

SERICULTURE AS AN IMPORTANT AGRO-ENTERPRISE FOR THE MARGINAL FARMERS

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ABSTRACT

Sericulture is one of the most important agro-enterprise commonly operated in rural area for generation of additional income. Jammu and Kashmir is one of the traditional sericulture regions known for its quality bivoltine silk. Udhampur is one of the most potential districts of Union Territory (UT) Jammu and Kashmir with remarkable yield records for the recent past years. In the present study a survey was conducted with sample size of 25 farmers in order to know the present strengths and weaknesses of sericulture industry under the study area. Data on various aspects regarding knowledge, skills, mechanization, extension support and financial assistance by central and state government on adoption of sericulture was generated. The results depicted lack of awareness, non-adoption of improved technologies, unskilled and improper rearing practices and poor quality of mulberry leaf as limiting for realizing full potential of the area. Therefore, it can be concluded that sericulture if adopted with appropriate rearing practices can contribute significantly for strengthening socio-economic conditions of the marginal farmers.

Keywords : sericulture, bivoltine, potential, marginal, socio-economic

INTRODUCTION

Sericulture is one of the most important agro-based industries having enough potential to generate employment in a number of associated sectors including farm practices and industrial processes (Ali, 2017a). Employment generation in sericulture is remarkable and accounts for annual income ranging from ₹ 50000 to 10,0000 followed by ₹ 10,0000 to 15,0000 for 26.66 per cent and 20 per cent of the sericulture farmers respectively (Ali, 2017b). Moreover the average incomes of the farmers practising sericulture as an additional agro enterprise are reported to be ₹ 3840 per month with totally monthly expenditure of 2380 (Dewangan *et al.*, 2013). India is the second largest producer of silk with raw silk production of 26253 MT. Mulberry silk alone accounted for 18080 MT which resulted in increase in employment generation to 9.18 million persons in 2018-19 compared to 8.6 million persons in 2017-18, indicating a growth of 6.74 per cent (Ananomyous, 2020).

Sericulture industry attains a unique importance among all other sectors and provides an excellent and unique opportunity for socio-economic progress in the developing countries (Chanotra *et al.*, 2019). In Jammu and Kashmir sericulture is being practiced in 20 districts namely Anantnag, Kupwara, Pulwama, Baramula, Ganderbal, Udhampur,

Rajouri, Kathua and Reasi. Udhampur is the leading district among all the silk producing districts of Jammu and Kashmir with 180500 Kg of cocoon production for the year 2016 (Ananomyous, 2020). Moreover, it is a fairly well organized sector mainly practiced by the rural masses coming almost 22 states of the country with 172000 hectare of land with sum of 54000 villages operating 258000 handloom, 29340 power loom (Dewangan *et al.*, 2013). Therefore, an attempt has been carried out to enumerate the potential of sericulture industry in Udhampur district for elevation of socio-economic status of the marginal farmers.

OBJETIVES

- (1) To know the general information of farmers
- (2) To know the information about sericulture practices
- (3) To know the major constraints hindering the progress of sericulture and remarkable demands of sericultural farmers

METHODOLOGY

The survey was carried out during the year 2019-20 in Udhampur district of Jammu and Kashmir for generating data on various aspects of sericulture. The sample of the study was initially based on Multistage Sampling Technique. The

respondents were selected randomly using Simple Random Sampling without Replacement technique using statistical software (MS-excel) and data from 25 respondents was computed for analysis.

RESULTS AND DISCUSSION

Sericulture being an agro-based cottage industry is generally practiced by marginal farmers particularly in rural areas. The economy of silk industry has direct relationship with the knowledge, skills and rearing conditions prevailing in the rearing houses especially the poor hygiene and fluctuations in maintenance of micro climatic conditions during the rearing period. The current results revealed participation of less skilled young age farmers with low literacy rate having lack of awareness about the usage of latest machinery and

technologies. Most of the farmers were also reported to have less experience in silkworm rearing which results in low crop productivity as earlier reported by Ganie *et al.*, 2019, and Sharma *et al.*, 2020. Moreover, the results also revealed that there is an utmost need to popularize the potential of sericulture among the small land holder or farmers belonging to economically weaker section of the society as it has been recorded that only 52 percent of schedule caste farmers are conducting silkworm rearing and unfortunately none of them was recorded for OBC and least (8%) from ST. Silk farming being a traditional culture in J&K needs to be popularized for improving the economic value of bivoltine silk in global market and for opening new avenues of income generation for all sections of the society in one way or other as suggested by Dar *et al.*, 2017 and Chanotra *et al.*, 2019.

