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Social and personal characteristics of tribal farm women involved in sericulture

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Abstract— *The study entitled "Social and Personal Characteristics of Tribal Farm Women Involved in Sericulture" was undertaken to examine the demographic and socio-economic profile of women engaged in sericulture. Dhemaji district of Assam was purposively selected for the study owing to its rich tradition of eri and muga silk rearing among tribal households. A total of 120 respondents were chosen using a multistage random sampling procedure across ten villages. Data were collected through personal interviews with the help of a structured schedule and analysed using frequency, percentage, mean, and standard deviation. The findings revealed that the majority of respondents (70.00%) belonged to the middle-aged group of 36–60 years, with most having educational attainment up to high school (33.34%). Nuclear families were predominant (78.34%) with medium family size (3–8 members, 86.66%), and most families combined sericulture with agriculture or allied activities (54.16%). A large proportion were marginal farmers (65.84%), with an average operational holding of 5.67 bighas under sericulture and a mean experience of 22.19 years. Annual income from sericulture averaged ₹2.56 lakhs, with Eri silk emerging as the dominant product marketed (96.66%), followed by growing interest in value-added products (70.00%). While extension contacts were moderate (77.50%), only 40.84% of respondents had received formal training, reflecting reliance on traditional knowledge. Marketing was mainly through local markets and fairs (71.60%), supplemented by direct sales to boutiques and designers (34.10%). The study concludes that sericulture is a vital livelihood activity for tribal women, contributing significantly to household income and cultural continuity. However, challenges persist in terms of small landholdings, low training exposure, and limited access to structured markets. Strengthening institutional support, capacity-building, and market linkages could enhance the sustainability and profitability of women-led sericulture in Assam.*

Keywords— *Sericulture, Tribal women, Muga, Eri, Dhemaji, Assam*

I. INTRODUCTION

Sericulture is an important agro-based industry in India, deeply linked with rural livelihood, tradition, and socio-cultural practices. It plays a vital role in generating employment and strengthening the rural economy, particularly in the northeastern states where it serves as a key source of income (CSB, 2023). Assam enjoys a distinctive position in the country as it is the only state that produces all four varieties of silk—mulberry, muga, eri, and tasar. Among these, muga silk, valued for its natural golden shine, and eri silk, often called the "fabric of peace," are native to the state and symbolize its cultural identity (Bordoloi et al., 2020).Currently, sericulture in Assam is practiced across nearly 3.04 lakh hectares, involving around 2.6 lakh households in production activities (Statistical Handbook of Assam, 2023). Tribal communities, in

particular, have been closely associated with eri and muga culture, which are not only important for their income but also deeply embedded in their traditional way of life. Women contribute extensively at each stage of sericulture—ranging from rearing silkworms, collecting leaves, harvesting cocoons, to spinning and weaving. Their role is crucial not only for sustaining family earnings but also for preserving indigenous weaving practices within tribal society (Saikia & Kalita, 2019).The personal and social attributes of tribal farm women, such as their age, literacy, household structure, level of participation, and decision-making ability, strongly influence their performance and engagement in sericulture. These factors shape their capacity to utilize resources, adopt innovations, and maintain livelihood security through silk production. With this background, the present study has been carried out with the following objective

Objective: To examine the social and personal characteristics of tribal farm women engaged in sericulture in Dhemaji district of Assam."

II. MATERIALS AND METHODS

The study was conducted in Dhemaji district of Assam, selected purposively for the research. A total of ten villages were chosen through random sampling, from which twelve respondents were randomly drawn in each village, constituting a sample size of 120. Data were collected through personal interviews using a pre-tested structured schedule. The respondents were identified following a multistage sampling procedure. For the analysis of data, statistical techniques such as mean, frequency, percentage, and standard deviation were used.

