vegetable I
M		ha	
N		ha	
O		ha	
	Total	ha	

2.3.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
K		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
L		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.4 Spring Season (Jan-May) Normal Vegetable

2.4.1

	Spring Season (Jan-May)		
	Name of vegetable	Area	
P		ha	* Please write detail above, about vegetable J
Q		ha	* Please write detail above, about vegetable K
R		ha	
S		ha	
T		ha	
	Total	ha	

2.4.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
P		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
Q		t	t	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.5 Summer-Autumn Season (Jun-Oct) Normal Vegetable

2.5.1

	Summer-Autumn Season (Jun-Oct)	
	Name of vegetable	Area
U		ha
V		ha
W		ha
X		ha
Y		ha
	Total	ha

* Please write detail above, about vegetable O

* Please write detail above, about vegetable P

2.5.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
U				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
V				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.6 Winter Season (Oct-Dec) Normal Vegetable

2.6.1

	Winter Season (Oct-Dec)	
	Name of vegetable	Area
Z		ha
AA		ha
BB		ha
CC		ha
DD		ha
	Total	ha

* Please write detail above, about vegetable T

* Please write detail above, about vegetable U

2.6.2

	Name of vegetable	Total production	Total amount of shipment	% of population with disease*3	% of population with damage by insect*4
Z				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know
AA				a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know	a. □ 0-25% b. □ 26-50% c. □ 51-75% d. □ 76-100% e. □ I don't know

2.7 Does organization realize Joint Sell?

a. □ Yes Total number of buyer: _____ Total number of farmer who participate: _____

b. □ No

2.8 If answered "a" on 2.7, please answer.
Please write detail of Joint Sell

Name of vegetable	Official contract	Buyer *select "choose" above, and	Place to handover *Select "choose" above	Condition *Select "choose" above
a				
b				
c				
d				
e				

Does organization have Official Contract?	Choice for Buyer (Can select several answers)	Choice for Place to handover (Can select several answers)	Choice for Condition (Can select several answers)
a. have official contract on paper b. only have promise	a. Collector b. Wholesaler c. Direct sale shop d. Restaurant e. Retail store f. Others (write concrete)	a. On the field of farmer b. On the shipping center c. On the shop of buyer d. Others (write concrete)	a. Without treatment b. Wash c. Pack in bags of _____kg *Write size of bag, too d. Pack in box of _____kg *Write size of box, too e. Put label f. Selection g. Others (write concrete)

2.9 Do you know the demand of buyer? (Select only 1 answers)

a. □ Yes →Go to 2.10

b. □ No →Go to 2.13

2.10 If answered "a" on 2.9, please answer.
Which information do you know? (Can select several answers)

a. □ Type of vegetable
b. □ Quality
c. □ Amount
d. □ Period or time to sell
e. □ Safety

2.11 If answered "a" on 2.7, please answer.
To obtain buyer's demand, do you devise a way to produce/sell?
Ex) improvement of cultivation method, coordination for harvest date etc. (Select only 1 answers)

a. □ Yes →Go to 2.12

b. □ No →Go to 2.13

2.12 If answered "a" on 2.11, please answer.
What kind of ideas do you realize? (Can select several answers)

a. □ Use correct amount of Agrichemical
b. □ Do not use agrichemical several day before harvesting
c. □ Sawing on same day to harvest same day
d. □ Do selection after harvesting
e. □ Avoid damage during harvesting or transportation
f. □ Harvest at the best moment
g. □ Prepare information of farmer or put label of farmer
h. □ Others

2.13 Do you satisfy to buyer? (Select only 1 answers)

a. □ Yes →Go to 3.14

b. □ No →Go to 3.15

2.14 If answered "a" on 2.13, please answer.
What is the reason? (Can select several answers)

a. □ They can pay higher price
b. □ They can buy big amount
c. □ They can receive products during long period (Shipping period is long)
d. □ They keep promise (ex: Keep condition regarding to Price, Amount, Quality
e. □ They don't mix Safe vegetable and Normal vegetable
f. □ They can pay quickly
g. □ They can buy every year
h. □ Others

2.15 If answered "b" on 2.13, please answer.
What is the reason? (Can select several answers)

a. □ They can NOT pay higher price
b. □ They can NOT buy big amount
c. □ They can NOT receive products during long period (Shipping period is long)
d. □ They do NOT keep promise (ex: Keep condition regarding to Price, Amount, Quality
e. □ They mix Safe vegetable and Normal vegetable
f. □ They can NOT pay quickly
g. □ They can NOT buy every year
h. □ Others

2.16 Have you compared your vegetable with vegetable of other area? (Select only 1 answers)

a. □ Yes In which province is vegetable cultivated in? (Can select several answers)
□1 Ha Noi、□2 Dalat、□3 Moc Chau、□4 near provinces、□5 Others_____
b. □ No

2.17 **What is the problem for Join Selling?** (Can select several answers)

a. □ Price is low
b. □ Demand is limited
c. □ Information of buyer is limited
d. □ Spend time to coordination with buyer
e. □ Spend time to coordination with member of producers
f. □ No exist problem
g. □ Others

2.18 How many % can you sell Safe vegetable as Safe vegetable?
_____ %

2.19 If you could sell "Safe vegetable" as "Safe vegetable",
How many % is Unit price of Safe vegetable higher than Normal vegetable?
_____ %

2.20 If you could not sell "Safe vegetable" as "Safe vegetable",
How many % is Unit price of Safe vegetable higher/lower than Normal vegetable?
_____ %

2.21 How many times does organization have coordination meeting with one buyer?
_____ times/ year

2.22 Which theme is difficult to coordinate with buyer? (Can select several answers)

a. □ Amount
b. □ Quality (Appearance)
c. □ Shipment period
d. □ Safety
e. □ Way/ moment to pay
f. □ Place to handover
g. □ Price
h. □ Transportation
i. □ Others

2.23 Does organization have confidence with buyer? (Select only 1 answers)

a. □ Yes
b. □ Can not say Yes or No
c. □ No

2.24 In the case that unit price on the local market increases higher than contract which already done, what kind of countermeasure does organization have to avoid the situation that farmers sell products to other buyer?

2.25 In the case that unit price on local market decrease lower than contract which already done, what kind of countermeasure does organization have to avoid the situation that organization can not buy to buyer?

2.26 Question for all.

What is the problem for Join Sell? (Can select several answers)

a. □ It's difficult to find buyer
b. □ It's difficult to decide total amount, because can not estimate total production amount before harvesting
c. □ It's difficult to select buyer, because there are many potential buyers
d. □ It's difficult to produce big amount to satisfy demand of buyer
e. □ It's difficult to sell big amount because demand is small
f. □ Unit price is low
g. □ Transportation cost is high
h. □ It's difficult to satisfy the quality of buyer
i. □ It's difficult to satisfy the purchase period of buyer
j. □ Total number of farmers is few
k. □ It's difficult to coordinate with farmers because there are farmers who don't obey contract and sell to other buye
l. □ It's difficult to obtain stable price because there are fluctuation of Price on local market, and there is a possibility of los
m. □ Safe vegetable and normal vegetable are mixed by buye
n. □ It's difficult to trust buyer (ex. There are possibility that buyer stole logo mark of organization
o. □ Others

3. Joint purchase

Does your organization realize Joint purchase?

a. □ Yes Number of farmers who participate: _____ →Go to 3.1

b. □ No →Go to 3.7

3.1 If answered "a" on 3, please answer below questions.

Please write detail information.

	Name of material	Quantity	Supplier (Name, address and No. telephone)	Unit Price	Difference between normal price and Joint Purchase price
a.					% reduced
b.					% reduced
c.					% reduced
d.					% reduced
e.					% reduced

3.2 Which theme is difficult to coordinate with supplier?

a. □ Amount
b. □ Quality (Appearance)
c. □ Shipment period
d. □ Safety
e. □ Way/ moment to pay
f. □ Place to handover
g. □ Price
h. □ Transportation
i. □ No problem
k. □ Others

3.3 How many times does organization have coordination meeting with one supplier?

_____ times/year

3.4 Does organization have confidence with supplier?

a. □ Yes
b. □ Can not say Yes or No
c. □ No

3.5 What idea does organization realize to reduce unit price?

a. □ To increase total amount for purchase
b. □ To purchase on the month which price decrease
c. □ To devise a way to payment (ex: pay by cash)
d. □ To take some quotations
e. □ To devise a way to transportation
f. □ Others

3.6 Questions for all.

What is the problem of Joint Purchase?

a. □ It's difficult to find supplier
b. □ It's difficult to estimate total amount of purchase because we don't have cultivation plan
c. □ It's difficult to select supplier because there are many supplier who provide low quality
d. □ It's difficult to coordinate with supplier because total amount to purchase is small
e. □ Unit price is high
f. □ Transportation cost is high
g. □ Number of farmer is few
h. □ Others

Socialist Republic of Viet Nam
Ministry of Agriculture and Rural Development

Socialist Republic of Viet Nam
Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Market Survey Report

March 2019

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.
Kaihatsu Management Consulting, Inc.

Socialist Republic of Viet Nam
Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Market Survey Report

Table of Contents

Executive Summary - Buyer's Survey

1. Outlines of Survey

(1) Objectives

- To understand the present conditions of market for safe crops
- To identify POTENTIAL buyers for safe crops produced by target producer groups of the Project

(2) Period

The survey was conducted from early-November to early-December 2016.

Schedule	Activity
1-4 November	Preparing questionnaire
7-15 November	Testing and finalizing questionnaire in each province and preparing entry sheet
16-21 November	Explanatory session for surveyors of each province
17- 2 December	Conducting survey and data entry

(3) Methodology

Questionnaire survey with 72 questions. The questionnaire consists of basic information (26), vegetable trading (18), safe vegetable (18) and awareness of food safety (10).

2. Samples – who were surveyed?

The number of total samples is 91. The data were collected from all the four pilot provinces, namely Hanoi, Hung Yen, Hai Duong and Hanam as indicated below:

Category	Hanoi	Hung Yen	Hai Duong	Hanam	Total
Collector	8	0	5	5	18
Processing company	5	2	6	2	15
Wholesaler	2	10	0	5	17
Restaurant/ catering company	7	5	4	6	22
Retailer	2	5	6	6	19
Total	24	22	21	24	91

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3. Achievements

We reconfirm the commitment of DARD officials in the target provinces for the project!

- ✓All the provinces worked hard to complete the survey by deadline.
- ✓All officials in charge understood the objectives of the survey and made efforts to produce better results.
- ✓The project team believe that conducting survey gave them a valuable opportunities to learn the market.

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4. Findings

Most of respondents showed keen interests and willingness to cooperate with the project.

- ✓57 % of sample buy safe vegetable regularly and 79 buyers are willing to meet producers supported by the project!
- ✓Sales of safe vegetable are increasing. Sales of safe vegetable for processors, exporters and retailers are increasing.
- ✓Safety is one of the most important factors for the respondents to choose vegetable.

If the producers can produce SAFE and Good vegetable, there is a high possibility to find the buyers

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4. Findings (continue)

What kind of normal vegetable do they buy ?

-> There is not much regional difference. Cabbage in dry season and morning glory in rainy season are the most wanted vegetable

Season	Dry season: October- March			Rainy season: April- September		
Hanoi	Cabbage	Tomato	Kohlrabi	Morning glory	Gailum	Vegetable shrinkage
Hai Duong	Cabbage	Kohlrabi	Cauliflower	Morning glory	Cucumber	Mustard
Ha Nam	Cabbage	Mustard	Tomato	Morning glory	Mustard	Malabar nightshade
Hung Yen	Gillum	Kohlrabi	Cabbage	Morning glory	Gailum	Mustard

From whom do they buy safe vegetable?

-> Farmers cooperative is the most favored supply channel for safe vegetable.

Suppliers	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurants	Total
Individual farmers	50%	32%	25%	30%	20%	15%	41.2%
Farmers organization/cooperative	42%	35%	38%	30%	37%	24%	49.0%
Collectors	0%	15%	13%	20%	7%	26%	19.6%
Agriculture enterprises	8%	18%	25%	20%	23%	24%	28.4%

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4. Findings (continue)

Do they pay higher price for safe vegetable?

-> Majority of respondents answered 'yes'. They pay average 17.5% higher price for the safe vegetable.

Do they need certificates such as VietGAP?

-> Majority of respondents answered 'yes'. Buyers except for collectors require certificates.

Do they trust safety of the vegetable they sell?

-> Majority of respondents answered 'yes'. The reason for their belief is ' I know the producer well' followed by ' I choose only certified producers.

Buyers pay the higher price for safe vegetable if the vegetables are really safe

Not only certificate but also knowing producers by themselves is important for buyers to believe in safety

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4. Findings (continue)

Finding reliable producers seems to be the biggest bottleneck for promoting safe vegetable trading.

- ✓ 'Find good producers' is identified as one of the most difficult issue for collectors, processors, exporters, retailers and restaurants/catering services along with other issues such as 'quality control' and 'find buyers'.
- ✓ 'Difficult to find reliable suppliers' is identified as the biggest reason for not trading safe vegetable.
- ✓ Buyers use various tools to find good producers such as government departments including DARD and DOH, trade fairs, internet and word of mouth.

Designing effective matching mechanism is critical for successful pilot activities.

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5. Implications for pilot project

- Priority should be placed on establishment of production as well as collection/delivery system of safe vegetable for the target group. → *Marketing TOT training*
- Understanding buyers and presenting what each producer group can do is very important for effective matching.
  → Develop producer profiles and buyer's request sheets using the information collected through baseline survey and market survey.
- Establishing trust between producers and buyers is critical to facilitate proactive business relationship as well as to prove safety.
  → A platform for all the stakeholders in the supply chain will be established for each target group in the pilot project.

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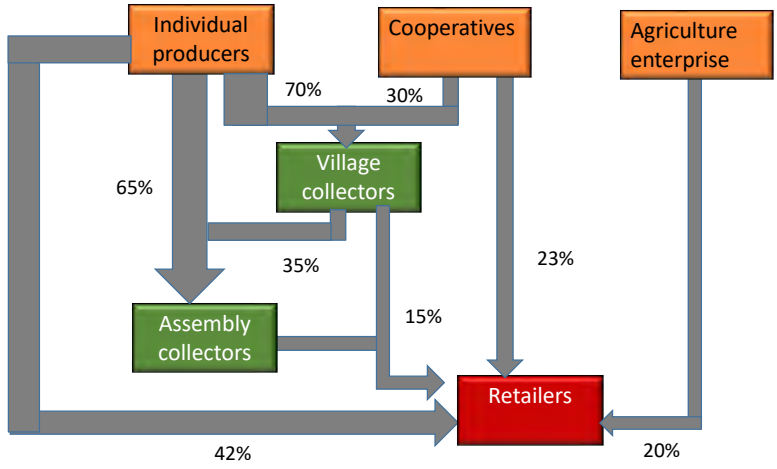
Supply chains of vegetable1 - Collectors and Retailers

- Average trading volume: 0.005-80ton/month (collector), 8 ton/month(retailer)
- Busiest month: October and November
- Most traded safe vegetable: cabbage, kohlrabi



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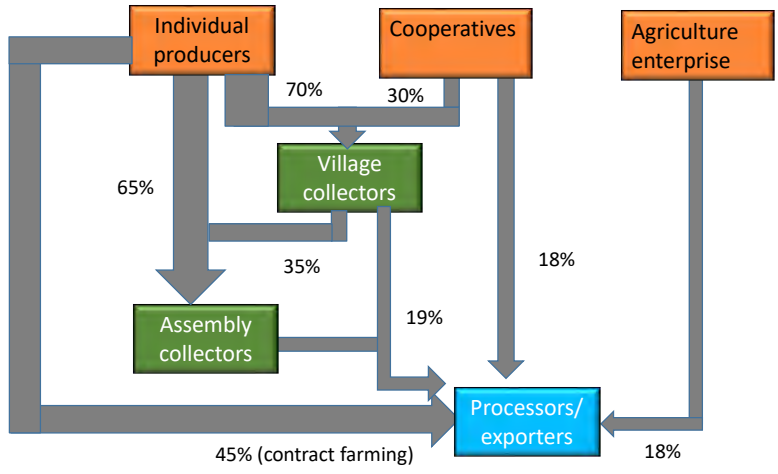
Supply chains of vegetable 2 - Processors/exporters

- Average trading volume: 519ton/month
- Busiest month: November and December
- Most used safe vegetable: cabbage, cucumber, mustard



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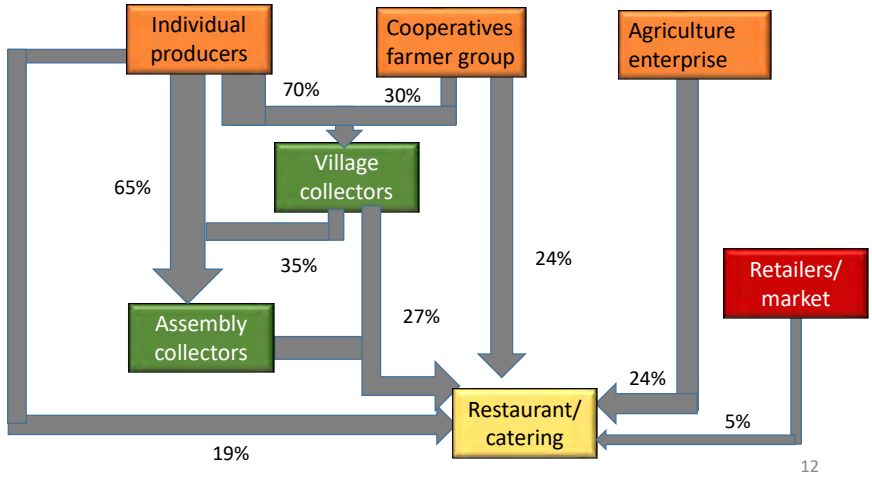
Supply chains of vegetable 2 - Restaurants/catering service

- Average trading volume: 0.2-50ton/month
- Busiest month: November
- Most used safe vegetable: cabbage, gaillum, kohlrabi



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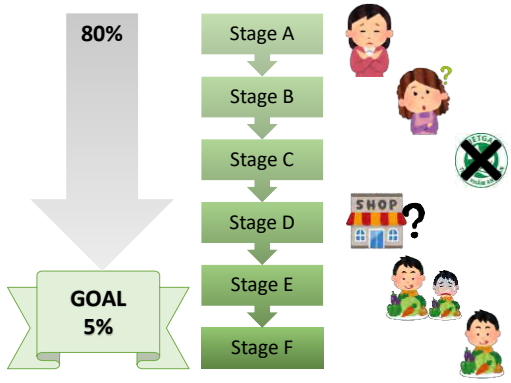
Executive Summary - Consumer Survey

Consumer Survey – Hypothesis & Objective



- Don't do much
- Personal judgement
- Don't trust certificate.
- Trust certificate, but don't know where to shop
- Buy safe vegetable, but Sometime compromise
- Buy safe vegetable regularly

Objective: To understand consumers to plan effective project activities

① What is hindering consumers from purchasing certified safe vegetables?

② What might help them move forward in the chain of behavioral changes?

③ Any behavioral tendencies by age, education level, children, children's age, or purchase channels?

Consumer Survey – Survey Design

Survey Sample:

① Female vegetable purchasers in Hanoi
② 20 years or older
③ Self or family consumption
④ Already aware and concerned about safe vegetables

Purchase Channel	# of Respondents
Supermarket	5
Safe vegetable stall/shop	5
Wet retail market	5
Total	15

Consumer Survey – Results

Sample	Shopping Channel	Age	Highest degree	Marital Status	Number of co-residing family members who are under 18	Ages co-residing family members who are 18 or younger	**Behavioral Stage**
1	Supermarket	40	High school	Married	5	3	**A**
9	Wet Market	61	High school	Married	5	1	**A**
8	Wet Market	65	University	Married	4	1	**A**
10	Wet Market	69	University	Married	3		**A**
6	Wet Market	57	High school	Married	3		**B**
4	Supermarket	60	University	Married	4	1	**B**
12	Safe Vege Shop	60	University	Single	2		**C**
-	-	-	-	-	-	-	D
3	Supermarket	38	Post graduated	Married	2	3	**E**
15	Safe Vege Shop	43	University	Married	0	2	**E**
7	Wet Market	58	University	Married	5	1	**E**
2	Supermarket	29	MSc	Married	4	1	**F**
14	Safe Vege Shop	47	University	Married	4		**F**
5	Supermarket	55	High school	Married	4	2	**F**
11	Safe Vege Shop	57	University	Married	4	1	**F**
13	Safe Vege Shop	66	Lower Secondary	Married	2	1	**F**

No apparent tendencies were detected, based on the education level, the number of youth in the family, and the age of children in the family.

Consumer Survey – Results

Age		Behavioral Stage
40	A	 Don't do much
61	A	
65	A	
69	A	
57	B	 Personal judgement
60	B	
60	C	 Don't trust certificate
-	D	Trust certificate, but don't know where to shop
38	E	 Buy safe vegetable, but sometime compromise
43	E	
58	E	
29	F	 Buy safe vegetable regularly
47	F	
55	F	
57	F	
66	F	

It seems that consumers proactively seek shops, once they become knowledgeable about certified safe vegetable: Information of shop locations is extremely important.

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Consumer Survey – Results

Age		Behavioral Stage
40	A	 Don't do much
61	A	
65	A	
69	A	
57	B	 Personal judgement
60	B	
60	C	 Don't trust certificate
-	D	Trust certificate, but don't know where to shop
38	E	 Buy safe vegetable, but sometime compromise
43	E	
58	E	
29	F	 Buy safe vegetable regularly
47	F	
55	F	
57	F	
66	F	

As the tendency, where the older segment (60 years old and above) lags the behavioral stages, has been observed, promotion focus can be designed according to age segments.

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Consumer Survey – Results

Sample	Shopping Channel	Behavioral Stage
9	Wet Market	A
8	Wet Market	A
10	Wet Market	A
6	Wet Market	B
7	Wet Market	E
1	Supermarket	A
4	Supermarket	B
3	Supermarket	E
2	Supermarket	F
5	Supermarket	F
12	Safe Vege Shop	C
15	Safe Vege Shop	E
14	Safe Vege Shop	F
11	Safe Vege Shop	F
13	Safe Vege Shop	F

Predominantly stays within Stage A & B

- Some may be unaware that supermarkets provide safe vegetable.
- The reason to shop at supermarket may not be necessarily "for safe vegetable", as product assortment is wide.

A majority is well aware of safe vegetable and proactively choose this type of shop.

It is suggested that messaging to convert consumers to the next behavioral stage be different according to their shopping channel.

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Consumer Survey – Results

Qualitative Finding	Implications to Activities
Stage A, B, and C ① Lack of knowledge about safe vegetable and its distinction ② Easy access, low price, quality (= fresh appearance) are the key	***Continue with grass root training and educational activities. Approach: mass / face-to-face***
Stage E & F ① First step is to learn where to buy safe vegetable (advertisement, passing-by, or internet) ② The barrier between Stage E and Stage F is lack of easy access ③ Proactively use internet to collect information	***Develop online platform(s)*** • ***Shop finder*** • ***Producer information*** • ***Certificate information***
④ They trust comes from combination of three information ✓ Information on the package (producer's traceability) ✓ government's certificate ✓ Shop's certificate	***Coordinate with producers & trade (incorporate in Pilot activities)*** • ***Information on packaging*** • ***Certificate process*** • ***In-store display at retailers***
All Stages Key influence to search safe vegetable is family's, especially "child" is often mentioned	***Plan communication activity involving children/youth with mass approach***

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PART I: Buyer's Survey

CHAPTER1 Outlines of Survey

1. Objectives

The buyer's survey aims to understand the current conditions of market practices dealing with vegetable in general and safe crops in particular, and identify the potential buyers of the safe crops produced by farmers supported by the Project.

2. Methodology

(1) Survey period

The survey was conducted between November and December 2016.

(2) Sample

The number of samples is 91. The data were collected from four pilot provinces, namely Hanoi, Hai Duong Hanam and Hung Yen. List of samples is in Annex 1

Table 1.1 Distribution of samples in the categories of buyers and provinces

Category	Hanoi	Hai Duong	Hanam	Hung Yen	Total
Collector	8	5	5	0	18
Processing company	5	6	2	2	15
Wholesaler	2	0	5	10	17
Restaurant/ hospital/ catering company	7	4	6	5	22
Retailer	2	6	6	5	19
Total	24	21	24	22	91

Source: JICA Project Team

As Table 1.1 shows, the distribution of samples in each category varied as the availability of those buyers differs among pilot provinces. Besides the adjustment was required as some organizations refused to cooperate to the survey.

(3) Methodology

Questionnaire survey was employed for the survey. Standardized questionnaire was prepared, tested and finalized by the Project team. The officials of Department of Agriculture and Rural Development (DARD) of each pilot province were nominated as surveyor. They made one-to-one interviews with the selected samples. The persons at the management position were interviewed. The instructions were provided by the Project team.

The data collected in the survey were analyzed in province-wise as well as by type of business they answered[1].

(4) Questionnaire

The questionnaire consists of four sections and summary of questions are shown in Table 1.2. The full version of questionnaire is found in Annex 2.

Table 1.2 Summary of questionnaire

Category	Questions
Basic Information	Interviewees

[1] Although the samples were selected based on the category provided in Table 1.1, some respondents answered that they do multiple types of businesses when they are asked about the types of business. For examples, some retailers do wholesale or processors export their product by themselves. Out of 91 respondents, 15 do multiple types of business. Therefore, in the case of analysis by types of business, the total number of respondents is 108 not 91 as the same respondents are analyzed in the multiple types of businesses. The readers should be careful as this analysis inherently contains certain level of biases.

Category	Questions
	Organization/company
	Overview of business
Vegetable Trading	Type and volume of vegetable for trading, suppliers of vegetable, the way of selecting suppliers, the way of deciding price
Safe Vegetable	Type and volume of safe vegetable for trading, suppliers of safe vegetable, the way of selecting suppliers, the way of deciding price
Awareness of food safety	Awareness of consumers on food safety, level of customer's trust on the interviewee's vegetable

Source: JICA Project Team

(5) Implementation schedule

The survey was conducted in the following schedule.

Table 1.3 Survey schedule

Date	Activity
1-4 November	Preparing questionnaire
7-15 November	Testing and finalizing questionnaire in each province and preparing entry sheet
16-21 November	Explanatory session for surveyors of each province
17- 2 December	Conducting survey and data entry

Source: JICA Project Team

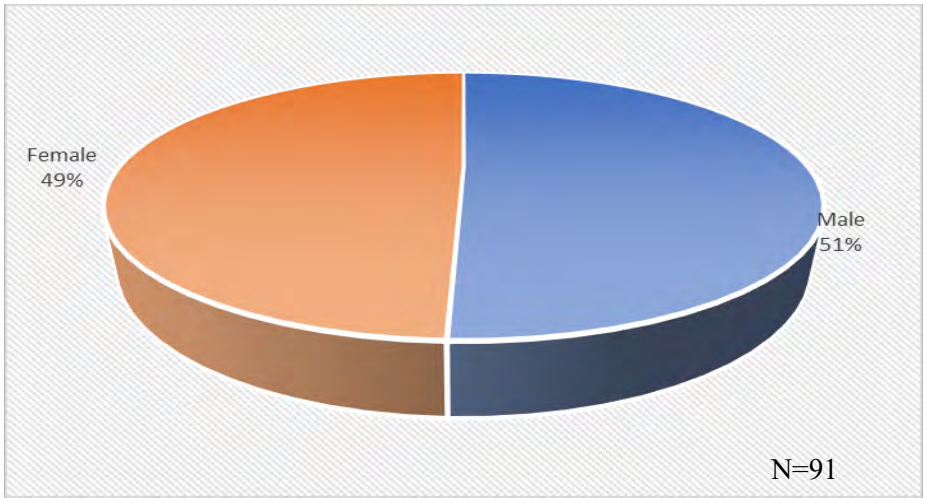
CHAPTER2 Outcomes of Survey

This chapter explains the outcomes of survey.

1. Respondents

1.1 Gender

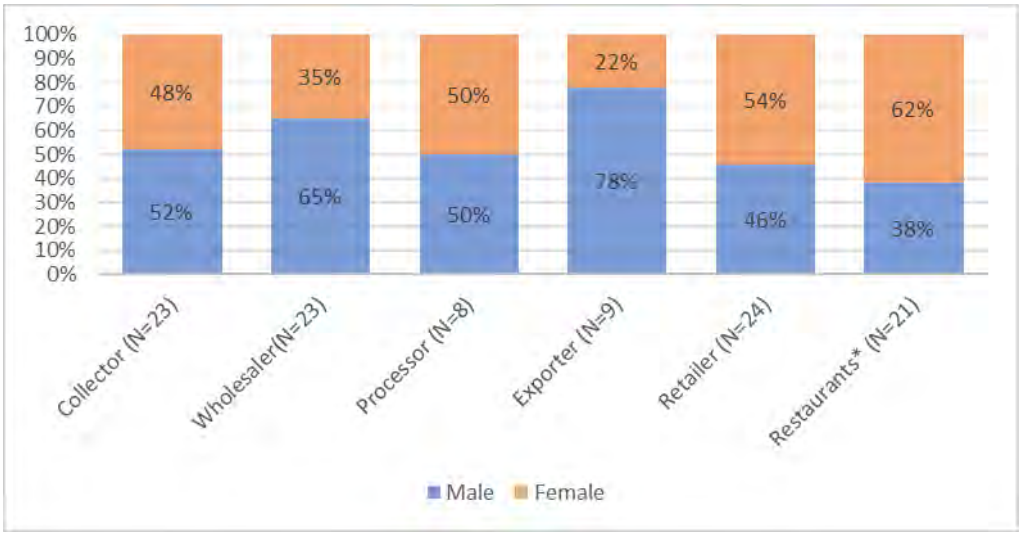
Figure 1.1 shows the gender distribution of respondents. The percentage of male and female is almost same for the sample of this survey.



Source: JICA Project Team

Figure 1.1 Gender distribution

As for the gender distribution of each type of buyers, there are several characteristics. More males are found in wholesaler and exporters, while more females are found in retailers and restaurants.

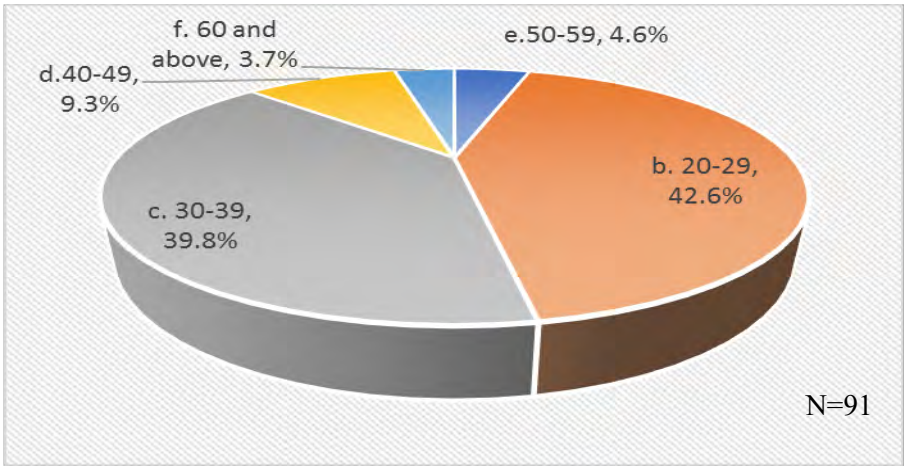


*Including catering companies.
Source: JICA Project Team

Figure 1.2 Gender distribution for types of buyers

1.2 Age

Figure 1.3 shows age distribution of respondents. More than 80% of respondents are between 30 and 49 years old.



*a. Under 20:0%
Source: JICA Project Team

Figure 1.3 Age distribution

There is not much difference of age distribution among different types of buyers.

2. Organization and company

2.1 Start of business

Table 2.1 shows that the start of business varies among respondents. In each type, the respondents started his/her business around 1990 at the earliest and after 2005 for the respondents who started his/her business at latest.

Table 2.1 Start of business

Type	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering	Average
Average	2006	2009	2009	2005	2011	2010	2008
Earliest	1988	1990	1990	1990	1990	1997	1991
Latest	2016	2016	2014	2014	2016	2015	2015

Source: JICA Project Team

2.2 Number of employees

Table 2.2 shows the number of employees for the company or organization respondents belong to. The number of employees is smallest for collector. Among 22 collectors, there are five collectors who do their business by their own. Processors and exporters have more employees than other types of buyer due to their size and nature of business. The biggest number of employee is 8,350 for the canteen of Sumitomo Denso. The respondent might have answered the number of employees for the factory they serve meals.

Table 2.2 Number of employees

Type	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering	Average
Average	6	11	36	57	17	615	124
Minimum	1	1	15	20	1	3	7
Maximum	40	80	85	100	100	8,350	1,459

Source: JICA Project Team

2.3 Location of office

Table 2.3 shows the location of main office for the company or organization respondents belong to. It clearly shows that the respondents have their main office in the province they are surveyed. There are only three exceptions. Two of them have their main offices in Hanoi. The other exception is a big catering company whose main office is in Bac Ninh province.

Table 2.3 Location of main office

Options	Hanoi (N=24)	Hai Duong (N=21)	Ha Nam (N=24)	Hung Yen (N=22)	Total (N=91)
a. Hanoi	22	0	0	2	24
b. Hung Yen	0	0	0	20	20
c. Hai Duong	0	21	0	0	21
d. Ha Nam	0	0	23	0	23
e. Others	0	0	1	0	2

*Some respondents did not answer this question.
Source: JICA Project Team

As for the branch offices of respondents' organizations, the biggest number of respondents have their network in Hanoi. Wholesaler, retailers and restaurants/catering services have tendency to have wider network. Supermarkets have many selling outlets in other provinces, while a catering company whose main office is in Ban Ninh, has branch offices in Ha Nam, Hải Phòng, Hà Nội, and Thái Nguyên.

Table 2.4 Location of branch offices

Options	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant/ catering(N=21)	Total (N=108)
a. Hanoi	6	7	5	3	8	2	31
b. Hung Yen	0	3	0	0	3	0	6
c. Hai Duong	0	0	0	0	0	1	1
d. Ha Nam	0	0	0	0	2	1	3
e. Others	0	1	0	0	2	2	5

*Some respondents did not answer this question.
*Multiple answers.
Source: JICA Project Team

2.4 Monthly turnover

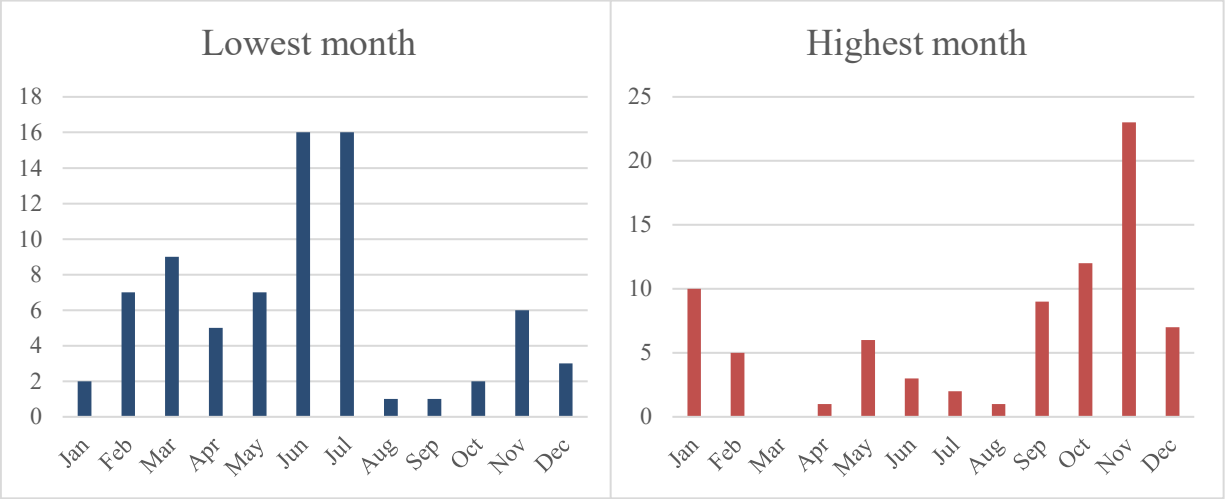
Table 2.5 shows the monthly turnover of the company or organization the respondents belong to. There is a big gap in the turnovers among different categories as well as within the same type. This is because the respondents include both small individual collectors and a big scale enterprises such as supermarket and catering companies. The outcomes should not be taken as a general picture of buyers of vegetables.

Table 2.5 Monthly turnover for the lowest, highest and average month

		Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering	Average
Lowest month (million VND)	Average	315	518	578	1,938	436	3,843	1,271
	Minimum	10	4	33	50	7	30	22
	Maximum	2,000	4,000	1,500	6,500	4,000	39,000	9,500
Highest month (million VND)	Average	675	1,107	1,178	9,100	1,009	4,159	2,871
	Minimum	25	10	100	1,000	15	12	194
	Maximum	4,000	11,000	2,200	30,000	11,000	45,000	17,200
Average month (million VND)	Average	492	612	869	4,992	519	3,703	1,864
	Minimum	20	6	67	700	13	30	139
	Maximum	3,000	4,700	1,850	18,250	4,700	42,000	12,417

Source: JICA Project Team

Although the exporters and catering companies include a big scale sample whose turnovers are extraordinary bigger than others. If these companies are excluded, the average turnover comes into the range of around 500 million VND per month.



*Vertical axes of both figures indicate the number of respondents. N=108
*Multiple answers.
Source: JICA Project Team

Figure 2.1 Seasonal trend of turnover

Figure 2.1 shows both lowest months and highest months for turnover. There is a clear seasonality of turnover, namely November which is harvest season for winter crops is the month of highest turnover and June and July are the months for lowest turnover.

2.5 Relation with Japan

Table 2.6 shows the relation the respondents have with Japan. Several companies the respondents belong to serve meals for canteens of Japanese companies, while several companies supply vegetables to Japanese retailer or hotels.

Table 2.6 Relation with Japan

Relation with Japan
Supply to Aeon Long Biên supermarket
Supply to Niko hotel, kitchen of Sakura school
Piloting seed procedure and vegetable supply for Japanese vegetable factory
Supply to Green Goco (Japan)
Sumitomo Denso
Marubeni, Nisshin Seifun
Supply of vegetables for Japanese restaurants in Dong Van Industrial Zone
Provide industrial meal sets for 10 Japanese companies in Dong Van industrial zone
Provide industrial meal sets for 10 Japanese companies in Hanam and provinces
Provide to Canon Vietnam electronic company; branch of PANASONIC Vietnam company in Hung Yen; Corona Vietnam company in Hung Yen

Source: JICA Project Team

3. Overview of business

3.1 Collector, wholesaler, exporter and retailers

(1) Type product

Table 3.1 shows that 94% of respondents deal with vegetable. While collectors focus more on vegetable, wholesaler and retailers deal with more varieties of products such as fruits and meat.

Table 3.1 Type of product

Options	Collector (N=23)	Wholesaler (N=23)	Exporter (N=9)	Retailer (N=24)	Total (N=79)
a. vegetable	23	23	4	24	74
b. grains	4	6	1	9	20
c. fruits	5	9	2	16	32
d. meat/fish	2	11	2	15	30
e. processed food	2	7	0	11	20
f. others	1	4	1	5	11

*Multiple answers.
Source: JICA Project Team

As Table 3.2 shows, the collectors gain 80% of sales from vegetable on average. The percentage goes down to 49% for retailers.

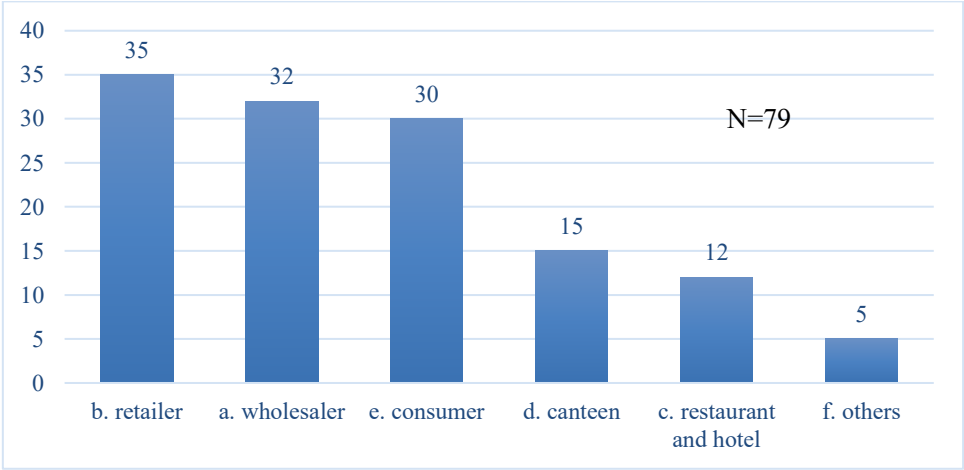
Table 3.2 Percentage of vegetable sales (%)

Options	Collector	Wholesaler	Exporter	Retailer	Average
Average	80	61	75	49	65
Minimum	10	1	30	1	10
Maximum	100	100	100	100	100

Source: JICA Project Team

(2) Buyers of vegetable

Figure 3.1 shows the buyers of vegetables for collectors, wholesalers, exporters and retailers surveyed. The biggest numbers of respondents mainly collectors and wholesalers chose retailers and wholesalers as main buyers of the vegetables. Most of retailers and small numbers of collectors sell their vegetables to consumers. Collectors, wholesalers and retailers also sell their vegetables to canteens and restaurants.



*Multiple answers.
Source: JICA Project Team

Figure 3.1 Buyers of vegetables

In terms of geographical distribution of buyers, around half of respondents have buyers from other provinces. The retailers have buyers in Hải Dương, Lạng Sơn, Hà Nội, Hà Nam, Hải Phòng, Ninh

Bình, Thái Bình, and Nam Định. Although there are more collectors who sell their produce to buyers in the same province, those collectors who have buyers in other provinces sell their produce to the extensive areas such as Hải Dương, Nam Định, Thái Nguyên, Vĩnh Phúc, Sơn La, Sa Pa, Thanh Hóa, Nghệ An, Hà Tĩnh, Hưng Yên, Thái Bình, Hà Nam, Vinh, Đồng Hới, Hà Nội, Sài Gòn, Bắc Ninh, and Quảng Bình. The similar tendency is found for wholesalers.

(3) Sales

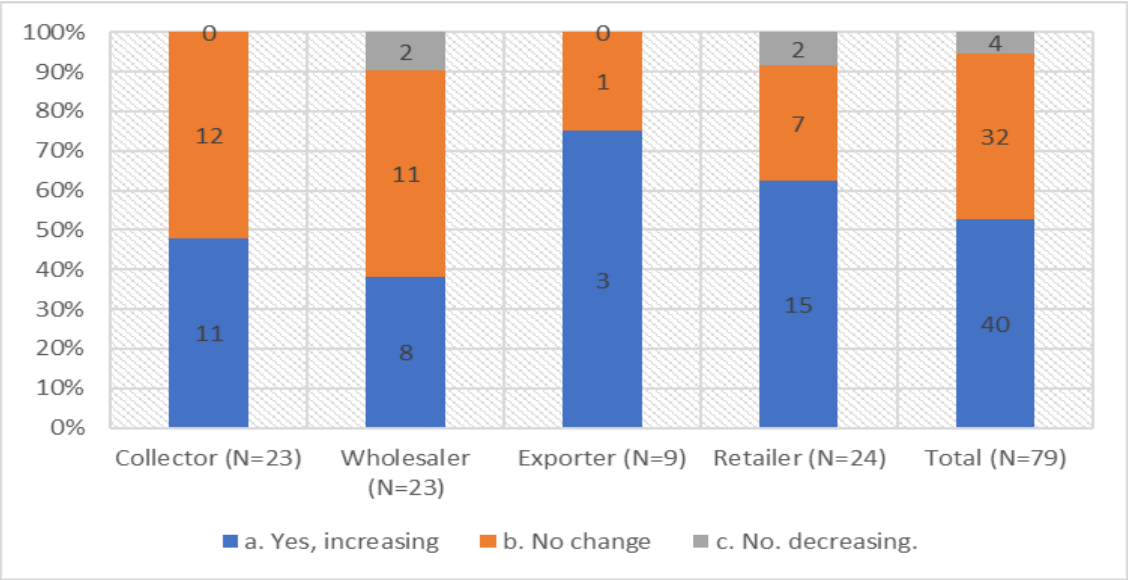
The respondents are charging average 14.75% margin for the vegetable they are selling. The margin is highest for wholesaler who charge between 5 and 50% and lowest for the exporters who charge between 8 and 20%.

Table 3.3 Margin of vegetable sales (%)

Options	Collector	Wholesaler	Exporter	Retailer	Average
Average	12	18	13	16	14.75
Minimum	2	5	8	0	3.75
Maximum	50	50	20	30	37.5

Source: JICA Project Team

To the question "Is the sales increasing?", 40 out of 79 respondents answered "yes". However, the percentage of respondents who answered "yes" varies between different buyers. The percentage of those who answered that their sales is increasing is higher for processors, exporters and retailers. On the other hand, for the collectors and wholesalers, those who answered "no change" are dominant.



*Some respondents did not answer this question. The figure shows the percentage of options among those answered.
Source: JICA Project Team

Figure 3.2 Trend of Sales

However, those who answered that their sales is decreasing are only minimal. Therefore, it is considered that the sales of vegetables are increasing in general.

3.2 Processors and exporters

(1) Type of products

Table 3.4 shows that around half of processors and exporters surveyed deal with vegetables and a quarter of them deal with fruits.

Table 3.4 Type of product

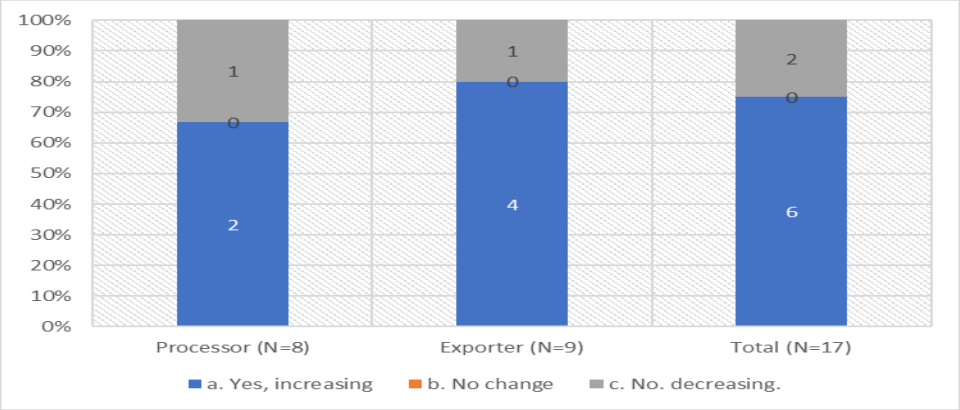
Options	Processor (N=8)	Exporter (N=9)	Percentage (N=17)
a. vegetable	3	5	47.1%
b. grains	0	1	5.9%
c. fruits	2	2	23.5%
d. meat/fish	1	0	0.0%
e. processed food	0	0	0.0%
f. others	0	0	0.0%

*Some respondents did not answer this question.
*Multiple answers.
Source: JICA Project Team

Their major products include pickles of cucumber and carrot and canned melon, baby cucumber and tomato. They export their products to Russia, China, Taiwan, Eastern Europe, Korea and Japan

(2) Sales

Figure 3.3 shows the trend of sales for processors and exporter surveyed. There are more processors and exporters whose sales are increasing than those whose sales are decreasing.



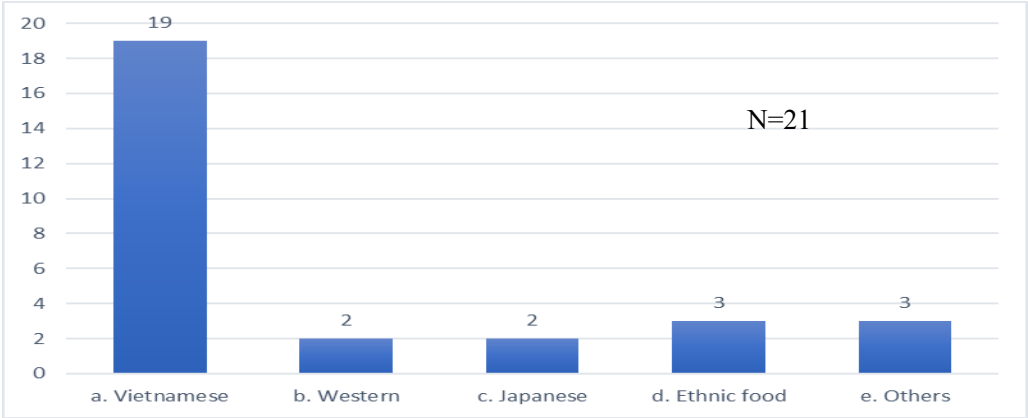
*Some respondents did not answer this question. The figure shows the percentage of options among those answered.
Source: JICA Project Team

Figure 3.3 Trend of Sales

3.3 Restaurants and catering companies

(1) Type of dishes

Figure 3.4 shows the types of dishes served by the restaurants and catering companies surveyed. 19 out of 21 restaurants surveyed serve Vietnamese foods. This is because around 13 respondents serve meals for canteens of factories, schools and hospitals.

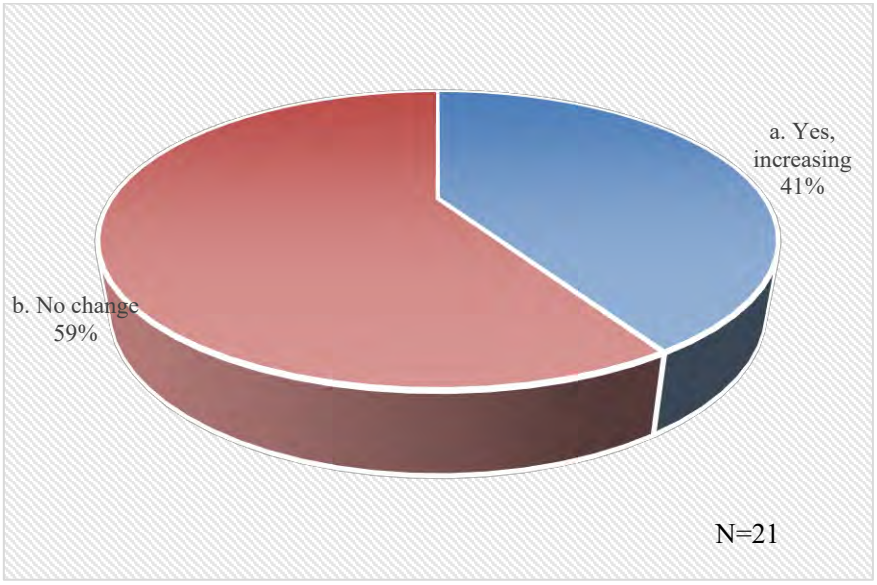


*Multiple answers.
Source: JICA Project Team

Figure 3.4 Types of Dishes

(2) Sales

Figure 3.5 shows the trend of sales for restaurants and catering companies surveyed. There is no respondent answered that their sales are decreasing. Around 60% of respondents answered 'no change' as the budgets of canteen are generally fixed by the parent companies. The remaining 41% of respondents answered that their sales are increasing.



Source: JICA Project Team

Figure 3.5 Trend of Sales

4. Vegetable trading

4.1 Vegetable traded

(1) Three vegetables most traded

Table 4.1 shows the three vegetables the respondents answered are most traded in the dry and the rainy seasons respectively. Although there is small variation among provinces, the most traded vegetable in dry season is cabbage and that in the rainy season is morning glory regardless the provinces.

Table 4.1 Province wise three vegetables most traded

Province	Dry season: October- March			Rainy season: April- September		
Hanoi	Cabbage	Tomato	Kohlrabi	Morning glory	Gailum	Vegetable shrinkage
Hai Duong	Cabbage	Kohlrabi	Cauliflower	Morning glory	Cucumber	Mustard
Ha Nam	Cabbage	Mustard	Tomato	Morning glory	Mustard	Malabar nightshade
Hung Yen	Gaillum	Kohlrabi	Cabbage	Morning glory	Gailum	Mustard

Source: JICA Project Team

The following tables show the ranking of vegetables traded by each type of buyers in the dry season. The figures are calculated by giving 1point to the vegetable the respondent answered first, 0.8 point to the vegetable they answered second and 0.6 point to the vegetable they answered third. Although cabbage is the most traded vegetables in every type, collectors and retailers trade mustard more often than others and processors and exporters deal with cucumber more than others. Retailers handle wider variety of vegetables than other buyers.

Table 4.2 Buyer-wise vegetable most traded in the dry season

Vegetable	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant	Total
Cabbage	11.4	13.6	4.0	3.0	11.2	12.2	55.4
Kohlrabi	5.8	7.4	3.0	1.4	7.4	6.0	31.0
Tomato	2.8	4.4	0.6	1.4	7.4	3.0	19.6
Mustard	6.8	0.0	0.8	0.0	7.4	4.4	19.4
Gailum	3.8	2.8	1.0	0.0	2.8	3.0	13.4
Cauliflower	2.2	2.4	1.4	1.4	2.6	1.2	11.2
Cucumber	0.0	0.6	2.6	3.0	0.6	0.0	6.8
Morning glory	0.6	1.8	0.0	0.0	1.6	2.0	6.0
Potato	0.6	2.6	0.0	0.0	1.6	0.0	4.8
Carrot	0.0	0.6	0.6	1.4	0.0	0.6	3.2

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

For the rainy season, there is no clear tendency among buyers. Although morning glory is the most traded vegetables for processors, retailers and restaurant, collectors and exporters surveyed do not handle it much. Mustard is the most traded vegetable for collectors and wholesalers and cucumber is the one for the exporter.

Table 4.3 Buyer-wise vegetable most traded in the rainy season

Vegetable	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant	Total
Morning glory	0.6	6.6	2.8	1.0	14.0	12.8	37.8
Mustard	10.2	9.2	0.8	0.8	5.6	3.4	30.0
Malabar nightshade	2.0	2.8	1.6	0.0	7.6	7.4	21.4
Gailum	6.4	3.4	1.0	1.0	4.2	2.4	18.4
Jute vegetable	0.0	2.4	0.0	0.0	5.2	3.6	11.2

Vegetable	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant	Total
Squash	3.8	2.8	1.8	0.0	0.0	1.6	10.0
Cucumber	1.6	1.0	1.0	4.0	0.8	0.0	8.4
Vegetable shrinkage	0.6	0.0	0.0	0.0	3.4	3.8	7.8
Tomato	2.4	2.0	0.6	0.0	0.8	0.8	6.6
Amarath	0.8	0.6	1.2	0.0	1.2	2.0	5.8
Chili	0.8	0.8	0.8	1.6	0.8	1.0	5.8
Bean	3.2	1.6	0.0	0.0	0.0	0.6	5.4
Melon	0.0	0.8	0.0	2.4	0.0	0.0	3.2
Coriander	1.6	0.0	0.0	0.0	0.0	0.0	1.6

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

As there is no dominant vegetables for rainy season, there is a tendency that the buyer deals with wider variety of vegetable than they do in the dry season.

(2) Three vegetable difficult to find

Table 4.4 shows the three vegetables the respondents answered difficult to find in each province in the dry and the rainy seasons respectively. Unlike the vegetables most traded, it is not clear which vegetables are most difficult to find. Nevertheless, Malabar nightshade in the dry season and cabbage in the rainy season are considered difficult to find as they are mentioned more frequently than others.

Table 4.4 Province wise three vegetables difficult to find

Season	Dry season: October- March			Rainy season: April- September		
Hanoi	Morning glory	Squash	Tomato	Cabbage	Tomato	Cauliflower
Hai Duong	Jute vegetable	Malabar nightshade	Cauliflower, mustard	Mustard	Cabbage	Gailum
Ha Nam	Morning glory	Vegetable shrinkage	Malabar nightshade	Mustard	Tomato	Cabbage
Hung Yen	Malabar nightshade	Jute vegetable	Sponge gourd	Cabbage	Kohlrabi	Coriander

Source: JICA Project Team

The following tables show the ranking of vegetables in the dry season identified as difficult to find by each type of buyers. The figures are calculated by giving 1point to the vegetable the respondent answered first, 0.8 point to the vegetable they answered second and 0.6 point to the vegetable they answered third. Although morning glory is most difficult to find for wholesalers, processors, retailers and restaurants, vegetable shrinkage is most difficult for collectors and gourd for processors and exporter. It looks that leafy vegetables are mainly sought in the dry season.

Several vegetable in Table 4.5 such as vegetable shrinkage and malabar nightshade are duplicated those traded most in the rainy season (Table 4.3), although they are not included in those most traded in the dry season. In other words, those vegetables are sought as off-season vegetables. On the other hand,, morning glory, mustard and potato are mentioned in Table 4.5 although they are among the most traded vegetables in the dry season. It suggests that demand of these vegetables exceed their supply in the dry season.

Table 4.5 Buyer-wise vegetable difficult to find in the dry season

vegetable	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant	Total
Morning glory	3.8	11.2	2.8	0.0	10.0	8.6	36.4
Vegetable shrinkage	4.6	5.6	0.6	0.0	5.6	3.8	20.2

vegetable	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant	Total
Gourd	3.8	4.6	2.8	1.0	2.8	1.6	16.6
Malabar nightshade	3.0	4.4	0.8	0.8	4.8	2.4	16.2
Jute vegetable	1.4	2.0	0.0	0.0	7.4	2.4	13.2
Mustard	3.2	3.0	0.0	0.0	4.4	0.0	10.6
Amarath	0.0	0.6	0.0	0.0	2.2	0.0	2.8
Potato	2.6	0.0	0.0	0.0	0.0	0.0	2.6

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

Similarly, the vegetables difficult to find in the rainy season in Table 4.6 are basically the vegetables most traded in the dry season. Cabbage and kohlrabi are considered typical off-season vegetable in the rainy season. On the other hand, tomato, mustard, gailum and morning glory are mentioned in Table 4.6 although they are among the most traded vegetables in the rainy season. It suggests that demand of these vegetables exceed their supply in the rainy season.

Table 4.6 Buyer-wise vegetable difficult to find in the rainy season

vegetable	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant	Total
Cabbage	7.6	10.4	2.8	1.0	9.0	4.0	34.8
Kohlrabi	7.0	5.0	1.0	0.0	7.2	3.8	24.0
Tomato	3.4	7.0	0.0	1.8	4.2	1.0	17.4
Mustard	3.4	2.0	1.8	0.0	7.0	3.0	17.2
Cauliflower	0.8	2.2	1.4	0.8	2.0	0.0	7.2
Potato	1.6	3.0	0.0	0.0	1.0	0.6	6.2
Gailum	2.0	0.6	1.4	1.0	0.0	0.8	5.8
Cucumber	0.8	1.4	0.6	1.8	0.6	0.0	5.2
Dropwort	0.0	0.0	1.0	0.0	0.0	2.6	3.6
Morning glory	0.6	0.0	0.0	0.0	0.0	3.0	3.6
Lettuce	2.8	0.0	0.0	0.0	0.0	0.0	2.8

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

(3) Volume of vegetable required

Table 4.7 shows the volume of vegetable required by respondents. The volume varies among respondents depending on the scale of their businesses. The biggest amount is 25,000 tons/month by a Japanese factory. Besides a Vietnamese exporter requires vegetable 1,900 tons/month on average. If these companies are excluded, the average volume of vegetable required comes into the range of around 50 tons per month.

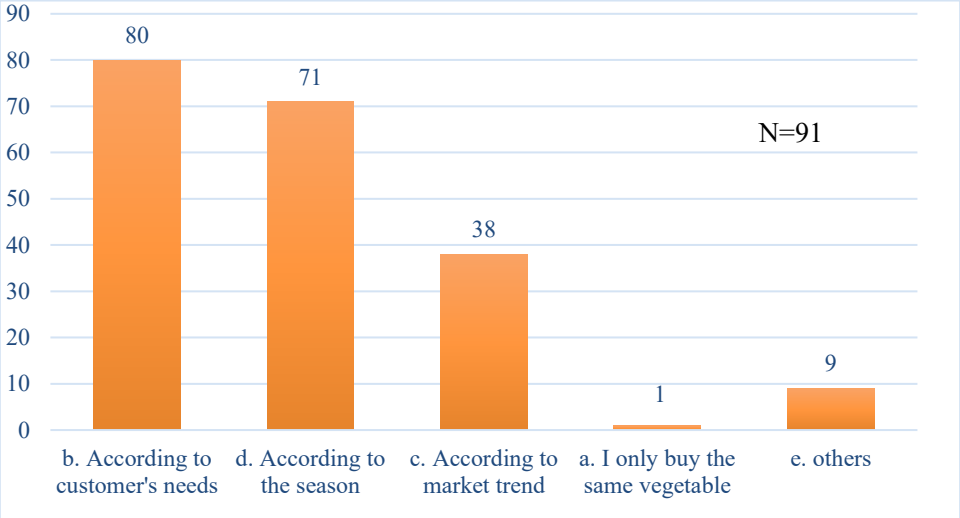
Table 4.7 Volume of vegetables required

		Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering	Average
Lowest month (Tons)	Average	62	32	68	368	7	1,566	351
	Minimum	0	1	3	5	0	0	1
	Maximum	600	300	220	1,800	60	25,000	4,663
Highest month (Tons)	Average	112	47	230	652	9	1,671	453
	Minimum	0	1	4	60	1	0	11
	Maximum	700	350	950	2,000	60	25,000	4,843
Average month (Tons)	Average	80	38	41	837	8	1,338	390
	Minimum	0	0	3	50	0	0	9
	Maximum	650	330	125	1,900	50	25,000	4,676

Source: JICA Project Team

(4) Selection of vegetable

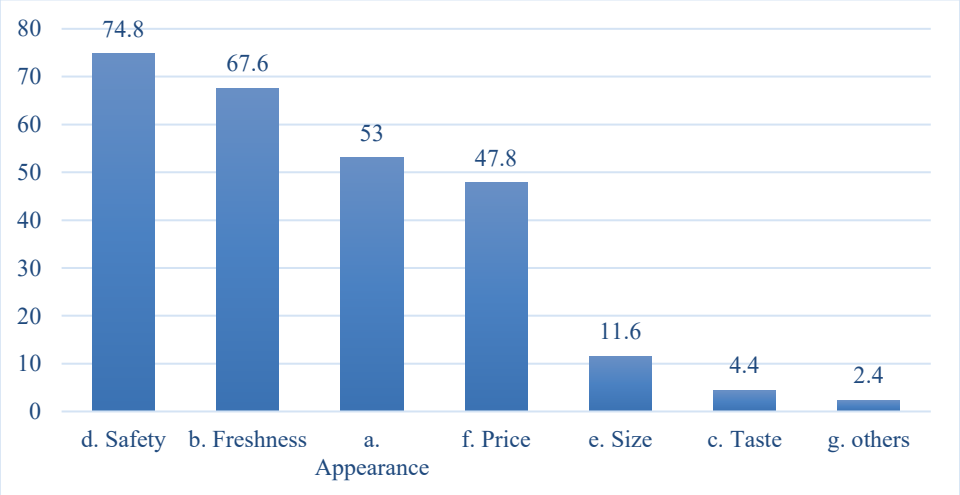
Figure 4.1 shows how the respondents decide which vegetable they buy. More than 70 samples among 91 samples chose 'According to the customer needs' and 'According to the season'.



*Multiple answers.
Source: JICA Project Team

Figure 4.1 How to decide which vegetable you buy

Figure 4.2 shows the factors the respondents consider important to decide which vegetable they buy. Safety appears the most important factor to decide the vegetable to buy followed by freshness and appearance.



* The respondents are asked to choose three options in priority. The number in the vertical axis of Figure 4.1 indicates the points each option gets. The points are calculated by giving 1point to the option the respondent answered first, 0.8 point to the option they answered second and 0.6 point to the option they answered third.

Source: JICA Project Team

Figure 4.2 Factors to decide vegetable

There are some differences of priority among different categories of buyers. As Table 4.8 shows safety is the priority for wholesaler, processor, retailer and restaurant, while appearance is more important for collector and exporter. This is partly because the processors surveyed are those who export their products to Russia and East Europe where the food safety regulations are not very strict.

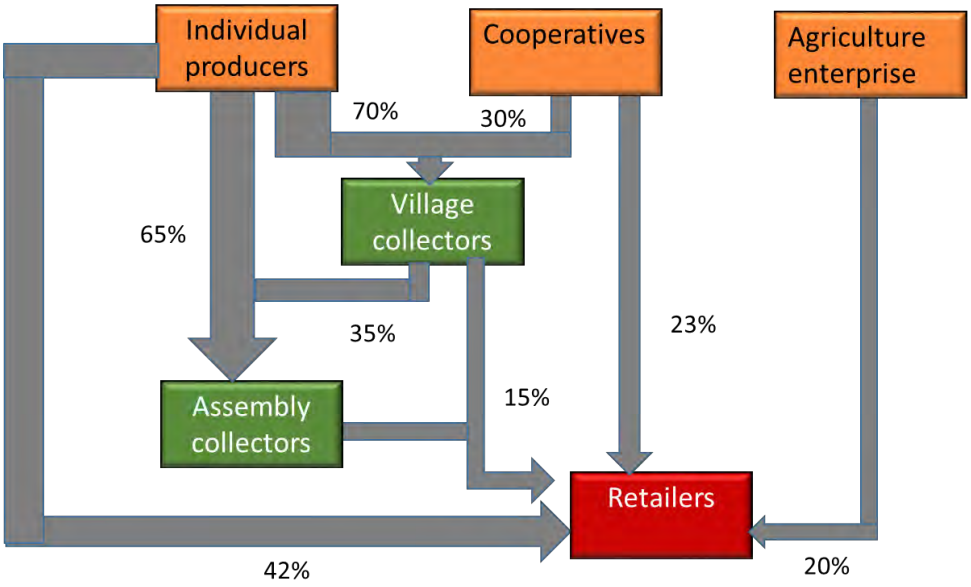
Table 4.8 Factors to decide vegetable

	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering	Total
d. Safety	14.2	13	7	5	18.4	17.2	74.8
b. Freshness	15.6	12.6	5.8	3.8	15.4	14.4	67.6
a. Appearance	16.2	11	3.2	7.2	7.8	7.6	53
f. Price	5.6	13	4	4	11.4	9.8	47.8
e. Size	1.6	4.8	1.6	1.6	1.2	0.8	11.6
c. Taste	1.4	0.8	0	0	1.6	0.6	4.4
g. others	0	0	0	0	2.4	0	2.4

Source: JICA Project Team

4.2 Supply of vegetable

The figure below shows the distribution mechanism for collectors and retailers surveyed. The percentage in the figure indicates the percentage of supply to the village collectors, assembly collectors and retailers. They are calculated based on the answers of the respondents in the survey. Therefore, the figure should not be taken as a general picture of supply of vegetable to collectors and retailers.

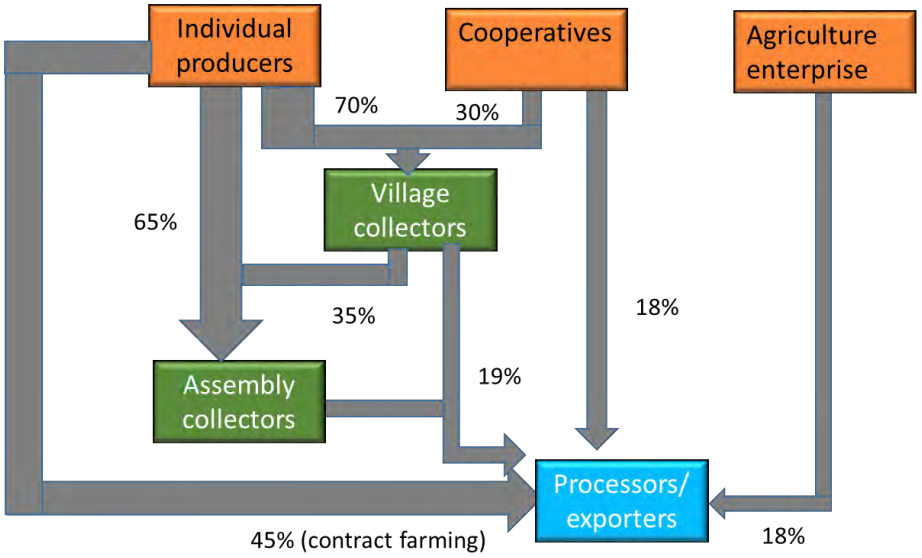


Source: JICA Project Team

Figure 4.3 Distribution channels for collectors and retailers

The figure shows that individual producers are dominant channel of supply for both collectors and retailers, although the retailers have more diversified channels of supply than collectors have.

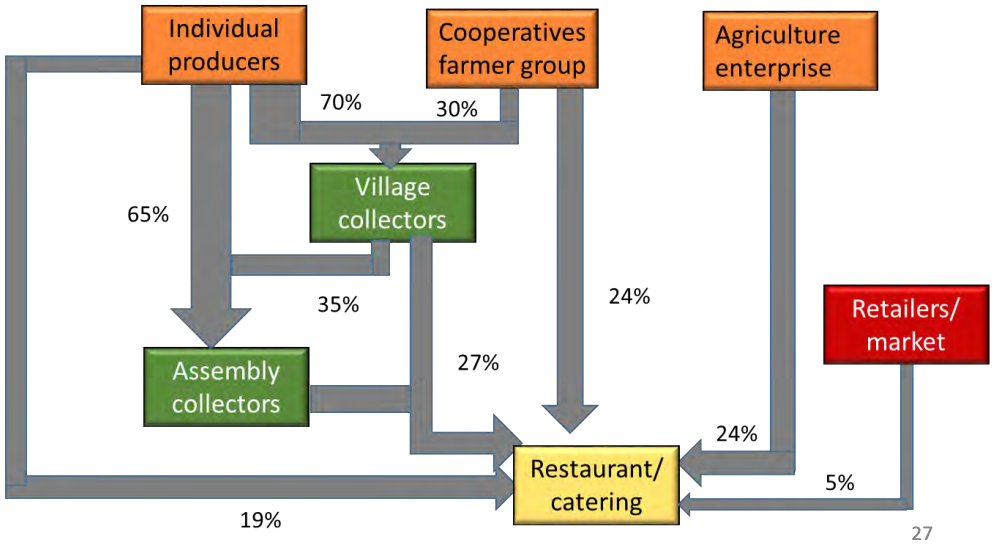
Figure 4.4 shows the distribution mechanism for processors and exporters. The biggest suppliers of vegetable for processors and exporters in this survey is individual producers. It is partly because some processing companies who make pickles for Russian market provide seeds of specific variety of cucumbers to producers to grow under the contract farming.



Source: JICA Project Team

Figure 4.4 Distribution channels for processors and exporters

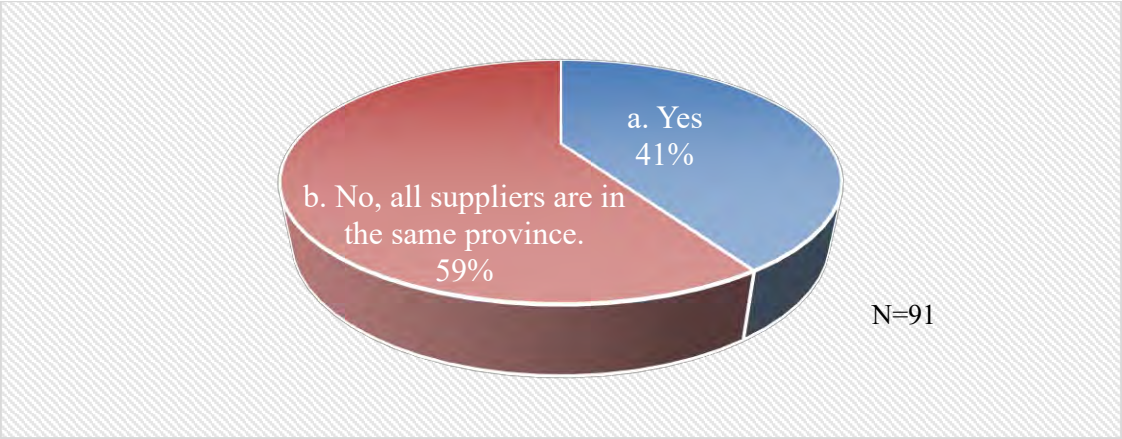
Figure 4.5 shows the distribution mechanism for restaurants and catering companies. For this type, the percentage of supply from individual producers is small. Instead the supply from cooperatives, collectors and agricultural enterprise are dominant. This is partly because restaurants and catering companies require wider variety of vegetables than processors and exporters who tend to focus on limited variety of vegetables. Therefore, they prefer those suppliers who can manage to supply the wide range of vegetables in the required amount. There is small percentage of supply from retailers and market. This is for small restaurants in the town who procure vegetables everyday depending on the menu and expected demand of business on that day.



Source: JICA Project Team

Figure 4.5 Distribution channels for restaurants and catering companies

Figure 4.6 shows the origin of suppliers. 59% of respondents have all suppliers in the same province, while 41% of respondents have suppliers from other provinces.



Source: JICA Project Team

Figure 4.6 Origin of suppliers

Table 4.9 shows the suppliers from other provinces for each type of buyers. Supply from surrounding provinces and Hanoi are quite common in addition to the supply from Dalat and Moc Chau which are famous as a vegetable production area.

Table 4.9 Suppliers from other provinces

Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering
Sơn La, Vĩnh phúc, Hưng Yên, Thái Bình, Hà Nam, Vĩnh Phúc	Đà Lạt, Mộc châu, Trung Quốc, Sơn La, Lâm Đồng, Lào Cai, Hà Nội, Yên Bái, Hòa Bình, Hải Dương, Bắc Ninh, Bắc Giang,	Yên Bái, Hòa Bình, Bắc Giang, Hà Nam	Bắc Giang, Hải Phòng, Thái Bình, Hải Dương, Hưng Yên, Hà Nam, Sơn La, Mộc Châu, Bắc Ninh, Vĩnh Phúc	Sơn La, Lâm Đồng, Lào Cai, Đà Lạt, Yên Bái, Hòa Bình, Sapa - Lào cai	Hưng Yên, Hải Dương, Ha Noi

Source: JICA Project Team

Table 4.10 shows the important factors for buyers to choose suppliers. Overall safety becomes the most important factor to choose the suppliers. However, when we look at each buyer, safety is the most important factors only for processor, retailers and restaurants. This is because retailers and catering companies are obliged to procure safe vegetables. Quality (appearance, size, color) is more important for collectors and wholesaler and price is the most important factor for exporters.

Table 4.10 Important factors to choose suppliers

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant/ catering(N=21)	Total (N=108)
c. Safety	16	15	8	5	18	17	79
d. Quality	17	17	6	5	16	16	77
b. Price	14	16	3	8	12	14	67
f. Reliability of suppliers	11	16	3	4	14	9	57
a. Location of farm	4	3	2	2	6	3	20
e. Volume	4	4	1	1	3	1	14
g. others	0	0	0	0	2	1	3

*Multiple answers.
Source: JICA Project Team

4.3 Conditions for trading

(1) Timing of deciding the price

Table 4.11 shows the timing of deciding the price. Overall there are more buyers to decide the price when they give an order. This tendency is more apparent for retailers, processors and exporters.

Collectors and wholesalers are considered more flexible as half of them decide the price when they collect supply although the other half decide the price when they give an order.

Table 4.11 Timing to decide the price

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant/ catering(N=21)	Total (N=108)
a. when we give an order	11	11	4	6	17	14	63
b. when we collect supply	10	10	2	2	3	6	33
c. Others	2	2	2	1	4	0	11

*Some respondents did not answer this question.
Source: JICA Project Team

Table 4.12 shows the method of deciding the price by the respondents who choose 'others'.

Table 4.12 Method to decide the price

Buyer	Method to decide the price
Collectors	Follow the market price Negotiate before make order
Wholesaler	Fixed price of each year (around 10.000đ/kg) (2)
Processors	Fixed price of each year (around 10.000đ/kg) Minimum price to be set for farmer, purchase price is in accordance with season time
Retailers	Fixed price of each year (around 10.000đ/kg) Reach agreement right from the beginning Prices decided by Company

Source: JICA Project Team

(2) Contract

1) Contract with suppliers

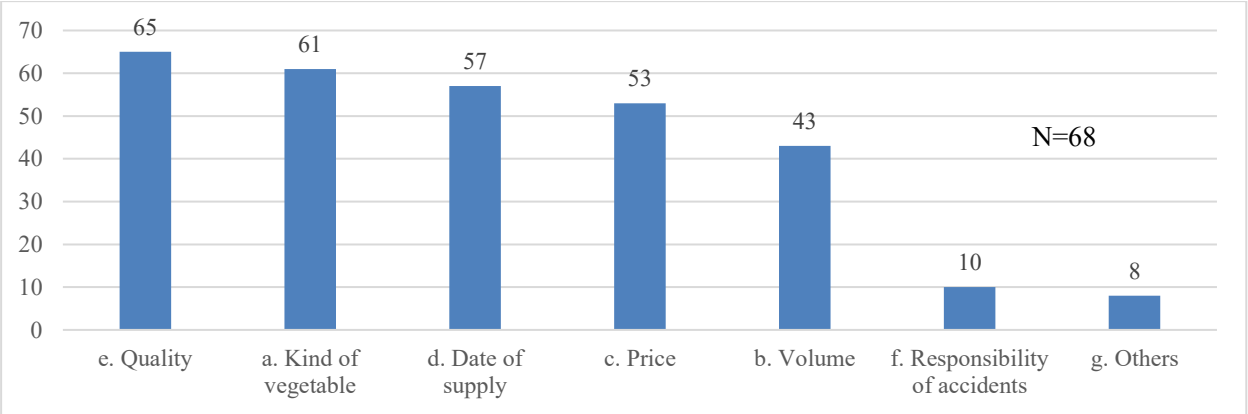
Table 4.13 shows whether buyers make a contract with suppliers. There are more respondents who make a contract with suppliers than those who do not. Although most of processors, exporters, retailers and restaurants make a contract, not many collectors and wholesalers make a contract with suppliers.

Table 4.13 Contract with suppliers

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes	7	11	8	8	16	18	68
b. No	16	12	0	1	8	2	39

*Some respondents did not answer this question.
Source: JICA Project Team

Figure 4.7 shows the elements included in the contract. Among 69 respondents who answered they make a contract with suppliers, 65 respondents include quality followed by kind of vegetables and date of supply in the contracts.



*Multiple answers.
Source: JICA Project Team

Figure 4.7 Contents of contract

It is important to note that buyers consider the contract to minimize the risk and uncertainty arising from vegetable trade. For instance,10 respondents include responsibility of accidents in the contract and there are similar conditions mentioned by the respondents such as punishments in case the supplier fails to fulfill quality requirement. Preparing themselves for these conditions is very important if the producers make a contract with buyers.

Other conditions identified by respondents to include in the contract with buyers are as follows:

<Others>
commit the quality, make compensation in case products do not achieve standard, make payment, deposit, or punishment terms in case of products with not good quality, safety, commit the quality, make compensation in case products do not achieve standard, payment method

2) Contract with buyers

Table 4.14 shows whether respondents[2] make a contract with their buyers. The number of respondents who make a contract with buyers is almost same as those who do not. There is a same tendency among different kinds of buyers. Although most of processors and exporters make a contract, collectors and wholesalers normally do not make a contract with buyers.

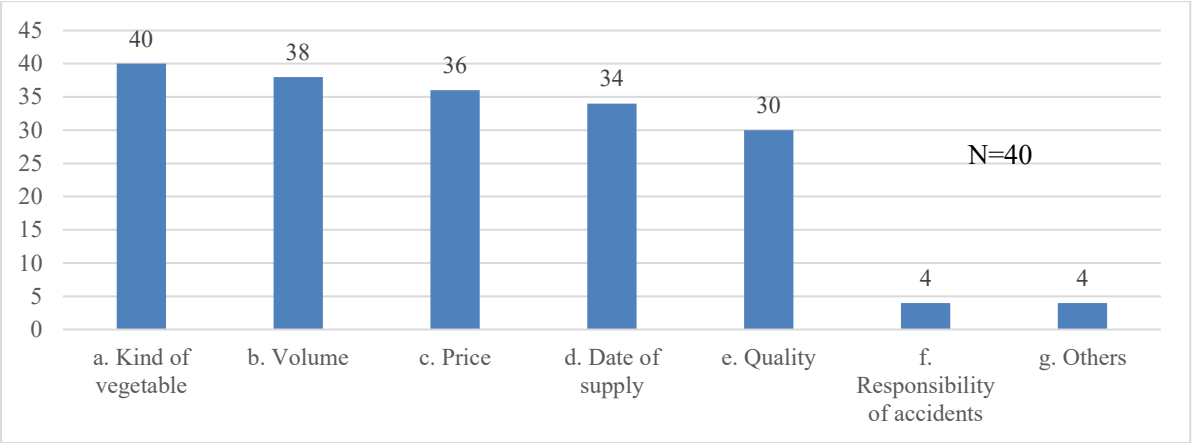
Table 4.14 Contract with buyers

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Restaurant (N=21)	Total (N=84)
a. Yes	7	9	7	8	9	40
b. No	14	14	1	1	6	36

*Some respondents did not answer this question.
Source: JICA Project Team

Figure 4.8 shows the elements included in the contract. Among 40 respondents who answered that they make a contract with suppliers, 40 respondents include kind of vegetable followed by volume and price.

[2] Retailers are excluded as they sell the vegetables to consumers.



*Multiple answers.
Source: JICA Project Team

Figure 4.8 Contents of contract

Other conditions identified by respondents to include in the contract with buyers are as follows:

<Others>
Make payment, deposit, or punishment in case of products with not good quality, commit good products with quality assurance, be bind to implement contract, responsibility taken by 2 parties safety

(3) Transportation

Table 4.15 shows means of transportation for vegetable employed by the respondents. Most dominant means of transportation are truck and car followed by motorbikes. Truck and car is the most used means of transportation for all buyers except for collectors and restaurants/catering companies who answered motorbike as a dominant means of transportation. This is largely related to the size of their business. As most of collectors surveyed are in small scale, they tend to use motorbike. Similarly, small restaurants use motorbikes for transportation. However, the big scale catering company use trucks.

Table 4.15 Means of transportation

Means of transportation	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Bicycle	0	1	0	0	3	0	4
b. Motorbike	17	12	3	3	9	14	58
c. Motorbike with a cow cart	2	3	1	0	2	1	9
d. Truck and car	8	17	6	9	15	11	66
e. Public bus	1	0	0	0	1	0	2
f. Others	1	1	0	0	1	0	3

*Multiple answers.
Source: JICA Project Team

As for who cover the transportation cost of vegetable, Table 4.16 shows an interesting result. Although there are collectors, wholesaler, exporters and retailers who pay suppliers transportation cost of vegetable, there are more buyers who ask suppliers to send their vegetable to their place.

Table 4.16 Transportation cost

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes, we pay transportation cost	7	9	2	5	8	1	32
b. We collect vegetable from supplier's place	2	4	1	0	2	0	9

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
c. No, suppliers send vegetable to our place	11	11	4	4	15	15	60
d. It depends on the negotiation	3	0	1	0	0	3	7
e. Others	0	0	0	0	0	0	0

Source: JICA Project Team

This means that the cost of transportation or means of transportation should be planned well in advance, if the producers start collective sales.

(4) Payment

Table 4.17 shows the timing of payment by buyers to the suppliers. Although more than 70 respondents pay the suppliers on the spot. 21 respondents pay after they received the vegetables.

Table 4.17 Timing of payment

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes, on the spot.	16	18	3	8	16	11	72
b. No, xx days later	5	2	4	1	3	6	21
c. Others	2	0	2	0	4	0	8

*Some respondents did not answer this question.
Source: JICA Project Team

Table 4.18 shows the number of days required for those who answered to delay the payment to pay. On average, they pay to the suppliers 14.7days after they received the vegetables. Processors delay longer than other buyers. Collectors pay earlier.

Table 4.18 Number of days required for payment

	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering	Average
Average	19	20	26	0	21	23	14.7
Shortest	5	10	15	0	15	15	10
Longest	30	30	30	0	30	30	20

Source: JICA Project Team

However, it should be noted that some buyers have means to mitigate the difficulty of cash flow for suppliers. As the comments from respondents below indicates, some buyers pay the certain amount as advance to suppliers. Therefore, it is very important to negotiate the terms of payment when making a contract taking the necessary cash flow for the business into account.

<Others>
For farmers pay immediately, for enterprises make payment after 30 days, advance payment of 50% and final payment after harvesting, depending on negotiation, usually every 10 days or pay immediately, advance payment after 10 days and the remaining will be paid at the end of season, advance payment after 30 days and the remaining will be paid after 2-3 months, immediate payment or 15 days after product received, 50% advance payment

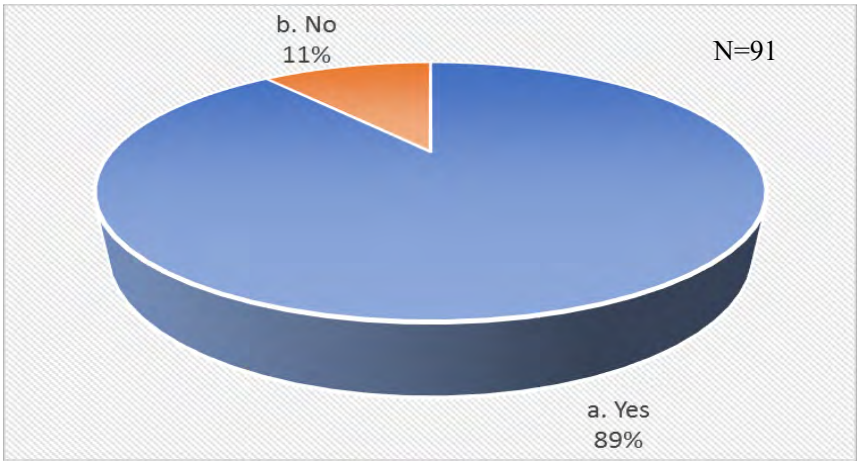
5. Safe Vegetable

(1) Relation with safe vegetable

In this survey, safe vegetable is defined as follows:

- Certified safe vegetable (VietGAP, EuroGAP, organic certificate)
- Vegetable produced in accordance with Basic GAP
- Vegetable grown in the safe production sites certified by province

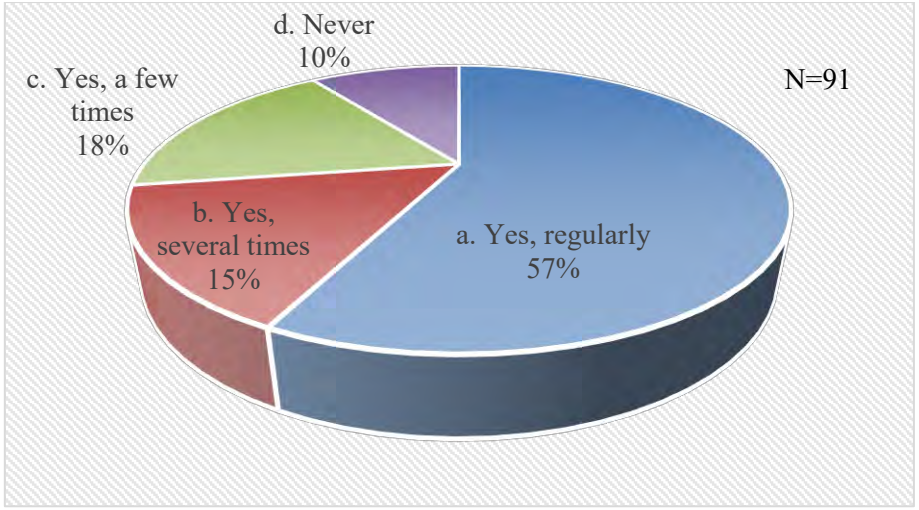
After being explained the above definition, 89% of respondents answered that they know about safe vegetable.



Source: JICA Project Team

Figure 5.1 Recognition of safe vegetable

As for the frequency of purchasing safe vegetables, 90% of respondents have experiences of buying them. 57% of them buy regularly and 15% buy them several times. The percentage is high as the samples are selected as candidates for buying safe vegetables supported by the Project. This tendency should not be taken as general.



Source: JICA Project Team

Figure 5.2 Frequency of buying safe vegetable

Table 5.1 shows the most bought safe vegetables by respondents[3]. Cabbage are mustard are most popular

[3] The respondents are asked to choose three safe vegetables in priority. The points are calculated by giving 1point to the

safe vegetables followed by tomato and kohlrabi. All vegetables except for vegetable shrinkage corresponds to those selected as most traded vegetables in the dry season in Table 4.2.

Table 5.1 Most bought safe vegetables

	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant	Total
Cabbage	8.0	11.6	2.8	1.0	6.4	8.8	38.6
Mustard	7.8	9.0	3.4	0.0	14.0	3.4	37.6
Tomato	2.8	3.4	0.6	1.4	6.6	0.8	15.6
Kohlrabi	3.8	4.6	1.2	0.0	1.8	4.0	15.4
Morning glory	2.0	3.0	0.0	0.0	6.2	2.6	13.8
Gailum	4.2	0.6	0.8	1.0	0.6	3.8	11.0
Cauliflower	1.4	2.6	0.8	0.8	2.2	2.0	9.8
Vegetable shrinkage	0.8	0.8	0	0.0	0.6	3.2	5.4
Cucumber	0.0	0.0	2.0	2.0	0.0	0.0	4.0
Potato	0.0	0.8	0.0	0.0	0.8	0.0	1.6
Carrot	0.0	0.0	0.0	1.0	0.0	0.0	1.0

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

(2) Supply of safe vegetable

Table 5.2 shows the suppliers of safe vegetable. Unlike the supply of normal vegetable for which individual farmers are the dominant channel of supply, farmers' organizations or cooperatives appear to be a dominant supply channel for safe vegetable. This is because that the certificates to prove safety such as VietGap or EuroGap are normally given to the group of producers not to the individual farmers. Restaurants and catering companies rely on collectors as they require wide varieties of vegetable in sometimes large amount and thus difficult to procure the vegetables by themselves.

Table 5.2 Suppliers of safe vegetable

Suppliers	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
b. Individual farmers	13	11	2	3	6	2	37
c. Farmers organization/cooperative	11	12	4	3	11	6	47
d. Collectors	0	5	2	2	2	9	20
e. Agriculture enterprises	2	6	3	2	7	7	27
f. Others	0	0	0	0	3	1	4

*Multiple answers.
Source: JICA Project Team

The above assumption is proved by the fact that majority of buyers require the certificate such as VietGap when buying safe vegetable as Table 5.3 shows. The categories of buyers who buy safe vegetable from farmers' organizations in Table 5.2 corresponds to the categories of buyers who require certificates in Table 5.3.

Table 5.3 Requirement of certificates

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes	6	15	7	3	18	15	64
b. No	11	5	1	3	6	5	31

*Some respondents did not answer this question.
Source: JICA Project Team

vegetable the respondent answered first, 0.8 point to the vegetable they answered second and 0.6 point to the vegetable they answered third.

Table 5.4 shows the means to find suppliers. There are variety of ways to find suppliers. For processors and exporters, information or introduction from DARD is the most important source to identify the suppliers. For collectors, wholesalers and restaurants, words of mouth are the most dominant way of finding suppliers.

Table 5.4 Means to find suppliers

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Through DARD	5	7	4	3	9	4	32
b. Trade fairs or events	3	7	2	0	6	5	23
c. Word of mouth	10	12	1	2	9	10	44
d. Others	8	7	3	3	12	6	39

*Multiple answers.
Source: JICA Project Team

It is worthwhile to note that there are many other ways to identify suppliers as shown below. The many respondents find suppliers from local areas or by visiting fields. Some use internet, TV and newspaper. One retailer chose a supplier who invited him/her to their field. This suggests that it is an effective of finding buyers for producers to disseminate their information through internet or media as well as to invite buyers to see their field.

< Others>
By themselves (5), find in the local area (2), business relation, TV, newspaper, training, internet (3), companies work with enterprises, invitation from producers

(3) Price of safe vegetable

Table 5.5 shows the price of safe vegetable the respondents pay. 76 respondents answered that they pay higher prices for safe vegetables than normal vegetables. The percentage is higher for retailers and a bit lower for collectors.

Table 5.5 Price of safe vegetable

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes	13	17	6	4	21	15	76
b. No,	7	5	2	2	1	4	21

*Some respondents did not answer this question.
Source: JICA Project Team

Table 5.6 shows the margin buyers pay for safe vegetables. On average, the buyers pay a margin of 17.5%. Retailers pay the highest margin of 26% and collectors pay the lowest margin of 11%.

Table 5.6 Percentage of margin buyers pay for safe vegetable (%)

	Collector	Wholesaler	Processor	Exporter	Retailer	Restaurant/ catering	Total
Average	11	24	16	13	26	14	17.5
Lowest	5	5	5	10	5	2	5.7
Highest	30	100	30	15	100	30	48.3

Source: JICA Project Team

The reasons for not paying higher price for safe vegetables are listed below. There are reasons to stress on continuous business relations.

<Others>
I only buy at normal price, depending on negotiation, mixing with other vegetable, cannot pay higher price, produce by themselves (2), prior agreement, regularly buy, permanent partner, buy safe vegetable only when the producer has difficulty to sell.

(4) Safety of vegetable

Table 5.7 shows the level of trust the respondents have in the safety of vegetable they buy. Most of respondents have their trust in the safety of vegetable they buy. But they are not absolutely sure about safety as half of them chose 'Yes, more or less', not 'Yes, very much so'.

Table 5.7 Trust in the safety of vegetable

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes, very much so.	11	8	3	2	17	4	45
b. Yes, more or less.	7	13	5	4	6	14	49
c. Not very much.	2	1	0	0	0	2	5
d. Not at all.	0	0	0	0	0	1	1

*Some respondents did not answer this question.
Source: JICA Project Team

Table 5.8 shows the reasons of their trust in safety of vegetables. The biggest number of respondents except for restaurants who do not have direct linkage with producers, chose 'I know the producers very well' as a reason they trust in the safety of vegetable. This is followed by 'I chose only certified producers'.

Table 5.8 Reasons of trust

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. I know how to assess the safety	4	6	2	0	5	3	20
b. I know the producers very well.	15	16	5	4	16	9	65
c. I test samples periodically.	3	5	4	2	10	6	30
d. I choose only certified producers.	6	10	5	0	11	13	45
e. I checked production site or production records.	4	7	3	3	9	5	31
f. Others	1	2	1	0	3	0	7

*Multiple answers.
Source: JICA Project Team

Considering that most of buyers for safe vegetables require official certificates for procurement, not only certification is not enough to make buyers confident in the safety. Knowing producers by themselves strengthen the trust of buyers in the safety of vegetables. In fact, buyers employ various means to ensure the safety of vegetable as shown below.

<Others>
Buyers check chemical residue on products (Nhất Nam Company)

(5) Safe vegetable trading business

Table 5.9 shows the buyers of safe vegetables. Unlike the normal vegetables, major buyers of safe vegetables are business such as canteens, hotels and companies. As buying safe vegetable is still not common, the sales channel of safe vegetables seems restricted.

Table 5.9 Buyers of safe vegetables

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
b. Other collectors	5	3	0	0	0	0	8
c. Retailer	0	9	1	1	6	0	17
d. Business	12	13	1	2	7	3	38
e. Consumer	2	11	2	1	15	0	31
f. Open market	3	6	0	0	2	0	11
g. Others	4	2	3	2	1	0	12

*Multiple answers.
Source: JICA Project Team

Table 5.10 shows trend of safe vegetable sales. Overall the sales of safe vegetable are considered stable as the biggest number of respondents answered ‘no change’. Nevertheless, as there are much more respondents who answered ‘increasing’ than those who answered ‘declining’ in all type, the trend of sales in near future is considered very positive.

Table 5.10 Sales of safe vegetables

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Very much increasing	4	4	4	3	7	2	24
b. Slightly increasing	5	7	2	2	10	4	30
c. No change	11	8	1	0	5	8	33
d. Slightly declining	0	2	1	1	1	0	5
e. Very much declining	0	0	0	0	0	0	0

*Some respondents did not answer this question.
Source: JICA Project Team

Table 5.11 shows reasons for respondents to deal with safe vegetable. The biggest number of respondents choose 'food safety is important' followed by 'consumers want'. This result suggests the high level of awareness on food safety in general. As the respondents are selected as candidate buyers, they are considered more aware of food safety than other normal buyers.

Table 5.11 Reasons to deal with safe vegetables

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Consumers want	14	13	6	5	17	13	68
b. Food safety is important	12	13	7	5	20	18	75
c. Safe vegetable can be sold at higher price	2	6	2	0	6	1	17
d. Others	1	2	0	1	1	1	6

*Multiple answers.
Source: JICA Project Team

<Others>
Certified safe vegetable production area (2), buy organic vegetables, policy, commit to consume safe vegetable of model, ensure health of workers

Table 5.12 shows difficulties for buyers in safe vegetable trading. The biggest number of respondents chose 'find good producers' and 'find buyers'. For the retailers, whose safe vegetable business is increasing, finding good producers is the biggest difficulty, while collectors have a difficulty in finding buyers. This gap in the value chain is where the Project can effectively intervene.

Table 5.12 Difficulties in safe vegetable trading

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Find good producers	9	7	4	3	10	5	38
b. Collect required amount	3	4	1	2	4	5	19
c. Quality control	5	10	6	1	9	7	38
d. Find buyers	11	7	3	3	8	0	32
e. Sales and price	4	11	2	2	10	4	33
f. Others	1	2	0	0	2	1	6

*Multiple answers.
Source: JICA Project Team

In fact, 92 respondents showed their interests in meeting with producers supported by the Project[4]. It suggests that the buyers are looking for good and trustful producers.

Table 5.13 Interest in meeting with producers supported by the Project

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes	22	18	7	8	20	17	92
b. No,	0	4	1	1	4	3	13

*Some respondents did not answer this question.
Source: JICA Project Team

[4] As some respondents are in the multiple categories, if duplications are excluded, 79 respondents in total answered 'yes'.

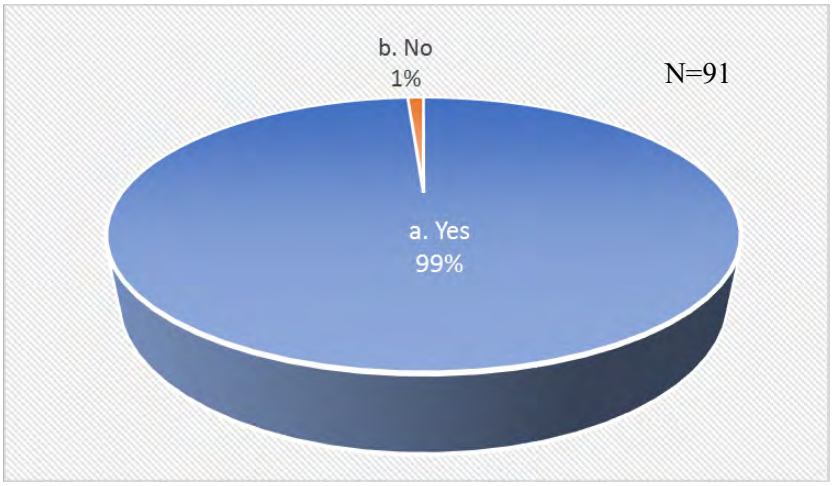
For other difficulties listed below, trust of consumers in safety of vegetable appears to be very relevant to the Project.

<Others>
Consumers do not trust on safe vegetable, seasonal fluctuations, *trust of consumers (2)*, due to weather conditions, do not use plant protection chemicals, various kinds of vegetables, canteen prepare diverse menu

6. Awareness on food safety

(1) Awareness of customers on food safety

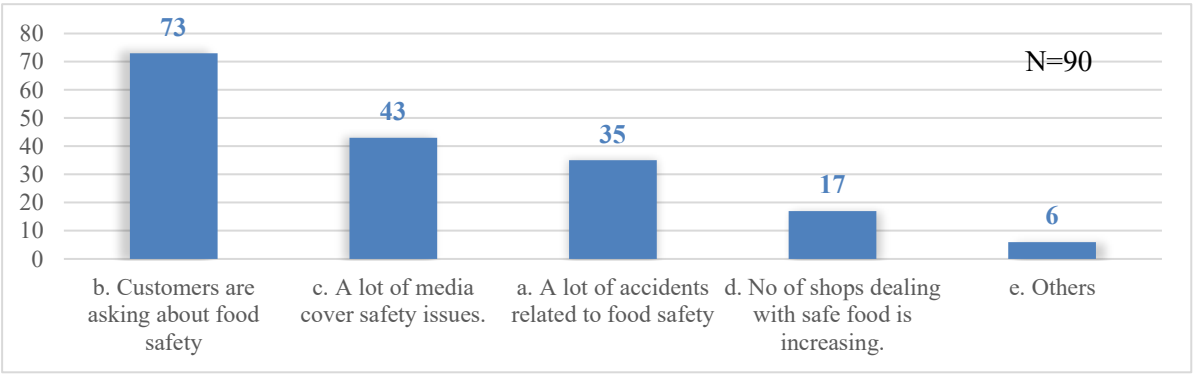
Figure 6.1 shows awareness of customers of respondents on food safety. To the question 'Does your customer care about food safety, 99% of respondents answered 'yes'. The result suggests that buyers of safe vegetables are very much aware about the awareness of their customers on food safety.



Source: JICA Project Team

Figure 6.1 Does your customer care about food safety?

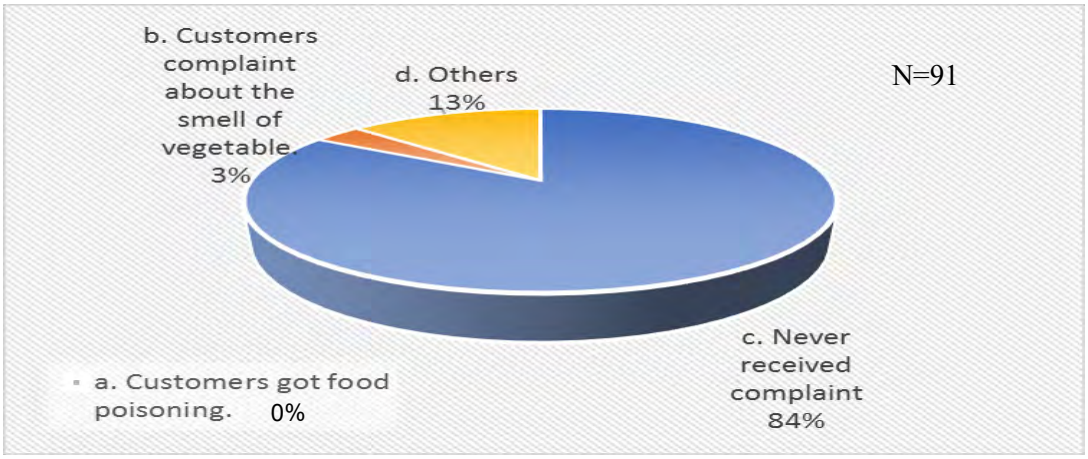
Figure 6.2 shows reasons the respondents think that their customers care about food safety. 73 respondents answered that customers are asking about food safety. This suggests that buyers are pressurized by customers on food safety.



*Multiple answers.
Source: JICA Project Team

Figure 6.2 Reasons the respondents think that their customers care about food safety

Figure 6.3 shows whether the respondents have ever received any complaints on food safety from their customers. No respondent has received complaint on food safety. While 84% of respondents have never received any types of complaints, 13 % of respondents received various complaints other than food safety.



Source: JICA Project Team

Figure 6.3 Complaints from the customers

The box below shows various complaints the respondents received from their customers. The complaints include those related to the characteristics of safe vegetables. For instance, high price and inferior appearance and quality are the features of safe vegetables. In order to expand the market of safe vegetables, consideration should be given to these kinds of dissatisfaction of consumers on safe vegetables.

<Others>
Consumers bring vegetables for analyzing, there exists residue but it is not exceeding threshold
Consumers complain about vegetable after preservation
Being inspected about vegetable's traceability by specialized agencies
Complaint that price of safe vegetable is higher than vegetables in wet markets
Quality, appearance and size (2)
Safe vegetables have smaller size than the vegetables with much nitrogen fertilizer application
Food mixed with some strange things

(2) Customer's trust in safety of vegetable

Table 6.1 shows the level of trust the respondents think their customers have in the safety of vegetable the respondents provide. Overall the majority of respondents answered that their customers have trust in the safety of their vegetables.

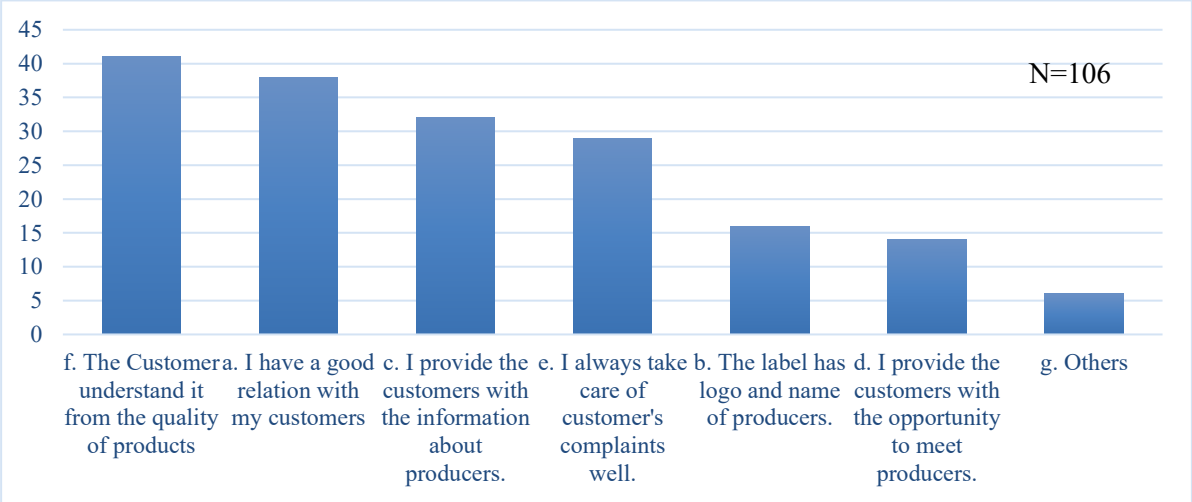
Table 6.1 Trust in the safety of vegetable

	Collector (N=23)	Wholesaler (N=23)	Processor (N=8)	Exporter (N=9)	Retailer (N=24)	Restaurant (N=21)	Total (N=108)
a. Yes, very much so.	12	8	3	5	14	11	53
b. Yes, probably.	6	11	5	4	10	8	44
c. Yes, more or less	3	3	0	0	1	2	9
d. Not very much.	1	1	0	0	0	0	2
e. Not at all.	0	0	0	0	0	0	0

Source: JICA Project Team

It is worthwhile to compare Table 6.1 with Table 5.7 in P.25 which shows the level of trust the respondents have in the safety of vegetable they bought. It is interesting to note that collectors, wholesalers and restaurants think that their customers have trust in the safety more than they themselves trust in the vegetable they bought. On the other hand, retailers are less confident on the customer's trust in the safety of vegetable they sell. As the retailers directly deal with consumers, they may be more aware about seriousness of consumers on food safety.

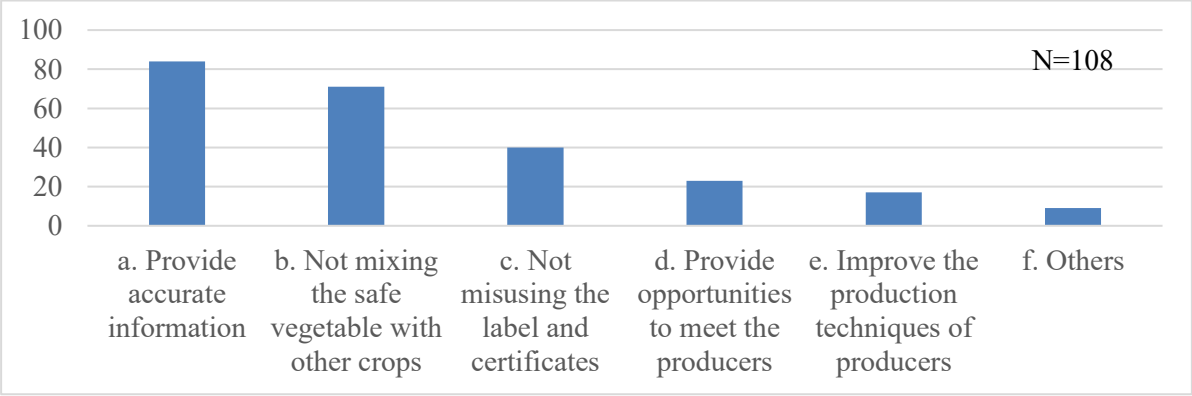
Figure 6.4 shows the reasons the respondents think that their customer trust in the safety of vegetables. The biggest number of respondents chose 'the customer understands it from the quality of products' followed by 'I have a good relation with my customers'. Both reasons are not scientific but subjective. This suggests that the confidence of respondents in the trust of their customers comes more from personal judgement based on their experiences of vegetable trade and personal relation with customers than scientific methods such as providing producer's information or labels.



*Multiple answers.
Source: JICA Project Team

Figure 6.4 Reasons of trust by customers

However, it is interesting to note that the respondents are also aware about the needs of scientific methods to gain customer's trust. Figure 6.5 shows the important factors to gain customer's trust. 'Providing accurate information' becomes top followed by 'not mixing with other crops'. Knowing producers by buyers is considered critical in order to provide accurate information to the customers.



*Multiple answers.
Source: JICA Project Team

Figure 6.5 Important factors to gain trust from customers

CHAPTER3 Key findings and implications for pilot activities

1. Key Findings

There are following four important findings from the survey.

1) Most of respondents showed keen interests and willingness to cooperate with the project.

- ✓ 57 % of respondents buy safe vegetable regularly.
- ✓ 79 buyers are willing to meet producers supported by the project.
- ✓ Sales of safe vegetable are increasing. Sales of safe vegetables for processors, exporters and retailers are increasing.
- ✓ Safety is the most important factor for the respondents to choose vegetable.

If the producers can produce safe vegetable, there is a high possibility to find the buyers

2) Buyers pay the higher price for safe vegetable if the vegetables are really safe

- ✓ Majority of respondents pay higher prices for safe vegetable. They pay average 17.5% higher price for the safe vegetable.

3) Not only certificate but also knowing producers by themselves is important for buyers to believe in safety

- ✓ Majority of respondents require certificates such as VietGAP when they buy safe vegetables.
- ✓ Majority of respondents are confident in safety of the vegetable they sell. The reason for their belief is 'I know the producer well' followed by 'I choose only certified producers. This suggests that not only certificates but also knowing producers personally is important for buyers to believe the safety.
- ✓ 'Provide accurate information' which require knowing producers is identified as the most important factor for buyers to gain trust from consumers.

4) Finding reliable producers seems to be the biggest bottleneck for promoting safe vegetable trading.

- ✓ 'Find good producers' is identified as one of the most difficult issue for collectors, processors, exporters, retailers and restaurants/catering services along with other issues such as 'quality control' and 'find buyers'.
- ✓ 'Difficult to find reliable suppliers' is identified as the biggest reason for not trading safe vegetable.
- ✓ Buyers use various tools to find good producers such as government departments including DARD and DOH, trade fairs, internet and word of mouth.

This is the area for the Project to make an effective intervention. Designing effective matching mechanism is critical for successful pilot activities.

2. Implications for Pilot activities

- Priority should be placed on establishment of production as well as collection/delivery system of safe vegetable for the target group. → *Marketing TOT training*
- Understanding buyers and presenting what each producer group can do is very important for effective matching.→ Develop producer as well as buyer profiles using the information collected through baseline survey and buyer's survey.
- Establishing trust between producers and buyers is critical to facilitate proactive business relationship as well as to prove safety. → A platform for all the stakeholders in the supply chain will be established for each target group in the pilot project.

PART II: Consumer Survey

CHAPTER 1 Background

A qualitative consumer research has been conducted in Hanoi, with cooperation of Hanoi DARD, in order to understand consumers' current purchase behavior towards safe vegetables.

1. Objective

The objective of this qualitative consumer research is two-fold: 1) To understand what is hindering consumers from purchasing safe vegetables and at which point of the chain of purchase behavior stage their progress might be stalling, and 2) to assess if there are any potential distinctive behaviors affected by age, education level, children, children's age, or purchase channels.

2. Target

A majority of consumers in Hanoi is already aware of and concerned about food safety, as research indicates, 97.5% of all respondents are either worried (30%) or extremely worried (67.5%) about food safety in 2016.1 In addition, the main reason driving consumers to buy safe/organic vegetables is to protect their health (91% of respondents).2

Therefore, our target has been designated as vegetable consumers who are aware of and are concerned about safe vegetables.

3. Sample

As presented in Figure 1, samples had been screened with the following requirements in order to obtain valid answers from the decision-making units in vegetable purchase for self-consumption.

- 20 years old or older
- Female vegetable purchasers in Hanoi, who buy vegetables for herself or for her family.
- Those who are already aware and are concerned about food safety with vegetables

The above requirements have been determined based on informal interviews with 6 female vegetable consumers between 20's to 40's in Hanoi. The typical vegetable purchasers consistently described was "an adult female in a household", who is in her 20's and above. The cap with the age segment was intentionally unspecified, as grandmothers also can be a main purchaser of a family. The second criterion has been added in order to collect the true attitude and interest of the decision making unit. An employed helper can often be a physical purchaser of vegetables in Vietnam; however, it is usually the case that she purchases certain vegetables at a certain channel based on her employers' instructions. Therefore, it has been considered critical to screen out employed helpers as a respondent, in order to capture opinions of the real decision making unit. Lastly, our applicable target has been screened through the third requirement. While as high as 97.5% of vegetable consumers in Hanoi are aware of and concerned about food safety, if a respondent is not, her response would be a marginal error without representing our target's opinion.

In addition, an equal number of respondents were recruited from different purchase channels so that we can capture behavioral tendencies in relation to each sales channel.

1 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016)

2 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016); and interview with Hanoi DARD (2016)

Survey Sample:

① Female vegetable purchasers in Hanoi
② 20 years or older
③ Self or family consumption
④ Already aware and concerned about safe vegetables

Purchase Channel	# of Respondents
Supermarket	5
Safe vegetable stall/shop	5
Wet retail market	5
Total	15

Source: Project team

Figure 1 Samples of consumer survey

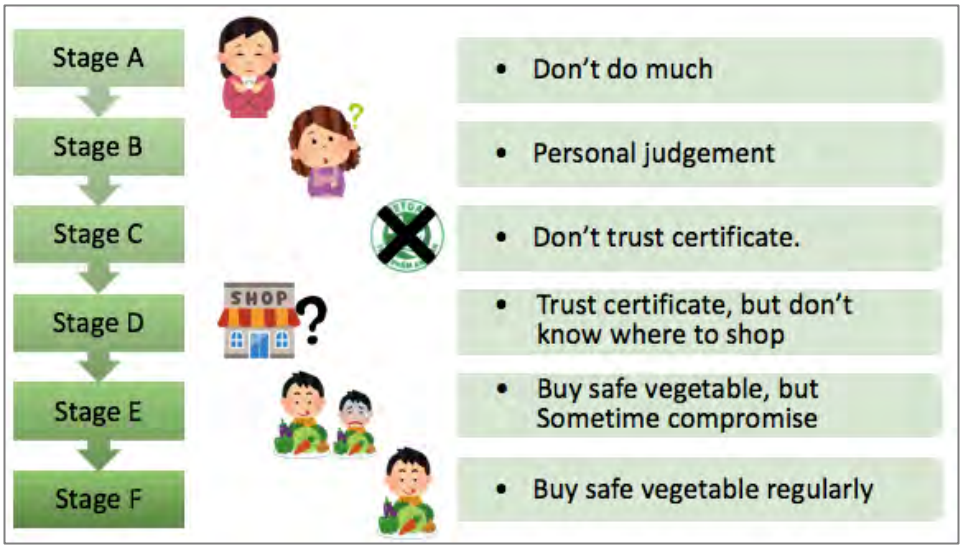
4. Hypothesis

This study was conducted based on the hypothesis that consumers change their purchase behavior towards safe vegetables through the following stages. (Figure 2)

Stage A: I want to buy safe vegetables, but I don't do much when I go grocery shopping.
Stage B: I want to buy safe vegetables, and I usually rely on personal judgement.
Stage C: I know about certified safe vegetables*, but I don't trust them.
Stage D: I know about certified safe vegetables*, but I don't know where to find them.
Stage E: I know about certified safe vegetables* and where to buy them, but I don't always buy them.
Stage F: I buy certified safe vegetables* most of the time.

In the questionnaire, the definition of "certified safe vegetables" has been specified as the following types of vegetable and communicated to respondents.

- Certified safe vegetables (VietGAP, EuroGAP, organic certificate)
- Vegetables grown in the safe production sites certified by province



Source: Project team

Figure 2 Consumers' behavioral stages in safe vegetable purchase

5. Study Method

In order to extract in-depth opinions and insight, the survey was administered in one-on-one interviews with a semi-scripted questionnaire (Annex 1), which consists of all open answer questions.

The questions were designed according to each respondent's behavioral stage so that we can specifically pinpoint what actions might be effective to move consumers from one stage to the next.

6. Usage of survey results

The survey results were utilized for the following subsequent activities:

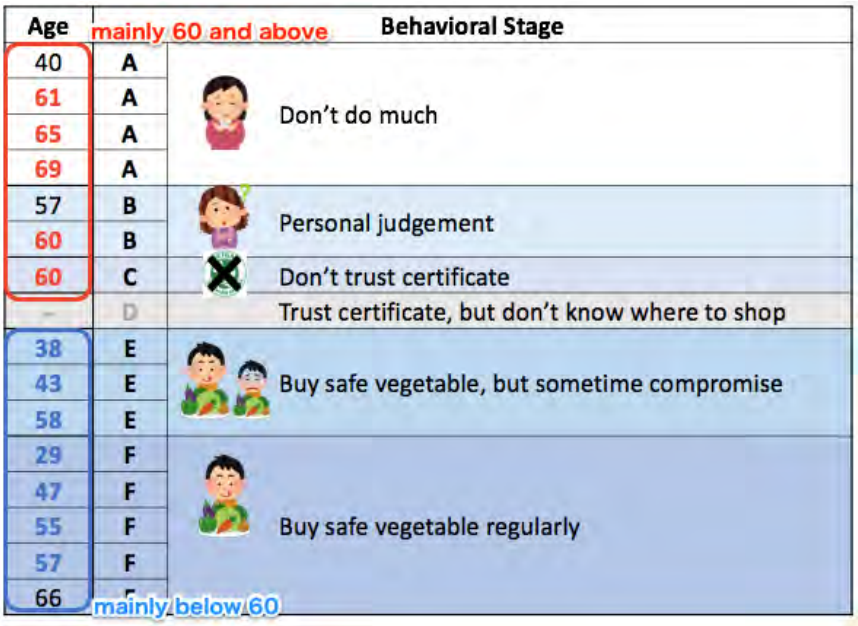
- Identify potential target segment(s) to effectively influence their purchase behavior of certified safe vegetables.
- Plan effective marketing activities (campaign, messaging, and media selection) to motivate consumers to move to the next behavioral stage towards purchase of certified safe vegetables.

CHAPTER 2 Analysis and Key Finding

1. Variables affecting purchase behavior

Although this research is a qualitative survey, overall behavioral tendencies have been examined to detect obvious characteristics by segment.

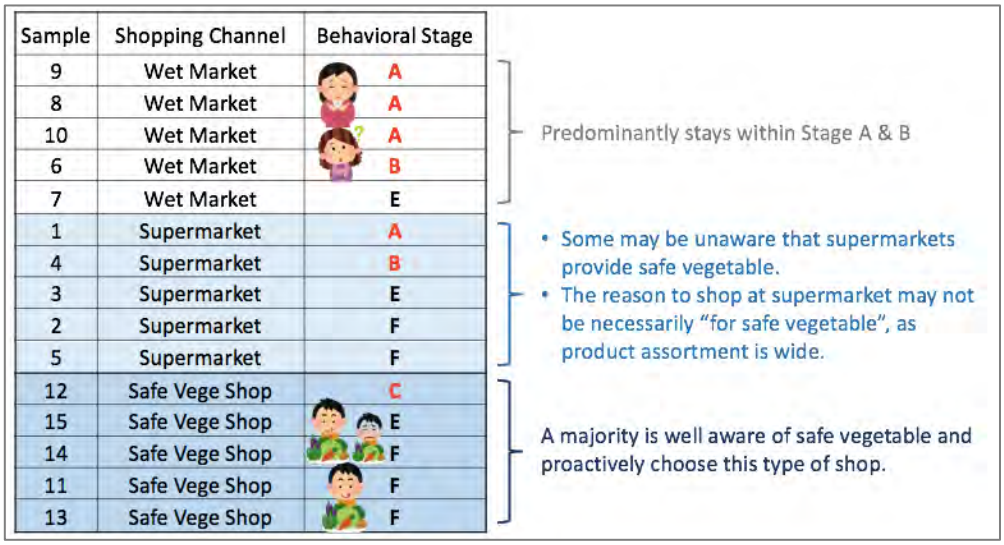
Two variables, age and purchase channel, implied a certain tendency. As exhibited in Figure 3, when respondents based on the behavioral stages are sorted, it appears that the older segment (60 years old and above) lags the behavioral stages. **This result implies that communication activities must be planned according to each age segment.**



Source: Project team

Figure 3 Behavioral tendencies by age

In addition, another behavioral tendency was observed based on the different purchase channels. As Figure 4 presents, the respondents who shop at wet markets predominantly stay within Stages A and B. Those who shop at safe vegetable shops seem to be consciously selecting the shopping channel, and they are mostly already at Stages E and F. Shoppers at supermarkets are mixed, which reasons can be assumed; 1) some may not be aware that supermarkets provide safe vegetables, or 2) they are not shopping at supermarkets particularly for safe vegetables but for other household items, as product assortment is wide at supermarkets. **In this case, it is important for supermarkets to appeal clearly to consumers that they sell safe vegetables. Also, a key message to convert consumers to the next behavioral stage must be crafted differently according to their shopping channel.**



Source: Project team

Figure 4 Behavioral tendencies by Shopping Channel

While this survey is not a quantitative research with the statistically significant number of respondents, the above result corresponds to comments mentioned in our interviews with various organizations.

Based on the other three variables: educational level, the number of co-residing youth under 18, or the ages of co-residing youth under 18, no particular behavioral tendencies were detected.

2. Results by behavioral stage

In this section, key findings of respondents in each behavioral stage is collated as following.

Stage A: I want to buy safe vegetables, but I don't do much when I go grocery shopping.

- Easy access, low price, and quality are the key to this segment.
- As "quality" to this segment is about fresh appearance; and lack of knowledge is detected regarding vegetable appearance.
- Freshness of vegetables is often mentioned, and freshness seems to override safety in importance in their comments.
- This segment tends to rely on mass media or WOM as information sources.
- They do not use internet themselves, and would reach out to their children to collect information online if necessary.

Stage B: I want to buy safe vegetables, and I usually rely on personal judgement.

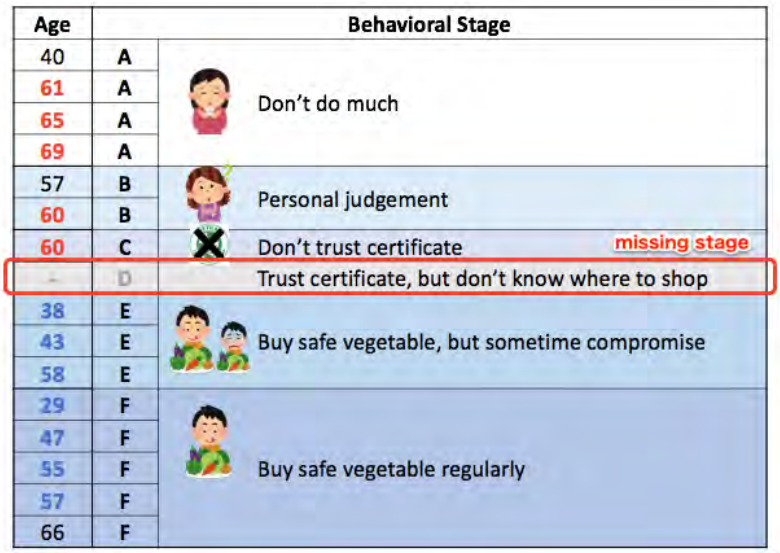
- They blindly believe their own judgement with no specific selection criteria to choose safe vegetables.
- The key to convert to purchase certified vegetables is authorized certificate with specific information: the source, the date of last chemical application, test results of harmful substance residues, etc.

Stage C: I know about certified safe vegetables, but I don't trust them.

- Distrust on certificate has been accumulated due to negative news on VietGAP.
- What the respondent currently trust as "safe" are; 1) large scale production and 2) not-so-good appearance, which implies that this respondent also has insufficient knowledge.
- Influential factors for this respondent to convert to conscious safe vegetable purchaser is a safety concern for her family combined with scandal news.

Stage D: I know about certified safe vegetables, but I don't know where to find them.

As shown in Figure 5, none of the respondents fell in this stage. The hypothesis of this result is that consumers immediately take action to look for a place to purchase safe vegetables, once their interest to purchase safe vegetables is triggered.



Source: Project team

Figure 5 Respondents spread across behavioral stages

Stage E: I know about certified safe vegetables and where to find them, but I don't always buy them.

