

APPENDIX - Q

Agricultural Production Plan

APPENDIX - Q AGRICULTURAL PRODUCTION PLAN

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APPENDIX - Q AGRICULTURAL PRODUCTION PLAN

Chapter 1 BASIC APPROACH ON AGRICULTURAL PRODUCTION

Basic approach on strengthening and promotion of crop production plan is principally simultaneous of the Master Plan study in this study.

The areas of the priority irrigation schemes are the in the Dry Zone of the Agro-ecological Zone and the access to major market is situated similar condition. These conditions are the same as the previous study though the Intermediate Zone is not included in this study. Significant difference between the major irrigation scheme and the others was recognised on agricultural production but not on the Agro-ecological zones.

The plan for the priority irrigation schemes is prepared based on the intention of participants of PDM workshops and the field observation in the respective scheme and basic ideas for formulating the plan are as follows.

- Effective land use is essential for increasing farmers' income at present situation.
- Soils suitable for OFCs are largely available in paddy land.
- Technologies for paddy and all the OFCs are available on the agricultural extension services, however these are not popularly practised in the farming.
- High yielding paddy production is possible in respective schemes though large variation is in general.
- Advanced farmers carrying on profitable cropping of OFC with possible water supply facility are available within the schemes or surroundings.
- Agricultural production programmes are to be implemented within the programmes of the Agricultural Support Plan.
- Technology applied in the Plan is principally taken from the recommendation of the Department of Agriculture. Technology is to be adjusted to adapt respective production sites based on the results of the Project activities.
- Implement agency on agricultural production is based on the present agricultural extension and research institutions.
- The Project implementation of agricultural production is to be conducted from planning to activities by close communication between the participants and the implement agencies.

Chapter 2 CONSTRAINTS AND POTENTIAL OF CROP PRODUCTION

2.1 Constraints on Crop Production

Constraints and needs in respective scheme of the priority irrigation schemes on crop production are identified from various study and workshops. Basic information on crop cultivation is obtained by the inventory survey and the interview survey. Actual cultivation practices and farming are observed through field survey and interview to farmers and agricultural extension workers. Idea and intention on agriculture is interviewed to participants of PCM workshops.

The problem that farmers raised commonly on farm management is; i) high prices of inputs materials, ii) low yielding, iii) no market and marketing system and iv) low prices of products. The problem in the field on crop cultivation is; i) water supply, ii) wild animal, wild elephant, iii) pests and diseases, iv) weeds and followed by various situations.

Nachchaduwa

In Nachchaduwa, high doses of fertilizer are applied but the yield response is low comparing the inputs level to yield level. Crop management on amount and time of fertiliser application, proper weed and other pest management are affected to the yield level. Improper land preparation due to the limited preparation period is also pointed out by the research officers. Crop diversification and high yielding are not practiced popularly on OFC cultivation. The scheme is relatively better access to water sources and more crops should be introduced in the paddy land for producing large and small quantity depending upon the market demand.

Palukadawela

Paddy yield of Palukadawela scheme is close to Nachchaduwa scheme, however the yield level does not respond to fertiliser application. In Yala, cultivation area dropped, the yield level is also very low and lower amount of fertiliser is applied. Paddy yield should be increased by improving crop management in the field of secure water supply. Effective land use to adapt water condition by diversify cropping pattern is required.

Periyakulama

Periyakulama scheme is low cropping intensity in both Maha and Yala season and needs more OFC cultivation to adapt scarce water condition. Large variety of crops is adaptable for preferable marketing access that the scheme is along the main road of Anuradhapura- Dambulla-Kurunegala-Colombo. Strong approach of

OFC crop diversification is required through extension works on technical and management of crop production to meet market demands.

Mahananneriya

Mahananneriya scheme is a medium scheme, however paddy cultivation in Yala is not practiced. Land use both in Maha and Yala is low, and OFC in paddy land is cultivated in very small area. Yield level of paddy cultivation is the lowest among the priority irrigation schemes and only chilli yield is remarkable as high as DOA target level. Improvement of paddy productivity is the first need for the secure water supply field and OFC promotion in the less secure field.

Minor Cascade of Mahananneriya

Minor cascade of Mahananneriya is also scarce water scheme and the lowest cropping intensity among the priority irrigation schemes. The scheme is also almost no cultivation, only 0.6ha in average, in Yala season. OFC cultivation in paddy land under irrigation is confirmed not practised and is practised in rainfed paddy land some times. The needs for the scheme is similar to Mahananneriya medium scheme that intensive paddy cultivation in the secure water supply field and the promotion of OFC production in the field of less secure water condition.

2.2 Potential of Crop Production

Agro-ecological condition of the priority irrigation schemes are belong to the Dry Zone and paddy and OFCs cultivation are conducted with seasonal rainfall and irrigation water from reserved tanks. Dry climate and soil types (Reddish Brown Earth and Non Calcic Soil) are favourable for OFCs.

Water resource is possible to utilise effectively through rehabilitation and improvement of irrigation facilities, and strengthen water management.

Principally farmers in the priority irrigation schemes are producing many kinds of crops under paddy land, highland and homestead. Crops other than paddy are cultivated mostly in highland condition or in rainfed paddy land. OFC cultivation as vegetables and chilli is practiced seasonally under rainfed condition or throughout the year with water sources of agro-well and water pump. These are carrying on by advanced farmers in the schemes and some specific areas around the priority irrigation schemes. Farmers' first choice of crop cultivation is paddy if water is available, however paddy land is not fully used due to insufficient water and poor water management at present.

The priority irrigation schemes are located at favourable condition to the Capital market and Dambulla re-distribution centre of agricultural commodity by the main

roads of Anuradhapura-Kurunegala-Colombo road and Anuradhapura-Colombo road.

Farmers in the schemes are strong intention for improvement of income condition. They are earning non-agriculture income, however potential of further increase is not large. An effective land use of paddy land for intensive cultivation practices under irrigated condition for paddy and OFC is possible by improvement of the irrigation facilities and water management. Appropriate cropping patterns and cultivation practices adapting to the water condition is possible to increase productivity of paddy and OFC cultivations.

Chapter 3 CROP PRODUCTION PLAN

3.1 Basic Concept of the Agricultural Production

Basic concept on the agricultural production is considered based on the existing situation of the priority irrigation schemes, farmers' intention on farming and the agriculture and economic situation of the country.

- Paddy production is the first priority of farmers in the schemes
- Cropping pattern is to be arranged based on water potential
- Crops in the plan are to be selected based on adaptability, profitability and sustainability of farming
- Crop production is basically market oriented for increasing income

3.2 Proposed Crop Cultivation

(1) Crops

The proposed crops to be introduced in the irrigation schemes are as follows, taking into account of marketability, farmers' intention, profitability and sustainable farming. Proposed crops are flexible to meet market demand, financial situation, available labour and other factors of farmers and market.

Proposed Crops

Introduced Crops	Background of Selection	Crop Season
Paddy	Farmer's Request. Home consumption of the staple food of household	Maha, Yala
OFC • Vegetable		
Sesame	Expected for export market, demand in domestic market, Processing (oil for domestic market), Low labour inputs	Yala
Chili	Importing, High demand of domestic market, High farmer's intention	Maha, Yala
Onion	Importing, high demand of domestic market, strong intention in Minor scheme	Yala (B' onion), Maha (Red)
Pulses	Rotation, Soil maintenance	Maha, Yala
Vegetables (Egg Plant, Okra, cucurbits, etc)	High return crop, Selection on transport and storage capability for marketing.	Maha, Yala

In addition to these crops, limes for processing and cashew nut for export market are potential crops. These crops are recommendable for small-scale cultivation in highland and homestead garden.

(2) Cropping Pattern

Proposed cropping pattern is prepared by considering potential of water resource, agro-ecological zone of the DOA and strong farmers' intention to paddy cultiva-

tion. The priority irrigation schemes are classified in potential water resource and the Agro-ecological Zone as the Master Plan.

