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Hrishikesh Bhuyan
M.Sc. Scholar, Department of Extension Education, Assam Agricultural University, Assam, India

Dr. Pallabi Bora
Assistant Professor, Department of Extension Education, Assam Agricultural University, Assam, India

Dr. Hemanga Kumar Kalita
Professor & Head, Department of Extension Education, Assam Agricultural University, Assam, India

Dr. Borsha Neog
Assistant Professor, Department of Agricultural Statistics, Assam Agricultural University, Assam, India

Kamalika Swargiary
M.Sc. Scholar, Department of Extension Education, Assam Agricultural University, Assam, India

Bhaskar J Bhuyan
Ph.D Scholar, Department of Agricultural Economics, Assam Agricultural University, Assam, India

Ipshita Bhuyan
Ph.D Scholar, Department of Agricultural Economics, Assam Agricultural University, Assam, India

Nimiksha Devi
M.Sc. Scholar, Department of Sericulture, Assam Agricultural University, Assam, India

Corresponding Author:
Dr. Pallabi Bora
Assistant Professor, Department of Extension Education, Assam Agricultural University, Assam, India

Knowledge level of tribal farm women involved in Muga and Ericulture

Hrishikesh Bhuyan, Pallabi Bora, Hemanga Kumar Kalita, Borsha Neog, Kamalika Swargiary, Bhaskar J Bhuyan, Ipshita Bhuyan and Nimiksha Devi

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Abstract
Sericulture is an important agro-based livelihood activity in Assam, where Muga and Eri culture sustain rural economies while preserving cultural traditions. Tribal farm women are central to this sector, contributing to host plant management, silkworm rearing, and cocoon processing. Despite their active involvement, knowledge gaps in scientific practices often restrict productivity. The present study aimed to assess the knowledge level of tribal farm women engaged in Muga and Eri culture in Dhemaji district of Assam. A purposive-cum-random sampling method was adopted, wherein 120 respondents were selected from 10 villages. Data were collected through personal interviews using a structured knowledge test comprising 40 items—20 each on Muga and Eri. Scores were categorized into low, medium, and high knowledge groups using mean and standard deviation. The results revealed that 63.34% of respondents had medium knowledge, 22.50% high knowledge, and 14.16% low knowledge. Awareness was strong regarding host plants and general rearing practices, but limited in technical aspects such as pest and disease management and cocoon processing. The findings highlight the need for targeted training, practical demonstrations, and stronger extension support. Bridging these knowledge gaps will enhance productivity, promote adoption of improved practices, and ensure sustainable sericulture-based livelihoods in tribal communities.

Keywords: Sericulture, muga, eri, tribal farm women, knowledge level, Assam

Introduction
Sericulture is a vital agro-based industry in Assam, closely linked with rural livelihoods and cultural traditions. The state is especially renowned for muga silk, admired for its natural golden sheen, and eri silk, often known as the "fabric of peace" due to its eco-friendly method of production (Bordoloi *et al*., 2020) [1]. These silk varieties sustain rural economies while preserving cultural heritage. Tribal farm women form the backbone of this sector, contributing extensively to host plant cultivation, silkworm rearing, cocoon harvesting, spinning, and weaving (Kankanawadi *et al*., 2025) [3]. Although women's participation is substantial, many still face knowledge gaps in scientific sericulture practices, which limit their ability to adopt improved techniques (Neehkar, 1996) [5]. Inadequate training reduces the economic benefits that sericulture can provide, affecting both productivity and income (Lakshmanan, 2012) [4]. Studies further reveal that farm women's knowledge of rearing practices is generally moderate to low, restricting efficiency and innovation (Swami *et al*., 2019) [9]. Additionally, occupational and health-related challenges continue to affect women rearers (Jyotsna *et al*., 2019) [2].
Empirical evidence from Assam reinforces these concerns. In Kamrup district, most women engaged in eri rearing, yet their knowledge of disease management and host plant care was limited (Rabha & Saikia, 2021) [7]. In Jorhat district, women were highly involved in eri culture, but only a small fraction had received formal training (Saikia *et al*., 2021) [8]. Similarly, in Sonitpur district, muga rearers showed moderate extension contact, with less than one-third benefitting from structured training programs (Rabha & Nath, 2020) [6]. Since knowledge strongly influences the adoption of better practices, disease management, and post-harvest operations, assessing the knowledge level of tribal farm women engaged in muga and eri culture

is essential. Such an assessment will provide insights for targeted training and extension strategies that can enhance productivity, empower women, and ensure the sustainability of sericulture in Assam.

