Original Research Article

Social Betterment and Economic Empowerment of Sericulture Farmers in Northern Hilly Zone of Karnataka, India

ABSTRACT

Sericulture, one of the important enterprises undertaken by farmers in North Karnataka, is an eco-friendly, agro-based, labour intensive,low input and commercially attractive farm enterprise falling under cottage and small-scale sector. Among the factors that contribute for successful cocoon production, socio- economic factors play a significant role in determining the knowledge and adoption levels of sericulture technologies for production of mulberry and cocoons especially in recently adapted areas of Uttar Kannada district.The present study was an ex-post facto questionnaire based research on socio-economic status of sericulture farmers was carried out during 2021-2022 Uttar Kannada district representing hilly zone of Karnatakastate. A sample of 50 farmers was selected randomly from eleven villages in thesetaluks.The study revealed that half of the sericulture farmers belonged to middle age (31 to 50 years), as high as 60.00 % farmers had education up to 8th to 10thstandard, 46.00 % of the family belonged to medium size, and 38 % hadlong experience in sericulture while 18-20 % were relatively new (< 3 years) to the enterprise with pooradaption rate of the improved technologies and mechanisation (46.00 %). Further, 40.00 % of farmers fell under low and medium rearing category, 48% farmers belonged to medium brushing of dfls per crop (100-200 dfls /crop) and majority (64 %)were getting the average yield (60-75 kg/100 dfls) with good management of the crop while 22.00% were getting more than 80kg/100dfls cocoon yield due to improved production techniques. Overall,36-38 % farmers had mediumcost of production, benefit per year and benefit: cost ratio (Rs.40000-45000, Rs.100,000-1,68,000 and Rs 1:3-4,respectively).

***Key words*:**Cocoon yield, Education, Bivoltine, Sericulture, age and silkworm.

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INTRODUCTION

India is one of the world's largest agrarian economies; the rural economy is composed of a large variety of economic activities and the largest that provides bulk of the rural economy is agriculture. Although commercialization in agriculture has been picking up well in recent years, many problems like land fragmentation, predominance of marginal and small land holders, diversified social, economical and cultural factors prevailing in rural areas and demand for higher investment in agricultural activities are forcing farmers to change over to

minimum investment oriented cropping systemin the country (Mattigatti and Iyengar, 1995; Singh *et al*., 2003), sericulture is an exception.

'Sericulture' is an art and science of rearing silkworms to produce cocoons and silk, and India occupies a premier position next only to China. Sericulture is playing a major role in shaping the economic destiny of the rural population and unlike other agro-based activities, it has the advantages of faster income turnover with high returns outperforming many cash crops,besides itprovides regular employment to rural households (Ravindran*et al*., 1993; Lakshmanan*et al*., 1996; Kumaresan*et al*., 2005; Savithri and Sujathamma, 2014; Prakasam and Ravi, 2014), Importantly, sericulture activities are considered better suited for marginal and small land holder to bring about economic transformations in rural areas, and it can prevent rural population migration and added advantages of low capital requirement of assured remunerative return within a short period of time (Sakthivel*et al*., 2012; Siddappaji*et al*., 2014). Silk, a highly priced agricultural commodity, accounts for about 0.2% of the total world production of textile fiber. Karnataka state is one of the important silkworm cocoon producing states in the country.With 98,135 hectares area under mulberry the state contributes 66,833 MT cocoons (Anon 2022).

Since sericulture stands next to agriculture for rural employment in India, it becomes a matter of concern to examine the sericulture production trend locally and at broader levels over the years and reasons for its slow growth. In the present days' competitive atmosphere and resource constraint situation, sericulture has competitive advantage over other farm enterprises which can go either alone or in combination with crop husbandry etc. Therefore, studies on social standing of sericulture farmers are necessary to know their socio-economic condition, and the economic health of the enterprise to make it attractive enterprise for its furtherance and social upliftment of the rural poor and economically downtrodden through enthused and active involvement. Hence, thepresent study was conducted to delineate the socio-economic status of sericulture farmers in the northern Hilly zone of the state covering Uttar Kannada district of Karnataka state.

MATERIALS AND METHODS

The present study was an "Ex-post facto" research on the socio-economic condition of the sericulture farmers collected through questionnaire developed for the purposeduring 2020-21 in Uttara Kannada district in Karnataka.Uttara Kannada district is located between13^0 and 15^0 North latitude and between 74^0 and 76^0 East longitude in the Western Ghats section of Karnataka. Its high rainfall supports lush forests, which cover approximately 70% of the district. The district has a tropical climate. It has a well-defined rainy season of

about five months distributed between June and November wherein the south west monsoon brings most of the rainfall and the climate remains hot and humid. Haliyala, Joida and Dandelitaluks of Uttar Kannada were selected for the study as these areas were coveredunder transfer of technology (ToT) by DoS and CSB and have more awareness on the sericulture activities and has highest area under irrigated mulberry. The data collected include age of the farmer,education, family size, experience in sericulture,adaption of new technologies,rearing details, sericulture crops /income per year, no. of family members involved and income from sericulture crops.