Proposed Cropping Pattern

	Water Resources		Agro-ecological Zone	Classification	Proposed Cropping Pattern*2	Name of Scheme
	Increase C.I. *1	Potential				
Major	<50%	M	D	MD	OFC	Nachchaduwa
	Nearly 0%	L	D	LD	OFC	Palukadawela
Medium	Over 50%	H	D	HD	Paddy	Mahananneriya
	<50%	M	D	MD	OFC	Periyakulama
Minor	Over 50%	H	D	HD	Paddy	Minor Cascade VII

*1 C.I.= Cropping Intensity, *2 : OFC promotion pattern, Paddy: Paddy strengthening pattern

Note: Increment of crop intensity rate in the above table is shown potential irrigation area by 75% dependability without project and with project. Larger figure exhibits larger increment of paddy irrigation area after the implementation of the Project. The classification was made into three (3) levels over 50% as high (H), less than 50% as medium (M) and around 0% as low (L) in the table. Agro-ecological zone is divided into the Lowland Dry zone (D) and the Lowland Intermediate zone (I). The Class is the combination of potential water resource and agro-ecological zones.

The irrigation schemes are classified into six classes as HD, HI, MD, MI, LD and LI, as indicated in the above table. The priority irrigation schemes belong to the Dry Zone. Based on this classification, two types of cropping patterns of paddy strengthening pattern and OFC promotion pattern are proposed.

Paddy strengthening schemes are classified in the high potential in the Dry and the Intermediate zones and the medium potential of the Intermediate zone for higher rainfall as of HD, HI and MI. OFC promotion schemes are selected in the low potential in the Dry and the Intermediate zones and the medium potential in the Dry zone as of LD, LI and MD.

The rate and the proposed extent of paddy and OFC cultivation by cropping patterns are estimated as follows by the irrigation schemes.

Target Extent of Paddy and OFC Cultivation in the Priority Scheme

	Paddy Strengthening Pattern				OFC Promotion Pattern				Paddy Area Total	OFC Area Total
	Maha		Yala		Maha		Yala			
	Paddy	OFC	Paddy	OFC	Paddy	OFC	Paddy	OFC		
Cultivation Rate	100%	-	90	10%	90%	10%	80%	20%		
Cultivation Area										
Nachchaduwa					2,286	254	2,032	508	4,318	762
Palukadawela					860	96	346	87	1,206	180
Periyakulama					82	9	42	10	124	19
Mahananneriya	158	-	140	16					298	16
Minor Cascade VII	215	-	93	10					308	10
Total (ha)	373	-	233	26	3,228	359	2,420	605	6,254	987

Unit: ha. Note: Above OFC including Vegetable

(3) Crop Cultivation Area

Crop cultivation of the proposed crops determined on marketability, adaptability, profitability, labour use etc. as mentioned. The rates of cropping area on OFCs in the cropping patterns and seasons are as follows. In the paddy strengthening pattern, OFC is proposed only in Yala for income generation and effective land use. Paddy is still shared large portion in the OFC promotion pattern. It is based on the farmers' principal intention on paddy production and OFC cultivation is expected that to be expanded according to their experience with cultivation and marketing. Proposed cropping area of respective schemes is shown in Table Q 3.1.

Proposed Cropping Rate by Cropping Patterns

Paddy Strengthening Pattern								
	Paddy	Sesame	Chili	B'onion	Red onion	Pulses	Vegetables	Total
Rate in Maha (%)	100	0	0	0	0	0	0	100
Rate in Yala (%)	90	2	2.5	2	0	2.5	1	100

OFC Promotion Pattern								
	Paddy	Sesame	Chili	B'onion	Red onion	Pulses	Vegetables	Total
Rate in Maha (%)	90	0	3	0	2	3.5	1.5	100
Rate in Yala (%)	80	4	5	4	0	5	2	100

3.3 Anticipated Yield

The yield levels of proposed crops are determined based upon the DOA target yield. Paddy yield is adjusted for gap between present yield and the extension target. OFC yield level may be under estimated. Actual condition in the schemes is under preferable irrigated condition for OFCs and intensive care is applicable. Vegetable as eggplant is harvested 6 to 8 months and harvested over 15 tonnes under irrigation at present.

Anticipated Unit Yield of Proposed Crops

(Unit: kg/ha)

Paddy		OFC					
Maha	Yala	Sesame	Chili	B'onion	Red onion	Pulses	Vegetables
5,000	5,000	900	1,500	10,000	15,000	1,500	10,000

3.4 Proposed Crop Production

Based on the proposed cultivation area, the anticipated yields and the cropping rates, the production in the priority irrigation schemes is estimated as following table. Paddy production increases by proposed plan in respective schemes are 4,658, 2,831, 1,114 and 1,091 tones in Nachchaduwa, Palkadawela, Periyakulama, Mahananneriya and Minor Cascade of Mahananneriya. OFC production is to increase by 2,268, 725, 34, 4 and 9 tones respectively. Detail of production with and without project is shown in Table Q 3.2.

Proposed Crop Production in the Priority Irrigation Schemes

(Unit: ton/Scheme)

SCHEME		Major		Medium		Minor
SHEET CODE		1MA-01	4MA-01	1ME-04	4ME-01	Cascade
Name of Scheme		Nachchaduwa	Palkadawela	Periyakulama	Mahananneriya	VII
Maha Cultivation	Paddy	11,430	4,302	410	790	1,075
	OFC	Sesame	-	-	-	-
		Chili	114	43	4	-
		B'onion	-	-	-	-
		Red onion	762	287	27	-
		Pulses	133	50	5	-
		Vegetables	381	143	14	-
		OFC Total	1,391	523	50	-
	Total	12,821	4,825	459	790	1,075
Yala Cultivation	Paddy	10,160	1,730	210	699	470
	OFC	Sesame	91	16	2	3
		Chili	191	32	4	6
		B'onion	1,016	173	21	31
		Red onion	-	-	-	-
		Pulses	191	32	4	6
		Vegetables	508	87	10	16
		Total	1,996	340	41	61
	Total	12,156	2,070	251	760	511
Annual	Total	Paddy	21,590	6,032	620	1,489
		OFC	3,387	863	91	61
		Total	24,977	6,895	710	1,550

3.5 Proposed Cultivation Practices

(1) Crop management

Proposed farming in the irrigated paddy land emphasises intensive crop cultivation under diversified crop production. The risk of unreliable water supply, especially on OFC, is to be reduced through the implementation of the rehabilitation of irrigation facilities, improvement of water management and applying proposed cropping patterns. The major technical approach on farming practices is on water management and crop management such as an appropriate plant density, an efficient fertiliser application, an effective pest management, an effective labour use, and an appropriate harvest and post-harvest technique. In addition to crop production, livestock development and fishery development are considered in the income generation programmes. The following farming practices are applied through the implementation of the programmes.

1) Paddy cultivation

- Effective water management is to be carried out by farmers' organisation responsible for maintaining a secure water supply.
- Quality seeds are to be utilised arranged through quality seed production in the schemes or in the area.
- Right amount of seeds are to be planted by appropriate seed supply and water management.

- The right kind and amount of fertiliser is to be applied.(Table Q 3.3)
- Straight fertilisers are to be utilised for reliable nutrient contents and economical reasons. Re-cycling of paddy straw and other organic matter is also recommended for soil maintenance.
- Entire system of pest control as the Integrated Pest Management (IPM) is to be practiced generally for economical reason and for environmental consideration.
- Labour use is to taken into account on its cost-effect of use of family and hired workers on expected cropping pattern and farming.
- Inputs materials and technical supports are to be arranged by organised production group or strengthened FO.
- Technical and management training and demonstration are to be applied for production group.
- Technical support is to be conducted through practical demonstrations.
- Agricultural credit arrangement is to be applied through training.

2) OFCs and vegetables

- Effective water management is to be carried out by farmers' organisation responsible for maintaining a secure water supply.
- Crop is to be selected based on market information, the adaptability and profitability based on the available resources.
- Seeds of OFCs and vegetable are to be produced in the scheme or in the area in the previous crop season according to the plan.
- Crop calendar is to be decided within the group before the season for necessary arrangement.
- Crop management as inputs materials and inputs levels is to be discussed in the group before the season for profitable management.
- Economical management is to be practiced for profitable cropping.
- Marketing activities are to be emphasised for profitable farming.
- Inputs materials and technical supports are to be arranged by organised production group or strengthened FO.
- Technical and management training and demonstration are to be applied for production group.
- Technical support is to be conducted through practical demonstrations.
- Agricultural credit arrangement is to be applied through training.

