LEVEL OF KNOWLEDGE OF COCONUT FARMERS AND LEVEL OF ADOPTION OF TECHNOLOGIES

Introduction

Kerala State, lying on the south western corner of India, has only 1.18% of the land area of the country. Nevertheless, the State accounts for about 50% of the area under and 45% of the production of coconut in the country. In contrast to the situation in other States, coconut is grown in Kerala on a contiguous stretch in a total of over 2.5 million holdings, most of which being small and marginal. Owing to the preponderance of small and marginal coconut farmers it was not possible to have a clear understanding of the extent of adoption of improved cultural practices by them. It is a generally accepted view that despite having valuable information on different aspects of coconut farming, the response of farmers to research recommendations has not been encouraging with the result that the benefits of research have not percolated down to actual farming situations.

Against the above background, a field study was organised in the Alappuzha district of the State to assess the level of knowledge of the farmers about the package of practices recommended for coconut and also the level of adoption. The study also collected information on the constraints in adoption as well as the profile of the farmers who adopted the technologies.

The study was conducted in 38 randomly selected panchayats of Alappuzha district where the incidence of root wilt disease is very high. From these selected panchayats, a total of 570 respondents, i.e., 15 from each panchayat were randomly selected. Personal interviews were conducted with the help of a pre-tested interview schedule. This article covers the results of a test analysis of the situation in Krishnapuram panchayat, where the Regional Station of the Central Plantation Crops Research Institute (CPCRI) is located.

Results and Discussion

The level of knowledge possessed and the level of adoption of different recommended practices by the coconut farmers were assessed by analysing the collected information. The respondents in this study were found to belong to distinct knowledge groups and, as such, the data was categorised accordingly. The levels of adoption studied in relation to different knowledge groups were the following:

1. High knowledge — High adoption
2. High knowledge — Low adoption
3. Medium knowledge — Medium adoption
4. Low knowledge — Low adoption
5. Incorrect knowledge — Incorrect adoption

High Knowledge - High adoption

The level of knowledge and level of adoption under this category are shown in Table 1.

Table 1. High knowledge and high adoption

Sl. No.	Farm level practice	Level of knowledge	Level of adoption
1.	Seednut selection	82%	69%
2.	Seedling selection	80%	62%
3.	Size of planting pit	85%	80%
4.	Depth of planting	92%	85%
5.	Planting time	96%	96%

The Table 1 shows that the knowledge and extent of adoption were high in practices which were traditionally followed by farmers and not involving additional cost for field adoption. In the case of selection of seednuts and seedlings, though the level of knowledge was high, the extent of adoption was not commensurate with it. This is mainly because of the reason that the farmers in general do not raise seedlings for self use but depend on departmental or private nurseries for the purpose.

High Knowledge - Low adoption

The details are shown in Table 2.

Table 2. High knowledge and low adoption

Sl. No.	Farm level practice	Level of knowledge	Level of adoption
1.	Mother palm selection	90%	33%
2.	Hybrid varieties	42%	10%
3.	Recommended spacing	65%	22%
4.	Irrigation	50%	20%
5.	Use of farm yard manure	85%	50%

Despite possessing high knowledge about mother palm selection, the level of adoption was found to be low. In the study area the incidence of root wilt disease is high and, consequently, the availability of healthy and high yielding palms are comparatively low. Perhaps, this could be the reason for the low adoption level observed in this study. The farmers expressed their lack of confidence in adopting hybrid varieties. They were of the view that the hybrids are more prone to the attack of pests and diseases. According to them, the hybrids under field conditions exhibit alternate bearing habit and also demand more care and attention in the forms of regular irrigation and manuring when compared to local tall types. To most of the respondents there was seeming difference between the official claim of the quality of hybrid planting material supplied and the actual performance in the field. In most cases the farmers are supplied with Tall x Dwarf hybrid material. As the production of this material involves climbing of tall mother palms and hand pollination by trained workers there is a possibility of faulty or ineffective pollination leading to the production of illegitimates which are not possible to be identified and removed at the nursery stage. This, over a period of time, could have resulted in the erosion of credibility of the quality of hybrid planting material.

The farmers are not adopting the recommend spacing due to the small size of holdings where coconut is grown mixed with diverse species of trees and arable crops. In such a cropping system, the attitude of farmers is to accommodate as many palms as possible inorder to maximise the income from the small holdings. It was found that only 20% of the farmers were irrigating coconut palms. This was mainly due to scarcity of water during summer.

