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Documenting the problems of tribal farm women engaged in sericulture

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Abstract
Sericulture is a key livelihood source for many tribal households in Assam, with women playing a central role in activities ranging from mulberry cultivation to cocoon harvesting and processing. However, the sector faces multiple constraints that limit its potential. This study aimed to identify and analyse the problems encountered by tribal farm women engaged in sericulture in Dhemaji district. Using a descriptive research design, 120 respondents from ten randomly selected villages were surveyed through personal interviews with a structured and pre-tested schedule. Garrett's ranking technique was applied to prioritise the identified issues. The problems were grouped into nine categories: personal, production, input-related, economic, social, technical, marketing, transportation, and post-harvest technology. The most pressing constraints included complications in obtaining loans, high input costs, silkworm diseases, inadequate storage facilities, and the compulsion to sell cocoons at low prices. These findings highlight the need for targeted interventions to improve infrastructure, market access, financial support, and technical services for sustainable sericulture development.

Keywords: Sericulture, tribal farm women, constraints, Garrett's ranking, Assam

Introduction

Sericulture holds a unique position among agro-based industries in India, serving as both an income source and a traditional occupation for many rural and tribal households. With India ranking second globally in raw silk production and contributing nearly 18% of the world's total output, the sector includes four primary varieties- mulberry, tassar, eri and muga- reared in different parts of the country (Lakhsmanan, 2012) [4]. In tribal areas women are particularly active in this sector, managing tasks such as mulberry cultivation, silkworm rearing, cocoon harvesting and post-processing, thereby strengthening household income and food security (Kankanawadi *et al*., 2025) [3]. In Assam, sericulture is deeply rooted in the culture and economy of many tribal communities, with women playing a central role is sustaining and passing down traditional silk-rearing practices across generations (Bordoloi *et al*.,2020) [1]. However, their participation is accompanied by a number of persistent challenges. Access to essential resources such as land, credit and quality inputs remains limited for many tribal women engaged in sericulture (Neehkar, 1996) [5]. Alongside these resources constraints, factors such as heavy workloads, low renumeration, irregular income patterns, and insufficient exposure to skill- enhancement programs continue to restrict their potential (Kankanawadi *et al*., 2025) [3]. Health-related difficulties- ranging from respiratory ailments caused by dust to physical strain from prolonged standing have also been identified as significant concerns (Jyotsna *et al*., 2019) [2].

In addition to the technical and economic issues, broader socio-cultural barriers, including geographical isolation, inadequate infrastructure and entrenched gender norms, further limit opportunities for training and decision-making among tribal farm women (Swami *et al*., 2019) [6]. Even in states such as Assam, widely known for its Muga and Eri, the full potential of tribal farm women engaged in sericulture remains underutilized due to this intertwined constrains (Lakhsmanan, 2012) [4]. Although initiatives by government and non-government organisations have attempted to address some of these problems, the persistence of these issues underscores the importance of focused research. Recognizing this need, the present study aims to document and analyse the problems faced by tribal farm women engaged in sericulture.

Objective

To study the problems faced by respondents along with their suggestive measures

Research Methodology

The research was undertaken during 2025 in the Dhemaji district of Assam to investigate the problems faced by tribal farm women engaged in sericulture and identify strategies to address them, providing a comprehensive understanding of

the issues. Jonai subdivision has been purposively selected from Jonai subdivision, Jonai development block has been purposively selected, all the 5 gaon panchayats were covered. 10 villages were selected randomly, 2 from each gaon panchayat resulting to the selection of Majulipur, Loguabora, Rotki, Borbali, Laimekuri, Telem, Simen Chapori, Majgaon, Murkongselek and Bej guri. And from each of the villages, 12 respondents were randomly selected and thus a total of 120 respondents were selected. Data were collected through personal interviews and face-to-face interaction using structured research schedule. Statistical analysis was conducted using methods such as Garrett's ranking, mean score and rank order. The Garrett's ranking and mean score was calculated by using the following formula:

Garrett's Ranking

Percent position= $(R_{ij} - 0.5) * 100 / N_{ij}$

Where, Rij = Rank given for the i^{th} variable by j^{th} respondents

Nij = Number of variables ranked by j^{th} respondents.

$$\text{Mean score} = \frac{\text{Total Garrett's score}}{\text{Number of respondents}}$$

Results and Discussion

A perusal of data in table 1 depicts a comprehensive overview of the problems encountered by tribal farm women engaged in sericulture, categorized into nine sub-problems: Personal problems, production problems, availing of input problems, economic problems, social problems, technical problems, marketing problems, transportation problems and post-harvest problems. The problems expressed by tribal women sericulture rearers in different aspects will shed light on key areas where improvements are needed to enhance the sericulture rearing.

