Impact of IVLP on Mulberry Leaf and Cocoon Yield at Farmers' Level

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Introduction

Dissemination of technology is considered more vital than the development of technology itself. Non availability of cutting edge and cost effective technologies to the primary stakeholders has been one of the major bottleneck affecting production and productivity. Though research organizations are acclaiming the development of a large number of technologies, the field acceptance or awareness of these technologies is rather poor resulting in a wide gap between potential or lab findings and field realization. The reasons attributed for non - availability/poor adoption of new technologies are many. Among them, defective approaches/one sided transfer of technology aspect appears to be a serious issue. As a result, the available technical know - how is reaching farmers in a diluted way leading to incomplete information. This results in partial adoption of new technologies leading to loss of interest and confidence of the farmers towards new developments. Based on the lessons learnt from the mistakes in the past, reexamining the existing technology transfer system appears to be imperative to bring in required reforms (Dandin et al., 2005)

Towards this, a few new approaches were developed. Among them Institute Village Linkage Programme (IVLP) is a participatory approach of scientists, extension staff and farmers of the target area with the objective of assessing the problems of the area, developing a technology package that is acceptable to the local community besides being cost effective, effective in solving problems and thereby helps to increase productivity and profitability in a sustained manner. This approach has been developed and implemented successfully by the Indian Council of Agricultural Research (ICAR), through its research institutes, state agricultural universities and Krishi Vigyan Kendra (KVK).

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Methodology and Approach

The IVLP programme was undertaken in two taluks viz., Challakere and Molkalmuru of Chitradurga district of Karnataka state. The district, once famous for oil seed production gradually shifted to horticulture, sericulture and other commercial crops. Sericulture was introduced in the district during early 1970s. At present, the district has 1658 hectare mulberry field, distributed in 328 villages; 2376 families are practicing silkworm rearing and producing 101.08 metric tones of raw silk. The district is also famous for its traditional "Molkalmuru Silk Sarees". In order to reduce the yield gap and to increase the productivity in mulberry and cocoon yield at farmer's level, IVLP was implemented for 5 years (2003-2007) and after 5 years an impact study was conducted to see the effect of IVLP on productivity. There are 13 villages in the project area viz., 5 in Challakere and 8 villages in Molkalmuru. The number of farmers are 25 in Challakere and 60 in Molkalmuru. The mulberry acreage of the project area is 228 acres, i.e. 53 acres in Challakare and 175 acres in Molkalmuru.

The following steps were followed in implementation of the programme.

1. A preliminary (Bench mark) survey was conducted to understand the status and identify the problems of sericulturists and constraints for lower yield. Aspects covered in the survey included profile of the farmers; technology status, adoption level; yield obtained in mulberry and silk worm rearing; input usage and probable causes/problems for lower yield.

2. Through the survey, the needs of the farmers were identified and the problems that are the bottle necks in productivity were prioritized in consultation with scientists, extension workers and farmers.

3. Accordingly, technology modules were prepared in consultation with the scientists, extension worker and farmers for major intervention under mulberry cultivation and silkworm rearing.

   Interventions under mulberry cultivation include soil testing and correction measures; adoption of V1 variety with wider spacing 3'x 3' & (3' + 5') x 3'; application of recommended dose of FYM and fertilizers/ green manure/ compost; proper irrigation;pruning and thinning of mulberry garden with new system to avoid stem damage; and control of tukra and leaf roller by releasing bio- control agents.

   Interventions under silkworm rearing include supply of CSR hybrid chawki worms; provision for separate rearing house/space; disinfections with bleaching powder and chlorine dioxide and maintenance of hygiene; application of bed disinfectant; adoption of shoot rearing; proper feeding and adequate rearing bed spacing; release of Nesolynx thymus for uzi fly control; spray of Sampoorna for uniform maturation; and use of adequate number of mountages, mounting care.

4. These Technology modules were implemented through proper scheduling and preparation of crop calendar. Regular visit and crop supervision by extension staff and subject matter specialist (SMS) to provide technical guidelines was done, besides the training programme and demonstration.
5. After completion of each crop, the results of the crop were collected and analyzed. The technology adoption level was studied.
6. Midterm corrections were incorporated as per the feedback from the farmers and the extension workers.
7. Lastly, an impact study was undertaken to analyze the impact of IVLP on mulberry and cocoon yield at farmer's level.