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From eleven villages of these taluks, 50silkworm rearing farmers were selected randomly and a pre-tested and standardized interview schedule was used to collect the information from the respondents through personal interview. The data collected from respondents was tabulated and analyzed by using appropriate statistical tools such as frequency, percentage, mean score and rank. Statistical packages *viz.*, Microsoft excel was used for analysis.

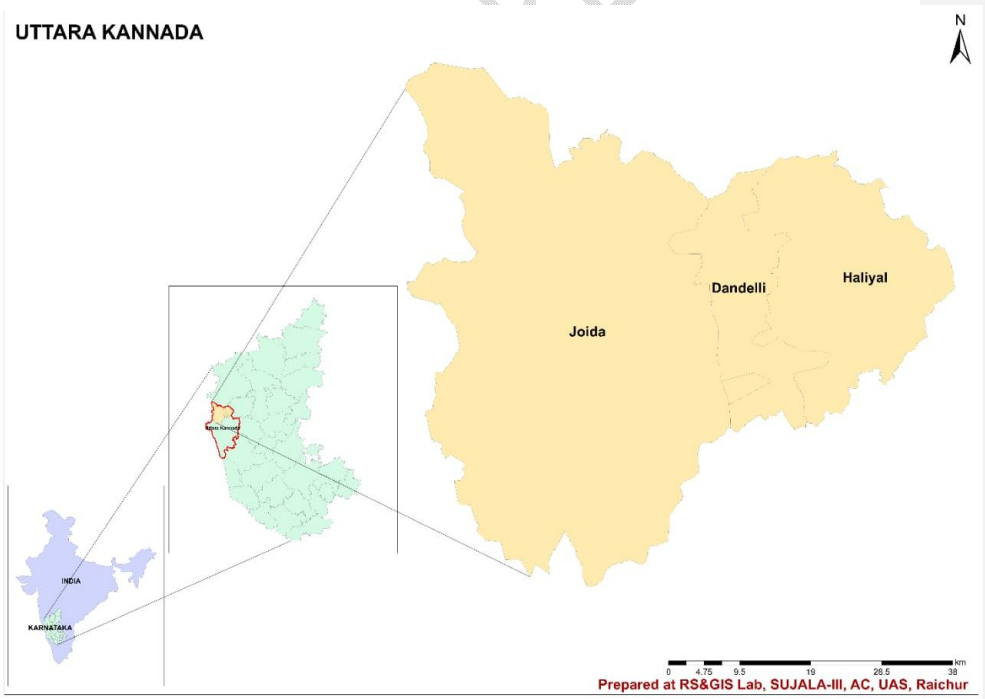

Fig:1Study area

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RESULTS AND DISCUSSION

Common belief is that the productivity of a farmer increases with age, reaches some mid-age peak, and then decreases with further age. An increase and then decrease in efficiency as a farmer ages has implications for the survival of beginning farmers, for successful succession planning, and even for the competitiveness of the nation's farmers with farmers of other countries. The result of the study on the age of the farmer revealed that half percentage (50.00 %) of the sericulture farmers belonged to middle age (31 to 50 years) and remaining 18.00 and 32.00 % farmers belonged to the old >50 years and young age up to 30 years, respectively (Table 1). The findings are in line with Hadimani*et al.* (2017).{that state ….please mention the quotes}

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Education is another important consideration in the well being of the enterprise and to a greater extent to productivity. Education improves the allocative efficiency via the greater propensity to select inputs for higher mulberry and cocoon productivity,besides education improves decision-making skills of farmers. In the present study it was found that 23.33 per cent silkworm rearing farmers were educatedup to fourth standard. More than half % (60.00) of farmers had education between 8th to 10th standard, and 20.00 per cent farmers completed PUC and only 4.00% of farmer's were completely illiterate. This finding also revealed that farmers who studied High School and beyond have associated with sericulture as they considered sericulture a paying activity (Table 1).Hence, education is prime factor in adoption of technologies and new ideas of advanced sericulture. The results of the present study are in line with the results of Priyadarshani and VijayaKumari (2013).

