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Cocoon and Raw Silk Production in Assam: Growth, Composition and Instability Analysis

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Abstract

Assam is a major producer of eri and muga silk in India, but interpretation of its production trajectory depends on consistent reporting across statistical sources. This study examines variety-wise raw silk production in Assam from 2010-11 to 2022-23 using a published compilation of the Statistical Handbook of Assam for 2010-11 to 2021-22 and the 2022-23 figures reproduced by the North Eastern Development Finance Corporation (NEDFi). Annual growth rates, compound annual growth rates (CAGRs), ordinary least-squares (OLS) trends and coefficients of variation (CVs) are used to describe growth, composition and variability. In the compiled series, reported raw silk output increased from 935.40 metric tonnes (MT) in 2010-11 to 5,721.20 MT in 2022-23, a CAGR of 16.3%. The fitted linear trend indicates an average increase of approximately 424.52 MT per year (R^2 = 0.933). Eri's share rose from 86.7% to 95.9%, while muga's share declined despite an increase in its reported output. Mulberry production peaked at 68.70 MT in 2019-20 and then fell to 22.11 MT in 2022-23. The CV of total output was lower in 2016-17 to 2022-23 than in 2010-11 to 2015-16, although this comparison is descriptive and does not by itself establish lower production risk. Substantial differences between the handbook-based series and other official reporting especially for 2018-19 limit direct interpretation of the observed fluctuations. The findings therefore indicate growth in the compiled series, increasing concentration in eri silk, and an urgent need to reconcile source definitions and annual observations before using the estimates for policy conclusions.

Keywords: sericulture; eri silk; muga silk; cocoon production; growth and instability; Assam

1. Introduction

India is the world's second-largest silk producer after China. Its output reached 34,903 MT in 2021-22, about 18 per cent of the world total, and within the country Assam ranks third behind Karnataka and Andhra Pradesh (Dekaraja & Borah, 2024). The state's position is unusual because it rests on the wild and semi-domesticated silks rather than on mulberry. Assam accounts for roughly 95 per cent of the country's muga and 65 per cent of its eri, according to figures from the Directorate of Sericulture reported by Dekaraja and Borah (2024); the Economic Survey of Assam puts the eri share at 62 per cent (Daimary, 2025). Muga received a Geographical Indication (GI) tag in 2007, and its commercial rearing is concentrated mainly in Upper Assam, while seed cocoon production is mostly in Lower Assam (Brahma, 2016, as cited in Dekaraja & Borah, 2024).

Sericulture is also important for the people engaged in it. More than three lakh families in rural and semi-urban Assam are linked to the activity, and it requires little fixed capital (Daimary, 2025). For a household with a small plot, a few host plants and spare labour, it can be a second income rather than a full-time occupation. A household study of muga rearing in Dhemaji district describes it in just these terms, as an avocation pursued between other farming activities that

contributes significantly to total household income (Konwar et al., 2024). Tracking the sector's output carefully therefore matters, since a swing of a few hundred tonnes has direct consequences for the households concerned. Two terms need to be distinguished at the outset. Cocoon production is the harvest of the rearing stage, counted in thousand kg for eri and mulberry and in lakh numbers for muga. Raw silk, or silk yarn, is what remains after the cocoons are processed. The *Statistical Handbook of Assam* reports both, side by side, for every district and for the state (Directorate of Economics and Statistics [DES], 2025).

1.1 Literature review

The economics of Assam's silks has been examined from several angles, though rarely with a long production series at the centre. De and Das (2010) compared eri, muga and mulberry as sources of employment and income, and their tables of variety-wise raw silk output stop at 2004-05. Kherkatary and Daimari (2017, as cited in Daimary, 2025) found that growth in both raw silk production and sericulture employment was uneven and turned negative in some years. The closest precedent is Dekaraja and Borah (2024), who built a series from 2010-11 to 2021-22 using the Statistical Handbook, the Economic Survey and Central Silk Board reports. They report a significant upward trend ($R2 = 0.93$), eri growing fastest, wide variation in the area under host plants, and a fall in the number of muga and mulberry families, and they attribute the instability to climate, floods, credit shortages and gaps in information. Daimary (2025) takes the employment side further, drawing on the Directorate of Sericulture to show that families engaged in eri average about 2.6 lakh, against roughly 35,000 for muga and 32,000 for mulberry, and lists the usual problems of poor seed, weak markets and thin processing capacity.

1.2 Research gap

Three gaps motivate this study. First, the available published analyses provide limited coverage of the latest year examined here. Second, cocoon and raw silk statistics are rarely discussed together, although differences in units and reporting bases make direct comparison difficult. Third, growth analyses do not always distinguish changes in production levels from fluctuations around a trend. This paper addresses these issues by analysing the 2010-11 to 2022-23 raw silk series, comparing two sub-periods, and examining the available 2022-23 cocoon figures with explicit attention to data comparability.

1.3 Objectives

1. To examine the trend, growth and composition of raw silk production (eri, muga and mulberry) in Assam.

2. To assess production instability across two sub-periods and compare the available cocoon and raw silk statistics, while accounting for their unit and reporting limitations.

