

APPENDIX H : AGRICULTURAL SUPPORT SYSTEM

APPENDIX-H AGRICULTURAL SUPPORT SYSTEM

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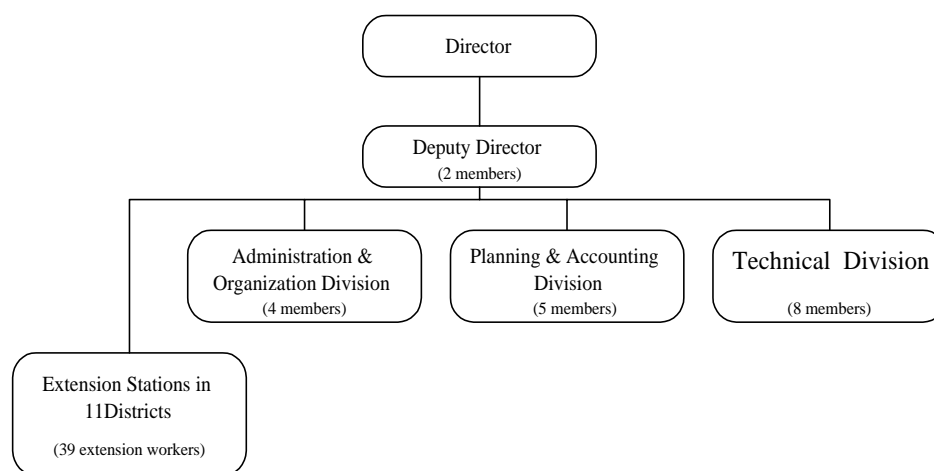
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H.1 PRESENT AGRICULTURAL SUPPORT SYSTEM

H.1.1 Extension Service

The main function of the Agricultural Extension Center (AEC) is to transfer technology to farmers for increasing their incomes and improving their living conditions. The organization of AEC is shown in the figure below. There are 58 members working in the extension system.

The Organization Chart of Agricultural Extension Center



Provincial budget for extension activities is about 1.6 billion VND (in case of Dong Thap Province) per year. This is used for carrying out the following extension programs:

- 1) Increasing rice production and yield, improving rice quality especially for export rice.
- 2) Protecting Melaleuca forest in “Plain of Reeds” from fire. Persuading farmers to plant forest trees along the river or canal bank.
- 3) Increasing economic efficiency of the orchard by planting high value fruit trees such as mandarin, citrus, longan and mango.
- 4) Developing upland crops such as soybean, mungbean, and watermelon in the rice field.
- 5) Carrying out integrated pest management program
- 6) Improving livestock production
- 7) Building farmers’ capacity
- 8) Strengthening the extension system by organizing training courses for extension workers

Besides the provincial extension budget, AEC also receives about 180 million VND/year from Agriculture & Forestry Extension Department, Ministry of Agriculture & Rural Development.

H.1.2 Plant Protection Service

Organization at Central Government Level

Crop protection and plant quarantine are administered by the Department of Plant Protection of MARD at the national level and under the People's Committee at Provincial level. The major function of the department at the national level includes, 1) implementation of plans and programs regarding plant protection and quarantine, 2) registration of plant products, issuance of certificate and withdrawal of products, 3) monitoring, forecast of outbreak of disease and dissemination of crop protection measures and 4) examination and investigation of the pesticides.

In Tien Giang Province, there is a regional center of plant protection, which is responsible for forecast, examination, investigation of diseases, exotic species, and evaluation of newly registered products. The Departments of Plant Protection of Ho Chi Minh City and Can Tho have a special task in plant quarantine at the international port.

The Centers of Plant Quarantine located in Ha Noi and Ho Chi Minh city perform such functions as examination of quality of pesticides, pesticides residue in agricultural and forestry products, and assistance of the Head of the Department of Plant Protection to examine new products.

The Research Center for Plant Quarantine located in Ha Noi conducts study on organisms that give harmful effects to plant resources. The Post-Exporting Research Centers in Ha Noi and Ho Chi Minh City investigate, examine organisms that damage plant resources.