- The first action or the trigger to start purchasing safe vegetables was to learn about shops which sell safe vegetables, although the media can be different (e.g. retailer's advertisement, coincident of passing-by, or proactive search on internet).
- The barrier to stay in Stage E without fully converting to Stage F is clearly lack of access to or inconvenience of the shop location.
- Their source of information can be word of mouth or mass media; however, what is common among all respondents is that they all mention usage of internet at some point in the course of the decision making stages.
- They believe in the labeled certificate, yet they also check shop's information and certificate.
- The key influencer to consumers at this stage is family members, especially children.

Stage F: I know about certified safe vegetables and I buy certified safe vegetables most of the time.

- The first action taken or the trigger to start purchasing safe vegetables was same as that for consumers at Stage E: To learn about shops which provide safe vegetables, although the means can be different (e.g. retailer's advertisement, information from mass media that supermarkets sell safe vegetables, or proactive search on internet).
- The reason for continuous shopping of safe vegetables was convenient and easy access.
- They believe in certificates, but that is the result of thorough checking: information on the package, production process, and shop certificate.
- The key influencer to consumers at this stage is also health of family, especially children.

All Stages

- Family members' health, especially children's, was mentioned by respondents across all stages[3] in relation to questions about the trigger to start purchasing safe vegetables or about the influence who would prompt the respondents to start purchasing safe vegetables.

[3] Except Stage B, as answers to these questions were not obtained from this segment.

CHAPTER 3 Implications for Action Plans

Considering all the key findings discussed thus far, the following implications have been drawn to reflect to our communication activity plans. (Figure 6)

Consumers at Stages A, B, and C share similar key issues.

1) Lack of proper knowledge about safe vegetables is the fundamental issue in their vegetable selection and purchase decision.
2) Easy access, low price, and fresh appearance dominate their decision making criteria.

Therefore, it is suggested that continuous grass roots training and educational activities be still necessary for this segment of consumers to learn proper judgement and the consequences of health issues as a tradeoff for the lower prices. An approach of mass communication and/or tangible face-to-face events should be applied to this segment in order to convince the relatively older age segment in these stages.

The behavioral history and characteristics of those already reached Stages E and F can be referred to and be replicated, so that the course of action to move onto Stage E can be facilitated. A typical case of consumers at Stage E and F is summarized in the following four points:

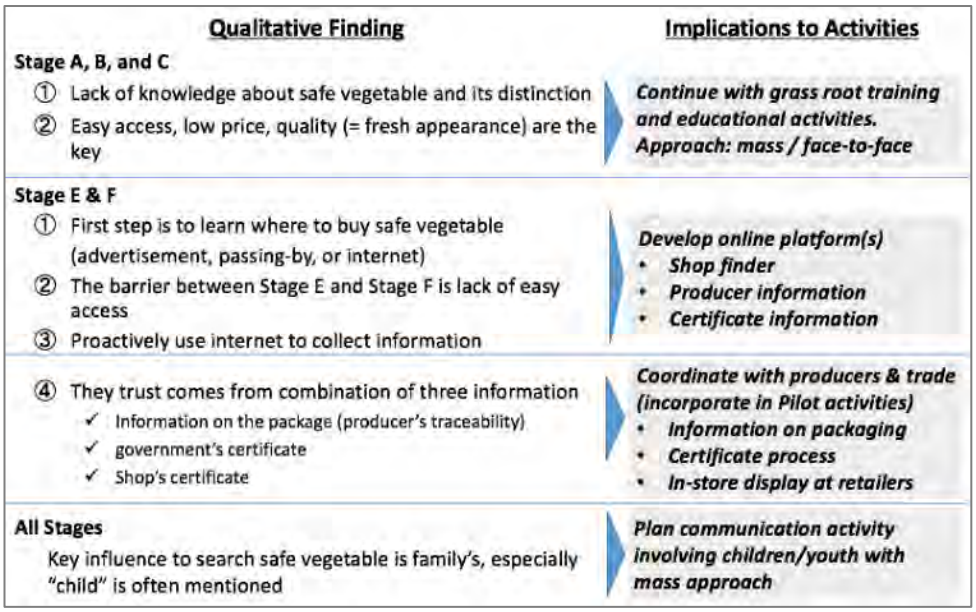
1) The first step is to learn where to buy safe vegetables
2) They proactively use internet to collect information
3) The barrier between Stage E and F is lack of easy access in everyday life
4) Their assurance in certified safe vegetable purchase can be attained only after clearance of multiple layers of doubt through: i) traceability of the responsible producers on a package, ii) government's certificate, and iii) shop's certificate.

To address these points, it is suggested that a web-based information hub be developed. Suggested contents for this online platform include: a shop finder, producer information, and introduction of various certificates. The reason for the above contents are listed below.

- A shop finder can facilitate access of those who started looking for shops with safe vegetables.
- A shop finder also partially resolves the above issue 3), where two underlying problems can exist: the shops which provide safe vegetables truly may not exist near the consumers' work or house, or the consumers may not be aware of the shops which actually exist. By featuring a shop finder, the latter case can be countered.
- Producer information can help clarify their concern about traceability.
- Educational contents of various certificates (e.g. what each certificate is for, requirements to obtain each certificate, certification process, etc.) will enhance assurance in consumers' mind as in the above point 4).

As for proper presentation of information on packaging and certificate display at shops, careful coordination among producer management, supply chain management, and retailers' display would be required for a pilot project.

Lastly, there is one key factor that is relevant to all consumers across different stages: A concern about family members' health, especially children. **It is therefore suggested that children or youth be engaged in a communication activity with a mass communication approach in this project, potentially together with health related topics.**



Source: Project team

Figure 6 Summary of implications

CHAPTER 4 Verifications

It has been decided that the project proceeds to activity planning without conducting a quantitative survey to verify the above findings. The reason for this decision is that various key points have been verified either through; 1) another layer of affirmation through various interviews conducted with government organizations, NGO, and retailers, and 2) quantitative survey reports conducted by other parties.

The summary of key points verified through other sources are listed below.

- A majority of consumers in Hanoi is already aware of and concerned about food safety: A source indicates that 97.5% of all respondents are either worried (30%) or extremely worried (67.5%) about food safety in 2016.[4]
- The main reason driving consumers to buy safe/organic vegetables is to protect their health (91% of respondents).[5]
- A majority of consumers still shop at wet market. One source indicates 64%, and a few others mentioned approximately 80%.[6]
- It is difficult to change an established everyday purchase habit especially among the older segment.[7]
- A younger segment is more open to change behavior and is interested in IT related topics.[8]
- Safe vegetable consumption is still limited. One source indicates 16.5% of respondents claim to usually go to supermarkets. Another source suggests that only 5% of vegetables in the market be purchased through supermarkets and safe vegetable shops.[9]
- Internet is the main source of information about safe food, with almost three quarters of consumers access information about safe and organic food via the internet.[10]
- A study concluded that the lack of trust in safe and organic vegetables certifications and sellers as a main issue preventing people from buying more safe and organic vegetables: 40% of consumers claim to have little trust and 8% no trust at all in safe food certifications, because of lack of trust in the certification process (55%), the unknown origin of producer (40%), and lack of trust in the sellers (32%). The same study also found that consumers' understanding of what food safety certifications mean and encompass is low.[11]
- Interviews with retailers suggest that consumers do not trust certification attached to products alone, as consumers' trust in certification is deteriorating. One source mentioned that traceability with QR code is important. Another source specifically commented that "VietGAP" alone does not assure safety either among consumers or retailers. "'VietGAP' sold at a trustworthy supermarket" can be recognized as assurance. Retailers develop assurance in their customers' mind by securing a reliable traceable process.[12]

Following the above supporting facts, it has been concluded that the direction and focus of our implications drawn from the consumer survey are reasonably in line with the quantitative results and consumers' current trends in general.

4 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016)

5 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016); and interview with Hanoi DARD (2016)

6 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016); interview with Hanoi DARD (2016); and interview with Fresh Studio (2016)

7 Interview with Hanoi Trade Promotion Center (2016); and interview with NAFIQAD, Hung Yen

8 Interview with Hanoi Trade Promotion Center (2016); and interview with NAFIQAD, Hung Yen

9 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016); and interview with Hanoi DARD (2016)

10 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016)

11 Habits, concerns and preferences of vegetables consumers in Hanoi, VECO Vietnam (2016)

12 Interview with UCA, (2016) and interview with AEON Vietnam Co., LTD., Hanoi (2016)

Annex 1 List of Samples

No	Province	Name of organization/person	Category
1	Hanoi	Cao Đắc Dậu	a
2		Lien Anh service and trading production ltd.	b
3		Counter 149, Long Biên wholesale market	c
4		Biggreen food joint stock company	e
5		Giang Nam Store	c
6		An Sinh high-tech joint stock Company	b
7		Nguyễn Thị Tính	a
8		Đức Nhân ltd.	d
9		Central fruit and vegetable Corporation	b
10		Hamlet 3, Chu Xa village, Van Duc, Gia Lam	a
11		Business and trade cooperative in Van Duc commune	b
12		Vân Trì safe vegetable Kiot	a
13		Hòa Bình cooperative	e
14		Thanh Xuân safe vegetable cooperative	b
15		Yên Nghĩa 1 kindergarten school	d
16		store in Den Lu market	a
17		Bắc Hồng safe vegetable production and assumption cooperative	a
18		Đặng Thị Ngoan	d
19		Đào Thị Thu, meal service store	d
20		Sao Bien restaurant	d
21		Chúc Sơn safe vegetable and fruit cooperative	a
22		Soi Bien safe food shop chain	e
23		Đức Tín Restaurant	d
24		Inter-district, inter-province traders in Vân Côn commune, Hoài Đức	a
25	Hai Duong	Mai Xuân Tú	a
26		Nguyễn Đức Tường	a
27		Nguyễn Khắc Tình	a
28		DNTN Phúc Hiển Thành	d
29		Công ty TNHH MTV RCQAT Thanh Hà	b
30		Trương Thị Hậu	a
31		Công ty TNHH MTV Hưng Việt	b
32		Công ty CPCBNSXK Hải Dương	b
33		Hai Duong TAYA Joint Stock Company	d
34		Hùng Sơn Agro-products production and processing factory	b
35		Hoa Mai Co. Ltd Company	b

No	Province	Name of organization/person	Category
36		BigC Hải Dương	e
37		Green farm shop	e
38		Sumidenso Hải Dương Co. Ltd company	d
39		Products showroom in Hải Dương Industrial Zone	e
40		Đoàn Thị Hòa	e
41		Tăng Văn Đức	e
42		Tân Hương Agro-product processing Joint Stock Company	b
43		Canteen of During Việt Nam Co. Ltd Company	d
44		Intimex supermarkets Hai Duong	e
45		Phùng Văn Út	a
46	Hanam	Green food store	e
47		Trần Thị Dần vegetable store	c
48		Huynh Tuấn private enterprise	b
49		Biên Hòa restaurant	d
50		Cửa hàng giới thiệu sản phẩm HTX rau hữu cơ phù vân	e
51		Tân Nhất Việt limited company	d
52		Incon515.9 hotel	d
53		Long Vân company	b
54		Goco company	d
55		Năm Luyến store	a
56		Đại Cương kindergarten school	d
57		Nhật Tựu kindergarten school	d
58		Nguyễn Thị Tần	a
59		Nguyễn Văn Quyết	c
60		Nguyễn Thanh Phong vegetable selling household	c
61		Nguyễn Văn Lương vegetable selling household	c
62		Store introducing safe agriculture proudcts	e
63		Thành nam 2 food store	e
64		bảo châu food store	e
65		Vegetable shop of An Phú Hưng Joint stock company	e
66		Quang Phú Service Co. Ltd Company	a
67		Nguyễn Thị Tám	a
68		Nguyễn Văn Duy	c
69		Nguyễn Thị Thu Hà	a
70	Hung Yen	2 Garment joint stock company, Hung Yen	d
71		Phố Cũ restaurant	d

No	Province	Name of organization/person	Category
72		Trần Mạnh Hiển safe food store	e
73		Trần Thị Oanh, supplier of Phạm Văn Thọ kitchen	c
74		Trần Thị Chinh, vegetable store in market of Trung Nghĩa commune	e
75		Nguyễn Ngọc Can, vegetable store in Pho Hien market, Hung Yen city	e
76		Bùi Thị Hải, vegetable store in Pho Hien market, Hung Yen city	e
77		Trường Phúc Company	d
78		Vũ Thị Lan	c
79		Cao Ngọc Khoa	c
80		Nguyễn Thị Hằng	c
81		Lê Thanh Bình	c
82		P.E.D trading and service joint stock company	c
83		Đồng Xanh joint stock company	b
84		Nam Phúc trading and investment joint stock company	c
85		Fantasy restaurant	d
86		Huy Hoàng commercial ltd.	b
87		Hung yen college	d
88		Intimex supermarket in Hung Yen- branch of Intimex Vietnam joint stock company in Hung Yen	e
89		Toan Tuyen trading and service ltd.	c
90		Quoc Thang trade and services	c
91		Vũ Thị Mai store	c

Category

a. collector

b. processor

c. wholesaler

d. restaurant/hospital/catering company

e. retailer (supermarket, safe vegetable shops)

Annex 2 Questionnaire

Questionnaire for Potential buyers of safe vegetable

Name of Province: Hanoi, Hung Yen, Hai Duong, Ha Nam

Sample Number:___

Date of Interview: _____

Name of Interviewer: _____

The Project for Improvement of Reliability of Safe Crop Production in the Northern Region aims to promote safe vegetable production in the target provinces namely Hanoi, Hung Yen, Hai Duong and Ha Nam. One of the major activities in the Project is to establish the reliable linkage between producers and buyers of safe vegetables which can obtain the trust of consumers.

This questionnaire survey aims to understand the current conditions of market practices dealing with vegetable in general and safe vegetables and identify the potential buyers of the safe vegetables produced by farmers supported by the Project.

I. Basic Information

(1) Interviewee

Item	Options and instructions	Answer
1) Name of interviewee	Specify	
2) Position of interviewee	Specify	
3) Gender	a. Male b. Female	
4) Age	a. Under 20 b. 20-29 c. 30-39 d. 40-49 e.50-59 f. 60 and above	
5) Contact information	TEL	
	E-mail	

(2) Organization/company

Item	Options and instructions	Answer
1) Name of organization	Specify	
2) Type of business	a. Village collector b. Assembly collector c. Wholesaler d. Processor e. Exporter (fresh product) f. Exporter (processed food) g. Retailer h. Restaurant/Hotel/Catering i. Hospital/School j. Others (specify)	

3) Start of business	Number (year)	
4) Number of employees	Number	
5) Location of main office	a. Hanoi b. Hung Yen c. Hai Duong d. Ha Nam e. Others (specify)	
6) Location of branch offices (multiple answers)	a. Hanoi b. Hung Yen c. Hai Duong d. Ha Nam e. No branch f. Others (specify)	
7) Monthly total turnover (sales) *This question should be asked at the end of interview.*	million VDN (month)	Lowest month (month): million VDN Highest month (month): million VDN Average month (month): million VDN
8) Relation with Japan or Japanese companies in Vietnam	Specify	

(3) Overview of business

Please answer the questions in the section related to your business only.

3.1) Collector/wholesaler/exporter (fresh product)/retailer

Item	Options and instructions	Answer with details
1) Type of products you are dealing with (multiple answers)	a. vegetable b. grains c. fruits d. meat/fish e. processed food f. Others (specify)	
2) Percentage of vegetable sales in your business	Number in % of sales	
3) Who are the buyers of your vegetable? (multiple answers with the name of major customers)	a. Wholesaler (specify) b. Retailer (specify) c. Restaurant and hotel (specify)	

Item	Options and instructions	Answer with details
	d. Canteen (specify) e. Consumer f. Others (specify)	
4) Is there any buyer from outside the Province?	a. Yes (specify) b. No, all buyers are in the same province.	
5) How much is the gap between your selling price and your buying price (margin) for fresh vegetable?	%	
6) Is the sales of your vegetable increasing? By how much %?	a. Yes, increasing (%) b. No change c. No, declining (%)	

Please go to Section 2.

3.2) Processor/ exporter (processed food)

Item	Options and instructions	Answer with details
1) Type of products you are processing (multiple answers)	a. vegetable b. grains c. fruits d. meat/fish e. processed food f. Others (specify)	
2) Three major products using vegetable	Specify	
3) Who are the buyers of your products? (multiple answers in order)	a. domestic consumers b. domestic business c. export market (which country? Specify)	
4) Is the sales of these products increasing?	a. Yes, increasing b. No change c. No, declining	

Please go to Section 2.

3.3) Restaurants/hotels/catering services/hospitals/schools

Item	Options and instructions	Answer with details
1) Type of dishes you are producing (multiple answers)	a. Vietnamese b. Western c. Japanese d. Ethnic food e. Others (specify)	

Item	Options and instructions	Answer with details
2) Who are your main customers? (multiple answers in order)	a. Vietnamese (catering) b. Vietnamese (schools/hospitals) c. Vietnamese (middle class or above for restaurants/hotels) d. Vietnamese (others for restaurants/hotels) e. Foreigners (which countries?) f. Others (specify)	
3) Is the sales of your service increasing?	a. Yes, increasing b. No change c. No, declining	

II. Vegetable trading

Item	Options and instructions	Answer with details
1) Three vegetables you are buying most in each season (specify in order)	specify in order	<Dry season: October – March> 1. 2. 3.
		<Rainy season April - September> 1. 2. 3
2) Are there any vegetables you have difficulties to find in each season? (specify in order)	specify in order	<Dry season: October – March> 1. 2. 3.
		<Rainy season April - September> 1. 2. 3
3) Total volume of vegetable required	Ton/month (month)	Lowest month ton (month) Highest ton (month) Average ton
4) How do you decide which vegetable you buy? (multiple answers)	a. I only buy the same vegetable. b. According to customer's needs c. According to market trend d. According to the season e. Others (specify)	
5) What are the important	a. Appearance (color, shape)	1.

Item	Options and instructions	Answer with details
factors when you buy vegetable? (choose three important factors in order)	b. Freshness c. Taste d. Safety (such as certificate) e. Size f. Price g. Others (specify)	2. 3.
6) From where do you buy vegetable?	a. Individual farmers b. Farmer's organization/ cooperative c. Collectors d. Agriculture enterprises e. Others (specify)	a. % b. % c. % d. % e. % ( )
7) Is there any supplier from outside the Province?	a. Yes (specify) b. No, all buyers are in the same province.	
8) How do you decide the suppliers from whom you buy the vegetable? (choose three important factors in order)	a. Location of farm b. Price c. Safety of product d. Quality of product (size, appearance and color) e. Volume of product f. Reliability of suppliers g. Others (specify)	
9) When do you decide the buying price?	a. When we give an order b. When we collect supply c. Others (specify)	
10) Do you make a contract with *the suppliers*? For those who answer a, go to 11), those who answer b, go to 12)	a. Yes b. No	
11) What do you decide in the contract? (multiple answers)	a. Kind of vegetable b. Volume c. Price d. Date of supply e. Quality f. Responsibility of accidents g. Others (specify)	
12) Why don't you make a contract?	a. No need b. Farmers do not follow the contract c. Others (specify)	

Item	Options and instructions	Answer with details
13) Do you make a contract with *the buyers*? For those who answer a, go to 14), those who answer b, go to 15)	a. Yes b. No	
14) What do you decide in the contract? (multiple answers)	a. Kind of vegetable b. Volume c. Price d. Date of supply e. Quality f. Others (specify)	
15) Why don't you make a contract?	a. No need b. Buyers do not follow the contract c. Others (specify)	
16) What is a means of transportation of suppliers? (multiple answers)	a. Bicycle b. Motorbike c. Motorbike with a cow cart d. Track e. Public bus f. Others (specify)	
17) Do you cover the cost of transportation?	a. Yes, we pay transportation cost b. Yes, we collect vegetable from supplier's place c. No, suppliers send vegetable to our place d. It depends on the negotiation.	
18) Do you pay suppliers on the spot?	a. Yes, on the spot. b. No, xx days later c. Others (specify)	

III. Safe vegetable

Item	Options and instructions	Answer with details
1) We call the following types of vegetable as 'safe vegetable'. ● Certified safe vegetable (VietGAP, EuroGAP, organic certificate) ● Vegetable produced in accordance with Basic GAP ● Vegetable grown in the safe production sites certified by	a. Yes b. No	

Item	Options and instructions	Answer with details
province Do you know about this information?		
2) Have you bought safe vegetable? For those who answer a-c, go to 3), and those answered d, go to 4).	a. Yes, regularly b. Yes, several times c. Yes, a few times d. Never	
3) From where do you buy safe vegetable? (multiple answers)	a. Same as normal vegetable b. Individual farmers c. Farmer's organization/ cooperative d. Collectors e. Agriculture enterprises f. Others (specify)	
4) Is there any supplier from outside the Province?	a. Yes (specify) b. No, all suppliers are in the same province.	
5) Do you require a certificate such as VietGAP when you buy safe vegetables?	a. Yes b. No	
6) Three safe vegetable you are trading most (specify in order)		1. 2. 3.
7) For collectors and wholesaler, to whom do you sell safe vegetable?	a. Same as normal vegetable b. Other collectors c. Retailer d. Business such as restaurants and hotels e. Consumer f. Open market g. Others (specify)	
8) Do you pay safe vegetable at higher price than the normal crops? By how many percentage?	a. Yes, x% higher b. No, it is same as normal crops or lower. (Why?)	
9) Is your sales of safe vegetable increasing?	a. Yes, very much b. Yes, slightly c. No change d. No, slightly declining e. No, very much declining	
10) How did you find the producers of safe vegetable?	a. Through provincial DARD b. Trade fair or events (specify)	

Item	Options and instructions	Answer with details
(multiple answers)	c. Word of mouth d. Others (specify)	
11) Why did you buy the safe vegetable? (multiple answers)	a. Customers wants b. Food safety is important c. Safe vegetable can be sold at higher price d. Others (specify)	
12) Do you trust vegetable you bought as safe? For those who answered a-b, go to 13), those answered c-d, go to 14)	a. Yes, very much so. b. Yes, more or less c. Not very much d. Not at all	
13) Why do you think so? (multiple answers) Go to 15).	a. Because I know how to assess the safety of vegetable based on the experiences. b. Because I know the producers very well. c. Because I test samples periodically. d. Because I choose only certified producers. e. Because I check the production site or records of producers. f. Others (specify)	
14) Why do you think so? (multiple answers)	a. Because I do not know the producers well. b. Because I have no information to prove safety. c. Because I do not believe certification or labels. d. Because I do not believe farmers. e. Others (specify)	
15) What do you think most difficult in trading safe vegetables?	a. Find good producers b. Collect required amount c. Quality control d. Find buyers e. Sales and price (low profit margin) f. Others (specify)	
16) Do you continue to buy safe vegetable? Those who answer a, go to 17) and those who answer b, go to 18).	a. Yes b. No	

Item	Options and instructions	Answer with details
17) Are you interested in meeting with producers selected by the Project? Go to Section 4.	a. Yes b. No	
18) Why are you not interested in buying safe vegetable?	a. Because there is no demand for safe vegetable b. Because low profit c. Because it is difficult to find reliable suppliers of safe vegetable d. Because it is difficult to prove safety of safe vegetable e. Because the suppliers of vegetable I always buy is most reliable even though they do not have a certificate f. Others (specify)	

IV. Awareness of Food Safety

(1) For all respondents

Item	Options and instructions	Answer with details
1) Do your customers care about food safety? For those who answer a, go to 2). For those who answer b, go to 3).	a. Yes b. No	
2) Why do you think so? (multiple answers) Go to 4).	a. There are a lot of accidents related food safety these days. b. Customers and consumers are asking about food safety c. A lot of newspaper, TV and other media cover food safety issues. d. No of shops dealing with safe food is increasing. e. Others (specify)	
3) Why do you think so?	a. Most of people still do not know about food safety issues. b. No customers and consumers are asking about food safety c. People are more concerned about price or appearance of food products. d. I do not believe safe crop nor certificate. e. Others (specify)	

Item	Options and instructions	Answer with details
4) Have you received any complaints on food safety from your customers?	a. Yes, the customer got food poisoning. b. Yes, the customer complained about the smell of vegetable. c. Never received complaint. d. Others (specify)	
5) Do you think that your customers trust in the safety of your product? For those who answered a-c, go to 6), those answered d and e, go to 7)	a. Yes, very much so. b. Yes, probably c. Yes, more or less d. Not very much e. Not at all	
6) Why do you think so? (multiple answers)	a. Because I have a good relation with my customers. b. Because the label has logo and name of producers. c. Because I provide the customers with the information about producers. d. Because I provide the customers with the opportunity to meet producers. e. Because I always take care of customer's complaints well. f. Because the customers understand that the vegetable is safe from the quality of my vegetable. g. Others (specify)	
7) What do you think important to increase trust of consumers in the safety of your product? (multiple answers in order of priority)	a. Provide accurate information on producer and supply chain b. Not mixing the safe vegetable with other crops. c. Not misusing the labels or certificates. d. Provide customers with the opportunities to meet producers e. Improve production techniques of producers f. Other (specify)	

(2) For retailers, only

Item	Options and instructions	Answer
1) How old do you estimate your main customer group?	a. Under 20 b. 20-29	

Item	Options and instructions	Answer
	c. 30-39 d. 40-49 e. 50 and above	
2) Approximately what percentage of your customer group express concerns about safety crop?	a. Less than 25% b. 25-50% c. More than 50% but below 75% d. 75-100%	
3) Approximately what percentage of your customer group purchase safety crop (almost every time)?	a. Less than 25% b. 25-50% c. More than 50% but below 75% d. 75-100%	

Thank you very much for your cooperation

Bảng hỏi dành cho người mua rau an toàn tiềm năng

Tên Tỉnh: Hà Nội, Hưng Yên, Hải Dương, Hà Nam
Số phiếu:
Ngày phỏng vấn:
……
Tên người phỏng vấn:
……

Mục tiêu của Dự án Tăng cường Độ Tin cậy trong Lĩnh vực Sản xuất Cây trồng An toàn tại khu vực miền Bắc Việt Nam do JICA tài trợ là tăng cường sản xuất rau an toàn tại các tỉnh mục tiêu, gồm Hà Nội, Hưng Yên, Hải Dương và Hà Nam. Một trong những hoạt động của dự án là thành lập mối liến kết tin cậy giữa người sản xuất và người mua rau an toàn nhằm tạo niềm tin đối với người tiêu dùng.

Mục tiêu của Bảng hỏi là tìm hiểu tình hình giao dịch trên thị trường rau nói chung và rau an toàn nói riêng, đồng thời xác định những người mua tiềm năng các sản phẩm rau an toàn của những nông dân được Dự án hỗ trợ sản xuất.

I. Thông tin cơ bản

(1) Người trả lời

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời
1) Tên người trả lời	Nêu cụ thể	
2) Chức vụ người trả lời	Nêu cụ thể	
3) Giới	a. Nam b. Nữ	
4) Tuổi	a. Dưới 20 b. 20-29 c. 30-39 d. 40-49 e.50-59 f. từ 60 trở nên	
5) Thông tin liên lạc	Điện thoại	
	E-mail	

(2) Tổ chức/Công ty

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời
1) Tên tổ chức	Nêu cụ thể	
2) Loại hình kinh doanh	a. Thu gom rau tại thôn b. Thu gom tập trung (lớn) c. Bán buôn d. Chế biến e. Xuất khẩu (sản phẩm chưa qua chế biến) f. Xuất khẩu (sản phẩm đã qua chế biến) g. Bán lẻ	

	h. Nhà hàng/Khách sạn/ bếp ăn tập thể i. Bệnh viện/trường học j. Khác (nêu cụ thể)	
3) Bắt đầu kinh doanh	Số (năm) Hoặc từ khi nào	
4) Số nhân viên	Số lượng (người):	
5) Địa điểm trụ sở	a. Hà Nội b. Hưng Yên c. Hải Dương d. Hà Nam e. Khác (nêu cụ thể)	
6) Địa điểm chi nhánh (nếu có) (có thể lựa chọn nhiều câu trả lời)	a. Hà Nội b. Hưng Yên c. Hải Dương d. Hà Nam e. Không có chi nhánh f. Khác (nêu cụ thể)	
7) Doanh thu hàng tháng (doanh thu bán hàng) ***(Câu hỏi này sẽ được hỏi trước khi kết thúc cuộc phỏng vấn)***	Triệu đồng (tháng)	Tháng thấp nhất (tháng): Triệu đồng Tháng cao nhất (tháng): Triệu đồng Bình quân tháng : Triệu đồng
8) Mối quan hệ với Nhật hoặc các công ty của Nhật ở Việt Nam	Nêu cụ thể	

(3) Tổng quan tình hình kinh doanh

Đề nghị chỉ trả lời các câu hỏi ở phần có liên quan tới công việc kinh doanh của ông/bà.

3.1) Người thu gom/bán buôn/xuất khẩu (sản phẩm chưa qua chế biến)/bán lẻ

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Loại sản phẩm ông/bà kinh doanh *(Có thể lựa chọn nhiều câu trả lời)*	a. Rau b. Ngũ cốc c. Hoa quả d. Thịt/cá e. Thực phẩm đã qua chế biến f. Khác (nêu cụ thể)	
2) Tỷ lệ doanh thu từ rau trong kinh doanh của ông/bà	Số % so với tổng doanh thu	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
3) Ai là người mua rau của ông/bà? **(Lựa chọn nhiều câu trả lời và nêu rõ tên khách hàng chính)**	a. Bán buôn (nêu cụ thể) b. Bán lẻ (nêu cụ thể) c. Kinh doanh nhà hàng và khách sạn (nêu cụ thể) d. Người tiêu dùng e. Khác (nêu cụ thể)	
4) Có người mua từ tỉnh khác không?	a. Có (nêu cụ thể) b. Không, tất cả người mua đều ở trong tỉnh.	
5) Chênh lệch giữa giá bán và giá mua (dư biên- mức lãi) rau tươi như thế nào?	%	
6) Doanh số bán rau của ông/bà có tăng không? (Ước số %)	a. Có. Tăng b. Không thay đổi c. Không. Giảm	

Đề nghị chuyển sang phần 2.

3.2) Người chế biến/xuất khẩu (thực phẩm đã qua chế biến)

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Loại sản phẩm ông/bà chế biến *(Có thể lựa chọn nhiều câu trả lời)*	a. Rau b. Ngũ cốc c. Hoa quả d. Thịt/cá e. Thực phẩm đã qua chế biến f. Khác (nêu cụ thể)	
2) Ba sản phẩm chính sử dụng nguyên liệu rau	Nêu cụ thể	
3) Ai là người mua các sản phẩm của ông/bà? *(Có thể lựa chọn nhiều câu hỏi theo trình tự)*	a. Người tiêu dùng trong nước b. Cơ sở kinh doanh trong nước c. Xuất khẩu (tới nước nào? Nêu cụ thể)	
4) Doanh số bán các sản phẩm này có tăng không? (Ước số %)	a. Có. Tăng b. Không thay đổi c. Không. Giảm	

Đề nghị chuyển sang phần 2.

3.3) Nhà hàng/khách sạn/dịch vụ ăn uống/bệnh viện/trường học

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Loại món ăn mà ông/bà chế biến *(Có thể lựa chọn nhiều câu trả lời)*	a. Việt Nam b. Phương Tây c. Nhật bản d. Dân gian e. Khác (nêu cụ thể)	
2) Khách hàng chính của ông/bà là ai? *(Có thể lựa chọn nhiều câu trả lời)*	a. Người Việt Nam (cửa hàng ăn uống) b. Người Việt Nam (trường học/bệnh viện) c. Người Việt Nam (người tầng lớp trung và thượng lưu tại nhà hàng/khách sạn) d. Người Việt Nam (các nhà hang/khách sạn khác) e. Người nước ngoài (nước nào?) f. Khác (nêu cụ thể)	
3) Doanh số bán hàng của ông/bà có tăng không? (Ước số %)	a. Có. Tăng b. Không thay đổi c. Không. Giảm	

II. Kinh doanh rau

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Ba loại rau ông/bà mua nhiều nhất trong mỗi vụ *(nêu cụ thể theo thứ tự)*	nêu cụ thể theo thứ tự	<Mùa mưa: Từ tháng 4 đến – tháng 9 > 1. 2. 3.
		<Mùa khô: Từ tháng 10– đến > 1. 2. 3
2) Ông/bà cho biết một số loại rau khan hiếm theo mùa *(Cụ thể theo thứ tự)*	Cụ thể theo thứ tự	<Mùa mưa: Từ tháng 4 đến – tháng 9 > 1. 2. 3.
		<Mùa khô: Từ tháng 10– đến > 1.

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
		2. 3
3) Tổng khối lượng rau yêu cầu	Tấn/tháng (tháng)	Tháng thấp nhất: tấn (tháng) Tháng cao nhất : tấn (tháng) Trung bình tháng: tấn
4) Ông/bà quyết định mua rau như thế nào? *(Lựa chọn nhiều câu trả lời)*	a. Tôi chỉ mua một loại rau. b. Theo nhu cầu khách hàng c. Theo xu hướng thị trường d. Theo mùa e. Khác (nêu cụ thể)	
5) Những tiêu chí quan trọng khi chọn mua rau là gì? *(Lựa chọn 3 yếu tố quan trọng theo thứ tự ưu tiên)*	a. Hình thức (màu sắc, hình thái) b. Độ tươi c. Mùi vị d. An toàn (vd: có chứng chỉ) e. Kích cỡ f. Giá g. Khác (nêu cụ thể)	1. 2. 3.
6) Ông/bà mua rau ở đâu?	a. Nông dân cá thể b. Tổ chức nông dân/Hợp tác xã c. Người thu gom d. Doanh nghiệp nông nghiệp e. Khác (nêu cụ thể)	a. % b. % c. % d. % e. % ( )
7) Có người cung cấp từ tỉnh khác không?	a. Có (nêu cụ thể) b. Không, tất cả người cung cấp đều từ một tỉnh.	
8) Ông/bà quyết định lựa chọn người cung cấp rau như thế nào? *(Chọn 3 yếu tố quan trọng theo thứ tự ưu tiên)*	a. Vị trí của khu trồng rau b. Giá cả c. Độ an toàn của sản phẩm d. Chất lượng sản phẩm (kích cỡ, hình thức và màu sắc) e. Khối lượng sản phẩm f. Độ tin cậy của người cung cấp g. Khác (nêu cụ thể)	
9) Khi nào ông/bà quyết định giá mua?	a. Khi đặt hàng b. Khi thu mua c. Khác (nêu cụ thể)	
10) Ông/bà có hợp đồng với người cung cấp không? Nếu câu trả lời là "a", tiếp	a. Có b. Không	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
sang câu 11), Nếu câu trả lời là "b", tiếp sang câu 12)		
11) Ông/bà quyết định điều gì trong hợp đồng? *(Có thể lựa chọn nhiều câu trả lời)*	a. Loại rau b. Khối lượng c. Giá d. Thời gian cung cấp e. Chất lượng f. Khác (nêu cụ thể)	
12) Tại sao ông/bà không làm hợp đồng?	a. Không cần thiết b. Người dân không tuân thủ hợp đồng c. Khác (nêu cụ thể)	
13) Ông/bà có làm hợp đồng với người mua rau của ông/bà? Nếu câu trả lời là "a", tiếp sang câu 14), Nếu câu trả lời là "b", tiếp sang câu 15)	a. Có b. Không	
14) Ông/bà quyết định điều gì trong hợp đồng? *(Có thể lựa chọn nhiều câu trả lời)*	a. Chủng loại rau b. Khối lượng c. Giá d. Thời gian cung cấp e. Chất lượng f. Khác (nêu cụ thể)	
15) Tại sao ông/bà không làm hợp đồng?	a. Không cần thiết b. Người mua không tuân thủ hợp đồng c. Khác (nêu cụ thể)	
16) Phương tiện vận chuyển của các nhà cung ứng rau cho ông/bà *(Có thể lựa chọn nhiều câu trả lời)*	a. Xe đạp/xe thồ b. Xe máy c. Xe máy kéo xe bò d. Xe tải e. Xe khách f. Khác (cụ thể)	
17) Ông/bà có chi trả chi phí vận chuyển không?	a. Có, chúng tôi trả chi phí vận chuyển b. Có, chúng tôi thu mua rau từ chỗ người cung cấp c. Không, người cung cấp gửi rau đến cho chúng tôi d. Tùy vào sự thỏa thuận khi đàm phán hợp đồng.	
18) Ông/bà có thanh toán ngay cho người cung cấp không?	a. Có, thanh toán ngay. b. Không, sau…. ngày c. Khác (nêu cụ thể)	

III. Rau an toàn

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Chúng tôi gọi những loại rau dưới đây là "rau an toàn'. ● Rau an toàn được cấp chứng nhận (chứng nhận VietGAP, EuroGAP, hữu cơ) ● Rau được sản xuất theo qui trình GAP cơ bản ● Rau được trồng ở những vùng đủ điều kiện sản xuất an toàn đã được cấp chứng nhận của tỉnh Ông/bà có biết về các thông tin này không?	a. Có b. Không	
2) Ông/bà có mua rau an toàn không? Nếu câu trả lời là "a-c", tiếp sang câu 3), nếu câu trả lời là "d", tiếp sang câu 4).	a. Có, thường xuyên b. Có, vài lần c. Có, thỉnh thoảng d. Chưa bao giờ	
3) Ông/bà mua rau an toàn ở đâu? *(Có thể lựa chọn nhiều câu trả lời)*	a. Giống như địa chỉ mua rau bình thường b. Hộ nông dân cá thể c. Tổ chức nông dân / Hợp tác xã d. Người thu gom e. Doanh nghiệp nông nghiệp f. Khác (nêu cụ thể)	
4) Có người cung cấp từ tỉnh khác không?	a. Có (Nêu cụ thể) b. Không, tất cả người cung cấp ở cùng một tỉnh.	
5) Ông/bà có yêu cầu chứng nhận (vd. như VietGAP) khi mua rau an toàn không?	a. Có b. Không	
6) Ba loại rau an toàn ông/bà đang kinh doanh nhiều nhất *(Nêu tên cụ thể theo thứ tự ưu tiên)*		1. 2. 3.
7) Đối với người thu gom hay bán buôn: Ông/bà bán rau an toàn cho ai?	a. Giống như những người mua rau thường b. Những người thu gom khác c. Người bán lẻ	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
	d. Cơ sở kinh doanh như nhà hàng/khách sạn e. Người tiêu dùng f. Chợ g. Khác (nêu cụ thể)	
8) Ông/bà có mua rau an toàn giá cao hơn rau thường không? Cao hơn bao nhiêu phần trăm?	a. Có, cao hơn …. % b. Không, bằng với rau thường hoặc thấp hơn. (Tại sao?)	
9) Doanh thu bán hàng rau an toàn của ông/bà có tăng không? *(Ước % thay đổi)*	a. Có, tăng nhiều b. Có, tăng nhẹ c. Không thay đổi d. Không, giảm nhẹ e. Không, giảm nhiều	
10) Ông/bà tìm kiếm người sản xuất rau an toàn như thế nào? *(Có thể lựa chọn nhiều câu trả lời)*	a. Thông qua Sở NN&PTNT b. Hội chợ hoặc các sự kiện (nêu cụ thể) c. Truyền miệng d. Khác (nêu cụ thể)	
11) Tại sao ông/bà quyết định mua rau an toàn? *(Có thể lựa chọn nhiều câu trả lời)*	a. Yêu cầu của khách hàng b. Độ an toàn của rau rất quan trọng c. Rau an toàn có thể bán với giá cao hơn d. Khác (nêu cụ thể)	
12) Ông/bà có tin rau ông/bà mua là rau an toàn không? Nếu câu trả lời là "a-b", tiếp sang câu 13), nếu câu trả lời là "c-d", tiếp sang 14)	a. Có, rất tin. b. Có, tin c. Không tin lắm d. Không tin	
13) Tại sao ông/bà lại nghĩ như vậy? *(Có thể lựa chọn nhiều câu trả lời)* Tiếp sang câu 15).	a. Vì tôi biết cách đánh giá độ an toàn của rau theo kinh nghiệm. b. Vì tôi biết rõ về người sản xuất. c. Vì tôi thường xuyên kiểm tra mẫu sản phẩm. d. Vì tôi chỉ chọn người sản xuất đã đươc cấp chứng nhận. e. Vì tôi kiểm tra địa điểm sản xuất hoặc ghi chép của người sản xuất. f. Khác (nêu cụ thể)	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
14) Tại sao ông/bà lại nghĩ như vậy? *(Có thể lựa chọn nhiều câu trả lời)*	a. Vì tôi không biết nhiều về người sản xuất. b. Vì tôi không có thông tin để chứng minh độ an toàn. c. Vì tôi không tn vào chứng nhận hoặc nhãn mác. d. Vì tôi không tin vào người trồng rau. e. Khác (nêu cụ thể)	
15) Ông/bà cho rằng khó khăn lớn nhất trong kinh doanh rau an toàn là gì?	a. Tìm được người sản xuất tốt b. Thu mua đủ khối lượng yêu cầu c. Kiểm soát chất lượng d. Tìm được người mua e. Bán hàng và giá cả (lợi nhuận thấp) f. Khác (nêu cụ thể)	
16) Ông/bà có tiếp tục mua rau an toàn không? Nếu câu trả lời là "a", tiếp sang câu 17) và nếu câu trả lời là "b", tiếp sang câu 18).	a. Có b. Không	
17) Ông/bà có quan tâm đến việc gặp gỡ những người sản xuất do Dự án Jica lựa chọn không? Chuyển đến phần 4.	a. Có b. Không	
18) Tại sao ông/bà không quan tâm đến việc mua rau an toàn?	a. Vì không có nhu cầu rau an toàn b. Vì lợi nhuận thấp c. Vì khó tìm được người cung cấp rau an toàn tin cậy d. Vì khó chứng minh được độ an toàn của rau an toàn e. Vì người cung cấp rau tôi thường mua là đáng tin cậy mặc dù người ta không có chứng nhận f. Khác (nêu cụ thể)	

IV. Nhận thức về an toàn thực phẩm

(1) Dành cho tất cả những người được phỏng vấn

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Khách hàng của Ông/bà có quan tâm	a. Có	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
đến ATTP không? Nếu câu trả lời là "a", tiếp sang câu 2). Nếu câu trả lời là "b", tiếp sang câu 3).	b. Không	
2) Tại sao ông/bà nghĩ như vậy? *(Có thể lựa chọn nhiều câu trả lời)* tiếp sang câu 4).	a. Gần đây có nhiều sự vụ liên quan đến ATTP. b. Khách hàng và người tiêu dùng ngày càng đòi hỏi về ATTP c. Nhiều bài báo, TV, và các phương tiện đại chúng nói về vấn đề ATTP. d. Số lượng cửa hàng kinh doanh Thực phẩm an toàn tăng. e. Khác (nêu cụ thể)	
3) Tại sao ông/bà nghĩ như vậy?	a. Hầu hết mọi người chưa biết về những vấn đề ATTP. b. Không có khách hàng và người tiêu dùng yêu cầu về ATTP c. Người dân quan tâm hơn đến giá hoặc hình thức sản phẩm thực phẩm. d. Tôi không tin rau an toàn và chứng nhận rau an toàn. e. Khác (nêu cụ thể)	
4) Ông/bà có nhận được bất kỳ phàn nàn, khiếu nại về ATTP từ khách hàng của ông/bà không?	a. Có, khách hàng bị ngộ độc thực phẩm. b. Có, khách hàng phàn nàn về mùi của rau. c. Chưa bao giờ bị phàn nàn. d. Khác (nêu cụ thể)	
5) Ông/bà có nghĩ là khách hàng của ông/bà tin vào độ an toàn của sản phẩm ông/bà cung cấp không? Nếu câu trả lời là "a-c", tiếp sang câu 6), Nếu câu trả lời là d và e", tiếp sang câu 7)	a. Có, rất tin. b. Có, có thể c. Có, ít nhiều d. Không tin lắm e. Không tin chút nào.	
6) Tại sao ông/bà nghĩ như vậy? (*Có thể lựa chọn nhiều câu trả lời)*	a. Vì tôi có mối quan hệ tốt với khách hàng. b. Vì nhãn có lô-gô và tên người sản xuất.	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
	c. Vì tôi cung cấp thông tin về người sản xuất cho khách hàng. d. Vì tôi cung cấp cơ hội gặp người sản xuất cho khách hàng. e. Vì tôi luôn quan tâm đến những phàn nàn của khách hàng. f. Vì khách hàng hiểu được rau an toàn do chất lượng rau của tôi. g. Khác (nêu cụ thể)	
7) Ông/bà nghĩ điều gì là quan trọng trong việc gia tăng lòng tin của khách hàng về độ an toàn của sản phẩm của ông/bà? (*Có thể lựa chọn nhiều câu trả lời theo thứ tự ưu tiên)*	a. Cung cấp thông tin chính xác về người sản xuất và chuỗi cung ứng. b. Không trộn lẫn rau an toàn với rau khác. c. Không sử dụng sai nhãn mác hoặc chứng nhận. d. Cung cấp cho khách hàng cơ hội gặp người sản xuất. e. Cải tiến kỹ thuật sản xuất của người sản xuất. f. Khác (nêu cụ thể)	

(2) Dành cho người bán lẻ

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Ông/bà ước tính tuổi của nhóm khách hàng chính của ông/bà như thế nào?	a. Dưới 20 b. 20-29 c. 30-39 d. 40-49 e. Từ 50 trở lên	
2) Tỷ lệ nhóm khách hàng của ông bà bày tỏ sự quan tâm về rau an toàn?	a. Dưới 25% b. 25-50% c. Trên 50% nhưng dưới 75% d. 75-100%	
3) Tỷ lệ nhóm khách hàng của ông/bà mua rau an toàn (thường xuyên) là bao nhiêu phần trăm?	a. Dưới 25% b. 25-50% c. Trên 50% nhưng dưới 75% d. 75-100%	

Annex 3 Questionnaire Sheet for Consumer Survey

Screening Questions:

1. Are you 20 years or above? → If younger, not qualified.
2. Are you purchasing vegetables for yourself or for your family? → If oshin, not qualified.
3. Are you concerned about safety of your vegetables? → If they don't bother, not qualified.

Qualitative Survey Questions for qualified respondents:

Age：_____

Highest degree: middle school / high school / university / higher degree

Married：Yes / No

Number of co-residing family members who are 18 or younger: _____

Ages co-residing family members who are 18 or younger: _____

As you purchase vegetables for yourself or for your family, which of the following applies to you?

A) I want to buy safe vegetables, but I don't do much when I go grocery shopping.

B) I want to buy safe vegetables, and I usually rely on personal judgement.

C) I know about certified safe vegetables*, but I don't trust them.

D) I know about certified safe vegetables*, but I don't know where to find them.

E) I know about certified safe vegetables* and where to buy them, but I don't always buy them.

F) I buy certified safe vegetables most of the time.

** Definition of certified safe vegetables*

- *Certified safe vegetables (VietGAP, EuroGAP, organic certificate)*
- *Vegetables grown in the safe production sites certified by province*

Respondents who answered A)

1. Why not?
2. What do you think would trigger you to start purchasing safe vegetables? Why?
3, What would you do first, if you are to start buying safe vegetables?

Respondents who answered B)

1. Whose judgement, and how?
2. Why do you think that judgement is reliable?
3. What other information do you think would help you make correct judgement to choose safe vegetables? (e.g. certificate, origin, producer's name, test result of chemical residue, cultivation records, message, friends' information, etc.) Why?
4. Why do you not trust certificate?
5. What information would help you trust the certified safe vegetables?
6. Can you describe what it is like? E.g. If different certificate, what kind of certificate with what kind of information on it? (3rd party's, store's, test results of chemical residue, cultivation records, photos of producers and production sites, etc.) E.g. If message, what does the message say? Who says that message?
7. Why would you trust that information?

Respondents who answered C)

1. Why do you not trust certificate?
2. What information would help you trust the certified safe vegetables?
3. Can you describe what it is like? E.g. If different certificate, what kind of certificate with what kind of information on it? (3rd party's, store's, test results of chemical residue, cultivation records, photos of producers and production sites, etc.) E.g. If message, what does the message say? Who says that message?
4. Why would you trust that information?
5. Why do you choose this shop in that case?
6. How would you assess that these vegetables are safe at this shop?
7. What would influence you to determine to buy certified safe vegetables? Why?
8. Who would influence you to determine to buy certified safe vegetables? Why?

Respondents who answered D)

1. Why do you choose this shop in that case?
2. How would you assess that these vegetables are safe at this shop?
3. Have you searched a shop to buy certified safe vegetables? Why? Why not?
4. How did you (if you searched), or how would you (if you haven't searched) search a shop to buy certified safe vegetables?
5. What would influence you to determine to buy certified safe vegetables? Why?
6. Who would influence you to determine to buy certified safe vegetables? Why?
7. What triggered you to take an action to purchase safe vegetables for the first time? Why?
8. What did you do first, as you decided to buy safe vegetables? (e.g. Did you search internet about certificates? Did you look up safe vegetable shops? Did you talk to your friends who purchase certified safe vegetables, etc.?)
9. How did you first learn about certified safe vegetables?
10. What information helped you trust certified safe vegetables?

Respondents who answered E)

1. Why do you choose this shop in that case?
2. How would you assess that these vegetables are safe at this shop?
3. You know how to select and where to buy certified safe vegetables, and why do you compromise sometimes?
4. What would influence you to determine to buy certified safe vegetables? Why?
5. Who would influence you to determine to buy certified safe vegetables? Why?
6. What triggered you to take an action to purchase safe vegetables for the first time? Why?
7. What did you do first, as you decided to buy safe vegetables? (e.g. Did you search internet about certificates? Did you look up safe vegetable shops? Did you talk to your friends who purchase certified safe vegetables, etc.?)
8. How did you first learn about certified safe vegetables?
9. What information helped you trust certified safe vegetables?
10. How did you search where to buy certified safe vegetables?
11. Why did you decide to buy your certified safe vegetables at this particular shop?

Respondents who answered F)

1. What triggered you to take an action to purchase safe vegetables for the first time? Why?
2. What did you do first, as you decided to buy safe vegetables? (e.g. Did you search internet about certificates? Did you look up safe vegetable shops? Did you talk to your friends who purchase certified safe vegetables, etc.?)
3. How did you first learn about certified safe vegetables?
4. What information helped you trust certified safe vegetables?
5. How did you search where to buy certified safe vegetables?
6. Why did you decide to buy your certified safe vegetables at this particular shop?
7. What influenced you to buy certified safe vegetables? Why?
8. Who influenced you to buy certified safe vegetables? Why?

Socialist Republic of Viet Nam
Project for Improvement of Reliability of Safe Crop Production
in the Northern Region

Market Survey Report for Semi-pilot provinces (Vinh Phuc, Phu Tho and Thai Binh)

Table of Contents

CHAPTER1 Outlines of Survey

1. Objectives

The buyer's survey aims to understand the current conditions of market practices dealing with vegetable in general and safe crops in particular and identify the potential buyers of the safe crops produced by farmers supported by the Project.

2. Methodology

(1) Survey period

The survey was conducted between August 2017 and August 2018.

(2) Sample

The number of samples is 58. The data were collected from three semi-pilot provinces, namely Vinh Phuc, Phu Tho and Thai Binh. List of samples is in Annex 1

Table 1.1 Distribution of samples in the categories of buyers and provinces

Category	Vinh Phuc	Phu Tho	Thai Binh	Total
Collector	10	10	0	20
Processing company	1	0	0	1
Wholesaler	7 (5)	0	3	10 (5)
Restaurant/hospital/catering company	6 (1)	5	9	20 (1)
Retailer	5 (1)	5	4	14 (1)
Total	22 (29)	20	16	58 (65)

*The number in () indicates those who chose multiple categories as buyer.
Source: JICA Project Team

As Table 1.1 shows, the distribution of samples in each category varied as the availability of those buyers differs among pilot provinces.

(3) Methodology

Questionnaire survey was employed for the survey. Standardized questionnaire was prepared, tested and finalized by the Project team. The officials of Department of Agriculture and Rural Development (DARD) of each semi-pilot province were nominated as surveyor. They made one-to-one interviews with the selected samples. The persons at the management position were interviewed. The instructions were provided by the Project team.

The data collected in the survey were analyzed in province-wise as well as by type of business they answered[1].

(4) Questionnaire

The questionnaire consists of four sections and summary of questions are shown in Table 1.2. The full version of questionnaire is found in Annex 2.

Table 1.2 Summary of questionnaire

Category	Questions
Basic Information	Interviewees
	Organization/company

[1] In the case of analysis by types of business, the total number of respondents is 65 not 58 as the same respondents are analyzed in the multiple types of businesses. The readers should be careful as this analysis inherently contains certain level of biases.

Category	Questions
	Overview of business
Vegetable Trading	Type and volume of vegetable for trading, suppliers of vegetable, the way of selecting suppliers, the way of deciding price
Safe Vegetable	Type and volume of safe vegetable for trading, suppliers of safe vegetable, the way of selecting suppliers, the way of deciding price
Awareness of food safety	Awareness of consumers on food safety, level of customer's trust on the interviewee's vegetable

Source: JICA Project Team

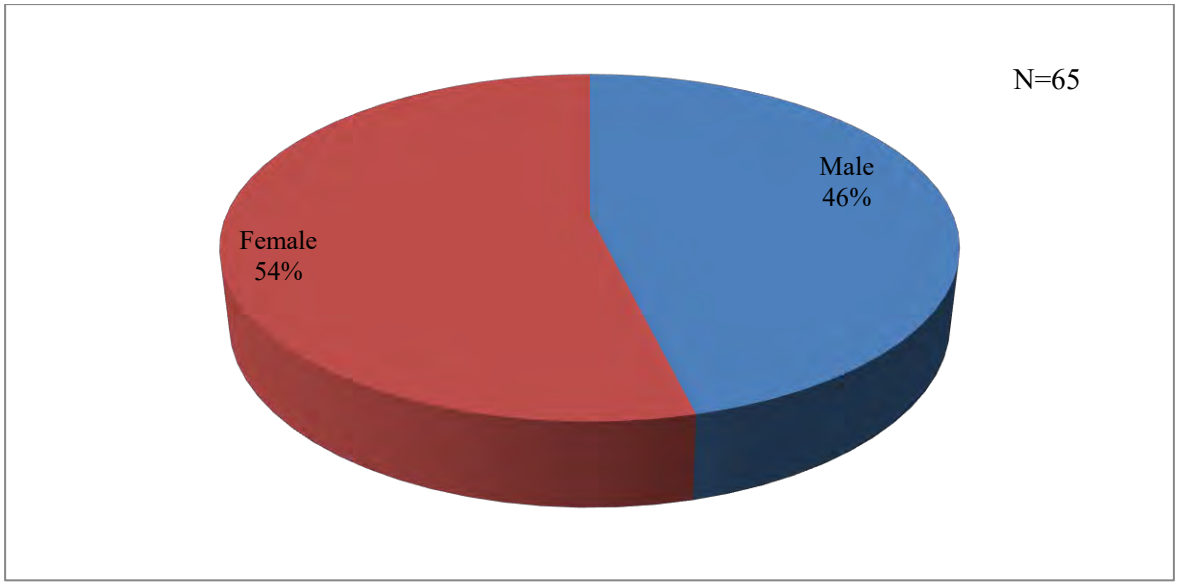
CHAPTER2 Outcomes of Survey

This chapter explains the outcomes of survey.

1. Respondents

1.1 Gender

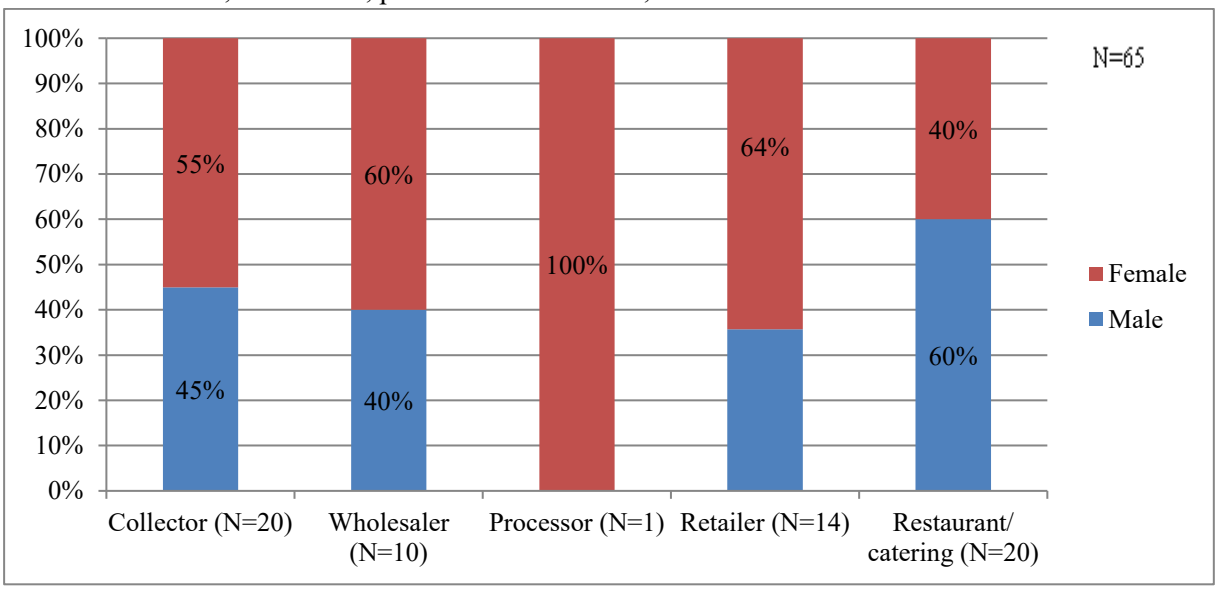
Figure 1.1 shows the gender distribution of respondents. The percentage of male and female is almost same for the sample of this survey.



Source: JICA Project Team

Figure 1.1 Gender distribution

As for the gender distribution of each type of buyers, there are several characteristics. More Females are found in collectors, wholesaler, processor and retailers, while more males are found in restaurants.



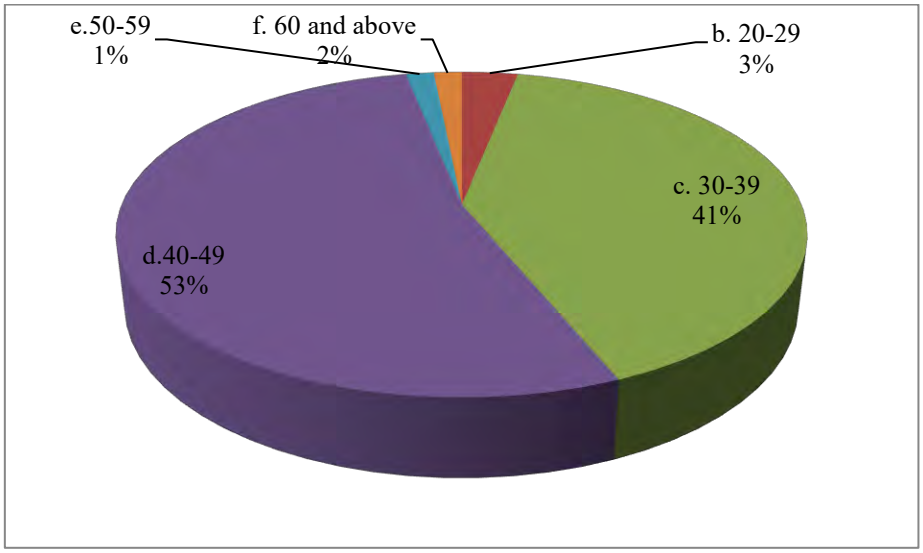
*Including catering companies.
Source: JICA Project Team

Figure 1.2 Gender distribution for types of buyers

1.2 Age

Figure 1.3 shows age distribution of respondents. More than 90% of respondents are between 30 and 49 years old.

N =64



*a. Under 20:0%

Source: JICA Project Team

Figure 1.3 Age distribution

There is not much difference of age distribution among different types of buyers.

2. Organization and company

2.1 Start of business

Table 2.1 shows that the start of business varies among respondents. The respondents started his/her business around 1995 at the earliest and after 2017 for the respondents who started his/her business at latest.

Table 2.1 Start of business

Type	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Average	2010	2008	2013	2011	2012	2011
Earliest	2007	1998	2013	1995	2000	2003
Latest	2014	2017	2013	2017	2017	2016

Source: JICA Project Team

2.2 Number of employees

Table 2.2 shows the number of employees for the company or organization respondents belong to. The number of employees is smallest for collector, wholesaler, retailer and restaurant. Because they are self-employed. Processors have more employees than other types of buyer due to their size and nature of business. The biggest number of employees is 30 for the processor of Dũng Đạt Agricultural investment and development Co. Ltd.

Table 2.2 Number of employees

Type	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Average	3	4	30	3	7	9
Minimum	1	1	30	1	1	7
Maximum	10	10	30	5	12	13

Source: JICA Project Team

2.3 Location of office

Table 2.3 shows the location of main office for the company or organization respondents belong to. It clearly shows that the respondents have their main office in the province they are surveyed. There are only two exceptions. Two of them have their main offices in Hanoi.

Table 2.3 Location of main office

Options	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
a. Hanoi	1	1	0	0	0	2
b. Vinh Phuc	9	6	1	5	5	26
c. Phu Tho	0	0	0	3	5	8
d. Thai Binh	0	3	0	4	9	16
e. Others	0	0	0	1	0	1

*Some respondents did not answer this question.
Source: JICA Project Team

2.4 Monthly turnover

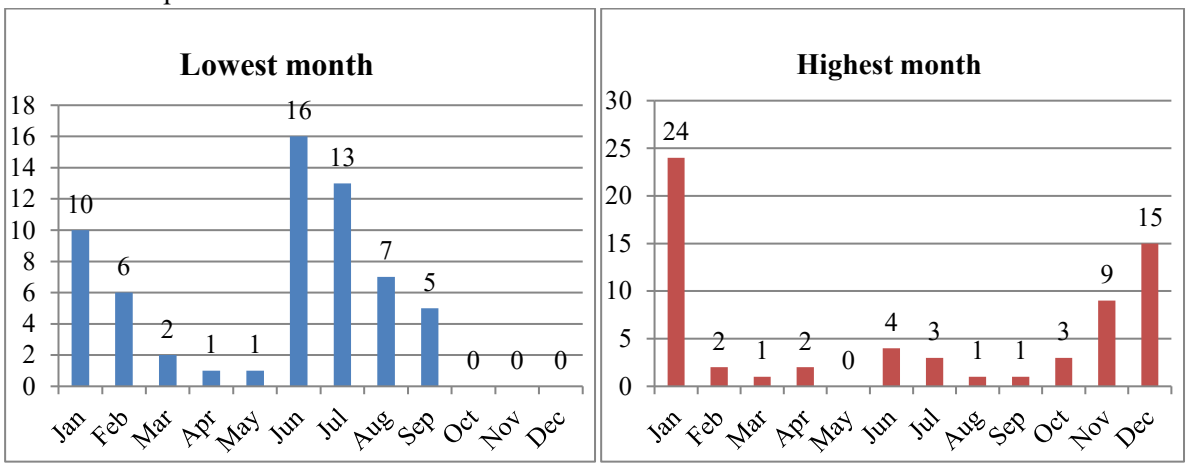
Table 2.4 shows the monthly turnover of the company or organization the respondents belong to. There is a big gap in the turnovers among different categories as well as within the same type. This is because the respondents include both small individual collectors and big scale enterprises such as supermarket and catering companies. The outcomes should not be taken as a general picture of buyers of vegetables.

Table 2.4 Monthly turnover for the lowest, highest and average month

		Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Average (N=65)
Lowest month (million VND)	Average	63	68	0	140	136	68
	Minimum	6	6	0	10	20	7
	Maximum	200	200	0	600	350	225
Highest month (million VND)	Average	115	163	6,000	201	114	1,099
	Minimum	8	8	6,000	15	30	1,010
	Maximum	400	400	6,000	750	200	1,292
Average month (million VND)	Average	91	116	3,000	153	99	577
	Minimum	7	7	3,000	12	25	509
	Maximum	350	350	3,000	660	150	752

Source: JICA Project Team

If one big processing company is excluded, the average turnover comes into the range of around 115 million VND per month.



*Vertical axes of both figures indicate the number of respondents. N=65
*Multiple answers.
Source: JICA Project Team

Figure 2.1 Seasonal trend of turnover

Figure 2.1 shows both lowest months and highest months for turnover. There is a clear seasonality of turnover, namely January which is harvest season for winter crops is the month of highest turnover and June and July are the months for lowest turnover.

3. Overview of business

3.1 Collector, wholesaler, exporter and retailers

(1) Type product

Table 3.1 shows that 100% of respondents deal with vegetable. Some of them also deal with more varieties of products such as fruits.

Table 3.1 Type of product

Options	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Total/Average (N=44)
a. vegetable	20	10	14	44
b. grains	0	1	7	8
c. fruits	7	7	10	24
d. meat/fish	2	1	7	10
e. processed food	0	1	6	7
f. others	0	0	1	1

*Multiple answers.
Source: JICA Project Team

As Table 3.2 shows, the collectors gain 75% of sales from vegetable on average. The percentage goes down to 46% for retailers.

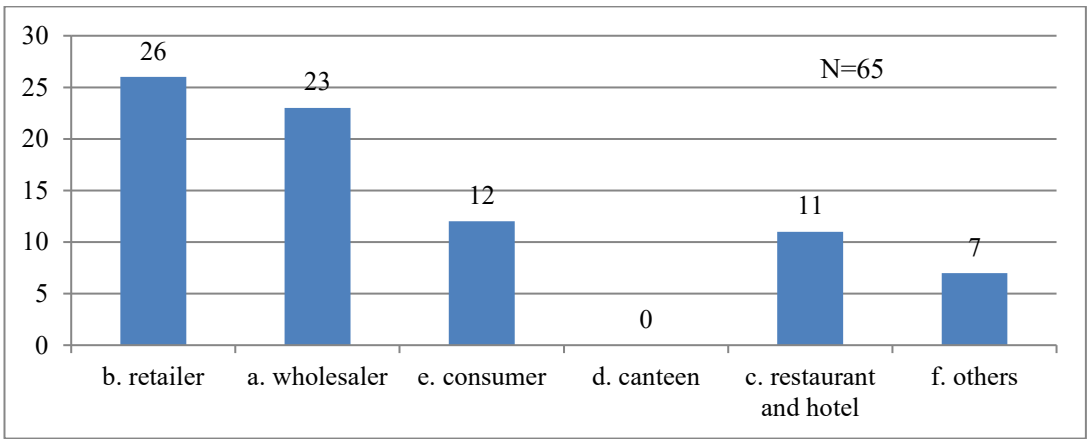
Table 3.2 Percentage of vegetable sales (%)

Options	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Total/Average (N=44)
Average	75	74	46	39
Minimum	9	20	5	7
Maximum	100	100	100	60

Source: JICA Project Team

(2) Buyers of vegetable

Figure 3.1 shows the buyers of vegetables for collectors, wholesalers, exporters and retailers surveyed. The biggest numbers of respondents mainly collectors and wholesalers chose retailers and wholesalers as main buyers of the vegetables. Most of retailers and small numbers of collectors sell their vegetables to consumers. Collectors, wholesalers and retailers also sell their vegetables to restaurants.



*Multiple answers.
Source: JICA Project Team

Figure 3.1 Buyers of vegetables

In terms of geographical distribution of buyers, Collectors and wholesalers have buyers from other provinces. Although there are more collectors who sell their produce to buyers in the same province, those collectors who have buyers in other provinces sell their produce to the extensive areas such as Hải Dương, Hưng Yên, Phú Thọ, Bắc Ninh, Hà Nội và Vĩnh Phúc. The similar tendency is found for wholesalers.

(3) Sales

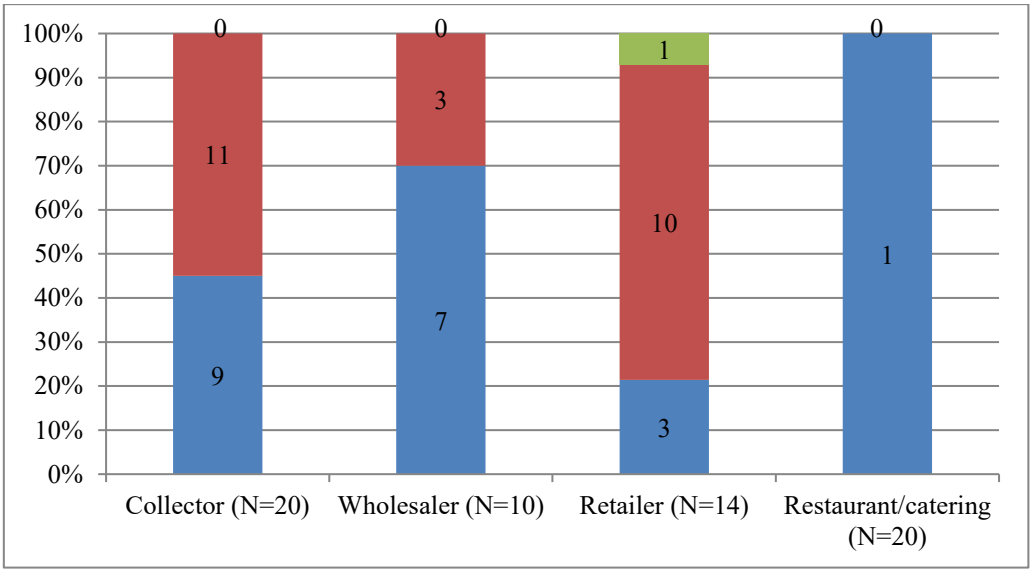
The respondents are charging average 20.08 % margin for the vegetable they are selling. The margin is highest for retailer who charge between 12 and 65 % and lowest for the wholesaler who charge between 0 and 60%.

Table 3.3 Margin of vegetable sales (%)

Options	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Total/Average (N=44)
Average	17	14	37	20.08
Minimum	8	0	12	7.06
Maximum	25	60	65	42.00

Source: JICA Project Team

To the question "Is the sales increasing?", 20 out of 47 respondents answered "yes". However, the percentage of respondents who answered "yes" varies between different categories. The percentage of those who answered that their sales is increasing is higher for wholesalers. On the other hand, for the collectors and retailers, those who answered "no change" are dominant.



*Some respondents did not answer this question. The figure shows the percentage of options among those answered.
Source: JICA Project Team

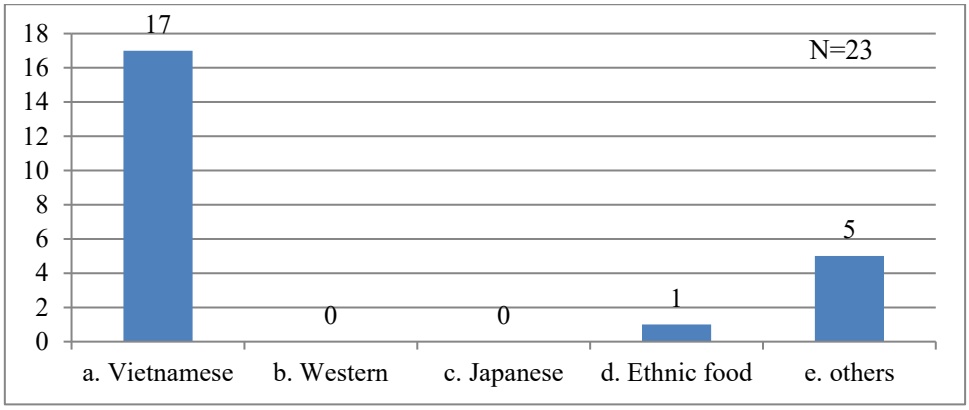
Figure 3.2 Trend of Sales

However, only one retailer answered that their sales is decreasing. Therefore, it is considered that the sales of vegetables are increasing in general.

3.2 Restaurants and catering companies

Figure 3.4 shows the types of dishes served by the restaurants and catering companies surveyed. 17 out of 23 restaurants surveyed serve Vietnamese foods. This is because around 13 respondents serve

meals for canteens of factories, schools and hospitals.



*Multiple answers.
Source: JICA Project Team

Figure 3.3 Types of Dishes

4. Vegetable trading

4.1 Vegetable traded

(1) Three vegetables most traded

Table 4.1 shows the three vegetables the respondents answered are most traded in the dry and the rainy seasons respectively. Although there is small variation among provinces, the most traded vegetable in dry season is cabbage, flower choy sum and mustard and that in the rainy season is morning glory, Malabar nightshade.

Table 4.1 Province wise three vegetables most traded

Province	Dry season: October- March			Rainy season: April- September		
Vĩnh Phúc	Cabbage	Tomato	Malabar nightshade	Morning glory	Mustard	Vegetable shrinkage
Phú Thọ	Flower choy sum	Chayote	Tomato	Malabar nightshade	Gourd	Sponge gourd
Thái Bình	Mustard	Spice herbs	Beans	Morning glory	Squash	Malabar nightshade

Source: JICA Project Team

The following tables show the ranking of vegetables traded by each type of buyers in the dry season. The figures are calculated by giving 1point to the vegetable the respondent answered first, 0.8 point to the vegetable they answered second and 0.6 point to the vegetable they answered third. Although spicy herbs are the most traded vegetables in restaurant, collectors, wholesalers and retailers trade cabbage and kohlrabi more often than others. Collectors handle wider variety of vegetables than other buyers.

Table 4.2 Buyer-wise vegetable most traded in the dry season

Vegetable	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Spicy herbs	3.2	2.4	2.6	6.4	14.6
Kohlrabi	3.2	4.2	4.6	1	13
Cabbage	4.4	3.8	3	1	12.2
Tomato	2.6	1.6	4.4	0.8	9.4
Beans	1.4	2.4	1.8	3.6	9.2

Vegetable	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Choy sum	4.2	0	1	1.8	7
Cucumber	4	0.6	0	0	4.6
Flower choy sum	2	0	1.8	0	3.8
Water celery	2	0	0.6	0.6	3.2
Chayote	1.8	0	0	0	1.8

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

For the rainy season, there is no clear tendency among buyers. Although morning glory is the most traded vegetables for wholesaler, retailers and restaurant, but collectors surveyed do not handle it much. Malabar nightshade is the most traded vegetable for collectors.

Table 4.3 Buyer-wise vegetable most traded in the rainy season

Vegetable	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Morning glory	3.8	10.2	9.2	17.8	41.0
Malabar nightshade	9.8	2.4	7	4.6	23.8
Mustard	4.6	4.2	4.6	0.8	14.2
Choy sum	7.6	0.8	1	0.6	10.0
Gourd	5.2	0	4	0.8	10.0
Spicy herbs	1.6	1.8	1.4	4.8	9.6
Vegetable shrinkage	1.8	2.4	2.8	2.4	9.4
Spong gourd	3.6	0	1	0.6	5.2
Cucumber	3	0	0	0	3.0
Amaranth	0	0	0.6	2.2	2.8
Bitter melon	2.4	0	0	0	2.4
Tomato	0.8	0.6	0	0	1.4
Bean	0.8	0	0	0	0.8

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

As there are no dominant vegetables for rainy season, there is a tendency that the buyer deals with wider variety of vegetable than they do in the dry season.

(2) Three vegetable difficult to find

Table 4.4 shows the three vegetables the respondents answered difficult to find in each province in the dry and the rainy seasons respectively. It is clear that morning glory is most difficult to find in the dry season. Mustard and Beans in the rainy season are considered difficult to find as they are mentioned more frequently than others.

Table 4.4 Province wise three vegetables difficult to find

Season	Dry season: October- March			Rainy season: April- September		
Vĩnh Phúc	Morning glory	Vegetable shrinkage	Malabar nightshade	Cabbage	Beans	Tomato
Phú Thọ	Morning glory	Snake gourd	Chayote	Flower choy sum	celery	Mustard
Thái Bình	Morning glory	Malabar nightshade	Beans	Mustard	Beans	

Source: JICA Project Team

The following tables show the ranking of vegetables in the dry season identified as difficult to find by each type of buyers. The figures are calculated by giving 1point to the vegetable the respondent answered first, 0.8 point to the vegetable they answered second and 0.6 point to the vegetable they

answered third. Although morning glory is most difficult to find for collector, wholesalers, retailers and restaurants, Malabar nightshade is most difficult for restaurant. It looks that leafy vegetables are mainly sought in the dry season.

Several vegetables in Table 4.5 such as vegetable shrinkage and Malabar nightshade are duplicated those traded most in the rainy season (Table 4.3), although they are not included in those most traded in the dry season. In other words, those vegetables are sought as off-season vegetables. On the other hand, beans and chayote are mentioned in Table 4.5 although they are among the most traded vegetables in the dry season. It suggests that demand of these vegetables exceed their supply in the dry season.

Table 4.5 Buyer-wise vegetable difficult to find in the dry season

Vegetable	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Morning glory	17	10.2	11	12.8	51.0
Vegetable shrinkage	7.2	4.8	4	0.8	16.8
Malabar nightshade	3.8	2.4	3.8	7.8	17.8
Beans	0	1.8	0.6	4.8	7.2
Snake gourd	0	0	0.8	0.8	1.6
Chayote	0.8	0.8	0	1.6	3.2

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

Similarly, the vegetables difficult to find in the rainy season in Table 4.6 are basically the vegetables most traded in the dry season. Cabbage and Beans are considered typical off-season vegetable in the rainy season. On the other hand, tomato and mustard, are mentioned in Table 4.6 although they are among the most traded vegetables in the rainy season. It suggests that demand of these vegetables exceed their supply in the rainy season.

Table 4.6 Buyer-wise vegetable difficult to find in the rainy season

Vegetable	Collector (N=20)	Wholesaler (N=10)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Cabbage	10	6	5	1	22
Beans	3.2	7.2	3.2	7.2	20.8
Mustard	1	3	3.6	9.4	17
Tomato	5.4	3.6	2.6	0.6	12.2
Flower choy sum	5.8	0	2	0	7.8
Celery	0.8	0	0.8	1	2.6

*In each type, the vegetables with highest points are highlighted in pink, second highest in green and third highest in blue.
Source: JICA Project Team

(3) Volume of vegetable required

Table 4.7 shows the volume of vegetable required by respondents. The volume varies among respondents depending on the scale of their businesses. The volume of vegetable required is smallest for restaurant and the biggest volume is 90 tons for collectors and wholesalers. If these companies are excluded, the average volume of vegetable required comes into the range of around 13 tons per month.

Table 4.7 Volume of vegetables required

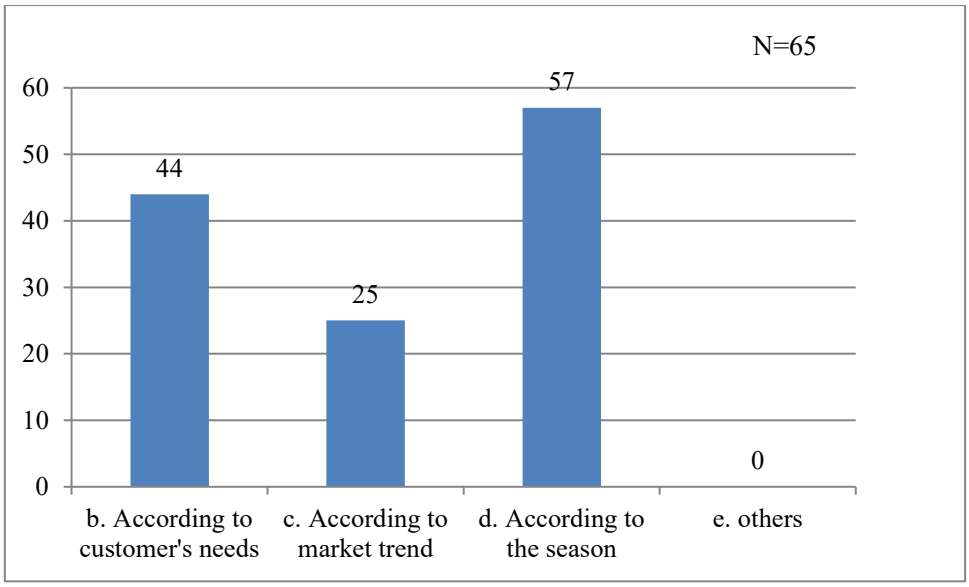
Options		Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
Lowest month	Average	14	22	0	4	1	8
	Minimum	3	5	0	1	2	2

Options		Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
(tons)	Maximum	70	70	0	20	2	32
Highest month (tons)	Average	27	36	0	9	1	15
	Minimum	6	10	0	2	2	4
	Maximum	90	90	0	25	2	41
Average month (tons)	Average	23	39	0	5	0	13
	Minimum	6	11	0	1	0	4
	Maximum	85	85	0	22	0	38

Source: JICA Project Team

(4) Selection of vegetable

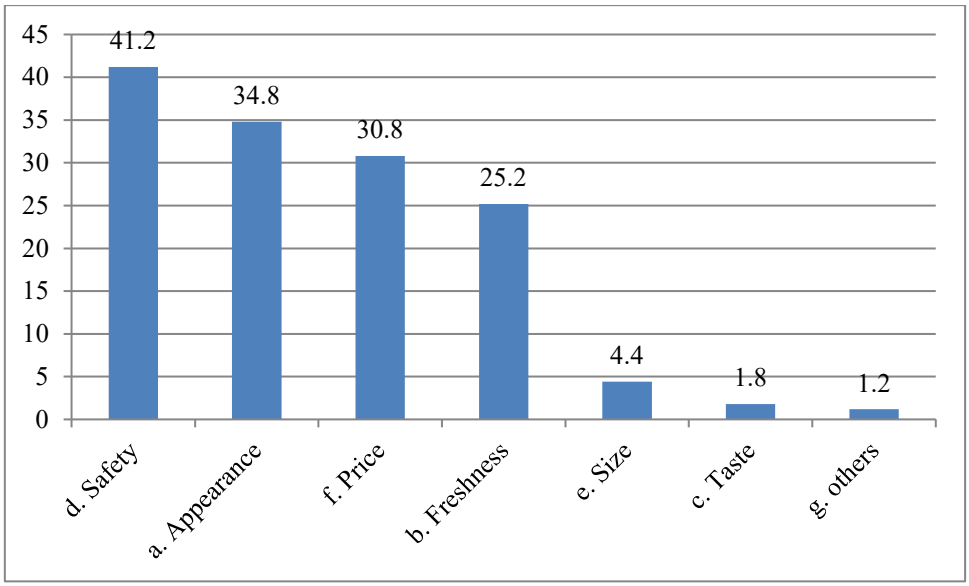
Figure 4.1 shows how the respondents decide which vegetable they buy. More than 44 samples among 65 samples chose 'According to the customer needs' and 'According to the season'.



*Multiple answers.
Source: JICA Project Team

Figure 4.1 How to decide which vegetable you buy

Figure 4.2 shows the factors the respondents consider important to decide which vegetable they buy. Safety appears the most important factor to decide the vegetable to buy followed by appearance and price.



* The respondents are asked to choose three options in priority. The number in the vertical axis of Figure 4.1 indicates the points each option gets. The points are calculated by giving 1point to the option the respondent answered first, 0.8 point to the option they answered second and 0.6 point to the option they answered third.

Source: JICA Project Team

Figure 4.2 Factors to decide vegetable

There are some differences of priority among different categories of buyers. As Table 4.8 shows safety is the priority for collector, retailer, and restaurant, while appearance is more important for collector. And Freshness is the most important for restaurant.

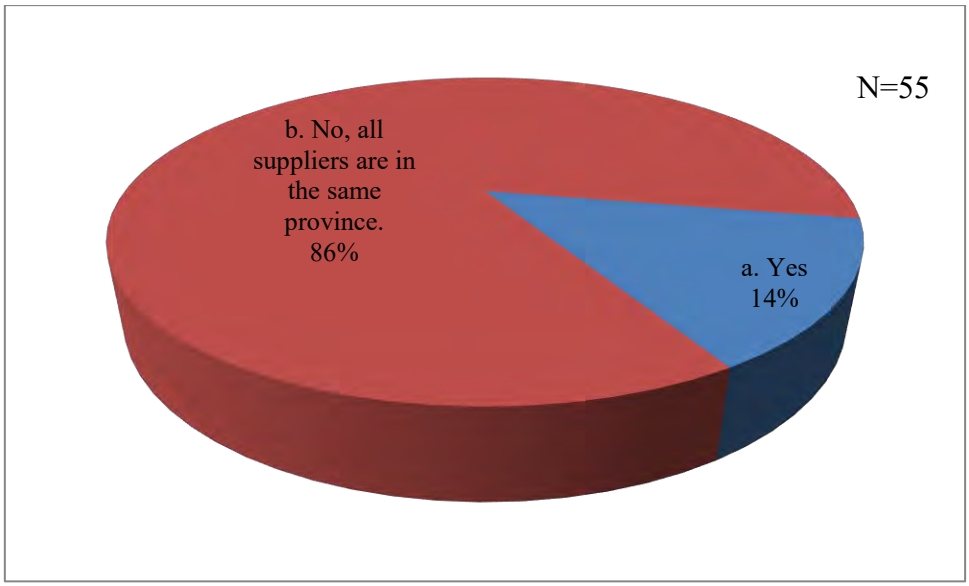
Table 4.8 Factors to decide vegetable

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
d. Safety	14.8	6	0	10.2	10.2	41.2
a. Appearance	15.6	7.8	0	6.8	4.6	34.8
f. Price	11.2	4.2	0	7.2	8.2	30.8
b. Freshness	5	3.4	0	6.2	10.6	25.2
e. Size	0.6	1.8	0	1.4	0.6	4.4
c. Taste	0	0	0	0	1.8	1.8
g. others	0	0	0	1.2	0	1.2

Source: JICA Project Team

4.2 Supply of vegetable

Figure 4.3 shows the origin of suppliers. 86% of respondents have all suppliers from the same province, while 14% of respondents have suppliers from other provinces.



Source: JICA Project Team

Figure 4.3 Origin of suppliers

Table 4.9 shows the suppliers from other provinces for each type of buyers. Supply from Vinh Phuc is quite common.

Table 4.9 Suppliers from other provinces

Collector	Wholesaler	Retailer
Vinh Phuc	Vinh Phuc	Ha Noi, Vinh Phuc

Source: JICA Project Team

Table 4.10 shows the important factors for buyers to choose suppliers. Price becomes the most important factor to choose the suppliers. However, when we look at each buyer, safety is the most important factors for collectors, wholesalers and retailers. Reliability of suppliers is more important for restaurant/catering.

Table 4.10 Important factors to choose suppliers

Options	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
b. Price	18	6	0	8	7	39
c. Safety	19	7	0	9	1	36
d. Quality	14	4	0	7	8	33
f. Reliability of suppliers	5	4	0	6	11	26
e. Volume	5	0	0	2	4	11
a. Location of farm	3	3	0	1	1	8
g. others	0	0	0	0	0	0

*Multiple answers.
Source: JICA Project Team

4.3 Conditions for trading

(1) Timing of deciding the price

Table 4.11 shows the timing of deciding the price. Overall there are more buyers to decide the price when they give an order. This tendency is more apparent for retailers. 60% of collectors decide the price when they collect supply although 40 % of collectors decide the price when they give an order.

Table 4.11 Timing to decide the price

Options	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
a. When we give an order	8	6	0	9	6	29
b. When we collect supply	12	4	0	4	5	25
c. Others	0	0	0	0	0	0

*Some respondents did not answer this question.
Source: JICA Project Team

<Case in Pilot provinces> Method to decide the price

Buyer	Method to decide the price
Collectors	Follow the market price Negotiate before make order
Wholesaler	Fixed price of each year (around 10.000đ/kg) (2)
Processors	Fixed price of each year (around 10.000đ/kg) Minimum price to be set for farmer, purchase price is in accordance with season time
Retailers	Fixed price of each year (around 10.000đ/kg) Reach agreement right from the beginning Prices decided by Company

Source: JICA Project Team

(2) Contract

1) Contract with suppliers

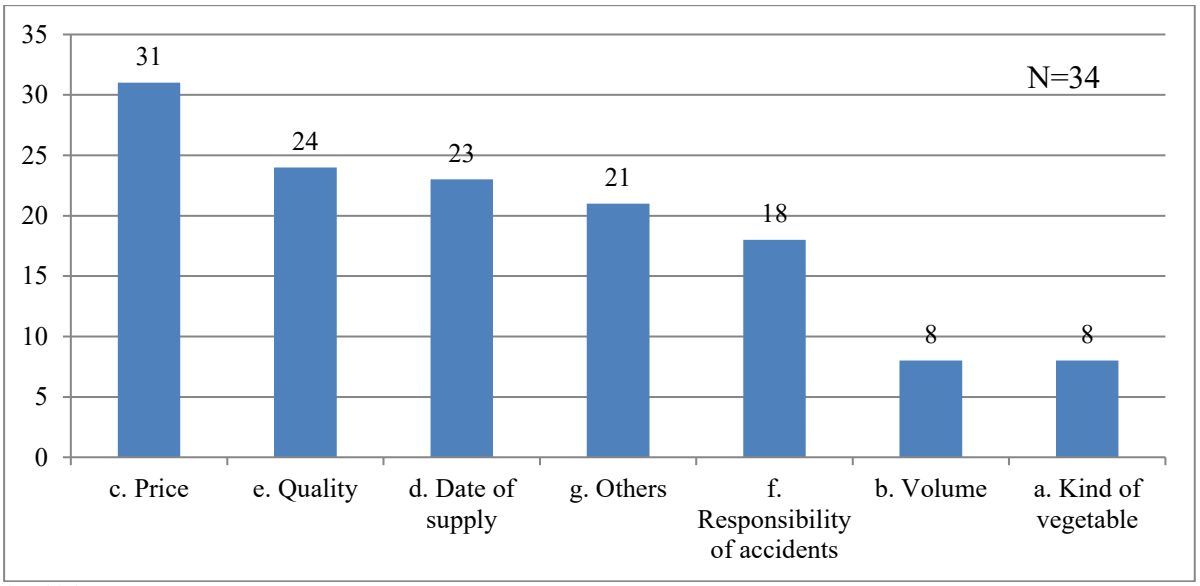
Table 4.12 shows whether buyers make a contract with suppliers. There are more respondents who make a contract with suppliers than those who do not. Although more than a half of wholesalers, retailers and restaurants make a contract, not many collectors make a contract with suppliers.

Table 4.12 Contract with suppliers

Options	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant/ catering (N=20)	Total (N=65)
a. Yes	8	6	0	9	11	34
b. No	12	4	0	4	5	25

*Some respondents did not answer this question.
Source: JICA Project Team

Figure 4.4 shows the elements included in the contract. Among 34 respondents who answered they make a contract with suppliers, 31 respondents include price followed by quality and date of supply in the contracts.



*Multiple answers.
Source: JICA Project Team

Figure 4.4 Contents of contract

It is important to note that buyers consider the contract to minimize the risk and uncertainty arising from vegetable trade. For instance,10 respondents include responsibility of accidents in the contract and there are similar conditions mentioned by the respondents such as punishments in case the supplier fails to fulfill quality requirement. Preparing themselves for these conditions is very important if the producers make a contract with buyers.

<Case in Pilot provinces> Other conditions included in the contract
commit the quality, make compensation in case products do not achieve standard, make payment, deposit, or punishment terms in case of products with not good quality, safety, commit the quality, make compensation in case products do not achieve standard, payment method

2) Contract with buyers

Table 4.13 shows whether respondents[2] make a contract with their buyers. The number of respondents who make a contract with buyers is much less than those who do not. There is a same tendency among different kinds of buyers. Although more than half of wholesalers make a contract, collectors and restaurants normally do not make a contract with buyers.

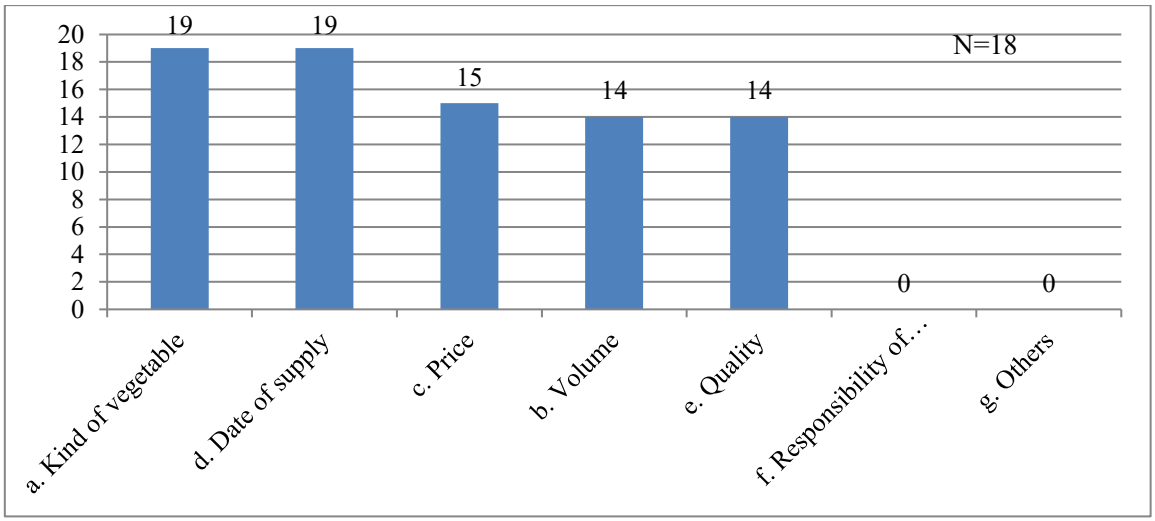
Table 4.13 Contract with buyers

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Restaurant (N=20)	Total (N=51)
a. Yes	8	6	0	3	17
b. No	12	5	0	10	27

*Some respondents did not answer this question.
Source: JICA Project Team

Figure 4.5 shows the elements included in the contract. 19 respondents include kind of vegetable and date of supply followed by price, volume and quality.

[2] Retailers are excluded as they sell the vegetables to consumers.



*Although only 18 respondents answered that they made a contract with buyers, there are at least 19 respondents who answered this question. Some respondents mistakenly answered this question.
*Multiple answers.
Source: JICA Project Team

Figure 4.5 Contents of contract

(3) Transportation

Table 4.14 shows means of transportation for vegetable employed by the respondents. Most dominant means of transportation is motorbikes. Although collectors and wholesalers answered 'others', they did not answer the specific means of transportation. As most of respondents surveyed are in small scale, they tend to use motorbike and truck with cargo cart.

Table 4.14 Means of transportation

Means of transportation	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Bicycle	2	3	0	1	0	6
b. Motorbike	11	3	0	7	14	35
c. Motorbike with a cow cart	1	1	0	1	0	3
d. Truck and car	0	0	0	0	0	0
e. Public bus	1	0	0	1	0	2
f. Others	12	6	0	5	1	24

*Multiple answers.
Source: JICA Project Team

As for who cover the transportation cost of vegetable, Table 4.15 shows an interesting result. Although there are collectors, wholesaler, and retailers who pay suppliers transportation cost of vegetable, there are more buyers who ask suppliers to send their vegetable to their place.

Table 4.15 Transportation cost

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Yes, we pay transportation cost	3	7	0	2	0	12
b. We collect vegetable from supplier's place	3	3	0	1	0	7
c. No, suppliers send vegetable to our place	7	1	0	7	14	29
d. It depends on the negotiation	4	3	0	3	1	11
e. Others	6	0	0	0	0	6

Source: JICA Project Team

This means that the cost of transportation or means of transportation should be planned well in advance, if the producers start collective sales.

(4) Payment

Table 4.16 shows the timing of payment by buyers to the suppliers. Although more than 26 respondents pay the suppliers on the spot. 20 respondents pay after they received the vegetables.

Table 4.16 Timing of payment

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Yes, on the spot.	8	2	0	9	7	26
b. No, xx days later	11	6	0	3	0	20
c. Others	2	0	0	2	0	4

*Some respondents did not answer this question.
Source: JICA Project Team

Table 4.17 shows the number of days required for those who answered to delay the payment to pay. On average, they pay to the suppliers 5.5 days after they received the vegetables. Retailers delay longer than other buyers. Collector pay earlier.

Table 4.17 Number of days required for payment

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
Average	4	18	0	17	0	5.5
Shortest	3	15	0	3	0	1
Longest	5	30	0	30	0	10

Source: JICA Project Team

<Case in Pilot provinces> Timing of payment
For farmers pay immediately, for enterprises make payment after 30 days, advance payment of 50% and final payment after harvesting, depending on negotiation, usually every 10 days or pay immediately, advance payment after 10 days and the remaining will be paid at the end of season, advance payment after 30 days and the remaining will be paid after 2-3 months, immediate payment or 15 days after product received, 50% advance payment

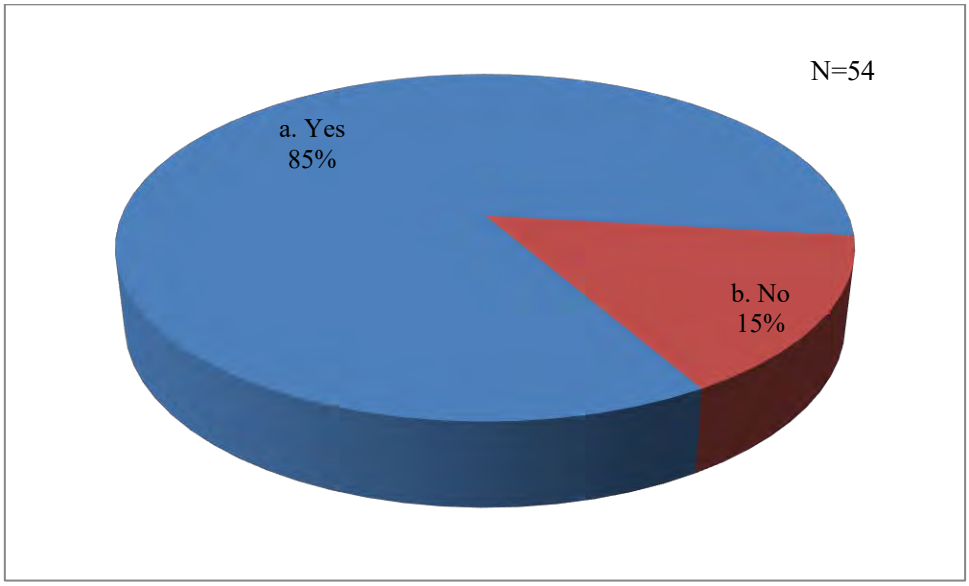
5. Safe Vegetable

(1) Relation with safe vegetable

In this survey, safe vegetable is defined as follows:

- Certified safe vegetable (VietGAP, EuroGAP, organic certificate)
- Vegetable produced in accordance with Basic GAP
- Vegetable grown in the safe production sites certified by province

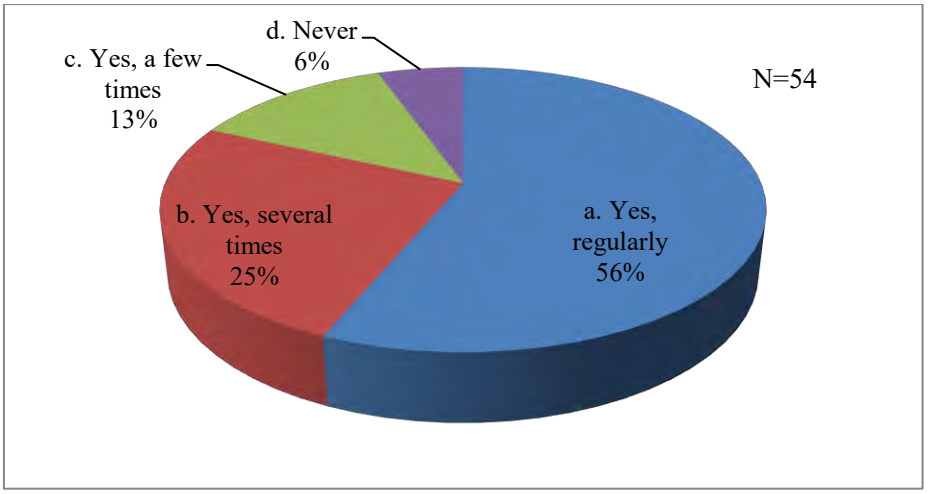
After being explained the above definition, 85% of respondents answered that they know about safe vegetable.



Source: JICA Project Team

Figure 5.1 Recognition of safe vegetable

As for the frequency of purchasing safe vegetables, 94% of respondents have experiences of buying them. 56% of them buy regularly and 25% buy them several times. The percentage is high as the samples are selected as candidates for buying safe vegetables supported by the Project. This tendency should not be taken as general.



Source: JICA Project Team

Figure 5.2 Frequency of buying safe vegetable

(2) Supply of safe vegetable

Table 5.1 shows the suppliers of safe vegetable. Unlike the supply of normal vegetable for which individual farmers are the dominant channel of supply, farmers' organizations or cooperatives appear to be a dominant supply channel for safe vegetable. This is because that the certificates to prove safety such as VietGap or EuroGap are normally given to the group of producers not to the individual farmers. Collectors rely on individual farmers as they require wide varieties of vegetable in sometimes large amount and thus difficult to procure the vegetables by themselves.

Table 5.1 Suppliers of safe vegetable

Suppliers	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
b. Individual farmers	11	1	0	5	2	19
c. Farmers organization/ cooperative	9	5	1	9	4	28
d. Collectors	2	2	0	0	3	7
e. Agriculture enterprises	1	0	1	2	1	5
f. Others	0	0	0	0	1	1

*Multiple answers.
Source: JICA Project Team

The above assumption is proved by the fact that majority of buyers require the certificate such as VietGap when buying safe vegetable as Table 5.2 shows. The categories of buyers who buy safe vegetable from farmers' organizations in Table 5.1 corresponds to the categories of buyers who require certificates in Table 5.2.

Table 5.2 Requirement of certificates

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Yes	7	6	1	10	3	27
b. No	13	1	0	0	3	17

*Some respondents did not answer this question.
Source: JICA Project Team

Table 5.3 shows the means to find suppliers. There are variety of ways to find suppliers. For collectors, wholesalers, retailers, processors and restaurants, information or introduction from DARD is the most important source to identify the suppliers. For collectors and retailers, trade fairs or events are the second dominant way of finding suppliers.

Table 5.3 Means to find suppliers

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Through DARD	12	7	1	7	4	31
b. Trade fairs or events	7	3	0	4	1	15
c. Word of mouth	3	3	0	1	0	7
d. Others	8	0	0	4	3	15

*Multiple answers.
Source: JICA Project Team

It is worthwhile to note that there are many other ways to identify suppliers as shown below. The many respondents find suppliers from local areas or by visiting fields. Some use internet, TV and newspaper. One retailer chose a supplier who invited him/her to their field. This suggests that it is an effective of finding buyers for producers to disseminate their information through internet or media as well as to invite buyers to see their field.

(3) Price of safe vegetable

Table 5.4 shows the price of safe vegetable the respondents pay. 26 respondents answered that they pay higher prices for safe vegetables than normal vegetables. The percentage is higher for retailers and a bit lower for collectors.

Table 5.4 Price of safe vegetable

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Yes	9	4	0	8	5	26
b. No	11	3	0	0	1	15

*Some respondents did not answer this question.
Source: JICA Project Team

Table 5.5 shows the margin buyers pay for safe vegetables. On average, the buyers pay a margin of 14.5%. Retailers pay the highest margin of 31% and collectors pay the lowest margin of 10%.

Table 5.5 Percentage of margin buyers pay for safe vegetable (%)

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
Average	10	18	0	31	12	14.5
Lowest	5	15	0	10	0	3.3
Highest	15	25	0	100	100	66.7

Source: JICA Project Team

The reasons for not paying higher price for safe vegetables are listed below. There are reasons to stress on continuous business relations.

<Case in Pilot provinces> Price of safe vegetales
I only buy at normal price, depending on negotiation, mixing with other vegetable, cannot pay higher price, produce by themselves (2), prior agreement, regularly buy, permanent partner, buy safe vegetable only when the producer has difficulty to sell.

(4) Safety of vegetable

Table 5.6 shows the level of trust the respondents have in the safety of vegetable they buy. Most of respondents have their trust in the safety of vegetable they buy. But they are not absolutely sure about safety as half of them chose ‘Yes, more or less’, not ‘Yes, very much so’.

Table 5.6 Trust in the safety of vegetable

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Yes, very much so.	5	7	0	6	2	20
b. Yes, more or less.	14	0	1	4	3	22
c. Not very much.	0	0	0	0	1	1
d. Not at all.	1	0	0	0	0	1

*Some respondents did not answer this question.
Source: JICA Project Team

Table 5.7 shows the reasons of their trust in safety of vegetables. The biggest number of respondents chose ‘I know the producers very well’ as a reason they trust in the safety of vegetable. This is followed by ‘I chose only certified producers’ and ‘I checked production site or production records’.

Table 5.7 Reasons of trust

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. I know how to assess the safety	3	2	0	0	1	6
b. I know the producers very well.	19	7	0	8	3	37
c. I test samples	5	4	0	2	0	11

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
periodically.						
d. I choose only certified producers.	4	3	1	9	2	19
e. I checked production site or production records.	9	5	0	4	1	19
f. Others	1	0	0	0	0	1

*Multiple answers.
Source: JICA Project Team

Considering that most of buyers for safe vegetables require official certificates for procurement, only certification is not enough to make buyers confident in the safety. Knowing producers by themselves strengthen the trust of buyers in the safety of vegetables. In fact, buyers employ various means to ensure the safety of vegetable as shown below.

<Case in Pilot provinces>
Buyers check chemical residue on products (VinEco)

(5) Safe vegetable trading business

Table 5.8 shows the buyers of safe vegetables. Unlike the normal vegetables, major buyers of safe vegetables are business such as canteens, hotels and companies. As buying safe vegetable is still not common, the sales channel of safe vegetables seems restricted.

Table 5.8 Buyers of safe vegetables

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
b. Other collectors	7	4	0	0	1	12
c. Retailer	11	0	0	0	0	11
d. Business	3	2	0	0	1	6
e. Consumer	6	3	0	7	1	17
f. Open market	1	0	0	0	0	1
g. Others	5	0	0	0	0	5

*Multiple answers.
Source: JICA Project Team

Table 5.9 shows trend of safe vegetable sales. Overall the sales of safe vegetable are considered stable as the all respondents answered either ‘no change’ or ‘slightly increasing’. Nevertheless, as there is no respondent who answered ‘slightly or very much declining’ in all type, the trend of sales in near future is considered positive.

Table 5.9 Sales of safe vegetables

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Very much increasing	0	0	0	0	0	0
b. Slightly increasing	8	7	0	5	1	21
c. No change	12	0	1	5	3	21
d. Slightly declining	0	0	0	0	0	0
e. Very much declining	0	0	0	0	0	0

*Some respondents did not answer this question.
Source: JICA Project Team

Table 5.10 shows reasons for respondents to deal with safe vegetable. The biggest number of respondents chooses ‘consumer want’ followed by ‘Food safety is important’. This result suggests the high level of awareness on food safety in general. As the respondents are selected as candidate buyers, they are considered more aware of food safety than other normal buyers.

Table 5.10 Reasons to deal with safe vegetables

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Consumers want	20	7	0	10	3	40
b. Food safety is important	16	7	1	7	5	36
c. Safe vegetable can be sold at higher price	12	6	0	5	1	24
d. Others	0	0	0	0	0	0

*Multiple answers.
Source: JICA Project Team

Table 5.11 shows difficulties for buyers in safe vegetable trading. The biggest number of respondents chose 'find good producers'. For the retailers, whose safe vegetable business is increasing, finding good producers is the biggest difficulty, while collectors have the most difficulty in quality control. This gap in the value chain is where the Project can effectively intervene.

Table 5.11 Difficulties in safe vegetable trading

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Find good producers	10	5	1	8	3	27
b. Collect required amount	7	4	0	4	1	16
c. Quality control	14	4	1	3	2	24
d. Find buyers	9	3	1	4	4	21
e. Sales and price	13	2	0	2	0	17
f. Others	0	0	0	0	0	0

*Multiple answers.
Source: JICA Project Team

In fact, 38 respondents showed their interests in meeting with producers supported by the Project. It suggests that the buyers are looking for good and trustful producers.

Table 5.12 Interest in meeting with producers supported by the Project

	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Yes	19	7	1	8	3	38
b. No	0	0	0	2	3	5

*Some respondents did not answer this question.
Source: JICA Project Team

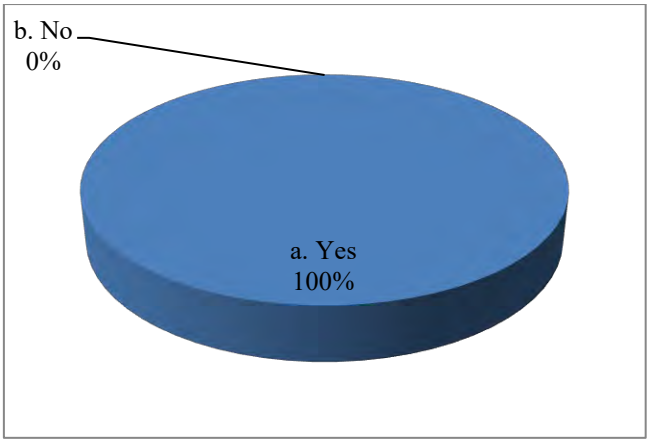
For other difficulties listed below, trust of consumers in safety of vegetable appears to be very relevant to the Project.

<Case in Pilot provinces> Difficulties in safe vegetable trading
Consumers do not trust on safe vegetable, seasonal fluctuations, *trust of consumers (2)*, due to weather conditions, do not use plant protection chemicals, various kinds of vegetables, canteen prepare diverse menu

6. Awareness on food safety

(1) Awareness of customers on food safety

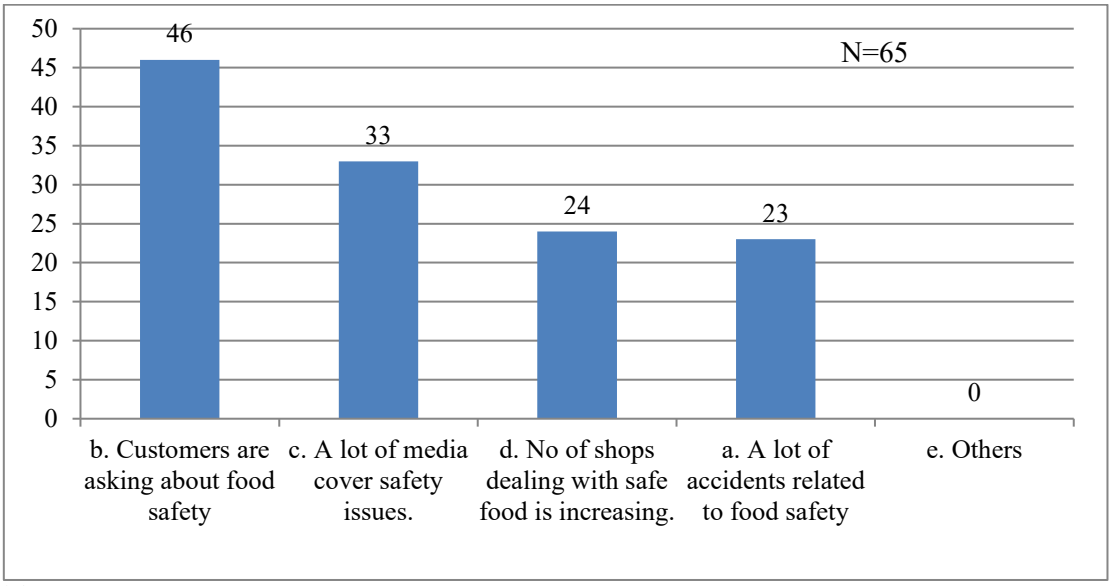
Figure 6.1 shows awareness of customers of respondents on food safety. To the question 'Does your customer care about food safety, 100% of respondents answered 'yes'. The result suggests that buyers of safe vegetables are very much aware about the awareness of their customers on food safety.



Source: JICA Project Team

Figure 6.1 Does your customer care about food safety?

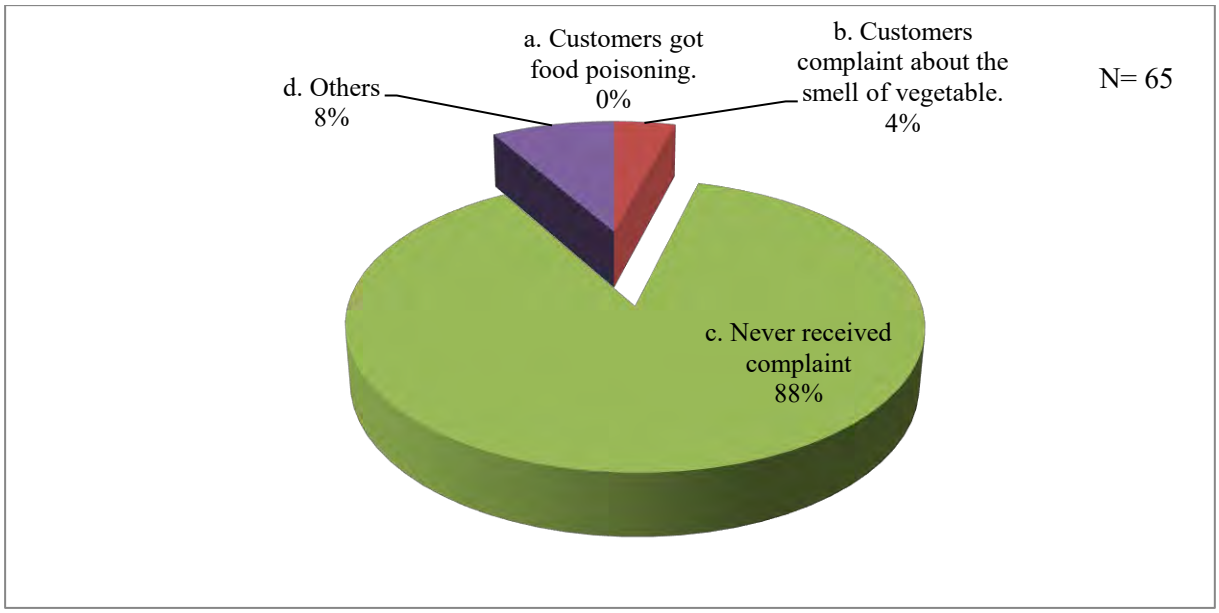
Figure 6.2 shows reasons the respondents think that their customers care about food safety. 46 respondents answered that customers are asking about food safety. This suggests that buyers are pressurized by customers on food safety.



*Multiple answers.
Source: JICA Project Team

Figure 6.2 Reasons the respondents think that their customers care about food safety

Figure 6.3 shows whether the respondents have ever received any complaints on food safety from their customers. While 88% of respondents have never received any types of complaints, 4% of respondents received the complaints about smell and 8 % of respondents received various complaints other than food safety.



Source: JICA Project Team

Figure 6.3 Complaints from the customers

The box below shows various complaints the respondents in Pilot provinces received from their customers. The complaints include those related to the characteristics of safe vegetables. For instance, high price and inferior appearance and quality are the features of safe vegetables. In order to expand the market of safe vegetables, consideration should be given to these kinds of dissatisfaction of consumers on safe vegetables.

<Case in Pilot provinces>
Consumers bring vegetables for analyzing, there exists residue, but it is not exceeding threshold
Consumers complain about vegetable after preservation
Being inspected about vegetable's traceability by specialized agencies
Complaint that price of safe vegetable is higher than vegetables in wet markets
Quality, appearance and size (2)
Safe vegetables have smaller size than the vegetables with much nitrogen fertilizer application
Food mixed with some strange things

(2) Customer's trust in safety of vegetable

Table 6.1 shows the level of trust the respondents think their customers have in the safety of vegetable the respondents provide. Overall the majority of respondents answered that their customers have trust in the safety of their vegetables.

Table 6.1 Trust in the safety of vegetable

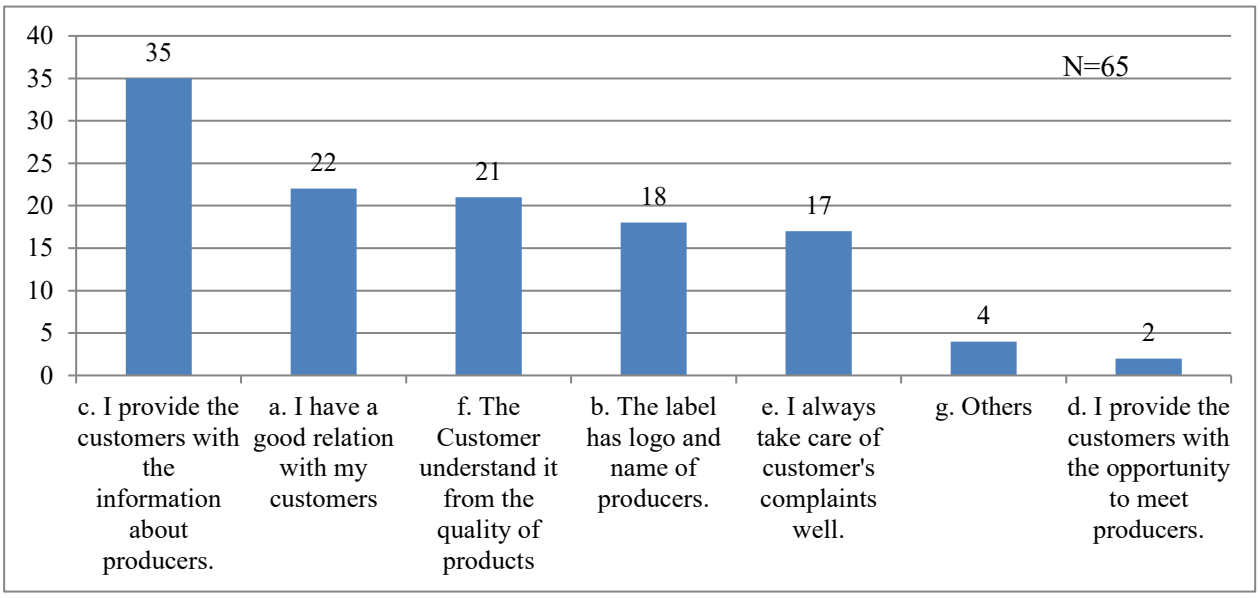
	Collector (N=20)	Wholesaler (N=10)	Processor (N=1)	Retailer (N=14)	Restaurant (N=20)	Total (N=65)
a. Yes, very much so.	6	7	0	5	4	22
b. Yes, probably.	3	0	1	3	6	13
c. Yes, more or less	11	0	0	2	1	14
d. Not very much.	0	0	0	0	0	0
e. Not at all.	0	0	0	0	0	0

Source: JICA Project Team

It is worthwhile to compare Table 6.1 with Table 5.6 in P.20 which shows the level of trust the respondents have in the safety of vegetable they bought. The level of trust the respondents think their

customer has in the safety of the vegetables they supply corresponds to that of themselves in their vegetables.

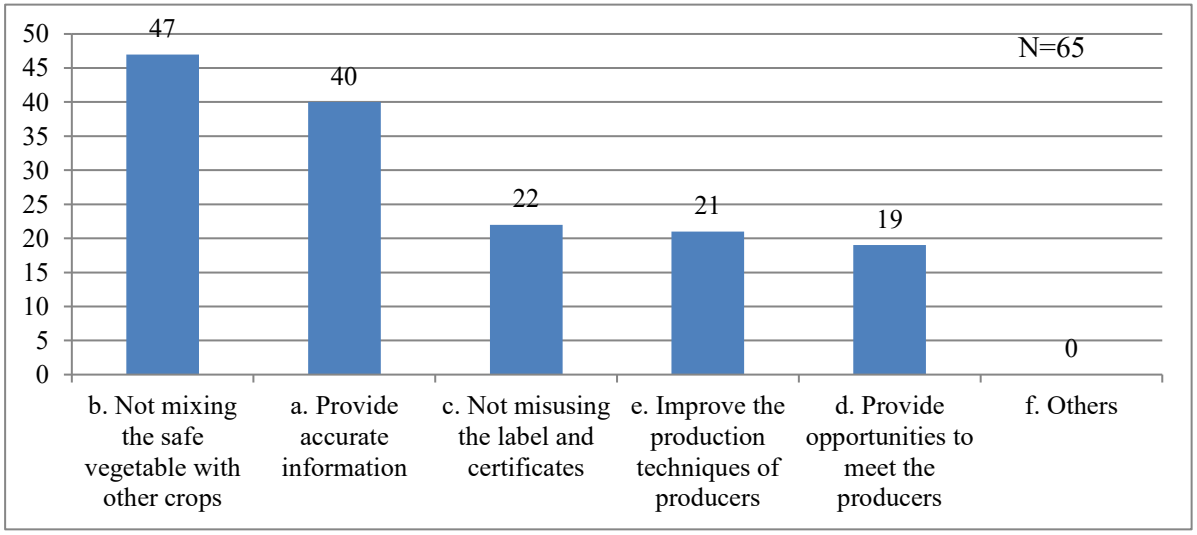
Figure 6.4 shows the reasons the respondents think that their customer trust in the safety of vegetables. The biggest number of respondents chose 'I provide the customers with the information about producers' followed by 'I have a good relationship with my customers'.



*Multiple answers.
Source: JICA Project Team

Figure 6.4 Reasons of trust by customers

However, it is interesting to note that the respondents are also aware about the needs of scientific methods to gain customer's trust. Figure 6.5 shows the important factors to gain customer's trust. 'not mixing with other crops' becomes top followed by 'Providing accurate information'. Knowing producers by buyers is considered critical in order to provide accurate information to the customers.



*Multiple answers.
Source: JICA Project Team

Figure 6.5 Important factors to gain trust from customers

CHAPTER3 Key findings and implications for pilot activities

1. Key Findings

There are following four important findings from the survey.

1) Most of respondents showed keen interests and willingness to cooperate with the project.

- ✓ 56 % of respondents buy safe vegetable regularly.
- ✓ 38 buyers are willing to meet producers supported by the project.
- ✓ Sales of safe vegetable is stale. Sales of safe vegetables for wholesalers and retailers is increasing.
- ✓ Safety is the most important factor for the respondents to choose vegetable.

If the producers can produce safe vegetable, there is a high possibility to find the buyers

2) Buyers pay the higher price for safe vegetable if the vegetables are really safe

- ✓ Majority of respondents pay higher prices for safe vegetable. They pay average 14.5% higher price for the safe vegetable.

3) Not only certificate but also knowing producers by themselves is important for buyers to believe in safety

- ✓ Majority of respondents require certificates such as VietGAP when they buy safe vegetables.
- ✓ Majority of respondents are confident in safety of the vegetable they sell. The reason for their belief is 'I know the producer well' followed by 'I choose only certified producers. This suggests that not only certificates but also knowing producers personally is important for buyers to believe the safety.
- ✓ 'Provide accurate information' which require knowing producers is identified as the most important factor for buyers to gain trust from consumers.

4) Finding reliable producers seems to be the biggest bottleneck for promoting safe vegetable trading.

- ✓ 'Find good producers' is identified as the most difficult issue for respondents along with other issues such as 'quality control' and 'find buyers'.
- ✓ Buyers use various tools to find good producers such as government departments including DARD and DOH, trade fairs, internet and word of mouth.

This is the area for the Project to make an effective intervention. Designing effective matching mechanism is critical for successful pilot activities.

2. Implications for Pilot activities

- Priority should be placed on establishment of production as well as collection/delivery system of safe vegetable for the target group. → *Marketing TOT training*
- Understanding buyers and presenting what each producer group can do is very important for effective matching.→ Develop producer as well as buyer profiles using the information collected through baseline survey and buyer's survey.
- Establishing trust between producers and buyers is critical to facilitate proactive business relationship as well as to prove safety. → A platform for all the stakeholders in the supply chain will be established for each target group in the pilot project.

Annex 1 List of Samples

No	Province	Name of organization/person	Category
1	Vinh Phuc	Trần Thị An	b
2		Lê Đức Minh	f (vegetale production)
3		Nguyễn Thị Tuyến	d
4		Nguyễn Thị Nhung	e
5		Hà Thị Minh Loan	e
6		Nguyễn Văn Khiển	d
7		Trần Văn Anh	a, c
8		Nguyễn Thị Chắt	d
9		Lê Văn Nguyên	e
10		Nguyễn Anh Kiệt	e
11		Dương Thị Quỳnh Liên	c, d, e
12		Đào Thanh Duyên	d
13		Nguyễn Thị Cúc	a
14		Đào Thị Tuyến	a
15		Nguyễn Văn Hiếu	a
16		Nguyễn Thị Nhâm	a
17		Nguyễn Thị Hương Hồi	a, c
18		Nguyễn Thị Quế	a, c
19		Nguyễn Văn Khang	c
20		Nguyễn Hữu Thái	a, c
21		Nguyễn Văn Tập	a, c
22		Đỗ Thị Thảo	a
23	Phu Tho	Ngô Văn Thu	a
24		Bùi Thị Nữ	a
25		Hoàng Thị Oanh	a
26		Nguyễn Văn Quỳnh	e
27		Hoàng Thị Đào	a
28		Đinh Công Thế	e
29		Đỗ Thị Huế	f (Local eatery)
30		Đoàn Mạnh Hảo	f (Local eatery)
31		Trương Xuân Thuyết	d
32		Bùi Văn Ngọc	d
33		Nguyễn Thị Thảo	e
34		Trần Văn Trình	e
35		Hoàng Huy Chung	d
36		Dương Thị Dung	e

No	Province	Name of organization/person	Category
37		Hoàng Thị Thúy	a
38		Khổng Văn Thiện	a
39		Hoàng Thị Hồng	a
40		Nguyễn Văn Nghĩa	a
41		Nguyễn Hữu Hòa	a
42		Đoàn Ngọc Tiến	a
43	Thai Binh	Hoàng Thị Thơ	e
44		Hoàng Thị Thúy	e
45		Nhà hàng bintin	d
46		Bùi Thị Vui	e
47		Nguyễn thị Khâu	e
48		Lê Thị Duyên	c
49		Lê Thị Thắm	c
50		Hoàng Thị Hồng	c
51		Sapphire restaurant	d
52		Shunshine	d
53		Á Châu	d
54		Nhung Đông restaurant	d
55		Luân Chung restaurant	d
56		Tâm Việt Canteen	d
57		Trần Lãm canteen	d
58		Lê Hồng Phong canteen	d

Category

a. collector

b. processor

c. wholesaler

d. restaurant/hospital/catering company

e. retailer (supermarket, safe vegetable shops)

f. others

Annex 2 Questionnaire

Questionnaire for Potential buyers of safe vegetable

Name of Province: Hanoi, Hung Yen, Hai Duong, Ha Nam

Sample Number:___

Date of Interview: _____

Name of Interviewer: _____

The Project for Improvement of Reliability of Safe Crop Production in the Northern Region aims to promote safe vegetable production in the target provinces namely Hanoi, Hung Yen, Hai Duong and Ha Nam. One of the major activities in the Project is to establish the reliable linkage between producers and buyers of safe vegetables which can obtain the trust of consumers.

