

STATUS OF MUGA CULTURE AND LIVELIHOOD IN ASSAM

Polly Borgohain¹, Dr Nurujjaman Laskar² & Dr Azizur Rahman³

¹Research Scholar, Department of Business Administration, University of Science & Technology Meghalaya

²Associate Professor, Department of Business Administration, University of Science & Technology Meghalaya

³Principal, Sericulture Training Institute, Titabor, Government of Assam

^{2,3}Faculty, Institute of Tourism & Hotel Management, Bundelkhand University, Jhansi

ABSTRACT

*Muga culture represents one of the oldest and most significant traditional agro-based industries of Assam. Muga silk, produced from the semi-domesticated silkworm *Antheraea assamensis* Helfer, is globally renowned for its natural golden colour, durability, and lustre. The present study examines the historical evolution, traditional practices, present status, and livelihood significance of Muga culture in Assam. The study highlights the role of Muga culture in generating rural employment, preserving indigenous knowledge systems, and strengthening the socio-economic condition of rural households, particularly women. Historical analysis reveals that Muga culture flourished during the Ahom period and continued through the colonial and post-independence eras despite several challenges. The study further explores the traditional techniques associated with host plant cultivation, seed production, rearing, reeling, and weaving practices followed by rural communities. Statistical data indicate that Muga culture continues to be concentrated mainly in districts such as Lakhimpur, Dhemaji, Golaghat, Sivasagar, Goalpara and Jorhat. However, environmental degradation, climate change, pest incidence, declining host plant availability, and shortage of skilled labour pose serious threats to the sustainability of the industry. The paper concludes that Muga culture remains an important component of Assam's cultural heritage and rural economy and requires integrated policy support, technological intervention, and market development for sustainable growth.*

KEYWORDS: *Muga Silk, Sericulture, Livelihood, Traditional Knowledge, Rural Economy, Women Empowerment*

Article History

Received: 09 Jun 2026 | Revised: 11 Jun 2026 | Accepted: 13 Jun 2026

INTRODUCTION

Muga culture is a traditional eco-friendly agro-based activity involving host plant cultivation, silkworm rearing, cocoon production, reeling, and weaving. Muga silk is exclusively produced in Assam and is famous worldwide for its natural golden-yellow colour, durability, and lustrous texture. The term "Muga" is derived from the Assamese word meaning "yellowish," reflecting the unique colour of the fibre. Unlike other silk varieties, Muga silk becomes more lustrous with age and repeated washing.

Muga silk is produced from the semi-domesticated silkworm *Antheraea assamensis*, which feeds mainly on Som (*Machilus bombycina*) and Sualu (*Litsaea polyantha*) plants. The silk is considered one of the strongest natural fibres and

has historically been associated with royalty and aristocracy in Assam. Traditionally, garments made from Muga silk symbolised prestige, cultural identity, and social status.

Muga culture is highly labour-intensive and provides livelihood opportunities to rural households through host plant cultivation, silkworm rearing, cocoon production, spinning, weaving, and marketing. Women play a dominant role in the sector, especially in reeling and weaving activities. Thus, Muga culture contributes significantly to employment generation, income enhancement, and preservation of traditional knowledge systems in Assam.

OBJECTIVES OF THE STUDY

- To examine the historical development of Muga culture in Assam.
- To study the traditional knowledge and indigenous practices associated with Muga culture
- To analyse the present status and production trends of Muga silk in Assam.

RESEARCH METHODOLOGY

The present study is mainly based on secondary data. However, Primary data such as information regarding traditional practices, seed production, cocoon rearing, weaving methods, and livelihood conditions was collected using interview schedules and direct observation methods.

Primary data has been collected from 400 muga farmers chosen by multistage sampling method from the Lakhimpur district, the highest muga cultivating district of Assam where, according to Statistical Handbook of Assam (2018-2019), a total of 30164 families are engaged in the muga culture.

Secondary data were collected from various published and unpublished sources such as: Statistical Handbook of Assam, reports of the Central Silk Board, Government publications, research journals, books related to sericulture, articles, dissertations, and institutional reports.