(2) Cropping calendar

Farmer in most of the place prefers and intended to cultivate paddy and they are waiting rainfall even after December and January. However as the past record exhibited in crop intensity, large part of paddy field has not been used. OFC

cultivation is recommended in the Lowland Dry zone in the irrigated condition for less water requirement. Switching cultivation from paddy to OFC is recommended for food security and income generation in the unstable water area and when rainfall delayed. OFC cultivation under irrigated condition brings higher yielding and stable production. The plan is to determined cultivation plot according to the cropping pattern. Planned paddy field, which required larger amount of water, is to recommend paddy cultivation before December in Maha cultivation then switching to OFC when rainfall has delayed. Late planting is affected by the outbreak of insect damage and Yala cultivation. (Figure Q 3.1)

- (a) Maha cultivation of paddy should start in October and finish before the end of November.
- (b) Crop cultivation in paddy land should be switched to OFCs in the first week of December in Maha cultivation. Then harvesting is to terminate before end of March by crop selection.
- (c) In Yala cultivation, paddy and OFCs are to start at the same time in March to April. Paddy and OFC cultivation area should be decided depending upon the predictable rainfall and water supply. Then harvesting of both crops comes during the dry spell in June to August without overlapping labour use.
- (d) OFCs in highland are to start from September and harvesting soon after heavy rainfall.

For flexible cropping on OFCs, shortage of inputs especially seeds supply is raised. Seed production has to be done in previous cropping season within the organised area, as in the Mahaweli System 'H'.

3.6 Crop Budget

Information of inputs and prices for the cropping budget are utilised basically from the farmers' interview survey and the technical recommendations of DOA and other reliable sources for the budget estimation.

Price of product: Unit prices of products are principally taken from the average of the interview survey. However on paddy, price is taken an average of Major scheme at Rs. 11.2 due to the reason that paddy price in the study area has changed from 1998Yala to 98/99 Maha by Rs. 10.1 to Rs. 12.3 according to DOA "Cost of Cultivation". Prices of pulses and vegetable in the survey included various type of crops in each category, therefore the prices are adapted from other information.

Seed rate: Seed rate is determined based on DOA's recommendation.

Fertiliser application: Fertiliser levels are DOA's recommendation for the target yield of 120 bushel/acre (6000kg/ha) and kinds of fertiliser are straight fertiliser as Urea, Triple Super Phosphate (TSP) and Muriate of Potash (MOP).

Agro-chemicals: The damages of pests, as weed, insect and disease, vary their levels of damages by season and area. Types and amount of chemicals were determined by DOA's Techno-guide and pesticide recommendation.

Labour: Labour uses are taken from averages of the major scheme and the medium and minor schemes of the questionnaire survey. Wage rate is applied Rs.150 per day in all labour work from the scheme average across individual schemes.

Machinery and animal power: The inputs level and charges are applied on the average of the major and the medium and minor schemes of the questionnaire survey.

Others: The cost for threshing and transport is based on the average cost. Miscellaneous is counted at five (5) percent of the production cost.

The summaries of the summaries of crop budget per hector base of "without project" and "with project" are shown below. Proposed individual crop budget is in Table Q 3.4.

Summary of Cropping Budget Without Project

Irrigation Scheme		Yield (ton/ha)	Price (Rs./kg)	Gross Income	Production Cost	Net Income (Rs./ha)
Paddy Maha	Nachchaduwa	4.43	11.50	50,945	39,135	11,810
	Palkadawela	3.55	11.20	39,760	29,040	10,720
	Periyakulama	4.15	10.20	42,330	27,280	15,050
	Mahananneriya	2.71	8.90	24,119	24,710	-591
	Minor Cascade	3.16	9.46	29,903	26,510	3,393
Paddy Yala	Nachchaduwa	3.81	11.50	43,815	36,554	7,261
	Palkadawela	2.66	11.20	29,792	23,550	6,242
	Periyakulama	3.56	10.20	36,312	26,100	10,212
	Mahananneriya	-	8.90	-	-	-
	Minor Cascade	4.40	9.46	41,624	16,620	25,004
OFC	Nachchaduwa	0.67	63.10	42,277	90,974	-48,697
	Palkadawela	0.55	50.63	28,525	36,371	-7,846
	Periyakulama	1.15	44.13	32,279	25,147	7,133
	Mahananneriya	1.10	59.20	82,139	32,490	49,649
	Minor Cascade	-	-	-	-	-

Summary of Crop Budget - With Project

Schemes	Crops		Yield (kg/ha)	Price (Rs./kg)	Gross Income	Production Cost	Net Income (Rs./ha)
Nachchaduwa Palkadawela	Paddy	Maha	5,000	11.2	56,000	32,971	23,029
		Yala	5,000	11.2	56,000	32,075	23,925
	OFC	Sesame	900	25.6	23,040	20,343	2,697
		Pulses	1,500	27.3	40,950	24,858	16,092
		Chili	1,500	81.8	122,700	73,670	49,030
		B'onion	10,000	34.3	343,000	73,102	269,898
		Red onion	15,000	42.6	639,000	220,623	418,377
		Vegetables	10,000	19.2	192,000	65,773	126,227
Periyakulama Mahanannneriya Minor Cascade	Paddy	Maha	5,000	11.2	56,000	32,461	23,539
		Yala	5,000	11.2	56,000	32,511	23,489
	OFC	Sesame	900	25.6	23,040	18,735	4,305
		Pulses	1,500	27.3	40,950	21,760	19,190
		Chili	1,500	81.8	122,700	60,077	62,623
		B'onion	10,000	34.3	343,000	73,955	269,045
		Red onion	15,000	42.6	639,000	210,633	428,367
		Vegetables	10,000	19.2	192,000	66,593	125,407

Chapter 4 OPERATION PLAN

4.1 Operation Procedure of Agricultural Production

(1) Basic concept of the activity

The Project activities on agricultural production are to be operated within the agricultural support programmes. The types of programmes are field programme and farmer training programme in the extension programme, and seed production programme. Target field of agricultural production for paddy and OFCs is paddy land under irrigated condition.

The Project activities are initialised by awareness programmes for understanding the Project concepts, the Project activities and the Project procedures. The concept of agricultural production and the procedure of activities are to be adopted to the beneficiaries. An initial stage of activity units at field levels as production groups, F-canal groups and farmers' organisations (FO) depending upon the activity are to be organised during the awareness programme. The subject of agricultural project on adaptive trials, demonstrations and training programmes for initial movement are also to be discussed in this period.

An actual programme of agricultural production is to start in the second year. The activity of agricultural production in the Project is always associating with water management. The support programme on agriculture production is to be adopted basic concepts for preceding the activities as follows.

- Activities are to be Participatory bases of beneficiaries group and the Project implementers.
- Subjects and activities are field based and practical.
- Agricultural production programmes are to be management base and to bear benefit for participants.

(1) Priority subject of agricultural production

Basic approaches for the individual schemes are formulated in the Project Design Matrix. The subjects of improvement of agriculture in respective scheme are identified as follows.

Major Approach on Improvement of Agriculture in the Priority Irrigation Schemes

Scheme	Improvement Approach	
Nachchaduwa	1	Promote crop diversification
	2	Strengthen agricultural extension services
	3	Improve marketing of farm inputs and outputs
	4	Improve credit services for purchasing of farm inputs and equipment
Palkadawela	1	Promote crop cultivation in unused land
	2	Strengthen agricultural extension services
	3	Improve marketing of farm inputs and outputs
	4	Improve credit services for purchasing of farm inputs and equipment
Periyakulama	1	Promote OFC cultivation
	2	Strengthen agricultural extension services
	3	Improve marketing of farm inputs and outputs
	4	Improve credit services for purchasing of farm inputs and equipment
	5	Promote reforestation in the catchment area
Mahananneriya	1	Promote OFC cultivation
	2	Strengthen agricultural extension services
	3	Improve marketing of farm inputs and outputs
	4	Improve credit services for purchasing of farm inputs and equipment
	5	Promote reforestation in the catchment area
Minor Cascade	1	Promote OFC cultivation
	2	Strengthen agricultural extension services
	3	Improve marketing of farm inputs and outputs
	4	Improve credit services for purchasing of farm inputs and equipment
	5	Promote reforestation in the catchment area

4.2 Operation Plan

The programmes on agricultural production are to be implemented within the programme of the agricultural support and its related programmes are as follow.