2. Study Area

The present study covers the entire state of Assam, situated in north-eastern India, with a geographical area of approximately 78,438 km² (Figure 1). According to the *Statistical Handbook of Assam*, the state comprises 35 districts under the administrative classification adopted in the publication (DES, 2025). Assam's physical landscape includes the Brahmaputra and Barak valleys and the adjoining hill regions, creating considerable variation in topography, drainage, soil

conditions, vegetation and local climate. These differences are relevant to sericulture because silkworm rearing depends on suitable temperature and humidity, the availability of appropriate host plants, and effective management practices.

According to the Census of India (Office of the Registrar General & Census Commissioner, India, 2011), Assam had a total population of 31,205,576, with a substantial proportion residing in rural areas. The rural setting is important for understanding sericulture as an agricultural and allied livelihood activity that may contribute to household income, employment generation and the preservation of traditional skills. The production and processing of silk involve several interconnected activities, including host-plant cultivation, silkworm rearing, cocoon harvesting, silk processing and marketing. These activities can be integrated with other agricultural and household occupations, although the extent of participation varies with local resources, market access, technical knowledge and household circumstances. Assam is particularly significant for the production of three principal varieties of silk: eri, muga and mulberry. Eri silk, obtained from Samia ricini, is generally associated with castor-based and other suitable host-plant systems and is commonly processed through spinning. Muga silk, produced by Antheraea assamensis, is distinguished by its natural golden-yellow appearance and its close association with the traditional sericulture practices of Assam. Mulberry silk, produced by Bombyx mori, depends on mulberry leaves and is generally characterised by continuous filaments suitable for reeling. These varieties differ in their biological requirements, production practices and processing methods; their production patterns are therefore examined separately wherever comparable statistical data are available. District-level differences add a further dimension. For example, Kokrajhar district reported 540.88 thousand kg (540.88 MT) of eri cocoons in 2022-23, about 8 per cent of the state total of 6,847.90 thousand kg (North Eastern Development Finance Corporation [NEDFi], n.d.). Differences in host-plant availability, environmental conditions, the concentration of rearers, traditional knowledge and market connectivity may contribute to such variation between districts.

Environmental conditions are another important dimension of the study. Silkworm development is sensitive to temperature and relative humidity, while rainfall and seasonal variability may influence both the rearing environment and the availability and quality of host-plant leaves. Unfavourable conditions during critical stages of a rearing cycle may affect feeding, development, survival and cocoon formation, and the nature and magnitude of these effects vary with the silkworm species, developmental stage and management practices. Dekaraja and Borah (2024) identify climatic conditions among the factors behind the instability of sericulture output in Assam. Climatic variability is therefore an important contextual factor for interpreting changes in production, although its specific influence cannot be evaluated here without comparable climatic data.

The statistical analysis is conducted at the state level because the district-wise data in the *Statistical Handbook of Assam* do not provide a sufficiently consistent annual series for the intended temporal analysis. The state is a common geographical unit for examining changes in cocoon and raw silk production over time and for comparing the relative contributions of the different silk varieties. The analysis therefore covers annual production trends, growth rates, percentage shares and temporal fluctuations. The absence of a continuous and comparable district-level series restricts the assessment of long-term spatial differences; this limitation is

acknowledged, and district-level observations are used only where the relevant figures are available and comparable.