Results and Discussion

Impact on Mulberry and Cocoon Yield

The Benchmark survey revealed that leaf yield per acre per year was 9830 kg, number of dfls brushed/acre/year was 819, cocoon yield /100 dfls was 46.0 kg and cocoon yield/acre/year was 377.5 kg. After implementation of IVLP, leaf yield per acre per year increased to 15,102 kg, number of dfls brushed per acre per year increased to 1258 dfls and yield/100 dfls increased from 46 kg to 61.88 kg. Total cocoon yield /acre/ year also increased from 377.5 kg to 778 kg (Table 1).

Table 1. Impact of IVLP on Mulberry and Cocoon Yield at Farmers Level

Name of the taluks	Mulberry leaf yield/acre/yr (Kgs)			No. of dfls brushed per acre/yr			Cocoon yield/100dfls (Kgs)			Cocoon yield/ acre/yr (Kgs)		
	Before	After	% of impro-vement	Before	After	% of impro-vement	Before	After	% of impro-vement	Before	After	% of impro-vement
Challakere	10,160	14,807	55.8	791	1233	45.2	42.0	62.40	24.80	332.0	769.0	116.0
Molkalmuru	9500	15,398	51.5	846	1283	52.2	50.0	61.36	46.10	423.0	787.0	99.0
Average	9830	15,102	53.6	819	1258	53.6	46.0	61.88	34.50	377.5	778	107.5

Further, after implementation of IVLP, brushing capacity of farmers from both the Talukas increased viz., 90 per cent of farmers were brushing 201-300 dfls and 10 per cent of farmers were brushing more than 300 Dfls per acre per crop (Table 2).

Table 2. Impact of IVLP on brushing pattern

Sl.No.	No. of dfls brushed/ batch/acre	Frequency (%)	
		Before	After
1.	101-200	26	--
2.	201-300	74	90
3.	>300	--	10

This was due to increase in mulberry leaf yield per acre per year because of adoption of high yielding V1 mulberry variety. Further, the farmers were in the habit of the traditional package of practices of mulberry viz; applying only urea or DAP, with little FYM which is also of poor quality by paying the least importance for protecting the soil health through organic source resulting in poor quality and quantity of leaf. As a result of adopting improved technologies of mulberry, leaf yield increased from 9,830 to 15,102 Kg/Ac/Year. In addition, cocoon yield/ 100 dfls also drastically changed after IVLP. Before IVLP, 90 per cent of the farmers were getting cocoon yield of less than 50 kg/100dfls, 5 per cent farmers were harvesting 51-60 Kgs and 5 per cent farmers were only harvesting 61-70 kg, with none of the farmers getting more than 71 kg/100 dfls. After IVLP 60 per cent of farmers were harvesting 51-60 kg, 20 per cent of farmers were harvesting 61-70 kg and 10 per cent of farmers were harvesting more than 71 kg/100 dfls (Table 3). The increase in the cocoon yield may be due to better adoption of critical technologies like disinfection, hygiene and better rearing management.

Table 3. Impact of IVLP on Cocoon Yield

Sl.No.	Cocoon yield/100dfls (Kgs)	Frequency (%)	
		Before	After
1.	<50	90	10
2.	51-60	05	60
3.	61-70	05	20
4.	>71	--	10

To summarize, in addition to the quality, productivity and profitability improvements, the following desirable changes have been observed with the farmers after implementation of IVLP.

- Chawki reared worms of improved bivoltine are gaining popularity and it is evident by the increasing demand.
- Awareness and adoption of new technologies has increased.
- Farmers are coming forward to establish private CRC and three such CRCs have been established.

- Separate rearing houses were constructed with the income from sericulture as well as CDP assistance.
- No crop failure was recorded under the programme.
- There was a complete switch over (100 per cent) from the traditional tray rearing to shoot rearing method.
- Acreage under V1 plantation has increased. The farmers have accepted the concept of V1 nursery management. Many farmers started getting additional income through supply of V1 saplings.

Conclusion

It is concluded that the improvement indicates the success of IVLP through identification of specific problems in the cluster and development of technologies with the involvement of farmers. Therefore, the adoption of integrated technology in cluster approach is one of the solutions for attaining sustainability of sericulture. This approach with suitable refinement can be adopted elsewhere in the sericulture areas of the country to ensure higher rate of adoption of technologies and in turn higher returns from sericulture.

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