Objective

To assess the knowledge level of tribal farm women engaged in muga and eri culture

Research Methodology

The present study was undertaken in the purposively selected Dhemaji district of Assam. 10 villages were selected randomly. 12 respondents were selected randomly selected from each village, thus making a total sample size of 120 respondents. The respondents were interviewed with the help of structured schedule prepared for the purpose. The knowledge level was assessed using a structured knowledge test consisting of 40 items. The knowledge statements were developed by retrieving secondary sources as well as in consultation with experts and scientists of relevant departments such as CSB, Directorate of Sericulture, Department of Sericulture, AAU Jorhat. Out of forty items, twenty items each were included for measuring the knowledge level on Muga and Eri. Each right answer was awarded 1 point, while wrong answers got a score of zero. The cumulative score from all 40 items represented the respondent's overall knowledge score. For meaningful interpretation, percentage and frequency analysis was applied. Respondents were grouped into various categories according to the scores they had achieved. Statistical analysis was conducted using methods mean, frequency, percentage, standard deviation

Overall knowledge of tribal farm women involved in muga and ericulture

Fomula used	Category
Below ($\bar{X}$ - S.D.)	Low
($\bar{X}$ - S.D.) to ($\bar{X}$ + S.D.)	Medium
Above ($\bar{X}$ + S.D.)	High

Where,
$\bar{X}$= Mean
S.D.=Standard deviation

Results and Discussion

Table 1: Statement wise distributions of the respondents according to their knowledge towards muga sericulture n=120

Sl No	Questions	F	%
1	Are you aware that Muga silkworm exhibits a multivoltine life cycle?	109	90.83
2	Do you know Jethua and Kotia are classified as seed crops?	85	70.83
3	Som and Soalu serve as the primary host plants of Muga silkworm.	118	98.33
4	The Som plant is primarily propagated using seeds.	90	75.00
5	Som seeds are typically sown in a nursery bed or poly bags.	35	29.17
6	The Som plant has the capability to grow in waterlogged conditions.	79	65.83
7	Are you aware heavy pruning or pollarding of the main stem should be done when the plant reaches a height of 5 feet at around 6–7 years of age?	56	46.67
8	Do you know the ideal time for pollarding is during January and February.?	98	81.67
9	Do you know leaf spot disease in Som plants can be managed using a 1% solution of Indofil M-45 applied at 15-day intervals.	12	10.00
10	Pebrine is a protozon disease that affects Muga silkworms	81	67.50
11	Infestation by stem borers is a significant challenge in Som cultivation?	41	34.17
12	Do you know Uzi fly is a serious pest that affects Muga silkworms.	73	60.83
13	To produce 1 kg of raw Muga silk, approximately 4500–5500 cocoons are required.	57	47.50
14	Hot air oven drying recommended for cocoon stifling.	5	4.17
15	Do you know during deflossing, the mass should be removed from either the posterior or anterior side of the cocoon?	78	65.00
16	Are you aware that in May-June month mature seeds of the som plant harvested?	103	85.83
17	Do you know applying a cotton ball soaked in 1.5% Nuvan solution and sealing with mud plastering in the Som plant is done to control whitebug	15	12.50
18	Are you aware that 24°C- 28°C is ideal for Muga silkworm rearing?	44	36.67
19	40–50°C is the recommended basin temperature for wet reeling	61	50.83
20	Do you know that in October-November months the main commercial crop (Kotia) of Muga silkworm reared.	115	95.83

F=Frequency%=Percentage

In table 1 the distribution of respondents according to their knowledge level on Muga culture revealed varied knowledge across different aspects of muga sericulture. A vast majority (98.33%) recognized Som and Soalu as the principal host plants, while 95.83% were aware that the main commercial crop (Kotia) is reared during October–November. Similarly, 90.83% knew that Muga silkworm exhibits a multivoltine life cycle, and 85.83% were aware of the harvesting period of mature Som seeds during May–June. Awareness of crop classification was relatively high, with 70.83% knowing that Jethua and Kotia are classified as seed crops. Knowledge regarding cultural practices showed mixed responses. While 81.67% of respondents knew January–February as the ideal period for pollarding, only 46.67% were aware that heavy pruning or pollarding should be done when plants reach 5 feet at 6–7 years. Likewise, 75% reported that Som is primarily propagated by seeds, though only 29.17% knew that seeds are commonly sown in nursery beds or polybags. Around 65.83% recognized that Som can withstand waterlogged conditions.

