



Effectiveness of training-cum-demonstration on increasing return from coconut plantations under rainfed condition in Assam

Key words: Black pepper, Coconut, Demonstration, Technology, Return.

In Assam coconut is cultivated in an area of 0.21 lakh ha with the production of 154.4 million nuts and productivity of 7744 nuts per hectare (2003-04). The low production and productivity in this region as compared to other states like Andhra Pradesh and Tamil Nadu is mainly attributed to the unsystematic and un-scientific way of plantation management. The problem is further aggravated due to the lack of awareness to the advanced agro-techniques, wayward attitude of the farmers towards the plantation, fluctuating market price and poor processing facilities. It is observed in Assam that every household in villages has an average of 6-12 coconut palms in their homestead as a rainfed crop and locally called as "Bari system of planting". The production from those coconut palms could be increased by following advanced cultivation practices, growing suitable mixed/inter crops and proper intercultural practices that include timely application of fertilizers, pest, and disease management and after care.

Keeping the above facts in view, two technology demonstrations were implemented with the active participation of local farmers with an objective of increasing net return per unit coconut plantation.

The study was conducted in two villages namely, Agsia and Majirgaon under Rani Development Block of Kamrup dist, Assam from the Feb-March, 2002 to Sept-Oct, 2005. The two villages were selected purposively as they represent coconut growing belt of the region. From each village ten homestead gardens were selected purposively so as at least 10 coconut palms in the selected garden. A total of 200 coconut palms from 20 homestead

gardens were considered for the study. A comprehensive extension programme cum technology demonstration was undertaken for coconut and black pepper cultivation in the farmers' field. Informal meetings, group discussions, training programmes and technology demonstration were conducted in the farmers' field and critical input such as balanced NPK fertilizers and black pepper cuttings were supplied free of cost to individual farmer. Each garden was maintained by following proper intercultural operation and plant protection measures. The cross sectional data on output of both the crops (coconut and black pepper) and inputs used per hectare were collected from the demonstration gardens.

Balanced fertilizer and manures were applied at half yearly intervals and maintained for three years from April, 2002 to Oct, 2005. Yield of coconut was recorded as and when harvested. Good quality black pepper cuttings (Var. Karimunda) were also planted and trailed on the same treated coconut palms in the year of 2002, April and maintained till Oct, 2005. Annual observation on growth and yield of Black pepper were recorded.

The yields of coconut palms were recorded before and after execution of technology demonstration annually in all the treated palms of the farmer's garden. There was increase in the yield of nuts after imposing the treatments. It was observed that the average yield per palm per year during 2005 was 63.6 nuts compared to the yield of 37.4 nuts/palm in the year 2002 (before imposing the treatments). This indicates that there was increase in the yield after application of recommended doses fertilizers for coconut. Increase in yield of coconut

after demonstration of integrated management practices under root (wilt) affected garden has been reported by Anitha Kumari *et al.* (2004).

It is vivid from the Table.1 that after three years of planting on an average the height of pepper cutting rose up to 601.32 cm length with 23.46 numbers of branches. It was also recorded that on an average 234 g yield was produced from a three years old black pepper vine trailed in treated coconut palm

Table 1. Morphological and yield observation of Black pepper Year

Characteristics	2003	2004	2005
Average Plant height (cm)	174.33	248.66	601.32
Average no. of branches	3.08	8.33	23.46
Average No. of nodes	25.83	-	-
Average Internodal length (cm)	7.7	8.5	8.84
Average Yield (gm/vine/year)	-	-	234

Table 2. Economic Indicators

Sl No.	Particulars for three years	Black pepper	Coconut	Black pepper +coconut
01	Cost of Balanced fertilizers Rs / ha	1700.00	18895.50	20595.50
02	Cost of application Rs /ha	840.00	3000.00	3840.00
03	Cost of planting material Rs/ha	612.50	-	612.50
04	Cost of planting Rs/ha	910.00	-	910.00
05	Cost of maintenance (plant protection measures, intercultural operation etc.) Rs/ha	1500.00	2000.00	3500.00
06	Cost of harvesting Rs/ha	350.00	5250.00	5600.00
07	Total cost Rs/ha	5912.00	29145.50	35057.50
08	Total Returns Rs/ha	4095.00	133000.00	137095.00
09	Total profit Rs/ha	-1817.00	103854.50	102037.50
10	Returns per rupee spent	0.69	4.56	3.91
11	Benefit cost ratio	0.69:1	4.56:1	3.91:1

Economics of application of balanced fertilizers to coconut palm, planting black pepper as mixed crop with coconut and their realized yield were calculated out and presented in Table2. It is evident from the table that the return per rupee spent was Rs 4.56 in case of coconut and Rs. 0.69 in case of black pepper. Over all from both

the crop it was calculated out as Rs.3.91 as return per rupee spent. Though it was realized less return from black pepper in initial period but 5 years onwards return will be increased three to four fold. This indicates profitability of the technology when adopted at the farmers' level. The prevailing selling prices of coconut and black pepper is considered as Rs 500.00 per 100 matured coconut and Rs 100.00 per kg of black pepper while purchasing prices of fertilizers are considered as Urea Rs700.00/q, SSP Rs600.00/q, MOP Rs700.00/q and labour charge Rs 70.00 per manday in the study.

Acknowledgements

This work is a part of Central Sector Scheme on Mini Mission – I. The authors are indebted to Dr. P. Subramanian, Sr. Scientist, CPCRI, Kasaragod, Dr. V.Krishnakumar, Sr. Scientist, CPCRI, Kayangulum.

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