

Impact on productivity of mulberry leaf and cocoon under institute village linkage programme in Murshidabad district

**S.N. BAGCHI, D. PANDIT, S. GHOSH, A. K. SAHA, A. GHOSH, P. MITRA
AND A.K. BAJPAI**

*Central Sericultural Research and Training Institute,
Berhampore-742 101, West Bengal*

ABSTRACT

Central Sericultural Research and Training Institute has developed a number of improved sericultural technologies / packages and extended these to the seed farmers of Banjetia village of Murshidabad district with the objective of development of a model sericulture village through IVLP approach as well as generation of quality seed cocoons. The benchmark yield related to mulberry leaf and cocoon was 16.0 mt/ha/yr and 15.0 kg/100dfls respectively. Improved package of practices for mulberry cultivation and silkworm rearing were demonstrated and need based training was also provided to the target group. Within a period of four years since implementation of the programme, the average leaf and cocoon yield registered an improvement of 68.75% (27.0 mt/ha/yr) and 78.33% (26.75 kg/100 dfls) respectively, which significantly has increased farmer's socio-economic condition.

Key words: Cocoon productivity, leaf productivity, IVLP and socio-economic condition

Sericulture is an important vocation of resource poor farmer of Murshidabad district, of West Bengal which is a traditional sericultural belt. The Central Sericultural Research and Training Institute, Berhampore, Murshidabad, West Bengal is providing the research and development support to the sericulture industry of Eastern and North-Eastern India. This Institute has developed a number of improved technologies and disseminated to the farmers' field from time to time for the development of sericulture industry as a whole and farmers in particular. Even then, a notable gap has been noticed in the leaf and cocoon productivity due to different social, economic, psychological, managerial and technical constraints besides improper linkage between research station and farmers and inadequate infrastructural facilities faced by the small and marginal farmers (Sengupta *et al.*, 2006).

The resource poor sericultural farmers of 'Banjetia' village were gradually shifting from sericulture to other avocations due to continuous crop failure. Under such situation, during the year 2005-06 it was decided to adopt the village for sericultural development through Institute Village Linkage Programme (IVLP) a participatory approach of scientists, extension functionaries and farmers. The main objective of the programme was to improve the socio-economic condition of the sericultural farmers of Banjetia village through improvement in productivity level of mulberry and cocoon yield in a sustained manner.

MATERIALS AND METHODS

The study was carried out at Banjetia village of Murshidabad district where technological interventions through IVLP were taken up by the

Institute for sustainable development of sericulture among the farmers of the village.

In the study, the participants were compared 'before' and 'after' the intervention of technologies through the project. The village 'Banjetia' is a P-1 seed zone and was selected purposively with the objective to develop a model village and to assess the change in the socio-economic condition of the sericultural farmers through improvement in the productivity of both mulberry leaf and cocoon. The initial status of the farmers was recorded in respect of their mulberry leaf and cocoon productivity and socio-economic condition. All the 18 farmers practicing sericulture were selected for the present study. Method and Result demonstrations were conducted along with organisation of need-based training, awareness and communication programmes besides constant supervision by the scientists of the institute. A suitable technology package for mulberry cultivation and silkworm rearing was identified and implemented in that area. Required inputs were made available to adopt the practices along with necessary linking for selling their end product. Data were recorded time-to-time after completion of each crop, tabulated and analysed by employing simple statistical tools (Mean, t-test etc.)

RESULT AND DISCUSSIONS

In this study, an attempt had been made to get an overview of the socio-personal profile i.e. age, education, land size, family size and type, experience in sericulture and occupation of the farmers of project area along with impact of technologies.

Socio-personal profile of the farmers

It is observed that majority (66.67%) of farmers belonged to middle aged group. About 78%

of farmers were literate of whom 22.22% can read & write only, 16.67% having primary, 27.78% having middle and 11.11% having high school standard educational exposure. The land holding of 72.22% farmers was less than 1.0 acre while that of 27.78% were ranging between 1.0 - 5.0 acres, which indicated that all the IVLP farmers belonged to marginal category. Further, it is evident that majority of the farmers had a 'nuclear' family status (94.44%). The average size of family members of 88.89% farm families were having less than 5 while 11.11% were having more than 5.

All the farmers practised both agriculture and sericulture for earning their livelihood but 77.78% farmers' primary occupation was agriculture and sericulture was secondary to them while 22.22% farmers' primary occupation was sericulture and petty business and wage earning was their secondary source of income (Table 1). Similar findings were observed by Geetha *et al.* (2001).

