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Status of sericulture in Jammu and Kashmir with special reference to Reasi District

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Abstract
Sericulture, known as the "Queen of Textiles" industry, provides a vital livelihood to millions in rural India due to its low capital requirement, high employment potential, and profitability. India is the only country producing all five commercial silks mulberry, tropical tasar, oak tasar, eri, and muga—with Jammu and Kashmir (J&K) recognized for its high-quality bivoltine silk. The present study entitled "Status of Sericulture with Special Reference to Pouni Tehsil, Reasi District of Jammu and Kashmir UT" was undertaken to analyze the status of sericulture, cocoon production, and socio-economic conditions of sericulturists. Data were collected from 42 farmers selected across five villages (Lehar, Kundkhanyari, Kheralair, Kothian, and Ransoo) using a structured questionnaire and personal interviews. Results revealed that most farmers (66.6%) were elderly, with moderate to low education levels (47.6% secondary; 21.4% illiterate). Families were mostly medium-sized (56%), and small land holdings (<5 acres) were common (52.3%). Agriculture and sericulture formed the primary occupation (38.1%), with limited alternative income sources. Most farmers (42.8%) had more than 10 years of sericulture experience. All cultivated the Chakmajra mulberry variety with 3×3 ft spacing and canal irrigation. Silkworm rearing houses were mainly brick-walled with cement floors and thatched roofs (64.3%). Farmers reared FC1×FC2 double hybrid silkworms using shoot rearing and paddy husk mountages; however, cocoon yield remained low (<60 kg/100 DFLs). Knowledge about basic mulberry cultivation and silkworm rearing technologies was high, but adoption was very low, especially for manuring, fertilization, pruning, pest/IPM management, and scientific mounting/harvesting practices. Key gaps existed in integrated pest management (IPM) of mulberry pests and uzi fly, temperature-humidity regulation, and improved rearing methods. The study highlights that although farmers in Pouni Tehsil are aware of recommended sericultural technologies, technology adoption is poor, resulting in low productivity. Strengthened extension services, hands-on training, and timely supply of quality inputs are essential to improve cocoon yield and enhance the socio-economic conditions of sericulture farmers in Reasi district.

Keywords: Sericulture, Bivoltine silk, Mulberry cultivation, Cocoon production, Socio-economic status, Technology adoption, Reasi district, Jammu and Kashmir

Introduction
Silk is the most elegant textile in the world with unparalleled grandeur, natural sheen, and inherent affinity for dyes, high absorbance, light weight, soft touch and high durability and known as the "Queen of Textiles" the world over. On the other hand, it stands for livelihood opportunity for millions owing to high employment oriented, low capital intensive and remunerative nature of its production. The very nature of this industry with its rural based on-farm and off-farm activities and enormous employment generation potential has attracted the attention of the planners and policy makers to recognize the industry among one of the most appropriate avenues for socio-economic development of a largely agrarian economy like India.

India has the unique distinction of being the only country producing all the five known commercial silks, namely, mulberry, tropical tasar, oak tasar, eri and muga, of which muga with its golden yellow glitter is unique and prerogative of India.

The Ministry of Textiles Government of India and Departments of Sericulture in various states provide technical and financial assistance for enhancing the bivoltine silk production.

In Jammu & Kashmir Sericulture is practiced in different districts. Jammu & Kashmir Union Territory produces bivoltine silk in the country. India enjoys the special importance of

producing all the four varieties of natural silk like Mulberry silk, Tasar silk, Muga silk and Eri silk. In Jammu &Kashmir state sericulture is practiced in 20 districts *i.e.*, are Anantnag, Kupwara, Pulwama, Baramulla, Ganderbal, Srinagar, Udhampur, Rajouri, Reasi, Kathua, Poonch, Doda, Samba, Ramban, Kishtwar etc. Jammu &Kashmir is one of the leading silk producing states in the country. In Jammu and Kashmir there are several villages where the sericulture is considered as an important activity for the farmers. Jammu and Kashmir is bestowed with the conductive atmosphere to produce the bivoltine silk. In the Union Terriorty of Jammu and Kashmir sericulture is considered as old vocation. Sericulture can help to improve the socio-economic condition of the rural people of Jammu and Kashmir. SKUAST-Jammu, and Department of Sericulture can play important role to increase the quality and quantity of cocoons in Jammu and Kashmir. In 2020, Sericulture Development Department has facilitated auction of 116.6 MT Cocoon in cocoon market, which is costing over Rs. 319 crore in Jammu, Kathua, Udhampur and Reasi districts.