Sample Size Calculation

Size of the sample has been determined using the following formula given by Taro Yamane (1967)

$$n = \frac{N}{1+Ne^2}$$

Where,

n = sample size

N= Population Size

e = Acceptable sampling error

Putting the numbers in the formula :

N= 30164

e= 5% (it is decided by researcher)

n= 394.765 ≈ 395 ≈ 400

Schedule Design

After a preliminary field research, a draft schedule was formulated and pilot tested. Interview method was adopted in the collection of data.

HISTORICAL DEVELOPMENT OF MUGA SILK IN ASSAM

The history of silk production dates back to ancient China around 2700 BC. Over time, the knowledge of sericulture spread to India through trade and cultural interactions. Ancient Indian texts also mention the existence of silk production in eastern India. The renowned economist and political philosopher "Kautilya " referred to a type of silk fabric known as *Dukula* in his work "Arthashastra". This fabric was produced from cocoons of different insects and had three varieties: white silk from lower Bengal, blue silk from northern Bengal, and golden silk from the region known as "Suvarnakudya", which corresponds to present-day Assam .(Barua,1986)

The Ahom period (1228–1828 AD) is considered the golden age of Muga culture in Assam. The Ahom rulers encouraged sericulture and established organised systems for silk production, weaving, and trade. Royal weaving centres known as "Rajagharia Hull" (royal looms) were established to produce silk garments for the royal household. Women were actively trained in weaving, and silk became an important symbol of Assamese culture and identity.

During the British colonial period, Muga silk continued to be exported to Bengal and neighbouring regions. However, colonial economic policies and competition from industrial textiles weakened the traditional silk industry. Despite these challenges, Muga culture survived due to its deep-rooted cultural significance. Historical records reveal that during the nineteenth century Assam continued to export Muga silk to Bengal and other regions. Trade statistics indicate that during the period 1832–1833, Assam exported approximately 69 maunds of Muga silk threads to Bengal with a value of around Rs. 13,973. The following years witnessed a significant increase in exports, with 291 maunds exported in 1833–1834 valued at Rs. 58,220 and 224 maunds exported in 1834–1835 valued at Rs. 53,889 (Phukan, 2012).

During the mid-nineteenth century, several districts of Assam such as Sivasagar, Goalpara, and Lakhimpur emerged as important centres for Muga silk production. According to Phukan (2012), Goalpara, Sivasagar and Lakhimpur districts of Assam exported muga raw silk to Bengal during the middle of the 19th century. The total value of export of muga raw silk from Lakhimpur District during 1871-72 was about Rs. 60,900.00. During 1882-83 & 1897-98, the total value of export of silk from Assam was Rs. 2,04,930.00 & Rs. 3,66,310.00 respectively. During 1890-91, 1900-01 and 1903-04, the total value of exported silk from Assam; only through land routes was Rs 3,000.00, Rs. 4, 000.00 and Rs. 3, 000.00 respectively.

After independence, the Government of Assam and the Central Silk Board introduced various developmental initiatives to modernise sericulture practices. Research institutes, training centres, and cooperative societies were established to improve silk production and marketing.

Another major development in the post-independence period was the growth of the handloom sector associated with silk weaving. The town of Sualkuchi, located in Kamrup district of Assam, emerged as the most important centre for silk weaving in the state and is popularly known as the "Silk Village of Assam." A large number of weaving units operate in Sualkuchi where Muga silk fabrics such as mekhela chadar, riha, and traditional shawls are produced. These silk products have gained popularity in both national and international markets due to their unique texture, durability, and natural golden colour (Choudhury, 1982).

An important achievement for the Muga silk industry was the granting of Geographical Indication (GI) status to Assam Muga silk. The GI registration, granted in 2007, recognised Muga silk as a unique product of Assam and provided legal protection against imitation or misuse of the name. The GI status has helped strengthen the identity of Muga silk in national and international markets and has encouraged efforts to maintain quality standards in silk production.

