IMPACT OF TRANSFER OF TECHNOLOGY IN CASHEW CULTIVATION

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The National Research Center for Cashew (NRCC), Puttur, is responsible for the development of improved cashew cultivation practices and employs various modes of technology transfer in dissemination of these technologies. These efforts include laying out demonstration plots on farmers' fields, organizing thematic campaigns on various themes (viz., soil and water conservation measures, plant protection measures, pruning in cashew and high density planting in cashew) and organizing cashew days/cashew field days. The aim of organizing such programmes is to educate the farmers on recommended cashew cultivation practices. However the actual impact of these modes of transfer of technology in terms of knowledge and adoption level of the cashew growers is not known.

The study was taken up to assess the "impact of transfer of technology in cashew cultivation" with the following objectives:

1. To assess the impact of recommended cashew cultivation practices and various modes of transfer of technology utilized to disseminate cashew cultivation practices.
2. To delineate suggestions for refining the recommended cashew cultivation practices and modes of technology transfer.

Methodology

The study was carried out during the period 2001 to 2004 Dakshina Kannada district of Karnataka. The data was collected from the farmers with the help of a standardized interview schedule to assess the extent of knowledge and adoption, reasons responsible for yield gap in cashew and suggestions to refine the modes of technology transfer.

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Sixty Cashew demonstration farmers, who had cashew gardens with a minimum age of eight years, were identified by NRCC, Puttur for demonstrating improved cashew cultivation practices, 60 randomly selected farmers out of the total farmers who participated (3% of the population) in the thematic campaigns organized by NRCC, Puttur and 40 randomly selected farmers out of the total farmers who participated (2% of the population) in the cashew days/cashew field days organized by NRCC, Puttur were contacted through a standardized interview schedule. The collected data were analyzed through percentage analysis. Forty researchers working on cashew and extension personnel working for cashew development in Dakshina Kannada district of Karnataka were contacted through a mailed questionnaire to compile data on the constraints faced by the farmers in cashew cultivation and suggestions to overcome the constraints.

Results and Discussion

Profile of the respondents

As shown in table 1, majority of the demonstration farmers were in the old age category whereas the farmers who attended the cashew days and campaigns were young to middle aged. The educational level of the overall farmers ranged from middle school level to college level. Most of the overall respondents had agriculture as their primary occupation and were cultivating two to three crops other than cashew viz., coconut, areca nut, rubber, paddy, pepper, cocoa etc., Among the respondents majority of the demonstration farmers only had high level of farming experience whereas majority of the overall respondents had low to medium level of cashew cultivation experience.

Impact of Cashew Demonstration Plots

Majority of the demonstration farmers adopted the recommended spacing, recommended size of the pit for planting, providing staking support, terracing and opening of catch pits, application of chemical fertilizers, correct method of fertilizer application, mulching, initial training and control measures against attack of tea mosquito bug(TMB). But their level of adoption towards control measures against the attack of cashew stem and root borer (CSRB) was observed to be low. (Table 2). They discontinued the adoption of chemical fertilizers and plant protection measures against management of TMB after the subsidy period was over. Only 25% of them had continued adoption towards application of chemical fertilizers. The behavior of discontinuing the recommended practices after the subsidy period was over indicates the secondary preference given to cashew by these farmers.

Impact of Thematic Campaigns

Majority of the farmers who attended the thematic campaigns on Soil and Water

Conservation (SWC) and Plant Protection (PP) organized by NRCC, Puttur adopted the recommended measures viz., terracing and opening of catch pits, control measures against attack of TMB whereas their adoption behavior towards the attack of CSRB was observed low (Table.2).

Impact of Cashew Days/Cashew Field Days

Majority of the farmers who attended the cashew days/cashew field days organized by NRCC, Puttur adopted recommended spacing, recommended size of the pits for planting, providing staking support for the plants, terracing, opening of catch pits, and mulching at the base of the cashew tree. But their adoption behavior towards the application of farm yard manure (FYM) and rock phosphate at the time of planting, application of chemical fertilizers, initial training, adoption of control measures against the attack of TMB and CSRB was observed low compared to that of demonstration farmers (Table.2). It could be explained that the demonstration farmers adopted the recommended practices with the assurance of financial aid from Directorate of Cashew and Cocoa Development (DCCD), Kochi and under guidance and monitoring of the Scientists of NRCC, Puttur whereas the other farmers without financial aid and guidance except the daylong training, adopted only technologies which they could afford. So there exists a wide gap between adoptable technologies and adopted technologies as for as the general farmers are concerned.

Reasons responsible for yield gap in cashew cultivation

The farmer respondents opined that climatic conditions mainly cloudy weather, non adoption of recommended cashew cultivation practices, attack of TMB during the flowering as well as fruiting seasons, below average performance of the cashew varieties, attack of CSRB, theft problem at the time of harvest, irregular flowering in cashew and poor soil fertility as the reasons responsible for yield gap in cashew. Researchers/ extension personnel who are working on cashew opined that non use of cashew grafts as planting material, non adoption of recommended package of practices, majority of the senile and unproductive plantations among the existing plantations, no organized support for cashew replanting, insufficient extension programmes on cashew from the development departments, negligence of farmers and unpredictable out break of TMB were some of the reasons for yield gap in cashew.