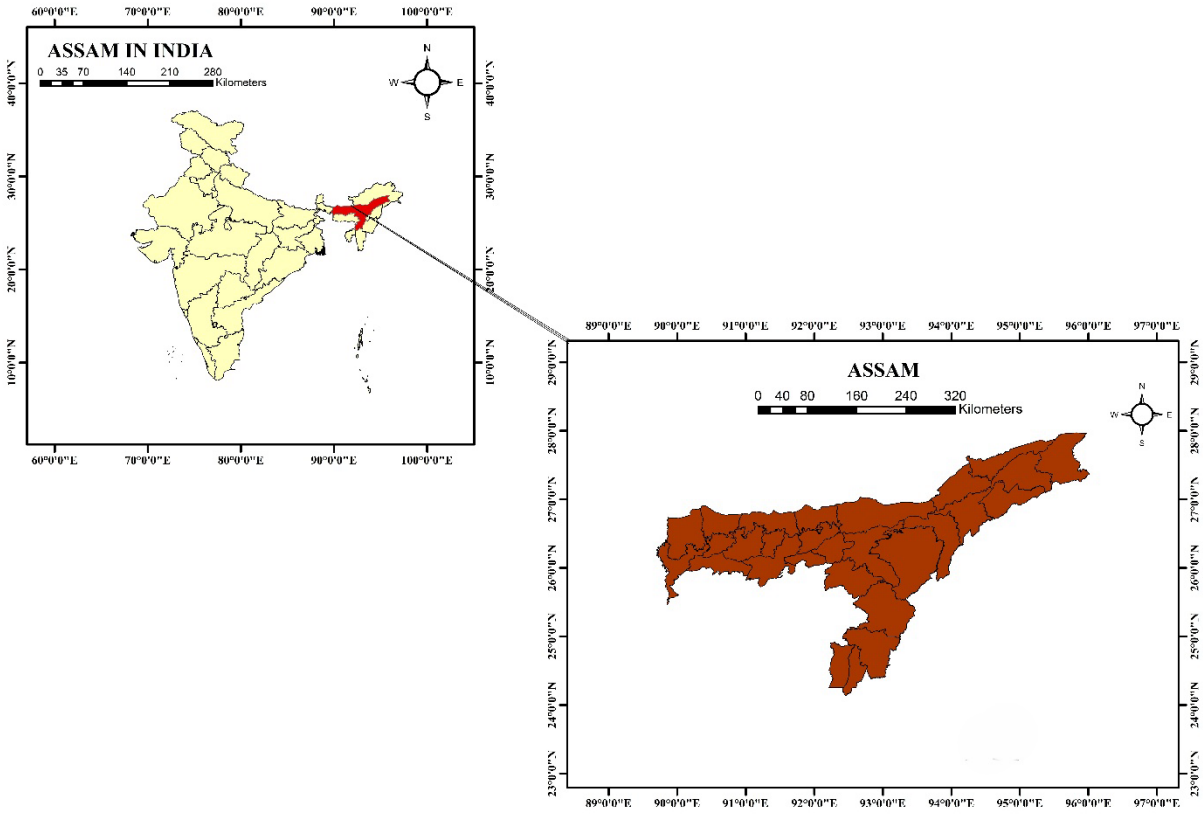


Figure 1. Location of the study area (Assam, India).

Source: *Prepared by the author using ArcGIS.*

3. Database and Methodology

3.1 Database

The study is built entirely on secondary data, and no primary survey was conducted. The principal source is the Statistical Handbook of Assam, an annual publication of the Directorate of Economics and Statistics (DES), whose sericulture chapter carries the table "Production of cocoon and raw silk in Assam" (DES, 2025). The variety-wise annual series for 2010-11 to 2021-22 was taken as published in Dekaraja and Borah (2024), who compiled it from the handbook issues of 2010 to 2023. The 2022-23 figures come from the 2023 handbook as reproduced by the NEDFi DataBank (NEDFi, n.d.). Assam's share of India's raw silk output is taken from the Central Silk Board figures given in Dekaraja and Borah (2024). In each of the 12 years from 2010-11 to 2021-22, the published total equals the sum of the three varieties (to within rounding), and the 2022-23 total was computed in the same way. Raw silk is expressed in metric tonnes (MT); cocoon figures are in thousand kg for eri and mulberry and in lakh numbers for muga.

3.2 Methods

The analysis uses the following measures; all computed from the series described above. The annual growth rate (AGR) shows year-to-year movement, and the compound annual growth rate (CAGR) summarises a whole period:

$$\boldsymbol{AGRt = [(Yt - Yt-1) / Yt-1] \times 100} \quad (1)$$

$$\boldsymbol{CAGR = [(Yn / Y0)1/n - 1] \times 100} \quad (2)$$

where Y is production and n is the number of annual intervals (12 for the full period, 5 for Period I and 6 for Period II). The annual growth rate is calculated as $[(Y_t - Y_{t-1}) / Y_{t-1}] \times 100$, and CAGR as $[(Y_n / Y_0)^{(1/n)} - 1] \times 100$. Instability is measured using the coefficient of variation (CV), calculated as the sample standard deviation divided by the arithmetic mean and multiplied by 100. The trend is estimated by ordinary least squares (OLS), Y = a + bt, with t running from 1 for 2010-11 to 13 for 2022-23 (Gujarati & Porter, 2009). A semi-log regression, ln(Y) = α + βt, gives the exponential growth rate as $[e^{\beta} - 1] \times 100$. For the instability comparison, the series is divided into Period I (2010-11 to 2015-16) and Period II (2016-17 to 2022-23). The two sub-period CAGRs are calculated over five and six annual intervals, respectively. Because the CV of a trending series can be inflated by the trend itself, a supplementary residual-based measure is also reported in Section 4.3; it is not the Cuddy-Della Valle index. Finally, the 2022-23 cocoon and raw-silk figures are compared descriptively, with explicit caution that the resulting ratios are not technical conversion efficiencies. Statistical analysis and mapping were carried out using MS Excel, SPSS and ArcGIS. Figure 2 summarises the design.

$$\boldsymbol{CV = (\sigma / \mu) \times 100} \quad (3)$$

where σ is the sample standard deviation (n − 1 in the denominator) and μ is the arithmetic mean. The trend is estimated by ordinary least squares (OLS), Y = a + bt, with t running from 1 for 2010-11 to 13 for 2022-23 (Gujarati & Porter, 2009). A semi-log regression, ln Y = α + βt, gives the exponential growth rate as $(e^{\beta} - 1) \times 100$. For the instability comparison, the series is divided into Period I (2010-11 to 2015-16) and Period II (2016-17 to 2022-23), so that the growth between 2015-16 and 2016-17 belongs to neither. Because the CV of a trending series is inflated by the trend itself, a detrended CV is also reported in Section 4.3, in the spirit of the correction for trend proposed by Cuddy and Della Valle (1978). It is calculated as the standard error of the within-period linear trend regression, expressed as a percentage of the period mean. Finally, the 2022-23 cocoon and raw silk figures are set against each other to obtain a conversion ratio for each variety. Statistical analysis and mapping were carried out using MS Excel, SPSS and ArcGIS. Figure 2 summarises the design.

