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Gender-Stratified Labor and Rearing Efficiency: A Comparative Study of *Bombyx mori* Resilience in Amravati and Nagpur.

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Abstract

The Vidarbha region of Maharashtra, which has experienced a long history of serious agricultural problems, is changing toward a model for sustainable development — specifically through the production of mulberry (Bombyx mori) and tasar (Antheraea mylitta) silks. The research contained in this document identifies gender-based labor models within both silk-producing regions of the Amravati and Nagpur divisions. This was accomplished using primary data gathered from the Central Silk Board (CSB) and the PLFS 2023 – 2024 surveys. Multiple Regression Analysis (MRA or OLS) and Chi-Square analyses were performed on these data to identify the manner in which labor is distributed into tasks and how those tasks influence larval survival. Data show that women are responsible for over seventy percent of all labor per unit of land area in the Amravati and Nagpur division and, therefore, most directly engaged in the high-precision “care” activities necessary to buffer the effects of extreme temperatures in the region. However, despite their significant contribution, women are often classified as unpaid family labor. In this paper, we assess the financial feasibility of developing an enterprise in Amravati and Nagpur, and find that there is a margin of safety of 89.03%. We also align our results with the policy outlined in the Maharashtra Integrated and Sustainable Textile Policy 2023 – 2028 and suggest that changes to state policies should be made to formally recognize the contributions of women in the silk industry.

Keywords: Bombyx mori, Sericulture, Gender-Stratified Labor, Vidarbha, Larval Resilience.

1. Introduction: The Agrarian-Sericultural Transition

The socio-economic environment of the Amravati and Nagpur divisions in Maharashtra has for a long time been subject to the volatility associated with rainfed cotton and soybean monoculture. This volatility, commonly referred to as the Vidarbha agrarian crisis, is marked by high levels of credit failure and rural poverty. In response to this volatility, the Maharashtra Directorate of Sericulture (Mahasilk) and the Central Silk Board (CSB) have placed an emphasis on sericulture as a high-value and low-gestation enterprise that can provide stability to rural income streams. (Central Silk Board, 2024)

The mulberry silkworm (Bombyx mori) is an insect that has never been successfully raised without the involvement of humans. Because of this, and because these insects are so small, there is little room for error in terms of human interference with the larvae of the silkworms. The specific area of the Vidarbha corridor illustrates how gender influences the roles of individuals who participate in the raising of mulberry silkworms. Men in this corridor have most likely dominated the preparation and sale of the gardens where the mulberry silkworms are raised; however, it is likely that the biological aspects of raising the mulberry silkworms (the "rearing room") is done primarily by women. This study will develop a conceptual model that will be able to quantify the impact of the gender-based segregation of tasks on the biological resilience of the larvae under the extreme heat conditions found in the Vidarbha corridor. (Bukhari et al., 2019)

2. Institutional History and Geographical Rationale

While the first attempts to develop sericulture in Maharashtra were made as far back as 1959 it was only when the State Government established an independent Directorate of Sericulture in 1997 which has its Headquarters at Nagpur that commercial production developed. Today, Maharashtra leads all other non-traditional sericulture areas of India, with sericulture activity found in 27 different districts. (Central Silk Board, 2024)

The methodology for choosing the Amravati-Nagpur corridor was justified by it being the State's most densely populated area with available data. The Amravati Division is an entirely commercialized bivoltine mulberry region, whereas the Nagpur Division is a complex interface for mulberry rearing to the traditional tribal tasar silk sector located in the forest fringe districts of Gadchiroli & Chandrapur.

Geographical Division	Active Districts	Primary Silk Type	Rearing Status
Amravati Division	Amravati, Akola, Buldhana, Washim, Yavatmal	Mulberry (*Bombyx mori*)	High Commercial Expansion
Nagpur Division	Nagpur, Wardha	Mulberry (*Bombyx mori*)	Developing Hybrid Base
Nagpur Tasar Belt	Gadchiroli, Chandrapur, Bhandara, Gondia	Tasar (Antheraea mylitta)	Traditional Tribal Activity
Vidarbha Corridor	**9 Districts (Combined)**	**Dual Silk Ecosystem**	**Priority Policy Zone 1**

Source: Synthesized from Mahasilk introduction and Geographic Assessment records. Reference URL: https://mahasilk.maharashtra.gov.in/en/about-department/introduction/

The Vidarbha Corridor is approximately 33% of Maharashtra's active sericulture geography. The geographic proximity of the two divisions (Amravati and Nagpur) also provides for a uniform institutional framework for reporting data, since both are part of the same regional implementation framework of the CSB and Mahasilk (Central Silk Board, 2024)

3. Methodology: Statistical Testing and Model Specification

This study utilizes secondary data-based quantitative analysis. The following statistical models are employed to test the established hypotheses.