Agricultural Support Programmes	
Extension Programme - Field Programme	
1. Adoptive trials	2. Small-scale demonstration
3. Cropping pattern demonstration	4. Large-scale demonstration
5. Productivity increase programme	6. IPM
Extension Programme - Farmer Training Programme	
1. Induction farmer training	2. Induction farmer guidance
3. Farmer training	4. Workshop/mass guidance
5. Campaign	6. Study tour
Seed production Programme	
1. Paddy seed production programme	2. OFC seed production programme

Application of respective programmes in the Project schemes during the Project period is shown in Table Q 4.1. The guideline of the activities of Field program, Farmer training programme and Seed production programme are briefly listed. Details are described in the Appendix – R “Proposed Plan of Agricultural Support Services”.

(1) Field Programme

Field programmes are to be carried out in the farmers' fields. Following activities are basically starting with DOA recommendation technologies then modified to be adaptable to respective scheme or production area by stages of progresses.

Adaptive trials: Trials are initiated with DOA technology package in order to identify adaptability to specific production sites. Specified cultivation element identified to be limiting factor for production is to be applied for trials at following stages.

Small-scale demonstration: The demonstration is to be applied at small scale on farming practices of paddy, OFC and vegetables. Package technology is to be applied at initial stage then identified practices or element are to be improved.

Cropping pattern demonstration: The recommended cropping patterns of paddy-OFCs in the respective scheme are to be demonstrated for promoting effective water management and land.

Large-scale demonstration: Fertiliser application and pest control programme on paddy cultivation are basically to be applied in the large scale as F-canal group. Certain bulk of production for marketing approach is also applicable on OFC and vegetable production in addition to fertiliser and pest management.

Paddy productivity increase: Intensive cultivation practice on high yielding is to be applied in the potential scheme.

IPM: In addition to packaged recommendation technique, the activity is to be applied in the area where suffering substantial losses by weeds, insects and diseases.

(2) Farmer Training Programme

Induction trainings are to apply for understanding the system of support services and programme's role in the Project at initial stage. Farmers' trainings, workshops and study tour are to be conducted based on the needs and problems identified by the participants in the project schemes.

Induction Farmer training: This is to be conducted at the in-service training institute for representatives of FO and group, and AI at initial stage of the Project. It is induction guidance to beneficiaries on the approaches for supporting services introduced under the Project. Dissemination of approaches taken under the Project, including envisaged participatory approaches & expected beneficiaries contribution in the supporting programs. General guidance on supporting services introduced under the Project

Induction farmer guidance: This is to be conducted in the project area or in the

villages at initial stage of the Project. It is induction guidance to beneficiaries on the approaches for supporting services introduced under the Project. Dissemination of approaches taken under the Project, including envisaged participatory approaches & expected beneficiaries contribution in the supporting programs. General guidance on supporting services introduced under the Project

Farmer training: Farmer training is to be applied for needs bases on water management, crop management, marketing, crop protection and others.

Workshop/Mass guidance: Workshop is to be conducted for planning of support programme and evaluation, and guidance is for technical issues.

Campaign: According to the activity plan, campaign is to be conducted for specific subject as quality seed use, pest control, OFC promotion etc.

Study tour: Field visit of advanced scheme and area expected by above activities.

(3) Seed Production Programme

Seed production programme is to be initiated after identification that problem of procurement quality seed and in schemes or FOs that low adoption rate of quality seed.

Paddy seed production: This is to be applied for improvement and ensure quality seed supply.

OFC and vegetable seed production: This is to be applied for improvement and ensure seed supply of required kinds with quality according to the production plan.

4.3 Technical Elements on Crop Production

Following individual element on crop production possibly occur during the Project implementation in the schemes. It is not specified in schemes why the farmers' cropping practices are varied.

(1) Paddy Production

All the Project participants have been experienced paddy cultivation. The programme is aiming at strengthening producers' technical and management skills for profitable farming. Technical package of paddy cultivation according to agro-ecological zones and soil types prepared by DOA is available in extension service

Planting time: Delay planting causes an insect attack and meet rain at harvest in Maha season. It recommends an effective land use by switching to OFCs.

Land preparation: Deep ploughing is recommended, however short period of land preparation makes shallow ploughing.

Quality seed: Quality deterioration by repeatedly use of own seed is problem. Available sources for procurement and seed production in the scheme are needed.

Fertilizer application: Appropriate kinds, amount and timing are effecting directly for yield level. Excess dose of application is observed in some scheme. Yield response to application and economical effect have to check carefully. Use of organic matters as rice straw, cattle manure and green manure may need to consider for productivity improvement.

Weed control: Selection of weedicide according to existing weeds and appropriate amount are affecting yield and quality of products. IPM programme.

Insects and diseases control: Selection and application time of proper agro-chemical according to the degree of the outbreak. IPM programme.

Other pest control: Wild animals as elephant, rat and wild pig are serious problem in many schemes. Organisation for protection is recommended.

Harvest and post harvest: Timing of harvest is affecting for quality and yield loss. Effective use of labour may need to consider by the way of work and sources of labour. Effective use of machinery may need to consider for maintaining quality and economical efficiency.

Storage: Storage may need to consider for maintaining quality and protecting from pest attack.

Marketing: Major problem on marketing paddy is the price and the destination. Market information services and negotiable power by organization may need.

(2) OFCs Promotion

OFCs cultivations under irrigated paddy lands are not popularly practiced at present though those are cultivated in highland condition. Therefore OFC promotion programme is to be initiated by induction and demonstration programmes in the field and training programmes of crop management and marketing. Participants have to general idea and knowledge on OFC production and production management prior to take an action.

Land selection: Well drain soil as Reddish Brown Earth and Non Calcic Brown Soil are recommended for OFCs. Marginal part of scheme and upper part of slope are adapted for cultivation.

Water management: Required water differs from paddy and highland cultivation at initial stage. A year round water may require for vegetables when progressed.

Crop selection: Market information is essential. Market demand prediction may need sometime till being accustomed.

Time of planting: It relates with available water supply, market demand, price fluctuation, inputs procurement and etc.

Seed: Reliability of purchased seeds, availability of required seed in kinds and quantity may occur.

Nursery management: Poor germination, excess or short of water and fertiliser application, weed and pest control and timing of transplanting may occur.

Plant density: Excess or insufficient spacing and plant stands may occur.

Fertiliser application: Kinds, amount and timing of application with yield response and economical return are needed to pay attention. Use of organic matter may need to consider for productivity improvement and sustainable farming.

Weed: Selection of chemical according to kind of weeds or hand weeding may need to consider by economical efficiency and available labour forces.

Pest management: Right kind and amount according to the outbreaks are needed.

Harvesting: Right time of harvesting is required for quality on vegetables and fruits. Delay harvests may cause crop loss and pest attack.

Marketing: Market information is essential. Communication with marketing personnel is to be considered. Market access and prices are major issue. Regular market channel may require. Collecting point and Pola may require according to the production increase.

(3) Seed Production

Seed production is on-going extension work at present. The programme in the Project is to be initiated according to improvement of the cultivation technique. A group and scheme, which face limitation of quality seed procurement and low rate of quality seed use, are to be target.

Qualified seeds: Register seed supply should be established.

Fertiliser application: Right kinds, amount and application time for qualified products should be practiced.

Pest management: Right kinds, amount and time according to the outbreaks for qualified products should be practiced.

Harvesting: Appropriate time of harvest by maturity and moisture content should be considered by kinds of crops.

Post-harvest technology: Threshing, shelling, sorting, drying and storage are important process of maintaining qualified seeds.

Marketing and distribution: Planning for distribution in the scheme and other marketing channels is needed for secure profit.