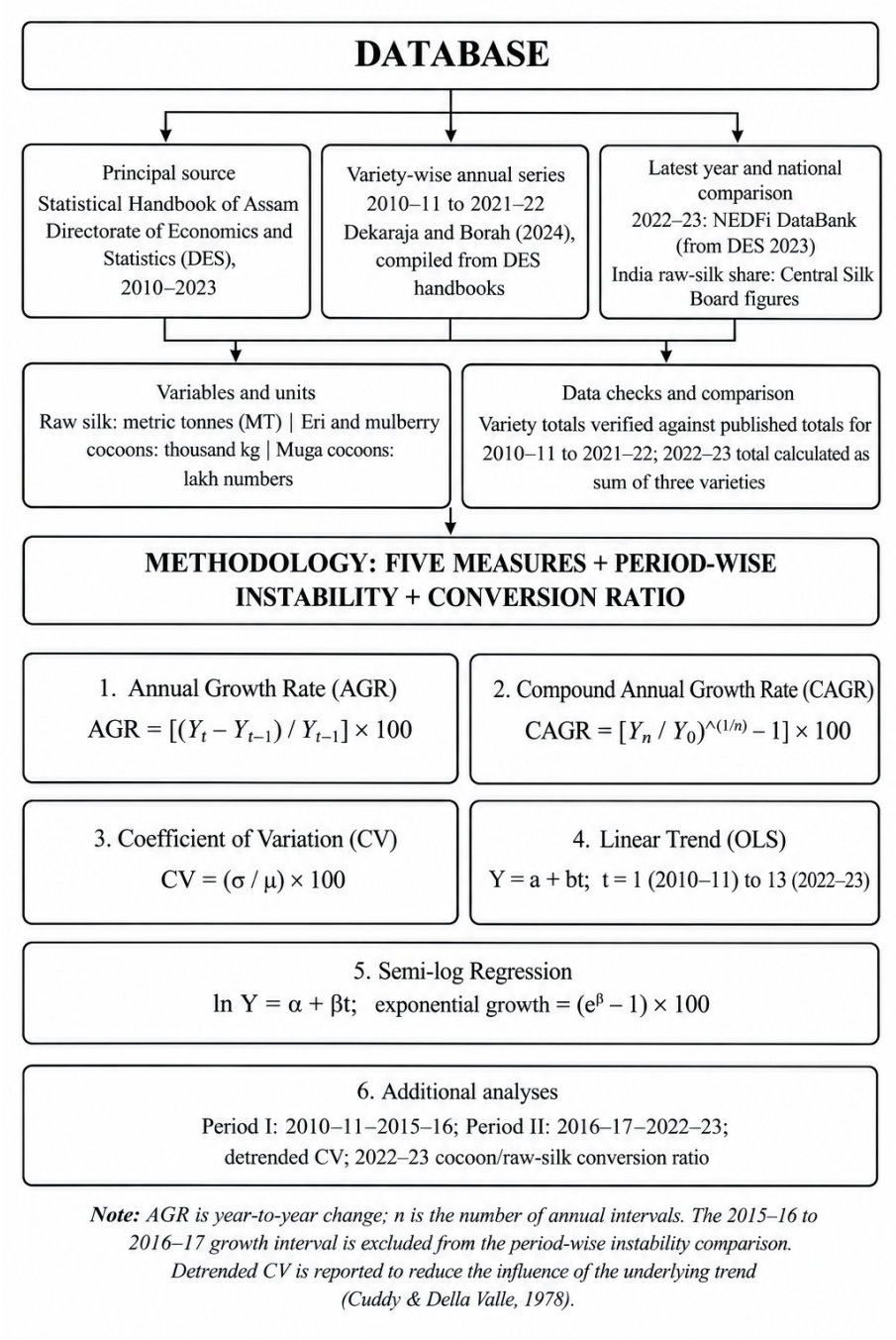


Figure 2. Database and methodological framework.

Source: *Prepared by the author.*

4. Results and Discussion

4.1 Growth in raw silk production

Raw silk production in Assam rose from 935.4 MT in 2010-11 to 5,721.2 MT in 2022-23, roughly a six-fold increase (Table 1), which works out to a compound growth of 16.3 per cent a year. The path was far from smooth. Output grew by 74.2 per cent in 2012-13 alone, almost entirely because eri jumped from 1,061.6 to 1,934.0 MT, and it then fell in 2014-15 (−7.5 per cent) and again, much more sharply, in 2018-19 (−25.2 per cent). The rebound in 2019-20 was just as abrupt, at

46.0 per cent. Since then, the series has flattened: growth was 4.4, 1.9 and 1.2 per cent in the last three years, and output has stayed between roughly 5,300 and 5,700 MT.

