- PN-ABT-050
ISN 91059

MINISTRY OF MAHAWELI DEVELOPMENT
MAHAWELI AUTHORITY OF SRI LANKA

Mahaweli Economic Agency

Mahaweli Engineering and Construction Agency

MARD PROJECT

Pimburattewa
via Polonnaruwa

Development Alternatives, Inc.
Colorado State University
Oregon State University
FINTRAC, Inc.
Post - harvest Institute
for Perishables

FUNDED BY THE GOVERNMENT OF SRI LANKA & USAID

PN-ABT-050
isn 91059

MAHA 1992-93 ON-FARM AND SEED FARM TRIALS

DATE OF PLANTING AND WEED CONTROL TRIALS ON VEGETABLE CROPS

by

G.W. Selleck
D.M.S.B. Dassanayake
Mala de Silva

(Report No. 230)

MARD PROJECT
PIMBURATTAWA

JUNE 1994

A

CONTENTS

ACKNOWLEDGEMENTS iv

ACRONYMS v

EXECUTIVE SUMMARY vi

RECOMMENDATIONS viii

INTRODUCTION 1

METHODOLOGY 1

WHETHER DATA 4

ON-FARM AND SEED FARM TRIALS 6

- Chilli 6
- Capsicum 11
- Groundnut 13
- Potato 15
- Cabbage 18
- Beetroot 19
- Red onion 21
- Brinjal, okra and carrot 23

GENERAL RECOMMENDATIONS 27

REFERENCES 28

ANNEXURES

B

LIST OF TABLES

Table 1. Plans for on-farm trials, Maha 1992/93 2

Table 2. On-farm and MEA Seed farm trials planted and harvested 3

Table 3a. Meteorological observations, 1992 5

Table 3b. Mean minimum and maximum monthly air temperatures (°C), 1992 5

Table 4a. Chilli yields from various planting dates . . . 7

Table 4b. Statistical parameters, chilli date of planting trials. 8

Table 5a. Yield (kg/ha) of chilli with herbicides vs hand weeding in the Kalukele Unit 9

Table 5b. Yield (kg/ha) of chilli with herbicides vs hand weeding at the MEA Seed Farm 9

Table 5c. Yield (kg/ha) of chilli with three types of irrigation 10

Table 6. Capsicum yields (t/ha) from various date of planting trials 12

Table 7. Groundnut yields from various planting dates. . 14

Table 8a. Potato yields from various dates of plantings on RBE soils. 16

Table 8b. Potato date of planting trials 17

Table 9. Cabbage yields from various planting dates on RBE soils 19

Table 10. Beetroot yields from different planting dates on RBE soils 20

Table 11. Red onion yields from date of planting trials on homesteads 22

Table 12. Yield (t/ha) from date of planting trials of carrot, okra and brinjal 25

ACKNOWLEDGEMENTS

A number of people contributed to the research trials described in this report. Their contributions, as noted below, are gratefully acknowledged.

Mr. D.M.S.B. Dasanayake supervised execution of on-farm trials conducted on irrigated paddy land while Ms. M. De Silva was responsible for those on homesteads.

Assistance provided by the Mahaweli Economic Authority Block and Unit Managers, Agricultural Officers, and Field Assistants greatly facilitated the exection of the on-farm trials and demonstrations.

D

ACRONYMS

AS	Ammonium sulphate
ATG&D	Agricultural Technology Generation and Dissemination
C	Centigrade
CD	Cowdung
DOA	Department of Agriculture
DOP	Date of planting
ha	hectare
kg	kilogram
m^2	square meter
MARD	Mahaweli Agriculture and Rural Development Project
MEA	Mahaweli Economic Authority
MOP	Muriate of potash
NCB	Non-Calcic Brown
NLD	Narrow leaf disorder
OC	Other crop
OFD	On-farm demonstrations
OFT	On-farm trial
RARC	Regional Agricultural Research Center
RBE	Reddish Brown Earth
t	ton
TSP	Triple super phosphate
WC	Weed control

E

EXECUTIVE SUMMARY

The introduction and extension of diversified cropping to increase the income of settler farmers in Mahaweli System B is the goal of the Agricultural Technology Generation and Dissemination Group (ATG&D) of the Mahaweli Agriculture and Rural Development project (MARD). This was achieved by establishing on-farm trials (OFTs) and field demonstrations (OFDs), and training extension staff and farmers. The purpose of these field demonstrations was to familiarize farmers with improved technology tested previously in OFTs. OFTs were to generate additional information on optimal dates of planting (DOP) for 10 vegetable crops. During Maha 1992/93, 121 OFTs (194 plots) were established, plus 12 Seed Farm trials (45 plots). Yields were taken on 169 of the 194 plots on OFTs and 38 of the 45 plots at the Seed farm (Table 2).

Early plantings (in October) increased yields of all crops except carrot. Carrot did not yield well at any of the planting dates tested.

Chilli

Yields of chillies planted in August (Table 5b) indicate that August and September plantings would be successful. October plantings benefit from the absence of thrips and mites, thus resulting in higher yields and fewer insecticide treatments. A disadvantage of planting during this period is the need of fungicides to control plant diseases.

Chilli watered by hand yielded 1,283 kilos/hectare (kg/ha), three times that of furrow or flood irrigated plots (Table 5c). Two factors are probably involved, reduced thrip populations and more optimum water use. A yield of 300 kg/ha was sufficient to meet production costs (excluding labour), under Maha 1992-93 conditions.

Chilli yields were higher with 6-9 hand weedings (statistically significant at the 1 percent level) than with any of the herbicide treatments. Chilli treated with Lasso yielded significantly higher than when Goal or Tribunil were applied.

Capsicum

Capsicum yields ranged from 4.7 tons/hectare (t/ha) to 2.6 t/ha with plantings from October 1 to November 25. Average yields decreased with each 2-week delay in planting and the yield differences were statistically significant (Table 6). A yield of 1,350 kg/ha would meet production costs exclusive of labour, under Maha 1992/93 conditions.

F

Groundnut

Groundnut yields varied between 1.2 and 2 t/ha, with the highest yield from an October 1 planting. However, mean yield differences were not statistically significant from a comparison of soil types or planting dates from October 25 to November 20 (Table 7).

Potato

Potato yields decreased from 6.6 t/ha to 2.0 t/ha with plantings November 1 to December 10 on irrigated fields (Table 8a). A similar trend was evident on homesteads, where yields averaged 6.6 t/ha when planted in late October, 2.5 t/ha when planted in late November and 1.4 t/ha when planted in mid-December (Table 8b). The mean differences were statistically significant at the 1 percent level. A planting in early January failed to produce tubers.

Cabbage

Cabbage yields were excellent from October plantings and good from plantings to November 25 (Table 9). Cabbage yields averaged 19.3 t/ha from plantings October 1 to October 29; 14.6 t/ha from later plantings (Table 9) and the mean differences were significant at the 2.5 percent level. At a Maha selling price of Rs 15/kg, a yield of 2 t/ha would meet Maha 1992/93 production costs (not including labour).

Beetroot

Beetroot yields were excellent, averaging 11.6 t/ha with plantings from October 1 to November 1. Yields from mid-November plantings decreased to 7.1 t/ha, a difference statistically significant at the 5 percent level. Yields from plantings in December and January were acceptable at the Maha Economic Authority's (MEA) Seed Farm (Table 10). At a selling price of Rs 15/kg, a yield of only 1.5 t/ha would meet production costs, not including labour.

Red Onion

September plantings of red onion yielded higher than those planted later, with an average of 6.7 t/ha on rainfed highlands (Table 11). Yields were low on highlands from plantings later than mid-October, probably due to damage from heavy rains. Yields from November plantings were significantly higher. Due to their susceptibility to fungal diseases, red onions are difficult to grow when heavy rains occur at or shortly after planting, particularly if soil

G

drainage is poor. At a selling price of Rs 30/kg, a yield of 3,780 kg/ha met expenses (not including labour costs).

Brinjal, Okra and Carrot

Brinjal yields were acceptable from mid-October to early January plantings (Table 12). Yields ranged from 35.5 to 4.5 t/ha, with the higher yields ocurring from October and November plantings. A similar trend occurred with okra plantings (Table 12) and the limited data suggests that if insects are properly controlled, plantings can be extended into October. Under rainy, humid conditions neither brinjal or okra will do well because of the prevalence of fungus disease.

Carrot yields were poor at all application dates at the MEA Seed Farm, probably due to poor drainage. However, carrot production was profitable with November-December plantings during Maha 1991/92 (5).

Recommendations

1. Maha planting of chilli, Capsicum, groundnut, cabbage, beets, okra and brinjal should start in early October. Planting should be avoided during periods of heavy rains.

2. Cultivate potatoes on homesteads or lowlands on raised beds in Maha. Planting dates should be as early as possible in November, but mid-October plantings can be expected to do well.

3. Plant red onions from September 1 to the end of February. Avoid planting when rains are imminent.

4. Conduct date of planting trials with chilli, Capsicum, groundnut, cabbage, red onion, okra and brinjal in August and September.

5. Conduct potato date of planting trials starting October 1 in both homesteads and lowlands.

6. Conduct beetroot date of planting trials during August and September and between January 15 and March 1.

7. Conduct additional beetroot trials on homesteads.

8. Continue date of planting trials with carrot on homesteads from early October to the end of January, avoiding periods of heavy rain.

H

9. To ensure good yields, keep chillies free of weeds. Hand weeding should be practised, unless hired labour is necessary.

10. If an herbicide is to be used on chilli, apply Lasso as recommended.

11. Continue weed control trials on chilli with Devrinol.

I

INTRODUCTION

The goal of the Mahaweli Agriculture and Rural Development Project (MARD) is to increase the income of settler farmers in Sytem B through crop diversification.

