Karnataka J. Agric. Sci., 22 (5) (1113-1115) : 2009

A study on knowledge and adoption of bivoltine sericulture technologies*

Mulberry sericulture is one of the prominent enterprises, which provides full time employment to entire family offering high income and better standard of living. India has got congenial environment to produce quality silk for both domestic use and export purpose. Though the growth in acreage is very substantial it has not shown the parallel improvement in cocoon yield in terms of production per hectare of mulberry. This necessitates studying the extent of adoption and constraints at farmers` level to develop suitable extension strategies

In 1990, Central Silk Board sought the technical co-operation from Japan through Japan International Co-operation Agency to develop bivoltine sericulture technologies. This project was launched in three phases. Development of technology, demonstration and popularization are the three phase of the project. The present study (2004) was conducted to assess the impact of the project on knowledge and adoption of technologies by sericulturists. 30 respondents were selected each from Halasahalli and Halagur in Mandya district and Sira and Turuvekere in Tumkur district. The required data and information was collected through a structured questionnaire and personal interview method. The data collected was tabulated and subjected to tabular analysis to draw inferences. The following technologies were considered for evaluation.

Mulberry cultivation technology: New variety (V_1 / S_{36}), Spacing {(150+90 cm x 60 cm)}, pruning (30 cm above ground level), number of shoots /plant (12-14), farm yard manure (8 mt /Ac.), fertilizer (140 N (Ammonium Sulphate): 70 P (Single Super Phosphate) : 20 K (Muriate of Potash) /acre/crop), no. of splits (5 times application) and Irrigation (once in 10 days (depending upon the soil moisture) Silkworm rearing technologies: Rearing house (separate / separate entrance to rearing house), disinfection (chlorine di-oxide (185 ml/sq.ft) and bleaching powder), silkworm breed (CSR hybrid (CSR2 x CSR4, CSR18 x CSR19), method of rearing (shoot rearing), bed spacing (700 sq.ft/100 dfls), bed disinfectant (4 kg/100 dfls) and type of mountage (rotary)

Results on knowledge and adoption of mulberry cultivation technologies are presented in table.1.It is revealed that all farmers having knowledge about new mulberry varieties like V_1 / S_{36} , pruning , quantity of farm yard manure, quantity of fertilizer , number of splits of fertilizer and frequency of irrigation. 92.5% of the farmers are aware of paired row system (90+150) cm x 60 cm of planting. It is also revealed that 97.5 % of farmers are aware of number of shoots to be maintained per plant. It is observed that the majority of farmers having sound knowledge on technologies because of the fact that the technologies were demonstrated and farmers were trained at CSRTI, Mysore under JICA project.

It reveals that 50 % of farmers are fully adopted new mulberry variety (V_1 / S_{36}) and 35 % farmers adopted paired row {(90+150) cm x 60 cm)} system of spacing. It is observed from the data that pruning technology was fully adopted by all the

Table 1. Knowledge and adoption of mulberry cultivation technologies

Values in %

Technical	Variety				Spacing				Pruning				No. of shoots / Plant			
Service centere	K	F	P	N	K	F	P	N	K	F	P	N	K	F	P	N
Halasahalli	100	30	50	20	80	-	20	80	100	100	-	-	100	100	-	-
Halagur	100	50	50	-	100	-	20	80	100	100	-	-	90	90	-	10
Sira	100	40	60	-	100	80	20	-	100	100	-	-	100	90	-	10
Turuvekere	100	80	20	-	90	60	10	30	100	100	-	-	100	100	-	-
Average	100	50	45	5	92.5	35	17.5	47.5	100	100	-	-	97.5	95	-	5

K-Knowledge, F-Full adoption, P-Partial adoption, N- Non-adoption

Technical	Farm yard manure				Fertilizer				No. of splits				Irrigation			
Service center	K	F	P	N	K	F	P	N	K	F	P	N	K	F	P	N
Halasahalli	100	50	50	-	100	20	80	-	100	100	-	-	100	70	30	-
Halagur	100	50	50	-	100	80	20	-	100	100	-	-	100	60	40	-
Sira	100	90	10	-	100	90	10	-	100	90	-	10	100	70	30	-
Turuvekere	100	100	-	-	100	60	40	-	100	80	-	20	100	80	20	-
Average	100	72.5	27.5	-	100	62.5	37.5	-	100	92.5	-	7.5	100	70	30	-

* Part of M.Sc. (Seri.tech.) thesis submitted by the second author to the University of Mysore, Mysore, India.