In Reasi district the sericulture is practiced in different tehsils like Pounitehsil, Reasi Tehsil, Mahore Tehsil and Chassana Tehsil where sericulture is practiced. In Reasi district, Sericulture is the most potential agricultural vocations with low capital investment and high returns. Most of the farmers rearing silkworms belongs to weaker section of the society and it is purchased by the rich people. Hence, it is the excellent tool for the transfer of wealth from higher section to lower. Here, Every year two cocoon crops can be taken in the irrigation as the bivoltine silkworm reared only in atumn and spring season. In Reasi, maximum 25 villages are involed in the sericulture. Approximately, 24% of women and 76% of men are worked in sericulture field. Sujanpur, Victory (V1), Chakmarjaetc are the varities of Mulberry found in Reasi. Annually, around 12 lacs farmers take benefit from the sericulture industry. Reasi district is well-known for sericulture. Earlier the cocoon production in Reasi district was low as most of the farmers were lacking the scientific approach in the crop production. Tanda is a remote village in Reasi district of Jammu and Kashmir which is about 30 km away from Reasi town. The major occupation of this village people is agriculture and sericulture. The agriculture is mostly done under rainfed conditions. Department of Sericulture and KVK scientists held awareness programme and provide trainings to the farmers on commercial sericulture. The department of sericulture provided the farmers with improved varieties of mulberry and also guided them on proper care of silkworms and harvesting of cocoons. At present 50 farmers of this village having average of 50 kg of good quality of cocoons at their homes (Banarsilal, 2019).

The Present study on the Status of Sericulture with special reference to Reasi district in (Jammu and Kashmir UT) has been undertaken with the following objectives:

1. To analyse the status of sericulture in Tehsil Pouni, district Reasi of Jammu and Kashmir.
2. To figure out the cocoon production of Reasi district of Jammu and Kashmir.
3. To know the socio - economic status of Sericultural farmers in the study area.

This chapter deals with the main features of the study area, sampling design, source and method of data collection, statistical methods and tools with the help of which the data were collected, analyzed and interpreted. The methodology adopted for conduct of the study has been presented under the following headings:

1. General characteristics of the study area
2. Sampling design
3. Source and method of data collection
4. Method of data analysis
5. Statistical analysis of data

Reasi is a district of the Indian Union territory of Jammu &Kashmir. Covering an area of 1,719km^2 (664 sqm) in the Himalayan mountains, the district has its headquarters in the town of Reasi. The sericulture is practiced in different tehsils of Reasi district. Reasi district comprises nine tehsils *i.e.*, Reasi, Bhomag, Thakrakote, Pouni, Katra, Arnas, Thuroo, Mahore, and Chassana out of which sericulture is practised in six tehsils only. In Pouni tehsil the villages involved in sericulture are Kahana, Lehar, Nar, Kundkhanyari. Nar, Kheralair is the village of Pouni tehsil where the people are involved in silkworm rearing. The climate and soil conditions of Pounitehsil are very suitable for silkworm rearing.

The sericulture is practiced in different tehsils of Reasi district. In Reasi district sericulture is the main occupation of the farmers in the villages. In state of Jammu &Kashmir silkworm rearing is conducted in different districts namely Poonch, Reasi, Udhampur, Rajouri, Samba, Kathua, Doda, Kishtwar, Ramban etc. The Reasi districts having a population of 314,667 lakhs (2011census) consists of 9 Tehsils and 12 blocks and 259 villages spreading over an area of 2,380 sqkm. In Reasi district the total area is 862 km^2 including 822.52km2 rural area and 39.01 km^2 urban areas.

Table 1: Tehsil of Reasi district

Table 1: Tehsils of Reasi district where sericulture is practiced

Tehsils of Reasi	Villages where sericulture is practice
Pouni	Nar
	Lehar
	Kothian
	Kundkhanyari
	KheraLair
	Puria
	Ransoo
Reasi	GarhMorh
	Trintha
Chassana	Dubri
	Sulan
	Dheri
	Larh
Mahore	Chaklas
	Jamaslan
Arnas	ChakBhagta Dhansal
Katra	KotliBaajallian Kanjali

Sampling Design: The study was conducted in 5 villages of TehsilPouni of Reasi District, namely Lehar, Kundkhanyari, Kheralair, Kothian and Ransoo. In each village five farmers were selected and data was collected from the farmers.