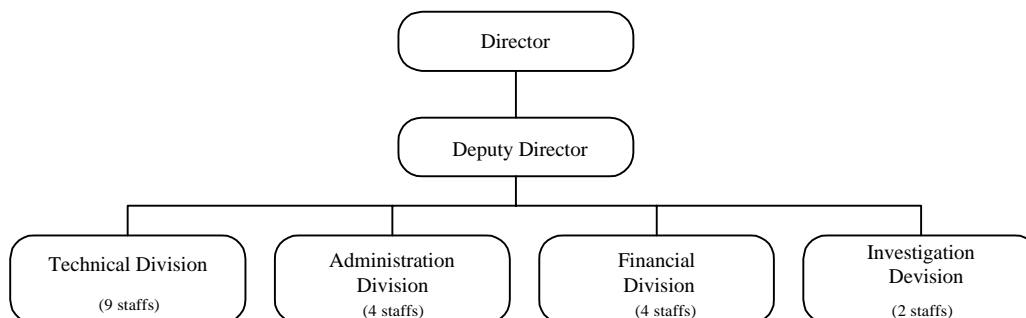
Organizations at the Local Government Level

The Sub-Department of Plant Protection, under Department of Agriculture and Rural Development, is responsible for assisting Provincial People's Committee in the field of plant quarantine, plant protection, and pesticides. At the same time, the sub-department assists stations of plant quarantine and plant protection at districts.

The Sub-Department of Plant Protection consists of 4 divisions and with 19 staff members. Technical division is responsible for 1) surveillance of plant diseases, 2) prediction, 3) dissemination of IPM practice, and 4) safe use of pesticides. Investigation division is responsible for 1) supervision of distributors of pesticides, 2) issuance of certificate to pesticides dealers, and 3) seminar for dealers. Technical information is disseminated through radio, seminars and publications. Radio program is broadcasted twice a week. Seminars are held once every two years to pesticides distributors. Booklets are published to disseminate IPM practice and other technical matter.

The organization of Sub-Department of Plant Protection is shown in the figure below.

The Organization Chart of Sub-Department of Plant Protection



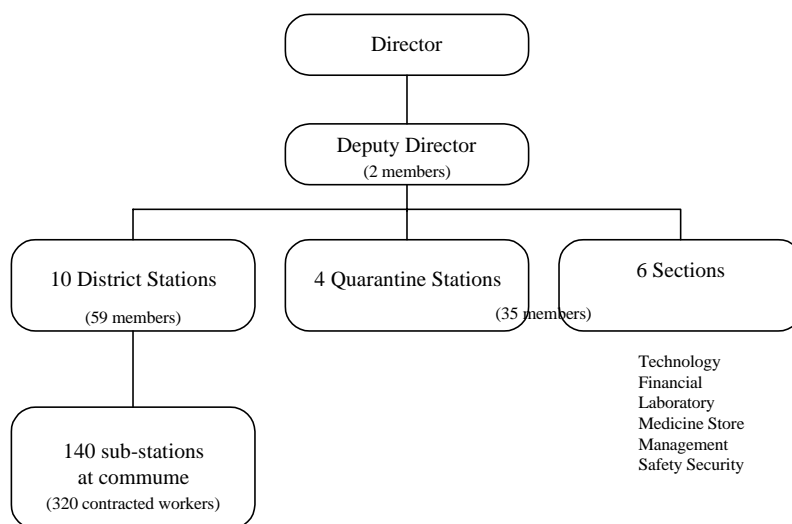
H.1.3 Veterinary Service

Sub-Department of Veterinary is responsible for veterinary service. The sub-department consists of 6 sections, 4 quarantine stations and 10 district stations with total staff of 97 members.

This sub-department has main activities for:

- 1) Organizing and guiding the prevention and control of animal epidemic diseases.
- 2) Implementing quarantine activities for animals and animal products transported and sold in the province.
- 3) Conducting state management on veterinary medicines in conformity with the laws and regulations.
- 4) Granting or revoking certificates on vaccination, quarantines of animals and animal products, certificates on veterinary sanitation, license for carrying out veterinary activities and services in the province.