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Family size and experience in the sericulture appearto play a critical role in the success of the enterprise. In the study it is observed that 46.00 % of the farmers belonged to medium family size of 5-8 members and most of themwere involved in the sericulture activity, and hence they could get better income without a little problem of labour (Table.). 38.00 % of the farmers were highly experienced as they were practising sericulture from long time. While remaining 38.00 % farmers had little experience as they have recently started sericulture mostly due to increase in the cocoon price after corona pandemic.Irony is 46.00 % of the sericulturists in this area have not adapted new technologies and another 42.00 % have moderate adaption, whileonly 12.00 % of the farmers have higher adaption rate of new technologies. And, the farmer two categories can be target groups for more interventions from DoS and CSB.

Selection of the rearing house, number of dfls according to the size of the house, average number of crops depending upon the mulberry garden and other rearing techniques are important to get higher cocoon yield. The results of the present study on rearing details of

sericulture farmers revealed that40 % farmers practiced low and medium number of crops per year (up to 5 & 5-8/year)and remaining 20.00 % of farmers produced more than 8 crops per year (Table 2).As high as 48.00% farmers belonged to medium category of 100 to 200 dfls/crop brushing per crop/rearing closely followed by low category of less than 100 dfls/crop (36.00 %) and high category more than 200 dfls/crop were only 16.00 %.The findings are in line with Hadimani*et al*. (2017). Further, there occurred wide difference in the average cocoon yield per 100 dfls. As much as64.00 % silkworm rearing farmers belonged to medium cocoon yield category 60-75 kg/100dfls followed by high categoryproducing more than 80 kg/100dfls (22.00 %) while 14.00% of farmers recorded lowest average cocoon yield per 100 dfls (45-60kg/100dfls). The findings are again in line with Hadimani*et al*. (2017). And, again the last group could be the target for betterment.

Economics is an important criterion to evaluate, acceptance and wider adoption of any technology/practice and the adoption of any new technology is not a simple and one-time process but a number of social, economic, institutional, psychological, physical and biological factors influence the process to a considerable extent (Singh and Yadav, 1989).In the present investigation the profit earned from sericulture crops was comparatively higher than other agricultural commercial crops. As high as 54.00% of the farmer had lower B:C of less than 3.0,whereas 38.00 % farmers fell in medium range (Rs. 1: 3.0-4.0)and only 10 % of farmers achieved higher B:C ratio (>4.00). This again highlights the need for making better efforts from development and extension agency for economic empowerment of village populace.

Most of the farmers during the course of study opined that at present sugarcane is the major commercial crop of the area but suffers from low productivity. Secondly, labours also do not get employment throughout the year and hence tend to migrate seeking better avenues. In this situation sericulture would be a better alternativefor overall social betterment and economic empowerment. Utttarakannada district with good rainfall and humidity provides very congenial environment for mulberry production and rearing of silk worm and efforts of DoS and CSBin making sericulture a paying proposition in the region needs appreciation. It also draws strength from the finding ofPriyadarshani and VijayaKumari (2013)who suggested education an important factor in adopting new technologies of commercial importance and with increasing education levels among rural masses and in educationally forward district like Uttar Kannada sericulture is expected to make better progress in years to come. And, as per Hadimani*et al*., (2017) still middle aged farmers dominate sericulture enterprise. This emphasizes that onus lies with DoS and CSB to attract younger volatile generation towards

sericulture through increased efforts of empowerment so as to make this enterprisemore rewarding next only to plantations in the region.

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Table 1: SocioeconomicalClass of sericulture Farmers of Haliyal, Joida and Dandelitaluks of Uttara Kannada district, Karnataka during 2020-21

Sl. No	Categories	Respondents	
		Trained n_1=50	
		Frequency	Percentage
1.1	**Age**		
a	Young (up to 30 years)	16	32.00
b	Middle (31 to 50 years)	25	50.00
c	Old (>50 years)	09	18.00
1.2	**Education**		
a	Illiterate	02	4.00
b	Primary (1^{st} to 4^{th}std)	03	6.00
c	Middle (5^{th} to 7^{th}std)	05	10.00
d	High School (8^{th} to 10^{th}std)	30	60.00
e	PUC (11^{th} to 12^{th})	10	20.00
f	Graduate and above (>12^{th}std)	00	00
1.3	**Family size**		
a	Small (up to 4 members)	15	30.00
b	Medium (5 to 8 members)	23	46.00
c	Large (> 8 members)	12	24.00
1.4	**Experience in sericulture**		
a	Very Low (<1years)	10	20.00
b	Low (1-3 years)	09	18.00
c	Medium (4-8 years)	12	24.00
d	High (>8 years)	19	38.00
1.5	**Adaption of New Technologies In Sericulture**		
a	Not adapted	23	46.00
b	Minimum adapted	21	42.00
c	Highly adapted	06	12.00

