

**PERSUASIVE EXTENSION PROGRAM FOR COCONUT GROWERS – A
PERFORMANCE EVALUATION IN KURUNEGALA DISTRICT**

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ABSTRACT

There is a lack of awareness among coconut growers in Sri Lanka of the potential of their land holdings. This is a serious impediment to the development of the coconut sector. The Persuasive Extension Program (PEP) was launched by Coconut Research Institute of Sri Lanka (CRISL), to convince coconut growers, in the Kurunegala, Puttalam and Gampaha districts, of the potential of their holdings and to persuade them to undertake a systematic program of development. PEP is a participatory program, where a CRISL team provides a development proposal after a detailed study jointly undertaken with the landowners. This proposal, for a six year development project, consists of various recommendations related to the cultural practices and their benefit/cost ratios.

The objective of the study was to evaluate the success of the PEP pilot project started in 1995. The evaluation focused on the adoption level of the PEP recommendations, the growers' attitude towards PEP, and constraints that limit adoption. Field investigations were carried out with 40 randomly selected coconut growers involved in the PEP in Kurunegala District. Primary data was collected from October 2001 to January 2002 using an interview schedule. Field observations and informal discussions with extension and research officers of CRISL were also done. An adoption index was developed to measure the adoption level of cultural practices. Farmer's attitudes were measured using an attitude score.

The level of adoption of the six recommendations under study increased after the PEP commenced. However, most growers had achieved only a low level of adoption. Soil and moisture conservation practices recorded the highest increase in adoption while animal husbandry recorded the lowest. Ten per cent of the respondents had not adopted the cultural practices recommended by the PEP. The percentage of low, moderate and high level adopters were 67.5%, 22.5% and 0% respectively. Clearly, the vast majority

were poor adopters. However, the majority (67.5%) had a highly favorable attitude towards the PEP. Lack of finance, shortage of workers, unstable coconut prices, and lack of efficient managers were identified as the major constraints to implementing the recommended cultural practices.

Although the growers' have a positive impression of the PEP the success achieved in the Kurunegala district is inadequate. Increasing the number of monitoring visits, training programs, field days and demonstrations, backed up with a loan or subsidy scheme could improve the effectiveness of the PEP.

INTRODUCTION

The coconut sector in Sri Lanka plays an important role contributing 1.8 and 4.00 per cent of the GDP and export earnings respectively. Although coconut is grown in all administrative districts, the most important coconut growing area is called the Coconut Triangle, which comprises coconut lands in Kurunegala, Puttalam, Colombo, and Gampaha districts. (C.D.A ,2002)

Most coconut growers do not exploit the full potential of their lands due to poor adoption of production technologies, very high cost of labour and material inputs, depleted soils, adverse weather conditions and poor estate management (Gunathilake, 1996). Although technology to improve coconut plantations is not lacking the productivity achieved by most growers is well below the potential of their lands.

With the growth in population the demand for coconut is increasing. However, the land available to expand cultivation is limited. Therefore, the increasing demand should be met by raising the productivity of existing holdings, which will also be economically advantageous to the growers (Liyanage,1998). Although a wide range of technologies such as use of high yielding varieties, fertilizer mixtures and pest and disease management have been introduced by the Coconut Research Institute of Sri Lanka (CRISL), a significant proportion of growers do not adopt them. One of the reasons for low adoption seems to be the inability of the extension services to convince the farmers about the benefits of these technologies (Mahindapala,1997).

The CRISL, as a matter of policy, accepts that participatory approaches such as on-farm adaptive trials, demonstration trials and packaging of technologies are more suited for technology transfer, with the direct involvement of scientists (Appuhamy, 1995). The Persuasive Extension Program (PEP) is one such participatory approach introduced by the CRISL, in 1995, to facilitate technology transfer. In this approach, a team of researchers, extensionists and economists, about five in all, visit the holding by prior appointment for a detailed discussion with the landowner on the

ways and means of developing his land. The team after a thorough investigation of the holding prepares a development plan including the benefit/cost ratios and various options for development of the land. If the grower accepts the proposal, CRISL will assist in its implementation and review the progress periodically.