The Organization Chart of Sub-Department of Veterinary



H.1.4 Supply of Agricultural Input

Agriculture and Development Service Company (AGRISEDO) is the provincial SOE established in November 1998 combining a number of organizations, which belonged to Agriculture and Rural Development Department of Dong Thap Province. These include such organizations as Dong Cat Station, An Phong Station, Fruit Station and the agricultural material shop. Animal Station and the material shop currently belong to Sub-Institute for Veterinary are scheduled to be combined soon. Most of 71 staff members were transferred from the previous provincial offices and are in charge of the same work as before.

The main duties and business are the selection, production and sale of rice seeds, production and sale of fruit seedlings, and sale of the agricultural materials (manure, agricultural chemicals, farm implement, etc.). It is also planning to deal with livestock and organic fertilizer.

This company is basically managed by self-supporting system and has a right to decide sales prices. The main staffs, however, are given the compensation supporting from the provincial government.

H.1.5 Rural Credit

Among formal financial institutions in Viet Nam, Vietnam Bank for Agriculture and Rural Development (VBARD) plays dominant role in extending credit to farmers. Other institutions related to rural credit include Vietnam Bank for the Poor (VBP), People's Credit Fund and Rural Shareholding Bank, although the latter has limited presence in their activities nowadays.

VBARD provides nearly three fourths (3/4) of the total rural credit in the country to 4 million households or 70% of the total households served by financial institutions. With its nation wide network of 1,271 branches, mostly located at district and sub district levels, total number of staff amount to 21,000, out of which 6,500 are specialized credit officers.

Established in 1990 as Vietnam Bank for Agriculture (VBA), it was renamed as VBARD in 1996. Initially it was created to serve the needs of the State Owned Enterprises (SOEs), but now it focuses more on the needs of rural households and private enterprises.

At the provincial level there exists each one branch of VBARD.

In Dong Thap province, the branch was established in 1990 in Cao Lanh town, and in Tien Giang it was established in 1988 in My Tho town. The total number of the staff of Dong Thap branch at present is 320. This includes 67 staff at branch headquarter in Cao Lanh and remaining 253 at 10 sub branches at districts. Therefore, the number of staff at district level is 25-26 on average. In case of Tien Giang branch, total staff

is 386, of which 87 are at provincial branch and remaining 299 are at 7 district branches.

Around 70-80 % of farmers is covered by VBARD credit in general. Ceiling of each credit at provincial branch and district branch is fixed. If the clients require credit above the ceiling, they have to apply to the higher levels, namely, from district branch to provincial level, to regional level (Ho Chi Minh) or to main office in Hanoi.

Ceilings applied for respective clients are ;

Individual	: at district, less than 200 million VND
	: at province, less than 500 million VND
Private enterprise	: at district, less than 1.0 billion VND
	: at province, less than 4.0 billion VND
SOE	: at district, less than 3.0 billion VND
	: at province, less than 40.0 billion VND

Terms of credit are classified into 3, long-term (more than 5 years), medium-term (1-5 years) and short-term (less than 1 year). Interest rate is fixed at 0.95 %/ month for the urban and 1.05 %/ month for the rural regardless of the difference of terms.

Collateral is not required for the individuals with the credit less than 10 million VND. However, Land Use Certificate is required. In case of more than 10 million VND, collateral is required. It is the usual practice to use the asset as collateral in case of enterprise. In case of cooperatives, 50% of the paid capital is allowed as collateral.

Most of the credits are short-term ones at the moment. In case of Dong Thap provincial branch (including districts), long-term and medium-term credit are negligible, whereas in Tien Giang nearly 20% are shared by medium-term credit. Though the share of credit by client shows the increasing tendency for individual / farmers, substantive portion of total credit are given to SOEs.

Apart from VBARD, there are a number of Peoples Credit Funds within the provinces. In case of Tien Giang province, 16 Peoples Credit Funds exist. These are autonomous financial institutions supervised by the State Bank.