It is the responsibility of MARD's Agricultural Technology Genreation and Dissemination (ATG&D) group to extend the cultivation of crops other than rice (OCs). The agronomic component of ATG&D contributes to this goal by conducting trials on farmers' fields and the MEA Seed Farm. The OFTs are designed to:

a) identify crops and varieties appropriate for a cropping system in System B

b) identify and develop appropriate cultural practices

c) assist farmers to select crops, varieties and agronomic practices specific for their situation

d) identify and alleviate constraints to increased production

e) demonstrate improved production technologies to agriculturalists and farmers in System B.

Information generated by these activities in conjunction with research data from regional agricultural research centers (RARCs), particularly Aralaganwila, serve as the basis for extension recommendations for the cultivation of other crops (OCs) in System B. Technologies generated from OFTs, as well as by the Department of Agriculture (DOA), are disseminated by means of on-farm demonstrations (OFDs), which are used for farmer field days and farmer training.

METHODOLOGY

Crop Selection, Trial Type and Location

Field trials during Maha 1992-93 included both OFTs and field demonstrations. The purpose of field demonstrations was to familiarize farmers with technology previously tested in OFTs and to generate additional information on planting dates. Each OFT consisted of a minimum of two plots, either 25 m^2 in size (usually for potatoes) or 121 m^2 for other crops. One plot utilized the best technology available and an adjacent one demonstrated an anticipated improvement in technology. Application data and crop yields were taken for each trial. It was planned to have at least 8 farmers

participate in each type of trial, but this was not always possible.

It was agreed that date of planting (DOP) and Seed Farm trials would emphasize planting dates for 10 vegetable crops. Plans were made for 121 locations with 400 yield samples (Table 1). Authors Dassanayake and de Silva arranged with MEA personnel for execution of the appropriate field trials by Block and Unit. Trials were actually established at 115 locations (194 plots) plus 12 Seed Farm trials (45 plots). Yields were taken on 169 of the 194 plots on OFTs and 38 of 45 plots at the MEA Seed farm (Table 2).

Research Officers (RO)s, Unit Managers and Field Assistants selected trials appropriate for farmers in their areas and supervised execution and data collection.

Table 1. Plans for on-farm trials, Maha 1992/93

Crop	Type of trial	# yield samples	# of sites	Total samples
On-farm trials				
Chilli	Date of planting	5	10	60
Capsicum	Date of planting	4	10	40
Groundnut	Date of planting	4	10	40
Potato	Date of planting	4	10	40
Red onion	Date of planting	3	10	30
Red onion	Fertilizer rates	2	10	20
Cabbage	Date of planting	3	10	30
Beetroot	Date of planting	4	10	40
Carrot	Date of planting	3	10	30
Brinjal	Date of planting	3	10	30
Squash	Date of planting	4	10	40
Total			110	400
Seed Farm trials				
One example of each OFT above		3x11	11	33
GRAND TOTAL			121	433

Cropping practices followed those in the DOA Crop Recommendations Technoguide (1) unless otherwise stated. These included variety selection, land preparation, fertilizer application, and plant protection.

OFT application and yield data were collected by Unit Managers and Field Assistants at the end of the growing season and given to MEA/MARD agronomy staff for analysis.

Table 2. Maha 1992/93 OFTs: the number of on-farm and Seed Farm trials planted and harvested

Crop/type of trial	No. plots	No. sites	Total no. of plots planted	Total no. of plots harvested
On-farm locations				
Chilli DOP	2	2	4	4
Chilli DOP	1	11	11	11
Chilli weed control	1	7	7	7
Capsicum DOP	1	6	6	6
Capsicum DOP	3	4	12	2
Red onion DOP	3	7	21	21
Red onion DOP	2	2	4	4
Potato DOP	1	16	16	16
Potato DOP	3	7	21	21
Potato DOP	2	2	4	4
Potato DOP	3	4	12	11
Groundnut DOP	1	12	12	12
Cabbage DOP	1	10	10	10
Cabbage DOP	3	4	12	12
Beetroot DOP	1	7	7	7
Beetroot DOP	3	5	15	1
Brinjal DOP	2	2	4	4
Brinjal DOP	3	5	15	15
Okra DOP	1	2	2	2
Total	-	115	194	169
Seed farm				
Chilli weed control	8	1	8	8
Chilli DOP	4	1	4	2
Chilli DOP	4	1	1	3
Chilli irrigation	3	1	3	3
Capsicum DOP	4	1	4	4
Potato DOP	4	1	4	3
Cabbage fertilizer	2	1	2	2
Cabbage DOP	3	1	3	0
Beetroot DOP	4	1	4	4
Carrot DOP	4	1	4	4
Brinjal DOP	4	1	4	1
Okra DOP	4	1	4	4
Total	-	12	45	38
Grand total		127	239	207

Training

An attempt was made to select progressive, cooperative farmers who would take an interest in the program and be conscientious in attending to day-to-day requirements.

It was emphasized that trial plots be located on well-drained fields with deep, fertile soils.

Protocols for trial execution were written for each location, translated into sinhala and distributed to MEA field staff and farmer cooperators. Forms for data collection were designed and distributed to farmers and parrticipating MEA field staff.

Demonstrations and lectures were given to each group of cooperating farmers, either in the field, the local Unit Office or at a farm residence. These meetings were usually attended by the local unit manager and field assistants.

WEATHER DATA

In System B during the Yala season (March to September), there is more sunshine, higher temperatures, lower humidity and higher wind velocity than during the Maha season (October to February). Sunshine hours range from 6 to 12 hours/day during Yala, compared with about 3-6.5 hours/day for the rest of the year (Table 3a).

The total precipitation recorded from January to October 1992 at the Aralaganwila RARC (209.5 mm) was only 27 percent of the average for the 8-year period 1984-1991 (4). For the period March to August 1992, precipitation was only 20 percent of the 8-year average. This lack of rain exacerbated the effect of high air and soil temperatures, already a constraint to crop growth. However, these months are traditionally dry in system B, requiring irrigation to produce annual crops.

The range of monthly mean maximum air temperatures was only 1°C, from 35.6 to 37.8°C between March and September 1992 and dropped below 30° in December and January (Table 3b). Monthly mean minimum air temperatures averaged 6-8°C lower during the same period. Maximum soil temperatures at a depth of 10 cm were about the same as air temperatures until June, when soil temperatures registered higher than air temperatures (4). Diurnal temperatures varied between 1 and 3°C at a soil depth of 20 cm, but were stable at a depth of 30 cm. At this depth, maximum temperature increased gradually from 30.8 to 34.1°C from March to September (4). During August and September, maximum soil temperature rose to 40°C at a depth of 5 cm.

Table 3a. Meteorological observations, 1992

Month	Rel. humidity Max	Rel. humidity Min	Rainfall	Sunshine hrs/day	Wind vel. Km/hr
January	89.9	71.7	100.3	6.2	4.4
February	85.4	53.8	0.0	9.3	3.3
March	78.4	45.0	0.0	8.8	4.0
April	78.1	53.7	30.0	8.5	4.1
May	78.2	63.8	69.0	7.6	3.8
June	63.0	50.8	0.0	12.0	8.2
July	65.3	49.2	3.6	6.0	7.1
August	80.8	46.2	1.8	7.3	7.8
September	68.7	49.7	77.2	6.4	5.6
October	76.0	58.1	43.2	6.2	4.8
November	90.1	78.8	471.2	3.4	3.5
December	90.4	85.1	448.2	3.2	3.8
Total			309.8		

Data courtesy of Mr. A. de Silva, Research Officer, Aralaganwila RARC

Table 3b. Mean minimum and maximum monthly air temperatures (°C), 1992

Month	Air temperature maximum	Air temperature minimum
January	29.8	20.2
February	32.8	18.3
March	35.6	18.4
April	37.8	23.3
May	35.9	23.9
June	35.1	25.6
July	35.7	24.9
August	36.0	24.6
September	36.3	23.4
October	33.2	23.4
November	31.6	23.1
December	28.9	21.7

Data courtesy Mr. A. de Silva, Research Officer, Aralaganwila RARC

ON-FARM and SEED FARM TRIALS

CHILLI

Date of Planting Trials

A. Background

Chilli, traditionally grown in Yala, has been difficult to cultivate during the last two years, due to a leaf aberration diagnosed as a combination of narrow leaf disorder (NLD) and leafcurl complex. Observations indicate that this problem is often associated with thrip infestations (2). Earlier trials have shown that symtoms can be virtually avoided by planting chilli during Maha when thrips are rarely troublesome (5).

Acceptable chilli yields were obtained during Maha 1991/92 from plantings in November and December (5). Limited data indicate that yields would also be acceptable with October plantings.

B. Objective

To assess chilli yields from October plantings.

C. Methodology

Variety MI-2 was established in nurseries prior to planting in 121 m^2 field plots. Other trial details were as follows:

Plant spacing: 60 x 45 cm

Plant density: 2 plants/hill

Dates of transplanting: October 7-December 30

Soils: RBE, NCB, good drainage

Cowdung treatment: 10 t/ha at planting

Fertilizer (kg/ha):
Basal: urea - 100, tri-sodiun sulphate (TSP) - 100, muriate of potash (MOP) - 50
Top dressing: ammonium sulphate (AS) - 14 at 28, 49 and 70 days after planting; MOP 28 days after planting

No. of insecticide applications: 1-7 (Monocrotophos, Trithion, Lebycid, Actalic)

No of fungicide applications: 4-9 (Mancozeb, Polyram, Topsin, Dithane)

No. of weedings (weed control trial): 6-9 vs applications Lasso (2), Sencor (2), Goal (2) or Tribunil (1-3 applications)

Harvest dates: December 10-June 10

Further information is provided in Annexure 1

D. Results

Chilli yields were acceptable with plantings from October to December (Table 4a), but yields from October plantings (1,715 kg/ha) were significantly higher than those from November-December plantings (Table 4b). Chilli yields were also at this level from a late August planting at the MEA Seed Farm (Table 5b).

