

Demonstration of the effect of fertilizers
on minor export crops in cultivators fields.

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FINAL REPORT
ON
DEMONSTRATION OF THE
EFFECT OF FERTILISERS ON
MINOR EXPORT CROPS
IN CULTIVATORS FIELDS

CIDA - 83/14

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Introduction

Export Agricultural Crops (formerly Minor Export Crops; the spices and beverage crops) are grown the Central and Southern high lands in the wet and intermediate zones of Sri Lanka. These crops are known to respond well to fertilisers. This group of crops being perennials, it is necessary to apply fertilisers to sustain high production levels. However in practice, fertiliser use in this crop sector is neither extensive nor regular. It was therefore proposed to conduct a series of demonstrations in cultivators fields, in order to educate the farmers and popularise regular fertiliser use. The CIDA/83/14 project funded this project from 1984 to 1991, a period of seven years.

Project details

The Crops selected for the demonstrations were pepper, coffee, cocoa & Cinnamon, and Citronella. Both new cultivations & mature cultivations in peak production were used. Twenty seven sites were selected in the Kandy, Gampaha, Colombo, Kalutara, Ratnapura Galle, Matara and Hambantota districts. The other districts were not considered as there were demonstrations under other aid projects especially the IRDP. The details of the location, & nature are given in annexure I.

Each site had 3 plots, varying from 1/8 ac to 1/4 ac in size, with the treatments of departmental recommendations (annexure II) one and a half times the recommendation and a zero control plot. all other agronomic & pest managements were identical for all the plots. In the case of new plantations, watering was done with soil injectors during the prolonged dry periods. The plots were harvested both in Yala & Maha of each year and the height of the plant as an indicator of growth was monitored in the first two years in the case of new plantations. All inputs including planting material, fertiliser, supports, shade plants and labour for planting & maintenance was supplied by the project. The field operations were

carried out under the supervision of the district Asst. Directors & the range Extension officers in the respective areas. The progress, results and observations were reported half yearly to NARESA and the summarised results were also presented as papers at the seminars organised by NARESA in February, 1985, July 1987, February 1991 and May 92. (annexure V) In addition, a brochure on Fertiliser use on Minor Export Crops was printed in 1985. Thirty thousand numbers were distributed free to farmers and this brochure was very much appreciated by the farmers. The printing was done at the NARESA press and its assistance is very much appreciated.

In general there was good response in growth, yield and quality of these crops to the application of fertilisers. However the economy of increased use over the recommended levels depends on the price of fertiliser and the prevailing price of the produce. At the prevailing low commodity prices it appears that increased use shall not be economical except in the case of cinnamon, despite significant yield increases. These aspects are fully discussed in the paper submitted at the May 92 seminar. These demonstrations served well the primary objective as a tool in the promotion of use of fertilisers as indicated by the consumption figures published by the National Fertiliser Secretariat.

The farmers who were summoned for training classes were regularly taken to these demonstration plots. More than one thousand such trainee farmers visited these plots besides other individuals who out of curiosity visited on their own to find out the details.

The funds allocated were as follows:-

1st 12 months (1984)	2nd 12 months (1985)	3rd 12 months (1986)	4th 12 months (1987)	5th 12 months (1988)	6th 12 months (1989)	7th 12 months (1990)
Rs.200,000	100,000	100,000	150,000	100,000	95,000	95,000

The monitoring of expenditure and general purchases were done by the NARESA. A renewable cash imprest of Rs.40,000 was given to the grantee for labour payments and for other consumables needed for field work.

The list of equipment supplied by NARESA are given in annexure III. In addition, consumables like tyres, and chemicals, were also supplied by NARESA. It is very significant that a Mitsubishi Jeep 31 Sri 5029, used but serviceable was given by the CIDA project for the field work and the ownership subsequently transferred to the Department. The financial and accounting arrangement worked quite well.

Conclusions

The project achieved its objective as an extension tool. The scope was further widened by inclusion of a higher level of fertiliser and study of the economics involved. It is very evident that to maximise profits, both the cost of fertiliser and the price of the produce have to be considered to arrive at a judicious level. The indications are that the present recommendations or possibly a little lower one for cocoa, coffee, pepper and citronella are economically optimal. In the case of cinnamon a higher level up to one and a half times the recommendation is quite economical under prevailing market conditions.