In terms of pest and disease management, awareness was relatively low. While 67.50% identified Pebrine as a protozoan disease of Muga silkworm and 60.83% knew about Uzi fly infestation, only 34.17% acknowledged stem borer infestation as a major issue in Som cultivation. Knowledge on control measures was very poor—only 10% were aware of Indofil M-45 application for leaf spot management and 12.50% about Nuvan treatment for white bug control. Regarding cocoon production and processing, 47.50% knew that 4500–5500 cocoons are required to produce 1 kg of raw Muga silk, while 50.83% were aware of the recommended basin temperature (40–50°C) for wet reeling. Knowledge of cocoon handling was mixed, as 65% were familiar with the deflossing process, but very few (4.17%) knew that hot air oven drying is recommended for cocoon stifling.

Table 2: Statement wise distribution of the respondents according to their knowledge towards ericulture n=120

Sl No	Questions	F	%
1	Do you know Eri silkworm (Samia ricini) is a polyphagous species?	101	84.17
2	Are you aware that castor and kesseru are the primary host plants of Eri silkworm?	116	96.67
3	Do you know Eri silkworm eggs hatch within 10 days of laying?	87	72.50
4	Eri silkworm is reared on live plants only?	93	77.50
5	Do you know cocoon of Eri silkworm is open-ended?	112	93.34
6	Do you know Eri pupae are used as a food source in some communities?	98	81.67
7	Are aware about that Eri silk is also called 'Ahimsa Silk' as it does not require killing the pupae?	109	90.83
8	Do you know castor plants should be pruned to encourage more leaves for Eri silkworm rearing?	31	25.83
9	Do you know the larval stage of Eri silkworm lasts for about 25–30 days?	79	65.83
10	Eri silkworm rearing is mainly practiced in Assam and Meghalaya?	19	15.83
11	Disease and pest infestation are serious concern in Eri silkworm rearing?	120	100
12	Do you know that Eri silk production requires degumming before weaving	76	63.34
13	For producing 1 kg of Eri silk, around 4000–4500 cocoons are needed?	48	40.00
14	Stifling of Eri cocoons is necessary for silk extraction?	52	43.34
15	Do you know the spinning of Eri cocoons is done naturally by the silkworm in a multiple layer?	19	15.83
16	Are you aware that mature seeds of castor are collected from the plant in the month of August and September?	21	17.50
17	Do you know that uzi fly is a common pest of Eri silkworm?	31	25.83
18	Do you know 5 larval instars are found in the life cycle of the Eri silkworm?	112	93.33
19	Do you know 5-6 crops of Eri silkworm can generally be reared in a year?	26	21.67
20	Are you aware about spinning is commonly used to extract Eri silk from cocoons?	100	83.34

F=Frequency%=Percentage

The results of table 2 on respondents' knowledge of Eri culture reveals high awareness in several fundamental aspects. Almost all respondents (96.67%) recognized castor and kesseru as the primary host plants, while 93.34% were aware that the cocoon of Eri silkworm is open-ended. Similarly, 93.33% knew that five larval instars occur in its life cycle, and 90.83% identified Eri silk as "Ahimsa Silk" since it does not require killing the pupae. A large proportion (84.17%) were aware that Eri silkworm is a polyphagous species, and 83.34% knew that spinning is the common method of silk extraction. Knowledge about rearing practices was also appreciable. About 77.50% understood that Eri silkworm is reared on live host plants, 72.50% knew that eggs hatch within 10 days of laying, and 65.83% were aware that the larval stage lasts about 25–30 days. However, only 21.67% knew that 5–6 crops can generally be reared annually. Awareness of specific host plant management practices was low, with just 25.83% reporting that castor plants should be pruned to encourage more leaves, and only 17.50% knowing the correct harvesting time (August–September) for mature castor seeds.