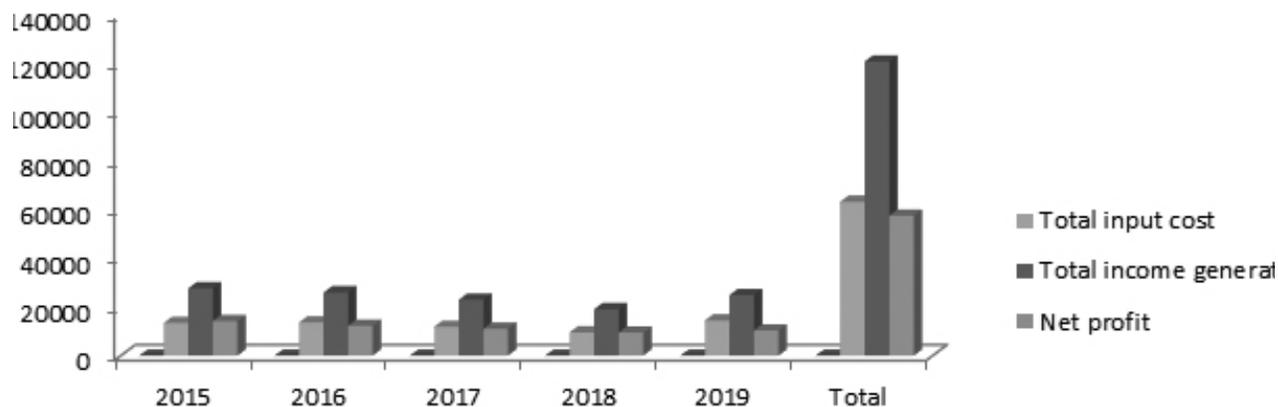


Fig. 1: Status of silkworm rearing of last five years in the Udhampur district

Table 1: General information of the farmer

(n=25)

Sr. No.	Category	Criteria	No. of Farmers	Percentage
(1) Age (in years)				
a	Young	< 35	04	16
b	Middle	35-50	12	48
c	Old	>50	09	36
(2) Education (in standards)				
a	Illiterate		12	48
b	Below 10 th		13	52
c	12 th or above		0	
(3) Family size (No.)				
a	Small	>4	05	20
b	Medium	4-6	16	64
c	Big	<6	04	16
(4) Belonging to APL or BPL				
a	APL		04	16
b	BPL		21	84

Sr. No.	Category	Criteria	No. of Farmers	Percentage
(5) Belonging to				
a	General		10	40
b	SC		13	52
c	ST		02	08
d	OBC		0	
(6) Any Govt. employee from family				
a	Yes		0	0
b	No		25	100
(7) Number of members involved in sericulture				
a	>4		13	52
b	4-6		05	20
c	<6		07	28
(8) Main occupation				
a	Agriculture with Sericulture		25	100
b	Sericulture		0	0
(9) Average income generated from sericulture				
a	> ₹ 5000		02	08
b	₹ 5000-10000		10	40
c	< ₹ 10000		13	52
(10) Annual income				
a	> ₹ 10000		01	04
b	₹ 10000-30000		14	56
c	< ₹ 300000		10	40
(11) Adopted sericulture as				
a	Integrated crop		25	100
b	Main crop		0	
(12) Having own land				
a	Yes		25	100
b	No		0	
(13) Total land				
a	>5 Kanals		06	24
b	5-10 Kanals		04	16
c	<10 Kanals		15	60
(14) Type of land				
a	Irrigated		0	0
b	Rainfed		25	100
(15) Source of irrigation (Specify if any)				
	Canal irrigation, Micro irrigation, Sprinkler irrigation, Drip irrigation		NA	-