TABLES

Table Q 3.1 Proposed Cropping Pattern in the Priority Irrigation Schemes

SCHEME			Major		Medium		Minor	Total
Commanding Area			2,540	956	91	158	260	4,005
Name of Scheme			Nachchaduwa	Palkadawela	Periyakulama	Mahananneriya	Minor Cascade VII	
Maha Cultivation	Paddy		2,286	860	82	158	215	3,601
	OFC	Sesame						
		Chilli	76	29	3			108
		B'onion						
		Red onion	51	19	2			72
		Pulse	89	33	3			126
		Vegetable	38	14	1			54
	Paddy Total		2,286	860	82	158	215	3,601
	OFC Total		254	96	9			359
	Total		2,540	956	91	158	215	3,960
Yala Cultivation	Paddy		2,032	346	42	140	94	2,654
	OFC	Sesame	102	17	2	3	2	126
		Chilli	127	22	3	4	3	158
		B'onion	102	17	2	3	2	126
		Red onion						
		Pulse	127	22	3	4	3	158
		Vegetable	51	9	1	2	1	63
	Paddy Total		2,032	346	42	140	94	2,654
	OFC Total		508	87	9	16	10	630
	Total		2,540	433	51	155	104	3,284
Annual	Total	Paddy	4,318	1,360	124	298	309	6,409
		OFC	762	221	18	16	10	1,027
		Total	5,080	1,389	142	313	319	7,244
	Cropping Intensity (%)	Paddy	170	142	136	189	119	151
		OFC	30	23	20	10	4	17
		Total	200	145	156	198	123	165

Table Q 3.2 Crop Production Without and With Project

Scheme				Major		Medium		Minor		
Sheet Code				1MA-01	4MA-01	1ME-04	4ME-01	Cascade		
Irrigation Scheme				Nachchaduwa	Palkadawela	Periyakulama	Mahananneriya	VII		
Commanding Area (ha)				2,540	956	91	158	260		
Without Project	Cropping Area (ha/Scheme)	Paddy Cultivation		Maha	2,540	956	91	158	150	
		Yala			1,473	433	19		12	
	OFC Cultivation		Sesame		94.0			0.9		
			Pulses		47.0		5.1	1.3		
			Chili	202.0	47.0		6.9	2.0		
			B'onion							
			Red onion		4.0			0.1		
			Vegetables					0.9		
	Annual Total		Paddy	4,013	1,389	110	158	162		
			OFC	202	192	-	12	5		
Total			4,215	1,581	110	170	167			
With Project	Cropping Area (ha/Scheme)	Paddy Cultivation		Maha	2,286	860	82	158	215	
		Yala			2,032	346	42	140	94	
		OFC	Maha Cultivation	Sesame						
				Pulses	89	33	3			
				Chili	76	29	3			
				B'onion						
			Yala Cultivation	Red onion	51	19	2			
				Vegetables	38	14	1			
				Sesame	102	17	2	3	2	
				Pulses	127	22	3	4	3	
		Annual Total	Maha Cultivation	Chili	127	22	3	4	3	
				B'onion	102	17	2	3	2	
	Red onion									
	Vegetables			51	9	1	2	1		
	Annual Total		Maha Cultivation	Paddy	4,318	1,206	124	298	309	
				OFC	762	183	20	16	10	
				Total	5,080	1,389	144	313	319	
	Increment by the Project				Paddy	305	-183	14	140	147
					OFC	560	-9	20	4	5
Total					865	-192	34	143	152	
Without Project	Cropping Area (ha/Scheme)	Paddy Cultivation		Maha	4,430	3,550	4,150	2,710	3,161	
		Yala			3,810	2,660	3,560		4,400	
		OFC Cultivation	Sesame			250	370			
			Pulses			570		490		
			Chili	670	380	390	1,710			
			B'onion							
			Red onion		1,000					
			Vegetables			2,680				
	Annual Total		Maha Cultivation	Paddy	5,000	5,000	5,000	5,000	5,000	
				Yala	5,000	5,000	5,000	5,000	5,000	
With Project	Yield (kg/ha)	Paddy Cultivation	Maha	5,000	5,000	5,000	5,000	5,000		
			Yala	5,000	5,000	5,000	5,000	5,000		
			OFC	Maha Cultivation	Sesame					
					Pulses	1,500	1,500	1,500	1,500	1,500
		Chili			1,500	1,500	1,500	1,500	1,500	
		B'onion								
		Yala Cultivation		Red onion	15,000	15,000	15,000	15,000	15,000	
				Vegetables	10,000	10,000	10,000	10,000	10,000	
				Sesame	900	900	900	900	900	
				Pulses	1,500	1,500	1,500	1,500	1,500	
		Annual Total	Maha Cultivation	Chili	1,500	1,500	1,500	1,500	1,500	
				B'onion	10,000	10,000	10,000	10,000	10,000	
Red onion										
Vegetables	10,000			10,000	10,000	10,000	10,000			
Without Project	Crop Production (ton/scheme)	Paddy Cultivation		Maha	11,252	3,394	378	428	474	
		Yala			5,612	1,152	68	-	53	
		OFC Cultivation	Sesame	-	24	-	-	-		
			Pulses	-	27	-	2	-		
			Chili	135	18	-	12	-		
			B'onion	-	-	-	-	-		
			Red onion	-	4	-	-	-		
			Vegetables	-	-	-	-	-		
	Annual Total		Maha Cultivation	Paddy	16,864	4,546	445	428	527	
				OFC	135	72	-	14	-	
Total				17,000	4,618	445	442	527		
With Project	Crop Production (ton/scheme)	Paddy Cultivation		Maha	11,430	4,302	410	790	1,075	
		Yala			10,160	1,730	210	699	470	
		OFC	Maha Cultivation	Sesame	-	-	-	-	-	
				Pulses	133	50	5	-	-	
				Chili	114	43	4	-	-	
				B'onion	-	-	-	-	-	
			Yala Cultivation	Red onion	762	287	27	-	-	
				Vegetables	381	143	14	-	-	
				Sesame	91	15	2	3	2	
				Pulses	191	33	5	6	4	
		Annual Total	Maha Cultivation	Chili	191	33	5	6	4	
				B'onion	1,016	170	18	31	21	
	Red onion			-	-	-	-	-		
	Vegetables			508	90	9	16	10		
Annual Total		Maha Cultivation	Paddy	21,590	6,032	620	1,489	1,545		
			OFC	3,387	865	88	61	41		
			Total	24,977	6,897	708	1,550	1,585		
Increment by the Project				Paddy	4,726	1,486	174	1,061	1,018	
				OFC	3,252	793	88	47	41	
				Total	7,977	2,279	262	1,108	1,051	

Table Q 3.3 Paddy High Yielding Action Plan

1. End the cultivation during the same period.
 - Maha Harvesting should be done during Feb 15 to Mar 15
2. Good land preparation:
 - Deep ploughing
 - Turing the soil
 - Good leveling
3. Organic Manure Use
 - Rice Straw
 - Green Manure
 - Cowdung
4. Suitable Variety Selection
 - Suitable for area
 - Suitable for time
 - Suitable for soil
 - According to irrigation facilities(water availability)
5. Quality Seed Use
6. Required Planting Density/Sowing
7. Straight Fertilizer Use
8. Weed Control
9. Pests & Diseases Control (IPM)
10. Basic Post-harvest Techniques
 - Prevention of crop waste and damages
11. Fertilizer application
 - Fertilizer recommendation by target yield and maturity types

Fertilizer Recommendation by Target Yield and Maturity Types

Target Yield :	6 MT/ha(120 bu./acre)			7 MT/ha(140 bu./acre)		
Variety: 3 month						
Fertilizer Application (kg/ha)	Urea	TSP	MOP	Urea	TSP	MOP
1: Basic Application	49	86	37	49	111	37
2: 3 weeks after sowing (2 wks after Transplanting)	62			74		
3: 6 weeks after sowing (4 wks after transplanting)	148		12	185		37
Total	259	86	49	309	111	74
Variety: 3 1/2 month						
Fertilizer Application (kg/ha)	Urea	TSP	MOP	Urea	TSP	MOP
1: Basic Application	49	86	37	49	111	37
2: 3 weeks after sowing (2 wks after Transplanting)	62			74		
3: 7 weeks after sowing (5 wks after transplanting)	148		12	185		37
Total	259	86	49	309	111	74
Variety: 4 month						
Fertilizer Application (kg/ha)	Urea	TSP	MOP	Urea	TSP	MOP
1: Basic Application	49	86	37	49	111	37
2: 3 weeks after sowing (2 wks after Transplanting)	62			74		
3: 6 weeks after sowing (5 wks after transplanting)	49			49		
4: 9 weeks after sowing (7 wks after transplanting)	99		12	136		37
Total	259	86	49	309	111	74
Variety: 4 1/2month						
Fertilizer Application (kg/ha)	Urea	TSP	MOP	Urea	TSP	MOP
1: Basic Application	49	86	37	49	111	37
2: 3 weeks after sowing (2 wks after Transplanting)	62			74		
3: 6 weeks after sowing (6 wks after transplanting)	49			49		
4: 10 weeks after sowing (8 wks after transplanting)	99		12	136		37
Total	259	86	49	309	111	74