Bank for the Poor (BP) provides credit to the households recognized as poor, In this case, the borrowers are not required collateral. The actual credit operation of VBP is entrusted to VBARD.

The socio-economic survey results show that, while appreciating the credit by VBARD, many farmers felt that the complicated procedure, limited access to branch, term being rather short, amount being rather small and interest rate being high are the problems.

H.2 AGRICULTURAL SUPPORT SYSTEM DEVELOPMENT PLAN

H.2.1 Potential for Extension and Support System

Several kinds of agricultural support services such as Extension Center, Plant Protection Office, Division of Veterinary and Agriculture Development Service Company are active.

The farmers are eager to adopt new technologies and improved seeds, seedling and animal breeds. They understand that such knowledge of new technologies can be obtained through the agricultural supporting services. Thus, the important role to be played by those services must be stressed at the stage of formulating an agricultural development plan.

H.2.2 Constraints against Extension and Support System

- The extension system reaches only the districts; there is no extension worker in villages. Moreover, one district extension station has only 3-4 extension workers who carry out all extension activities on crop production, animal husbandry, forestry, etc. The ratio of extension worker over the number of household is about 1/10,000.
- Beside lack of manpower for the most support services, staff have limited skill and knowledge.
- Lack of teaching equipment for farmers training.
- Due to lack of vehicles (motorcycles, motor boats) for moving to villages, the activities are concentrated near urban areas.
- One organization is doing public services and economic activities at the same time.

H.2.3 Target for Extension and Support System

Extension and support system will be implemented as a part of agricultural production plan. Therefore, the details are referred to agricultural production plan. The followings will be important.

- Increase of the number of extension service.
- Introduction of new formation of support system.
- Introduction of new system of rice seed and fruits seedling production.
- Increase of the quantity and quality of the material used for support services.

H.2.4 Development Plan of Agricultural Support System

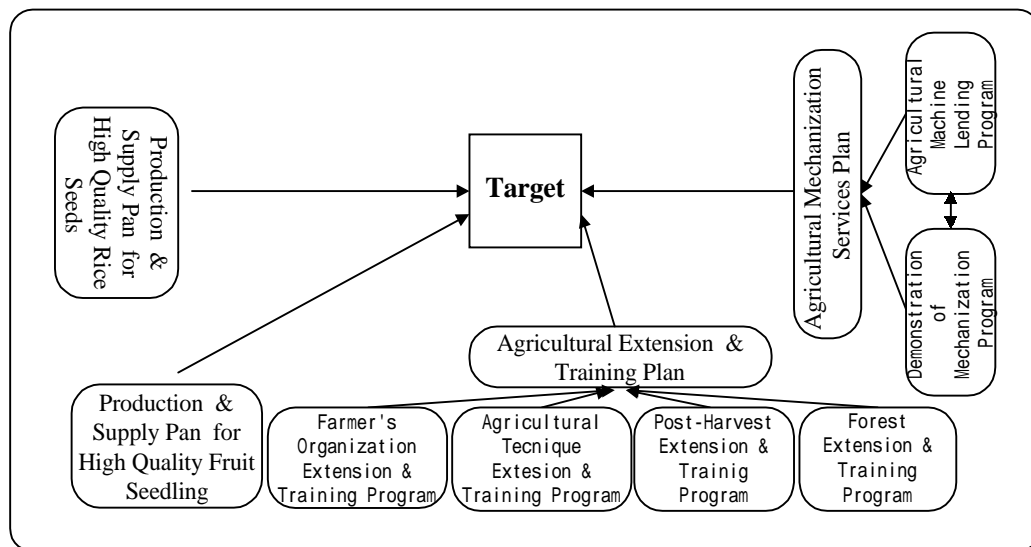
While agricultural support services in the Study Area have been implemented by the lower branches of the DARDs, the greater part of the services has been done through the Agricultural Extension Center, the Plant Protection Office, the Division of Veterinary, the Agriculture Development Service Company.

The proposed agricultural support programs are formulated in accordance with the basic recognition of the needs for strengthening agricultural support services and by reference to the services rendered in the past and suggestions given by the DARDs.