This questionnaire survey aims to understand the current conditions of market practices dealing with vegetable in general and safe vegetables and identify the potential buyers of the safe vegetables produced by farmers supported by the Project.

I. Basic Information

(1) Interviewee

Item	Options and instructions	Answer
1) Name of interviewee	Specify	
2) Position of interviewee	Specify	
3) Gender	a. Male b. Female	
4) Age	a. Under 20 b. 20-29 c. 30-39 d. 40-49 e.50-59 f. 60 and above	
5) Contact information	TEL	
	E-mail	

(2) Organization/company

Item	Options and instructions	Answer
1) Name of organization	Specify	
2) Type of business	a. Village collector b. Assembly collector c. Wholesaler d. Processor e. Exporter (fresh product) f. Exporter (processed food) g. Retailer h. Restaurant/Hotel/Catering i. Hospital/School j. Others (specify)	

3) Start of business	Number (year)	
4) Number of employees	Number	
5) Location of main office	a. Hanoi b. Hung Yen c. Hai Duong d. Ha Nam e. Others (specify)	
6) Location of branch offices (multiple answers)	a. Hanoi b. Hung Yen c. Hai Duong d. Ha Nam e. No branch f. Others (specify)	
7) Monthly total turnover (sales) *This question should be asked at the end of interview.*	million VDN (month)	Lowest month (month): million VDN Highest month (month): million VDN Average month (month): million VDN
8) Relation with Japan or Japanese companies in Vietnam	Specify	

(3) Overview of business

Please answer the questions in the section related to your business only.

3.1) Collector/wholesaler/exporter (fresh product)/retailer

Item	Options and instructions	Answer with details
1) Type of products you are dealing with (multiple answers)	a. vegetable b. grains c. fruits d. meat/fish e. processed food f. Others (specify)	
2) Percentage of vegetable sales in your business	Number in % of sales	
3) Who are the buyers of your vegetable? (multiple answers with the name of major customers)	a. Wholesaler (specify) b. Retailer (specify) c. Restaurant and hotel (specify)	

Item	Options and instructions	Answer with details
	d. Canteen (specify) e. Consumer f. Others (specify)	
4) Is there any buyer from outside the Province?	a. Yes (specify) b. No, all buyers are in the same province.	
5) How much is the gap between your selling price and your buying price (margin) for fresh vegetable?	%	
6) Is the sales of your vegetable increasing? By how much %?	a. Yes, increasing (%) b. No change c. No, declining (%)	

Please go to Section 2.

3.2) Processor/ exporter (processed food)

Item	Options and instructions	Answer with details
1) Type of products you are processing (multiple answers)	a. vegetable b. grains c. fruits d. meat/fish e. processed food f. Others (specify)	
2) Three major products using vegetable	Specify	
3) Who are the buyers of your products? (multiple answers in order)	a. domestic consumers b. domestic business c. export market (which country? Specify)	
4) Is the sales of these products increasing?	a. Yes, increasing b. No change c. No, declining	

Please go to Section 2.

3.3) Restaurants/hotels/catering services/hospitals/schools

Item	Options and instructions	Answer with details
1) Type of dishes you are producing (multiple answers)	a. Vietnamese b. Western c. Japanese d. Ethnic food e. Others (specify)	

Item	Options and instructions	Answer with details
2) Who are your main customers? (multiple answers in order)	a. Vietnamese (catering) b. Vietnamese (schools/hospitals) c. Vietnamese (middle class or above for restaurants/hotels) d. Vietnamese (others for restaurants/hotels) e. Foreigners (which countries?) f. Others (specify)	
3) Is the sales of your service increasing?	a. Yes, increasing b. No change c. No, declining	

II. Vegetable trading

Item	Options and instructions	Answer with details
1) Three vegetables you are buying most in each season (specify in order)	specify in order	<Dry season: October – March> 1. 2. 3.
		<Rainy season April - September> 1. 2. 3
2) Are there any vegetables you have difficulties to find in each season? (specify in order)	specify in order	<Dry season: October – March> 1. 2. 3.
		<Rainy season April - September> 1. 2. 3
3) Total volume of vegetable required	Ton/month (month)	Lowest month ton (month) Highest ton (month) Average ton
4) How do you decide which vegetable you buy? (multiple answers)	a. I only buy the same vegetable. b. According to customer's needs c. According to market trend d. According to the season e. Others (specify)	
5) What are the important	a. Appearance (color, shape)	1.

Item	Options and instructions	Answer with details
factors when you buy vegetable? (choose three important factors in order)	b. Freshness c. Taste d. Safety (such as certificate) e. Size f. Price g. Others (specify)	2. 3.
6) From where do you buy vegetable?	a. Individual farmers b. Farmer's organization/ cooperative c. Collectors d. Agriculture enterprises e. Others (specify)	a. % b. % c. % d. % e. % ( )
7) Is there any supplier from outside the Province?	a. Yes (specify) b. No, all buyers are in the same province.	
8) How do you decide the suppliers from whom you buy the vegetable? (choose three important factors in order)	a. Location of farm b. Price c. Safety of product d. Quality of product (size, appearance and color) e. Volume of product f. Reliability of suppliers g. Others (specify)	
9) When do you decide the buying price?	a. When we give an order b. When we collect supply c. Others (specify)	
10) Do you make a contract with *the suppliers*? For those who answer a, go to 11), those who answer b, go to 12)	a. Yes b. No	
11) What do you decide in the contract? (multiple answers)	a. Kind of vegetable b. Volume c. Price d. Date of supply e. Quality f. Responsibility of accidents g. Others (specify)	
12) Why don't you make a contract?	a. No need b. Farmers do not follow the contract c. Others (specify)	

Item	Options and instructions	Answer with details
13) Do you make a contract with *the buyers*? For those who answer a, go to 14), those who answer b, go to 15)	a. Yes b. No	
14) What do you decide in the contract? (multiple answers)	a. Kind of vegetable b. Volume c. Price d. Date of supply e. Quality f. Others (specify)	
15) Why don't you make a contract?	a. No need b. Buyers do not follow the contract c. Others (specify)	
16) What is a means of transportation of suppliers? (multiple answers)	a. Bicycle b. Motorbike c. Motorbike with a cow cart d. Track e. Public bus f. Others (specify)	
17) Do you cover the cost of transportation?	a. Yes, we pay transportation cost b. Yes, we collect vegetable from supplier's place c. No, suppliers send vegetable to our place d. It depends on the negotiation.	
18) Do you pay suppliers on the spot?	a. Yes, on the spot. b. No, xx days later c. Others (specify)	

III. Safe vegetable

Item	Options and instructions	Answer with details
1) We call the following types of vegetable as 'safe vegetable'. ● Certified safe vegetable (VietGAP, EuroGAP, organic certificate) ● Vegetable produced in accordance with Basic GAP ● Vegetable grown in the safe production sites certified by	a. Yes b. No	

Item	Options and instructions	Answer with details
province Do you know about this information?		
2) Have you bought safe vegetable? For those who answer a-c, go to 3), and those answered d, go to 4).	a. Yes, regularly b. Yes, several times c. Yes, a few times d. Never	
3) From where do you buy safe vegetable? (multiple answers)	a. Same as normal vegetable b. Individual farmers c. Farmer's organization/ cooperative d. Collectors e. Agriculture enterprises f. Others (specify)	
4) Is there any supplier from outside the Province?	a. Yes (specify) b. No, all suppliers are in the same province.	
5) Do you require a certificate such as VietGAP when you buy safe vegetables?	a. Yes b. No	
6) Three safe vegetable you are trading most (specify in order)		1. 2. 3.
7) For collectors and wholesaler, to whom do you sell safe vegetable?	a. Same as normal vegetable b. Other collectors c. Retailer d. Business such as restaurants and hotels e. Consumer f. Open market g. Others (specify)	
8) Do you pay safe vegetable at higher price than the normal crops? By how many percentage?	a. Yes, x% higher b. No, it is same as normal crops or lower. (Why?)	
9) Is your sales of safe vegetable increasing?	a. Yes, very much b. Yes, slightly c. No change d. No, slightly declining e. No, very much declining	
10) How did you find the producers of safe vegetable?	a. Through provincial DARD b. Trade fair or events (specify)	

Item	Options and instructions	Answer with details
(multiple answers)	c. Word of mouth d. Others (specify)	
11) Why did you buy the safe vegetable? (multiple answers)	a. Customers wants b. Food safety is important c. Safe vegetable can be sold at higher price d. Others (specify)	
12) Do you trust vegetable you bought as safe? For those who answered a-b, go to 13), those answered c-d, go to 14)	a. Yes, very much so. b. Yes, more or less c. Not very much d. Not at all	
13) Why do you think so? (multiple answers) Go to 15).	a. Because I know how to assess the safety of vegetable based on the experiences. b. Because I know the producers very well. c. Because I test samples periodically. d. Because I choose only certified producers. e. Because I check the production site or records of producers. f. Others (specify)	
14) Why do you think so? (multiple answers)	a. Because I do not know the producers well. b. Because I have no information to prove safety. c. Because I do not believe certification or labels. d. Because I do not believe farmers. e. Others (specify)	
15) What do you think most difficult in trading safe vegetables?	a. Find good producers b. Collect required amount c. Quality control d. Find buyers e. Sales and price (low profit margin) f. Others (specify)	
16) Do you continue to buy safe vegetable? Those who answer a, go to 17) and those who answer b, go to 18).	a. Yes b. No	

Item	Options and instructions	Answer with details
17) Are you interested in meeting with producers selected by the Project? Go to Section 4.	a. Yes b. No	
18) Why are you not interested in buying safe vegetable?	a. Because there is no demand for safe vegetable b. Because low profit c. Because it is difficult to find reliable suppliers of safe vegetable d. Because it is difficult to prove safety of safe vegetable e. Because the suppliers of vegetable I always buy is most reliable even though they do not have a certificate f. Others (specify)	

IV. Awareness of Food Safety

(1) For all respondents

Item	Options and instructions	Answer with details
1) Do your customers care about food safety? For those who answer a, go to 2). For those who answer b, go to 3).	a. Yes b. No	
2) Why do you think so? (multiple answers) Go to 4).	a. There are a lot of accidents related food safety these days. b. Customers and consumers are asking about food safety c. A lot of newspaper, TV and other media cover food safety issues. d. No of shops dealing with safe food is increasing. e. Others (specify)	
3) Why do you think so?	a. Most of people still do not know about food safety issues. b. No customers and consumers are asking about food safety c. People are more concerned about price or appearance of food products. d. I do not believe safe crop nor certificate. e. Others (specify)	

Item	Options and instructions	Answer with details
4) Have you received any complaints on food safety from your customers?	a. Yes, the customer got food poisoning. b. Yes, the customer complained about the smell of vegetable. c. Never received complaint. d. Others (specify)	
5) Do you think that your customers trust in the safety of your product? For those who answered a-c, go to 6), those answered d and e, go to 7)	a. Yes, very much so. b. Yes, probably c. Yes, more or less d. Not very much e. Not at all	
6) Why do you think so? (multiple answers)	a. Because I have a good relation with my customers. b. Because the label has logo and name of producers. c. Because I provide the customers with the information about producers. d. Because I provide the customers with the opportunity to meet producers. e. Because I always take care of customer's complaints well. f. Because the customers understand that the vegetable is safe from the quality of my vegetable. g. Others (specify)	
7) What do you think important to increase trust of consumers in the safety of your product? (multiple answers in order of priority)	a. Provide accurate information on producer and supply chain b. Not mixing the safe vegetable with other crops. c. Not misusing the labels or certificates. d. Provide customers with the opportunities to meet producers e. Improve production techniques of producers f. Other (specify)	

(2) For retailers, only

Item	Options and instructions	Answer
1) How old do you estimate your main customer group?	a. Under 20 b. 20-29	

Item	Options and instructions	Answer
	c. 30-39 d. 40-49 e. 50 and above	
2) Approximately what percentage of your customer group express concerns about safety crop?	a. Less than 25% b. 25-50% c. More than 50% but below 75% d. 75-100%	
3) Approximately what percentage of your customer group purchase safety crop (almost every time)?	a. Less than 25% b. 25-50% c. More than 50% but below 75% d. 75-100%	

Thank you very much for your cooperation

Bảng hỏi dành cho người mua rau an toàn tiềm năng

Tên Tỉnh: Hà Nội, Hưng Yên, Hải Dương, Hà Nam
Số phiếu:
Ngày phỏng vấn:
……
Tên người phỏng vấn:
……

Mục tiêu của Dự án Tăng cường Độ Tin cậy trong Lĩnh vực Sản xuất Cây trồng An toàn tại khu vực miền Bắc Việt Nam do JICA tài trợ là tăng cường sản xuất rau an toàn tại các tỉnh mục tiêu, gồm Hà Nội, Hưng Yên, Hải Dương và Hà Nam. Một trong những hoạt động của dự án là thành lập mối liến kết tin cậy giữa người sản xuất và người mua rau an toàn nhằm tạo niềm tin đối với người tiêu dùng.

Mục tiêu của Bảng hỏi là tìm hiểu tình hình giao dịch trên thị trường rau nói chung và rau an toàn nói riêng, đồng thời xác định những người mua tiềm năng các sản phẩm rau an toàn của những nông dân được Dự án hỗ trợ sản xuất.

I. Thông tin cơ bản

(1) Người trả lời

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời
1) Tên người trả lời	Nêu cụ thể	
2) Chức vụ người trả lời	Nêu cụ thể	
3) Giới	a. Nam b. Nữ	
4) Tuổi	a. Dưới 20 b. 20-29 c. 30-39 d. 40-49 e.50-59 f. từ 60 trở nên	
5) Thông tin liên lạc	Điện thoại	
	E-mail	

(2) Tổ chức/Công ty

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời
1) Tên tổ chức	Nêu cụ thể	
2) Loại hình kinh doanh	a. Thu gom rau tại thôn b. Thu gom tập trung (lớn) c. Bán buôn d. Chế biến e. Xuất khẩu (sản phẩm chưa qua chế biến) f. Xuất khẩu (sản phẩm đã qua chế biến) g. Bán lẻ	

	h. Nhà hàng/Khách sạn/ bếp ăn tập thể i. Bệnh viện/trường học j. Khác (nêu cụ thể)	
3) Bắt đầu kinh doanh	Số (năm) Hoặc từ khi nào	
4) Số nhân viên	Số lượng (người):	
5) Địa điểm trụ sở	a. Hà Nội b. Hưng Yên c. Hải Dương d. Hà Nam e. Khác (nêu cụ thể)	
6) Địa điểm chi nhánh (nếu có) (có thể lựa chọn nhiều câu trả lời)	a. Hà Nội b. Hưng Yên c. Hải Dương d. Hà Nam e. Không có chi nhánh f. Khác (nêu cụ thể)	
7) Doanh thu hàng tháng (doanh thu bán hàng) ***(Câu hỏi này sẽ được hỏi trước khi kết thúc cuộc phỏng vấn)***	Triệu đồng (tháng)	Tháng thấp nhất (tháng): Triệu đồng Tháng cao nhất (tháng): Triệu đồng Bình quân tháng : Triệu đồng
8) Mối quan hệ với Nhật hoặc các công ty của Nhật ở Việt Nam	Nêu cụ thể	

(3) Tổng quan tình hình kinh doanh

Đề nghị chỉ trả lời các câu hỏi ở phần có liên quan tới công việc kinh doanh của ông/bà.

3.1) Người thu gom/bán buôn/xuất khẩu (sản phẩm chưa qua chế biến)/bán lẻ

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Loại sản phẩm ông/bà kinh doanh *(Có thể lựa chọn nhiều câu trả lời)*	a. Rau b. Ngũ cốc c. Hoa quả d. Thịt/cá e. Thực phẩm đã qua chế biến f. Khác (nêu cụ thể)	
2) Tỷ lệ doanh thu từ rau trong kinh doanh của ông/bà	Số % so với tổng doanh thu	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
3) Ai là người mua rau của ông/bà? **(Lựa chọn nhiều câu trả lời và nêu rõ tên khách hàng chính)**	a. Bán buôn (nêu cụ thể) b. Bán lẻ (nêu cụ thể) c. Kinh doanh nhà hàng và khách sạn (nêu cụ thể) d. Người tiêu dùng e. Khác (nêu cụ thể)	
4) Có người mua từ tỉnh khác không?	a. Có (nêu cụ thể) b. Không, tất cả người mua đều ở trong tỉnh.	
5) Chênh lệch giữa giá bán và giá mua (dư biên- mức lãi) rau tươi như thế nào?	%	
6) Doanh số bán rau của ông/bà có tăng không? (Ước số %)	a. Có. Tăng b. Không thay đổi c. Không. Giảm	

Đề nghị chuyển sang phần 2.

3.2) Người chế biến/xuất khẩu (thực phẩm đã qua chế biến)

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Loại sản phẩm ông/bà chế biến *(Có thể lựa chọn nhiều câu trả lời)*	a. Rau b. Ngũ cốc c. Hoa quả d. Thịt/cá e. Thực phẩm đã qua chế biến f. Khác (nêu cụ thể)	
2) Ba sản phẩm chính sử dụng nguyên liệu rau	Nêu cụ thể	
3) Ai là người mua các sản phẩm của ông/bà? *(Có thể lựa chọn nhiều câu hỏi theo trình tự)*	a. Người tiêu dùng trong nước b. Cơ sở kinh doanh trong nước c. Xuất khẩu (tới nước nào? Nêu cụ thể)	
4) Doanh số bán các sản phẩm này có tăng không? (Ước số %)	a. Có. Tăng b. Không thay đổi c. Không. Giảm	

Đề nghị chuyển sang phần 2.

3.3) Nhà hàng/khách sạn/dịch vụ ăn uống/bệnh viện/trường học

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Loại món ăn mà ông/bà chế biến *(Có thể lựa chọn nhiều câu trả lời)*	a. Việt Nam b. Phương Tây c. Nhật bản d. Dân gian e. Khác (nêu cụ thể)	
2) Khách hàng chính của ông/bà là ai? *(Có thể lựa chọn nhiều câu trả lời)*	a. Người Việt Nam (cửa hàng ăn uống) b. Người Việt Nam (trường học/bệnh viện) c. Người Việt Nam (người tầng lớp trung và thượng lưu tại nhà hàng/khách sạn) d. Người Việt Nam (các nhà hang/khách sạn khác) e. Người nước ngoài (nước nào?) f. Khác (nêu cụ thể)	
3) Doanh số bán hàng của ông/bà có tăng không? (Ước số %)	a. Có. Tăng b. Không thay đổi c. Không. Giảm	

II. Kinh doanh rau

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Ba loại rau ông/bà mua nhiều nhất trong mỗi vụ *(nêu cụ thể theo thứ tự)*	nêu cụ thể theo thứ tự	<Mùa mưa: Từ tháng 4 đến – tháng 9 > 1. 2. 3.
		<Mùa khô: Từ tháng 10– đến > 1. 2. 3
2) Ông/bà cho biết một số loại rau khan hiếm theo mùa *(Cụ thể theo thứ tự)*	Cụ thể theo thứ tự	<Mùa mưa: Từ tháng 4 đến – tháng 9 > 1. 2. 3.
		<Mùa khô: Từ tháng 10– đến > 1.

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
		2. 3
3) Tổng khối lượng rau yêu cầu	Tấn/tháng (tháng)	Tháng thấp nhất: tấn (tháng) Tháng cao nhất : tấn (tháng) Trung bình tháng: tấn
4) Ông/bà quyết định mua rau như thế nào? *(Lựa chọn nhiều câu trả lời)*	a. Tôi chỉ mua một loại rau. b. Theo nhu cầu khách hàng c. Theo xu hướng thị trường d. Theo mùa e. Khác (nêu cụ thể)	
5) Những tiêu chí quan trọng khi chọn mua rau là gì? *(Lựa chọn 3 yếu tố quan trọng theo thứ tự ưu tiên)*	a. Hình thức (màu sắc, hình thái) b. Độ tươi c. Mùi vị d. An toàn (vd: có chứng chỉ) e. Kích cỡ f. Giá g. Khác (nêu cụ thể)	1. 2. 3.
6) Ông/bà mua rau ở đâu?	a. Nông dân cá thể b. Tổ chức nông dân/Hợp tác xã c. Người thu gom d. Doanh nghiệp nông nghiệp e. Khác (nêu cụ thể)	a. % b. % c. % d. % e. % ( )
7) Có người cung cấp từ tỉnh khác không?	a. Có (nêu cụ thể) b. Không, tất cả người cung cấp đều từ một tỉnh.	
8) Ông/bà quyết định lựa chọn người cung cấp rau như thế nào? *(Chọn 3 yếu tố quan trọng theo thứ tự ưu tiên)*	a. Vị trí của khu trồng rau b. Giá cả c. Độ an toàn của sản phẩm d. Chất lượng sản phẩm (kích cỡ, hình thức và màu sắc) e. Khối lượng sản phẩm f. Độ tin cậy của người cung cấp g. Khác (nêu cụ thể)	
9) Khi nào ông/bà quyết định giá mua?	a. Khi đặt hàng b. Khi thu mua c. Khác (nêu cụ thể)	
10) Ông/bà có hợp đồng với người cung cấp không? Nếu câu trả lời là "a", tiếp	a. Có b. Không	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
sang câu 11), Nếu câu trả lời là "b", tiếp sang câu 12)		
11) Ông/bà quyết định điều gì trong hợp đồng? *(Có thể lựa chọn nhiều câu trả lời)*	a. Loại rau b. Khối lượng c. Giá d. Thời gian cung cấp e. Chất lượng f. Khác (nêu cụ thể)	
12) Tại sao ông/bà không làm hợp đồng?	a. Không cần thiết b. Người dân không tuân thủ hợp đồng c. Khác (nêu cụ thể)	
13) Ông/bà có làm hợp đồng với người mua rau của ông/bà? Nếu câu trả lời là "a", tiếp sang câu 14), Nếu câu trả lời là "b", tiếp sang câu 15)	a. Có b. Không	
14) Ông/bà quyết định điều gì trong hợp đồng? *(Có thể lựa chọn nhiều câu trả lời)*	a. Chủng loại rau b. Khối lượng c. Giá d. Thời gian cung cấp e. Chất lượng f. Khác (nêu cụ thể)	
15) Tại sao ông/bà không làm hợp đồng?	a. Không cần thiết b. Người mua không tuân thủ hợp đồng c. Khác (nêu cụ thể)	
16) Phương tiện vận chuyển của các nhà cung ứng rau cho ông/bà *(Có thể lựa chọn nhiều câu trả lời)*	a. Xe đạp/xe thồ b. Xe máy c. Xe máy kéo xe bò d. Xe tải e. Xe khách f. Khác (cụ thể)	
17) Ông/bà có chi trả chi phí vận chuyển không?	a. Có, chúng tôi trả chi phí vận chuyển b. Có, chúng tôi thu mua rau từ chỗ người cung cấp c. Không, người cung cấp gửi rau đến cho chúng tôi d. Tùy vào sự thỏa thuận khi đàm phán hợp đồng.	
18) Ông/bà có thanh toán ngay cho người cung cấp không?	a. Có, thanh toán ngay. b. Không, sau…. ngày c. Khác (nêu cụ thể)	

III. Rau an toàn

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Chúng tôi gọi những loại rau dưới đây là "rau an toàn'. ● Rau an toàn được cấp chứng nhận (chứng nhận VietGAP, EuroGAP, hữu cơ) ● Rau được sản xuất theo qui trình GAP cơ bản ● Rau được trồng ở những vùng đủ điều kiện sản xuất an toàn đã được cấp chứng nhận của tỉnh Ông/bà có biết về các thông tin này không?	a. Có b. Không	
2) Ông/bà có mua rau an toàn không? Nếu câu trả lời là "a-c", tiếp sang câu 3), nếu câu trả lời là "d", tiếp sang câu 4).	a. Có, thường xuyên b. Có, vài lần c. Có, thỉnh thoảng d. Chưa bao giờ	
3) Ông/bà mua rau an toàn ở đâu? *(Có thể lựa chọn nhiều câu trả lời)*	a. Giống như địa chỉ mua rau bình thường b. Hộ nông dân cá thể c. Tổ chức nông dân / Hợp tác xã d. Người thu gom e. Doanh nghiệp nông nghiệp f. Khác (nêu cụ thể)	
4) Có người cung cấp từ tỉnh khác không?	a. Có (Nêu cụ thể) b. Không, tất cả người cung cấp ở cùng một tỉnh.	
5) Ông/bà có yêu cầu chứng nhận (vd. như VietGAP) khi mua rau an toàn không?	a. Có b. Không	
6) Ba loại rau an toàn ông/bà đang kinh doanh nhiều nhất *(Nêu tên cụ thể theo thứ tự ưu tiên)*		1. 2. 3.
7) Đối với người thu gom hay bán buôn: Ông/bà bán rau an toàn cho ai?	a. Giống như những người mua rau thường b. Những người thu gom khác c. Người bán lẻ	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
	d. Cơ sở kinh doanh như nhà hàng/khách sạn e. Người tiêu dùng f. Chợ g. Khác (nêu cụ thể)	
8) Ông/bà có mua rau an toàn giá cao hơn rau thường không? Cao hơn bao nhiêu phần trăm?	a. Có, cao hơn …. % b. Không, bằng với rau thường hoặc thấp hơn. (Tại sao?)	
9) Doanh thu bán hàng rau an toàn của ông/bà có tăng không? *(Ước % thay đổi)*	a. Có, tăng nhiều b. Có, tăng nhẹ c. Không thay đổi d. Không, giảm nhẹ e. Không, giảm nhiều	
10) Ông/bà tìm kiếm người sản xuất rau an toàn như thế nào? *(Có thể lựa chọn nhiều câu trả lời)*	a. Thông qua Sở NN&PTNT b. Hội chợ hoặc các sự kiện (nêu cụ thể) c. Truyền miệng d. Khác (nêu cụ thể)	
11) Tại sao ông/bà quyết định mua rau an toàn? *(Có thể lựa chọn nhiều câu trả lời)*	a. Yêu cầu của khách hàng b. Độ an toàn của rau rất quan trọng c. Rau an toàn có thể bán với giá cao hơn d. Khác (nêu cụ thể)	
12) Ông/bà có tin rau ông/bà mua là rau an toàn không? Nếu câu trả lời là "a-b", tiếp sang câu 13), nếu câu trả lời là "c-d", tiếp sang 14)	a. Có, rất tin. b. Có, tin c. Không tin lắm d. Không tin	
13) Tại sao ông/bà lại nghĩ như vậy? *(Có thể lựa chọn nhiều câu trả lời)* Tiếp sang câu 15).	a. Vì tôi biết cách đánh giá độ an toàn của rau theo kinh nghiệm. b. Vì tôi biết rõ về người sản xuất. c. Vì tôi thường xuyên kiểm tra mẫu sản phẩm. d. Vì tôi chỉ chọn người sản xuất đã đươc cấp chứng nhận. e. Vì tôi kiểm tra địa điểm sản xuất hoặc ghi chép của người sản xuất. f. Khác (nêu cụ thể)	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
14) Tại sao ông/bà lại nghĩ như vậy? *(Có thể lựa chọn nhiều câu trả lời)*	a. Vì tôi không biết nhiều về người sản xuất. b. Vì tôi không có thông tin để chứng minh độ an toàn. c. Vì tôi không tn vào chứng nhận hoặc nhãn mác. d. Vì tôi không tin vào người trồng rau. e. Khác (nêu cụ thể)	
15) Ông/bà cho rằng khó khăn lớn nhất trong kinh doanh rau an toàn là gì?	a. Tìm được người sản xuất tốt b. Thu mua đủ khối lượng yêu cầu c. Kiểm soát chất lượng d. Tìm được người mua e. Bán hàng và giá cả (lợi nhuận thấp) f. Khác (nêu cụ thể)	
16) Ông/bà có tiếp tục mua rau an toàn không? Nếu câu trả lời là "a", tiếp sang câu 17) và nếu câu trả lời là "b", tiếp sang câu 18).	a. Có b. Không	
17) Ông/bà có quan tâm đến việc gặp gỡ những người sản xuất do Dự án Jica lựa chọn không? Chuyển đến phần 4.	a. Có b. Không	
18) Tại sao ông/bà không quan tâm đến việc mua rau an toàn?	a. Vì không có nhu cầu rau an toàn b. Vì lợi nhuận thấp c. Vì khó tìm được người cung cấp rau an toàn tin cậy d. Vì khó chứng minh được độ an toàn của rau an toàn e. Vì người cung cấp rau tôi thường mua là đáng tin cậy mặc dù người ta không có chứng nhận f. Khác (nêu cụ thể)	

IV. Nhận thức về an toàn thực phẩm

(1) Dành cho tất cả những người được phỏng vấn

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Khách hàng của Ông/bà có quan tâm	a. Có	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
đến ATTP không? Nếu câu trả lời là "a", tiếp sang câu 2). Nếu câu trả lời là "b", tiếp sang câu 3).	b. Không	
2) Tại sao ông/bà nghĩ như vậy? *(Có thể lựa chọn nhiều câu trả lời)* tiếp sang câu 4).	a. Gần đây có nhiều sự vụ liên quan đến ATTP. b. Khách hàng và người tiêu dùng ngày càng đòi hỏi về ATTP c. Nhiều bài báo, TV, và các phương tiện đại chúng nói về vấn đề ATTP. d. Số lượng cửa hàng kinh doanh Thực phẩm an toàn tăng. e. Khác (nêu cụ thể)	
3) Tại sao ông/bà nghĩ như vậy?	a. Hầu hết mọi người chưa biết về những vấn đề ATTP. b. Không có khách hàng và người tiêu dùng yêu cầu về ATTP c. Người dân quan tâm hơn đến giá hoặc hình thức sản phẩm thực phẩm. d. Tôi không tin rau an toàn và chứng nhận rau an toàn. e. Khác (nêu cụ thể)	
4) Ông/bà có nhận được bất kỳ phàn nàn, khiếu nại về ATTP từ khách hàng của ông/bà không?	a. Có, khách hàng bị ngộ độc thực phẩm. b. Có, khách hàng phàn nàn về mùi của rau. c. Chưa bao giờ bị phàn nàn. d. Khác (nêu cụ thể)	
5) Ông/bà có nghĩ là khách hàng của ông/bà tin vào độ an toàn của sản phẩm ông/bà cung cấp không? Nếu câu trả lời là "a-c", tiếp sang câu 6), Nếu câu trả lời là d và e", tiếp sang câu 7)	a. Có, rất tin. b. Có, có thể c. Có, ít nhiều d. Không tin lắm e. Không tin chút nào.	
6) Tại sao ông/bà nghĩ như vậy? (*Có thể lựa chọn nhiều câu trả lời)*	a. Vì tôi có mối quan hệ tốt với khách hàng. b. Vì nhãn có lô-gô và tên người sản xuất.	

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
	c. Vì tôi cung cấp thông tin về người sản xuất cho khách hàng. d. Vì tôi cung cấp cơ hội gặp người sản xuất cho khách hàng. e. Vì tôi luôn quan tâm đến những phàn nàn của khách hàng. f. Vì khách hàng hiểu được rau an toàn do chất lượng rau của tôi. g. Khác (nêu cụ thể)	
7) Ông/bà nghĩ điều gì là quan trọng trong việc gia tăng lòng tin của khách hàng về độ an toàn của sản phẩm của ông/bà? (*Có thể lựa chọn nhiều câu trả lời theo thứ tự ưu tiên)*	a. Cung cấp thông tin chính xác về người sản xuất và chuỗi cung ứng. b. Không trộn lẫn rau an toàn với rau khác. c. Không sử dụng sai nhãn mác hoặc chứng nhận. d. Cung cấp cho khách hàng cơ hội gặp người sản xuất. e. Cải tiến kỹ thuật sản xuất của người sản xuất. f. Khác (nêu cụ thể)	

(2) Dành cho người bán lẻ

Nội dung	Phương án trả lời và hướng dẫn	Câu trả lời (Ghi chi tiết thông tin)
1) Ông/bà ước tính tuổi của nhóm khách hàng chính của ông/bà như thế nào?	a. Dưới 20 b. 20-29 c. 30-39 d. 40-49 e. Từ 50 trở lên	
2) Tỷ lệ nhóm khách hàng của ông bà bày tỏ sự quan tâm về rau an toàn?	a. Dưới 25% b. 25-50% c. Trên 50% nhưng dưới 75% d. 75-100%	
3) Tỷ lệ nhóm khách hàng của ông/bà mua rau an toàn (thường xuyên) là bao nhiêu phần trăm?	a. Dưới 25% b. 25-50% c. Trên 50% nhưng dưới 75% d. 75-100%	

Attachment 6 List of matching as of End of April 2021

Attachment 6 List of matching *As of* *30-Apr-2021*

					Result*			
No	Date	TG	Buyer	Province	A	B	C	D
Ha Nam								
1	2017/6/3	Ha Vy cooperative	Oshitsu	Hanoi				D
2	2017/6/3	Hiep Farm	Oshitsu	Hanoi		B		
3	2017/6/24	Ha Vy cooperative	Hanoi Union of cooperative	Hanoi				D
4	2017/6/24	Hiep Farm	Hanoi Union of cooperative	Hanoi		B		
5	2017/7/28	Ha Vy cooperative	Vineco	Hanoi		B		
6	2017/7/28	Hiep Farm	Vineco	Hanoi		B		
7	2018/3/13	Ha Vy cooperative	An Nhien center	Hanam	A			
8	2018/3/15	Ha Vy cooperative	Green food company	Hanam	A			
9	2018/3/15	Ha Vy cooperative	Ly Nhan safe vegetable store	Hanam	A			
10	2018/4/5	Hiep farm	VinEco	Hanoi		B		
11	2018/9/18	Ha Vy cooperative	Hung Viet company	Hai Duong			C	
12	2018/9/18	Hiep Farm	Hung Viet company	Hai Duong			C	
13	2018/10/12	Hiep Farm	Hưng Việt Company	Hai Duong		B		
14	2018/9/10	Hiep Farm	Năm Luyến industrial canteen	Ha Nam	A			
15	2018/10/8	Ha Vy cooperative	Trần Ngọc Hiếu	Ha Nam	A			
16	2018/10/12	Ha Vy cooperative	Hưng Việt Company	Hai Duong		B		
17	2018/11/15	Thanh Tân cooperative	Winup company	Hanoi	A			
18	2018/11/15	Ha Vy cooperative	Winup company	Hanoi	A			
19	2018/11/21	Thanh Tân cooperative	WinUp	Hanoi	A			
20	2018/11/21	Ha Vy cooperative	WinUp	Hanoi	A			
21	2018/12/3	Hiep Farm	Nguyễn Văn Tuyến	Ha Nam	A			
22	2018/12/11	Hiep Farm	Safe meals JS company (BBATgroup).	Hanoi		B		
23	2018/12/11	Ha Vy cooperative	Tay Bac safe food JC company	Hanoi		B		
24	2018/12/11	Cát Lại cooperative	EXP inport export food company	Hanoi		B		
25	2018/12/11	Cát Lại cooperative	Tay Bac safe food JC company	Hanoi		B		
26	2018/12/26	Cát Lại cooperative	Tia sáng thế giới JS company	Hanoi		B		
27	2019/1/4	Cát Lại cooperative	Buyer who supply safe vegetable to premary school in Ninh Binh province	Ninh Binh		B		
28	2019/1/11	Cát Lại cooperative	GREENGOCO Limited company	Bac Ninh			C	
29	2019/3/22	Thanh Tân cooperative	Nguyễn Thị Giang- safe vegetable store	Ha Nam	A			
30	2019/4/12	Cát Lại cooperative	Nguyễn Thị Giang- safe vegetable store	Ha Nam	A			
31	2019/4/15	Cát Lại cooperative	Green food	Ha Nam		B		
32	2019/4/19	Thanh Tân cooperative	safe vegetable store in 124 Lê Công Thanh	Ha Nam		B		
33	2019/5/15	Ha Vy cooperative	Minh Dương limited company	Nam Dinh		B		
34	2019/6/8	Hiep Farm	Canteen number 2 of But Son JS company	Ha Nam	A			
35	2019/7/12	Hiep Farm	VinEco	Hanoi	A			
36	2019/7/15	Cát Lại cooperative	Đỗ Thị Hương (Safe vegetabel store in Thuong Tin, Hanoi)	Hanoi	A			
37	2019/7/17	Cát Lại cooperative	Nguyễn Văn Tuyến (Supplier Vegetabel for canteen)	Ha Nam		B		
38	2019/9/13	Ha Vy cooperative	Hưng Việt Sinh	Hanoi		B		
39	2019/9/13	Ha Vy cooperative	HTX Việt Á Châu	Hai Duong		B		
40	2019/9/13	Cát Lại cooperative	Hưng Việt Sinh	Hanoi		B		
41	2019/9/13	Cát Lại cooperative	HTX Việt Á Châu	Hai Duong		B		
42	2019/9/17	Cát Lại cooperative	Tuyer Tuyen enterprise	Ha Nam	A			
43	2019/10/21	Thanh Tân cooperative	Trần Ngọc Hiếu	Ha Nam		B		
44	2019/11/21	Cat Lai cooperative	Morice JS company	Ha Nam	A			
45	2019/11/22	Cát Lại cooperative	Nguyễn Văn Việt	Ha Nam	A			
46	2019/11/22	Cát Lại cooperative	Trần Văn Hùng_Green Food company	Ha Nam	A			
47	2019/11/29	Thanh Tan cooperative	Doan Thi Hoa	Ha Nam	A			
48	2020/1/24	Cat Lai cooperative	Nguyen Van Duan	Ha Nam	A			
49	2020/2/4	Hiep cooperative	Tran Van Thi	Ha Nam	A			
50	2020/5/8	Ha Vy cooperative	Đỗ Văn Lực	Ha Nam	A			
51	2020/6/2	Cat Lai cooperative	Big C	Hanoi	A			
52	2010/6/18	Cat Lai cooperative	Thiêm Ngát Safe vegetable store	Ha Nam	A			
53	2020/7/7	Ha Vy cooperative	Baby star Kindergarten school	Ha Nam	A			
54	2020/8/21	Coop Thanh Tan	Đinh Văn Cường - Collector for Canteen in industry and school)	Ha Nam	A			
55	2020/10/1	Cat Lai cooperative	Nguyễn Thị Nhung	Ha Nam		B		
56	2020/10/24	Cat Lai cooperative	Nguyễn Văn Thuận	Ha Nam	A			
57	2020/11/2	Cat Lai cooperative	TDMART Lmt company	Ha Nam	A			
58	2020/11/6	Ha Vy cooperative	Đoàn Thị Linh	Ha Nam	A			
Hai Duong								
1	2017/3/17	Tan Minh Duc cooperative	Haru Midori	Hanoi	A			
2	2017/3/17	Duc Chinh cooperative	Haru Midori	Hanoi				D
3	2017/4/27	Thanh Ha company	AEON	Hanoi		B		

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					Result*			
No	Date	TG	Buyer	Province	A	B	C	D
4	2017/5/6	Thanh Ha company	Fivi Mart	Hanoi		B		
5	2017/7/27	Duc Chinh cooperative	Vineco	Hanoi		B		
6	2017/7/27	Tan Minh Duc cooperative	Vineco	Hanoi		B		
7	2017/9/16	Tan Minh Duc cooperative	Big C	Hanoi	A			
8	2017/9/16	Duc Chinh cooperative	Big C	Hanoi		B		
9	2017/11/10	Duc Chinh cooperative	Oshitsu	Hanoi		B		
10	2017/11/10	Thanh Ha company	Oshitsu	Hanoi	A			
11	2018/1/8	Duc Chinh cooperative	Co-op Food	Hanoi	A			
12	2018/4/5	Tan Minh Duc cooperative	VinEco	Hanoi		B		
13	2018/4/5	Duc Chinh cooperative	VinEco	Hanoi		B		
14	2018/4/20	Thanh Ha company	VinEco	Hanoi	A			
15	2018/4/21	Tan Minh Duc cooperative	Coop food	Hanoi		B		
16	2018/4/21	Thanh Ha company	Coop food	Hanoi		B		
17	2018/5/16	Tan Minh Duc cooperative	Lotte	Hanoi		B		
18	2018/5/16	Tan Minh Duc cooperative	City Mart	Hanoi		B		
19	2018/6/28	Thanh Ha company	Xuan Cau JC company	Hai Duong	A			
20	2018/7/8	Tan Minh Duc cooperative	VietHarvest safe vegetable shop	Hanoi		B		
21	2018/7/12	Tan Minh Duc cooperative	Mr Giang in Hai Duong	Hai Duong			C	
22	2018/10/25	Tan Minh Duc cooperative	VinEco	Hanoi		B		
23	2018/10/25	Tan Minh Duc cooperative	OShitsu	Hanoi		B		
24	2018/10/22	Tan Minh Duc cooperative	Big C	Hanoi			C	
25	2018/10/20	Tan Minh Duc cooperative	Safe meals company	Hanoi		B		
26	2018/10/22	Tan Minh Duc cooperative	Hưng Việt Company	Hai Duong			C	
27	2018/10/22	Lúa farmer group	Hưng Việt Company	Hai Duong		B		
28	2018/11/6	Duc Chinh cooperative	Sai Gon Coop	Hanoi		B		
29	2018/11/7	Lúa farmer group	VinEco	Hanoi			C	
30	2018/11/16	Gia Gia company	Goden gate	Hai Duong		B		
31	2018/11/19	Tan Minh Duc cooperative	Công ty Trường Thịnh	Hai Duong		B		
32	2018/12/4	Tan Minh Duc cooperative	TMT company		A			
33	2018/12/4	Tan Minh Duc cooperative	VietFarm			B		
34	2018/12/4	Duc Chinh cooperative	VietFarm			B		
35	2018/12/11	Duc Chinh cooperative	Viethavest	Hanoi		B		
36	2018/12/11	Duc Chinh cooperative	Coop mart	Ho Chi Minh		B		
37	2018/12/11	Tan Minh Duc cooperative	EXB company	Hanoi		B		
38	2018/12/11	Tan Minh Duc cooperative	Coop mart	Ho Chi Minh		B		
39	2018/12/11	Gia Gia company	EXB company	Hanoi		B		
40	2018/12/11	Gia Gia company	Bua an an toàn	Hanoi		B		
41	2019/1/11	Tan Minh Duc cooperative	Công ty TNHH GreenGOCO Hưng Yên	Hung Yen				D
42	2019/1/11	Tan Minh Duc cooperative	Công ty Cổ phần HUYN DAI ALUMINUM Hưng Yên	Hung Yen				D
43	2019/1/11	Tan Minh Duc cooperative	Công ty TNHH thiên Hà Shidax	Hai Duong				D
44	2019/1/11	Tan Minh Duc cooperative	Cty TNHH sản xuất và thương mại Sao Việt Nam	Hanoi				D
45	2019/1/11	Tan Minh Duc cooperative	Công ty TNHH thực Phẩm Quang Minh	Hai Duong				D
46	2019/1/11	Tan Minh Duc cooperative	Công ty TNHH sản xuất phụ tùng ô tô xe máy Việt Nam	Hai Duong				D
47	2019/1/11	Tan Minh Duc cooperative	Công ty cổ phần dịch vụ thương mại An Thái	Hai Duong				D
48	2019/1/11	Tan Minh Duc cooperative	Công ty TNHH TM DV Dương Anh	Hai Duong				D
49	2019/1/11	Tan Minh Duc cooperative	Công ty TNHH ADEN Service Việt Nam	Hai Duong				D
50	2019/1/11	Gia Gia company	Công ty TNHH GreenGOCO Hưng Yên	Hung Yen				D
51	2019/1/11	Gia Gia company	Công ty Cổ phần HUYN DAI ALUMINUM Hưng Yên	Hung Yen				D
52	2019/1/11	Gia Gia company	Công ty TNHH thiên Hà Shidax	Hanoi				D
53	2019/1/11	Gia Gia company	Cty TNHH sản xuất và thương mại Sao Việt Nam	Hanoi				D
54	2019/1/11	Gia Gia company	Công ty TNHH thực Phẩm Quang Minh	Hai Duong				D
55	2019/1/11	Gia Gia company	Công ty TNHH sản xuất phụ tùng ô tô xe máy Việt Nam	Hanoi				D
56	2019/1/11	Gia Gia company	Công ty cổ phần dịch vụ thương mại An Thái	Hai Duong				D
57	2019/1/11	Gia Gia company	Công ty TNHH TM DV Dương Anh	Hai Duong				D
58	2019/1/11	Gia Gia company	Công ty TNHH ADEN Service Việt Nam	Hai Duong				D
59	2019/1/11	Lúa farmer group	Công ty TNHH GreenGOCO Hưng Yên	Hung Yen				D
60	2019/1/11	Lúa farmer group	Công ty Cổ phần HUYN DAI ALUMINUM Hưng Yên	Hung Yen				D
61	2019/1/11	Lúa farmer group	Công ty TNHH thiên Hà Shidax	Hanoi				D
62	2019/1/11	Lúa farmer group	Cty TNHH sản xuất và thương mại Sao Việt Nam	Hanoi				D
63	2019/1/11	Lúa farmer group	Công ty TNHH thực Phẩm Quang Minh	Hai Duong				D
64	2019/1/11	Lúa farmer group	Công ty TNHH sản xuất phụ tùng ô tô xe máy Việt Nam	Hanoi				D
65	2019/1/11	Lúa farmer group	Công ty cổ phần dịch vụ thương mại An Thái	Hai Duong				D

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					Result*			
No	Date	TG	Buyer	Province	A	B	C	D
66	2019/1/11	Lúa farmer group	Công ty TNHH TM DV Dương Anh	Hai Duong				D
67	2019/1/11	Lúa farmer group	Công ty TNHH ADEN Service Việt Nam	Hai Duong				D
68	2019/1/18	Duc Chinh cooperative	Ban Mai company		A			
69	2019/3/19	Lúa farmer group	Yên Phú	Hưng Yên		B		
70	2019/3/1	Gia Gia company	HD Green	Hải Dương	A			
71	2019/3/28	Gia Gia company	Sao Viet company	Hanoi		B		
72	2019/3/28	Lúa farmer group	Sao Viet company	Hanoi	A			
73	2019/3/28	Tan Minh Duc cooperative	Sao Viet company	Hanoi		B		
74	2019/4/23	Tan Minh Duc cooperative	VDW Viet Nam JS company	Hanoi	A			
75	2019/4/23	Gia Gia company	VDW Viet Nam JS company	Hanoi	A			
76	2019/4/24	Gia Gia company	Kal Tech	Hung Yen		B		
77	2019/4/24	Tan Minh Duc cooperative	Kal Tech	Hung Yen		B		
78	2019/5/15	Gia Gia company	Safe meals	Hà Nội		B		
79	2019/9/13	Gia Gia company	VinEco	Hà Nội	A			
80	2019/9/13	Gia Gia company	Big C	Hà Nội			C	
81	2019/9/13	Gia Gia company	BRG Retail	Hà Nội	A			
82	2019/9/13	Gia Gia company	Lotte Mart	Hà Nội			C	
83	2019/9/13	Gia Gia company	Hapro Mart	Hà Nội			C	
84	2019/9/13	Gia Gia company	HTX Viet Á Châu	Hải Dương			C	
85	2019/9/13	Tan Minh Duc cooperative	VineCo	Hà Nội			C	
86	2019/9/13	Tan Minh Duc cooperative	Coop food	Hà Nội		B		
87	2019/9/13	Tan Minh Duc cooperative	Coop Mart	Hà Nội		B		
88	2019/9/13	Tan Minh Duc cooperative	Lotte mart	Hà Nội		B		
89	2019/9/13	Tan Minh Duc cooperative	HTX Viết Á Châu	Hải Dương			C	
90	2019/9/13	Tan Minh Duc cooperative	Hapro Mart	Hà Nội			C	
91	2019/9/13	Tan Minh Duc cooperative	BRG Retail	Hà Nội			C	
92	2019/9/13	CP Green Farm	VInEco	Hà Nội	A			
93	2019/9/13	Thanh Ha company	VinEco	Hà Nội	A			
94	2019/9/13	Thanh Ha company	Coop Mart	Hà Nội		B		
95	2019/9/13	Thanh Ha company	Coop food	Hà Nội		B		
96	2019/9/13	Thanh Ha company	Big C	Hà Nội	A			
97	2019/9/13	Gia Gia company	BRG Retail	Hà Nội	A			
98	2019/9/13	Gia Gia company	VinEco	Hà Nội	A			
99	2019/11/26	Tan Minh Duc cooperative	Cty Huong Anh	Hà Nội	A			
100	2019/11/26	Tan Minh Duc cooperative	Funny Farm Shop	Hà Nội		B		
101	2019/11/26	Tan Minh Duc cooperative	Food center in HD	Hai Duong		B		
102	2019/11/26	Gia Gia company	Cty Huong Anh	Hà Nội		B		
103	2019/11/26	Gia Gia company	Funny Farm Shop	Hà Nội	A			
104	2019/11/26	Gia Gia company	Hai Duong Food Center	Hà Nội	A			
105	2019/12/13	Tan Minh Duc cooperative	VinECO	Hà Nội		B		
106	2020/1/1	Duc Chinh cooperative	Green Farm	Hai Duong	A			
107	2020/1/22	Lúa farmer group	Gia Gia	Hai Duong	A			
108	2020/2/8	Lúa farmer group	Lien Hiep cooperative	Ha Nam		B		
109	2020/2/13	Green Farm	Thien Canh compamy	Hanoi		B		
110	2020/2/13	Duc Chinh cooperative	Thien Canh compamy	Hanoi		B		
111	2020/3/1	Gia Gia company	Cty cổ phần nông sản Hưng Việt	Hải Dương		B		
112	2020/3/5	Gia Gia company	Công ty Vạn Đắc Phúc	Hải Dương		B		
113	2020/4/10	Tan Minh Duc cooperative	Hai Anh company	Hà Nội	A			
114	2020/9/15	Green Farm	Canteen of school in Hải Dương	Hải Dương		B		
115	2020/9/21	Green Farm	AEON	Hải Phòng		B		
116	2020/9/21	Tan Minh Duc cooperative	AEON	Hải Phòng		B		
117	2020/12/16	Tan Minh Duc cooperative	Kamereo company	Ho Chi Minh			C	
118	2020/12/16	Thanh Ha company	Kamereo company	Ho Chi Minh			C	
119	2021/1/12	Tan Minh Duc cooperative	Vin commerce	Ha Noi		B		
Hung Yen								
1	2017/3/11	Japan-Vietnam company	Syun	Hanoi	A			
2	2017/4/27	Japan-Vietnam company	AEON	Hanoi				D
3	2017/5/26	Yen Phu cooperative	Haru Midori	Hanoi		B		
4	2017/5/26	Japan-Vietnam company	Haru Midori	Hanoi		B		
5	2017/6/3	Japan-Vietnam company	Oshitsu	Hanoi	A			
6	2017/6/24	Yen Phu cooperative	Hanoi Union of cooperative	Hanoi	A			
7	2017/7/14	Yen Phu cooperative	Safefood24h	Hanoi	A			
8	2017/7/21	Yen Phu cooperative	Pham Van Tho establishment	Yen Phu		B		
9	2017/7/27	Yen Phu cooperative	Vineco	Hanoi	A			

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No	Date	TG	Buyer	Province	A	B	C	D
10	2017/7/27	Japan-Vietnam company	Vineco	Hanoi	A			
11	2017/9/27	Yen Phu cooperative	Big C	Hanoi		B		
12	2017/11/8	Yen Phu cooperative	Oshitsu	Hanoi		B		
13	2017/11/17	Yen Phu cooperative	Q mart +	Hanoi		B		
14	2017/12/1	Yen Phu cooperative	Big C	Hanoi	A			
15	2018/1/8	Yen Phu cooperative	Co-op Food	Hanoi	A			
16	2018/2/26	Japan-Vietnam company	Sao Viet company	Hanoi	A			
17	2018/4/19	Japan-Vietnam company	Hotel 123	Hanoi		B		
18	2018/6/16	Yen Phu cooperative	Canteen of Mr Do Van Thai and Do Van Tu	Hung Yen	A			
19	2018/9/2	Yen Phu cooperative	Kindergarten school in Yen Phu	Hung Yen	A			
20	2018/9/5	Yen Phu cooperative	Hưng Việt JS company (Hai Duong)	Hai Duong		B		
21	2018/9/10	Yen Phu cooperative	Mua Viet food company	Hanoi	A			
22	2018/9/15	Yen Phu cooperative	Chain of An Hoa food company	Hanoi	A			
23	2018/9/22	Japan-Vietnam company	Fair Trade USA	Hanoi			C	
24	2018/9/22	Yen Phu cooperative	Fair Trade USA	Hanoi			C	
25	2018/9/22	Chien Thang cooperative	Fair Trade USA	Hanoi			C	
26	2018/9/22	Chien Thang cooperative	Big C	Hanoi			C	
27	2018/10/1	Japan-Vietnam company	Tan Sang store	Hung Yen	A			
28	2018/10/1	Japan-Vietnam company	Hằng Vui store in Linh Đàm	Hanoi	A			
29	2018/10/4	Japan-Vietnam company	Ong Mai safe vegetable store in Linh Đàm	Hanoi	A			
30	2018/10/4	Japan-Vietnam company	Vùng Cao safe vegetable store in Linh Đàm	Hanoi	A			
31	2018/10/4	Japan-Vietnam company	Convenience store of Ms Dung-linh Đàm	Hanoi	A			
32	2018/10/4	Japan-Vietnam company	Safe vegetable store of Ms Tham- Linh Đàm	Hanoi	A			
33	2018/10/4	Japan-Vietnam company	Safe vegetable store of Ms Thanh-Linh Đàm	Hanoi	A			
34	2018/10/4	Japan-Vietnam company	Safe vegetable store of The Home-Furil Ecopark	Hung Yen	A			
35	2018/10/6	Yen Phu cooperative	Nguyễn Thị Thắm business	Hung Yen	A			
36	2018/10/23	Japan-Vietnam company	TaiHei of Japan	Hanoi		B		
37	2018/11/6	Chien Thang cooperative	Canteen of TIGER MAX company	Hung Yen	A			
38	2018/11/12	Yen Phu cooperative	An Viet company	Hanoi		B		
39	2018/11/12	Yen Phu cooperative	Hanoi cooperative alliances	Hanoi			C	
40	2018/11/12	Yen Phu cooperative	EXP Company	Hanoi			C	
41	2018/11/12	Yen Phu cooperative	Huong Viet Sinh	Hanoi		B		
42	2018/11/12	Yen Phu cooperative	Safe meals	Hanoi		B		
43	2018/11/12	Japan-Vietnam company	Coop Mart	Hanoi			C	
44	2018/11/12	Japan-Vietnam company	Chain of safe vegetable store in Thuy Khuê, Hanoi	Hanoi		B		
45	2018/11/12	Japan-Vietnam company	EXP Company	Hanoi		B		
46	2018/11/12	Chien Thang cooperative	EXP Company	Hanoi		B		
47	2018/12/25	Yen Phu cooperative	Oshitsu and Ha anh Company	Hanoi	A			
48	2019/1/11	Japan-Vietnam company	GrenCoCo limited company	Bac Ninh				D
49	2019/1/11	Japan-Vietnam company	Thiên Hà Shidax limited company	Hung Yen				D
50	2019/1/11	Japan-Vietnam company	HYUNDAI ALUMIUM VINA JS company	Hung Yen				D
51	2019/1/11	Japan-Vietnam company	Sao Việt Nam produce and commecial ltd company	Hung Yen				D
52	2019/1/11	Japan-Vietnam company	Quang Minh food ltd company	Hung Yen				D
53	2019/1/11	Japan-Vietnam company	Nhật Lâm ltd company	Hung Yen				D
54	2019/1/11	Japan-Vietnam company	Việt Nam Car and motorcycle Parts production limited company	Hung Yen				D
55	2019/1/11	Japan-Vietnam company	An Thái commecial and service company	Hung Yen				D
56	2019/1/11	Japan-Vietnam company	Dương Anh commecial and service Ltd company	Hung Yen				D
57	2019/1/11	Japan-Vietnam company	Việt Nam ADEM Service Ltd company	Hung Yen				D
58	2019/1/11	Yen Phu cooperative	GrenCoCo limited company	Bac Ninh		B		
59	2019/1/11	Yen Phu cooperative	Thiên Hà Shidax limited company	Hung Yen		B		
60	2019/1/11	Yen Phu cooperative	HYUNDAI ALUMIUM VINA JS company	Hung Yen		B		
61	2019/1/11	Yen Phu cooperative	Sao Việt Nam produce and commecial ltd company	Hung Yen		B		
62	2019/1/11	Yen Phu cooperative	Quang Minh food ltd company	Hung Yen		B		
63	2019/1/11	Yen Phu cooperative	Nhật Lâm ltd company	Hung Yen		B		
64	2019/1/11	Yen Phu cooperative	Việt Nam Car and motorcycle Parts production limited company	Hung Yen		B		
65	2019/1/11	Yen Phu cooperative	An Thái commecial and service company	Hung Yen		B		
66	2019/1/11	Yen Phu cooperative	Dương Anh commecial and service Ltd company	Hung Yen		B		
67	2019/1/11	Yen Phu cooperative	Việt Nam ADEM Service Ltd company	Hung Yen		B		
68	2019/1/11	Chien Thang cooperative	Việt Nam Car and motorcycle Parts production limited company	Hung Yen		B		
69	2019/2/28	Chien Thang cooperative	Hoya Glass Disk Viet Nam Join Stock Company	Hung Yen		B		
70	2019/3/1	Yen Phu cooperative	Cty TNHH Sản xuất & Thương Mại TPS Việt	Hanoi	A			

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No	Date	TG	Buyer	Province	A	B	C	D
71	2019/3/11	Chien Thang cooperative	Hưng Long 2 JS company	Hung Yen	A			
72	2019/3/15	Yen Phu cooperative	Hương Việt Sinh Ltd company	Bắc Ninh	A			
73	2019/6/20	Chien Thang cooperative	Công ty cổ phần xi măng Bút sơn	Ha Nam	A			
74	2019/6/20	Yen Phu cooperative	Công ty Foseca	Bắc Ninh		B		
75	2019/8/23	Yen Phu cooperative	Big green	Hanoi	A			
76	2019/8/30	Yen Phu cooperative	Công ty Foseca	Bắc Ninh	A			
77	2019/9/13	Japan-Vietnam company	Công ty TNHH BRG	Hanoi	A			
78	2019/9/13	Japan-Vietnam company	Coop food	Hanoi	A			
79	2019/9/13	Japan-Vietnam company	Lotte	Hanoi	A			
80	2019/9/13	Yen Phu cooperative	Công ty TNHH BRG	Hanoi	A			
81	2019/9/13	Yen Phu cooperative	Coop food	Hanoi	A			
82	2019/9/13	Yen Phu cooperative	Công ty TNHH Việt Á Châu	Hai Duong	A			
83	2019/10/5	Yen Phu cooperative	Safe vegetable store of Ms Phuong in Dang Xa, Gia Lam	Hanoi	A			
84	2019/12/12	Yen Phu cooperative	Pizza 4P's Company	Hanoi		B		
85	2020/2/2	Binh Minh (ex-Chien Tang)	Nam Bao company	Hung Yen	A			
86	2020/2/20	Japan-Vietnam company	Xuan Truc Cooperative	Hung Yen		B		
87	2020/2/28	Yen Phu cooperative	Havi Mart	Hà Nội	A			
88	2020/4/3	Binh Minh cooperative	Thiên Cảnh company	Hà Nội	A			
89	2020/4/5	Yen Phu cooperative	Tuệ Quang company	Hà Nôi	A			
90	2020/4/7	Binh Minh cooperative	Safe meals	Hà Nội	A			
91	2020/4/24	Japan-Vietnam company	Fresh fruit JS company	Hà Nội	A			
92	2020/6/10	Binh Minh cooperative	Thiên Hưng clothing Company	Hung Yen		B		
93	2020/7/4	Japan-Vietnam company	V Mart	Hà Nội	A			
94	2020/7/4	Japan-Vietnam company	Shop - 224 Hoàng Ngân	Hà Nội	A			
95	2020/7/4	Japan-Vietnam company	Da Lat Farm	Ha Nội	A			
96	2020/7/15	Yen Phu cooperative	Việt Dũng Agriproduct company	Hà Nội		B		
97	2020/7/18	Yen Phu cooperative	Orive company (Support food to industries canteen)	Bắc Giang		B		
98	2020/9/4	Japan-Vietnam company	Bác Tôm safe food store	Hà Nội	A			
99	2020/9/23	Yen Phu cooperative	Canteen of FPT	Hà Nội		B		
100	2020/10/2	Japan-Vietnam company	Sanshin Company	Hà Nội		B		
101	2020/10/2	Yen Phu cooperative	Sanshin Company	Hà Nội			C	
102	2020/10/5	Binh Minh cooperative	Công ty Lâm Anh	Hà Nam	A			
103	2020/10/15	Yen Phu cooperative	Aeon supermarket	Hà Nội	A			
104	2020/11/6	Yen Phu cooperative	Farmer supermarket	Hà Nội	B			
105	2020/12/16	Japan-Vietnam company	Kamereo company	Ho Chi Minh		B		
106	2020/12/16	Yen Phu cooperative	Kamereo company	Ho Chi Minh		B		
107	2021/1/23	Yen Phu cooperative	Huong Viet Shinh company	Hanoi		B		
108	2021/1/27	Binh Minh cooperative	Tu Xa cooperative	Phu Tho	A			
109	2021/4/12	Yen Phu cooperative	Vitan Company	Ha Noi	A			
Thai Binh								
1	2018/9/12	Quỳnh Hải cooperative	Công ty Oshitsu VN	Hanoi			C	
2	2018/10/13	Quỳnh Hải cooperative	Phương Nghĩa company	Hai Phong			C	
3	2018/10/13	Thanh Tân cooperative	BigC Hải Phòng	Hai Phong			C	
4	2018/10/23	Thanh Tân cooperative	Vạn Đạt company	Thai Binh	A			
5	2018/10/23	Thanh Tân cooperative	Cửa hàng rau sạch Phương Anh, TP Thái Bình	Thai Binh	A			
6	2018/10/24	Quỳnh Hải cooperative	EXP group	Hanoi	A			
7	2018/10/24	Quỳnh Hải cooperative	Toan Vân JS company	Thai Binh	A			
8	2018/10/25	Thanh Tân cooperative	Vân An safe vegetable in Thái Bình city	Thai Binh	A			
9	2018/10/26	Quỳnh Hải cooperative	Mr Thiệp – Hà Nội	Hanoi	A			
10	2018/11/5	Quỳnh Hải cooperative	NW Gia Bao processing agriproduct JS company	Thai Binh	A			
11	2018/12/11	Quỳnh Hải cooperative	Bà Hậu, TP Hà Nội	Hanoi			C	
12	2018/12/11	Quỳnh Hải cooperative	Đàm Thị Dịu- Giám đốc công ty TNHH sản xuất thương mại Nông sản Kinh Bắc, TP Bắc Ninh	Bac Ninh	A			
13	2018/12/14	Quỳnh Hải cooperative	Hội nghị phát triển hợp tác, liên kết trong sản xuất và tiêu thụ sản phẩm, thực phẩm nông lâm thuỷ sản tỉnh Thái Bình năm 2018	Thai Binh			C	
14	2018/12/14	Quỳnh Hải cooperative	Kinh Bac production and commercial Limited company	Thai Binh	A			
15	2019/1/1	Quỳnh Hải cooperative	Bao Tin limited company	Hanoi	A			
16	2019/2/22	Quỳnh Hải cooperative	Kinh Bac production and commercial Limited company		A			
17	2019/2/20	Thanh Tân cooperative	Phú Cường company	Hai Duong	A			
18	2019/2/20	Thanh Tân cooperative	VITACO company in Bắc Giang	Bac Giang	A			
19	2019/2/20	Thanh Tân cooperative	Đức Lộc company in Hải Dương	Hai Duong	A			
20	2019/3/13	Quỳnh Hải cooperative	Ms Thinh and Ms Hien - Buyers in Hai Phong whosaler market	Hai Phong		B		
21	2019/3/28	Quỳnh Hải cooperative	KAL company	Hung Yen	A			

Attachment 6 List of matching *As of* *30-Apr-2021*

					Result*			
No	Date	TG	Buyer	Province	A	B	C	D
22	2019/7/15	Quỳnh Hải cooperative	Toan Van JS company - Mai Thị tươi	Thai Binh	A			
23	2019/7/15	Quỳnh Hải cooperative	VinEco – Phạm Văn Hội.	Hanoi	A			
24	2019/9/9	Quỳnh Hải cooperative	Công ty Fari Dream, Thái Bình. Ông Nguyễn Văn Thi. M	Thai Binh			C	
25	2019/9/13	Quỳnh Hải cooperative	VinEco	Hanoi			C	
26	2019/9/13	Quỳnh Hải cooperative	BigC	Hanoi			C	
27	2019/9/13	Quỳnh Hải cooperative	Co.op Food	Hanoi			C	
28	2019/9/13	Quỳnh Hải cooperative	Việt Á Châu	Hai Duong	A			
29	2019/9/13	Thanh Tân cooperative	VinEco	Hanoi		B		
30	2019/12/9	Quỳnh Hải cooperative	Safe meal company	Hanoi		B		
31	2019/12/24	Quỳnh Hải cooperative	Hội nghị hợp tác, liên kết trong sản xuất và tiêu thụ sản phẩm thực phẩm nông lâm thuỷ sản tỉnh Thái Bình năm 2019	Thai Binh			C	
32	2020/1/9	Thanh Tân cooperative	Nguyễn Văn Nhân	Thai Binh	A			
33	2020/1/10	Thanh Tân cooperative	Phạm Văn Võ	Thai Binh	A			
34	2020/1/10	Thanh Tân cooperative	Phương Anh store	Thai Binh	A			
35	2020/2/5	Thanh Tân cooperative	Trần Văn Mạnh	Thai Binh	A			
36	2020/2/7	Quỳnh Hải cooperative	VinEco	Hanoi		B		
37	2020/2/7	Thanh Tân cooperative	Nguyễn Văn Hải	Thai Binh	A			
38	2020/2/8	Thanh Tân cooperative	Trần Văn Anh	Thai Binh	A			
39	2020/2/24	Quỳnh Hải cooperative	Processing argi_product company in Hải Dương	Hai Duong	A			
40	2020/2/25	Thanh Tân cooperative	Seed company in Thái Bình	Thai Binh	A			
41	2020/2/27	Thanh Tân cooperative	Phạm Văn Kiều	Thai Binh	A			
42	2020/3/30	Quỳnh Hải cooperative	Nhật Việt company	Hung Yen	A			
43	2020/4/1	Quỳnh Hải cooperative	Thành Đạt company	Thai Binh		B		
44	2020/5/1	Quỳnh Hải cooperative	Đào Công Cần	Thai Binh	A			
45	2020/9/21	Quỳnh Hải cooperative	AEON	Hanoi			C	
46	2020/10/15	Quỳnh Hải cooperative	AEON	Hanoi		B		
47	2020/10/21	Quỳnh Hải cooperative	Jeong Chen Wan	Thai Binh	A			
48	2021/1/8	Quỳnh Hải cooperative	Minh Duong Company	Nam Dinh	A			
49	2021/4/8	Quỳnh Hải cooperative	Mr. Hung - Buyer in Hung Yen city	Hung Yen			C	
Vinh Phuc								
1	2018/10/1	Vi Sa cooperative	Big C	Hanoi		B		
2	2018/10/5	Vĩnh Phúc cooperative	Ngàn Xanh company	Hanoi			C	
3	2018/10/1	Đại Lợi cooperative	Some store in Phuc Yen city	Vinh Phuc	A			
4	2019/1/16	Vi sa cooperative	Safety agricultural company in Hanoi	Hanoi		B		
5	2019/2/11	Vĩnh Phúc cooperative	Viet Sinh limited company	Hanoi	A			
6	2019/2/12	Vĩnh Phúc cooperative	Big C	Hanoi		B		
7	2019/2/12	Vĩnh Phúc cooperative	AEON	Hanoi		B		
8	2019/2/12	Vĩnh Phúc cooperative	Sao Viet Company	Hanoi		B		
9	2019/3/28	Vi Sa cooperative	Sao Viet Company	Hanoi		B		
10	2019/4/12	Vĩnh Phúc cooperative	AEON	Hanoi			C	
11	2019/5/13	Dai Loi cooperative	Canteen of TTC company	Vinh Yen	A			
12	2019/5/13	Dai Loi cooperative	Dũng Anh JS company	Hanoi	A			
13	2019/9/13	Vĩnh Phúc cooperative	Big C	Hanoi			C	
14	2019/11/19	Dai Loi cooperative	Nguyễn Thị Đức_local collector	Vinh phuc	A			
15	2019/11/21	Dai Loi cooperative	Linh Dương safe vegetable store	Vinh phuc	A			
16	2020/2/17	Dai Loi cooperative	Cat Khanh limited company	Vinh phuc	A			
17	2020/8/9	Vi Sa cooperative	Welstory	Bac Ninh	A			
18	2020/8/15	Vi Sa cooperative	Foseca ltd company	Bac Ninh	A			
19	2020/6/11	Vinh phuc cooperatative	Hà Giang store	Ha Nam				C
20	2020/6/11	Vinh phuc cooperatative	Tây Bắc JS company	Hanoi				C
21	2020/6/11	Vinh phuc cooperatative	Farmer supermarket	Hanoi				C
22	2020/6/11	Vinh phuc cooperatative	AEON Long Bien	Hanoi				C
23	2020/12/18	Vi Sa cooperative	Kamereo company	Ho Chi Minh			C	
24	2020/12/18	Vinh phuc cooperatative	Kamereo company	Ho Chi Minh		B		
25	2021/4/2	Vi Sa cooperative	Hương Việt Sinh Ltd company	Bắc Ninh	A			
Phu Tho								
1	2018/4/20	Huong Non	VinEco	Hanoi			C	
2	2018/4/20	Trường Thịnh cooperative	VinEco	Hanoi			C	
3	2018/12/11	Trường Thịnh cooperative	An Viet production and commercial JS company	Hanoi			C	
4	2018/12/11	Trường Thịnh cooperative	Tay Bac food company	Hanoi			C	
5	2018/12/11	Hương Nộn cooperative	Safe meals JS company ội	Hanoi			C	
6	2019/1	Hương Nộn cooperative	Tu Xa cooperative	Phu Tho		B		
7	2019/3	Trường Thịnh cooperative	Hanoi food vegetable company	Hanoi			C	
8	2019/7	Hương Nộn cooperative	Hanoi Chilli company	Hanoi		B		
9	2019/8/7	Hương Nộn cooperative	Tu Xa cooperative	Phu Tho		B		

Attachment 6 List of matching *As of* *30-Apr-2021*

					Result*			
No	Date	TG	Buyer	Province	A	B	C	D
10	2019/9	Trường Thịnh cooperative	Phong Chau premary school	Phu Tho	A			
11	2019/9	Trường Thịnh cooperative	Phong Chau kinder garten	Phu Tho	A			
12	2019/9	Trường Thịnh cooperative	Hung Vuong premary school	Phu Tho	A			
13	2019/9	Trường Thịnh cooperative	Education department in Thanh Ba district	Phu Tho			C	
14	2019/9/24	Trường Thịnh cooperative	Safe vegetable store- Mrs Hải, Thanh Ba, Phú Thọ	Phu Tho	A			
15	2019/11	Trường Thịnh cooperative	Tu Xa cooperative	Phu Tho			C	
Total					A	B	C	D
Ha Nam					30	23	3	2
Hai Duong					25	52	14	28
Hung Yen					52	38	8	11
Thai Binh					31	6	12	0
Vinh Phuc					10	7	4	4
Phu Tho					4	3	8	0
Total number of One-to-one matching				**375**	**152**	**129**	**49**	**45**

*Each character indicates the results of matching as follows:

A: Successfully concluded. Trading will start soon.

B: Successful. Negotiation will continue.

C: No conclusion.

D: Matching was not successful. No more meeting will happen.

Attachment 7 List of buyers

As of 30 April 2021

Province	Producer group	Buyer	Province	Category	Supported by	Date of starting trade	Status
HD	Duc Chinh coop	Kim Chính company	Ha Noi	Food processing	PPMU	2017/5/12	Siged but no trading
		Fivi mart (currently Vinmart)	Ha Noi	Major Supermarket	Project	2017/11/1	Trading
		Liên Anh company	Ha Noi	Trader/ Collector	Project	2018/1/9	Started but stop trading
		COOP - FOOD	Ha Noi	Major Supermarket	Project	2017/12/1	Started but stop trading
		VinEco	Ha Noi	Major Supermarket	Project	11/05/2018	Trading
		Ban mai company	Ha Noi	Trader/ Collector	TGs	2019/1/21	Started but stop trading
		Thanh Ha company	Hai Duong	Trader/ Collector	Project	2019/1/25	Trading
	Tan Minh Duc coop	Haru Midori	Ha Noi	Canteen (Industry)	Project	2017/12/1	Started but stop trading
		Big C	Ha Noi	Major Supermarket	Project	2017/11/21	Trading
		VinEco	Ha Noi	Major Supermarket	Project	2018/11/1	Started but stop trading
		Collector: Nguyễn Xuân Vinh	Thai Binh	Trader/ Collector	TGs	2018/10/25	Started but stop trading
		Oshitsu company	Ha Noi	Local Supermarket	Project	2018/5/17	Started but stop trading
		Lua cooperative	Hai Duong	Trader/ Collector	Project	2019/5/12	Trading
		Viet Long ComPany	Quang Ninh	Trader/ Collector	TGs	2019/6/10	Trading
		Yen Phu Cooperative	Hung Yen	Trader/ Collector	Project	2018	Trading
		Thanh Ha company	Hai Duong	Trader/ Collector	Project	2017	Trading
		Lotte mart	Ha Noi	Major Supermarket	Project	2019/7/1	Started but stop trading
		Hai Minh Company	Ha Noi	Trader/ Collector	TGs	2018	Trading
	Thanh Ha company	AEON	Ha Noi	Major Supermarket	Project	2018/2/1	Trading
		Big C Hai Duong, Hai Phong	Hai Duong and Hai Phong	Major Supermarket	Original	From 2008	Trading
		Oshitsu company	Ha Noi	Local Supermarket	Project	2018/2/2	Started but stop trading
		MM Mega Market Viet Nam Ltd company	Quang Ninh	Major Supermarket	Original	2006	Trading
		VINCOMMERCE JS company	Ha Noi	Major Supermarket	Original	2014	Trading
		CO.OP MART	Hải Phòng	Major Supermarket	Original	2012	Trading
		INTIMEX Việt Nam JS company	Hai Duong	Major Supermarket	Original	2017	Trading
	Gia Gia company	Golden gate	Ha Noi	Trader/ Collector	Project		Started but stop trading
		Sumsung canteen	Hung Yen	Canteen (Industry)	TGs	2018/11/15	Started but stop trading
		Tan Minh Duc cooperative	Hai Duong	Trader/ Collector	Project	2019/1/14	Trading
		Duc Phuc company	Hai Duong	Canteen (Industry)	TGs	2019/2/3	Trading
		HD green	Hai Duong	Trader/ Collector	TGs	2019/4/17	Trading
		Cici Mart	Hai Duong	Local Supermarket	TGs	2019/2/15	Trading
		Mr Tuan	Hai Duong	Trader/ Collector	TGs	2018/10/8	Trading
	Green Farm company	VinEco	Ha Noi	Major Supermarket	Original	2018/7/1	Trading
		HD green	Hai Duong	Trader/ Collector	TGs	2019/2/5	Trading
	Lua farmer group	Collector: Trương Hòa Bình	Hung Yen	Trader/ Collector	TGs	2018/10/10	Trading
		Tan Minh Duc cooperative	Hai Duong	Trader/ Collector	Project	2018/12/5	Started but stop trading
		Hung Viet Ltd Company	Hai Duong	Trader/ Collector	Original	2009	Started but stop trading
HN	Ha Vy coop	Nguyễn Ngọc Hiếu	Ha Nam	Trader/ Collector	TGs	2018/10/12	Trading
		Local collectors in Nhan Chinh communes	Ha Nam	Trader/ Collector	Project	2017/12/1	Trading
		Mr Trần Văn Hùng – Green food Ha Nam company	Ha Nam	Canteen (Industry)	Project	2018/3/27	Trading
		Ms Thắm	Ha Nam	Canteen (Industry)	TGs	2018/3/21	Trading
		Mr Nguyễn Văn Quyết	Ha Nam	Trader/ Collector	TGs	2018/3/31	Trading
		Safe vegetable store in 94B – Nguyễn Viết Xuân	Ha Nam	Small vegetable shop	Project	3/4/2018	Trading
	Lien Hiep coop	Owner store	Ha Nam	Small vegetable shop	TGs	2018/1/17	Trading
		3 safe vegetable stores in Phu Ly	Ha Nam	Small vegetable shop	TGs	2018/1/1	Trading
		Nguyen Van Tuyen	Ha Nam	Small vegetable shop	TGs	2018/11/21	Trading
		Kindergaden in Quế town, Ha Nam	Ha Nam	Canteen (School)	TGs	2018/12/14	Trading
		Nguyễn Thị Giang- safe vegetable store	Ha Nam	Small vegetable shop	TGs	2018/7/9	Trading
		Canteen number 2 of But Son JS company	Ha Nam	Canteen (Industry)	TGs	2019/6/8	Trading
		VinEco	Ha Noi	Major Supermarket	PPMU	2019/7/4	Started but stop trading
	Cat Lai coop	Trần Ngọc Hiếu	Ha Nam	Trader/ Collector	TGs	2018/1/25	Trading
		Hai Duong import - export agriproduct, branch in Thai Binh	Thai Binh	Trader/ Collector	TGs	2019/1/26	Started but stop trading
		Cooporating with Đức Huy cooporative (Mr Ước)	Ha Nam	Trader/ Collector	TGs	2018/12/22	Trading
		Nguyễn Văn Tuyển	Ha Nam	Trader/ Collector	TGs	2019/10/22	Trading
		4 Canteen of kindergatens	Ha Nam	Canteen (School)	TGs	2020/9/7	Trading
		Nguyễn Thị Ngát	Hà Nam	Small vegetable shop	Project	2020/6/20	Trading
	Thanh Tan farmer group	Nguyễn Thị Giang- safe vegetable store	Ha Nam	Small vegetable shop	Project	2019/3/18	Trading
		Agricutural department in Thanh Liem district	Ha Nam	Small vegetable shop	TGs	2019/2/19	Trading
		Women union in Thanh Liem district		Small vegetable shop	TGs	2018/11/7	Trading
		Nguyễn Thị Hòa	Ha Nam	Trader/ Collector	PPMU	2019/11/19	Trading
		Đinh Thị Phương	Ha Nam	Trader/ Collector	TGs	2020/3/10	Trading
	Japan - Vietnam company	Oshitsu	Ha Noi	Local Supermarket	Project	2017/6/1	Started but stop trading
		Vineco	Ha Noi	Major Supermarket	Project	2017/12/1	Started but stop trading
		Syun	Ha Noi	Catering service	Project	2017/12/1	Started but stop trading
		City Mart	Ha Noi	Major Supermarket	TGs	2017/12/1	Trading
		Safe vegetable store in Ecopark	Hung Yen	Small vegetable shop	TGs	2017	Trading
		Safe vegetable store in Linh Dam	Ha Noi	Small vegetable shop	TGs	2017	Trading
		Safe vegetable store in Hung Yen city	Hung Yen	Small vegetable shop	TGs	2019/9/28	Trading
		BRG	Ha Noi	Major Supermarket	Project	2019/10/28	Started but stop trading
		Store of ms Dung in linh Đàm	Ha Noi	Small vegetable shop	TGs	2018/7/10	Trading
		Tâm sáng store	Ha Noi	Small vegetable shop	TGs	2018/10/3	Started but stop trading
		Hằng Vui store in Linh Đàm	Ha Noi	Small vegetable shop	TGs	2018/3/10	Trading
		Store of Mr Mai in Linh Đàm	Ha Noi	Small vegetable shop	TGs	2018/7/10	Trading
		Safe vegetable store hiland in Linh Đàm	Ha Noi	Small vegetable shop	TGs	2018/7/10	Trading
		Safe vegetable store of ms Thắm in Linh Đàm	Ha Noi	Small vegetable shop	TGs	2018/7/10	Trading
		convinience store of ms Thanh in Linh Đàm	Ha Noi	Small vegetable shop	TGs	2018/7/10	Trading
		The Home-Furil store in Ecopark	Hung Yen	Small vegetable shop	TGs	2018/7/10	Trading
		Intimex Supermarket	Hung Yen	Major Supermarket	TGs	2020/4/22	Started but stop trading
		Siêu thị SEIKA Mart	Ha Noi	Local Supermarket	TGs	2020/4/22	Started but stop trading
		Hapro Food	Ha Noi	Local Supermarket	TGs	2020/4/23	Started but stop trading
		Fresh fruit company	Ha Noi	Trader/ Collector	TGs	2020/4/24	Started but stop trading
		Liễu Giai kinder garten	Hà Nội	Canteen (School)	TGs	2020/5/18	Trading
		V Mart	Hà Nội	Local Supermarket	TGs	2020/7/9	Trading
		Store in 224 Hoàng Ngân	Hà Nội	Small vegetable shop	TGs	2020/7/14	Trading

Province	Producer group	Buyer	Province	Category	Supported by	Date of starting trade	Status
HY		Da Lat Farm	Hà Nội	Trader/ Collector	TGs	2020/7/17	Trading
		Bác Tôm safe food store	Hà Nội	Small vegetable shop	Project	2020/9/10	Trading
	Yen Phu coop	Ha Noi Union of cooperative	Ha Noi	Local Supermarket	Project	2017/10/1	Siged but no trading
		Safefood24h	Ha Noi	Local Supermarket	Project	2017/8/25	Started but stop trading
		Vineco	Ha Noi	Major Supermarket	Project	2017/12/10	Trading
		Gia Minh commercial and food limited company	Ha Noi	Canteen (Industry)	TGs	2018/3/2	Started but stop trading
		One company in Ninh Binh	Ninh Binh	Trader/ Collector	TGs	2018/2/1	Started but stop trading
		Co-op Mart Ha Noi	Ha Noi	Major Supermarket	Project	2018/3/15	Trading
		Co-op Food	Ha Noi	Major Supermarket	Project	2018/1/8	Trading
		Mùa Việt food company	Ha Noi	Trader/ Collector	TGs	2018/9/25	Started but stop trading
		An Hòa food chain	Ha Noi	Trader/ Collector	Project	2018/9/30	Started but stop trading
		Oshitsu and Ha Anh	Ha Noi	Local Supermarket	Project	2018/12/25	Started but stop trading
		Safe meals	Ha Noi	Small vegetable shop	Project	2018/12/21	Started but stop trading
		Hương Việt Sinh Limited company	Ha Noi	Canteen (School)	Project	2019/3/3	Started but stop trading
		TPS Việt comercial and product company	Ha Noi	Canteen (School)	TGs	2019/3/18	Started but stop trading
		Tan Phat limited company	Hung Yen	Canteen (Industry)	TGs	2019/4/2	Started but stop trading
		Nam Bao limited company	Hung Yen	Canteen (Industry)	TGs	2019/4/2	Started but stop trading
		Focesa	Bac Ninh	Canteen (Industry)	TGs	2019/6/10	Started but stop trading
		Gia Minh company	Hung Yen	Catering service	TGs	3/2/2018	Started but stop trading
		Safe vegetable store of Ms Phuong in Dang Xa, Gia Lam	Ha Noi	Trader/ Collector	TGs	2019/10/17	Trading
		ViHa mart	Ha Noi	Small vegetable shop	TGs	2020/3/6	Started but stop trading
		Kinder gaten in Yen Phu	Hung Yen	Canteen (School)	TGs	2018/9/15	Trading
		Big Green	Ha Noi	Local Supermarket	Project	2018/11/4	Started but stop trading
		Tuệ Quang company	Hà Nội	Canteen (Industry)	TGs	2020/4/5	Started but stop trading
		Hải Phong Ltd company	Bắc Ninh	Trader/ Collector	TGs	2020/5/22	Trading
		Thanh Ha Coop (Project' TG)	Hai Duong	Trader/ Collector	Project	2020/8/24	Trading
	[illegible] coop	T.Vita	Ha Noi	Canteen (Industry)	Original	2018/7/21	Started but stop trading
		Kindergarden in Tien Lu	Hung Yen	Canteen (School)	Original	2018/9/5	Trading
		Kindergarden in Phu Cu	Hung Yen	Canteen (School)	Original	2018/9/5	Trading
		Vinagreen limited company		Trader/ Collector	Original	2018/8/1	Trading
		Hưng Long 2 JS company	Hung Yen	Canteen (Industry)	TGs	2019/3/19	Trading
		New Rice company	Hung Yen	Canteen (Industry)	TGs	2019/4/16	Trading
		Tien Hung JS company	Hung Yen	Canteen (Industry)	TGs	2019/4/23	Trading
		Thinh Phat JS company	Hung Yen	Canteen (Industry)	TGs	2019/4/23	Trading
		But Son JS company	Ha Nam	Canteen (Industry)	TGs	2019/6/23	Started but stop trading
		Canteen of TIGER MAX	Hung Yen	Canteen (Industry)	TGs	2018/11/9	Started but stop trading
		Hưng Long 2 JS company	Hung Yen	Canteen (Industry)	TGs	2019/3/19	Trading
		Thiên Cảnh company	Ha Noi	Small vegetable shop	TGs	2020/3/4	Trading
		Nam Bao limited company	Hung Yen	Catering service	TGs	2020/2/10	Started but stop trading
		Safe meals	Ha Noi	Trader/ Collector	TGs	2020/4/8	Started but stop trading
PT	Huong Non coop	Lê Thị lý - 7 hamlet, Huong Non	Phu Tho	Small vegetable shop	Original	2017	Trading
		Cao Hoàng Tuấn - Khu 6, Hương Nộn	Phu Tho	Small vegetable shop	Original	2009	Trading
		Kindergaten in Hương Nộn	Phu Tho	Canteen (School)	Original	2018/9/1	Trading
		Premary school in Hương nộn	Phu Tho	Canteen (School)	TGs	2019/9/5	Trading
		Hospital of Tam Nông district	Phu Tho	Canteen (Hospital)	Original	2017	Trading
		Nguyễn Thị Tuyến in Lâm Thao district, Phu Tho	Phu Tho	Trader/ Collector	Original	2017	Trading
		Tu xa cooporative	Phu Tho	Trader/ Collector	Project	2019/2/9	Trading
		Ms Định	Phu Tho	Trader/ Collector	TGs	11/11/2018	Trading
	Truong Thinh coop	Safe vegetable store in Me market in Phu Tho town	Phu Tho	Small vegetable shop	Original	2015/6/1	Trading
		Chau Phong kindergaten	Phu Tho	Canteen (School)	Original	2017/7/1	Trading
		Le Dong kindergaden	Phu Tho	Canteen (School)	Original	2016/9/1	Trading
		High school in Phu Tho Town	Phu Tho	Canteen (School)	Original	2016/9/1	Trading
TB	Quynh Hai coop	Ms Men	Hai Phong	Trader/ Collector	Original	2016	Trading
		Ms My	Thai Binh	Trader/ Collector	Original	2016	Trading
		EXP Group	Ha Noi	Trader/ Collector	Original	2018/5/1	Started but stop trading
		Toan Van JC company	Thai Binh	Trader/ Collector	Original	2018/5/1	Started but stop trading
		Mr Thiep in Ha Noi	Ha Noi	Trader/ Collector	TGs	2018/10/27	Started but stop trading
		Kinh Bac production and commercial Limited company	Thai Binh	Canteen (Industry)	TGs	2018/12/14	Started but stop trading
		Bao Tin limited company	Thai Binh	Canteen (Industry)	TGs	2018	Started but stop trading
		NW Gia Bao processing agriproduct JS company	Thai Binh	Food processing	TGs	2018/11/5	Started but stop trading
		Kal	Hung Yen	Trader/ Collector	TGs	2019/3/28	Started but stop trading
		Monkey Fruit safe vege	Thai Binh	Small vegetable shop	TGs	2019/4/4	Started but stop trading
		Big C in Hai Phuong	Hai Phuong	Major Supermarket	Project	2019	In negotiation
		Mr Tuy	Thai Binh	Trader/ Collector	TGs	2019/5/13	Trading
		Mr Cần	Thai Binh	Trader/ Collector	Original	5/5/2020	Trading
	Thanh Tan coop	Van Đat company	Thai Binh	Food processing	TGs	2018/5/1	Trading
		Minh Duong company	Nam Dinh	Trader/ Collector	TGs	2018/5/1	Trading
		Duc Loc company	Hai Duong	Food processing	TGs	2019/12/9	Trading
VP	Dai Loi coop	Lan Chi super market- Phuc Yen	Vinh Phuc	Local Supermarket	TGs	2018/11/20	Trading
		Viglacera company	Vinh Phuc	Canteen (Industry)	Original	2017/7/1	Trading
		Store in Minh Khai-Ha Noi	Ha Noi	Small vegetable shop	Original	2017/12/1	Started but stop trading
		Store in Phuc Yen	Vinh Phuc	Local Supermarket	TGs	2018/10/22	Started but stop trading
		Canteen of TTC company	Vinh Phuc	Canteen (Industry)	TGs	2019/5/13	Trading
		Dũng Anh JS company	Ha Noi	Canteen (Industry)	TGs	2019/11/19	Trading
		Nguyễn Thị Đức local collector	Vinh Phuc	Trader/ Collector	TGs	2019/11/19	Trading
		Linh Dương safe vegetable store	Vinh Phuc	Small vegetable shop	TGs	2019/11/21	Trading
		Cat Khanh limited company	Vinh Phuc	Catering service	TGs	2020/2/17	Trading
	Vinh Phuc coop	VinEco	Ha Noi	Major Supermarket	Original	2017/6/1	Trading
		Harumidori-Viet Nam company (Dong Anh, Ha Noi)	Ha Noi	Canteen (Industry)	Original	2017/5/1	Started but stop trading
		Que Binh company (Phuc Yen, Vinh Phuc)	Vinh Phuc	Canteen (Industry)	Original	2017/9/1	Started but stop trading
		Huong Anh safe food limited company (Dong Anh, Ha Noi)	Ha Noi	Canteen (Industry)	Original	2017/9/1	Trading
		Viet Sinh limited company	Ha Noi	Canteen (Industry)	TGs	2019/2/18	Trading
	Visa coop	VinEco	Ha Noi	Major Supermarket	Original	2017/5/1	Trading
		Vin Max +	Ha Noi	Major Supermarket	Original	2017/5/1	Trading
		Canteens, shools, pagodas …	Vinh Phuc	Canteen (Industry)	Original	2017/8/11	Trading

Attachment 8 Check list for collection and delivery

Guidelines for monitoring of collection and delivery

1. Structure of monitoring activities

	Initial check	Random check
Timing	At the beginning of delivery period	Any time after the initial check until the end of delivery period
Objective	● Confirm the conditions agreed at mezoroekai are met ● List up critical points where there is a risk of contamination ● Agree on the corrective measures to be followed ● Finalize the check list for random check	● Check if the producer follow the conditions agreed at mezoroekai and initial check. ● Compile the monitoring report to share producer and buyer

2. Initial check

(1) Participants

- Target group: Director and Logistic manager
- PPMU: Both production and marketing officers
- Project staffs (production and marketing)

(2) Activities

1) Basic program

Activity	Time (min)
Explanation of basic work flow by producer	5
Identification of control points for cross-contamination by participants	5
Sharing the results and agreeing on the counter measures	10
Add the measures above in the check list	5

Activity	Time (min)
Total	25

*Control points for cross-contamination indicates the points where the harvest of target crop can be contaminated with *dirty water, soil, garbage, chemicals and other vegetables*.

2) Check points

The basic program will be conducted in the following place

i) Harvest (+ preprocessing at site)
ii) Transportation
iii) Collection
iv) Preprocessing and packing
v) Storing
vi) Loading

Producer's premises

vii) Unloading
vii) Storing

Buyer's premises

The activities can be divided into two, namely those before loading (i-iv) and those after loading (v-vii) and implemented in separate days.

(3) Output

Consolidate check list for random check

3. Random check

(1) Participants

- PPMU (if available)
- Project staffs (marketing)

(2) Activities

- Prepare check list and camera
- Visit the target group without prior notice and check if the group follows agreed conditions by using check list
- Take photographs at each control points
- Compile a monitoring report with filled checklist, photographs and signature to share it with producer and buyer

Attachment 1: Checklist for monitoring

Attachment 2.10.1 Check list for collection and delivery

Date:

Name of target group:

Name of person in charge of monitoring:

1. Trading conditions

Item	Agreed conditions at mezoroekai	Result of monitoring
Volume		
Delivery time		
Delivery point		
Mode of transportation		
Price		
Mode of payment		
Timing of payment		
Others		

2. Quality requirements

Item		Agreed conditions at mezoroekai	Result of monitoring
Harvesting time			
Preprocessing			
Storing			
Appearance	Insect/disease/fungus		
	Crack, soil, rot		
Size /piece	Weight		
	Length		
Color			
Shape			
Softness			
Packaging	Material		
	Size (weight, pieces)		
	Required information		
Packing for transportation	Form (box, bag etc.)		
	Size (weight, pieces)		
	Required information		

Attachment 2.10.1 Check list for collection and delivery

3. Control points

(1) Harvest point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not touch harvested vegetable with dirty water such as irrigated water and puddle.	
Soil	☐ Do not contaminate or touch vegetable with soil when harvesting.	
	☐ Do not put vegetable directly on the field, but use clean sheet or box to put harvested vegetable.	
	☐ Do not keep harvested vegetable at open field when it takes time until shipping, but keep it in the closed condition such as in the room, in the truck or cover with sheet, to avoid contamination with dust.	
Garbage	☐ Do not put harvested vegetable close to garbage including package of agrochemical and fertilizer and compost.	
	☐ Keep garbage including rotten or waste vegetables away from harvest and be collected every day	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put harvested vegetable, but use clean bag, sheet or box.	
	☐ Do not harvest vegetable before “appropriate days after last agrochemical application have been passed”.	
	☐ Do not harvest when neighbor farmer is applying or just finished applying agrochemical or fertilizer.	
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not harvest by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not harvest when health condition of worker is not good such as have diarrhea, vomiting or fever.	
	☐ Do not use dirty tools such as knife and packing bag, but use clean tools.	
Quality control/ Traceability	☐ Do not harvest early (immature) vegetable nor late (over matured) vegetable, but harvest on appropriate moment.	
	☐ Do not harvest roughly, but harvest gently to avoid torn, fold, break or hit.	

Attachment 2.10.1 Check list for collection and delivery

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
	☐ Do not push vegetable strongly when packing, do not bind vegetable strongly when binding.	
	☐ Do not harvest when temperature is high, but harvest on morning or evening.	
	☐ Do not harvest in the rainy or high humid weather because vegetable will be easily rotten, or keep at ventilated condition after harvesting.	
	☐ Do not keep harvested vegetable under high temperature, but keep in cool places such as in shade or under the roof	
	☐ Do not harvest with weeds or other foreign matters, but select only vegetable.	
	☐ Do not mix with vegetable which were harvested from other field, but put information on the harvested vegetable such as label.	

(2) Transportation

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not keep vegetable where water or rain come in or under high humidity condition.	
Soil	☐ Do not bring soil into transportation means, but remove soil from containers before loading.	
	☐ Do not keep vegetable at open field, but protect it by using plastic to cover or use truck, to avoid contamination with dust.	
Garbage	☐ Do not use dirty means of transportation, but clean it before loading the products.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not transport vegetable with other materials such as fertilizers and agrochemicals.	
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	

Attachment 2.10.1 Check list for collection and delivery

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not pile up vegetable to avoid damage by pressure if material of package is soft, or keep in the package of hard material such as plastic box.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not eat, drink, smoke, spit in transportation means, and do not wear jewelry, watch or other objects when bring products.	

(3) Collection point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not touch vegetable with dirty water such as irrigation water or rain.	
Soil	☐ Do not put vegetable directly on the field, but use sheet or box to put vegetable.	
	☐ Do not keep vegetable at open field, but keep it in the closed condition such as in the room, in the truck or cover with sheet, to avoid contamination with dust.	
Garbage	☐ Keep garbage including package of agrochemical and fertilizer and compost away from vegetables.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not keep vegetable close to field where neighbor farmer is applying or just finished applying agrochemical or fertilizer.	
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	

Attachment 2.10.1 Check list for collection and delivery

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
	☐ Do not use dirty tools such as packing bag, sheet to put on the field, but use clean tools.	
Quality control/ Traceability	☐ Do not receive vegetable which are not satisfied quality condition requested to farmers.	
	☐ Do not bring vegetable roughly, but bring gently to avoid torn, fold, break or hit.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	

(4) Preprocessing point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not wash vegetable by using dirty water such as ponds water, puddle water and non-analyzed water, but use water which satisfy national standards.	
	☐ Do not touch vegetable with dirty water such as washed water or rain.	
	☐ Do not keep used water in the floor, but drain all.	
Soil	☐ Do not put vegetable directly on the field, but use sheet or box to put vegetable.	
	☐ Do not treat vegetable at open field, but treat it in the closed condition such as in the room, to avoid contamination with dust.	
Garbage	☐ Keep garbage including package of agrochemical and fertilizer and compost away from vegetables.	
	☐ Do not scatter garbage such as removed leaf or root on the floor, but throw away in the garbage box.	
	☐ Do not throw away garbage in the open field, but cover and throw in the separated area from preprocessing point.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not treat vegetable close to	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
	detergent or another tools to cleanup preprocessing tools.	
	☐ Do not use unregistered agrochemical for post-harvesting treatment.	
	☐ Keep storage of pesticide, fertilizer and other agro-chemicals isolated from preprocessing area.	
	☐ Do not use toxic materials to packing, labeling and binding.	
Biological	☐ Do not treat vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
	☐ Do not use dirty tools such as knife, packing bag, sheet to put on the field, but use clean tools.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not push vegetable strongly when packing, do not bind vegetable strongly when binding.	
	☐ Do not treat vegetable under high temperature, but treat in cool places.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not install “two-way processing system” but install “one-way processing system” to avoid cross-contamination.	
	☐ Do not eat, drink, smoke, spit in production area, and do not wear jewelry, watch or other objects when treat products.	
	☐ Product has a label or is packed in the package with information of producer and contact.	

(5) Storing point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not keep vegetable where rain come in or under high humidity condition.	

Attachment 2.10.1 Check list for collection and delivery

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Soil	☐ Do not put vegetable directly on the field, but use sheet or box to put vegetable.	
	☐ Do not keep vegetable at open field, but keep it in the closed condition such as in the room, in the truck or cover with sheet, to avoid contamination with dust.	
Garbage	☐ Keep garbage including package of agrochemical and fertilizer and compost away from vegetables.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not keep vegetable with other materials as fertilizers, agrochemicals and cleaning tools.	
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not pile up vegetable to avoid damage by pressure if material of package is soft, or keep in the hard material such as plastic box.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not eat, drink, smoke, spit in storing area, and do not wear jewelry, watch or other objects when treat products.	

(6) Loading

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not keep vegetable where water or rain come in or under high humidity condition.	

Attachment 2.10.1 Check list for collection and delivery

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Soil	☐ Do not bring soil into transportation means, but remove soil from containers before loading.	
	☐ Do not keep vegetable at open field, but protect it by using plastic to cover or use truck, to avoid contamination with dust.	
Garbage	☐ Do not use dirty means of transportation, but clean it before loading the products.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not transport vegetable with other materials such as fertilizers and agrochemicals.	
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not pile up vegetable to avoid damage by pressure if material of package is soft, or keep in the package of hard material such as plastic box.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not eat, drink, smoke, spit in transportation means, and do not wear jewelry, watch or other objects when bring products.	

(7) Unloading

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Avoid water or rain come in or under high humidity condition.	
Soil	☐ Avoid soil come into vegetables while unloading.	

Attachment 2.10.1 Check list for collection and delivery

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Chemical	☐ Do not put vegetables close to any chemical or hazardous substances while unloading.	
Biological	☐ Do not put vegetable where animals, insects, birds or manure of above animals can enter while unloading.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not pile up vegetable to avoid damage by pressure if material of package is soft, or keep in the package of hard material such as plastic box.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not eat, drink, smoke, spit in transportation means, and do not wear jewelry, watch or other objects when bring products.	

(8) Storing point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not put vegetable where rain come in or under high humidity condition.	
Soil	☐ Do not put vegetable directly on the soil, but use sheet or box to put vegetable.	
Garbage	☐ Keep garbage including package of agrochemical and fertilizer and compost away from vegetables.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not keep vegetable with other materials as fertilizers, agrochemicals and cleaning tools.	
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	

Attachment 2.10.1 Check list for collection and delivery

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not pile up vegetable to avoid damage by pressure if material of package is soft, or keep in the hard material such as plastic box.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not eat, drink, smoke, spit in storing area, and do not wear jewelry, watch or other objects when treat products.	

Attachment 2.10.1 Check list for collection and delivery

Attachment 2: Monitoring report format

Monitoring report on collection and delivery activity

Date:

1. Name of target group

2. Name of target crop

3. Name of buyers

4. Date of monitoring

5. Result

(1) Check list

(2) Photographs

(3) Overall evaluation

Signature

Attachment 2.10.1 Check list for collection and delivery

Attachment 3: Monitoring schedule of each target group

Province	Target group	Target crop	Initial check		Random check
			Before loading	After loading	
Hai Duong	TMD	Kohlrabi			
		Cabbage			
	Thanh Ha	Tomato			
	Duc Chinh	Carrot			
Hung Yen	Japan Vietnam	Cabbage/tomato			
	Yen Phu	Cabbage/tomato			
Ha Nam	Ha Vi	Cabbage			
		Broccoli			
	Hiep	Tomato			

Attachment 9 Assessment of safety of production area updated on 30-Sep-2019

Province	Target Group	Soil sampling test		Irrigation water sampling test		Certification of safe production area			Viet GAP certification				Expansion of production area				Recommendation
		Copy of laboratory test	Evaluation	Copy of laboratory test	Evaluation	Copy of certification	Validity date	Status	Copy of certification	Area (ha)	Validity date	Status	Confirmed Safe area (ha)	Project area Winter 2019-2020 (ha)	Excess area	Status	
Hai Duong	Duc Chinh coop.	None	-	None	-	Yes	10/12/2019	to be expired	Yes	23.63	04/01/2020	to be expired	30.07	30.07	0.00		- Certification of safe production area or Viet GAP should be issued soon.
	Tan Minh Duc coop.	Yes	Pass	Yes	Pass	Yes	20/6/2020		Yes	27.2	21/12/2019	to be expired	27.20	33.19	5.99	Expanded	**- Soil & water test for new expanded area should be implemented**
	Thanh Ha company	Yes	Pass	Yes	Pass	Yes	19/08/2019	Expired	Yes	10.4	03/03/2018	Expired	20.00	7.61	-12.39		**- Certification of safe production area or Viet GAP should be issued immediately.**
	Gia Gia company	Yes	Pass	Yes	Pass	Yes	14/02/2020	to be expired	Yes	5	21/12/2019	to be expired	5.11	5.11	0.00		- Certification of safe production area or Viet GAP should be issued soon.
	Green Farm company	None	-	None	-	Yes	14/11/2019	to be expired	Yes	5	03/12/2020		5.00	2.48	-2.52		
	Lua farmer group	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	27.5	21/12/2019	to be expired	27.50	10.77	-16.73		- Certification of safe production area or Viet GAP should be issued soon.
Ha Nam	Ha Vi coop.	Yes	Pass	Yes	Pass	Yes	12/11/2018	Expired	Yes	5	04/12/2015	Expired	10.40	3.46	-6.94		**- Certification of safe production area or Viet GAP should be issued immediately.**
	Lien Hiep Cooperative	Yes	Pass	Yes	Pass	Yes	26/12/2019	to be expired	None		-	Not certified	5.00	3.65	-1.35		- Certification of safe production area or Viet GAP should be issued soon.
	Cat Lai coop.	Yes	Pass	Yes	Pass	Yes	18/06/2022		None		-	Not certified	5.00	3.21	-1.79		
	Thanh Tan farmer group	Yes	Pass	Yes	Pass	Yes	29/12/2020		None		-	Not certified	1.11	1.11	0.00		
Hung Yen	Japan Vietnam company	Yes	Pass	Yes	Pass	Yes	13/11/2020		Yes	1	23/10/2018	Expired	3.00	1.90	-1.10		
	Yen Phu coop.	Yes	Pass	Yes	Pass	Yes	01/11/2020		Yes	20	04/07/2020		20.00	6.00	-14.00		
	Chien Thang coop.	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	20.5	29/07/2022		20.50	11.90	-8.60		
Phu Tho	Huong Non coop.	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	10.03	5/2/2017	Expired	3.51	3.51	0.00		**- Certification of safe production area or Viet GAP should be issued immediately.**
	Truong Thinh coop.	None	-	None	-	Yes	21/12/2020		Yes	7.75	30/12/2017	Expired	12.00	3.81	-8.19		
Thai Binh	Quynh Hai coop.	Yes	Pass	Yes	Pass	Yes (8 ha)	02/05/2021		None		-	Not certified	8.00	8.00	0.00		
	Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes (6 ha)	13/03/2020	to be expired	None		-	Not certified	6.00	3.42	-2.58	To be expanded in coming season	**- Soil & water test should be implemented for the area to be expanded in coming season (5ha)** - Certification of safe production area or Viet GAP should be issued soon.
Vinh Phuc	Dai Loi coop.	Yes	Pass	Yes	Pass	Yes	10/03/2020	to be expired	Yes	10.1	09/05/2019	Expired	10.03	10.03	0.00		- Certification of safe production area or Viet GAP should be issued soon.
	Vinh Phuc coop.	Yes	Pass	Yes	Pass	Yes	05/05/2020		Yes	4.78	31/05/2019	Expired	5.32	8.32	3.00	Expanded	**- Soil & water test for new expanded area should be implemented**
	Visa coop.	Yes	Pass	Yes	Pass	Yes	16/3/2021		Yes	5	21/11/2019	to be expired	5.00	5.00	0.00		
										182.89			**229.75**	**162.55**	**-67.20**		

Attachment 9 Assessment of safety of production area updated on 31-May-2020

Province	Target Group	Soil sampling test		Irrigation water sampling test		Certification of safe production area			Viet GAP certification				Expansion of production area				Recommendation
		Copy of laboratory test	Evaluation	Copy of laboratory test	Evaluation	Copy of certification	Validity date	Status	Copy of certification	Area (ha)	Validity date	Status	Confirmed Safe area (ha)	Project area Winter 2019-2020 (ha)	Excess area	Soil & irrigation water test	
Hai Duong	Duc Chinh coop.	None	-	None	-	Yes	10/12/2019	Expired	Yes	23.63	04/01/2020	Expired	30.07	30.07	0		- Certification of safe production area or Viet GAP should be issued soon.
	Tan Minh Duc coop.	Yes	Pass	Yes	Pass	Yes	20/6/2020	To be Expired	Yes	27.2	21/12/2019	Expired	27.2	33.19	5.99	Pass	- Certification of safe production area for new expanded area should be issued soon
	Thanh Ha company	Yes	Pass	Yes	Pass	Yes	19/08/2019	Expired	Yes	20	17/12/2022	Re-newed Viet GAP for 20 ha on 17/12/2019	20	7.61	-12.39		
	Gia company	Yes	Pass	Yes	Pass	Yes	14/02/2020	Expired	Yes	5	21/12/2019	Expired	5.11	5.11	0		- Certification of safe production area or Viet GAP should be issued soon.
	Green Farm company	None	-	None	-	Yes	14/11/2019	Expired	Yes	5	03/12/2020		5	2.48	-2.52		
	Lua farmer group	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	27.5	21/12/2019	Expired	27.5	10.77	-16.73		- Certification of safe production area or Viet GAP should be issued soon.
Ha Nam	Ha Vi coop.	Yes	Pass	Yes	Pass	Yes	12/11/2018	Expired	Yes	5	04/12/2015	Expired	10.4	3.46	-6.94		- Certification of safe production area should be issued immediately.
	Lien Hiep Coop.	Yes	Pass	Yes	Pass	Yes	26/12/2019	Expired	Yes	4	09/12/2020	Global GAP certified on 09/12/2019	5	3.65	-1.35		
	Cat Lai coop.	Yes	Pass	Yes	Pass	Yes	18/06/2022		Yes	6	27/12/2022	Viet GAP certified on 27/12/2019	6	3.21	-2.79		
	Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes	29/12/2020		None		-	Not certified	1.11	1.11	0		
Hung Yen	Japan Vietnam company	Yes	Pass	Yes	Pass	Yes	13/11/2020		Yes	1	23/10/2018	Expired	3	1.9	-1.1		
	Yen Phu coop.	Yes	Pass	Yes	Pass	Yes	01/11/2020		Yes	20	04/07/2020		20	6	-14		
	Binh Minh coop.	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	20.5	29/07/2022		20.5	11.9	-8.6		
Phu Tho	Huong Non coop.	Yes	Pass	Yes	Pass	Yes	07/1/2023	Certified on 07/1/2020	Yes	10.03	5/2/2017	Expired	3.51	3.51	0		
	Truong Thinh coop.	None	-	None	-	Yes	21/12/2020		Yes	7.75	30/12/2017	Expired	12	3.81	-8.19		
Thai Binh	Quynh Hai coop.	Yes	Pass	Yes	Pass	Yes (8 ha)	02/05/2021		None		-	Not certified	8	8	0		
	Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes (6 ha)	13/03/2020	expired	None		-	Not certified	6	3.42	-2.58	Pass	- Certification of safe production area or Viet GAP should be issued soon. - Certification of safe production area for new expanded area should be issued soon
Vinh Phuc	Dai Loi coop.	Yes	Pass	Yes	Pass	Yes	10/03/2020	expired	Yes	10.1	09/05/2019	Expired	10.03	10.03	0		- Certification of safe production area or Viet GAP should be issued soon.
	Vinh Phuc coop.	Yes	Pass	Yes	Pass	Yes	05/05/2020	expired	Yes	4.78	31/05/2019	Expired	5.32	8.32	3	Pass	- Certification of safe production area for new expanded area should be issued soon
	Visa coop.	Yes	Pass	Yes	Pass	Yes	16/3/2021		Yes	5	21/11/2019	Expired	5	5	0		
										182.89			**227.75**	**162.55**			

Attachment 9 Assessment of safety of production area updated on 30-Sep-2020

Province	Target Group	Soil sampling test		Irrigation water sampling test		Certification of safe production area			Viet GAP certification				Expansion of production area				Recommendation
		Copy of laboratory test	Evaluation	Copy of laboratory test	Evaluation	Copy of certification	Validity date	Status	Copy of certification	Area (ha)	Validity date	Status	Confirmed Safe area (ha)	Project area Winter 2020-2021 (ha)	Excess area	Soil & irrigation water test	
Hai Duong	Duc Chinh coop.	Yes	Pass	Yes	Pass	Yes	10/12/2019	Expired *	Yes	23.63	04/01/2020	Expired	30.07	30.07	0		* Re-newed Certification of safe production area on 19/1/2021
	Tan Minh Duc coop.	Yes	Pass	Yes	Pass	Yes	20/6/2020	Expired *	Yes	10	26/12/2022	Re-newed Viet GAP on 26/12/2019	27.24	38.25	11.01	Pass	* Re-newed Certification of safe production area on 19/11/2020
	Thanh Ha company	Yes	Pass	Yes	Pass	Yes	19/08/2019	Expired	Yes	20	17/12/2022	Re-newed Viet GAP on 17/12/2019	20	7.62	-12.38		OK
	Gia Gia company	Yes	Pass	Yes	Pass	Yes	14/02/2020	Expired	Yes	5.52	21/12/2019	Expired	5.52	5.52	0		Certification of safe production area or VietGAP should be renewed.
	Green Farm company	None	-	None	-	Yes	14/11/2019	Expired	Yes	5	03/12/2020		5	5.8	-0.8		OK
	Lua farmer group	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	27.5	21/12/2019	Expired	27.5	15.79	-11.71		Certification of safe production area or VietGAP should be renewed.
Ha Nam	Ha Vi coop.	Yes	Pass	Yes	Pass	Yes	06/05/2023	Re-newed Certification of safe production area on 06/5/2020	Yes	5	04/12/2015	Expired	10.4	3.49	-6.91		OK
	Lien Hiep Coop.	Yes	Pass	Yes	Pass	Yes	06/05/2023	Re-newed Certification of safe production area on 06/5/2020	Yes	4	09/12/2020	Global GAP certified on 09/12/2019	5	4	-1		OK
	Cat Lai coop.	Yes	Pass	Yes	Pass	Yes	18/06/2022	Certified on 18/6/2019	Yes	6	27/12/2022	Viet GAP certified on 27/12/2019	6.26	6.26	0		OK
	Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes	29/12/2020		None		-	Not certified	3.06	3.06	0		OK
Hung Yen	Japan Vietnam company	Yes	Pass	Yes	Pass	Yes	13/11/2020		Yes	1	23/10/2018	Expired	3	2.02	-0.98		OK
	Yen Phu coop.	Yes	Pass	Yes	Pass	Yes	01/11/2020		Yes	30	12/06/2022	Re-newed Viet GAP on 12/06/2020	30	7.6	-22.4		OK
	Binh Minh coop.	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	10.6	29/07/2023	Re-newed Viet GAP on 29/07/2020	10.6	9.85	0		OK
Phu Tho	Huong Non coop.	Yes	Pass	Yes	Pass	Yes	07/1/2023	Certified on 07/1/2020	Yes	10.03	5/2/2017	Expired	3.51	3.51	0		OK
	Truong Thinh coop.	None	-	None	-	Yes	21/12/2020		Yes	7.75	30/12/2017	Expired	12	3.81	-8.19		OK
Thai Binh	Quynh Hai coop.	Yes	Pass	Yes	Pass	Yes (8 ha)	02/05/2021		None		-	Not certified	8	10	2	Pass	OK
	Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes (12ha)	02/09/2023	Re-newed Certification on 3/9/2020	None		-	Not certified	12	8.5	-3.5	Pass	OK
Vinh Phuc	Dai Loi coop.	Yes	Pass	Yes	Pass	Yes	10/03/2020	Expired	Yes	10	09/05/2019	Expired *	10.03	10.03	0		* Re-newed Viet GAP on 25/11/2020
	Vinh Phuc coop.	Yes	Pass	Yes	Pass	Yes	25/05/2023	Re-newed Certification on 25/5/2020	Yes	6.5	16/10/2021		6.5	10.8	4.3	Pass	OK
	Visa coop.	Yes	Pass	Yes	Pass	Yes	16/3/2021		Yes	5	21/11/2019	Expired	5	5	0		OK
										204.61			**240.69**	**190.01**			

Attachment 9 Assessment of safety of production area updated on 30-Apr-2021

Province	Target Group	Soil sampling test		Irrigation water sampling test		Certification of safe production area			Viet GAP certification				Expansion of production area				Recommendation
		Copy of laboratory test	Evaluation	Copy of laboratory test	Evaluation	Copy of certification	Validity date	Status	Copy of certification	Area (ha)	Validity date	Status	Confirmed Safe area (ha)	Project area Winter 2020-2021 (ha)	Excess area	Soil & irrigation water test	
Hai Duong	Duc Chinh coop.	Yes	Pass	Yes	Pass	Yes	19/1/2024	Re-newed Certification of safe production area on 19/1/2021	Yes	23.63	04/01/2020	Expired	30.07	30.07	0		OK
	Tan Minh Duc coop.	Yes	Pass	Yes	Pass	Yes	19/11/2023	Re-newed Certification of safe production area on 19/11/2020	Yes	10	26/12/2022	Re-newed Viet GAP on 26/12/2019	27.24	38.25	11.01	Pass	OK
	Thanh Ha company	Yes	Pass	Yes	Pass	Yes	19/08/2019	Expired	Yes	20	17/12/2022	Re-newed Viet GAP on 17/12/2019	20	7.62	-12.38		OK
	Gia Gia company	Yes	Pass	Yes	Pass	Yes	14/02/2020	Expired	Yes	5.52	21/12/2019	Expired	5.52	5.52	0		Certification of safe production area or VietGAP should be renewed.
	Green Farm company	None	-	None	-	Yes	14/11/2019	Expired	Yes	5	03/12/2020	Expired	5	5.8	-0.8		Certification of safe production area or VietGAP should be renewed.
	Lua farmer group	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	27.5	21/12/2019	Expired	27.5	15.79	-11.71		Certification of safe production area or VietGAP should be renewed.
Ha Nam	Ha Vi coop.	Yes	Pass	Yes	Pass	Yes	06/05/2023	Re-newed Certification of safe production area on 06/5/2020	Yes	5	04/12/2015	Expired	10.4	3.49	-6.91		OK
	Lien Hiep Coop.	Yes	Pass	Yes	Pass	Yes	06/05/2023	Re-newed Certification of safe production area on 06/5/2020	Yes	4	09/12/2020	Global GAP certified on 09/12/2019	5	4	-1		OK
	Cat Lai coop.	Yes	Pass	Yes	Pass	Yes	18/06/2022	Certified on 18/6/2019	Yes	6	27/12/2022	Viet GAP certified on 27/12/2019	6.26	6.26	0		OK
	Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes	29/12/2020	Expired	None		-	Not certified	3.06	3.06	0		Certification of safe production area or VietGAP should be renewed.
Hung Yen	Japan Vietnam company	Yes	Pass	Yes	Pass	Yes	13/11/2020	Expired	Yes	1	23/10/2018	Expired	3	2.02	-0.98		Certification of safe production area or VietGAP should be renewed.
	Yen Phu coop.	Yes	Pass	Yes	Pass	Yes	01/11/2020	Expired	Yes	30	12/06/2022	Re-newed Viet GAP on 12/06/2020	30	7.6	-22.4		OK
	Binh Minh coop.	Yes	Pass	Yes	Pass	None	-	Not certified	Yes	10.6	29/07/2023	Re-newed Viet GAP on 29/07/2020	10.6	9.85	0		OK
Phu Tho	Huong Non coop.	Yes	Pass	Yes	Pass	Yes	07/1/2023	Certified on 07/1/2020	Yes	10.03	5/2/2017	Expired	3.51	3.51	0		OK
	Truong Thinh coop.	None	-	None	-	Yes	21/12/2020	Expired	Yes	7.75	30/12/2017	Expired	12	3.81	-8.19		Certification of safe production area or VietGAP should be renewed.
Thai Binh	Quynh Hai coop.	Yes	Pass	Yes	Pass	Yes (8 ha)	02/05/2021		None		-	Not certified	8	10	2	Pass	OK
	Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes (12ha)	02/09/2023	Re-newed Certification on 3/9/2020	None		-	Not certified	12	8.5	-3.5	Pass	OK
Vinh Phuc	Dai Loi coop.	Yes	Pass	Yes	Pass	Yes	10/03/2020	Expired	Yes	10	25/11/2023	Re-newed Viet GAP on 25/11/2020	10.03	10.03	0		OK
	Vinh Phuc coop.	Yes	Pass	Yes	Pass	Yes	25/05/2023	Re-newed Certification on 25/5/2020	Yes	6.5	16/10/2021		6.5	10.8	4.3	Pass	OK
	Visa coop.	Yes	Pass	Yes	Pass	Yes	16/3/2021	Expired	Yes	5	21/11/2019	Expired	5	5	0		Certification of safe production area or VietGAP should be renewed.
										204.61			**240.69**	**190.01**			

Attachment 10_1 Trial of Non Woven Textile in Summer 2019

Location		Vegetable	NWF		Control (m^2)	Starting time	Harvesting time	Remark	Photo
			Direct (m^2)	Tunnel (m^2)					
Hai Duong	Gia gia	Choysum	10	100	50	July 15, 2019	August 13, 2019	Harvested on 13 August. Result: Vegetable is not good appearance Reason: Disease started to attack vegetable after heavy rain of storm.	
Ha Nam	Ha Vi	Choy sum		100	50	July 16, 2019	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture (wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged.	
	Lien Hiep	Choy sum		100	50	July 05,2019	No harvest	The trial is fail because Hiep did not water. Conclusion: Mr. Hiep has no interest on trial	

Location		Vegetable	NWF		Control (m^2)	Starting time	Harvesting time	Remark	Photo
			Direct (m^2)	Tunnel (m^2)					
	Cat Lai	Choy sum		100	50	July 09,2019	No harvest	Could not harvest because flooding after storm	
	Thanh Tan	Choy sum		100	50	July 10,2019	August 09, 2019	Harvested on 08, 09 August	
Hung Yen	Japan-Vietnam	Green mustard	10	100	50	July 03, 2019	August 02, 2019	Harvested on 02 Aug.	

Location		Vegetable	NWF		Control (m^2)	Starting time	Harvesting time	Remark	Photo
			Direct (m^2)	Tunnel (m^2)					
	Yen Phu	Green mustard		100	50	July 09, 2019	August 05, 2019	Harvested on 05 August (Immediately harvested after heavy rain and storm to prevent damage by disease)	
Phu Tho	Huong Non	Choy sum		100	50	July 23, 2019	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture (wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged.	
	Truong Thinh	Choy sum		100	50	July 23, 2019	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture (wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged.	

Location		Vegetable	NWF		Control (m^2)	Starting time	Harvesting time	Remark	Photo
			Direct (m^2)	Tunnel (m^2)					
Thai Binh	Quynh Hai	Green mustard	10	100	50	July 08, 2019	August 12, 2019	Harvested on 16 Aug.	
Vĩnh Phuc	Dai Loi	Choy sum		100	50	July 22, 2019	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture ((wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged	
	Vinh Phuc	Green mustard		100	50	July 09, 2019	August 06, 2019	Harvested on 06 August (Harvested after storm to prevent damage by disease)	
Total			**30**	**1,200**	**600**				

Results of trial NWT
Implemented trial : 12 groups
Harvested : 6 groups

Attachment 10_2 Trial of Non Woven Textile in summer 2019

1) Location: Japan Viet Nam farm Company

2) Name of crop: Green mustard

Date	Tunnel	Directly covering	Control
July 02, 2019	➢ Sowing seed. ➢ Installing NWF. ➢ Area: 100 m^2.	➢ Sowing seed. ➢ Installing NWF. ➢ Area: 15 m^2.	➢ Sowing seed. ➢ Area: 15 m^2.
July 07, 2019	Germination: Good.	Germination: Good.	Germination: Good.
July 16, 2019	 ➢ **Growing condition**: Very good ➢ **Insect situation**: 0 % ➢ **Disease situation**: 0%	 ➢ **Growing condition**: Bad - 80 % damaged plants by heat ➢ **Insect situation**: 0 % ➢ **Disease situation**: 0%	 ➢ **Growing condition**: Bad ➢ **Insect situation**: - 100 % damaged plants by insect. - Name of insect: Phyllotreta striolata Fabricius - Applying agrochemical (Oshin): first times ➢ **Disease situation**: 0%

July 26, 2019	  ➢ **Growing condition**: Very good. ➢ **Insect situation**: - 6 % damaged plants by insect (Insects infected from outside via the gaps between NWF and ground when big wind). - Name of insect: Phyllotreta striolata Fabricius. - Applying agrochemical: No. ➢ **Disease situation**: 0%	  ➢ **Growing condition**: Bad. - 85 % damaged plants by heat ➢ **Insect situation**: 0 %. - Applying agrochemical: No ➢ **Disease situation**: 0%.	  ➢ **Growing condition**: Very bad . ➢ **Insect situation**: - 100 % damaged plants by insect - Name of insect: Phyllotreta striolata Fabricius. - Applying agrochemical (Oshin): 2 times in total. ➢ **Disease situation**: 0%
August 02, 2019	**Harvest:** - Yield: 2.1 kg/m^2	**Harvest:** - Yield: 0.2 kg/m^2	**Harvest:** - Could not havest

Review of the trial result in Japan Vietnam Company

Point 1: The photo of damaged plants by heat in directly covering method

Death by heat after germination

The death begins from contact point between NWF and leaf

Point 2: Detailed report of heat stress in direct covering plot

Key question:

When plants are damaged?

Are all plants damaged within one day or any period like 2-3 days?

Answer

Field observation by expert

1: The vegetable did not germinate at the same pace.

2: The one which grew faster and touched NWF earlier died earlier.

3: The plant was damaged from top to bottom.

Assumption

4: 60% of vegetables died from July 07 to July 11 and 20% of the rest died from July 11 to July 16.

5: According to the production manager of Japan Vietnam company, most of vegetables died during 9:00 to 10:00 AM. It is assumed that the sunlight starts to be strong and NWF is still wet due to the fog. So it makes NWF itself hotter than normal (as leaves touch NWF). After 10:00 AM, NWF dries up and becomes cooler.