Table.2 Rearing Details of sericulture Farmers in Haliyala, Joida and Dandelitaluks of Uttara Kannada district, Karnataka during 2020-21

Sl.no	Categories	Respondents	
		Trained n_1=90	
		Frequency	Percentage
2.1	**Number of crops per year**		
a	Low (up to 5)	20	40.00
b	Medium (5-8)	20	40.00
c	High (>8)	10	20.00
2.2	**Average Dfls/crop**		
a	low (<100 dfls/crop)	18	36.00
b	Medium (100 - 200 dfls/crop)	24	48.00
c	High (>200 dfls/crop)	08	16.00
2.3	**Average Dfls brushing per year**		
a	Low(<500year)	19	38.00
b	Medium(500 to 900/year)	21	42.00
c	High (>900 kg/year)	10	20.00
4.	**Average cocoon yield (kg) per year**		
a	Low(200 to 250 kg/year)	23	46.00
b	Medium(300 to 700 kg/year)	16	32.00
c	High (>700 kg/year)	11	22.00
5.	**Average cocoon yield/100 dfls**		
a	Low (45-60 kg)	07	14.00
b	Medium (60-75kg)	32	64.00
c	High (>80kg)	11	22.00

Table.3 Economics of Sericulture Farmers Haliyala, Joida and Dandelitaluks of Uttara Kannada district, Karnataka during 2020-21

Sl.no	Categories	Respondents Trainedn$_1$=50	
		Frequency	**Percentage**
1.	**Cost of production per/year**		
a	Low (up to 35000)	26	52.00
b	Medium (40000 -45000)	19	38.00
c	High (50000 -100000)	05	10.00
1.	**Benefit per/year**		
a	Low (up to 100000)	27	54.00
b	Medium (100000 -168000)	18	36.00
c	High (500000-600000)	05	10.00
1.	**B:C ratio**		
a	Low (<3.00 Rs)	27	54.00
b	Medium (3.00-4.00 Rs)	19	38.00
c	High (>4.0 Rs)	05	10.00

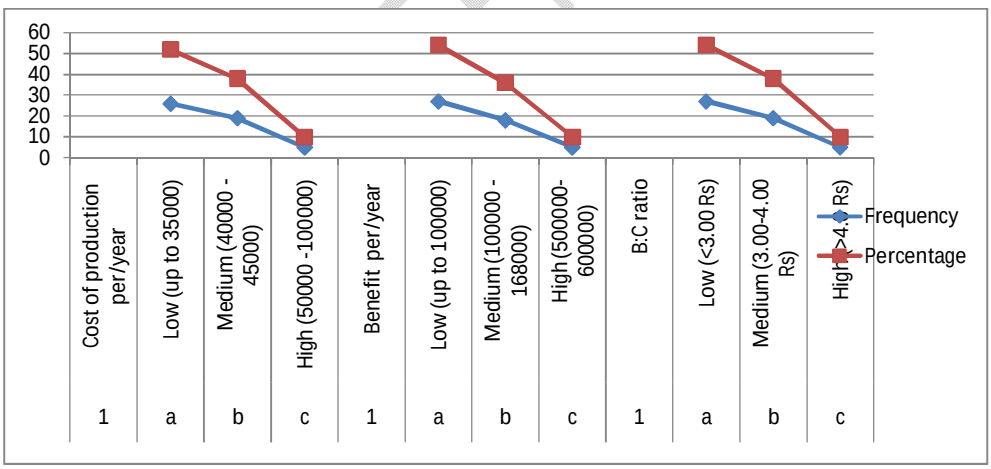

Fig 2.Economics of Sericulture Farmers Haliyala, Joida and Dandelitaluks of Uttara Kannada district, Karnataka during 2020-21

Table 4. Survey questionnaire for collecting the information on socio-economic condition of the Sericulture Farmers at Haliyala, Joida and Dndelitaluks of Uttara Kannada district, Karnataka during 2020-21.

Name of the farmer and address :

Village/ Taluk/ District :

Land holding :

Area of mulberry cultivation :

1. Social condition of farmer :

a) Age :

b) Education :

c) Family size :

d) Experience in sericulture :

2. Silkworm Rearing Details

a) Number of crops per year :

b) Average dfls per crop :

c) Average dfls brushing per year :

d) Average cocoon yield per year :

3. Economy of the farmer

a) Cost of production per/year :

b) Benefit per/year :

a) Benefit Cost Ratio :

Hadimani*et al*. (2017)

Priyadarshani and VijayaKumari (2013).