Source and method of data collection: During my investigation period, I have visited the different villages of Pounitehsil and interacted with the farmers.

Various questions regarding sericulture silkworm rearing were asked through online mode and the questionnaire was filled up to find the status of sericulture in Pouni tehsil of Reasi district.

Questionnaire

A. General Information

Name of the farmer

1. Address
2. Phone
3. Age
4. Education level
5. **Family size:** Adult (Male) Adult (Female) Children
6. **Total land holding (acres):** Irrigated: Rainfed:
7. Important crops cultivated:
8. **Is he/she involved in any other profession? :** Yes/No. If yes, please give details:
9. Office bearer /membership in any organization (Give details)
10. Years of experience in sericulture.

B. Mulberry details

1. Area under Mulberry
2. Mulberry variety
3. Spacing
4. Source of irrigation - Open well / bore well / canal
5. Method of irrigation - Flood /drip

C. Rearing details

1. Rearing house

a. Floor Cement / Stone / Mud

b. Wall Brick / Stone / Tiled / Thatched / Stone

c. Roof RCC / Asbestos / Tiled / Thatched /Stone

d. Entrance to Rearing house Separate / Common

e. Floor area (feet) Length x Breadth

2. Type of rearing Shoot / Tray
3. Rearing bed space (Sq feet)
4. No. Of batches reared / year - BVH: CB: Pure: No. of DFLs / batch
5. Equipments

a. Disinfection equipment Power sprayer/ Gator sprayer

b. Mountage Rotary mountage / Plastic mountage / Chandrika No. No. No.

c. Deflossing machine

d. Others, please Signature of the Seri culturist

Results

The results of the studies on "Status of Sericulture in India with Special reference to Reasi district in Jammu and Kashmir UT" are presented below:

Socio-economic status of sericulturists

The data on the socio-economic status of Sericulturists among the farmers of the study are tabulated in Table 1.

Age

Age is a very important factor, which considerably affects the personal and social life of an individual. In this study, the age of the farmers varies from young age to old age. During the study, it was observed that 28 farmers (66.66%) belonged to old age group, while 06 (14.28%) farmers belonged to middle age group and 08 farmers (19.04%) belonged to young age group.

Education

In the present investigation, of the 42 farmers, 09 farmers (21.42%) belong to illiterate group, while 05 farmers (11.90%) comes under a group of 5-10th standard, followed by 07 farmers (16.66%) belong to primary, followed by 20 farmers (47.61%) secondary levels and 01 farmers (2.38%) belong to degree.

Family size

The study revealed that, majority (28) of the respondents (56%) had medium family size (4-6 members), while 17 farmers (34%) having small family size (<4) and rest of the 5 respondents (10%) having big family size (>6).

Land holding

In the study area, it was observed that, land holding varied among the farmers, 04 farmers (9.52%) are having big land holding (>10 acres), similarly 16 farmers (38.09%) are having medium land holding (5-10 acres) and rest of the 22 farmers (52.38%) are having small land holding (<5 acres).

Primary occupation

The study indicate that agriculture along with sericulture was the main occupation among the 16 respondents (38.09%), 23 farmers (54.76%) are having agriculture as an occupation and only 3 farmers (7.14%) involving in the services.

Social participation

None of the farmers were involved in self-help group, membership in organizations and as office bearers.

Experience in sericulture

Among the 42 respondents, 18 farmers (42.85%) had high experience, 16 farmers (38.09%) medium experience (5-10 years) and only 8 farmers (19.04%) had less experience (<5 years).

Mulberry and Silkworm Rearing Practices

The data on the adoption of mulberry and silkworm rearing practices by the farmers of Pouni Tehsil, Reasi District are presented in Table 2.

Mulberry production practices

Among 42 farmers, 25 farmers (59.52%) are having medium land source (1-3 acres), followed by 3 farmers (7.14%) are having big land sources (>3) and rest of the 14 farmers (33.33%) are having less land sources (<1).

Among 42 farmers, all are propagating Chakmajra mulberry variety and all are maintaining the 3'x 3' plant spacing. About irrigation, all farmers adopted canal irrigation source.