Table 1: Problems faced by tribal farm women engaged in sericulture n=120

Sl. No	Problems	Garrett score	Garrett mean score	Rank
A	**Personal Problems**			
1	Low self-confidence	3821	31.84	IV
2	Limited time due to family responsibility	6314	52.62	I
3	Lack of interaction with other rearers	4284	35.70	III
4	Insufficient support from family members	5981	49.84	II
B	**Production Problems**			
5	Pesticides from nearby garden	3216	26.80	III
6	Silkworm diseases	5253	43.77	I
7	Climate variations	4186	34.88	II
C	**Availing of input problems**			
8	Unavailability of necessary inputs in time	4806	40.05	III
9	High cost of input coupled with low purchasing capacity	6256	52.13	I
10	Limited awareness regarding input usage and application	5258	43.81	II
D	**Economic Problems**			
11	Lack of own capital	5938	49.48	IV
12	Limited financial support from lending institutions	6080	50.67	II
13	Complication in obtaining loans	6444	53.70	I
14	Less/no subsidy	5734	47.78	VI
15	High rate of interest	5817	48.48	V
16	High labour wages	5987	49.89	III
E	**Social Problems**			
17	Lack of support/guidance from fellow rearers in the locality	3825	31.87	III
18	Lack of social encouragement for sericulture	6121	51.01	I
19	Low recognition and enthusiasm among farmers for sericulture	6020	50.17	II
F	**Technical Problems**			
20	Limited knowledge of scientific sericulture practices	3208	26.73	III
21	Non availability of sericulture extension personnel	6352	52.93	I
22	Non availability of suitable sericulture technologies	6060	50.50	II
G	**Marketing Problems**			
23	Lack of direct marketing facilities	5929	49.41	II
24	No proper idea about marketing	3443	28.69	III
25	Compulsion to sell cocoons at very low price	6348	52.90	I
H	**Transportation Problems**			
26	Non availability of own vehicle	6298	52.48	I
27	High transportation cost	5976	49.80	II
28	Poor connectivity of villages to market centres	3846	32.05	III
I	**Post Harvest Technology Problems**			
29	Lack of machinery	6045	50.38	II
30	Lack of proper storage facilities for cocoons	6378	53.15	I
31	Poor stifling technique	4156	34.63	III

Personal Problems

Data in table 1 shows that the most pressing challenge for tribal farm women rearers was "limited time due to family responsibilities", with highest Garrett score (6314) and

Garrett mean score (52.62), showing the difficulty of managing households work alongside sericulture. Similarly, "Insufficient support from family members" ranked II with Garrett's score value 5981 and Garrett's mean score value 49.84 showing that lack of cooperation in the household negatively impacts women's efficiency those are engaged in sericulture.

Production Problems

In the production-related problems encountered by tribal farm women engaged in sericulture, "silkworm diseases" emerged as the most critical challenge, securing the highest Garrett score of 5253 with Garrett mean score of 43.77 and ranked I in priority. These diseases pose a serious threat to cocoon yield and quality, leading to significant economic losses. The second major concern, "climate variations" with Garrett score 4186 and Garrett mean score of 34.88, reflects the high sensitivity of silkworm rearing to fluctuations in temperature, humidity and other weather parameters, which can adversely impact silkworm health and growth.

Availing of input problems

Among the availing of input-related problems experienced by tribal farm women in sericulture, the "high cost of inputs coupled with low purchasing capacity" stood out as the most severe constraint, achieving the highest Garrett score of 6256, a Garrett mean score of 52.13, and securing Rank I. This financial limitation restricts their ability to access quality inputs in adequate quantities, ultimately hampering productivity. The next significant issue, "limited awareness regarding input usage and application", recorded a Garrett score of 5258 with a Garrett mean score of 43.81. This reflects a notable knowledge gad that can lead to inefficient or improper input utilization, reducing the expected benefits.

Economic Problems

Economic problems were a major constraint for tribal farm women engaged in sericulture. The foremost problem was "complications in obtaining loans", which secured the highest Garrett score 6444 and Garrett mean score of 53.70, reflecting the difficulties caused by lengthy procedures, strict eligibility criteria and bureaucratic hurdles that delay or restrict access to necessary credit. The second most critical issue was "limited financial support from lending institutions", with a Garrett score of 6080 and Garrett mean score of 50.67, indicating that available institutional funding is often inadequate to meet the operational and investment needs of tribal women rearers, thereby hindering expansion and productivity.

