



Socio-economic status and Prospects of Sericulture in Tribal region of Sarguja (C.G.), India

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ABSTRACT

We studied the prospects of sericulture and its impact in tribal region of Sarguja (C.G.), India in order to get an overview related to socio-economic status, livelihood option and potential of sericulture in concerned study sites. The inventory was carried out at two blocks i.e., Sitapur and Ambikapur during 2016-17. The field study was conducted in the selected villages and technique of silk production was observed through well-structured questionnaire. It was found that majority of sericulturist belonged to young age group (65.0%) followed by middle age group (35.0%) while the old aged group were not involved in this profession. The finding on education shows that the majority (40.0%) of respondents were educated upto higher secondary level. The majority of the respondents (85.0%) of the selected sericulturist belonged to schedule tribe. Among the tribe, Uran was most dominated (58.82%) and engaged in sericulture in the study sites. Type of family of collected data set revealed that 70.0% of the respondents were having medium sized family. The social participation by respondents showed that maximum number of the respondents (70.0%) had no social participation. In different sets of occupation most preferred practiced was sericulture with agriculture (90.0%), and sericulture with animal husbandry (90.0%) followed by sericulture with agriculture labour work (30.0%). Majority (90.0%) of the sericulturist were involved in more than two occupations. Most of the respondents (60.0%) were having their income between Rs. 30,001-50,000 followed by 25.0% of respondents had their annual income more than Rs. 50,000. The findings regarding credit availability reflects that the all the respondents acquired the credit for sericulture they acquired it for short (40.0%), mid (40.0%) and long term (20.0%) period of time. The majority of the respondents (80.0%) received the information from training/tour followed by 75.0% of the respondents had obtained information from friends/neighbours/relatives, 40.0% from TV, 30.0% each from newspaper, radio and magazines. Most of the respondents (90.0%) involved in the direct selling (cocoon in addition to by product) followed by 40.0% (raw cocoon+ stifling cocoon), 20.0% as raw cocoon only and as stifling cocoon, respectively. It reflected that 90.0% respondents sell their product directly to the government bodies/agencies. The scientific cultivation technique of silk need to be promoted in the area with time to time training, monitoring and marketing of the products for betterment of socio-economic status of the respondents.

Keywords: Livelihood, sericulture, socio-economic, socio-personal

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INTRODUCTION

Farming is back-bone of Indian economy and recognized as main sector for rural people's employment and income. The substantial share of rural livelihood is derived from agricultural occupation that cannot provide full and satisfactory employment to farmers under the era of product competition and nature, industrialisation, urbanisation, current climate change, etc. Thus, transformation and diversification of agricultural practices is one of the best solution and aspects which need to be emphasized to achieve the objective of alleviation of rural poverty. Besides the farming, the activities that generate employment potentially and substantially are-collection of NTFPs, dairy, fisheries, poultry, horticulture, sericulture, etc [1].

There are more than 58 countries practicing sericulture in the world. In global perspective, India is only a nation which produce all varieties of silk i.e., mulberry, tasar, muga and eri. It cultivation in is spread over 22 states, covering 172000 hectares across 54000 villages operating 258000 handlooms and 29340 powers looms [2]. In India >90% of labour force is employed in unorganized sector where it doesn't provide social security and other benefits of employment as in the organized sector [3]. Sericulture is

potential practices which facilitate year-round income, livelihood and successively have key role in rural development [2]. As per the reports of Rama [4] sericulture is labour intensive practices in all its phases of operations and for producing each kilogram of raw silk it generate employment for nearly eleven person, out of which 6 persons are women. More than 60.00 lakh persons are employed as full time workers in the production chain out of which 35-40 lakh persons are women [4]. It plays a vital role in the flow of income from the urban rich sections of the society to the rural poor.

Presently in Chhattisgarh three types of silk *viz.*, mulberry, tasar and eri silk are producing. Tasar culture is practiced on the forest plants in wild condition and only mulberry and tasar cultivation are practices at commercial scale. Furthermore, it is practiced especially in tribal belts of Surguja, Raigarh, Bilaspur, Korba and Bastar district of the Chhattisgarh state [5]. Keeping in view of the above facts in to consideration, the present study was undertaken to assess the socio-personal and socio-economic profile of the sericulturist.