In case of increasing income of farm household, it is important not only getting high yield of products but also improving quality. This necessity of the quality improvement increases more and more in the future.

The Master plan for agricultural support services will be planned to focus on this point.

The structure of the strategies and ideas of action for the Master Plan are described below.



(1) Production & Supply Plan for High Quality Rice Seeds

1) Objectives

Paddy is the most suitable crop in the Study Area, and it plays an important role closely linking with income, living standard and job opportunities for 80% of the population in the Study Area. However, Vietnamese rice is generally considered to be of low quality in the international market, therefore the price of Vietnamese rice is relatively low. Rice from Dong Thap area is lower quality in Vietnamese standard. It is most important to improve rice quality in the future for agriculture and economy of the Study Area.

2) Details of Plan and Implementation Organization

The production and the supplying of the suitable seed and introduction of uniform varieties are important in this area. For this purpose, new system of seed production should be established. Major points are 1) Shifting the Original Seed Station to DARD from AGRISED0, 2) Organizing Seed Certification Section under the Extension Center.

Major characteristics new systems are 1) Original Seed Station selects original seeds and produces

foundation seeds, 2) Enforce the seed inspection and the seed production inspection.

3) Rice Seed Multiplication Schedule

Rice seed multiplication is carried out continuously in order to meet the seed demand. Improving an existing seed farms, the renewal of seeds is planned to increase to 1,000ton from 58ton, the foundation seeds increase 1,000ton from 58ton. It raises seed renewal rate from 1% to 5% by the year 2010. As the final goal, it raises seed renewal percentage to 20%. The implementation schedule is shown as Table H.2.1

4) Outline of Facility and Machinery

a . Original Seed Farm

32ha

	Unit	Cost (1,000VD)
Dyke system	5km	394,533
Irrigation Canal	2km	496,518
Land leveling	30ha	14,400
Irrigation Pumping Station	1	279,300
Culvert	4	123,600
Drying yard	200m ²	60,000

Electric pump	1set	24,000
Electric Control Unit	1set	22,500
Transformer	1set	24,255
Tractor	2	400,000
Combine	1	250,000
Rice Planter	2	200,000
Attachment	2set	20,000

b . Seed Production Farm

418ha

	Unit	Cost (1,000VD)
Dyke system	50km	2,150,475
Irrigation Canal	16km	3,213,792
Land leveling	400ha	192,000
Irrigation Pumping Station	3	1,396,500
Culvert	36	1,112,400
Drying yard	800m ²	240,000

Electric pump	5set	147,180
Electric Control Unit	3set	76,500
Transformer	3set	86,040
Tractor	10	2,000,000
Combine	2	500,000
Rice Planter	2	200,000
Attachment	2	20,000

c . Seed Inspection Center

	Unit	Cost (1,000VD)
Inspection Center	200m ²	1,060
Equipment	1set	141

(2) Production and Supply Plan for High Quality Fruit Seedling

1) Objectives

The fruit is the second most important crop in the area. It can be fairly profitable, though market price fluctuates. The problem is how to respond to the market requirement, namely good quality of fruits.

Now, the agency to controls fruit seedling and protects farmers from purchasing bad seedling is strongly required.

2) Details of Plan & Implementation Organization

This is based on the ideas that the production of the suitable fruit seedling and introduction of good varieties are important in this area. For this purpose, organizing and reinforcing the system of seedling production should be established.

3) Outline of Facility and Machinery

Fruit farm

	Unit	Cost (1,000VD)
Net house	200m ²	400,000
Equipment	1set	30,000

Fruit inspection section

	Unit	Cost (1,000VD)
Inspecting room	50m ²	265,000
Instrument	1set	30,000

(3) Agricultural Extension and Training Plan

Agricultural extension and training plan is one of the most important supporting activities covering farmer organization, agriculture production, processing after harvest, forestry, and others for farmer. This consists of four programs.

1) Program

A. Farmer's organization extension and training program

The program carries out extension and training to strengthen the existing and new farmer's organizations, to introduce a suitable management system of farmer's organizations.

