



ORGANISATIONAL SETUP, STATUS AND PROSPECT OF SERICULTURE INDUSTRY IN HARYANA

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ABSTRACT

Sericulture is practiced in Haryana since eighties. Central silk board had launched National Sericulture Project, World Bank added project, in Pinjore, Morni Hills and Barwala area during 1989. After completion of the project period, the assets developed were handed over to Directorate of Horticulture, Govt. of Haryana for continuing the activities. The role of Research Extension Centre is to popularize the developed technologies among the farmers through demonstrations. Sericulture activity has many advantages over agricultural crops i.e., may be started with no investment by raising mulberry plantation, no age limit, availability of advanced technologies and 25 – 30 days crop duration. Hence, sericulture activity may help to improve the socio-economic conditions of the adopted farmers. The extension methodology adopted for motivation and popularization of improved technologies are also discussed.

KEY WORDS: *Sericulture, Extension, Technologies, Demonstration*

INTRODUCTION

Rural Industries have an important role in the economic development of our country. A vibrant rural on farm sector generates self-employment resulting in higher income. Reducing poverty check the rural migration to urban areas and bringing about the balanced regional development. The rural development focuses least advantaged people in the area to achieve reasonable living conditions and livelihood opportunities, allowing them to fully develop their personality and productive capacity. Considering the dimension of the employment situation in the rural areas and contribution of agriculture and allied industries in national income, diversification of economic activities for self employment has become important. There is thus an important need to diversify agriculture too into high yielding economic activities which would generate employment, ensure greater rate of return to the farmers and promote self reliance. There exist considerable scope for increasing

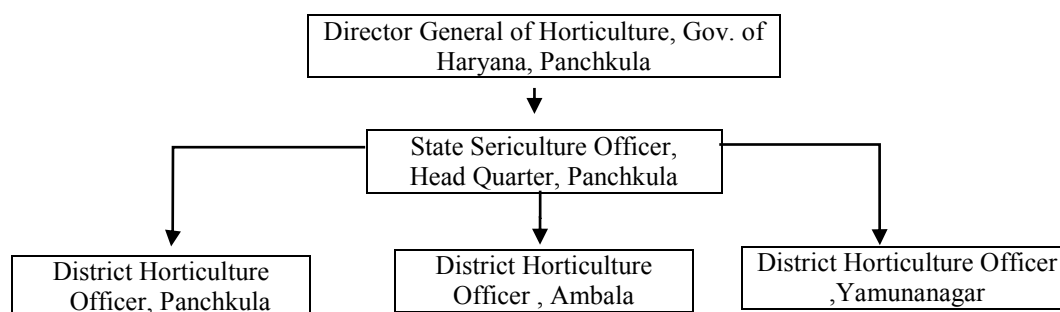
employment and income in rural areas through labour intensive and remunerative enterprises like sericulture. In this direction, Central silk board had initiated sericulture activity in eighties at Panchkula, Haryana to develop awareness among the local people being a neighbouring state of Punjab and Himachal Pradesh where silk industry was flourishing. The board has implemented National Sericulture Project, World Bank added, in Haryana in the year 1989 from Panchkula. The object of the project was to develop 500 acres of mulberry wealth on private lands followed by silkworm rearing by the beneficiaries. Provision of financial assistance by the bank was kept to support the beneficiaries through National Bank for Agriculture & Rural Development (NABARD). After successful completion of the project, the assets developed during the project period was handed over to the state Govt. for further continuing the activities. Sericulture industry supported millions of rural people in our country by way of providing employment. The



majority of sericulture farmers belong to the economically backward sections of the society as well as scheduled castes and scheduled tribes (Yadav, 2008; Aslam, et al. 2019). Director General of Horticulture, Department of Horticulture, Govt. of Haryana, Panchkula is all set to receive a big boost and submitted a proposal under the centrally-sponsored scheme "Catalytic Development Programme" to the Ministry of Textile, Govt. of India for necessary approval. Central silk board is providing technical support to silk industry in Haryana since eighties and is continuing as Research Extension Centre operating at Panchkula.