PRESENT SCENARIO OF MUGA CULTURE IN ASSAM

Muga silk production in Assam is geographically concentrated in few districts where climatic conditions and the availability of host plants such as Som (*Persea bombycina*) and Sualu (*Litsaea monoptela*) support silkworm rearing. The major producing districts include Lakhimpur, Dhemaji, Golaghat, Jorhat, Dibrugarh, Sivasagar, and Kamrup. The data presented in the table 1 reveals that Muga culture is widely practiced across Assam, with a total of 8,722 villages and 32,353 families engaged in this activity. The total area under Muga food plants is 13,064.52 hectares, supported by 83 government farms/centres, producing 9,097.666 lakh cocoons and 181.327 thousand kg of raw silk.

Table 1: District-Wise Muga Culture in Assam (2024–25)

| Sl. No. | District | Muga Villages | Families Engaged (Muga) | Muga Farms (Govt.) | Area under Muga Food Plants (Ha) | Cocoon Production (Lakh No.) | Raw Silk (*000 Kg) |
|---------|--------------------|---------------|-------------------------|--------------------|----------------------------------|------------------------------|--------------------|
| 1 | Kokrajhar | 478 | 712 | 3 | 434.70 | 513.000 | 10.260 |
| 2 | Dhubri | 68 | 112 | 0 | 23.36 | 18.484 | 0.370 |
| 3 | Goalpara | 302 | 1649 | 7 | 641.06 | 435.945 | 8.649 |
| 4 | Barpeta | 179 | 493 | 0 | 98.35 | 141.915 | 2.705 |
| 5 | Morigaon | 229 | 240 | 3 | 142.78 | 65.323 | 1.308 |
| 6 | Nagaon | 295 | 309 | 4 | 131.90 | 65.891 | 1.319 |
| 7 | Sonitpur | 211 | 367 | 3 | 229.76 | 74.612 | 1.489 |
| 8 | Lakhimpur | 906 | 8232 | 7 | 2381.13 | 2057.291 | 40.971 |
| 9 | Dhemaji | 415 | 3203 | 5 | 1297.06 | 957.566 | 19.051 |
| 10 | Tinsukia | 302 | 1096 | 2 | 317.64 | 247.440 | 4.951 |
| 11 | Dibrugarh | 359 | 1840 | 6 | 775.52 | 463.398 | 9.310 |
| 12 | Sivasagar | 382 | 1870 | 6 | 710.94 | 398.550 | 7.941 |
| 13 | Jorhat | 338 | 900 | 7 | 1015.55 | 192.365 | 3.851 |
| 14 | Golaghat | 266 | 1812 | 5 | 521.82 | 363.772 | 7.283 |
| 15 | Karbi Anglong | 397 | 203 | 3 | 41.64 | 57.240 | 1.146 |
| 16 | Dima Hasao | 227 | 150 | 3 | 36.94 | 18.870 | 0.426 |
| 17 | Cachar | 194 | 952 | 3 | 333.38 | 213.665 | 4.276 |
| 18 | Sribhumi | 83 | 544 | 0 | 84.82 | 71.895 | 1.439 |
| 19 | Hailakandi | 63 | 140 | 1 | 42.65 | 64.448 | 1.290 |
| 20 | Bongaigaon | 149 | 119 | 1 | 337.58 | 134.579 | 2.477 |
| 21 | Chirang | 257 | 639 | 0 | 196.05 | 256.500 | 5.132 |
| 22 | Kamrup | 370 | 3080 | 6 | 1746.71 | 814.707 | 16.304 |
| 23 | Kamrup Metro | 51 | 105 | 2 | 57.51 | 24.920 | 0.499 |
| 24 | Nalbari | 82 | 26 | 1 | 73.37 | 5.837 | 0.117 |
| 25 | Baksa | 515 | 412 | 3 | 212.35 | 307.800 | 6.156 |
| 26 | Darrang | 428 | 695 | 0 | 113.15 | 148.152 | 2.966 |
| 27 | Udalguri | 408 | 690 | 0 | 377.35 | 530.100 | 10.602 |
| 28 | Biswanath | 183 | 305 | 1 | 98.80 | 84.952 | 1.693 |
| 29 | Charaideo | 162 | 805 | 0 | 304.60 | 167.882 | 3.339 |
| 30 | Hojai | 62 | 101 | 0 | 41.93 | 17.738 | 0.352 |
| 31 | Majuli | 115 | 296 | 0 | 66.14 | 24.008 | 0.477 |
| 32 | South Salmara | 37 | 106 | 0 | 18.53 | 29.248 | 0.586 |
| 33 | West Karbi Anglong | 209 | 150 | 0 | 45.50 | 26.973 | 0.540 |
| | Total | 8,722 | 32,353 | 83 | 13,064.52 | 9,097.666 | 181.327 |