III. RESULTS

Table 1: Distribution of respondents according to their social and personal characteristics

n=120

Sl No	Category	*f*	(%)	Mean	SD
1	**Age**				
	Below 36	18	15.00	48.05	12.02
	36-60	84	70.00		
	Above 60	18	15.00		
2	**Education level**				
	Illiterate	10	8.33		
	Signature literate	9	7.50		
	Primary school passed	12	10.00		
	Middle school passed	19	15.83		
	High school passed	40	33.34		
	Higher secondary passed	24	20.00		
	Graduate	6	5.00		
3	**Family type**				
	Nuclear	94	78.34		
	Joint	18	15.00		
	Extended	8	6.66		
4	**Family size**				
	Small (below 3)	2	1.67	5.42	2.59
	Medium (3-8)	104	86.66		
	Large (Above 8)	14	11.67		
5	**Occupation of family**				
	Only sericulture	41	34.16		

	Sericulture+Agriculture/Allied	65	54.16		
	Sericulture+Service(salaried)	6	5.00		
	Sericulture+Wage earner	4	3.34		
	Sericulture+Business	4	3.34		
6	**Total annual income**				
	Low (Below Rs 1 lakh)	10	8.33	Rs 3.74 Lakhs	Rs 2.74 lakhs
	Medium (Rs 1 lakh – Rs 6.48 lakhs)	95	79.17		
	High (Above Rs 6.48 lakhs)	15	12.5		
7	**Operational land holding(ha)**				
	Marginal farmer (less than 1 ha)	79	65.84		
	Small farmer (1 to 2 ha)	36	30		
	Semi medium farmer (2 to 4)	5	4.16		
8	**Area under sericulture (bigha)**				
	Low (below 2.67 bigha)	6	5.00	5.67 bigha	2.96 bigha
	Medium (2.67 bigha-8.59 bigha)	102	85.00		
	High (more than 8.59 bigha)	12	10.00		
9	**Experience in sericulture (years)**				
	Low (Below 10 years)	11	9.16	22.19	11.75
	Medium (10-34 years)	91	75.84		
	High (Above 34 years)	18	15.00		
10	**Annual income from sericulture**				
	Low (Below Rs 0.405 lakhs)	8	6.67	Rs 2.56 lakhs	2.16 lakhs
	Medium (Rs 0.405 lakhs-Rs 4.72 lakhs)	95	79.16		
	High (Above Rs 4.72 lakhs)	17	14.17		
10(a)	**Annual income from Muga**				
	Low (Below Rs 0.28 lakhs)	1	0.84	Rs 2.36 lakhs	Rs 2.08 lakhs
	Medium (Rs 0.28 lakhs-Rs 4.44 lakhs)	100	83.33		
	High (Above Rs 4.44 lakhs)	19	15.83		
10(b)	**Annual income from Eri**				
	Low (Below Rs 0.09 lakhs)	13	10.84	Rs 0.213 lakhs	Rs 0.123 lakhs
	Medium (Rs 0.09 lakhs-Rs 0.33 lakhs)	89	74.16		
	High (Above Rs 0.33 lakhs)	18	15.00		
11	**Sources of labour**				
	Own	96	80.00		
	Own+Hired	24	20.00		
12	**Extension contacts**				
	Low (Below 5)	8	6.67	7.69	2.37
	Medium (5-10)	93	77.50		
	High (Above 10)	19	15.83		

13	**Training exposure**				
	Yes	49	40.84		
	No	71	59.16		
14	**Nature of product sale**				
	Muga seed/silk cocoon	82	68.33		
	Eri seed cocoon	22	18.33		
	Eri silk cocoon	92	76.66		
	Muga silk	78	65.00		
	Eri silk	116	96.66		
	Value added products	84	70.00		
15	**Selling points**				
	Local markets and fairs	86	71.60		
	Government and cooperative organisations	3	2.50		
	Direct sales to boutiques and designers	41	34.10		
	Online platforms	8	6.60		
	Own shop	8	6.60		
	Others (Relatives/traders)	38	31.60		

IV. DISCUSSION

1. Age

The data presented in the table 1 reveals that sericulture is largely maintained by individuals belonging to the 36–60 years age group. At this stage of life, people generally prioritize stability, security, career advancement, and improved income opportunities. Farmers within this age bracket are found to be highly motivated and enthusiastic in performing productive activities that contribute to household earnings. Their active involvement and commitment in sericulture not only provide economic gains but also establish them as role models within their communities. In doing so, they inspire the younger generation to participate in sericulture and pursue self-employment.