B. Agricultural technique extension and training program

The demonstration, the training and the visits are to be conducted for the purpose of training of improved rice farming, fruit farming techniques and diversified farming. The main point is described in the following table.

C. Post-Harvest Extension and Training Program

This is to carry out extension and training for post-harvest technique.

D. Forest Extension Training Program

This is to carry out extension on the protection of the Meraleuca forest and the afforestation of the fuel woods.

2) Implementation Organization

The agricultural extension center implements these programs. It invites an appropriate lecturer from the extension center, DARD or other appropriate organizations for the training course.

3) Outline of Facility and Machinery

	Unit	Cost (1,000VND)
Training Center	300m2	1,590,000
Milling shed	100m2	530,000
Drying yard	100m2	115,000
Storage	50m2	400,000

Dryer	1	1,000,000
Tools	1 set	10,000
Equipment	1 set	20,000

(4) Agricultural mechanization services plan

1) Objectives

Agricultural mechanization is not urgently required in the Study Area at the moment. Mechanization is seen partly as labor force is still available in rural area.

However, labor shortage will occur in the near future as industrialization is expected. Mechanization, especially combined system including both harvesting and drying, will improve the rice quality efficiently. Mechanization of rice cultivation should be attempted in the long term viewpoint.

2) Program

A. Demonstration of total mechanization system of rice cultivation

As well as agricultural machines used for the rice cultivation, there are also pumps for irrigation/drainage and threshers. They are partly mechanized, but has not been systematized. Uniform fertilization and seeding give high yield, and it is also important for the effective utilization of fertilizer and seed. The quality seems to greatly improve, if the system using reaper or binder, thresher and dryer is established. It is necessary to demonstrate a total mechanization system of rice cultivation.

Activity

Item	Method	Scale	Target
Broadcaster Sprayer Combine	Demonstration	1 kind of machine : 40place / 1 year	Farmer's Group
Broadcaster Sprayer Combine	Training	1 course : 25farmer 5days No : 12course/year	Farmer's Representative

B. Agricultural Machinery Supply Service

This service provides farmers the agricultural machines such as combines, sprayers and broadcasters, which are not popular yet in the Study Area.

3) Implementation organization

In this plan, AGRISED0 is proposed to be an implementation organization and conducts the demonstration and the rental service of the agricultural machine to farmers.

4) Outline of Facility and Machinery

(Demonstration program)

	Unit	Cost (1,000VD)
Training field	1000m2	2,500,000
Tractor	2	400,000
Combine	2	250,000
Attachment	2sets	20,000
Equipment	1set	50,000

(Agricultural Machinery Supply Service)

	Unit	Cost (1,000VD)
Repair Shop	150m2	420,000
Machine House	300m2	840,000
Trailer	2	500,000
Tractor	20	4,000,000
Combine	10	2,500,000
Attachment	20sets	200,000
Tools	1set	50,000

(4) Project Cost

The project cost of each plan are roughly estimated as follows.

Project	Total cost		Maintenance & Management cost	
	Million VND	Thousand US \$	Million VND	Thousand US \$
1. Production & Supply Plan for High Quality Rice Seed	14,536	1,038.0	420	30.0
2. Production & Supply Plan for High Quality Fruit Seedling	725	52.0	25	1.8
3. Agricultural Extension and Training Plan	4,032	288.0	130	9.3
4. Agricultural mechanization services plan	12,903	921.0	300	21.0

Evaluation

Production & Supply Plan for High Quality Rice Seed : (Condition: Term=10year, FIRR12%)

Selected seeds can be expected to supply farmers. A farmer is burdened with 80,000VND per ha

to buy seeds. When making 5% of seed renewal, the load sum per 1cropping becomes only 4,000VND per ha.

Production & Supply Plan for High Quality Fruit Seedling : (Condition:Term=10year,FIRR12%)

Selected seedlings can be expected to supply farmers. A farmer is burdened with 20,000VND to buy a tree.

Agricultural Extension and Training Plan :

The improvement of farmer's farming technique and the improvement of quality and quantity of the production can be expected.

