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Research Article

IMPROVED TECHNOLOGIES AND THEIR IMPACT ON COCOON PRODUCTION OF THE ADOPTED REARERS

***Shashi Kanta**
Punjab School Education Board, Mohali-Punjab
**Author for Correspondence*

ABSTRACT
Sericulture industry needs proper management, appropriate technology and its transfer to the silkworm rearers. The productivity of this industry not solely depends on the quality seed supply or the in time supply of the inputs to the farmers but also in the degree of adoption of suitable technology by rearers and its management. It is being felt that due to absence of updated technology by rearers is the major reason for low level cocoon productivity in the Jammu and Kashmir state. The research done on impact analysis of technology on cocoon productivity revealed that the technology packages vi introduction of spring specific hybrids, application of disinfectants for control of silkworm diseases, chawkie/late age techniques, mounting care etc. had substantial effect on the production and productivity levels. The cocoon yield of farmer who was supplied chawkie worms after 2ndmolt, rendered average yield between the range of 45 kg -50 kg against non-adopted rearers, the actual average yield recorded was 35 kg. Introduction of new high yielding spring specific hybrid namely CS6 x Pam 101 evolved by the Institute recorded more than 50 kg yield per ounce tested amongst adopted rearers in Jammu & Kashmir against ruling hybrid SH6 x NB4D2 which recorded yield of 40 kg/ounce. The analysis also led to the inference that the role of the train extension worker is delivery system is of paramount importance, besides good co-ordinatio0n between the technology developer and the field worker.

Keywords: *Cocoon Production, Technology*

INTRODUCTION
Silkworm is playing a very big important role in rural life of Indians being an insect of economic importance as Sericulture. Sericulture plays a key role in the up-liftment of rural population both socially and economically. The common silkworm Bombyxmori Linnaeus (Lepidoptera: Bombycidae) spins valuable silk fiber, making it one of the most beneficial insects to mankind, and is becoming an attractive multifunctional material for both textile and non textile uses. The practices of sericulture consist of two major activities viz.,
(a) Cultivation of mulberry plants for producing disease free crop leaf to the Silkworm larvae.
(b) The rearing of silkworm larvae to produce the cocoons, which is the raw material for the silk reeling industry.
Silkworm is an economical and helpful insect and is reared by many farmers throughout world. It is an important economic insect since it is the producer of silk. Success in sericulture depends largely on major factors like, breed, seed and feed. The silkworm breeds play an important role for high cocoon yield and silk quality (Geetha *et al.*, 2001). If the cocoons, which form the basic raw material for raw silk, are from bivoltine will definitely be superior with high silk content. Introduction of tropical bivoltine rearing practices in India is revolutionizing the bivoltine silk production.
As a result, the demand- supply gap is widening in mulberry raw silk. Hence, there is an urgent need to improve the production, productivity and quality of Indian silk for meeting the import substitute for domestic market and complete in the international market especially in the changing scenario of global trade. In the past two decades various technologies have been developed both in the improvement of mulberry yield and silkworm rearing technology by the concerted efforts of scientists in order to overcome the constraints and boost the bivoltine silk production of the country (Chowdhury, 2002). The gap between the potential and actual yield is due to not fully exploiting and managing the recourses by the farmers to achieve high yield. Hence, there is need to have new direction in planning transfer of

technology information by designing more effective linkages between scientists and farmers (Chowdhury, 2002). Dissemination of technology is considered more vital than the development of technology itself. Though the research organization are claiming the development of large number of technologies, the field acceptance or awareness of these technologies is rather poor resulting in a wide gap between potential of lab findings and field realization.

Transfer of technology in right positive direction will determine not only the genuineness of the technology but also the impact it is likely to have in the farmer level. However, technology itself will not produce anything unless it is transferred to the rearers. The extension & Trainings division act as a siphon through which transfer of technology pertaining to the development of sericulture occurs to the ultimate farmer. The extension Division of CSR, Sujanpur plays an important role on the development of sericulture by imparting trainings to rearers and dept. technical staff for adoption of new and latest technology for mulberry plantation and silkworm and rearing (Sengupta *et al.*, 2006). The larvalcare at any stage of rearing can result in crop failure. Therefore, it is essential to make the farmer abreast with latest techniques of rearing. Studies were conducted by adopting progressive farmer and conducted rearing under the ideal conditions with close supervision of the extension staff.