Table Q 3.4 Crop Budget with Project (1/2)

SCHEME				Major															
Crops				Paddy-Maha		Paddy-Yala		Sesame		Pulse(Blackgram)		Chilli		Big Onion		Red Onion		Vegetable(Brinjal)	
I. Gross Income																			
1) Yield	(kg/ha)			5,000.0		5,000.0		900.0		1,500.0		1,500.0		10,000.0		15,000.0		10,000.0	
2) Unit Price	(Rs./kg)			11.2		11.2		25.6		27.3		81.8		34.3		42.6		19.2	
3) Gross Income	(Rs./ha)			56,000		56,000		23,040		40,950		122,700		343,000		639,000		192,000	
Price		Unit		Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value
(1) Paddy - Maha - Irrigated																			
II. Total Production Cost					(Rs./ha)		(Rs./ha)		(Rs./ha)		(Rs./ha)		(Rs./ha)		(Rs./ha)		(Rs./ha)		(Rs./ha)
1) Seeds	(kg/ha)			110.0	1,815	110.0	1,815	7.0	420	30.0	1,563	1.0	1,135	8.0	800	1,500.0	150,000	0.4	490
2) Fertilizers																			
- Urea	7.7 (kg/ha)			260.0	2,002	260.0	2,002	120.0	924	140.0	1,078	260.0	2,002	135.0	1,040	135.0	1,040	320.0	2,464
- TSP	21.1 (kg/ha)			85.0	1,794	85.0	1,794	60.0	1,266	75.0	1,583	247.0	5,212	100.0	2,110	100.0	2,110	335.0	7,069
- MOP	17.2 (kg/ha)			50.0	860	50.0	860	60.0	1,032	30.0	516	247.0	4,248	75.0	1,290	75.0	1,290	220.0	3,784
3) Agro-chemicals																			
(a) Weedicides	(lit.)			2.5	725	2.5	725		0	0.5	1,425	0.5	1,425	1.0	1,425	1.0	1,425		0
(b) Insecticides	(lit.)									0.8	820	1.6	1,640	2.0	2,550	2.0	2,550		0
Insecticides	(kg)			20.0	1,900	20.0	1,900	1.0	560		0		0		0		0	30.0	3,840
(c) Fungicides	(lit.)			1.4	1,925	1.4	1,925		0		0		0		0		0		0
Fungicides	(kg)											2.0	1,300	4.0	2,600	4.0	2,600	4.0	2,600
4) Machinery & Power																			
- Own				0.5	1,434	0.7	1,875	0.5	1,085	0.7	1,454	0.6	1,215	0.9	1,953	0.5	1,128	0.8	1,758
- Hired				1.3	3,530	1.2	3,199	0.6	1,302	0.3	716	0.4	955	0.3	651	0.1	315	0.5	977
5) Animal power																			
- Own				0.0	27	0.0	27	0.0	0	0.0	0	0.0	0	1.6	3,792	0.0	0	0.0	0
- Hired				0.1	69	0.0	55	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
6) Labour																			
- Family	-day/ha)			29.0	4,350	32.0	4,800	67.5	10,125	68.0	10,200	228.0	34,200	260.0	39,000	310.0	46,500	177.0	26,550
- Attham	-day/ha)			3.0	450	3.0	450		0		0	7.0	1,050		0		0	2.0	300
- Hired	-day/ha)			49.0	7,350	53.0	7,950	10.0	1,500	21.0	3,150	82.0	12,300	75.0	11,250		0	66.0	9,900
7) Threshing & Transport					3,170		1,170		1,160		1,170		3,480		1,160		1,160		2,910
8) Miscellaneous(5%)				(Rs./ha)	1,570		1,527		969		1,184		3,508		3,481		10,506		3,132
Total Production Cost				(Rs./ha)	32,971		32,075		20,343		24,858		73,670		73,102		220,623		65,773
III. Net Income				(Rs./ha)	23,029		23,925		2,697		16,092		49,030		269,898		418,377		126,227

Table Q 3.4 Crop Budget with Project (2/2)

SCHEME		Medium and Minor															
Crops		Paddy-Maha		Paddy-Yala		Sesame		Pulse(Blackgram)		Chilli		Big Onion		Red Onion		Vegetable(Brinjal)	
I. Gross Income																	
1) Yield	(kg/ha)	5,000		5,000		900		1,500		1,500		10,000		15,000		10,000	
2) Unit Price	(Rs./kg)	11.2		11.2		25.6		27.3		81.8		34.3		42.6		19.2	
3) Gross Income	(Rs./ha)	56,000		56,000		23,040		40,950		122,700		343,000		639,000		192,000	
II. Total Production Cost	Price Unit	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value
		(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)	(Rs./ha)
1) Seeds	(kg/ha)	110.0	1,683	110.0	1,683	7.0	344	30.0	1,563	1.0	1,135	8.0	800	1,500.0	150,000	0.4	490
2) Fertilizers																	
- Urea	7.7 (kg/ha)	260.0	2,002	260.0	2,002	120.0	924	140.0	1,078	260.0	2,002	135.0	1,040	135.0	1,040	320.0	2,464
- TSP	21.1 (kg/ha)	85.0	1,794	85.0	1,794	60.0	1,266	75.0	1,583	247.0	5,212	100.0	2,110	100.0	2,110	335.0	7,069
- MOP	17.2 (kg/ha)	50.0	860	50.0	860	60.0	1,032	30.0	516	247.0	4,248	75.0	1,290	75.0	1,290	220.0	3,784
3) Agro-chemicals																	
(a) Weedicides	(lit.)	2.5	725	2.5	725		0	0.5	1,425	0.5	1,425	1.0	1,425	1.0	1,425		0
(b) Insecticides	(lit.)		0		0		0	0.8	820	1.6	1,640	2.0	2,550	2.0	2,550		0
Insecticides	(kg)	20.0	1,900	20.0	1,900	1.0	560		0		0		0		0	30.0	3,840
(c) Fungicides	(lit.)	1.4	1,925	1.4	1,925		0		0		0		0		0		0
Fungicides	(kg)		0		0		0		0	2.0	1,300	4.0	2,600	4.0	2,600	4.0	2,600
4) Machinery & Power																	
- Own		0.4	965	0.5	1,374	0.2	429	0.0	76	0.4	896	0.9	2,360	0.5	1,312	0.3	694
- Hired		1.3	3,261	1.1	2,590	0.1	278	0.1	353	0.4	947	0.3	757	0.1	366	0.2	517
5) Animal power																	
- Own		0.1	102	0.1	149	0.0	0	0.0	0	0.0	24	1.6	3,792	0.0	0	0.2	474
- Hired		0.0	84	0.1	112	0.0	0	0.0	0	0.0	47	0.0	0	0.0	0	0.0	0
6) Labour																	
- Family -day/ha)		47.0	7,050	53.0	7,950	57.0	8,550	71.0	10,650	174.0	26,100	260.0	39,000	200.0	30,000	225.0	33,750
- Attham -day/ha)		5.0	750	5.0	750	2.0	300	1.0	150	2.0	300	0.0	0	0.0	0	1.0	150
- Hired -day/ha)		34.0	5,100	31.0	4,650	18.0	2,700	7.0	1,050	64.0	9,600	75.0	11,250	43.0	6,450	35.0	5,250
6) Threshing & Transport			2,715		2,500		1,460		1,460		2,340		1,460		1,460		2,340
8) Miscellaneous(5%)	(Rs./ha)		1,546		1,548		892		1,036		2,861		3,522		10,030		3,171
Total Production Cost	(Rs./ha)		32,461		32,511		18,735		21,760		60,077		73,955		210,633		66,593
III. Net Income	(Rs./ha)		23,539		23,489		4,305		19,190		62,623		269,045		428,367		125,407