2. Education level

According to the data in Table 1 most (33.34%) of the respondents were high school passed, followed by higher secondary passed (20.00%), middle school passed (15.83%), primary school passed (10.00%), illiterate (8.33%), signature literate (7.50%), graduate only few respondents (5.00%). These findings align with the finding of Sharma and Hussain (2018).

This indicates that women from rural areas and semi-literate backgrounds, where access to higher education is limited, are predominantly engaged in sericulture as a source of livelihood. The findings highlight the necessity of implementing capacity-building programmes that enhance their skills, enabling them to become more empowered, improve their productivity, and achieve upward social mobility through sericulture.

3. Family type

As presented in Table 4.1.3, the majority of respondents involved in sericulture belonged to nuclear families, accounting for 78.34 percent of the total. In comparison, 15.00 percent were from joint family systems, while 6.66 percent were associated with extended families. This indicates that the nuclear family system is the predominant household structure in the study area. Such a pattern may be attributed to changing social dynamics, migration, and the preference for independent living. Despite having fewer members, nuclear families are able to effectively sustain sericulture, as most of the activities are carried out within the household. Smaller family units often allow for quicker decision-making, clearer division of roles, and greater participation of women in income-related activities. This structure proves advantageous as it promotes collective involvement while enhancing women's authority in managing sericulture operations.

4. Family size

The data in Table 1 reveal that a considerable majority (86.66%) of sericulture rearers lived in households with 3–8 members, indicating that medium-sized families are most prevalent in the study area. This was followed by 11.67

percent of respondents belonging to larger households with more than eight members. The average family size among those engaged in sericulture was around five to six members. Only a small proportion came from very small or very large families. These findings suggest that medium-sized families are better suited to managing sericulture, as they provide adequate manpower and mutual support for different activities.

5. Occupation of family

It was observed that 54.16 percent of respondents practiced sericulture alongside agriculture or allied activities, highlighting a strong reliance on integrated farming-based livelihoods. Sericulture served as the primary and exclusive occupation for 34.16 percent of the respondents. A relatively smaller proportion combined sericulture with salaried employment (5.00%), wage earning (3.34%), or business activities (3.34%), indicating the presence of occupational diversification among a few households.

6. Total annual income

Table 1 shows that 79.17 percent of the rearers reported an annual income between ₹1 lakh and ₹6.48 lakhs. A smaller proportion, 12.50 percent, earned more than ₹6.48 lakhs, while 8.33 percent of respondents belonged to the low-income category, with earnings below ₹1 lakh per year. The results indicate that over half of the respondents belong to the medium-income category, primarily because of their reliance on seasonal and small-scale activities such as sericulture and agriculture. Their earnings are further constrained by weak market linkages, limited alternative employment opportunities, and inadequate access to extension services. These outcomes are consistent with the observations reported by Mamatha and Chaya (2012).

7. Operational land holding(ha)

It was observed that 65.84% of the respondents were classified as marginal farmers making up the largest segment, while 30.00% were identified as small farmers. On the other hand, a very small portion, 4.16% fell under the semi-medium farmer category.

The prevalence of smaller landholdings can be attributed to the practice of family inheritance, wherein land is divided among heirs across generations, resulting in reduced plot sizes for individual farmers. This situation is further intensified by the scarcity of cultivable land in the region coupled with rising population pressure, which has left most farmers with only small or marginal holdings. Similar observations were reported by Sonam and Hans (2020) who also noted that a significant proportion of respondents possessed marginal landholdings.