Table 4a. Chilli yields from various planting dates

Block/Unit/ Farmer	Planting date	Soil type	Yield (kg/ha)	Remarks
Dimbulagala/Thispanagama				
R. Dharmacena	Oct 7	NCB	1,818	
K.HendrickAppu	Oct 15	NCB	1,901	
M. Samapala	Oct 30	NCB	1,570	
M. Samaweera	Nov 20	NCB	1,446	Thrips
H. MithuBanda	Dec 12	NCB	1,364	Thrips
N. Digiribanda	Dec 25	NCB	1,332	Thrips
Sevanapitya Block, Sevanapitya Unit				
A. Wijithesena	Oct 30	RBE	1,818	
M. Mettananda	Nov 20	RBE	1,488	
Allewewa Block, Kalukeli Unit				
N. Sarath	Oct 6	RBE	1,735	
S. Wijisinghe	Dec 30	RBE	1,446	
H. Mathupala	Dec 28	RBE	1,157	
Dammina/Nidanwala				
K. Piyadasa	Nov 4	-	824	
K. Piyadasa	Dec 4-8	-	1,071	
N. Premadase	Nov 4	-	1,154	
N. premadasa	Dec 4-8	-	1,236	

Table 4b. Statistical parameters, chilli date of planting trials

Parameter	Planting date	
	Oct 7- Oct 30	Nov 20-Dec 30
Mean yield (kg/ha)	1,715	1,357
Maximum yield	1,901	1,488
Minimum yield	1,570	1,157
Statistical significance	< 1%	
Coefficient of variation	6.3%	
Standard error of the mean	36.1	

Weed Control Trial

C. Methodology

Methodology was similar to that described under "date of planting" above, with the exception that at the Seed Farm, plantings were also done in August.

D. Results

Chilli yields from weed control trials ranged from 909 to 1919 kg/ha (Table 5a). The average yield from 6-9 hand weedings was 1,493 kg/ha, significantly higher than yields from any of the herbicide treatments. Yields from Lasso-treated plots were significantly higher than those treated with Tribunil and were similar for Goal, but there were insufficient replicates to do an analysis for Goal. At the Seed Farm, chilli plots treated with Lasso yielded about the same as hand-weeded plots and both yielded higher than plots treated with Tribunil, Goal or Devrinol (Table 5b).

Irrigation Trial, Chilli

A. Background

Thrips and mites severely decrease chilli yields in the Yala season, but are rarely troublesome during Maha. It was hypothesized that frequent rains during Maha prevent the development of thrips. May-planted trials during Maha 1991/92 (5) indicated that chilli yields, although low, tended to be higher with hand watering than with furrow irrigation, apparently due to delayed and reduced thrips development.

Table 5a. Yield (kg/ha) of chilli with herbicides vs hand weeding in the Kalukele Unit

Location	Planting date	Treatment			
		Goal	Tribunil	Lasso	Handweeded
Dimbulagala Block, Kalukele Unit					
G. Pediappuhama	Oct 5	1,074	1,240	1,488	1,818
R. Nandina	Oct 15	-	1,116	1,281	1,901
D. Seneniratna	Nov 7	909	-	1,157	1,281
Thispanagama Unit					
W. Saranilis	Oct 25	950	-	1,157	1,488
R. Amitha	Nov 23	1,240	1,198*	-	1,322
W. Ariyasinhge	Nov 25	-	1,116	1,281	1,488
Sevanapithya Unit					
M. A. Hemapala	Dec 10	-	744	950	1,157
Mean		1,043	1,045#	1,219^	1,493+

* = Sencor; + mean is significantly different at the 1 percent level from means ^ and #; mean ^ is statistically different from mean #.

Table 5b. Yield (kg/ha) of chilli with herbicides vs hand weeding at the MEA Seed Farm

Planting date	Treatment				
	Goal	Devrinol	Tribunil	Lasso	Handweeded
Aug 29	877	872	864	1,176	1,178
Nov 22	-	354	-	288	354

B. Objective

To determine the effect of three types of irrigation on thrips development and chilli yield.

C. Methodology

Overhead, furrow and flood irrigation were applied as needed to adjacent chilli plots 11x11 m in size planted in August at the MEA Seed Farm. Other aspects of methodology are similar to those of planting date trials described above.

D. Results and Discussion

The yield of hand-watered chilli was 1,283 kg/ha, three times that of either flood or furrow irrigated plots (Table 5c). Results from these trials confirm previous results which indicated that chilli could be successfully grown in Maha (5). Further, October plantings continued to be more fruitful than later plantings. An advantage of October plantings is the absence of thrips and mites, thus resulting in higher yields and fewer insecticide treatments. A disadvantage is the need for fungicides to control plant disease (Annexures 1,2a).

The estimated input cost for chilli production (not including labour) was Rs 16,300/ha during Maha 1991/92 (5). Assuming a 10 percent increase in production costs to Rs 17,930, for Maha 1992/93 and a selling price of Rs 60/kg, a yield of 300 kg/ha would meet production costs (excluding labour).

Table 5c. Yield (kg/ha) of chilli with three types of irrigation

Location	Planting date	Irrigation treatment		
		Flood	Furrow	Hand sprinkler
Seed Farm	Aug 3	247	411	1,283

E. Recommendations

1. Plant chillies in Maha, starting in early October.

2. Continue chilli date of planting trials in August and September.

3. To ensure good yields, keep chilli fields free of weeds. Use hand weeding methods, unless hired labour is necessary.

4. If an herbicide is to be used, apply Lasso as recommended.

5. Continue weed control trials with Devrinol.

CAPSICUM

Date of Planting Trials

A. Background

Capsicum is traditionally planted in Yala, but has yielded well from December plantings (5). Earlier results suggested that Capsicum would also yield well with plantings earlier in the season.

B. Objective

To assess Capsicum production from October and November plantings.

C. Methodology

Capsicum variety Hungarian Yellow Wax was planted on well-drained raised beds in early Yala. Trial details are presented below:

Plant spacing: 15 X 30 cm

Plant density: 2 plants/hill

Dates of transplanting: Oct 1-Nov 28

Cowdung treatment: 10 t/ha at planting

Fertilizer (kg/ha):
Basal: urea - 220, TSP - 380, MOP - 125
Top dressing: urea - 45, MOP - 25 at 28 days after planting

No. of insecticide applications: 3 (Lorsban, Lebycid, Monocrotophos)

No. of fungicide applications: 2 (Dithane, Topcin)

Harvest dates: Dec 2-Jan 25

No. of picks: 5

Field data are reported in Annexure 3.

D. Results and Discussion

Capsicum yields ranged from 4.7 t/ha to 2.6 t/ha with plantings from October 1 to November 25. Average yields decreased with each 2-week delay in planting and the mean yield differences were statistically significant (Table 6).

This indicates the importance of early October planting of Capsicum for best results. However, in an unreplicated trial with plantings from October 15 to March 3 at the Seed Farm, an acceptable yield of Capsicum was obtained only from a November 30 planting (Table 6).

The cost of inputs excepting labour for Capsicum production during Maha 1991/92 was Rs 24,800 (5). Assuming a 10 percent increase in costs during Maha 1991/92 to Rs 27,000 and a selling price of Rs 20/kg, a yield of 1,350 kg/ha would meet production costs.

Table 6. Capsicum yields (t/ha) from various planting dates

Unit/ Farmer	Planting date		
	Date 1	Date 2	Date 3
Dimbulagala Block, Thispanagama Unit			
M. Anijadona	Oct 1	Oct 14	Oct 29
	4.7	4.6	4.1
F. Samadasa	Oct 5	Oct 15	Oct 29
	4.4	4.2	3.5
F. Ukkubanda	Sept 25	Oct 10	Oct 28
	4.6	4.1	3.3
Allaweewa Block, Kalukele Unit			
R. Nandina	Oct 10	Oct 5	Oct 26
	5.0	4.6	3.6
Sevanapitiya Unit			
HerathBanda	Oct 10	Oct 15	Oct 28
	4.6	4.4	3.6
Mean	4.7*	4.4#	3.7x
Kalukale Unit			
D. Senerwatne	Nov 3	Nov 15	Nov 25
	3.6	3.5	2.7
D. Rambanda	Nov 2	Nov 17	Nov 28
	3.7	3.2	2.6
Mean	3.65	3.35	2.65

Seed Farm, planting dates

Oct 15	No 7	No 30	Dec 12	Dec 31	Jan 1	Jan 30	Mar 3
1.7	0.0	6.7	0.0	1.0	0.6	0.2	1.7

* Mean difference from # is statistically significant at the 2 percent level and from x at < 1 percent level; # mean difference from x is statistically significant at the 1 percent level. CV = 8.1 percent

E. Recommendations

1. Plant Capsicum in Maha, starting as early as possible in October.

2. Conduct Capsicum date of planting trials in August and September.

GROUNDNUT

Date of Planting Trials

A. Background

Groundnut yields are highest with early plantings (5,6) but data from various dates of planting are needed to determine the place of groundnut in year-round cropping systems.

B. Objective

To determine the yield of groundnut at various planting dates in October and November.

C. Methodology

DOA recommendations (1) were followed except where otherwise stated. Trial details are provided below:

Variety: Red Spanish (local)

Plot size: 121 m^2

Plant spacing: 45 X 15 cm

Plant density: 1 plant/hill

Planting dates: Oct 1-Nov 20

Cowdung treatment: 10 t/ha at planting

Fertilizer (kg/ha):
Basal: urea - 20, TSP - 75, MOP - 40
Top dressing: urea - 30 at onset of flowering

No. of insecticide applications: 1-3 (Monocrotophos, Lorsban)

No. of fungicide applications: 2-3 (Dithane, Topcin, Pomarol Forte)

Harvest dates: December 25-February 10

See Annexure 5 for additional information.