Silkworm rearing practices

- **Floor:** All the 25 farmers constructed the floor with the help of cement
- **Wall:** All the farmers constructed the rearing houses with the help of bricks.
- **Roof:** Majority of the farmers, i.e., 27 farmers (64.28%), had a thatched roof system, and the rest of the 15 farmers (35.71%) had tin rearing houses
- **Entrance:** All 42 farmers (100%) had common entrance.
- **Disinfection:** All the 42 farmers (100%) carried out disinfection with the help of power sprayer.

- **Silkworm breed:** All the 42 farmers rear double hybrid (FC1 X FC2) silkworm.
- **Type of rearing:** All the 42 farmers adopted shoot rearing technology.
- **Mountage:** All the 42 respondents use paddy husk as mountage for construction of cocoons.

Cocoon yield / 100 DFLs

Among 42 farmers, all farmers have less than 60kg.

Knowledge and Adoption of Sericultural Technologies

The data on the knowledge and adoption of sericultural technologies by the farmers of Pouni Tehsil, Reasi District are tabulated in Table 3.

Mulberry production practices

All the farmers (42) had full knowledge about adoption of recommended variety (Chakmajra) and plant spacing and none of them adopted the technologies. However, 12 farmers (28) had knowledge about application of recommended quantity of manures and fertilizers, but none farmers had full and partial adoption, respectively. Further, all the farmers (42) had knowledge irrigation and 21 farmers weeding, but nil farmers had adoption, respectively. Further, all the farmers had knowledge about pruning and harvesting of mulberry, but 30 of them adopted the recommended pruning method and remaining 12 of them had nil adopted, in contrast to cent percent adoption of shoot harvest of mulberry.

Silkworm rearing practices

All the Sericulturists (42) had knowledge about rearing house and CRC's, 42 farmers (100%) had full and 7 farmers and cent per had adoption of rearing house and procured silkworms from CRCs. Though 26 (61%) farmers had partial knowledge about disinfection and hygiene practices followed during silkworm rearing, of which 25 (59%) of them had partial adoption and 42 (100%) farmers had nil adoption of disinfection, while 42 (100%) had full and partial adoption of hygiene practices. All the farmers (42) had full knowledge about shoot rearing technology and silkworm bed spacing. Further, as many as 42 farmers adopted the nil shoot rearing technology, but only 27 farmers (64%) adopted recommended bed spacing for silkworms and 42 farmers (100%) adopted nil. Through all the farmers (42) had full knowledge about silkworm bed cleaning and 42 (100%) of them adopted nil. Sericulturists of the study area 17 (40%) had partial knowledge about ventilation, but only 25 farmers (59%) had nil adoption. However, all 42 farmers had full knowledge on maintenance of temperature and related humidity. All farmers of the study area had knowledge about moulting care and bed disinfection, however, all farmers had nil adoption of moulting. Though all the farmers (42) aware of recommended method and time of mounting of silkworm and harvesting of cocoons and none of them adopted the technologies, respectively. All the sericulturists (42) had knowledge about cocoons sorting and transportation of cocoons for marketing and also had nil adoption (100%) of the technologies. However, 7 (16%) of the farmers possess nil knowledge about IPM of mulberry pests and uzi fly and hence 35 (83%) respondents did not adopt the technologies.

Table 1: Socio-economic status of Sericulturists in Pouni Tehsil, Reasi District N = 42

Sl. No.	Category	Criteria	No. of Farmers	Percentage (%)
1. Age (in years)				
a	Young	< 35	08	19.04
b	Middle	35-46	06	14.28
c	Old	>36	28	66.66
2. Education (in standards)				
a	Illiterate	0	09	21.42
b	Primary	1-4	07	16.66
c	Middle	5-10	05	11.90
d	Secondary	11-12	20	47.61
e	Degree	Graduate	01	2.38
F	Post- graduate	-	-	-
3. Family size (No.)				
a	Big	>6	05	10
b	Medium	4-6	28	56
c	Small	<4	17	34
4. Land holding (Acres)				
a	Big	>10.0	04	9.52
b	Medium	5-10	16	38.09
c	Small	<5	22	52.38
5. Primary occupation				
a	Agriculture with Sericulture	-	16	38.09
b	Agriculture labour	-	23	54.76
c	Service	-	03	7.14
d	Business	-	-	-
6. Experience in Sericulture				
a	More	>10	18	42.85
b	Medium	5-10	16	38.09
c	Less	<5	08	19.04