ORGANISATIONAL SETUP OF SERICULTURE IN HARYANA

Director General of Horticulture is overall controlling authority of sericulture activity in Haryana. State sericulture officer is reporting officer to DG Horticulture about the progress and action to be taken for the development of sericulture industry in the state. Further, assistant director of Horticulture is implementing authority in the respective districts.



STATUS OF SERICULTURE IN HARYANA

Presently, sericulture activity is being confined in three districts of the state namely, Panchkula, Ambala and Yamunanagar. The sericulture industry under the leadership of Director General of Horticulture in Haryana is all set to receive a big boost as the Department of Horticulture, Govt. of Haryana has sent a proposal under the centrally-sponsored scheme "Catalytic Development Programme" to the Ministry of Textile, Govt. of India for sanction. The cost of the programme is Rs 4.85 million and will be implemented by the Central Silk Board (CSB) in collaboration with the respective state department to increase productivity and quality of silk in the state. All the three districts have been included in the proposal and farmers would be given 75 percent subsidy for mulberry cultivation. Rs 5,500 will be given to beneficiary raising 300 mulberry plants under this programme. The Central Silk Board and the State Sericulture Departments are providing extensive support to start sericulture, provide training and extend technical support for those interested in pursuing this line. To support the silk industry in Haryana, Central Silk Board has established Research Extension Centre at Panchkula during September, 2003.

ROLE OF RESEARCH EXTENSION CENTRE

Sericulture, an agro-forest based cottage (Silk) industry, is accepted as an employment generating socio-economic development sector since ancient time. Sericulture has become the most important rural industry playing a dominant role in rural development in various states. Mulberry sericulture has transformed from a subsistence type to a modern scientific enterprise in most of the traditional as well non traditional states.

The centre is carrying out all activities as per assigned mandate for better productivity since inception. The centre effectively demonstrating the recommended technologies at field level by ensuring effective percolation.

1. Popularization/demonstration of new silkworm hybrids:
2. Raising and supply of saplings of improved mulberry varieties for field plantation.
3. Demonstration of Technologies
 - I. Disinfection.
 - II. Silkworm crop protection measures
 - III. Field supervision during late age silkworm rearing
 - IV. Use of Sampoorna.
 - V. Harvesting and sorting of cocoons before marketing
 - VI. Compost Pit Making
 - VII. Vermi Composting



CHAWKI REARING

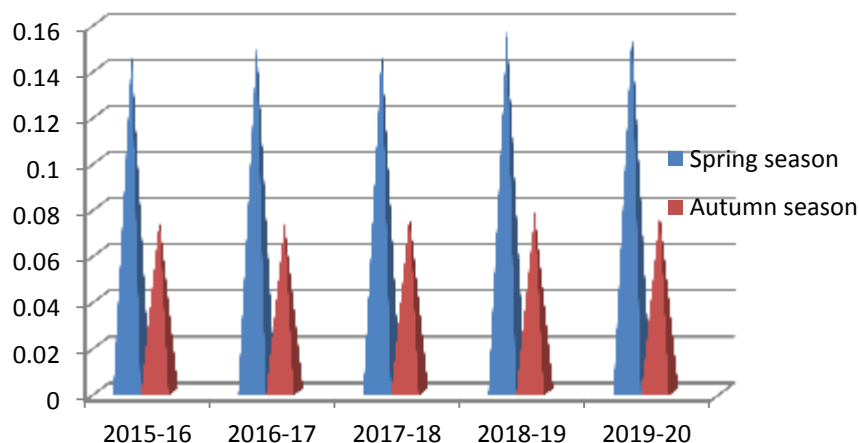
Further, Chawki rearing centres (CRCs) were / are established by the department to conduct young age (Chawki) silkworm rearing. Chawki rearing is a crucial and delicate stage for success of silkworm crop. Silkworm seed of Bi x Bi (SH6 X NB4D2) hybrid was obtained from NSSO, Bangalore. Chawki rearing was conducted at respective CRCs established in the area on prescribed temperature (26-28 °C) and humidity (80-85%) as per the recommended package of practices (Dandin and Giridhar, 2014; Jolly, 1987) so as to improve the cocoon productivity. Chawki reared silkworms (after 2nd moult) were distributed to the identified beneficiaries to conduct late age silkworm rearing at their places under technical supervision of staffs and officers ((Dandin and Giridhar, 2014; Jolly, 1987)).