Source: Compiled from Statistical Handbook, Assam, 2025

A district-wise analysis shows that Lakhimpur occupies a leading position in all major indicators. The district alone accounts for 906 villages and 8,232 families, along with the highest area under food plants (2381.13 hectares). It also records the maximum production of 2057.291 lakh cocoons and 40.971 thousand kg of raw silk, indicating a high level of specialisation and efficiency in Muga cultivation.

Similarly, Dhemaji shows significant engagement with 415 villages and 3,203 families, contributing substantially to production with 957.566 lakh cocoons and 19.051 thousand kg of silk. Kamrup also emerges as an important district, with 370 villages and 3,080 families, producing 814.707 lakh cocoons and 16.304 thousand kg of raw silk, reflecting its growing importance in the Muga sector.

Districts such as Dibrugarh, Sivasagar, and Golaghat also demonstrate considerable participation and production. For instance, Dibrugarh has 1,840 families engaged, producing 463.398 lakh cocoons, while Sivasagar and Golaghat maintain steady production levels, indicating their established role in the traditional sericulture belt of Upper Assam.

Overall, the data highlights that Muga sericulture in Assam is characterised by regional concentration, varying levels of participation, and inter-district disparities in productivity. The dominance of Upper Assam districts reflects favourable ecological conditions and historical continuity, while other districts show potential for expansion through improved institutional support, awareness, and technological intervention.

PRODUCTION TREND

The production trend during 2015–16 to 2024–25 shows fluctuations due to climatic conditions, pest incidence, and environmental changes. Nevertheless, the overall production trend indicates long-term growth in the Muga sector.

The time-series data (Table 2) on Muga cocoon and raw silk production in Assam over the period 2015–16 to 2024–25 reveals a fluctuating but overall growth-oriented trend. The production of Muga cocoons increased from 4,383.08 lakh numbers in 2015–16 to 10,389.88 lakh numbers in 2018–19, showing a significant expansion during the initial phase. A similar pattern is observed in raw silk production, which rose from 87.66 thousand kg to 207.80 thousand kg during the same period, indicating a strong and direct relationship between cocoon output and silk production.

However, the trend does not remain uniform throughout the period. A decline is observed in 2017–18, where cocoon production dropped to 4,368.78 lakh numbers, followed by a sharp increase in the subsequent year. This fluctuation suggests that Muga sericulture is highly sensitive to external factors such as climatic conditions, host plant availability, and disease incidence.

The production reached its peak in 2021–22, with 10,677.71 lakh cocoons and 210.50 thousand kg of raw silk, representing the highest output during the entire study period. This peak indicates a period of favorable production conditions, possibly supported by improved cultivation practices, government interventions, and increased participation of farming households.

In the subsequent years, a gradual declining trend is observed. Cocoon production decreased from 10,439.93 lakh numbers in 2022–23 to 9,097.666 lakh numbers in 2024–25, while raw silk production declined from 211.27 thousand kg to 181.327 thousand kg during the same period. This downward movement suggests emerging challenges in the sector, which may include environmental stress, declining productivity, or limitations in institutional support.

Despite these fluctuations, the overall production level remains significantly higher compared to the initial years, indicating long-term growth in the Muga sector.