Table 2. Knowledge and adoption of silkworm rearing technologies

Values in %

Technical service center		Rearing house				Disinfection				CSR Hybrids				Shoot rearing				Spacing			
		K	F	P	N	K	F	P	N	K	F	P	N	K	F	P	N	K	F	P	N
Halasahalli	Sep. H.	100	60	-	-	100	20	80	-	100	-	50	50	100	100	-	-	100	60	40	-
	Sep. E		40																		
Halagur	Sep. H.	100	100	-	-	100	100	-	-	100	-	60	40	100	100	-	-	100	30	70	-
	Sep. E		-																		
Sira	Sep. H.	100	90	-	-	100	100	-	-	100	-	100	-	100	100	-	-	100	60	40	-
	Sep. E		10																		
Turuvekere	Sep. H.	100	90	-	-	100	100	-	-	100	80	20	-	100	100	-	-	100	80	20	-
	Sep. E		10																		
Average	Sep. H.	100	85	-	-	100	80	20	-	100	20	57.5	22.5	100	100	-	-	100	57.5	42.5	-
	Sep. E		15																		

Sep.H.- Separate house, Sep.E.-Separate entrance

Technbical service center	Bed disinfectant				Mountage				Time of harvest				Deflossing of cocoons				Sorting of cocoons				Method of transport			
	K	F	P	N	K	F	P	N	K	F	P	N	K	F	P	N	K	F	P	N	K	F	P	N
Halasahalli	100	40	60	-	100	-	100	-	90	10	90	-	80	30	-	70	60	50	-	50	60	20	-	80
Halagur	100	50	50	-	100	30	70	-	100	100	-	-	40	10	-	90	70	60	-	40	100	20	-	80
Sira	100	90	10	-	100	50	50	-	100	100	-	-	60	60	-	40	60	50	-	50	70	50	-	50
Turuvekere	100	90	10	-	100	60	40	-	100	100	-	-	90	90	-	10	100	90		10	100	40	-	60
Average	100	67.5	32.5	-	100	35	65	-	97.5	77.5	22.5	-	67.5	47.5	-	52.5	72.5	62.5	-	37.5	82.5	32.5	-	67.5

farmers. 95% , 72.5 % ,62.5 %, 92.5 %, 70 % of farmers maintained optimum number of shoots/plant., applied recommended dose of farm yard manure, fertilizer, followed split application of chemical fertilizer and given regular irrigation respectively.

Shivaraj (1985) reported a positive relationship between knowledge and adoption. The farmers of different TSC's have a sound knowledge on mulberry cultivation technologies, which made them to adopt many technologies, like pruning of plants at 30 cm height, no. of shoots/plant, application of farm yard manure and split application of chemical fertilizer. Kher et al,. (1991) reported that lack of proper knowledge is the reason for partial adoption of fertilizer but the present study shows the farmers have got knowledge but the cost of fertilizer made them not to adopt fully. This confirms the observation made by Lakhsmanan et. al ., (1998). The demonstration farmers are trained at CSR&TI, Mysore. which also contributed for adoption of recommended technology. This observation is in line with the inference drawn by Thangaraju and John Knight (1980) and Srinivasa (1998).

Data presented about the knowledge and adoption of silkworm rearing technologies are presented in table.2. It reveals that, all the farmers having knowledge on advantage of separate rearing house / separate entrance to rearing house, disinfection of rearing house, new silkworm breeds, shoot rearing, bed spacing, bed disinfectant and rotary mountage. Similarly 97.5 %, 67.5 %, 72.5 % and 82.5 % of farmers possessed knowledge on time of harvest, deflossing, sorting and transportation of cocoons respectively.