Table 2: Adoption of mulberry and silkworm rearing practices by the Sericulturists of Pouni Tehsil, Reasi District No: 42

A. Mulberry Production Practices				
1.	**Area (Acres)**			
a.	Big	>3	03	7.14
b.	Medium	1-3	25	59.52
c.	Small	<1	14	33.33
2.	Variety	Chakmajra	42	100
3.	Spacing	3'x 3'	42	100
4.	Irrigation Source	Canal	42	100
		Bore-well	-	-
B. Silkworm Rearing Practices				
1.	Floor	Cement	25	59.52
2.	Wall	Brick	42	100
3.	Roof	Thatched roof	27	64.28
		Tin roof	15	35.71
4.	Entrance	Separate	-	-
		Common	42	100
5.	Disinfection	Power sprayer	42	100
6.	Silkworm breed	Double Hybrid (FC1 x FC2)	42	100
7.	Type of rearing	Shoot	42	100
8.	Mountage	Paddy husk	42	100
C. Cocoon Yield (kg/100 DFLs)				
a.	High	>75	-	-
b.	Medium	60-75	-	-
c.	Low	<60	42	100

Table 3: Knowledge and adoption of sericultural technologies by the farmers of Pouni Tehsil, ReasiDistrict N= 42

Sl. No.	Technology		No. of farmers			Percentage (%)		
			Full	Partial	Nil	Full	Partial	Nil
A. Mulberry Production Practices								
1	Variety	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42		-	100
2	Spacing	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
3	Manures	Knowledge	-	12	30	-	28	71
		Adoption	-	-	42	-	-	100
4	Fertilizers	Knowledge	-	12	30	-	28	31
		Adoption	-	-	42	-	-	100
5	Weeding	Knowledge	-	21	21	-	50	50
		Adoption	-	-	42	-	-	100
6	Irrigation	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
7	Pruning	Knowledge	-	30	12	-	71	28
		Adoption	-	-	42	-	-	100
8	Harvesting of mulberry	Knowledge	-	30	12	-	71	28
		Adoption	-	-	42	-	-	100
B. Silkworm Rearing Practices								
9	Rearing House	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
10	Chawki from CRC's	Knowledge	-	-	42	-	-	100
		Adoption	-	-	42	-	-	100
11	Disinfection	Knowledge	-	26	16	-	61	38
		Adoption	-	-	42	-	-	100
12	Hygiene	Knowledge	-	25	17	-	59	40
		Adoption	-	-	42	-	-	100
13	Shoot rearing	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
14	Bed spacing	Knowledge	42	-	-	100	-	-
		Adoption	-	27	15	-	54	35
15	Bed cleaning	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
16	Ventilation	Knowledge	-	17	25	-	40	59
		Adoption	-	-	42	-	-	100
17	Temperature & humidity	Knowledge	-	42	-	-	100	-
		Adoption	-	-	42	-	-	100
18	Moulting care	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
19	Bed disinfection	Knowledge	-	42	-	-	42	-
		Adoption	-	-	42	-	-	100
20	Mounting of silkworms	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
21	Harvesting of cocoons	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
22	Cocoon sorting	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
23	Transportation of cocoons	Knowledge	42	-	-	100	-	-
		Adoption	-	-	42	-	-	100
24	IPM of mulberry pests	Knowledge	-	7	35	-	16	83
		Adoption	-	-	42	-	-	100
25	IPM of uzi fly	Knowledge	-	7	35	-	16	83
		Adoption	-	-	42	-	-	100

Discussion

The results of the studies on "Socio-economic status on knowledge and adoption of Sericultural technologies among the farmers ofPouni Tehsil, Reasi District" are discussed in the light of earlier works in the following paragraphs:

Socio-Economic Status of Sericulturists: Age is a very important factor, which considerably affects the personal and social life of the individual. In this study, age of farmers varies from young age to old age and it was observed that 28 farmers (66.6%) belonged to old age group and 8 farmers (19.04%) belonged to young age group. About education level, of the 42 farmers, 9 farmers (21.42%) belonged to illiterate group, while 5 farmers (11.90%) comes under a group of 5-10th standard, followed by 7 farmers (16.66%) each belong to primary (1-4th standard) and secondary 20

farmers to (11-12th standard). In respect of family size, majority (28) of the respondents (66.66%) had small family size (>4 members) and 4 respondents (9.52%) having big family size (>6). In the survey, it was observed that among 42 farmers, 4 farmers (9.52%) are having big land holding (>10 acres) and 22 farmers (52.38%) possess small land holding (<5 acres). About the primary occupation, study indicated that agriculture along with sericulture was the main occupation, among the 42 respondents, 16 farmers (38.09%) are having agriculture with sericulture as an occupation and only 3 farmers (17.14%) involving in the service. About social participation, all the farmers were involved in self-help groups. About experience in sericulture, among the 42 respondents, 16 farmers (38.09%) had medium experience (5-10 years) and only 8 farmers (19.04%) had experience of < 5 years.

A study conducted in Kolar District revealed that, 74% of respondents were literates, of which 2, 48, 24% were graduates up to primary and secondary level only and the cocoon yield obtained by them was 28, 24 and 27 kg, respectively. However, illiterates (26%) obtained an average yield of 27 kg cocoons /100 DFLs (Anon., 1984). According to Siddappaji *et al*., 59% of the respondents were literates in Mysore District, of which 3, 17 and 24% were graduates and educated up to secondary and primary level, respectively and the remaining 41% were illiterates. KshamaGirdhar *et al.* (1986) [17] reported that 68.4% of male members (n=519) were engaged in sericulture, of whom 120 as full time job and 235 part time, while 59.8% of the women were engaged in sericulture. Out of which 103 as full time and 156 worked part time basis. Further, they also stated that 37.61% were un-educated followed by 31.4% educated up to primary and 21.3% up to high school.

Mulberry and Silkworm Rearing Practices

In respect of mulberry production practices, among 42 farmers, 25 farmers (59.52%) are having medium land source (1-3 acres) and 14 farmers (33.33%) are having less land source (<1), further, all of them cultivated Chakmajra mulberry variety by maintaining 3'x 3' plant spacing. About irrigation, none farmers are having bore-well as irrigation source for mulberry garden and 42 farmers (100%) adopted canal water as an irrigation sour. About silkworm rearing practices, all the farmers constructed their rearing houses with the help of cement and brick sand about roof, majority of the farmers i.e., 27 farmers (64%) had thatched roof and rest of the 15 farmers (35.71%) having tin roof rearing house, regarding entrance, all farmers having common entrance and none had separate entry to the rearing house. With respect to disinfection, all the 42 farmers (100%) carry out disinfection with the help of power sprayer. Further, all the farmers rear FC1 X FC2 by adopting shoot feeding technology. Cent per cent of the respondents used chandrike as a mountage for cocoon construction. About cocoon yield / 100 DFLs, all farmers harvested cocoon yield of <60kg.

Adoption is a decision taken by an individual to continue an innovation. An innovation may be an idea or objective, which is perceived as new by an individual (Rogers, 1962) [37]. Rao and Moulik (1966) [19] concluded that application of nitrogenous fertilizers was partial due to no knowledge. According to Somasundaram (1976) [43], there was no significant association between socio-economic status and adoption among small farmers. Krishnaswami *et al*. (1980) [16] reported that by adopting improved techniques of rearing the sericulturists could harvest an average yield of 27.72 kg/100 DFLs in rainfed areas. Kher *et al.* (1991) [15] reported that increase in education (formal, informal or non-formal) would lead to increase in adoption of technologies by the farmers. Dolli *et al.* (1993) [10] indicated that number of layings brushed and cocoon yield per unit area was less and productivity was also lower mainly due to non-adoption or partial adoption of improved technologies.