Attachment 10_3 Trial of Non Woven Textile in Summer 2020

(1) Location: Hung Non cooperative, Phu Tho province

(2) Name of vegetable: Green mustard, choy sum

1) Sample 1: Name of farmer: Mr. Nhung
Sowing date: 05 July 2020 (It was very hot on 08, 09 of July, around 39^0C in daytime)

		
Left: Choy sum Right: Green mustard	Name of vegetable: Choy sum Location: Middle of field (not under shade of others tree) Situation: Germination rate is very low in the middle of soil row	Name of vegetable: Green mustard Location: Near by the frame of gourd (some time under shade) Situation: Germination rate is a little bit lower in the middle of soil row

2) Sample 2: Name of farmer: Mr. Van
   - Applying soil sterilization method
   - Sowing date: 12 July 2020
   - Name of vegetable: Choy sum, Green mustard

 Left: Choy sum Right: Green mustard	 Name of vegetable: Choy sum Condition: Not under shade of others tree Situation: Germination rate is a little bit lower in the middle of soil row	 Name of vegetable: Green mustard Condition: Not under shade of others tree Situation: Germination rate is a little bit lower in the middle of soil row

- 07 August 2020

Heavy rain in one week

Pao Pao Non-woven fabric protect vegetable well under high pressure from heavy rain

Some points were torn due to strong winds

Vegetable grows well inside of tunnel in heavy rain situation

- 11 August 2020 (Harvested time)

After a week of rain, vegetables start to infect diseases because high humidity condition inside of tunnel

Damage vegetable because of disease

- Harvest: 365 kg/sao (Farmer harvested when vegetable start to infect disease)
- Farmer' opinion
  - The climate inside of tunnel is very hot in strong sunshine day.
  - More easily broken.
  - Ventilation is very bad, rain make climate inside of tunnel very high humidity, therefore it makes vegetable is easy to infect disease.
- Permeability: Farmer in Phu Tho did not care about permeability because they water by Flood irrigation method however this kind of Non-woven fabric can protect vegetable well under high pressure from heavy rain.

Attachment 11_1 Plans and Results of Joint Sales in Volume in Winter 2019-2020

As of: **31 March 2020**

Target Group				Plan and Result per Month (Kg)							
			Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Total
Hai Duong	Tan Minh Duc cooperative	Plan	27,072	12,867	212,760	403,319	190,228	183,803	135,753	85,846	1,251,648
		Result	19,914	11,215	127,769	260,001	143,090	135,290	109,375	65,270	852,010
		Achieved	74%	87%	60%	64%	75%	74%	81%	76%	68%
	Duc Chinh cooperative	Plan	0	0	0	0	0	616,950	493,560	123,390	1,233,900
		Result	0	0	0	0	0	215,000	735,000	95,450	1,045,450
		Achieved	0%	0%	0%	0%	0%	35%	149%	77%	85%
	Thanh Ha company	Plan	7,468	11,388	11,270	112,104	63,580	11,340	17,900	35,640	270,690
		Result	6,860	11,170	8,357	91,785	51,420	9,250	16,570	26,782	222,194
		Achieved	92%	98%	74%	82%	81%	82%	93%		82%
Ha Nam	Ha Vy cooperative	Plan	1,000	7,450	15,200	20,080	20,790	8,200	2,000	0	74,720
		Result	1,060	4,390	10,648	14,561	17,993	7,288	1,450	3,010	60,400
		Achieved	106%	59%	70%	73%	87%	89%	73%		81%
	Lien Hiep cooperative	Plan	0	2,300	400	32,800	32,700	53,050	25,250	0	146,500
		Result	0	865	740	880	60,000	25,284	22,000	5,000	114,769
		Achieved	0%	38%	185%	3%	183%	48%			78%
Hung Yen	Yen Phu cooperative	Plan	55,447	64,060	65,410	59,731	68,928	79,318	63,210	67,878	523,982
		Result	34,133	58,350	54,800	55,850	59,400	59,550	46,669	42,740	411,492
		Achieved	62%	91%	84%	94%	86%	75%	74%	63%	79%
	Japan Vietnam company	Plan	1,950	10,375	9,225	6,025	15,875	12,050	5,150	5,900	66,550
		Result	2,500	10,650	9,800	7,900	17,700	10,640	6,000	6,280	71,470
		Achieved	128%	103%	106%	131%	111%	88%	117%	106%	107%
Total		Plan	92,937	108,440	314,265	634,059	392,101	964,711	742,823	318,654	3,567,990
		Result	64,467	96,640	212,114	430,977	349,603	462,302	937,064	244,532	2,777,785
		Achieved	69%	89%	67%	68%	89%	48%	126%	77%	78%

Attachment 11_1 Plans and Results of Joint Sales in Volume in Winter 2019-2020

As of: 31 March 2020

Target Group				Expected Harvesting for Month (Kg)							
			Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Total
Hai Duong	Gia Gia Company	Plan	0	12,000	4,000	15,200	17,000	83,100	24,400	12,000	167,700
		Result	0	8,150	3,850	11,000	14,350	40,950	22,020	9,750	110,070
		Achieved	0%	68%	96%	72%	84%	49%	90%	81%	66%
	Green Farm	Plan	0	13,500	22,833	20,900	9,500	32,200	20,934	130,367	130,367
		Result	0	1,950	10,690	16,010	16,055	7,300	19,960	15,550	87,515
		Achieved	#DIV/0!	19%	79%	70%	77%	77%	62%	74%	67%
	Lúa Group	Plan	16,040	17,968	84,389	56,918	46,344	65,115	44,719	42,419	373,912
		Result	12,190	13,110	60,415	47,820	34,845	52,220	38,113	27,947	286,660
		Achieved	76%	73%	72%	84%	75%	80%	85%	66%	77%
Ha Nam	Thanh tân cooperative	Plan	400	1,400	1,400	20,500	17,700	13,300	3,900	4,300	62,900
		Result	135	815	740	13,150	11,175	10,160	3,578	3,920	43,538
		Achieved	34%	58%	53%	64%	63%	76%	92%	91%	69%
	Cat Lai Cooperative	Plan	0	700	8,400	14,840	29,180	10,720	5,000	0	68,840
		Result	0	0	4,400	9,812	20,760	8,050	6,150	2,870	52,042
		Achieved	#DIV/0!	0.00%	52.38%	66.12%	71.14%	75.09%	123.00%	#DIV/0!	75.60%
Hung Yen	Chien Thang Cooperative	Plan	10,465	20,800	36,100	51,050	64,500	58,650	27,100	11,700	280,365
		Result	10,650	20,400	25,600	40,990	41,900	34,800	24,250	0	198,590
		Achieved	101.77%	98.08%	70.91%	80.29%	64.96%	59.34%	89.48%	0.00%	70.83%
Vinh Phuc	Vinh Phuc cooperative	Plan	49,306	59,167	64,097	67,190	95,777	129,825	156,129	196,371	817,862
		Result	17,250	18,520	31,250	27,820	52,450	78,450	58,500	66,500	350,740
		Achieved	35%	31%	49%	41%	55%	60%	37%	34%	43%
	Visa cooperative	Plan	3,558	8,096	29,653	41,951	64,926	47,210	21,796	14,234	231,424
		Result	3,575	7,833	28,447	39,390	54,470	44,297	11,456	8,613	198,081
		Achieved	100%	97%	96%	94%	84%	94%	53%	61%	86%
	Dai Loi Cooperative	Plan	0	4,278	50,706	105,501	165,389	57,441	42,805	25,822	451,942
		Result	4,055	18,150	0	62,045	30,650	30,650	16,350	12,850	130,245
		Achieved	95%	36%	0%	38%	53%	53%	38%	50%	29%
Thai Binh	Quynh Hai cooperative	Plan	53,293	51,732	46,323	71,667	13,862	62,716	49,194	49,194	397,747
		Result	41,670	43,190	33,964	50,930	9,800	47,450	39,760	44,450	311,214
		Achieved	78%	83%	73%	71%	71%	76%	81%	90%	78%
	Thanh tân cooperative	Plan	0	0	0	2,000	13,320	114,260	23,730	0	153,310
		Result	0	0	0	1,900	10,500	86,050	19,700	0	118,150
		Achieved	#DIV/0!	#DIV/0!	#DIV/0!	95%	79%	75%	83%	#DIV/0!	77%
Phu Tho	Truong Thinh cooperative	Plan	0	0	24,800	9,430	21,900	47,470	52,400	14,340	170,340
		Result	0	0	8,895	6,845	11,970	25,230	13,995	4,275	71,210
		Achieved	#DIV/0!	#DIV/0!	36%	73%	55%	53%	27%	30%	42%
	Huong Non cooperative	Plan	0	0	18,048	34,636	19,607	16,618	34,694	28,394	151,997
		Result	0	0	6,290	11,580	8,360	7,705	11,850	8,201	53,986
		Achieved	#DIV/0!	#DIV/0!	35%	33%	43%	46%	34%	29%	36%
Total		Plan	133,062	189,641	390,749	511,783	579,005	738,625	506,801	529,141	3,458,706
		Result	89,525	132,118	214,541	339,292	317,285	473,312	285,682	204,926	2,012,041
		Achieved	67%	70%	55%	66%	55%	64%	56%	39%	58%

Attachment 11_2 Plans and Results of Joint Sales in Volume in Winter 2020-2021

As of: **31 March 2021**

Target Group			Plan and Result per Month (Kg)							
			Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Total
Hai Duong	Tan Minh Duc cooperative	Plan	65,367	152,600	287,705	295,752	191,881	46,800	33,327	1,073,432
		Result	60,270	132,630	241,560	247,378	163,470	44,500	30,250	920,058
		Achieved	92%	87%	84%	84%	85%	95%	91%	86%
	Duc Chinh cooperative	Plan	0	0	0	250,000	366,950	493,500	123,390	1,233,840
		Result	0	0	0	220,000	335,000	493,500	105,000	1,153,500
		Achieved	#DIV/0!	#DIV/0!	#DIV/0!	88%	91%	100%	85%	93%
	Thanh Ha company	Plan	16,230	15,430	31,782	60,730	66,830	44,330	31,830	267,162
		Result	14,450	13,190	27,550	51,870	59,840	37,050	26,600	230,550
		Achieved	89%	85%	87%	85%	90%	84%	84%	86%
Ha Nam	Ha Vy cooperative	Plan	2,150	6,550	27,150	38,600	11,000	8,550	9,650	103,650
		Result	1,855	4,570	20,840	33,580	10,490	8,160	8,050	87,545
		Achieved	86%	70%	77%	87%	95%	95%	83%	84%
	Lien Hiep cooperative	Plan	1,550	3,700	21,500	29,400	55,500	5,200	5,100	121,950
		Result	1,430	2,546	17,516	22,920	44,082	4,220	4,300	97,014
		Achieved	92%	69%	81%	78%	79%	81%	84%	80%
Hung Yen	Yen Phu cooperative	Plan	21,079	67,097	49,590	63,801	92,274	83,377	58,719	435,937
		Result	22,990	61,820	47,160	65,255	83,485	20,170	57,810	358,690
		Achieved	109%	92%	95%	102%	90%	24%	98%	82%
	Japan Vietnam company	Plan	3,998	3,917	8,107	12,243	9,794	6,444	8,410	52,913
		Result	4,135	4,670	7,640	10,995	9,420	7,457	8,870	53,187
		Achieved	103%	119%	94%	90%	96%	116%	105%	101%
Total		Plan	110,374	249,294	425,834	750,526	794,229	688,201	270,426	3,288,884
		Result	105,130	219,426	362,266	651,998	705,787	615,057	240,880	2,900,544
		Achieved	95%	88%	85%	87%	89%	89%	89%	88%

Attachment 11_2 Plans and Results of Joint Sales in Volume in Winter 2020-2021

As of: **31 March 2021**

Target Group			Plan and Result per Month (Kg)							
			Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Total
Hai Duong	Gia Gia Company	Plan	2,500	2,500	18,500	49,300	50,500	16,500	2,500	142,300
		Result	1,800	2,200	15,500	40,000	46,750	15,600	2,000	123,850
		Achieved	72%	88%	84%	81%	93%	95%	80%	87%
	Green Farm	Plan	5,000	19,700	23,000	62,650	54,050	47,800	46,500	258,700
		Result	4,320	17,170	21,000	52,350	48,510	11,900	14,270	169,520
		Achieved	86%	87%	91%	84%	90%	25%	31%	66%
	Lúa Group	Plan	33,776	39,849	212,663	48,523	110,004	69,124	32,847	546,786
		Result	25,570	33,220	188,260	43,316	99,195	61,100	29,670	480,331
		Achieved	76%	83%	89%	89%	90%	88%	90%	88%
Ha Nam	Thanh tân cooperative	Plan	100	1,200	18,700	51,500	38,300	15,000	3,800	128,600
		Result	95	1,030	13,220	41,700	31,550	12,000	2,950	102,545
		Achieved	95%	86%	71%	81%	82%	80%	78%	80%
	Cat Lai Cooperative	Plan	0	8,240	33,750	93,000	44,400	13,000	8,000	200,390
		Result	0	7,200	27,780	83,180	40,250	8,500	6,200	162,510
		Achieved	#DIV/0!	87%	82%	89%	91%	65%	78%	81%
Hung Yen	Binh Minh Cooperative	Plan	26,647	32,775	51,390	69,826	56,728	19,350	26,606	283,322
		Result	24,920	31,274	47,845	67,055	51,540	23,100	27,510	273,244
		Achieved	94%	95%	93%	96%	91%	119%	103%	96%
Vinh Phuc	Vinh Phuc cooperative	Plan	13,375	13,677	38,483	65,043	96,747	196,281	213,761	637,367
		Result	11,140	13,025	34,875	51,600	73,841	61,255	106,867	352,603
		Achieved	83%	95%	91%	79%	76%	31%	50%	55%
	Visa cooperative	Plan	6,090	13,116	24,696	63,068	49,937	8,995	9,050	174,952
		Result	5,675	12,565	20,970	50,875	45,096	6,802	8,340	150,323
		Achieved	93%	96%	85%	81%	90%	76%	92%	86%
	Dai Loi Cooperative	Plan	23,501	37,883	52,129	57,821	53,069	19,514	19,533	263,450
		Result	17,800	28,469	38,945	39,745	38,561	12,711	12,180	188,411
		Achieved	76%	75%	75%	69%	73%	65%	62%	72%
Thai Binh	Quynh Hai cooperative	Plan	52,165	69,873	119,428	72,748	126,757	71,659	91,885	604,515
		Result	42,580	54,255	94,238	57,971	101,400	57,840	76,610	484,894
		Achieved	82%	78%	79%	80%	80%	81%	83%	80%
	Thanh tân cooperative	Plan	0	0	0	7,935	58,923	82,168	0	149,026
		Result	0	0	0	6,820	47,730	65,080	0	119,630
		Achieved	#DIV/0!	#DIV/0!	#DIV/0!	86%	81%	79%	#DIV/0!	80%
Phu Tho	Truong Thinh cooperative	Plan	640	25,500	7,635	18,385	57,430	36,820	9,510	155,920
		Result	528	16,532	6,385	14,940	37,829	20,003	6,245	102,462
		Achieved	83%	65%	84%	81%	66%	54%	66%	66%
	Huong Non cooperative	Plan	0	14,584	20,212	27,847	19,117	26,188	18,579	126,527
		Result	0	10,495	13,711	20,865	15,498	13,745	10,585	84,899
		Achieved	#DIV/0!	1	68%	75%	81%	52%	57%	67%
Total		Plan	163,794	278,897	620,585	687,647	815,963	622,399	482,572	3,671,855
		Result	134,428	227,435	522,729	570,417	677,750	369,636	303,427	2,795,222
		Achieved	82%	82%	84%	83%	83%	59%	63%	76%

Attachment 12 Review of Joint Sales Result in winter 2020-21

Province	Target Group	A	B	C	D	Challenge	Solution
Hai Duong	Duc Chinh Coop.	2	3	1	3	B. Recording is not stable as it requires the production managers' support. D. Marketing The consumption of carrot depends on the cultivation status of carrot in China, and it is not stable.	B. PPMU should monitor/inspect the use of pesticides and recording of field dairy randomly. D. The groups should diversify buyers with support of PPMU.
Hai Duong	Tan Minh Duc Coop.	2	2	1	1	A. Pesticide residue is decreased due to the success of cultivation methods. B. New farmers require for recording. D. There is no issue on marketing.	A. The introduction of soil sterilization method or crop rotation for farmer households should be increased. B. As the group expands the number of participating farmers, the recording of field dairy should be tightly monitored.
Hai Duong	Thanh Ha Company	3	2	2	1	A. There is no stable staff in charge of production management, facing difficulty in making production plan to satisfy buyer's demand, few knowledges are accumulated in the company on cultivation method. The group faces difficulties in producing seedlings, the seedlings do not grow uniformly. C. Upgraded pre-processing house should be utilized. D. There is stable on marketing.	A. The company should assign a permanent production manager. C. The company should have a partition between the pre-processing area of vegetables produced by the Company and other area of products brought in.
Hai Duong	Gia Gia Company	2	3	2	2	A. The pesticide application is reduced due to the success of cultivation methods by soil sterilization and seedlings. B. As director covers all activities, it is overload for him. D. There is an issue to create the market channel as there is no marketing manager and logistic manager.	A. PPMU should monitor the group to instruct the use of pesticides and recording time to time. B. The company should assign a production manager D. The company should assign the marketing manager and logistic manager.
Hai Duong	Green farm Coop.	2	1	1	1	A. Cultivation method and record keeping were improved by the group properly. D. There is no issue on marketing.	A. The group should continue the cultivation method and record keeping. B. It is recommended to apply digital recording to improve transparency and attract buyers.
Hai Duong	Lua farmers group	2	2	2	2	A. Pesticide application is reduced due to improvement of cultivation methods. B. The groups face difficulty to renew the certificate of safe production condition due to lack of business license. C. Constructed pre-processing house should be utilized. D. The groups are satisfied with current buyers as there is a stable demand.	A. The group should introduce the crop rotation and soil sterilization to improve soil condition. PPMU should monitor the use of pesticides and recording of field dairy. B. PPMU should facilitate the group to register as a cooperative. C. PPMU should monitor the usage of pre-processing house.
Ha Nam	Ha Vi Coop.	2	3	2	2	B. Regular recording is still an issue because farmers need other people's help to record. D. The group made agreements with some buyers, but the buyers' demand is not stable.	B. PPMU should monitor more frequently to instruct, monitor the use of pesticides and recording of field dairy D. PPMU should support the group to attend business matching events to find more buyers.
Ha Nam	Lien Hiep coop.	2	2	1	2	A. The group focused on producing cabbage only, there is no risk prevention measures applied. B. There is a challenge of renewal of Global GAP certificate because the	A. PPMU should monitor/ instruct cultivation method to improve quality and appearance, etc. according to the buyers' requirement.

Province	Target Group	A	B	C	D	Challenge	Solution
						current conditions of pre-processing house and labor management do not meet the requirement. Even there is no supporting measure for Global GAP renewal. D. Export market is not stable as it depends on the exporter's decision and external conditions such as COVID-19.	B. PPMU should consider a supporting mechanism for Global GAP with market linkage.
Ha Nam	Cat Lai Cooperative	**2**	**3**	**2**	**2**	A. The pesticide application is reduced due to the improvement of cultivation methods. B. The group is not pro-active in joint sales. C. Constructed pre-processing house should be utilized. D. The group made agreements with some buyers, but the buyers' demand is not stable.	A. The group should practice crop rotation and soil sterilization continuously. PPMU should monitor the use of pesticides and recording of the field dairy. D. PPMU should support the group to attend business matching events to find new buyers.
Ha Nam	Thanh Tan farmer group	**2**	**2**	**2**	**3**	A. The varieties of vegetables produced in the group are still limited to attract more buyers. D. The current buyers do not recognize the difference of safe crops, the value is not reflected in the price.	A. The group should diversify vegetables by expanding the production area. B. As the group establishes cooperative, they should classify the functions among members. D. PPMU should support the group to attend business matching events to find new buyers.
Hung Yen	Japan Vietnam Company	**2**	**2**	**2**	**1**	A. Any technical staff in charge of cultivation is not recruited, basic technique is not rooted. C. The cost for pre-processing, sorting, packaging is high. D. The supply chains were created to consumers directly by applying SNS.	A. The group should improve cultivation schedule by selecting and cultivating vegetables throughout the year. A. The group should re-establish the system to produce good seedlings. B. The group should assign an agronomist who graduates University.
Hung Yen	Yen Phu Coop.	**1**	**2**	**1**	**1**	B. The group increases the number of participating farmers and farm area, the management of recording and chemical application is the new challenge.	B. The group should monitor and instruct recording of the field diary and chemical application tightly.
Hung Yen	Binh Minh Coop.	**2**	**3**	**1**	**2**	A. Priority should be given to the introduction of new crops and off-season crops (July - August) according to the demand from buyers. B. Director covers various works from production to sales by himself, does not have much time to look after the production by linkage farmers. D. The group created 2 main channels: kindergartens and canteens in Hung Yen province.	A. PPMU should monitor and instruct the use of pesticides application and recording. B. The group should recruit a management staff to strengthen the production management for safety. D. PPMU should support finding more customers by introducing the canteens, etc.
Phu Tho	Huong Non Coop.	**2**	**3**	**2**	**3**	A. Cultivation technologies introduced by the Project are applied in a limited scale. B. Management board members are not pro-active enough to manage joint sales and find buyers. D. Market channel is not diversified, delivery depends on buyers as the group does not have any transportation. Demand on safe vegetables in local area is limited	B. PPMU should find key farmers who can instruct other farmers and continue to provide cultivation trainings. D. PPMU should support to find buyers nearby, such as kindergartens and canteens, and encourage management members to attend matching events.
Phu Tho	Truong Thinh Coop.	**2**	**2**	**2**	**3**	A. Cultivation technologies introduced by the Project are applied in a limited scale.	A. PPMU should continue to provide cultivation trainings to the key farmers who can instruct other farmers.

Province	Target Group	A	B	C	D	Challenge	Solution
						C. Upgraded pre-processing house should be utilized. D. Demand on safe vegetables in local area is limited.	C. PPMU should monitor and facilitate the group to utilize the facility to improve the food safety. D. PPMU should support to find buyers nearby, such as kindergartens and canteens, and encourage management members to attend matching events.
Thai Binh	Quynh Hai Coop.	**2**	**2**	**1**	**2**	B. Management board members hesitate to access supermarket even though they meet safety requirement and production volume, because paperwork and detailed communication required by buyers are troublesome. D. There is not enough buyers who pay higher price.	A. The group should expand soil sterilization and crop rotation for farmers. B/D. PPMU should continue to encourage board members to create linkages with modern market to find buyers who pay higher price.
Thai Binh	Thanh Tan Coop.	**2**	**2**	**2**	**2**	A. The group expanded a new production area. C. Upgraded pre-processing house should be utilized. D. There are limited buyers who pay higher price.	A. PPMU should provide technical support in the new area according to Basic GAP guidance. C. PPMU should monitor and facilitate the group to utilize the facility. B/D. PPMU should continue to encourage board members to create linkages with modern market to find buyers who pay higher price.
Vinh Phuc	Dai Loi Coop.	**2**	**2**	**2**	**2**	B. There is no production manager. The transferred knowledge is not accumulated to the group.	A. The group should expand crop rotation and soil sterilization continuously. B. PPMU should support recruiting a manager by introducing a government support scheme.
Vinh Phuc	Vinh Phuc Coop.	**2**	**1**	**1**	**1**	A. There is no big issue on production, it is expected to improve cultivation technologies applying new methods.	A. The group should expand crop rotation, soil sterilization, seedling, and other cultivation techniques continuously.
Vinh Phuc	Visa Coop.	**2**	**2**	**1**	**1**	B. There is no production manager. The transferred knowledge is not accumulated to the group. The management of record keeping and chemical application is the challenge as the group expands the production area and linkage farmers.	A. PPMU should continue to provide cultivation trainings to the key farmers who can instruct other farmers. B. PPMU should monitor and instruct the recording and chemical application to the new area or new linkage farmers who join the group.

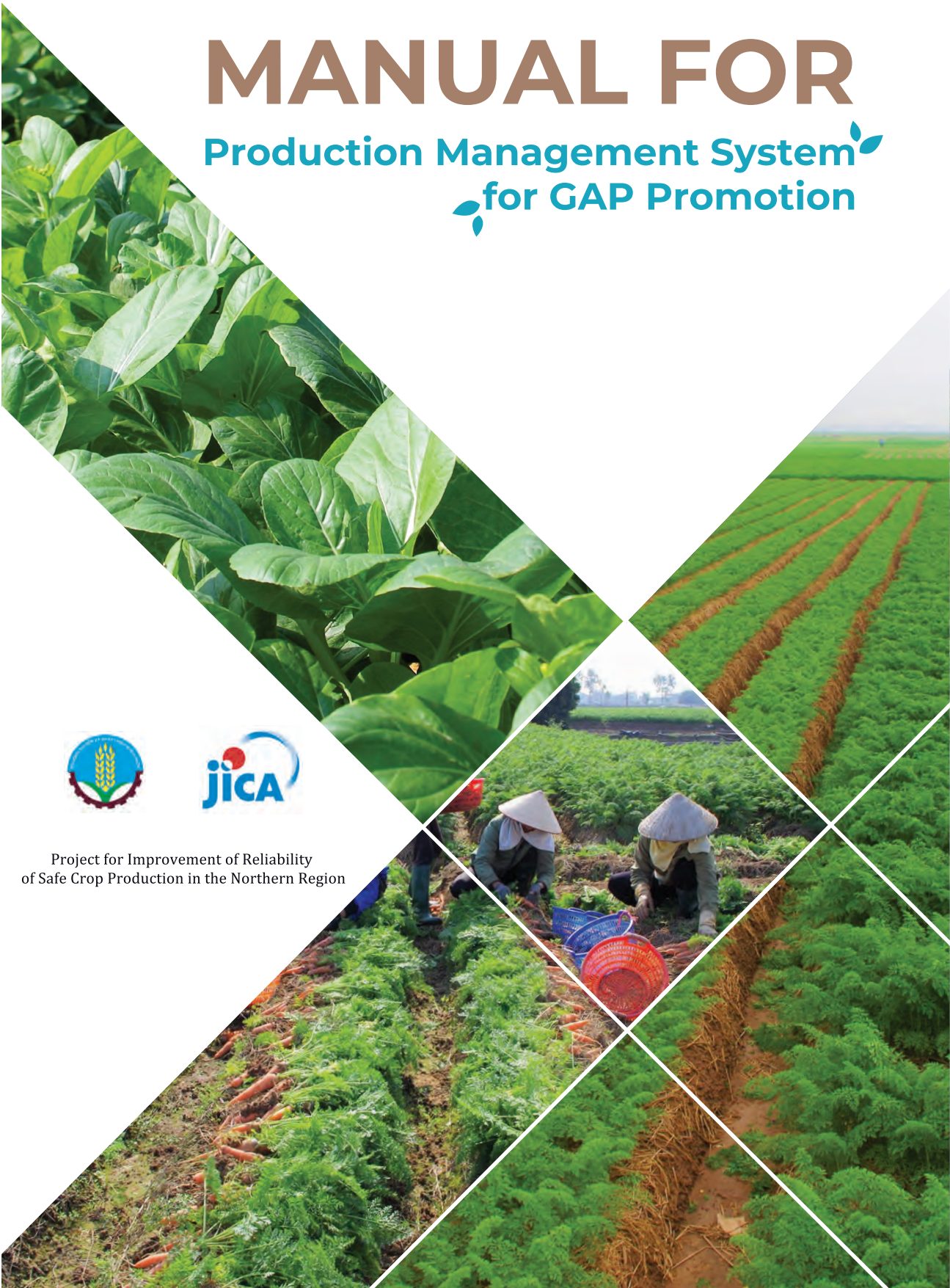
Remarks:
A. Production/cultivation, B. Group management, C. Pre-processing and Distribution, D. Marketing
Scoring is a relative evaluation to identify the strength and weakness of each target group.

1. Very good operation. There is no issue.
2. Good operation though there is a minor issue to improve.
3. There are several issues to improve.
4. There is a serious issue to overcome immediately.

Source: JICA Project team

MANUAL FOR

Production Management System for GAP Promotion



Project for Improvement of Reliability
of Safe Crop Production in the Northern Region

MANUAL FOR
PRODUCTION MANAGEMENT SYSTEM FOR GAP PROMOTION

Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Japan International Cooperation Agency (JICA)

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Manual for Production Management
System for GAP Promotion

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ABBREVIATIONS

ADB	-	Asian Development Bank
DARD	-	Department of Agriculture and Rural Development
DCP	-	Department of Crop Production
GAP	-	Good Agricultural Practices
ICM	-	Integrated Crop Management
IPM	-	Integrated Pest Management
ISO	-	International Organization for Standardization
JICA	-	Japan International Cooperation Agency
MARD	-	Ministry of Agriculture and Rural Development
MRL	-	Maximum Residue Level
NAFIQAD	-	National Agro-Forestry-Fisheries Quality Assurance Department
NGO	-	Non-Governmental Organization
PGS	-	Participatory Guarantee System
QCVN	-	National Technical Regulations
R/D	-	Record of Discussion
TCVN	-	Vietnamese National Standards
TOF	-	Training of farmers
TOT	-	Training of trainers
VietGap	-	Vietnamese Good Agricultural Practices

FOREWORD

The Project for "Improvement of Reliability of Safe Crop Production in the Northern Region" is a Technical Cooperation Project (ODA Grant) of the Government of Japan to support Vietnam. Department of Crop Production (DCP), Ministry of Agriculture and Rural Development is the implementation agency of the Project. The Project has been implemented for 5 years (2016-2021) in 13 provinces/ cities in the Northern Region. There are four (4) pilot provinces/cities namely Hanoi, Hung Yen, Hai Duong and Ha Nam; three (3) semi-pilot provinces including Thai Binh, Vinh Phuc and Phu Tho and six (6) knowledge sharing provinces are Bac Ninh, Hai Phong, Quang Ninh, Hoa Binh, Nam Dinh and Ninh Binh.

The Project has been implemented with the overall goal: Agricultural products of the Northern Region are improved in term of safety and reliability, contributing to the development of the crop production sector and related economic industries.

Through implementation of activities, the Project has achieved specific results including: Establishing a model of safe crop production in the supply chain (production management linked with market); Expanding safe crop production areas (safe vegetables) following GAP (Basic GAP, VietGAP) in the Northern provinces; Strengthening the capacity to organize and manage safe crop production of the DCP and Department of Agriculture and Rural Development (DARD) of the Project provinces; Raising awareness of agricultural extension workers, technical officials and farmers in the Project area in terms of safe crop production; Raising awareness about food safety - in consumers through communication activities (school education program in Hanoi).

With advanced technologies, approaches and experiences shared from JICA experts, the direction and supervision of implementation from the DCP

and close coordination in the implementation of Project activities of the DARD in the target provinces, the Project has achieved remarkable results.

To promote production of safe crops, expand the model of crop production applying GAP in the supply chain, disseminate market knowledge, make a linkage of production and consumption and raise awareness on food safety and hygiene, Project results need to be further replicated and developed.

Based on the achieved Project results and ideas contributed from DARD of the target provinces, the Project has compiled **"Manual for Production Management System for GAP Promotion"** and **"Manual for Supply Chain Development"**, with a hope of providing useful information and experiences in order to expand and develop the Model of safe crop production in the supply chain, as well as contribute to the development of safe crop production in particular and the agricultural sector in general.

I sincerely introduce these two manuals to you!

DIRECTOR OF DEPARTMENT OF CROP PRODUCTION

PROJECT DIRECTOR

Nguyen Nhu Cuong

PURPOSE OF THE MANUAL

The purpose of the manual is to provide useful information and guidance to the officials of the Department of Agriculture and Rural Development (DARD) in the provinces which intend to introduce the production management system to support target groups for producing safe vegetables in accordance with Good Agricultural Practices (GAPs: basic GAP/ VietGAP) and distributing in the form of joint sales according to market demand. It is based on the practical experiences through the trial activities implemented for 20 target groups in pilot provinces (Hai Duong province, Ha Nam province and Hung Yen province) and in semi-pilot provinces (Phu Tho province, Thai Binh province and Vinh Phuc province) under the Project for Improvement of Reliability of Safe Crop Production in the Northern Region (hereinafter referred to as "the Project").

This manual is comprehensive in that it includes the series of activities to be conducted by the officials of DARD: selection of target group, confirmation of safety of production area, trainings for Basic GAP, formulation of safe crop production group, production planning based on market demand, field instructions applying Basic GAP, upgrading conditions to ensure food hygiene and safety, joint sales management, and external inspection and auditing.

The following benefits are expected in using this manual for both officials of DARD and farmers of target groups:

For officials of DARD

- Roles and responsibilities of officials of DARD are clear and feasible to apply.
- Procedures and methodologies to support production and sales of safe vegetables by target groups are described in detail.

- Capacity of officials of instruction, monitoring and inspection for safe vegetable production and sales will be developed.

- Safe vegetable production and sales will be disseminated in the province.

For farmers of target group

- Safe vegetable production and post-harvest practices[1] will be improved in accordance with Basic GAP protocol and government food safety regulations.

- Production plan can be prepared based on market demand.

- Traceability and accountability of safe vegetable production will be improved.

- Safe vegetables will be sold jointly by joint sales mechanism.

- Safe vegetables production and sales will be expanded as the market expands.

- Economic returns of target groups will be increased.

[1]Hanoi City, Hai Phong City, Hung Yen Province, Hai Duong Province, Ha Nam Province, Thai Binh Province, Phu Tho Province, Vinh Phuc Province, Quang Ninh Province, Hoa Binh Province, Bac Ninh Province, Nam Dinh Province and Ninh Binh Province.

CHAPTER 1

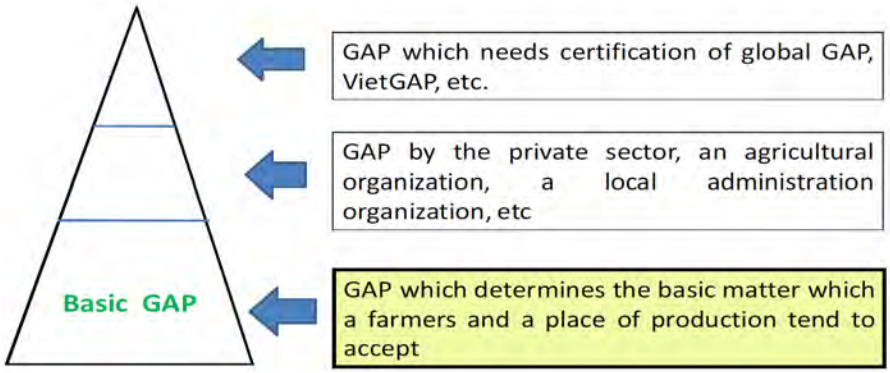
INTRODUCTION

1.1 WHY BASIC GAP?

The Economy of Vietnam has grown even after becoming a Middle-Income Country. The Agriculture sector has been steadily developed, with amount of agriculture production has increased, and export of major crops such as rice, vegetables and fruits increased. As the agriculture production has increased in Vietnam, usages of pesticide and chemicals has increased. This leads to decrease of food safety by presence of residual pesticides and bacteria, etc. The Vietnamese Government has recognized the importance of food safety; however, sufficient countermeasures have not been taken because it requires improvements not only in production technology but also processing and transportation systems/technology and the establishment of testing system of soil, water and agriculture products, etc.

In 2008, MARD has established technical guidance called VietGAP (Good Agriculture Practice) which has 65 criteria for ensuring safe crop cultivation. The criteria involve not only food safety but also indirect items such as environmental protection. VietGAP has been introduced into many vegetable and fruit producers in Vietnam and has contributed to improving the food safety.

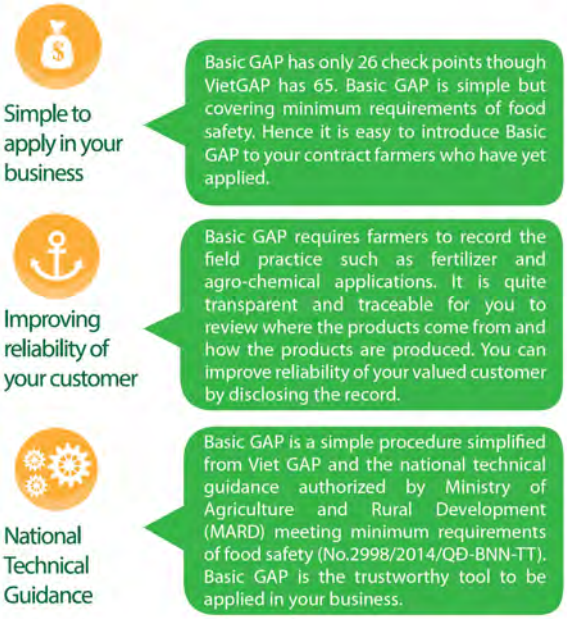
However, VietGAP costs around 2,000 USD per year to acquire certification and requires the meeting of many difficult criteria. Therefore, it is generally difficult for small cooperatives and individual producers to apply VietGAP. Based on the above circumstances, MARD with support of JICA implemented “Strengthen the Capacities for the Field of Management of Vietnam’s Crop Production Sector for Improving the Productivity and Quality of Crop’s Products in Vietnam” (So called “Safe Crop Project”) during 2010-2013. This aimed at raising awareness and improvement of cultivation technology. Through the practical activities, the Safe Crop Project eventually developed “Basic GAP” which extracted only 26 important criteria relating to food safety out of the 65 criteria of VietGAP.



Source: JICA Project team

Figure 1-1 Position of Basic GAP

As the result, producers supported by the Safe Crop Project became aware of appropriate usage of agriculture inputs such as pesticides and chemicals by recording, which led to cost reduction of inputs. In accordance with the result of the Safe Crop Project, MARD officially approved Basic GAP as a technical procedure in July 2014. Basic GAP has three major advantages as shown below.



Source: JICA Project team

Figure 1-2 Advantages of Basic GAP

(1) Simple to apply

Basic GAP has only 26 check points though VietGAP has 65. Basic GAP is simple but covers minimum requirements of food safety. Hence it is easy to introduce Basic GAP to the farmers who haven't yet applied it.

(2) Improving reliability

Basic GAP requires farmers to record the field practice such as fertilizer and agro-chemical applications. It is quite transparent and traceable to review where the products come from and how the products are produced. You can improve reliability of customer by disclosing the record.

(3) National technical guidance

Basic GAP is a simple procedure simplified from VietGap and the national technical guidance authorized by the Ministry of Agriculture and Rural Development (MARD) meeting minimum requirements of food safety (No.2998/2014/Q-BNN-TT). Basic GAP is the trustworthy tool to be applied.

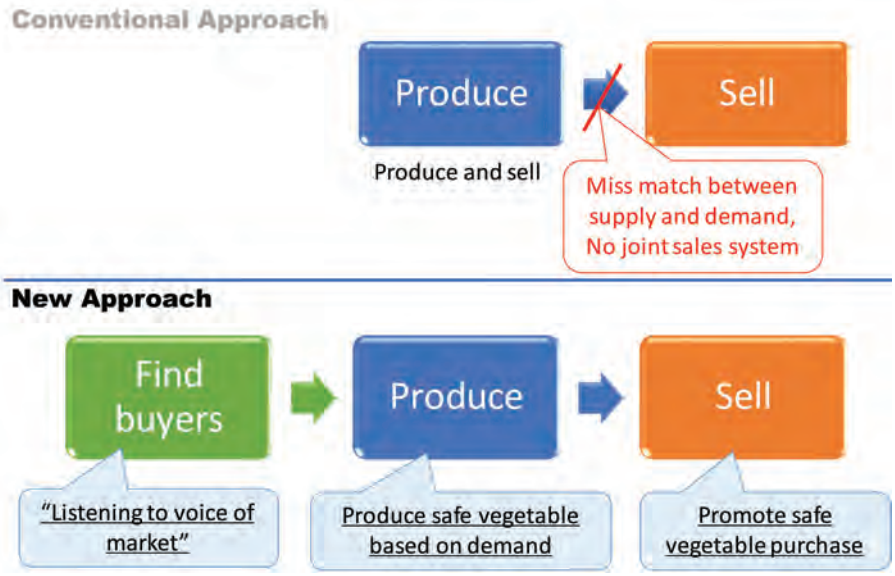
Besides these three advantages, Basic GAP is free to apply. Since VietGAP requires a certification fee, Basic GAP is an easily applicable alternative for agriculture cooperatives and farmer groups in Northern Vietnam. It is also remarkable that under Basic GAP, the safety conditions of the production process shall be confirmed between two parties (producer and buyer) though it is certified by a third party under VietGAP.

1.2 PRODUCE WHAT THE MARKET WANTS

On the supply chain side of agricultural products, reliability of consumers in the safety of vegetables was extremely low due to insufficient management not only in production but also in distribution, processing and selling; such as "mixed loading" during distribution. Price difference between vegetables and *safe* vegetables was also not usually disclosed. This affected in reducing willingness of producers for safe vegetable production. Therefore, Basic GAP has not been disseminated enough even after its approval as a technical procedure. It

is a big challenge to develop a supply chain of safe vegetables that links with production management and can earn the trust of consumers by improving on the processing and distribution process.

In addition, all the stakeholders of production, distribution and sales, as well as consumers lack the correct knowledge and information on vegetable safety. Despite the various awareness activities related to the promotion of safe crop production that have been carried out by the government and donors, the safety crop production area has not been expanded. Recognizing vegetable safety and sharing information among all stakeholders from production, sales and consumption are the subjects through effective awareness activities.



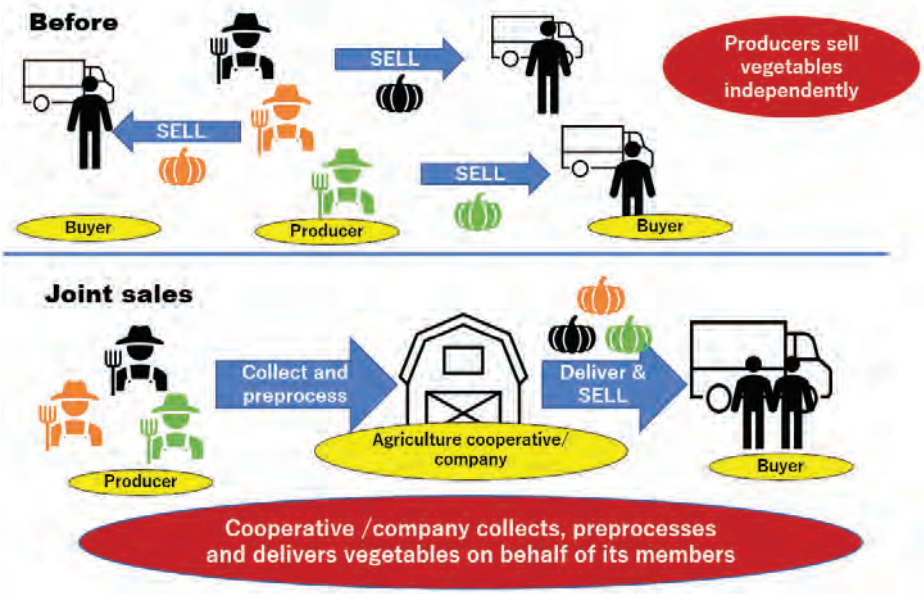
Source: JICA Project team

Figure 1-3 Produce what the market wants

1.3 JOINT SALES

Joint sales means that a producer group (such as a cooperative or company) collects, pre-processes, and sells products as a group in order to increase its bargaining power to buyers by bigger volume as well as better quality of products than those by an individual producer. Although

most producers in Northern Vietnam belong to the cooperatives, they sold their products not cooperatively but individually. This is because although most of the cooperatives have marketing function, they do not have experience in doing so.



Source: JICA Project Team

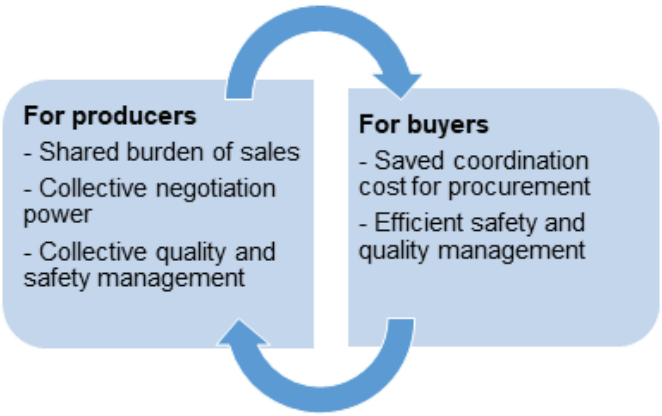
Figure 1-4 Joint sales

However, this practice does have a negative impact on profitability of producers. Since the volume of vegetables small producers can grow is quite limited, their bargaining power with buyers is also limited. This keeps their income level low. If the producers collect and sell vegetables together, they can more effectively negotiate with buyers for price and other trading conditions.

In joint sales, an agricultural cooperative or a company collects, preprocesses, and delivers the vegetables on behalf of producers. Each producer does not need to bring their product to buyers nor find buyers. The agricultural cooperative/company negotiates trading conditions such as price and makes contracts with buyers. Joint sales increases the power of negotiation with buyers. Cooperative management

can negotiate with buyers using volume and quality of product for favorable terms, which is not possible for individual small producers. Lastly, producers can improve their technical skills for safe vegetable production, post-harvest and delivery through collective quality and safety management which satisfy the customer requirement. In this way, joint sales enable producers to adjust their production methods to market demand.

Joint sales is beneficial to buyers too. Institutional buyers such as supermarkets have had difficulty in finding reliable suppliers who can provide safe vegetables of a required amount with required quality at required timing. It is time-consuming as well as costly for them to deal with individual producers. Aggregation through joint sales is an effective way for the cooperatives to supply products to these institutional buyers.



Source: JICA Project team

Figure 1-5 Advantage of joint sales

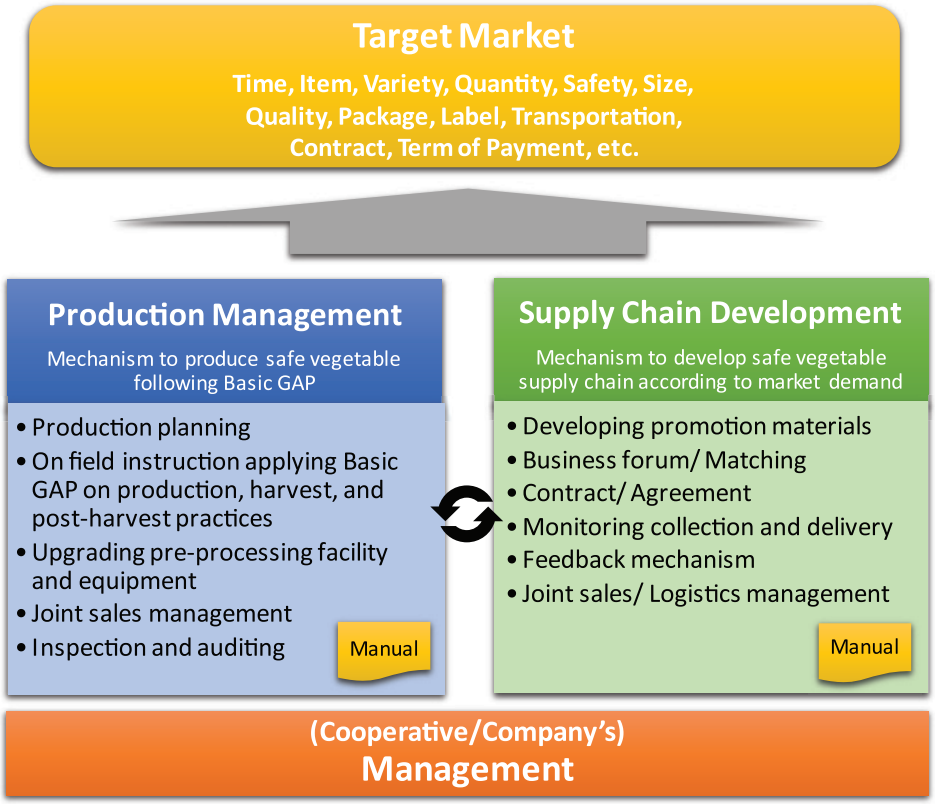
As the number of modern retailers such as supermarkets steadily increases not only in big cities but also provincial cities, capturing this market is the most promising way for safe vegetable producers to be successful. Aggregation through joint sales is, in fact, the only way for small producers to join this market.

1.4 STRUCTURE OF SAFE VEGETABLE PROMOTION PLAN

The safe vegetable promotion plan consists of production management and supply chain development. Production management system and supply chain development is defined as below and the conceptual structure of safe vegetable promotion plan is shown in the following figure:

✧ **Production management system** is a mechanism to control safe vegetable production and post-harvest activities following Basic GAP.

✧ **Supply chain development** is a process to establish safe vegetable supply chain based on the market demand.



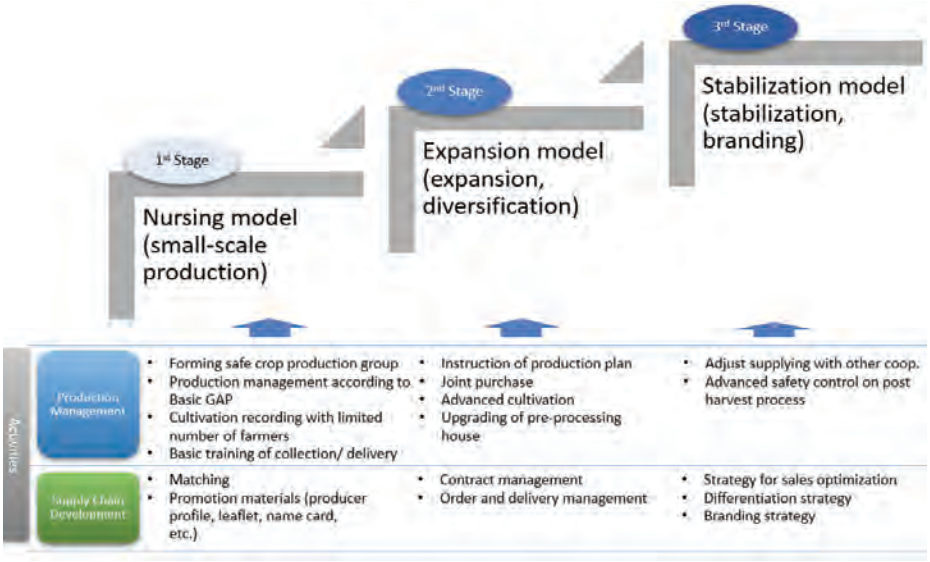
Source: JICA Project team

Figure 1-6 Approaching model for management

Production management is a mechanism to control safe vegetable production and post-harvest activities following GAPs. Supply chain development is a process to establish a safe vegetable supply chain based on the market demand. Both components closely link each other. For example, market demand captured in the supply chain development component is reflected to production planning in production management. On the other hand, the recorded field diaries and the inspection results of pesticide residue implemented in production management systems are good communication tools in explaining the safety of products to the buyers in supply chain development. Target market or buyer's demands, such as time, item, variety, quantity, safety, size, etc. will be achieved by these two components.

1.5 STAGE-WISE APPROACH

Farmers' group (e.g. agriculture cooperative, agriculture company and/or production group) is developed step by step according to the capacity of the group as shown in the following figure.



Source: JICA Project team

Figure 1-7 Stage-wise Approach

If a group has no experience of corrective actions on production and joint sales, the group should start from the 1st stage: small-scale production and sales, then gradually expand the production scale. If a group has experience of corrective actions on production and joint sales, the group should start from the 2nd Stage to expand the production and/or diversify the varieties of vegetables to meet the market demand. If a group has enough production volume and cultivation techniques for different varieties of vegetables, the group should start from the 3rd Stage to stabilize and add values on products by improving traceability and/or packaging. The detailed procedures of operation are explained from Chapter 2.

CHAPTER 2

SELECTION OF TARGET GROUP

Target group candidates should be widely nominated among existing vegetable production groups but selected carefully with both quantitative and qualitative information. Target group selection shall be conducted by the following three procedures from 2.1 to 2.3. The supporting measures for the group not selected as target groups is explained in 2.4.

2.1 NOMINATION OF TARGET GROUP CANDIDATES

Target group candidates should be nominated from an existing list of potential agriculture cooperatives/companies and producer groups cultivating vegetables. If there is no such list, DARD should prepare the one based on pre-existing agricultural cooperatives/ companies and producers who posses sub-departments of rural development, crop production and/ or plant protection. The groups which have the following characteristics should be excluded from the list:

- Potential risk is already identified as chemical industry is located nearby the vegetable production area.
- Contamination of heavy metals and other harmful materials is already confirmed by scientific analysis.
- Vegetables are not produced in a specialized vegetable production area/zone designated by province/district.

Target group candidates shall be listed with basic information including: group name, type of group, number of member farmers, vegetable production area and certified safe vegetable production area as shown in the table below.

Table 2-1 Format of Target Group Candidate List

No.	Group Name	Type	Member ship	Vegetable production area (ha)	Certified Safe area (ha)

2.2 IMPLEMENTATION OF FIELD SURVEY OF THE TARGET GROUP CANDIDATES

DARD implements the field survey of the target group candidates. Field survey consists of interview with key informants, data collection and field observation to gather necessary information for target group selection. The following table shows the assessment sheet of target group candidates.

Table 2-2 Assessment sheet of target group candidate

Content	Sub content	Answer	Remarks
General Info	Group Name		
	Year Established		
	Registration No.		Attach a business license
1. Target area			
Land	Agriculture Land (ha)	ha	Total agricultural production area including rice, fruit, vegetable, etc.
	Vegetable Land (ha)	ha	Total vegetable production area
Products (production volume)	Winter vegetable (Sep.-Mar.)		List of the major vegetables and production volume
	Summer vegetable (Apr.-Aug.)		List of the major vegetables and production volume
2. Location and environment			
Location	Location (no chemical industry nearby)		Verify through field observation
Suitability of land condition	Infrastructure (road, irrigation, drainage), low risk of flooding		Verify through field observation
Certificate of safe production condition	Certificate of Safe Production Condition		Attach the copy

Content	Sub content	Answer	Remarks
3. Knowledge and techniques			
Farming practice	Knowledge/practice in safe crop production		Verify through field observation (e.g. record keeping, input usage, using waste box, washing facility, etc.)
	Years of farming experience		Count the years of cultivation experiences of target group members[2].
	Technologies applied		Verify through field observation (e.g. knowledge and skills of Integrated Pest Management (IPM)[3], Integrated Crop Management (ICM)[4], composting, seedling, agri. materials)
4. Number of farmer group and production volume			
Membership	No. of total membership		
	No. of board members		
	No. of members for safe vegetable production		
5. Willingness and eagerness			

2. For example if a member has 3 years' experience of farming like a technical intern training program in Japan, it is counted as 3 years.

3. IPM uses environmentally sound ways to keep pests from invading and damaging plants by prevention, cultural control, physical or mechanical control, and/or biological control.

4. ICM is a whole farm approach including crop rotations, appropriate cultivation techniques, careful choice of seed varieties, minimum reliance on artificial inputs such as fertilizers, pesticides and fossil fuels, maintenance of the landscape, and enhancement of wildlife habitats.

Content	Sub content	Answer	Remarks
Leadership and independency	(Narrative answer)		Verify through interview with group leaders and field observation
6. Group type			
Group Type and business sector	Group registration		Attach the business license (Agriculture company/ Cooperative))
	Business sector on business license		List of the business sectors on business license[5]
7. Vegetable production and marketing			
Experience in safe crop production	Basic GAP		Verify the training experience
	VietGAP		Verify the training experience/ Attach the copy
	Other (PGS etc.)		Verify the training experience/ Attach the copy
Experience in market channel development	Experience in joint Sales		Yes/No
	Percentage of joint sales out of total sales (%)		0-100%
	Current buyers name and percentage of sales (%)		e.g. 1. Buyer A: 50% 2. Buyer B: 30% 3. Wet market: 20%

5. Business sectors on a business license are coded following prime minister's decision No. 27/2018/QD-TTg dated on July 06, 2018 Promulgating Vietnam Standard Industrial Classification.

Content	Sub content	Answer	Remarks
8. Other key questions			
Pre-processing, Packaging, Transportation	Existing Facility and infrastructure with current condition/usage		e.g. pre-processing house, irrigation, greenhouse, etc.
	Labelling/ packaging		e.g. logo, business card, packaging tools, QR code, etc.
	Storing/ Cool storage		e.g. cool storage
	Means of transportation		e.g. own/hire a truck for product transport
Product pricing	Selling Price compared with market price (Narrative answer)		e.g. Buyer A pays 10% higher Buyer B pays same as normal vegetable.
Sales Promotion	Experience in sales promotion		e.g. Trade fair/ Catalogue/ Advertise on Facebook/ in-store promotion
External Support	Past and current support by donor/ NGO/ Government		e.g. received/ receives support from ADB for construction of pre-processing house
	Condition of supported items		e.g. fully utilized, partly utilized, not utilized with reasons.
Remarks			(if any)
Overall Assessment			

Content	Sub content	Answer	Remarks
Recommendation	Overall assessment of target group candidate		Write recommendation in regard to land availability, management capacity for joint sales, and willingness of the leader.

Box: Check points of willingness and eagerness

It is emphasized that the target group should hold strong willingness and eagerness in considering a model with sustainability. To check the willingness and eagerness, it is recommended to interview group leaders with focus on the following check points.

✧ Express of willingness and eagerness in the involvement of safe vegetable production and joint sales

✧ Vision of safe vegetable production

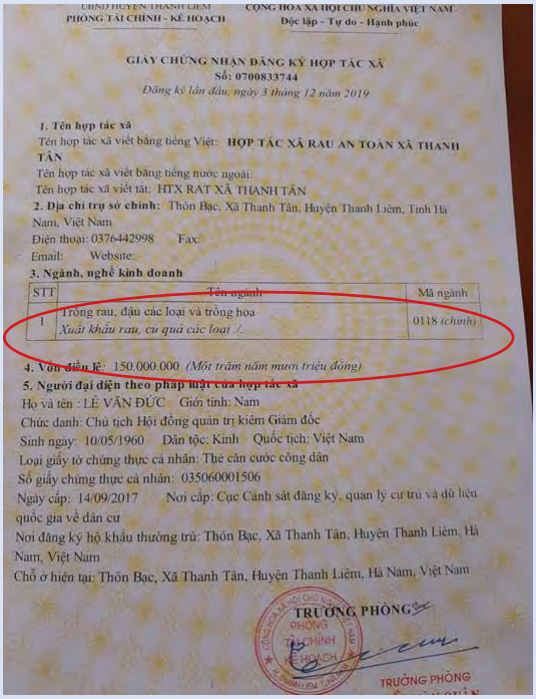
✧ Leadership experience (mobilizing people for corrective action)

✧ Communication skill (good responses to questions)

✧ Independency (no dependency on gov./donor's support)

Box: Business sector on business license

Business sectors on a business license are coded following prime minister's decision No. 27/2018/QD-TTg dated on July 06, 2018 Promulgating Vietnam Standard Industrial Classification. All the target groups should be registered under the Code 0118 "Growing vegetables, beans and flowers" as the minimum requirement for vegetable production and sales.



PHÒNG TÀI CHÍNH - KẾ HOẠCH

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

GIẤY CHỨNG NHẬN ĐĂNG KÝ HỢP TÁC XÃ
Số: 0700833744
Đăng ký lần đầu, ngày 3 tháng 12 năm 2019

1. Tên hợp tác xã
Tên hợp tác xã viết bằng tiếng Việt: **HỢP TÁC XÃ RAU AN TOÀN XÃ THANH TÂN**
Tên hợp tác xã viết bằng tiếng nước ngoài:
Tên hợp tác xã viết tắt: HTX RAT XÃ THANH TÂN
2. Địa chỉ trụ sở chính: Thôn Bạc, Xã Thanh Tân, Huyện Thanh Liêm, Tỉnh Hà Nam, Việt Nam
Điện thoại: 0376442998 Fax:
Email: Website:
3. Ngành, nghề kinh doanh

STT	Tên ngành	Mã ngành
1	Trồng rau, đậu các loại và trồng hoa *Xuất khẩu rau, củ quả các loại ./.*	0118 *(chính)*

4. Vốn điều lệ: 150.000.000 *(Một trăm năm mươi triệu đồng)*
5. Người đại diện theo pháp luật của hợp tác xã
Họ và tên : LÊ VĂN ĐỨC Giới tính: Nam
Chức danh: Chủ tịch Hội đồng quản trị kiêm Giám đốc
Sinh ngày: 10/05/1960 Dân tộc: Kinh Quốc tịch: Việt Nam
Loại giấy tờ chứng thực cá nhân: Thẻ căn cước công dân
Số giấy chứng thực cá nhân: 035060001506
Ngày cấp: 14/09/2017 Nơi cấp: Cục Cảnh sát đăng ký, quản lý cư trú và dữ liệu quốc gia về dân cư
Nơi đăng ký hộ khẩu thường trú: Thôn Bạc, Xã Thanh Tân, Huyện Thanh Liêm, Hà Nam, Việt Nam
Chỗ ở hiện tại: Thôn Bạc, Xã Thanh Tân, Huyện Thanh Liêm, Hà Nam, Việt Nam

TRƯỞNG PHÒNG

TRƯỞNG PHÒNG

All the key questions should be collected and documented. All the evidences, such as Certificate of Safe Production Condition, VietGAP and business registration should be attached properly as reference. For better reference, it is also recommended to take pictures of certificates, production Area, pre-processing house, package/label, and interviewee. (see Attachment 2.1 Assessment Sheet for Target Group Candidates)

2.3 CONFIRMATION OF TARGET GROUPS

Based on the field survey results, target group candidates are assessed according to the selection criteria. The selection criteria of target groups are developed according to the experiences of trial activities in the Project based on Record of Discussions agreed upon between MARD and JICA on 29th February, 2016 as below.

Table 2-3 Selection Criteria for Target Group

Target Priority	Evaluation Criteria	Indicator	Compul-sory	Recom-mended
1. Target area/ zone	Prefer specialized vegetable production area/ zone	• Specialized area/zone	●	
		• Land area is more than 1ha.	●	
2. Location and environment	Preferable location whether the areas are suitable for safe vegetable: Favorable natural environment (soil, water, air), Economic and social environment	• Suitability of land condition (infrastructure, low risk of flooding)	●	
		• No chemical industry nearby	●	
		• Certified as safe production area	●	
3. Knowledge and techniques	Accumulated knowledge/ techniques on safe crop production	• Years of experience of farming practice is more than 3 years[6].	●	
4. Number of farmers in the group	Certain number of farmers in the group	• No. of farmers are more than 7 members[7].	●	
5. Willingness and eagerness	Willingness and eagerness of producers	• Leadership and independency (recommended)		■

6. Years of experience does not just count the years from establishment of cooperative/company to date, but count the years of cultivation experiences of the target group members. For example, it can be included as the year of experience if the member has an experience of farming in Japan working as a technical intern training program.

7. Number of membership of agriculture cooperative must be more than 7 members under the cooperative law. For farmers group and agriculture company must have more than 7 members including both management members and workers.

6. Group type	Business sector on business license	• Business sector on business license includes "Growing vegetables, beans and flowers" (code 0118) as the minimum requirement for vegetable production and sales. (recommended)		■
7. Vegetable production and marketing	Safe vegetable production and distribution	• Basic GAP and/ or VietGap is applied. (recommended)		■
		• Experience of market channel development and joint sales (recommended)		■

Source: Record of Discussions (R/D) agreed upon between MARD and JICA on 29th February, 2016.

Remark: JICA Project team modifies the evaluation criteria and indicators for clarification according to the experiences of trial activities in the Project based on R/D.

Among 7 target priorities, 4 priorities (1. Target area/zone, 2. Location and environment, 3. Knowledge and techniques, and 4. Number of farmers in the group) are compulsory to meet the evaluation criteria, and other 3 priorities (5. Willingness and eagerness, 6. Group type, and 7. Vegetable production and marketing) are recommended to meet.

Sample evaluation sheet of target group candidates is shown in the table 2.4. As shown in the table, all candidate groups are listed, and the collected information should be filled in the cells according to the set criteria. After filling all information, details shall be assessed carefully whether they meet the requirement of each indicator. For example, it is

assessed as ineligible if a group does not have any specialized vegetable area and/o

Table 2-4 Sample Evaluation Sheet of Target Group Candidates

No.	Group name	1. Target area/zone		2. Location and environment		
		Specialized vegetable area	Land area is more than 1ha.	Suitability of land condition	No chemical industry nearby	Certified as safe production area
	●	●	●	●	●	●
HD-1	Gia Gia food joint stock Company	Yes	5.3	Good infrastructure, small production area but sufficient	No	Certified
HD-2	Green farm vegetables production group	Yes	7	Sufficient production area with good infrastructure investment	No	Certified
HD-3	Lua farmers group	Yes	27.54	Good infrastructure, small land area but sufficient	No	Certified
HD-4	V-Phuc Green agriculture Cooperative	No	10	Poor infrastructure	No	No
HD-5	Viet A Chau Cooperative	No	13	Good infrastructure, have processing facility (dry shallot)	No	No

Note: Highlighted cells indicate the ineligible indicators not meeting the criteria.

r does not have a certificate of safe production condition.

3. Knowledge and techniques	4. Number of farmers in the group	5. Willingness and eagerness	6. Group type	7. Vegetable production and marketing		Evaluation
Farming practice more than 3 years	No. of farmers is more than 7 members	Leadership and independence	Business license includes growing vegetables	BasicGAP and/or VietGAP is applied.	Experience of market channel development and joint sale	
●	●					
3	10	High leadership	Yes	BasicGAP VietGAP	Newly starting joint sale	**Target group**
3	10	High leadership and good capacity in capital mobilization	Yes	Safe production, organic	Good marketing, having own safe vegetable shop	**Target group**
10	147	High leadership	Yes	BasicGAP VietGAP	Joint sale	**Target group**
-	14	Low leadership	No	No	Joint sale (acts as collector)	-
-	28	Low leadership	No	ISO 22000	Not involved in farming, Collection for processing	-

Box: Selection of target groups, a case in Hai Duong province

In Hai Duong province, JICA project team and Hai Duong DARD discussed and agreed to expand the number of target groups. Hai Duong DARD nominated 5 candidate groups, JICA project team and Hai Duong DARD jointly conducted the field survey of those 5 groups.

As the result of field survey, it was identified that three groups had high potential of safe crop production and sales because they had certificates of safe production condition, good knowledge of GAP, and high motivation to be a safe production model. However, other two groups were not eligible for selection as target groups because they did not have high motivation to produce safe vegetables. One of the groups was registered as a cooperative but it had no vegetable production land and just contracted with individual farmers to procure the vegetable as a collector. It is very important to conduct a field survey and check the actual conditions for each item, otherwise ineligible groups may be selected unintentionally. According to the assessment based on the field survey results, three groups were recommended as the target groups by Hai Duong DARD.

Selection results shall be summarized in the form (Attachment 2.2 Selection result of target groups), attached with assessment sheet of target group candidates. DARD holds a selection meeting to confirm the selection procedures and results and approves the selection. DARD also prepares a producer profile for selected target group (Attachment 2.3 Producer profile).

2.4 SUPPORT FOR BEING SELECTED AS TARGET GROUP

Among the nominated candidate groups, some of groups may not be selected as target groups due to not meeting the selection criteria. For being selected as a target group, it is required to provide supports to meet the criteria. Recommended counter measures for each criterion are shown as below.

Table 2-5 Counter measures to meet each criterion

Target Priority	Evaluation Criteria	Counter measure
1. Target area/zone	Prefer specialized vegetable production area/zone	✓ Support finding a specialized vegetable production area more than 1ha
2. Location and environment	Preferable location whether the areas are suitable for safe vegetable: Favorable natural environment (soil, water, air), Economic and social environment	✓ Support upgrading of infrastructure, such as irrigation and drainage
		✓ Support finding a suitable land for safe vegetable production, keeping distance from chemical industry, low risk of flooding
		✓ Support issuing a certificate of safe production area
3. Knowledge and techniques	Accumulated knowledge/ techniques on safe crop production	✓ Let farmers practice farming more than 3 years with technical support of cultivation skills including IPM and ICM
4. Number of farmers in the group	Certain number of farmers in the group	✓ Support formulating a safe vegetable production group which has more than 7 members.
5. Willingness and eagerness	Willingness and eagerness of producers	✓ Support changing to a new leader who has strong willingness and independence ✓ Provide leadership/ communication skill trainings (if available)
6. Group type	Business sector on business license	✓ Support acquiring business license indicating the business sector "Growing vegetables, beans and flowers" (code 0118) as the minimum requirement for vegetable production and sales.

7. Vegetable production and marketing	Safe vegetable production and distribution	✓ This criterion is not compulsory, but it is recommended to provide a Basic GAP training and support keeping field diary record.
		✓ This criterion is not compulsory, but it is recommended to confirm the eagerness of joint sales.

(1) Target area/zone: If a candidate group does not have a specialized vegetable production area/zone, DARD should support finding a suitable land more than 1ha.

(2) Location and environment: If the land location is not suitable for safe vegetable production in terms of natural environment and economic and social environment, DARD should:

- Support finding suitable land for safe vegetable production, keeping distance from chemical industry, low risk of flooding
- Support upgrading of infrastructure, such as irrigation and drainage
- Support issuing a certificate of safe production area when the location is suitable for safe vegetable production and the result of soil and water sampling test passes the conditions specified in 3.2

(3) Knowledge and techniques: If the target group farmers have limited experience of farming practice (less than 3 years), it is recommended to:

- Let farmers practice farming more than 3 years as the minimum experience
- Provide technical support for IPM and ICM as the basic cultivation skills for safe vegetable production

(4) Number of farmers in the group: If the members of farmer groups are less than 7 members, which is judged not sufficient to implement the safe vegetable production and joint sales as a group. DARD should support gathering the farmers who are willing to produce safe vegetables jointly.

(5) Willingness and eagerness: If the willingness and eagerness of the leader for safe vegetable production and sales are assessed as low, it is very difficult to sustain the safe vegetable production group. It affects the effectiveness and sustainability of the program. DARD should avoid selecting such groups. However, if the group has potential to meet the criteria other than willingness and eagerness and DARD expects the group to become a model of the province, DARD should support changing to a new leader who has strong willingness and independency and/or provide training to learn leadership or communication skills.

(6) Group type: It is highly recommended the target group has a business license. Business sectors on a business license are coded following prime minister's decision No. 27/2018/QD-TTg dated on July 06, 2018 Promulgating Vietnam Standard Industrial Classification. The target group should be registered indicating the business sector as the Code 0118 "Growing vegetables, beans and flowers" as the minimum requirement for vegetable production and sales.

(7) Vegetable production and marketing: If the experience of safe vegetable production and sales is limited, it is not compulsory but recommended to:

- Provide a training of Basic GAP for raising awareness among farmers about the importance of safe vegetable production, especially for traceability by record keeping
- Raise awareness of joint sales and confirm the eagerness to organize.

CHAPTER 3

CONFIRMATION OF SAFETY OF PRODUCTION AREA

3.1 REVIEW OF THE SAFETY OF PRODUCTION AREA

Confirmation of safety of production area is the basis of safe vegetable production. Production area might be changed due to expansion of cultivation area or certificate of safe production area might be expired. It is mandatory for DARD to review the safety of production area of each target group annually.

DARD should arrange a field visit to the target groups and check the status of:

- Certificate of safe production area: Request the group to show the original certificate and verify the validity.
- VietGap certificate: Request the group to show the original certificate and the verify the validity.
- Expansion/Change of production area: Ask the group the plan of expansion or change of production area.

Production area of a target group is confirmed as safe if one of the certificates of safe production area or VietGap is valid and there is no change/expansion of production area. However, it is required to conduct soil and water sampling tests and issue a new certificate of safe production area in the cases below:

- Both certificates of safe production area and VietGap are expired or to be expired in the season.
- The group expands/changes the production area.
- There are potential safety risks evaluated of - the production area due to changing of irrigation water sources and pollution of soil.
- An inspection report by DARD and/or any relevant institution shows a heavy metal residue from the sample products produced in the site.

DARD should also utilize the results of DCP/MARD's program for testing soil and water in safe vegetable area when DCP/MARD's program

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for testing soil and water covers the target group area. However, the results of DCP/MARD's program for testing soil and water in safe vegetable area where the samples were taken represents a very large area: a whole district or a commune. DARD can skip soil and water sampling tests when there is a clear result in the land of a target group. In the case that the report result is not clear or does not cover the land of target groups, DARD should conduct soil and irrigation water sampling tests for confirmation of safety of production area. The safe condition of production area shall be summarized as shown in the table below.

Table 3-1 Assessment of safety of production area before starting the project

(Checked on: 1/Aug/2018)

Group Name	Certification of safe production area			VietGap certificate			Expansion/ Change of production area		Remarks	Recommendation
	Copy of certification	Valid until date	Status	Copy of certification	Valid until date	Status	Original area	Current area		
Target group A	Yes	12/11/2018	To be expired	No			30ha	30ha	-	**Required for soil and water test and issue certificate**
Target group B	Yes	19/8/2019	Valid	Yes	22/3/2020	Valid	27ha	27ha	-	Meet requirement
Target group C	Yes	15/5/2019	Valid	No	-		5ha	10ha (+5ha)	-	**Required for soil and water test and issue certificate for new area**

3.2 SOIL AND WATER SAMPLING AND TESTING

Soil and water tests shall be exercised according to the following procedures.

(1) DARD appoints an inspector of soil and water samples. It is recommended the inspector shall be nominated from the authorized unit like Sub NAFIQAD.

(2) The inspector shall collect samples and send them to a qualified laboratory for testing of heavy metals (As, Cu, Pb, Cd, Zn) in soil and heavy metals (Hg, As, Cd, Pb,) and E. coli in irrigation water.

Table 3-2 Maximum acceptable level (MRL) of selected heavy metals in soil

No.	Substances	Unit	Maximum acceptable level	Testing method
1	Arsenic (As)	mg/l	15	TCVN 6649:2000 (ISO11466:1995) TCVN 6496:1999 (ISO11047:1995)
2	Cadmium (Cd)	mg/l	1.5	
3	Lead (Pb)	mg/l	70	
4	Bronze (Cu)	mg/l	100	
5	Zinc (Zn)	mg/l	200	
6	Chromium (Cr)	mg/l	150	

Table 3-3 Maximum acceptable level (MRL) of selected heavy metals and microbiological substances in irrigation water

No.	Testing indicator(1)	Unit	Maximum acceptable level	Remark
1	Mercury (Hg)	mg/l	0.001	
2	Cadmium (Cd)	mg/l	0.01	
3	Arsenic (As)	mg/l	0.05	
4	Lead (Pb)	mg/l	0.05	
5	Fecal. Coliform	No. of bacteria /100ml	200	Apply for fresh form vegetables

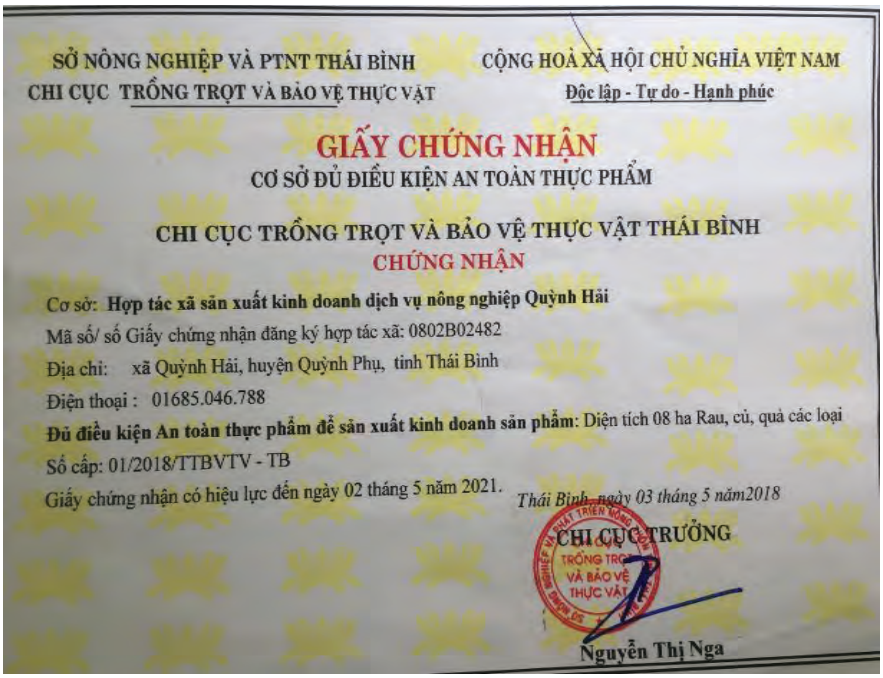
Note (1): Base on QCVN 39:2011/BTNMT National technical regulation for irrigation water.

(3) The inspector shall prepare sampling equipment correctly and follow the procedure according to the guidance from MARD to ensure sampling errors are minimized.

The detailed soil and irrigation water sampling and testing plan are described in Attachment 3.1.

3.3 ISSUE OF CERTIFICATE OF SAFE PRODUCTION AREA

After confirmation of safety conditions by soil and water sampling tests, DARD is required to issue the certificate of safe production area for the target group. This certificate is essential even for marketing activities since buyers request producers to submit it as evidence of proper safety conditions. DARD should update the producer profile by attaching the copy of certificate.



SỞ NÔNG NGHIỆP VÀ PTNT THÁI BÌNH
CHI CỤC TRỒNG TRỌT VÀ BẢO VỆ THỰC VẬT

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

GIẤY CHỨNG NHẬN
CƠ SỞ ĐỦ ĐIỀU KIỆN AN TOÀN THỰC PHẨM

CHI CỤC TRỒNG TRỌT VÀ BẢO VỆ THỰC VẬT THÁI BÌNH
CHỨNG NHẬN

Cơ sở: **Hợp tác xã sản xuất kinh doanh dịch vụ nông nghiệp Quỳnh Hải**
Mã số/ số Giấy chứng nhận đăng ký hợp tác xã: 0802B02482
Địa chỉ: xã Quỳnh Hải, huyện Quỳnh Phụ, tỉnh Thái Bình
Điện thoại : 01685.046.788
Đủ điều kiện An toàn thực phẩm để sản xuất kinh doanh sản phẩm: Diện tích 08 ha Rau, củ, quả các loại
Số cấp: 01/2018/TTBVTV - TB
Giấy chứng nhận có hiệu lực đến ngày 02 tháng 5 năm 2021.

Thái Bình, ngày 03 tháng 5 năm2018
CHI CỤC TRƯỞNG

Nguyễn Thị Nga

Sample certificate of safe production area

CHAPTER 4

TRAININGS FOR BASIC GAP

4.1 TRAINING CONCEPT

Training of Trainers (TOT) and Training of Farmers (TOF) for Basic GAP will be conducted for officials of DARD and target groups to understand and smoothly carry out production activities according to Basic GAP.

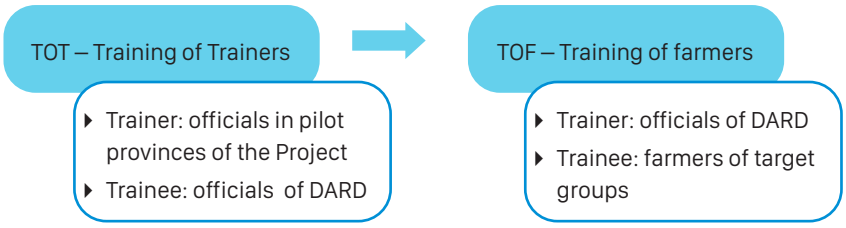


Figure 4-1 Training concept of TOT and TOF

It is recommended that the trainers for TOT are the officials in pilot provinces (Hai Duong province, Ha Nam province and Hung Yen province) of the Project. As it is common to request a training and a study tour between DARDs among provinces/cities, it will be possible to dispatch a trainer if an official request letter is issued to the pilot province.

4.2 TOT FOR BASIC GAP

TOT training for basic GAP, other GAP and TCVN 11892- 1:2017 shall be organized and conducted by DARD. The expected participants are technical staff of DARD (e.g. Provincial and District extension officers) and group leader and technical inspectors of target groups. Training outline is below and sample training materials are shown in Attachment 4.1 TOT training course for basic GAP.

(1) Objective

To provide necessary knowledge, skills, tools and expertise of Basic GAP in order for participants to be capable of planning and delivering TOF training.

(2) Target participants

The expected participants are the technical staff of DARD (e.g.

Provincial and District extension officers) and the group leader and technical inspectors (internal auditors) of the target groups.

Expected number of participants is 15- 20 persons/class.

(3) Training schedules

Training shall be conducted at the beginning of the winter season (August-September). One training course is 2 days and includes a lecture of Basic GAP knowledge as well as a field visit.

(4) Trainers

DARD mobilizes trainers. The main trainer should be an official in pilot provinces (Hai Duong province, Ha Nam province and Hung Yen province) of the Project who has received TOT training for Basic GAP in the Project. Trainers can be arranged per topic.

Table 4-1 Proposed Agenda of TOT for Basic GAP

Day 1

Time	Content	Conducted by
08.00 - 08.15	Registration of trainees	Organizer
08.15 - 08.30	Opening: Introduction of TOT training objective and agenda	Organizer
08.30 - 10.00	Introduction of Basic GAP and safe vegetable production	Trainer
10.00 - 10.15	Tea break	
10.15 - 10.45	Introduction of Basic GAP and safe vegetable production (continued)	Trainer
10.45 - 11.45	Experiences shared by JICA project on implementing pilot project model of safe vegetables production applying GAP	Trainer
11.45 - 12.00	Discussion	Organizer
12.00 - 13.30	Lunch	

13.30 - 14.30	Field visit to a model site[8]	Site arrangement by Organizer
14.30 - 15.30	Discussion of vegetable production applying GAP and joint sales; Experience sharing on monitoring pesticides and fertilizers application, and recording of field diary	Organizer
15.30 - 16.30	Site visit to production field and pre-processing house	Organizer
16.30 - 17.30	Travel back from the site	

Day 2

Time	Content	Conducted by
8.00 - 9.00	Guidance on Chemical, Pesticides application	Trainer
9.00 - 9.30	Discussion	Organizer
9.30 - 10.00	Harvesting, packing, handling and storing fresh vegetables at farm level	Trainer
10.00 - 10.15	Tea break	
10.15 - 10.45	Experiences sharing of model project on safe vegetables production applying GAP and joint sales	Trainer
11.00 - 11.45	Introduction of cultivation methods and new production input materials contributing to safe vegetable production	Trainer

8. It is recommended to arrange a field visit to a model site, where is applying GAP and joint sales and can share the experience among participants. If there is no suitable site in the province, the organizer can skip the visit. It is advised to organize a study tour to advanced area in the other province instead, with an official request letter (see chapter 4.7).

11.45 - 13.30	Lunch	
13.30 - 15.00	Guidancee and practice using Quick test to analyze pesticide residue of vegetable products	Trainer
15.00 - 15.30	Introduction of TOF training	Organizer
15.30 – 16.00	Discussion and evaluation of overall training	Organizer

4.3 TOF FOR BASIC GAP

TOF training on basic GAP, other GAP and TCVN 11892- 1:2017 shall be organized and conducted by a DARD officer based on the material and knowledge from TOT training. Training outline is below and sample training materials are shown in Attachment 4.2 TOF Training course for basic GAP.

(1) Objective

To enable participants to be aware of the necessity of corrective action for safety and reliability of vegetable production according to basic GAP.

To enable participants to understand and implement the procedures of production, harvest and post-harvest (collecting, washing, cutting, sorting, packing, storing and delivering) according to the requirements of basic GAP.

(2) Target participants

Expected participants are the members of target groups; consisting of each group leader, technical inspector(s) and farmers participating in production, harvest and post harvesting of vegetables.

Expected number of participants are 20 – 25 persons/class.

(3) Training schedules

Training shall be conducted after implementation of TOT for Basic GAP. One training course is a half-day.

(4) Trainers

DARD technical staff who participated in TOT for Basic GAP

TOF training modules shall be designed by DARD. The contents include: maintenance of checklist indicated in Basic GAP manual, internal audit procedures, quality assurance, nomination of quality control staff, etc. This course includes discussion among participants for better understanding of Basic GAP concepts and procedures. DARD shall apply Basic GAP as the technical procedure with utilization of the "Basic GAP manual".

Table 4-2 Proposed Agenda of TOF for Basic GAP

Time	Content	Key topics
7.30 - 8.00	Registration and Opening remarks of TOF training	
8.00 - 8.15	Necessity of vegetable production under GAP	1. Concern among consumers/ serious concern for society on current situation of food safety and hygiene in vegetable production: - Existing issues during vegetable production and harvest process which causes food unsafety. - Negative impacts of residues of chemical, heavy metal and microorganisms in vegetable production affecting people's health. 2. The necessity to apply GAP in order to: - Prevent, eliminate risks to food safety in product cultivation, harvesting and delivery; - Create products ensuring food safety, satisfying consumer's requirements; - Build reputation on quality, food safety, improve economic benefit for producers.

8.15 - 8.30	Requirement of safe production area; soil and water used for production	- Recognize, analyze, determine the hazards (chemical, biological, physical) causing food unsafety from soil, irrigation water in safe vegetable production. - Evaluate production area and water source - Check and analyze the water source and soil ensuring the determination of safe production area. - Treatment measures to eliminate hazards affecting safe production area.
8.30 - 9.00	Good practices in fertilizer application	- Guide standard practice procedure on fertilizers and supplemental fertilizers including: + Recognize, analyze hazards to food safety from fertilizers (in-organic, organic) + Select and use fertilizers in a safe and effective manner + Measures of using fertilizers in safe vegetable production
9.00 - 9.15	Tea break	

9.15 - 10.00	Good practices in use of pesticides and chemicals for safe vegetable production	- Guide the implementation of standard practice procedure on pesticides and chemicals. In which, the following points are emphasized: + Analyze, recognize hazards causing food un-safety in products from the use of pesticides and chemical. + Producer's existing issues of pesticide utilization, hazards causing food un-safety. + Address to buy chemicals; + Select chemical types for use; + Safe and effective use of pesticides (dosage, treatment time; spraying technique; labor protective clothes, etc.) + Pre-harvest interval for harvesting products; + Warehouse to keep and preserve unused pesticides and chemicals; + Treat the packs of pesticides and chemical after use; - Evaluate the contamination hazards from the use of pesticides, chemicals and treatment measures
10.00 - 10.30	Good practices in harvesting and post harvesting of safe vegetables	- Analyze, determine the hazards to food safety and quality losses during harvesting. - Guide the implementation of standard procedure during the harvesting of fresh vegetables including pre-harvest interval; harvesting time; storage devices/ containers; labor hygiene; packaging in the field; water source, collection, and delivery.

10.30 - 11.00	Guide the recording of field diary	- Training on recording for producers - Training on inspection and monitoring of recording for manager/ unit chief.
11.00 - 11.15	Discussion - Summary	

4.4 POST-HARVEST TRAINING

Post-harvest practice is defined as a series of operations after harvest including collecting, washing, cutting, sorting, packing, storing and delivering to a buyer. Post-harvest training shall be organized and conducted by a DARD officer based on the material extracted from TOT training. Training outline is below and sample training materials are shown in Attachment 4.3 Training program on good practices on post-harvest handling.

(1) Objective

To enable participants to understand and implement post-harvest handling properly to ensure food safety.

(2) Target participants

Expected participants are the group leader, logistics manager who operates pre-processing house and workers involved in post-harvest handling.

Expected number of participants are 20 - 25 persons/class.

(3) Training schedules

Training shall be conducted before start of harvest. One training course is a half- day.

(4) Trainers

DARD technical staff who participated in TOT for Basic GAP

The training contents focus on crucial steps in post-harvest handling such as water used for washing vegetables and hygiene conditions in

the pre-processing house. The sample training agenda is shown below, but the training contents shall be modified by DARD technical staff according to the requirements of target groups.

Table 4-3 Proposed Agenda of Post-Harvest Training

Time	Content	Key topics
8.00 - 8.15	Participant registration	
8.15 - 8.30	Opening remarks	
8.30 - 9.00	Good practices on Harvesting at Farm Level	- Good practices on Harvesting, Packing, Handling Fresh Vegetables at Farm Level
9.00 - 9.45	Required infrastructures, equipment, facility of packing house	- Required infrastructures, handling equipment, facility of packing house for safe fresh vegetable pre- process and packaging according to the National technical regulation QCVN 01-09:2009/BNNPTNT - Set-up of a fresh vegetable handling house (Location, design, set-up of handling house; and installation of handling equipment; Water drainage system, waste disposal; Lighting system; Facilities and worker's hygiene area)
9.45 - 10.00	Tea break	

10.00 - 10.45	Requirement from buyers for vegetable handling practice	- Requirement from buyers for application of good handling practice in safe vegetable production. + Requirements for post-harvest handling by different buyers based on the contract + Explanation about buyers' requirements in terms of volume, appearance, freshness, insect damage, color, size, form of delivery; wash, cut, pack, volume per pack, traceability; logo, label, record based on the buyer's specification + Presenting Good cases and bad cases
10.45 - 11.30	Good practices on packing and transportation	- Guidance on good practices in vegetable packing house and transportation + Sorting, cutting, washing and drying; Packing and labeling; Storage before shipping; Transportation
11.30 - 12.00	Guidance on recording, documentation, and traceability	- Guidance on recording, documentation, and traceability + Explanation, good practices and lessons of using the recording formats
12.00 - 13.30	Lunch	
13.30 - 15.00	Site visit to a model site	- Site visit and check the condition and practices in pre-processing house

15.00 - 16.00	Group discussion	- Assessment of equipment and material shortcomings - Assessment of upgrading facilities and conditions to ensure food hygiene and safety in harvest and pre-processing handling
16.00 - 16.15	Evaluation and closing	

4.5 TECHNICAL ASSESSMENT FOR SAFETY CONDITIONS IN PRODUCTION, HARVEST AND POST-HARVEST PROCEDURES

At the beginning of the harvest and post-harvest practices, the whole process should be checked by the target group and DARD with the following objectives.

(1) Objective

To ensure the whole procedure from production until post harvesting to satisfy the safety conditions.

(2) Target participants

Expected participants are the technical staff of DARD (e.g. Provincial and District extension officers) and the group leader and technical inspectors (internal auditor) of the target groups.

(3) Schedules

This activity shall be carried out in conjunction with the initial check on “monitoring of collection and delivery” (Refer to Supply chain development manual). Assessment shall be conducted at the beginning of harvest (October-November). This assessment will be organized one time for each target group each year. One assessment is 1 day.

(4) Trainers

DARD technical staff who participated in TOT for Basic GAP

(5) Check points

The monitoring activity will be conducted in the following points. At each check point, participants shall check the control points by using the standard check list (Attachment 4.4).

i) Harvest (with pre-processing at site)

ii) Transportation

iii) Collection

iv) Preprocessing and packing

v) Storing

vi) Loading

vii) Unloading (in buyers' premises)

vii) Storing (in buyers' premises)

4.6 TOT FOLLOW-UP TRAINING

In order to share the results and issues among officials of DARD and target groups, TOT Follow-up training shall be organized and conducted by DARD as below. Sample training contents and materials are shown in Attachment 4.5 TOT follow-up training.

(1) Objective

To share the results and issues of the activities including safe vegetable production, record keeping, chemical application, and post harvest handling.

(2) Target participants

Expected participants are the technical staff of DARD (e.g. Provincial and District extension officers) and the group leader and technical inspectors (internal auditors) of the target groups.

Expected number of participants is 20 persons/class in each province.

(3) Training schedules

Training shall be conducted after the end of the winter season (April-June). This training will be organized in each province each year. One training course is 1 day.

(4) Trainers

DARD technical staff who participated in TOT for Basic GAP

4.7 STUDY TOUR OF ADVANCED MODEL

This study tour of an advanced model is optional according to the program design and budget, but it is recommended as an effective approach especially when DARD introduces a new method or a new technology to the target group.

(1) Objective

To provide necessary understanding of good and advanced model related to the production activities (e.g. GAP, post harvesting, cultivation method) and marketing activities

(2) Target participants

The expected participants are the technical staff of DARD (e.g. Provincial and District extension officers) and the group leaders of the target groups.

(3) Schedules

Study tour shall be conducted before start winter season (July-October). It is recommended to organize early timing after start of support for target groups.

(4) Trainers

DARD mobilizes resource persons in the advanced model area. If there is no suitable site in the province, it is advised to organize a tour in another province instead with an official request letter.

Box: Study tour in Da Lat

In order to transfer knowledge and experience of advanced farmers in Vietnam, JICA project teams organized a technical study tour from 3 to 6 of July 2017 to visit Da Lat, Lam Dong province with 13 farmers and 7 DARD officers from pilot provinces: Hai Duong, Ha Nam and Hung Yen. The participants visited advanced farms in Lam Dong province such as Phong Thuy farm and Thien Sinh farm, and learned their technical practices of safe vegetable production according to GAP, good post-harvest handling and packing, and good cultivation technologies such as soil management by using compost and seedling method, etc. Generally farmers hesitate to adopt new technologies, but the participating farmers actively adopted the learned new technologies in their farming.

Demonstration of soil management by using composting method at Thien Sinh farm

Good practice of pre-processing and packing at Phong Thuy farm

4.8 EXPOSURE VISIT TO TARGET GROUPS

Exposure visit is an opportunity for a target group to visit other groups to share the experiences and knowledge with each other. It is also recommended DARD arranges a field trip for target groups to visit the groups supported by JICA project so that the group can learn effectively about safe vegetable production procedure according to Basic GAP and establishment of joint sales management system.

(1) Objective

To share the lessons learnt through the production and marketing activities among target groups and DARD officers.

(2) Target participants

The expected participants are the technical staff of DARD (e.g. Provincial and District extension officers) and the group leaders of the target groups.

(3) Training schedules

Trainings shall be conducted during the winter season. One training course is 1 day.

(4) Trainers

Representatives from farmers' group and DARD staff

CHAPTER 5

FORMULATION OF SAFE CROP PRODUCTION GROUP

5.1 NOMINATION OF MANAGEMENT BOARD MEMBERS

DARD assists in establishment of the implementation structure in each target group. The basic structure is shown in the table below.

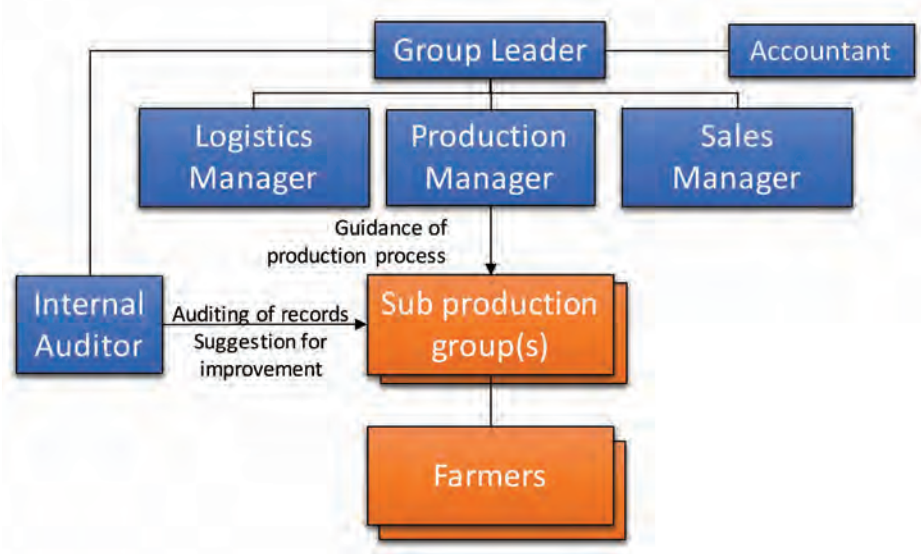


Figure 5-1 Management Structure of Target Group

The positions for a management body are as follows;

1) Group Leader/ Head of Cooperative
2) Production Manager
3) Internal Auditor
4) Sales Manager
5) Logistics Manager
6) Accountant

In some cases, the target group can assign a person for two positions according to the size of the group and capacity of the person. (e.g. one person in charge for both sales manager as well as logistics manager). Roles and responsibilities of each management member are described as below.

1) Group leader/ Head of Cooperative

- To be responsible generally for production and trading of products and internal auditing
- To organize, operate, maintain and develop the quality management system following Basic GAP
- To assign staff to record information based on the logbook forms which are applied for cooperative management
- To represent the cooperative to sign contracts with buyers and basic agreement with the cooperative members
- To represent the cooperative receiving support with materials, finances, technologies from outside organizations and individuals
- To lead and supervise production manager, internal auditor to implement tasks assigned
- To issue the decision of penalty to any member who violates and/or does not comply with quality control in accordance with Basic GAP.
- To resolve complaints, denouncements that may occur during production, collection and delivery of products.

2) Production Manager(s)

The production manager shall be nominated as one person per subdivided production group. The production group subdivision (subgroup) is the minimum management unit for production planning, monitoring of record keeping, chemical application and provision of cultivation techniques. In order to monitor and instruct the farmers properly, the sub group shall be formed every as 20 farmers respectively, especially when there is no experience of record keeping. The subgroup can be expanded according to the experience of record keeping, the capacity of the production manager, and varieties of crops. (e.g. if a sub group cultivates single crop or few varieties of crops, production manager can supervise more than 20 farmers.)

- To be supervised and directed directly by Group leader
- To organize and provide technical assistances to farmers
- To organize group meeting with members when required
- To directly supervise, remind members to comply with Basic GAP requirements
- To recommend technical improvements in cultivation and quality system suitable with Basic GAP requirements
- To monitor and instruct farmers/ members to correct non-conformity points as required in production activities
- To participate in internal audit.

3) Internal Auditor(s)

- To be supervised and directed by Group leader
- To develop audit plan and report to Group leader
- To supervise all activities in the group throughout purchase of agricultural inputs, cultivation, harvesting, collection and delivery in accordance with Basic GAP
- To supervise the corrective actions taken by farmers/ members
- To audit the appropriateness of Basic GAP throughout the above process with check list
- To prepare an audit report and report the result to the Group leader and production manager
- To make recommendations for improvement.

4) Sales Manager

- To be supervised and directed by Group leader
- To develop and implement a marketing plan
- To approach buyers pro-actively to promote the sales

- To draft the sales contracts and negotiate with buyers.
- To participate in stakeholder meetings, which consists of representatives from the farmers' group, buyer(s) and DARD
- To receive and solve claims on products from buyers and/or consumers
- To maintain a reliable and sustainable relation with buyers
- To manage sales of products.

5) Logistics Manager

- To be supervised and directed by Group leader
- To assist in design of production plan developed by production manager
- To design a delivery plan for joint sales through discussion with production manager and sales manager based on the orders from buyers
- To collect the products from farmers to meet the requirement of buyers in terms of quantity and quality
- To manage product in-coming and out-going at pre-processing house/ vegetable storage
- To keep the pre-processing house/ vegetable storage safe and clean to meet the requirements of good post-harvest handling and hygiene conditions
- To hire and supervise the workers at the pre-processing house/ vegetable storage.

6) Accountant

- To be supervised and directed by Group leader
- To maintain daily money transactions (cash and bank)

- To maintain the account book, bank account
- To prepare annual account report.

5.2 CONFIRMATION OF AGREEMENT AMONG GROUP MEMBERS

It is recommended that the target group formulates an internal rule among member farmers. The internal rule consists of mandatory conditions and recommendations. Sample internal rules are shown but not limited to as follows:

- GAP: All member farmers shall follow Basic GAP protocol.
- Joint sales: Member farmers shall deliver the product to the group at least 20% of their products only from area registered as safe production.
- Pesticide usage: The member farmers shall use the pesticide listed on the recommended pesticide lists developed by DARD.

5.3 FORMULATION OF SAFE CROP PRODUCTION GROUP

The target group shall setup a safe vegetable production group with assistance of DARD. One unit of the safe vegetable production group shall be around 20 households, in order to realize effective group management. If the target group holds a greater number of households, another safe vegetable production groups shall be formed.

DARD shall assist the target group to make lists of board members and member farmers. The format of the list is shown in Attachment 5.1. After the confirmation of members, the basic agreement shall be signed by them. The basic agreement aims to protect the safety of agricultural products and to pursue a production method without environmental burden. It is expected that both management board members and member farmers sign the agreement. The sample agreement is shown in Attachment 5.2. DARD shall monitor and encourage the target group to follow the rules.

CHAPTER 6

PRODUCTION PLANNING BASED ON MARKET DEMAND

6.1 PREPARATION OF PRODUCTION PLAN

The target group shall prepare the production plan with assistance from DARD. The objective of the production plan is to estimate production volume, processing and shipment time as a group. The production plan is the accumulated information of production volume per crop per season. The production plan consists of farmer's name, name of vegetable, production area, transplanting date, expected harvest date, estimated production volume, and expected harvest volume per month and accumulate harvest volume of every farmers per month. The format of the production plan is shown below and attached as Attachment 6.1.

Time	Dec-17	Jan-18	Feb-18	Mar-18	Total
Cabbage	*0*	*15,300*	*0*	*8,400*	23,700
Kolhrabi	*0*	*4,600*	*20,040*	*7,800*	32,440

No.	Farmer's name	Land code	Vegetables	Area (m2)	Transplanting date	Harvesting date	Estimated total volume (Kg)	Expected havesting volume for month			
								Dec-17	Jan-18	Feb-18	Mar-18
1			Cabbage	360	5/1/18	31/3/18	1,800				1,800
			Kolhrabi	520	26/11/17	25/1/18	1,300		1,300		
2			Kolhrabi	1,080	25/12/17	23/2/18	2,700			2,700	
			Kolhrabi	720	25/12/17	23/2/18	1,800			1,800	
3			Kolhrabi	1,680	10/1/18	11/3/18	4,200				4,200
4			Kolhrabi	1,080	3/1/18	4/3/18	2,700				2,700
5			Kolhrabi	1,368	30/12/17	28/2/18	3,420			3,420	
6			Kolhrabi	600	30/12/17	28/2/18	1,500			1,500	
7			Kolhrabi	540	20/12/17	18/2/18	1,350			1,350	
			Cabbage	1,080	22/10/17	15/1/18	5,400		5,400		
8			Cabbage	720	20/12/17	15/3/18	3,600				3,600
9			Cabbage	360	22/10/17	15/1/18	1,800		1,800		
			Kolhrabi	720	13/11/17	12/1/18	1,800		1,800		
			Kolhrabi	600	13/11/17	12/1/18	1,500		1,500		
10			Kolhrabi	480	25/12/17	13/2/18	1,200			1,200	
			Cabbage	600	30/12/17	25/3/18	3,000				3,000
11			Kolhrabi	720	15/12/17	13/2/18	1,800			1,800	
12			Kolhrabi	528	10/12/17	8/2/18	1,320			1,320	
			Cabbage	540	22/10/17	15/1/18	2,700		2,700		
			Kolhrabi	900	25/12/17	23/2/18	2,250			2,250	
13			Kolhrabi	1,080	8/12/17	6/2/18	2,700			2,700	
14			Kolhrabi	360	20/1/18	21/3/18	900				900
15			Cabbage	1,080	18/10/17	8/1/18	5,400		5,400		

ngày tháng năm 2018

Người lập bảng

Ban lãnh đạo HTX

Figure 6-1 Format of production plan

The production plan is the basis of scheduling of safe vegetable production and joint sales. The target group can utilize the production plan as a valuable communication tool with buyers about the expected sales volume and timing per vegetable based on the production plan. The production plan shall be newly prepared per season. In the Project, the production plan was prepared twice a year. To prepare the production plan, there are two different strategies based on the current situation of target groups:

(1) when a target group does not have any buyer yet

(2) when a target group already has buyer/buyers

The detailed instructions for each strategy are written below.

(1) When a target group does not have any buyer yet

It is generally difficult for target groups to set a particular vegetable name and volume with a particular buyer if there is no experience of joint sales. From the view of the buyer, it is also difficult to make an agreement with such a target group because there is no reliable information about experience. The procedures to develop a production plan when the target group does not have any buyers yet are below:

1) Target group develops production plan based on experience

When a target group does not have any buyer before sowing, the group should prepare the production plan simply based on past experience. The production manager asks member farmers the vegetable name, production area and sowing timing.

2) Target group calculates total volume for each product

Farmers will choose the vegetable considering the price and marketability of its previous season. The group will accumulate the farmers information and estimate the total production volume per vegetable per month. DARD shall assist the group in preparing the production plan by using the correct format.

If the target group wants to change the cropping pattern to satisfy market demand or to find new buyers, DARD will facilitate the group in selecting vegetables in reference to the cropping pattern of main vegetables as shown below.

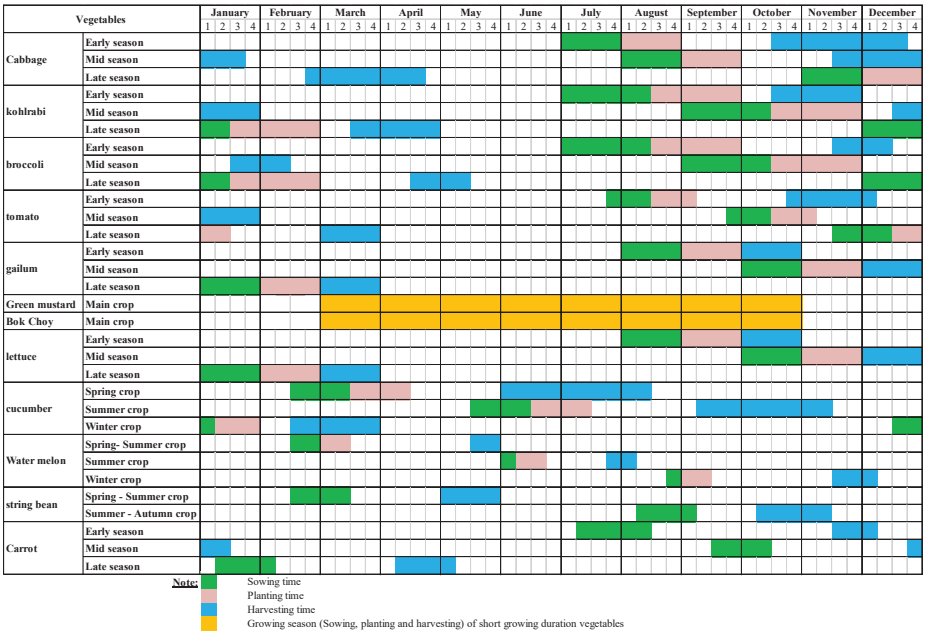


Figure 6-2 Cropping pattern of main vegetables in Northern Vietnam

One key point for this methodology is to ensure a longer harvesting period as most buyers prefer continuous supply for longer periods. There is also a risk of causing price decline if the production is concentrated in a particularly short period. It is recommended to discuss with member farmers adjusting sowing timing into longer periods.

(2) When target group already has buyer/buyers

1) Target group collects information about requirements of buyers

The target group shall collect information from buyers about the requirement about each vegetable, expected volume and timing of delivery. If there is no particular request given from buyers at the time of production planning, the target groups should review the sales dates from the previous year and estimate the volume and timing per vegetable.

2) Target group calculates the total area and sowing time to ensure sufficient supply to buyers.

The target group shall prepare the production plan based on the buyer's demand including vegetable name, production volume and harvesting schedule. Based on past experiences, the group leader roughly estimates the necessary cultivation area and sowing timing to satisfy the buyer's requested volume and shipping schedule.

One key point for this methodology is to make a conservative plan to deliver required volume. Modern markets like supermarkets and convenience stores require stability of producer supply with set volume and quality. Therefore, the producer should reserve the correct amount of products. Otherwise, the producer might not supply stably due to outbreak of diseases or bad weather. It is generally recommended to make a production plan with bigger harvesting volume than buyer's demand, such as 1.5 times bigger than demand.

3) Target group divides sowing area regarding each farmer.

The target group divides the cultivation area for each vegetable in the production on a plan per farmer basis. After drafting the production plan, the group leader checks the expected harvesting volume per crop per month and adjusts the plan by changing the vegetable or adjusting the sowing schedule, etc.

Box: Production planning with target groups based on buyers' demand

Yen Phu cooperative prepared a production plan with 32 farmers of 6.95ha to produce 245 tons of vegetables in summer 2020. Yen Phu cooperative had buyers like Co-op Mart Ha Noi; Co-op Food; VinEco; Hanoi Union Cooperative; Safefood24h; and other small buyers, and plans to produce leafy vegetables, egg-plant, bitter gourd, sponge gourd, lettuce, cucumber, spinach, etc. based on demand. Then the cooperative prepared a detailed production plan per farmer per plot in consideration with the harvesting schedule. According to the cooperative, the production plan must be modified and updated flexibly. For example, Co-op Food sends the vegetable order sheet to the cooperative one month before shipping date, mainly for leafy vegetables. The cooperative checks the order sheet and modify the production schedule to meet the demand.

Especially due to COVID-19 in spring 2020, there was a shortage of leafy vegetables in stores, Yen Phu cooperative reviewed the production plan to supply a greater volume of vegetables by increasing the rotations of vegetable production.

6.2 PROCUREMENT OF MATERIALS (JOINT PURCHASE)

In regard to safety, appropriate agrochemicals and fertilizers should be selected. To ensure the use of appropriate agrochemicals and fertilizers by farmers, it is recommended for the target group to implement joint purchase of such materials and distribute them to member farmers. To control safety through joint purchase, DARD should implement the following activities:

- To verify that the candidate agrochemical and fertilizer is on the list of legal agrochemicals and fertilizers.

- To provide the registered material supplier when the target group requests the information. DARD shall be in charge.

- To recommend target groups establish the following material distribution system: provide material to farmers before sowing and receive cost after harvesting. Since this system is attractive for farmers, they will purchase materials from the cooperative, therefore, the cooperative will be able to control input to farmers.

- To instruct appropriate usage of agrochemicals by workers in cooperative shops.

CHAPTER 7

ON-FIELD INSTRUCTIONS APPLYING BASIC GAP, OTHER GAP AND TCVN 11892-1:2017

7.1 FIELD INSTRUCTIONS FOR FARMERS APPLYING BASIC GAP

The key points to disseminate Basic GAP are 1) to ensure the safety of products, 2) to clarify profitability, then 3) to ensure sustainability. In-field instruction shall be provided in consideration with the following points.

(1) Ensure the safety of products

DARD will establish a mechanism to secure the safety by applying Basic GAP. The internal auditor(s) together with production manager(s) shall instruct farmers how to practice farming with application of Basic GAP in steps of cultivation, harvest and post harvest based on the checklist (26 control points). To ensure safety, DARD will especially focus on the most essential practice of the 26 control points as below:

- To select the appropriate agrochemicals and fertilizers. DARD will make the list of appropriate agrochemicals and fertilizers based on the legal list, and distribute it to each target group.
- The list of agrochemicals shall include the following information: Name of legal agrochemical for each crop, commercial name, active ingredient, target diseases and insects, dosage, and isolation days before harvesting (Pre-harvest interval). Also, the list of fertilizers shall include the following contents: Name of legal fertilizer and manufacturing company name.
- To apply agrochemicals with correct volume, dosage, and Pre-Harvest Interval (PHI: Required days to ensure safety after final application of agrochemical until harvest). DARD will provide the information to farmers, board members and cooperative agrochemical shop workers.
- To record field diary. DARD will instruct farmers and board members about record keeping methods. The production manager(s) will assist farmers for self-check and evaluation

of their own practices and provide guidancee with the implementation of correction actions. A sample format to monitor the record keeping of each farmer is shown in the Attachment 7.1.

- To keep hygiene of tools, equipment, containers for harvesting and post harvesting activities to eliminate contamination hazards.

In addition to applying Basic GAP, some additional mechanisms are effective in improving the safety. It is recommended for DARD to assist target groups to install the following mechanisms.

- To strengthen the internal rules of the target group. The target group is recommended to make internal rules between member farmers, including punishment and bonus systems to control farmers.
- To establish the joint purchase system to avoid using illegal agrochemicals or fertilizers (Refer 6.2).
- To strengthen DARD's roles related to field instruction of Basic GAP. DARD is required to implement field instruction, regular monitoring and incident response. Thus, DARD technical inspectors shall visit each target group once a week to check the record keeping and guide the field practice in accordance with Basic GAP, and provide technical advice to internal auditor(s) and production manager(s) in case of any detection or error in practice.

(2) Clarify profitability

Clarification of benefit and profit from Basic GAP application is necessary in order to motivate farmers. DARD will evaluate tangible/ countable benefit. The candidate items to be evaluated are as follows:

- Farm economy of farmer who applies Basic GAP and who does not apply Basic GAP.

- Profit margin from joint sales of safe vegetables.

The evaluation results will be shared through trainings/ seminars to motivate farmers to apply Basic GAP.

(3) Ensure sustainability

DARD will establish the mechanism to secure sustainability of Basic GAP practice.

- To assign DARD officials continuously. DARD shall continue to monitor and supervise the activities of target groups according to Basic GAP.
- To find respective buyers conducting inspection. DARD will support target groups to find and make contracts with respective buyers who check safety condition of producers.
- To commit safety to the public. Several target groups commit safety of their products to the public, thus, buyers buy preferentially from these groups. DARD will support other target groups in committing safety.
- To educate responsible farmers. Several farmers in target groups have strong responsibilities to produce safe crops, thus, buyers buy preferentially from these groups. This would be one factor to secure sustainability of Basic GAP application. DARD will introduce this example to other target groups.

7.2 INTERNAL MEETING

Internal monitoring meeting should be regularly executed once every three months with participation of production manager, internal auditor, DARD technical inspector and farmers to share experiences and give guidance to farmers application of Basic GAP.

In the internal meeting, important points should be discussed; such as sharing common mistakes in application of fertilizer and agrochemicals (if any) and reminding/ warning farmers about conditions of recording,

usage of fertilizer and agrochemical and other safety conditions according to the agreed internal rule.

7.3 INTERNAL AUDIT

Internal audit shall be conducted by each Target Group 2 times/ year using Basic GAP checklist (26 items). The internal audit checklist with methods will be prepared by DARD (Refer Attachment 7.2 and Attachment 7.3).

DARD's technical inspector will assist the internal auditor(s) together with production manager(s) of each target group to carry out the auditing and evaluation of Basic GAP application according to the Basic GAP checklist (26 control points).

When farmers have unsuitable conditions for control points, the target group shall take further action as follows: instruct farmers to improve situation, check situation once again after several days, check record book or agrochemical residue more frequently, impose a fine, or expel violated farmer from safe vegetable production group. DARD will support farmers group to implement such actions.

CHAPTER 8

UPGRADING CONDITIONS TO ENSURE FOOD HYGIENE AND SAFETY

8.1 TECHNICAL ASSESSMENT FOR UPGRADING CONDITIONS

DARD shall conduct a technical assessment for upgrading physical conditions of production area and pre-processing area to ensure food hygiene and safety. The objective of this assessment is to check the current condition of necessary tools, equipment and facilities for harvesting and post-harvesting activities and reflect the assessment results to develop a plan for procurement of equipment and upgrading of pre-processing facilities. DARD should implement the assessment through the following procedure.

(1) Mobilize evaluators

DARD should nominate the evaluators who conduct the technical assessments. Expected evaluators are the staff of Sub-NAFIQAD and Sub Department of Crop production and Plant protection who received TOT Basic GAP or VietGAP training. The lead evaluator is recommended as the staff member who has experience in food safety and hygiene condition auditing.

(2) Prepare the assessment sheet

The evaluators should check the contents of the sheet. The assessment sheet is shown in the table below.

Table 8-1 Assessment Sheet

No.	Indicator	Criteria	Assessment result
1	Land for pre-processing area	1) Sufficient land size more than 160m^2 (pre-processing house 100m^2, loading yard and others 60m^2). 2) Good access from farm to the land 3) There is an access road for truck connecting from pre-processing area to main road. 4) No disaster risk like flooding 5) Polluted area is not located near by. 6) Enough space for waste collection outside of pre-processing house.	1) 2) 3) 4) 5)
2	Building for pre-processing house	1) Enough space for one-way arrangement according to pre-processing procedures from unloading, washing, sorting, packing to shipping (minimum pre-processing house size 100m^2) 2) Select building material is easy to clean and wash, no select material can be cracked or chipped (avoid physical hazards) 3) Walls prevent dust blow 4) Floor is easy to clean, wash and drain water 5) Lighting is installed with sufficient brightness for pre-processing.	1) 2) 3) 4) 5)

3	Loading and shipping yard	1) Enough space for parking of a truck, and loading and shipping of products 2) Good traffic line from loading yard to inside of pre-processing house 3) Plastic pallets are prepared to place vegetable baskets/ containers on.	1) 2) 3)
4	Water source for washing vegetables	1) There is a tap or well water with a treatment system. 2) Water quality meets requirement of QCVN 02-2009/BYT (National technical regulation on domestic water quality.)	1) 2)
5	Washing section	1) Clean water is supplied from water tank to washing section. 2) Easy to drain wastewater and clean washing basin. 3) There is a separate basin for washing worker's hands (do not mix with vegetable washing basin).	1) 2) 3)
6	Sorting and packing section	1) There is a table for cutting and sorting vegetables to ensure food hygiene and safety (preferably table made from materials such as stainless steel). 2) There are sufficient numbers of dedicated baskets/ containers for pre-processed vegetables (20kg/basket) 3) Enough space for sorting and packing works to avoid mixing different kinds of vegetables with each other.	1) 2) 3)

8	Storing section	1) There is a clean area for storing that is separated from the other sections 2) Plastic pallets are prepared to place dedicated baskets/ containers for pre-processed vegetables on.	1) 2)

Source: JICA Project Team

The assessment sheet was developed through the trial activities in the Project by referring to Decision No.2998/QD-BNN-TT (technical procedure of Basic GAP), Circular No.45/2014/TT-BNNPTNT (inspection of agricultural material production and trading, and inspection and certification of safety conditions for agriculture, forestry and fishery products), and National technical regulations QCVN 01-09/2009/ BNNPTNT (National technical regulation on Vegetables & Fruits processing units – The conditions for food safety and hygiene).

(3) Organize a field visit for technical assessment

The evaluators fix a day for a field visit with the target group, to conduct a technical assessment. The assessment should be organized with participation of the target group leaders. The evaluators will check the current conditions of the pre-processing area one by one in accordance with the indicators on the assessment sheet and take note of the assessment results on the sheet. In the evaluation report, photographs should be included for easy monitoring and evaluation.

(4) Reporting of technical assessment

The evaluators prepare a technical assessment report based on the assessment sheet. The report should contain current condition, assessment result, and recommendation for necessary tools and equipment and upgrade of infrastructure in pre-processing area. The sample recommendation is shown in the table below.

Table 8-2 Recommended tools and equipment, and upgrade of infrastructure in pre-processing area

No	Item	Description	Quantity recommended
A.	**Tools and equipment for harvesting vegetables in the field**		
1	Nylon canvas for lining under baskets of vegetables harvested in the field	Size (1.5m x 3m)	10 canvas
2	Plastic baskets for harvesting vegetables in the field	Size (40cm x 30cm x 30cm), Capacity 20kg/basket	50 baskets
B.	**Tools and equipment in the pre-processing area**		
1	Plastic containers, trays to keep vegetables	Size (40cm x 60cm x 40cm), Capacity 20kg	50 Pieces
2	Stainless steel table for cutting and paring	Size (2m x 1.2m x 0.7m)	2 Tables
3	Stainless steel basin for washing vegetables	Size (2m x 0.8m x 0.75m)	2 Shelves
4	Aluminum cabinet for keeping vegetable packages, tools	Size (2m x 1.5m x 0.7m)	1 cabinet
5	Stainless steel shelf for keeping baskets of washed vegetables	Size (2m x 1.5m x 0.4m)	2 shelves
6	Medicine cabinet	Size (40cm x 30cm x 17cm)	1 cabinet
7	Plastic pallet for placing products	Size (1.1m x 1.1m x 0.15m)	10 pallets
8	Waste bin in pre-processing and packing house.	Plastic waste bin	1 bin

9	Pressure pump for washing floor, devices for keeping products	1 motor 11.5 HP + pipe, head	1 pump
10	Filming machine	White filming machine	1 machine
C. Build new pre-processing, packaging house			
1	Build pre-processing house		
2	Window in pre-processing house		
3	Lighting system		
4	Full wash basin (including basin, faucet, etc)		
5	Clean water supply pipe for supplying water to vegetable washing basin and full set of basin		

Source: JICA Project Team

The actual condition of facilities and tools will be assessed through three key indicators related to safety: chemical, biological and physical contaminations. In addition to safety condition, quality and traceability conditions will be also assessed to satisfy the buyer's demand.

8.2 DRAFT A LIST OF NECESSARY EQUIPMENT AND MATERIALS

Based on the above assessment results, the target group will check the list of the recommended equipment and materials and will take quotation. The target group will prepare a proposal list of necessary equipment and materials, as well as an upgrading plan, and send it to DARD.

DARD's technical staff will assess the feasibility of equipment, materials and budget estimation, then, send assessment report to DARD's leaders. DARD's leaders will do a final assessment based on

the assessment report prepared by DARD's technical staff. When DARD's leaders approved the proposal, DARD will support one part of equipment/ materials, and the target group will take responsibility for the other parts and labor cost. The sample list of tools, facilities in safe vegetables production and handling is shown for Attachment 8.1.

8.3 UPGRADING OF FACILITIES AND EQUIPMENT

The target group takes responsibility for the purchase, repair and upgrade of facilities and equipment. DARD supervises the installation and operation in line with the upgrading plan. DARD shall evaluate the usage of the installed facilities and the improvement of conditions compared with the previous conditions in terms of food hygiene and safety (chemical, biological and physical conditions will be evaluated).

If the food hygiene and safety conditions are not satisfied yet even after upgrading, DARD shall provide further instruction, and the target group shall follow the instruction.

CHAPTER 9

JOINT SALES MANAGEMENT

9.1 ESTABLISHMENT OF JOINT SALES SYSTEM

Each target group will organize joint sales to ensure safety of crops and to satisfy the requirements of buyers. The system of joint sales is as follows: the target group collects (buys) vegetables from member farmers and delivers (sells) vegetables to the buyer, then, the buyer pays the target group and the group pays the member farmers. The delivery conditions (including date, volume, quality, etc) is coordinated between the target group and buyer, and member farmers shall follow the delivery conditions.

To establish the joint sales system, the target group shall coordinate the following conditions with assistance from DARD.

(1) Coordination between target group and buyer

1) Delivery conditions to deliver (sell) vegetables from the target group to the buyer. The following items shall be coordinated to deliver the products: date, time, location, quality standard (such as size, color, damage condition and safety) and packaging condition.

2) Receipt conditions to receive payment from buyer to target group. Following items shall be coordinated: unit price, timing, payment method (cash or bank) and tax condition.

Target group is recommended to make a contract with the buyer, and the delivery condition and receipt conditions are recommended to be written in the contract. The detailed instructions about drafting a contract is referred to in the supply chain development manual “Making a contract”.

Box: Means of transport per target Group in the Project

There are relations between means of transportation and stage of target groups (Nursing model, Expansion model, and Stabilization model: see Chapter 1.5 stepwise approach):

- In the 1st stage as a nursing model, target groups use their own motorbike and/or the buyer's arrangement for transportation. In this stage, the main buyers are generally local, therefore, transportation by their own motorbike is easy. Or, the group requests buyers to collect.
- In the 2nd stage as an expansion model, target groups use rental truck(s) and/or the buyer's arrangement.
- In the 3rd stage as a stabilization model, target groups use their own trucks. In this stage, it is feasible for the target group to own the truck as business is expanded.

Province	Target Group	Actual Joint Sales Amount (kg)	Means of transport	Specification
Ha Nam	Thanh Tan coop.	43,538	Own transport (motorbike)/ Buyer's arrangement	Motorbikes
Ha Nam	Cat Lai coop.	52,042	Buyer's arrangement	Truck and motorbikes
Phu Tho	Huong Non coop.	53,986	Buyer's arrangement	Motorbike
Phu Tho	Truong Thinh coop.	71,210	Own transport (motorbike)	Motorbike
Hai Duong	Gia Gia company	110,070	Buyer's arrangement/ Own transport (motorbike)	Truck and Motorbikes
Thai Binh	Thanh Tan coop.	118,150	Buyer's arrangement	Truck (1.5 - 5ton)
Vinh Phuc	Dai Loi coop.	130,245	Buyer's arrangement/ Own transport (motorbike)	Truck and motorbikes
Hai Duong	Lua farmers group	286,660	Buyer's arrangement	Truck (5ton)
Thai Binh	Quynh Hai coop.	311,214	Rental transport	Truck (1.5ton, 1no)

Ha Nam	Ha Vi coop.	60,400	Buyer's arrangement/ Rental transport	Truck and motorbikes
Ha Nam	Lien Hiep coop.	114,769	Buyer's arrangement/ Own transport (motor-bike)	Truck and motorbikes
Hung Yen	Chien Thang coop.	198,590	Own transport	Cool truck (1.5ton, 1no)
Vinh Phuc	Vinh Phuc coop.	350,740	Rental transport	Truck (1.5ton, 1no)
Hai Duong	Duc Chinh coop.	1,045,450	Buyer's arrangement	Truck (5ton)
Hung Yen	Japan Vietnam company	71,470	Rental transport/ Buyer's arrangement	Truck (1.5ton, 1no), Motor-bikes
Hai Duong	Green Farm company	87,515	**Own transport**	**Cool truck (1.5ton, 1no)**
Vinh Phuc	Visa coop.	198,081	**Own transport**	**Cool truck (2.5ton, 1no), and cool truck (5ton, 1no)**
Hai Duong	Thanh Ha com-pany	222,194	**Own transport**	**Cool truck (2.5ton, 1 no); Truck (5ton, 3nos)**
Hung Yen	Yen Phu coop.	411,492	**Rental transport**	**Truck (1.5ton, 1no)**
Hai Duong	Tan Minh Duc coop.	852,010	**Own transport**	**Truck (5ton, 2nos)**
Total	20 groups	**4,789,826**		

Remark: The order is sorted by joint sales amount in winter 2019-20.