LATE AGE SILKWORM REARING

The late age silkworm rearing is being undertaken at farmer's places. The role of research extension centre (REC) is to supervise silkworm rearing at farmer places and advise them to harvest better cocoon crop as per the need of the silkworm stages. After completion of the feeding period i.e., 22-24 days, ripped worms were mounted for cocooning and were harvested on 6th & 7th day of mounting during spring and autumn seasons respectively. Data on rearing performance/parameters were collected and analyzed. REC is also assisting in marketing of the produce i.e., cocoons. The performance of the centre is depicted in table-01. It is apparent from the table-01 that cocoon productivity during spring season is more than autumn season. This is because of the climatic conditions of the season as spring season is favourable for silkworm rearing than autumn.

Table-01**Silkworm rearing performance of REC for last five years**

Year Crop/Activity	2015-16	2016-17	2017-18	2018-19	2019-20
Spring crop					
No. of DFLs	2250	2300	2300	2400	2400
No. of farmers	55	55	58	58	60
Hybrid	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂
Productivity	49.11	49.41	48.78	49.15	49.42
Autumn crop					
No. of DFLs	1900	1900	2000	2000	2000
No. of farmers	52	48	50	50	50
Hybrid	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂	SH ₆ x NB ₄ D ₂
Productivity	33.65	32.87	32.91	33.23	33.15

Fig-01: Raw Silk Production During Different Seasons & Years



It is reported that the optimum temperature for the production of quality cocoons is ranges from 22-28°C (Datta, 1992; Krishanswami, et al., 1993). Similarly, the optimum humidity ranges from 70-85% for successful silkworm rearing resulting in quality cocoons production. The variations in the environmental conditions day to day, season to season and year to year within the same season also effect on the productivity emphasize the need of temperature and relative humidity for sustainable cocoon production as observed in the present study is in accordance with the earlier findings (Rahmatullah, 2012 and Aslam, et al. 2019). In general, the early instar larvae are resistant to high temperature which also help in improving survival rate and cocoon characters (Thiagarajan et al., 1993; and Ramesh et al., 2009). The seasonal differences in the environmental components such as temperature, relative humidity, light and nutrition considerably affect the genotypic expression in the form of phenotypic output of the silkworm crop such as cocoon weight, shell weight and ultimately cocoon shell ratio (Rahmatullah, 2012). Further, the spring season is congenial for silkworm rearing throughout the Northwest India as the optimum temperature and humidity prevails in the environment during rearing period whereas autumn season is unfavourable due to high temperature and high humidity prevailing in the environment that's why spring crop is better than autumn crop as observed in the present study.

EXTENSION METHODOLOGY IN PRACTICE

Sericulture extension is basically about working with people. There are a couple of established methods of working with rural people and success or failure of extension work depends upon the effective use of methods to suit different learning situations. Extension methods are classified according to their use i.e., direct or individual contact method, group contact method and mass contact method (Aslam and Khan, 2007). Some of the extension methods usually followed for motivation and dissemination of sericulture by our Research Extension Centre under extension communication programmes are as briefed below.

- a) **Direct or individual contact methods:** In view to have face to face inter-action, the extension workers should visit to the farmer's places regularly to know the level of adoption of improved technologies and accordingly extend necessary guidance to improve the same. Besides, it is also the duty of extension workers to trace out the field problems and tackle at his own level or refer to the nearest

research station / institute for its suitable solution.