Table 2: Muga Cocoon & Raw Silk Production in Assam (2015–16 to 2024–25)

| Year | Muga Cocoon Production (Lakh Nos.) | Muga Raw Silk Production ('000 Kg) |
|---------|------------------------------------|------------------------------------|
| 2015–16 | 4383.08 | 87.66 |
| 2016–17 | 5931.58 | 118.63 |
| 2017–18 | 4368.78 | 87.37 |
| 2018–19 | 10389.88 | 207.80 |
| 2019–20 | 10235.00 | 204.50 |
| 2020–21 | 9330.00 | 186.60 |
| 2021–22 | 10677.71 | 210.50 |
| 2022–23 | 10439.93 | 211.27 |
| 2023–24 | 9780.00 | 195.00 |
| 2024–25 | 9097.666 | 181.327 |

Source: Data compiled from multiple editions of Statistical Handbook of Assam (2016–2025)

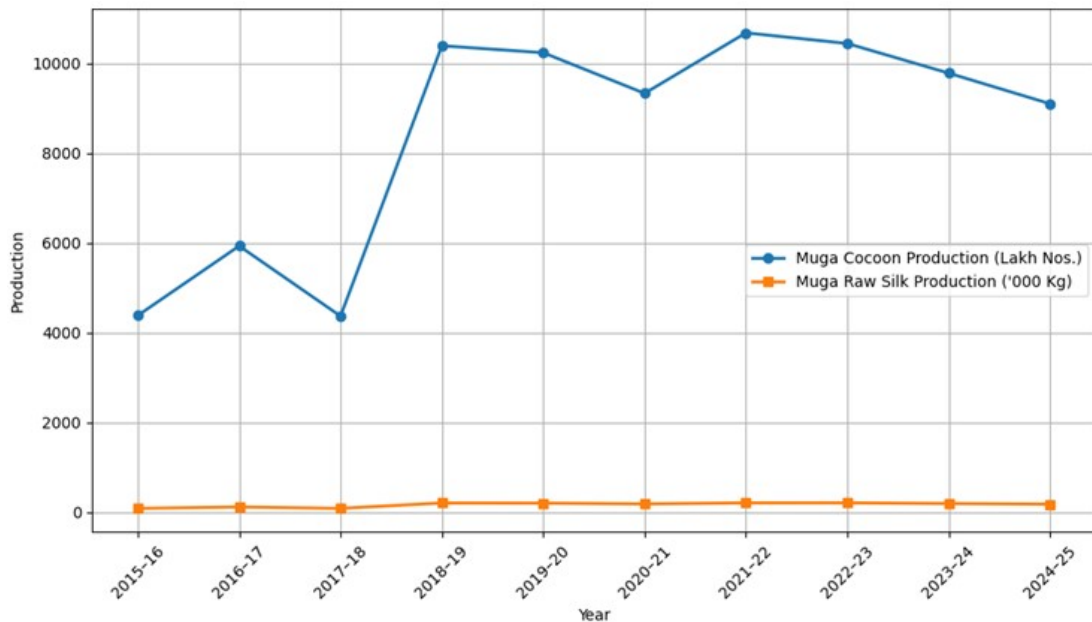


Figure 2: Muga Cocoon & Raw Silk Production Trend in Assam (2015–16 to 2024–25).

TRADITIONAL KNOWLEDGE AND PRACTICES ASSOCIATED WITH MUGA CULTURE

The traditional practices of Muga culture followed by rearers in Assam reflect a rich body of indigenous knowledge developed over generations. These practices were documented through personal interviews conducted during the field survey. The entire process—from seed production to cocoon harvesting—is deeply rooted in local customs, beliefs, and ecological understanding.

Sericulture has long been an integral part of the cultural and economic heritage of Assam. The climatic conditions of the North-Eastern region of India are particularly favourable for the cultivation of non-mulberry silkworms such as Muga and Eri. Assam alone contains nearly 38,000 sericulture villages and about 9.5 lakh households are directly involved in silk production (Central Silk Board, 2021). A large proportion of these households continue to practice sericulture using indigenous knowledge systems and traditional techniques that have been inherited through generations (Goswami, 1986).