Table 1. Variety-wise raw silk production in Assam, 2010-11 to 2022-23 (MT)

Year	Eri	Muga	Mulberry	Total	Annual growth of total (%)
2010-11	810.98	113.28	11.14	935.40	–
2011-12	1,061.61	114.56	11.25	1,187.42	**26.94**
2012-13	1,934.00	109.00	25.00	2,068.00	**74.16**
2013-14	2,545.60	127.20	27.24	2,700.04	**30.56**
2014-15	2,345.00	126.00	26.00	2,497.00	**−7.52**
2015-16	2,554.78	127.00	31.02	2,712.80	**8.64**
2016-17	3,468.25	129.60	49.64	3,647.49	**34.45**
2017-18	4,650.00	156.96	59.50	4,866.46	**33.42**
2018-19	3,421.71	157.00	61.00	3,639.71	**−25.21**
2019-20	5,048.80	197.29	68.70	5,314.79	**46.02**
2020-21	5,275.74	240.46	33.41	5,549.60	**4.42**
2021-22	5,420.00	210.50	24.60	5,655.10	**1.90**
2022-23	5,487.82	211.27	22.11	5,721.20	**1.17**

Source: *Dekaraja and Borah (2024), compiled from the Statistical Handbook of Assam, 2010-2023, for 2010-11 to 2021-22; NEDFi (n.d.), citing the Statistical Handbook of Assam 2023, for 2022-23. Growth rates and the 2022-23 total are the author's calculations.*

Figure 3 plots the series against its fitted linear trend. The regression is discussed in Section 4.4; the figure shows that the ups and downs sit around a line that keeps climbing, with the last two observations falling below it, 2022–23 by about 400 MT.

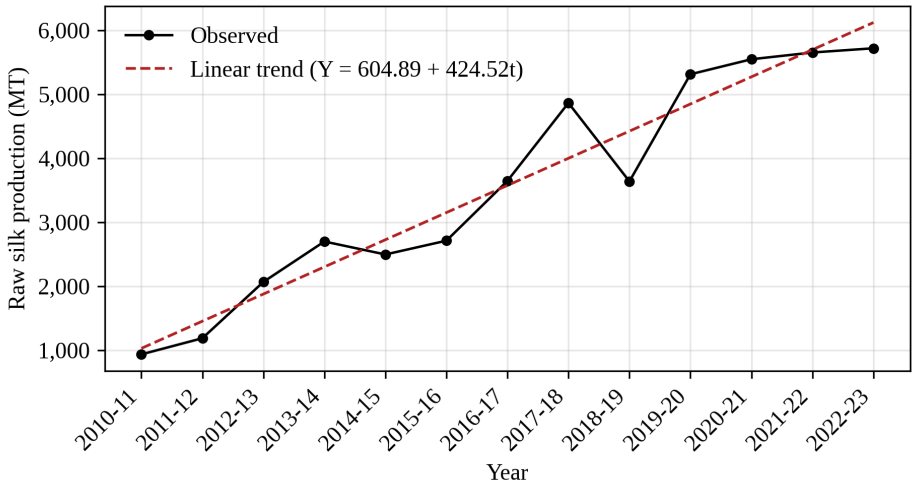


Figure 3. Raw silk production in Assam and its linear trend, 2010-11 to 2022-23 (MT).

Source: *Author's calculations from Table 1.*

4.2 Composition: eri's growing weight

The increase in total output is overwhelmingly an eri story. Eri made up 86.7 per cent of raw silk in 2010-11 and 95.9 per cent in 2022-23, while the muga share slid from 12.1 to 3.7 per cent and mulberry from 1.2 to 0.4 per cent. Muga did not shrink in absolute terms, though. It rose from 113.3 to 211.3 MT, an increase of about 87 per cent, with most of the gain coming after 2016-17

and a peak of 240.5 MT in 2020-21 before easing to 210.5 MT the following year. It simply grew from a much smaller base than eri, which expanded more than six-fold. Mulberry silk followed a different pattern from the other two. It crept up from 11.1 MT to 25.0 MT in 2012-13, climbed to a high of 68.7 MT in 2019-20, then dropped by half in 2020-21 (−51.4 per cent) and kept falling to 22.1 MT in 2022-23. Figure 4 shows muga and mulberry together on one axis because both are small beside eri.

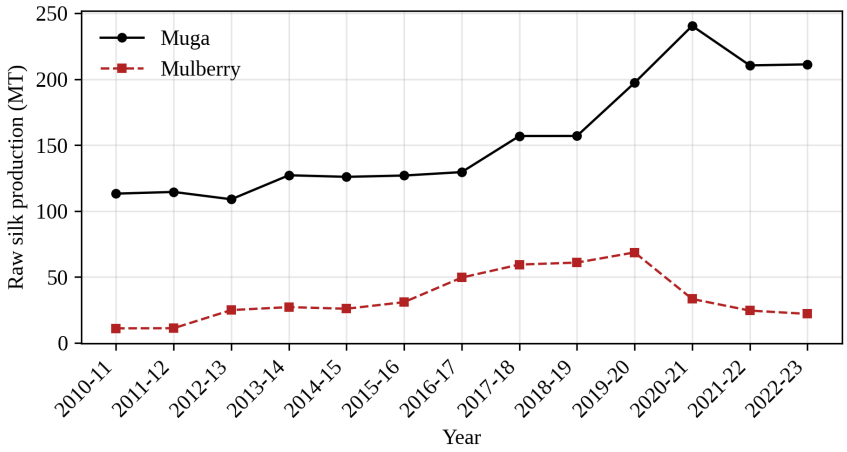


Figure 4. Muga and mulberry raw silk production in Assam, 2010-11 to 2022-23 (MT).