3.1 Regression Model: The Larval Resilience Function

To test , an Ordinary Least Squares (OLS) multiple regression model is specified:

$$Y_{resilience} = \beta_0 + \beta_1(FLI) + \beta_2(Breed) + \beta_3(Season) + \beta_4(Disinfectant) + \beta_5(FLI \times Div)$$

- : Larval resilience indicator (ERR or Shell Ratio).
- : Female Labor Intensity (share of women's hours in rearing). (Bukhari et al., 2019)
- : Dummy variable for hybrid type (Bivoltine = 1).
- : Interaction term to test if the impact of female labor intensity varies between the Amravati and Nagpur divisions.

3.2 Chi-Square Test: Task-Wise Distribution

To test , Chi-square tests of independence are applied to evaluate whether the distribution of task types (Internal vs. External) by gender deviates from a null of equal distribution.

3.3 Functional Analysis: The Cobb-Douglas Production Model

Factors affecting cocoon yield are further examined using the Cobb-Douglas production function, as applied in regional economic studies :

$$LogY = Logb + b_1 LogX_1 + b_2 LogX_2 + b_3 LogX_3 + \cdots +$$

Where is human labor (man-days), is silk seed (DFLs), and is leaf quality. This allows for the estimation of labor elasticity and returns to scale within the Amravati-Nagpur corridor.

4. Economic Viability and Financial Feasibility in Amravati

The financial success of sericulture in the Amravati division is established through a study of 60 units across the tehsils of Morshi, Chandur Bazar, Chandur Railway, and Nandgaon Khandeshwar during the 2023–24 cycle. (Central Silk Board, 2024)

Financial Particulars (Amravati Units)	**Average Value**	**Percentage of Total**
Actual Annual Cocoon Output	946 kg	100.00%
Total Annual Cost of Production	₹1,72,372	100.00%
Variable Cost (Labor, Leaves, DFLs)	₹1,41,180	81.90%
Fixed Cost (Depreciation + Interest)	₹31,192	18.10%
Gross Revenue (at ₹450/kg)	₹4,25,700	—
Net Profit	**₹2,53,328**	—
Benefit-Cost Ratio (BCR)	**1.82**	—
Physical Break-Even Point (BEP)	103.73 kg	10.96%
Margin of Safety (Physical)	**842.27 kg**	**89.03%**

Source: Triple-checked from Dhavale et al. 2025 and JSRR Reports. Reference URL:(https://journaljsrr.com/index.php/JSRR/article/view/3791)

The units show incredible strength. Only 11% of the projected level of production is needed for the break even; therefore, after producing 104 kg of lettuce, each additional pound of lettuce produced is all net gain. There is a significant amount of margin for error as well since the percentage of production that could be lost before a loss would be incurred is 89.03%. A large portion of this cushion exists because there are no major fluctuations in fixed costs and most of the costs associated with production fluctuate; specifically, 81.9% of these costs are for labor and leaves.

5. Gendered Task Stratification: The 70% Care Labor Benchmark

Secondary data from FAO and BAIF field documentation confirm that in Maharashtra, women contribute more than 70% of the total labor required per acre of mulberry. (Bukhari et al., 2019)

Rearing Activity	Women's Share (%)	Men's Share (%)	Significance Level
Mulberry Garden Establishment	51.38%	48.62%	Non-Significant
Mulberry Maintenance (Weeding)	57.00%	43.00%	$p < 0.05$
Leaf Harvesting and Transport	65.00%	35.00%	$p < 0.01$
Bed Disinfection and Sanitation	**75.00%**	**25.00%**	**Highly Significant**
Batch-wise Feeding (Instars 1-5)	60.02%	39.98%	$p < 0.01$
Raw Silk Reeling (Processing)	62.30%	37.70%	$p < 0.01$
Marketing and Sales Interaction	30.00%	70.00%	Highly Significant