The researchers/ extension personnel also opined that lack of knowledge of farmers towards the recommended practices, majority of small and marginal farmers who cannot afford to adopt most of the recommended practices with less productivity at their cashew gardens were the main constraints faced by the cashew growers. Pest damage

and drought were also some of the constraints faced by the cashew growers in adopting recommended cashew cultivation practices.

Suggestions to refine the modes of technology transfer

The farmer respondents opined that explaining the technologies through method demonstration, frequent visits to demonstration plots during the seasons, more extension programmes at farmers' fields, more number of panels or photographs about the control of CSRB, maximum time allotment for discussion during the programmes, explaining the technologies through video, keeping panels at farmers fields/ experimental plots at the time of visit of the farmers and use of only local languages in extension programmes were some of the suggestions to refine the modes of technology transfer.

Strategies to overcome the yield gap in cashew

Research/extension personnel suggested identification of resistant varieties against cashew pests, support for irrigation in cashew, organizing more number of thematic campaigns, popularizing the small scale processing units for value addition and employment generation, organizing training programmes in interior villages to educate the economically backward cashew growers and large area demonstration on performance of cashew varieties as strategies to overcome the yield gap in cashew.

Conclusion

Discontinuance of important recommended technologies by the demonstration farmers subsequent to the completion of subsidy period and non adoption of important recommended technologies by the other farmers are due to the secondary preference given by the farmers to cashew compared to that of other plantation crops. Invariably the adoption behavior of farmers towards the control measures of CSRB was quite low whereas it was more towards recommended SWC measures. Among the modes of technology transfer compared, thematic campaigns were effective in transferring recommended practices to farmers through intensive training. Socio-economic impact of the successful cashew growers needs to be assessed, documented and popularized among the farmers to motivate them in providing primary preference to cashew. The strategies provided by farmers as well as researchers/ extension personnel for refining the modes of technology transfer and bridging the yield gap in cashew cultivation have to be looked into and possible as well as feasible strategies have to be implemented effectively by giving top most priority. The control measures against the attack of CSRB have to be popularized among the cashew growers through more number of thematic campaigns.

References

Balsubramanium, P.P.1998.Transfer of Technology in Indian Cashew Promotion. The Cashew. 12(3): 121-126.

Dixit, S and Bhaskara Rao, E.V.V. 1999. Problems in Cashew Cultivation: Farmers ' Perspective. The Cashew. 13(3): 3-16.

Jacob, V.J, Kamhabwa, F.F., Shoo, J.A.E and Kiniyawa, F. 1996. Role of T&V Extension in Rehabilitation and improvement of Cashew in Tanzania. Proceedings of International Symposium on Plantation Crops. pp. 775-782.

Nirban, A.J and Sawant, P.A.2000. Constraints Analysis of Cashew nut Growers. The Cashew. 14 (1): 45-49.

Venkattakumar, R.2003. Focus on Research : Thematic Campaigns on Soil and Water Conservation Measures and Plant Protection Aspects in Cashew. Cashew News. 8 (1): 2-3.

Table 1. Profile of the overall respondents

(N= 160)

Characteristics	Majority respondents belong to		
	DF (n=60)	CF (n=60)	CDF (n=40)
Age *	Old	Young to middle	Young to middle
Education	High school to collegiate	PUC to collegiate	Middle school to collegiate
Primary Occupation	Agriculture	Agriculture	Agriculture
Farming experience**	High	Low to medium	Low
Cashew cultivation experience	Low to medium	Low	Low
Number of other crops grown	2 to 3 crops	2 to 3 crops	2 to 3 crops

DF - Demonstration Farmers

CF - Campaign Farmers

CDF - Cashew Day Farmers

*Age - Young - < 35 years

Middle - 35 to 45 years

Old - > 35 years

**Farming Experience & Cashew Cultivation Experience (completed years) - Low - < 15 years; Medium - 15 to 30 years; High - > 30 years

Table 2. Adoption behavior of respondents towards the recommended cashew cultivation practices

(N= 160)

Sl. No.	Practices Recommended	Adoption percentage		
		DF (n=60)	CDF (n=40)	CF (n=60)
1.	Recommended spacing	100.00	62.50	NA
2.	Recommended size of the pit for planting	100.00	62.50	NA
3.	Application of FYM while planting	96.67	37.50	NA
4.	Application of rock phosphate while planting	95.00	25.00	NA
5.	Stacking	100.00	52.00	NA
6.	Terracing	83.33	67.50	85.00
7.	Opening of catch pits	68.33	52.25	85.00
8.	a) Application of chemical fertilizers during subsidy period	95.00	0.00	NA
	b) Continued adoption	25.00	NA	NA
9.	Application of FYM	78.00	50.00	NA
10.	Application of poultry manure	28.33	40.00	NA
11.	Correct method of fertilizer application	95.00	10.00	NA
12.	Mulching at the base of the tree	95.00	82.50	NA
13.	Initial training	61.67	35.00	NA
14.	Control measures against TMB	76.67	37.50	91.67
15.	Control measures against CSRB	18.35	10.00	21.67

DF - Demonstration Farmers
CF - Campaign Farmers
CDF - Cashew Day Farmers
NA - Not Applicable