Nursing Expansion Stabilization

(2) Coordination between member farmers

1) Conditions to collect (buy) vegetables from member farmers to target group. The following items shall be coordinated to collect the products: date, time, location, quality standard (such as size, color, damage condition and safety) and packaging condition.

2) Payment conditions to make payment from target group to member farmers. Following items shall be coordinated: unit price, timing and payment method (cash or bank).

Target group is recommended to make a penalty clause, in the case of farmer violation of the collection condition.

For early stages of organizing joint sales, it is recommended to start from a small number of farmers (usually, with safe vegetable production group), for specific crops in the limited season. For smooth implementation of joint sales, it is also recommended to make condition that the participants of the safe vegetable production group are mandated to follow in the joint sales.

9.2 FIELD INSTRUCTION FOR JOINT SALES

DARD will instruct the target group to manage collection and delivery of vegetables and payments and receipts. The target group is required to prepare the following four formats:

1) Daily Demand plan and Harvesting plan: To calculate estimated harvesting volume. Sample is attached in Attachment 9.1.

2) Results of Collection: To record collection amount of vegetable from farmers to target group, and payment amount from target group to farmers. Sample is attached in Attachment 9.2.

3) Results of Sales: To record delivery amount of vegetables from target group to buyer, and payment amount from buyer to target group. Sample is attached in Attachment 9.3.

4) Agreement between farmers group and member farmers: To make clear understanding between both sides, and to ensure suitable implementation of joint sales. (Refer Attachment 5.2).

DARD will check the formats if the crops are collected and delivered based on the coordination with buyer, and provide advice to producers on production, collection and delivery if necessary. Also DARD is required to monitor the number of participants and volume of sold crops.

CHAPTER 10

EXTERNAL INSPECTION AND AUDITING

10.1 GUIDANCE OF SAMPLING TESTING PLAN AND EXTERNAL AUDITING

DARD will design a sampling and testing plan of the products for pesticide residue check. The plan will be prepared at the beginning of harvest (tentatively November in every year). Respective staff who is trained in monitoring and inspection will be appointed by DARD to conduct the assessment.

10.2 PESTICIDE RESIDUE CHECK (QUICK SAMPLING TEST)

Pesticide residue check is essential to monitor safety of the products at the time of harvest and/or delivery to buyers. The Quick sampling test will be conducted by DARD inspector (representatively a staff from sub NAFIQAD) by using a quick tool kit in order to measure the pesticide residue of sample products on farm. The results of the quick tests will be shared among target groups and, DARD for auditing purposes only and will not be disclosed to the public.

When agrochemical residue is detected, the crop shall not be delivered to the buyer. The target group shall identify the producer. The group is recommended to impose punishment to the producer, such as charging fine, stopping collection of crops, elimination from safe vegetable production group. Also, the target group shall identify the reason of agrochemical residue through checking the record book or interviewing the producer, and shall share the reason for other member farmers to avoid repeating similar errors.

For target groups which are connected with high-end buyers (such as super-markets), quick sampling test kits seem profitable for the groups to buy themselves[9]. In fact, several target groups are interested in the

9. Target group can receive higher selling price from high-end buyer, thus, they can buy the test kit by using increased income as follows:
Name of test kit: GT PESTICIDES RESIDUAL TEST KIT (Phát hiện nhanh dư lượng thuốc trừ sâu nhóm Organophosphates, Carbamates & Cholinesterase inhibitors)
Cost of test kit / increased income = 8% (150,000VND / 1,800,000VND).
Cost of test kit: approximately 150,000 VND/ 1sample (847,000/box / 6 samples).
Increased Income: In the case of leafy vegetables, several supermarkets pay 3,000-9,000 VND/kg higher price

purchase of the test kit by their own budget. Thus, DARD will implement the following activities to support the group: to ensure cost and benefit, to provide information of test kit supplier, to support making the residue check plan, and to instruct how to use the test kit.

10.3 PESTICIDE RESIDUE CHECK (LABORATORY TEST)

A laboratory test will be arranged by a DARD inspector. The DARD inspector collects samples and sends them to a qualified laboratory for testing heavy metals, pesticide residue and microbiological substances respectively if necessary. The results of the laboratory test will be disclosed to the public and utilized for marketing purpose as the evidence of product safety.

When agrochemical residue is detected, the target group shall identify the producer. Since this result will be disclosed to buyers, the target group shall consider countermeasures and shall receive approval for those countermeasures from existing buyers. The countermeasures are similar as the case of quick sample test: the group is recommended to impose punishment to the producer, the target group shall identify the reason of agrochemical residue and share the reason for other member farmers to learn.

10.4 EXTERNAL AUDIT BY DARD

DARD will implement external audits of each target group to evaluate the current situation of Basic GAP application. DARD is required to evaluate each target group though checking 26 control points of Basic GAP. Implementation frequency is one time per year. However, if DARD participates in the internal audit of each target group, external audit is not necessary to be implemented. An audit report shall be prepared and submitted to DARD after the audit.

to producers than local markets. Thus, increased gross income from 1sao (360m2) will be 1,800,000 VND (600kg/1sao x 3,000 VND/kg).
For leafy vegetables, 1 sample test for 1 sao is appropriate since farmers usually harvest 1 sao on the same day.

CHAPTER 11

IMPLEMENTATION STRUCTURE

11.1 IMPLEMENTATION STRUCTURE

The implementation structure is shown as below:

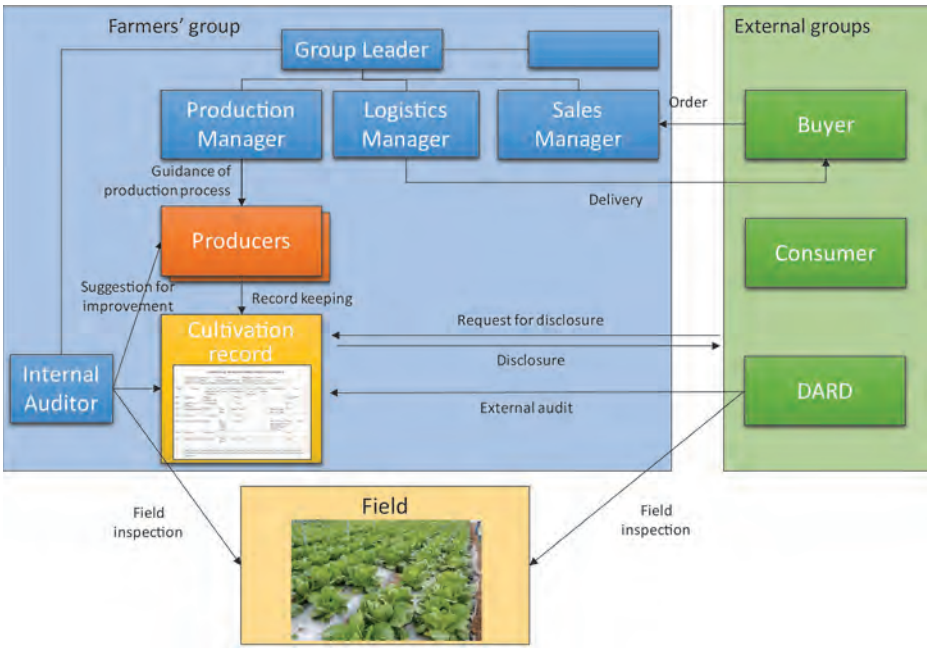


Figure 11-1 Implementation Structure

11.2 ROLES AND RESPONSIBILITIES OF FARMERS' GROUP

Farmers' group (Agriculture Cooperative/ Company) is the main body of safe vegetable production and sales. Each farmers' group shall carry out monitoring and self-auditing activities in compliance with requirements and steps prescribed in the Basic GAP. The group shall also prepare production and delivery plan based on marketing activities and provide support to DARD's technical officers and external experts for monitoring and consultation of the group activities.

Each farmers' group shall establish a management body, which will consist of the following members:

1) Group Leader/ Head of Cooperative

2) Production Manager

3) Internal Auditor

4) Sales Manager

5) Logistics Manager

6) Accountant

Roles and responsibilities of management members are described in 5.1 Nomination of management board members.

11.3 ROLES AND RESPONSIBILITIES OF STAKEHOLDERS

(1) DARD

DARD shall promote the safe vegetable production and sales at the provincial level, including providing technical officers of suitable professions for training of farmers, production, inspection and monitoring of food safety.

DARD should allocate at least one technical staff member for each target group, who will be responsible for implementing field activities such as giving instruction and monitoring activities of the target group. They can be from agriculture extension center, or plant protection station at the district level, or from DARD's Sub-Department/ Division. The role and responsibilities of DARD are below.

- To nominate the technical inspectors and marketing persons in charge.
- To organize, monitor, instruct and inspect the activities of target groups.
- To organize trainings of farmers, such as Basic GAP and marketing trainings.
- To coordinate with local programs to support improvement of infrastructures.
- To disseminate information and knowledge to other farmers groups in the province.

(2) Buyers

- Participate actively in the safe vegetable promotion plan.
- Ensure to have a separate section (effective segregation and traceability) to sell safe vegetables.
- Collaborate with relevant stakeholders to carry out the safe vegetable promotion activities.
- Provide all relevant information on safe vegetables.

CHAPTER 12

IMPLEMENTATION SCHEDULE

The sample implementation schedule is shown in Attachment 12.1. DARD shall make own implementation schedule following the sample.

CHAPTER 13

BUDGET

The sample cost norm is shown in Attachment 13.1. DARD shall secure the own budget following the sample.

ATTACHMENT

ATTACHMENT 2.1
ASSESSMENT SHEET FOR TARGET GROUP CANDIDATES

Province		Hai Duong	Hai Duong	Hai Duong	Hai Duong	Hai Duong
ID No.		HD-1	HD-2	HD-3	HD-4	HD-5
Group Name		**Lua farmers group**	**V-Phuc cooperative**	**Viet A Chau cooperative**	**Thanh Son cooperative**	**Cat Lai cooperative**
Group Type	Agricultural company/ Cooperative/ Farmers group	Agricultural Company (since 2015)	Agricultural Company	Farmers group	Cooperative	Cooperative
	(for Cooperative only) New Style/ Traditional	-	-	-	New style (but it is actually a company)	New style (but it is actually a company)
Land	Agricultural Land (ha)	5.3ha	5.1ha (3.3ha in Trac Chau, 1.8ha in Pho Van)	28.7ha	10ha	13ha (made MOU with 20HH)
	Vegetable Land (ha)	5.3ha	5.1ha	28.7ha	10ha (7ha for lotus, 3ha for asparagus under plan)	13ha
	Safe Production Area (ha)	**5.3ha**	**5.1ha** (+ 2ha planned)	**27.5ha**	**0 ha**	**0 ha**
	Location (no chemical industry nearby)	No	No	No	No	No
Membership	Total number	14 members (4 board members, 10 workers)	17 members (2 management/ 1 accountant/ 10 workers + 4 workers)	143 HH (2 board members: Leader and Dty leader, and 3 sub group leaders)	9 members + 5 workers (Board: Director, Co-director, accountant, casher, auditor, production mgt)	8 members + 20 part-time workers
	Member of safe vegetable production	**14 members**	**17 members**	**143 HH**	**No**	**No**

	Ha Nam	Ha Nam	Ha Nam	Hung Yen	Hung Yen	Hung Yen
	HN-1	HN-2	HN-3	HY-1	HY-2	HY-3
	Thanh Tan cooperative	**Chien Thang cooperative**	**Phu Cu cooperative**	**TTM company**		
	Cooperative	Cooperative	Cooperative	Cooperative	Cooperative	Agricultural company
	New style	New style (but Traditional type)	New style	New style (registered March 2018)	New style	-
	180 (116ha paddy, 60ha subsidiary crop)	235ha	35ha	5ha (including associate farmers' land)	5ha	25ha
	12ha	47.25ha	12ha	5ha	5ha	5ha
	5ha (since Oct.2017), (+ 5ha planned)	**4ha**	**1ha** (since 2017 under District Women's Union support)	5ha (including 1.3ha nethouse (est Apr'18))	5ha	25ha (5ha vege, 20 fruits)
	No	No	No	No	No	No
	1,293HH (6 board members; 3 Directors, 1 Supervisor, 1 Accountant, 1 Cashier)	1,860HH (5 board members; Director, Dty Director, Technical staff, Accountant, Supervisor)	230 members	7 members + 5 workers + 15 associate farmers (7 members from 1 Women Union, 1 Farmer Union, 5 farmers)	5 members (1 Director, 3 stock holders, 1 acting Director), 1 Tech engineer (graduate), 10 permanent workers	6 management + 35 permanent workers
	50 HH (for 5ha), (110HH for 10ha)	**30 HH** (for 4ha) VECO covers 19HH divided in 3groups	**6 ladies** (under Women's Union support)	**27 members**	**16 members**	**41 members**

"Products (Major products)"	Winter crop	Cabbage, Kohlrabi, Cauliflower, Choysom, Green mustard, Tomato	Cabbage, Kohlrabi, Squash, Leafy vegetable, Pumpkin, Cauliflower	Kohlrabi, Broccoli, Cabbage	-	Onion
	Summer crop	Taro shoot, Muskmelon (in greenhouse)	Melon, Cucumber, Squash, Pumpkin, Malabar nightshade, Jute plant	Watermelon, melon, garlic, kohlrabi	Lotus (main harvesting season: Oct, Mar, May)	Onion
Certificate/ Assurance	Safe Production Condition	Certified	Certified	No (holding VietGAP)	No (even no sampling test)	No (even no sampling test)
	VietGAP	Certified	-	Certified	-	- provided a training to farmers but careless
	Basic GAP	-	Following GAP (but not proper recording)	-	-	-
	Other (PGS etc.)	-	-	-	-	ISO22000 (applying)
Cultivation knowledge and technology	Technologies applied (compost, seedling, agri. materials)	Coir dust for muskmelon,	Soil preparation (sterilizing), Composting, Sprinkler for 3ha, New variety, Sponge tray seedling	Compost, Plastic tunnel	Nothing special	-
Current Market Channel	Name of buyer and percentage of sales (%)	1. Distributer* in district: 50-70% 2. Local collector in and around commune: 30-50% * Distributer sells to canteen	1. Consumer in Hai Duong and Hanoi 50% (3 agents in Hanoi, transport by Greenfarm) 2. Shop/retailer in Hai Duong 30% 3. Surplus to local collectors 20%	1. Phung Viet company: 50% (contract farming for Broccoli and Cabbage) 2. Local collector: 50%	1. Kim Chinh 100%	1. A Chau food company 70% 2. other 4 local companies 30%

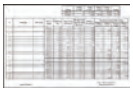
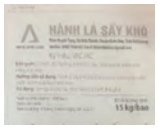
	Cabbage, Kohlrabi, Broccoli, Cauliflower, Bok choy, Choysom, Tomato	Cabbage, Kohlrabi, String bean, Tomato	Tomato, Cabbage, Bok choy, Mustard,	Tomato, Cabbage, Kolrabi, Radish, Leafy vegetable, Chrysanthemum, Cucumber	Leafy vege (Mustard), Tomato, Morning glory, Cabbage	Dill, Coriander, Choysum, Chili, Celery, Malabar nightshade
	Maize, Leafy vegetable (Malabar nightshade, Mustard), Radish, Sponge gourd, Squash	Leafy vegetable, Shallot	Bitter gourd, Sponge squash, Pumpkin	Leafy vegetable, Spongy gourd, Eggplant, Tomato	Leafy vege (Mustard), Morning glory, Chili, Squash, Sweet potato, Gourd	Jute, vegetable shrinkage, pumpkin, herbs
	Under certifying (soil and water tested)	Certified (in 2016)	Under certifying	Under certifying (soil and water tested)	Under certifying (soil and water tested)	Certified
	-	-	-	Under certifying	Certified	Certified
	-	-	-	-	-	-
	PGS (2018~)	PGS (2018~)	PGS (2018~)	-	-	-
	"Composting (4 farmers) Grafting (only attended training)"	"Composting Proper agrochemical application"	Composting (JICA method, Traditional method, Biotech are exercised)	Nethouse	Buffalo dung, nursery tray, seedling	Self pesticide residue check by Quick test kit, pesticide check by VinEco, Seedling
	1. Local canteen 30% (cement factory, kindergarten, government) 2. Local market 70%	1. Retailer in Phu Ly 2. Local collector	1. Canteen introduced by WU* 20% 2. WU staff** 15% 3. Local market 65% (individual sales) *Canteen is managed by district government. **There are 60 Women's Union staff in district and are clustered in 3-4 groups.	School canteen in Hung Yen 60% School canteen in Hanoi 40%	1. VinEco (since Mar'18) 20% 2. Big C 70% 3. Supermarket, school in Hanoi 10% * VinEco has no interest in trading with Phu Cu since they detected residue in samples.	1. VinEco 100% (Fruits: Vinmart and fruits shop in Hanoi)

Joint sales	Experience of Joint Sales/ percentage of joint sales out of total sales (%)	100%	100%	90% (for Phung Viet company and local collector) 10% sold individually only for low quality vegetables	100%	100%
Pricing	Selling Price compared with market price	Company in district buys 10% higher, but not satisfied with the pricing. Local collector buys as normal vegetable.	10-15% higher but surplus is sold at normal price	Fixed price VND3,500/ flower is applied for broccoli, 1,500flowers per sao. Production cost is 2,000/ flower.	Lower than market price, since productivity is high.	purchase VND500-1,000/ kg higher than market price
Pre-processing, Packaging, transportation	Existing Facility and infrastructure with current condition/ usage	Yes. utilizing pre-processing house of Pham Kha cooperative since Jan.2017	Yes. There are stainless tables and shelves, washing basin is outside of house (concrete type)	No. Land is available.	Office house in field (cutting and packing by Kim Chinh)	Yes (processing facility for green onion)
	Labelling/ packaging	Yes, has logo. Also promoting a vacuum packaging.	Yes.	No. Company packs for export Broccoli.	Yes	Yes
	Storing/ Cool storage	No. planning to install cool storage.	No.	No	No	Yes
	Means of transportation	No. hiring a transporter or collector comes to buy.	1 truck (7seaters)	No	No (a truck belongs to Kim Chinh)	Yes
Sales Promotion	eg. Trade fair/ Catalogue/ Internet/ Advertise	Facebook/ participate in trade fair/ in-store promotion	Facebook/ participate in matching event	No. (Phung Viet was never a big collector in neighboring village.)	Attended trade fair in Hanoi, China	Not attending any trade fair. Communication is only by face to face and e-mail.

	0% collectors come to individual farmers/ individual farmers bring to local market (There is an experience with Hiep for joint sales)	0% Group was formulated but sells individually	35% Husband of a member is the village leader, he collects from 6 ladies and distributes to canteen and WU staff houses.	100%	100%	100%
	No difference with normal vegetable	No difference with normal vegetable	50% higher Fixed price for canteen, Flexible price for WU staff based on market price	0% There was no evidence, no facility in last year.	200% (Mustard for VinEco) 0% (Sweet potato for Big C and VinEco)	VinEco pricing
	No. Land for pre-processing house is available.	No. Land was allocated, will start construction by cooperative fund in Q3 2018.	No. currently use the village leader's house	Under construction	Yes. Pre-processing house with table and equipment	Pre-processing, storage, etc.
	No	No, but receiving a training for Branding by VECO	No. packing in a simple nylong bag.	Logo was designed. Label to be supported by DARD after receiving a certifiacate	Yes	Yes
	No	No	No	Under construction	Yes (normal temperature)	Cold storage
	No	No	Motorbike	Cool truck (for ice cream distribution)	1 truck	1 truck and 1 pickup truck
	Not attending/ no advertise	Attended trade fair/ Brings products to retail shop No internet promotion	Attended trade fair supported by Women's Union No label/ No logo	Marketing via Google Ads. Tried website, but not efficient.	Face to face promotion especially with manager/ senior staff of buyers	Only VinEco. Now start promoting to export market, Taiwan.

External Support	Past and current support by donor/ NGO/ Government	DARD supported a greenhouse construction (100,000/m2 x 500m2)	No	DARD supported VietGAP certificate.	DARD will support VietGAP certificate.	No
Willingness	Leadership and intention	Mr.Kai, president came into safe vegetable business after early retirement from military. He is conscious of food safety and enthusiastic about processing and sales promotion.	President is still working as Gov. staff. But he expanded new land 3.3ha last year and challenges new technologies.	Leader is chairman of village PC. Group has a good management structure dividing 3 sub groups for production management.	Director is active.	-
Remarks		All 4 board members are family. Reasons to choose Pham Kha are; 1. not close to chemical industry, 2. fair price of land lease, 3. famous area for vegetable production. One technical staff is hired for production mgt.	Address: Trac Chau village, An Chau commune, Hai Duong city	Responsibility: Leader/Dty leader: Plan, Marketing, Contract, Order, Account Sub group leader: production mgt, monitoring record keeping, collection and payment 90 farmers participate in Contract farming out of 143. Farmers are satisfied with Phung Viet due to quick payment.	V-Phuc is actually a subsidiary of Kim Chinh company, but registering as cooperative for tax matters.	Viet A Chau is actually a processing company of dried green onion chips, and is registering as a cooperative for tax matters. Farmers cultivate using traditional methods and do not care GAP and food safety.

	VECO (15-20HH divided into 3 groups), training only Commune PC supported nethouse construction.	DARD supported a greenhouse construction (200,000/m2), but not under safe production group. DARD also supported installation of sprinkler system under new rural development program.	Women's Union supports technical training, seedling and fertilizer. VECO organize a study tour to Tu Xa, Thanh Son and Hiep farm.	No.	No.	No.
	Leaders of Thanh Son cooperative have already attended JICA trainings several times, are willing to joint the project.	Interviewee (Dty Director) is the coordinator for VECO project, but is not a vegetable farmer and does not know very much about vegetable.	Only 6 women, but active.	Two leaders have high motivation for management and faming. One leader can engage in farming full time.	Unclear information from Director. Poor management. Director is absent in farm due to side business (construction),	Does not desire any intervention program, no request for new production techniques. Only expects support for export marketing
	10ha land belongs to commune, so easy to arrange for pre-processing house or any other purpose. 1 input supply manager looks after chemical application for all products including paddy. Hiep farm jointly produced vegetables with 10 farmers in Thanh Son and sold as joint sales in 2017.	No board member is involved in safe vegetable production. VECO has just started project for 19HH, implemented 4-5 trainings so far. Major challenge is marketing. There is no buyer for safe vegetables.	District Women's Union supports to formulation of safe vegetable production group. Husband of a member receives orders from customers. Small group but has a unique supply chain. Possible to expand membership to 10-12 in 2018. Expansion of Market and production volume is the challenge.	Registration as Cooperative but actually company model like Japan-Vietnam. Two leaders worked in South Korea for 5 years, then started farming in Hung Yen after returning to Vietnam. Farm field was covered by weeds, needs improvement of field preparation.	Registration as Cooperative but actually company model like Japan-Vietnam. No technical staff dispatched (only one fresh graduate is in field). Director does not know details of farming.	Production and pre-processing are standardized manner dedicated for VinEco. Father of director is the vegetable and fruits collector of Long Bien wholesale market. He knows very well about market trends and requirements.

Evaluation by consultant team	Eligibility for target group 1. Management capacity (for joint sales) 2. Land availability for expansion 3. Willingness of leader/s 4. Overall evaluation	1. High 2. High 3. High 4. Eligible	1. High 2. High 3. High 4. Eligible	1. High 2. High 3. High 4. Eligible	Not eligible (special crop: Lotus. And, in fact, a subsidiary of a private company)	Not eligible (In fact, a processing company)
Recommendation by DARD				**High priority by Director, PPMU Cooperative model**		
Photo	Certificate				no certificate	no certificate
	Production Area					No production area (Viet A Chau just purchase from 20HH in village)
	Production Area					No production area (Viet A Chau just purchase from 20HH in village)
	Pre-processing					
	Pre-processing					
	Package/ Label			no label/ logo		
	Interviewee (Management board)					

	1. Low, need confirmation of management board 2. High 3. High 4. Not eligible (need strengthening of management structure)	1. Low, needs transferring of authority to sub-group 2. High 3. Low, need transferring of authority to sub-group 4. Not eligible (needs strengthening of management structure)	1. High 2. Relatively low, needs expansion of members and market 3. High 4. Eligible	1. High 2. High 3. High 4. Eligible	1. Low, needs to establish management 2. High 3. High 4. Not eligible (needs restructuring of management structure)	1. High 2. High 3. Low 4. Eligible, but less expectation from project
	High priority by Director PPMU Consolidated land	**High priority by Director PPMU Specialized vegetable land**		**High priority by Coordinator, PPMU**		**High priority by Coordinator, PPMU**
	no certificate	no certificate	no certificate	no certificate	no certificate	
						
						
	no facility	no facility	no facility			
	no facility	no facility	no facility			
	no label/ logo	no label/ logo	no label/ logo	no label/ logo		
						

ATTACHMENT 2.2

SELECTION OF TARGET GROUPS IN SEMI-PILOT PROVINCES AND ADDITIONAL SELECTION IN PILOT PROVINCES

September, 2018

JICA Project Team

1. CONFIRMATION OF SELECTION CRITERIA FOR TARGET GROUPS

7 Criteria are applied according to Record of Discussion and specific indicators for each criterion are set by Project team as below.

No	Item	Evaluation Criteria		Indicator
1	Target area/zone	Vegetable production area (ha)	1-1	Specialized vegetable area/zone
			1-2	Land area is more than 1ha.
2	Location and environment	Favorable natural environment	2-1	Land is certified as safe production area
		Economical and social environment	2-2	There is no existence of chemical industry nearby
		Suitable area for safe vegetable	2-3	Suitability of land condition (Field observation)
3	Knowledge and techniques	Knowledge and techniques of Basic GAP and/or other safe crop production	3-1	BasicGAP and/or VietGAP is applied.
			3-2	Farming practice (Field observation)
4	Number of farmer group and production volume	Certain number of farmer groups members	4-1	No. of farmers for safe crop production is more than 5.
5	Willingness and eagerness	Willingness and eagerness of producers	5-1	Leadership and independency (Field observation)
6	New model	Desirable new agriculture cooperative model	6-1	New model group
7	Vegetable production	Safe vegetable production and distribution	7-1	Experience of market channel development

2. NOMINATION OF TARGET GROUP CANDIDATES

No.	Group Name	Type	Member ship	Vegetable area	Certified Safe area
Hai Duong					
HD-N1	Gia Gia food joint stock Company	Company	14	5.3	5.3
HD-N2	Green farm vegetables production group	Company	17	5.1	5.1
HD-N3	Lua farmers group	Farmer group	143	28.7	27.5
HD-N4	V-Phuc Green agriculture Cooperative	Coop.	14	10	0
HD-N5	Viet A Chau Cooperative	Coop.	28	13	0

3. EVALUATION OF TARGET GROUP CANDIDATES (HAI DUONG)

No.	Group name	1. Target area/zone		2. Location and environment			3. Knowledge and techniques		4. Number of farmer group and production volume	5. Willingness and eagerness	6. New model	7. Vegetable production and marketing	Evaluation
		Specialized vegetable area	Land area is more than 1ha.	Certified as safe production area	No chemical industry nearby	Suitablity of land condition	BasicGAP and/or VietGAP is applied.	Farming practice	No. of farmers is more than 3.	Leadership and independency	New model group	Experience of market channel development	
HD-1	Gia Gia Food Joint Stock Company	Yes	5.3	Certified	No	Good infrastructure, small production area but sufficient	BasicGAP VietGAP	Fair good,	10	High leadership	Agri. Company	Newly starting joint sale	Target group
HD-2	Green Farm safe vegetable, fruit and root vegetables production group	Yes	7	Certified	No	Sufficient production area with good infrastructure investment	Safe production, organic	Fair good,	2	High leadership and good capacity in capital mobilization	Agri. company	Good marketing, having own safe vegetable shop	Target group
HD-3	Safe vegetable production group in Lua Village, Doan Thuong commune	Yes	27.54	Certified	No	Good infrastructure, small land area but sufficient	BasicGAP VietGAP	Good	147	Low leadership	Farmer group	Joint sale	Target group
HD-4	V-Phuc Green agriculture Cooperative	No	10	No	No	Poor infrastructure	Normal	Traditional	14	Low leadership	New cooperative	Joint sale (acts as collector)	
HD-5	Viet A Chau Cooperative	No	13		No	Good infrastructure, have processing facility (dry shallot)	ISO 22000	Traditional	28	Low leadership	New cooperative	Not involved in farming, Collection for processing	

4. CONFIRMATION OF TARGET GROUPS (PILOT PROVINCES)

Based upon the criteria agreed on in the Record of Discussions of the project, 6 target groups in 3 pilot provinces have been additionally selected.

No.	Group Name	Type	Member ship	Vegetable area	Certified Safe area
Hai Duong					
HD-N1	Gia Gia food joint stock Company	Comp	10	5.3	5.3
HD-N2	Green farm vegetables production group	Comp	17	5.1	5.1
HD-N3	Lua farmers group	FG	143	33	27.5

PRODUCER'S PROFILE

Province: Hai Duong — ID Number: HD-N1

Name of Unit

Gia Gia food joint stock Company

Established year	2015
Number of members	10
Form of management	Company
Total vegetable land/ Safe vegetable area	5.3 ha/5.3 ha
Estimated annual safe vegetable output	10 tons
Protocol applied	VietGAP

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Mesh melon	5 tons						X	X	X				
Taro shoot	5 tons	X	X	X	X	X	X	X	X	X	X	X	X

Perspective of Unit

- The president is conscious of food safety and enthusiastic on processing and sales promotion.
- Desire to have more customers

Province: Hai Duong	ID Number: HD-N2
Name of Unit	 
Green farm vegetables production group	
Established year	2014
Number of members	17
Form of management	Company
Total vegetable land/ Safe vegetable area	75.1ha/ 5.1 ha
Estimated annual safe vegetable output	80 tons
Protocol applied	Certificate of safe production condition

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Cauliflower	20 tons	X	X	X	X	x					X	X	X
Leafy vegetables	15 tons	X	x	x	x	x	X	X	X	X	x	x	x
Cabbage	30 tons	X	X	X	X	X					X	X	X
Melons	15tons						X	X	X	X			

Perspective of Unit

- Cooperate with import-export businesses, supermarkets, trading groups and companies to promote production and marketing.
- Desire to have more customers are purchasing, processing, export facilities.
-Expect to have more customers in supermarket system, hotels, restaurant and canteens

Province: Hai Duong	ID Number: HD-N3
Name of Unit	 
Lua farmers group	
Established year	2012
Number of members	143
Form of management	Farmer group
Total vegetable land/ Safe vegetable area	33 ha/27.54 ha
Estimated annual safe vegetable output	370 tons
Protocol applied	VietGAP

Vegetables with strengths

Vegetable Name	Volume	Harvesting Season											
		1	2	3	4	5	6	7	8	9	10	11	12
Kohlrabi	200	X	X	X	X	x				x	X	X	X
Pear-shaped melon	20 tons						X	X	X	X			
Cabbage	100 tons	X	X	X	X	X					X	X	X
Water melon	70 tons						X	X	X	X			

Perspective of Unit

- Cooperate with import-export businesses, supermarkets, trading groups and companies to promote production and marketing.
- Desire to have more customers are purchasing, processing, export facilities.
- Target of production households is 100% members in the production group applying vegetable production in accordance with VietGAP.
- Branding development: logo, brand, bar code, collective label for vegetable products of the commune

ATTACHMENT 2.3
PRODUCER PROFILE

PROFILE

YÊN PHÚ

AGRICULTURE SERVICE COOPERATIVE

Address:	Mễ Hạ, Yên Phú, Yên Mỹ, Hưng Yên
Tel:	02213 965 066
Fax:	
Mob:	0976 828 460
Email:	huuhunghtxyp@gmail.com
Website:	

MAY 2019

Producer Profile

I. General information			
Province:	Hưng Yên	ID Number:	HY-N4
Group name:	YÊN PHÚ AGRICULTURE SERVICE COOPERATIVE	Leader Name:	Nguyễn Hữu Hưng
			
Address:		Mễ Hạ, Yên Phú, Yên Mỹ, Hưng Yên	
Tel:	02213 965 066	Fax:	
Cell:	0976 828 460	Email:	huuhunghtxyp@gmail.com
Website:			
Established year:		1997	
Number of members on Management Board/ Number of farmers:		6/150	
Form of management:		Cooperative	
II. Production			
1. Total vegetable cultivation land/ safe vegetable land/ project area (as of April 2019)		20 ha/ 20 ha/ 4.54 ha	
2. Estimated annual vegetable volume in: Total vegetable cultivation land/ safe vegetable land/ project area (as of April 2019)		1,800 tons (for 20ha)/ 1,800 tons (for 20ha)/ 412 ton (for 4.54ha)	
3. Protocol applied:		1. Safe vegetable 2. Basic GAP 3. VietGAP	

4. Vegetables produced in safe vegetable land (20 ha):			
Leafy veg	Fruit veg	Root veg	Flower veg
Choysum	Tomato	Kohlrabi	Broccoli
Flowering choysum	Sponge gourd		
Cabbage	Gourd		
Chinese cabbage	Bitter gourd		
Green mustard	Cucumber		
Spring onion	Eggplant		
Green Bok Choy	Snow bean		
Lettuce	Sweet corn		
Coriander			
Dill			
Basil			
Beetroot			
Brussel Sprout			
Morning glory			
Cilantro			

5. Supply time of vegetables in the safe vegetable land (20 ha):						
Type	Vegetable					
		4	5	6	7	8
L	Choysum	X	X	X	X	
	Flowering choysum	X	X	X	X	
	Cabbage	X	X			
	Chinese cabbage					
	Green mustard	X	X	X	X	
	Spring onion					
	Green Bok Choy	X	X	X	X	
	Lettuce					
	Coriander	X	X	X	X	X
	Dill	X	X	X	X	X
	Basil	X	X	X	X	X
	Beetroot	X	X	X	X	X
	Brussel Sprout	X	X	X	X	X
	Morning glory	X	X	X	X	X
	Cilantro	X	X	X	X	
Fr	Tomato	X	X	X	X	X
	Sponge gourd	X	X	X	X	X
	Gourd	X	X	X	X	X
	Bitter gourd	X	X	X	X	X
	Cucumber	X	X	X	X	
	Eggplant		X	X	X	
	Snow bean		X	X	X	
	Sweet corn					
R	Kohlrabi	X				
Fl	Broccoli	X				

Supply time (month)						
9	10	11	12	1	2	3
	X	X	X	X	X	X
	X	X	X	X	X	X
X	X	X	X	X	X	X
	X	X	X	X	X	
	X	X	X	X	X	X
		X	X	X	X	X
	X	X	X	X	X	X
	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X						
X	X	X	X			
X	X	X	X	X	X	X
	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X			
X	X	X	X			
X	X	X	X	X	X	X
		X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X

6. Supply Volume under project area (actual joint sales result in 4.54 ha, 2018-19)					
Vegetable	Vol. (Ton)				
		4	5	6	7
Tomato	**73.0**	11.5	11.2	1.1	
Cabbage	**58.3**	26.1	0.1		
Kolhrabi	**9.1**				
Leafy vegetables*	**26.6**	1.5	2.1	4.2	1.0
Bitter Gourd	**15.4**		1.9	4.5	3.8
Basil	**5.1**	0.0	1.2	0.9	0.7
Sponge Gourd	**14.2**		0.9	1.5	3.0
Gourd	**1.6**			0.8	
Eggplant	**4.4**				
Cucumber	**3.1**				
Chinese cabbage	**1.3**				
Spring onion	**1.0**				
Cilantro	**1.0**				
Total	**214.1**	**39.1**	**17.4**	**13.0**	**8.5**

* Leafy vegetables: Choysum, Flowering choysum, Green mustard, and Green

8	9	10	11	12	1	2	3
			5.2	16.6	7.5	3.9	16.0
			4.9	4.8	4.6	2.7	15.1
		1.8		1.1	0.6	1.0	4.6
1.7		4.1	3.8	1.6	3.4	1.9	1.3
3.5		1.0	0.7				
0.1	0.3	0.2	0.3	0.1	0.6	0.4	0.3
3.3		4.2	0.3		0.6	0.4	
		0.2	0.3				0.3
			0.5	0.8	0.8	1.1	1.2
		0.7	0.6		0.5	0.7	0.6
				1.3			
				0.4			0.6
	0.2	0.2	0.2	0.2			0.2
8.6	**0.5**	**12.4**	**16.8**	**26.9**	**18.6**	**12.1**	**40.2**

Bok Choy

7. Status of vegetable production and consumption:
The Cooperative has a focused area for vegetable production, which makes it easy for monitoring and management of production. Also, the Cooperative has applied some advanced techniques such as: (1) Applying new fermented compost to recover the soil structure and improve the fertility for the soil. (2) New method of seedling production using foam trays to have healthy seedlings which obtain good disease resistance and are quickly adaptable to outside environment after being transplanted in the field.

III. Collection and consumption of products
The Cooperative has a pre-processing house which ensures food safety and hygiene. Safe vegetables are currently sold to consumption areas such as Ha Noi Union of cooperative; Safefood24h; VinEco; Nhat Minh commercial and food limited company; Co-op Mart Ha Noi; Co-op Food; Mùa Việt food

IV. Monitoring the quality
The Cooperative organizes an internal audit for the whole production area of safe vegetables and VietGap vegetables. Especially, an internal auditor team and VietGap production households organize evaluation twice a year.

V. Perspective of the Unit/ orientation of consumption development
Increase of VietGap production area from 15.5 ha to 20 ha (since 05/ July/2018). Continue to pilot application of advanced techniques from JICA, for example, non-woven textile.

In addition, the cooperative has net house of around 5,000 m^2 and sprinkler irrigation system for safe vegetable production. It also has camera for monitoring vegetable production in some areas.

company; An Hòa food chain; Safe meals; Hương Việt Sinh Limited company; TPS Việt commercial and product company; Tan Phat limited company; Nam Bao limited company. Workers have good skills in preprocessing, packaging vegetables to satisfy buyer's requirements on quality and safety.

The Cooperative regularly checks the residue of pesticides by quick test and periodically checks the samples by lab test.

External monitoring is conducted by Sub-NAFIQAD and buyers.

Continue to expand consumption market, toward such customers as safe vegetable shops, supermarkets, canteens, schools, hospitals, etc.

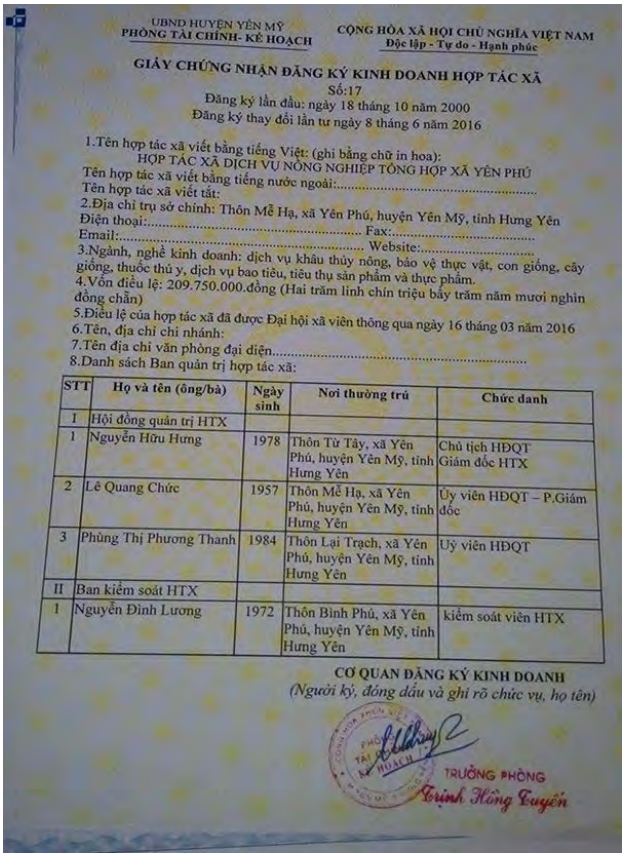
Build/open safe vegetable shops for advertising Yen Phu brand-name.

COOPERATIVE PROFILE

LIST OF ATTACHED DOCUMENTS

1. Business Registration Certificate
2. List of Management Board Members of Yen Phu Cooperative
3. List of households and farming area
4. Certificates, certification
5. Some pictures of Yen Phu Cooperative

1. BUSINESS REGISTRATION CERTIFICATE



UBND HUYỆN YÊN MỸ
PHÒNG TÀI CHÍNH- KẾ HOẠCH

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

GIẤY CHỨNG NHẬN ĐĂNG KÝ KINH DOANH HỢP TÁC XÃ

Số:17

Đăng ký lần đầu: ngày 18 tháng 10 năm 2000

Đăng ký thay đổi lần tư ngày 8 tháng 6 năm 2016

1.Tên hợp tác xã viết bằng tiếng Việt: (ghi bằng chữ in hoa):
HỢP TÁC XÃ DỊCH VỤ NÔNG NGHIỆP TỔNG HỢP XÃ YÊN PHÚ
Tên hợp tác xã viết bằng tiếng nước ngoài:.....
Tên hợp tác xã viết tắt:
2.Địa chỉ trụ sở chính: Thôn Mễ Hạ, xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên
Điện thoại:..... Fax:.....
Email:..... Website:.....
3.Ngành, nghề kinh doanh: dịch vụ khâu thúy nông, bảo vệ thực vật, con giống, cây giống, thuốc thú y, dịch vụ bao tiêu, tiêu thụ sản phẩm và thực phẩm.
4.Vốn điều lệ: 209.750.000.đồng (Hai trăm linh chín triệu bảy trăm năm mươi nghìn đồng chẵn)
5.Điều lệ của hợp tác xã đã được Đại hội xã viên thông qua ngày 16 tháng 03 năm 2016
6.Tên, địa chỉ chi nhánh:
7.Tên địa chỉ văn phòng đại diện.....
8.Danh sách Ban quản trị hợp tác xã:

STT	Họ và tên (ông/bà)	Ngày sinh	Nơi thường trú	Chức danh
I	Hội đồng quản trị HTX			
1	Nguyễn Hữu Hưng	1978	Thôn Từ Tây, xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	Chủ tịch HĐQT Giám đốc HTX
2	Lê Quang Chức	1957	Thôn Mễ Hạ, xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	Ủy viên HĐQT – P.Giám đốc
3	Phùng Thị Phương Thanh	1984	Thôn Lại Trạch, xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	Ủy viên HĐQT
II	Ban kiểm soát HTX			
1	Nguyễn Đình Lương	1972	Thôn Bình Phú, xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	kiểm soát viên HTX

CƠ QUAN ĐĂNG KÝ KINH DOANH
(Người ký, đóng dấu và ghi rõ chức vụ, họ tên)

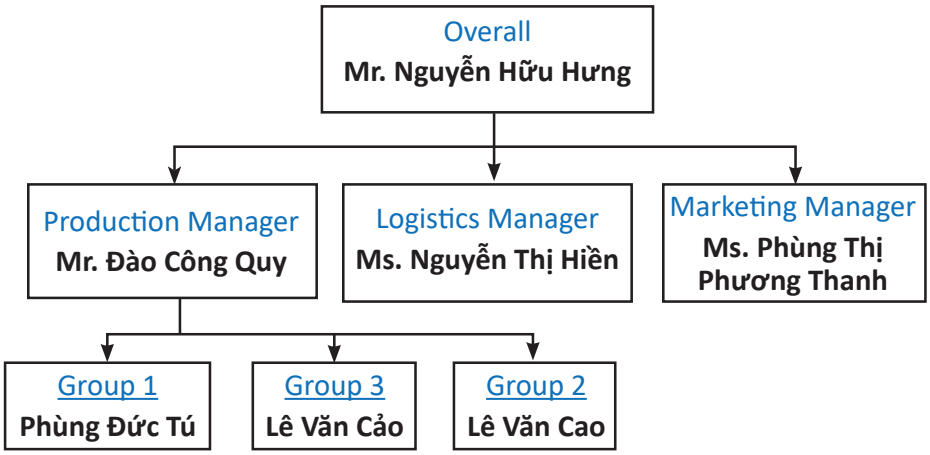
TRƯỞNG PHÒNG
Trịnh Hồng Tuyến

2. LIST OF MANAGEMENT BOARD MEMBERS OF YEN PHU COOPERATIVE

Province	Hưng Yên
District	Yên Mỹ
Commune	Mễ Hạ, Yên Phú
Name of Coop	(YEN PHU AGRICULTURE SERVICE COOPERATIVE)

Position	Name	Gender	Cell phone	Email
Director	Nguyễn Hữu Hưng	Male	0976 828 460	huuhunghtxyp@gmail.com
Production manager	Đào Công Quy	Male		
Logistics manager	Nguyễn Thị Hiền	Female		
Sales manager	Phùng Thị Phương Thanh	Female		
Accountant	Nguyễn Thị Hiền	Female		
Internal auditor	Nguyễn Hữu Hưng	Male		

PRODUCTION MODEL FOR JOINT SALE



3. LIST OF HOUSEHOLDS AND FARMING AREA

No.	Farmer's name	Gender		Land code	Areas (sào)	Area (m^2)
		Male	Female			
1	Phùng Đức Tú	x		30.1	3	1080
				30.2	3	1080
				30.3	2	720
				30.5	3	1080
				30.6	2	720
				30.7	3	1080
2	Phùng Đức Tuyển	x		30.4	3	1080
3	Lê Văn Cảo Tuyết	x		16	1,7	612
				15	2,5	900
				10	1,2	432
				2	1,2	432
				17	1,5	540

4	Lê Quang Đóa	x		45	1	360
5	Lê Thị Gấm Thắm		x	5	2	720
				5.1	2	720
6	Lê Thị Hương Quốc		x	25	2	720
				8	1,4	504
7	Lê Văn Cao	x		26	1,5	540
				26.1	1,5	540
				26.2	2,5	900
				26.3	2,5	900
8	Lê Văn Hòan Vân	x		39	1,7	612
				39	2,5	900
				39	1	360
9	Lê Văn Long Quyên	x		17.1	2,5	900
				17.2	2,5	900
				17.3	2	720
10	Lê Văn Quân Nghì	x		5	1,5	540
				52	2	720
11	Lê Văn Trãi	x		24	1	360
				14	1,7	612
13	Lê Văn Luyến Bắc	x		2	1,7	612
14	Lê Văn Nhí	x		50	1,7	612
				18	2	720
				46	3	1080
				18	1	360

15	Đào Công Quy	x		6	2,5	900
				6	1	360
16	Nguyễn Thị Hiền		x	28	2	720
17	Lê Văn Tuyến Hồng	x		40	2,5	900
18	Lê Văn Xuân	x		36	1,2	432
19	Lê Văn Luyện Thơm	x		37	1,2	432
20	Lê Văn Thắng	x		43	1,8	648
21	Nguyễn Văn Phương	x		47		0
22	Lê Thị Lan Bình		x	48	6	2160
				54	2,5	900
23	Lê Văn Dụng Thùy	x		57	1,5	540
24	Lê Văn Sành	x		56	1,5	540
25	Lê Văn Xoài	x		34	1,2	432
				11	2,5	900
26	Lê Văn Khiển Ước	x		33	4	1440
27	Lê Văn Hùng Thủy	x		7	2	720
28	Vũ Văn Hưng Nghiêm	x		9	2,5	900
29	Dương Thị Thái		x	31	2	720

30	Lê Văn Là	x		28.1	2	720
				28.2	2,5	900
				28.3	2,5	900
31	Lê Thị Vân Đặc	x		29	1,5	540
32	Nguyễn Hữu Hưng	x		Neth-ouse-1	2,5	900
				Neth-ouse-2	2,5	900
				Coop. land-02	3,5	1260
Total					**126.2**	**45.432**

4. CERTIFICATE, CERTIFICATION

4.1 Testing soil and water samples in 2016

NAFIQAD - BRANCH 1

PHIẾU KẾT QUẢ THỬ NGHIỆM HOÁ HỌC
CHEMICAL TEST REPORT

KẾT QUẢ/ RESULT

PHÓ GIÁM ĐỐC
BÙI THỊ NHÀN

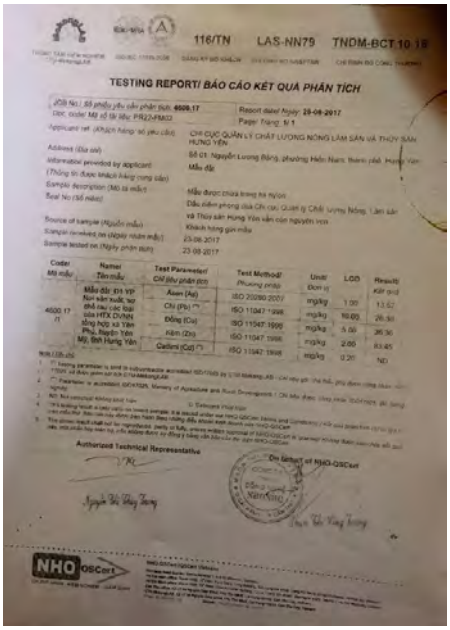
NAFIQAD - BRANCH 1

PHIẾU KẾT QUẢ THỬ NGHIỆM HOÁ HỌC
CHEMICAL TEST REPORT

KẾT QUẢ/ RESULT

PHÓ GIÁM ĐỐC
BÙI THỊ NHÀN

4.2 Testing soil and water samples in 2017



116/TN LAS-NN79 TNDM-BCT.10.16

TESTING REPORT/ BÁO CÁO KẾT QUẢ PHÂN TÍCH

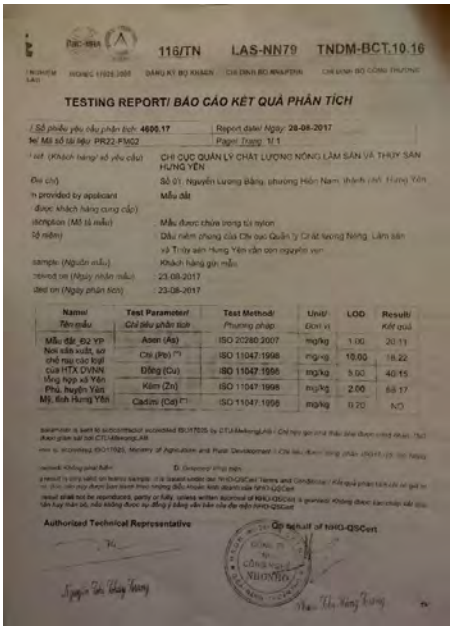
Job No./ Số phiếu yêu cầu phân tích: 4600.17 Report date/ Ngày: 29-08-2017
Doc. code/ Mã số tài liệu: PR22-FM02 Page/ Trang: 1/ 1

Applicant/ (Khách hàng/ tổ yêu cầu): CHI CỤC QUẢN LÝ CHẤT LƯỢNG NÔNG LÂM SẢN VÀ THỦY SẢN HƯNG YÊN
Address (Địa chỉ): Số 01 Nguyễn Lương Bằng, phường Hiến Nam, thành phố Hưng Yên
Information provided by applicant: Mẫu đất
(Thông tin được khách hàng cung cấp)
Sample description (Mô tả mẫu): Mẫu được chứa trong túi nylon
Seal No (Số niêm): Dấu niêm phong của Chi cục Quản lý Chất lượng Nông, Lâm sản và Thủy sản Hưng Yên vẫn còn nguyên vẹn
Source of sample (Nguồn mẫu): Khách hàng gửi mẫu
Sample received on (Ngày nhận mẫu): 23-08-2017
Sample tested on (Ngày phân tích): 23-08-2017

Code/ Mã mẫu	Name/ Tên mẫu	Test Parameter/ Chỉ tiêu phân tích	Test Method/ Phương pháp	Unit/ Đơn vị	LOD	Result/ Kết quả
4600.17 /1	Mẫu đất_01 YP Nơi sản xuất, sơ chế các loại của HTX DVNN tổng hợp xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	Asen (As)	ISO 20280:2007	mg/kg	1.00	13.62
		Chì (Pb) (*)	ISO 11047:1998	mg/kg	10.00	26.30
		Đồng (Cu)	ISO 11047:1998	mg/kg	5.00	26.30
		Kẽm (Zn)	ISO 11047:1998	mg/kg	2.00	83.45
		Cadimi (Cd) (*)	ISO 11047:1998	mg/kg	0.20	ND

Note / Ghi chú:
1. (*) Testing parameter is sent to subcontractor accredited ISO/17025 by CTU-MekongLAB / Chỉ tiêu gửi nhà thầu phụ được công nhận ISO/17025 bởi CTU-MekongLAB
2. (*) Parameter is accredited ISO/17025, Ministry of Agriculture and Rural Development / Chỉ tiêu được công nhận ISO/17025 bởi Bộ Nông nghiệp và Phát triển Nông thôn
3. ND: Not detected/ Không phát hiện D: Detected/ Phát hiện
4. The testing result is only valid on tested sample. It is issued under our NHO-QSCert Terms and Conditions / Kết quả phân tích chỉ có giá trị trên mẫu thử. Báo cáo này được ban hành theo những điều khoản của NHO-QSCert
5. The above result shall not be reproduced, partly or fully, unless written approval of NHO-QSCert is granted/ Không được sao chép một phần hay toàn bộ nếu không được sự đồng ý bằng văn bản của đơn vị NHO-QSCert

Authorized Technical Representative
On behalf of NHO-QSCert



116/TN LAS-NN79 TNDM-BCT.10.16

TESTING REPORT/ BÁO CÁO KẾT QUẢ PHÂN TÍCH

Job No./ Số phiếu yêu cầu phân tích: 4600.17 Report date/ Ngày: 29-08-2017
Doc. code/ Mã số tài liệu: PR22-FM02 Page/ Trang: 1/ 1

Applicant/ (Khách hàng/ tổ yêu cầu): CHI CỤC QUẢN LÝ CHẤT LƯỢNG NÔNG LÂM SẢN VÀ THỦY SẢN HƯNG YÊN
Address (Địa chỉ): Số 01 Nguyễn Lương Bằng, phường Hiến Nam, thành phố Hưng Yên
Information provided by applicant: Mẫu đất
(Thông tin được khách hàng cung cấp)
Sample description (Mô tả mẫu): Mẫu được chứa trong túi nylon
Seal No (Số niêm): Dấu niêm phong của Chi cục Quản lý Chất lượng Nông, Lâm sản và Thủy sản Hưng Yên vẫn còn nguyên vẹn
Source of sample (Nguồn mẫu): Khách hàng gửi mẫu
Sample received on (Ngày nhận mẫu): 23-08-2017
Sample tested on (Ngày phân tích): 23-08-2017

Code/ Mã mẫu	Name/ Tên mẫu	Test Parameter/ Chỉ tiêu phân tích	Test Method/ Phương pháp	Unit/ Đơn vị	LOD	Result/ Kết quả
4600.17 /2	Mẫu đất_02 YP Nơi sản xuất, sơ chế các loại của HTX DVNN tổng hợp xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	Asen (As)	ISO 20280:2007	mg/kg	1.00	20.11
		Chì (Pb) (*)	ISO 11047:1998	mg/kg	10.00	18.22
		Đồng (Cu)	ISO 11047:1998	mg/kg	5.00	40.15
		Kẽm (Zn)	ISO 11047:1998	mg/kg	2.00	68.17
		Cadimi (Cd) (*)	ISO 11047:1998	mg/kg	0.20	ND

Note / Ghi chú:
1. (*) Testing parameter is sent to subcontractor accredited ISO/17025 by CTU-MekongLAB / Chỉ tiêu gửi nhà thầu phụ được công nhận ISO/17025 bởi CTU-MekongLAB
2. (*) Parameter is accredited ISO/17025, Ministry of Agriculture and Rural Development / Chỉ tiêu được công nhận ISO/17025 bởi Bộ Nông nghiệp và Phát triển Nông thôn
3. ND: Not detected/ Không phát hiện D: Detected/ Phát hiện
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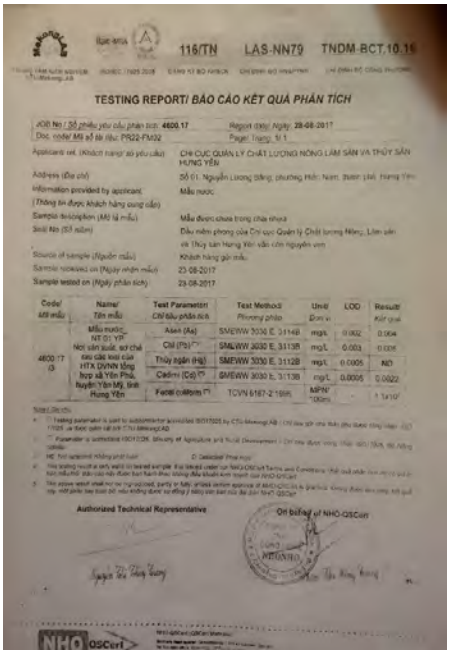
5. The above result shall not be reproduced, partly or fully, unless written approval of NHO-QSCert is granted/ Không được sao chép một phần hay toàn bộ nếu không được sự đồng ý bằng văn bản của đơn vị NHO-QSCert

Authorized Technical Representative
On behalf of NHO-QSCert



116/TN LAS-NN79 TNDM-BCT.10.16

TESTING REPORT/ BÁO CÁO KẾT QUẢ PHÂN TÍCH

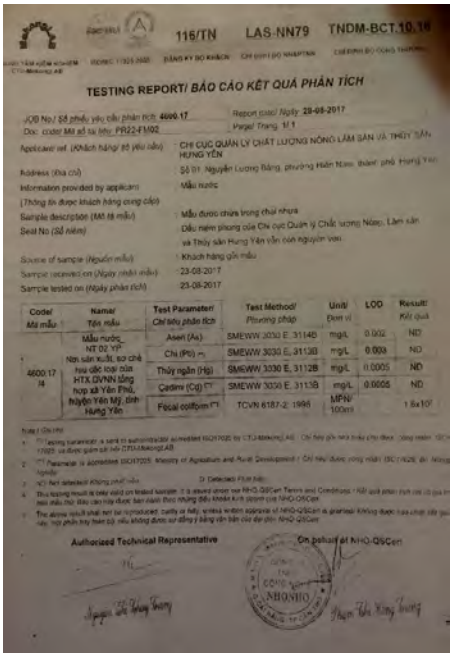
Job No./ Số phiếu yêu cầu phân tích: 4600.17 Report date/ Ngày: 29-08-2017
Doc. code/ Mã số tài liệu: PR22-FM02 Page/ Trang: 1/ 1

Applicant/ (Khách hàng/ tổ yêu cầu): CHI CỤC QUẢN LÝ CHẤT LƯỢNG NÔNG LÂM SẢN VÀ THỦY SẢN HƯNG YÊN
Address (Địa chỉ): Số 01 Nguyễn Lương Bằng, phường Hiến Nam, thành phố Hưng Yên
Information provided by applicant: Mẫu nước
(Thông tin được khách hàng cung cấp)
Sample description (Mô tả mẫu): Mẫu được chứa trong chai nhựa
Seal No (Số niêm): Dấu niêm phong của Chi cục Quản lý Chất lượng Nông, Lâm sản và Thủy sản Hưng Yên vẫn còn nguyên vẹn
Source of sample (Nguồn mẫu): Khách hàng gửi mẫu
Sample received on (Ngày nhận mẫu): 23-08-2017
Sample tested on (Ngày phân tích): 23-08-2017

Code/ Mã mẫu	Name/ Tên mẫu	Test Parameter/ Chỉ tiêu phân tích	Test Method/ Phương pháp	Unit/ Đơn vị	LOD	Result/ Kết quả
4600.17 /3	Mẫu nước_ NT 01 YP Nơi sản xuất, sơ chế các loại của HTX DVNN tổng hợp xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	Asen (As)	SMEWW 3030 E, 3114B	mg/L	0.002	0.004
		Chì (Pb) (*)	SMEWW 3030 E, 3113B	mg/L	0.003	0.005
		Thủy ngân (Hg)	SMEWW 3030 E, 3112B	mg/L	0.0005	ND
		Cadimi (Cd) (*)	SMEWW 3030 E, 3113B	mg/L	0.0005	0.0022
		Fecal coliform (*)	TCVN 6187-2:1996	MPN/ 100ml	-	1.1×10^3

Note / Ghi chú:
1. (*) Testing parameter is sent to subcontractor accredited ISO/17025 by CTU-MekongLAB / Chỉ tiêu gửi nhà thầu phụ được công nhận ISO/17025 bởi CTU-MekongLAB
2. (*) Parameter is accredited ISO/17025, Ministry of Agriculture and Rural Development / Chỉ tiêu được công nhận ISO/17025 bởi Bộ Nông nghiệp và Phát triển Nông thôn
3. ND: Not detected/ Không phát hiện D: Detected/ Phát hiện
4. The testing result is only valid on tested sample. It is issued under our NHO-QSCert Terms and Conditions / Kết quả phân tích chỉ có giá trị trên mẫu thử. Báo cáo này được ban hành theo những điều khoản của NHO-QSCert
5. The above result shall not be reproduced, partly or fully, unless written approval of NHO-QSCert is granted/ Không được sao chép một phần hay toàn bộ nếu không được sự đồng ý bằng văn bản của đơn vị NHO-QSCert

Authorized Technical Representative
On behalf of NHO-QSCert



116/TN LAS-NN79 TNDM-BCT.10.16

TESTING REPORT/ BÁO CÁO KẾT QUẢ PHÂN TÍCH

Job No./ Số phiếu yêu cầu phân tích: 4600.17 Report date/ Ngày: 29-08-2017
Doc. code/ Mã số tài liệu: PR22-FM02 Page/ Trang: 1/ 1

Applicant/ (Khách hàng/ tổ yêu cầu): CHI CỤC QUẢN LÝ CHẤT LƯỢNG NÔNG LÂM SẢN VÀ THỦY SẢN HƯNG YÊN
Address (Địa chỉ): Số 01 Nguyễn Lương Bằng, phường Hiến Nam, thành phố Hưng Yên
Information provided by applicant: Mẫu nước
(Thông tin được khách hàng cung cấp)
Sample description (Mô tả mẫu): Mẫu được chứa trong chai nhựa
Seal No (Số niêm): Dấu niêm phong của Chi cục Quản lý Chất lượng Nông, Lâm sản và Thủy sản Hưng Yên vẫn còn nguyên vẹn
Source of sample (Nguồn mẫu): Khách hàng gửi mẫu
Sample received on (Ngày nhận mẫu): 23-08-2017
Sample tested on (Ngày phân tích): 23-08-2017

Code/ Mã mẫu	Name/ Tên mẫu	Test Parameter/ Chỉ tiêu phân tích	Test Method/ Phương pháp	Unit/ Đơn vị	LOD	Result/ Kết quả
4600.17 /4	Mẫu nước_ NT 02 YP Nơi sản xuất, sơ chế các loại của HTX DVNN tổng hợp xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên	Asen (As)	SMEWW 3030 E, 3114B	mg/L	0.002	ND
		Chì (Pb) (*)	SMEWW 3030 E, 3113B	mg/L	0.003	ND
		Thủy ngân (Hg)	SMEWW 3030 E, 3112B	mg/L	0.0005	ND
		Cadimi (Cd) (*)	SMEWW 3030 E, 3113B	mg/L	0.0005	ND
		Fecal coliform (*)	TCVN 6187-2: 1996	MPN/ 100ml		1.6×10^2

Note / Ghi chú:
1. (*) Testing parameter is sent to subcontractor accredited ISO/17025 by CTU-MekongLAB / Chỉ tiêu gửi nhà thầu phụ được công nhận ISO/17025 bởi CTU-MekongLAB
2. (*) Parameter is accredited ISO/17025, Ministry of Agriculture and Rural Development / Chỉ tiêu được công nhận ISO/17025 bởi Bộ Nông nghiệp và Phát triển Nông thôn
3. ND: Not detected/ Không phát hiện D: Detected/ Phát hiện
4. The testing result is only valid on tested sample. It is issued under our NHO-QSCert Terms and Conditions / Kết quả phân tích chỉ có giá trị trên mẫu thử. Báo cáo này được ban hành theo những điều khoản của NHO-QSCert
5. The above result shall not be reproduced, partly or fully, unless written approval of NHO-QSCert is granted/ Không được sao chép một phần hay toàn bộ nếu không được sự đồng ý bằng văn bản của đơn vị NHO-QSCert

Authorized Technical Representative
On behalf of NHO-QSCert

CERTIFICATE OF VIETGAP

CỤC QUẢN LÝ CHẤT LƯỢNG NÔNG LÂM SẢN VÀ THỦY SẢN
TRUNG TÂM CHẤT LƯỢNG NÔNG LÂM THỦY SẢN VÙNG 1

NATIONAL AGRO-FORESTRY-FISHE QUALITY ASSURANCE DEPARTME BRANCH 1

VietGAP-TT-13-07

GIẤY CHỨNG NHẬN VIETGAP
Certificate of VietGAP
Số: 378/VietGAP-TT

Tên cơ sở:
HỢP TÁC XÃ DỊCH VỤ NÔNG NGHIỆP TỔNG HỢP XÃ YÊN PHÚ
Địa chỉ liên hệ:
Thôn Mễ Hạ, xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên
Địa điểm sản xuất:
Thôn Mễ Hạ và Mễ Thượng, xã Yên Phú, huyện Yên Mỹ, tỉnh Hưng Yên
Diện tích sản xuất:
20 ha
Sản phẩm:
Rau tươi
(Cà chua, cải ngọt, cải ngồng, cải bó xôi, cải canh, su hào, bắp cải, mướp hương, mướp đắng, xà lách, bí, bầu, mít, ngô gai, ngô ngọt, thì là, cải đông dư, hành lá, dưa chuột, cải chíp, rau muống, hùng , cà tím, măng tươi, rau day)
Sản lượng dự kiến:
1.800 tấn/năm
MÃ SỐ CHỨNG NHẬN VietGAP:
VietGAP-TT-13-07-33-0001
Chứng nhận sản phẩm được sản xuất phù hợp Quy trình thực hành sản xuất nông nghiệ cho rau quả tươi an toàn tại Việt Nam (VietGAP) ban hành kèm theo Quyết định số 379/QĐ-BNN-KHCN ngày 28/01/2008 của Bộ trưởng Bộ Nông nghiệp và Phát triển nông
Phạm vi chứng nhận: theo phụ lục kèm theo Quyết định số 349/QĐ-TTCL1 ngày 05/7/2

GIÁM ĐỐC
TRẦN THẾ PHONG

CERTIFICATE OF COMPLIANCE WITH FOOD SAFETY REGULATIONS

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

GIẤY CHỨNG NHẬN
CƠ SỞ ĐỦ ĐIỀU KIỆN AN TOÀN THỰC PHẨM
CERTIFICATE
OF COMPLIANCE WITH FOOD SAFETY REGULATIONS
CHI CỤC QUẢN LÝ CHẤT LƯỢNG NÔNG LÂM SẢN & THỦY SẢN TỈNH HƯNG YÊN
Chứng nhận
Cơ sở Establishment: HỢP TÁC XÃ DỊCH VỤ NÔNG NGHIỆP XÃ YÊN PHÚ
Mã số Approval number: 02
Địa chỉ Address: Mễ hạ, Yên phú, Yên mỹ, Hưng yên
Điện thoại Tel: 0976.328.460 Fax:
Đủ điều kiện an toàn thực phẩm để sản xuất kinh doanh sản phẩm:
Has been found to be in compliance with food safety regulations for following products:
1. Rau, Củ, Quả tươi
2.
3.
Số cấp/ Number: 33 /2015/ NNPTNT-CCQL
Có hiệu lực đến ngày 20 tháng 5 năm 2018
Valid until (date/month/year)
Và thay thế giấy CN số ... cấp ngày ... tháng ... năm ...
And replaces The Certificate N° ... issued on (date/month/year)
Hưng Yên, ngày 20 tháng 5 năm 2015 (date/month/year)
CHI CỤC TRƯỞNG
CHI CỤC TRƯỞNG
TRẦN NGUYÊN THẮP

5. SOME PICTURES OF YEN PHU COOPERATIVE






ATTACHMENT 3.1

SOIL AND IRRIGATION WATER SAMPLING AND TESTING PLAN FOR PILOT PROJECT

I. OBJECTIVES AND REQUIREMENTS

1. Objectives

- To confirm the safety of pilot project sites through the soil and irrigation water sampling tests in compliance with safe vegetable production standards in Vietnam.

2. Requirements

- Sampling procedures based on an internal fresh vegetable production Sampling Procedures Manual/ or TCVN (Vietnam Standard TCVN 5297-1995 Soil quality - Sampling - General requirements and TCVN 4046 - 85 - Cultivated land - Sampling method)
- Samples are collected by the sample inspectors, who are appointed by PPMU. Samples are sent to a qualified laboratory for testing heavy metals (As, Cu, Pb, Cd, Zn) on soil; testing heavy metals (Hg, As, Cd, Pb,) and E. coli on irrigation water.

II. IMPLEMENTATION PROCEDURES

1. Identification of potential pilot sites for soil and water testing

In the cases below, JICA Project team shall consider carrying out soil and water tests to confirm the safety of the pilot project sites:

- The certificate of safe production area has expired or will be expired during the project period.
- The production area is not certified yet as a safe production area.

- The production area is extended as the new pilot project site.
- Change in irrigation water sources and any polluted contamination risk are observed.
- An inspection report by DARD and/or any relevant institution shows a heavy metal residue from the sample products produced in the pilot project site.

2. Assessment of current situation of pilot project site

Prior to the sampling, current land area of selected target groups as pilot project sites shall be assessed with the following items:

- Total safe vegetable production land area
- Average land area of different locations of land
- Number of farmers participating in pilot projects per commune

Assessment shall be done by JICA Project team with support of PPMU. PPMU provides necessary data and information for the assessment and dispatches a staff member to accompany the JICA Project team to conduct field assessment.

3. Execution of sampling and testing of soil and irrigation water

Soil and water sampling and testing shall be exercised according to the following procedures.

- PPMU appoints collector of soil and water samples. It is recommended the sample collector is required to be trained in sampling and have a training certificate.
- The inspector shall prepare sampling equipment correctly and follow the procedure according to the guidance in TCVN 5297-1995 to ensure minimization of sampling errors..
- The inspector shall collect samples according to the III. Contents of Sampling Plan, and send the samples to a qualified laboratory (see Annex 3).

- The inspector shall receive results from the laboratory and submit to PPMU.

4. Issuing a certificate of safe crop production area

PPMU shall issue the certificate when the safety of the sampling area is confirmed.

III. CONTENTS OF SAMPLING PLAN

1. Soil

a. Sampling equipment: According to TCVN 4046-85 and TCVN 5297-1995.

b. Frequency and sampling time

- Frequency: once in the period of pilot project implementation
- Time: before starting pilot project.

c. Sampling method

- Sampling method: TCVN 4046-85 Cultivation soil - Analysis method and TCVN 5297-1995 Soil quality - Sampling - General requirements. (Refer TCVN 7538 - 2: 200).
- Size of land where soil sample is collected and number of samples are used to identify the various chemical content in soil:
  + Homogeneous land area (from 1 to 5 ha) and non-homogeneous land area (from 0.5 - 1 ha), 12 subsamples mixed to form a composite sample in the cultivated land layer (Depth: 20cm)
  + Sampling probes must be washed before sampling and covered with aluminum paper to avoid subsequent contamination
  + Sampling location and pattern: Randomly in a “W” pattern as shown in Figure 1 in the cultivated part of the field and at a depth of 20 cm.

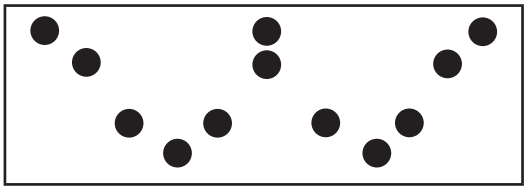


Figure 1 Sampling Location and Patterns

d. Shipping and Storage: Sample must be intact, not broken, label is intact, avoid confusion, and be preserved according to the requirements of laboratories in accordance with TCVN 4046-85 and TCVN 5297-1995

e. Performance indicator and testing organization

The maximum acceptable levels of selected heavy metals in soil are indicated in Table 1. (Accompanied issued with the Circular 49/2013/TT-BNNPTNT on 19th November 2013 and National technical regulation QCVN 03-MT/2015/ BTNMT.d)

Table 1 Maximum acceptable level of selected heavy metals in soil

No.	Substances	Unit	Maximum acceptable level	Testing method
1	Arsen (As)	mg/l	15	TCVN 6649:2000 (ISO11466:1995)
2	Cadimi (Cd)	mg/l	1.5	TCVN 6496:1999 (ISO11047:1995)
3	Lead (Pb)	mg/l	70	
4	Bronze (Cu)	mg/l	100	
5	Zinc (Zn)	mg/l	200	
6	Crom (Cr)	mg/l	150	

2. Agricultural Irrigation Water

a. Frequency and sampling time

- Frequency: once in the period of pilot project implementation
- Time: before starting pilot project.

b. Sampling method

- Sampling method: TCVN 6663-1-: 2011 (ISO 5667-1:2011) - Water quality - Sampling - Part 1 - guidelines for sampling

schedule and sampling techniques

- The sampling characteristics are:
  - Frequency: at the beginning of the pilot project
  - Number of subsamples: three subsamples (75ml each) mixed to form a composite sample
  - Sampling location at the delivery end:
    - For overhead irrigation: at least three sprinklers' heads.
    - For drip irrigation: at least three locations.
    - Surface irrigation: where the pipe or canal is entering the field or at the end of the hose.
  - Sampling procedures:
    - Let the water flow or drip for five minutes before beginning sampling.
    - For drip irrigation: the tape must be sterilized with alcohol
    - For surface irrigation: take three subsamples at five minute intervals.
  - Sampling procedures when results are positive or over the limit:
    - Three subsamples (75 ml) mixed to form a composite sample.
    - Surface water: three subsamples taken at different depths and locations.
    - Ground water: at the well head, three subsamples taken at five minute intervals and let the water drip for five minutes before beginning sampling.

c. Shipping and Storage:

Immediately after sampling, samples must be placed in a cooler containing icepacks and kept between 1 to 5oC from sampling to analysis. For microbiological analysis, the maximal delay between sampling and analysis is 48 hours. Also, samples must not be frozen before microbiological analysis.

d. Performance indicator and testing organization

The maximum acceptable levels of selected heavy metals in soil are indicated in Table 1, Based on Circular 49/2013/TT-BNNPTNT on 19th November 2013; National technical regulation QCVN 08-MT:2015/BTNMT; QCVN 39:2011/BTNMT National technical regulation for irrigation water

Table 2 Maximum acceptable level of selected heavy metals and microbiological substances in irrigation water

No.	Testing indicator(1)	Unit	Maximum acceptable level	Remark
1	Thuỷ ngân (Hg)	mg/l	0.001	
2	Cadimi (Cd)	mg/l	0.01	
3	Arsen (As)	mg/l	0.05	
4	Chì (Pb)	mg/l	0.05	
5	Fecal. Coliform	No. of bacteria /100ml	200	Apply for fresh form vegetables

Note (1): Base on QCVN 39:2011/BTNMT National technical regulation for irrigation water.

3. Number of samples of soil and irrigation water

Estimated number of samples of soil and irrigation water in pilot provinces are shown in Table 3.

Table 3 Estimated number of samples of soil and irrigation water in pilot provinces

No.	Topography of the sampling area	Number of homo-geneous lands	Number of sample	
			Soil	Water
Ha Nam				
Pilot project 1	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2
Pilot project 2	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2
Hai Duong				
Pilot project 1	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2
Pilot project 2	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2

Pilot project 3	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2
Hung Yen				
Pilot project 1	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2
Pilot project 2	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2
Pilot project 3	Homogeneous land area (from 1 to 5 ha)	1	1	1
	Homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Non-homogeneous land area (from 0.5 - 1 ha)	2	2	2
	Total	**40**	**40**	**40**

IV. SELECTION OF LABORATORY FOR TESTING

The laboratory for testing should be qualified under the following conditions.

- The laboratory shall be accredited by MARD (see Annex3).
- The laboratory shall hold ISO/IEC 17025 for the designated testing parameters.

There are some laboratories that are recommended as follows:

- National Agro-Forestry & Fisheries Quality Assurance Dept.- Region 1 LAS-NN 63 (NAFIQAD 1); Address: Số 51 Lê Lai, Q. Ngô Quyền, Thành phố Hải Phòng.
- Laboratory of Center of Food Hygiene and Safety - National Food Safety testing Institute (NIFC); Address: 13 Phan Huy Chú, Ha Noi – Viet Nam

- Pesticide Formulation and Residue Laboratory - Northern Pesticide Control and Testing Centre, LAS – NN 62 (NPCTC); Address: 149 Ho Dac Di – Ha Noi – Viet Nam.

V. ROLES AND RESPONSIBILITIES OF STAKEHOLDERS

CPMU

- To provide technical and legal advice to JICA Project team for the execution of sampling and testing.

PPMU

- To submit neccessary data and information including the certificates of safe crop production area issued for the pilot sites to JICA Project team.
- To appoint and supervise two sample collectors who shall be inspectors of Sub-NAFIQAD and/or Sub-plant protection department, and also one person from each target group as an assistant to sample collectors.
- To issue the certificates of the safe crop production area

JICA Project team

- To identify the potential pilot sites for soil and water testing.
- To assess the current land area of the pilot sites, such as total safe vegetable production land area, average land area of different locations of land, and number of farmers participating in pilot projects per commune.
- To assist in and facilitate the execution of sampling and testing by stakeholders.

VI. BUDGET

Cost estimation and budget allocation are shown in Attachment 6.1.

ANNEX 1
LIST OF LEGAL REQUIREMENTS FOR REFFERENCE

- Circular 49/2013 / TT-BNNPTNT dated November 19, 2013 guiding criteria for determining concentrated crop production areas meeting food safety conditions.
- Vietnamese standard TCVN 5297-1995 Soil quality - Sampling - General requirements.
- TCVN 4046 - 85 - Cultivated soil - Sampling method.
- National technical regulation QCVN 03-MT/2015/ BTNMT The maximum allowed level of some heavy metals in soil.
- QCVN 39: 2011 / BTNMT National technical regulation on irrigation water.
- National technical regulation QCVN 08-MT/2015/ BTNMT National technical regulation on surface water qualiy.
- TCVN 6663-12011 (ISO 5667-12011) - Water quality - Sampling irrigation water.
- QCVN 02: 2009 / BYT National technical regulation on domestic water quality.

ANNEX 2
BIÊN BẢN LẤY MẪU

SỞ NÔNG NGHIỆP VÀ PTNT HẢI DƯƠNG **BAN QUẢN LÝ DỰ ÁN SẢN XUẤT RAU AN TOÀN (SCP)**	**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM** **Độc lập - Tự do - Hạnh phúc**

BIÊN BẢN LẤY MẪU ĐƠN MẪU……

Hôm nay ngày……tháng……năm 2016

Chúng tôi gồm:

1. Thành phần tham gia đoàn lấy mẫu

…… Chức vụ: ……

…… Chức vụ: ……

…… Chức vụ: ……

…… Chức vụ: ……

…… Chức vụ: ……

2. Tên cơ sở sản xuất/ hộ sản xuất: ……

- Địa chỉ: ……
- Khu vực lấy mẫu:……
- Hợp tác xã:……

3. Qui cách mẫu:

- Mẫu số (Ký hiệu mẫu):… ……
- Thời gian lấy mẫu: ……
- Số lượng: ……
- Khối lượng mẫu:……
- Tình trạng bao gói, bảo quản mẫu (Nhiệt độ, môi trường, áp suất): ……

……

Đại diện Đoàn lấy mẫu	**Đại diện mô hình thí điểm**	**Đại diện cơ sở/hộ sản xuất**
(Ký và ghi rõ họ tên)	(Ký và ghi rõ họ tên)	(Ký và ghi rõ họ tên)

ANNEX 3
LIST OF FOOD SAFETY TESTING LABORATORIES ACCREDITED BY MARD

Laboratory	Accreditation decision	Issued date	Area of testing
Công ty TNHH Giám định Vinacontrol Tp. HCM	**584/QĐ-BVTV-KH**	31/3/2021	Phân bón, ATTP sản phẩm nông lâm thủy sản, đất, nước
Trung tâm Kỹ Thuật Tiêu chuẩn Đo lường chất lượng 3	**588/QĐ-BVTV-KH**	31/3/2021	Phân bón, thuốc BVTV, đất, nước
Trung tâm Khảo kiểm nghiệm phân bón Quốc Gia	**1599/QĐ-BVTV-KH**	18/8/2020	Phân bón
Công ty Cổ phần Chứng nhận và Giám định IQC	**599/QĐ-BVTV-KH**	31/3/2021	Phân bón, ATTP sản phẩm nông lâm thủy sản, đất, nước
Công ty Cổ phần Chứng nhận và Giám định VinaCert	**609/QĐ-BVTV-KH**	01/4/2021	Phân bón, ATTP sản phẩm nông lâm thủy sản, đất, nước
Công ty Cổ phần Giám định và Khử trùng FCC	**587/QĐ-BVTV-KH**	31/3/2021	Phân bón, ATTP sản phẩm nông lâm thủy sản, đất, nước
Trung tâm Kiểm định và Kiểm nghiệm hàng hóa tỉnh Lào Cai	**584/QĐ-BVTV-KH**	31/3/2021	Phân bón
Chi nhánh Công ty Cổ phần Tập đoàn Vinacontrol Hải Phòng	**598/QĐ-BVTV-KH**	31/3/2021	Phân bón

	Accreditor	Address
	Cục Bảo vệ thực vật	số 80 Bà Huyện Thanh Quan, Phường 9, Quận 3, Thành phố Hồ Chí Minh;
	Cục Bảo vệ thực vật	Số 2 Nguyễn Văn Thủ, P. Đa Kao, Quận 1, Tp.HCM
	Cục Bảo vệ thực vật	Số 65, phố Sa Đôi, phường Phú Đô, quận Nam Từ Liêm, Tp. Hà Nội. Điện thoại: 0243.37561025 Fax: 0243.37561025
	Cục Bảo vệ thực vật	Ô 6, BT4, Khu đô thị mới cầu Bươu, Thanh Trì, Hà Nội; Điện thoại 02437892397; Fax:02437892397
	Cục Bảo vệ thực vật	Tầng 4, Tòa nhà 130 Nguyễn Đức Cảnh, Tương Mai, Hoàng Mai, Hà Nội; Điện thoại 0243.6341933; Fax: 0243.6341137
	Cục Bảo vệ thực vật	45 Đinh Tiên Hoàng, Phường Bến Nghé, Quận 1, Tp.Hồ Chí Minh; Điện thoại 028.38297857/ 8223183; Fax: 028.38390202/ 3910370
	Cục Bảo vệ thực vật	Km2+300 đại lộ Trần Hưng Đạo, P.Bắc Cường, Tp.Lào Cai, tỉnh Lào Cai; Điện thoại 02143820397; Fax: 02143820352
	Cục Bảo vệ thực vật	Số 56, Phạm Minh Đức, Phường Máy Tơ, Quận Ngô Quyền, Hải Phòng; Điện thoại 0225.3.760072; Fax: 0225.3.625776

Công ty Cổ phần Chứng nhận và Giám định Saigoncert	**2792/QĐ-BVTV-KH**	29/12/2020	Phân bón
Trung tâm Giám định và Chứng nhận Hợp chuẩn hợp quy Vietcert	**2791/QĐ-BVTV-KH**	29/12/2020	Phân bón, đất, nước
Trung tâm Kiểm định và khảo nghiệm thuốc BVTV phía Nam	**2838/QĐ-BVTV-KH**	31/12/2020	Thuốc BVTV
Trung tâm Kiểm định và khảo nghiệm thuốc BVTV phía Bắc	**2844/QĐ-BVTV-KH**	31/12/2020	Thuốc BVTV
Viện Năng suất Chất lượng Deming	**263/QĐ-BVTV-KH**	05/02/2021	Thuốc BVTV
Trung tâm Dịch vụ Phân tích Thí nghiệm TP. Hồ Chí Minh	**368/QĐ-BNN-KHCN**	28/01/16	Thực phẩm, thức ăn chăn nuôi, thức ăn thủy sản, thuốc bảo vệ thực vật, phân bón
Phòng thử nghiệm giống cây trồng của Trung tâm Thổ nhưỡng nông hóa Vĩnh Phúc	**442/QĐ-TT-QLCL**	5/10/2015	Phân bón,đất
Phòng thử nghiệm phân bón thuộc Trung tâm Khảo kiểm nghiệm phân bón vùng Nam bộ	**358/QĐ-TT-QLCL**	18/8/2015	Phân bón
Phòng thử nghiệm giống cây trồng của Trung tâm Khảo kiểm nghiệm giống, sản phẩm cây trồng Miền Trung	**43/QĐ-TT-QLCL**	18/02/2016	Chất lượng hạt giống cây trồng

	Cục Bảo vệ thực vật	139 Man Thiện, P.Hiệp Phú, Tp. Thủ Đức, Tp Hồ Chí Minh Điện thoại: 0968972331
	Cục Bảo vệ thực vật	28 An Xuân, P.An Khê, Q.Thanh Khê, Tp Đà Nẵng; Điện thoại: 0511 6562929 Fax: 0511 3617519
	Cục Bảo vệ thực vật	28, Mạc Đĩnh Chi, Quận 1, Tp.HCM; Điện thoại: 028 38231805; Fax: 028.38244187
	Cục Bảo vệ thực vật	Số 7A Lê Văn Hiến, phường Đức Thắng; Điện thoại: 02438513590; Fax: 024 35330205
	Cục Bảo vệ thực vật	Lô 21-22 B16, KĐC Quang Thành 3B, phường Hòa Khánh Bắc, quận Liên Chiểu, Tp. Đà Nẵng. Điện thoại 0236.6562929 Fax: 029.3881.749
	Vụ Khoa học	Số 2 Nguyễn Văn Thủ, P. Đa Kao, Quận 1, Tp.HCM
	Cục Trồng trọt	Đường Bà Triệu, Phường Liên Bảo, Thành Phố Vĩnh Yên, Tỉnh Vĩnh Phúc
	Cục Trồng trọt	Địa chỉ: Số 12 Nguyễn Chí Thanh, phường 2, Quận 10, tp Hồ Chí Minh
	Cục Trồng trọt	Số 291 Hùng Vương, thành phố Quảng Ngãi, tỉnh Quảng Ngãi.

Phòng thử nghiệm Hóa Sinh thuộc Trung tâm Kỹ thuật Tiêu chuẩn Đo lường Chất lượng Bình Thuận	**365/QĐ-BNN-KHCN**	28/1/2016	Thực phẩm, TĂCN, đất, phân bón, TBVTV
Phòng kiểm tra chất lượng và thử nghiệm của Công ty cổ phần Long Hiệp	**1834/QĐ-BVTV-QLT**	10/9/2015	Thuốc bảo vệ thực vật
Phòng thử nghiệm Hóa sinh - Trung tâm Kỹ thuật và Ứng dụng Công nghệ Cần Thơ	**340/QĐ-CN-TĂCN**	8/11/2012	Thức ăn chăn nuôi
Phòng phân tích môi trường, Trung tâm phân tích và chuyển giao công nghệ môi trường- Viện Môi trường nông nghiệp	**1613/QĐ-BN-NPTNT**	15/7/2013	Thực ăn chăn nuôi, thức ăn thủy sản, chất xử lý cải tạo môi trường, môi trường nuôi trồng thủy sản, Môi trường đất, Phân bón, nông sản
Trung tâm chất lượng nông lâm thủy sản vùng 1	**219/QĐ-QLCL**	1/7/2013	Thực phẩm, môi trường thủy sản, thức ăn nuôi thủy sản, dư lượng thuốc bảo vệ thực vật, đất, nước
Phòng kiểm nghiệm của Trung tâm phân tích và Chứng nhận chất lượng sản phẩm nông nghiệp – Sở Nông nghiệp và Phát triển nông thôn Hà Nội	**24/QĐ-QLCL**	06/1/2016	Thức ăn chăn nuôi,thức ăn thủy sản, ATTP sản phẩm nông lâm thủy sản, phân bón, đất, nước.
Phòng thử nghiệm thực phẩm, thử nghiệm vi sinh, thử nghiệm hóa môi trường -Trung tân kỹ thuật Tiêu chuẩn do lường chất lượng 1	**2820/QĐ-BNN-KHCN**	29/10/2013	Thức ăn chăn nuôi, phân bón, ATTP, nước dùng trong nông ng-hiệp, đất, thuốc trừ sâu

	Vụ KHCN&MT	Địa chỉ: Số 04, Nguyễn Hội, Phan Thiết, Bình Thuận;
	Cục Bảo vệ thực vật	Tầng 4, Tòa nhà 6 tầng, Lô A2, CN1, Cụm CN vừa và nhỏ Từ Liêm, Minh Khai, Từ Liêm, Hà Nội
	Cục Chăn nuôi	45 đường 3/2, phường Xuân Khánh, quận Ninh Kiều, thành phố Cần Thơ
	Vụ KHCN và MT	Phường Phú Đô, Quận Nam Từ Liêm, Hà Nội, Viet-nam -
	Cục QLCLNLS&TS	Số 51 Lê Lai, Q. Ngô Quyền, Thành phố Hải Phòng
	Cục QLCLNLS&TS	44 Mai Dịch, quận Cầu Giấy, Hà Nội.
	Vụ KHCNMT	Số 8, nhà E, đường Hoàng Quốc Việt, Quận Cầu Giấy, Hà Nội.

Trung tâm Chất lượng nông lâm thủy sản vùng 5.	**527/QĐ-QLCL**	31/12/2013	ATTP sản phẩm nông lâm thủy sản, đất, nước
Trung tâm Chất lượng nông lâm thủy sản vùng 6.	**528/QĐ-QLCL**	31/12/2013	ATTP sản phẩm nông lâm thủy sản, đất, nước
Trung tâm Chất lượng nông lâm thủy sản vùng 3	**536/QĐ-QLCL**	31/12/2013	ATTP sản phẩm nông lâm thủy sản, đất, nước
Trung tâm Chất lượng nông lâm thủy sản vùng 4	**534/QĐ-QLCL**	31/12/2013	ATTP sản phẩm nông lâm thủy sản, đất, nước
Trung tâm Chất lượng nông lâm thủy sản vùng 2	**695/QĐ-QLCL**	20/1/2014	ATTP sản phẩm nông lâm thủy sản, đất, nước
Phòng đảm bảo chất lượng và thử nghiệm của Cty Cổ phần thuốc sát trùng VN	**67/QĐ-BVTV-QLT**	12/1/2015	Chất lượng thuốc BVTV
Phòng thử nghiệm hợp trí - Cty TNHH hóa nông Hợp Thí	**66/QĐ-BVTV-QLT**	12/1/2015	Chất lượng thuốc BVTV
Phòng thử nghiệm hóa sinh- Trung tâm chứng nhận phù hợp - Quacert	**2360/QĐ-BVTV**	26/11/2015	Thuốc bảo vệ thực vật

	Cục QLCL	số 57 Phan Ngọc Hiển, phường 6, tp Cà Mau, tỉnh Cà Mau
	Cục QLCL	Địa chỉ. 386C Cách Mạng Tháng Tám – P. Bùi Hữu Nghĩa, Bình Thủy , Cần Thơ
	Cục QLCL	779 Lê Hồng Phong, tp Nha trang
	Cục QLCL	30 Hàm Nghi, Quận 1, Tp. HCM
	Cục QLCL	31 Ngũ Hành Sơn, quận Ngũ Hành Sơn, Tp. Đà Nẵng
	Cục Bảo vệ Thực vật	127 Lê lợi, phường 4, quận gò Vấp, TP HCM
	Cục Bảo vệ Thực vật	Lô B.14, KHCN Hiệp phước, nhà bè Thành phố HCM
		37 Phạm Tuấn Tài, Q.Bắc Từ Liêm, tp. Hà Nội

ATTACHMENT 4.1
TOT TRAINING COURSE ON BASIC GAP

1. OUTLINE OF TOT TRAINING COURSE

TOT training on basic GAP shall be organized and conducted by JICA Project team with assistance of CPMU.

- Objective

  To provide PPMU technical staff and pilot project managers necessary knowledge of Basic GAP, skills, tools and expertise in order for them to be capable of planning and delivering TOF training.

- Target participants

  The expected participants are the technical staff of PPMU members (e.g. Provincial and District extension officers) and the group leader and technical inspector(s) of the target groups.

- Number of participants

  15 – 20 persons/class

- Training schedules

  Trainings will be conducted in August - September 2018 tentatively. One training course consists of a 2-day program, including lecture of Basic GAP knowledge as well as a field visit.

  In addition, a follow-up course will be held in June 2019.

- Trainers

  Vietnamese GAP, technical experts with assistance of JICA Project Team

2. PROPOSED TOT TRAINING PROGRAM ON BASIC GAP

Day 1/ Ngày thứ nhất

Thời gian/ *Time*	Nội dung /*Content*	Thực hiện / *Conducted by*
08.00 08.15	Đăng ký học viên/ *Registration of trainees*	Ban tổ chức/ *Organization Board*
08.15 - 08.30	Khai mạc/ *Opening* - Giới thiệu về Dự án JICA và Kế hoạch thực hiện dự án thí điểm *Introduction of JICA project and pilot project implemetation plan* - Giới thiệu mục đích, nội dung, chương trình khóa tập huấn *Introduction of TOT training objective, program*	PPMU Vinh Phúc Nhóm Dự án JICA *PPMU, JICA project team*
08.30 - 10.00	Introducing and implementing Basic GAPGiới thiệu và triển khai thực hiện GAP cơ bản trong sản xuất cây trồng an toàn *Introducing and implementing Basic GAP on safe vegetable production*	Dự án JICA, Cục Trồng trọt, Bộ NN&PTNT/ *JICA project team, DCP, MARD*
10.00 -10.15	Giải lao / *Tea break*	
10.15 -10.45	Introducing and implementing Basic GAPGiới thiệu và triển khai thực hiện GAP cơ bản trong sản xuất cây trồng an toàn (Tiếp tục) *Introducing and implementing Basic GAP on safe vegetable production (continue)*	Dự án JICA, Cục Trồng trọt, Bộ NN&PTNT/ *JICA project team, DCP, MARD*

10.45- 11.45	Kinh nghiệm Dự án Jica triển khai mô hình thí điểm sản xuất rau an toàn áp dụng GAP *Experiences shared by JICA project on Implementing pilot project model of safe vegetables production applying GAP*	Giảng viên Nhóm Dự án *JICA /Trainer, JICA project team*
11.45 – 12.00	Thảo luận / *Discussion*	*Học viên/Giảng viên* *Trainee / Trainer*
12.00 – 13.30	Nghỉ trưa / *Lunch*	
13.30 – 14.30	Đi thăm quan thực địa tại vùng dự án thí điểm sản xuất rau an toàn (do PPMU Vĩnh Phúc bố trí địa điểm) *Field visit to pilot project site (arranged by PPMU)*	Học viên/Giảng viên *Trainee / Trainer*
14.30 – 15.30	Trao đổi về tổ chức sản xuất rau an toàn, kinh doanh, bán rau thông qua HTX/ công ty; kinh nghiệm giám sát sử dụng thuốc BVTV, phân bón của hộ dân, hướng dẫn, kiểm tra ghi chép nhật ký đồng ruộng *Discuss on organisation of vegetable production applying GAP and joint sales; Experience sharing on monitoring pesticides application, fertilizers and record of farmer field diary/ Logbook*	Học viên/Giảng viên *Trainee / Trainer*
15.30 – 16.30	Thăm thực địa đồng ruộng và khu sơ chế rau *Site visit to production field and pre-processing house*	*Học viên/Giảng viên* *Trainee / Trainer*
16.30 – 17.30	Di chuyển từ Địa điểm thăm quan về TP. Vĩnh Yên *Travel back from visit site to Vinh Yen city*	Học viên/Giảng viên *Trainee / Trainer*

Ngày thứ hai (Day 2)

Thời gian/ *Time*	Nội dung/*Contents*	Thực hiện/ *Conducted by*
8.00 – 9.00	Hướng dẫn sử dụng Thuốc BVTV và hoá chất *Guidance on Chemical, Pesticides application*	Giảng viên của Sở NN&PTNT / *Trainer from PPMU*
9.00– 9.30	Thảo luận / *Discussion*	Học viên/Giảng viên *Trainee / Trainer*
9.30 – 10.00	Thu hoạch, Đóng gói, Bốc xếp và Bảo quản rau tươi tại khu vực sản xuất *Harvesting, Packing, Handling and Storing Fresh Vegetables at Farm Level*	Giảng viên Nhóm Dự án *JICA /Trainer, JICA project team*
10.00 – 10.15	Giải lao/ *Tea break*	
10.15 – 10.45	Kinh nghiệm Dự án JICA triển khai mô hình bán rau an toàn áp dụng GAP *Experience sharing of JICA project pilot project implementation on safe vegetables production applying GAP and establishment of joint sales system*	Giảng viên Nhóm Dự án *JICA /Trainer, JICA project team*
11.00 – 11.45	Giới thiệu một số biện pháp kỹ thuật canh tác tiên tiến và vật liệu mới áp dụng để nâng cao chất lượng và an toàn sản phẩm rau *Introduction and Guidance on applying some cultivation methods and new production input materials for improvement of quality and safety vegetable products*	Giảng viên Nhóm Dự án *JICA /Trainer, JICA project team*
11.45 – 13.30	Nghỉ trưa / *Lunch*	

13.30 – 15.00	Hướng dẫn sử dụng Bộ kiểm tra nhanh (Quick test) để kiểm tra dư lượng thuốc bảo vệ thực vật trong rau *Guidance/ practice using Quick test to analyse pesticide residue in vegetable products*	Giảng viên Nhóm Dự án *JICA /Trainer, JICA project team*
15.00 – 15.30	Thảo luận khung chương trình tập huấn TOF *Discussion on program TOF training*	Giảng viên Nhóm Dự án *JICA /Trainer, JICA project team*
15.30 – 16.00	Đánh giá kết quả đào tạo và Bế mạc khóa tập huấn *Discussion and evaluation on TOT training results*	Học viên/Giảng viên *Trainee / Trainer*

For the presentation materials, please refer the website as below:

http://khuyennongvn.gov.vn/thu-vien-khuyen-nong/thu-vien-sach-kn_t244c28

Project for Improvement of
Reliability of Safe Crop Production
in the Northern Region

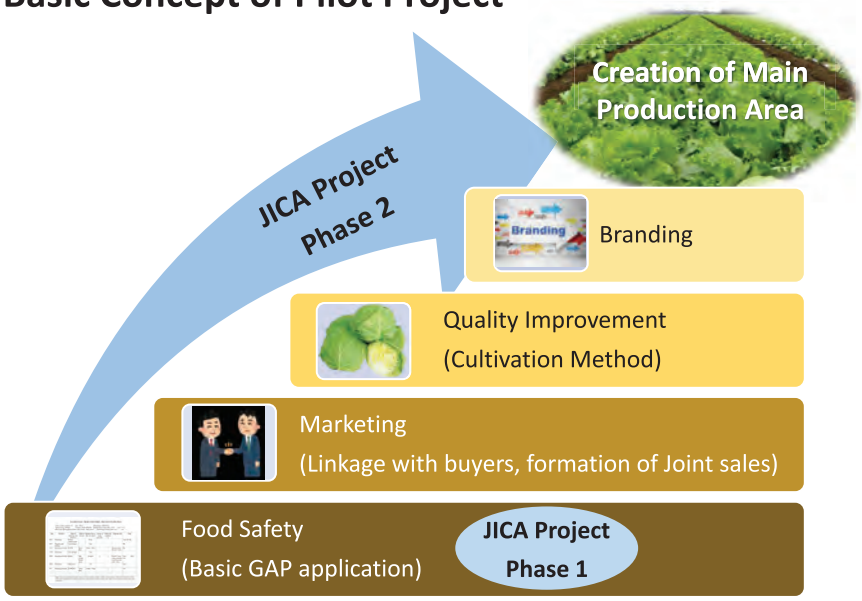
Introduction of JICA Project and Pilot Implementation Plan

April, 2017

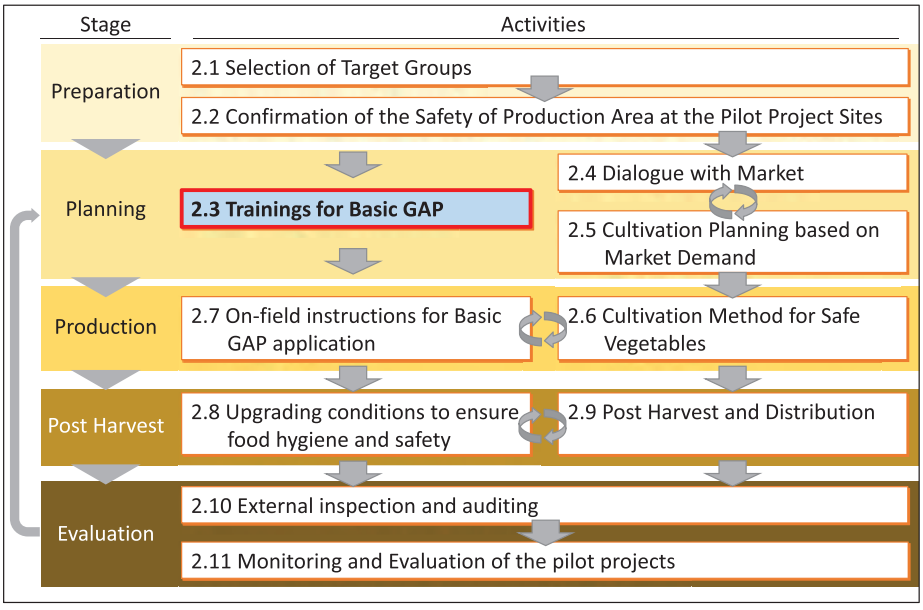
JICA Project Team

BASIC CONCEPT OF PILOT PROJECT

Basic Concept of Pilot Project



PILOT PROJECT IMPLEMENTATION FLOW CHART



2.4 DIALOGUE WITH MARKET

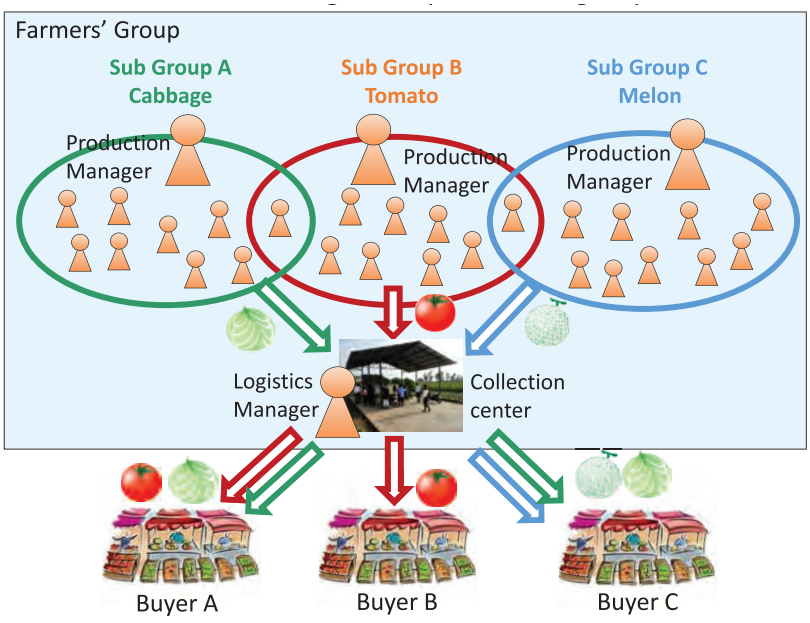
Basic principles for marketing pilot activities

1. Differentiate approaches based on the existing conditions of target groups
2. Continuous matching process
3. Find socially responsible buyers and establish trust

TOT training on marketing

2.5 CULTIVATION PLANNING BASED ON MARKET DEMAND

2.5.1 Formation of safe vegetable production group



2.6 CULTIVATION METHOD FOR SAFE VEGETABLES

2.6.1 Installation of pilot farm

- To select persons in charge of cultivation
- To set-up a pilot farm as target group

2.6.2 Production of safe crops

Actual Problems observed and Expected Key Techniques

Actual Problem	Solution	Expected Key Techniques
Yield of vegetable is low due to condition of farmland being not appropriate for vegetable production	- Improvement of farmland condition	- Application of compost to improve soil condition - Application of appropriate amount of fertilizer to adjust content of nutrients - Improvement of plowing and ridging - Economic evaluation (cost and benefit analysis)
Quality of vegetable is low due to damage by insects and disease	- Improvement of insect and disease control	- Application of apropriate agrichemial to control insects - Improvement of seed sowing, seedling production, transplanting to reduce disease - Economic evaluation (cost and benefit analysis) - Mitigation measures of insect and disease damage
Quality of vegetable is low due to lack of usage of materials	- Installation of agri-materials	- Usage of multing, tunnel and/or greenhouse to equalize and enhance growth, to control insect and disease - Economic evaluation (cost and benefit analysis) - Control of fertilizer and pesticide approved by the Gov. - Encouraging farmers to use bio-insecticide

2.7 FIELD INSTRUCTIONS APPLYING BASIC GAP

2.7.3 Internal Monitoring

Internal monitoring shall be executed once a month.

Participants are production manager, internal auditor, PPMU technical inspector and farmers to share experience and give guidance to farmers in the application of basic GAP.

2.7.4 Internal Audit

- Internal audit shall be conducted 2 times/ year using basic GAP checklist (26 items)
- PPMU technical inspectors shall attend the internal audit to instruct target group
- 2.8 Upgrading Conditions to Ensure Food Hygiene and Safety

- With consideration of market requirements, JICA Project team and PPMU conduct a technical assessment to upgrade the conditions to ensure food hygiene and safety in production area, pre-processing place and outlets.
- JICA Project team and PPMU will develop an upgrading plan with a list of necessary equipment and materials.

- JICA Project team and PPMU supervise the installation and operation, and evaluate the usage of the installed facilities and the improvement of the conditions compared with the previous conditions.

2.10 EXTERNAL INSPECTION AND AUDITING

2.10.1 Inspec tion and assessment of Basic GAP implementation

- PPMU and JICA Project team shall assess the implementation of pilot projects in line with Basic GAP by using the checklist.
- A respective staff will be appointed as external inspectors by PPMU.
- Audit report shall be prepared and submitted to PPMU and JICA Project team.

2.10.2 Pesticide residue check

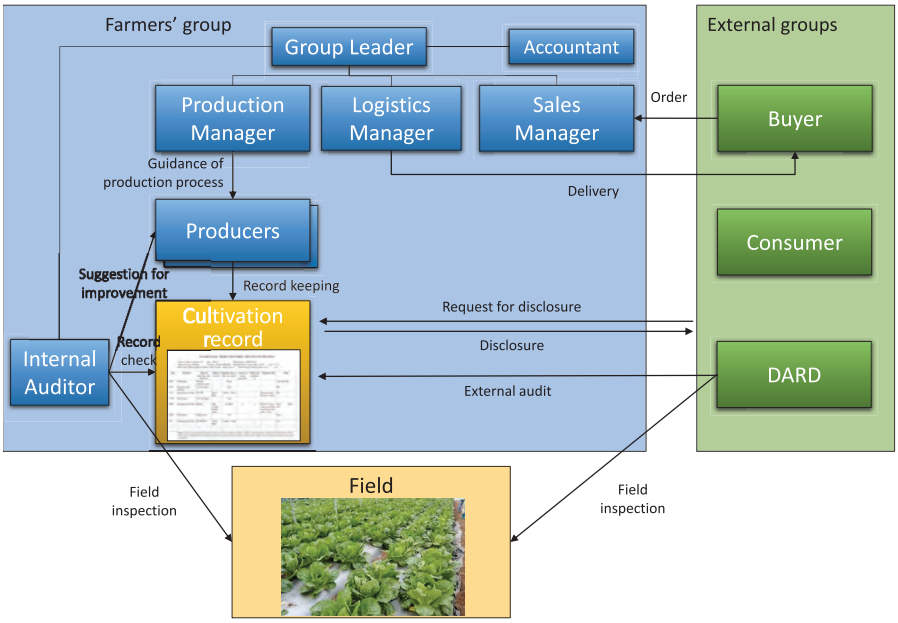
(1) Quick Sampling Test

- Quick sampling test will be conducted by PPMU inspector by using a quick tool kit.
- The results will be shared among target groups, PPMU and JICA Project team, but not be disclosed to the public.

(2) Laboratory Test

- Laboratory test will be arranged by PPMU with JICA Project team.
- PPMU inspector collects and send samples to a qualified laboratory.
- The results will be disclosed to the public and utilized for marketing as the evidence of safety of products.

PILOT PROJECT IMPLEMENTATION STRUCTURE



FORMATION OF SAFE VEGETABLE PRODUCTION GROUP

No.	Group Name	Group Size (Total)	Group size for pilot activity	Target crops (tentative)
Ha Nam				
HN-N3	Ha Vi coop.	1.45ha 25 members	**(1.1ha)** **25 members**	Winter: Broccoli (16HH; 5100 m^2) Cabbage (8 HH; 4200 m^2)
HN-N7	Hiep farmers group	2.5ha 13 workers	**2.5ha** **13 workers**	Winter: Tomato (3600 m^2) Summer: Melon (10,000 m^2)
Hai Duong				
HD-N1	Tan Minh Duc coop.	27ha 168 members	**(10ha)** **60 members**	Winter: Cabbage (20 HH; 4 ha) Summer: Melon (10 HH; 2ha), W.Melon (10 HH; 2 ha)
HD-N4	Thanh Ha company	20ha 59 members	**4ha** **40 members**	Winter: Tomato (6 HH; 4000 m^2 Summer: Cucumber (4 HH; 2500 m^2)
HD-N5	Duc Chinh coop.	200ha 1,636 members	**7ha** **74 members**	Winter: Carrot, Summer: Melon, W.Melon
Hung Yen				
HY-N2	Japan-Vietnam coop.	1ha 5 members	**1ha** **5 members**	Winter: Tomato, leaf vegees Summer: Melon, leaf vegees
HY-N4	Yen Phu coop.	15.5ha 197 member	**(3,4ha)** **32 members**	Winter: Tomato (15HH; 2 ha) Cabbage (10 HH; 1 ha) Summer: Cucumber (10 HH; 1 ha) Pearl shape melon (10 HH ; 1 ha)

Note: Numbers of farmers in pilot activity might be changed according to future marketing and planning activities. Target crops described here are tentative and to be decided through discussions in the future.

Project for Improvement of Reliability of
Safe Crop Production in the Northern Region

Basic GAP TOT Material Series

No.1

DEVELOPMENT OF SAFE CROP PRODUCTION WITH GAP APPLICATION

DCP/MARD
JICA Project Team

Explanation of terms

- **What is GAP**? GAP is an of "Good Agriculture Practice"
- **What is TOT**? TOT is an abbreviation of "Training of Trainer", training for **trainer**
- Why should "TOT training" be conducted?
  - New knowledge, difficult to access and update information
  - Cascade training method: The expert trains the technical staff, who trains other farmers who have less knowledge.
- Study to transfer to other people

Meaning of GAP application

Gap application in safe crop production is an international and inevitable trend, including Vietnam

1. Avoid risk, hazards in production (protect labor)
2. Create safe agricultural products

   (for community)
3. Reduce production input – land between land and environment
4. Develop sustainable production (active, effective)
5. Increase more opportunities for international integration opportunities

Classification of GAP

■ National, international GAP procedure

1. Global GAP (started from EuGAP)
2. Asean GAP (GAP applied in Asean countries)
3. Country's own GAP
4. VietGAP

- VietGAP for fresh vegetables, fruits, issued in 2008
- VietGAP for fresh tea, rice, coffee issued in 2010
- VietGAP for rice, issued in 2010
- Basic GAP for vegetables, issued in July 2014

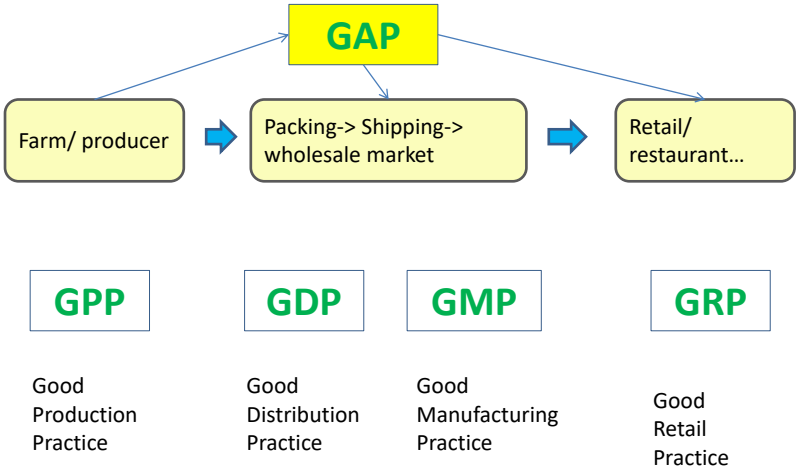
(Decision No.2998/QĐ-BNN-TT dated 0/07/2014)

- In 2017, Cultivation VietGAP standard was issued.

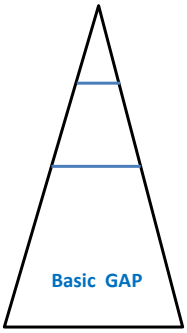
■ Other Gap procedure

Locality, companies, private sector, supermarket, etc.

Sitemap of GAP practice



Selection of appropriate GAP



Suitable for big scale production, farm: Global GAP, Asean GAP, VietGAP…

GAP for specific sectors, agriculture organizations, or localities

GAP includes basic safety criteria that everyone can apply, especially farmers of small scale

Perspective approach of Basic GAP

- Simple, easy to access, active for practice, effective for production.
- Ensure to produce safe products and origin traceability
- Basic GAP is suitable for almost all farmers in Vietnam
- ***Basic GAP is equivalent to Cultivation VietGAP standard (regarding safety criteria)***

Why should GAP be applied?

GAP application produces safe products and trace product origin, resulting in benefits for both producers and consumers.

For Producer

- Use information recorded in diary to improve production
- Able to reduce production cost and improve product quality
- Prevent factors causing pollution to production area and environment
- Minimize risk to work safety
- Have evidence to answer customer's question (product origin)
- Develop branding, label for product.
- Develop production on active and effective basis

For Consumer

- Consumers have chance to select safe products
- Contribute to protect community health.

2. Other GAP process with safe production processes

- Record production diary, manage production and keep dossier.
- Serve as basis for improving production and product traceability

Actual situations of safe vegetable production

- Total vegetable farming area across the country: more than 800,000 ha/ year
- Average productivity: 14 – 15 tons / ha;
- volume: 12 – 13 million tons; Export: around 10 – 12 %
- 90 % farmers are at small scale
- Many safe vegetable production procedures have been applied.
- Many relevant legal documents
- The ratio of products which satisfy food safety quality is still low
- Viet GAP has been applied since 2008, but there are many shortcomings
- Phase 1 JICA project developed Basic GAP procedure
- Basic GAP procedure applied for vegetables was issued in 7 / 2014.

However, safe vegetable production applying GAP is still limited

Which measures to develop safe crop production ?

The necessity of Basic GAP application

1. High risk of food un-safety, difficult to avoid
   (unable to differentiate safe products in the market)
2. The production routine practice that was based on experience must be changed to be suitable with current requirement
3. Must change awareness, behaviors to protect health, produce safe products and conserve natural resources
4. Production should be suitable with planning, current regulations and development trends.
5. Production must comply with plan, current regulations and be suitable for developments trends
6. It's necessary to form sustainable and effective production.

To achieve target: all products produced should be safe

Effectiveness of GAP application

1. Actively select GAP suitable to production conditions and customer's requirements.
2. Internal monitoring and inspection (serving as basis for the safety level) is a requirement of GAP application overcome the problems together actively detect risks and overcome the problems together
3. Information in the Field diary helps producers clearly see the advantages, disadvantages of un-safe behaviors and therefore actively revise them.
4. GAP helps producers feel more confident and have sufficient basis for taking responsibility for their product's level of safety
5. Reduce input cost, reduce product price, economic effectiveness
6. Improvemet in every aspect of production activities when applying GAP.
7. Develop branding and create trading opportunities
8. Protect health, develop sustainable production.

Good Agriculture Practice

1. Define safe production area

- Production area is planned, focused with good environment
- Farming soil, irrigation water and washing water must satisfy safety criteria

2. Production organization

- Establish production group (focused) on volunteer basis
- Make production plan, select suitable GAP
- Assign responsibilities (internal agreement)

3. Manage quality of production input

- Agriculture material shops of Cooperative (ensure quality of production input: fertilizer, approved pesticides from the list, good quality)
- Do not buy pesticides which do not have clear origin

4. GAP in production

- Good Agriculture Practices
- Good harvesting, pre-processing
- Safe transportation

Good Agriculture Practices

5. Record field diary, record keeping

Record field diary (following form): redord all production activities, production management in sufficient and regular manner.

6. Internal monitoring, inspection

– Internal monitoring, inspection: 1-2 times/ year, 1 time/ season (following procedure)

- Check field, warehouse of agriculture materials, pre-processing area, check field diary in comparison with control points (Viet GAP, Basic GAP)
- Detect and handle safety risks, adjust production behaviors.

7. Selling products

- Product introduction shops
- Field visit, check field diary → consumption contract
- Consume order-based products
- Organize joint sale

Why should we record a field diary, and continue recording?

- A field diary shows the whole production process and confirms production practice behaviors
- A field diary keeps information on production cost, quality of agricultural materials
- Provides information on varieties, technique solutions, types and yields of crops
- Provides information on customers, price, volume, income, etc.

> Handle information > Improve production in a safe and effective manner

- A field diary serves as proof for adjusting production behaviors to ensure safety
- A field diary reflects information which serves as proof to explain about GAP of production activities
- Basis for product origin traceability

☞ Field diary is the basis, foundation of GAP

PRODUCERS MUST HAVE KNOWLEDGE ON GAP

Audit and monitoring system

* **Internal audit and monitoring** (stipulated in GAP procedure)

  Monitor, check production process internally

- **Monitor together with customers**

  Can invite customers to join the monitoring of quality

- **Participatory Guaranty System (PGS):** different parties (Producers + technical staff + auditor + consumer) together check production, products

- **Certification bodies** (3rd party)

  Certification bodies directly check production activities; base on information provided by producers and issue Certificate

- **Monitor by functional authorities**

  MARD, National Program, provinces have program, plan, activities to monitor the quality and safety of products produced in the agricultural field

Certificate for quality

- **Self confirm the quality**
- Producers confirm product quality by themselves and take responsibility for the product quality (prove the production activities, information transparency, invite customers to visit field, check production diary, etc).
- **Quality confirmed by certification body**

- Circular 06/2018/TT-BNN revised, Circular 48/2012/TT-BNN on certification for quality
- When will they certify (VietGAP, Basic GAP, etc).

+ When customers require, make order or accept the higher price
+ When there is support provided by programs, projects.

- **Participatory Guaranty System (PGS)** VECO project

  Confirm and monitor quality internally: group members will monitor each other, monitor different groups (parties: technical staff, producers, consumers) This leads to self propagation of the safety level of products.

Necessary supports

- Planning production area with safe production conditions (including analysis of soil, water samples, tank, rubbish treatment), infrastructure, etc.
- Pre-processing area (simple, clean water source, washing basin, etc).
- Training in safe crop production: organize production, safe process, safe input, advanced techniques, market information
  - Training of trainers: staff, in-charge extension staff
  - Training of farmers: regularly
- Communication to improve awareness on food safety and hygiene, protection of health and environment and relevant legal documents
- Support, encouragement by all levels, sectors

Roles of stakeholders

1. **Pilot farmers:**

- Apply GAP to produce safe products
- Agree, assign tasks, share benefits
- Comply with procedures, follow guidance
- Have habit of recording field diary and record keeping

2. **Technical staff, group leader**: directly guide farmers

- Guide farmers to follow GAP
- Organize production, manage quality of production inputs
- Distribute, sell safe agriculture materials to farmers
- Chair the inspection, internal audit
- Directly deliver trainings to farmers
- Evaluate market, develop production plan

3. **Local authority** (ward, commune): support, connect communication, supporting activities
4. **Governmental managements:** Make general plan, have encouragement policies, supporting budget, direction, monitoring

Conclusion and Lessons learned

- **GAP application**: reduces input cost, increases economic efficiency; improves production capability, protects health, is responsible for the community
- **Trace product origin**: enhances opportunities to find customers, product consumes. At the same time, increases responsibility of producers regarding product safety.
- **Record field diary and keep production file**: results in practical benefits; therefore, these activities should be routinely practiced
- **Producers are the best source of awareness of product safety**: can confirm by themselves, take responsibility of product quality. Information transparency will build the customer's trust.
- **Joint sale and production will result in higher economic efficiency**
- **The easier it is to practice, the greater the scale of application**
- **Sustainability starts from effectiveness.**

Together do Good Agriculture Practices to protect health and produce safe products

GUIDANCE ON BASIC GAP PRACTICES
Training of Trainer course (TOT)

Introduction of Basic GAP

Basic GAP
Procedure of basic good agriculture practices

Basic GAP was issued under Decision No. 2998/QĐ-BNN-TT dated 2/7/2014 of Minister of MARD

- Purpose: Promote and disseminate the production of safe crops

- Target: all producers, suitable for small-scale farmers

- Requirement: safe product production and traceability.

- Contents:

+ Conditions of safe production area: soil, water, pre-processing area, waste disposal containers, producers provided with training, unpolluted environment

+ Safe inputs: clear origin, reflected in the List, etc.

+ Good practices: Proper use of fertilizer, agro-chemicals, quarantine time before harvesting, pre-processing, production management record and record keeping

+ Record of production diary, record of farm management and other record keeping

+ Internal audit, evaluation (Farmers, technical staff, head of Co-op, etc)

- Control points: 26 / 65 control points of VietGAP

Basic GAP

STRUCTURE OF BASIC GAP
(Field diary and Production management diary)

FIELD DIARY

Farmers record daily production activities.

- Guidance for use
- Overall information for producers
- Table: sample sheet and 3 tables
+ Diary of production practices
+ Diary of buying agricultural supplies
+ Diary of harvesting, selling products
- Attached documents
+ Checklist table, internal audit
+26 control points (Basic GAP)

PRODUCTION MANAGEMENT DIARY

Technical staff, Co-op, group records seasonal/ yearly production activities in the area

- Guidance for use
- Overall information for producers
-Record table: 5 tables
+ Management of production conditions
+ Production management in the area
+ Manage the quality of production inputs
+ Management of selling and supplying agricultural materials
+ Management of training activities
- Attached documents
+ Checklist table, internal audit
+26 control points (Basic GAP)

BOOK 1- FIELD DIARY

GUIDANCE FOR USE

1. Target of use: farmers/ producers

2. Reason for recording Field diary: to prove production activities, monitor the outgoing and incoming flow of money, calculate economic turnover, adjust schedule/ plan for next season

3. Guidance for use: record and keep activities including production, buying agricultural materials, harvesting and selling products

How to record: record production activities (following forms in the book)

How to keep records: farmers/ producers should regularly record and keep diary of production practices (hanging on the wall, place seen daily to facilitate convenient use).

Note: Checklist and evaluation table including 26 control points are used to monitor, evaluate internally during the process of production practices (following GAP)

Based on basic principles of this book, producers can split or detail to make it suitable to each specific condition.

Field Diary

SAMPLE PAGE– DIARY OF PRODUCTION PRACTICES

Name of field plot (No.): 01 Area: 0,5 sào Planted date: 5/9/2010
Name of crop: cabbage; Varieties: KAKACROSS; Expected harvest time: 1st time: 24/11 Last time: 5/12; Protective cloth: Yes ( ) No ( ); Waste disposal is placed in proper place: Yes ( ), No ( )

Date, (Solar year)	Activities	Name of pesticide and fertilizers	Name of disease	Quantity (kg, g, litre, ml, pack)	Follow the guidance	Warning board (x)	Risks detected	Implemented by
2/10	Fertilizing	Composted manure		50 kg			No warning board	Trần Thị Mỳ
7/10	Applying nitrogen with water irrigation	Nitrogen Urea		2 kg				Mỳ
13/10	Spraying pesticide	Regent	Diamond-black moth, flea beetle	0,2		x	Plot No.3 is sprayed 3 times more than usual	Mỳ
20/10	Spraying pesticide	Abamettin	Deep blue	0,2		x		Mỳ

TABLE 1 - DIARY OF PRODUCTION PRACTICES

Name of field plot (No.): ……Area…… Plated date…… …… ……..
Name of crop:…… .Varieties…… …..Expected harvesting time: 1st:……Last time
Protective cloth: Yes ( ) No ( ); Waste disposal is put in proper place : Yes ( ) No ( )

Record from planting to harvesting; One separate table for each kind of crop to facilitate convenient monitoring

Date, (Solar year)	Activities	Name of pesticide and fertilizers	Name of disease	Quantity (kg, g, litre, ml, pack)	Follow the guidance	Warning board (x)	Risks detected	Implemented by

TABLE 2 – DIARY OF BUYING AGRICULTURAL SUPPLIES FOR PRODUCTION

Place to keep pesticides, fertilizer……

The stores which provide agricultural supplies must have a business license, under the control of legal agencies

Date (Solar year)	Name of pesticides, fertilizer	Quantity (Kg, g, liter, ml, bottle, pack)	Price (đồng/ kg, liter, bottle, pack)	Purchased at stores of Cooperative/ household owner, mark (x)	Purchased at other stores		Buyer/ User (Full name, sign)
					Name	Address	

TABLE 3. DIARY OF HARVESTING AND SELLING PRODUCTS

Area of pre-processing/preservation:.....Address of retail markets:.....