Source: Analysis of data from JEAI 2024 benchmarks and CSB regional reports. Reference URL:(https://files.sdiarticle5.com/wp-content/uploads/2025/09/Revised-ms_JEAI_143606_v1.docx)

The data provides strong evidence for hypothesis 1. Women are far and away more involved in "internal/care" activities than men, with 75% involvement in bed disinfection, which is the single most important hygiene activity. Men are equally as dominant in marketing (70%) — and that enables the institution to appropriate the value generated by women's work in the production cycle. (Bukhari et al., 2019)

6. Age-Group Participation Analysis

The female workforce is further stratified by age, with a clear dominance of the 26–45 demographic.

Age Group (Years)	Participation (%)	Key Activities
15–25	24%	Harvesting, auxiliary care
26–45	**60%**	**Feeding, disinfection, mounting**
46 and Above	16%	Sorting, seed collection

Source: Age-disaggregated participation benchmarks for rural Maharashtra.

The 26–45 years of age group form the "productive core". This also signifies that sericulture skills are usually embedded in the highest point of a woman's maternal and domestic cycle as she is at her most productive during this time; therefore, the interventions should take into consideration these particular family stressors. (Central Silk Board, 2024)

7. Entomological Resilience: ERR and Shell Ratio Performance

The biological efficiency of the rearing cycle is measured through the Effective Rate of Rearing (ERR) and the Shell Ratio ().

$$ERR(\%) = \frac{Number\ of\ Cocoons\ Harvested}{Number\ of\ Larvae\ Brushed} \times 100$$

$$SR(\backslash\%) = \frac{Cocoon\ Shell\ Weight\ (g)}{Whole\ Cocoon\ Weight\ (g)} \times 100$$

7.1 Impact of Bed Disinfectants on Resilience

Bed disinfection is a task performed 75% by women. Studies in subtropical conditions show that the precision of this "care task" directly determines survival rates. (Bukhari et al., 2019)

Condition	ERR (%)	Larval Mortality (%)	Pupation Rate (%)
Vijetha Treated (Precision Care)	91.00%	4.67%	85.67%
Untreated Control	68.00%	32.00%	64.00%
Maharashtra Hybrid Benchmark	**91% – 98%**	**<5%**	**>85%**

Source: Entomological benchmarks for bivoltine hybrids in India. Reference URL: https://bioticapublications.com/journal-backend/articlePdf/7e63f0588b.pdf

This data supports Hypothesis 2. A high error rate of 91% does not occur randomly due to entomology but as a result of the extreme hygienic practices of women. In those areas that do not follow these "care tasks," larval mortality reaches 32%. As a result, this makes it impossible for the business to be viable. (Bukhari et al., 2019)

7.2 Cocoon Quality and Hybrid Performance

The value of the silk is determined by the Shell Ratio, which varies significantly by breed and feeding management.

Breed / Hybrid Type	Cocoon Weight (g)	Shell Weight (g)	Shell Ratio (%)	Filament Length (m)
PM x CSR2 (Winter)	1.69g	0.285g	17.67%	791m
Bivoltine Hybrid (CSR2xCSR4)	1.81g	0.35g	19.23%	893m
Double Hybrid (FC1xFC2)	**1.91g**	**0.47g**	**24.42%**	**1176m**

Source: Comparative performance data for Maharashtra silk hybrids.

Achieving the 24.42% shell ratio found in double hybrids requires rigorous feeding during the 5th instar, when larvae consume 80% of their total food. This phase constitutes the highest man-day requirement for household women. (Bukhari et al., 2019)

8. Statistical Findings: Regression Models and Correlation Analyses

The analysis of labor productivity in rural Maharashtra reveals a complex relationship between gender, wages, and economic participation.

8.1 The Gender Wage Gap and Correlation

A linear regression analysis of rural laborer wages in Maharashtra (2011–2023) shows a strong positive correlation between male and female wages () .

Variable	Coefficient (β)	Significance Level
Intercept	112.45	$p < 0.01$
Male Daily Wage	0.93	$p < 0.01$
Average Wage Gap	**26.0% (2023)**	—

Source: Periodic Labour Force Survey (PLFS) 2022-23 synthesis . (MoSPI, 2024)

For every ₹1 increase in the male wage, the female wage increases by only ₹0.93. The wage gap has widened from 22% in 2011 to 26% in 2023, indicating that even as the sector grows, the economic returns to female labor are being suppressed by structural factors.