Poor quality of mulberry leaf drastically deteriorates the growth of silkworm larvae and quality of ultimate product viz., cocoon. In the present study, the data signifies that none of the farmers were having well established mulberry gardens and they generally rely on the leaf of side grown or wild mulberry trees. Majority of them (88%) practice mulberry cultivation as integrated crop or on side bunds of their fields under rainfed conditions and do not practice separate chawki gardens or addition of any fertilizers to mulberry plants. Moreover, none of them were reported to have mud type of rearing house, 05 farmers (20%) have concrete and majority i.e., 20 farmers (80%) were recorded to have separate room

in dwelling houses (Table-2). Srenivasa, B.T. and Hirianna. 2014 and Buhroo *et al.*, 2018 earlier also suggested that sericulturists should be trained on improved technology profits, cultivating mulberry varieties with high yield and appropriate hybrid of seasonal and regional silkworm. All these obstacles hinders the development of sericulture as earlier reported by the studies conducted by Khan *et al.*, (2016) and Kumar (2017) who made an attempt to examine the performance of silk industry in Jammu and Kashmir. Dhananjaya *et al.*, (2021), also suggested emphasis on functioning of KVKs for availing technical knowledge by the farmers for strengthening extension system.

Table 2: Information about sericulture

(A) Mulberry production practices				
(1) Experience in agriculture (in years)		No. of farmers	Percentage	
a	Less	>20	05	20
b	Medium	20-30	04	16
c	More	<30	16	64
(2) Experience in sericulture (in years)				
a	Less	>10	05	20
b	Medium	10-20	04	16
c	More	<20	16	64
(3) Practice mulberry cultivation				
a	Yes	25	100	
b	No	0	0	
(4) Type of mulberry cultivation				
a	As well managed mulberry garden	0	0	
b	Mulberry trees grown on side bunds of field	22	88	
c	Mulberry grown as wild tree	02	08	
d	Don't have own mulberry tree	01	04	
(5) Having separate chawki garden				
a	Yes	0		
b	No	25	100	
(6) Fertilizer Input added				
a	Yes	0		
b	No	25	100	
(7) Type of mulberry cultivation				
a	Separate mulberry fields	0		
b	Integrated farming or mix farming	25	100	
(B) Silkworm rearing practices				
(8) Type of rearing house				
a	Mud type of rearing house	0	0	
b	Concrete or cemented rearing house	05	20	
c	Separate room in dwelling house	20	80	
(9) Source of procurement of silkworm seed				
a	State Sericulture Development Department	25	100	
b	Central Silk Board	0		
(10) Name of Silkworm breed				
a	FC1 X FC2	25	100	
(11) Procure eggs or chawki worms				
a	Silkworm Eggs	0		
b	Chawki worms	25	100	
(12) Quantity of dfls procured				
a	>1 dfl	0		
b	<1 dfl	25	100	
(13) Distance from procurement station				
a	>15 km	25	100	
b	15-20 km	0	0	
(14) Mode of Transport				
a	Bus	0		
b	Auto	25	100	
(15) Timing of seed transportation				
a	Early morning	25	100	
b	During day time	0	0	
c	Evening	0	0	

(16) Commencement of Disinfection		No. of farmers	Percentage
a	Yes	0	0
b	No	25	100
(17) Rearing conducted per year			
a	Once	25	100
b	Twice	0	
(18) Type of rearing			
a	Tray rearing	05	20
b	Floor rearing	20	80
(19) Frequency of feeding			
a	Twice a day	0	0
b	Three times per day	0	0
c	Four times per day	25	100
(20) Frequency of cleaning			
a	Twice in a instar	0	0
b	Ones after each moult	25	10
(21) Frequency of application of bed disinfectant			
a	Twice in a instar	0	0
b	Ones after each moult	25	100
(22) Types of mountages used			
a	Plastic collapsible mountages	25	100
b	Local mountages material	25	100
(23) Method of cocoon stifling			
a	Under bright sunshine	25	100
b	Hot air oven	0	0
(C) Cocoon marketing			
(24) Is there any cocoon market available			
a	Yes	25	100
b	No	0	0
(25) Distance from the nearby cocoon market			
a	>30 km	20	80
b	30-40 km	05	20
c	<40 km	0	0
(26) Mode of Transport			
a	Bus	25	100
b	Auto	0	0
(27) Cost of labour and transport to reach the cocoon market			
a	> ₹ 150	0	
b	₹150-250	25	100
c	< ₹ 250	0	0
(28) Type of marketing system			
a	Open bidding system	25	100
b	Digital bidding system	0	0