Note: This table is commonly used for many kinds of vegetable harvested from different field plots; Number of isolation days: from last day of spraying pesticides to harvesting day;

At the column of retail and risk detected.. If have, just mark (x)

Date/ month (solar year)	Harvesting			Selling products					Risk detected/ already addressed the hazard (mark x)	Implemented by
	Kind of crop	Name/ code of field plot	Isolation time (day)	Quantity (kg, plant)	Price (đ/kg, plant)	Selling ways/ buyers				
						Retail (mark x)	Wholesale to whom	Sold under contract to whom		

BOOK 2- PRODUCTION MANAGEMENT DIARY

GUIDANCE FOR USE

1. Target of use: Head of Cooperative/ group leader/ Technical staff

2. Reasons for recording a production management Diary and record keeping

Run production activities; manage quality of inputs, adjust un-safe behaviors; evidence of traceability, improve management responsibility, etc.

3. Guidance for use:

How to record: record production management activities of Cooperative/ production unit/ farmers group (following form)

How to keep record:

Head of Coop/ head of unit/ respective technical staff/ leader of farmers group is responsible for monitoring production process, production management in the area and keeping the record.

Note: *Checklist, evaluation table including 26 control points are used for internal auditing and evaluation (1-2 times/ year or 1/ season)*

Results of internal auditing (for each household) are stored in Table 5-Production management in the area. In case of being not satisfactory, it requires corrective actions and re-check.

TABLE 4 – PRODUCTION CONDITIONS MANAGEMENT

Production unit.....Commune.....District.....Province.....
Total area of vegetable cultivation (farming area).....(sào/ ha).....
Source of irrigation water:.....Environmental conditions: Satisfactory.....Not satisfactory...
Date of sampling.....Sampling person.....Unit which analyzes sample.....

Actual situation of production conditions				Risks detected and Corrective actions		
Condition	Factors that cause pollution	Current evaluation		Description of risk observed	Corrective actions	Implemented by
		Satisfactory	Not satisfactory			
Soil	Heavy metals					
Irrigation water	Heavy metals					
	Microbiology					
Water for pre-processing, washing products	Heavy metals					
	Pesticides					
	Nitrat					
	Microbiology					

-The limit of heavy metals in soil: National Technical Regulations: NTR No 03: 2008/BTNMT;
-The limit of heavy metals in irrigation water: National Technical Regulations. 39:2001/BTNMT;
- Quality of water used for washing and pre-processing products: Following QCVN số 02: 2009 /BYT of Ministry of Health regarding the quality of water

TABLE 5 – PRODUCTION ACTIVITY MANAGEMENT IN THE AREA

Production unit.....Commune.....District:.....Province.....
Total cultivation area (vegetable):.....(ha); Number of members:.....; Season/ year.....
Area of model site: .....(ha); Number of farmers households participating in the model...
Technical guidelines, advanced technology (if applied): Type of key products.....
Note: If the production unit has many members, members are divided into groups, each group/table;
Results of internal evaluation every season/ year (following form) are stored in this table

No.	Field management			Results of internal evaluation		
	Name of household	Production area (m^2)	Code of field plot	Date/ contents	Results	
					Satisfactory	Not satisfactory
1						
2						
3						
4						
5						
6						
7						

TABLE 6.- MANAGEMENT OF PRODUCTION INPUTS (BUYING PESTICIDES, FERTILIZERS, SEEDS)

Name of shop:..... Address:..... Storage:.....
Code/ Paper licensed for business:..... Full name of store owner:.....
Production unit..... Inspector (if have):.....

Date/month/ year	Name of pesticides, fertilizer, seeds, etc (correct name on pack)	Quantity (bottles, boxes, packs)	Unit (g, kg, ml, litre)	Producer/ distributor

Note: can make a separate record book (Record book of agricultural materials of production unit)

TABLE 7 – MANAGEMENT OF PRODUCTION INPUTS (SELLING/ PROVIDING AGRICULTURE MATERIALS)

Production unit.....

Inspector (if any):.....

Date/ month/ year	Name of pesticides, fertilizers, seeds, etc (correct name on package)	Quantity (bottles, boxes, packages)	Unit (g, kg, ml, litre)	Store	Buyers

Note: can make a separate record book (Record book of agricultural materials of production unit)

TABLE 8 – MANAGEMENT OF TRAINING, COMMUNICATION

Production unit……Commune……District……Province……
Full name of unit leader…… Technician in charge……

Date/ month/ year	Training				Communication		
	Number of farmers (list attached)	Contents of training	Duration of training (day)	Certification (mark x)	Communication contents	Response to communication (mark x)	Opinion/ initiatives (if any)

TABLE 9 – TABLE OF CHECKLIST

No.	Practices	Level	Notes
I	**Production conditions**		
1	Is the production area in accordance with national and provincial planning on the crop type intended for production?	**A**	
2	Does the production area meet safety requirements (quality of soil, irrigation water for production) in accordance with regulations?	**A**	
II	**Management of planting soil and field hygiene**		
3	Has soil of production area been analyzed and assessed in terms of potential chemical, biological and physical risks?	**A**	
III	**Manage the use of fertilizer and additives**		
4	Are only fertilizers which are on the list of those permitted for doing business in Vietnam used?	**A**	
5	Are only organic fertilizers which have been treated and have sufficient dossier of these organic fertilizers used?	**A**	
6	Is the dossier of purchase and application of fertilizers, soil additives recorded and kept?	**A**	
IV	**Manage the use of water source for production**		
7	Is quality of irrigation water and water which is used for post-harvest handling ensured in accordance with current standards?	**A**	

No.	Practices	Level	Note
V	**Manage the use of pesticides and chemical**		
8	Have workers and organizations/ individuals who hire workers been trained on management and safe utilization of agrochemicals?	**A**	
9	Have measures on Integrated Pest Management (IPM) and Integrated Crop Management (ICP) been applied?	**B**	
10	Are chemicals, pesticides, biochemical applied in production in the list of permission for use?	**A**	
11	Are chemicals, pesticides and other agriculture materials purchased from shops which have business license?	**B**	
12	Are pesticides and chemicals used in accordance with guidance provided by technical staff and instruction on product packs/ labels?	**A**	
13	Are dairy and records/ documents for monitoring the application of pesticides and chemicals available?	**A**	
14	Is the destruction of chemicals and packages in accordance with regulations?	**A**	
15	Is the inspection of production process and chemical residues accumulated in crop products conducted in periodic or unscheduled manner?	**A**	
VI	**Harvesting and post harvest handling**		
16	Are products harvested with appropriate application of pre-harvest interval (PHI)?	**A**	
17	Is the area for pre-processing, packaging and preserving products isolated from warehouse of chemicals and pollutants?	**A**	
18	Is the clean water source used for washing post-harvest products?	**A**	
19	Is quality of water applied in post-harvest handling in accordance with regulations?	**A**	
VII	**Management and Waste treatment**		
20	Is waste water and garbage collected and treated in accordance with the regulations?	**A**	
VIII	**Training, communication**		
21	Are workers fully trained with knowledge on Integrated Pest Management (IPM), Integrated Crop Management (ICM) and Good Agriculture Practices (GAP)?	**A**	
22	Are warning boards available in the vegetable, fruit production area which has been just applied with pesticides?	**B**	
IX	**Record the production diary, record keeping, traceability**		
23	Are the Field Dairy and Production Management Diary fully recorded?	**A**	
24	Are internal audit, recording and keeping dossier of internal audit results implemented?	**A**	
25	Is the production address or product label put on products to ease the traceability?	**A**	
X	**Internal audit**		
26	Is internal audit and internal evaluation implemented for at least once per year/ season?	**A**	

Practices of Basic GAP

SAFE PRODUCTION AREA

The production area is eligible for safe conditions

- ✓ The production area should be in the planned area
- ✓ Conditions of soil, irrigation water, environment must be safe in accordance with regulations
- ✓ Have pre-processing area, safe water for washing products. Isolated from chemical stores.

SAFE PRODUCTION AREA

- **Other conditions**

✓ Have area, bins to contain waste, and treat pesticide bags/ containers in the field.

✓ Farmers are provided with training, knowledge on IPM, ICM, GAP, crop production process to ensure food safety

PRODUCTION MANAGEMENT

1. Manage production conditions.

✓ Keep the analysis results of soil and water samples or Certificate of safe crop production conditions (*At Table 4 – Production condition management)*

✓ Timely detect and have corrective actions for potential risks of environment and production area contamination.

2. Manage production in the area

✓ Give code for field plots of households participating in production

✓ Keep internal evaluation results (every season/ year)

MANAGE QUALITY OF PRODUCTION INPUTS

3. Manage quality of agriculture materials

- ✓ Cooperative's store must have business license, under the control of legal agencies
- ✓ Pesticides, fertilizers, chemicals in the list approved for use have clear origin (producer, distributors)

4. Provide safe agriculture materials

- Sell/ provide fertilizer, pesticide with correct type, correct quality and clear origin
- Varieties, advanced cultivation techniques, etc.

➢ ***Responsibility of Management Board of Cooperative***

MANAGEMENT OF HUMAN RESOURCE

5. Training management

- Provide GAP knowledge (*how to record field diary and record keeping)*
- Knowledge on plant protection
- Production techniques
- Improve awareness
- Share experience

- **Recording diary, record keeping**
- Head of Cooperative, technical staff in charge, group leader record production diary and keep the record

PRODUCTION ORGANIZATION

1. Group discussion

- Volunteer participation
- Meet to reach an agreement on production plan, general regulations
- Select proper GAP, cultivation technique advancement, new varieties, etc.
- Give numbers to field plots to facilitate the management

2. Practices of production

- Buy fertilizers, pesticides, chemicals of clear origin: buy in Cooperative's stores/ approved for business
- Keep/ store fertilizer, pesticides, chemicals in proper places
- Minimize the use of chemicals
- Promote the application of organic fertilizer, biological pesticides

PRODUCTION ORGANIZATION

3. Use of fertilizers and pesticides

- Apply fertilizers, pesticides properly: right time, correct quality, correct dosage, correct method (follow guidance by technical staff or information on the package)
- Warning board in the production area which has been sprayed is displayed
- Share information, experience

(plant protection group)

4. Record field diary and keep the record

Record field diary, production management diary following the forms

Production record is kept to change for the next seasons, and prove evidence on origin traceability

QUALITY AUDIT

- **Internal audit, inspection** (Following GAP process)

- Establish internal audit team including:
  Technical staff + producer + manager
- Inspect 1-2 times/ year or 1 time/ season
- Method: Check actual conditions of production, pre-processing conditions (water source, tools, packing, means of product delivery, etc); check Field diary, production management diary in comparison with 26 control points > timely corrective action
- In case of not satisfactory: must have corrective actions and check again

- **Keep results of internal audit, inspection**

- Results of internal audit, inspection is kept in Table 5- Production management in the area (Production Management Diary)

HARVESTING, PRE-PROCESSING PRODUCTS

Harvesting and preprocessing the products

- ✓ **Proper isolation time before harvesting**
- ✓ **Clean tools used for harvesting and pre-processing**
- ✓ **Clean water used for washing products**
- ✓ **Clean containers to keep products harvested**
- ✓ **Safe means of transportation used to deliver the products**
- ✓ **Have labels, stamps to facilitate origin traceability**
- ✓ **Introduction of products**

CONSUMPTION OF PRODUCTS

1. Actual conditions of safe product consumption

- **Ways of consumption**
- Self-consumption (mainly)
- Joint consumption (small percentage)
- **Market**
- Retail selling in local markets (same price with normal products)
- Sell to collectors (collect at the field, no need for pre-processing)
- Product introduction stores of Cooperative (limited amount)
- Sell under contract (restaurant, supermarket, school, canteen, etc)
- **Concerns of customers**
- Price is 10–20 % higher (sell under Contract or at the store)
- Is interested by customers

2. Orientation of development

- Production bases on market demand, promote joint consumption

Production and joint consumption will achieve better economic efficiency

QUALITY AND SAFETY CERTIFICATION

- **Self certification for quality and safety**

  Implement GAP by self-proclaiming the quality, self-certifying the product, which is easy initial for producers

- Clearly understand production behaviors -> self-confirm > self responsibility, information is shown on product -> customers can trace the product origin

- **Quality and safety is certified by organization (**3rd party Certifier)

  When customers require, make order and accept higher price, producers can invite Quality Certification Organization (3rd party certifier) come to check, monitor the production process and issue Certificate (Viet GAP, Basic GAP, etc)

- **Participatory Guarantee System (PGS)**

Self-check in accordance with principles of ensuring the engagement of stakeholders: producers, production managers, customers

ORIGIN TRACEABILITY

- Attach the stamps, labels on product to facilitate customer's origin traceability.
- Introduce products: invite customers to visit production area, review field diary
- Provide transparent information, build customer's trust/ reliability
- Clearly understand product origin, promote responsibility
- Listen to feedback
- Develop brand-name

CHANGE AWARENESS FOR PRODUCERS

- **Make production plan**
  Based on production capacity, market requirements, information of preceding season > make decision of types, quantity, quality, etc.
- **Organize the production**
  Production in group: save inputs, easy to manage and revise, many opportunities of product consumption> Better efficiency
- **Record field diary and keep record**
  Establish routine practice of recording production activities and keep record serving as evidence and drawing lessons learned for next seasons
- **Take self-responsibility for product quality**
  Provide transparent information of production > self-proclaim and self responsible for product quality
- **Clearly understand purpose of internal audit**
  - It is necessary mission to be done
  - Together check quality of input, production conditions, production practices, production process, etc.
  - Revise for improvements
- **Draw lessons learned**
  Willing to share information, take responsibility, have mutual benefit
- **Joint consumption**
  Share customer's information, quantity, type of products to facilitate best consumption of products

LESSONS LEARNED FOR PRODUCERS

- Self supply: Sell products produced > produce to meet market requirement
- Individual, don't care for others > collective, share information
- Lack knowledge on working safety > protect their health
- Only concern about yield, volume > yield goes together with quality
- Don't know how to find output market for products > build customer's trust
- Overuse of fertilizers, pesticides > reduce quantity of inputs
- Do not care to input quality > input plays important role
- Maximize the exploitation of land potential > renovate, preserve resources of farming land
- Production behaviors are arbitrary, spontaneous > Awareness to protect environment
- Work hard > Improve production methods (apply GAP)
- Lack knowledge on food safety > all products produced must be safe

Production of safe crops is not difficult, no need to invest big amount. It is important to change awareness and behaviors

PRODUCTION ORGANIZATION IN PROJECT MODEL

"PRODUCE SAFE VEGETABLES FOLLOWING VALUE CHAIN" (APPLY BASIC GAP AND OTHER GAP)

Organize production following new Coop model

- **Follow Cooperative Law 2012**
- **Coordinate, supply services for Coop members.**
- **Less join direct production**
- **Organize, manage production: implementing work that Coop members are unable to do or do ineffectively.**
    1. Supply or link to distribute agriculture materials (competitive price, good quality)
    2. Train technical staff, guide practices (new techniques)
    3. Manage production process (agree in Cooperative)
    4. Link to consume agriculture products.

Activities of Cooperative, production team

1. **Study market, evaluate demand of safe products, develop business plan.**
2. **Develop and standardize production process and internal audit system.**
3. **Organize training for Coop members and farmers.**
4. **Supply seedlings, agriculture materials to members (ensure quality, competitive price).**
5. **Monitor the implementation of production plan and production process**
6. **Organize linkage for agriculture product consumption: purchase, pre-process, preserve and consume products for members.**
7. **Draw experience/ orientation for price and develop plan for next year/ season**

Select production process
Internal audit system

- **Common production process must:**
  1. Agree on the selection
  2. Application is compulsory for all Coop members
  3. Satisfy requirements on product quality requested by Companies/ customers.
- **Internal audit system:**
  1. Monitor and evaluate member's level of complying with technical process (production and field activities, recording production diary, record keeping)
  2. Origin traceability: recording of monitoring/ reporting by groups/ teams/ technical staff/ Coop members and activities of checking practices/ product quality must be kept/stored.

Supply particular agriculture materials, fertilizers, credit to member's production

- **Coop should give priority to supplying materials, fertilizers, credit that are not available in the market**
- **Joint purchase, buy from the reputable manufactories, address will help to reduce price, avoid fake materials and fertilizers, etc.**
- **Should refer to textbook: "Joint supply" and "Internal credit in Cooperative" issued by Department of Cooperatives and Rural Development (DCRD).**
- **Can apply models of in-kind credit (supply agriculture materials/ fertilizers in advance to members)**

Organize training

- **Coop must make sure that all members fully grasp minimum knowledge on safe production and GAP process**
- **Need to expand training to the whole community and future members of Coop.**
- **Combine theory and practice, focus on hand-on method in training.**
- **Regularly organize training, update and improve knowledge for members.**
- **Organize training of trainer (TOT) and TOF training**

Purchase, pre-process, preserve and consume products

- **It is currently the most important and difficult step**
- **Coop needs to care about developing facilities for pre-processing, processing, sorting products (warehouse, pre-processing house, packaging tools and delivery vehicles, etc)**
- **2 main ways of consumption**
  1. Contract-based consumption with Companies, distributors
  2. Self consumption: directly sell to markets
- **Importance is: product quality, label, brand-name of cooperatiave.**

Draw experience/ orientation on price and develop plan for next year/ season

- **It is regularly organized after each production season and have wide participation by members.**
- **Contents include:**
  1. Evaluate production situation over the past time (good and not good results) both in terms of productivity, yield, price quality, season, etc.
  2. Develop price orientation for next year/ season
  3. Determine works to be done for improving the situation
- **Orientation for next year/ season: find solutions for obtaining product price, in the context of always fluctuation of input factors.**

IT IS NECESSARY TO BUILD RELATIONSHIP WITH CUSTOMERS

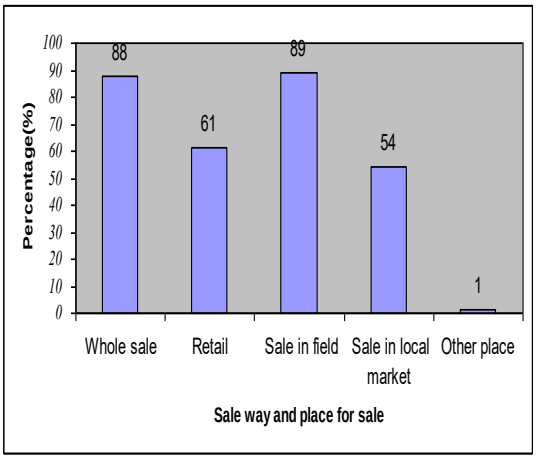
ACTUAL SITUATION OF PRODUCT SALE

Selling plays a very important role for producers. In reality, there are still some limitation:

●Actual situation of product selling:

➢Most of products are sold right in the field

➢Products are sold in local markets



ACTUAL SITUATION OF PRODUCT SELLING

● **Producers:**

➢Do not know whom the products are sold to, how/ where the products are sold

● **Customers:**

➢Do not know where and how the products are produced.

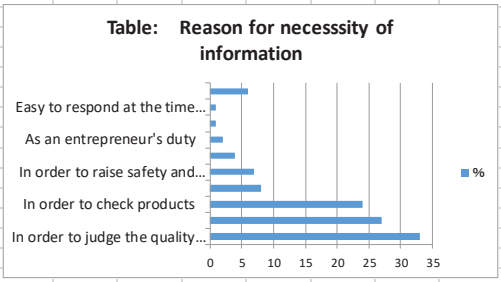
WHAT DO THE PRODUCERS EXPECT?

- Products are fully consumed
- High price
- No negative feedback on the product quality
- Do not have to keep product in warehouse or in the field
- More and more customer's trust

WHAT DO CUSTOMERS EXPECT?

Table Reason considered that a information is necessary

Item	%
In order to judge the quality of products	33
In order to acquire secure and reliability	27
In order to check products	24
In order to raise producer's consciousness	8
In order to raise safety and quality	7
In order to raise consumers' consciousness	4
As an entrepreneur's duty	2
Products are easy to understand	1
Easy to respond at the time of an accident	1
In addition	6



(Food Consumption Monitor: MAFF – Ministry of Agriculture, Forestry and Fishery, Japan)

WHAT DO CUSTOMERS EXPECT?

Customers hope to get "**safety**" and "**trust**"

- "**Safety**" means no residues of pesticides, chemicals, etc.
- "**Trust**" means clearly understanding on information of production, products.

Message to customers: Not only "safety" but also "trust"

SOLUTIONS

For "Safety"

- Crops must be produced in compliance with standards, safe process
- Production diary must be fully recorded and kept.
- Products must have labels for origin traceability

For "Trust"

To build good relationship

- Publicize and transparent information on production process, producers
- Have brand-name, good reputation

WHAT SHOULD PROCUDERS DO?

- Production plan (on basis of market requirement)
- Good production organization, produce safe products
  - Safe production area (soil, water, environment)
  - Quality of production inputs is assured.
  - Information production activities, process are kept (field diary, record keeping)

WHAT SHOULD PROCUDERS DO?

- Sufficient conditions for pre-processing, shipping (washing water, tools, etc)
- Joint sale > maximize customer's requirements

(share product kinds, customers, etc)

- Products are traced (stamp, label)
- **Develop relationship with customers**

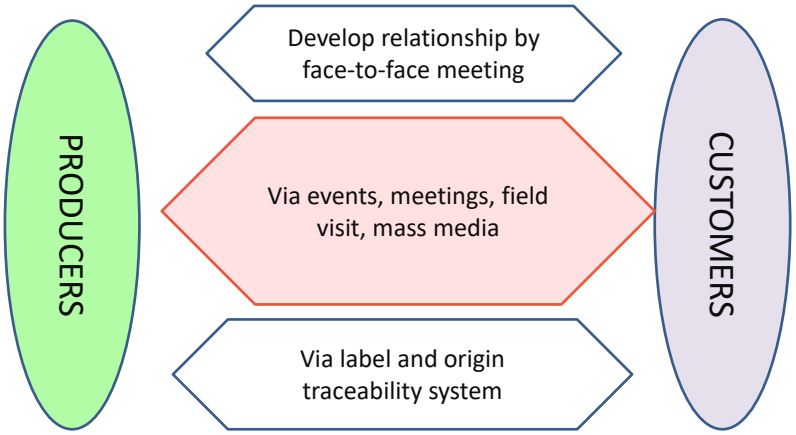
BUILD RELATIONSHIP

- Invite customers to visit the field
- Go to customer's place to explain about the products
- Open the shops/ stores for product introduction

BUILD RELATIONSHIP

- Have stamps, label on products to ease customer's recognition of product origin
- Join trade fair, exhibition, etc.
- Visit, join workshop, conference (more opportunities to meet and introduce about products, etc)
- Information sent to customers (develop website, leaflet, etc).

BUILD GOOD RELATIONSHIP BETWEEN PRODUCERS AND CUSTOMERS



ISSUES to be concerned

- **Do you know when your products are sold?**
  - **→ Where the products are sold, in what kind of shops/ markets, who are the customers, and how much is the price?**
- **Do you have information on producers, production process?**
  - **→ Do customers know where, by whom and what method the products are produced?**
- **What are products which customers expect to buy?**
  - **→ Is your product one of customer's choices?**
- **Do you have opportunities to share customers about your production conditions?**
  - **→ Can customers be provided with these information to enhance the trust?**

“Safety” and “trust“ result in effectiveness and sustainable development

Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Basic GAP TOT Material Series

No.2

PRODUCTION SITE SELECTION SOIL AND WATER MANAGEMENT

DCP/MARD
JICA Project Team

INTRODUCTION

Basic GAP is issued according to Decision No. 2998 / QD-BNN-TT dated July 2, 2014 of the Minister of Agriculture and Rural Development to promote safe crop production with minimum 26 control points extracted from 65 control points of VietGAP.

This material provides guidance and references to meet the requirement of **No.1-3 out of 26 control points** on Basic GAP as below:

1 Is the production site appropriate for the State's and local planning?

2 Do the quality of soil, irrigation water meet the standard for safe vegetable production condition?

3 Do the safe vegetable production site be assessed the potential chemical. Physical and microbiological risks?

CONTROL POINT

No.1 Is the production site appropriate for the State's and local planning?

No	Criteria	Level	Requirement	Method	Reference
1	Is the production site appropriate for the State's and local planning?	A	The production site is appropriate for the State's and local planning. e.g.) Non-compliance case - Location is not separate from industrial zone, polluted river, and other contaminated risks.	- Review of documents (Land use map and/or Certificate of safe production area) - On-site review of farm location	- Law and regulation

No.2 Do the quality of soil, irrigation water meet the standard for safe vegetable production conditions?

No	Criteria	Level	Requirement	Method	Reference
2	Do the quality of soil, irrigation water meet the standard for safe vegetable production conditions?	**A**	The soil and water sampling and laboratory tests are conducted to check heavy metal and biological residues. The chemical, biological, physical risks in soil, irrigation water and washing water shall not exceed the maximum residual limit (Circular 49/2013/TT-BNNPTNT). e.g.) Non-compliance case - There is no record of the results of heavy metal and biological residue checks. - There is no Certificate of safe production area.	- Review the certificate of safe production area and/or laboratory test results. - Review record of heavy metal and biological residue checks and/or laboratory test results	- Certificate of safe production area - National technical regulation QCVN 03-MT/2015/ BTNMT - National technical regulation QCVN 08-MT:2015/BTNMT

No.3 Has the safe vegetable production site been assessed for potential chemical, Physical and microbiological risks?

No	Criteria	Level	Requirement	Method	Reference
3	Has the safe vegetable production site been assessed for potential chemical, physical and microbiological risks?	**A**	There is no chemical, biological, physical risk in the safe vegetable production site. e.g.) Non-compliance case - There is no assessment on potetial contamination risks - There is no corrective action to enable the avoidance, elimination and reduction of chemical, biological, physical pollution risks in food.	- Review the record of field asseesment for potential chemical, physical and microbiological risks.	- Law and regulation

CONTROL POINT NO.1

Actual conditions are surveyed and assessed in line with the government's stipulations on biological, chemical and physical contamination hazards

- In the following cases, soil and water will be tested to confirm the safety of pilot project sites
  - Production area hasn't been confirmed as the one which complies with condition for safe production.
  - Certificate on condition for safe production has expired or will expire in project time.

- Production area expanded is the new pilot project sites.
- Potential risks are assessed as un-safe for production area due to the change of irrigation water source or soil contamination.
- Testing results by DARD and/ or any relevant agencies show residues of heavy metal from product samples produced in pilot project sites.

- Soil and water will be tested in accordance with current standards and regulation.

Chemical hazard identification

Hazards	Causes
Pesticides 	- Cultivated soil and water are contaminated with pesticides - Soil and water source are contaminated by durable toxic chemicals from equipment/ tools in the production areas or chemicals from nearby industrial zones, hospitals, etc.

Chemical hazard identification

Hazards	Causes
Heavy metal (Lead, Cadmium, Mercury, Arsenic, etc)	High concentration of heavy metals accumulated in soil and water of cultivation sites due to previous existence or application of many fertilizers containing heavy metals for a long time.

Biological hazards

Hazards	Causes
+ Bacteria, fungi **+ Virus** **+ Parasites**	Soil and water in production site are contaminated with microbiological substances from husbandry waste water, domestic, hospital and industrial sewage, etc.

CONTROL POINT NO.2

Assessment of chemical, biological contamination hazards

- Collect soil, water samples to analyze the chemical and biological contamination levels in accordance with the stipulations:
  - Methods
  - Sample collector
  - Testing laboratory
  - Performance parameters

Assessing by taking soil and water samples then analyze the residues

- Taking samples is conducted by correct methodology: Method of sampling cultivation soil in accordance with TCVN 4046-85:
  - Equal land area (from 1 to 5 ha) and un-equal land area (from 0.5 to 1 ha), 12 sub-samples are mixed into one sample at cultivation layer (depth: 20 cm)

- Sampling position and pattern: randomly take samples with "W" pattern reflected in Photo 1 in the cultivation plot and in depth of 20 cm.

- Guidance on sampling water samples in accordance with TCVN 6000-1995 on quality of water - sampling underground water.
- Send samples to qualified lab appointed or recognized.
- It is able to check the appearance of E.coli bacteria to show the level of biological contamination of water source.

Annex 1 MRL of some heavy metals in soil in accordance with National technical regulations QCVN 03-MT:2015/BTNMT

No.	Element	MRL (Mg/kg of dry soil)
1	Arsenic (As)	15
2	Cadmium (Cd)	1.5
3	Lead (Pb)	70
4	Copper (Cu)	100
5	Zinc (Zn)	200
6	Crom (Cr)	150

Annex 2 MRL of some heavy metals in irrigation water (QCVN 08-MT:2015/BTNMT)

No.	Element	MRL (mg/lit)	Trial method
1	Mercury (Hg)	0.001	TCVN 5941:1995
2	Cadmium (Cd)	0.01	TCVN 665:2000
3	Arsenic (As)	0.05	TCVN 665:2000
4	Lead (Pb)	0.05	TCVN 665:2000
5	Fecal E. Coli	200 (quantity of bacteria or CFU/100 ml)	Apply for salad vegetables and fruits

CONTROL POINT NO.3

Evaluating risks of biological and chemical contamination

Planned area

Nearby area

What factors should be considered?

Livestock pasturing?	Manufactures, industrial zones, hospitals?
Waste?	Area was affected by chemicals during the war?
Domestic waste water?	Accumulated chemicals?
	Waste dumping?

Industrial husbandry	Place for chemical storage?
Sewage system?	Nearby industrial zones, factories?
Pet's movement?	

Evaluating risks of biological and chemical contamination

How can such dirty water be used for watering GAP safe vegetables?

Can this garbage dump affect my production field?

Biological hazards

Record form – Site assement and selection

Đơn vị sản xuất..... Xã..... Huyện..... Tỉnh.....

Tổng diện tích đất trồng rau (diện tích canh tác)..... (sào/ ha).....

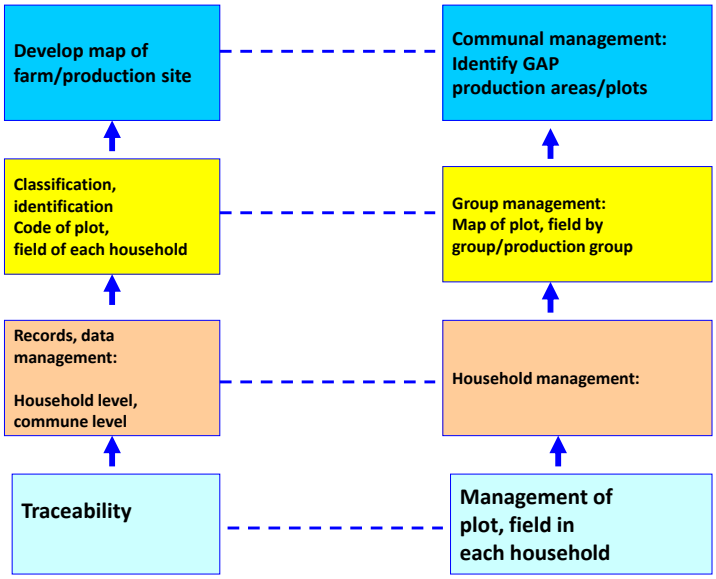
Nguồn nước tưới:..... Điều kiện môi trường: Đạt..... Không đạt.....

Ngày lấy mẫu..... Người lấy mẫu..... Đơn vị phân tích mẫu.....

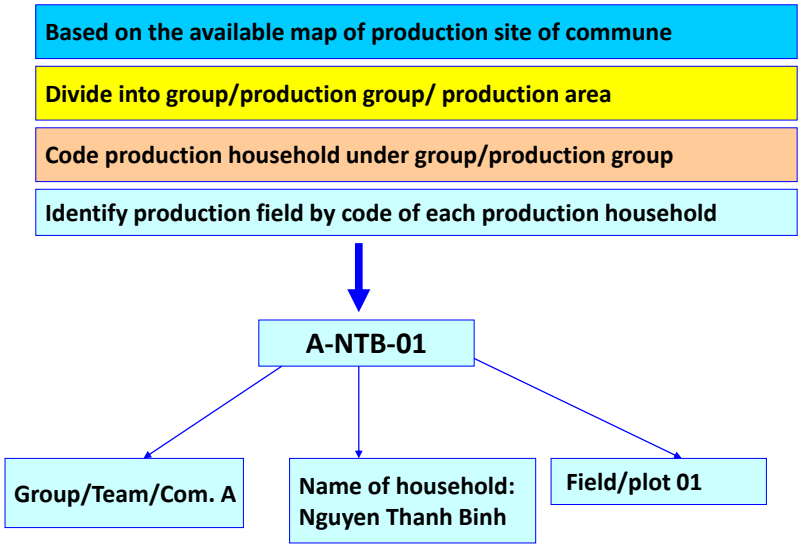
Thực trạng điều kiện sản xuất				Phát hiện và khắc phục		
Cultivation factors	Hazards	Current Assessment results		Describe risks observed	Corrective action	Person in charge
		Pass	Fail			
Soil	Heavy metal					
Irrigation water	Heavy metal					
	Mirobiological					
Post harvest water	Heavy metal					
	Pesticides					
	Nitrat					
	Mirobiological					

- Giới hạn cho phép của kim loại nặng trong đất:: QCKT Quốc gia: QCVN số 03: 2008/BTNMT;
- Giới hạn cho phép của kim loại nặng trong nước tưới: theo QCVN.39:2001/BTNMT ;
- Nước rửa, sơ chế sản phẩm theo QCVN số 02: 2009 /BYT của bộ Y tế về chất lượng nước sinh hoạt

Map of farm/production site

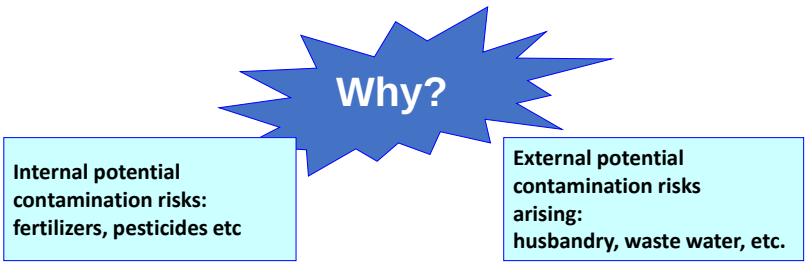


Map of farm/production site



2. Soil and growing media management

Before PRODUCTION	During and after PRODUCTION
Done	Assess potential hazards in the soil and growing media during GAP vegetable production



Such risks may appear throughout the production process

Heavy metal and other chemical hazard identification

Hazards	Causes
Chemical (residues of chemical drugs and other chemicals in the soil)	- Misuse of pesticides, chemicals, causing residue in the soil - Improper packaging disposal; accidental spillage or leakage of chemicals, fuels into soil
Heavy metals (As, Pb, Cd, Hg)	- Continuous use of fertilizers with high concentration of heavy metals - Discharged from nearby areas

Pathogenic organisms and parasites

Hazards	Causes
Pathogenic organisms *(bacteria, viruses and parasites)*	- Use of untreated manure - Domestic animal manure in production site and nearby areas
Parasites *(Worm, intestinal flat worm, protozoa, etc.,)*	- ditto

Measures to assess, eliminate and mitigate the hazards

Annually, potential hazards in the soil and growing media should be analyzed and assessed.

By:

- Analyzing current status
- Collecting representative soil and growing media samples to analyze contamination levels

Appropriate treatment measures:

When hazards exceeding the maximum limit arise, producers should take measures as similar as stated in Chapter 1.

Hazard mitigation:

- Proper use of fertilizers,
- Chemicals
- Isolate grazing animals (fence, canals, ditches, etc.)
- Do not farm, pasture animals in the production, preliminary handling areas
- Take measures to prevent soil erosion and degradation

Project for Improvement of Reliability of
Safe Crop Production in the Northern Region

Basic GAP TOT Material Series

No.3

FERTILIZER AND IRRIGATION WATER MANAGEMENT

DCP/MARD
JICA Project Team

INTRODUCTION

This material provides guidance and references to meet the requirement of No.4-7 out of 26 control points on Basic GAP as below:

4 Only have fertilizers included in the list of fertilizers approved for trading in Vietnam applied?

5 Are only treated organic fertilizers applied and is a record kept on these organic fertilizers?

6 Has a record been made and kept when fertilizers and soil additives are purchased and used?

7 Has the quality of irrigated water and water used after harvesting for production been ensured in accordance with current standards?

1. Why?
2. What to do (explain for mobilization of required staffing, materials)
3. Method
4. Assessment/ evaluation
5. Lessons/ good practices from project experiences
6. Reference (law and regulations for deep understanding)

CONTROL POINT

No.4 Only have fertilizers included in the list of fertilizers approved for trading in Vietnam applied?

No	Criteria	Level	Requirement	Method	Reference
4	Only have fertilizers included in the list of fertilizers approved for trading in Vietnam applied?	A	Chemical fertilizers on the approved list by Vietnam are used. e.g.) Non-compliance case Chemical fertilizers and soil additives are not approved by Vietnam, nor used.	- Review the production diary to check all chemical fertilizers and soil additives used on farm	- [FARM] Table1 – Production diary – Practices in the Field

No.5 Are only treated organic fertilizers applied and is a record kept on these organic fertilizers?

No	Criteria	Level	Requirement	Method	Reference
5	Are only treated organic fertilizers applied and is a record kept on these organic fertilizers?	A	Only treated organic fertilizers have are applied and a record is kept on these organic fertilizers. e.g.) Non-compliance case - Farmers apply raw manure on farm without fermentation - Farmers apply organic fertilizers which are not adequately composted.	- Review the production diary - On-site review of the production site of organic fertilizers and storage, and conduct interview (if necessary).	- [FARM] Table1 – Production diary – Practices in the Field

No.6 Has a record been made and kept when fertilizers and soil additives are purchased and used?

No	Criteria	Level	Requirement	Method	Reference
6	Has a record been made and kept when fertilizers and soil additives are purchased and used	A	Purchasing and using fertilizers and soil additives are recorded. e.g.) Non-compliance case - There is no record of purchasing and using. - Sufficient information regarding purchasing and using is not recorded.	- Review the production diary - Review the record of buying agricultural supplies - On-site review and conduct interviews (if necessary)	- [FARM] Table1 – Production diary – Practices in the Field - [FARM] Table 2 – Production Diary - Buying Agricultural supplies for production

No.7 Has the quality of irrigated water and water used after harvesting for production been ensured in accordance with current standards?

No	Criteria	Level	Requirement	Method	Reference
7	Has the quality of irrigated water and water used after harvesting for production been ensured in accordance with current standards?	A	The quality of water used for irrigation and for post-harvest handling meets the current standards. e.g.) Non-compliance case - On-farm level: Residual limit level of heavy metals or other quality criteria exceeds the requirements. - Packing level: Microbiological contamination level exceeds the requirements. - Note: In case on having doubts on analytical results, audit team shall take samples of water for analysis. The analytical results are the basis for evaluation of this criterion.	- Review the analytical results of water at farm level and at packing house(if applicable) - On-site review and conduct sampling (if necessary)	- Circular 49/2013/TT-BNNPTNT on 19th November 2013. for irrigation water - QCVN 02/2009/BYT for post-harvest handling [MGT] Table1 – Production condition management - Laboratory test results

Apply Fertilizers In Safe Vegetable Production

CONTROL POINT NO.4

Chemical hazards

Hazards	Source	Contamination mechanisms
High concentration of heavy metals (As, Pb, Cd, Hg, etc.,)	The presence of heavy metals (particularly cadmium) in low grade fertilizers and soil amendments such as gypsum, animal manure, compost, etc.	The presence of heavy metals in fertilizers and soil amendments contributes to high concentration of heavy metals in the soil → absorbed by vegetables

High risks for rooty vegetables

Chemical hazards

Hazards	Origin	Ways of causing pollution
High content of nitorat	+ Soil has nitrogen (normally it is organic nitrogen) + Apply fertilizers which have nitrogen (in-organic) too much or too late	Because of the surplus of NO3, vegetables absorb too much, resulting in the surplus of NO3

High risks for leafy, flower and stem vegetables

Biological hazards

Hazards	Origin	Ways of causing pollution
Pathogenic organism	Animal dung and urine which **hasn't been treated or has been composted but un-satisfactory** quality contain a big amount of pathogenic organism	+ Pollution can occur through direct contact of organic fertilizers with edible parts of vegetables while fertilizing, irrigating or indirectly through contaminated soil. + Leafy, stem vegetables near the ground and root vegetables in the soil have high risk of biological contamination because of this fertilizer.

Select fertilizers and supplemental matter

- Only buy and use fertilizers in the list allowed for production and business in Vietnam issued by MARD.
- Only use fertilizers whose expire date is clear
- Do not use fertilizers which do not have clear origin, do not have label or those are expired.
- Do not use organic fertilizers which hasn't been treated to apply for vegetables because they contain many pathogenic organisms.

List of fertilizers permitted for production and trade

- At present, how many fertilizers are listed? Where to find them?

Decision No.17/2009/QĐ-BNN dated 27/3/2009

Circular No. 29/2011/TT-BNNPTNT dated15/42011

Circular No. 42/2011/TT-BNNPTNT dated 6/6/2011

Circular No. 59/2011/TT-BNNPTNT dated 30/8/2011

Circular No. 86/2011/TT-BNNPTNT dated 16/12/2012

Circular No. 13/2012/TT-BNNPTNT dated 19/3/2012

Circular No. 31/2012/TT-BNNPTNT dated 12/7/2012

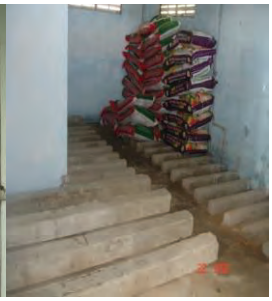
Circular No. 45/2012/TT-BNNPTNT dated 12/92012

http://www.cuctrongtrot.gov.vn/ctt/chuyentrang/default.aspx

http://www.cuctrongtrot.gov.vn/ctt/chuyentrang/default.aspx

Receipt and storage of fertilizers

Storage: keep fertilizer in proper place to avoid contamination to products and water sources, etc.,



Storehouse for fertilizers, places of mixing and packing fertilizers must be built separately from production and post-harvest treatment areas and well covered.
Organic fertilizer must be stored and transported to avoid contamination to products .

Safe utilization of fertilizers for chemical fertilizers

- Need to apply enough dosage following technical process for each type of vegetable
- Avoid overuse of nitrogen fertilizers
- Stop applying nitrogen fertilizers at least 10 days before harvesting
- Control Point No.5

Treating compost/dung/organic waste

- Must be treated for at least 2 months
- Regularly mix to ensure adequate temperature, moisture for organic matters to be decomposed.
- Fertilizer treatment and storage sites: be isolated from production, post-harvest handling sites, and with full covering

Check composting after 6 weeks in Duc Chinh Cooperative – Hai Duong

Safe application of fertilizers: Organic fertilizers

- Organic fertilizers should be applied to the soil directly, early and well covered with soil (otherwise causing contamination to adjacent crops through wind drift or rainfall runoff); do not let fertilizers contact directly to the edible vegetable parts;
- Only apply well-treated organic fertilizers and stop applying fertilizers at least 60 days before harvest.

Apply organic fertilizers early and cover with soil, use shading materials

Safe use of fertilizers

Apply organic fertilizers early and cover with soil and cover with certain materials

FIELD DIARY

(For producers and households)

Include:

☞DIARY OF PRODUCTION PRACTICES

☞DIARY OF BUYING AGRICULTURE MATERAILS

☞DIARY OF HARVESTING AND SELLING PRODUCTS

TABLE 1 - DIARY OF PRODUCTION PRACTICES

Name of field plot (No.): …**08**…Area……**360**……
Name of crop: **Kohlrabi**… .Varieties **B40 (Korean)** …..
Transplanted date: **02/09/16** Expected harvesting time: 1st: **12/10/16** Last time: **22/10/16**
Protective cloth: Yes (x) No ( ); Waste disposal is put in proper place : Yes (x) No ( )

Date, (Solar year)	Activities	Name of pesticide and fertilizers	Name of disease	Quantity (kg, g, lire, ml, pack)	Follow the guidance	Warning board (x)	Risks detected	Doer
01/09/16	Basel application	Urea		2 kg	X			Ng.T.Lan
…	…	…						
07/09/16	Additional dressing	Urea		1.5 kg	X			Ng.T.Lan
…								
22/09/16	Spraying	Sokupi 0.5 SL	Diamond black moth	20ml/16/360 m^2	X	X		P.Văn Điệp

TABLE 2 – DIARY OF BUYING AGRICULTURAL MATERIALS

Place to keep pesticides, fertilizer **At hamlet**……**Commune**……

Date (Solar year)	Name of pesticides, fertilizer	Quantity (Kg, g, liter, ml, bottle, pack)	Price (đồng/ kg, liter, bottle, pack)	Purchased at stores of Cooperative/ household owner, mark (x)	Purchased at other stores		Buyer/ User (Full name, sign)
					Name	Address	
20/7/16	Tomato seed, Savior	05 packages	100,000/ package		Tran Trong Mac	Cho Hui Thanh Khoi	Lan
25/7/16	Urea nitrogen	50 kg	8,000 dong/ kg	Cooperative			Quang
……							
10/8/16	Biobus 1.00 WP	02 packages	10,000 d/ package		Nguyen Van Tuyen	Tu Minh – Hai Duong city	Quang

TABLE 3. DIARY OF HARVESTING AND SELLING PRODUCTS

Area of pre-processing/preservation:.....
Address of retail markets:.....

Date/ month (solar year)	Harvesting			Selling products					Risk detected/ already handle the hazard (mark x)	Doer
	Kind of crop	Name/ code of field plot	Isolation time (day)	Quantity (kg, plant)	Price (đ/kg, plant)	Selling ways/ buyers				
						Retail (mark x)	Wholesale to whom	Sold under contract to whom		
25/11/16	Tomato	12/5	15	20 kg	15,000 d/ kg	X				Nguyen Thi A
27/11/16	Tomato	12/5	17	100 kg	10,000 d/ kg		Bui Van C			Nguyen Thi A
28/11	Kohlrabi	8/2	15	2,000 kohlrabi	3,000 d/ kohlrabi			Pham Van H		Nguyen Thi A

CONTROL POINT NO.6

Water sourse manageemeent

Kinds of water	Water sources
☞ Irrigation water ☞ Diluting water: nutrient, leafy fertilizer and pesticide solutions; ☞ Equipment washing water	☞ Rivers, ☞ lake, big ponds, ☞ drilled-well, ☞ tanks

CONTROL POINT NO.7

Hazards from irrigation water

Hazards	Sources	Contamination mechanism
Chemical	+ Chemicals are dumped, leaked or run-off into water sources from adjacent areas + Surface water from stream, river run through industrial zone and chemical, pesticide residue contaminated areas	☞ Using heavy metal contaminated water for irrigation causes plants to absorb through roots and accumulate edible vegetable parts. ☞ Irrigate contaminated water directly on edible parts near harvest date.
Biological	+ Water from rivers, streams are contaminated with pathogenic microorganisms if flowing through animal farming, grazing, domestic waste storage and residential areas. + Surface water from lakes, ponds may be contaminated with microorganism (carcass and faeces of birds, rats and livestock, etc.,)	

Water for post-harvest handling

Kinds of water	Water sources
☞ Product washing water, ☞ Water to make preservative chemical solution, ☞ Product cooling or top icing water	☞ tap water ☞ drilled-well water meet the standards

Hazards from washing water

Hazards	Sources	Contamination mechanisms
Chemical	+ Drilled-well water is comtaminated with heavy metals such as Asenic, Mercury, etc + Domestic water does not meet the standards + Washing water is supplied from contaminated domestic water source	Directly Wash products with contaminated water
Pathogenic organisms	+ Drilled-well water is contaminated with microorganism due to running-off from the contaminated areas. + Water is contaminated by untreated waste water	

Measures to mitigate, eliminate hazards

Do not use the following kinds of water for irrigation

- ☞ Industrial sewage,
- ☞ Waste water discharged from hospitals,
- ☞ Residential area,
- ☞ Husbandry farms,
- ☞ Livestock slaughter houses,
- ☞ Untreated raw fecal liquid, urin

MAINTENENCCE IRRIGATION SOURCE AND IRRIGATION SYSTEM

☞ Ensure that wells are carefully covered to avoid external contamination.

☞ The top of the well is at least 30 cm higher than the ground to avoid flood.

☞ Periodically check at least once/ year to monitor well structure status (cover the well to avoid other contamination substances, etc.)

☞ Regularly clean water supply system including water tank to avoid accumulation of dirty and maintain water quality. Need to remove and clean dirty layers accumulated at the bottom of the tank.

Disinfect the pond if necessary.

☞ Record the repair/maintenance and cleaning procedure.

Irrigation water application
▸ Should water in very early morning that makes products dry faster. ▸ Use qualified water source for rain watering and especially for pre-harvest. ▸ If possible, avoid to apply rain watering at least 5 days before harvest. ▸ If possible, apply drop watering or bed watering when it is close to harvest to minimize contamination risks and make crop wet. ▸ Use PP for bed watering or ditches watering if water quality or source (e.g.: river water) is not controlled or identified.

Problems
▸ If water source is contaminated due to abnormal problems (leak of waste water, chemical) -> do not use this water for irrigation, mixing pesticides or fertilizers, etc. ▸ If the problems happen in stormy, rainy day, pay attention to use surface water source for irrigation. If there is doubt, take samples for testing or minimize the use until the testing results are positive. ▸ If underground water (well water) is polluted due to flood, need to test the water samples and use alternative water source until the testing results are positive.

Treatment of water in case of contamination
▸ ☞ For chemical contamination, there must be an alternative water source or analyzing quality of fruits to decide the alternative water source. ▸ For biological contamination, if it is unable to find alternative water source, overcoming by the use of sterilization method. Refer to advice of professional experts. ▸ Use: Chlorine for biological contaminated water and check the effectiveness of chemical.

Project for Improvement of Reliability of
Safe Crop Production in the Northern Region

Basic GAP TOT Material Series

No.4

UTILIZATION OF PESTICIDES AND CHEMICALS

DCP/MARD
JICA Project Team

INTRODUCTION

This material provides guidance and references to meet the requirement of **No.8-15 and No. 21-23 out of 26 control points** on Basic GAP as below:

8. Have farmers been trained on the utilization of pesticides and other chemicals?

9. Are Integrated Pest Management (IPM) and Integrated Crop Management (ICM) measures applied?

10. Are the applied chemicals/plant protection products/biological medicines included in the lists of those approved for use?

11. Are pesticides purchased from licensed suppliers?

12. Are chemicals/plant protection products used strictly in accordance with label directions and guidance of technicians?

This material provides guidance and references to meet the requirement of **No.8-15 and No. 21-23 out of 26 control points** on Basic GAP as below:

13. Have records been set up for monitoring the use and treatment of chemicals/plant protection products?

14. Are chemicals and their packages destroyed strictly in compliance with the State's regulations?

15. Is there any unscheduled and periodic inspection to check the production process and chemical residue of crop products?

21. Have farmers been trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM)?

22. Have farmers posted warning signs in productions sites just sprayed by pesticides?

23. Are the field and production management diaries fully recorded?

1. **Why?**
2. **What to do (explain for mobilization of required staffing, materials)**

3. Method
4. Assessment/ evaluation
5. Lessons/ good practices from project experience
6. Reference (law and regulations for deep understanding)

CONTROL POINT

No.8 Have farmers been trained on the utilization of pesticides and other chemicals?

No	Criteria	Level	Requirement	Method	Reference
8	Have farmers been trained on the utilization of pesticides and other chemicals?	**A**	The farmers are trained on the utilization of pesticides and other chemicals. e.g.) Non-compliance case - There is no record to prove that the farmers are trained on safe use of pesticides.	- Review the record of training activity - Conduct interview (if necessary)	- [MGT] Table 5-Management training activity - Certificates of attendance on relevant training courses

No.9 Are Integrated Pest Management (IPM) and Integrated Crop Management (ICM) measures applied?

No	Criteria	Level	Requirement	Method	Reference
9	Are Integrated Pest Management (IPM) and Integrated Crop Management (ICM) measures applied?	A	Integrated Pest Management (IPM) and Integrated Crop Management (ICM) measures applied. e.g.) IPM IPM uses environmentally sound ways to keep pests from invading and damaging plants. Sample ideas for IPM are as below; - Prevent pests from invading or building up their populations in the first place. This might include removing the pests' sources of food, water, and shelter, or blocking their access into buildings or plants. - Cultural practices are things you can do to discourage pest invasion such as good sanitation, removing debris and infested plant material, proper watering and fertilizing, growing competitive plants, or using pest - resistant plants. - Control pests with physical methods or mechanical devices such as knocking pests off of plants with a spray of water, using barriers and traps, cultivating, soil sterilization, or heat treatments. - Biological control is the use of beneficial organisms (called natural enemies) to manage pests. Encourage natural enemies by planting flowering and nectar-producing plants and avoiding the use of broad-spectrum pesticides.	- Review the production diary - On-site review on relevant materials with use of IPM and/or ICM and conduct interviews (if necessary)	- [[FARM] Table1 – Production diary – Practices in the Field

No.10 Are the applied chemicals/plant protection products/ biological medicines included in the lists of those approved for use?

No	Criteria	Level	Requirement	Method	Reference
10	Are the applied chemicals/plant protection products/biological medicines included in the lists of those approved for use?	A	Only the pesticides included in the approved list by MARD are allowed for use. e.g.) Non-compliance case - Non-approved pesticides found in the record and/or on farmers' premises.	- Review the record of applied chemicals/plant protection products comparing with approved list - On-site inspection	- FARM] Table 1 – Production Diary - Practices in the Field

No.11 Are pesticides purchased from licensed suppliers?

No	Criteria	Level	Requirement	Method	Reference
11	Are pesticides purchased from licensed suppliers?	A	Pesticides are purchased from licensed suppliers. e.g.) Non-compliance case - There is no evidence to prove that pesticides were bought from licensed suppliers. - Evidence shows that pesticides were bought from non-licensed supplier.	Review the record and/or a receipt of buying agricultural supplies	[FARM] Table 2 – Production Diary - Buying Agricultural supplies for production

No.12 Are chemicals/plant protection products used strictly in accordance with label directions and guidance of technicians?

No	Criteria	Level	Requirement	Method	Reference
12	Are chemicals/plant protection products used strictly in accordance with label directions and guidance of technicians?	A	Pesticides are used strictly in accordance with label directions. e.g.) Compliance case - Right pesticide is used for the right crop as stated on the label, - Right dosage is applied as stated on the label, - Pre-harvest interval from the last application is applied as stated on the label, and - Compatibility of pesticides is proved when 2 and more pesticides are mixed. e.g.) Non-compliance case - Pesticidesare not used in accordance with label directions.	- Review the record of production diary comparing with label directions - On-site inspection and interview (if necessary)	[FARM] Table1 – Production diary – Practices in the Field Label directions

No.13 Have records been set up for monitoring the use and treatment of chemicals/plant protection products?

No	Criteria	Level	Requirement	Method	Reference
13	Have records been set up for monitoring the use and treatment of chemicals/plant protection products?	A	Farmers have records of pesticide usage. e.g.) Non-compliance case - There is no record of pesticide usage. - There is a record but not filled adequately	Review the record of pesticides	[FARM] Table1 – Production diary – Practices in the Field

No.14 Are chemicals and their packages destroyed strictly in compliance with the State's regulations?

No	Criteria	Level	Requirement	Method	Reference
14	Are chemicals and their packages destroyed strictly in compliance with the State's regulations?	A	Chemicals and their packages are properly taken out from the farm land and chemical waste bin by authorized companies/ persons. e.g.) Non-compliance case The chemicals and their packages are destroyed and/or burned on farm and/or farmers' premises.	On-site inspection to investigate the practices of disposal Conduct interviews (if necessary)	- Law and regulation

No.15 Is there any unscheduled and periodic inspection to check the production process and chemical residue of crop products?

No	Criteria	Level	Requirement	Method	Reference
15	Is there any unscheduled and periodic inspection to check the production process and chemical residue of crop products?	A	There are internal and external inspections to check the production process and chemical residue of crop products. e.g.) Compliance case - Record of internal audit is documented. - Pesticide residue check by quick test is carried out and documented. - Laboratory test of vegetable samples is carried out and documented. - Unscheduled inspection and/or external audit is carried out and documented. e.g.) Non-compliance case - Internal audit has not been carried out in the past year. - Internal audit has been carried out, but not recorded. - Pesticide residue check of vegetable samples has not been carried out by either quick test nor laboratory tests.	- Review the analytical results of water at farm level and at packing house(if applicable) - On-site review and conduct sampling (if necessary)	- Circular 68/2010/TT-BNNPTNT on 02th December 2010 - National technical regulation QCVN 8-3:2012/BYT - Laboratory test results for pesticide residue check

No.21 Have farmers been trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM)?

No	Criteria	Level	Requirement	Method	Reference
21	Have farmers been trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM)?	A	The farmers are trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM). e.g.) Non-compliance case - There is no record to prove that the farmers are trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM).	- Review the record of training activity - Conduct interview (if necessary)	- [MGT] Table 5- Management training activity - Certificates of attendance on relevant training courses

No.22 Have farmers posted warning signs in productions sites just sprayed by pesticides??

No	Criteria	Level	Requirement	Method	Reference
22	Have farmers posted warning signs in productions sites just sprayed by pesticides??	A	Warning signs are placed at production site just after spraying pesticides. e.g.) Non-compliance case - Farmers do not have any warning sign board. - Warning signs are not placed at production site just after spraying pesticides.	- On-site inspection and conduct interview to investigate the usage of warning signs	- Warning sign board

No.23 Are the field and production management diaries fully recorded?

No	Criteria	Level	Requirement	Method	Reference
23	Are field diary and production management diary fully recorded?	A	The manager and farmers/ workers record production management diary and field diary regularly and properly. e.g.) Non-compliance case - There is no record on Production management diary and Field diary. - There are records, but those are not fully nor properly recorded.	- Review the record of Production management diary and Field diary)	- [MGT] Table1, 2, 3, 4 and 5 - [FARM] Table1, 2 and 3

PESTICIDES AND CHEMICALS

I. MISTAKES ALWAYS OR USUALLY ENCOUNTERED IN APPLYING PESTICIDES

II. MEASURES FOR ELIMINATING AND AVOIDING HAZARDS

III. SOME NECESSARY ACTIONS FOR RESOLVING THE HAZARDS OF PESTICIDES AND CHEMICALS.

CONTROL POINT NO.8

1. Mistakes always encountered in applying pesticides

- Use of banned pesticides; pesticides not on the list;
- Use of pesticides unregistered for vegetable crops;
- Improper use of pesticides against regulation;
- Not ensuring the pre-harvest interval for pesticides;
- Pesticides are sprayed near products which have been harvested
- Pesticides have stuck to product containers and packing materials
- Pesticide packaging has not been collected into proper areas
- Unsafe spraying equipment

TABLE 8 – MANAGEMENT OF TRAINING, COMMUNICATION

Production unit……Commune……District……Province……
Full name of unit leader…… Technician in charge……

Date/ month/ year	Training				Communication		
	Number of farmers (list attached)	Contents of training	Duration of training (day)	Certification (mark x)	Communication contents	Response to communication (mark x)	Opinion/ initiatives (if any)

1. MISTAKES USUALLY ENCOUNTERED IN APPLYING PESTICIDES

☞ Use of banned pesticides, not on the list:

Banned pesticide

Pesticide not in the list of legal pesticides

☞ **Use of pesticides not approved for vegetable crops :**

For example: Pursuance to Circular No.03/2018/TT-BNN Tricklorogon (90SP, Dip 80SP, Terex 50 EC, Ofatox 400EC, etc) are not allowed to apply in Vienam for vegetables. However, these pesticides are being used for vegetables

☞ Improper use of pesticides against regulation:

- *Pesticides selected are not suitable for diseases*
- *Overdose, many times higher than instructed on the label*
- *Mixture of many kinds, etc.*

Farmers used to mix 7 types of pesticides/ tank to spray onions.

☞ Not ensuring pre-harvesting interval for pesticides:

☞ Pesticides are sprayed in area where products have been harvested

☞ Pesticide residue is left in/on product containers and packing materials

☞ **Pesticide residue accumulated in soil, irrigation water from previous use**

2. IDENTIFY HAZARDS CAUSED BY OTHER CHEMICALS

- Soil, water is contaminated by chemicals from industrial zones, chemical factories nearby.
- Application of chemicals not on the list approved for use:
- Inappropriate chemicals or improper use of chemicals for cleaning and washing, leaving residue on equipment, containers, etc.
- Fuel (oil and gasoline), paints, etc on harvesting equipment, packing and delivery, causing direct contamination to products and packing;

☞ **Soil, water is contaminated by chemicals from industrial zones, chemical factories nearby.**

☞ **Application of chemicals not on the list approved for use**

For example: Waste water is applied for morning glory

☞ **Inappropriate chemicals or improper use of chemicals for cleaning and washing, leaving residue in equipments, containers, etc**

For example: Application of *Natrihiđrosulfit (NaHSO3, a chemical used in textile industry, to make radish white and fresh)*

Or fruit is soaked in an antibiotic or Carbendazim chemical to avoid rotting.

☞ Fuel (oil and gasoline), paints, etc on harvesting equipment, packing and delivery, causing direct contamination to products and packing

DO NOT USE PROHIBITED SUBSTANCES IN FOOD PERSERVATION

Part II:MEASURES TO AVOID AND MINIMIZE HAZARDS

- **Control the use of pesticides and other chemicals**
- **Control farming soil, irrigation water source, etc.**

CONTROL POINT NO.9

1. PROMOTE THE APPLICATION OF IPM AND ICM TO MINIMIZE THE USE OF PESTICIDES AND OTHER CHEMICALS

- Integrated Pest Management (IPM): aims at suppressing pest populations below economic injury level and pesticides are only used when pest populations are at higher level than economic injury level.
- Integrated Crop Management (ICM): Manage to facilitate the good development of crops to minimize the use of chemicals and fertilizers (3 reductions 3 increases)

2. USE OF CHEMICALS

- **Good management of following activities:**
  - ☞ *Buy, receive and manage pesticides (preservation, store)*
  - ☞ *Use of chemicals (spray chemicals)*
  - ☞ *Manage well the waste (package) of pesticides after use*

CONTROL POINT NO.10

Select, buy, receive pesticides

- Carefully read the instructions to know the expiration date, the suitability of pesticides on crops, etc.
- Do not buy banned pesticides, or those not on the approved list
- Only use pesticides on the list approved for use in Vietnam. Priority should be given to less toxic pesticides (blue color) and chemicals of plant origin, biological chemicals, especially at the end of the season
- Only buy pesticides from suppliers/ shops licensed by competent authorities

Toxic level symbols of pesticides

Toxic group	Symbols			Notes
	Color	Symbols	Notes on the label	
I (extremely toxic)	Red		Extremely toxic	Banned
II (highly toxic)	Yellow		Highly toxic	Limited use for vegetable
III (less toxic)	Blue		Dangerous	
IV (least toxic)	Green	No symbols	Be careful	Priority should be given to vegetable

Toxic level symbols of pesticides(since 2018)

Theo Thông tư số 21/2015/TT-BNNPTNT ngày 08/6/2015 của Bộ trưởng Bộ Nông nghiệp và PTNT. Độ độc sẽ được ký nhiệu như sau:

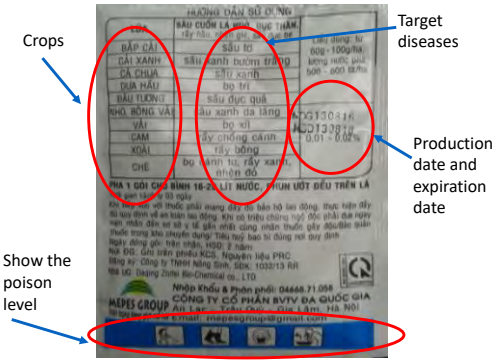
Độc cấp tính

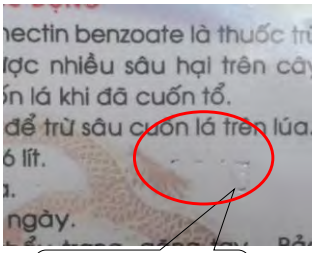
Yếu tố ghi nhãn	**Loại 1**	**Loại 2**	**Loại 3**	**Loại 4**	**Loại 5**
Hình đồ cảnh báo					Không sử dụng Hình đồ cảnh báo
Tên gọi hình đồ	Đầu lâu xương chéo	Đầu lâu xương chéo	Đầu lâu xương chéo	Dấu chấm than	
Từ ký hiệu	Nguy hiểm	Nguy hiểm	Nguy hiểm	Cảnh báo	Cảnh báo
Cảnh báo nguy cơ: Miệng	Chết nếu nuốt phải	Chết nếu nuốt phải	Ngộ độc nếu nuốt phải	Có hại nếu nuốt phải	Có thể có hại nếu nuốt phải
Cảnh báo nguy cơ: Da	Chết khi tiếp xúc với da	Chết khi tiếp xúc với da	Ngộ độc khi tiếp xúc với da	Có hại khi tiếp xúc với da	Có thể có hại khi tiếp xúc với da
Cảnh báo nguy cơ: Hô hấp	Chết nếu hít phải	Chết nếu hít phải	Ngộ độc nếu hít phải	Có hại nếu hít phải	Có thể có hại nếu hít phải
Vạch màu	Đỏ	Đỏ	Vàng	Vàng	Lam

Select, buy, receive pesticides

☞Only buy pesticides from suppliers/ shops licensed by competent authorities

☞Carefully read instruction to know information such as: expiration date, poison level, target pest, target crop of pesticides, etc.





Production date is erased, new one is created

☞Do not buy banned pesticides or those not on the approved list, etc (*usually pesticides with red color bar, no Vietnamese language, no label, etc*)

Banned pesticides (red color bar)

Pesticides not in Vietnamese language

☞Only use pesticides on the list approved for use on crops in Vietnam (*Circular No.03/2016/TT-BNNPTNT and Circular No.06/2017/TT-BNNPTNT*). Priority should be given to less toxic chemicals (blue and green color) and chemicals of plant origin, biological chemicals, especially at the end of season.

Chemical of plant origin

Microbiological chemicals

CONTROL POINT NO.10 &NO.11

Preserve and store pesticides

(applies to households and vegetable production farms; not for stores, pesticide trading agencies)

Warehouses (stores to keep chemicals):

- Located in high land area to avoid flood, far away from children's reach
- Does not affect products in production area.
- Should have warning board, lock, etc
- Pesticides are neatly arranged to avoid mixture with other agricultural materials.

CONTROL POINT NO.12

Use of pesticides

Only use pesticides when needed.

Must comply with the following:

- *4 Principles of Correction*
- *Safety principles*
- *Fully record the process of pesticide utilization.*

Only use pesticides when needed

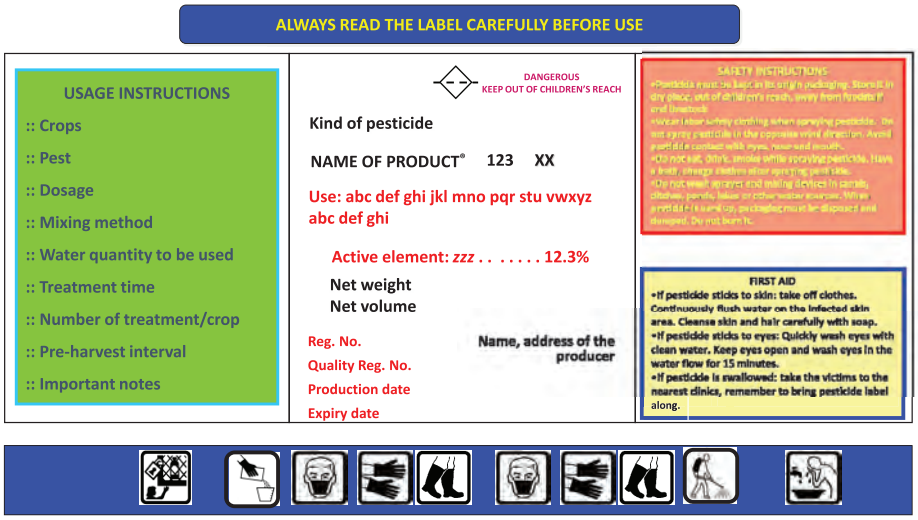
- Regularly check and visit the field, combine with analysis of weather and crops
- Only apply pesticides when the pests and diseases are at economic injury level.

Pesticides must be applied in accordance with principles of 4 rights

- ☞Right pesticides: suitable for target diseases, pests, etc.
- ☞Right dosage: Follow the instructions on label (amount of pesticides/ amount of water for one area unit)
- ☞Right time: apply pesticides for the diseases at early growth stage (newly occured diseases are easy to be killed)
- ☞Right application method: Follow the instructions (only spray leaves or root)

Chemical users must carefully read instructions before use

Use pesticides according to the label's instructions



Guide to control pest/diseases on mustard crops

Chemical method

- Use chemicals which are less toxic to humans and the environment
- Use chemicals that take less time to decompose
- Chemicals in the low toxic level (group 3, 4)

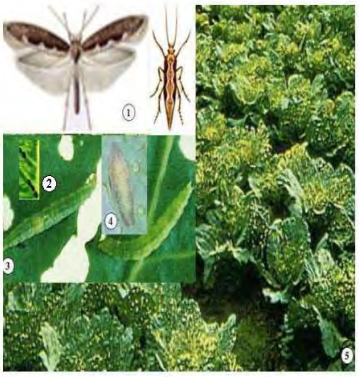
Common pests on cruciferae crops:

Diamond-back moth (Plutella xylostella)

- The pest feeds on leaves of cruciferae crops, short life cycle: 12 – 30 days, high productivity (1 female moth laid more than 100 eggs), high level of pesticide resistance. A life of cruciferae crop faces 2-3 appearances of diamond-back moth. The moth population has a high density at the middle and end of the season, harmful to crops. The most affected period is in November, December, February, and March.

Pesticides to be used

Radiant 60SC
Dupont Prevathon 5SC
Match 050EC
Brightin 1.8EC
Abatin 5.4EC
Proclaim 1.9EC
Tasieu 1.9EC
Pegasus 500SC
Delfin 32WG



Sâu tơ - *Plutella xylostella* Linnaeus (Tên cũ: *Plutella maculipenis*)
1. Trưởng thành; 2. Trứng; 3. Sâu non; 4. Nhộng;
5. Ruộng rau bị hại

Sâu xanh bướm trắng- *Pieris rapae* Linnaeus
1. Trưởng thành; 2. Trứng; 3. Sâu non; 4. Nhộng; 5. Bộ phận bị hại

Deep blue
Pieris rapae

- Commonly harmful to cruciferae crops, even from it's immature stages. The pest feeds on the leaves, making many holes in them. Pieris rapae appears throughout the year, mostly March through April and September through November.

Pesticides to be used

Actimax 50WG
Prevathon 5SC
Match 050EC
Brightin 1.8EC
Radiant 60SC
Delfin 32WG

Aphid

(Brevicoryne brassicae)

Takes nutrition primarily from the underside of leaf surfaces in young plants through plants ready to be harvested. Brevicoryne brassicae

stunts plant growth and causes plants to be deformed and yellowish. This pest thrives in dry conditions. If it is not detected early, it is difficult to control later.

Pesticides to be used

Name of pesticides	Name of active substances
Movento 100OD	Spirotetramat
Sokupi 0.5SL	Matrine
Plutel 1.9EC	Abamectin
Reasgant 3.6EC	Abamectin
Radiant 60SC	Spinetoram
Actara 25WG	Thiamethoxam
Tasieu 1.9EC	Emamectin benzoate

Flea beetle (Phyllotreta striolata)

- The baby beetle affects the roots, the mature beetle feeds on leaves, creating many holes in the leaves. They develop throughout the year with mature ones surviving 2-3 months, and in some cases the whole year. The optimal temperature for laying eggs is 25-30^0 C

Pesticides

Dupoint Prevathon 5SC
Oshin 20WP
Elsin 10EC
Sokupi 0.5SL

- Vegetable multi-eaters with a life cycle of 30-60 days. Worms from newly hatched eggs live in a focused manner. If not detected early, it is difficult to control. Spodoptera litura damages vegetables of all seasons except during the cold weather of winter.

Pesticides

Reasgant 3.6EC	Abamectin
Delfin 32WG	Bacillus thuringiensis
Tasieu 1.9EC	Emamectin benzoate
Plutel 3.6EC	Abamectin

Black cutworm (Agrotis ipsilon Huf.)

Vegetable multi-eaters that are strongly active in the night. Agrotis ipsilon eats the body of the plant and can cause serious damage when the seedlings are still young. Difficult to control because this pest lives inside the soil.

Name of pesticides	Active substances
Reasgant 3.6EC	Abamectin
Delfin 32WG	Bacillus thuringiensis
Tasieu 1.9EC	Emamectin benzoate
Plutel 3.6EC	Abamectin

Common diseases harmful to Cruciferae crops

- **Method for disease management:**
  - Clean the field, cut off and destroy the affected leaves..
  - Use high beds with good drainage to avoid high humidity in the field.

- Plant at a suitable density. Not planting at a high density will result in serious damage.
- Select good, clean varieties with strong disease resistance.
- Remove all residue of diseased plants after harvesting.
- Treat seeds with specific drugs for each disease before sowing.
- Some pesticides may be used for spraying when the disease is newly occurred and in favorable weather conditions to prevent the occurence of harmful diseases.:

+ Damping off in seedbed:

This disease affects the seed and seedling, caused by Pythium, Fusarium, Phythophthora, Rhizoctonia fungus, etc in soil. The diseased seedling is easy to die or rot near the ground when they fall and die.

- Pesticides used when necessary:

Name of pesticides	Active substance name
Daconil 75WP	Chlorothalonil
Moren 25WP	Pencycuron
Validacin 5SL	Validamycin A
Score 250EC	Difenoconazole
Kasumin 2SL	Kasugamycin

Downy mildew:

This disease can affect both seedling and mature plant. The diseased plant has a layer of grey mold under the leave. The upper side of the leave has yellow color, after that yellowish or die. Heavily diseased leaves are withered and died. The disease develops seriously in high humidity.

+ Pesticides used:

	Name of active substance
	Mancozeb+Metalaxyl
	Chitosan
	Chlorothalonil
	Chlorothalonil

+ **Ringspot:** Caused by *Alternaria brassicae fungus.*

The disease damages cruciferae crops and some other cops, causing serious damage even when the plants are mature. The disease appears as a circle shape, with many circles having the same center, linked together. In high humidity there is mold on the leaves.

+ **Pesticides used:**

Daconil 75WP	Chlorothalonil
Score 250EC	Difenoconazole
Nativo 750WG	Tebuconazole + Trifloxystrobin

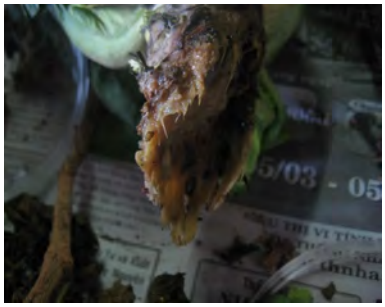



- **Scherotinia blight:** Caused by *Sclerotinia sclerotiorum* fungus on cabbage. If the seedlings are rotten in their roots, they will not be able to stand. If the mature plant has this disease, it invades from the stem to the head causing rot from the outside in. A diseased plant can rot and die in the field. Scherotinia blight develops well in high humidity (November-April).


Pesticides used:

Biobus 1.00WP	Trichoderma viride
Moren 25WP	Pencycuron
Alfamil 25WP	Metalaxyl

- **Soft rot**: Resulted by *Erwinia carotovora fungus on cruciferae crops*. The disease often occurs in mature plants that are infected quickly. The disease can be traced to one starting spot, causing rot and a bad smell. It can be serious at the late stages at the end of the season. It can even develop quickly during product preservation.



How to control diseases caused by bacteria

- For bacteria diseases, prevention is the key method. When disease occurs, it is almost very difficult to control, most products must be destroyed. The bacteria exists in soil, water, seedling, invades through mechanical injuries, etc.

- The dead plant should be moved out of the field and destroyed, use lime for sterilizing soil. To eliminate the spread of disease, apply more P and K, stop applying N.

Pesticides:

Pesticide name	Name of active substance
New Kasuran 16.6WP	Copper Oxychloride + Kasugamycin
DuPontTM Kocide 46.1WG	Copper Hydroxide
Kasumin 2SL	Kasugamycin
Alfamil 25WP	Metalaxyl

CONTROL POINT NO.13

Fully record the process of pesticide utilization

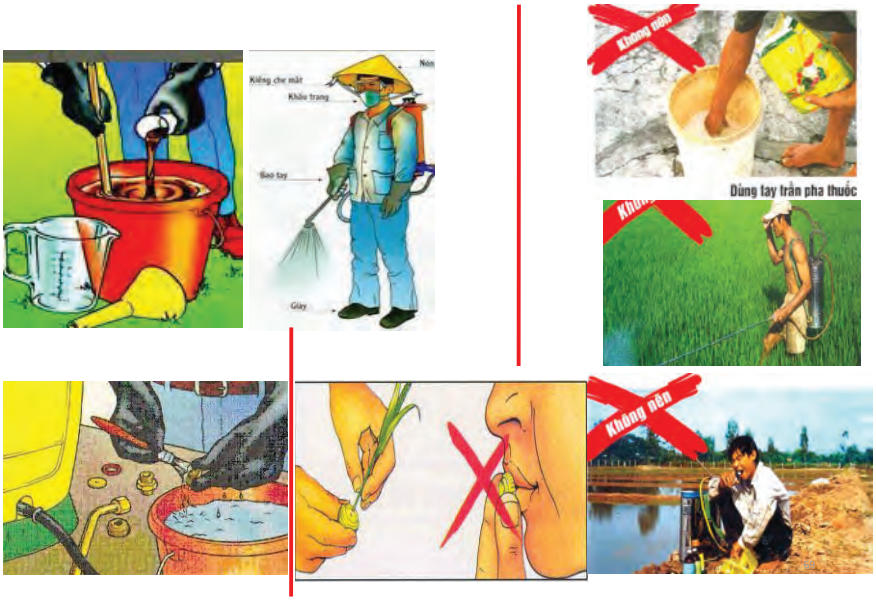
Contents:

- *Name of pesticides*
- *Target of pesticides*
- *Dosage*
- *Sprayed date, etc.*
- *Quarantine period (PHI)*

Note: How to record is guided in the diary of production practices.

CONTROL POINT NO.14

Comply with principles of safety during the pesticide use



Comply with principles of safety during the use of pesticides

- Calculate the sufficient amount of chemicals to avoid surplus of chemicals. In the case of chemical surplus, the destruction process

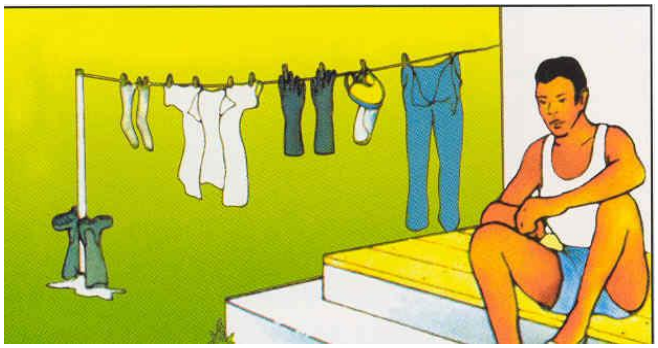
should be suitable (land should be far away from any water source, make a hole, mix surplus chemical with lime, cover the hole with soil).

- Do not pour chemical surplus into water or fish ponds

Comply with principles of safety during the use of pesticides

- Packages of chemicals after use should be collected and treated in accordance with the proper process to avoid the contamination of environment and products

- Comply with principles of safety during the use of pesticides



☞Bathing and washing clothes, protective equipment after spraying chemicals

CONTROL POINT NO.15

Checking residues of pesticides, heavy metals and micro-organisms in products

- Analyze and quick test the pesticide residues.
- Check, analyze samples in lab to check residue of pesticides, heavy metal and micro-organism.

Testing residues of pesticides by quick test

Province	Target groups	Date	No. of samples	No. of detected safe	No. of detected unsafe
Hai Duong	Tan Minh Duc coop.	20 Nov 2018	7	1	0
	Thanh Ha company				
	Duc Chinh coop.				
	Gia Gia company	3 Dec. 2018	6	1	0
	Green farm company	3 Dec 2018	6	1	0
	Lua farmer group	15 Nov 2018	5	2	0
		19 Nov 2018	2	0	0
Ha Nam	Ha Vi coop	28 Nov 2018	10	7	0
	Hiep farm	16 Nov 2018	10	7	0
	Cat Lai coop.	16 Nov 2018	10	7	0
	Thanh Tan coop.	28 Nov 2018	9	6	0
Hung Yen	Japan Vietnam company	6 Nov 2018	5	3	0
		10 Nov 2018	3	2	0
	Yen Phu coop.	22 Nov 2018	8	5	0
	Chien Thang coop.				
Phu Tho	Huong Non coop				
	Truong Thinh coop				
Vinh Phuc	Visa coop	6 Dec 2018	5	3	0
	Dai Loi coop	6 Dec 2018	5	1	0
	Vinh Phuc coop	22 Nov 2018	5	0	0
Thai Binh	Quynh Hai coop	27 Nov 2018	3	0	0
		3 Jan 2019	3	1	0
	Thanh Tan coop	27 Nov 2018	3	1	0
		3 Jan 2019	2	1	0
Total	20 groups		111	55	0

Sampling fresh vegetables in the field/ production garden (TCVN 9016-2011)

Determine the minimum quantity of pilot samples and sub-samples

- Case 1: Production plot is managed by 1 household or 1 company:
- Production plot has area ≤ 05 ha, take at least 1 pilot sample in each plot
- Proudction plot has area > 05 ha, divide that big area into small areas of ≤ 05 ha, take at least 1 pilot sample in each plot.

Minimum number of sub- samples/ 1 testing sample depending on kind of crop and lot area, details:

Type of crop	Lot area	Minimum number of pilot sample	Minimum number of sub- samples/ 1 pilot sample
Vegetable is graded as big size (average weight > 250 gr/ unit	≤ 05 ha	01	05
Vegetable is graded as small and medium size (average weight < 250 gr/ unit)	≤ 0.1 ha	01	05
	0.1 – 1 ha	01	05 - 08
	01 - 05 ha	01	08 - 12
	05 ha	01	12 - 16

Determine the minimum quantity of pilot samples and sub-samples

- **Case 2: production lot is managed by many households (Cooperative, group)**
  - Production lot has area ≤ 05 ha: at least 1 pilot sample/ 1 lot.
  - Production lot has area > 05 ha: divide this big lot into many lots of ≤ 05 ha, 1 pilot sample/ 1 small lot divided.

- Minimum number of sub- samples/ 1 pilot sample depends on number of production households in that lot (n).
- Minimum number of sub- samples = number of households have minimum samples taken √n, but ≥ 5 samples
- If the lot is managed by many households with different production conditions, take separate sample of each household and that sample just represents that household only.

Results of lab test on residues of pesticides, heavy metals and micro-organisms in products

Province	Target group	Quantity of samples	Heavy metal	E.Coli. Salmonella	Pesticide
Hải Dương	HTX Tân Minh Đức:	3	0	0	0
	Duc Chinh Coop:	5	5(0)	0	4(**1**)
	Thanh Ha Company:	6	4(0)	0	0
Ha Nam	Hiep farm group:	3	0	0	0
	Ha Vy Cooperative:	2	0	0	0
Hưng Yên	Yen Phu Cooperative	3	3(0)	0	1(0)
	Japan-Vietnam Company:	3	3	0	0
Total		25	15(**1**)	0	5(**1**)

*(**): * -- detect, (**) -- detect the exceed of MRL*

Samples detected:

Pesticide (*Difenoconazole*) 0.243mg/kg
(MRL 0.2mg/kg)

Carrot

78

CONTROL POINT NO.21

Guide to controlling pest/diseases on mustard crops

Integrated Pest Management (IPM) and Integrated Crop Management (ICM)

Integrated pest management (IPM) and integrated crop management (ICM)

I. Cultivation method

- *Clean the field*:Collect and destroy plant residues having disease sources such as soft rot, Scherotinia blight, downy mildew, etc harmful to mustard crops, wild grass where harmful pests live, etc eliminate the spreading sources, etc.

- *Use healthy seedlings with no diseases, use seedlings with good resistance*

  + Only use healthy seedlings, seeds with high germination rate, no diseases

  + Should produce seedlings on bedding, ensuring quality of seedlings for production area

- *Caring:*

  + Fertilizer and applying fertilizer: Apply with right technique, apply enough and balanced amount for each vegetable, each soil type, each season, in correct time to facilitate the growth, increase the resistance to diseases, promote the use of composting.

  + Watering: Ensure enough humidity for vegetable field, not too much.

    - Season: Select varieties suitable to season for good growth

    - Rotate and intercrop

II. Manual method

- Use light trap, yellow or blue stick catch to kill winged aphids, leafy maggot/fly, flea bettle; removing insect larvae, catching insects, destroying insect pests, treating seeds, etc.

III. Biological method: Exploit and use beneficial organism (natural enemies, enemies of pests), biological products in controlling harmful pests.

- *Protect natural enemies*

- Ladybugs eating aphid, worm
- Bees parasiting on eggs, young worm, papue of harmful insects
- Ants, bettles, spider, etc eating pests
- *Using Pheromone trap:* Attract mature pests into trays and kill them (these pests will become armyworm, white butterfly, diamond-back moth, etc)

CONTROL POINT NO.22

Warning signs in the production site where pesticides were just sprayed

BIỂN CẢNH BÁO THUỐC BẢO VỆ THỰC VẬT

Ngày phun	Tên thuốc	Thời gian cách ly

83

FIELD DIARY

(For producers and households)

Include:

☞DIARY OF PRODUCTION PRACTICES

☞DIARY OF BUYING AGRICULTURAL MATERIALS

☞DIARY OF HARVESTING AND SELLING PRODUCTS

TABLE 1 - DIARY OF PRODUCTION PRACTICES

Name of field plot (No.): ...**08**...Area.....**360**.....
Name of crop: **Kohlrabi**... .Varieties **B40 (Korean)** .....
Transplanted date: **02/09/16** Expected harvesting time: 1st: **12/10/16** Last time: **22/10/16**
Protective cloth: Yes (x) No ( ); Waste disposal is put in proper place : Yes (x) No ( )

Date, (Solar year)	Activities	Name of pesticide and fertilizers	Name of disease	Quantity (kg, g, lire, ml, pack)	Follow the guidance	Warning board (x)	Risks detected	Implemented by
01/09/16	Basel application	Urea		2 kg	X			Ng.T.Lan
...	...	...						
07/09/16	Additional dressing	Urea		1.5 kg	X			Ng.T.Lan
...								
22/09/16	Spraying	Sokupi 0.5 SL	Diamond black moth	20ml/16/360 m^2	X	X		P.Văn Điệp

TABLE 2 – DIARY OF BUYING AGRICULTURAL MATERIALS

Place to keep pesticides, fertilizer **At hamlet**.....**Commune**.....

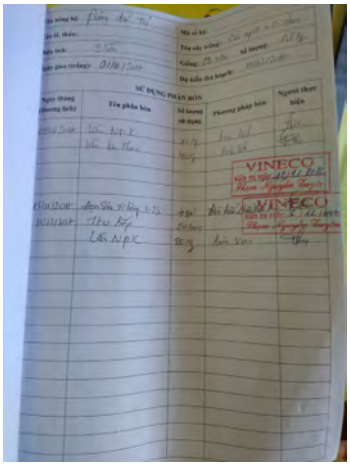
Date (Solar year)	Name of pesticides, fertilizer	Quantity (Kg, g, liter, ml, bottle, pack)	Price (đồng/ kg, liter, bottle, pack)	Purchased at stores of Cooperative/ household owner, mark (x)	Purchased at other stores		Buyer/ User (Full name, sign)
					Name	Address	
20/7/16	Tomato seed, Savior	05 packages	100,000/ package		Tran Trong Mac	Cho Hui Thanh Khoi	Lan
25/7/16	Urea nitrogen	50 kg	8,000 dong/ kg	Cooperative			Quang
.....							
10/8/16	Biobus 1.00 WP	02 packages	10,000 d/ package		Nguyen Van Tuyen	Tu Minh – Hai Duong city	Quang

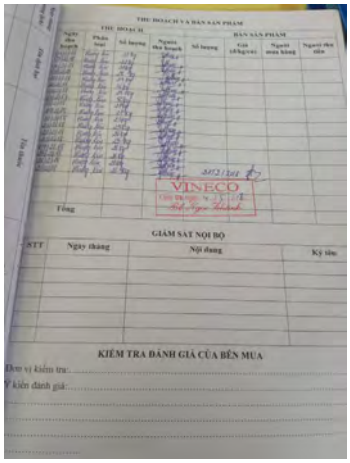
TABLE 3. DIARY OF HARVESTING AND SELLING PRODUCTS

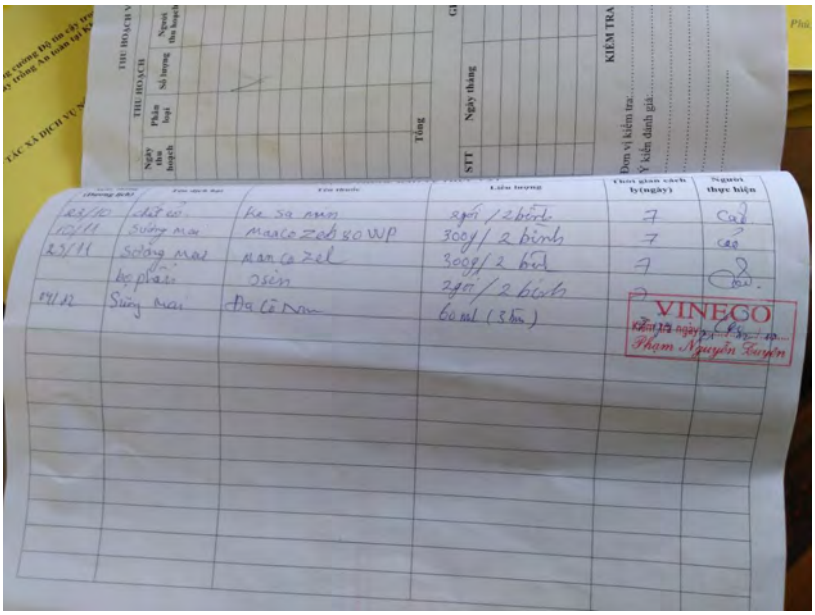
Area of pre-processing/preservation:.....
Address of retail markets:.....

Date/ month (solar year)	Harvesting			Selling products					Risk detected/ already ad dressed the hazard (mark x)	Implemented by
	Kind of crop	Name / code of field plot	Isolation time (day)	Quantity (kg, plant)	Price (đ/kg, plant)	Selling ways/ buyers				
						Retail (mark x)	Whole sale to whom	Sold under contract to whom		
25/11/16	Tomato	12/5	15	20 kg	15,000 d/ kg	X				Nguyen Thi A
27/11/16	Tomato	12/5	17	100 kg	10,000 d/ kg		Bui Van C			Nguyen Thi A
28/11	Kohlrabi	8/2	15	2,000 kohlrabi	3,000 d/ kohlrabi			Pham Van H		Nguyen Thi A

Recording activities in some target groups






THU HOẠCH
Ngày thu hoạch
Phần loại
Số lượng
Người thu hoạch
Tổng
STT
Ngày tháng
KIỂM TRA
Đơn vị kiểm tra:
Ý kiến đánh giá:
Tên thuốc
Liều lượng
Thời gian cách ly(ngày)
Người thực hiện
23/10
chết cỏ
Ke sa min
8gói / 2bình
7
Cal
Sương mai
Manco zeb 80 WP
300g / 2 bình
7
Cao
23/11
Sương mai
Man co zeb
300g / 2 bình
7
bệ phẩn
Osen
2gói / 2 bình
7
24/12
Sương mai
Ba Cê Dan
6ml (3 lần)
VINEGO
Phạm Nguyễn Tuyến

Project for Improvement of Reliability of
Safe Crop Production in the Northern Region

Basic GAP TOT Material Series

No.5

GOOD PRODUCTION PRACTICES IN HARVESTING, PACKAGING SAFE VEGETABLE PRODUCTS

DCP/MARD
JICA Project Team

INTRODUCTION

This material provides guidance and references to meet the requirements of **No.16-20 and No.25 out of 26 control points** on Basic GAP as below:

16. Do farmers harvest products on a date after the Pre-Harvest Interval period (PHI) indicated on pesticide labels?

17. Are processing, packaging, and storage areas isolated from storehouses and containing sites of pesticides, fertilizers and other hazardous chemicals?

18. Is clean water used to wash products after harvesting?

19. Does the quality of clean water used to wash products meet the standard?

20. Is waste water, garbage collected and treated properly in accordance with regulations?

25. Do products have product origin or label to facilitate the traceability?

1. **Why?**
2. **What to do (explain for mobilization of required staffing, materials)**
3. **Method**
4. **Assessment/ evaluation**
5. **Lessons/ good practices from project experiences**
6. **Reference (law and regulations for deep understanding)**

CONTROL POINT

No.16 Do farmers harvest products at the date after Pre- harvest Interval period (PHI) indicated on pesticide labels?

No	Criteria	Level	Requirement	Method	Reference
16	Do farmers harvest products on a date after the Pre-Harvest Interval period (PHI) indicated on pesticide labels?	A	Farmers/ workers harvest products on a date after the Pre-Harvest Interval period (PHI) and have to keep a record of harvesting products. e.g.) Non-compliance case - Farmers harvest on a date before the PHI. - There is no record on harvesting products.	- Review and cross-reference the record of harvesting products and the production diary	- [FARM] Table1 – Production diary – Practices in the Field - [FARM] Table3 - Field diary for harvesting and selling products

No.17 Are processing, packaging, and storage areas isolated from storehouses and containing sites of pesticides, fertilizers and other hazardous chemicals?

No	Criteria	Level	Requirement	Method	Reference
17	Are processing, packaging, and storage areas isolated from storehouses and containing sites of pesticides, fertilizers and other hazardous chemicals?	A	The processing, packaging, and storage areas are isolated from storage of pesticides, fertilizers and other hazardous chemicals. (This criterion is not applicable in the case that the Products are only harvested at the farm level and no further handling or storing) e.g.) Non-compliance case - Design, construction and maintenance of handling, packaging, and storage areas do not meet requirement. - The handling, packaging, and storage areas have potential risk of flooding and/or contamination.	On-site inspection of processing, packaging and storage areas	

No.18 Is clean water used to wash products after harvesting?

No	Criteria	Level	Requirement	Method	Reference
18	Is clean water used to wash products after harvesting?	A	Clean water is used to wash products after harvesting. e.g.) Non-compliance case - Quality of water used for post-harvest and packaging handling does not meet the requirement of QCVN 02/2009/BYT. - There is no test result of water quality.	- Review the record of production condition and laboratory test results - On-site inspection of fresh water supply system	- [MGT] Table1 – Production condition management - QCVN 02/2009/BYT for post-harvest handling - Laboratory test results

No.19 Does quality of clean water used to wash products meet the standard?

No	Criteria	Level	Requirement	Method	Reference
19	Does the quality of clean water used to wash products meet the standard?	A	The post-harvest washing water sampling and laboratory tests are conducted to check heavy metal and biological residues. The chemical, biological, risks in washing water shall not exceed the maximum residual limit (QCVN 02/2009/BYT). e.g.) Non-compliance case - There is no record of the result of heavy metal and biological residue check. - The laboratory test shows chemical, biological residues exceeding the maximum residual limit.	- Review record of heavy metal and biological residue check and/or laboratory test results	- [MGT] Table1 – Production condition management - QCVN 02/2009/BYT for post-harvest handling - Laboratory test results

No.20 Is waste water, garbage collected and treated properly in accordance with regulations?

No	Criteria	Level	Requirement	Method	Reference
20	Is waste water, garbage collected and treated properly in accordance with regulations?	A	Waste water is collected and properly treated and disposed. The garbage and solid waste are collected and put into the waste bin. e.g.) Non-compliance case - There is no waste bin and/or no proper place for disposal.	- On-site inspection to investigate the usage of waste bins and disposal of garbage and waste sources - Conduct interview (if necessary)	

No.25 Are only treated organic fertilizers applied and is a record kept on these organic fertilizers?

No	Criteria	Level	Requirement	Method	Reference
25	Do products have product origin or label to facilitate the traceability?	A	Products are labeled with information of producers name and contact in order to facilitate the traceability. e.g.) Non-compliance case - There is no information of name and contact on package and label of the products.	- On-site check at packing and selling points	- Labels and packing

Objective

- **Obtain products of highest quality and suitable cost;**
- **Reduce chemical, biological and physical hazards for products during harvesting, packaging, delivery;**
- **Minimize the losses during harvesting.**

Losses after harvesting

- **Reduction of quality;**
- **Food safety is not ensured;**
- **Reduction of volume;**
- **Reduced nutritional value of products;**
- **Economic losses: the product value is reduced because quality and volume is reduced.**

Changes in product quality after harvesting

- **Chlorophyll decomposition** - reduces perceptional quality of products, especially leafy vegetables.
- **Dehydration due to evaporation -** decreases freshness; causes tissue structure to soften and color to fade..
- **Respiration process continues -** reduces concentration of nurients in product.

CONTROL POINT NO.16

Harvesting point

Determine the proper point for harvesting products:

- Ensure yield, product quantity;
- Ensure perceptional quality, nutritional quality:
  - Products harvested at pre-mature time do not satisfy expected quality standards.
  - Products harvested after maturity will be old, fibered, of less quality.
  - Ensure food safety:
  - accurate pre-harvest interval

Before harvesting

- To verify the pre-harvest interval (PHI) for pesticides and organic fertilizers, farm manager should check diary of pesticide and fertilizer use to ensure:
  - Interval from application of pesticides and fertilizers to harvest is proper as regulated.
  - Only harvest products with their pre-harvest interval verified as regulated.
  - If the pre-harvest interval is not ensured, harvesting should be delayed until the PHI is verfied as regulated.

Green mustard: 30 days after sowing

Green choysom: 30 days after sowing seeds

HARVESTING POINT

Amaranth: 40-45 days after sowing seeds

Morning glory produced by seeds: 25 days after sowing seeds

Kohlrabi: 55-60 days after transplanting

Cabbage: 70-80 days after transplanting

HARVESTING POINT

Broccoli: 65-70 days after transplanting

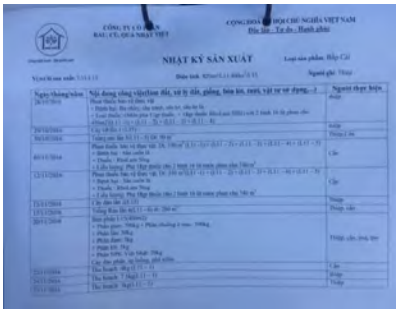
Tomato: 50 days after transplanting

Harvesting time

- Harvesting time: Coolest time of day - early in the morning or late in afternoon
- Do not harvest products in rainy or highly humid weather - Products are wet, and easy to generate temperature. If products are not preserved in ventilated conditions, they are easy to rot.
- Post-harvest products should be kept in a cool (shaded) area if they are not immediately shipped to pre-processing house or selling point.

Good practices in harvesting vegetables

- Check the field diary, ensuring the PHI for pesticides applied before harvesting
- Harvest vegetables in early morning or late afternoon to deliver to buyers within the day.
- Workers must pay attention during harvesting fresh vegetables to prevent products from directly touching soil.



Equipment, tools, containers

- Tools: Knife, scissors, etc.

- Product containers: Tray, plastic box, bamboo basket, nylon bags, jute bags, etc.
- Materials for line, containing products: Canvas, nylon, etc.

>>> Must be clean and ready for use during harvest.

- *Check, ensure hygiene of tools, equipments, containers before using to eliminate contamination hazards.*
- If it is not possible to clean or remove product contamination hazards from tools or containers, it is better not to use them.

Control Point No.17

Equipment, tools, containers

- Tools, equipment, containers should be maintained regularly to avoid chemical or physical hazards to products.
- Tools, containers must be isolated from areas that keep chemicals, fertilizers or additives.
- Need to have measures for differentiating containers used during harvesting and containers used in pre-processing house: Use containers that have different shape and color.

Good practices in harvesting vegetables

- Must cover vegetables or bring vegetables to pre-processing house immediately to avoid direct sunlight.
- Except for root vegetables, workers must handle carefully to avoid damages and soil on products.
- Remove strange objects, damaged, rotten products and plant residues out of harvested products.

Không để sản phẩm trực tiếp trên đất

Pre-processing and packaging at the harvest location

- Select suitable place for pre-processing and packaging fresh vegetables in order to avoid cross-contamination. Must use canvas lining for harvested products, do not let products directly touch soil.
- Check, ensure hygiene of tools, equipment, containers before using in order to eliminate contamination hazards.
- Pay attention while working in order to avoid damage or cause of biological, physical, chemical contamination to products.

Collecting, delivering vegetables from production area to pre-processing, packing house

- Products must be gathered in a place that will not cause contamination to products.
- Use canvas and baskets to keep vegetables in the field and deliver vegetable to pre-processing house
- Collect a small quantity each time.
- Do not pile heavy or strongly press vegetables.

Good practices of product transport

- Transporting vehicle must be clean while arranging products.
- Protect products and containers to avoid dust, dirty contamination hazard while arranging and transporting.
- Pay attention to avoid contamination on products while using animals (buffalo, cow, horse, etc) for transporting.

Good practices of Pre-processing and packaging in the Pre-processing house

- Only use clean water for washing products - *Water used in agriculture*
- Water for washing products must be regularly replaced. Do not wash products for more than 3 minutes in order to avoid water and micro-organisms from entering into the products.
- Use plastic basket to store products after washing to ensure no cross contamination.
- Fully avoid direct contact between packaged products and un-packaged products.
- After packaging, products must be labeled to facilitate product traceability.

Selecting location of pre-processing house

Handling house must be located far away from the following areas:

- Polluted environment, industrial activities, livestock, etc. causing serious contamination to fresh fruit, vegetables.
- Potential of flood and inundation unless assured flood control is provided.

- Risk to be affected by infestation of pests.
- Existence of solid or liquid waste that can't be disposed of.

Design and construction

- Design and set up the handling house:
- Design with 1-way principle
- Advantageous for good hygiene practices
- Avoid cross-contamination during the pre-processing and handling process.
- Must be suitable with technology and type of products.

Cleaning, washing

- Product cleaning materials, devices such as wash cloths, brushes should be properly kept in original form to avoid being infected and contaminated by foreign objects.
- There should be suitable equipment to wash products and water supply source of hygienic standards must be available.

Cleaning, washing

- Quality of water used must be suitable with each stage of the pre-processing process and water supply system should meet hygiene standards.
- E.g: Clean water can be used for initial stages while water used for final stages must meet quality standards in Vietnam.

Cleaning, washing (Cont)

- If antiseptic materials in water are used to wash products, antiseptic concentration should be checked and controlled to ensure the effectiveness.
- The utilization of chemicals and equipment maintenance should comply with manufactory's manual.

Good practices in vegetable washing stage

- Gently wash to avoid damage
- Wash the root in some cases only
- Arrange vegetables into the basket, do not put too many
- Put basket onto shelves or using a fan for drying vegetables before packaging

Good practices in cutting, pruning vegetables

- Prune all old leaves and un-mature leaves – easy to be damaged.
- Sort vegetables into uniform size following buyer's standard
- Arrange vegetables gently to avoid damage
- Do not arrange vegetables forcefully onto hard objects, this damages vegetable stems.
- Put vegetable roots into 2% vinegar to avoid contamination by microorganisms (possible, especially in early summer)
- All pre-processing workers must be trained and guided with standard practices of pre-processing, packaging

Good practices in packaging vegetables

- Use nylon bags with holes in the bottom and middle.
- Do not pack vegetables when they are still wet.
- Do not fully seal the bag top
- Vegetables are neatly arranged in the bag
- Consider designing packs suitable with customer's requirements.

Good practices of preserving vegetables

- Products must be preserved in clean, dry area, avoiding contamination hazards. Products should not be preserved together with fertilizers, agricultural chemicals and cleaning or disinfecting agents.
- Except for root vegetables, post-harvested vegetable products should not be directly put on ground or floor in order to avoid chemical, biological and physical contamination.

Good practices of preserving vegetables

- Preserve vegetables in cool, ventilated conditions
- If vegetables are preserved in cool storage, adjust the temperature to not be too low in order to avoid temperature shock.
- Record date of pre-processing, packaging and monitor products to avoid the supply of supermarkets and hotels with vegetables from the previous day

Pre-processing, packaging of vegetables that do not satisfy requirements

Mustard vegetables with rotten roots

Pre-processing, packaging of vegetables that do not satisfy requirements

Rotten roots, many yellow leaves

Pre-processing, packaging of vegetables that do not satisfy requirements

Vegetables are damaged, vegetables are not packed in neat and attractive manner.

Cause and corrective measures

- **Cause:**
  - Pruning, cutting techniques result in bacteria contamination
  - The rainy and hot weather makes vegetables easy to be damaged.
  - Vegetables are stored for a long time.
  - Effects from heat shock during preservation in cool storage
- **Corrective measures:**
  - Need to refer to cutting, pruning techniques for application (need to put the vegetable roots into vinegar liquid for disinfection, etc)
  - Need to tightly control all the stages from caring (amount of water, etc), harvesting, pre-processing, packaging and delivery to customers.
  - Sort the products to deliver to each target customer.

CONTROL POINT NO.18

Water for product handling

Kinds of water	Water sources
☞ Product washing water, ☞ Water to make preservative chemical solution, ☞ Product cooling or top icing water	☞ tap water ☞ drilled-well water ☞ must meet the standards 

CONTROL POINT NO.18

Hazards from washing water

Hazards	Sources
Chemical	+ Drilled-well water is contaminated with heavy metals such as Arsenic, Mercury, etc. + Domestic water does not meet the standards + Washing water is supplied from contaminated domestic water source
Pathogenic organisms	+ Drilled-well water is contaminated with microorganism due to running-off from the contaminated areas. + Water is contaminated by untreated waste water

CONTROL POINT NO.19

Product washing water

When using water to wash or cool products, manager and workers must ensure the following practices:

- Product washing water must be clean water (in compliance with Vietnam's regulations).
- In case of lacking microorganisms requirements, water must be treated to meet clean water requirements (eg. Chlorine treatment or other water treatment methods).
- Water must be contained and transported in clean container or reservoirs with appropriate operation.
- Water retrieved from product drying can be used for the first product wash.

Assessing and testing quality of water source

Assessment criteria	Compared standards
☞ Water used in preliminary handling, post-harvest handling	☞ National technical regulations QCVN 02: 2009/BYT on domestic water quality

CONTROL POINT NO.20

Waste management

Waste in pre-processing, trading areas must be collected daily or after each production shift.

Waste management

Pre-processing house

Wholesale market

Do not let waste accumulate around pre-processing, trading areas

Waste management

- Waste baskets must be covered to avoid contamination
- Packs/ bags of preservation chemicals, fungus control chemicals must be collected and treated in accordance with legal regulations.

- Organic waste must be collected and treated in locations separate from pre-processing area.
- Waste that is hard to decompose (nylon, plastic, glass bag, etc) must be collected and kept in separate area.

CONTROL POINT NO.25

Labelling

- Packs/bags for products must be labelled in compliance with current regulations in Vietnam.
- Re-used packs/bags must be suitable, durable and easy to clean and disinfect.

Labelling (Cont)

- Product label should have such basic information to serve origin traceability as:
  - + Name of product
  - + Name, address of producer
  - + Code of product batch
- E.g: R01-28012009
- R01: Code of production batch

Project for Improvement of Reliability of
Safe Crop Production in the Northern Region

Basic GAP TOT Material Series

No.6

INTERNAL AND EXTERNAL AUDIT ON THE BASIC GAP APPLICATION BY COOPERATIVE

DCP/MARD
JICA Project Team

INTRODUCTION

This material provides guidance and references to meet the requirement of **No.24 and 26 out of 26 control points** on Basic GAP as below:

24. Has an internal audit been conducted, recorded, and filed?

26. Has an internal audit and evaluation been carried out at least one per crop/ year?

1. **Why?**
2. **What to do (explanation for mobilization of required staffing, materials)**
3. **Method**
4. **Assessment/ evaluation**
5. **Lessons/ good practices from project experience**
6. **Reference (laws and regulations for deep understanding)**

CONTROL POINT

No.24 Has an internal audit been conducted, recorded, and filed?

No	Criteria	Level	Requirement	Method	Reference
24	Has internal audit been conducted, recorded, and filed?	A	Internal audit is conducted more than once a year. The manager records and files the results of internal audit. e.g.) Non-compliance case There is no record on internal audit conducted.	- Review the record of internal audit conducted	- Checklist of internal audit

No.26 Has an internal audit and evaulation been carried out at least once per crop/ year?

No	Criteria	Level	Requirement	Method	Reference
26	Has internal audit and evaluation been carried out at least one per crop/ year?	A	Internal audit is carried out at least once per crop/ a year. It is recommendable that internal audit shall be carried out once per crop season. e.g.) Non-compliance case Internal audit is not carried out last one year. Internal audit is carried out more than once a year, but it does not follow the requirements, and/or the results are not reflected into the practices of farmers/ workers.	- Review the internal audit results	- [MGT] Checklist of internal audit

CONTROL POINT NO.24

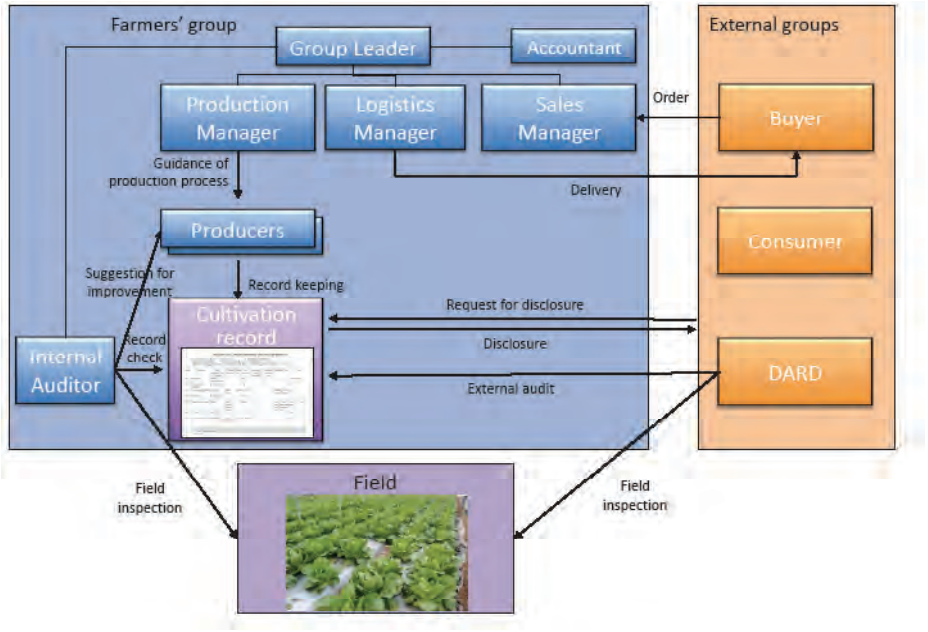
Internal audit definition

- Internal audit is a procedure put into effect by the management board, managers and other members of an organization. It is designed to ensure the relevance during the implementation process aiming at achieving the targets set by the management board:
  - Effectiveness and efficiency of activities.
  - The reliability of product safety level.
  - Compliance and regulations, rules available.
- Internal audit can be done by producers themselves or hired auditor to perform a self audit on good production practices, records and documentation in line with VietGAP requirements.

Internal audit

- Activities of an internal audit are carried out to assess the implementation of production practices in farmer households;
- The assessment results form a basis to confirm whether workers comply with Good Production Practices (Basic GAP, GMP) and records are applied properly and accurately in line with requirements or not.
- Establish quality management system in the Company/ Cooperative
- **Number of members:** 1-2 technique auditors/cooperative.
- **Requirements for technique auditors:**
  - Provided with training on auditing, monitoring, inspection.
  - Join the pilot auditing before officially becoming an internal auditor of Cooperative.

Pilot Project Implementation Structure



Operation of internal audit (Basic GAP)

- ***Conduct Internal monitoring of farmers' activities***
- **Frequency**: 1 time/ month in the production cycle
- **Auditing is conducted by**: self-audit by a group (2-3 persons) of technique auditors of cooperative/ company.
- **Scope of internal audit**: 100% farmers;
- **Violation for non-compliance**: provided with guidance and corrective actions.
- **Periodical meeting**: is organized to share experience of Basic GAP application and new cultivation methods.

Operation of internal audit (Basic GAP)

- Conduct internal Audit
  - Frequency: At least 1 time/ production cycle
  - Evaluation is conduct by: Cooperative.
  - Scope of evaluation: 100% farmers; select representative farmers to conduct internal evaluation; refer to Circular No. 48 /2012/TT-BNNPTNT on evaluating VietGAP certification, number of farmers randomly selected = √(total number of farmers in cooperative/ company).
  - Evaluation method: Use Basic GAP checklist (26 items) with 2 evaluation levels (satisfactory, not satisfactory)
  - Handling violation: suspension, corrective action.

CONTROL POINT NO.26

How does the internal audit operate?

- **Farmers**: provided with training on safe vegetable production technique agreed upon, cultivation skills (planting, harvesting and post-harvesting) (26 check list items) and auditing; commitment to follow the correct procedure of safe vegetable production
- **Farmer group**: from 5-15 members; group leader will instruct the production, **cross-audit among groups**.

- **Cooperative/ inter-group**: Link production groups in localities, including group leader, distributors, managers, etc. Cooperative conducts periodic auditing at least twice/ year and after each auditing, it has a report on auditing and handling of violation groups
- **Local coordination board**: provide support to internal audit groups.

TABLE 9 – TABLE OF CHECKLIST

No	Practices	Level	Notes
I	**Production conditions**		
1	Is production site suitable for planning of the Government and localities for produced crop expected?	A	
2	Production area is satisfactory in terms of safety (quality of soil, irrigation water) according to regulations?	A	
II	**Management of planting soil and field hygiene**		
3	Has analysis and evaluation of potential chemical, biological, physical risks in production soil been conducted?		
III	**Manage the use of fertilizers and additives**		
4	Are only fertilizers which are on the list of those approved for use in Vietnam used?		
5	Are organic fertilizers which have been treated and had sufficient documents applied only?	A	
6	When the fertilizers and additives are purchased and put into use, are they recorded and stored in the book?	A	
IV	**Manage the use of water source for production**		
7	Quality of water used for irrigation and post-harvest handling is assured according to current standards or not?	A	
8	Have farmers, organizations and individuals been trained on the management and utilization of agrichemicals?	A	
9	Are measures of Integrated Pest Management (IPM) and Integrated Crop Management (ICM) applied?	B	
10	Are used chemicals/ plant protection products/ biological medicines included in the list of those approved for use?	A	

11	Are chemicals, plant protection products and other agricultural materials purchased from licensed stores?	B	
12	Have plant protection products, chemicals been used in accordance with guidance of technical staff and instruction shown on package and label?	A	
13	Do farmers have a diary and record to monitor the utilization of plant protection products and chemicals?	A	
14	Are chemicals and packaging destroyed strictly in compliance with the State's regulations?	A	
15	Is there unscheduled and periodic inspections to check the production process and chemical residue of crop products?	A	
VI	**Harvesting and post-harvest handling**		
16	Are the products isolated properly before harvesting?	A	
17	Are areas of pre-processing, packaging and product preservation isolated from storehouses, sites containing chemicals and other materials?	A	
18	Is clean water used to wash harvested products?	A	
19	Is quality of water used in the post-harvest handling process in accordance with the State's regulations?	A	
VII	**Management and Waste treatment**		
20	Is wastewater, garbage collected and treated properly in accordance with regulations?	A	
VIII	**Training, communication**		
21	Are farmers provided with training and sufficient knowledge on Integrated Pest Management (IPM), Integrated Crop Management (ICP) and Good Agriculture Practices (GAP)?	A	
22	Is there a warning sign for a production area that has recently been sprayed?	B	
23	Records in the production diary, record keeping, traceability	A	
24	Are Field diary, production management diary fully recorded?	A	

25	Has internal audits, recording, keeping of internal audit record conducted?	A	
X	**Internal audit**		
26	Has an internal audit and evaluation been carried out at least one per crop/ year?	A	

CONTROL POINT NO.26

Experience for success

1. 100% group members are provided with training, guidance on standards of System.
2. 100% households of groups have registered letter to committee to comply with regulation;
3. Conduct internal audit: subjectively handle the results.
4. Combination of internal audit and external audit of functional units

Development of traceability system

Basic GAP TOT materials

Project for Improvement of Reliability of Safe Crop Production in the Northern Region

INTRODUCTION

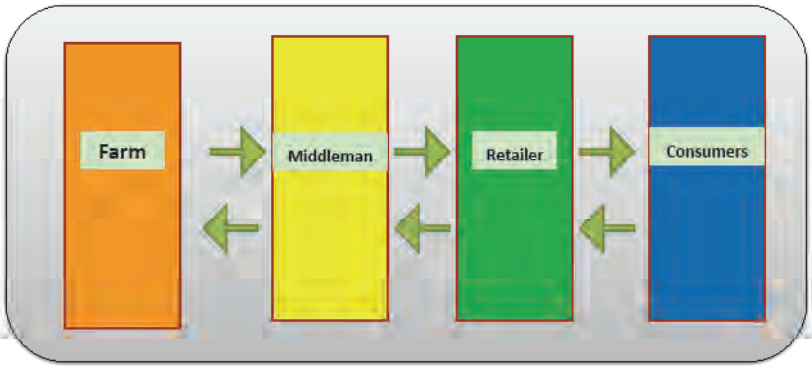
This material provides guidance and references to meet the requirement of **No.25 out of 26 control points** on Basic GAP as below:

25. Do products have product origin on label to facilitate the traceability?

Consumers...

Trace...

Traceability

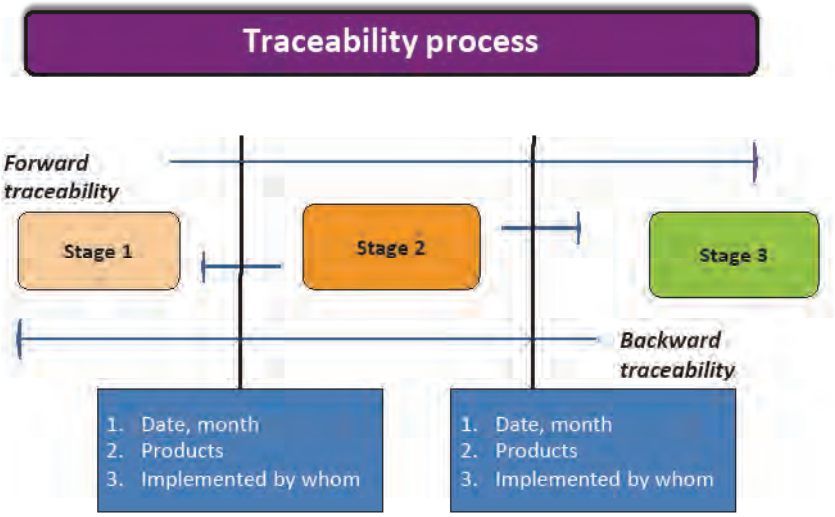


Benefits of traceability

- **Traceability meets the requirement of consumers**: knowing the origin of the food.
- Traceability ensures food safety

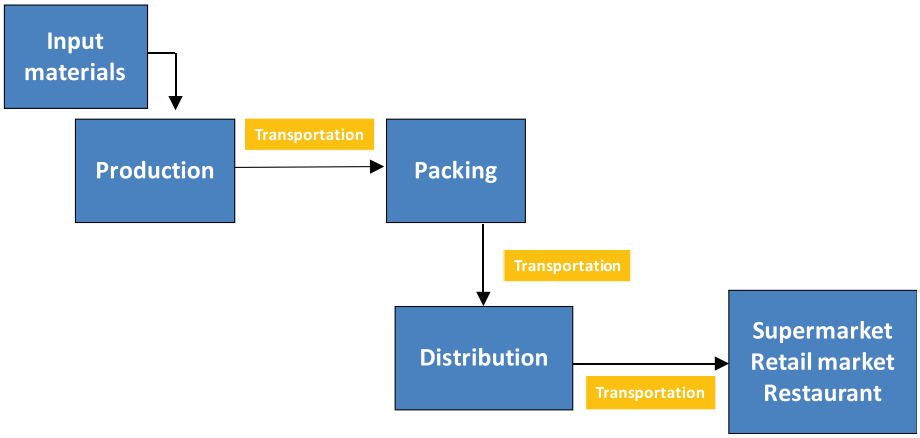
Only producers meeting the standards participate in the supply chain.

- **Traceability enables quick product recall**
  - When an incident occurs, causes for the mistake can be quickly investigated.
  - Defective products can be quickly retracted and recalled.
- **Traceability enables <u>information exchange/ communication</u>**: among producers, distributors and consumers.



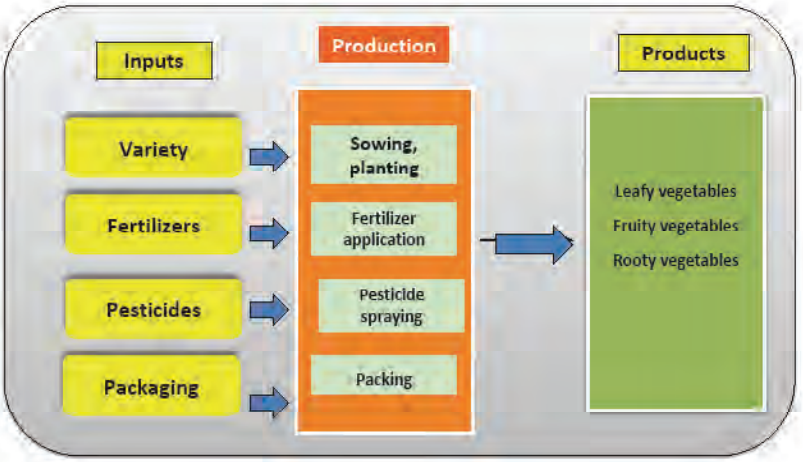
Requirements on Basic Gap and origin traceability

- Detailed records must be set up for every step of Basic GAP, VietGAP.
- Records must be kept.
- Products must have label so as to enable easy traceability.



Recording

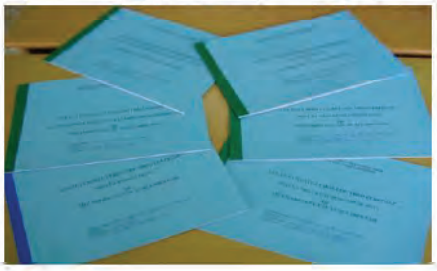
Producer...



Producer...

Records and traceability system???

Basic GAP implementation records



1. Map of production area; results of soil and water sample analysis;
2. **Basic GAP logbook for vegetables;**
3. Records on worker's trainings
4. Checklist of internal audit and evaluation;
5. Other documents.

GUIDANCE ON RECORDING

Purposes of recording:

- *Manage soil and field hygiene;*
- *Manage the use of fertilizers and amendments;*
- *Manage the use of water source in production;*
- *Manage the use of pesticides, chemicals;*
- *Manage the harvesting and post harvest handling;*
- *Manage the trainings and communication*

Trainings provided to workers

- **Skills of recording:**
  - ***How to record: describe in detail the practices, for example: the use of pesticides, dosage, quantity of pesticides used, etc.***
  - ***Where: at which plot, which farmer households?***
  - ***When: date and month of application***
  - ***Implemented by whom: the implementing person must sign on the record book.***
- **Record keeping:** Records must be kept, stored to serve as basis for inspection and monitoring

Records of Basic GAP application

Records of Basic GAP application: is one of tools helping to ease origin traceability including chemical, biological and physical hazards which can be arisen during production but affect product quality.

The recordings should be:

- Recorded after each working day and during production process.
- Recorded all information including the purchase, receipt, utilization of fertilizers, amendments, pesticides.
- Recorded information related to harvesting, production consumption.
- Carefully kept to avoid losing of materials.

TABLE1- PRODUCTION PRACTICE DIARY

Name of plot (No.): ..... Area.....(m^2/sào /ha) Date of transplanting:..... ....

Crop:..... ..... Variety..... ..... Expected harvesting: 1st time:.....Last time:.....

Working protective cloth: Yes ( ); No ( ). Waste is put in proper area: Yes( ); No( ).

Date	Work	Name of pesticides, fertilizer	Name of insect/ disease	Quantity (kg, g, lit, ml, Pack)	Follow the instruction (mark x)	Warning board (mark x)	Risks detected	Implemented by

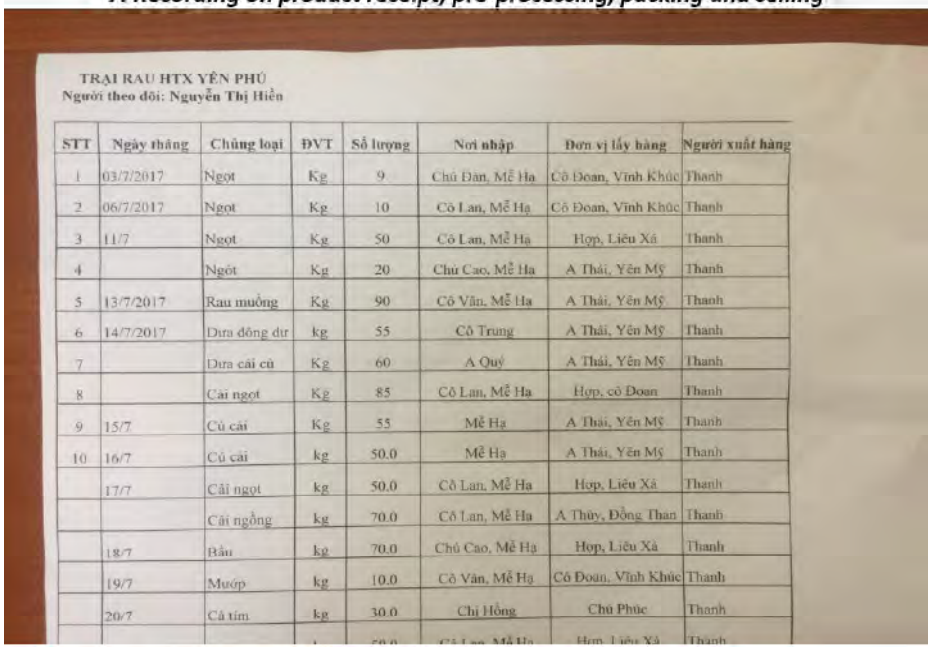
TABLE3- DIARY ON HARVESTING AND PRODUCTION SELLING

Area of pre-processing/ storage:.....