Impact of technological interventions:

It was observed that due to technological interventions mulberry leaf yield was increased by 68.75%. The high yielding variety of mulberry S-1635 in 2'x2' spacing was one of the reasons for increased productivity. Significant increase (78.33%) in cocoon yield was also observed which may be attributed due to quality leaf obtained from high yielding mulberry variety. Thus, the programme was successful in increasing the overall cocoon yield. The acreage under mulberry was also increased by 76.67% which was due to intrinsic motivation of the farmers themselves after getting sustainable benefit from sericulture. At the initial stage, 50% of the farmers had no separate rearing house but presently, all the farmers possess separate rearing house for rearing of silkworm, which increased their rearing capacity by 53.62%. As regards gross income of the farmers it was observed that a substantial increase (190.19% per 100 dfls) took place and it was also reflected in their net income that rose by 297.11% (Table 2). The findings corroborate with the study of Chowdhury *et al.* (2002) and Hiriyana *et al.* (2008)

Table.3 indicated the year wise cocoon yield (kg/100dfls) since inception of the programme. It was clearly observed that there was a significant increase in cocoon yield in all the years as well as overall cocoon yield with respect to initial yield level. The pooled data of season wise impact on cocoon yield also indicated the improvement. Among the crop seasons, the most successful seasons were Chaitra and Baishakh (Fig-1).

The impact of the programme was improvement in the mulberry leaf yield as well as cocoon productivity. Farmers received a good remuneration from this improvement. The gross and net income from silkworm rearing was increased a lot which indicated their improvement in economic standard. The training and communication support under IVLP has enlightened the farmers and now they could handle the enterprise confidently with ensured application of technological inputs which is reflected from their income earning status from this avocation. Hence, similar type of programme should be emphasized for the overall sericulture development of the country.

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Table: 1. Socio-personal profile of the sericultural farmers of Banjetia village.

Sl.No.	Socio-personal characteristics	No. of farmers	Percentage
1.	Age (years)		
	(a) Middle (below 50)	12	66.67
	(b) Old (above 50)	06	33.33
2.	Education		
	(a) Illiterate	04	22.22
	(b) Can read and write	04	22.22
	(c) Primary	03	16.67
	(d) Middle	05	27.78
	(e) High School	02	11.11
3.	Land		
	(a) Less than 1.0 acre	13	72.22
	(b) 1.0-5.0 acre	05	27.78
4.	Family		
	A. Type		
	(a) Single	17	94.44
	(b) Joint	01	05.56
	B. Size		
	(a) Up to 5 members	16	88.89
	(b) Above 5 members	02	11.11
5.	Experience in Sericulture		
	(a) Low (< 5 yrs)	04	22.22
	(b) Medium 5 – 10 yrs)	04	22.22
	(c) High (> 10 yrs)	10	55.56
6.	Main occupation		
	a) Agriculture	14	77.78
	b) Sericulture	04	22.22
7.	Other Occupation		
	a) Business	02	11.11
	b) Labour	02	11.11

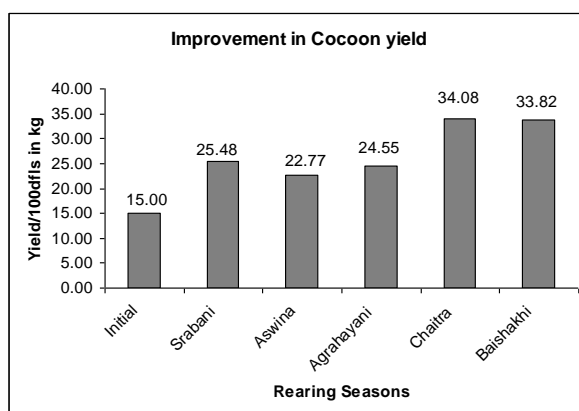


Fig. 1. Season wise improvement in cocoon yield

Table: 2 Impact of technology on mulberry cultivation, silkworm rearing and income.

Sl. No.	Particulars	Initial status	Present status	Improvement due to intervention of technologies through IVLP (%)
1.	Mulberry leaf yield (mt/ha/yr)	16.0	27.0	68.75
2.	Total Mulberry Area in the village (in acre)	4.03	7.12	76.67
3.	Average mulberry holding (in acre)	0.31	0.40	29.03
4.	Average rearing capacity (dfls / farmer / crop)	138	212	53.62
5.	Yield/100dfls (kg)	15.0	26.75	78.33
6.	Gross income/100 dfls (Rs.)	1050	3047	190.19
7.	Net income/100 dfls (Rs.)	450	1787	297.11

Table: 3. Impact of technology on year wise cocoon productivity

Sl. No.	Particulars	Initial status of cocoon yield (kg/100 dfls)	Cocoon yield during the period of intervention of technologies through IVLP				Average for the period 2005-09
			2005-06 (kg./100 dfls)	2006-07 (kg./100 dfls)	2007-08 (kg./100 dfls)	2008-09 (kg./100 dfls)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Mean	15.00	24.73	30.55	24.73	26.59	26.75
2.	n	13	13	14	17	18	18
3.	Degrees of freedom	12	12	13	16	17	17
4.	Calculated 't' value		7.510**	10.751**	9.219**	9.302**	11.969**

** Significance at 1% level of significance.