D. Results and Discussion

Groundnut yields varied between 1.2 and 2 t/ha, when planted on RBE and NCB soils between October 1 and November 20 at two locations (Table 7). The highest yield occurred with an October 1 planting and yields from plantings in October and early November were higher than those from plantings after mid-November. However, mean yield differences were not statistically significant from a comparison of either planting dates or soil types. October plantings of groundnut also yielded higher at the Seed Farm than later plantings in Maha 91/92 (5).

Table 7. Groundnut yields from various planting dates

Unit/ farmer	Planting date	Soil type	Yield (kg/ha)	Remarks
Dimbulagala Block Thispanagama Unit				
R. Dharmasena	1/10	NCB	2,066	
W. Samapala	25/10	NCB	1,484	
R. Hendrick Appn	30/10	NCB	1,567	
M. Samaweera	5/11	NCB	1,897	
H. MuthuBanda	10/11	NCB	1,818	Mean* = 1,762
Allewewa Block, Kalukale Unit				
D. Gayemghe	Nov 10	RBE	1,735	
N. Sarath	Nov 15	RBE	1,979	
S. Wijisinghe	Nov 15	RBE	1,319	
R. Nandina	Nov 15	RBE	1,154	
G. Podiappuhamy	Nov 16	RBE	1,649	
Y.GayaweeraBanda	Nov 16	RBE	1,735	
D. PunchiBanda	Nov 20	RBE	1,567	Mean+ = 1,567

* Oct 1-Nov 11; + Nov 15-Nov 20; mean differences are not statistically significant

E. Recommendations

1. Plant groundnut in Maha as early as possible in October.
2. Conduct date of planting trials in August and September.

POTATO

Date of Planting Trials

A. Background

Potatoes planted in Maha in previous trials provided economic yields under irigation (3,5). Preliminary results showed promise also on rainfed homesteads during Maha (5).

Objectives

To determine the optimum planting dates for potato in Maha. To assess the potential for potato production on homesteads in Maha.

C. Methodology

Potato variety Desiree was planted at several dates from November 1-January 1 at 3 locations, one on a homestead.

Variety: Desiree

Plot size: 5 x 5 m; 11 x 11 m

Planting dates: November 1-January 1

Plant spacing: 25 cm

Plant density: 1 plant/hill

Cowdung treatment: 10 t/ha at planting

Fertilizer (kg/ha):
Basal: AS - 250, TSP - 50, MOP - 75
Top dressing: AS - 250, MOP - 75 at earthing up

No. of insecticide applications: 5-8 (Lorsban, Marshal)

No. of fungicide applications: 5 (Dithane, Topsin)

For further information see Annexure 4.

D. Results and Discussion

Potato yields decreased from 6.6 t/ha to 2.4 t/ha from plantings from November 1 to December 10, respectively (Table 8a). Potato yields averaged 6.4 t/ha from plantings November 1-5; 5.5 t/ha when planted November 14-15 and 4.6 t/ha when planted November 15-December 10 (Table 8a). These three mean yields are statistically different from each other at the 1 percent level.

Potatoes on homesteads in the Daminna Block averaged 6.6 t/ha when planted in late October, 2.5 t/ha when planted in late November and 1.4 t/ha when planted in mid-December (Table 8b). The mean differences were statistically significant from each other at the 1 percent level. A planting in early January failed to produce tubers. At Mahadamina, potato yields averaged 4.8t/ha from November 23-25 plantings, 7.8 t/ha from Decenber 10 plantings. Plantings on January 1 failed to produce tubers. The differences between the means were significant at the 1 percent level (Table 8a). At the Seed Farm, plantings in mid-November and early January produced acceptable yields, but plantings in mid-December and early February did not produce tubers (Table 8b).

Table 8a. Potato yields from different planting dates on RBE soils

Unit/ Farmer	Planting date	Yield (kg/25m$_2$)
Sevanapitya Unit (S)		
A. Wijithasena	Nov 1	7,80
Dimbulagala Block Thispanagama Unit (T)		
R. Hendrickappu	Nov 1	7,98
D. Punchibanda (K)	Nov 1	7,90
G. Podiappuhamy (K)	Nov 2	7,88
D. Gayannaghe (K)	Nov 5	7,35
Mean (t/ha)		6.4
W. Samapala	Nov 14	702
M. Mithananda (S)	Nov 15	634
Allewewa Block, Kalukali Unit (K)		
N. Sarath	Nov 15	682
Y. Gayaweerabanda	Nov 15	666
D. Seninerwatna	Nov 15	666
Mean t/ha		5.5
S. Wijesinghe	Nov 25	590
D. Ranbanda	Nov 25	538
M. Samaweera (T)	Nov 30	601
R. Nandina	Nov 30	573
H. Mathupala	Dec 1	333
R. Dharmasena (T)	Dec 10	239
Mean, t/ha		4.6

Average potato yields were lower than in Maha 1991/92, when yields of 14 t/ha were common and were as high as 18 t/ha (5). Potato yields were also acceptable from plantings

as late as mid-January. However, planting at the time of heavy rains is usually unsuccessful regardless of planting date, as potatoes can tolerate flooded or saturated soils for only a day or two. Hence, planting on raised beds is critical. In previous trials, potatoes failed to yield from plantings from February to May, due to plant disease and high soil temperatures (4).

Table 8b. Potato yields (t/ha) from various planting dates

Farmer	Planting date			
	Oct 28-Nov 2	Nov 21-25	Dec 11-15	
Dammina Block, Thalawewa Unit				
M. Sugathadassa	6.4	2.0	0.0	
T. Seman	7.2	3.2	1.2	
S. Bandara	8.0	4.0	2.4	
B. Wimalasena	5.6	2.0	0.8	
B. Kusamawathi	7.2	1.2	1.2	
L. Indrapala	4.0	0.8	0.8	
C. Ekanayake	8.0	4.0	3.2	
Mean	6.6*	2.5+	1.4#	
Nidanwala Unit				
J. Ranaweera		2.3	3.0	Jan 1
B. Bandaranayake			0.3	0.0
Mahadamina Unit	Nov 23-25	Dec 10	Jan 1	
J. Jayasinghe	5.0	5.9	0.0	
H. Premarantha	3.3	8.7	0.0	
S. Wijepala	3.7	3.6	0.0	
S. Jayaweera	6.4	9.7	0.0	
Mean**	4.8	7.0	0.0	

Seed Farm	Planting date			
	Nov 14	Dec 12	Jan 5	Feb 6
	6.6	0.5	7.2	0.0

* Mean differences from + and # are statistically significant at the 1 percent level, CV = 20 percent; + mean difference from # is statistically significant at the 1 percent level. CV = 48 percent. ** Means are statistically different from each other at the 1 percent level.

E. Recommendations

1. Plant potatoes on homesteads or lowlands on raised beds. Planting dates should be as early as possible in November, but mid-October plantings should do well.

2. Conduct date of planting trials starting October 1 in both homesteads and lowlands.

CABBAGE

Date of Planting Trials

A. Background

Cabbage yields from Maha plantings were variable in previous tests and tended to decrease with plantings later in the season.

C. Methodology

Cabbage variety KY cross was established on raised beds at 10 locations in the Allewewa Block, Kalaukale Unit. Details of the trials are listed below:

Plot size: 11 x 11 m; 5 x 5 m

Plant spacing: 50 x 40 cm

Plant density: 1 plant/hill

Dates of transplanting: October 10-November 25

Cowdung: 10 t/ha

Fertilizer (kg/ha): Full rate
Basal: Urea - 200, TSP - 300, MOP - 150
Top dressing: urea - 250, 4 to 5 weeks after planting

No. of insecticide treatments: 7-9 (Lorsban, Tamoran, Marshall)

No. of fungicide treatments: 6-11 (Topcin, Pomoral Forte, Polyram, Trimiltox)

Further information is provided in Annexure 6.

D. Results

Cabbage yields were excellent from October plantings and good from later plantings up to November 25 (Table 9). Cabbage yields averaged 19.3 t/ha from plantings October 1 - 29 and decreased to 14.6 t/ha from later plantings (Table 9); the mean differences were significant at the 2.5 percent level. November plantings also yielded well in Maha 1991/92, but later plantings failed to yield due to insect predation (5).

Production costs during 1991/92 were estimated at Rs 25,000, not including labour (5). Assuming a 10 % increase in costs to Rs 27,500 during 1992/93 Maha and a selling price

of Rs 15/kg, a yield of 2 t/ha would meet production expense(not including labour).

E. Recommendations

1. Plant cabbage in Maha. Cabbage can be raised with difficulty in Yala, but it is slow growing and subject to insects and diseases.

2. Conduct date of planting trials in August and September.

Table 9. Cabbage yields from different planting dates on RBE soils

Unit/ farmer	Planting date	Yield (t/ha)
Allawewa Block, Kalukele Unit		
H. Mathupala	Oct 1	18.5
W. Saramelis	Oct 2	19.0
N. Sarath	Oct 10	19.5
Y. Gayaweera	Oct 15	19.0
H. Samadasa	Oct 15	19.9
K. Piyasena	Oct 29	19.8
Mean		19.3*
R. Nandina	Oct 30	13.6
W. Amiyasinghe	Nov 15	18.5
H. Muthubanda	Nov 25	17.0
N. Digiribanda	Dec 1	9.4
Mean		14.6+

* Mean difference from + is statistically significant at the 2 percent level. CV = 18.2 percent.