These traditional practices are closely associated with the local culture and lifestyle of the people. While many of these practices are based on empirical observations and scientific reasoning, some are rooted in traditional beliefs and customs.

The indigenous methods followed in Muga culture may broadly be categorised into three main stages: **pre-rearing practices, rearing practices, and weaving technologies**. These techniques have evolved over centuries through the accumulated knowledge of local communities who have been engaged in sericulture activities (Phukan, R. ,Choudhury, S.N. 2006).

The practice of Muga culture in Assam is primarily undertaken by several ethnic communities including the Tai-Ahom, Kachari, Chutia, Koch, Kalita and Jogi communities. Among these groups, the Tai-Ahom community has historically played a significant role in the development and dissemination of knowledge related to Muga silkworm rearing, reeling, and weaving. Some members of these communities practice reeling and weaving commercially, while others produce silk fabrics for household consumption. In many cases, farmers sell their cocoons immediately after harvesting (Paul, 2015).

Traditional Muga rearers continue to rely on locally available materials such as bamboo, straw, and plant products for the construction of rearing appliances and equipment. Various traditional tools are used during the **rearing process including jali (cocoonage made of dry leaves), khorika (bundles of straw or culms), chandali or chaloni (bamboo trays), bamboo pera (cocoon storage cages), dhenu (bow), batalu guti (clay pellets) and khurung (small baskets for storing pellets)**. These indigenous tools demonstrate the ecological adaptability and resourcefulness of the traditional sericulture system(Chakravorty et al, 2015).

Another distinctive feature of traditional Muga culture is the reliance on biological and mechanical methods to control pests and predators. Farmers rarely use chemical pesticides because silkworms themselves are insects and can be adversely affected by chemicals applied to host plants. As a result, the indigenous pest control methods followed by farmers are generally Eco-friendly and sustainable.

MAJOR FINDINGS OF THE STUDY

The present study on *Status Muga Culture and Livelihood in Assam* reveals several important findings regarding the historical significance, present status, traditional practices, and livelihood contribution of Muga culture in Assam.

- Muga culture is one of the oldest traditional agro-based industries of Assam and forms an integral part of the socio-cultural heritage of the state. Historical evidence indicates that the industry flourished during the Ahom period and continued to survive through the colonial and post-independence periods despite various economic and environmental challenges.
- Muga silk is exclusively produced in Assam from the semi-domesticated silkworm *Antheraea assamensis* and is globally recognised for its natural golden colour, durability, and lustre. The Geographical Indication (GI) status granted in 2007 has further strengthened the identity and market value of Assam Muga silk.
- The study reveals that Muga culture continues to provide significant livelihood opportunities to rural households through activities such as host plant cultivation, silkworm rearing, cocoon production, reeling, weaving, and marketing. Women play a dominant role particularly in reeling and weaving activities, thereby contributing to women's economic participation and empowerment.

- District-wise analysis shows that Muga culture is highly concentrated in Upper Assam districts such as Lakhimpur, Dhemaji, Golaghat, Jorhat, and Sivasagar due to favourable ecological conditions and historical continuity. Among these districts, Lakhimpur occupies the leading position in terms of number of families engaged, area under host plants, cocoon production, and raw silk output.
- The production trend analysis from 2015–16 to 2024–25 indicates fluctuations in cocoon and raw silk production. Although the overall trend shows long-term growth, production levels are highly influenced by climatic variability, pest incidence, host plant availability, and environmental changes.
- Traditional knowledge systems continue to play a vital role in Muga culture. Farmers still depend on indigenous practices and locally available materials for rearing, cocoon preservation, pest control, and weaving activities. These practices are largely eco-friendly, sustainable, and adapted to local environmental conditions.