Source: *Author's calculations from Table 1.*

4.3 Growth and instability across two periods

Splitting the series at 2015-16 changes the picture noticeably (Table 2). Total raw silk grew at 23.7 per cent a year in Period I and at 7.8 per cent in Period II, so the pace of expansion slowed even as the level kept rising. The CV fell from 38.7 to 18.6 per cent, which at first glance suggests a calmer sector. Eri behaves in the same way (CV falling from 40.8 to 19.0 per cent), as expected, since it is almost the whole total.

Muga moves the other way. It was remarkably steady in Period I (CV 6.8 per cent, CAGR 2.3 per cent), then became both faster-growing and more variable in Period II (CAGR 8.5 per cent, CV 21.0 per cent) as output stepped up in 2017-18, 2019-20 and 2020-21 before slipping in 2021-22. Mulberry is the least stable variety throughout, with a CV near 40 per cent in both periods, and its Period II CAGR of −12.6 per cent is the only negative growth rate in the table.

Table 2. Mean, coefficient of variation and compound growth of raw silk production by variety

Variety	Full period (2010-11 to 2022-23)			Period I (2010-11 to 2015-16)			Period II (2016-17 to 2022-23)		
	Mean (MT)	CV (%)	CAGR (%)	Mean (MT)	CV (%)	CAGR (%)	Mean (MT)	CV (%)	CAGR (%)
Eri	3,386.5	49.1	17.27	1,875.3	40.8	25.80	4,681.8	19.0	7.95
Muga	155.4	28.7	5.33	119.5	6.8	2.31	186.2	21.0	8.49
Mulberry	34.7	54.6	5.88	21.9	39.1	22.73	45.6	41.3	-12.61
Total	3,576.5	47.9	16.29	2,016.8	38.7	23.73	4,913.5	18.6	7.79

Source: *Author's calculations from Table 1. CV is based on the sample standard deviation. Within each period, CAGR is computed over the number of years minus one (5 intervals for Period I, 6 for Period II).*

The coefficient of variation (CV) calculated from production levels can be inflated by a strong time trend. Cuddy and Della Valle (1978) proposed a specific trend-adjusted instability index; the supplementary measure used here is different and should not be called the Cuddy-Della Valle index. It is the residual standard error from a within-period linear trend, expressed as a percentage of the period mean. The standard deviation of year-to-year growth rates was 30.7 percentage points in Period I (2011-12 to 2015-16) and 25.5 percentage points in Period II (2017-18 to 2022-23). The residual-based measure for total output was approximately 16.8% in Period I and 11.6% in Period II. These descriptive indicators suggest lower dispersion around a fitted linear trend in the later period, but they do not establish lower underlying production risk. The sharp reported fall in 2018-19 and rebound in 2019-20 remain influential features of the series.

4.4 Trend estimates

The linear trend for total raw silk adds about 425 MT a year (b = 424.52, t = 12.40, $p < 0.001$), and time alone explains 93 per cent of the variation (R^2 = 0.933). Eri gives almost exactly the same result, as expected, with a slope of 412 MT a year. The trend for muga is smaller in size but still clear, at 10.4 MT a year with R^2 = 0.83. Mulberry is the exception: its slope of 2.1 MT a year is not statistically different from zero (t = 1.63, p = 0.132) and R^2 is only 0.19, which fits the hump rather than a line shown in Figures 4 and 5(d). The semi-log rates in the last column of Table 3 are descriptive and tell the same story: about 15 to 16 per cent a year for total and eri, and 6.8 per cent for muga. The fitted lines, with their 95 per cent confidence bands for the mean trend, are plotted against the observations in Figure 5.

These figures are close to, but not the same as, the equation reported by Dekaraja and Borah (2024) for 2010-11 to 2021-22 (Y = 519.52 + 442.82X, R2 = 0.93), which is also obtained from Table 1 when 2022-23 is excluded. The difference comes from the extra year: adding 2022-23, which lies below the earlier trend, pulls the slope down by about 18 MT. With only 13 annual observations, and with neighbouring years possibly correlated (serial correlation), the standard errors and significance levels from OLS should be read as indicative rather than exact (Gujarati & Porter, 2009).

Table 3. Linear and semi-log trend of raw silk production in Assam, 2010-11 to 2022-23

Variety	Intercept *a* (MT)	Slope *b* (MT per year)	R^2	*t*-value of *b*	Significance	Semi-log growth (% per year)
Total	604.89	424.52	0.933	12.40	$p < 0.001$	15.35
Eri	502.71	411.97	0.933	12.34	$p < 0.001$	16.02
Muga	82.48	10.42	0.827	7.25	$p < 0.001$	6.77
Mulberry	19.70	2.14	0.194	1.63	$p = 0.132$	8.18

Source: *Author's calculations from Table 1 (t = 1 for 2010-11; 11 degrees of freedom).*