BEETROOT

A. Background

Beetroot performed well from plantings in early December through mid-January during Maha 1991-92, yielding from 18 to 21 t/ha (5). June plantings also showed promise (4).

B. Objective

To determine if beetroot will yield well from October and November plantings.

C. Methodology

Seedlings of beetroot variety Crimson Globe were transplanted on raised beds in NCB soils at 7 locations in the Dimbulagala Block. Details of the trials are listed below:

Plot size: 11 x 11 m

Plant spacing: 30 x 30 cm

Plant density: 1 plant/hill

Dates of seeding: October 1-Novenber 25

Cowdung treatment: 10 kg/ha

Fertilizer (kg/ha):
Basal: urea - 200, TSP - 300, MOP - 125
Top dressing: urea - 250, 4 to 5 weeks after planting

No. of insecticide treatments: 0

No. of fungicide treatments: 0

Harvest date: Dec 18-Jan 22

Further information is provided in Annexure 7.

D. Results and Discussion

Beetroot yields were excellent, averaging 11.6 t/ha with plantings from October 1 to November 1. Yields from mid-November plantings averaged 7.1 t/ha, a difference statistically significant at the 5 percent level (Table 10). In a single trial at the Seed Farm, beetroot yields were acceptable with plantings in December and January but were very low from November plantings (Table 10). December and January plantings were also successful during Maha 1991/92 (5). During that period, production costs approximated Rs 19,250 /ha. Assuming a 10 percent increase in production costs to Rs 21,175/ha and a selling price of Rs 15/kg, not including labour costs, a yield of only 1.5 t/ha would meet production costs.

E. Recommendations

1. Plant beetroot in the Maha season, emphasizing early plantings, starting October 1. Plantings should be avoided during periods of heavy rain.

2. Conduct date of planting trials during August and September and between January 15 and March 1.

3. Conduct additional beetroot trials on rainfed homesteads.

Table 10. Beetroot yields (t/ha) from different planting dates on RBE soils

Unit/ farmer	Planting date	Yield (t/ha)
Dimbulagala Block, Palatigama Unit		
N. Emmonona	Oct 1	13.2
R. Jayaratne	Oct 5	14.3
H. Abeyratne	Oct 25	10.9
K. Thilakeratne	Oct 30	9.2
B. Upatisa	Nov 1	10.4
Mean		11.6*
W. Upali	Nov 15	8.2
R. Punchisanda	Nov 25	6.0
Mean		7.1+

Seed Farm	planting date			
	Nov 1	Nov 22	Dec 13	Jan 13
	0.0	3.0	7.2	8.4

* Mean difference from + is statistically significant at the 5 percent level. CV = 25 percent.

RED ONION

Date of Planting Trials

A. Background

Previous trials have shown that red onion can be grown from November to early February in System B (5) if rainy periods are avoided, and from March to July (4).

B. Objective

To determine if red onion can be produced sucessfully from September plantings and on rainfed homesteads in System B.

C. Methodology

Date of planting trials were conducted with 7 farmers on homesteads and four farmers on lowlands in the Dammunna Block.

Planting dates: September 23-December 12

Soil type: RBE/SL

Drainage: Good
Fertilizer rates (kg/ha):
Basal: AS - 100, TSP - 100, MOP - 50
Topdress: urea - 50, MOP - 25, 6 weeks after transplanting

For further information see Annexure 8.

D. Results and Discussion

September plantings of red onion yielded 6.7 t/ha on homesteads. Yields were lower from later plantings. The mean differences were significant at the 1 percent level (Table 11). Yields were lower from mid-October than from November plantings, probably due to heavy rains during late October which affected the crop. Yields were higher from November plantings than from December plantings on lowlands (Table 11), but mean differences were significant only at the 11 percent level, probably due to an insufficient number of replicates. Yields were also acceptable from plantings between October and February (5). Due to their susceptibility to fungus disease, red onions are difficult to grow when heavy rains occur at or shortly after planting, particularly if soil drainage is poor.

The cost of production of red onion during Maha 1991/92 was estimated at Rs 103,100/ha (5). Assuming a 10 percent increase in production costs for Maha 1992/93 to Rs 113,400 and a selling price of Rs 30/kg, a yield of kg 3,780/ha would meet expenses (not including labour costs).

E. Recommendations

1. Plant red onions from September 1 to the end of February, but avoid planting when rains are imminent.

2. Conduct date of planting trials during August.

Table 11. Red onion yields (t/ha) from date of planting trials

Farmer	Planting date Sept 23-26	Oct 21-26	22-25/11
Dammina Block, Thalawewa Unit			
S. Wickremasinghe	4.0	0.0	3.2
D. Heenmenike	2.8	2.4	2.8
H. Ganawathi	8.4	1.2	6.0
K. Sudamenike	6.0	2.0	4.0
B. Somarathna	8.0	1.6	4.8
K. Patmini	8.0	0.0	2.0
Mean	6.7*	1.2+	3.8#

Lowlands	Nov 2-6	Dec 28
E. Kananayake	6.4	5.2
T. Siman	7.6	6.3
G. Witharam	12.0	7.6
A. Gunaratne	5.2	6.0
Mean	7.8>	6.3

* mean difference is higher than + or #, and # mean difference is higher than +, all at the 1 percent level; mean > is higher than mean ^ only at the 11 percent level of significance.

BRINJAL, OKRA AND CARROT

A. Background

Carrot yields were highest with plantings during November-December, particularly on homesteads (5). Carrot yielded between 8 and 11 t/ha in plantings from mid-November to the end of January in Maha 1991/92 (5), but yields were lower from January plantings. Planting date trials with okra and brinjal have not been conducted during Maha.

B. Objective

To assess yields of brinjal, okra and carrot at different planting dates during Maha.

C. Methodology

1. Carrot

Carrots were direct seeded on raised beds at the Seed Farm (irrigated lowland). Trial details were as follows:

Variety: Koroda P.S.

Dates of seeding: November 2-December 15

Plot size: 25 m^2

Soil type and drainage: RBE/SL - fair

Fertilizer (kg/ha)
Basal: urea - 250, TSP - 300, MOP - 125
Top dressing: 250 urea, 125 MOP at 4 and 6 weeks after planting

Insecticide treatments: 0 - 1

Fungicide treatments: 1, Captan

Dates of harvest: January 1-April 29

2. Okra

Location: Seed Farm and Daminna Block

Variety: MI-7

Plot size: 11x11 m^2

Planting dates: August 12-December 10

Plant spacing: 30 x 30 cm

Plant density: 1 plant/hill

Soil type: RBE/L

Drainage: Fair

Fertilizer (kg/ha):
Basal: urea - 150, TSP - 200, MOP - 75
Top dressing: urea - 150 at 4 weeks after planting

No. of insecticide applications: 4-8 (Monocrotophos, Lorsban, Lebysid, Attelek)

No. of fungicide applications: 0

No. of weedings: 3

Dates of harvest: November 11-February 6

3. Brinjal

Location: Seed Farm and Daminna Block

Plot size: 11x11 m^2

Planting dates: October 14-January 16

Plant spacing: 30 x 30 cm

Plant density: 1 plant/hill

Soil type: RBE/L

Drainage: Fair-good

Fertilizer (kg/ha):
Basal: urea - 150, TSP - 200, MOP - 75
Top dressing: urea - 150 at 4 weeks after planting

No. of insecticide applications: 4-12 (Monocrotophos, Lorsban, Lebysid, Sevin)

No. of fungicide applications: 0

No. of weedings: 2-3

Dates of harvest: December 9-March 24

D. Results and Discussion

Brinjal yields were acceptable from mid-October to early January plantings (Table 12). Yields ranged from 35.5 to 4.5 t/ha, with the higher yields ocurring from October and November plantings. A similar trend occurred with okra plantings (Table 12) and the limited data suggests that if insects are properly controlled, plantings could be extended into October. However, in limited trials in Yala 1992, okra yields decreased with plantings from mid-August to mid-September (5). Under rainy, humid conditions neither brinjal or okra will do well because of the prevalence of fungus disease.

Carrot yields were poor at all dates of planting at the Seed Farm. However, carrot production was profitable with November-December plantings during on homesteads during Maha 1991/92 (5). The Seed Farm is predominantly lowland, thus requiring extra care to grow OCs. It has been our experience during 1990-1993 that poor drainage and excess watering has been a limiting factor in the production of OCs at the Seed Farm.

E. Recommendations

1. In addition to Yala plantings, plant okra and brinjal from early October to December-end, but avoid plantings during periods of heavy rain.

2. Continue date of planting trials of brinjal and okra during August and September.

3. Continue date of planting trials of carrot on homesteads from early October to the end of January but avoid periods of heavy rain.

Table 12. Yield, (t/ha) from date of planting trials of carrot, okra and brinjal

Location/Farmer	Plantng date					
			Oct 14	Nov 5	Dec 28	Jan 16
Brinjal						
Seed Farm			33.4	35.5	33.9	9.8
Dammina Block, Nidanwala Unit				Nov 3-4	Dec 6-7	
K. Seneweratne				9.1	4.5	
G. Witharane				10.3	8.7	
Okra	Aug 12	Sept 1	Sept 21	Oct 19	Nov 22	Dec 10
Seed Farm	-	-	27.1	7.0	5.4	5.3
Dammina Block/ G. Gumpala	7.2	4.9	-	-	-	-
Carrot			Nov 2	Nov 24	Dec 15	Jan 16
Seed Farm			2.5	0.0	3.1	3.5

Vegetable trials in the Mahadamana Unit

Trials were conducted with cabbage, Capsicum, beetroot and brinjal at three dates in early and mid-November and mid-December by five farmers in a poorly drained area in the Mahadamana unit. Heavy rains at planting prevented yields of any the crops despite being planted on raised beds.