SUGGESTIONS AND POLICY MEASURES

The following measures may help strengthen the Muga silk industry in Assam:

- Expansion of host plant plantations through government support.
- Introduction of scientific and climate-resilient rearing techniques.
- Strengthening research and extension services.
- Financial assistance and credit facilities for rearers and weavers.
- Development of modern cocoon markets and silk processing units.
- Promotion of Muga silk through branding and international marketing.
- Skill development programmes for youth and women.
- Preservation and documentation of indigenous knowledge systems.

CONCLUSION

Muga culture continues to occupy a vital place in the socio-economic and cultural life of Assam. The study reveals that Muga sericulture not only preserves the rich traditional heritage of the state but also provides sustainable livelihood opportunities to thousands of rural families, particularly women. Despite facing challenges such as climate change, pest infestation, declining host plant resources, and shortage of skilled labour, the sector has shown resilience and long-term growth potential. The continuation of indigenous knowledge systems, combined with scientific intervention, institutional support, and effective marketing strategies, can ensure the sustainable development of the Muga silk industry. Therefore, the protection, promotion, and modernization of Muga culture are essential for strengthening rural economy, preserving cultural identity, and enhancing Assam's position in the global silk market.

REFERENCES

1. Ahmed, S. A., & Rajan, R. K. (2011, December). *Exploration of vanya silk biodiversity in North Eastern region of India: Sustainable livelihood and poverty alleviation. Paper presented at the International Conference on Management, Economics and Social Sciences (ICMESS), Bangkok, Thailand.*
2. Baishya, P. (1986). *The role of small scale and cottage industries: A case study in Kamrup district, Assam (Doctoral thesis, Gauhati University, Assam, India).*
3. Barua, B. K. (1969). *Cultural history of Assam (Early period). Lawyer's Book Stall.*
4. Basu, B. C. (1915). *The silk industry of Assam. Government Printing Press.*
5. Bhattacharya, P., & Goswami, B. C. (2020). *Traditional practices and economic importance of muga silk in Assam. Indian Journal of Traditional Knowledge, 19(2), 345–352.*
6. Bhattacharyya, M. (2015). *Economics of sericulture in Assam (Doctoral thesis, Gauhati University, Assam, India).*
7. Bhattacharyya, M., & Goswami, C. (2015). *Muga industry—A pride of Assam: An estimation of employment generation, Kamrup district. Space and Culture, India, 3(2), 42–53.*
8. Bharali, N. (1969). *History of muga silk industry in Assam. Indian Silk, 7(12), 13–14.*
9. Chakravarty, P. (2015). *Pat-muga industry as a source of women empowerment in rural areas of Kamrup district of Assam. International Journal of Scientific Research, 5(10), 1–3.*
10. Choudhury, S. N. (1982). *Muga silk industry. Directorate of Sericulture, Assam.*
11. Choudhury, S. N. (1992). *Profiles of silk industry. Directorate of Sericulture, Assam.*
12. Gait, E. A. (1905). *History of Assam (Rev. ed. by B. K. Barua & Murthy).*
13. Gangopadhyay, D. (2008). *Women participation in sericulture and its impact on rural economy. Indian Silk, 47(5), 20–24.*
14. Gangopadhyay, D. (2009). *Sericulture industry in India—A review. NISTADS, CSIR.*
15. Geetha, P. G. (2007). *Reshme ugama belavanige: Ithihaasada putagalinda. Department of Sericulture, Government of Karnataka.*
16. Mahan, B. (2012). *Silk industry among the Tai-Ahom of Assam, India as an attraction of tourist. International Journal of Scientific and Research Publications, 2(12), 1–4.*
17. Paul, A. (2015). *Empowerment of indigenous people through commercialisation of indigenous knowledge: A study of muga silk weavers in Lakhimpur district of Assam (Doctoral thesis, Rajiv Gandhi University, Arunachal Pradesh, India).*
18. Central Silk Board. (2019-23). *Annual Report. Ministry of Textiles, Government of India.*
19. *Statistical Handbook of Assam. (2016–2025). Directorate of Economics and Statistics, Government of Assam.*