MATERIAL AND METHODS

The present investigation was purposively conducted in two blocks of Sarguja namely Sitapur and Ambikapur during 2016-2017. The Chhattisgarh state represented by rich natural resources and it enjoys sub-humid climate with annual rainfall of 1200-1500 mm. Sarguja district lies towards northern region of Chhattisgarh state and located between 22°58' to 23°49' North latitude and 81°33' to 82°45' East longitudes. The Sarguja district enjoys tropical climate which characterized by a hot summer and well distributed rainfall [6-8].

The present work was done in four sites *i.e.*, Ambikapur, Soor, Chalta and Chhind Kalo of two blocks of Sarguja namely Sitapur and Ambikapur during the year 2016-2017. All the farmers or sericulturist from these villages were selected for the survey. The study areas were surveyed in depth and the entire frame of the study is categorically built on rigorous field investigation, observation and baseline survey in consultation with sericulturist/respondents. The data on various aspects of sericulture were collected through well-defined pre-tested questionnaires. Household heads or eldest members were considered as the respondents. The data collected on various aspects were compiled and analyzed with suitable and standard methods [9-19].

RESULTS AND DISCUSSION

Socio-personal characteristics

The socio-personal characteristics of respondents were comprised of age, education, caste, size and types of family and social participation of sericulturist family members in tasar silk cultivation. The age of the respondents reveal that most of the respondents (65.0%) belonged to the young age group (between 21 to 35 yrs) and 35.0% of the respondents were of middle age group (36-55 yrs), while the older age group were not involved in the silk cultivation. The findings on education shows that the majority (40.0%) of respondents were educated upto higher secondary followed by high school (25.0%), middle school (15.0%), above higher secondary (10.0%), primary and illiterate (each 5.0%), respectively. The data on caste of the respondents indicates that the majority of the respondents (85.0%) of the selected sericulturist belonged to schedule tribe (ST), followed by 10.0% other backward class (OBC) and 5.0% respondents belonged to scheduled caste (SC) and none of the respondents belonged to general category (UR). Among the tribe, Uran was most dominated (58.82%) and engaged in sericulture in the study sites. Type of family of collected data set revealed that 70.0% of the respondents were having medium sized family followed by large (25.0%) and small or nuclear type (5.0%). The findings regarding experience of sericulture revealed that majority of the respondents (70.0%) had experience in sericulture up to 10 years, followed by 20.0% had 11-20 years of experience and only 10.0% of the respondents had 20-30 years of experience. The social participation by respondents shows that the maximum number of the respondents (70.0%) had no social participation, while the remaining respondents have membership of one (5.0%) organization, more than one organization (15.0%), whereas 10.0% of the respondents were found to be office bearer of organization.

The findings indicated that the maximum number of the respondents in the study area belonged to the middle age groups, followed by young age group and older age group. This reflected that old people were not much involved in the tasar silk cultivation. The probable reason for majority of respondents to be in middle age category might be that, usually farmers of middle age are enthusiastic and are having moderate experience in farming and have more work efficiency than older and younger ones. Further, middle aged farmers possess more physical vigour and shoulder more family responsibility than younger ones. Similar findings were reported by various researchers [20,21]. As the rural people are still traditional based they generally prefer their children to assist them in farm and household activities rather than to go school or college. This distance between the higher study centers and the villages might

have prevented from providing higher education to their children. It may also be due to no realization of the influence of formal education on once life and illiteracy of the respondents themselves might have prevented them to provide education to their children. The above findings draw support from the study conducted in southern part of India [22,23]. The findings in the study area revealed that only scheduled tribe, other backward class and scheduled caste were engaged in tasar silk worm rearing and it was not preferred by the general category because they did not consider it a good occupation. With respect to the present findings in relation to size of family Pandit *et al.* [24] noted similar findings in their study. Probable reason for this may be that still small family norm is not accepted to large extent by rural people. The other contributing reason might be agriculture which is the main occupation of the families of the respondents. It needs team work and requires more number of persons for its labour intensive work and also due to less exposure to mass media and fact that more than half of the respondents belonged to nuclear type of family which resembled with our findings [20,21,24]. The probable reason might be the increased efforts of the extension personnel in convincing the farmers regarding the advantage of practicing sericulture and also the interest of the sericulturist in sericulture as it gives good income with less investment. Similar results were observed by and [21,23]. The reason may be that the sericulturist might have come across with new ideas related to improved sericulture technologies, when they participated in the activities of organizations like sericulture quality club, cocoon market, farmer's society and gram panchayat meetings etc. [21,25].