Social Problems

Social constraints were also found to considerably influence the involvement of tribal farm women in sericulture. The leading concern, holding Rank I, was "lack of social encouragement for sericulture", with a Garrett score of 6121 and Garrett mean score of 51.01, indicating minimal moral backing and community motivation, which can discourage active participation. The second major problem, ranked II, "low recognition and enthusiasm among rearers for sericulture", recorded a Garrett score of 6020 and a Garrett mean score of 50.17, highlighting the limited acknowledgement and interest in this sector within the rearing community, which hinder its expansion. The third constraint, ranked III, "lack of support or guidance from fellow rearers in the locality", ranked III with a Garrett score of 3825 and a Garrett mean score of 31.87, was noted; however, it is relatively less severe compared to first two issues, suggesting that while peer assistance is beneficial, its absence does not critically disrupt operations.

Technical Problems

When assessing technical problems in sericulture, "non availability of sericulture extension personnel" emerged as the foremost issue, ranked I with a Garrett score of 6352 and Garrett mean score of 52.93. This finding indicates that most tribal farm women face a shortage of expert guidance, which restricts access to timely advice, advanced practices and solution to production challenges. The second major constraint was "non availability of suitable sericulture technologies", ranked II with a Garrett score of 6060 and Garrett mean score of 50.50 demonstrating that limited access to modern tolls and innovations hampers both productivity and quality. "Limited knowledge of sericulture practices ", ranked III, with a Garrett mean score of 26.73, though comparatively less severe, still points to the need for targeted training programs.

Marketing Problems

Marketing issues further constrained sericulture rearing with "compulsion to sell cocoons at very low prices", ranked I with a Garrett score of 6558 and Garrett mean score of 54.66, indicating that poor price realization significantly affects the profitability and livelihood of tribal farm women. "Lack of direct marketing facilities ranked II with a Garrett score of 6034, showing that dependence on intermediaries reduces their bargaining power and income share. "No proper idea about marketing" ranked III with a Garrett score of 5502 and Garrett mean score of 45.87, suggesting that although this constraint is relatively less severe than the first two, the lack of timely and reliable market knowledge still limits rearers ability to make informed selling decisions.

Transportation Problems

Transportation problems were led by "non-availability of own vehicle", ranked I with a Garrett score of 6298 and a Garrett mean score of 52.48, indicating that lack of personal transport forces rearers to rely on others and limits timely movement of products to market. "High cost of hiring vehicle" was ranked II with a Garrett score of 5976 and a Garrett mean score of 49.80, showing that hiring transport is expensive and erodes profit margins. "Poor connectivity of villages to market centres" raked III suggesting that while road infrastructure is a constraint, it is less severe than vehicle availability and hiring cost.

Post harvest technology problems

Among post-harvest technology related challenges faced by tribal farm women in sericulture, the most critical was identified as "lack of proper storage facilities for cocoons" which ranked I with a Garrett score of 6378 and a Garrett mean score of 53.15, indicating that inadequate storage frequently causes cocoon spoilage and lower market value. The second major constraint was "lack of machinery" ranked II with a Garrett score of 6045 and a Garrett mean

score of 50.38, reflecting limited access to processing and value addition equipment that would improve efficiency and product quality.

Conclusion

Tribal farm women engaged in sericulture face a variety of constraints affecting cocoon production and overall livelihood. The study revealed that the most pressing problems were silkworm diseases and climate variations, both of which severely impact yield and quality. Other significant issues included inadequate storage facilities, lack of modern machinery and complications in obtaining loans, which up to some extent hinder productivity and income. Problems such as high transportation costs and certain social constraints were found to be comparatively less severe. Technically, the absence of efficient reeling and processing facilities, coupled with limited access to quality inputs, further exacerbates production challenges. If these constraints continue unaddressed, the long-term sustainability of sericulture in tribal areas will be at risk. Therefore, immediate intervention by concerned departments through infrastructure development, financial assistance and training programs is essential to ensure the growth and profitability of the sector.

Policy Implications

With the growing importance of sericulture in tribal livelihoods, policies should focus on strengthening market linkages, improving reeling and shortage facilities, ensuring timely acess to quality inputs, simplifying loan procedures and enhancing training programs to boos productivity, income and sustainability for tribal farm women.

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Conflict of Interest

All authors of this paper confirm that there are no conflicts of interest to declare.

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