Agricultural mechanization services plan :

The improvement of quality and quantity of products can be expected. It is possible to collect the project cost in 5year from the income of the rental service.

Details of estimated data are refered to Table H.2.1 ~ 2.4

Table H.2.3 Seedling Multiplication Plan

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Estimated Cultivated Area	ha												
Mango	7,345	7,345	7,500	7,500	7,500	8,000	8,000	8,000	8,500	8,500	8,500	9,000	9,000
Longon	6,972	6,972	7,000	7,000	7,000	7,500	7,500	7,500	7,750	7,750	7,750	8,000	8,000
Citrus	1,484	1,484	1,500	1,500	1,500	1,700	1,700	1,700	1,900	1,900	1,900	2,000	2,000
Drigan	103	103	110	110	110	140	140	140	170	170	170	200	200
Number of tree planted	1,000												
Mango (300/ha)	2,204	2,204	2,250	2,250	2,250	2,400	2,400	2,400	2,550	2,550	2,550	2,700	2,700
Longon (300/ha)	2,092	2,092	2,100	2,100	2,100	2,250	2,250	2,250	2,325	2,325	2,325	2,400	2,400
Citrus (500/ha)	742	742	750	750	750	850	850	850	950	950	950	1,000	1,000
Drigan (500ha)	52	52	55	55	55	70	70	70	85	85	85	100	100
Expected Rate of Renewal tree	1.20%												
Requirement of Seedling													
Mango (300/ha)	26,442	26,442	27,000	27,000	27,000	28,800	28,800	28,800	30,600	30,600	30,600	32,400	32,400
Longon (300/ha)	25,099	25,099	25,200	25,200	25,200	27,000	27,000	27,000	27,900	27,900	27,900	28,800	28,800
Citrus (500/ha)	8,904	8,904	9,000	9,000	9,000	10,200	10,200	10,200	11,400	11,400	11,400	12,000	12,000
Drigan (500ha)	618	618	660	660	660	840	840	840	1,020	1,020	1,020	1,200	1,200
total	61,063	61,063	61,860	61,860	61,860	66,840	66,840	66,840	70,920	70,920	70,920	74,400	74,400
Implement period : 10years, FIRR12%													
Required cost	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000
Cost for one seedling	2,182	2,182	2,182	2,182	2,182	2,020	2,020	2,020	1,904	1,904	1,904	1,815	1,815

Table H.2.4 CASH FLOW CHART of Production & Supply Plan for Fruit Seedling

No Year	Cost			Benefit			12.0% of discount					
	Initial	O&M	Production cost	Total	Gross	Net	Cost	Benefit	Net benefit	Cost	Benefit	Net benefit
1 2000	0	0	0	0	0	0	0	0	0	0	0	0
2 2001	725	0	0	725	135	-590	578	108	-470	578	108	-470
3 2002	0	25	0	25	135	110	18	96	78	18	96	78
4 2003	0	25	0	25	135	110	16	86	70	16	86	70
5 2004	0	25	0	25	135	110	14	77	62	14	77	62
6 2005	0	25	0	25	135	110	13	68	56	13	68	56
7 2006	0	25	0	25	135	110	11	61	50	11	61	50
8 2007	0	25	0	25	135	110	10	55	44	10	55	44
9 2008	0	25	0	25	135	110	9	49	40	9	49	40
10 2009	0	25	0	25	135	110	8	43	35	8	43	35
11 2010	0	25	0	25	135	110	7	39	32	7	39	32
Total	725	225	0	950	1,350	400	684	681	-3	684	681	-3
NPV	12.0%		-3	12.0%		-3						
B/C Ratio	12.0%		1.0	12.0%		1.0						
IRR	=		11.8%									
Cultivation area of increase	ton		557	1,365	2,181	3,009	3,049	3,079	3,119	3,149	3,189	3,219
Certified seeds of increase	ha		84	206	329	454	461	465	471	476	482	486
With project												
Benefit (\$0.15/kg=2100VN/1,000\$			84	205	327	451	457	462	468	472	478	483
Production Cost (\$354/ha) 1,000\$			30	73	116	160	162	164	166	167	169	171