GENERAL RECOMMENDATIONS

October plantings produced higher yields of most crops than plantings in November and December. This is to be expected, because air and soil temperatures decrease during this period. Further, seedling development requires only a shallow layer of soil. The temperature of this soil layer is reduced to acceptable levels by applications of irrigation water.

The nature of the light textured soil in System B, with its low organic matter content makes it highly erodable, which is exascerbated by undulating to rolling topography and hard, slashing rains, typical of the area. Hence mulching and the use of organic fertilizer should be an integral part of any cropping system (5,6).

The characteristics of Maha and Yala seasons and the adaptability of pests to these seasonal conditions influence the selection of crops to be grown. Maha, with its higher rainfall, higher humidity and cooler temperature permits the production of temperate season crops like potatoes and crucifers. However, since fungal diseases are common in Maha, resistant varieties should be selected. Otherwise, crops must be watched closely for the development of plant disease and protection methods applied when appropriate. The fact that insect predation is rarely a problem during Maha, provides the opportunity to grow chilli, which often fails due to high populations of thrips and mites during Yala.

The Yala season is typified by high air and soil temperatures, little rainfall, conditions favourable for cucurbits and solanaceous crops (where irrigation is available), but protection measures are usually necessary for the control of insects. Plantings in late March and early April help to avoid the most severe insect predation (which occurs from July to September) and also to advance crop plants beyond the early growth stages when they are most susceptible to insects. However, plantings in March and October have been difficult to test and promote with farmers, because irrigation water is seldom available at these times. Irrigation engineers normally delay release of water in System B until mid-April in Yala and November in Maha, traditional planting dates. The routine release of irrigation water to farmers in late September and mid-March would make a significant contribution by allowing farmers to plant their crops earlier and thus benefit from increased yields.

REFERENCES

1. Department of Agriculture. 1990. Crop Recommendations Technoguide. Peradeniya, Sri Lanka. 311 pp.

2. Selleck, G.W. 1991. Observations of chilli NLD disease in System B. during Yala, 1991. MARD/MDS report. Pimburettewa, Sri Lanka. 3 pp.

3. Selleck, G.W. and D.M.S.B. Dasanayake. 1992. Maha 1991/92 Seed Farm trials: legumes, grain crops, bulb crops, chilli, Capsicum and vegetables. MARD/MDS report. Pimburettewa, Sri Lanka. 40 pp.

4. _____. 1992. Yala 1991 on-farm trials. MARD/MDS report. Pimburettewa, Sri Lanka. 47 pp.

5. Selleck, G.W., D.M.S.B. Dasanayake, M. de Silva and S. Ganigame. 1992. Maha 1991/92 On-farm trials. MARD/MDS report. Pimburettewa, Sri Lanka. 105 pp.

6. Selleck, G.W. and J.E. Gleason. 1992. Crop rotations for year-round production in System B. MARD/MDS report. Pimburettewa, Sri Lanka. 12 pp.

7. Selleck, G.W., D.M.S.B. Dasanayake, M. de Silva and S. Ganigame. In MARD/MDS Quarterly report, July - September, 1992. Pimburettewa, Sri Lanka. pp: 9-11.

Annex: 1 - 1

Weed Control Trials : Chilli; Maha 1992–93, Dimbulagala Block, Thispanegama Unit;
Plot size : 11x11m; Plant spacing : 60x45cm, Fertilizer and Cowdung as recommended.

Farmer/Location	Planting date	Herbicides used		Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no. of times	Treatment	no. of times	Treatment	no. of times		
W.G.Saranalis FC 52/08	25/10/1992	Lasso Goal Mannual	2 2 6	Monocrotaphus Labicide Sulphur	4	Mancozeb Topsin	8	10/01/1993 to 27/04/1993	43.5
R.M.Amitha 136	23/11/1992	Tribunil Mannual	2 7	Monocrotaphus Labicide Sulphur	3	Mancozeb Topsin Dithane m 45	7	05/02/1993 to 18/05/1993	35.5
W.A.Ariyasinghe FC 54/10	25/11/1992	Tribunil Lasso Mannual	3 2 8	Monocrotaphus Labicide Sulphur	5	Topsin	8	06/02/1993 to 29/05/1993	47

Weed Control Trials : Chilli; Maha 1992–93, Sevenapitiya Block, Sevenapitiya Unit;
Plot size : 11x11m; Plant spacing : 60x45cm, Fertilizer and Cowdung as recommended.

Farmer/Location	Planting date	Herbicides used		Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no. of times	Treatment	no. of times	Treatment	no. of times		
M.A.Hemapala 314	10/12/1992	Tribunil Lasso Mannual	1 2 7	Monocrotaphus Labicide Sulphur	6	Topsin Dithane	9	20/02/1993 to 10/06/1993	34.5

Annex: 1 - 2

Weed Control Trials : Chilli; Maha 1992-93, Ellewewa Block, Kalukele Unit;
Plot size : 11x11m; Plant spacing : 60x45cm, Fertilizer and Cowdung as recommended.

Farmer/Location	Planting date	Herbicides used		Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no. of times	Treatment	no. of times	Treatment	no. of times		
G.R.A.Podiappuhamy FC 44/6	05/10/1992	Lasso Selicron Goal Tribunil Mannual	2 2 2 2 9	Monocrotaphus Labicide Sulphur	6	Mancozeb Topsin	6	20/12/1992 to 10/03/1993	82
D.R.Seneviratne FC 41/3	07/11/1992	Lasso Goal Mannual	2 2 8	Monocrotaphus Labicide Sulphur	5	Topsin	4	23/01/1993 to 08/04/1993	39.5
R.G.Nandana FC 30/08	15/10/1992	Lasso Tribunil Mannual	3 2 8	Monocrotaphus Labicide Sulphur	4	Mancozeb Topsin	7	27/12/1992 to 03/04/1993	52

Annex 2.A - 1

Date of Planting Trials : Chilli; Maha 1992–93, Dimbulagala Block, Thispanagama Unit
Plot size : 11x11m; Plant spacing : 60x45cm, Fertilizer and Cowdung as recommended.

Farmer/Location	Planting date	Insecticides used		Fungicides used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
R.D.Darmasena Charli FC 54/05	7/11/1992	labaicid sulpha monocrotophus	5	mancozeb topsin	8	10/12/92 to 21/3/93	22
K.G.Hendrick Appu FC 54/07	15/11/1992	– do –	6	– do –	7	13/12/92 to 14/3/93	23
M.A.Somapala FC 54/06	30/11/1992	– do –	2	– do –	10	15/1/92 to 8/4/93	19
M.M.Somaweera FC 53/03	20/11/1992	– do –	3	– do –	6	2/1/92 to 20/4/93	17.5
H.R.M.Mutubanda FC 51/03	12/12/1992	– do –	4	– do –	7	29/1/92 to 28/4/93	16.5
N.M.Dingiribanda FC 51/2	25/12/1992	– do –	7	– do –	6	27/2/92 to 16/5/93	16

Annex 2.A - 2

Date of Planting Trials : Chilli; Maha 1992-93, Sevenapitiya Block, Sevenapitiya Unit
Plot size : 11x11m; Plant spacing : 60x45cm, Fertilizer and Cowdung as recommended.

Farmer/Location	Planting date	Insecticides used		Fungicides used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
A.R.Wijithasena Highland 335	30/10/1992	labicid sulpha monocrotaphus	4	mancozeb topsin	5	5/1/92 to 7/4/93	22
M.P.Mettananda Highland 59	20/11/1992	– do –	5	– do –	6	27/1/92 to 28/4/93	18

Date of Planting Trials : Chilli; Maha 1992-93, Ellewewa Block, Kalukele Unit
Plot size : 11x11m; Plant spacing : 60x45cm, Fertilizer and Cowdung as recommended.

Farmer/Location	Planting date	Insecticides used		Fungicides used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
N.H.G.Sarath FC 20/08	6/10/1992	labicid sulpha monocrotaphus	4	mancozeb topsin	7	11/12/92 to 8/3/93	21
Sarath Wijesinghe FC 36/03	30/12/1992	– do –	6	– do –	6	6/2/92 to 3/5/93	17.5
H.A.Mathupala	38/12/1992	– do –	6	– do –	7	5/2/92 to 8/5/93	14

Annex 2.B

Date of Planting Trials : Chilli; Maha 1992–93, Damminna Block, Nidanwela Unit; Plot size : 11x11m; Plant spacing : 60x45cm, Fertilizer and Cowdung as recommended.