Eventhough the knowledge about the need and benefit of organic manures was high, only 50 per cent of the respondents were found to have adopted the practice. Even these farmers were not able to apply the recommended quantity as the on-farm availability of farm yard manure, the most common organic manure in the study area, was not adequate. It was also observed that organic recycling within the system was not very common mainly because of the pressure on coconut biomass and other organic refuses for using as household fuel and of the lack of integration of livestock components in the farming system in most cases.

Medium knowledge - Medium adoption

The details of the pattern of adoption by respondents possessing medium knowledge are given in Table 3.

Table 3. Medium knowledge and medium adoption

Sl. No.	Farm level practice	Level of knowledge	Level of adoption
1.	Fertilizer application for adult palms	55%	25%
2.	Control of Rhinoceros beetle	45%	35%
3.	Rodent control	60%	30%
4.	Control of stem bleeding	65%	45%
5.	Mulching	35%	35%
6.	Control of bud rot	65%	45%
7.	Application of lime/salt	45%	30%

The adoption of technologies listed in Table 3 was found to be of moderate level. It is relevant to observe that while mulching was adopted by all those who were aware of the benefits of the practice, the level of adoption of fertilizer use was very low. Even though 55% of the respondents were aware of the benefits of fertilizer use, only 25% adopted the practice. The high cost of fertilizer inputs and the apprehension about their effect on continued use on soil qualities were found to be the reasons for the low adoption level. In other cases except for rodent control, the level of adoption was moderate mainly due to the simpleness of the technologies. Though the level of knowledge on rodent control was comparatively high, the field adoption was not commensurate with that mainly because of high proportion of failure in trapping the rodents.

Low knowledge - low adoption

The relevant information collected are presented in Table 4.

Table 4. Low knowledge and low adoption

Sl. No.	Farm level practice	Level of knowledge	Level of adoption
1.	Fertilizer application for seedlings	5%	5%
2.	Control of Red palm weevil	10%	10%
3.	" Coreid bug	10%	0
4.	" Leaf eating caterpillar	20%	10%
5.	" White grub	10%	0
6.	" Mealy bug	20%	10%
7.	" Nematodes	5%	0
8.	" Leaf rot disease	20%	15%
9.	" Deficiency diseases	5%	0
10.	Bio-control of coconut pests	14%	0
11.	Post-harvest technologies	0	0
12.	Root wilt management as a package	0	0

In case of red palm weevil and leaf rot problems, farmers were having incorrect knowledge about the symptoms and control measures and, as such, the adoption was highly improper. This clearly shows that for a continued adoption of the recommended technologies the farmers are to be educated to acquire correct knowledge and skill. For this an efficient extension education system has to be promoted in the villages. Though the farmers were adopting some of the recommendations included under root wilt management, none of the respondents was found to be aware of this technology as a package. This situation again emphasises the need for strong extension education programme.

Incorrect knowledge - Incorrect adoption

The salient findings are presented in Table 5.

Table 5. Incorrect knowledge and incorrect adoption

Sl. No.	Farm level practice	Level of knowledge		Level of adoption	
		Correct	Incorrect	Proper	Improper
1.	Application of $MgSO_4$	10%	60%	10%	50%
2.	Farming System	7%	92%	3%	92%

Regarding the application of $MgSO_4$, most of the farmers were applying at the rate of 500 g per palm per year in the root wilt affected areas against the recommended dose of 3 kg per palm per year. In the study area majority of the farmers were practising the traditional homestead farming system. However, in most cases intercropping and mixed farming were adopted improperly as the farmers did not have a correct knowledge about spacing, proper arrangement of compatible crops and the nutrient needs of the system as a whole.

Conclusion

The literacy level of coconut farmers in Kerala is comparatively high. Despite this, the level of correct knowledge on improved production technologies is not satisfactory. This situation leads to low adoption at field level and in some cases faulty adoption. This has given credence to the notion that viable technologies are getting accumulated in research stations without takers. While this is correct to some extent, the results of this study revealed that the extension education system in the study area has been weak and, as a consequence, the farmers in general were not convinced of the efficacy of many technologies. This was very much in evidence in the control methods adopted against pests and diseases and also in managing farming systems. The study also brought to light the inadequacies of the ongoing hybrid production programme with regard to the quality of material supplied to farmers. Correct information covering the management needs for ensuring optimum performance of hybrids was also lacking with the result that many farmers who had tried to grow them under sub-optimal conditions became disillusioned. It may be concluded that many of the limitations which inhibited the flow of correct information and their adoption under field conditions could be overcome by strengthening the extension education at the farm-household level in the State.

Ms. S. Kalavathi and Ms. Anithakumari
CPCRI Regional Station, Kayamkulam