Regarding utilization and processing, 81.67% of respondents recognized that Eri pupae are consumed as food in some communities, and 63.34% were aware that degumming is required before weaving. Meanwhile, 43.34% acknowledged the need for stifling of cocoons, and 40% knew that around 4000–4500 cocoons are required to produce 1 kg of Eri silk. On the other hand, awareness of cocoon spinning behavior was limited, with only 15.83% knowing that spinning occurs naturally in multiple layers. In terms of rearing geography and pest incidence, all respondents (100%) acknowledged disease and pest infestations as a serious concern. However, only 15.83% reported that Eri rearing is mainly practiced in Assam and Meghalaya, and 25.83% identified uzi fly as a common pest.

Table 3: Overall knowledge of tribal farm women involved in muga and ericulture n=120

Sl No	Category	Range	Frequency	Percentage(%)	Mean	SD
1	Low	Below 19	17	14.16		
2	Medium	19-30.82	76	63.34	24.91	5.91
3	High	Above 30.82	27	22.50		
	Total		120	100		

Table 3 shows that the majority of respondents (63.34%) possessed a medium level of knowledge in sericulture, forming the largest category. This was followed by 22.50% who displayed a high level of understanding, while 14.16% fell into the low knowledge group. These findings indicate that most tribal farm women have a reasonable grasp of sericulture practices, though only a smaller proportion have attained advanced knowledge, likely due to greater access to training, experience, or exposure. Conversely, the existence of respondents with limited knowledge underlines the importance of strengthening information delivery and providing technical support.

The data suggests that while most respondents possess a basic understanding, noticeable gaps remain in advanced and technical areas of sericulture. Addressing these shortcomings through focused training programs, practical demonstrations, and effective extension services could improve productivity and promote wider adoption of modern practices within the community.

Conclusion

The study on the knowledge level of sericulture rearers revealed that while a majority of tribal farm women demonstrated moderate awareness, significant variations existed across different aspects of Muga and Eri culture. High levels of knowledge were observed in fundamental areas such as host plants, life cycle, and basic rearing practices, whereas awareness regarding pest and disease management, crop protection, and technical aspects of cocoon processing was comparatively low. This uneven distribution of knowledge indicates that although sericulture is deeply rooted in tradition, many rearers still lack adequate scientific understanding to optimize production. Bridging these knowledge gaps through systematic training, capacity-building initiatives, and the strengthening of extension

services can empower farmers to adopt improved technologies. Enhanced access to practical demonstrations, timely technical guidance, and resource support will not only improve productivity but also ensure sustainability, thereby contributing to the socio-economic upliftment of rural communities engaged in sericulture.

Policy Implications

The study shows that while rearers possess moderate knowledge of sericulture, significant gaps remain in advanced areas like pest control, cocoon processing, and scientific host plant management. Policies should therefore focus on strengthening knowledge dissemination through farmer-friendly training, field demonstrations, and extension networks. Special emphasis must be placed on empowering tribal women rearers with access to technical guidance, quality inputs, and financial support. Bridging these knowledge gaps through structured interventions can enhance productivity, ensure sustainability, and improve rural livelihoods.

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References

1. Bordoloi R, Kalita J, Saikia A. Traditional eri silk production among the tribal communities of Assam: A socio-economic perspective. Int J Soc Econ. 2020;47(6):749-65.
2. Jyotsna M, Anusha M, Naidu LVR. Study on health problems faced by workers of sericulture industry: A cross-sectional study in the North Coastal Andhra Pradesh. Indian J Community Med. 2019;44(2):173-4.
3. Kankanawadi N, Gowda M, Narayanaswamy KC, Nagaraj KH, Aramani K. Women's participation and constraints in sericulture: A study from Karnataka, India. J Sci Res Rep. 2025;31(8):225-30.
4. Lakshmanan S. Employment of rural women in sericulture – An empirical analysis. J Rural Dev. 2012;31(2):163-72.
5. Neehkar J. Women's role in sericulture [MSc. Thesis]. Andhra Pradesh Agricultural University; 1996.
6. Rabha B, Nath P. Socio-economic condition of muga silkworm rearers: A study in Sonitpur district of Assam. Int J Econ Res. 2020;11(5):10-6.
7. Rabha P, Saikia M. Women participation in eri culture with special reference to Kamrup district of Assam. Indian J Ext Educ. 2021;57(2):14-8.
8. Saikia J, Das P, Gogoi M. Involvement and contribution of women in eri culture activities in Jorhat district of Assam. Res J Agric Sci. 2021;12(2):389-94.
9. Swami PS, Kamble VB, Anarase MS. Farm women's knowledge in sericulture technology. J Pharmacogn Phytochem. 2019;8(2S):69-72.