Table Q 4.1 Implementation Plan of Agricultural Production Programmes (1/5) : Nachchaduwa Scheme

Agricultural Support Programmes		1 st		2nd		3rd		4th		5th		6th	
I.	Adaptive Trials												
	I-1 Adaptive Trial - Paddy			P1	P1	E	E						
	I-2 Adaptive Trial - OFC & Vegetable			P1	P1	P1/ E	P1/E	E	E				
II.	Small- scale Demonstration Programme												
	II-1 Demonstration Plot - Paddy			P1	P1	E	E	E	E				
	II-2 Demonstration Plot - OFC & Vegetables			P1	P1	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E
III.	Cropping Pattern Demonstration Programme												
	III-1 Cropping Pattern Demonstration			P1	P1	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2
IV.	Large-scale Demonstration Programme												
	IV-1 Demonstration Block - Paddy			P1	P1	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2
	IV-2 Demonstration Farm - Paddy												
	IV-3 Demonstration Block - OFC & vegetable			P1	P1	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2
	IV-4 Demonstration Farm - OFC & Vegetable												
V.	Productivity Increase Programme												
	V-1 Paddy Productivity Increase Programme					P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E
VI.	Integrated Pest Management (IPM)												
	VI-1 IPM - Paddy			P1	P1	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2
	VI-2 IPM - OFC & Vegetables							P1/P2	P1/P2	P1/P2	P1/P2	P1/P2	P1/P2
VII.	Induction Farmer Training			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
VIII	Induction Farmer Guidance			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
IX.	Farmer Training					S	S	S	S	S	S	S	S
X.	Workshop/Mass Guidance			S	S	S	S	S	S	S	S	S	S
XI.	Seed Campaign			P1	P1	P1/P2	P1/P2	P1/P2	P1/P2				
XII.	Study Tour					S	S	S	S	S	S	S	S
XIII	Seed Production Programmes												
	XIII-1 Paddy Seed Production Programme					P1	P1	P1/P2	P1/P2	P1/P2	P1/P2		
	XIII-2 OFC & Vegetable Seed Production Programme							P1	P1	P1/P2	P1/P2	P1/P2	P1/P2

P1: Package technology of DOA

P2: Modified Package technology through the project activity

E: Individual element of cultivation technique

S: Selected subject

Table Q 4.1 Implementation Plan of Agricultural Production Programmes (2/5) : Palukadawela Scheme

Agricultural Support Programmes		1 st		2nd		3rd		4th		5th		6th	
I.	Adaptive Trials												
	I-1 Adaptive Trial - Paddy			P1	P1	E	E						
	I-2 Adaptive Trial - OFC & Vegetable			P1	P1	P1/ E	P1/E						
II.	Small- scale Demonstration Programme												
	II-1 Demonstration Plot - Paddy			P1	P1	E	E	E	E	E	E		
	II-2 Demonstration Plot - OFC & Vegetables			P1	P1	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E		
III.	Cropping Pattern Demonstration Programme												
	III-1 Cropping Pattern Demonstration					P1	P1	P1/P2	P1/P2				
IV.	Large-scale Demonstration Programme												
	IV-1 Demonstration Block - Paddy					P1/P2	P1/P2	P1/P2	P1/P2				
	IV-2 Demonstration Farm - Paddy												
	IV-3 Demonstration Block - OFC & vegetable									P1/P2	P1/P2		
	IV-4 Demonstration Farm - OFC & Vegetable												
V.	Productivity Increase Programme												
	V-1 Paddy Productivity Increase Programme					P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E		
VI.	Integrated Pest Management (IPM)												
	VI-1 IPM - Paddy					P1	P1	P1/P2	P1/P2				
	VI-2 IPM - OFC & Vegetables									P1/P2	P1/P2		
VII.	Induction Farmer Training			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
VIII	Induction Farmer Guidance			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
IX.	Farmer Training					S	S	S	S	S	S		
X.	Workshop/Mass Guidance			S	S	S	S	S	S	S	S		
XI.	Seed Campaign					P1	P1	P1/P2	P1/P2				
XII.	Study Tour					S	S	S	S				
XIII	Seed Production Programmes												
	XIII-1 Paddy Seed Production Programme							P1	P1	P1/P2	P1/P2		
	XIII-2 OFC & Vegetable Seed Production Programme									P1/P2	P1/P2		

P1: Package technology of DOA

P2: Ammended Package technology through the project activity

E: Individual element of cultivation practices

S: Selected subject

Table Q 4.1 Implementation Plan of Agricultural Production Programmes (3/5) : Periyakulama Scheme

Agricultural Support Programmes		1 st		2nd		3rd		4th		5th		6th	
I.	Adaptive Trials												
	I-1 Adaptive Trial - Paddy			P1	P1	E	E						
	I-2 Adaptive Trial - OFC & Vegetable												
II.	Small- scale Demonstration Programme												
	II-1 Demonstration Plot - Paddy			P1	P1	E	E						
	II-2 Demonstration Plot - OFC & Vegetables					P1	P1	P1/ E	P1/E				
III.	Cropping Pattern Demonstration Programme												
	III-1 Cropping Pattern Demonstration							P1/P2	P1/P2				
IV.	Large-scale Demonstration Programme												
	IV-1 Demonstration Block - Paddy												
	IV-2 Demonstration Farm - Paddy												
	IV-3 Demonstration Block - OFC & vegetable					P1/P2	P1/P2						
	IV-4 Demonstration Farm - OFC & Vegetable												
V.	Productivity Increase Programme												
	V-1 Paddy Productivity Increase Programme					P1/P2/E	P1/P2/E						
VI.	Integrated Pest Management (IPM)												
	VI-1 IPM - Paddy					P1/P2	P1/P2						
	VI-2 IPM - OFC & Vegetables												
VII.	Induction Farmer Training			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
VIII	Induction Farmer Guidance			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
IX.	Farmer Training					S	S	S	S				
X.	Workshop/Mass Guidance			S	S	S	S	S	S				
XI.	Seed Campaign					P1/P2	P1/P2						
XII.	Study Tour					S	S						
XIII	Seed Production Programmes												
	XIII-1 Paddy Seed Production Programme												
	XIII-2 OFC & Vegetable Seed Production Programme												

P1: Package technology of DOA

P2: Modified Package technology through the project activity

E: Individual element of cultivation technique

S: Selected subject

Table Q 4.1 Implementation Plan of Agricultural Production Programmes (4/5) : Mahananneriya Scheme

Agricultural Support Programmes		1 st		2nd		3rd		4th		5th		6th	
I.	Adaptive Trials												
	I-1 Adaptive Trial - Paddy			P1	P1	E	E						
	I-2 Adaptive Trial - OFC & Vegetable												
II.	Small- scale Demonstration Programme												
	II-1 Demonstration Plot - Paddy					P1	P1	E	E				
	II-2 Demonstration Plot - OFC & Vegetables					P1	P1	P1/ E	P1/E				
III.	Cropping Pattern Demonstration Programme												
	III-1 Cropping Pattern Demonstration					P1/P2	P1/P2						
IV.	Large-scale Demonstration Programme												
	IV-1 Demonstration Block - Paddy												
	IV-2 Demonstration Farm - Paddy			P1	P1	P1/P2	P1/P2	P1/P2	P1/P2				
	IV-3 Demonstration Block - OFC & vegetable												
	IV-4 Demonstration Farm - OFC & Vegetable												
V.	Productivity Increase Programme												
	V-1 Paddy Productivity Increase Programme					P1/P2/E	P1/P2/E	P1/P2/E	P1/P2/E				
VI.	Integrated Pest Management (IPM)												
	VI-1 IPM - Paddy			P1	P1								
	VI-2 IPM - OFC & Vegetables												
VII.	Induction Farmer Training			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
VIII	Induction Farmer Guidance			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
IX.	Farmer Training					S	S	S	S				
X.	Workshop/Mass Guidance			S	S	S	S	S	S				
XI.	Seed Campaign					P1	P1						
XII.	Study Tour					S	S						
XIII	Seed Production Programmes												
	XIII-1 Paddy Seed Production Programme					P1	P1						
	XIII-2 OFC & Vegetable Seed Production Programme												