Socio-economic profile

The independent variables *i.e.*, occupation, land holding, annual income and credit availability were considered as socio-economic characteristics of the respondents. The distribution of the respondents according to their involvement in different occupation reveals that the cent percent respondents in the study sites were engaged in mulberry silk cultivation, while in the silk center both tasar and mulberry silk cultivation is practiced. In different sets of occupation most preferred practiced was sericulture with agriculture (90.0%) and sericulture with animal husbandry (90.0%) followed by sericulture with agriculture labour work (30.0%), sericulture with business and service (25.0%), sericulture and other activity (20.0%), respectively. As regards to involvement in occupation, majority (90.0%) of the sericulturist was involved in more than two occupations followed by involved in 2 occupations (10.0%). The distribution of the respondents according to their size of land holdings indicates that 50% of the selected respondents have more than 4 ha of land holding followed 40% of medium sized land holding (2-4 ha) and 5% of small sized land holding (1-2 ha). None of the respondents were found to land less or marginal category of land holdings. It was observed that 95.0% respondents have more than 3 acre area under sericulture practices. The soil type of the field of the respondent reflected that the most dominant soil type was inceptisol (78.63%) followed by alfisols (9.16%), vertisols (7.70%), entisol (4.51%). Furthermore, these soil types have the area under irrigation facility as 70.24% (inceptisols) followed by 22.34% (vertisols), 6.37% (alfisols) and 1.05% (entisols), respectively. The rainfed area comprised of 75.05% of the total area of the respondents. In regard to irrigation facility it was found that majority of the respondents (35.0%) have medium irrigation facility (25.1-50% area) followed by low irrigation facility (25%, respondents having the area upto 25.0% area under irrigation), high and very high irrigation facility (each 20% respondents) reflecting 50.1-75% and > 75.0% area under irrigation, respectively. The majority of the respondents (80.0%) had tube well/well as a source of irrigation, followed by 10.0% of the respondents had pond/well and well/river water as a source of irrigation, respectively beside the hand pump fitted by government organization. In the context of annual income, the majority of the respondents (60.0%) were having their income in the range of Rs. 30,001-50,000 followed by 25.0% of respondents had their annual income more than Rs. 50,000, 15.0% of respondents had their annual income in the range between Rs. 20,000-30,000. The findings regarding credit availability reflects that the all the respondents acquired the credit for sericulture they acquired it for short (40.0%), mid (40.0%) and long term (20.0%) period of time. Moreover, nearly 80.0% of the respondents were acquired credits from the nationalized bank while 20.0% were arranged it from the friends/neighbour/relatives and other sources. Most of the respondents (45.0%) were acquired the credits for the purpose of purchasing of egg/larvae of silkworm and other inputs for sericulture followed by 25.0% respondents for domestic and other purpose, 15.0% each for agriculture inputs and purchasing of other implements/assets, respectively. The various reports present similar occupation related attributes in different region [5,20,25]. Land holding size is important feature among the farming community to adopt the different component of the farming, newer technology, innovation etc. Most of the sericulturist in the present finding have small land holding which is found in line agreement as reported by various workers [5,23,25]. The credit availability is another problem faced by the farmers. The non-availability of credit to the sericultural enterprise is also seen during a study in south India [26].

Communication attributes

Under the category of communicational characteristics three variables *i.e.*, sources of information, contact with sericulture personnel and extension participation are discussed. All the sources utilized by the respondents for gathering information on silk cultivation reveal that majority of the respondents (80.0%) received the information from training/tour followed by 75.0% of the respondents had obtained information from friends/neighbours/relatives, 40.0% from TV, 30.0% each from newspaper, radio and magazines, 20.0% from village leaders/sarpanch, 5.0% each for agricultural institutions and RAEO, while the 55.0% respondents updates and utilized the information from the other sources (demonstration/operative/field officers/sericulture inspectors etc.).