Knowledge and Adoption of Sericultural Technologies

In respect of knowledge and adoption of mulberry variety and plant spacing, cent per cent of the farmers adopted both the technologies. About manures, though all the respondents (12) had partial knowledge about the manures, but 30 farmers (71%) partial adopted and all farmers (100%) are nil adopted. Similarly, about fertilizers 12 farmers had partial knowledge about the importance and quantity of application of fertilizers to mulberry but only partially adopted the technology. About weeding, irrigation, pruning and harvesting of mulberry, all the farmers know about them, about adoption on weeding, 30 farmers (71%) adopted partially, about irrigation all farmers (100%), pruning 30 farmers (71.42%) had partial and harvesting of mulberry 30 farmers (71.42%) had partial knowledge. Among 42 farmers, all of them are having knowledge about rearing house, chawki from CRC's, disinfection, hygiene, shoot rearing, bed spacing, bed cleaning, ventilation, moulting care, bed disinfection, mounting of silkworms, harvesting, sorting and transportation of cocoons. However, adoption of these technologies varies namely rearing house having a partial adoption of 16 (38%) and nil adoption 42 (100%) farmers, chawki from CRC's 42 (100%) had nil knowledge, disinfection 26 (61%) had partial knowledge and 25 (59.52%) farmers had partial knowledge of hygiene, shoot rearing 42 farmers (100%) had full knowledge, bed spacing 27 (54.28%) had partial, bed cleaning 42 (100%) had full knowledge, ventilation 17 (40.47%) had partial knowledge, moulting care 42 (100%) had full knowledge, bed disinfection 42 (100%) had full knowledge, mounting 42 (100%) had full knowledge, harvesting of cocoons 42 (100%) had full knowledge and 42 (100%) farmers had full knowledge of cocoon sorting and transportation 42 farmers (100%), respectively. With regard to knowledge and adoption about temperature and humidity 42 farmers (100%) had full knowledge, IPM of mulberry pests and uzi fly 7 (16%) had partial knowledge and hence they did not adopt them.

According to Somasundaram (1976) [43], there was no significant association between socio-economic status and adoption among small farmers. Krishnaswami *et al*. (1980) [16] reported that by adopting improved techniques of rearing the sericulturists could harvest an average yield of 27.72 kg/100 DFLs in rainfed areas. Coleman (1951) reported that there was no significant association between the age of respondents, their knowledge and adoption level, on the basis of a research study conducted in a New York rural community. Wilson and Gallup (1955) [47] observed that the farmers in the middle age group adopted more number of practices. SudhakarRao (1993) [44] reported that the young and middle aged farmers could had better understanding about the complexity of uzicide and had favourable perception than the old age farmers who were generally oriented to the traditional practices.

Conclusion

The results of the studies on "Socio-economic status on knowledge and adoption of sericultural technologies among the farmers of Pouni Tehsil, Reasi District" are summarized below:

During the investigation, more farmers belong to old age group and few belong to middle age group, about education, more farmers coming under secondary education and few of them studied upto middle group. In respect of family size, majority of the respondents belong to small family size and few respondents possess big family size, about the land holding, majority of the farmers having small land sources and less number of farmers having big scale land sources. About the primary occupation, all are having agriculture and few in services, further, none of the respondents are in a possession of membership in societal organization and as office bearers. About the experience in sericulture, noticeably more farmers having medium experience and few farmers have less experience. In respect of mulberry production practices, majority of the farmers having medium land source and few farmers having less land source, further, the farmers are having Chakmajra mulberry garden by maintaining 3'x 3' plant spacing. About irrigation, majority all farmers having canal water as an irrigation source.

With respect to silkworm rearing practices, all the farmers constructed silkworm rearing house with bricks and cement and majority of them are having thatched roof, however, few of the them having RCC rearing house. All the farmers carry out disinfection with the help of power sprayer and all the respondents rear double hybrid (FC1 X FC2) silkworm adopting shoot method of rearing. Further, all the farmers are using paddy husk as a mountage, about cocoon yield, all of the farmers obtain less yield.

Majority of the farmers are in a possession of knowledge and adoption about variety, spacing, manures, fertilizers, weeding, irrigation, pruning, harvesting of mulberry leaves, rearing house, chawki from CRC's disinfection, hygiene, shoot rearing, bed spacing, bed cleaning, ventilation, moulting care, bed disinfection, mounting, harvesting of cocoons, sorting and transportation of cocoons. However, about temperature and humidity, IPM of mulberry pests and IPM of uzi fly all the farmers do not know about knowledge and hence these technologies are not adopted by them.

The study clearly indicated that, Socio-economic status on knowledge and adoption of sericultural technologies among the farmers of Pouni Tehsil, Reasi District" varied greatly and thus the knowledge and adoption of sericultural practices too differed considerably. Hence, concerted efforts must be made by the extension personnel in transfer of improved sericultural technologies among the farmers to maximize cocoon production.

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