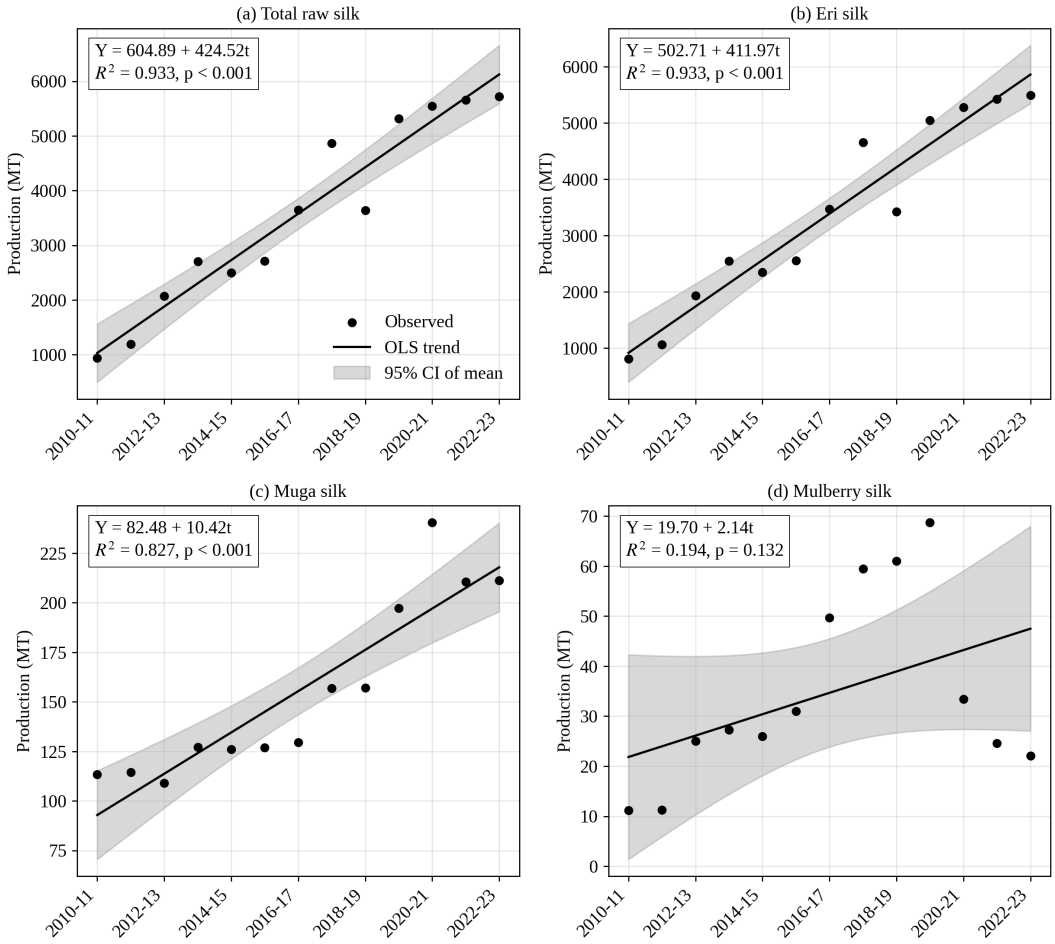


Figure 5. Linear regression of raw silk production on time, Assam, 2010-11 to 2022-23: (a) total, (b) eri, (c) muga and (d) mulberry. Shaded bands show 95 per cent confidence intervals for the mean trend (t = 1 for 2010-11).

Source: *Author's calculations from Table 1.*

4.5 Comparing reported cocoon and raw silk figures, 2022-23

The cocoon figures used here are for 2022-23, so this section is a single-year comparison rather than a time-series analysis. The reported figures are 6,847.90 thousand kg of eri cocoons, 10,439.94 lakh muga cocoons and 298.44 thousand kg of mulberry cocoons (Table 4; NEDFi, n.d.). A direct arithmetic comparison produces markedly different ratios across varieties. In particular, the implied eri ratio raw silk equivalent to about 80% of reported cocoon weight is not credible as a technical recovery rate. This signals a likely difference in definitions, reporting coverage, units or compilation rather than a valid conversion efficiency. The ratios are therefore presented only as diagnostic comparisons and must not be interpreted as biological recovery rates or evidence of relative rearing performance. The original handbook table and its metadata should be checked with the responsible agency before these figures are used for technical or policy analysis.

The three varieties are processed differently, and cocoon weights may include the pupa and other material that is not retained in the final silk yarn. Consequently, the reported quantities cannot be assumed to share a directly comparable measurement basis. The unusually high implied

eri ratio reinforces the need to verify the original table headings, units and definitions with the relevant statistical agency before these figures are used for technical or policy analysis.

Table 4. Reported cocoon and raw silk production in Assam by variety, 2022-23

Variety	Cocoon production	Raw silk production	Conversion (derived)
Eri	6,847.90 thousand kg	5,487.82 thousand kg	80.1% of cocoon weight; 1.25 kg cocoon per kg yarn
Muga	10,439.94 lakh cocoons	211.27 thousand kg	About 4,940 cocoons per kg of yarn
Mulberry	298.44 thousand kg	22.11 thousand kg	7.4% of cocoon weight; 13.5 kg cocoon per kg yarn

Source: *NEDFi (n.d.), citing the Statistical Handbook of Assam 2023. Conversion ratios are the author's calculations.*

4.6 Assam in India's raw silk output

The Central Silk Board (CSB) figures reproduced by Dekaraja and Borah (2024) place Assam's share of national raw silk production at 14.2% in 2018-19 and 16.3% in 2021-22 (Table 5). The calculated share increases by just over two percentage points. However, CSB reports 5,026 MT for Assam in 2018-19, compared with 3,639.71 MT in the handbook-based series (Table 1). This substantial discrepancy means that the cross-agency comparison must be treated cautiously. The difference cannot confidently be attributed to actual production change unless definitions, reporting coverage, revisions and compilation procedures are reconciled.