The distribution of the respondents as per the contact with extension personnel revealed that they contact with sericulture field assistant, sericulture field officer, sericulture scientists and subject matter specialist besides the deputy director, assistant director and others for getting information related to sericulture. The respondents meet with the sericulture field assistant 50.0% of the respondents had not contacted while the 10.0% respondents has contacted on quarterly and monthly basis respectively where as 30.0% respondent made contact fortnightly. In case of sericulture field officer the 20.0% respondents never made any contact with them while 20.0% respondent contacted quarterly and monthly basis and 40.0% respondents made contact fortnightly. The 45.0% respondents never contacted to sericulture scientist while 30.0% respondents made contact quarterly, 5.0% monthly and 20.0% fortnightly, respectively. While concerning the subject matter specialist, 75.0% respondents never contacted with them, whereas 5.0% contacted quarterly and monthly basis and 15.0% respondents made contact fortnightly. The overall contact with extension personnel by respondents indicated that majority of the respondents (40.0%) had high level of contacts with extension personnel, followed by low and medium (30.0% each) level of extension contacts in the study areas.

Perception, Attitude and Knowledge of Respondents regarding sericulture

The respondents perception regarding sericulture showed that most of the respondents (95.0%) believed that government provide land on minimum charges for silk rearing, followed by 90.0% perceived that it has regular additional income source, 85.0% though it as profitable subsidiary occupation, 80.0% believed that it has high production potential in short period of time, 75.0% interpreted it as helpful to meet out household requirement, 45.0% as it can generate employment at village level during off season, 35.0% as multi-uses of host plant species and 10.0% as other perception. Concerning the attitude of the respondents it was found that most of the respondents have positive attitude towards sericulture and nearly 65.0% respondents expressed more favourable attitude while 35.0% respondents expressed moderately favourable attitude towards sericulture in the concerned study sites. The knowledge of the respondents showed that they have medium to high level of knowledge regarding the practices except the plant protection and few specific time operations. In case of host plants cultivation they have medium to high level of knowledge but the knowledge about the silk worm rearing it was found that respondents showed low to medium level of knowledge. Similar findings related to communication character [27], contacts [21,23] and attitude of respondents [28] were available which support the present experiment.

Marketing Pattern

Most of the respondents (90.0%) involved in the direct selling (cocoon in addition to by product) followed by 40.0% (raw cocoon+ stifling cocoon), 20.0% as raw cocoon only and as stifling cocoon, respectively. It reflected that 90.0% respondents sell their product directly to the government agencies while the remaining to the co-operative societies in the concerned study sites. The respondents preferred to sell the product themselves (70.0%), followed by 20.0% selling by other family member and 10.0% sell through the middle man. The price of mulberry cocoon were Rs. 144 per kg yellow and Rs. 168 per kg white cocoon.

Status and Prospects of Sericulture

The sericulture plays an important role in economic development in various countries worldwide. China is the first and largest silk produce country, and 1 million workers are employed in the world. India ranked 2nd for producers of raw silk and consumer of pure silk globally. Presently, sericulture plays an increasing consumption of silk products witnessed in most of the developed countries leads to high demand in global level market. It plays an important role in foreign exchange earning opportunity for the developing countries in the world [29]. In India, silk production has improved manifold presently from 1437 MT during 1969-74, 21000 MT during 2010-11 and 23679 MT during 2013 of raw silk production. India is the only country in the world to produce all the four varieties of silk namely mulberry, eri, tassar and muga. India has the unique distinction of producing all these commercial varieties of silk [29]. Mulberry is the largest practiced its production contributes almost 80% for entire silk production in India. The employment generation from this sector has reached up from 6.12% in 2007-2008 to 8.22% in 2013-2014 [30].