P1: Package technology of DOA

P2: Modified Package technology through the project activity

E: Individual element of cultivation technique

S: Selected subject

Table Q 4.1 Implementation Plan of Agricultural Production Programmes (5/5) : Minor Cascade (Mahananneriya)

Agricultural Support Programmes		1 st		2nd		3rd		4th		5th		6th	
I.	Adaptive Trials												
	I-1 Adaptive Trial - Paddy					P1	P1						
	I-2 Adaptive Trial - OFC & Vegetable												
II.	Small- scale Demonstration Programme												
	II-1 Demonstration Plot - Paddy			P1	P1	E	E	E	E				
	II-2 Demonstration Plot - OFC & Vegetables					P1	P1	P1/ E	P1/E				
III.	Cropping Pattern Demonstration Programme												
	III-1 Cropping Pattern Demonstration												
IV.	Large-scale Demonstration Programme												
	IV-1 Demonstration Block - Paddy												
	IV-2 Demonstration Farm - Paddy					P1	P1	P1/P2	P1/P2				
	IV-3 Demonstration Block - OFC & vegetable												
	IV-4 Demonstration Farm - OFC & Vegetable												
V.	Productivity Increase Programme												
	V-1 Paddy Productivity Increase Programme					P1	P1	P1/P2/E	P1/P2/E				
VI.	Integrated Pest Management (IPM)												
	VI-1 IPM - Paddy					P1	P1	P1/P2	P1/P2				
	VI-2 IPM - OFC & Vegetables												
VII.	Induction Farmer Training			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
VIII	Induction Farmer Guidance			S	S								
	Induction guidance to beneficiaries on the approaches for supporting services introduced under the Project												
IX.	Farmer Training					S	S	S	S				
X.	Workshop/Mass Guidance			S	S	S	S	S	S				
XI.	Seed Campaign					P1	P1						
XII.	Study Tour					S	S						
XIII	Seed Production Programmes												
	XIII-1 Paddy Seed Production Programme					P1	P1						
	XIII-2 OFC & Vegetable Seed Production Programme												

P1: Package technology of DOA

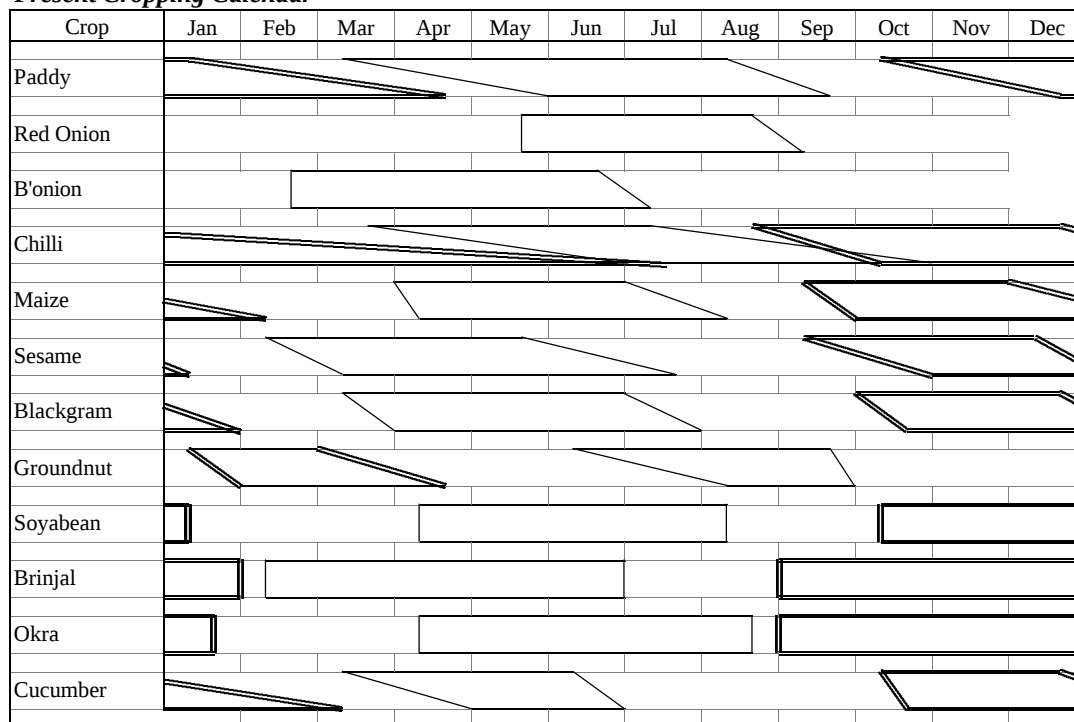
P2: Modified Package technology through the project activity

E: Individual element of cultivation technique

S: Selected subject

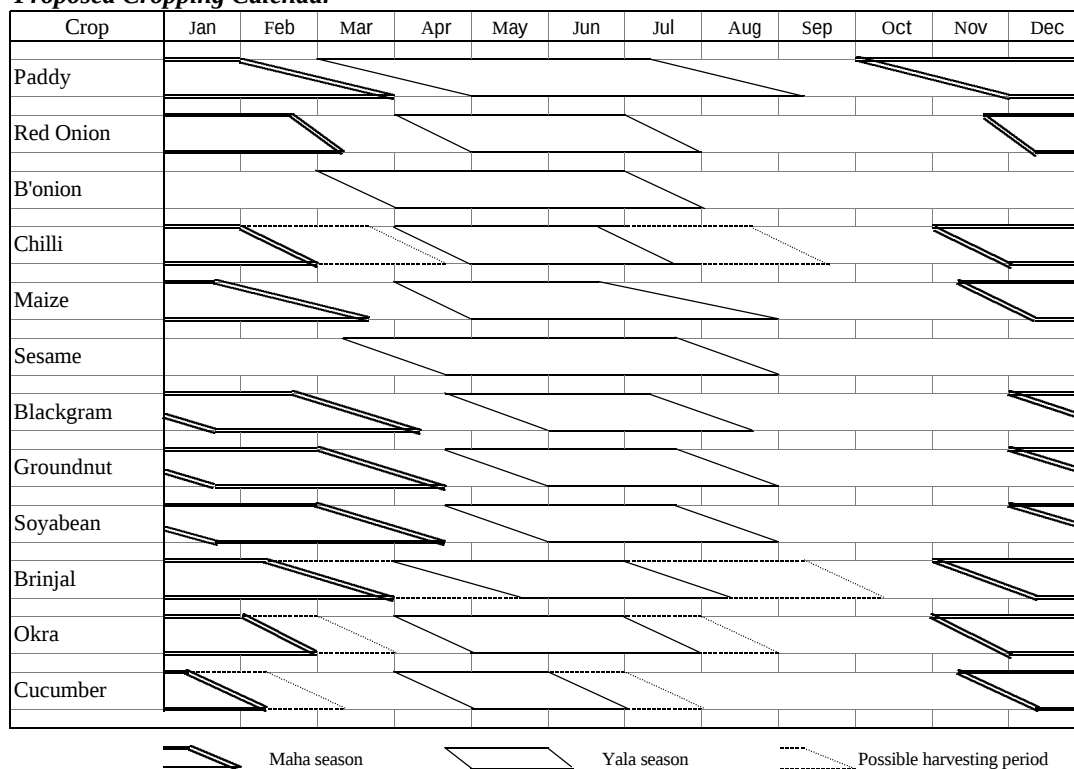
FIGURES

Present Cropping Calendar



Source: Crop cultural practices, Agriculture Instructors(AIs) of ASC in the priority irrigation schemes

Proposed Cropping Calendar



**The Study for the Potential Realization
of Irrigated Agriculture
in the Dry and Intermediate Zones of Sri Lanka**

Japan International Cooperation Agency

Figure Q 3.1

Present and Proposed Cropping Calendar