MATERIALS AND METHODS

Following were proposed technologies used in the project for Mulberry plantation

1. Pruning / leaf harvesting, Leaf transportation and (Haryana *et al.*, 2008)
2. Preservation techniques Disinfection of rearing house
3. Chawki/ late age rearing technologies
4. Use of Bed disinfectants
5. Integrated management of mulberry pest and diseases? (Pande *et al.*, 2010)
6. Silkworm disease management
7. Cocoon harvesting and transportation techniques for better Price.

Introduction of season specific hybrid namely CS6 X Pam 101

The technology used by the farmer during the study period stands as under.

1. Techniques of Disinfection
2. Application of Disinfectants Viz, RKO, Vijeta for control of silkworm disease.
3. Young age/Late age techniques (Pande *et al.*, 2012)
4. Drying and sorting techniques.
5. Introduction of season specific hybrid namely CS6 X Pam 101.
6. Use of available mounting for quality production of cocoons.
7. Rising of mulberry plants at farmer's level to strengthen mulberry wealth (Qadri *et al.*, 2010)

RESULTS AND DISCUSSION

Results

Better results are found during the use this technology in the following way:

1. More cocoons were harvested by farmer by using this technology.
2. Farmer who supplied chawkie worms after 2ndmolt rendered average yield between 45kg to 50kg against non-adopted rearers, the actual average yield recorded was 35kg, which was more (Kanta, 2014)
3. Use of RKO/ Vijeta minimizes the silkworm mortality due to disease and the average increase in yield was more.
4. Drying and sorting techniques also to the additional income to the farmers.

At REC, Sujanpur the average cocoons production was increased 51.30 kg per ozs by the adopting all the new technologies. It was implemented against 30kg recorded in the previous years (Sreenivasa and Hiriyanna, 2014)

5. Introduction of season specific hybrid mainly CS6 X Pam101 evolved at REC Sujanpur, recorded highest yield of 75 Oz at REC. The average yield was recorded above 60 kh/ozs against control SH^ X NB4D2 47 KGS/ozs with the result the cocoon production increased by 13%.

6. At REC Sujanpur, farmers were motivated to raise the mulberry plants (Muniswamy Reddy etc. 2016)
7. 8 villages were covered. The average survivability was 62.52%. This way the mulberry wealth can be augmented in the area so that more & more farmers can be motivated to take the sericulture.

Cocoons Production Details of Rearers Adopted By Research Centre at Sujanpur
Combination: SH6 X Nb4d2

No. of Adopted Rearers	No. of Non-Adopted Rearers	Adopted		Non-Adopted		Yield Gain (Kg)
		Qty. of Seed Reared	Yield /Oz (Kg)	Qty. Of Seed Reared (Oz)	Yield/ Oz (Kg)	
12	12	12.00	50.00	12.00	40.00	10.00
20	20	20.00	47.00	20.0	35.00	12.00
12	12	12.00	41.00	12.00	38.00	03.00

Cocoons Production Details of Rearers Adopted by CSB at Sujanpur
Combination: SH6 X Nb4d2

No. of Adopted Rearers	No. of Non-Adopted Rearers	Adopted		Non-Adopted		Yield Gain (Kg)
		Qty. of Seed Reared	Yield /Oz (Kg)	Qty. Of Seed Reared (Oz)	Yield/ Oz (Kg)	
22	22	22.00	48.41	22.00	35.20	13.20
22	22	22.50	51.80	22.00	29.50	22.30
20	20	20.00	47.41	20.00	37.67	14.73

Performance of New Hybrids CS6 X Pam 101 at Farmer Level

Sl. No	Place	Av.Yield/ ozs	Combination
	CS6 X Pam 101	SH6 X NB4D2[CONTROL]	
1.	REC, Sujanpur	54.20	45.60
2.	REC,Sujanpur (PB)	61.52	53.54
3.	REC ,Sujanpur (PB)	61.93	46.11
4.	REC,Sujanpur (PB)	75.00	54.47
	Average	62%	

Conclusion

The rearing techniques which are usually adopted by the rearers are very old. The technical advice which our fields staff often imparts to the farmers regarding adoption of new technologies are often ignored which results in poor crop. Adopted rearers adhere to the new technologies results in bumper crop and they earn handsome amount. In conclusion it can be stated that the impact of technologies conveyed effectively by the technical staff of extension centers had substantial effect on the productivity of cocoons and also ensure improvement in the quality of cocoon. A complete coordination between lab, extension and rearers can add new life to sericulture industry in the valley.

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