- b) **Group Contact Method:** These methods are designed to involve group of farmers in extension activities.
- i) **Group Discussion:** Since the farmers cannot be contacted individually, about 20 farmers are called by extension workers at one place on a particular date and time to clarify the doubts of farmers about technologies and also make necessary arrangement for demonstration.
- ii) **Vichar Goshthi:** Vichar goshthies are organised with a group of 20 farmers to discuss field problem of the area. Attempts are being taken to found out on spot solution by interaction with farmer's and staffs.
- iii) **Farmer's Day / Field Day:** Farmers day / field day is being organised after demonstrations with an objective to give opportunity to selected farmers to share their experiences with other fellow farmers. Crop performances, constraints, problems faced by the farmers are discussed to take corrective steps to overcome for the subsequent crops. A group of 20 and 50 farmers are taken for farmers' day and field day respectively.
- iv) **Film Show:** Film show is also organised at filed level, since audio-visual system attracts rural peoples and may help to motivate illiterate and semi illiterate people. Package of practices of mulberry cultivation, silkworm rearing, disease of mulberry and silkworm and their management are the main features of the audio-visual programmes.
- c) **Mass Contact Method:** These methods are designated to contact a large number of individuals at a time. Research Extension Centre is organising awareness programme under mass contact and cover about 100 or more farmers in a single programme. Such programme is organised in well planned manner inviting Govt. bodies, local administration, representatives of Resham Federations, senior officers of sericulture and experts to have direct and on spot interaction with the farmers for fruitful solutions.

Farmers Training

Training programmes and field visits were organised for 175 nos. of farmers sponsored by National Horticulture Mission, DOH, Haryana on different aspects of sericulture as per the topics decided by Director, National Horticulture Mission, Panchkula, Haryana during 2018-19. In addition to the



above, Central Silk Board is also organising training under Capacity Building and other programmes to update the silkworm rearers regarding new technologies. Subject matter specialists are also participating in said trainings.

ADVANTAGES OF SERICULTURE

Low investment

This activity may be started at a low investment. Even this activity can be started with available mulberry plants and silkworm rearing could be under taken in dwelling houses. Plantation of 300 saplings of high yielding mulberry variety and constructed a silkworm rearing house for rearing 100 DFLs of silkworm egg at a time. To plant 300 saplings and construction of rearing house, an amount of Rs. 2.0 lack may be needed. Subsidy is also being provided by the department for both the purposes. In addition to this, rearing equipments were also provided on subsidise rates from the department. High yielding silkworm seed should be reared to fetch higher incomes. Recommended package of practices viz., inputs to mulberry plants to produce quality leaves, proper disinfection measures and maintenance of a hygienic and cool rearing environment even in summer are the secret of success in the field says.

No age limit

Peoples working in private and government jobs have to attain minimum age for employment and retire on fixed date but there is no age factor in sericulture industry as most of the activities are being taken at their places except post cocoon activity. Hence, even after retirement from the service, people may adopt sericulture activity by cultivating mulberry and construction of rearing house to double their income. Adequate monetary benefit and extensive technical support is being extended by the department to expand this industry as large scale.

Advanced technologies

Today many advanced technologies for mulberry cultivation and user friendly, cost-effective silkworm rearing technologies are being introduced by the Central Silk Board for farmers through respective state departments. These new techniques do not involve drudgery, require low investment and promise good income. After establishing a mulberry garden and rearing shed, one can take up sericulture for years together.

Income generation

Sericulture could be taken up with agriculture and other cash crops. That will give additional income to the farmers. This will help youth to retain in agriculture and check the migration from rural areas.

Sericulture falls into two sections: viz., cultivation and maintenance of mulberry plants, the food plant of silkworm and rearing of silkworms on 4-5 tier rack in a well ventilated rearing shed by feeding them mulberry leaves.

Prospect

Although sericulture has been a very important household based productive activity in recent years and Central Silk Board in association with respective DoS has launched various programmes for development and improvement of socio-economic conditions of poor Seri-culturists but these schemes/programmes did not gave the desired impact on developmental activities leading to insufficient livelihood generation. It is therefore desired to adopt a cluster based projectized approach which is supposed to catalyze development process leading to sustainable development of seri-activities.

CONCLUSION

Haryana is known for Agriculture, Horticulture and Industries. Sericulture is being taken in some pockets of the state viz., Panchkula, Ambala and Yamunanagar. The activity may be further extended in adjoining areas of Himachal Pradesh and Uttarakhand with other agricultural crops. The result of the present study is a convincing factor for the farmers to introduce an additional activity (subsidiary crop) in their area during off seasons. Silkworm crops are taken during March-April (spring season) and Sept. - Oct. (autumn season). Further, sericulture activity may be started with minimum investment, no age factor, advanced technologies are available and can add income to the family in a very short period ie. 25 – 30 days per crop. Sericulture activity may help to improve the socio-economic conditions of the adopted farmers.

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