Table 5. Assam's share in India's raw silk production, 2018-19 to 2021-22

Year	Assam, Central Silk Board (MT)	Assam, handbook series (MT)	India (MT)	Assam's share of India (%)
2018-19	5,026	3,639.71	35,468	14.17
2019-20	5,316	5,314.79	35,820	14.84
2020-21	5,462	5,549.60	33,770	16.17
2021-22	5,700	5,655.10	34,903	16.33

Source: *Central Silk Board, Annual Report 2022-23, as cited in Dekaraja and Borah (2024); handbook series from Table 1. Shares are calculated from the Central Silk Board figures.*

4.7 Discussion

Three points stand out. The first is how thoroughly the growth depends on one variety. A state whose silk output is about 96 per cent eri is exposed to anything that disturbs eri rearing, whether a shortage of castor and other host plants, disease in the rearing cycle, or a weak market for eri fabric. Daimary (2025) lists poor seed, thin markets and scarce processing equipment among the persistent problems, and each of them bears more heavily on eri than on the other varieties simply because eri is so large. The second concerns muga, the variety for which Assam is best known. Its output nearly doubled, but its share of the state's silk shrank and it did not follow eri's early surge. Dekaraja and Borah (2024) note that the number of families engaged in muga has fallen; if fewer households are rearing muga while output rises, that points to higher yields per family or to a concentration of production, and the handbook data used here cannot say which. Household-level evidence such as that of Konwar et al. (2024) would be needed to settle the question. The third issue concerns the consistency of the statistical series. The handbook-based series records a sharp decline in 2018-19, whereas the Central Silk Board series reports 5,026 MT for Assam in that year, compared with 3,639.71 MT in Table 1. A separate Press Information Bureau release reports

Assam's eri production as 3,143 MT in 2015-16, compared with 2,554.78 MT in the handbook-based series. These values should not be merged or substituted without confirming the definitions, reporting coverage and compilation methods used by each agency. Accordingly, the analysis retains the stated handbook-based series for internal consistency and treats the cross-source differences as a limitation, not as evidence that one source is necessarily correct.

5. Limitations and data notes

The analytical period is 2010-11 to 2022-23, reflecting the series assembled for this study rather than a claim that later official data do not exist. The Directorate of Economics and Statistics (DES) has published a Statistical Handbook of Assam 2025 containing a 2024-25 cocoon and raw-silk/yarn table. These later observations are not appended to the trend series because the intervening years and cross-source comparability have not been independently harmonised. Earlier figures reported by De and Das (2010) were likewise not appended because their definitions, coverage and reporting agencies were not independently reconciled.

The annual series in Tables 1-3 was taken from Dekaraja and Borah (2024) for 2010-11 to 2021-22, with 2022-23 added from the Statistical Handbook of Assam 2023 as reproduced by NEDFi. The arithmetic sum of the three varieties was checked against the reported total, but this does not establish comparability across agencies or years. The Statistical Handbook of Assam 2025 provides a later table for 2024-25 and labels cocoon production as eri (thousand kg), muga (lakh numbers) and mulberry (thousand kg), while the three raw-silk/yarn columns are also expressed in thousand kg. The 2024-25 observations are not appended to the trend series because the intermediate annual observations and the comparability of the full series have not been independently revalidated. Cocoon production is therefore treated only as a 2022-23 snapshot in the present analysis. District-level temporal patterns are not examined because a consistent annual district series was not established. Differences between agencies for the same year and the short series of 13 annual observations mean that the trend and growth estimates should be treated as descriptive rather than definitive.

6. Conclusion

In the compiled handbook-based series, reported raw silk production increased approximately six-fold between 2010-11 and 2022-23, and nearly all of the increase was associated with eri silk, whose share of the reported state total approached 96%. Muga output increased in absolute terms but accounted for a smaller share, while mulberry output declined after peaking in 2019-20. The descriptive growth rate was lower in the later sub-period, although the series contains substantial fluctuations, particularly in 2018-19 and 2019-20. These findings must be interpreted in light of differences between the handbook-based series, CSB figures and other government reports; the paper does not reconcile those series definitively. The concentration of reported output in eri supports further investigation of host-plant supply, processing capacity and market access, while muga and mulberry trends warrant separate study. Future work should reconcile definitions and annual observations, evaluate comparable later handbook data, and develop a consistent district-level database.

Declarations

Conflict of interest

The author declares no conflict of interest, financial or otherwise, in relation to the research, authorship or publication of this article.

Use of generative AI

During the preparation of this work, the author used AI-based services to improve grammar and expression. The author reviewed and edited all such content and takes full responsibility for the integrity of the final publication.

Data availability

The data analysed are secondary data from the sources cited in the text. The compiled series used in the analysis is reproduced in Table 1.

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