All farmers possessed either separate rearing house / separate entrance to rearing house and adopted shoot rearing method. 80% , 57.5 %, 67.5 % and 35 % of farmers have used chlorine dioxide and bleaching powder as disinfectants, recommended bed spacing, adopted recommended dose of bed disinfectant and rotary mountage. It reveals that majority of the farmers have harvested the cocoons in right time (77.5%), 47.5% farmer have done deflossing, 62.5% of farmers have sorted the cocoons before marketing and 32.5 farmers have adopted proper method of transportation. The present study indicated that farmers have partially adopted (42.5%) the recommended bed spacing during silkworm rearing. But Thangaraju and John Knight (1980) and Shivaraj (1985) have reported that all farmers adopted recommended spacing.

Srinivasa (1996) reported that adoption of technologies varies from 42.3% to 70.66% in non-traditional districts of Karnataka. The present study was conducted in traditional districts and found that full adoption of technologies varies from 20 % to 100 % covering both mulberry cultivation and silkworm rearing technologies. Shivaraj (1985) found that there is a relation between size of the land holding and adoption of technologies and socio-economic status also influences adoption. Pamadi (1980) reported that there is no relation between size of the land holding and adoption of technologies. The present study also confirms that the size of mulberry land holding is not related to adoption of technologies (Average

mulberry land holding varies from 1.63Ac to 2.90Ac). The survey also indicated that, lack of additional land, not convinced about the advantages of new technologies and high cost are the reasons for partial and non adoption of mulberry cultivation technologies. Similarly low cocoon price, additional cost of hygiene maintainance, high cost and requirement of additional labour are the constraints for partial and non adoption of silkworm rearing technologies. The study indicates the need to educate the farmers about the advantages of the low cost technologies by the state sericulture department through establishing a strong linkage between the research, extension and input agency to reap the full benefit of the technologies by the sericulturists.

Regional Sericultural Research Station,
Chamarajnagar, Central Sericultural Research
and Training Institute,Mysore, India.

B. MALLIKARJUNA
SARIFUL ISLAM
K. SRIKANTASWAMY

(Received ; March, 2008)

References

Kher, S.K., Mukku, K.N. and Supe, S.V., 1991, Socio-economic factors contributing to the level of adoption of improved cultural practices of Almond. Maharastra J. Extn. Edu., 10(1): 81.

Lakshmanan, S., Mallikarjuna, B., Ganapathy Rao, R., Jayaram, H. and Geetha Devi, R.G., 1998 , Studies on adoption of sericultural innovations at farmers level in Tamil Nadu - An empirical analysis. Indian J. Seri., 37 (1) : 44-47.

Pamadi, B.M.,1980, A study on adoption behaviour, consultancy pattern of groundnut grower in Dharwad district, Karnataka State, *M.Sc (Agri.) Thesis*, Univ. Agric. Sci., Bangalore (India).

Shivaraj, K., 1985, A study on adoption behaviour, net income and employment potential of Bivoltine seed cocoon producers, *M.Sc (Agri.) Thesis*, Univ. Agric. Sci., Bangalore (India).

Srinivasa, G., Dolli, S.S., Raveendra, M and Iynegar, M.N.S., 1996, Socio-economic factors and their relation to adoption of improved Sericultural practices, Indian J.Seri., 35(1): 43-45.

Srinivasa, G., Doddagadad, C.B., Jayaram, H., Geetha, G.S., Geetha Devi, R.G., 1998, A logit function analysis of adoption behaviour of Sericulturists in non-traditional area in Karnataka. Indian J. Seri., 37(2):163-166.

Thangaraju, V., and John Knight, A., (1980), Adoption of Sericulture Technology by Trained and Untrained Sericulturists, I*n: Proc. Seri. Symp. Sem*.,Univ. Agri. Sci., Coimbatore (India).