METHODOLOGY

Nearly 300 innovative coconut growers in the Kurunegala, Puttalam, and Gampaha districts participate in the PEP. About 100 are from the Kurunegala district, and 40 of these farmers were selected, at random, for the field survey. A pre-tested and revised interview schedule was used in the survey. The survey data was supplemented with field observations, information from informal discussions with the extension officers and research officers of the CRISL and published secondary data.

The pre- and post-PEP status was compared to measure the level of adoption of the recommended cultural practices. Six recommended cultural practices, pertaining to fertilizer usage, soil and moisture conservation, pest and disease control, weed management, intercropping and animal husbandry, were considered for the adoption index. The pre- and post-PEP status, in respect of each cultural practice, was scored; and the difference taken as the level of adoption. The six cultural practices were considered to be of equal importance and given equal weightage. The summation of the adoption levels of all six recommendations represented the overall adoption index of the farmer. The paired t test was applied to determine the significance of the difference between the pre- and post-PEP total scores.

Farmers' attitudes were measured by using the responses obtained on a three point continuum: agree, neutral and disagree with a weightage of 3, 2, and 1, respectively. According to the total score for attitude towards PEP the respondents were divided into two categories: favorable attitude and highly favorable attitude.

RESULTS AND DISCUSSION

Status of the holdings and the respondents

Respondents' land holdings ranged from 2.2 ha to 42.5 ha and the mean was 41.3 ha. Owner-operators managed 77.5 per cent of the holdings, and the balance by caretakers or superintendents. Most of the owner-operators (77.78%) were from distant cities and villages and did not live on the property.

Status of the cultural practices

As a result of implementing the PEP there was some improvement in the adoption level of all six cultural practices recommended (Table 1). The largest increase in the level of adoption was recorded in soil moisture conservation and fertilizer usage, and the least in weed management and animal husbandry.

Table 1: Level of adoption of the recommended cultural practices, before and after PEP (N=40)

Cultural Practice	Adoption level %	
	Before PEP	After PEP
1.Fertilizer usage	52.5	85
2.Soil and moisture conservation	60	95
3.Pest and disease control	40	67.5
4.Weed management	77.5	92.5
5. Intercropping	35	57.5
6.Animal husbandry	27.5	32.5

The application of fertilizer according to the recommended method, dosages and frequencies has increased as a consequence of the PEP. The lack of funds however was, quite often, a constraint to fertilizing at the correct dosages and frequencies.

The majority of the respondents were mulching on a regular basis, prior to PEP, as it is a low cost operation. Therefore, the increase in the adoption of this practice after PEP was not significant. Many respondents who used to dump husks around trees (as a soil moisture conservation measure) before PEP, have now realized the importance of burying the husks for soil moisture conservation. The establishment of cover crops was minimal, both before and after PEP, due to unavailability of cover crop seeds and the difficulties encountered in maintaining a cover crop.

Generally, the growers' perception was that it was difficult to control pests and diseases. PEP was successful in convincing some of them that it was not so. Only 12.5% of the respondents were aware of the pheromone trap as a pest control method. Five per cent believed that pheromone traps would attract the pest to their holding from elsewhere and worsen the situation. Therefore, they felt that CRISL should extend this methodology to their neighbors as well, and ensure simultaneous trapping in all holdings. This issue needs careful investigation by the CRISL.

There was no marked increase in the adoption of weed control measures as most growers were weeding regularly even before PEP.

Only a very small proportion of coconut growers engaged in animal husbandry; they were reluctant to rare animals. The low level of emphasis on animal husbandry was also reflected in the composition of the PEP teams; they lacked specialists in animal husbandry.

The overall level of adoption of recommendations

Using the adoption index, which reflected the farmer's overall level of adoption, the respondents were divided into four adoption categories.

Table 2: Distribution of respondents according to the overall adoption level (N=40)

Adoption category	Adoption index	Percentage
No adoption	0	10
Low adoption	1-8	67.5
Moderate adoption	9-16	22.5
High adoption	17-24	0

It is evident from Table 2, that the level of adoption displayed by the majority of the respondents (77.5%) was poor. Only 22.5 % had a moderate level of adoption; and there was none in the high adoption category.

Reasons for poor adoption

The constraints faced by respondents in implementing the recommendations were studied, using a questionnaire, to understand the reasons for poor adoption. The results are presented in Table 3.