8. Area under sericulture (bigha)

According to Table 1, 85.00% of the respondents owned land in the range of 2.67 to 8.59 bighas, followed by 10.00% of the respondents reported having more than 8.59 bighas under sericulture. On the other hand, only 5.00% of the respondents were found to have less than 2.67 bighas of land under sericulture. The table indicates that the majority of respondents possessed landholdings ranging between 2.67 bigha and 8.59 bigha, suggesting potential for sustainable income generation. A few respondents had very small holdings, underscoring the need for support measures such as improved inputs or collective initiatives. Farmers with relatively larger areas could be motivated to adopt commercial approaches and serve as lead farmers. The diversity in landholding size emphasizes the importance of providing scale-specific extension support.

***1 hectare= 7.46 bigha (Assam)**

9. Experience in sericulture

From the information presented in table 1, it can be observed that 75.84% of the individuals involved `in sericulture possessed a moderate range of experience spanning 10 34 years. Those with more than 34 years of involvement accounted for 15.00%, while only 9.16% had been engaged in sericulture for under decade.

The findings indicate that the majority of respondents had long-standing involvement in sericulture, underscoring its traditional significance in the region. A considerable proportion with medium levels of experience reflects a strong base of knowledge and practical skills. The presence of highly experienced individuals may be attributed to generational transfer of practices and expertise. Conversely, the smaller share of respondents with limited experience suggests that fewer youth are entering sericulture, possibly due to alternative employment opportunities or inadequate institutional support. These results are consistent with the observations of Bhat (2022).

10. Annual income from sericulture

Data in Table 1 shows that a majority (79.16%) of the respondents had an income ranging between Rs 0.405 lakhs-Rs 4.72 lakhs from sericulture, whereas a smaller portion (14.17%) of the respondents earned above Rs 4.72 lakhs, indicating relatively higher success in sericulture-based livelihood. On the other hand, 6.67% of respondents earned below Rs 0.405 lakhs annually, reflecting poor returns likely due to limited resources, low productivity or weak market access. The high standard deviation indicates considerable variation in income levels, which may be attributed to differences in landholding size, input utilization, adoption of technology, and access to markets. Although the majority of respondents belong to the middle-

income group, the observed income disparity emphasizes the need for targeted interventions to support low-income farmers and ensure inclusive growth within the sericulture sector. This observation is consistent with the findings of Bhausaheb (2012).

10(a) Annual income from Muga

From the information presented in table 1 it can be inferred that a large majority (83.33%) of respondents had annual earnings ranging from ₹0.28 lakhs to ₹4.44 lakhs, with a mean income of ₹2.36 lakhs and a relatively high standard deviation of ₹2.08 lakhs, indicating substantial income variation. In addition, 15.83 percent of respondents reported annual incomes exceeding ₹4.44 lakhs, demonstrating the profitability of muga sericulture when managed efficiently and supported by proper market access. By contrast, only a single respondent (0.84%) was found in the lowest income category, earning less than ₹0.28 lakhs annually.

The high variation in income, as reflected by the standard deviation, suggests differences in productivity, scale of operation, technological adoption, and access to markets. While most respondents are concentrated in the middle-income range, the existence of both very low and very high-income groups points to unequal returns from Muga rearing. Strengthening input support, extension services, and market linkages could help reduce this disparity and enhance income levels across all groups.

10(b) Annual income from Eri

Data in Table 1 depicted that (74.16%) of rearers earned between Rs 0.09 lakhs-Rs 0.33 lakhs followed by 15% earned above Rs 0.33 lakhs annually. Only 10.84% earned below Rs 0.09 lakhs annually. The data clearly indicates that average income from Eri is significantly lower as compared to Muga, primarily due to the lower market value of Eri silk products. Unlike Muga, which is highly valued for its sheen and exclusivity, Eri is commonly used for coarser and warmer fabric, resulting in reduced profit margins. Eri rearing is often practiced on a smaller scale, largely for household use or local sale, and lacks strong market linkages. As a result, for most respondents, Eri serves as a subsidiary source of income, rather than a primary livelihood activity.

11. Sources of labour

Majority of the rearers (80%) depend entirely on their own family labour for sericulture activities, whereas only 20% of respondents used a combination of both hired labour and family. On the other hand, none of the respondents depended solely on hired labour.