Farmer/Location	Planting date	Insecticides		Fungicides		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
K.M.Piyasena	04/11/1992	Selecron	2	Dithane	1	15/02/1993 to 05/04/1993	10
		Lenate	1	Topsin	1		
		Lebicide	1				
		Sulphur	2				
	08/12/1992	Selecron	3	Manzete	1	03/03/1993 to 10/05/1993	13
		Lenate	1				
		Lebicide	1				
		Sulphur	2				
N.G.Premadasa	04/11/1992	Lebicide	1	Topsin	1	10/01/1993 to 06/03/1993	14
		Sulphur	3				
	04/12/1992	Lebicide	1	Topcin	1	25/02/1993 to 20/04/1993	15
		Sulphur	3				

Annex: 3 - 1

Date of Planting Trials :Capsicum; Variety HYV, Maha 1992–93, Dimbulagala Block, Thispanagama Unit
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
M.G.Ariyadasa	01/10/1992	Monocrotaphus	9	Topsin	8	02/12/1992 to 23/01/1993	57.5
FC 54/08	14/10/1992	Loseban		Dithane M 45		26/12/1992 to 03/02/1993	56
	29/10/1992	Labicid				14/01/1992 to 29/02/1993	43.8
F.W.Somadasa	05/10/1992	Monocrotaphus	8	Topsin	9	19/12/1992 to 29/01/1993	54.1
FC 53A/05	15/10/1992	Loseban		Dithane M 45		28/12/1992 to 07/02/1993	51.3
	29/10/1992	Labicid		Polyram		07/01/1992 to 19/02/1993	42.8
P.G.Ukkubanda	25/09/1992	Monocrotaphus	9	Topsin	10	13/12/1992 to 30/01/1993	56
203	10/10/1992	Labicid		Dithane M 45		25/12/1992 to 07/02/1993	49.3
	28/10/1992	Labicid				10/01/1992 to 21/02/1993	40.5

Date of Planting Trials :Capsicum; Variety HYV, Maha 1992–93, Sevenapitiya Block, Sevenapitiya Unit;
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
Hearath Banda	01/10/1992	Monocrotaphus	7	Topsin	7	14/12/1992 to 28/02/1993	56
H.L.39	15/10/1992	Labicid		Dithane M 45		27/12/1992 to 03/02/1993	52.8
	28/10/1992					07/01/1992 to 23/02/1993	43.2

Annex: 3 - 2

Date of Planting Trials :Capsicum; Variety HYV, Maha 1992–93, Ellewewa Block, Kalukele Unit
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used Treatment	no.of times	Fungicedes used Treatment	no.of times	Harvest date	Yield Kg/plot
R.G.Nandana	03/10/1992	Monocrotaphus	7	Topsin	9	19/12/1992 to 29/01/1993	60.3
FC 36/08	15/10/1992	Labicid		Dithane M 45		29/12/1992 to 07/02/1993	55.9
	26/10/1992					14/01/1992 to 27/02/1993	43.3
D.R.Seneveratne	03/11/1992	Monocrotaphus	9	Topsin	10	18/01/1992 to 06/03/1993	42.8
FC 41/03	15/11/1992	Labicid		Dithane M 45		29/01/1993 to 04/03/1993	42.2
	25/11/1992					09/02/1993 to 21/03/1993	32.1
D.R.Ranbanda	02/11/1992	Monocrotaphus	8	Topsin	9	20/01/1992 to 29/02/1993	44.8
FC 41/14	17/11/1992	Labicid		Dithane M 45		03/02/1993 to 10/03/1993	38.7
	28/11/1992					10/02/1993 to 25/03/1993	31.9

Annex: 4A - 1

Date of Planting Trials :Potato; Variety Desirer & NC 13, Maha 1992-93, Dimbulagala Block, Thispanagama Unit, Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used Treatment	no.of times	Fungicedes used Treatment	no.of times	Harvest date	Yield Kg/plot
R.D.Hindrick Appu FC 54/07	01/11/1992	Penetrathion Loseban	8	Topsin Dithane M 45	9	13/02/1993	79.8
F.W.Somapala FC 53A/06	14/11/1992	Marshal Loseban	8	Dithane M 45 Topsin	8	29/02/1993	70.2
M.M.Somaweera FC 58/03	30/11/1992	Marshal Loseban	7	Topsin Dithane M 45	8	10/03/1993	60.1
R.D.Darmasena Chali FC 54/05	10/12/1992	Marshal Loseban	7	Topsin Dithane M 45	8	21/03/1993	23.8

Date of Planting Trials :Potato; Variety Desirer & NC 13, Maha 1992-93, Sevenapitiya Block, Sevenapitiya Unit, Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used Treatment	no.of times	Fungicedes used Treatment	no.of times	Harvest date	Yield Kg/plot
A.R.Wijethasena H.L.335	01/11/1992	Loseban	6	Topsin	8	11/02/1993	28.4
M.R.Methananda H.L.59	15/11/1992	Loseban Marshal	7	Topsin Dithane M 45	9	23/02/1993	63.4

Annex: 4A - 2

Date of Planting Trials :Potato; Variety Desirer & NC 13, Maha 1992–93, Ellewewa Block, Kalukele Unit, Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
Dayani Jayasinghe FC 18/13	05/11/1992	Monocrotaphus Loseban Marshal	8	Polyram Dithane M 45	8	13/02/1993	73.5
G.L.A.Podiappuhamy FC 44/06	02/11/1992	Loseban Marshal	6	Topsin Dithane M 45	10	13/02/1993	78.8
N.H.G.Sarath FC 20/08	15/11/1992	Monocrotaphus Loseban	8	Topsin Dithane M 45	8	27/02/1993	68.2
D.R.Punchibanda FC 36/02	01/11/1992	Loseban Marshal	7	Topsin Polyram	9	14/02/1993	79
Sarath Wijesinghe FC 36/03	25/11/1992	Loseban	4	Topsin Polyram	9	05/03/1993	59
Y.Jayaweerabanda FC 36/07	15/11/1992	Loseban	6	Topsin	6	20/02/1993	66.6
R.H.Nandana FC 36/08	30/11/1992	Monocrotaphus Loseban	6	Topsin Polyram	9	03/03/1993	57.3
D.R.Seneviratne FC 41/13	15/11/1992	Monocrotaphus Loseban	5	Topsin Dithane M 45	9	27/02/1993	66.6
D.R.Ranbanda FC 41/14	25/11/1992	Monocrotaphus Loseban	6	Topsin Dithane M 45	10	03/03/1993	53.8
H.A.Mathupala FC 20/07	01/12/1992	Monocrotaphus Loseban	7	Topsin Dithane M 45	9	17/03/1993	33.3

Annex: 4B

Date of Planting Trials :Potato (Homestead); Maha 1992-93, Damminna Block, Ihalawewa Unit;
Plot size : 5x5m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Yield
		Treatment	no.of times	Treatment	no.of times	Kg/plot
M.D.Sugathadasa	01/11/1992	Labicide	2	Antracol	2	16
	25/11/1992					5
	15/12/1992					0
T.G.Simon	29/10/1992	Labicide	2	Antracol	4	18
	11/11/1992					8
	12/12/1992					3
S.M.H.A.Bandara	28/10/1992	Labicide	2	Antracol	4	20
	21/11/1992					10
	12/12/1992					6
B.M.D.Wimalasena	01/11/1992	Labicide	1	Antracol	3	14
	25/11/1992					5
	15/12/1992					2
B.M.D.Kusumawathie	02/11/1992	Labicide	1	Antracol	3	18
	25/11/1992					3
	13/12/1992					3
L.R.Indrapala	05/11/1992	Labicide	2	Antracol	2	10
	23/11/1992					2
	12/12/1992					2
Chandra Kumari Ekanayak	29/10/1992	Labicide	2	Antracol	3	20
	21/11/1992					10
	01/12/1992					8

Annex: 4C

Date of Planting Trials :Potato ; Maha 1992-93, Damminna Block, Nidanwela Unit;
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Weedings	Harvesting date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times			
B.M.Bandaranayeke	04/12/1992	Loseban	1	Antracol	1			
				Dithane M 45	3	2	28/02/1993	35
	02/01/1993	Loseban	1	Antracol	3			
		Monocrotaphus	1	Dithane M 45	3	2	-	0
J.M.Ranawera	25/11/1992	Loseban	1	Antracol	2	2	10/02/1993	28
	11/12/1992	Loseban	1	Antracol	2	2	04/03/1993	36

Annex 4D

Date of Planting Trial; Potato, Maha 1992/93, Ellewewa Block, Mahadamana Unit;RBE Soil; Plot size: 100m2

Farmer	Yield Kg/plot/planting date		
	23-25/11/92	10/12/92	12/10/92
J.D.Jayasinghe	61	72	0
H.A.Premaratne	40	105	0
S.P.Wijepala	45	43	0
S.Jayaweera	77	117	0

Annex 5 - 1

Date of Planting Trials : Groundnut (local variety); Maha 1992–93, Ellewewa Block, Kalukele Unit;
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type RBE

Farmer/Location	Planting date	Insecticedes used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
Dayanis Jayasinghe FC 18/03	10/11/1992	Monocrotaphus	2	Pormasul Forte	2	07/02/1993	21
N.H.G.Sarath FC 20/08	15/11/1992	Loseban	1	Pormasul Forte	2	07/02/1993	24
G.L.A.Podiappuhamy FC 44/06	16/11/1992	Monocrotaphus	2	Dithane M 45	2	10/02/1993	20
D.R.Punchibanda FC 36/02	20/11/1992	Monocrotaphus	2	Topsin	2	17/02/1993	19
Sarath Wijesinghe FC 36/03	15/11/1992	Monocrotaphus	2	Topsin	2	07/02/1993	16
Y.Jayaweerabanda FC 30/07	16/11/1992	Monocrotaphus	2	Dithane M 45	2	07/02/1993	21
R.G.Nandana FC 36/08	15/11/1992	Monocrotaphus	3	Dithane M 45	3	07/02/1993	14

Annex 5 - 2

Date of Planting Trials : Groundnut (local variety); Maha 1992–93, Dimbulagala Block, Teispanagama Unit; Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type : NCB

Farmer/Location	Planting date	Insecticedes used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
R.D.Darmasena Charli FC 54/05	01/10/1992	Monocrotaphus	3	Dithane M 45	2	25/12/1992	25
W.A.Somapala FC 54/06	25/10/1992	Monocrotaphus	2	Dithane M 45	3	21/01/1993	18
R.D.Hendrick Appu FC 54/07	30/10/1992	Monocrotaphus	1	Dithane M 45	2	06/02/1993	19
M.M.Samaraweera FC 53/03	05/11/1992	Loseban	1	Dithane M 45	2	25/01/1993	23
H.R.M.Muthubanda FC 51/03	10/11/1992	Loseban	2	Dithane M 45	3	03/02/1993	22