Table 3: Percent respondents affected by major constraints in implementing PEP recommendations (N=40)

Constraints	Percentage
1. Financial problems	82.5
2. Busy with other engagements	47.5
3. Problems with caretakers	37.5
4. Labour scarcity	70.0
5. Inadequate knowledge & skills	35.0
6. Unstable price for coconuts	42.5

Lack of funds was the most important constraint and affected the high cost operations. The use of fertilizers at the correct dosage and frequency and husk burial were the most capital intensive operations. Labour requirement for coconut cultivation is relatively low in comparison to other plantation crops. Nevertheless, labour scarcity was a burning problem to many growers because workers were now seeking better jobs with a higher status.

As most owners lived outside their estates, and had other interests, caretakers or superintendents were employed to manage their lands. Often the management was very poor due to the inefficiency of the managers.

The price of coconuts was high during the study period. But farmers were worried about the stability of the prices, as they have experienced wide price fluctuations in previous years. The instability of intercrop prices also was seen as a problem for those who practiced intercropping. It also transpired that training and other extension facilities were inadequate for animal husbandry.

Growers' attitude to the PEP

Growers' response to 10 elements, including the usefulness of PEP recommendations, training needs and interactions with the CRISL, were measured to ascertain their attitude to PEP, and also to identify ways of further improving the PEP approach. Although all respondents mentioned that PEP is beneficial none of them had a high level of adoption of the recommended cultural practices. Only 20 per cent accepted that their income and production increased after the PEP.

Growers' knowledge on scientific aspects of cultivation had improved significantly, as all activities to be performed were explained in the PEP development proposal. But 60% felt that the training given under the PEP is not adequate, and the follow up visits and interactions with the officers were not sufficient. Extension staff ascribed these deficiencies to inadequate resources.

Most respondents (92.5%) were of the view that PEP should be complemented with a loan or subsidy scheme. A majority stated that if the coconut prices are high and stable, they would invest more on cultural practices.

The total 'attitude score' for each respondent was calculated, and on this basis the respondents were divided into two categories.(Table 4)

Table 4: Distribution of the respondents according to attitude score

Attitude category	Attitude score	Percentage of respondents
Less favorable	10-20	32.5
More favorable	21-30	67.5

Clearly, the majority of the respondents have a positive attitude towards the PEP.

The relationship between attitudes and the adoption level was tested using the Chi-square test. The attitude level did not show a significant relationship with the level of adoption (Table 5)

Table 5: Distribution of respondents by attitude level and level of adoption

Attitude level	Adoption level			Total
	No adoption	Low adoption	Moderate adoption	
Low attitude	5	30	15.0	50
High attitude	5	37.5	7.5	50
Total	10	67.5	22.5	100

χ^2 -1.333, p-0.513

CONCLUSION AND RECOMMENDATIONS

1. All the six recommended cultural practices showed an increased level of adoption after the PEP. High priority should be given further to the practices, like animal husbandry which had low adoption.
2. Overall adoption index showed that none of the respondents were highly adopted to the recommended practices while majority was low adopted due to various reasons. The greater attention should be paid for minimizing those constraints of the growers.
3. Increasing the number of monitoring visits, training programs, field days and demonstrations and the introduction of a subsidy scheme along with the PEP could improve the effectiveness of the PEP.

REFERENCES

- Appuhamy, P.A.H.N. (1995). New Extension Approach to increase income from Coconut estates, *Coconut Bulletin* 10, 1/2: 17-19
- Coconut Development Authority, 2002 [On Line] *Coconut Industry in Sri Lanka* <<http://org.sg/SRILANKA.HTM>>
- Gunatilaka, H.A.J. (1996). Progress of the Contract Research Project 12/233/171 Adaptive Research Program on Crop/Farm Models: Report to the Sri Lanka Council for Agricultural Research Policy (Internal Document)
- Liyanage, M.de.S. (1999). A guide to Scientific Cultivation and Management of Coconut, Coconut Research Institute of Sri Lanka
- Mahindapala, R. (1997). Technology transfer in Coconut Cultivation. The Quest for a Better Approach: Report to the Sri Lanka Council for Agricultural Research Policy.

Official web site of Asia Pacific Coconut Community (www.apcc.org.sg.2002)