Annexure I

Location of Demonstrations

<u>District</u>	<u>Location</u>	<u>Crop</u>
1.Kandy	Harispathuwa, Dunuwila	Cocoa (M)*
2.Kandy	Harispathuwa, Dunuwila	Pepper(M)
3.Kandy	PathaDumbara, Yattawara	Pepper(NP)**
4.Kandy	Yatinuwara, Danture	Pepper(NP)
5.Kandy	Gampola, Galaha, Nilambe	Pepper(NP)
6.Kandy	Galagedara, Kumburegama	Pepper(NP)
7.Kandy	Hewaheta, Marassana	Coffee(M)
8.Kandy	Teldeniya, Malpana	Pepper(NP)
9.Kandy	Hewaheta, Talatuoya	Cocoa (NP)
10.Kandy	Galagedara, Bokkawela	Coffee(NP)
11.Gampaha	Kalagedihena	Pepper(NP)
12.Gampaha	Dompe, Waturagama	Coffee(NP)
13.Gampaha	Divulapitiya	Pepper(NP)
14.Gampaha	Mirigama, Malhewa	Pepper(NP)
15.Gampaha	Minuwangoda, Devalapola	Coffee(NP)
16.Colombo	Avissawela, Boralugoda, Kosgama	Pepper(NP)
17.Colombo	Homagama, Malpalle	Pepper(NP)
18.Colombo	Homagama, Panagoda	Coffee(NP)
19.Kalutara	Agalawatte, Itapana	Coffee(NP)
20.Galle	Ambalangoda, Batapola	Cinnamon (M)
21.Galle	Karandeniya Magala	Cinnamon (M)
22.Ratnapura	Eheliyagoda	Pepper(NP)
23.Ratnapura	Nivitigala	Coffee(NP)
24.Galle	Elpitiya, Naradagola	Cinnamon(M)
25.Galle	Ambalangoda, Nindana	Cinnamon(M)
26.Matara	Akuressa, Dampella	Cinnamon(M)
27.Hambantota	Mulkirigala, Kirama	Citronella(M)
28.Hambantota	Mulkirigala, Katuana	Citronella(M)

M* ----- Mature plantation

NP** ----- New plantation

Annexure II

Departmental Recommendation on Fertilisers

<u>Crop</u>	<u>Mixture</u>	<u>Rate</u>
Cocoa	14% N 11% P ₂ O ₅ 14% K ₂ O 2% MgO	777Kg/ha 0.7Kg/plant
Coffee	14% N 11% P ₂ O ₅ 14% K ₂ O 2% MgO	1120Kg/ha 0.7Kg/plant
Pepper	14% N 11% P ₂ O ₅ 14% K ₂ O 2% MgO	2800 Kg/ha 1.4 Kg/plant
Cinnamon	23% N 7% P ₂ O ₅ 15% K ₂ O	600 Kg/ha
Citronella	17% N 11% P ₂ O ₅ 14% K ₂ O	750 Kg/ha

For new plantations the dosage is reduced to 1/5 for first year and 2/3 for the 2nd year.

Annexure III

<u>Description of Item</u>	<u>Quantity</u>
Harcross sub soil injector	05
Portable National deck video recorder	01
Battery pack for above	01
AC Adaptor for above	01
National Video Camera	01
TOA Mixpower Amplifier	01
Reflex Horn Speaker	02
Column speaker	02
Microphone & floor stand	01
Seccateur	06
Kvapasck Sprayer	06
Spring balance	02

Annexure V

Publications & Papers by the Grantee

1. Demonstration of the Effect of Fertilisers on Pepper, Cinnamon, Cocoa and Coffee in cultivators Fields.

CIDA Grantees Review Seminar 29 May 1992.

2. Demonstration of the Effect of Fertiliser on Pepper, Cocoa, Coffee & Cinnamon in Cultivators fields

CIDA Grantees Review Seminar, 11 - 13 Feb 1991

3. Demonstration of the Effect of fertilisers on the growth and yield of Cocoa, Coffee, Pepper and Cinnamon in cultivators fields,

CIDA Grantees Seminar 29 - 30 June 1987.

4. Demonstration of the effects of fertilisers on Minor Export crops in cultivators fields.

Seminar on CIDA funded fertiliser research Projects 22nd Feb 1985.

5. Use of fertilisers on Minor Export Crops 1985.

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