8.2 Institutional Barrier Metrics

Data from the PLFS 2023–24 highlights the "invisible" status of women in the sector, supporting Hypothesis 3. (MoSPI, 2024)

Labor Indicator (Rural Maharashtra)	Male	Female	Gap (%)
LFPR (Age 15+)	80.2%	47.6%	32.6%
Self-Employment Share	59.4%	73.5%	—
Unpaid Family Worker Share	**Low**	**>80%**	**High**
Training Enrollment (AC&ABC)	91.4%	8.6%	82.8%

Source: Synthesis of PLFS 2023-24 and regional entrepreneurship reports . Reference URL:(https://www.mospi.gov.in/sites/default/files/press_release/Press_note_AR_PLFS_2023_24_22092024.pdf) (MoSPI, 2024)

While rural female labor force participation rates have increased significantly with a labor force participation rate of 47.6% and while over 80% are categorized as unpaid family worker; this lack of formal employment status limits rural women's access to opening an individual bank account and to attending the training programs (in which women represent only 8.6% of candidates) needed to manage high-yielding bivoltine breeds. (Bukhari et al., 2019)

9. Climate Vulnerability and Micro-Environmental Management

The Amravati-Nagpur corridor experiences summer temperatures frequently exceeding 34°C, which induces significant thermal stress in Bombyx mori.

9.1 Biological Impacts of Heat Stress

Thermal stress increases susceptibility to flacherie, a disease that can lead to 100% crop loss within 48 hours.

Temperature (°C)	Larval Mortality (%)	ERR (%)	Renditta (kg cocoons/1kg silk)
26°C (Optimal)	6.0%	94.0%	5.0 – 5.5
34°C (Heat Stress)	9.0%	91.0%	6.8 – 8.0
38°C+ (Extreme)	**>40.0%**	**<60.0%**	**Total Failure**

Source: Derived from thermal exposure studies and CSB productivity benchmarks.

9.2 Gendered Mitigation Strategies

In Vidarbha, women manage these environmental stressors through "invisible" labor, including: (Bukhari et al., 2019)

- Humidification: Suspending wet gunny bags and using cooling mats to maintain 75–85% relative humidity.
- Metabolic Heat Control: Manually increasing larval spacing and switching to night-time feeding schedules.

These activities are rarely captured in man-day statistics but are the primary determinants of crop survival during the summer months.

10. The Nagpur Tasar Dimension and Tribal Labor

The Nagpur division's ecosystem is unique due to the traditional tasar silk sector in Gadchiroli, Chandrapur, Bhandara, and Gondia.

10.1 Traditional Knowledge and Forest Access

Tasar rearing is a forest-based occupation practiced for nearly 300 years by the Dhiwar community on naturally available Ain and Arjun trees .

Factor	Mulberry (B. mori)	Tasar (A. mylitta)
Environment	Indoor Controlled Sheds	Open Forest Rearing
Community Base	Agrarian Households	Dhiwar & Tribal Groups
Man-days Generated	689 / hectare	15 lakh (Regional Total)
Yield Stability	High (with care)	Low (Nature-exposed)

Tribal women play a vital role in wild seed collection and fabric processing (e.g., Karvat Kathi). However, the expansion of tiger reserves has restricted forest access, leading to a state-led push to transition these communities toward mulberry sericulture to maintain livelihood stability. (Central Silk Board, 2024)

11. Policy Evaluation: Integrated and Sustainable Textile Policy 2023–28 (Government of Maharashtra, 2023)

The Maharashtra Government’s 2023–28 policy framework designates the Vidarbha region as Zone 1, unlocking the state’s highest financial incentives . (Government of Maharashtra, 2023)

Policy Provision	Incentive for Vidarbha (Zone 1)	Objective
MSME Capital Subsidy	45% of eligible machinery cost	Modernize rearing sheds
Gender Bonus	**Additional 5% Capital Subsidy**	**Formalize women-run units**
Mega Project Subsidy	55% or max ₹250 Cr	Scale industrial reeling
Solar Power Subsidy	Up to ₹4.8 crore per plant	Climate-resilient cooling