Address of retail markets:.....

Date/ month	Harvesting			Selling products					Risks detected/ handled (mark x)	Implemented by
	Type of crops	Name, code of plot	Number of interval days (days)	Quantity (kg, plant)	Price (đ/k, plant)	Ways of selling/ buyers				
						Retail selling (mark x)	Wholesale to whom	Contract-based sale to whom		

7. Recording on product receipt, pre-processing, packing and selling



TRẠI RAU HTX YÊN PHÚ
Người theo dõi: Nguyễn Thị Hiền

STT	Ngày tháng	Chủng loại	ĐVT	Số lượng	Nơi nhập	Đơn vị lấy hàng	Người xuất hàng
1	03/7/2017	Ngọt	Kg	9	Chú Đàn, Mễ Hạ	Cô Đoan, Vĩnh Khúc	Thanh
2	06/7/2017	Ngọt	Kg	10	Cô Lan, Mễ Hạ	Cô Đoan, Vĩnh Khúc	Thanh
3	11/7	Ngọt	Kg	50	Cô Lan, Mễ Hạ	Hợp, Liêu Xá	Thanh
4		Ngót	Kg	20	Chú Cao, Mễ Hạ	A Thái, Yên Mỹ	Thanh
5	13/7/2017	Rau muống	Kg	90	Cô Vân, Mễ Hạ	A Thái, Yên Mỹ	Thanh
6	14/7/2017	Dưa đông dư	kg	55	Cô Trung	A Thái, Yên Mỹ	Thanh
7		Dưa cải cũ	Kg	60	A Quý	A Thái, Yên Mỹ	Thanh
8		Cải ngọt	Kg	85	Cô Lan, Mễ Hạ	Hợp, cô Đoan	Thanh
9	15/7	Củ cải	Kg	55	Mễ Hạ	A Thái, Yên Mỹ	Thanh
10	16/7	Củ cải	kg	50.0	Mễ Hạ	A Thái, Yên Mỹ	Thanh
	17/7	Cải ngọt	kg	50.0	Cô Lan, Mễ Hạ	Hợp, Liêu Xá	Thanh
		Cải ngồng	kg	70.0	Cô Lan, Mễ Hạ	A Thủy, Đồng Than	Thanh
	18/7	Bầu	kg	70.0	Chú Cao, Mễ Hạ	Hợp, Liêu Xá	Thanh
	19/7	Mướp	kg	10.0	Cô Vân, Mễ Hạ	Cô Đoan, Vĩnh Khúc	Thanh
	20/7	Cà tím	kg	30.0	Chị Hồng	Chú Phúc	Thanh

Recording

Template: Pre-processing, packing, selling products

Date of harvesting	Type of vegetable harvested	Name of plot, area harvetsed	Quanity sold or shipped to wareho use	Means of transport ation for shipping	Buyers/ location of product receipt	Người thu hoạch đóng gói	Người bán	Người sơ chế, đóng gói
15/7/2010	Rau muống	35-A-12-35m^2	15 sọt	Xe máy	Hằng	Anh (chồng)	Thu (vợ)	Hạnh

Code of production location

- Set up code for each land plot so as to identify and trace production location of each production batch.

Label/Name tag for containers

- Containers should label/name tag have to identify product batch when harvesting, receiving materials for preliminary handling and packing.

Label / Name tag

Traceability in the farm

Label / Name tag	Date of harvest: Code of production batch: Harvester: Product: Quantity: Kind:	Label / Name tag

Labeling

Product label need to include basic information to enable traceability:

- **Product name**
- **Name, address of producer**
- **Code of product batch**

Eg: R01-28012009
R01: Code of production batch
28/01/2009: date of selling products

Using bar code to identify products after being handled and packed.

ATTACHMENT 4.2

TOF TRAINING COURSE ON BASIC GAP

1. OUTLINE OF TOF TRAINING COURSE

TOF training on Basic GAP shall be organized and conducted by PPMU members participated in TOT training as the trainers with assistance of JICA Project team. PPMU will apply Basic GAP as the technical procedures for the project and will utilize the "Basic GAP manual" developed by the previous JICA project.

- Objective

  To enable participants to be aware of necessity of corrective action to keep safety and reliability of vegetable production according to Basic GAP.

  To enable participants to understand and implement the procedures of production and post-harvesting according to the requirement of Basic GAP in order to produce vegetables with satisfaction of hygienic and safe requirements.

- Target participants

  The expected participants are the group leader, technical inspector(s) and farmers participating in production, harvest and handling of vegetables.

- Number of participants:

  20 – 25 persons/class

- Training schedules:

  Trainings are expected to be conducted after implementation of TOT Basic GAP (tentatively September-October 2018).

- Training contents/topics:

  The contents of TOF training will be designed by JICA Project team and CPMU including maintenance of checklist indicated in

the Basic GAP manual, internal audit procedures, quality assurance, nomination of quality control staff, etc.

- Trainers

  PPMU technical staff participated in TOT training as the trainer with assistance of JICA Project Team

2. PROPOSED TOF TRAINING CONTENTS ON BASIC GAP

Time	Contents/ topic	Lessons required
07.30 – 08.00	Registration/ opening remarks of the TOF training	
08.00 – 08.15	The necessity of vegetable production under GAP	1. Concern of consumers/ serious concern of society on current situation of food safety and hygiene in vegetable production: - Existing issues during vegetable production and harvest process which cause food un-safety. - Negative impacts of residues of chemicals, heavy metal and micro-organisms in vegetable production affecting people's health. 2. The necessity to apply GAP (good agriculture practices) in order to: - Prevent, eliminate risks to food safety in product cultivation, harvesting and delivery; - Create products ensuring food safety, satisfying consumer's requirements; - Build reputation of quality, food safety, improve economic benefit for producers.

08.15 – 08.30	Requirement of safe production area; water used for production in Cooperative, company	- Recognize, analyze, determine the hazards (chemical, biological, physical) causing food un-safety from soil, irrigation water in safe vegetable production. - Evaluate production area and water source - Check and analyze the water source and soil ensuring the determination of safe production area. - Treatment measures to eliminate hazards affecting safe production area.
08.30 – 09.00	Good practices in fertilizer application	- Guide standard practice procedure on fertilizers and supplemental fertilizers including: + Recognize, analyze hazards to food safety from fertilizers (in-organic, organic) + Select and use fertilizers in safe and effective manner + Measures of using fertilizers in safe vegetable production
09.00 – 09.15	Tea break	

09.15 – 10.00	The use of pesticides and chemicals in safe vegetable production	- Guide the implementation of standard practice procedure on pesticides and chemicals. In which, the following points are emphasized: + Analyze, recognize hazards causing food un-safety to products from the use of pesticides and chemicals. + Producer's existing issues of pesticide utilization, hazards causing food un-safety. + Address to buy chemicals; + Select chemical types for use; + Safe and effective use of pesticides (dosage, treatment time; spraying technique; labor protective clothes, etc.) + Pre-harvest interval for harvesting products; + Warehouse to keep and preserve un-used pesticides and chemicals; + Treat the packs of pesticides and chemical after use; - Evaluate the contamination hazards from the use of pesticides, chemicals and treatment measures

10.00 – 10.30	Good practices in stages of harvesting, pre-processing, packaging, loading and un-loading safe vegetables	- Analyze, determine the hazards to food safety and quality losses during harvesting. - Guide the implementation of standard practice procedure during the harvesting of fresh vegetables including: Pre-harvest interval; harvesting time; storage devices/ containers; labor hygiene; packaging in the field; water source, collection, delivery.
10.30 – 11.00	Guide the recording of field diary	- Training on recording skills for producers - Training on inspection and monitoring of recording for manager/ unit owner.
11.00 – 11.15	Discussion - Summary	- PPMU/ - Trainer group

For the presentation materials, please refer the website as below:

http://khuyennongvn.gov.vn/thu-vien-khuyen-nong/thu-vien-sach-kn_t244c28

TRAINING

Guide to implement basic criteria of Viet GAP (Basic GAP) in vegetable production
Basic GAP TOF materials
Project for Improvement of Reliability of Safe Crop Production in the Northern Region

What is the concept of safe vegetables?

I. DEFINITION OF SAFE VEGETABLES

– Vegetables are ensured to meet the quality requirements, both in appearance and nutrition concentration.

+ Quality requirements for appearance of safe vegetable:

- Harvested in a timely manner
- Not damaged, rotten, mixed with others, no diseases, properly packed.

+ Requirements for nutrition concentration

(Stipulated under Decision No. 46/2007/QĐ-BYT of Ministry of Health regarding the issuance of "Regulations on chemical and biological maximum residue level in food")

- Concentration of some key heavy metals
- Micro-organism contaminated level
- Concentration of Nitrate (NO3)
- Pesticide residue level

Adverse effects of Lead metal element (Pb)

- Lead (Pb): is an element that is highly toxic to people's health.
- Outstanding feature: after being absorbed into the body, lead is not released but accumulated over time which can then be poisonous.
- - Lead is accumulated in bones, hindering the calcium metabolic process by hindering the Vitamin D metabolic process.
- - Lead enters the body via drinking water, air and lead-contaminated food.

- Nitrate Concentration (NO3)

NO_3^- → NO_2^-

NO_2^- → Enters the body. Combined with the effect of enzymes in the body, nitrate metabolizes into nitrite. Nitrite aids in the creation of ni-

trosamines, which cause cancer.

NO_2- → Oxidates iron in red blood cells. This reduces the metabolic process in the blood, as well as hindering oxygen dissociation in red blood cells. Therefore, organs cannot be provided with sufficient oxygen.












In real production conditions, why are there these elements in roots, fruits, and vegetables?

Guide to implementing basic criteria of Viet GAP (Basic GAP) in vegetable production

II. BASIC CONTENTS

Include 5 topics:

1. **Conditions of production area.**
2. **Water source, fertilizer and additional additives.**
3. **Management of chemicals, pesticides.**
4. **Harvesting and processing**
5. **Guide to recording the field diary**

1. Conditions of production area

- Select area and plan the area to ensure food safety conditions for vegetable production (geographic conditions, farming soil, irrigation water source, etc)

SỞ KHOA HỌC VÀ CÔNG NGHỆ HÀ NAM
TRUNG TÂM ỨNG DỤNG TIẾN BỘ KHCN & KD KN
Địa chỉ: Phường Quang Trung – Phủ Lý – Hà Nam
Tel : 0351.3841891; 3842049

PHIẾU KẾT QUẢ THÍ NGHIỆM
Số:04.04.14/1-TN

1. Cơ quan gửi mẫu: Trung tâm khuyến nông – Sở nông nghiệp & phát triển nông thôn
2. Tên mẫu: Nước sử dụng tưới rau
3. Ngày nhận mẫu: 25/03/2014
4. Ngày phân tích: 25 - 04/04/2014

Stt	Thông số	Đơn vị tính	Phương pháp thử	Kết quả	QCVN 39: 2011/BTNMT
1	Cd	mg/l	TCVN 6197-1996	<0,001	0,01
2	Asen	mg/l	TCVN 6182-1996	0,0011	0,05
3	Thủy ngân	mg/l	TCVN 5991-1995	<0,0001	0,001
4	Chì	mg/l	TCVN 6193-1996	0,0015	0,05
5	FecalColi	Vi khuẩn/100ml	TCVN 6187-1996	0	200

Kết luận: Các chỉ tiêu trên đạt yêu cầu theo QCVN 39: 2011/BTNMT(Quy chuẩn kỹ thuật quốc gia về chất lượng nước dùng cho tưới tiêu),/.

Phủ Lý, ngày 04 tháng 04 năm 2014

GIÁM ĐỐC — PHÒNG LAS — KỸ THUẬT VIÊN

Nguyễn Văn Út — Mã Thị Bích Nhạn — Trần Hồng Nhung

(Kết quả trên chỉ có giá trị đối với mẫu thử)

SỞ KHOA HỌC VÀ CÔNG NGHỆ HÀ NAM
TRUNG TÂM ỨNG DỤNG TIẾN BỘ KHCN & KD KN
Địa chỉ: Phường Quang Trung – Phủ Lý – Hà Nam
Tel : 0351.3841891; 3842049

PHIẾU KẾT QUẢ THÍ NGHIỆM
Số:04.04.14/2-TN

1. Cơ quan gửi mẫuTrung tâm khuyến nông – Sở nông nghiệp & phát triển nông thôn
2. Tên mẫu: Mẫu đất
3. Ngày nhận mẫu: 25/03/2014
4. Ngày phân tích: 25 - 04/04/2014

Stt	Thông số	Đơn vị tính	Phương pháp thử	Kết quả	QCVN 03: 2008/BTNMT
1	Asen	mg/kg	TCVN 6949-1999	0,052	12
2	Cd	mg/kg	TCVN 6949-1999	0,0017	2
3	Đồng	mg/kg	TCVN 6949-1999	1,2	50
4	Chì	mg/kg	TCVN 6949-1999	1,8	70
5	Kẽm	mg/kg	TCVN 6949-1999	30	200

Kết luận: Các chỉ tiêu trên đạt yêu cầu theo QCVN 03: 2008/BTNMT(Quy chuẩn kỹ thuật quốc gia về giới hạn cho phép các kim loại nặng trong đất),/.

Phủ Lý, ngày 04 tháng 04 năm 2014

GIÁM ĐỐC — PHÒNG LAS — KỸ THUẬT VIÊN

Nguyễn Văn Út — Mã Thị Bích Nhạn — Trần Hồng Nhung

(Kết quả trên chỉ có giá trị đối với mẫu thử)

2. Irrigation water source

Irrigation water source

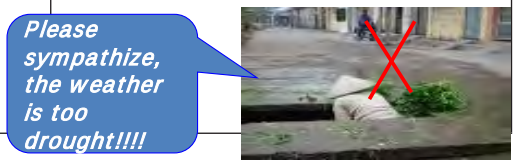
Type of water	Water source
→ Irrigation water, → Infusion water: nutrition liq uid, leafy fertilizer, pesticides; → Water to wash working tools	→river, → lake, big pond → Drilled well, → Water tank

Hazards of irrigation water

Hazard	Contamination sources	Method of causing contamination
Chemical	+ Chemicals: are poured, leaked or flowed into water source from surrounding area + Surface water from river, streams going through industrial zone and area which is contaminated and has residues of chemicals and pesticides.	→ Use contaminated water, plants will absorb through roots and accumulate in eaten parts of plants. → Direct application of contaminated water into eaten parts of plants that are going to be harvested.
Biological	+ Water from rivers and streams will be biologically contaminated if it goes through livestock or cattle area, domestic waste area or residential area. + Surface water from ponds, lakes whose water is biologically contaminated (corpses, feces of birds, mice, animals, etc).	

Water used to treat products (Processing water)

Type of water	Water source
Water to wash products, Water to infuse preservation chemicals Water for cleaning → Water to make ice covering the products	Tap water → Water from drilled well Must meet standards



Hazards of water used for post harvest handling

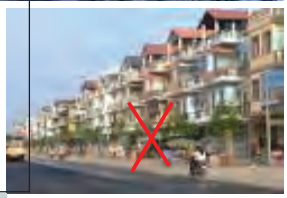
Hazards	Contamination source	Contamination Method
Chemical	+ Drilled well water is contaminated such as Asen, mercury, etc. + Domestic water does not achieve standard + Washing water is provided from contaminated domestic water source	Directly Washing products by contaminated water
Microbiological	+ Drilled well water gets micro-biological contamination due to flow from contaminated area. + Water is contaminated from untreated waste water.	

Risk of micro-biological contamination from irrigation water

Measures to eliminate hazards

Don't use the following water for watering

- Industrial waste water,
- Waste water from hospital,
- Water from residential area,
- Water from livestock farm,
- Water from slaughter-house
- Water from dung/ manure, untreated urine



Control animals

Use of watering water
• Should apply water from sprinkler in early morning so that leaves can dry quickly. • Should use water source of best quality for sprinkler watering, pay attention to pre-harvesting. • If possible, should not apply water from sprinkler at least 5 days before harvesting. • If possible, apply dribbling method or watering for the bed near the harvesting time to eliminate contamination hazard to plants. • When the water source is not clear or quality of water can't be controlled (ex. Water from river), apply furrow watering method.

Fertilizer and additive fertilizer

Chemical hazards

Hazard	Origin source	Contamination method
High contents of KLN (As, Pb, Cd, Hg,…)	The appearance of heavy metal (especially Cadimi) in fertilizers and additive fertilizers of such low level as gypsum, animal manure, composting, etc.	Contents of metal from fertilizer and additive fertilizers result in high content of metal in soil Which the plants then absorb.

High risk for root vegetables

Chemical hazards

Hazard	Origin source	Contamination method
High content of Nitrate	+ Soil has nitrogen (normally the organic nitrogen) + Overuse of nitrogen fertilizer (organic and chemical) or late application	The vegetables absorb too much nitrate from the origin source, causing high levels of nitrate accumulated in harvested products.



High risk for vegetables whose young parts are eaten (leaves, stems and flowers)

Biological hazard

Hazard	Origin source	Contamination method
Harmful microbes	Kinds of manure, **human feces or urine** and untreated animal urine or that does not meet the composting quality always contain a big amount of harmful microbes	+ Contamination may happen through direct contact between eaten parts and organic fertilizer during the time of application + Leafy and stem vegetables near the ground, root vegetables under the ground face hazards of bio-contamination with this fertilizer.

Selection of fertilizer and additive fertilizers

CCP

→ Only use fertilizers on the list of those approved for production and trading in Vietnam issued by MARD.

→ Only use fertilizer and additive fertilizers of clear utilization guidance

→ Do not use fertilizers of un-clear origin, no label or expired.

→ Do not apply untreated organic fertilizer to vegetables because they contain many harmful microbes.

Application of safe fertilizer: Organic fertilizer

→ Directly apply organic fertilizer to soil early and cover the fertilizer with soil.

→ Pay attention to not let fertilizer directly touch the eaten parts of vegetables;

→ Only apply organic fertilizer completely treated and stop applying at least 2 weeks before harvesting.

Application of safe fertilizers

Apply organic fertilizers in early season, cover the fertilizer with soil and use the proper covering materials

Application of safe fertilizer: Chemical fertilizers

- For chemical fertilizer: Apply sufficient dosage of nitrogen fertilizers according to technical regulations for each kind of vegetable; avoid overuse of nitrogen fertilizer; stop application of nitrogen fertilizers at least 15 days before harvesting

Other notes:

→ Keep the application tools clean → Adjust the fertilizer measuring tools at least once/ year

→ Treatment of safe fertilizer: Organic fertilizer/ manure

Treat safe fertilizer: Organic fertilizer/ manure

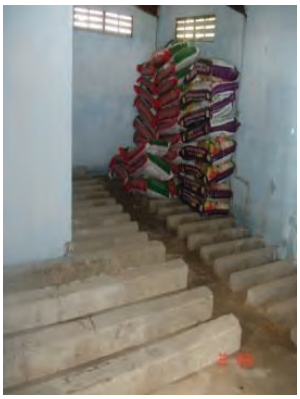
→ Must be treated by composting for at least 6 weeks

→ Regularly mix to ensure sufficient temperature, humidity to facilitate decomposition of organic substances

→ Area for storage and treatment: should be separate from production, post-harvesting handling areas, and should have covering materials.

→ Recording the time and method of treatment

Treatment of safe fertilizer: Chemical fertilizer



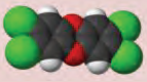
Warehouse to preserve fertilizer, mixing and packing area must be separate from production and post harvest areas; it should have the covering, good warehouse regulations, etc to eliminate the contamination hazard

PESTICIDES AND CHEMICALS

HAZARD IDENTIFICATION

Hazards	Reasons
Pesticides 	+ Use of prohibited pesticides; + Use of pesticides un-registered for vegetables; + Pre-harvesting intervals for pesticides are not ensured; + Pesticide improperly applied (mix many kinds of pesticides, increase dosage); + Low quality spraying equipment (leakage, incorrect quantity, etc); + Pesticides drift from adjacent areas; + Spraying pesticides near harvested products or packaging materials; + Pesticide residues accumulated in soil from previous uses; + Pesticides stick to product containers.

HAZARD IDENTIFICATION

Hazards	Reasons
Other chemicals 	+ Use of preservation chemicals unapproved or improperly; + Improper use of chemicals for cleaning and washing, leaving residues left on equipment, containers, etc. + Fuel (oil, gasoline), paint, etc on equipment and tools for harvesting, packaging, delivering, resulting in direct contamination to products and product packs; + Soil and water are contaminated by chemicals from nearby industrial zones and chemical factories.

Selection and Purchase of PESTICIDES

Only buy pesticides from licensed shops

LIST OF PESTICIDES PERMITED FOR USE IN VIETNAM

(Issued together with Circular No. 09 /2009/ TT-BNN dated 03/03/2009 of MARD)

For further detail information, refer to website of Plant Protection Department:

http://www.ppd.gov.vn

Only use pesticides from the permitted list

Do not buy pesticides which are banned, unlisted, low quality or fake, etc.

Transportation

Don't put pesticides with food stuff

Measures to eliminate and mitigate hazards

LOCATION/STOREHOUSE FOR PESTICIDES AND SPRAYING EQUIPMENTS

- There must be a storehouse for preservation of unused pesticides;

- Storehouse must be constructed on high land, dry location and far away from residential area as well as causing no impact to products in the production site.

- Storehouse must have warning board, locks and fire prevention equipment (big storehouse) and sand for timely treatment in case of pesticide leakage, break and spill;

- Pesticides in the storehouse must be well arranged to avoid break and spill; do not put them together with other materials to avoid confusion.

Warehouse to keep pesticides

Only keep pesticides which have origin and complete stamp, label

Do not keep pesticides with other materials (fertilizers containing ammonium nitrate, potassium nitrate or natrium nitrate, clo).

Pesticide containers must have clear label, do not move pesticides from its container to a different one.

Do not put pesticide of liquid form on shelves above the pesticide of powder form.

Divide the preservation areas into separate lots with notice board.

SELECTION, utilization of pesticides

- Only apply pesticide when insects and diseases affect yield (economic efficiency). Based on inspection results at the field (plant growth, insect concentration, disease ratio and weather conditions, etc)

- Only use pesticides from the list of those approved for use in Vietnam

- Should select pesticides with low toxic level (less toxic) based on color bars on the products.

+ Red: extremely toxic

+ Yellow: highly toxic

+ Blue: Less toxic (still dangerous)

Promote the use of biological pesticides, especially at the end of season.

SYMBOLS OF TOXICITY LEVEL

Nhóm độc	Bảng màu	Biểu tượng	Cần lưu ý
Nhóm I			"Rất độc"
Nhóm II			"Độc cao"
Nhóm III			"Nguy hiểm"

Pesticide utilization techniques

- Direct users of pesticides must be provided with training of safe and effective technique and first-aid methods for cases affected by pesticides

- Apply principle of “4 corrections”: correct pesticide, correct time, correct dosage, and correct method.

- Correctly follow the guidance in terms of targeted insects and diseases, dosage, concentration (have tools to measure the amount of pesticides and water before mixing) and must ensure pre-harvesting interval according to the guidance of each kind of pesticide.

- Basing on crop areas to mix sufficient amount of pesticides, do not use the pesticides mixed from previous days.

- If there is need to use a new kind of pesticide, there should be guidance provided by a professional expert on pesticides.

SAFETY WARNING SYMBOLS

Glove

Mask or glass

Mask

Long-sleeve clothes

Boots

Bathing after spraying pesticide

Chemicals toxic to fish

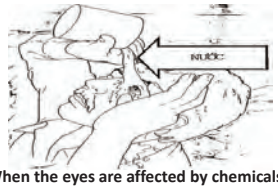
Chemicals toxic to animal

FIRST-AID FOR PERSON who directly touches or uses PESTICIDE

Take victims out of toxic area

Change or remove the affected clothes

Use wet cloth or soap to gently wash the affected parts, do not use the brush



When the eyes are affected by chemicals, use clean water to continuously wash for 15-20 minutes

"4 corrections" principle for using pesticide

For this pest

Measuring devices

Liquid pesticide

Apply this pesticide

Correct pesticide

Correct dosage

Spraying

Correct method

It is optimal to spray pesticide at the beginning stage of the epidemic

Correct time

Follow the instructions on the pesticide label

☞ **Before using pesticide, it is the most important to *read carefully and clearly, specifically understand all the information and instructions on the pesticide label***

Follow the instructions on the pesticide label

CAREFULLY READ THE PESTICIDE LABEL BEFORE USING

INSTRUCTION FOR USE

:: Crops

:: Pest

:: Dosage

:: Mixing method

:: Water amount for use

:: Treatment time

:: Number of treatments/ season

:: Pre-harvest interval

:: Some important notes

Type of pesticide

NAME OF PRODUCTS® 123 XX

Purpose: abc def ghi jkl mno pqr stu vwxyz abc def ghi

Active substance: zzz 12.3%

Weight
Volume

Registration No.
Quality reg. No.
Production date
Expire date

Name, address of producers

SAFETY INSTRUCTION

- Pesticide must be kept in packs. Store in dry place, out of children's reach, away from foodstuff and livestock.
- Wear orderly clothes when spraying. Spraying in calm should not be opposite to wind direction. Avoid pesticides to touch eyes, nose, mouth.
- Do not eat, drink, smoke during the spraying. Have a bath, change clothes after spraying.
- Do not wash sprayer, mixing devices in canals, ditches, ponds, lakes or other water sources. When pesticides are used up, packs must be disposed and dumped. Do not burn it.

FIRST AID

- If pesticides stick on skin: take off clothes. Continuously flush water on affected skin. Clean skin and hair carefully with soap.
- If pesticides stick on eyes: Quickly wash eyes with clean water. Keep eyes open and wash eyes in the water for 15 minutes.
- If the pesticides are swallowed: take the victims to the nearest clinics, remember to bring the pesticide label along.

Mix pesticides to have safe and effective treatment

- Mix pesticides sufficient for use to apply in treatment area.
- Do not use the pesticides mixed from previous day for use.

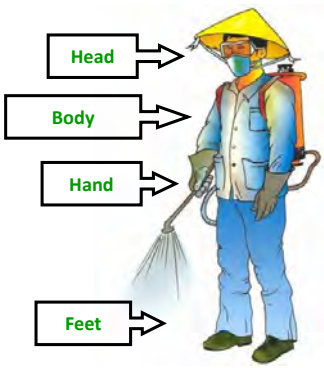
- Surplus of mixed chemicals and pesticides must be properly treated to avoid environment contamination.
- The surplus of mixed pesticides should be collected and treated in a proper manner, do not pour into farming land and water source.

Safety for contact with pesticides and chemicals

Wear protective clothes during the application of pesticides

Parts of the body need to be protected

- **Head**
  - ***Eye***
  - ***Respiratory system***
- **Body**
  - ***Hand***
  - ***Feet.***



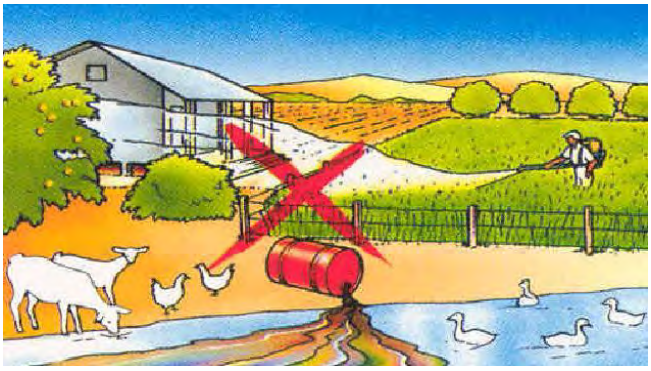
Spraying devices

Do not use leaking, damaged, low quality sprayers

Cleaning the spraying devices

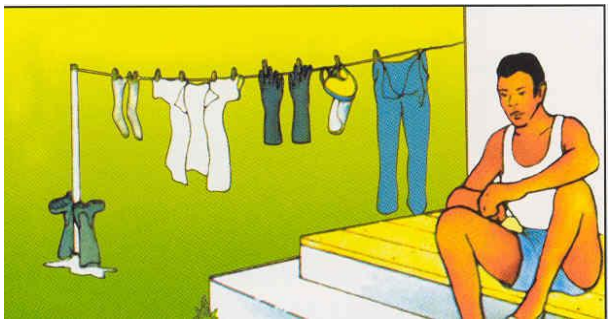
✖ Clean and check spraying devices after each working day

Safety for use



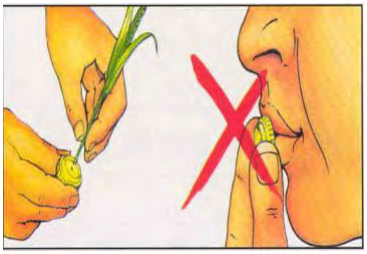
☞ **Do not pollute the environment due to improper pesticide utilization.**

Safe labor



☞ **Wash and clean clothes and protective devices after each working day**

Safe labor



☞ Do not clean the sprayer valve by mouth. Clean it by water or a soft stick.

☞ Do not carelessly place pesticides and pesticide containers.

Management of pesticide packaging

- Pesticide packaging must be collected and properly treated after use.

Do not carelessly throw packages in order to avoid contamination to products and environment.

Do not use pesticide packages for other purposes such as containing, chocking and holding products.

Manage pesticide packages properly.

Pesticide packaging, expired pesticides and prohibited pesticides must be collected and stored in a safe place to await proper treatment.

Do not carelessly throw pesticide packaging in production field after use

Pesticide packaging

☞ Production field should have designated area to keep pesticide packs

☞ Pesticide packs must be collected and treated in a proper way

Check and monitor the use of pesticides

- Regularly check the warehouse. Take maintenance actions for improper conditions.

Regularly check techniques of pesticide application to have corrective actions.

Record the purchase, preservation and utilization of pesticides

All activities related to purchase, storage, preservation and utilization of pesticides must be fully recorded (time of purchase, kind of pesticide, volume, time of use, crops, sprayed plot, etc)

Corrective action to mitigate or prevent hazards of pesticide preservation and utilization

- In case the pesticide residues exceed the Maximum Residue Level (MRL), the following actions should be taken:

- Determine the reason for contamination by reviewing the pesticide utilization record

- Stop harvesting the products, continue to monitor until pesticide residue is lower than MRL and then start harvesting again

- Have such measures to avoid the re-occurrence of this situation as: re-train the labor, standardize the tools and equipment, spraying methods, storage renovation, etc.


Good Harvesting Practices
TOF materials on good harvesting practices of Basic GAP in vegetable production


OBJECTIVES
❖ Harvest products of best quality and good cost;
❖Eliminate chemical, biological, physical hazards in products during the harvesting, packing, transportation process;
❖Eliminate any losses after harvesting.

CHEMICAL HAZARDS

Hazards	Reasons
▶ ***Pesticide residues*** exceed MRL; ▶ **Other chemicals** oil, cleaning substances, sterilization substances, etc.	■ Pre-harvest interval not ensured; ■ Due to the pesticide application of nearby plots; ■ Leakage onto equipment, tools that directly touch the products; ■ Leakage during the transportation process; ■ Chemical residues accumulated in tanks which keep chemicals, fertilizers; ■ Improper use of sterilization substances.

BIOLOGICAL HAZARDS

Hazards	Reasons
● Harmful microbes such as *E.coli……* ● Such parasitic creatures as worm, sessile hydatid, etc.	● Products directly touch soil, ground during the harvesting process; ● Unsafe conditions of Equipment, tools and containers that directly touch products; ● Contaminated water source used for washing products during the harvesting process; ● Animals/ harmful creatures (cockroaches, mouse) or waste from animals (urin, etc.) directly touch products; ● Labor does not comply with individual hygiene process; ● Labor contracts infectious diseases; ● Unsafe means of transportation.

PHYSICAL HAZARDS

Hazards	Reasons
●Miscellaneous objects such as: soil, stones, glass, metal, plastic, jewelry; ●Damaged products	●Damaged or unsafe conditions of tools for harvesting, packing, preserving, transporting products. ●Miscellaneous objects such as jewelry, gloves, etc. are dropped into products during the harvesting and transportation process. ●The products are not gently and softly moved, resulting in damage to products.

Losses after harvesting

- Reduced quality;
- Food safety not ensured;
- Reduced yield;
- Reduced nutritional value of the products;
- Economic losses – reduced value of products due to the reduction of quality and yield.

Changes of product quality after harvesting

Chlorophyll decomposition – reduced perceptible quality of products, especially leafy vegetables.

Dehydration due to evaporation – freshness decreases, causing faded vegetables and softened tissue structure.

Respiration continues – reduced concentration of nutrients in the products.

Pre-harvesting

Check Pre-harvest Interval (PHI): ensure number of days from last pesticide application to harvesting point is in line with the stipulations.

If PHI is not long enough, wait until it meets the stipulated number of days before harvesting products.

Check the record of pesticide use to confirm the exact PHI.

Harvesting point

- Define the exact point to harvest products:
- Ensure economic benefit;
- Ensure perceptible quality, nutritional quality:

  - Early harvested products do not meet expected quality standards;

  - Late harvested products will be old, fibred and the quality will be reduced.

- **Ensure food safety** – correct PHI

Amaranth: 4 weeks after sowing the seeds

Green mustard: 28-32 days after transplanting the seedlings

Hydroponic morning glory
30 days after sowing the seeds

HARVESTING POINT

Cabbage: 8-11 weeks after transplanting the seedlings

Harvesting time

- Harvesting time: at the coolest time of the day – early morning or late in the afternoon.
- Do not harvest products in rainy or high humid weather – wet products easily generate temperature if they are not preserved in ventilated air condition, therefore easily rotten.

- Post-harvest products should be placed in cool places (in shade or under the roof, etc) if they are not immediately transported to pre-processing house or selling house.

Harvesting

- Tools: knife, sickle, scissors, etc.
- Product containers: tray, plastic containers, bamboo baskets, nylon bags, jute bags, etc.
- Product lining materials, containers: canvas, nylon, etc.

>>> must be clean and ready for use when harvesting products.

- *Check, ensure hygiene of tools, devices, containers before use to eliminate product contamination hazards..*
- Don't use containers and devices if they can't be cleaned or product contamination hazards can't be eliminated.

Use plastic baskets to store products

- Devices, containers in direct contact with products must be made from non-toxic materials.
- Devices and containers must be structured to ease washing and cleaning.
- Do not directly place products on the ground or floor.
- Materials used to line, separate products from soil (canvas, paper, etc) must be clean and do not cause contamination.

Do not use fertilizer bags to line products

- Do not use containers, bags from chemicals, fertilizers, waste to store products.
- Tools, devices, containers must be regularly maintained to avoid chemical and physical hazards to products.
- Devices, containers must be separated from storage areas of chemicals, fertilizers or soil amendments.
- There should be measures to distinguish product containers used for harvesting and product containers used in the pre-processing house: different shapes and colors.
- If various production batches are harvested at the same time, the symbols of each production batch should be clearly noted on the containers to enable product batch identification.
- Container identification symbols must be on non-removable waterproof material so it will not be removed or torn during transportation.

Product containers without symbols

Worker's hygiene

- Workers must be trained to comply with hygiene practices when harvesting, details as following:

  - Wash hands before contact with products;

  - Wash hands after use of toilets, contact with animals, eating, smoking, contact with wastes;

  - Open wound or scratch must be bandaged, avoid direct contact with products;

  - Do not eat, smoke, spit during harvesting;

  - Do not wear watches, jewelry or others during harvesting.

- If gloves are used for harvesting, clean them after use;
- Workers must wear protective cloths when necessary to avoid production contamination hazards;
- Workers having infectious diseases (for example, Hepatitis A, diarrhea, etc) can't participate in harvesting products.

Do not put the products directly on the ground

Packing products

- If products are packed to sell right in the field: must use canvas to line products, do not let products directly touch the soil.
- Check, ensure hygiene conditions for bags and containers before use to eliminate product contamination hazards.

Check the packs, bags when packing in the field

Water source

- If water is used to wash products in the field: water source must meet required standards for water used in preliminary handling.
- Do not wash products by water from lakes, ponds, irrigation water from ditches, water used for cleaning devices, etc

Collecting products before transporting to the pre-processing house

- Products must be collected in places which do not cause contamination to products.

Gathering products right on the side of the ditch and road

- Do not put products in areas for storing chemicals, fertilizers.

Transporting the products

- Products must be separately transported from fertilizers, soil amendment, pesticides, animals, etc.
- Notes during transportation: check the bottom of containers, ensure no soil, dirt, etc. to prevent products in the container below from being contaminated by direct contact with the bottom of the container above.

Place containers directly on the ground – Pay attention to checking the bottom of the containers

- Check means of transportation, ensure no dirt, soil, miscellaneous objects, etc to avoid contamination to products.
- If animals are used to transport products: ensure that animals do not directly contact products, avoid direct and indirect contamination to products.
- Do not let livestock access harvesting and pre-processing areas.

Field diary Recording and Traceability program

Basic GAP TOF materials

Project for Improvement of Reliability of Safe Crop Production in the Northern Region

Traceabilty is imperative

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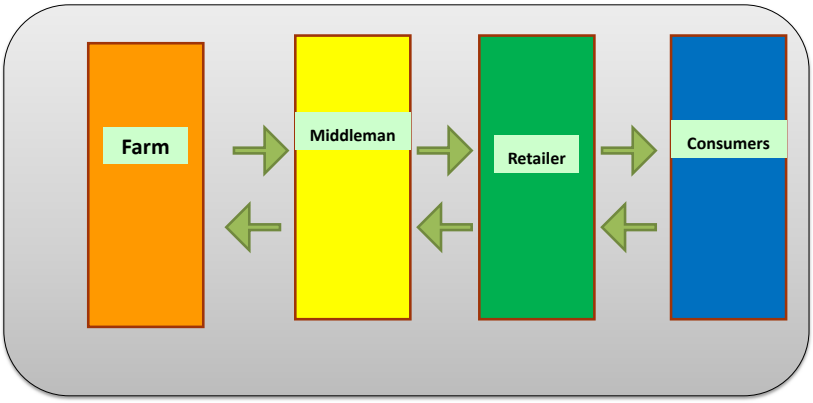
FARM

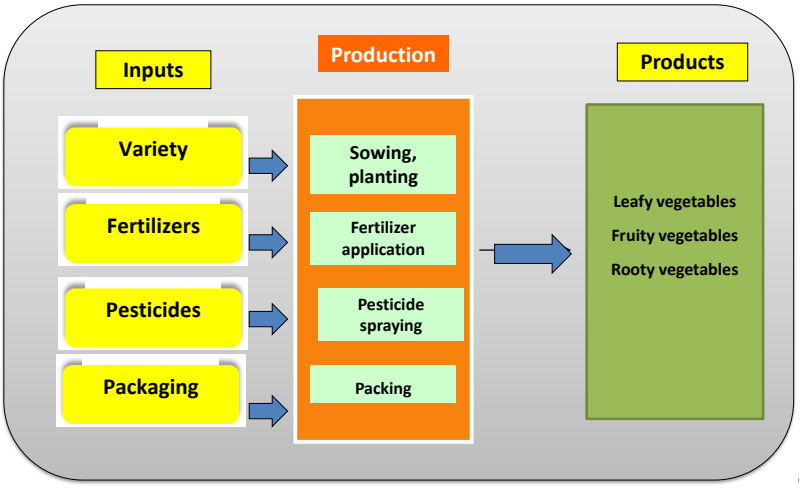
DINING TABLE

Consumers want to know about the produce they buy

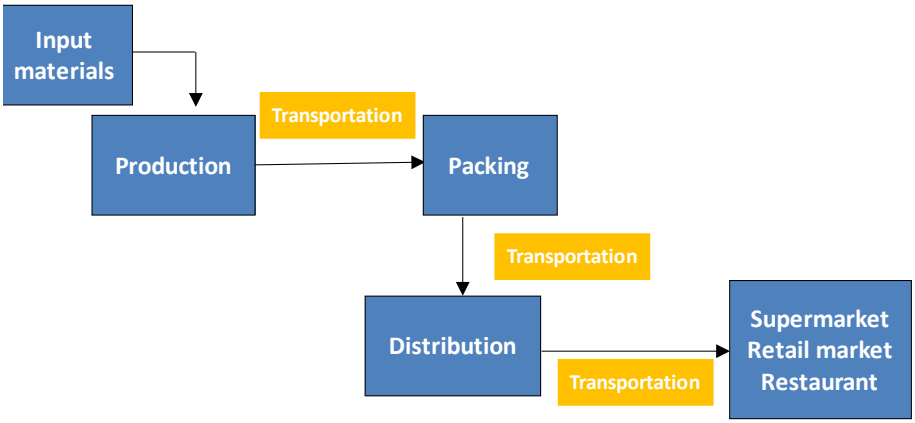
Traceability is economically beneficial



Producers must be as transparent as possible



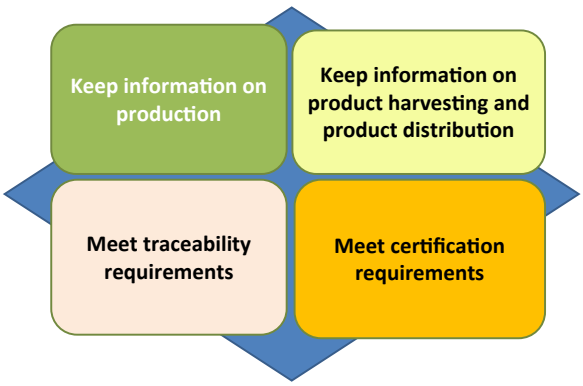
Production process



Benefits of traceability

- Traceability meets the requirement of consumers: to know the origin of the food.
- Traceability ensures food safety
    - Only producers meeting the standards participate in the supply chain.
- Traceability enables quick product recall
    - When an incident occurs, causes for the mistake can be quickly investigated.
    - Defective products can be quickly retracted and recalled.
- Traceability enables information exchange/ communication: among producers, distributors and consumers.

Benefits of Recording



BOOK 1- FIELD DIARY

GUIDANCE FOR USE

1. **Target of use**: farmers/ producers
2. **Reason for recording Field diary**: to prove production activities, monitor the outgoing and incoming flow of money, calculate economic turnover, adjust schedule/ plan for next season
3. **Guidance for use**: record and keep activities including production, purchase of agricultural materials, harvesting and selling products
4. **How to record**: record production activities (following forms in the book)
5. **How to keep records**: farmers/ producers should regularly record and keep diary of production practices (hanging on the wall, place seen daily to facilitate convenient use).

Note: Checklist and evaluation table including 26 control points are used to monitor, evaluate internally during the process of production practices (following GAP)

Based on basic principles of this book, producers can split or detail to make it suitable to each specific condition.

FIELD DIARY

SAMPLE PAGE– DIARY OF PRODUCTION PRACTICES

Name of field plot (No.): 01 Area: 0,5 sào Planted date: 5/9/2010
Name of crop: cabbage; Varieties: KAKACROSS; Expected harvest time: 1st time: 24/11
Last time: 5/12
Protective cloth: Yes ( ) No ( ); Waste disposal is placed in proper place: Yes ( ), No ( )

Date, (Solar year)	Activities	Name of pesticides and fertilizers	Name of disease	Quantity (kg, g, litre, ml, pack)	Follow the guidance	Warning board (x)	Risks detected	Implemented by
2/10	Fertilizing	Composted manure		50 kg			No warning board	Trần Thị Mỳ
7/10	Applying nitrogen with water irrigation	Nitrogen Urea		2 kg				Mỳ
13/10	Spraying pesticide	Regent	Diamond-black moth, flea beetle	0,2		x	Plot No.3 is sprayed 3 times more than usual	Mỳ
20/10	Spraying pesticide	Abamectin	Deep blue	0,2		x		Mỳ

TABLE 1 - DIARY OF PRODUCTION PRACTICES

Name of field plot (No.): .....Area..... Planted date..... ....
Name of crop:..... .Varieties..... .....Expected harvesting time: 1st:.....Last time
Protective cloth: Yes ( ) No ( ); Waste disposal is put in proper place : Yes ( ) No ( )

Record from planting to harvesting; One separate table for each kind of crop to facilitate convenient monitoring

Date, (Solar year)	Activities	Name of pesticides and fertilizers	Name of disease	Quantity (kg, g, litre, ml, pack)	Follow the guidance	Warning board (x)	Risks detected	Implemented by

TABLE 2 – DIARY OF BUYING AGRICULTURAL SUPPLIES FOR PRODUCTION

Place to keep pesticides, fertilizer.....

The stores which provide agricultural supplies must have a business license, under the control of legal agencies

Date (Solar year)	Name of pesticides, fertilizers	Quantity (Kg, g, liter, ml, bottle, pack)	Price (đồng/ kg, liter, bottle, pack)	Purchased at stores of Cooperative/ household owner,mark (x)	Purchased at other stores		Buyer/ User (Full name, sign)
					Name	Address	

TABLE 3. DIARY OF HARVESTING AND SELLING PRODUCTS

Area of pre-processing/preservation:.....Address of retail markets :.....

Note: This table is commonly used for many kinds of vegetables harvested from different field plots; Number of isolation days: from last

day of spraying pesticides to harvesting day;
At the column of retail and risk detected.. If any, just mark (x)

Date/ month (solar year)	Harvesting			Selling products					Risk detected/ already addressed the hazard (mark x)	Implemented by
	Kind of crop	Name/ code of field plot	Isolation time (day)	Quantity (kg, plant)	Price (đ/kg, plant)	Selling ways/ buyers				
						Retail (mark x)	Wholesale to whom	Sold under contract to whom		

BOOK 2- PRODUCTION MANAGEMENT DIARY

GUIDANCE FOR USE

1. Target of use: Head of Cooperative/ group leader/ Technical staff

2. Reasons for recording production management Diary and record keeping Run production activities; manage quality of inputs, adjust unsafe behavior; evidence of traceability, improve management responsibility, etc.

3. Guidance for use:

How to record: record production management activities of Cooperative/ production unit/ farmers group (following form)

How to keep record:

Head of Coop/ head of unit/ respective technical staff/ leader of farmers group is responsible for monitoring production process, production management in the area and keeping the record.

***Note**: Checklist, evaluation table including 26 control points are used for internal auditing and evaluation (1-2 times/ year or 1/ season)*

Results of internal auditing (for each household) are stored in Table 5-Production management in the area. In case of being not satisfactory, it requires corrective actions and re-check.

TABLE 4 – PRODUCTION CONDITIONS MANAGEMENT

Production unit.....Commune.....District.....Province.....

Total area of vegetable cultivation (farming area).....(sào/ ha).....

Source of irrigation water:.....Environmental conditions: Satisfactory.....Not satisfactory...

Date of sampling.....Sampling person.....Unit which analyzes sample.....

Actual situation of production conditions				**Risks detected and Corrective actions**		
Condition	Factors that cause pollution	Current evaluation		Description of risk observed	Corrective actions	Implemented by
		Satisfactory	Not satisfactory			
Soil	Heavy metals					
Irrigation water	Heavy metals					
	Microbes					
Water for pre-processing, washing products	Heavy metals					
	Pesticides					
	Nitrate					
	Microbes					

- *The limit of heavy mental in soil: National Technical Regulations: NTR No 03: 2008/BTNMT;*
- *The limit of heavy mental in irrigation water: National Technical Regulations. 39:2001/BTNMT;*
- *Quality of water used for washing and pre-processing products: Following QCVN số 02: 2009 /BYT of Ministry of Health regarding the quality of water*

TABLE 5 – PRODUCTION ACTIVITY MANAGEMENT IN THE AREA

Production unit..... Commune..... District:..... Province.....

Total cultivation area (vegetable):.....(ha); Number of members:.....; Season/ year.....

Area of model site: .....(ha); Number of farmer households participating in the model.....

Technical guidelines, advanced technology (if applied): Type of key products.....

Note: If the production unit has many members, members are divided into groups, each group/ table;

Results of internal evaluation every season/ year (following form) are stored in this table

No.	Field management			Results of internal evaluation		
	Name of household	Production area (m^2)	Code of field plot	Date/ contents	Results	
					Satisfac-tory	Not satisfac-tory
1						
2						
3						
4						
5						
6						
7						

TABLE 6 – MANAGEMENT OF PRODUCTION INPUTS (BUYING PESTICIDES, FERTILIZERS, SEED)

Name of shop:..... Address:.....Storage:.....

Code/ Paper licensed for business:..... Full name of store owner:.....

Production unit..... Inspector (if any):.....

Date/month/year	Name of pesticides, fertilizer, seeds, etc (correct name on pack)	Quantity (bottles, boxes, packs)	Unit (g, kg, ml, litre)	Producer/ distributor

Note: can make a separate record book (Record book of agricultural materials of production unit)

TABLE 7 – MANAGEMENT OF PRODUCTION INPUTS (SELLING/ PROVIDING AGRICULTURAL MATERIALS)

Production unit.....:.....

Inspector (if any):.....

Date/ month/ year	Name of pesticides, fertilizers, seeds, etc (correct name on package)	Quantity (bottles, boxes, packages)	Unit (g, kg, ml, litre)	Store	Buyers

Note: can make a separate record book (Record book of agricultural materials of production unit)

TABLE 8 – MANAGEMENT OF TRAINING, COMMUNICATION

Production unit.....Commune.....District.....Province.....

Full name of unit leader..... Technician in charge.....

Date/ month/ year	Training				Communication		
	Number of farmers (list attached)	Contents of training	Duration of training (day)	Certifi-cation (mark x)	Commu-nication contents	Response to commu-nication (mark x)	Opinion/ initiatives (if have)

TABLE 9 – TABLE OF CHECKLIST

No.	Practices	Level	Notes
I	**Production conditions**		
1	Is production site suitable for planning of the Government and localities for produced crop expected?	A	
2	Production area is satisfactory in terms of safety (quality of soil, irrigation water) according to regulations?	A	
II	**Management of planting soil and field hygiene**		
3	Has analysis and evaluation of potential chemical, biological, physical risks in soil been conducted?	A	
III	Manage the use of fertilizers and additives		
4	Are only fertilizers that are on the list of those approved for use in Vietnam used?	A	
5	Are only organic fertilizers that have been treated and documented applied?	A	
6	When the fertilizers and additives are purchased and put into use, are they recorded and stored in the book?	A	
IV	**Manage the use of water source for production**		
7	Quality of water used for irrigation and post-har-vest handling is assured according to current standards or not?	A	

V	**Manage the use of pesticides and chemicals**		
8	Have farmers, organizations and individuals been trained on the management and utilization of agrichemicals?	A	
9	Are measures of Integrated Pest Management (IPM) and Integrated Crop Management (ICM) applied?	B	
10	Are used chemicals/ plant protection products/ biological medicines included on the list of those approved for use?	A	
11	Are chemicals, plant protection products and other agricultural materials purchased from licensed stores?	B	
12	Have plant protection products, chemicals been used in accordance with guidance of technical staff and instruction shown on package and label?	A	
13	Do farmers have diary and record to monitor the utilization of plant protection products and chemicals?	A	
14	Are chemicals and packaging destroyed strictly in compliance with the State's regulations?	A	
15	Are there unscheduled and periodic inspections to check the production process and chemical residues on crop products?	A	
VI	**Harvesting and post-harvest handling**		
16	Are the products isolated properly before harvesting?	A	
17	Are areas of pre-processing, packaging and product preservation isolated from storehouses, sites containing chemicals and other materials?	A	
18	Is clean water used to wash harvested products?	A	
19	Is quality of water used for the post-harvest handling process in accordance with the State's regulations?	A	
VII	**Waste management and treatment**		
20	Is wastewater, garbage collected and treated properly in accordance with regulations?	A	
VIII	**Training, communication**		
21	Are farmers provided with training and sufficient knowledge on Integrated Pest Management (IPM), Integrated Crop Management (ICP) and Good Agriculture Practices (GAP)?	A	
22	Are there warning signs displayed in production areas that have just been sprayed?	B	

IX	**Recording of production diary, record keeping, traceability**		
23	Are Field diary, production management diary fully recorded?	A	
24	Have internal audits, recording, keeping of internal audit records been conducted?	A	
25	Do products have product origin or label to facilitate the traceability?	A	
X	**Internal audit**		
26	Has an internal audit and evaluation been carried out at least one per crop/ year?	A	

ATTACHMENT 4.3

TRAINING PROGRAM ON GOOD PRACTICES ON VEGETABLE POST HARVEST HANDLING

1. **Time: 01day/province x 3 provinces, between 25 and 30 September**
2. **Venue:**
3. **Objectives: To help participants (the persons directly in volve in post harvest handling activities) understand and implementation of properly GMP in fresh vegetables handling to ensure food safety.**
4. **Number of participants: 15 - 20 persons; they are owners of pre-processing, packing house and workers who directly in volve in vegetables post-harvest handling activities.**
5. **Training program:**

Time	Contents	Person in charge
8.00 – 8.15	Participant registance	Organization Board
8.15 - 8.30	Opening Introduction of TOT training objective, program	PPMU, JICA project team
8.30 - 9.00	Good practices on Harvesting, Packing, Handling Fresh Vegetables at Farm Level	Mr. Nguyen Van Doang, Senior vegetables production Expert

9.00- 9.45	-Required infrastructures, handling equipment, facility of packing house for safe fresh vegetable pre- process and packaging according to the National technical regulation QCVN 01-09:2009/BNNPTNT - Sep-up of a fresh vegetable handling house (Location, design, set-up of handling house; and installation of handling equipment; Water drainage system, waste disposal; Lighting system; Facilities and worker's hygiene area)	Mr. Nguyen Van Doang, Senior vegetables production Expert
9.45 -10.00	Tea break	
10.00-10.45	-Requirement from buyers for Application good handling practice on safe vegetable production. -Requirements for post-harvest handling by different buyers based on the contract -Explanation about buyers' requirements in terms of volume, appearance, freshness, insect damage, color, size, form of delivery; wash, cut, pack, volume per pack, traceability; logo, label, record based on the buyer's specifiation -Presenting Good cases and bad cases	Ms. Loc/ Mr. Cuong, JICA project team

10.45-11.30	Guidance on good practices in vegetables packing house and transportation (Sorting, cutting, Washing and drying; Packing and labeling; Storage before shipping; Transportation)	Mr. Nguyen Van Doang, Senior vegetables production Expert
11.30– 12.00	Guidance on Recording, documentation, and traceability (Explanation, good practices and lessons of using the recording formats)	Mr. Tho (Mr. Doang/ Ms. Loc) , Jica project team
12.00 – 13.30	Lunch	
13.30 – 15.00	Site visit and valuation in packing house of one target group	Trainer, Jica project team
15.00 – 16.00	Group discussion on assessment report for shortcoming equipment and materials for upgrading conditions to ensure food hygiene and safety in production and handling	Trainer, Jica project team
16.00 – 16.15	Evaluation and closing on Post harvest handling training results (by questionnaire)	Trainee; PPMU, JICA project team

ATTACHMENT 4.4
CHECKLIST FOR MONITORING CONTROL POINTS AT HARVESTING - COLLECTING - PACKAGING - DELIVERY

Date: _____

Name of target group: _____

Name of person in charge of monitoring: _____

(1) Harvest point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not touch harvested vegetable with dirty water such as irrigated water and puddle.	
Soil	☐ Do not contaminate or touch vegetable with soil when harvesting.	
	☐ Do not put vegetable directly on the field, but use clean sheet or box to put harvested vegetable.	
	☐ Do not keep harvested vegetable at open field when it takes time until shipping, but keep it in the closed condition such as in the room, in the truck or cover with sheet, to avoid contamination with dust.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Garbage	☐ Do not put harvested vegetable close to garbage including package of agrochemical and fertilizer and compost.	
	☐ Keep garbage including rotten or waste vegetables away from harvest and be collected every day	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put harvested vegetable, but use clean bag, sheet or box.	
	☐ Do not harvest vegetable before “appropriate days after last agrochemical application have been passed”.	
	☐ Do not harvest when neighbor farmer is applying or just finished applying agrochemical or fertilizer.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not harvest by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not harvest when health condition of worker is not good such as have diarrhea, vomiting or fever.	
	☐ Do not use dirty tools such as knife and packing bag, but use clean tools.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Quality control/ Traceability	☐ Do not harvest early (immature) vegetable nor late (over matured) vegetable, but harvest on appropriate moment.	
	☐ Do not harvest roughly, but harvest gently to avoid torn, fold, break or hit.	
	☐ Do not push vegetable strongly when packing, do not bind vegetable strongly when binding.	
	☐ Do not harvest when temperature is high, but harvest on morning or evening.	
	☐ Do not harvest in the rainy or high humid weather because vegetable will be easily rotten, or keep at ventilated condition after harvesting.	
	☐ Do not keep harvested vegetable under high temperature, but keep in cool places such as in shade or under the roof	
	☐ Do not harvest with weeds or other foreign matters, but select only vegetable.	
	☐ Do not mix with vegetable which were harvested from other field, but put information on the harvested vegetable such as label.	

(2) Transportation

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not keep vegetable where water or rain come in or under high humidity condition.	
Soil	☐ Do not bring soil into transportation means, but remove soil from containers before loading.	
	☐ Do not keep vegetable at open field, but protect it by using plastic to cover or use truck, to avoid contamination with dust.	
Garbage	☐ Do not use dirty means of transportation, but clean it before loading the products.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not transport vegetable with other materials such as fertilizers and agrochemicals.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not pile up vegetable to avoid damage by pressure if material of package is soft, or keep in the package of hard material such as plastic box.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not eat, drink, smoke, spit in transportation means, and do not wear jewelry, watch or other objects when bring products.	

(3) Collection point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not touch vegetable with dirty water such as irrigation water or rain.	
Soil	☐ Do not put vegetable directly on the field, but use sheet or box to put vegetable.	
	☐ Do not keep vegetable at open field, but keep it in the closed condition such as in the room, in the truck or cover with sheet, to avoid contamination with dust.	
Garbage	☐ Keep garbage including package of agrochemical and fertilizer and compost away from vegetables.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not keep vegetable close to field where neighbor farmer is applying or just finished applying agrochemical or fertilizer.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
	☐ Do not use dirty tools such as packing bag, sheet to put on the field, but use clean tools.	
Quality control/ Traceability	☐ Do not receive vegetable which are not satisfied quality condition requested to farmers.	
	☐ Do not bring vegetable roughly, but bring gently to avoid torn, fold, break or hit.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	

(4) Preprocessing point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not wash vegetable by using dirty water such as ponds water, puddle water and non-analyzed water, but use water which satisfy national standards.	
	☐ Do not touch vegetable with dirty water such as washed water or rain.	
	☐ Do not keep used water in the floor, but drain all.	
Soil	☐ Do not put vegetable directly on the field, but use sheet or box to put vegetable.	
	☐ Do not treat vegetable at open field, but treat it in the closed condition such as in the room, to avoid contamination with dust.	
Garbage	☐ Keep garbage including package of agrochemical and fertilizer and compost away from vegetables.	
	☐ Do not scatter garbage such as removed leaf or root on the floor, but throw away in the garbage box.	
	☐ Do not throw away garbage in the open field, but cover and throw in the separated area from preprocessing point.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not treat vegetable close to detergent or another tools to cleanup preprocessing tools.	
	☐ Do not use unregistered agro-chemical for post-harvesting treatment.	
	☐ Keep storage of pesticide, fertilizer and other agro-chemicals isolated from preprocessing area.	
	☐ Do not use toxic materials to packing, labeling and binding.	
Biological	☐ Do not treat vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
	☐ Do not use dirty tools such as knife, packing bag, sheet to put on the field, but use clean tools.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not push vegetable strongly when packing, do not bind vegetable strongly when binding.	
	☐ Do not treat vegetable under high temperature, but treat in cool places.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not install “two-way processing system” but install “one-way processing system” to avoid cross-contamination.	
	☐ Do not eat, drink, smoke, spit in production area, and do not wear jewelry, watch or other objects when treat products.	
	☐ Product has a label or is packed in the package with information of producer and contact.	

(5) Storing point

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Dirty water	☐ Do not keep vegetable where rain come in or under high humidity condition.	
Soil	☐ Do not put vegetable directly on the field, but use sheet or box to put vegetable.	
	☐ Do not keep vegetable at open field, but keep it in the closed condition such as in the room, in the truck or cover with sheet, to avoid contamination with dust.	
Garbage	☐ Keep garbage including package of agrochemical and fertilizer and compost away from vegetables.	
Chemical	☐ Do not use fertilizer bag or dirty sheet to put vegetable, but use clean bag, sheet or box.	
	☐ Do not keep vegetable with other materials as fertilizers, agrochemicals and cleaning tools.	

Risk of contamination	Agreed conditions at Initial check	Result of monitoring
Biological	☐ Do not keep vegetable where animals, insects, birds or manure of above animals can enter.	
	☐ Do not touch vegetable by dirty hand, but wash hand after workers went rest room or after workers did another works.	
	☐ Do not touch vegetable when health condition of worker is not good such as have diarrhea, vomiting or fever.	
Quality control/ Traceability	☐ Do not treat vegetable roughly, but treat gently to avoid torn, fold, break or hit.	
	☐ Do not pile up vegetable to avoid damage by pressure if material of package is soft, or keep in the hard material such as plastic box.	
	☐ Do not keep vegetable under high temperature, but keep in cool places such as in shade or under the roof.	
	☐ Do not mix with vegetable which were harvested from other field, but put information such as label.	
	☐ Do not eat, drink, smoke, spit in storing area, and do not wear jewelry, watch or other objects when treat products.	

ATTACHMENT 4.5

TOT FOLLOW-UP TRAINING

TOT training Workshop on review/ share experience on basic GAP and Good post harvest handling practices application

1. *TOT training Workshop on review/ share experience on basic GAP and Good post-harvest handling practices application will be organized by JICA Project Team with support of PPMU*

2. *Time: tentatively: 01 day in August, 2018.*

3. *Vietnamese lecturers on GAP, technicals with support of JICA project Team*

4. *Proposed program of TOT training Workshop on review/ share experience on basic GAP and Good post- harvest handling*

Time	*Content*	*Conducted by*
8.00 - 08.15	*Registration of trainees*	*Organization Board*
08.15 - 08.30	*Opening: Introduction of TOT training Workshop objective, program*	*PPMU, JICA project team*
08.30 - 09.30	*Experiences shared by Jica project on Implementing pilot project model of safe vegetables production applying GAP*	*Mr. Nguyen Van Doang, Senior vegetables production Expert, JICA project*
09.30 - 10.00	*Experiences shared on Application of good practices on Harvesting, Packing, Handling and Storing Fresh Vegetables*	*Mr. Nguyen Van Doang, Senior vegetables production Expert, JICA project*

10.00 - 10.15	*Tea break*	
10.15 - 11.15	*Experiences shared on guidence and monitoring pesticides application, fertilizers and record of farmer field diary/ Logbook*	*Mr. Ngo Van Tho, vegetables production Expert, JICA project*
11.15 - 12.00	*Discuss on organisation of vegetable production applying GAP and joint sales; Experiences sharing on monitoring pesticides application, fertilizers and record of farmer field diary/ Logbook*	*Trainee / Target groups*
12.00 - 13.30	*Lunch*	
13.30 - 14.30	*Introduce and Guide on applying some cultivation methods and new production input materials for improvement of quality and safety vegetable products*	*Mr. Dao Phu Loi, vegetables production Expert, JICA project*
14.30 - 15.00	*Discussion*	*Trainee / Trainer*
15.00 - 16.00	*Each Target group presents a developed complete action plan for production and post- harvest practices for join sale*	*Target groups*
16.00 - 16.15	*Introduce Pilot project Implementation Plan of Production Activities of Second Year from April, 2018 to March 2019*	*JICA project team*
16.15 - 16.30	*Evaluation on TOT training results / Closing*	*Trainee / Trainer*

For the presentation materials, please refer the website as below:
http://khuyennongvn.gov.vn/thu-vien-khuyen-nong/thu-vien-sach-kn_t244c28

Project for Improvement of Safe crop Production in the Northern region

EXPERIENCE OF JICA PROJECT ON IMPLEMENTING PILOT PRODUCTION MODEL ON SAFE VEGETABLE PRDODUCTION APPLYING GAP

JICA consultant team

I. SELECTION OF PRODUCTION AREA

Chemical hazard identification

Hazards	Reason
Heavy metal *(Lead, Cadmium, Mercury, Arsenic, etc)*	High concentration of heavy metals accumulated in soil and water of cultivation sites due to previous existence or application of many fertilizers containing heavy metals for long time.

Biological hazards

Hazards	Reason
+ Bacteria, fungi + Virus + Parasites	Soil and water in production site are contaminated with microbiology from husbandry waste water, domestic, hospital and industrial sewage, etc.

1.1. Confirmation of condition for safe crop production

In the following cases, soil and water will be tested to confirm the safety of pilot project sites

Production area hasn't been confirmed as the one which complies with condition for safe production.

Certificate on condition for safe production has expired or will expire in project time.

Production area expanded is the new pilot project sites.

Potential risks are assessed as un-safe for production area due to the change of irrigation water source or soil contamination.

Testing results by DARD and/ or any relevant agencies show residues of heavy metal from product samples produced in pilot project sites.

Soil and water will be tested in accordance with current standards and regulation.

Results of confirming safety of production area

Group name	Results of soil testing		Results of irrigation water testing	
	Have results of lab test	Assessing results against MRL	Have copies of results of lab test	Assessing results against MRL
Hải Dương				
Tan Minh Duc Cooperative	Yes	Pass	Yes	Pass
Duc Chinh Cooperative	No	-	No	-
Thanh Ha safe vegetable, fruit company	Yes	Pass	Yes	Pass
Ha Nam				
Hiep farm group	Yes	Pass	Yes	Pass
Ha Vy Cooperative	Yes	Pass	Yes	Pass
Hưng Yên				
YEN PHU Cooperative	Yes	Pass	Yes	Pass
Japan-Vietnam Company	Yes	Pass	Yes	Pass

1.2. Assessing by taking soil and water samples then analyze the residues

- Taking samples is conducted by correct methodology: Method of sampling cultivation soil in accordance with TCVN 4046-85:
  - Equal land area (from 1 to 5 ha) and un-equal land area (from 0.5 to 1 ha), 12 sub-samples are mixed into one sample at cultivation layer (depth: 20 cm)
  - Sampling position and pattern: randomly take samples with

	Certificate on condition for safe production		Viet GAP certificate		Proposal
	Have copies of certificate	Valuable until	Have copies of certificate	Valuable until	
	No		Yes (27,2ha)	21/12/2019	
	Yes	10/12/2019	Yes (23,67ha)	4/1/2020	
	Yes	19/08/2019	Yes (10,4ha)	03/03/2018	
	Yes	26/12/2019	No (Basic GAP)		
	Yes	12/11/2018	No (Basic GAP)		
	Yes	20/05/2018	Yes (15,5 ha)	17/03/2018	
	No	-	Yes (1,0 ha)	23/10/2018	

"W" pattern reflected in Photo 1 in the cultivation plot and in depth of 20 cm.

- Guidance on sampling water samples in accordance with TCVN 6000-1995 on quality of water - sampling underground water.
- Send samples to qualified lab appointed or recognized.

It is able to check the appearance of E.coli bacteria to show the level of biological contamination of water source.

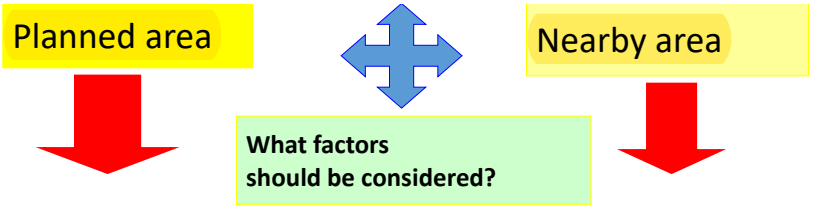
MRL of some heavy metals in soil in accordance with National technical regulations QCVN 03-MT:2015/BTNMT

No.	Element	MRL (Mg/kg of dry soil)
1	Arsenic (As)	15
2	Cadmium (Cd)	1.5
3	Lead (Pb)	70
4	Copper (Cu)	100
5	Zinc (Zn)	200
6	Crom (Cr)	150

MRL of some heavy metals in irrigation water (QCVN 08-MT:2015/ BTNMT)

No.	Element	MRL (mg/lit)	Trial method
1	Mercury (Hg)	0.001	TCVN 5941:1995
2	Cadimi (Cd)	0.01	TCVN 665:2000
3	Arsen (As)	0.05	TCVN 665:2000
4	Lead (Pb)	0.05	TCVN 665:2000
5	Fecal. Coli	200 (quanity of bacteria or CFU/100 ml)	Apply for salad vege-tables and fruits

1.3. Evaluating risks of biological and chemical contamination



Livestock pasturing?	Manufactures, industrial zones, hospitals?
Waste?	Area is spread out with chemicals in the war?
Domestic waste water?	Accumulated chemical?
	Waste dumping?

Industrial husbandry	Place for chemical storage?
Sewage system?	Nearby industrial zones, factories?
Pet's movement?	

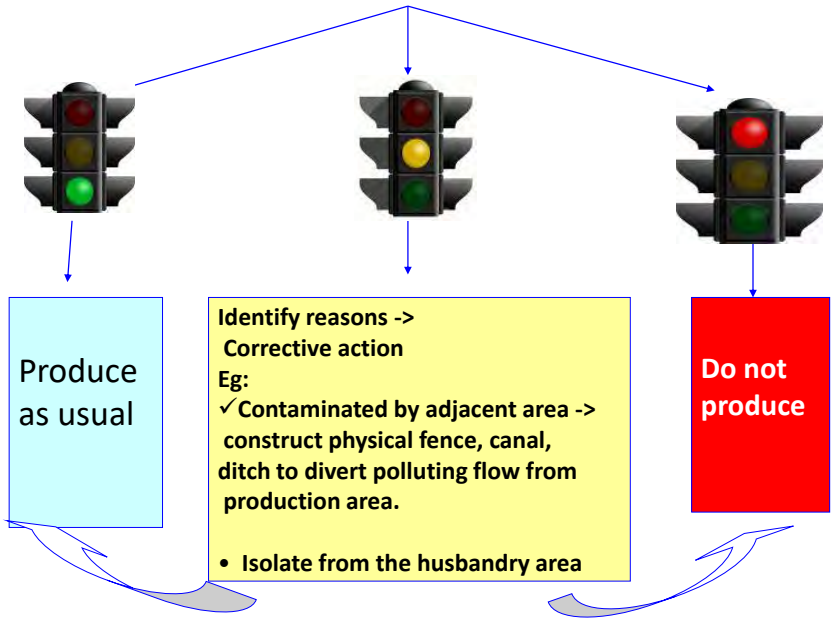
☞ **Evaluating risks of biological and chemical contamination**

How can such dirty water be used for watering GAP safe vegetables?

This garbage ground may affect my production field?

Potential hazards?

After assessing and analyzing the contamination level



II. GUIDANCE FOR APPLYING GAP IN SAFE VEGETABLE PRODUCTION

- Apply fertilizers
- Apply pesticides
- Record and check recording of production diary

Check recording of farmers in Yen Phu Cooperative (Hung Yen 22 September 2017)

2. 1. APPLY FERTILIZERS IN SAFE VEGETABLE PRODUCTION

Biological hazards

Hazards	Origin	Ways of causing pollution
High level of KLN content (As, Pb, Cd, Hg, etc.)	The presence of heavy metals (especially cadmium) in fertilizers and supplemental matters such as plaster, animal dung, compost, etc.	Content of heavy metals in fertilizers and supplemental matters contributes to the high level of heavy metals in soil → Plants absorb these heavy metals.
High content of nitorat	+ Soil has nitrogen (normally it is organic nitrogen) + Apply fertilizers which have nitrogen (in-organic) too much or too late	Because of the surplus of NO3, vegetables absorb too much, resulting in the surplus of NO3

High risks for leafy, flower and stem vegetables Biological hazards

Biological hazards

Hazards	Origin	Ways of causing pollution
Pathogenic organism	Animal dung and urine which **hasn't been treated or has been composted but un-satisfactory** quality contain a big amount of pathogenic organism	+ Pollution can occur through direct contact of organic fertilizers with edible parts of vegetables while fertilizing, irrigating or indirectly through contaminated soil. + Leafy, stem vegetables near the ground and root vegetables in the soil have high risk of biological contamination because of this fertilizer.

Select fertilizers and supplemental matter

- Only buy and use fertilizers in the list allowed for production and business in Vietnam issued by MARD.
- Only use fertilizers whose expire date is clear
- Do not use fertilizers which do not have clear origin, do not have label or those are expired.
- Do not use organic fertilizers which hasn't been treated to apply for vegetables because they contain many pathogenic organisms.

Safe utilization of fertilizers for chemical fertilizers

- Need to apply enough dosage following technical process for each type of vegetable
- Avoid overuse of nitrogen fertilizers
- Stop applying nitrogen fertilizers at least 10 days before harvesting

Treating compost/dung/organic waste

- **Must be treated for at least 2 months**
- **Regularly mix to ensure adequate temperature, moisture for organic matters to be decomposed.**
- **Fertilizer treatment and storage sites: be isolated from production, post-harvest handling sites, and with full covering**


Check composting after 6 weeks in Duc Chinh Cooperative – Hai Duong

Safe application of fertilizers: Organic fertilizers

- Organic fertilizers should be applied to the soil directly, early and well covered with soil (otherwise causing contamination to adjacent crops through wind drift or rainfall runoff); do not let fertilizers contact directly to the edible vegetable parts;
- Only apply well-treated organic fertilizers and stop applying fertilizers at least 60 days before harvest.


Apply organic fertilizers early and cover with soil, use shading materials

2. 2. APPLICATION OF PESTICIDES

❖ **How to select pesticides**

- Priority given to chemicals which have low toxic level, fast decomposition, not affect natural enemies and environment.
- Select biological and plant-origin pesticides
- Chemicals belonging to groups of toxic level III; IV

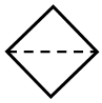
❖ **Correct utilization of pesticides** (Follow 4 correct principle)

1) **Correct time**: Apply when baby worm is small and just newly appear. Plants in the growth period: apply in early morning or cool afternoon, not rainy time, etc.
2) Correct pesticides: for each type of harmful target, rotate chemicals, etc.
3) Correct method: Correctly mix the chemicals following instruction for each chemical, etc.
4) Correct dosage and concentration: Follow the instruction of each chemical type (in term of dosage and water amount)

Mistakes usually encountered during the application of pesticides in safe vegetable production

- Apply wrong target crops; apply the chemicals whose active substances are not recommended for vegetables
- Over apply the dosage, concentration against guidance of each chemical (in term of chemical amount, quantity of water for mixing chemicals)
- Apply chemical in periodic manner, even when there is no appearance of insects and diseases
- Mix many kind of chemicals which are effective for controlling the same insects/ diseases
- Apply pesticides which have long pre-harvest interval (PHI) during the product harvesting time

Signal of toxic level of pesticides

Toxic group	Signal on the label			Ghi chú
	Vạch màu biểu thị	Signal	Letter written on label	
I (Very toxic)	Red		Very toxic	Already prohibited
II (Highly toxic)	Yellow		Highly toxic	Limited use on vegetables
III (Less toxic)	Blue		Dangerous	
IV (least toxic)	Green	No signal	Be careful	Priority given to application for vegetables

List of chemicals prohibited for use - VinEco according to Circular 03 /2018/TT-BNNPTNT dated 9/2/2018

No.	General name	Trade name
1	Aldrin	Aldrex, Aldrite…
2	BHC, Lindane	Beta - BHC, Gamma - HCH, Gamatox 15 EC, 20 EC, Lindafor , Carbadan 4/4 G; Sevidol 4/4 G
3	Cabofuran	
4	Endosulfan	Cyclodan 35EC, Endosol 35EC, Tigiodan 35ND, Thasodant 35EC, Thiodol 35ND
5	Methamidophos	Dynamite 50 SC, Filitox 70 SC, Master 50 EC, 70 SC, Monitor 50EC, 60SC, Isometha 50 DD, 60 DD, Isosuper 70 DD, Tamaron 50 EC...
6	Methiocard	
7	Methomyl	

8	Methyl-parathion	Danacap M 25, M 40; Folidol - M 50 EC; Isomethyl 50 ND; Metaphos 40 EC, 50EC; (Methyl Parathion) 20 EC, 40 EC, 50 EC; Mil-ion 50 EC; Proteon 50 EC; Romethyl 50ND; Wofatox 50 EC ...
9	Methamidophos	
10	Parathion	
11	Parathion methyl	Alkexon , Orthophos , Thiopphos ...
12	....	

List of chemicals prohibited for use on vegetables - VinEco according to Circular 03/ 2018/TT-BNNPTNT dated 9/2/2018

No.	General name	SUMMARY OF INFORMATION
1	Profenofos	Do not apply for vegetables, fruits
2	Lambda-cyhalothrin	Do not apply for vegetables, fruits
3	Permethrin	Do not apply for vegetables, fruits
4	Cypermethrin	Do not apply for vegetables, fruits
5	Alpha- Cypermethrin	Do not apply for vegetables, fruits
6	Deltamethrin	Do not apply for vegetables, fruits
7	Acetamiprid	Do not apply for vegetables, fruits
8	Imidacloprid	Do not apply for vegetables, fruits
9	Diazinon	Do not apply for vegetables, fruits
10	Chlorfenapyr	Do not apply for vegetables, fruits
11	2,4-D	Do not apply for vegetables, fruits It is prohibited for use in other countries

12	Glyphosate	Do not apply for vegetables, fruits It is prohibited for use in other countries Vietnam applies 2-year roadmap for prohibiting the use this chemical
13	Paraquat	Do not apply for vegetables, fruits
14	Aldicarb	Do not apply for vegetables, fruits
15	Fipronil	Do not apply for vegetables, fruits Can consider to apply for tomato because it is active substance for treating soil
16	Cholorpyrifos	It is registered for apply in onion. Consider to apply for onion and potato
17	Acephate	Only accept detection on crops which were registered according to Circular 03 and do not exceed MRL.
18	Carbendazin	Circular 03/2016/TT-BNNPTNT
19	Benomyl	Circular 03/2016/TT-BNNPTNT
20	Thiophanate-methy	Circular 03/2016/TT-BNNPTNT

LIST OF INSECTS AND DISEASES FOR CONTROLLING WORM, JASSID,

No.	Name of pesticide	Active substance	Target
1	Match 050 EC	Lufenuron (min 96 %)	Diamond-black moth/ vegetable; deep blue/ green bean; tobacco; leaf folder/rice
2	DuPont™ Prevathon® 5SC	Chlorantranilip-role (min 93%)	5SC: Leaf maggot/ tomato, water melon; deep blue/ water melon; Papilio, fruit miner/ soybea, onion; leaf folder, stem miner/rice; diamond black moth/cabbage; deep blue/ tomato, flea bettle/ bok choy, army-worm/peanut
3	Tập Kỳ 1.8EC	Abamectin	1.8EC: Diamond-black moth/cabbage
4	Reasgant 1.8EC 3.6EC	Abamectin	1.8EC, 3.6EC: Diamond-black moth, deep blue, armyworm/cabbage; deep blue/ tomato; thrips/ watermelon
5	Radiant 60SC	Spinetoram (min 86.4%)	Papilio/ onion, peanut, soybean; leaf maggot, fruit miner, thrips/ tomato; thrips/ water melon, grape, mango; thrips, leaf maggot/ chili; diamond-black moth, white butter-fly/cabbage; thrips/rose, tea; thrips, stem miner, leaf folder/rice

EPHID ON VEGETABLE

	Pre-harvest interval	Guidance for use	Name of producing Co
	7	20Ml/ tank (16 lit) 1.5 tanks/ sao	Syngenta Vietnam limited Co
	3	20m/ tank (10 lit) 1 tank/1 sao	DuPont Vietnam Ltd
	3	6-8Ml/tank (16 lit, 3 tanks/ sao)	Agricultural Genetics Institute
	7	5ml/tank (10 lit) 2 tanks/sao	Viet Thắng limited company
	3	1 package/ tank (16 lit) 1 tank/sao	Dow AgroSciences B.V

GUIDANCE ON THE USE OF PESTICIDES APPLIED IN CABBAGE

Insects/diseases	Pesticide	Chemical properties
		Active substances
Diamond-black moth	Radiant 60SC	Spinetoram
	Prevathon 5SC	Chlorantraniliprole
	Match 050EC	Lufenuron
	Brightin 1.8EC	Abamectin
	Abatin 5.4EC	Abamectin
	Neem Nim Xoan Xanh green 0.3EC	Azadirachtin
	Proclaim 1.9EC	Emamectin benzoate
	Tasieu 1.9EC	Emamectin benzoate
	Pegasus 500SC	Diafenthiuron
	Delfin 32WG	Bacillus thuringiensis
White butterfly	Actimax 50WG	Emamectin benzoate
	Prevathon 5SC	Chlorantraniliprole
	Match 050EC	Lufenuron
	Brightin 1.8EC	Abamectin
	Radiant 60SC	Spinetoram
	Delfin 32WG	Bacillus thuringiensis
Armyworm, black cut worm	Reasgant 3.6EC	Abamectin
	Delfin 32WG	Bacillus thuringiensis
	Tasieu 1.9EC	Emamectin benzoate
	Anisaf SH-01 2SL	Polyphenol Bồ kết, Hy thiêm, Đơn buốt, Cúc liên chi dại
	Plutel 3.6EC	Abamectin

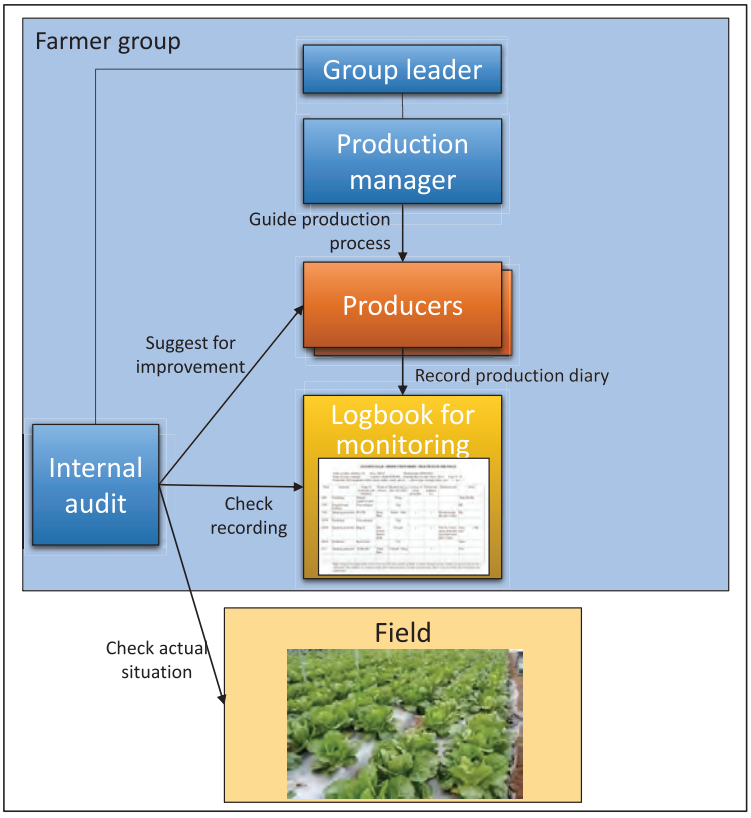
	Pre-harvest interval (days)	Dosage (g, ml/sao)		Amount of water (lit/ sao)		Note
		Min	Max	Min	Max	
	3	13.5	21.6	14.4	21.6	5-7 days after the peak appearance time of butterflies
	3	10.8	21.6	14.4	21.6	
	7	14.4	36	14.4	28.8	
	7	18	27	14.4	21.6	
	7	5.76	10.8	11.52	21.6	
	3	45	67.5	14.4	21.6	
	3	7.2	18	14.4	28.8	
	7	7.2	14.4	17.28	28.8	
	3	14.4	36	11.52	28.8	
	1	18	54	21.6	28.8	
	7	7.2	13.5	11.52	21.6	5-7 days after the peak appearance time of butterflies
	3	10.8	21.6	14.4	21.6	
	7	14.4	36	14.4	28.8	
	7	18	27	14.4	21.6	
	3	13.5	20.16	14.4	21.6	
	1	18	54	21.6	28.8	
	7	5.4	9	14.4	21.6	5-7 days after the peak appearance time of butterflies or many butterflies go into the traps
	1	18	54	21.6	28.8	
	7	7.2	14.4	17.28	28.8	
	7	27	36	14.4	21.6	
	7	5.4	9	18	21.6	

3. ON-FIELD GUIDANCE ON BASIC GAP APPLICATION

❑ **Establish internal quality management system**

Member of internal quality management system:

1) **Group leader/ Chair the management of internal quality**
2) **Production manager**
3) **Internal audit**



Develop cultivation plan based on market demand

Ví dụ về lập kế hoạch sản xuất

TT	Loại rau	Diện tích (m2)	Ngày gieo	Thời gian sinh trưởng (ngày)	Dự kiến thời gian bắt đầu thu hoạch
	TỔNG SỐ:	20740			
1	Bắp cải	720	17/10-20/10/2017	100	20/1/2017
2	Su hào	1500	1/10 - 17/10/2017	70	20/12/2017
3	Cà chua	1080	1/10/2017-10/10/2017	150	25/12/2017
4	Dưa lê	1080	25/8-30/8/2017	60	30/10/2017
5	Cà chua bi	360	20/8-25/8/2017	70	15/10/2017
6	Rau mồng tơi	360	28/7/2017	50	20/9/2017
7	Rau ăn lá (cải ngồng, cải xanh..)	3600	17/10/2017	35	20/11/2017
8	Bầu bí	720	1/10/2018-	90	1/12/2018-
9	Cà tím	360	1/10/2018-	60	1/1/2017-
10	Dưa chuột	1080	20/8-5/9/2017	45	20/10-25 /10/2017
11	Đậu đỗ	720	25/10/2017-	60	25/12/2017
12	Đậu Hà Lan	360	09/10/2017	50	11/10/2017

	Dự kiến sản lượng (kg)	Sản lượng rau thu hoạch theo tháng (kg)						
		Tháng 9/2017	Tháng 10/2017	Tháng 11/2017	Tháng 12/2017	Tháng 1/218	Tháng 2/2018	Tháng 3 /2018
	96700	450	5110	5720	7920	28600	27700	20900
	40000					13000	14000	13000
	3000				1500	1500		
	4500					1500	1500	1500
	1800		1800					
	2000		400	800	800			
	3250	450	800	800	800	400		
	15000			1000	3500	3500	3500	3500
	3000				700	700	700	700
	1200					400	400	400
	4500		2000	2500				
	1500					700	700	
	450		110	120	120	100		

On-field guidance on Basic GAP application

- **On-field guidance and monitoring of production diary**
  - Internal auditor and production manager of Cooperative will guide farmers how to cultivate with GAP application and how to record production diary.
  - Technical auditor of PPMU visits the field in Cooperative/ Company once per week for checking and guiding the recording of production diary and on-field practices
- **Organize internal audit meeting**
  - Internal audit meeting will be organized every month.
  - Participants are person in charge of production, internal auditor, technical auditor of PPMU and farmers for sharing experience and providing guidance on Basic GAP application to farmers.
- **Internal assessment**
  - Internal assessmentwill be conducted 1-2 times/year basing on list of control points of Basic GAP (26 control points)
  - Technical auditor of PPMU will participate in internal assessment to provide guidance on implementation for Cooperative manager

Mistakes of recording production diary encountered by farmers & corrective action

Mistakes	Contents written in wrong manner	Corrective action
Do not record sufficiently for each plot, each vegetable.	- Only record the diary for big plot, vegetables of main season.	- Review production plan for each vegetable season, which serves as basis for monitoring farmer's recording
Do not sufficiently record information of the form	- Record deficit information on cultivation area, vegetable type, template for recording product harvesting	- Review and timely add more deficit information
Record wrong name of pesticides, active substances	- Just write the abbreviation of pesticide name, slang name.	- When pesticides are applied, full name of pesticides and active substances must be written on a piece of paper, so that they can write on the recording logbook at home
Record deficit information on concentration or application dose	Record deficit information on concentration or application dose	Guide how to sufficiently write information and regularly monitor, check the recording logbook for timely adding more information

Must fully record the chemical utilization process

Content:

- *Name of pesticides*
- *Controlling target*
- *Using amount*
- *Date of application.....*
- *Quarantine period (PHI)*

Note: Recording method is guided in the part which is about diary recording and production practice

TABLE 1 - DIARY OF PRODUCTION PRACTICES

Name of plot (No.): ..... Area.....(m^2/sào /ha)

Date of transplanting..... ....

Name of crop:..... ..... Variety..... ..... Expected first harvesting..... Final harvesting.....

Protective cloths: yes ( ); no ( ).

Throw waste of pesticides in the right place: yes ( ); no ( ).

Date (lunar calendar)	Item	Name of pesticides/ fertilizers, etc.	Name of insects/ disease	Quantity (kg, g, lit, ml, package)	Follow the guidance (mark X)	Warning board (mark X)	Detect risk	Implemented by

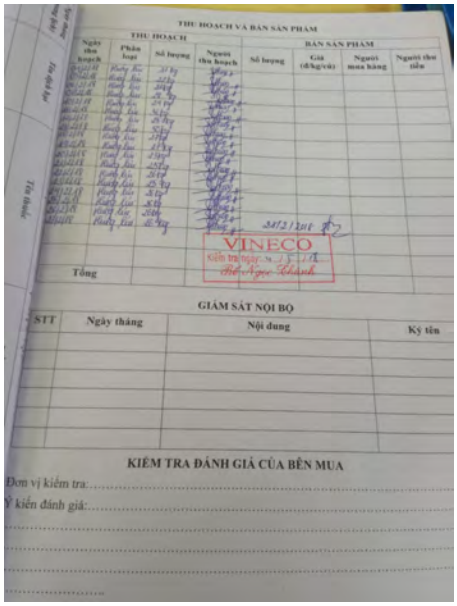
TABLE 3 - DIARY OF HARVESTING AND PRODUCT SALE

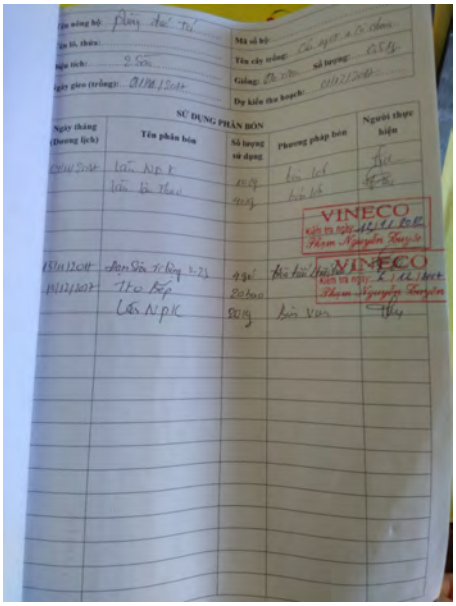
Area of pre-processing/ preservation.....

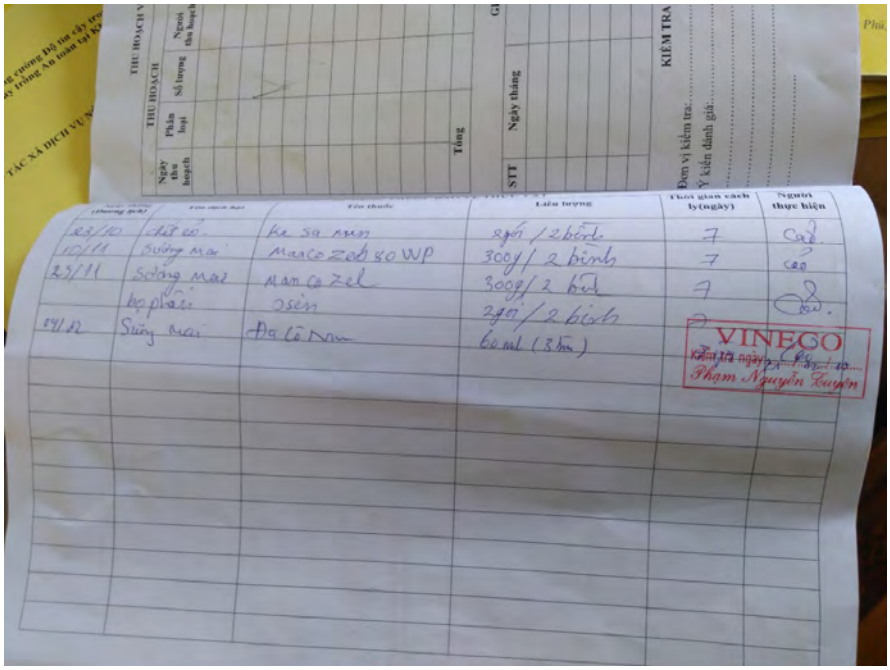
Address of retail market.....

Date (lunar calen-dar)	Harvesting			Products sale					Detect the risk / already handle the risk (mark x)	Imple-mented by
	Name of crop	Name/ code of plot	Pre-har-vest interval (days)	Quan-tity (kg, plant)	Price (d/kg, plant)	Mode of selling/ buyer				
						Retail selling (mark x)	Whole sale to whom	Con-tract-based sale to whom		

Recording activities in some target groups







FACTORS FOR PROMOTING, ENSURING THE MAINTENANCE OF RECORDING FIELD DIARY BY FARMERS

- Regularly guide, monitor, adjust the recording of each farmer, formulate farmer's recording habit
- Arrange PPMU staff in charge of target group, periodically monitor and provide guidance to production team leader/ internal auditor of Cooperative and farmers.
- Periodically organize group meeting for sharing good experience and mistakes that they always encounter.
- Monitoring by buyers (supermarket, canteens, etc) and requirements on Quality - Safety are motivation and compulsory conditions for producer's compliance.

III. CHECKING RESIDUES OF PESTICIDES, HEAVY METAL AND MICROORGANISM IN PRODUCTS

- **Analyze and quick test the pesticide residues.**
- **Check, analyze samples in lab to check residue of pesticides, heavy metal and micro-organism.**

3.1. Quick Testing residues of pesticides by quick test

Province	Target groups	Number of tests	Number of times when no residue is detected	Number of times when residue is detected, but still at safe level	Number of times when residue is detected, but still at un-safe level
Hải Dương	Tan Minh Duc Coop:	7	3	3	1*
	Duc Chinh Coop:	9	8	1	0
	Thanh Ha Company:	4	3	1	0
Ha Nam	Hiep farm group:	4	3	1	0
	Ha Vy Co-operative:	3	2	1	0
Hưng Yên	Yen Phu Coopera-tive	10	8	1	1*
	Ja-pan-Viet-nam Company:	23	18	5	0
Total		60	45	13	2

*Note: * kiểm soát mẫu phát hiện dư lượng không an toàn (mẫu **được** lấy tại ruộng khi chưa **đủ** thời gian cách ly trước khi thu hoạch)*

Kiểm tra nhanh (quick test) tại ruộng

3.2. SAMPLING FRESH VEGETABLES IN THE FIELD/ PRODUCTION GARDEN (TCVN 9016-2011)

Plan for sampling vegetables in the field

- Look through the map of farm land, crop type, expected productivity;
- Consider production and harvesting season of crops;
- Consider production dossier of units to determine sampling target, quantity of samples taken;
- Determine sampling position in the farm land map.

Determine the minimum quantity of pilot samples and sub-samples

➢ ***Case 1: Production plot is managed by 1 household or 1 company:***

  – Production plot has area ≤ 05 ha, take at least 1 pilot sample in each plot

  – Proudction plot has area > 05 ha, divide that big area into small areas of ≤ 05 ha, take at least 1 pilot sample in each plot.

Minimum number of sub- samples/ 1 testing sample depending on kind of crop and lot area, details:

Type of crop	Lot area	Minimum number of pilot sample	Minimum number of sub- samples/ 1 pilot sample
Vegetable is graded as big size (average weight > 250 gr/ unit	≤ 05 ha	01	05
Vegetable is graded as small and medium size (average weight < 250 gr/ unit)	≤ 0.1 ha	01	05
	0.1 – 1 ha	01	05 - 08
	01 - 05 ha	01	08 - 12
	05 ha	01	12 - 16

➢ ***Case 2: production lot is managed by many households (Cooperative, group)***

- Production lot has area ≤ 05 ha: at least 1 pilot sample/ 1 lot.
- Production lot has area > 05 ha: divide this big lot into many lots of ≤ 05 ha, 1 pilot sample/ 1 small lot divided.
- Minimum number of sub- samples/ 1 pilot sample depends on number of production households in that lot (n).
- Minimum number of sub- samples = number of households have minimum samples taken √n, but ≥ 5 samples
- If the lot is managed by many households with different production conditions, take separate sample of each household and that sample just represents that household only.

Results of lab test on residues of pesticides, heavy metals and microorganism in products

Province	Target group	Quantity of samples	Heavy metal	E.Coli. Salmonella	Pesticide
Hải Dương	HTX Tân Minh Đức:	3	0	0	0
	Duc Chinh Coop:	5	5(0)	0	4(1)
	Thanh Ha Company:	6	4(0)	0	0
Ha Nam	Hiep farm group:	3	0	0	0
	Ha Vy Cooperative:	2	0	0	0
Hưng Yên	Yen Phu Cooperative	3	3(0)	0	1(0)
	Japan-Vietnam Company:	3	3	0	0
Total		25	15(1)	0	5(1)

*(**): * -- detect, (**) -- detect the exceed of MRL*

Samples detected:

Pesticide (Difenoconazole) 0.243mg/kg (MRL 0.2mg/kg)

Carrot

Summarize main contents/ requirements of Basic GAP in safe vegetable production

- **Determine safe production area.**
- **Manage quality of production inputs.**
- **Good agriculture practices (GAP) in production:**

  - Fertilizer and irrigation water.

  - Pesticides.

  - Good post-harvesting practices.
- **Record field diary and record keeping.**
- **internal monitoring and inspection.**
- **Check residues of pesticides, heavy metal and micro-organism accumulated in products.**

LESSION 2

GOOD PRODUCTION PRACTICES IN HARVESTING, PACKAGING IN THE FIELD

MATERIAL OF TOT TRAINING ON BASIC GAP

OBJECTIVE

- Obtaining products of best quality with suitable cost;
- Reduce chemical, biological and physical hazards for products during harvesting, packaging, delivery;
- Minimize the loses during harvesting.

LOSES AFTER HARVESTING

- Reduce quality
- Do not ensure food safety;
- Reduce volume;
- Reduce nutrition value of products;
- Economic loses - reduce product value because of quality and volume reduction.

LOSES AFTER HARVESTING

- Reduce quality
- Do not ensure food safety;
- Reduce volume;
- Reduce nutrition value of products;
- Economic loses - reduce product value because of quality and volume reduction.

CHANGES OF PRODUCT QUALITY AFTER HARVESTING

- **Chlorophyll decomposition - reducing perceptional quality of products, especially leafy vegetables.**
- **Dehydration due to evaporation - decrease the freshness, causing faded vegetables, soften the tissue structure.**
- **Respiration process keeps on working - reduce nutrition concentration of products.**

HARVESTING POINT

Determine the proper point for harvesting products:

- **Ensure yield, product quantity;**
- **Ensure perceptional quality, nutrition quality:**
  - Products which are harvested at pre-mature time do not satisfy expected quality standard.
  - Products which are harvested at over mature time will be old, fibered, reducing the quality.
- **Ensure food safety:**
  - **accurate pre-harvest interval.**

BEFORE HARVESTING

- **To ensure pre-harvest interval (PHI) for pesticides and organic fertilizers, farm manager should check diary of using pesticides and fertilizers to ensure:**
  - ➢ Interval from applying pesticides and fertilizers to harvesting is proper as regulated.
  - ➢ Only harvest products which ensure pre-harvest interval as regulated.
  - ➢ If the pre-harvest interval is not ensured, the harvesting should be delayed until it ensures the PHI as regulated.

Green mustard:
30 days after sowing

Green choysom:
30 days after
sowing seeds

HARVESTING POINT

Amaranth:
40-45 days after
sowing seeds

Morning glory produced by seeds:
25 days after sowing seeds

Kohlrabi: 55-60 days
after transplanting

Cabbage: 70-80 days
after transplanting

HARVESTING POINT

Broccoli: 65-70 days
after transplanting

Tomato: 50 days after
transplanting

HARVESTING TIME

- ❖ Harvesting time: Coolest time of day - early in the morning or late in afternoon
- ❖ Do not harvest products in rainy or highly humid weather - Products are wet, and easy to generate temperature. If products are not preserved in ventilated conditions, it is easy to be rotten.
- ❖ Post harvest products should be placed in cool area (in shaded area) if they are not shipped immediately to pre-processing house or selling point.

EQUIPMENT, TOOLS, CONTAINERS

- Tools: Knife, scissor, etc.
- Product containers: Tray, plastic box, bamboo basket, nylon bags, jute bags, etc.
- Materials for line, containing products: Canvas, nylon, etc.

>>> Must be clean and ready for use during the harvesting.

- *Check, ensure hygiene of tools, equipments, containers before using to eliminate contamination hazards.*
- If it is unable to make it clean or remove product contamination hazards from tools, containers, it is better to not use it.

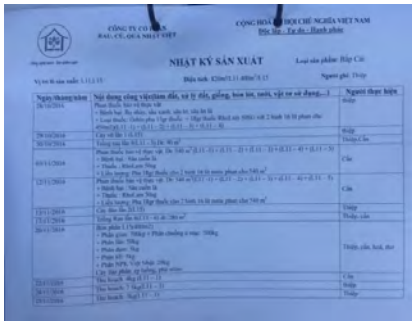
EQUIPMENT, TOOLS, CONTAINERS

- Tools, equipment, containers should be maintained regularly to avoid chemical or physical hazards to products.

- Tools, containers must be isolated from area which keeps chemical, fertilizers or additives.
- Need to have measures for differentiating containers used during harvesting and containers used in pre-processing house: Use containers which have different shape and colors.

GOOD PRACTICES IN HARVESTING VEGETABLES

- Check the field diary, ensuring the PHI for pesticides applied before harvesting
- Harvest vegetables in early morning or late afternoon to deliver to buyers within the day.
- Workers must pay attention during harvesting fresh vegetables to eliminate that the products directly touch soil.



GOOD PRACTICES IN HARVESTING VEGETABLES

- **Must cover vegetables or bring vegetables to pre-processing house immediately to avoid direct sunlight.**
- **Except for root vegetables, workers must handle carefully to avoid damages and soil on products.**
- **Remove strange objects, damaged, rotten products and plant residues out of harvested products.**


Không để sản phẩm trực tiếp trên đất

PRE-PROCESS AND PACKAGE AT THE HARVESTING PLACE

- Select suitable place for pre-processing and packaging fresh vegetables to avoid cross-contamination. Must use lining canvas for lining harvested products, do not let products directly touch soil.
- Check, ensure hygiene of tools, equipments, containers before using to eliminate contamination hazards.
- Pay attention during working to avoid damage, broken and causing biological, physical, chemical contamination on products.


COLLECT, DELIVER VEGETABLES FROM PRODUCTION AREA TO PRE-PROCESSING, PACKING HOUSE

- Products must be collected to a place which do not cause contamination on products.
- Use canvas and basket to keep vegetables in the field and deliver vege to pre-processing house
- Collect small quantity in each time.
- Do not pile up and strongly press vegetables.

GOOD PRACTICES OF TRANSPORTING PRODUCTS

- Transporting vehicle must be cleaned while arranging products.
- Protect products and containers to avoid dust, dirty contamination hazard while arranging and transporting.
- Pay attention to avoid contamination on products while using animals (buffalo, cow, horse, etc) for transporting.

PRE-PROCESSING AND PACKAGING IN PREPROCESSING HOUSE

- Only use clean water for washing products - *Water used in agriculture*
- Water for washing products must be regularly replaced. Do not wash products for more than 3 minutes to avoid water and micro-organism from entering into the products.

- Use plastic basket to store products after washing to ensure no cross contamination.
- Fully avoid the direct contact between packaged products and un-packaged products.
- After packaging, products must be labeled to facilitate product traceability.

GOOD PRACTICES IN VEGETABLE WASHING STAGE

- Gently wash to avoid damage
- Wash the root in some cases only
- Arrange vegetables into the basket, do not put too many
- Put basket onto the shelves or using the fan for drying vegetables before packaging

GOOD PRACTICES IN CUTTING, PRUNING VEGETABLES

- Prune all old leaves and un-mature leaves – easy to be damaged.
- Sort the uniform size following buyer's standard
- Gently arrange to avoid damage for vegetable
- Do not strongly arrange vegetables onto hard objects, which makes vegetable stems damaged.
- Can put into vinegar 2% to avoid micro-organism contamination (possible, especially in early summer)
- All pre-processing workers must be trained and guided with standard practices of pre-processing, packaging

GOOD PRACTICES IN PACKAGING VEGETABLES

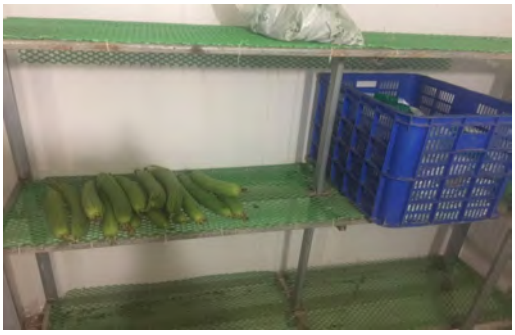
- Use nylon bags with holes in the bottom and middle.
- Do not pack vegetables when they are still wet.
- Do not fully seal the bag top
- Vegetables are neatly arranged in the bag
- Consider to design packs suitable with customer's requirements.


GOOD PRACTICES OF PRESERVING VEGETABLES

- Products must be preserved in clean, dry area, avoiding contamination hazard. Products should not be preserved together with fertilizers, agriculture chemicals and cleaning agents, disinfection.
- Except for root vegetables, post-harvested vegetable products should not be directly put on ground or floor to avoid chemical, biological and physical contamination.


GOOD PRACTICES OF PRESERVING VEGETABLES

- Preserve vegetables in cool, ventilated condition
- If vegetables are preserved in cooling condition, adjust the temperature not too low to avoid the temperature sock.
- Record date of pre-processing, packaging and monitor products to avoid supply supermarkets and hotels with vegetables of previous day



PRE-PROCESSING, PACKAGING VEGETABLES DO NOT SATISFY REQUIREMENTS

Vegetables got the rotten root (mustards)

PRE-PROCESSING, PACKAGING VEGETABLES DO NOT SATISFY REQUIREMENTS

Rotten root, many yellow leaves

PRE-PROCESSING, PACKAGING VEGETABLES DO NOT SATISFY REQUIREMENTS

Vegetables are damaged, vegetables are not packed in neat and attractive manner.

REASON AND CORRECTIVE MEASURES

- **Reason:**

  - Pruning, cutting technique results in bacteria contamination

  - The rainy and hot weather makes vegetable easy to be damaged.

  - Vegetables are stored for long time.

  - Effect from heat shock during cooling preservation

- **Corrective measures:**

  - Need to refer to cutting, pruning technique for application (need to put the vegetable roots into vinegar liquid for disinfection, etc)

  - Need to tightly control all the stages from caring (amount of water, etc), harvesting, pre-processing, packaging and delivery to customers.

  - Sort the products to deliver to each target customer.

LESSON 3

PART II.

THE UTILIZATION OF PESTICIDES AND CHEMICALS

PESTICIDES AND CHEMICALS

I. MISTAKES USUALLY ENCOURERED IN APLYING PESTICIDES

II. MEASURES FOR ELIMINATING AND AVOIDING HAZARDS

III. SOME ACTIONS NECESARRY TO BE DONE FOR OVERCOMING THE HAZARDS OF PESTICIDES AND CHEMICALS.

1. MISTAKES ALWAYS ENCOUNTERED IN APPLYING PESTICIDES

- Use of banned pesticides; pesticides not in the list;
- Use of pesticides unregistered for vegetable crop;
- Improper use of pesticides against regulation;
- Do not ensure the pre-harvest interval for pesticides;

- Pesticides are sprayed near products which have been harvested
- Pesticides are stick on product containers and packing materials
- Not yet collect packs of pesticides into proper areas
- Unsafe spraying equipment……
- Use of banned pesticides, not in the list:

Banned pesticide

Pesticide not in the list of legal pesticides

- Use of pesticides not approved for vegetable crop :

For example: Pursuance to Circular No.03/2018/TT-BNN Tricklorogon (90SP, Dip 80SP, Terex 50 EC, Ofatox 400EC, etc) are not allowed to apply in Vienam and for vegetable. However, these pesticides are being used for vegetable

- Improper use of pesticides against regulation:
  - Pesticides selected are not suitable for diseases
  - Overdose, many times higher than the instruction
  - Mixture of many kinds, etc.

Farmers used to mix 7 types of pesticides/ tank to spray onion.

Do not ensure pre-harvesting interval for pesticides:

Pesticides are sprayed in area whose products have been harvested

Pesticides are left on product containers and packing materials

Pesticide residue accumulated in soil, irrigation water from previous use

2. IDENTIFY HAZARDS CAUSED BY OTHER CHEMICALS

- Soil, water is contaminated by chemicals from industrial zones, chemical factories nearby.
- Apply chemicals not in the list approved for use:
- Inappropriate chemicals or improper use of chemicals for cleaning and washing, leaving residue in equipments, containers, etc.
- Fuel (oil and gasoline), paints, etc on equipments of harvesting, packing and delivery, causing direct contamination to products and packing;
- Soil, water is contaminated by chemicals from industrial zones, chemical factories nearby.

- Apply chemicals not in the list approved for use
- For example: Waste water is applied for morning glory

- Inappropriate chemicals or improper use of chemicals for cleaning and washing, leaving residue in equipments, containers, etc
- For example: Apply Natrihiđrosulfit (NaHSO3, a chemical used in textile industry, to make radish white and fresh
- Or fruits is soaked with antibiotic chemical or Carbendazim chemical to avoid the rotten.

- Fuel (oil and gasoline), paints, etc on equipments of harvesting, packing and delivery, causing direct contamination to products and packing

Do not use prohibited substances in food perservation

PART II:
MEASURES TO AVOID AND MINIMIZE HAZARDS

Control the use of pesticides and other chemicals

Control farming soil, irrigation water source, etc.

1. USE OF CHEMICALS

- **Promote the application of IPM, ICM**
- **Good management of following activities:**
- Buy, receive and manage pesticides (preservation, store)
- Use of chemicals (spray chemicals)
- Manage well the waste (package) of pesticides after use

PROMOTE THE APPLICATION OF IPM AND ICM TO MINIMIZE THE USE OF PESTICIDES AND OTHER CHEMICALS

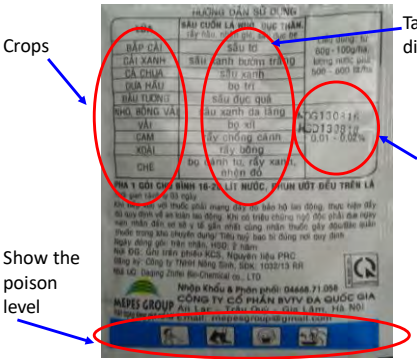
- Integrated Pest Management (IPM): aims at suppressing pest populations below economic injury level and pesticides are only used when pest populations are at higher level than economic injury level.

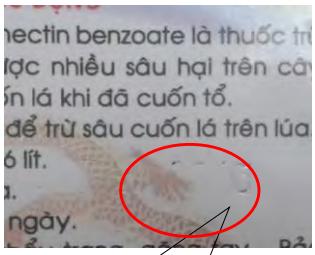
- Integrated Crop Management (ICM): Manage to facilitate the good development of crops to minimize the use of chemicals and fertilizers (3 reductions 3 increases)

SELECT, BUY, RECEIVE PESTICIDES

- Only buy pesticides from suppliers/shops licensed by competent authorities
- Carefully read the instruction to know the expiration date, the suitability of pesticides on crops, etc.
- Do not buy pesticides not in the list approved and banned pesticides
- Only use pesticides in the list approved for use in Vietnam. Priority should be given to less toxic pesticides (blue color) and chemicals of plant origin, biological chemicals, especially in the end of crops
- Only buy pesticides from suppliers/ shops licensed by competent authorities

- Carefully read instruction to know information such as: expiration date, poison level, target pest, target crop of pesticides, etc.





Toxic level symbols of pesticides

Toxic group	Symbols			Notes
	Color	Symbols	Notes on the label	
I (extremely toxic)	Red		Extremely toxic	Banned
II (highly toxic)	Yellow		Highly toxic	Limited use for vegetable
III (less toxic)	Blue		Dangerous	
IV (least toxic)	Green	No symbols	Be careful	Priority should be given to vegetable

Toxic level symbols of pesticides(since 2018)

Theo Thông tư số 21/2015/TT-BNNPTNT ngày 08/6/2015 của Bộ trưởng Bộ Nông nghiệp và PTNT. Độ độc sẽ được ký nhiệu như sau:

Độc cấp tính

Yếu tố ghi nhãn	Loại 1	Loại 2	Loại 3	Loại 4	Loại 5
Hình đồ cảnh báo					Không sử dụng Hình đồ cảnh báo
Tên gọi hình đồ	Đầu lâu xương chéo	Đầu lâu xương chéo	Đầu lâu xương chéo	Dấu chấm than	
Từ ký hiệu	Nguy hiểm	Nguy hiểm	Nguy hiểm	Cảnh báo	Cảnh báo
Cảnh báo nguy cơ: Miệng	Chết nếu nuốt phải	Chết nếu nuốt phải	Ngộ độc nếu nuốt phải	Có hại nếu nuốt phải	Có thể có hại nếu nuốt phải
Cảnh báo nguy cơ: Da	Chết khi tiếp xúc với da	Chết khi tiếp xúc với da	Ngộ độc khi tiếp xúc với da	Có hại khi tiếp xúc với da	Có thể có hại khi tiếp xúc với da
Cảnh báo nguy cơ: Hô hấp	Chết nếu hít phải	Chết nếu hít phải	Ngộ độc nếu hít phải	Có hại nếu hít phải	Có thể có hại nếu hít phải
Vạch màu	Đỏ	Đỏ	Vàng	Vàng	Lam

SELECT, BUY, RECEIVE PESTICIDES

- Do not buy pesticides not in the list approved and banned pesticides, etc *(usually pesticides with red color bar, no Vietnamese language, no label, etc)*

Banned pesticides (red color bar)

Pesticides not in Vietnamese language

- Only use pesticides in the list approved for use on crops in Vietnam *(Circular No.03/2016/TT-BNNPTNT and Circular No.06/2017/TT-BNNPTNT)*. Priority should be given to less toxic

chemicals (blue and green color) and chemicals of plant origin, biological chemicals, especially at the end of season.

Chemical of plant origin

Microbiological chemicals

PRESERVE AND STORE PESTICIDES

(applied for household, vegetable production farm; not for stores, pesticide trading agencies)

Warehouses (stores to keep chemicals):

- Located in high land area to avoid flood, far away from children ‘s reach
- Do not affect products in production area.
- Should have warning board, lock, etc
- Pesticides are neatly arranged to avoid the mixture with other agriculture materials.

USE OF PESTICIDES

Only use pesticides when needed.

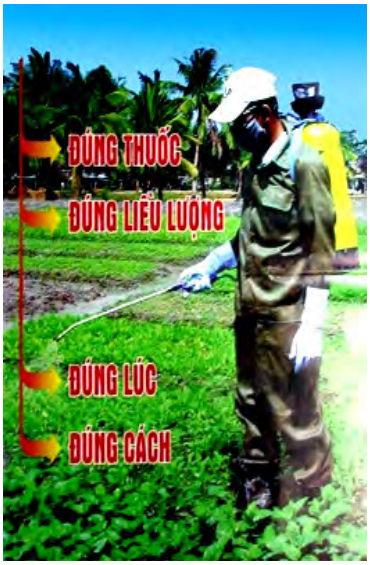
Must comply with following:

- Principles of 4 correction
- Safety principle
- Fully record the process of pesticide utilization.

Only use pesticides when needed

- Regularly check and visit the field, combine with analysis on weather and crops
- Only apply pesticides when the pests and diseases are at economic injury level.

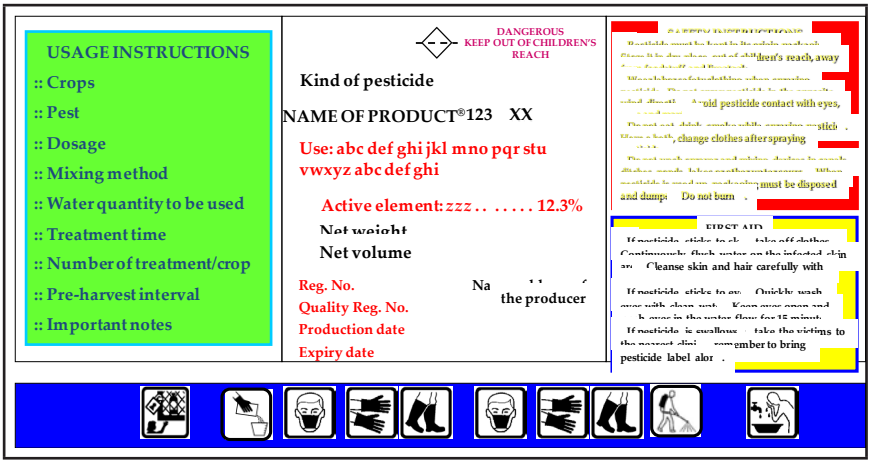
Pesticides must be applied in accordance with principles of 4 rights



- Right pesticides: suitable for target diseases, pests, etc.
- Right dosage: Follow the instruction on label (amount of pesticides/ amount of water for one area unit)
- Right time: apply pesticides for the diseases of early growth stage (diseases are easy to be killed, newly occurred diseases)
- Right using method: Follow the instruction (only spray leaves or root)
- Chemical users must carefully read instruction before use

USE PESTICIDES ACCORDING TO THE LABEL'S INSTRUCTIONS

ALWAYS READ THE LABEL CAREFULLY BEFORE USE



Comply with principles of safety during the pesticide use

Equipped with full set of equipment to fix and open the bottle (knife, scissor, etc)

Comply with principle of safety during the use of pesticides

- **Calcu**late the sufficient amount of chemical to avoid surplus of chemical. In case of chemical surplus, the destroy process should be suitable (land should be far away from water source, make a hole, mix chemical surplus with lime, and then cover hole with soil)
- Do not pour chemical surplus into water or fish ponds

Comply with principle of safety during the use of pesticides

Packages of chemicals after use should be collected and treated in accordance with proper process to avoid the contamination for environment and products

Comply with principle of safety during the use of pesticides

Bathing and washing clothes, protective equipments after spraying chemicals

First aid for poisoned person due to direct contact or use of pesticide

Quickly take the victim out of the toxic area

Depending on the toxic contaminated way to select proper first aid

Fully record the process of pesticide utilization

Contents:

Name of pesticides

Target of pesticides

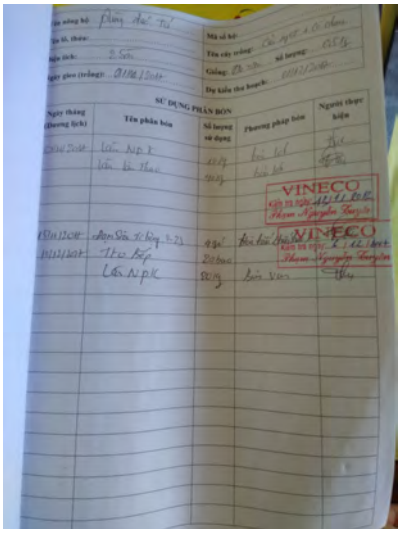
Dosage

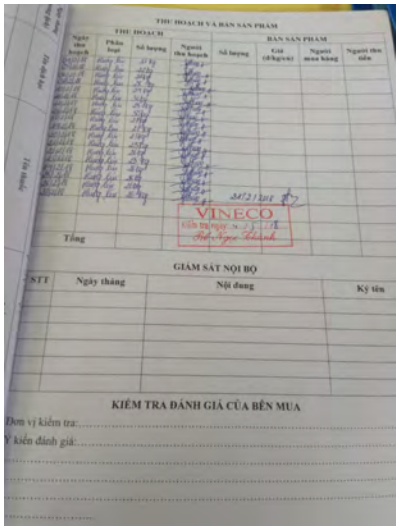
Sprayed date, etc.

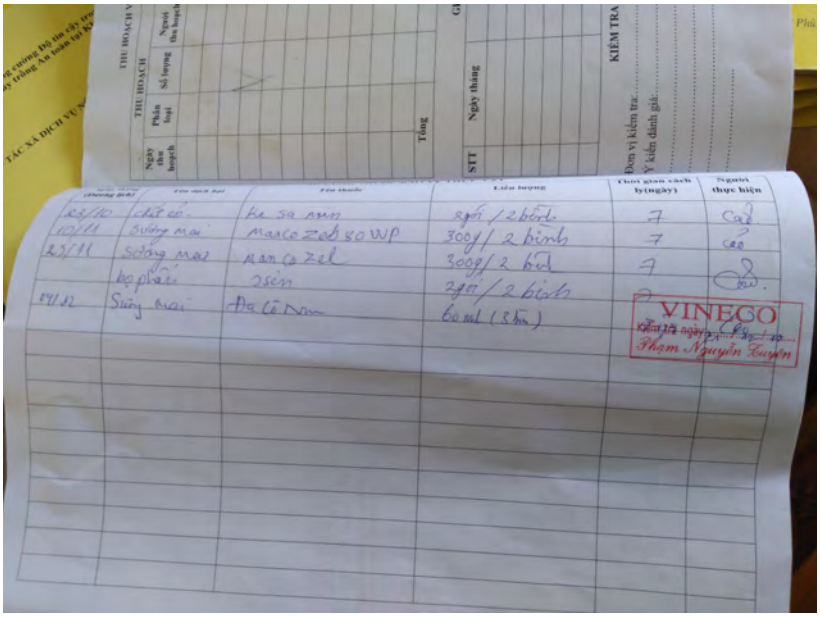
Quarantine period (PHI)

Note: How to record is guided in the diary of production practices.

Recording activities in some target groups







II. MANUAL METHOD

Use light trap, yellow or blue stick catch to kill winged aphids, leafy maggot/fly, flea bettle; removing insect larvae, catching insects, destroying insect pests, treating seeds, etc.

III. BIOLOGICAL METHOD: EXPLOIT AND USE BENEFICIAL ORGANISM (NATURAL ENEMIES, ENEMIES OF PESTS), BIOLOGICAL PRODUCTS IN CONTROLLING HARMFUL PESTS.

- Protect natural enemies

- Ladybugs eating ephid, worm
- Bees parasiting on eggs, young worm, papue of harmful insects
- Ants, bettles, spider, etc eating pests
- Using Pheromone trap: Attract mature pests into trays and kill them (these pests will become armyworm, white butterfly, diamond-back moth, etc)

Guide to control pest/diseases on mustard crops

I. CULTIVATION METHOD

- Clean the field:Collect and destroy plant residues having disease sources such as soft rot, Scherotinia blight, downy mildew, etc

harmful to mustard crops, wild grass where harmful pests live, etc eliminate the spreading sources, etc.

- *Use healthy seedlings with no diseases, use seedlings with good resistance*
- Only use healthy seedlings, seeds with high germination rate, no diseases
- Should produce seedlings on bedding, ensuring quality of seedlings for production area
- **Caring:**
- Fertilizer and applying fertilizer: Apply with right technique, apply enough and balanced amount for each vegetable, each soil type, each season, in correct time to facilitate the growth, increase the resistance to diseases, promote the use of composting.
- Watering: Ensure enough humidity for veg field, not too much.
- Season: Select varieties suitable to season for good growth
- Rotate and intercrop

IV. CHEMICAL METHOD

- Use chemicals which are less toxic to human and environment
- Use chemicals which takes short time for decomposition
- Chemicals in the low toxic level (group 3, 4)

II. MANUAL METHOD

- Use light trap, yellow or blue stick catch to kill winged aphids, leafy maggot/fly, flea bettle; removing insect larvae, catching insects, destroying insect pests, treating seeds, etc.
- Biological method: Exploit and use beneficial organism (natural enemies, enemies of pests), biological products in controlling harmful pests.

- *Protect natural enemies*
- Ladybugs eating ephid, worm
- Bees parasiting on eggs, young worm, papue of harmful insects
- Ants, bettles, spider, etc eating pests
- *Using Pheromone trap*: Attract mature pests into trays and kill them (these pests will become armyworm, white butterfly, diamond-back moth, etc)'

IV. CHEMICAL METHOD

- Use chemicals which are less toxic to human and environment
- Use chemicals which takes short time for decomposition
- Chemicals in the low toxic level (group 3, 4)

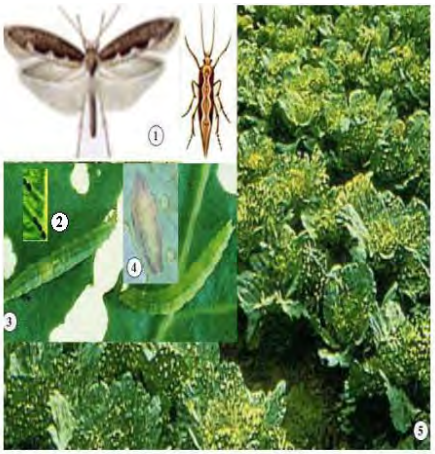
COMMON PESTS ON CRUCIFERAE CROPS:

DIAMOND-BACK MOTH (PLUTELLA XYLOSTELLA)

- The pest feed leaves of cruciferae crops, short life circle: 12 – 30 days, high productivity (1 female moth laid more than 100 eggs), high level of pesticide resistance. A life of cruciferae crop faces 2-3 turns of diamond-back moth. The moth in the middle and end of season often has high density, harmful to crops. The most affected period is in November, December, February, and March.