In Chhattisgarh presently three types of silk viz., mulberry, tassar and eri are produced. Tassar (*Kosa*) culture is practiced on the forest plants in wild condition. Here tropical tassar and mulberry are reared on commercial scale. Sericulture is being practiced by the tribal of traditional districts of Baster, Raigarh, Bilaspur and Sarguja. Mulberry sericulture has been introduced to provide employment and its activities are expanding in rural potential areas viz., Sarguja, Balrampur and Raigarh, Raipur, Kanker, Jagdalpur and Narayanpur district. Sericulture promotes self-employment and other livelihood activities in the rural economy and helps to accelerate income and provides employment opportunities. Sericulture has enormous potential and prospect in the Chhattisgarh and also in our country provided it is made available to rural people, especially women, and its marketing is organized independently. It can serve as an excellent mode for employment generation and augmentation of income.

RECOMMENDATION AND CONCLUSION

The silk culture plays a principle role in the protection of our bio-resources. It also provides sustained high economic returns, generates employment opportunities and has potential to pave a strong foundation for silk-based rural cottage industries. It is recommended from the various studies of global account that promoting and encouraging sericulture will not only check environmental degradation and help to rebuild the ecological balance, but also conserve endangered silk insects, associated fauna and flora for posterity.

Though several extension and demonstration programmes on improved technologies were conducted the gap between the recommended technologies and actual adoption was still very wide. So, to bridge the gap and to plan a suitable intervention strategy, it was necessary to know the knowledge and adoption level of improved sericulture technologies. The scientific sericulture needs to be expanding into prominent states as poverty eradicator measure. It should be adopted as multi-pronged strategic approach by introducing a technology-based integrated farming model, empowering and capacitating communities to take the lead in implementation and marketing of the produce, but providing strong backup support with an effective monitoring system. The scientific cultivation technique of silk need to be promoted in the concerned study site with time to time training, monitoring and marketing of the products for betterment of the respondents.

REFERENCES

1. Chandel, A.S., Yadav, D.K. and Jhariya, M.K. (2017b). Economically and Traditionally Important Non Timber Forest Products of Sarguja Division. *Bulletin of Environment, Pharmacology and Life Sciences*, 6(5): 32-39.
2. Dewangan, S.K. (2011). Sericulture - A Tool of Eco-System Checking Through Tribal. *Journal of Environmental Research and Development*, 6(1): 165-173.
3. Usha, R.J. (2007). Employment Generation to Women in Drought Prone Areas: A study with reference to the Development of Sericulture in Anantpur District of Andhra Pradesh.
4. Rama, L.C.S. (2007). Potential for participation of women in Sericulture sector, March 16.
5. Dewangan, S.K., Sahu, K.R. and Soni, S.K. (2012). Breaking of poverty through sericulture among the tribe- A Socio-Economic study of Dharamjaigarh block of Raigarh Dist, CG, India. *Research Journal of Recent Sciences*, 1: 371-374.
6. Sinha, R., Yadav, D.K. and Jhariya, M.K. (2014). Growth performance of Sal in Mahamaya central forest nursery (Ambikapur), Chhattisgarh. *International Journal of Scientific Research*, 3(11): 246-248.
7. Sinha, R., Jhariya, M.K. and Yadav, D.K. (2015). Assessment of Sal Seedlings and Herbaceous Flora in the Khairbar Plantation of Sarguja Forest Division, Chhattisgarh. *Current World Environment*, 10(1): 330-337.
8. Yadav, D.K., Jhariya, M.K., Kumar, A. and Sinha, R. (2015). Documentation and Ethnobotanical importance of Medicinal Plants found in Sarguja district. *Journal of Plant Development Sciences*, 7(5): 439-446.
9. Chambers, R. (1994). The origins and practice of participatory rural appraisal. *World Development*, 22(7): 953-969.
10. Painkra, V.K., Jhariya, M.K. and Raj, A. (2015). Assessment of Knowledge of Medicinal Plants and their use in Tribal Region of Jashpur District of Chhattisgarh, India. *Journal of Applied and Natural Science*, 7(1): 434-442.
11. Thakur, A.K., Yadav, D.K. and Jhariya, M.K. (2015). Human-Elephant Conflict Scenario in Corridors of Northern Chhattisgarh. *Journal of Plant Development Sciences*, 7(11): 821-825.
12. Thakur, A.K., Yadav, D.K. and Jhariya, M.K. (2016a). Feeding Behaviour and Pugmark Analysis of Elephants in Sarguja, Chhattisgarh. *Journal of Applied and Natural Science*, 8(4): 2060-2065.
13. Thakur, A.K., Yadav, D.K. and Jhariya, M.K. (2016b). Socio-economic status of Human Elephant Conflicts its Assessment and Solutions. *Journal of Applied and Natural Science*, 8(4): 2104-2110.
14. Raj, A., Toppo, P. and Jhariya, M.K. (2016). Documentation and Conservation of Medicinal Plants in Barnawapara Wildlife Sanctuary, Chhattisgarh, India. *Van Sangyan*, 3(6): 18-22.
15. Bhagat, V.K., Yadav, D.K. and Jhariya, M.K. (2017a). A Comprehensive Study on Ecological Aspect, Feeding Behaviour and Pugmark Analysis of Elephants in the Bordering Areas of Northern Chhattisgarh. *Journal of Human Ecology*, 58(1-2): 41-47.