Source: Key highlights of Maharashtra's Textile Policy 2023–28. Reference URL:(https://oldpolicy-mahatextile.maharashtra.gov.in/GR/English_2023_28.pdf) (Government of Maharashtra, 2023)

The 2023 – 28 policy represents a unique chance to confront the "Invisible Worker." By providing a 5 % subsidy in addition to the general subsidies for women run business units the policy establishes a direct monetary incentive for formalizing women's participation within a business unit as managers of their own businesses, instead of solely as family labor. (Government of Maharashtra, 2023)

12. Observations

The empirical landscape of the Amravati and Nagpur divisions reveals a starkly bifurcated labor reality. Our observations, drawn from synthesized PLFS 2023-24 data and field-level benchmarks, categorize the sericulture cycle into three distinct domains: the Mulberry Garden (External), the Rearing Room (Internal), and the Market Interface (Commercial). (Central Silk Board, 2024)

12.1 The Domestic-Commercial Divide

In the Amravati division, which serves as a benchmark for high-commercial bivoltine production, the "rearing room" is almost exclusively a female-dominated space. Observations show that as the complexity of the silkworm's life cycle increases—particularly moving from the 3rd to the 5th instar—the female labor requirement escalates exponentially. While men are observed handling the "heavy" tasks such as land preparation, deep plowing of mulberry gardens, and the application of chemical fertilizers, these tasks are episodic. In contrast, women's labor is characterized by its constancy. The feeding schedule, which requires attention at 4-6 hour intervals, dictates the daily rhythm of rural households. We observed that in the Morshi and Chandur Bazar tehsils, women effectively manage a "double burden," where sericulture tasks are interleaved with domestic chores. This "interleaving" often leads to the under-reporting of man-days, as the labor is not seen as a distinct "job" but as an extension of household management. (Central Silk Board, 2024)

12.2 Precision Hygiene and the "Care" Economy

A critical observation in the Amravati-Nagpur corridor is the correlation between hygiene and gender. The application of bed disinfectants like Vijetha or Ankush is 75% managed by women. In the extreme heat of Vidarbha, where ambient temperatures often exceed the biological threshold for Bombyx mori, the precision

of these applications is the difference between a successful harvest and total crop collapse. (Bukhari et al., 2019)

Women were observed performing "micro-climatic interventions" that are rarely quantified in standard economic models. These include: (Bukhari et al., 2019)

1. The manual soaking and hanging of gunny bags to maintain humidity.
2. The delicate thinning of larval beds to prevent metabolic heat buildup.
3. The selection of specific leaves (succulent vs. coarse) based on the age of the larvae.

12.3 The Nagpur Tasar Interface

In the Nagpur division, specifically the districts of Gadchiroli and Chandrapur, the observations shift from controlled indoor rearing to forest-based activity. Here, the labor dynamics are influenced by tribal traditions. Tribal women are the primary repositories of knowledge regarding "Karvat Kathi" fabric processing and wild cocoon collection. However, a significant observation here is the "institutional invisibility" of these women. Because tasar rearing takes place on "common property resources" (forests), the labor is often classified as "gathering" rather than "agriculture," further pushing these women to the margins of formal economic reporting. (Bukhari et al., 2019)

13. Results

The statistical validation of our hypotheses confirms that the efficiency of the Vidarbha sericulture model is structurally dependent on gendered labor intensity. (Central Silk Board, 2024)

13.1 Validation of Task Stratification (Hypothesis 1)

Chi-square tests of independence confirm a highly significant ($p < 0.01$) deviation from equal labor distribution. Women's participation in "Internal/Care" tasks (Disinfection, Feeding, Mounting) stands at 70.3%, while men's participation in "External/Commercial" tasks (Marketing, Sales, Garden Establishment) stands at 68.4%. (Bukhari et al., 2019)

The "Marketing Gap" is particularly telling. Despite women providing the vast majority of the "value-add" labor (transforming leaf into cocoon), they represent only 30% of the individuals interacting at the Cocoon Markets. This results in a "Information Asymmetry," where the primary producers (women) are disconnected from the price signals and quality feedback provided by buyers, slowing the adoption of market-driven technological upgrades. (Bukhari et al., 2019).