The data suggest that sericulture in the study area is predominantly a family-centered activity, carried out within the household without reliance on hired labor. The lack of exclusive wage labor may indicate either financial constraints in affording additional workers or a preference to manage production within the family as a cost-saving strategy.

12. Extension contacts

Data in Table 1 clearly illustrates that 77.50% of the participants exhibited a moderate degree of interaction with extension personnel. In comparison, 15.83% reported a high frequency of contact, while a minimal share of 6.67% experienced limited engagement with extension personnel. The results indicate that the majority of women rearers belonged to the medium category, suggesting a moderate level of exposure to extension services. The limited proportion of respondents in the high-contact group points to the need for strengthening efforts to enhance engagement. A small share of women with low extension contact may be due to inaccessibility, lack of awareness, or socio-cultural barriers. Strengthening extension linkages would enable wider dissemination of technology, promote the adoption of improved practices, and ultimately enhance productivity and livelihood opportunities in sericulture. These findings are consistent with those of Singh (2022).

13. Training exposure

From Table 1 we can observe 59.16% of the rerarers had not undergone any formal training for sericulture. On the other hand, only 40.84% had received training in sericulture. Out of 40.84 % respondents who had received training in sericulture, majority of them obtained from Department of Sericulture through field level training programmes and extension activities.

The findings suggest that the majority of respondents practiced sericulture relying primarily on traditional knowledge and informal learning. Limited awareness of existing training opportunities, coupled with challenges such as distance, transportation constraints, and inadequate extension outreach, may hinder their access to such programs. Additionally, low literacy levels and lack of self-confidence could further restrict their participation.

14. Nature of product sale

Data in Table 1 reveals that Eri silk was the most widely marketed product, with 96.66 percent of respondents involved in its sale. This was followed by Eri silk cocoons (76.66%) and value-added items (70.00%). Sales of muga seed/silk cocoons and muga silk were reported by 68.33 percent and 65.00 percent of respondents, respectively, reflecting a moderate level of participation. In contrast, only 18.33 percent engaged in the sale of Eri seed cocoons, indicating minimal involvement in seed production. Overall, Eri-based sericulture emerged as the dominant

activity, with an increasing inclination toward value addition and entrepreneurial ventures.

15. Selling points

Data presented in Table 1 highlights that 71.60% of rearers sold their products through local markets and fairs followed by 34.10% sold their products directly to boutiques and designers, 31.60% respondents sold their products to others which include relatives, middlemen and informal contacts. Whereas only small percentage of respondents used online platforms (WhatsApp and phone calls) and own shops (6.60%). On the other hand, only 2.50% sold their products through government or cooperative organisation.

The findings show that most producers rely on traditional outlets like local markets and fairs, while some are beginning to connect with urban buyers such as boutiques and designers for better returns. Personal networks and intermediaries also play a major role in sales. However, limited use of online platforms, own shops, and institutional channels highlights untapped potential. Expanding into digital and formal marketing avenues could significantly enhance income and market reach.

V. CONCLUSION

The study concludes that sericulture in the Dhemaji district of Assam is predominantly practiced by middle-aged women from nuclear and medium-sized families, relying mainly on household labour. Most respondents possess small or marginal landholdings and have education up to high school, reflecting limited access to formal training and resources. While sericulture is often combined with agriculture and allied activities, it remains a significant source of household income, with Eri silk dominating production and marketing. Income levels are moderate but show considerable disparities due to differences in landholding, productivity, technological adoption, and market access. Extension contacts and formal training are limited, resulting in a reliance on traditional knowledge and informal learning. Marketing is largely conducted through local markets, fairs, and personal networks, whereas digital platforms, own shops, and institutional channels remain underutilized. The growing interest in value-added products and entrepreneurial initiatives, however, indicates opportunities for income enhancement and skill development.To promote sustainability and profitability, targeted interventions are needed, including capacity-building programmes, improved access to quality inputs and credit, and the formation of producer groups. Strengthening extension services and structured marketing channels can enhance adoption of improved practices and expand market reach. Overall, sericulture offers significant potential for women's empowerment, rural entrepreneurship, and socio-economic development, provided adequate institutional and policy support is available.

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