Pesticides to be used

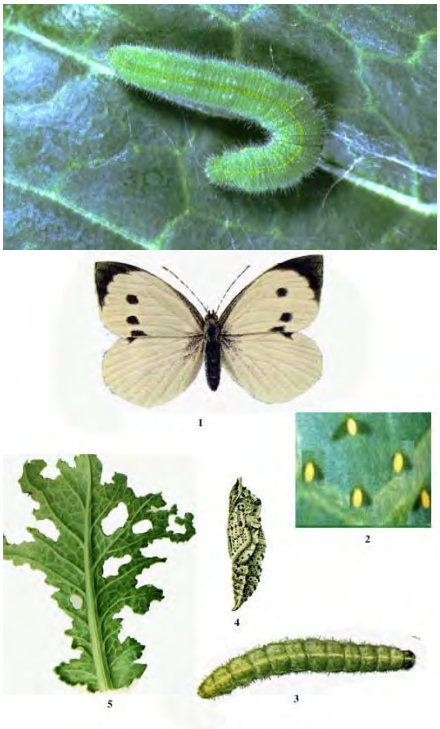
Radiant 60SC
Dupont Prevathon 5SC
Match 050EC
Brightin 1.8EC
Abatin 5.4EC
Proclaim 1.9EC
Tasieu 1.9EC
Pegasus 500SC
Delfin 32WG



Sâu tơ - *Plutella xylostella* Linnaeus (Tên cũ: *Plutella maculipenis*)
1. Trưởng thành; 2. Trứng; 3. Sâu non; 4. Nhộng;
5. Ruộng rau bị hại

Deep bluePieris rapae

Commonly harmful to cruciferae crops right from the un-mature time, feed the leaves and make many holes on leaves. This pest appear in the whole year, mostly in March-April, September-November



Sâu xanh bướm trắng- *Pieris rapae* Linnaeus
1. Trưởng thành; 2. Trứng; 3. Sâu non; 4. Nhộng; 5. Bộ phận bị hại

Deep bluePieris rapae

Commonly harmful to cruciferae crops right from the un-mature time, feed the leaves and make many holes on leaves. This pest appear in the whole year, mostly in March-April, September-November

Pesticides to be used

Actimax 50WG
Prevathon 5SC
Match 050EC
Brightin 1.8EC
Radiant 60SC
Delfin 32WG

Aphid

(Brevicoryne brassicae)

Take nutrition mainly from the under side of leaf surface from young plant to harvesting, make plants stunted, deformed and yellowish. Aphid develops strongly in dry condition. If the aphid is not detected early, it is difficult to control later.

Pesticides to be used

Name of pesticides	Name of active substances
Movento 100OD	Spirotetramat
Sokupi 0.5SL	Matrine
Plutel 1.9EC	Abamectin
Reasgant 3.6EC	Abamectin
Radiant 60SC	Spinetoram
Actara 25WG	Thiamethoxam
Tasieu 1.9EC	Emamectin benzoate
Brightin 1.8EC	
Radiant 60SC	
Delfin 32WG	

Flea bettle (Phyllotreta striolata)

- Baby worm affects root, mature worm feeds the leaves, creating many holes on the leave. They develop throughout the year, the mature ones survive 2-3 months, even the whole year. The optimal temperature for laying eggs is 25-300 C

Pesticides

Dupoint Prevathon 5SC
Oshin 20WP
Elsin 10EC
Sokupi 0.5SL

Armyworm(Spodoptera litura)

- Is vegetable multi-eaters, life circle of 30-60 days. When eggs newly hatch, worm live in focused manner. If it is not detected and treated early, it is difficult to control. They usually damage vegetables of all seasons (except for winter season in the cold weather).

Pesticides

Reasgant 3.6EC	Abamectin
Delfin 32WG	Bacillus thuringiensis
Tasieu 1.9EC	Emamectin benzoate
Plutel 3.6EC	Abamectin

Black cutworm (Agrotis ipsilon Huf.)

Is vegetable-multi eater, strongly active in the night, the worm eat the body of the plant. The worm seriously damage when the seedlings are young and it is difficult to control because they live inside the soil

Name of pesticides	Active substances
Reasgant 3.6EC	Abamectin
Delfin 32WG	Bacillus thuringiensis
Tasieu 1.9EC	Emamectin benzoate
Plutel 3.6EC	Abamectin

Common diseases harmful to Cruciferae crops

- Method for diseases management:
  - Clean the field, cut off the infected leaves for destroying.
  - High beds, good drainage to avoid high humidity in the field.
  - Planting suitable density, not planted with high density resulting in serious damage.

- Select good, clean varieties with good disease resistance.
- Remove all residues of diseased plants after harvesting.
- Treat seeds with specific drugs for each disease before sowing.
- Some pesticides may be used for spraying when the disease is newly occurred and in favorable weather condition for the occurrence of harmful diseases:
- Damping off in seedbed:
- This disease affects the seed and seedling, caused by Pythium, Fusarium, Phythophthora, Rhizoctonia fungus, etc in soil. The diseased seedling is easy to die or rot near the ground when they fall and die.

Pesticides used when necessary:

Name of pesticides	Active substance name
Daconil 75WP	Chlorothalonil
Moren 25WP	Pencycuron
Validacin 5SL	Validamycin A
Score 250EC	Difenoconazole
Kasumin 2SL	Kasugamycin

Downy mildew:

This disease can affect both seedling and mature plant. The diseased plant has a layer of grey mold under the leave. The upper side of the leave has yellow color, after that yellowish or die. Heavily diseased leaves are withered and died. The disease develops seriously in high humidity.

- Pesticides used:

Pesticide name	Name of active substance
Vimonyl 72WP	Mancozeb+Metalaxyl
Biogreen 4.5SL	Chitosan
Daconil 75WP	Chlorothalonil
Forwanil 75WP	Chlorothalonil

+ **Ringspot:** Caused by *Alternaria brassicae fungus.*

The disease damages cruciferae crops and some other cops, causing serious damage even when the plants are mature. The disease trace has circle shape, many circles have the same center, link with each other. There is a mold on the leave in high humidity.

Pesticides used:

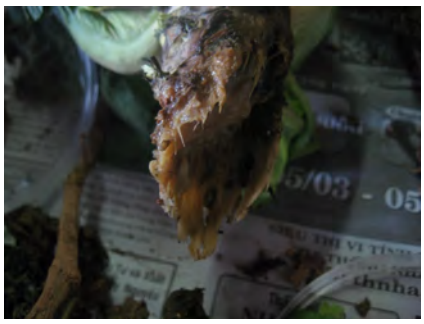
Daconil 75WP	Chlorothalonil
Score 250EC	Difenoconazole
Nativo 750WG	Tebuconazole + Trifloxystrobin

- **Scherotinia blight:** Caused by *Sclerotinia* sclerotiorum fungus on cabbage. The seedlings are rotten in the root and fall down. The mature plant got disease, the disease invades from the stem to head, causing rot from outside to inside. The diseased plant can die and rot in the field. The disease develops well in high humidity (November- April)

Pesticides used:

Biobus 1.00WP	Trichoderma viride
Moren 25WP	Pencycuron
Alfamil 25WP	Metalaxyl

- **Soft rot**: Resulted by *Erwinia carotovora fungus on cruciferae crops.* The disease often occurs when the plant are mature and got fast infection. The disease trace invades from the starting spot, causing rot, bad small. The disease is serious at the end of late season. It even develops fast during the product preservation.



How to control diseases resulted by bacteria

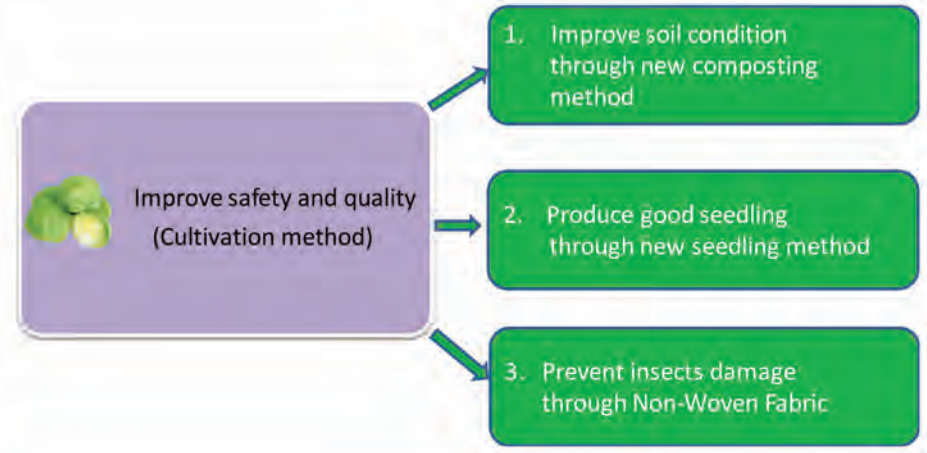
- For bacteria diseases, prevention is the key method. When it gets diseased, it is almost very difficult to control, most of products must be destroyed. The bacteria exists in soil, water, seedling, invade through mechanical injuries, etc.

- The died plant should be moved out of the field for destroy, use lime for sterilizing soil. To eliminate the spread of disease, apply more P and K, stop applying N.
- **Pesticides:**

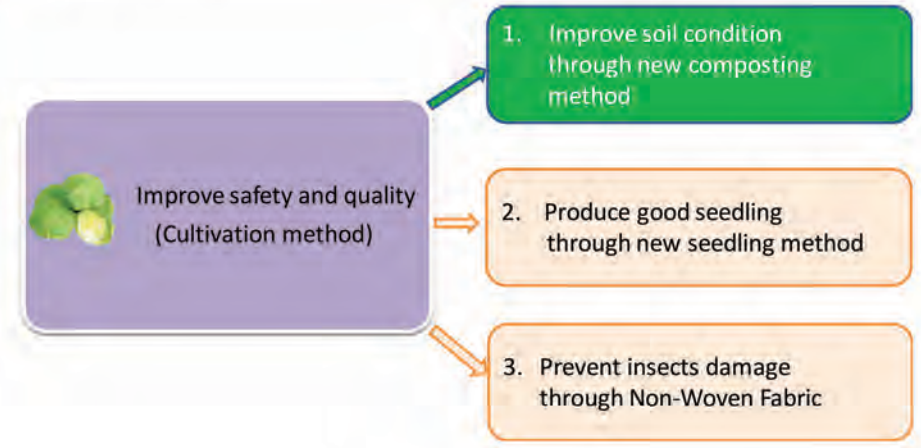
Pesticide name	Name of active substance
New Kasuran 16.6WP	Copper Oxychloride + Kasugamycin
DuPontTM Kocide 46.1WG	Copper Hydroxide
Kasumin 2SL	Kasugamycin
Alfamil 25WP	Metalaxyl

LESSON 4

Sharing experience on some solutions To improve safety and quality of vegetables



1. Improve soil condition through new composting method



1. Improve soil condition through new composting method

1.1 Possible to improve soil

1) Main materials are different

Using buffalo, cow, pig dung

High efficiency for improving soil

Not using chicken dung

Low efficiency in improving soil

Compost helps the plant grow healthy and sustainable, increases the flavor and quality of vegetable

1.1 Possible to improve soil

2) Apply aerobic composting method

- Aeration is the important condition to develop micro-organism during the composting process.
- Micro-organism can change soil as soft

Make ventilated roof

Mix compost during the composting process to send air inside deeply

1.2 Possible to use local materials

1) Local wine yeast

Good points:
- Cheap price
- Easy to find
- High efficiency

Effects:
- Source of beneficial micro-organism during the composting

2) Local buffalo, cow, pig dung

Good points:
- Cheap price
- High efficiency

Effects:
- Make soft soil

3) Rice bran and Rice hush

Rice bran

Rice hush

Good points:

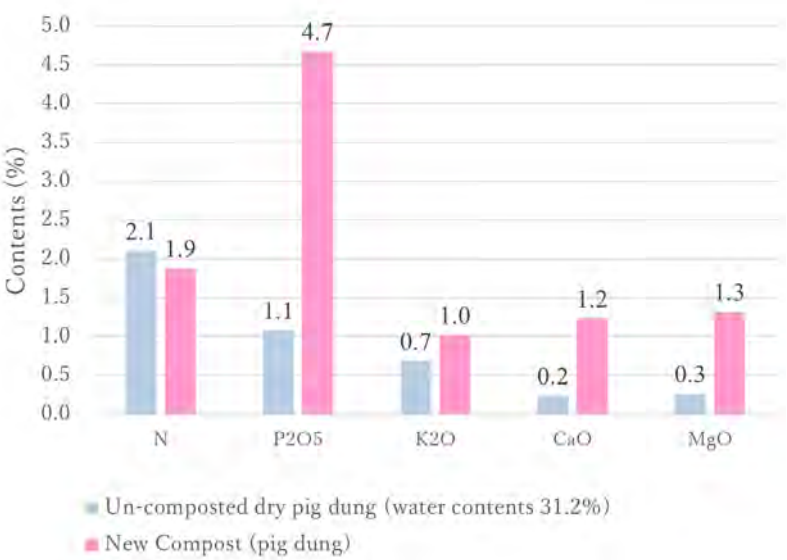
- Easy to find
- Cheap price

Effects :

- Promote the development of micro-organism during the composting process

1.3 High nutrition contents

1) Nutrition contents are higher than low dung



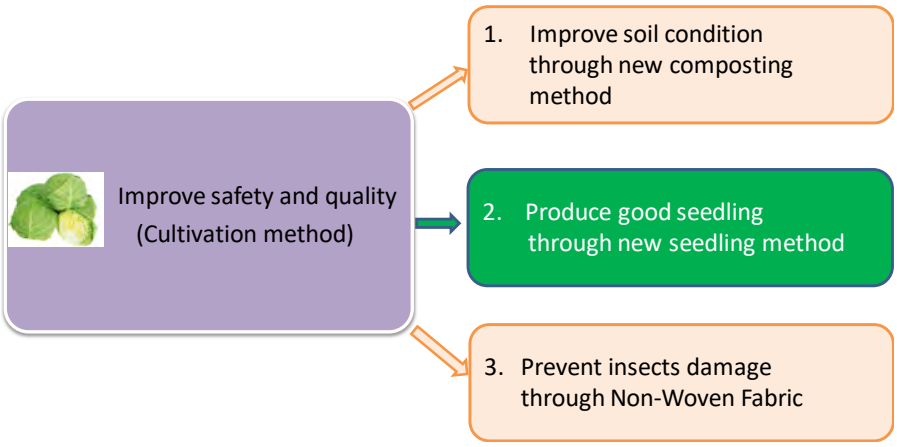
1.4 High efficiency for seedling nursery

Mix compost
with seedling nursery bed

Seedlings grow well
on bedding

Annex 1: Technical guidance on making composting

2. Produce good seedling through new seedling method



Three benefits	1) Obtain healthy seedlings
	2) Obtain seedlings of good uniformity
	3) Those seedlings can be applied in grafting technique

2.1 Obtain healthy seedlings

When seedlings are pulled out for transplanting…

Broken 4% only

Bedding method

Broken 100 %

Traditional method

After seedlings are transplanted…

More than 94% survives

Bedding method

Less than 80 % survives

Traditional method

2.2 Obtain seedlings of good uniformity

Uniformity seedlings is important to harvest uniformed products at the same time.

The uniformity development
on the bedding

The uniformity development
in the field

2.3 Possible to apply grafting technique

Possible to apply grafting
with root of disease-resistant seedlings

Bedding method

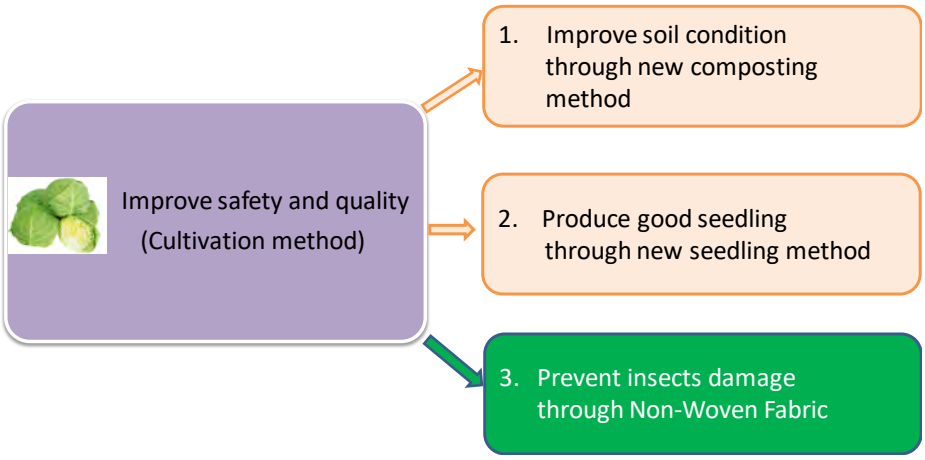
Unable to apply grafting

Traditional method

Annex 2: Technical guidance on nursing seedlings on bedding

Annex 3: Technical guidance on nursing grafting tomato seedlings

3. Prevent insects damage through Non-Woven Fabric



Non-Woven FabricT

- A thin, new fabric sheet made from fiber
- Help to protect vegetables from the attach of insects/ pests

Three benefits	1) Easy to use
	2) Reduce the damage by insects/ pests
	3) Reduce the pesticides application

3.1 Easy to use

- Light and durable
- Easy to move, easy to use in the field

3.2 Reduce the damage by insects/ pests

100% is damaged by insects/ pests

Do not apply Non-Woven Fabric

Only 4% is damaged by insects/ pests

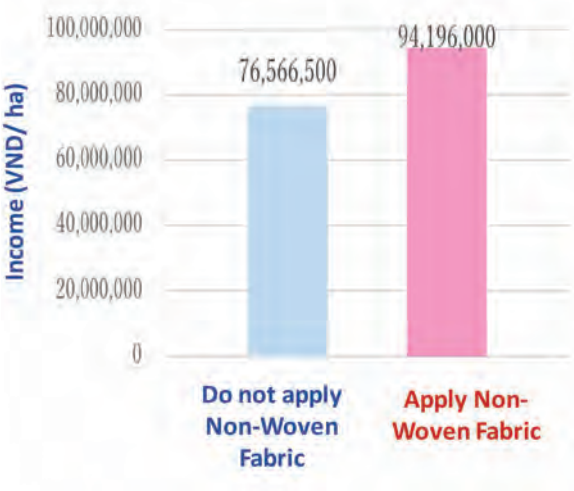
Apply Non-Woven Fabric

* According to experiment results of Cabbage organized by Project

3.3 Reduce the pesticides application

- Safer
- Less working labor
- Less cost

3.4 Profit earned from this method



Income is 23% higher
(Vegetables grown by 2 methods are sold at the same price)

*1 According to experiment results of green mustard organized by the project

3.5 High efficiency in cultivating vegetables

E.g., green mustard

E.g., cabbage

Possible to apply for:

- Chinese cabbage
- Spinach
- Green bok choy
- Flowering choysom
- Choysom
- Mustard
- Cabbage
- etc

3.6 Feedback from producers and buyers

- "I am really surprised because Non-Woven Fabric is not only easy to use but also very effective in controlling insects", Mr. Gioi, Japan-Vietnam safe vegetables, fruit company
- "I want to buy safe vegetables with good quality, Non-Woven Fabric can satisfy my requirements", buyer in Hanoi

Annex 4: Technical guidance on applying Non Woven Textile

ANNEX 1

TECHNICAL GUIDANCE ON MAKING COMPOSTING

Guidance on composting technique

Materials:

1: Dung 2 m3

2. Wine yeast: 1 kg

3: Rice bran: 50 kg

4: Rice hush: 5 bags.

5: Rice hush charcoal: 5 bags

Step 1: Ferment rice bran

Grind 1 kg of wine yeast

Equally mix 1 kg of wine yeast with 50 kg of rice bran, add more water to reach humidity of 40-45%

Put the mix into bags and put those bags in ventilated place for 10 days,

Step 2: Burning rice hush

Burn to get smoldering and small fire inside the rice hush hill

After finish, use water to extinguish when the fire comes out

Rice hush charcoal after burning rice hush

Effect of rice hush charcoal

- Deodorize the bad smell of dung
- Create favorable condition for promoting the development of micro-organism during the composting process

Step 3: Mixing materials

Mix: Equally mix materials (dung, fermented rice bran, rice hush charcoal, rice hush) Control the humidity of 60-65%.

Reverse: Reverse every 20-25 minutes

Use: The compost is available for use after 2-2.5 months

ANNEX 2

TECHNICAL GUIDANCE ON NURSING SEEDLINGS ON BEDDING

Technical guidance for nursing seedlings on bedding

– Step 1: Prepare bedding (including 40% bud soil whose Ph and humidity has been treated, 40% rice hush charcoal, coconut coir treated, 20% compost)

– Step 2: Put bedding into foam trays, moderately press the bedding, sow the seeds, cover the seed with a thin layer of bedding on the top (seeds are soaked before sowing)

– Step 3: After sowing, need to water to maintain humidity, pile up foam trays, cover the foam tray pile with canvas or put in dark place from 2- 3 days to ease the germination

– Step 4: When seeds start germination, move foam trays on shelves to facilitate taking care. The shelves should be arranged above the ground. (at least 20 cm from the ground) to create ventilated condition.

Step 5: When the seeds germinate, shade the seeds from 50% of sunlight from 3-5 days (if the weather is not sunny, no need to use black net for shading the seeds)

Step 6: 3-5 days, totally take off black net in morning and afternoon, only use black net to shade the seeds in hottest time.

Step 7: Caring seedlings, water every day to keep enough moisture. Should not water late in the afternoon.

Apply additional NPK by mixing with water when necessary (ratio 1 kg of NPK/ 600 lit of water). Spray pesticides to control pests/ diseases when needed. The seedlings are available for transplantation after 20 – 25 days of nursery. 3 days before transplantation, let the seedlings get familiar with outside natural condition.

ANNEX 3

TECHNICAL GUIDANCE ON NURSING GRAFTING TOMATO SEEDLINGS

Technical guidance on nursing grafting tomato seedlings

1) Nursing eggplant seedling for rootstock

Step 1: Sowing eggplant seed

1. Eggplant rootstock seed: Use of specialized eggplant seeds to make rootstock. Do not use hybrids of eggplant variety for rootstock
2. Preparing nursery bed: Mixing 40 % mud, 40 % Coir with 20 organic fertilizers then compost them in 1 month. Nursery bed must be met the following conditions: free of diseases, enough nutrition, porous.
3. Soaking eggplant seeds in water in 6 to 8 hours, then sow 1 or 2 seeds for each hole of sponge tray. Using sponge tray of type 84 holes
4. Placing the sponge tray on the sand base for the roots grow stably.

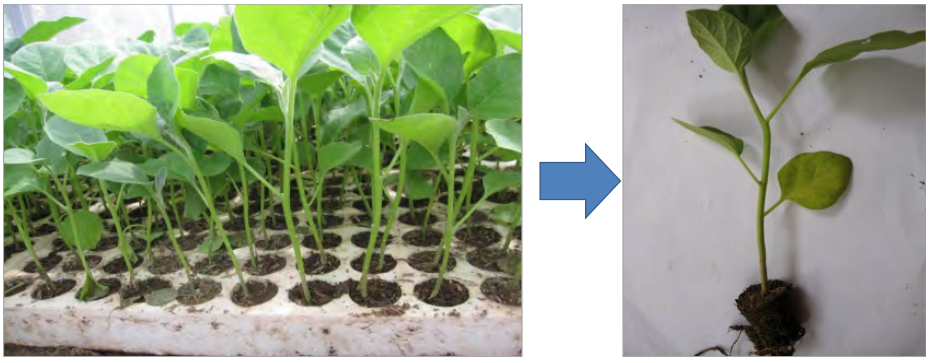
Step 2: Taking care eggplant seedling

Before selecting

After selecting

1. Watering to keep enough moisture, avoiding the wet condition in night time by stopping to water in late time of day.
2. After germination 10 -15 days, selecting, maintaining 1 healthy seedling/one sponge hole.
3. Opening shade cloth to seedlings gradually adapt to the outside environment
4. Fertilizing if seedling require (Ratio 100g (NPK)/60L water)
5. Preventing diseases and treating insect by using proper pesticide.
6. After germination 25 -30 days, it is necessary to select and move the big seedling into the same tray, small seedling into the same tray to easier take care daily

Steap3: Criteria of eggplant rootstock



1. Doing grafting when eggplant seedlings is about 45 -50 days from sowing.

2. Selecting healthy seedling to graft

+ Height: 16 – 20 cm.

+ The diameter of the tree is not too big, not too small (Around 3mm)

2) Nursing tomato seedling

Directly sowing in soil

Sowing in the sponge tray

1. Sowing tomato seed after sowing eggplant seed about 25, 30 days

2. Sowing can be applied both methods sowing directly in the soil and sowing in sponge tray.

3. Watering to keep enough moisture, avoiding the wet condition in night time by stopping watering in late time of day

4. Fertilizing if need (Ratio 100g (NPK)/60L water) .

5. Can do grafting when eggplant seedlings are about 45 -50 days and tomato is about 20 days from sowing

3) Building grafting chamber

Select the location to build grafting chamber

Grafting chamber

Grafting chamber

How to select the location?

1. Select a higher location than surrounding to avoid the flooding when it rain.

2. Select the shade location to avoid sunshine (under the tree).

3. Select the area that have base by soil to drain water quickly and keep moisture long time. (Should not select the base making by concrete)

- Method of building

Making base by soil and sand, making the frame by bamboo (height of frame 80cm, width 1.8m, length 3 m)

Covering the roof by vinyl to keep moisture and prevent rain.

Covering more 2 or 3 layers of shade cloth on vinyl to reduce the light

Making sure that the vinyl and shade cloth covered all part of the chamber.

Covering a layer of fabric on the top to reduce high temperature in the sunny day

Grafting chamber need to ensure the following conditions:

1. Create cool condition even on sunny days.

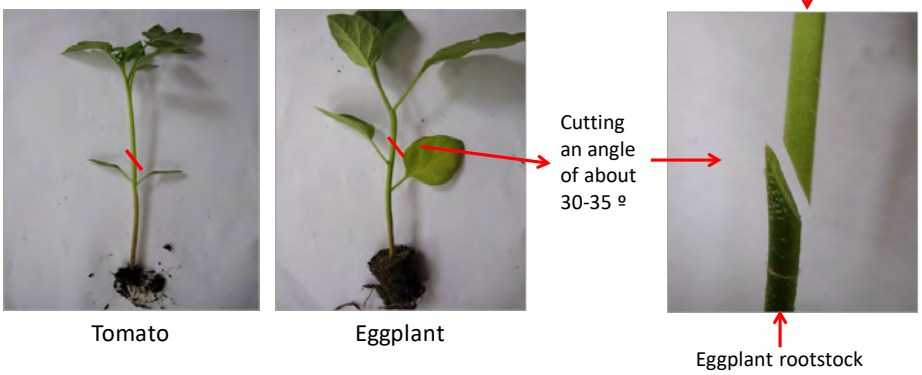
2. Can keep moist.

3. Reduce moisture quickly when needed.

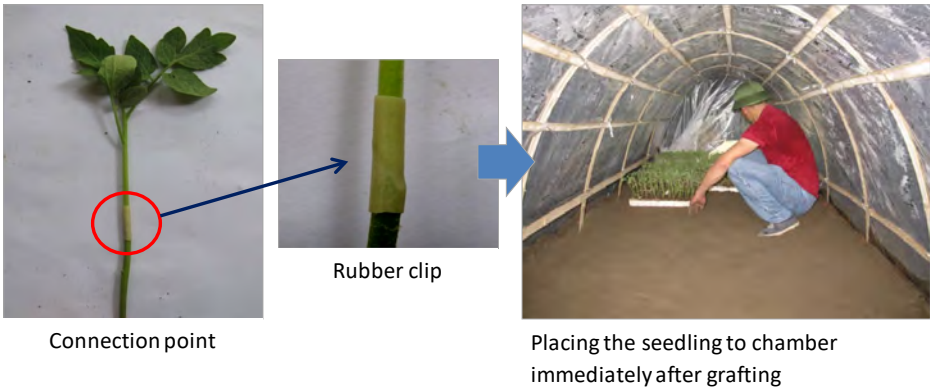
4. Size is enough for 30 sponge trays

4) Grafting techniques

Step 1: Select tomatoes and eggplant seedling that have same size and cut (smooth cutting) the same angle.



Step 2: Using a rubber clip to connect the eggplant rootstock and tomato scion then place it into chamber.



Step 3: Keeping seedling in chamber 6 to 7 days, controlling the proper moisture (If high moisture, the plant will be died at graft point.

If low moisture, the tomato scion will be withered)

Day 1: After grafting, closing the chamber about 21 hours (1 nigh and 9 hours)

Day 2 and 3: Slowly open and adjust 2 holes of chamber to avoid the high moisture or lack of moisture condition

Day 4, 5, 6: Gradually open bigger and adjust 2 holes of chamber (Avoiding the high moisture or lack of moisture causing seedling dying at graft point or withered

Day 7: Bring the seedlings out of chamber to place in seedling house, reducing sunshine by shade cloth in 6-8 days

Gradually open the shade cloth to seedling adapts with sunlight condition

Transplanting after grafting 12-15 days

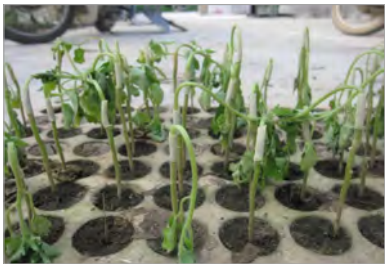
5) Common problems in grafting

Moisture condition is too high in chamber

Reason:

- Rain water from the outside soaked into the house under the ground.
- Opening the chamber improperly, so make the moisture can not escape

Results: 90% seedling died



High temperature inside of grafting chamber

Reason:

- The chamber is located in a sunny place, thus increases the internal temperature.
- The chamber is only covered with shade cloth, not covered one more fabric layer on top of the roof

Results: 100% seedlings died

ANNEX 4

TECHNICAL GUIDANCE ON APPLYING NON - WOVEN FABRIC

Technical guidance on applying Non - Woven Fabric

1) Directly covering

Making soil: Preparing row of size 1,2m width. Applying fertilizer. Pre-germinated herbicide. Sowing seed

Directly cover Non-Woven Fabric on surface of row

Watering as normal cultivation

Opening NWF when apply fertilizer, fungicide and **harvest**

2) Tunnel method

Preparing land with row of size 1,2m width. Applying fertilizer, pre-germinated herbicide. Sowing seed

Covering NWF on tunnel, watering as normal cultivation

Vegetable grows well inside of tunnel

Opening NWF when apply fertilizer, fungicide and **harvest**

Project for Improvement of Reliability of Safe crop Production in the Northern region

LESSON LEARNED FROM ACTUAL PRODUCTION AND TRADING OF SAFE VEGETABLES TÂN MINH ĐỨC COOPERATIVE

August 21 2018

INTRODUCTION ABOUT TAN MINH DUC COOPERATIVE

- Tan Minh Duc Cooperative was established in August 2014.
- Quantity of Management members/ total production members: 7/ 168 households
- Total cultivation land area/safe vegetable area: 37/37 ha
- Vegetable area certified by VietGAP certificate: 27 ha
- Pilot model size for safe vegetable production and joint sale in JICA project: 7.5 ha; with 39 participating households.
- Vegetable supply capability: Total annual output: 2,468 tons
- Main vegetables: Cabbage, kohlrabi, green squash, pumpkin, spong gourd, cucumber

Vegetable production Field

Total safe vegetable production area is 37 ha.

Key product

Strength of Coop: focus on production and consumption of 2 key products in winter season: cabbage and kohlrabi

In addition to cabbage and kohlrabi, Cooperative has other products such as green squash, pumpkin, bitter melon, sponge gourd, cucumber

ORGANIZATION STRUCTURE OF COOPERATIVE FOR PRODUCTION AND JOINT SALE

Cooperative is certified with Certificate of compliance with food safety and hygiene condition and VietGAP certificate


CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

GIẤY CHỨNG NHẬN

CƠ SỞ ĐỦ ĐIỀU KIỆN AN TOÀN THỰC PHẨM
CERTIFICATE OF COMPLIANCE WITH FOOD SAFETY REGULATIONS

CHI CỤC QUẢN LÝ CHẤT LƯỢNG NÔNG LÂM SẢN & THỦY SẢN HẢI DƯƠNG

CHỨNG NHẬN
CERTIFICATE

Tên cơ sở / Establishment: HỢP TÁC XÃ TÂN MINH ĐỨC
Địa chỉ / Address: Thôn Nam Cầu, xã Phạm Trấn, huyện Gia Lộc, tỉnh Hải Dương
Điện thoại: 0985 137 329

ĐỦ ĐIỀU KIỆN AN TOÀN THỰC PHẨM ĐỂ SẢN XUẤT KINH DOANH SẢN PHẨM
Has been found to be in compliance with food safety regulations for following products

1 - Trồng trọt, sơ chế, bảo quản, kinh doanh rau, củ, quả
Số cấp / Number: 126 / 2017 / NNPTNT - 320
Có hiệu lực đến ngày 20 tháng 6 năm 2020

Hải dương, ngày 20 tháng 6 năm 2017
CHI CỤC TRƯỞNG


TỔ CHỨC CHỨNG NHẬN IQC
IQC CERTIFICATION BODY
Mã số chỉ định: VietGAP-TT-14-05

IQC

GIẤY CHỨNG NHẬN VIETGAP

Cơ sở sản xuất/sơ chế: HỢP TÁC XÃ TÂN MINH ĐỨC
Địa chỉ: Xã Phạm Trấn, Huyện Gia Lộc, Tỉnh Hải Dương
Điện thoại: 0985.137.329
Mã số chứng nhận VietGAP: VietGAP-TT-14-05-30-0013
Địa điểm sản xuất/sơ chế: Thôn Nam Cầu, Xã Phạm Trấn, Huyện Gia Lộc, Tỉnh Hải Dương
Tên sản phẩm: Cải bắp, Su hào
Diện tích sản xuất: 27,2436 ha
Sản lượng dự kiến: 718,891 tấn/năm
Tổng số thành viên: hộ thành viên
(Chi tiết kèm theo Phụ lục Quyết định số VietGAP-TT-14-05-30-0013/QĐCN-IQC)
Chứng nhận sản phẩm được sản xuất/sơ chế phù hợp Quy trình thực hành sản xuất nông nghiệp tốt theo Quyết định số 379/QĐ-BNN-KHCN ngày 28 tháng 01 năm 2008 của Bộ trưởng Bộ Nông nghiệp và Phát triển Nông thôn.
Giấy chứng nhận có giá trị đến ngày 21/12/2019.
Hà Nội, ngày 22 tháng 12 năm 2017
TỔNG GIÁM ĐỐC
VŨ ĐỨC TRUNG

ACTIVITIES TO IMPLEMENT PRODUCTION AND TRADE MODEL OF SAFE VEGETABLES

- Provide Cooperative managers and workers with training on Basic GAP.

- Comply with regulations of Basic GAP to produce safe products.
- Monitor, provide on-site guidance, guide how to record the field diary.
  - Internal auditor and production manager will guide farmers how to practice cultivation applying GAP and how to record production diary.
  - Technical auditor of PPMU visit the field in Cooperative 1 time/ week to check and guide the recording of production diary and on-site practice

ACTIVITIES TO IMPLEMENT PRODUCTION AND TRADE MODEL OF SAFE VEGETABLES

- Internal evaluation
  - Internal evaluation is organized 1-2 times/ year basing on list of Basic GAP control points (26 control points)
  - Technical auditor of PPMU participates in internal evaluation to guide Cooperative members how to check, monitor and take sample of vegetables for testing.
- Check, inspect and take samples for testing quality of vegetables.
  - Continuously check residue of pesticides by quick test tool
  - Get samples and send to laboratory for testing 1 time/ season
- Support to upgrade food safety and hygiene conditions in production, pre-processing and packaging area.
  - Support to access to market and product consumption area.

RESULT ACHIEVED AFTER PARTICIPATING JICA PROJECT

- Monitor production process, the use of pesticides in the approved list.
- Monitor and check product quality
- Already make effort to change packaging method to deliver products in the most convenient basis. Packaging specification satisfies buyer's requirement

- Upgrade pre-processing house.
- Best packaging products to ensure quality during delivery.
- Sort and screen products more carefully so that all partners will feel satisfied and have good evaluation.

ACTIVITIES TO IMPLEMENT PRODUCTION AND TRADE MODEL OF SAFE VEGETABLES

- Internal evaluation
  - Internal evaluation is organized 1-2 times/ year basing on list of Basic GAP control points (26 control points)
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- Support to upgrade food safety and hygiene conditions in production, pre-processing and packaging area.
- Support to access to market and product consumption area.

RESULT ACHIEVED AFTER PARTICIPATING JICA PROJECT

- For farmers: Have formed habit of:
  - Using input materials (pesticides, fertilizers) suitable to target crop.
  - Farmers regularly record field diary, harvesting diary.
- For Cooperative:
  - Make production plan for many kinds of vegetables for each household.
  - The production has regular inspection and monitoring, therefore, products produced ensure the quality.

- Have stable business partners (sign the product consumption contract)

RESULTS OF TRADING VEGETABLES IN WINTER SEASON 2017

Buyer	Crop	Supply time	Volume (kg)	Ratio of producers participating in joint sale (%)
Big C	Cabbage	From October to next April	1.2 tons/day	20%
	Kohlrabi	From September to next April	420 kg/day	20%
	Cabbage	From October to next April	5,200 kg/ month	5%
HARUMIDORI	Kohlrabi	From September to next April	320 kg/ month	5%

Difficulties, challenges in production and trading of safe vegetables

- Production and trading of products
  - Farmers record field diary, harvesting diary in not regular manner.
  - Not yet obtain uniformity of quality
- Product distribution
  - Transportation fee is too high because of far distance
  - Some buyers are located far from Cooperative and they buy small quantity.
  - Price of safe vegetables is still low
- Marketing strategy
  - Do not get market information updated timely
  - Do not have professional marketing
  - Do not have stable and specific buyers to have stable production plan.

Trading objective and Action plan in next time

Detail goal and plan of Cooperative in trading and production for next year

- Vegetable types, quality standard
  - Mainly grow cabbage, kohlrabi, pear-shaped melon, watermelon, cucumber, asparagus, purple egg plant, tomato, etc.
  - Products already have sorting, pre-processing, label and packaging
- Distribution and delivery channel
  - Sell to some supermarkets such as VinEco, Big C, Lotte and some other buyers such as Harumidori, local buyers.
  - Cooperative has 8-ton truck to deliver vegetables
- Price/ cost:
  - Selling price is 10% higher than market price.
- Market strategy
  - Maintain contract with existing buyers
  - Find potential buyers and focus on buyers who buy big volume

Action plan for next year

- Vegetable types, quality standard:
  - Expand more members participating in joint sale
  - Grow leafy, root, fruit vegetables Develop to diversify products
  - Tightly control production stage to ensure good quality for products
  - Encourage the tight management on recording
  - Organize short-term training on pre-processing to workers who are directly involved in pre-processing, packaging, delivery
  - Collect products to Cooperative for sorting, pre-processing,

packaging

- Distribution and delivery channel
  - Organize sale to regular customers and wholesale markets
  - Organize delivery of products by direct delivery or in combination with other vehicles
- Price/ cost:
  - Try to increase management to reduce product price
  - Negotiate to sell at higher price which is from 10% to 20% higher than market price
- Market strategy
  - Once Cooperative has customer, it tries to maintain and develop that customer sustainably
  - Organize at least 2 face-to-face meetings/buyer and exchange information with buyers
  - Find potential buyers who buy big volume

Project for Improvement of Safe crop production in the Northern region

LESSONS LEARNED FROM ACTUAL SAFE VEGETABLE PRDUCTION AND TRADING IN DUC CHINH COOPERATIVE

August 21 2018

INTRODUCE ABOUT DUC CHINH COOPERATIVE

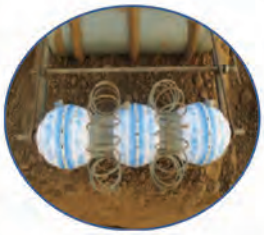
- Duc Chinh Cooperative wash established in 1980, transferred under Cooperative law 2012
- Quantity of members: 1,636 members
- Total cultivation land area: 420 ha
- Cultivation area for carrot: 360 ha
- Vegetable area certified by VietGAP: 23.6 ha for carrot
- Size of pilot model on safe vegetable production and joint sale under JICA project: 30 ha with 278 households.
- Total annual output: 17,000 tons.

Carrot – key product

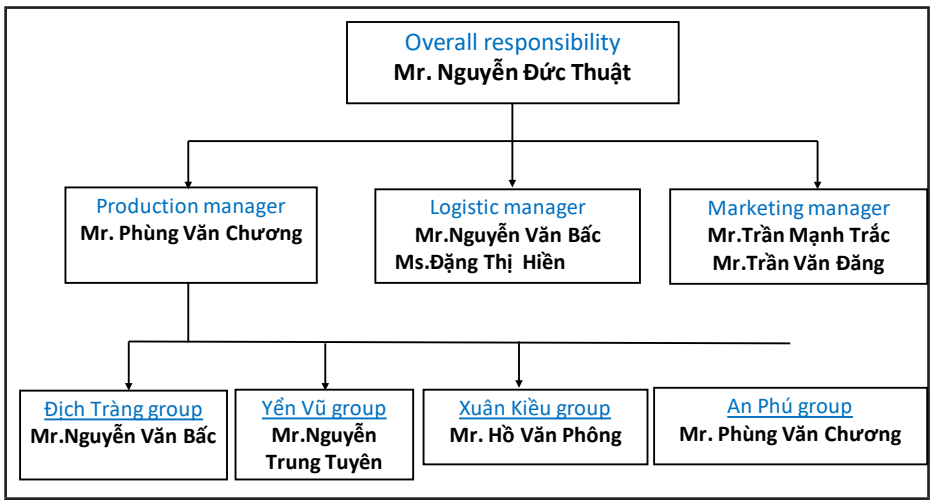
Sowing, transplanting from August to next February, harvesting from November to next May. Average volume: 17,000 tons/ year.

In addition, Cooperative also grows watermelon (150 ha) and sweet corn (40 ha) in Spring-Summer season, resulting in high economic value.

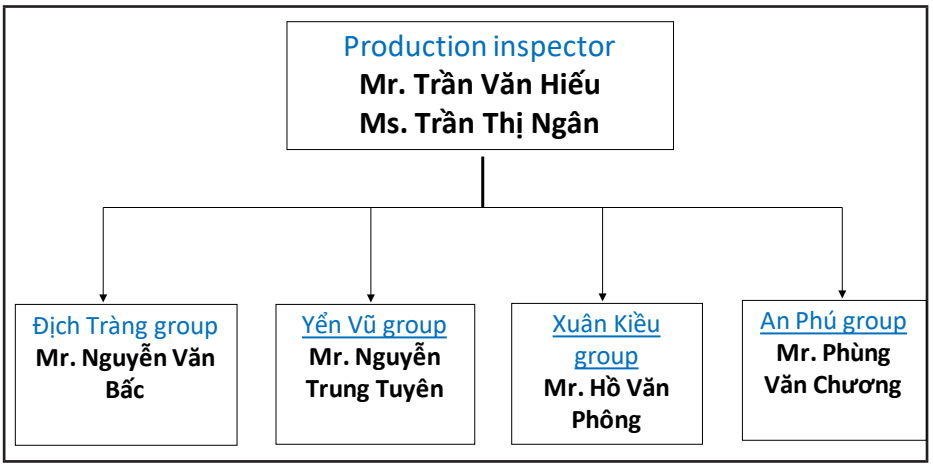
Duc Chinh farmers have many year experience in carrot cultivation. They are hardworking, creative, willing to learn. They have been applying science and technology , produced machineries serving production. Duch Chinh is the leading brand-name for product production and quality.



ORGANIZATION STRUCTURE OF COOPERATIVE MODEL FOR PRODUCTION AND JOINT SALE



SITEMAP OF INTERNAL AUDIT TEAM



RESULTS ACHIEVED FROM JOINING JICA PROJECT

- **For Cooperative:**

  + Make production plan.

  +There is regular monitoring and inspection for production, therefore, products are ensured in term of quality.

  + Construct transportation roads, ditches convenient for delivery of products and irrigation.

- **For farmers:** Have formed habit of:

+ Using input materials (pesticides, fertilizers) correct for target crop.

+ Comply with regulation of Basic GAP/VietGAP; regularly record field diary, harvesting diary as instructed to have safe products.

RESULTS OF TRADING VEGETABLES IN WINTER SEASON 2017

Buyer	Crop	Supply time	Volume (ton)	% of farmers participating in joint sale
Ms. Dịu – Hoài Đức	Carrot	Jan; Feb, Mar, Apr	113,74	26%
VietHarvest	Carrot	Jan; Feb, Mar, Apr	140,385	
Coopmart	Carrot	Jan; Feb, March, April	84,57	
Total			**338,695**	

Difficulty, challenges in applying Basic GAP in safe vegetable production

- Use pesticides for wrong target crop; use pesticides whose substances are not recommended for vegetable
- Apply over dosage and concentration as instructed (in term of using dosage, water amount)
- Periodically spray, even when there is no appearance of pests/ diseases.
- Mix many kinds of pesticides which have similar effect for controlling pests/ diseases.

Difficulty, challenges in safe vegetable production and trading

- **In product production and trading**
  - Disadvantaged weather condition (rain, flood), pest/disease affecting production activities.
  - Infrastructure is not systematic, not yet have its own pre-processing house; still have to link with enterprises to have pre-processing house.

- The uniformity of products is not high, appearance is not really good.

- **Product distribution**
  - Not yet have specialized delivery vehicle.
  - Deliver products in far distance, resulting in latent risk.
  - In mid season – demand of buyers is not stable.
- **Market strategies**
  - Have not many buyers.
  - Have buyers far from production area, and they buy small quantity.

Production plan and trading for next year

- **Vegetable product, quality standard**
  - Focus on monitoring, organizing joint sale for pilot groups in area of 30 ha, to be motivator for other areas.
  - Apply techniques into production, to grow products of quality, uniformity and nice appearance; study to grow off-season carrot
  - Apply machineries into agriculture production.
  - Well satisfy customer's requirements on pre-processing, sorting products.
- **Distribution and delivery channel**
  - Sign contract with 3 agents and supermarkets
  - Through Project introduction, through trade fair, advertisement via information channels.
  - Focus on supermarkets, wholesale markets, restaurants, canteens.
  - Prepare vehicle for delivering products at least 5 hours in advance.
- **Price/ cost:**
  - Price is 2-5% higher than market price
  - Coop's Specific objectives on production and trading for next year
- **Vegetable product, quality standard**
  - Focus on monitoring, organizing joint sale for pilot groups in area of 30 ha, to be motivator for other areas.
  - Apply techniques into production, to grow products of quality, uniformity and nice appearance; study to grow off-season carrot
  - Apply machineries into agriculture production.
  - Well satisfy customer's requirements on pre-processing, sorting products.
- **Distribution and delivery channel**
  - Sign contract with 3 agents and supermarkets

- Through Project introduction, through trade fair, advertisement via information channels.
- Focus on supermarkets, wholesale markets, restaurants, canteens.
- Prepare vehicle for delivering products at least 5 hours in advance.

- **Price/ cost:**
  - Price is 2-5% higher than market price
  - Action plan for next year
- **Vegetable types, quality standard:**
  - Make production plan
  - Buy agriculture materials to supply farmers (variety, fertilizers, pesticides, etc)
  - Sowing, transplanting, caring, spraying pesticides; monitor promptly.
  - Organize harvesting, pre-processing, sorting and sale
  - Organize monitoring for production and post-harvest process.
- **Distribution and delivery channels:**
  - Deliver products to supermarkets, restaurants, canteens by specialized vehicle.
  - Deliver products directly or in combination with other vehicle.
- **Vegetable types, quality standard:**
  - Make production plan
  - Buy agriculture materials to supply farmers (variety, fertilizers, pesticides, etc)
  - Sowing, transplanting, caring, spraying pesticides; monitor promptly.
  - Organize harvesting, pre-processing, sorting and sale
  - Organize monitoring for production and post-harvest process.

- **Distribution and delivery channels:**
  - Deliver products to supermarkets, restaurants, canteens by specialized vehicle.
  - Deliver products directly or in combination with other vehicle.
- **Price/cost:**
  - Apply machineries into production to reduce cost
  - Invest harvesting equipment to improve yield of harvesting, pre-processing, packaging.
  - Change the mode of delivery to reduce cost
  - Increase selling price 2-5% higher than market price
- **Marketing strategy:**
  - Products are packed, labeled to satisfy requirement of each buyer.
  - Find potential buyers who are stable buyers and have purchase plan in advance.

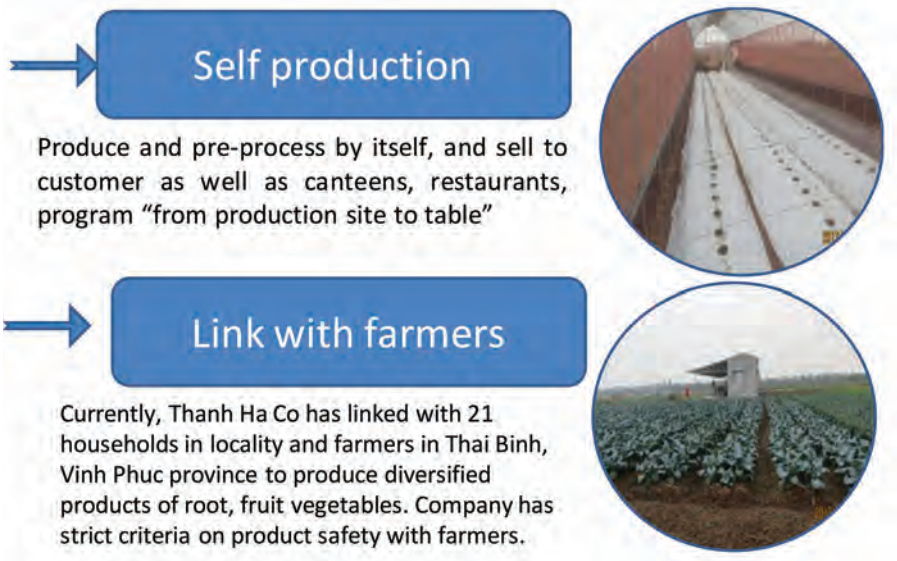
Project for Improvement of Safe crop production in the Northern region

LESSONS LEARNED FROM ACTUAL PRODUCTION AND TRADING OF SAFE VEGETABLES IN THANH HA COMPANY

Hải Dương, August 21 2018

INTRODUCE ABOUT THANH HA COMPANY

- **GENERAL INFROMATION**
  - Address: Dai Dien hamlet, Hong Lac commune, Thanh Ha District, Hai Duong province.
  - Director: Pham Cong Toi; Phone No: 0904699730; Email: rauthanhha@gmail.com
  - Area of safe vegetable production: 5 ha
  - Number of member households: 21 households
- **ESTABLISHMENT HISTORY**
  - Thanh Ha Co. was established in 2013. However, Co has more than 10 years of experience in producing and trading safe vegetables. Initially Thanh Ha Company started from a safe vegetable production household fully satisfying conditions on food safety and hygiene.
  - Operation structure



Diversified seasonal products

Products are diversified in term of types including mustard crops (kale, choysom, bok choy, etc), tomato, morning glory, string bean, squash, gourd, spong gourd, etc. and some fruits such as dragon fruit, durian, etc which satisfy safety standard of VietGAP quality.

RESULTS OBTAINED FROM JOINING JICA PROJECT

- **For company:**
  - Organize training on new cultivation technique for farmer household, labor, to satisfy standard of VietGAP safe vegetable production.
  - Make production plan for vegetable types for each household.
  - Soil and water is tested to satisfy standard
  - Monitoring process of input material quality, process of pre-processing, products pre-processed, packed are ensured with food safety.
  - Non-stop internal control and evaluation.
  - Apply advanced cultivation technique to improve quality such as: using composting; use net-house and non-woven fabric; nurse seedlings on bedding; grafting tomato with root of egg plant, etc.

RESULTS OBTAINED FROM JOINING JICA PROJECT

- **For company (cont):**
  - Sort, screen products carefully. Pack and label products to ensure

quality during delivery.

- Actively find buyers to consume vegetable products.
- Deliver vegetables to customer's hand.
- For farmers: Have formed habit of:
- Using input materials (pesticides, fertilizers) correct to target crops.
- Comply with regulation of Basic GAP;
- Fully record field diary, harvesting diary.

Strength of production

Has advantages in trading safe vegetable for many years; has strict requirements on product quality, have strict customers. It has been supported by JICA project from 2016 – 2020, company orients to better serving customers in next years, increase output and export to strict consumption markets.

Company always has technical staff for monitoring production. He is trained on high tech, application of advanced technology into safe vegetable production

Market

Target customers of Co. is big supermarket chain (Metro, BigC, VinEco, Coopmarat, AEON) in Hải Dương, Hải Phòng, Quảng Ninh, convenient in geography to link with focused economic regions, big cities in Red river Delta

RESULTS OF TRADING SAFE VEGETABLES IN WINTER SEASON 2017

Buyer	Crop	Supply time	Volume (ton)	% of farmers participating in joint sale (%)
EB service trading Co (BigC supermarket chain)	Leafy, root, fruit vegetables	Sep–Dec	25.43	100%
MM Mega Market Vietnam Co. (Metro supermarket chain)	Leafy, root, fruit vegetables	Sep–Dec	48.88	100%
VinEco Company	Leafy, root, fruit vegetables	Sep–Dec	1.26	100%
VINCOMMERCE	Leafy, root, fruit vegetables	Sep–Dec	7.28	100%

Difficulties, challenges in production, trading of safe vegetables

- **Production and trading of products**
  - Production still depends on weather condition, affecting the yield and product quality
  - Product uniformity is not yet high, production households not yet pay attention to producing quality products.
  - Production plan is not fully developed. Not yet maximize potential resources and existing resources in the farm.
- **Product distribution**
  - Not yet sufficient cooling delivery vehicle.
  - Product price regularly fluctuates due to the change of weather and season.
  - Labor cost for production, pre-processing, packaging increases.

ATTACHMENT 5.1

(1) List of management board members

Province: _____

District: _____

Commune: _____

Name of cooperative: _____

Position	Name	Gender	Phone number	Email

(2) List of member farmers

Name of organization:				Province:		
No	Name of farmer	Gender		Area (m2)	Vegeta-bles	Target crops
		Male	Female			
Group 1						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
Group 2						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

23						
24						
Group 3						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
	Total					

ATTACHMENT 5.2
GROUP REGULATION FOR TARGET GROUPS (DRAFT)

JICA Project Team mandates or recommends to each target project to define the Group Regulation as below. For the target group which can not satisfy the obligated conditions below, PPMU and JICA Project Team will propose improvement plan. If the target group will not improve the conditions, that group will be eliminated from the project target.

1 Regulation of Joint Sales

1.1 The member farmers shall sale at least 20% of crops of own total production volume to the target group (Obligation)

1.2 The target group shall agree with member farmers at least one of following two conditions, to consider about farmers' profit (Obligation)

1) To buy crops with higher price than local market price

2) To buy crops with fixed price for long period such as more than one month

1.3 Farmer shall not mix crops which were harvested from registered field and not registered field (Obligation)

2 Regulation of Board Member

2.1 The target group shall allocate the Group leader, Sales manager, Logistic manager, Production manager, Internal auditor and Secretary/Accountant (Obligation)

2.2 The group leader or the sales manager shall have business experience (Recommendation)

(Note: Business experience means, experience of trading (buy and sell) of products exclude own agriculture products)

2.3 The internal auditor shall be a university graduate (Recommendation)

2.4 When there is no qualified person, target group shall employ out-group person (Recommendation)

3 Regulation of Agrochemical Usage

3.1 The target group shall keep the list of recommended agrochemicals for safe crop production (Obligation)

3.2 The target group shall implement joint purchase for recommended agrochemicals for member farmers (Recommendation)

3.3 The target group shall distribute the list of recommended agrochemicals to member farmers and enlighten them (Obligation)

3.4 The target group shall mandate member farmers to use only agrochemicals written in the list of recommended agrochemicals and not to use other agrochemicals (Obligation)

4 Regulation of GAP Implementation

4.1 The member farmers shall obey the production process control based on the GAP (Basic GAP/ VietGAP) (Obligation)

4.2 The member farmers shall record the field diary based on the GAP, and submit the record when it is required (Obligation)

4.3 The member farmers shall not record false information (Obligation)

5 Regulation of Punishment

5.1 The target group shall punish member farmers when they did obey following regulations (Obligation)

5.1.1 When farmers applied not recommended agrochemical

5.1.2 When farmers did not keep recording (verbal warning will be done for mistake of recording)

5.1.3 When farmers record false information

5.1.4 When farmers deliver crops from the not registered field

5.1.5 When agrochemical is detected from crops through agrochemical residue analysis

5.1.6 When farmers do not practice joint-sales for defined volume (more than 20% of total production volume)

5.2 The punishments are regulated as follows (recommended)

5.2.1 For the first time: Instruct improvement thorough verbal warning

5.2.2 For the second time: Stop delivery to the target group (for two months), and, pay fine (More than 50,000 VND). After two months, the target group assesses the current situation of the farmer and approves re-starting delivery when farmer's situation is appropriate.

5.2.3 For the third and subsequent time: Stop delivery to the target group (for six months), and pay fine (More than 100,000 VND)

ATTACHMENT 6.1
PRODUCTION PLAN

Time
Cabbage
Kolhrabi

No.	Farmer's name	Land code	Vegetables	Area (m2)	Transplanting date
1			Cabbage	360	5/1/18
			Kolhrabi	520	26/11/17
2			Kolhrabi	1,080	25/12/17
			Kolhrabi	720	25/12/17
3			Kolhrabi	1,680	10/1/18
4			Kolhrabi	1,080	3/1/18
5			Kolhrabi	1,368	30/12/17
6			Kolhrabi	600	30/12/17
7			Kolhrabi	540	20/12/17
			Cabbage	1,080	22/10/17
8			Cabbage	720	20/12/17
9			Cabbage	360	22/10/17
			Kolhrabi	720	13/11/17
			Kolhrabi	600	13/11/17
10			Kolhrabi	480	25/12/17
			Cabbage	600	30/12/17
11			Kolhrabi	720	15/12/17
12			Kolhrabi	528	10/12/17
			Cabbage	540	22/10/17
			Kolhrabi	900	25/12/17
13			Kolhrabi	1,080	8/12/17
14			Kolhrabi	360	20/1/18
15			Cabbage	1,080	18/10/17

Người lập bảng

	Dec-17	Jan-18	Feb-18	Mar-18	Total
	0	*15,300*	*0*	*8,400*	23,700
	0	*4,600*	*20,040*	*7,800*	32,440

	Harvesting date	Estimated total volume (Kg)	Expected havesting volume for month			
			Dec-17	Jan-18	Feb-18	Mar-18
	31/3/18	1,800				1,800
	25/1/18	1,300		1,300		
	23/2/18	2,700			2,700	
	23/2/18	1,800			1,800	
	11/3/18	4,200				4,200
	4/3/18	2,700				2,700
	28/2/18	3,420			3,420	
	28/2/18	1,500			1,500	
	18/2/18	1,350			1,350	
	15/1/18	5,400		5,400		
	15/3/18	3,600				3,600
	15/1/18	1,800		1,800		
	12/1/18	1,800		1,800		
	12/1/18	1,500		1,500		
	13/2/18	1,200			1,200	
	25/3/18	3,000				3,000
	13/2/18	1,800			1,800	
	8/2/18	1,320			1,320	
	15/1/18	2,700		2,700		
	23/2/18	2,250			2,250	
	6/2/18	2,700			2,700	
	21/3/18	900				900
	8/1/18	5,400		5,400		

ngày tháng năm 2018

Ban lãnh đạo HTX

ATTACHMENT 7.1
SAMPLE FORMAT TO MONITOR THE RECORD KEEPING OF FARMERS

No.	Farmer's name	MÃ LÔ	"DT (Sào)"	Sowing date	First check	
					Correct	Not correct
I. Leafy vegetables						
1		1	1.5	1-Nov	v	
2		7	2	20-Oct	v	
3		12	2	30-Oct		v
4		14	1.7	2-Nov		v
5		16	1.2	2-Nov		v
6		18	1	1-Nov		v
7		21	2	28-Oct		v
8		24	2	1-Nov		v
9		30	4	5-Nov		v
10		31	3	6-Nov		v
	Total				**2**	**8**

Pregress on checking record of field diary							
		Second check			Third check		
	Comments	Correct	Not correct	Comments	Correct	Not correct	Comments
	All correct	v		All correct			
	All correct	v		All correct			
	Not yet record sowing, transplanting date	v		All correct			
	Not yet record sowing, transplanting date	v		All correct			
	Wrong target		v	Wrong target			
	Not correct name of pesticides, sowing date		v	Not correct name of pesticides, sowing date			
	Not correct name of pesticides, sowing date		v	Not correct name of pesticides, sowing date			
	Not yet record the area		v	Not yet record the area			
	Not yet record sowing date		v	Not yet record sowing date			
	Not correct name of pesticides, sowing date		v	Not correct name of pesticides, sowing date			
		4	**6**	**Not yet record the harvesting**	**0**	**0**	

No.	Farmer's name	MÃ LÔ	"DT (Sào)"	Sowing date	First check	
					Correct	Not correct
II. Cabbage Production Plan						
1		6	2.5	12-Sep	v	
2		11	2.5	20-Oct	v	
3		13	2	30-Sep	v	
4		17	3	8-Oct	v	
5		18	1	24-Oct	v	
6		28	2	22-Sep		v
7		30	6	20-Oct		v
8		31	4	9-Oct		v
9		35	1.5	20-Oct		v
10		40	2.5	1-Oct		v
	Total				**5**	**5**

Pregress on checking record of field diary							
		Second check			Third check		
	Comments	Correct	Not correct	Comments	Correct	Not correct	Comments
	"Lack of crop name Expected harvest-ing date"		v	"Lack of crop name Expected harvesting date"			
	Expected harvest-ing date	v		All correct			
	Not yet record sowing date	v		All correct			
	"Two crops are recorded in the same diary Mistake in recording crop name"	v		All correct			
	Lack of crop name	v		All correct			
	All correct	v		All correct			
	All correct	v		All correct			
	All correct	v		All correct			
	All correct	v		All correct			
	All correct	v		All correct			
		9	**1**		**0**	**0**	

ATTACHMENT 7.2
INTERNAL AUDIT CHECKLIST

As Basic GAP request, internal audit should be conducted in each production group, farm, cooperative, which apply Basic GAP for production at least once per year. Internal audit activity, is regularly carried out by a team of the Cooperative/Groups of safe vegetable production. This team consists of 2-3 people, who conduct the supervision of safe vegetable producing process in line with Basic GAP. There are two ways: regular supervision and unscheduled check/ random check.

Before internal audit is conducted, representative of cooperative, farm have responsibility to inform all relevant sections, the internal audit will be performed based on the checklist (use below Form 04), after the completion of the internal audit, internal audit results will be consolidated using the following Form 05 – Summary of internal audit results, and a report on the non-compliance, proposed corrective actions should be produced.

Internal checklists form:

(NAME OF IN-SPECTION AGENCY)	SOCIALIST REPUBLIC OF VIETNAM Independence – Freedom - Happiness

CHECKLIST FOR INTERNAL AUDIT

BASIC GAP BASED VEGETABLES PRODUCTION

(Used for internal evaluation in production of cooperative for 1-2 time/ year)

I. GENERAL INFORMATION:

1. Name of establishment: .....
2. Address: .....
3. Code number (*if applicable*): .....
4. Type of fruits, vegetable: .....
5. Date of audit: .....
6. Type of audit: .....
7. Composition of audit team: 1) .....

   2).....

   3) .....
8. Representative(s) of establishment:

   1).....

   2).....

I. AUDIT CRITERIA:

No	Criteria	Requirements of VietGAP (level)
1	Is the production site appropriate for the State's and local planning?	A
2	Do the quality of soil, irrigation water meet the standard for safe vegetable production condition?	A
3	Do the safe vegetable production site be assessed the potential chemical. Physical and microbiological risks?	A
4	Only have fertilizers included in the list of fertilizers approved for trading in Vietnam applied?	A
5	Are only treated organic fertilizers applied and is a record kept on these organic fertilizers?	A
6	Has a record been made and kept when fertilizers and soil additives are purchased and used?	A
7	Has the quality of irrigated water and water used after harvesting for production been ensured in accordance with current standards?	A
8	Have farmers been trained on the utilization of pesticides and other chemicals?	A
9	Are Integrated Pest Management (IPM) and Integrated Crop Management (ICM) measures applied?	B
10	Are the applied chemicals/plant protection products/biological medicines included in the lists of those approved for use?	A
11	Are pesticides purchased from licensed suppliers?	B
12	Are chemicals/plant protection products used strictly in accordance with label directions and guidance of technicians?	A
13	Have records been set up for monitoring the use and treatment of chemicals/plant protection products?	A

	Requirements of Bisic GAP (level)	Assessment results		Description of non-compliance
		Pass	Falled	
	A			
	A			
	A			
	A			
	A			
	A			
	A			
	A			
	B			
	A			
	B			
	A			
	A			

No	Criteria	Requirements of VietGAP (level)
14	Are chemicals and those packages destroyed strictly in compliance with the State's regulations?	A
15	Is there any unscheduled and periodic inspection to check the production process and chemical residue of crop products?	A
16	Do farmers harvest products at the date after Pre-harvest Interval period (PIH) indicated in pesticide labels?	A
17	Are processing, packaging, and storage areas isolated from storehouses and containing sites of pesticides, fertilizers and other hazardous chemicals?	A
18	Is clean water used to wash products after harvesting?	A
19	Does the quality of clean water used to wash products meet the standard?	A
20	Is waste water, garbage collected and treated properly in accordance with regulations?	A
21	Have farmers been trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM)?	A
22	Have farmers worked on warning signs in the production site those just spraying pesticides?	B
23	Are field diary and production management diary fully recorded?	A
24	Has internal audit been conducted, recorded, and filed?	A
25	Do products have product origin or label to facilitate the traceability?	A
26	Has internal audit and evaluation been carried out at least one per crop/ year?	A

	Requirements of Bisic GAP (level)	Assessment results		Description of non-compliance
		Pass	Falled	
	A			
	A			
	A			
	A			
	A			
	A			
	A			
	A			
	B			
	A			
	A			
	A			
	A			

Note: *A is required to performed; B is the level that should be encouraged to performed; Depending on requirements, the specific conditions for establishment of test and evaluation (test group consisting of representative of all stakeholders including management, technicians, producers, staff cooperative or local)*

III. CONCLUSION OF AUDIT TEAM: .....

.....

.....

.....

IV. COMMENTS AND RECCOMENDATIONS OF AUDIT TEAM: .....

.....

.....

.....

V. COMMENTS OF ESTABLISHMENT'S REPRESENTATIVE:.....

.....

.....

.....

....., Date

REPRESENTATIVE OF FARM/COOP

(Signature)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

....., Date

REPRESENTATIVE OF AUDIT TEAM

(Sign and seal)

ATTACHMENT 7.3
REFERENCE GUIDE FOR INTERNAL AUDIT
BASIC GAP BASED VEGETABLES PRODUCTION

No	Criteria	Level	Requirement	
1	Is the production site appropriate for the State's and local planning?	**A**	The production site is appropriate for the State's and local planning. e.g.)Non-compliance case - Location is notapart from industrial zone, polluted river, and other contaminated risk.	
2	Do the quality of soil, irrigation water meet the standard for safe vegetable production condition?	**A**	The soil and water sampling and laboratory tests are conducted to check heavy metal and biological residues. The chemical, biological, physical risks in soil, irrigation water and washing water shall not exceed the maximum residual limit (Circular 49/2013/TT-BNNPTNT). e.g.) Non-compliance case - There is no record of the result of heavy metal and biological residue check. - There is no Certificate of safe production area.	
3	Do the safe vegetable production site be assessed the potential chemical. Physical and microbiological risks?	**A**	There is no chemical, biological, physical risk in the safe vegetable production site. e.g.) Non-compliance case - There is no assessment on potetial contamination risks - There is no corrective action to enable the avoidance, elimination and reduction of chemical, biological, physical pollution risks in food.	
4	Only have fertilizers included in the list of fertilizers approved for trading in Vietnam applied?	**A**	Chemical fertilizers on the approved list by Vietnam are used. e.g.) Non-compliance case - Chemical fertilizers and soil additives are not approved by Vietnam, nor used.	

Method	Reference
- Review of documents (Land use map and/or Certificate of safe production area) - On-site review of farm location	- **Land use map (commune level)** - **Certificate of safe production area**
- Review the certificate of safe production area and/or laboratory test results. - Review record of heavy metal and biological residue check and/or laboratory test results	- **[MGT] Table1 – Production condition management** - **Certificate of safe production area** - **Circular 49/2013/TT-BNNPTNT on 19th November 2013** - **National technical regulation QCVN 03-MT/2015/ BTNMT** - **Laboratory test results**
- Review the record of field asseesment for potential chemical, physical and microbiological risks.	- **[MGT] Table1 – Production condition management**
- Review the production diary to check all chemical fertilizers and soil additives used on farm	- **[FARM] Table1 – Production diary – Practices in the Field**

No	Criteria	Level	Requirement	
5	Are only treated organic fertilizers applied and is a record kept on these organic fertilizers?	**A**	Only treated organic fertilizers have are applied and a record is kept on these organic fertilizers. e.g.) Non-compliance case - Farmers apply raw manure on farm without fermentation - Farmers apply organic fertilizers which are not adequately composted.	
6	Has a record been made and kept when fertilizers and soil additives are purchased and used?	**A**	Purchasing and using fertilizers and soil additives are recorded. e.g.) Non-compliance case - There is no record of purchasing and using. - Sufficient information regarding purchasing and using is not recorded.	
7	Has the quality of irrigated water and water used after harvesting for production been ensured in accordance with current standards?	**A**	The quality of water used for irrigation and for post-harvest handling meets the current standards. e.g.) Non-compliance case - On-farm level: Residual limit level of heavy metals or other quality criteria exceeds the requirements. - Packing level: Microbiological contamination level exceeds the requirements. - Note: In case on having doubts on analytical results, audit team shall take samples of water for analysis. The analytical results are the basis for evaluation of this criterion.	
8	Have farmers been trained on the utilization of pesticides and other chemicals?	**A**	The farmers are trained on the utilization of pesticides and other chemicals. e.g.) Non-compliance case - There is no record to prove that the farmers are trained on safe use of pesticides.	

Method	Reference
- Review the production diary - On-site review of the production site of organic fertilizers and storage, and conduct interview (if necessary).	- **[FARM] Table1 – Production diary – Practices in the Field**
- Review the production diary - Review the record of buying agricultural supplies - On-site review and conduct interviews (if necessary)	- **[FARM] Table1 – Production diary – Practices in the Field** - **[FARM] Table 2 – Production Diary - Buying Agricultural supplies for production**
- Review the analytical results of water at farm level and at packing house(if applicable) - On-site review and conduct sampling (if necessary)	- **Circular 49/2013/TT-BNNPTNT on 19th November 2013. for irrigation water** - **QCVN 02/2009/BYT for post-harvest handling** - **[MGT] Table1 – Production condition management** - **Laboratory test results**
- Review the record of training activity - Conduct interview (if necessary)	- **[MGT] Table 5- Management training activity** - **Certificates of attendance on relevant training courses**

No	Criteria	Level	Requirement
9	Are Integrated Pest Management (IPM) and Integrated Crop Management (ICM) measures applied?	**B**	Integrated Pest Management (IPM) and Integrated Crop Management (ICM) measures applied. e.g.) IPM IPM uses environmentally sound ways to keep pests from invading and damaging plants. Sample ideas for IPM are as below; Prevention - Prevent pests from invading or building up their populations in the first place. This might include removing the pests' sources of food, water, and shelter, or blocking their access into buildings or plants. Cultural controls - Cultural practices are things you can do to discourage pest invasion such as good sanitation, removing debris and infested plant material, proper watering and fertilizing, growing competitive plants, or using pest resistant plants. Physical or mechanical controls - Control pests with physical methods or mechanical devices such as knocking pests off of plants with a spray of water, using barriers and traps, cultivating, soil sterilization, or heat treatments. Biological control - Biological control is the use of beneficial organisms (called natural enemies) to manage pests. Encourage natural enemies by planting flowering and nectar-producing plants and avoiding the use of broad-spectrum pesticides. e.g.) ICM ICM is a whole farm approach which is site specific and includes; - Crop rotations - Appropriate cultivation techniques - Careful choice of seed varieties - Minimum reliance on artificial inputs such as fertilizers, pesticides and fossil fuels - Maintenance of the landscape - Enhancement of wildlife habitats e.g.) Non-compliance case - IPM and/or ICM are not applied.

Method	Reference
- Review the production diary - On-site review on relevant materials with of IPM and/or ICM and conduct interviews (if necessary)	- **[FARM] Table1 – Production diary – Practices in the Field**

No	Criteria	Level	Requirement
10	Are the applied chemicals/plant protection products/ biological medicines included in the lists of those approved for use?	**A**	Only the pesticides included in the approved list by MARD are allowed to use. e.g.) Non-compliance case - Non-approved pesticides found on the record and/or in farmers' premises.
11	Are pesticides purchased from licensed suppliers?	**B**	Pesticides are purchased from licensed suppliers. e.g.) Non-compliance case - There is no evidence to prove that pesticides were not bought from licensed suppliers. - Evidence shows that pesticides were bought from non-licensed supplier.
12	Are chemicals/plant protection products used strictly in accordance with label directions and guidance of technicians?	**A**	Pesticides are used strictly in accordance with label directions. e.g.) Compliance case - Right pesticide is used for the right crop as stated on the label, - Right dosage is applied as stated on the label, - Pre-harvest interval from the last application is applied as stated on the label, and - Compatibility of pesticides is proved when 2 and more pesticides are mixed. e.g.) Non-compliance case - Pesticidesare not used in accordance with label directions.
13	Have records been set up for monitoring the use and treatment of chemicals/ plant protection products?	**A**	Farmers have records of pesticides usage. e.g.) Non-compliance case - There isno record of pesticide usage. - There is a record but not filled adequately.
14	Are chemicals and those packages destroyed strictly in compliance with the State's regulations?	**A**	Chemicals and those packages are properly taken out from the farm land and chemical waste bin by authorized companies/ persons. e.g.) Non-compliance case The chemicals and those packages are destroyed and/or burned on farm and/or farmers' premises.

	Method	Reference
	- Review the record of applied chemicals/plant protection products comparing with approved list - On-site inspection	- **[FARM] Table 1 – Production Diary - Practices in the Field**
	- Review the record and/or a receipt of buying agricultural supplies	- **[FARM] Table 2 – Production Diary - Buying Agricultural supplies for production**
	- Review the record of production diary comparing with label directions - On-site inspection and interview (if necessary)	- **[FARM] Table1 – Production diary – Practices in the Field** - **Label directions**
	- Review the record of pesticides	- **[FARM] Table1 – Production diary – Practices in the Field**
	- On-site inspection to investigate the practices of disposal - Conduct interviews (if necessary)	

No	Criteria	Level	Requirement
15	Is there any unscheduled and periodic inspection to check the production process and chemical residue of crop products?	**A**	There are the internal and external inspection to check the production process and chemical residue of crop products. e.g.) Compliance case - Record of internal audit is documented. - Pesticides residues check by quick test is carried out and documented. - Laboratory test of vegetable samples is carried out and documented. - Unscheduled inspection and/or external audit is carried out and documented. e.g.) Non-compliance case - Internal audit is not carried out last one year. - Internal audit is carried out, but not recorded. - Pesticides residues check of vegetable samples are not carried out by either quick test nor laboratory tests.
16	Do farmers harvest products at the date after Pre- harvest Interval period (PIH) indicated in pesticide labels?	**A**	Farmers/ workers harvest products at the date after Pre- harvest Interval period (PIH) and have to keep a record of harvesting products. e.g.) Non-compliance case - Farmers harvest the date less than PIH. - There is no record on harvesting products.
17	Are processing, packaging, and storage areas isolated from storehouses and containing sites of pesticides, fertilizers and other hazardous chemicals?	**A**	The processing, packaging, and storage areas are isolated from storage of pesticides, fertilizers and other hazardous chemicals. (This criterion is not applicable in the case that the Products are only harvested at the farm level and no further handling or storing) e.g.) Non-compliance case - Design, construction and maintenance of handling, packaging, and storage areas do not meet requirement. - The handling, packaging, and storage areas are in potential risk of flooding and/or contamination.

Method	Reference
- Review the record of internal/ external audits. - Review quick test and laboratory test results of vegetable samples	- **Checklist of internal audit** - **Decision 46/2007/QĐ-BYT ngày 09/12/2007** - **Circular 68/2010/TT-BNNPTNT on 02th December 2010** - **National technical regulation QCVN 8-3:2012/BYT** - **Laboratory test results for pesticide residues check**
- Review the record of harvesting products comparing with production diary	- **[FARM] Table1 – Production diary – Practices in the Field** - **[FARM] Table3 - Field diary for harvesting and selling products**
- On-site inspection of processing, packaging and storage areas	

No	Criteria	Level	Requirement
18	Is clean water used to wash products after harvesting?	**A**	Clean water is used to wash products after harvesting. e.g.) Non-compliance case - Quality of water used for post-harvest and packaging handling does not meet the requirement of QCVN 02/2009/BYT. - There is no test result of water quality.
19	Does the quality of clean water used to wash products meet the standard?	**A**	The post harvest washing water sampling and laboratory tests are conducted to check heavy metal and biological residues. The chemical, biological, risks in washing water shall not exceed the maximum residual limit (QCVN 02/2009/BYT). e.g.) Non-compliance case - There is no record of the result of heavy metal and biological residue check. - The laboratory test shows chemical, biological residuses exceed the maximum residual limit.
20	Is waste water, garbage collected and treated properly in accordance with regulations?	**A**	Waste water is collected and properly treated and disposed. The garbage and solid waste are collected and put into the waste bin. e.g.) Non-compliance case - There is no waste bin and/or no proper place to dispose.
21	Have farmers been trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM)?	**A**	The farmers are trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM). e.g.) Non-compliance case - There is no record to prove that the farmers are trained on Integrated Pest Management (IPM) and Integrated Crop Management (ICM).
22	Have farmers worked on warning signs in the production site those just spraying pesticides?	**B**	Warning signs are placed at production site just after spraying pesticides. e.g.) Non-compliance case - Farmers do not have any warning sign board. - Warning signs are not placed at production site just after spraying pesticides.

Method	Reference
- Review the record of production condition and laboratory test results - On-site inspection of fresh water supply system	- **[MGT] Table1 – Production condition management** - **QCVN 02/2009/BYT for post-harvest handling** - **Laboratory test results**
- Review record of heavy metal and biological residue check and/or laboratory test results.	- **[MGT] Table1 – Production condition management** - **QCVN 02/2009/BYT for post-harvest handling** - **Laboratory test results**
- On-site inspection to investigate the usage of waste bin and disposal of garbage and waste sources - Conduct interview (if necessary)	
- Review the record of training activity - Conduct interview (if necessary)	- **[MGT] Table 5- Management training activityCertificates of attendance on relevant training courses**
- On-site inspection and conduct interview to investigate the usage of warning signs	- **Warning sign board**

No	Criteria	Level	Requirement
23	Are field diary and production management diary fully recorded?	**A**	The manager and farmers/ workers record production management diary and field diary regularly and properly. e.g.) Non-compliance case - There is no record on Production management diary and Field diary. - There are records, but those are not fully nor properly recorded.
24	Has internal audit been conducted, recorded, and filed?	**A**	Internal audit is conducted more than once a year. The manager records and files the results of internal audit. e.g.) Non-compliance case There is no record on internal audit conducted.
25	Do products have product origin or label to facilitate the traceability?	**A**	Products are labeled with information of producers name and contact in order to facilitate the traceability. e.g.) Non-compliance case There is no information of name and contact on package and label of the products.
26	Has internal audit and evaluation been carried out at least one per crop/ year?	**A**	Internal audit is carried out at least once per crop/ a year. It is recommendable that internal audit shall be carried out once per crop season. e.g.) Non-compliance case - Internal audit is not carried out last one year. - Internal audit is carried out more than once a year, but it does not follow the requirements, and/or the results are not reflected into the practices of farmers/ workers.

Reference

[MGT] : Field Diary for Production Management (for Cooperative manager)

[FARM] : Field Diary (for farmers)

Method	Reference
- Review the record of Production management diary and Field diary	- **[MGT] Table1, 2, 3, 4 and 5** - **[FARM] Table1, 2 and 3**
- Review the record of internal audit conducted	- **Checklist of internal audit**
- On site check at packing and selling points	- **Labels and packing bags**
- Review the internal audit results	- **[MGT] Checklist of internal audit**

ATTACHMENT 8.1
ASSESSMENT OF SHORTCOMING EQUIPMENT AND MATERIALS FOR UPGRADING CONDITIONS TO ENSURE FOOD HYGIENE AND SAFETY IN PRODUCTION AND HANDLING

With consideration of market requirement, it is essential to upgrade the conditions to ensure food hygiene and safety in production area, pre-processing place and outlets. JICA Project team and PPMU will conduct a technical assessment and draft a list of necessary equipment and materials with budget estimate to equip the facilities.

The following table format is the sample list of shortcomings and its evaluation in relation with the project context. It also has to take into account specific agreements between the safe crop production project management and any stakeholder involved in the project.

Table Sample List of tools, facilities in safe vegetables production and handling

No.	Descriptions	Unit	Q'ty	Link with GAP/ GMP	Comments and recommendations
I	**Support on equipment, consumable materials in production area**				
1	Support in constructing tank (bin) to contain used pesticide packages/ containers, dimension 1,5m x 1m x 1,2	Piece			
2	Pesticide cabinet in family (made of wood, dimension 75cm x 40cm x 25cm)	Piece			
3	Protective clothing for farmers when applying pesticides (clothes, glasses, masks, gloves, boots)	Set			

4	Warning sign on pesticide application	Board			
5	Containers for harvested products (plastic baskets)	Piece			
6	Surrounding materials used in the field to protect the field against pests and pesticides from nearby fields				
-	Stake	Piece			
-	Nylon	Kg			
II	Upgrading conditions for handling vegetables				
1	Heat resistant ceiling of handling house	m^2			
2	Tiling floor of handling house	m^2			
3	Upgrading and expanding toilet: Wall, corrugated iron, floor tiles; wall tiles, toilet seat, lavabo set…	-			
4	Constructing basin to wash vegetables (1m x1m x 0,5m)	Piece			
5	Machine for bunching vegetables and sealing vegetable bag	Piece			
6	Centrifugal spinning machine to dry vegetables	Piece			
7	Cooling cabinet to preserve vegetables	Piece			
8	Construction lighting system	Set			
9	Sign board 4m x 0,8m	Piece			
III	**Upgrading conditions of vegetables outlet/ shop**				
1	3m-length stainless steel display shelves	Piece			
2	Information board (made of plastic panel of 1m x 0,7m dimension)	Piece			
3	Sign board of the outlet (3m x 0,8m)	Piece			
4	Waste plastic bin	Piece			
5	Cooling cabinet to preserve vegetables	Piece			
	Total				

ATTACHMENT 9.1
DAILY DEMAND PLAN AND HARVESTING PLAN

Crop:

Demand from buyer and Expected Harvesting amount		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		W	T	F	S	S	M	T	W	T	F	S	S	M	T
Demand from buyer (kg)															
Buyer's name	Grade														
Buyer 1	1	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	2	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Buyer 2	1	100		100		100		100		100		100		100	
	2														
Buyer 3	1	50							50						
	2														
Total demand	1	200	50	150	50	150	50	150	100	150	50	150	50	150	50
	2	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Expected Harvesting amount (kg)															
Farmer's name	Grade														
Farmer 1	1	100		100											
	2	20		20											
Farmer 2	1	80		80											
	2	20		20											
Farmer 3	1	80													
	2	20		20											
Farmer 4	1		30		30										
	2		30		30										
Farmer 5	1		30		30										
	2		30		30										
Farmer 6	1					100		100							

11																	Total
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	1500
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	1500
	100		100		100		100		100		100		100		100		1500
																	0
	50							50							50		250
																	0
	200	50	150	50	150	50	150	100	150	50	150	50	150	50	200	50	3,250
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	1,500
																	200
																	40
																	160
																	40
																	80
																	40
																	60
																	60
																	60
																	60
																	200

	2					20		20							
Farmer 7	1					80		80							
	2					20		20							
Farmer 8	1														
	2					20		20							
Farmer 9	1						30		30		30		30		30
	2						30		30		30		30		30
Farmer 10	1						30		30		30		30		30
	2						30		30		30		30		30
Farmer 11	1									100		100		100	
	2									20		20		20	
Farmer 12	1									80		80		80	
	2									20		20		20	
Farmer 13	1														
	2									20		20		20	
Farmer 14	1														
	2														
Farmer 15	1														
	2														
Total Harvesting	1	260	60	180	60	180	60	180	60	180	60	180	60	180	60
	2	60	60	60	60	60	60	60	60	60	60	60	60	60	60

																	40
																	160
																	40
																	0
																	40
	100																250
	20																170
	80		80		80		80		80		80						630
	20		30		30		30		30		30						320
	80		80		80		80		80		80						780
	20		30		30		30		30		30						230
		30		30		30											330
		30		30		30											150
		30		30		30									100		190
		30		30		30									20		170
								30		30		30	80	30	80	30	310
								30		30		30	30	30	20	30	200
								30		30		30	80	30	80	30	310
								30		30		30	30	30	20	30	200
	260	60	160	60	160	60	160	60	160	60	160	60	160	60	260	60	3,720
	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	1,800

ATTACHMENT 9.2
RESULTS OF COLLECTION

- Why?: To record about amount of vegetable farmers brought
- When?: In the same day of farmers bring vegetable to cooperative
- Who and How?: 1) Logistick staff checks condition of vegetable,
  2) receives good vegetables only,
  3) makes payment for farmers and
  4) records imformation
- Where?: At the collection point
- For which vegetable?: All vegetables in same page

#	Date	Name of farmer	Member code	Vegetable name	Results of Collection			Note
					Amount	"Unit price (VND/kg)"	Total payment to farmer	
Total								

ATTACHMENT 9.3
RESULTS OF SALES

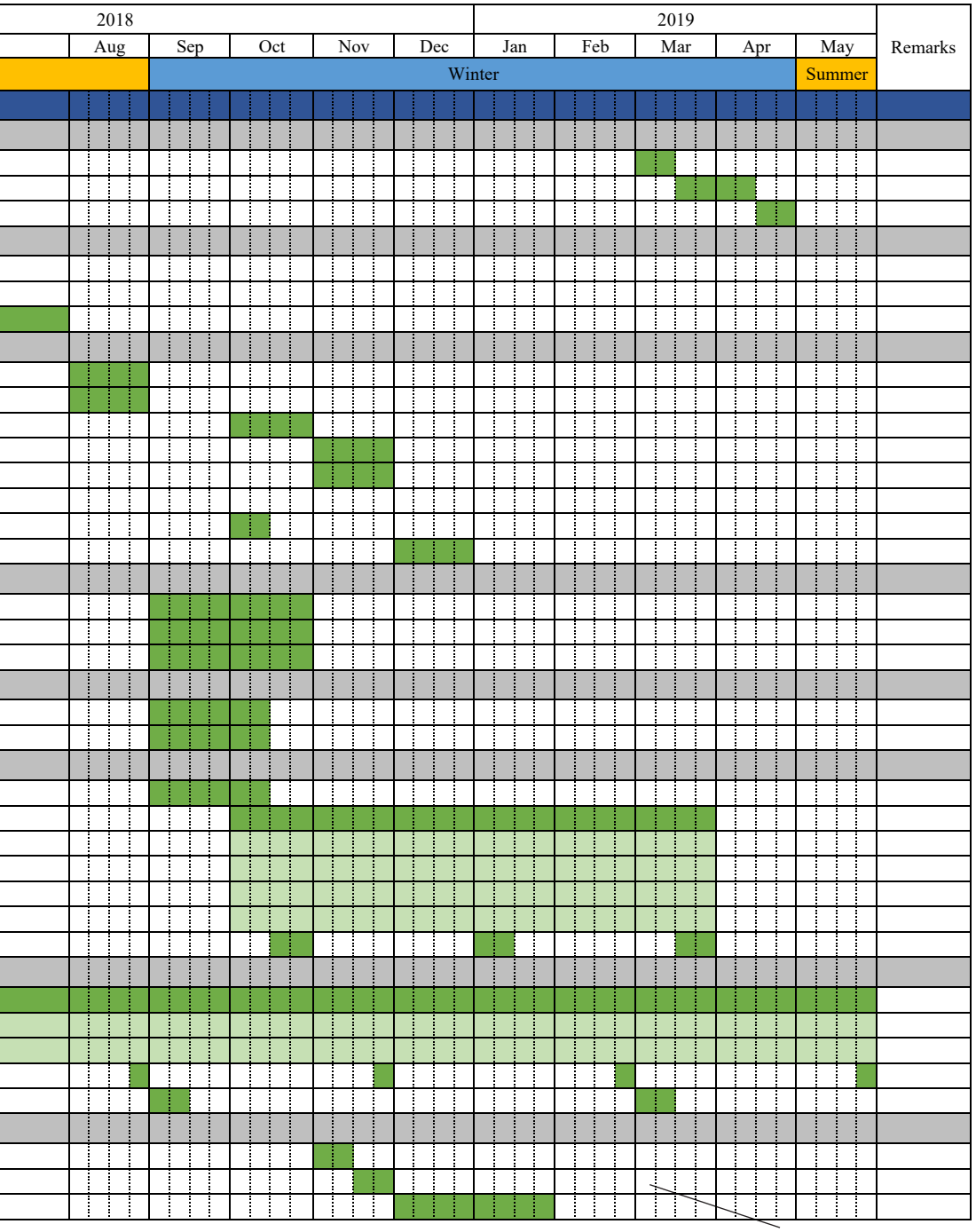
- Why?: To record about payment amount from buyer to cooperative
- When?: In the same day cooperative sent vegetable to buyer
- Who and How?: Logistic staff keeps record after sales amount is defined
- Where?: At the collection point
- For which vegetable?: All vegetables in same page

Buyer's name	

#	Date	Name of farmer	Member code	Vegetable name	Results of Collection			Note
					Amount	"Unit price (VND/kg)"	Total payment to farmer	
Total								

ATTACHMENT 12.1
SAMPLE IMPLEMENTATION SCHEDULE

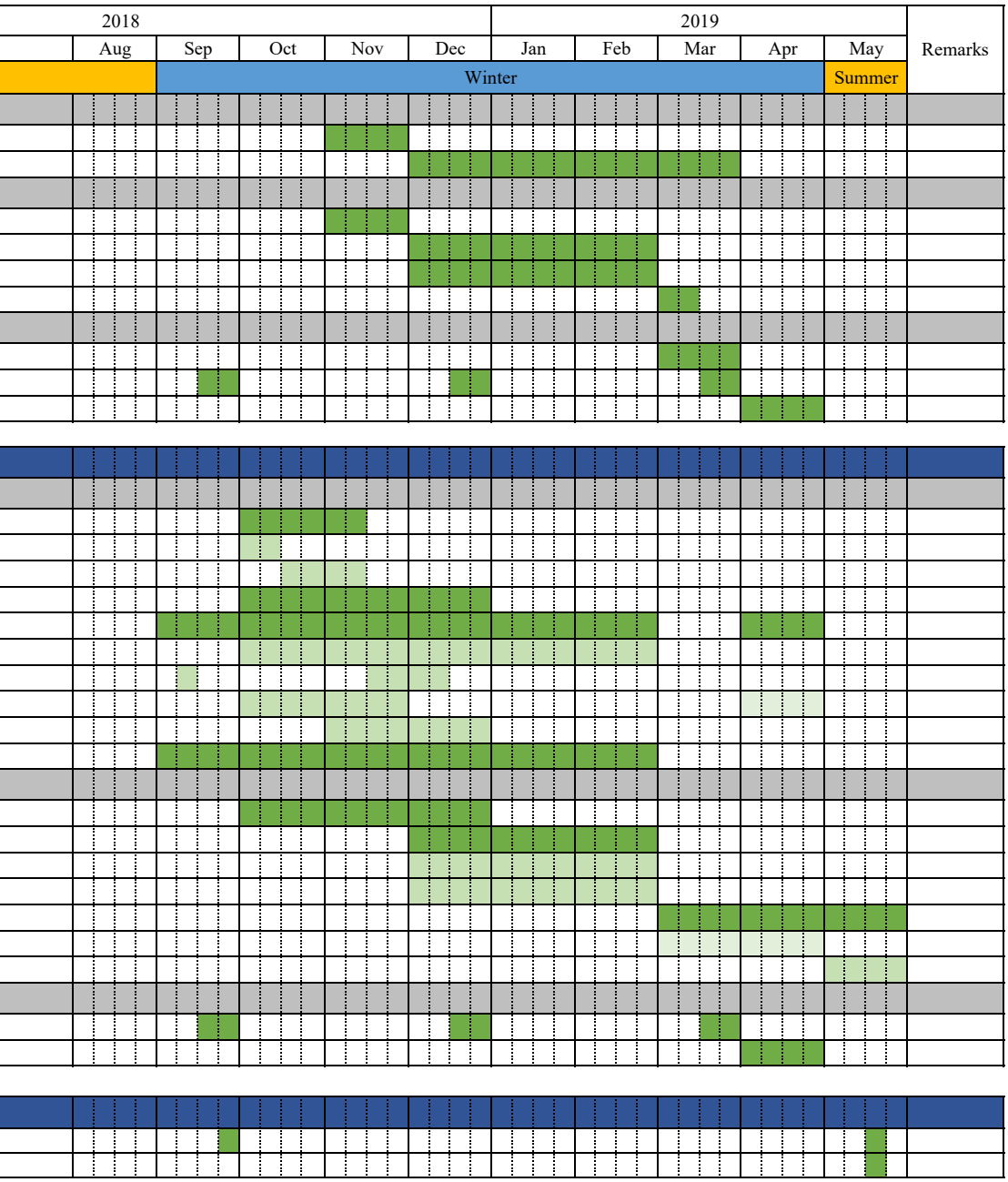
No.		Activity	Jun	Jul
			Summer	
Safe Crop Production Management System				
1		**Selection of Target Groups in the Selected City/Province**		
	1-1	Nomination of candidate target groups		
	1-2	Implementation of baseline survey		
	1-3	Selection and Confirmation of target group		
2		**Confirmation of safety of production area**		
	2-1	Review of the safety of production area		
	2-2	Soil and water sampling and testing		
	2-3	Issue of certificate of safe production area by DARD		
3		**Trainings for basic GAP**		
	3-1	TOT for basic GAP		
	3-2	TOT for cultivation method		
	3-3	TOF for basic GAP		
	3-4	Post harvest training		
	3-5	Technical assessment for safety conditions		
	3-6	TOT Follow-up training		
	3-7	Study tour to advanced model		
	3-8	Exposure visit among target groups		
4		**Formulation of safe crop production group**		
	4-1	Nomination of management board members		
	4-2	Confirmation of agreement among group members		
	4-3	Formulation of Safe Crop Production Group		
5		**Cultivation Planning based on Market Demand**		
	5-1	Preparation of production planning		
	5-2	Procurement of materials (joint purchase)		
6		**Cultivation method for Safe Vegetable**		
	6-1	Planning of demonstration farm		
	6-2	Implementation of demonstration		
		Soil improvement by compost		
		Introduction of new variety seeds		
		Seedling improvement		
		New agriculture materials (non-woven fabric, etc.)		
	6-3	Field visit on demonstration farm		
7		**On field instruction for basic GAP application**		
	7-1	Field Instruction of application of basic GAP		
		Instruction on record keeping		
		Instruction on chemical application, etc.		
	7-2	Internal meeting		
	7-3	Internal audit		
8		**Upgrading conditions to ensure food hygiene and safety**		
	8-1	Technical assessment for upgrading conditions		
	8-2	Draft a list of necessary equipment and materials		
	8-3	Upgrading of facilities and equipment		


2018
2019
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Remarks
Winter
Summer

No.		Activity	Jun	Jul
			Summer	
9	**Joint sales management**			
	9-1	Establishment of joint sales system		
	9-2	Field instruction for joint sales		
10	**External inspection and auditing**			
	10-1	Guidance of sampling testing plan and external auditing		
	10-2	Pesticide residue check (quick test)		
	10-3	Pesticide residue check (laboratory test)		
	10-4	External audit (by Gov. officer and JICA Project team)		
11	**Monitoring and Evaluation**			
	11-1	Review of pilot activities		
	11-2	Monitoring		
	11-3	Evaluation		

Supply Chain Development System (Marketing)			
1	**Dialogue with Market**		
	1-1	TOT and TOF on marketing	
		TOT marketing in Hanoi	
		TOF on marketing in each province	
	1-2	Developing marketing tools	
	1-3	Matching with buyers	
		One-to-one matching for each TG	
		Safe vegetable business forum in Hanoi	
		Provincial safe vegetable business forum in each province	
		Trade fair in each province	
	1-4	Assisting in making contract for each TG	
2	**Post Harvest and Distribution**		
	2-1	Mezoroekai for each TG	
	2-2	Monitoring of collection and delivery for each TG	
		Initial check by PPMU and TG	
		Random check by PPMU	
	2-3	Review and planning next season for each TG	
		Review meeting for each TG	
		TOF on marketing action plan in each province	
3	**Monitoring and Evaluation**		
	3-1	Monitoring	
	3-2	Evaluation	

Project Management		
1		Monitoring Sheet
2		JCC meeting


2018
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Aug
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Apr
May
Remarks
Winter
Summer

ATTACHMENT 13.1
UNIT COST SHEET FOR TRIAL ACTIVITIES IMPLEMENTED UNDER JICA PROJECT

I. PRODUCTION MANAGEMENT SYSTEM

No	Item	Description	Total cost	JICA Cost	PPMU Cost
1	***Selection of target groups***		***9,000,000***	***0***	***9,000,000***
1.1	Baseline survey and analysis	Allowance for field officers (interview survey)	9,000,000		9,000,000
1.2	Preparation of producer profile		0		
2	***Confirmation of safety of production area***		***37,200,000***	***28,200,000***	***9,000,000***
2.1	Sampling of soil and irrigation water at sites (Covered by PPMUs)	Allowance for field officers (sampling and sending samples to laboratory)	9,000,000		9,000,000
2.2	Laboratory test of soil and irrigation water (funded by JICA)	Laboratory test fee (2 soil samples and 2 water samples for each TG)	28,200,000	28,200,000	
3	***TOT for basic GAP***		***123,556,667***	***122,356,667***	***22,950,000***
3.1	TOT training courses on Basic GAP for pilot provinces (funded by JICA)	Venue, coffee break, lunch, allowance for the participants, lecturer fee, materials,	29,750,000	29,750,000	

3.2	TOF training courses on Basic GAP (covered by PPMUs). 6 courses for 01 province (2/ 01 target group x 03 target groups)	Venue, coffee break, lunch, allowance for the participants, lecturer fee, materials,			21,750,000
3.3	TOT training courses on Good post harvest handling practice/ Hygiene condition on packaging and transportation (funded by JICA)	Venue, coffee break, lunch, allowance for the participants, lecturer fee, materials,	11,750,000	11,750,000	
3.4	Technical assessment for safety conditions (Covered by PPMU)	Allowance for field officers	1,200,000		1,200,000
3.5	TOT Follow-up training (Funded by JICA)	Venue, coffee break, lunch, allowance for the participants, lecturer fee, materials,	11,750,000	11,750,000	
3.6	Study tour to advanced model (Funded by JICA)	Venue, coffee break, lunch, allowance for the participants, lecturer fee, materials,	59,606,667	59,606,667	
3.7	Exposure visit among target groups (Funded by JICA)	Venue, coffee break, lunch, allowance for the participants, lecturer fee, materials,	9,500,000	9,500,000	
4	***Formulation of safe crop production group***		***1,200,000***	***0***	***1,200,000***
4.1	Nomination of management board members				

4.2	Confirmation of agreement among group members				
4.3	Formulation of Safe Crop Production Group) (Covered by PPMU)	Allowance for field officers	1,200,000		1,200,000
5	***Cultivation Planning based on Market Demand***		***7,200,000***	***0***	***7,200,000***
5.1	Preparation of production planning - Allowance for field officers (Covered by PPMU)	Allowance for field officers	4,800,000		4,800,000
5.2	Procurement of materials (joint purchase) Allowance for field officers (Covered by PPMU)	Allowance for field officers	2,400,000		2,400,000
6	***Cultivation method for Safe Vegetable***		***217,038,000***	***164,238,000***	***52,800,000***
6.1	Planning of demonstration farm	Allowance for field officers	2,400,000		2,400,000
6.2	Implementation of demonstration				
6.2.1	Trainings on Cultivation Method (funded by JICA)	Venue, coffee break, lunch, allowance for the participants, lecturer fee, materials,	60,360,000	60,360,000	
6.2.2	Matirials for Implementation of demonstration				
a)	Soil improvement by composting (funded by JICA)	Material costs	13,068,000	13,068,000	

b)	Introduction of new variety seeds (funded by JICA)	Material costs			
c)	Seedling improvement (funded by JICA)	Material costs	39,150,000	39,150,000	
d)	New agriculture materials (funded by JICA)	Material costs	51,660,000	51,660,000	
6.2.3	Field Monitoring for Demenstration (Covered by PPMU)	Allowance for field officers	50,400,000		50,400,000
7	***On field instruction for basic GAP application***		***66,000,000***	***0***	***66,000,000***
7.1	On-field instruction for Basic GAP application	Allowance for field officers	43,200,000		43,200,000
7.2	Organization of internal monthly meeting to share experiences on application of Basic GAP and new cultivation method	Allowance for field officers	18,000,000		18,000,000
7.3	Internal Audit	Allowance for field officers	4,800,000		4,800,000
8	***Upgrading conditions to ensure food hygiene and safety***		***153,600,000***	***150,000,000***	***3,600,000***
8.1	Technical assessment for upgrading conditions	Allowance for participants	1,800,000		1,800,000
8.2	Draft a list of necessary equipment and materials	-	0		

8.3	Upgrading of facilities and equipment (Material cost for facilities and equipment funded by JICA)	Material cost for facilities and equipment (labor cost borne by TG)	150,000,000	150,000,000	
8.4	Evaluation of the improvement of the condition compared with the previous conditions in terms of food hygiene and safety (Covered by PPMUs)	Allowance for field officers	1,800,000		1,800,000
9	***Joint sales management***		***4,800,000***	***0***	***4,800,000***
9.1	Establishment of joint sales system	Allowance for field officers	4,800,000		4,800,000
9.2	Field instruction for joint sales	Allowance for field officers (as it is integrated activity with Item 7.1)	0		0
10	***Internal and external inspection and auditing***		***175,650,000***	***150,450,000***	***25,200,000***
10.1	Guidance of sampling testing plan and external auditing	-	0		
10.2	Pesticide residue check (Quick Test) (funded by JICA)	Test kit materials, Allowance for field officers	51,600,000	51,600,000	
10.3	Pesticide residue check (laboratory test) (funded by JICA)	Laboratory test fee, Allowance for field officers, sampling and sending samples to laboratory	98,850,000	98,850,000	

10.4	External Inspection and Auditing of Basic GAP (Covered by PPMUs)	Allowance for participants	25,200,000		25,200,000
	Total		**795,244,667**	**615,244,667**	**201,750,000**

1. Selection of target groups

1.1 Baseline survey and analysis (Allowance for field officers (interview survey) covered by PPMU

No.	Description	Unit	No. person	No. day	Q'ty	Unit Cost (VND)	"Amount (VND)"
	01 Province						
1	Target group 1		2	1	2	400,000	800,000
	Target group 2		2	1	2	400,000	800,000
	Target group 3		2	1	2	400,000	800,000
2	Car rental for sampling	trip		3	3	1,200,000	3,600,000
3	Fee for send sample to laboratory	pack		3	3	1,000,000	3,000,000
	Sub Total						**9,000,000**

2. Confirmation of safety of production area for 01 province

2.1 Sampling of soil and irrigation water at sites (Covered by PPMUs)

No.	Description	Unit	No. person	No. day	Q'ty	Unit Cost (VND)	"Amount (VND)"
	01 Province						
1	Target group 1		2	1	2	400,000	800,000
	Target group 2		2	1	2	400,000	800,000
	Target group 3		2	1	2	400,000	800,000
2	Car rental for sampling	trip		3	3	1,200,000	3,600,000

3	Fee for send sample to laboratory	pack		3	3	1,000,000	3,000,000
	Sub Total						**9,000,000**

2.2 Laboratory test of soil and irrigation water (funded by JICA) 2,400,000

Matrices/ Test items	**MRLs**	**Unit of MRLs**	**No. of samples**		**Total of samples**		**Unit Cost (VND)**	**"Amount (VND)"**
1. Soil								
Heavy metals								
As	15	mg/kg	15		15		400,000	6,000,000
Cd	1.5	mg/kg	15		15		100,000	1,500,000
Pb	70	mg/kg	15		15		100,000	1,500,000
Cu	100	mg/kg	15		15		100,000	1,500,000
Zn	200	mg/kg	15		15		100,000	1,500,000
Cr	150	mg/kg	15		15		100,000	1,500,000
			90		90			
	Sub-Total		-					**13,500,000**

2. Water for irrigation								
Heavy metals								
As	0.05	mg/L	15		15		400,000	6,000,000
Cd	0.01	mg/L	15		15		100,000	1,500,000
Pb	0.05	mg/L	15		15		100,000	1,500,000
Hg	0,001	mg/L	15		15		100,000	1,500,000
E.coli			15		15		150,000	2,250,000
	Sub-total		75		75			**12,750,000**
Microbiological								

Fecal. Coli	100	MP-N/100mL	15		15		130,000	1,950,000
	Sub-total							**1,950,000**
TOTAL (B):								**28,200,000**
TOTAL (A) + TOTAL (B)								**37,200,000**

3. Trainings on Basic GAP

3.1 TOT training courses on Basic GAP for pilot provinces (funded by JICA)

No.	Content	Q'ty	Unit Price (VND)	Amount (VND)
1	Remuneration for development of electronic training materials and lectures delivery; (2 trainers x 2 day x 1 course)	4	500,000	2,000,000
2	Meal for participants (35 persons x 2 days)	70	150,000	10,500,000
3	Coffee break (35 persons x 2 days)	70	50,000	3,500,000
4	Travel allowance for participants from far distance (outside of provincial center) (25 persons x 2 days x 50,000/day))	50	50,000	2,500,000
5	Printing materials and stationeries fee for participants	35	50,000	1,750,000
6	Venue, training room rental fee	2	3,500,000	7,000,000
7	Instructor tuition fee for field practice visits	1	500,000	500,000
8	Car rental fee for travelling field practice visits	1	2,000,000	2,000,000
	Total cost for 01 course			**29,750,000**

3.2 TOF training courses on Basic GAP (covered by PPMUs). 6 courses for 01 province (2/ 01 target group x 03 target groups)

No	Content	Q'ty	Unit Price (VND)	Amount (VND)
1	Remuneration for provincial lecturers; (2 trainers x 1 day x 1 course)	2	250,000	500,000
2	Meal allowance for participants (25 persons x 1 day)	25	50,000	1,250,000
3	Coffee break (25 persons x 1 day)	25	30,000	750,000
4	Printing materials and stationeries fee for participants	25	25,000	625,000
5	Venue, Banner	1	500,000	500,000
	Total cost for 01 course			**3,625,000**
	Total cost for 06 courses			**21,750,000**

3.3 TOT training courses on Good post harvest handling practice/ Hygiene condition on packaging and transportation (funded by JICA)

No.	Content	Q'ty	Unit Price (VND)	Amount (VND)
1	Remuneration for development of electronic training materials and lectures delivery; (1 trainers x 1 day x 1 course)	2	500,000	1,000,000
2	Meal, allowance for participants (30 persons x 1 day x 1 course)	30	150,000	4,500,000
3	Coffee break (30 persons x 1 day)	30	50,000	1,500,000
4	Printing materials and stationeries fee for participants	30	25,000	750,000
5	Venue, Banner	1	3,500,000	3,500,000
7	Instructor tuition fee for field practice visits	1	500,000	500,000
	Total			**11,750,000**

3.4 Technical assessment for safety conditions (Allowance for field officers)

No.	Description	No. per-son	No. day	Q'ty	Unit cost (VND)	Amount (VND)
	01 Province					
1	Target group 1	1	1	1	400,000	400,000
	Target group 2	1	1	1	400,000	400,000
	Target group 3	1	1	1	400,000	400,000
	Sub Total					**1,200,000**

3.5 TOT Follow-up training (Funded by JICA)

No.	Content	Q'ty	Unit Price (VND)	Amount (VND)
1	Remuneration for development of electronic training materials and lectures delivery; (1 trainers x 1 day x 1 course)	2	500,000	1,000,000
2	Meal, allowance for participants (30 persons x 1 day x 1 course)	30	150,000	4,500,000
3	Coffee break (30 persons x 1 day)	30	50,000	1,500,000
4	Printing materials and stationeries fee for 30 participants	30	25,000	750,000
5	Venue, Banner	1	3,500,000	3,500,000
7	Instructor tuition fee for field practice visits	1	500,000	500,000
	Total			**11,750,000**

3.6 Cost for Lam Đong study tour

Day	Contents	Cost	Unit	Unit price	Quan-tity	Sub-total
1	Participants moving from provinces to Hanoi	For participants from prov inces to Noi Bai airport	car/1 way	1,500,000	4	6,000,000
	Vietjetair, Hanoi - Da Lat, VJ409 (17:25 -19:15)**		ticket (re-turn)	4,220,000	26	109,720,000
	Perdiem		day	150,000	26	3,900,000
	Move from Lien Khuong Airport to Da Lat	Airport taxi	car	350,000	6	2,100,000
	Accomodation allowance	Hotel	night	350,000	26	9,100,000
2	Perdiem	Meals	day	150,000	26	3,900,000
	Accomodation allowance	Hotel	night	350,000	26	9,100,000
	Site visits	29-seat bus	trip	4,500,000	1	4,500,000
3	Perdiem	Meals	day	150,000	26	3,900,000
	Accomodation allowance	Hotel	night	350,000	26	9,100,000
	Site visits	29-seat bus	trip	4,500,000	1	4,500,000
4	Perdiem	Meals	day	150,000	26	3,900,000
	Venue for workshop	Meeting room rent	trip	1,000,000	1	1,000,000
	Moving from Da Lat to Lien Khuong airport	Airport taxi	car	350,000	6	2,100,000
	Vietjetair, Da Lat - Hanoi, VJ 406 (18:45 – 19:35)					0
	From Airport to Hanoi center	0	0	0	0	0
	Moving back to provinces	For participants from Noi Bai airport to the provinces	car/1 way	1,500,000	4	6,000,000
	Total for 3 province					**178,820,000**
	Grant total for 01 province					**59,606,667**

3.7 Exposure visit among target groups

No.	Content	Q'ty	Unit Price (VND)	Amount (VND)
1	Meal, allowance for participants (30 persons x 1 day x 1 course)	30	150,000	4,500,000
2	Coffee break (30 persons x 1 day)	30	50,000	1,500,000
3	29-seat bus	1	3,000,000	3,000,000
4	Instructor tuition fee for field practice visits	1	500,000	500,000
	Total			**9,500,000**

4.3 Formulation of Safe Crop Production Group (Allowance for field officers) (Covered by PPMU)

No.	Description	No. person	No. day	Q'ty	Unit Cost (VND)	Amount (VND)
	01 Province					
1	Target group 1	1	1	1	400,000	400,000
	Target group 2	1	1	1	400,000	400,000
	Target group 3	**1**	**1**	1	400,000	400,000
	Sub Total					**1,200,000**

5.1 Preparation of production planning (Allowance for field officers) (Covered by PPMU)

No.	Description	No. person	No. day	Q'ty	Unit Cost (VND)	Amount (VND)
	01 Province					
1	Target group 1	1	4	4	400,000	1,600,000
	Target group 2	1	4	4	400,000	1,600,000
	Target group 3	**1**	**4**	4	400,000	1,600,000
	Sub Total					**4,800,000**

5.2 Procurement of materials (joint purchase) (Covered by PPMU)

No.	Description	No. per-son	No. day		**2,400,000**	Amount (VND)
	01 Province					
1	Target group 1	1	2	2	400,000	800,000
	Target group 2	1	2	2	400,000	800,000
	Target group 3	**1**	**2**	2	400,000	800,000
	Sub Total					**2,400,000**

6. Cultivation Method for Safe Vegetables (funded by JICA)

6.1 Planning of demonstration farm (Allowance for field officers) (Covered by PPMU)

No.	Description	No. person	No. day	Q'ty	Unit Cost (VND)	Amount (VND)
	01 Province					
1	Target group 1	1	1	2	400,000	800,000
	Target group 2	1	1	2	400,000	800,000
	Target group 3	1	1	2	400,000	800,000
	Sub Total					**2,400,000**

6.2.1 Trainings on Cultivation Method (funded by JICA)

No.	Description	Unit	Q'ty	Unit Price	Amount (VND)
1	Training				
2	Printing materials and stationeries fee for participants (25 farmers/group x 4 page x 300 VND/page)	Farmers . Seasons	100	300	30,000
3	Meal for participants in Training (25 farmers/group x time/season	Farmers	25	150,000	3,750,000
4	Tea/water	Farmers	25	50,000	1,250,000
5	**Sub Total for 1 target group/time**				**5,030,000**
	Sub Total for 1groups, 1season (4times/season)				**20,120,000**
	Total of 01 provinces				**60,360,000**

6.2.2 Materials for demonstration farm

A	Soil improvement by composting (material cost funded by JICA)				
I.	**Material for 02 m^3 compost support for 01 farmer**	**Unit**	**Quantity**	**Price (VND)**	**Amount (VND)**
	Pig dung	m^3	2	500,000	1,000,000
	Rice bran	kg	60	6,000	360,000
	Rice hush	bag	14	12,000	168,000

	Canvas	m^2	20	15,000	300,000
	Yeast (which used to make alcohol)	kg	1	50,000	50,000
	Steel pipe 1.5m length	item	1	300,000	300,000
	Sub- Total				**2,178,000**
	Total of 01 provinces - 6 farmers				**13,068,000**

C	**Seedling improvement (material cost funded by JICA)**				
I.	**Budget for material of seedling improvement activity for 01 farmer**	**Unit**	**Quantity**	**Price (VND)**	**Amount (VND)**
	Sponge tray	tray	50	22,000	1,100,000
	nursery bed	kg	50	5,000	250,000
	Material for making shelf tray (seedling shelf tunnel)	tunnel	1	3,000,000	3,000,000
	Sub- Total				**4,350,000**
	Total of 01 provinces - 9 farmers				**39,150,000**

D	**New agriculture materials (material cost funded by JICA)**				
I.	**Budget for Non women textile (NWT) for 01 demonstration for 01 target group**	**Unit**	**Quantity**	**Price (VND)**	**Amount (VND)**
	02 sets of NWT sheet size (200m x 2,1m)	m^2	840	10,500	8,820,000
	2 sets of NWT sheet size (200m x 2,7m)	m^2	1080	6,000	6,480,000
	Steel frame	item	160	12,000	1,920,000
	Sub- Total				**17,220,000**
	Total of 01 provinces - 3 target group				**51,660,000**

6.2.3 Field Monitoring for Pilot Farms (Covered by PPMU)

No.	Description	Unit	Q'ty	Unit Price	Amount (VND)
1.3	Allowance for Extension Worker (1days/week x 1weeks/month x 12 months x 150,000 VND/ person/day)	Day	12	150,000	1,800,000
1.3.1	Gasoline for travelling field practice visits (1 day//week x 1week/month x 12 months)	Day	12	50,000	600,000
1.3.2	Allowance for Extension Worker (1days/week x 1week/month x 12 month)	Day	12	150,000	1,800,000
1.3.3	**Sub Total for 1 group, 1season**				**4,200,000**
1.3.4	**Sub Total for 1 group, 4season**				**16,800,000**
	Total of 01 provinces (03 target groups)				**50,400,000**

7. On-Field Instruction for Basic GAP Application (covered by PPMUs)

7.1 On-field instruction for Basic GAP application

No.	Description/ Activity	Q'ty	Unit price (VND)	No. person/ time	Amount (VND)
	Cost estimation for On-field instruction for 01 Pilot project				
1	Travel allowance for PPMU's technical inspector(s) conduct on-field instruction for farmers applying basic GAP and new cultivation method for 9 months (4 times/ month x 1 day/times x 9 months)	36	50,000	1	1,800,000
2	Intensive allowance for PPMU's technical inspector(s) conduct on-field instruction for farmers applying basic GAP and new cultivation method for 9 months (4 times/ month x 1 day/times x 9 months)	36	150,000	1	5,400,000
	Sub Total cost for 01 target group				**7,200,000**
	Sub Total cost for 01 target group (for two years)				**14,400,000**
	Total of 01 provinces				**43,200,000**

7.2 Organization of internal monthly meeting to share experiences on application of Basic GAP and new cultivation method

No.	Description/ Activity	Q'ty	Unit price (VND)	Number of meeting	Amount (VND)
	Cost estimation for organisation of internal meetings for 01 Pilot project				
1	Coffee break (25 farmers x 1 meeting/month x 9 months)	25	15,000	9	3,375,000
2	Printing materials and statio-neries	25	5,000	9	1,125,000
	Sub Total cost for 01 target group				**4,500,000**
	Sub Total cost for 01 target group (for two years)				**9,000,000**
	Total of 01 provinces				**18,000,000**

7.3 Internal Audit

No.	Descriptions	Q'ty	Unit price (VND)	No. per-son/ time	Amount (VND)
	Travel allowance for PPMU's technical inspectors (1 time/ season)	1	50,000	2	100,000
	Intensive allowance for PPMU's technical inspectors	1	150,000	2	300,000
	Sub Total for 1 target group				400,000
	Total for 1group, 4seasons				**1,600,000**
	Total of 01 provinces				**4,800,000**

8. Upgrading Conditions to ensure Food Hygiene and Safety

8.1 Conduct a technical assessment and develop a plan to upgrade the conditions for production area and pre-processing place (Covered by PPMUs)

No.	Descriptions	Unit	Q'ty	Unit Price (VND)	Amount (VND)
	Travel allowance for PPMU's technical inspectors	persons	3	50,000	150,000
	Intensive allowance for PPMU's technical inspectors	persons	3	150,000	450,000
	Sub Total for 1 target group				**600,000**
	Total of 01 provinces				**1,800,000**

8.3 Upgrading of facilities and equipment (Material cost for facilities and equipment funded by JICA)

No.	Descriptions	Unit	Q'ty	Unit Price (VND)	Amount (VND)
I	**Support on equipments, consumable materials in production area**				
1	Support in constructing tank (bin) to contain used pesticide packages/containers, dimension 1,5m x 1m x 1,2	Piece			
2	Pesticide cabinet in family (made of wood, dimension 75cm x 40cm x 25cm)	Piece			
3	Protective clothing for farmers when applying pesticides (clothes, glasses, masks, gloves, boots)	Set			
4	Warning sign on pesticide application	Board			
5	Containers for harvested products (plastic baskets)	Piece			
II	**Upgrading conditions for packaging, handling houses**				
1	Heat resistant ceiling of packaging, handling house	m^2			

2	Tiling floor of packaging, handling house	m^2			
3	Upgrading and expanding toilet: Wall, stainless steel, floor tiles; wall tiles, toilet seat, lavabo set…	-			
4	Constructing basin to wash vegetables (1m x1m x 0,5m)	Piece			
5	Machine for bunching vegetables and sealing vegetable bag	Piece			
6	Centrifugal spinning machine to dry vegetables	Piece			
7	Cooling cabinet to preserve vegetables	Piece			
8	Construction of lighting system	Set			
9	Sign board 4m x 0,8m	Piece			
	Sub-total for 01 target group (based on average actual expenditures)				150,000,000
	Total of 01 provinces				**450,000,000**

8.4 Evaluation of the improvement of the condition compared with the previous conditions in terms of food hygiene and safety (Covered by PPMUs)

No.	Descriptions	Unit	Q'ty	Unit Price (VND)	Amount (VND)
	Travel allowance for PPMU's technical inspectors	persons	3	50,000	150,000
	Intensive allowance for PPMU's technical inspectors	persons	3	150,000	450,000
	Sub Total for 1 target group				600,000
	Total of 01 provinces				**1,800,000**

9. Joint sales management (Covered by PPMUs)

9.1 Establishment of joint sales system

No.	Description	No. person	No. day	Q'ty	Unit Cost (VND)	Amount (VND)
1	Target group 1	1	4	4	400,000	1,600,000

	Target group 2	1	4	4	400,000	1,600,000
	Target group 3	1	4	4	400,000	1,600,000
	Total of 01 provinces					**4,800,000**

9.2 Field instruction for joint sales

No.	Description/ Activity	Q'ty	Unit price (VND)	No. person/ time	Amount (VND)
	Cost estimation for Field instruction for joint sales for 01 target group				
1	Travel allowance for PPMU's technical inspector(s) conduct on-field instruction for farmers applying basic GAP and new cultivation method for 9 months (4 times/ month x 1 day/times x 9 months)	36	50,000	1	1,800,000
2	Intensive allowance for PPMU's technical inspector(s) conduct on-field instruction for farmers applying basic GAP and new cultivation method for 9 months (4 times/ month x 1 day/times x 9 months)	36	150,000	1	5,400,000
	Sub Total cost for 01 target group				**7,200,000**
	Sub Total cost for 01 target group (for two years)				**14,400,000**
	Total of 01 provinces *				**43,200,000**

*** The cost shall be uncounted If this activity is organized together with Item 7.1 On-field instruction for Basic GAP application**

10. External Inspection and Auditing

10.2 Pesticide residue check (Quick Test) (funded by JICA)

No.	Description	Unit	Q'ty	Unit price (VND)	Amount (VND)
(1)	**Quick Test kit**				
1	GT pesticides residual test kit (for two years) for 03 target group	Package box (10 test)	24	800,000	19,200,000
2	Tool use for GT Pesticides Residual Test Kit	Set	2	900,000	1,800,000
	Sub Total for 1 province				**21,000,000**

(2)	**Allowance for field officers of sampling and testing by Quick test**				
	Remuneration for appointed PPMU's staff conducting vegetable sampling and conducting quick test (2 persons x 1day x 6 times x 1 target group)	Person/ day	12	800,000	9,600,000
	Travel allowance for appointed PPMU's staff conducting vegetable sampling (2 persons x 1 day x 6 times x 1 target group)	Trip	12	50,000	600,000
	Sub Total for 1 target group				10,200,000
	Sub Total for 1 province				**30,600,000**
	Total for 01 province (1)+(2)				**51,600,000**

10.3 Pesticide residue check (laboratory test) (funded by JICA)

(1) Laboratory test fee

No.	Description	Unit	Q'ty	Unit price (VND)	Amount (VND)
(1)	**Laboratory test fee**				
	Laboratory test Pesticide, Heavy metal, microbiological for 2-3 samples per TG per year	Sample	5	5,362,000	26,810,000
	Sub Total for 1 province				**80,430,000**
(2)	**Allowance for field officers of sampling and sending samples to laboratory**				
I	**Estimate budget for sampling and conduct quick test**				**10,200,000**
	Remuneration for appointed PPMU's staff conducting vegetable sampling and conducting quick test (2 persons x 1day x 2 times x 3 target group)	Person/ day	12	800,000	9,600,000
	Travel allowance for appointed PPMU's staff conducting vegetable sampling (2 persons x 1 day x 2 times x 3 target group)	Trip	12	50,000	600,000
II	**Estimate budget for send samples to laboratory for testing**				**6,300,000**
	Fee for send sample to laboratory	pack	6	1,000,000	6,000,000

	Cost for Buying vegetables samples (5samples x 2kg/sample x 3 target group)		15	20,000	300,000
III	**Cost for buying sampling tools, sample reservation**				**1,920,000**
	PE zipper bags (box 100 bags)	box	3	50,000	150,000
	Foam box (70x50x50cm)	box	6	150,000	900,000
	Disposable gloves (100 piece box)	box	3	10,000	30,000
	Alcohol 70%	Lọ	3	70,000	210,000
	Pens to write on glassess (box 10 pens)	box	3	150,000	450,000
	Labeling stickers (10 sheet packs)	pack	6	5,000	30,000
	PE box to contain samples	box	3	50,000	150,000
	Sub Total for 1 province				**18,420,000**
	Total for 01 province (1)+(2)				**98,850,000**

10.4 External Inspection and Auditing of Basic GAP (Covered by PPMUs)

No.	Description/ Activity	Unit	Q'ty	Unit price (VND)	Amount (VND)
1	Remuneration for staff appointed PPMU staff conducting the assessment (2 persons/ pilot project x 1 day/ pilot project x 2 inspection times/ year)	person	4	1,000,000	4,000,000
2	Travel Allowance (2 persons/pilot project x 1 day/pilot project x 2 inspection times/year)	person	4	50,000	200,000
	Sub Total cost for 01 target group/ year				**4,200,000**
	Sub Total cost for 01 target group (for two years)				**8,400,000**
	Total of 01 provinces				**25,200,000**

MANUAL FOR

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