Annex: 6 - 1

Date of Planting Trials :Cabbage; Variety KY cross, Maha 1992-93, Ellewewa Block, Kalukele Unit,
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
N.H.G.Sarath FC 20/08	10/10/1992	Mazahall Tamaron	9	Topsin	6	28/12/1992	236
Y.Jayaweera Banda FC 30/07	15/10/1992	Loseban Tamaron	10	Topsin Polyram	8	29/12/1992	230
R.H.Nandana FC 36/08	30/10/1992	Loseban Tamaron	9	Topsin Polyram	9	17/01/1993	165
H.A.Mathupala FC 20/07	01/10/1992	Loseban Tamaron	8	Topsin Dithane M 45	8	13/12/1992	225

Annex: 6 - 2

Date of Planting Trials :Cabbage; Variety KY cross, Maha 1992-93, Dimbulagala Block, Thispanagama Unit, Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
H.R.M.Mutubanda 209	25/11/1992	Loseban Tamaron	7	Topsin Pomasal Forte	7	10/02/1993	205
N.M.Dingiribanda FC 51/02	01/12/1992	Mazahall Tamaron	8	Topsin Pomasal Forte	8	16/02/1993	113.5
W.G.Saranalis FC 52/08	02/10/1992	Mazahall Tamaron	8	Topsin Polyram	7	18/12/1992	230
H.A.Samaradasa FC 52/07	15/10/1992	Loseban Tamaron	9	Topsin Pomasal Forte	9	30/12/1992	241.8
K.A.Piyasena-Fernando FC 54/13	29/10/1992	Loseban Tamaron	9	Trimiltox Pomasal Forte	10	14/01/1993	240
W.G.Ariyasinghe FC 54/10	15/11/1992	Mazahall Monocrotaphus	9	Topsin Captan	11	03/02/1992	225

Annex: 7 - 1

Date of Planting Trials :Beetroot; Maha 1992–93, Dimbulagala Block, Palatiyawa Unit;
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield
		Treatment	no.of times	Treatment	no.of times		Kg/plot
B.G.Uppertissa FC 70/14	01/11/1992	no	–	no	–	08/01/1993	146.5
U.A.Emenena FC 51/01	01/10/1992	no	–	no	–	13/12/1992	160.3
R.M.Lional Jayasinghe FC 65/08	05/10/1992	no	–	no	–	18/12/1992	173.5
H.M.Ariyaratne FC 48/12	25/10/1992	no	–	no	–	06/01/1993	132.5
K.G.P.Thilakatane FC 51/11	30/10/1992	no	–	no	–	08/01/1993	111
W.M.Upali FC 53	15/11/1992	no	–	no	–	22/01/1993	98.8
B.G.Punchirala FC 72/03	25/11/1992	no	–	no	–	08/02/1993	72.8

Annex: 7- 2

Date of Planting Trials :Beetroot; Maha 1992 93, Dimbulagala Block, Palatiyawa Unit;
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
B.G.Uppertissa FC 70/14	01/11/1992	no	-	no	-	08/01/1993	146.5
U.A.Emenena FC 51/01	01/10/1992	no	-	no	-	13/12/1992	160.3
R.M.Lional Jayasinghe FC 65/08	05/10/1992	no	-	no	-	18/12/1992	173.5
H.M.Ariyaratne FC 48/12	25/10/1992	no	-	no	-	06/01/1993	132.5
K.G.P.Thilakatane FC 51/11	30/10/1992	no	-	no	-	08/01/1993	111
W.M.Upali FC 53	15/11/1992	no	-	no	-	22/01/1993	98.8
B.G.Punchirala FC 72/03	25/11/1992	no	-	no	-	08/02/1993	72.8

Annex: 8A

Date of Planting Trials :Red onion; Maha 1992–93, Damminna Block, Ihalawewa Unit;
Plot size : 5x5m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Fungicedes used		Harvest date	Yield
		Treatment	no.of times	Treatment	no.of times		Kg/plot
K.M.G.Ekanayake	04/11/1992	Labicide	1	Trimiltox	1	02/02/1993	16
				Topsin	1		
				Manzate	1		
	28/12/1992	Labicide	1	Trimiltox	2	28/02/1993	13
				Topsin	1		
T.G.Symon	02/12/1992	Labicide	1	Trimiltox	2	23/02/1993	19
				Topsin	2		
	07/12/1992	Labicide	1	Trimiltox	3	19/03/1993	14
				Topsin	2		
G.Witharam	06/12/1992	Loseban	1	Trimiltox	2	02/03/1993	30
				Topsin	1		
	20/12/1992	Loseban	1	Trimiltox	1	15/03/1993	19
				Topsin	1		
G.M.Gunaratne	04/12/1992	Loseban	1	Trimiltox	2	06/03/1993	13
				Topsin	1		
	22/12/1992	Loseban	1	Trimiltox	1	18/03/1993	15
				Topsin	1		

Annex 8B

Date of Planting Trials : Red onion ; Homestead,Maha 1992–93, Wijayabapura Block, Galtalawa Unit;
Plot size : 5x5m; Spacing 4"x4", Fertilizer and Cowdung as recommended, Soil type : RBE

Farmer/Location	Planting date	Insecticides used		Fungicides used		Harvest date	Yield Kg/plot
		Treatment	no.of times	Treatment	no.of times		
S.M.Wickramasinghe	04/09/1992	Monocrotaphus	1	Trimiltox	1		10
				Ridomil	2		
	26/10/1992	–do–	1	–do–	–do–		0
	25/11/1992	–do–	1	–do–	–do–		8
D.M.Heenmenike	23/09/1992	–do–	1	–do–	–do–		7
	21/10/1992	–do–	1	–do–	–do–		3
	25/11/1992	–do–	1	–do–	–do–		7
I.H.Ganawathie	24/09/1992	–do–	1	–do–	–do–		21
	21/10/1992	–do–	1	–do–	–do–		3
	25/11/1992	–do–	1	–do–	–do–		15
K.G.Sudumenike	25/09/1992	–do–	1	–do–	–do–		15
	23/10/1992	–do–	1	–do–	–do–		5
	22/11/1992	–do–	1	–do–	–do–		10
B.G.Somaratne	23/09/1992	–do–	1	–do–	–do–		20
	23/10/1992	–do–	1	–do–	–do–		4
	23/11/1992	–do–	1	–do–	–do–		12
K.G.Vinitha Patmini	26/09/1992	–do–	1	–do–	–do–		20
	23/10/1992	–do–	1	–do–	–do–		4
	23/11/1992	–do–	1	–do–	–do–		12
R.Premasinghe	23/09/1992	–do–	1	–do–	–do–		6
	21/10/1992	–do–	1	–do–	–do–		0
	23/11/1992	–do–	1	–do–	–do–		5

Annex: 9A

Date of Planting Trials :Brinjal; Maha 1992–93, Damminna Block, Nidanwela Unit;
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Location	Planting date	Insecticides used		Weedings	Harvest date	Yield Kg/plot	Remarks
		Treatment	no.of times				
K.G.Seneveratne	03/11/1992	Atabron	2	3	10/01/1993	110	
		Sevin	2		9 picks		
	07/12/1992	Atabron	2	3	03/02/1993	55	Low yield due to
		Sevin	3		9 picks		Stem borer attack
G.Witharane	04/11/1992	Atabron	2	4	15/01/1993	125	
		Sevin	2		11 picks		
		Selicron	2				
	06/12/1992	Selicron	2	4	15/02/1993	105	Low yield due to
		Sevin	2		9 picks		Stem borer attack

Annex 9B

Date of Planting Trial; Brinjal, Maha 1992/93, Ellewewa Block, Mahadamana Unit;RBE Soil; Plot size: 50m2

Farmer	Yield Kg/plot/planting date		
	30/10/92	20/11/92	12/10/92
J.D.Jayasinghe	30	28.5	18
H.A.Premaratne	43.5	74	59
S.P.Wijepala	71.5	36.5	40
S.Jayaweera	10	15	41
E.D.Piyadasa	30	27	18

Annex: 10

Date of Planting Trials :Okra ; Maha 1992-93, Damminna Block, Nidanwela Unit;
Plot size : 11x11m; Fertilizer and Cowdung as recommended, Soil type :RBE

Farmer/Locatio	Planting date	Insecticides used		Fungicedes used		Weedings	Harvesting date	Yield Kg/plot	Remarks
		Treatment	no.of times	Treatment	no.of times				
G.Gunapala	08/12/1992	Labicide	2	Trimiltox	1		15/01/1993		
				Daconil	2	3	10 picks	87	
	09/01/1993	Labicide	2	Trimiltox	1		08/02/1993		Low yield due to
						3	07 picks	60	damage by cattle

Annex 11

Date of Planting Trial; Maha 1992/93, Ellewewa Block,
Mahadamana Unit;RBE Soil; Plot size: 50m2

Cabbage

Farmer	** Yield Kg/plot/planting date		
	01/11/92	21/11/92	15/12/92
J.D.Jayasinghe	15 leaves	25 leaves	192
H.A.Premaratne	0	0	0
S.P.Wijepala	0	0	0
S.Jayaweera	0	0	0
E.D.Piyadasa	0	0	0

Beetroot

Farmer	** Yield Kg/plot planting date		
	04/11/92	25/11/92	15/12/92
J.D.Jayasinghe	43	0	0
H.A.Premaratne	0	0	0
S.P.Wijepala	0	0	0
S.Jayaweera	0	0	0
E.D.Piyadasa	0	0	0

Capsicum

Farmer	** Yield Kg/plot/planting date		
	04/11/92	25/11/92	15/12/92
J.D.Jayasinghe	0	0	0
H.A.Premaratne	0	0	0
S.P.Wijepala	0	0	0
S.Jayaweera	0	3.5	4.5

** Low or no yields due to heavy rains and flooding of plots.

RECEIVED
AUG 24 1994