Despite of all the hardship and obstacles farmers of Udhampur district managed to revive the living culture of silkworm rearing. The reason can be attributed to the sub-tropical climate conditions of the area, having potential to emerge as a major contributor in the total production of Jammu and Kashmir. For validation the rearing status of the farmers of district Udhampur have been recorded for the last five years for both the rearing seasons i.e. spring and autumn

(Table-3 and Fig.1) revealing trend of spring rearing only. Maximum cocoon yield had been recorded for the year i.e. 2015 as 397kg followed by the year 2016 with 362 kg, 2018 (351 kg), 2019 (339 kg) and least production was recorded for the year 2017 as 319 kg of cocoon yield with an average of 194.4 kg per year. This finding supports the observations of Ahmed *et al.*, (2018), Sharma *et al.*, (2019) and Sharma *et al.*, (2020).

Table 3 : Status of silkworm rearing of last five years in Udhampur district

District Yield (kgs)	Udhampur		Total input cost (₹)	Total income generated (₹)	Net profit (₹)
	Spring	Autumn			
2015	397 kg	-	13500	27700	14200
2016	366kg	-	13700	26000	12300
2017	319kg	-	11900	23000	11100
2018	351kg	-	9600	19100	9500
2019	339kg	-	14500	24900	10400
Total	972kg	-	63200	120700	57500
Average	194.4 kg		12640	24140	11500
S.D.	32.42		1943.7	3294.3	1823.45

Table-4: Major constraints hindering the progress of sericulture and remarkable demands of sericultural farmers

Sr. No.	Sector	Sr.No.	Constraints	Remarks
1	Mulberry cultivation	1	Delay in timely supply of mulberry saplings	Needed to be improved
		2	Poor quality of saplings	
		3	Poor roots of saplings	
		4	Roots without any polybags	
		5	Lack of awareness on chawki gardens	
2	Silkworm Rearing	1	Improper timing supply of worms	
		2	No training and awareness on rearing techniques	
		3	Poor hygienic conditions	
		4	Improper means of transportation	
		5	Lack of sufficient rearing appliances	
3	Industrial aspects	1	Long distance from cocoon market	
		2	Non availability of reeling units	
		3	Low price for cocoons	
		4	Heavy fluctuations in cocoon price	
		5	Irregular market system	
4	General constraints	1	Lack of interaction with experts	
		2	Lack of interaction with extension workers	
		3	Lack of awareness on latest sericulture technologies	
		4	Lack of adoption of sericulture on commercial scale	
		5	Lack of awareness among the farmers on various incentives and support provided by SSDD and CSB.	

CONCLUSION

The current study was undertaken with an objective to promote adoption of sericulture by marginal farmers for strengthening their socio-economic status and also to analyze the limiting factors weakening the sericulture industry. The results suggested that the farmers and other stake holders must be sensitized and trained in scientific sericulture based knowledge by means of adequate extension, policy and financial support to grow sericulture industry. The only limiting factor responsible for slow progress was recorded

as lack of awareness among the farmers on various aspects of latest sericulture technologies. Therefore, it is suggested that the extension functionaries should take adequate steps to organize timely extension programmes, training camps and workshops or kisan melas so as popularize the potential of sericulture among the young particularly the marginal and landless farmers. This would help not only to improve the farmers yield realization but also increase their income through sericulture which can attribute for elevation of their socio-economic status.

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