16. Bhagat, V.K., Yadav, D.K. and Jhariya, M.K. (2017b). Human-Elephant Conflict and its Consequences: A Preliminary Appraisal and Way Forward. *Bulletin of Environment, Pharmacology and Life Sciences*, 6(7).
17. Toppo, P., Raj, A. and Jhariya, M.K. (2016a). Wild Edible Plants of Dhamtari District of Chhattisgarh, India. *Van Sangyan*, 3(4): 1-6.
18. Toppo, P., Raj, A. and Jhariya, M.K. (2016b). Agroforestry systems practiced in Dhamtari district of Chhattisgarh, India. *Journal of Applied and Natural Science*, 8(4): 1850-1854.
19. Chandel, A.S., Yadav, D.K. and Jhariya, M.K. (2017a). Exploration of Medicinal Plant Resources and their Utilization in Sarguja. *Van Sangyan*, 4(1): 42-49.
20. Geetha, G.S. and Geetha Devi, R.G. (2008). Technology adoption and training needs of sericulture farmers-a case study in NGO. *Indian J. Agric. Res.*, 42(3): 157-163.
21. Balakrishnappa, Y.K. and Rajan, R.K. (2010). Study on Socio-Economic Factors of Different Categories of Sericulturists on Bivoltine Sericulture Technologies in Karnataka. *Research Journal of Agricultural Sciences*, 1(4): 380-384.
22. Gowda, S.R.G. (2001). Sustainability factors in multivoltine mulberry silkworm seed cocoon production in Karnataka. *Ph.D. Thesis*, University of Agricultural Sciences, Bangalore.
23. Reddy, R.K.P. (2006). A study on management efficiency of sericulturists in north Karnataka. *M.Sc. (Ag.) Thesis*, University of Agricultural Sciences, Dharwad.
24. Pandit, D., Bagchi, S.N., Ghosh, S. and Das, N.K. (2007). A study on mulberry sericulture adoption and constraints. *Journal of Interacademia*, 11(4): 492-497.
25. Pandit, D., Ghosh, S., Bagchi, S.N. and Saha, A.K. (2008). Manpower utilization pattern in mulberry sericulture- a study at farmers' level in Murshidabad district of West Bengal. *Journal of Interacademia*, 12(2): 235-240.
26. Mallikarjuna, B., Eugene, E., Rao, M.Y.R. and Shariff, A.A. (2001). Credit flow to sericulture in Mysore district - An evaluation. *Indian Journal of Sericulture*, 40(1): 55-59.
27. Lakshminarayan, M.T., Shankaranarayana, V. and Banuprakash, K.G. (2009). Diffusion and adoption source-credibility pattern among Sericulturists. Global Communication Research Association with Loyola College, Chennai.
28. Shukla, R. and Sharma, O.P. (2011). A study on attitude of farmers towards mulberry sericulture in Udaipur district of Rajasthan. *Agricultural Science Digest*, 31(1): 66-69.
29. Siddappaji, D., Latha, C.M., Ashoka, S.R. and Basava Raja, M.G. (2014). Socio-economic Development through Sericulture in Karnataka IOSR. *Journal of Humanities and Social Science*, 19(10): 234-243.
30. International Sericulture Commission (2014). Global silk industry. United Nation.

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