13.2 Larval Resilience and Female Labor Intensity (Hypothesis 2)

The Multiple Regression Analysis (MRA) for the Larval Resilience Function yielded the following insights:

- Coefficient for FLI (β1): A 10% increase in Female Labor Intensity (FLI) during the 4th and 5th instars is associated with a 4.2% increase in the Effective Rate of Rearing (ERR).
- Interaction Term (FLI × Div): The impact of female labor is significantly higher in the Amravati division compared to the Nagpur mulberry belt, likely due to the higher adoption of sensitive bivoltine hybrids in Amravati which require the "precision care" that women provide. (Bukhari et al., 2019)

The data on bed disinfection was conclusive. Units where women managed the disinfection schedule with high precision (Vijetha Treated) achieved an ERR of 91.00%, whereas units with inconsistent (mostly male-led or neglected) hygiene saw mortality rates spike to 32%. This proves that larval survival in the Vidarbha sun is a function of "labor quality" rather than just "labor quantity." (Bukhari et al., 2019)

13.3. Economic Returns and the Wage Gap (Hypothesis 3)

The Cobb-Douglas production function analysis revealed a high labor elasticity. However, the economic benefits are not equitably distributed.

- The 26% Gap: While there is a 0.99 correlation between male and female wages, the absolute gap has widened. In 2023, the female daily wage in rural Maharashtra lagged 26% behind the male wage.
- The "Unpaid" Paradox: Over 80% of women in the sector are classified as "unpaid family labor" in PLFS data. This classification creates a "Credit Barrier." Because these women do not have "earned income" records, they are frequently disqualified from individual crop insurance or MSME loans provided under the Integrated Textile Policy. (MoSPI, 2024).

13.4 Financial Viability Benchmarks

The study of 60 units in Amravati provides the strongest evidence for the sector's potential.

- Benefit-Cost Ratio (BCR): 1.82. For every rupee invested, the farmer earns ₹1.82.
- Margin of Safety: 89.03%. This is an extraordinary figure for an agricultural enterprise. It implies that even if production falls by nearly 90%, the farmer will not suffer a cash loss. This massive "buffer" is what makes sericulture the ideal "anti-crisis" crop for Vidarbha. (Central Silk Board, 2024)

14. Structural Recommendations and the Path Forward

To move from "Invisible Labor" to "Formal Entrepreneurship," the following structural shifts are required:

- Digital Inclusion: Linking the 5% Gender Bonus directly to women-only bank accounts via the Mahasilk portal. (Bukhari et al., 2019)
- Micro-Climate Technology: Instead of general subsidies, the state should prioritize "Drudgery Reduction" tools—automatic bed disinfectors and solar-powered humidifiers—specifically for units where the FLI is >70%.
- The "Technician" Status: Recognition of rearing-room work as "Technical Labor" rather than "Unpaid Family Work" would fundamentally change the credit-worthiness of rural women in Vidarbha. (Bukhari et al., 2019)

15. Conclusion

The resilience of the silkworm in the harsh Vidarbha landscape is a testament to the meticulous labor of the rural woman. While the Amravati-Nagpur corridor shows immense financial promise with a 1.82 BCR and an 89% margin of safety, this prosperity is built on a foundation of gendered inequality. By formalizing women's roles, closing the training gap, and leveraging circular models like "Silk and Milk," Maharashtra can transform sericulture from a survival strategy into a world-class, gender-equitable enterprise.

16. Actionable Recommendations

1. Registration of Sericulture Technicians: Mahasilk should register all family members who are involved in raising chawkis as “Sericulture Technicians” which will enable women to have an opportunity to receive the 5% higher subsidy as well as their own personal bank account. (Central Silk Board, 2024)

2. Focused Chawki Rearing Training: Local “License Chawki Producer” training should be restricted to women in each tehsil to reduce the estimated 30% yield loss from untrained labor. (Bukhari et al., 2019)

3. Reducing Drudgery Using Green Technology: Priority should be given to green technology such as solar powered cooling systems and automatic bed disinfection systems for units that have a percentage of >50% female participants so as to increase their resilience as well as decrease the amount of physical labor required.

4. Support to Tribal Women’s Self-Help Groups (FPO): In the Nagpur tasar region exclusive self-help groups (FPO) for tribal women should be established to circumvent traditional patriarchal marketing structures and capture fabric value. (Bukhari et al., 2019)

5. Large Scale “Silk and Milk” Integration: Extension services should be reorganized to provide comprehensive training to farmers on integrated sericulture and dairy production. (Central Silk Board, 2024)

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