



ORIGINAL ARTICLE

A Study on the Role of Women in Sericulture in Pilibhit District, Uttar Pradesh**Barkha**

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ABSTRACT

This study examines the pivotal role of women in the sericulture sector of Pilibhit District, a prominent agro-economic zone in Uttar Pradesh. Let's face it, women are the backbone of Pilibhit's sericulture scene in Uttar Pradesh. This isn't just some niche farming gig-it's tough work that needs skilled hands. Women jump into every part of the silk process: growing mulberry, caring for silkworms, fighting off diseases, and handling cocoons after the harvest. They're not quietly working in the background anymore; they're stepping into leadership roles and changing the old ways we thought agriculture should run. Why? Because women bring real precision, patience, and skill to the table. That's shifted the balance. They aren't just unpaid family helpers; now, they're driving the silk industry forward. Through a mix of interviews and data, this study looks at how sericulture gives these women reliable extra income. That boost changes more than finances-it shakes up traditional gender roles in rural communities, letting women make bigger decisions in their homes and neighborhoods. The numbers speak for themselves. When women earn, their own money selling cocoons, their sense of independence goes up. They finally have more say, both at home and out in the community. And when women step fully into the sericulture sector, the whole area benefits. It's not just about silk; it's about growth, opportunity, and strengthening every household and the entire rural network.

Keywords: Sericulture, Women Empowerment, Socio-Economic Development, Livelihood Diversification, Pilibhit, Gender Dynamics

INTRODUCTION

Sericulture-raising silkworms for silk-has become a lifeline for many rural families, offering both work and extra income. In Pilibhit, nestled in the lush Tarai region, this tradition has settled in alongside regular farming. The local climate is just right, mulberry plants are easy to find, and there's a steady supply of rural workers, so everything lines up for sericulture to thrive here.

Women are right at the heart of this activity in Pilibhit. They handle almost every step: tending the mulberry fields, looking after the silkworms, feeding them, cleaning the rearing sheds, and collecting the cocoons when it's time. Their steady hands and relentless care make a real difference in the quality and output of silk.

But their work goes beyond just producing silk-it transforms their families' lives. Through sericulture, women land jobs, earn steady income, and find a bigger role in their communities. This study zooms in on how women's labor, often overlooked in sugarcane-heavy areas like Pilibhit, gets a new spotlight in sericulture. It looks at how home-based silk farming, backed by programs like 'Silk Samagr', turns local women into entrepreneurs who control their own money and futures. In the end, bringing women into sericulture doesn't just help the silk business-it shakes up the whole economic picture for rural households, putting more power and possibility in women's hands.

GEOGRAPHICAL LOCATION OF THE STUDY

This study takes place in Pilibhit District, tucked into the northeastern Terai region of Uttar Pradesh, India. Pilibhit sits between 28°06' and 28°53' N latitude and 79°57' and 80°27' E longitude. The land here is mostly fertile alluvial plains with a high-water table, and the climate is humid and subtropical-which makes it a great spot for growing mulberry (locally called Shahtoot) and breeding silkworms (*Bombyx mori*). The focus of the research is around the Office of the Assistant Director of Sericulture in Pilibhit and the main government seed farm at Kolhapur Khaas

in the Lalaurikhera Block. These centers play a big role for local families-they supply the technical kits and saplings needed to get sericulture going.

Out in the field, most commercial cocoon rearing happens at home. Seven key blocks in the district lead the way: Puranpur and Amaria are the biggest hubs thanks to their high humidity; Barkhera and Marori stand out for their active, women-led Self-Help Groups; and Bisalpur and Bilsanda have traditional farming families moving away from old sugarcane crops and trying new things.

Together, these hubs and communities create a perfect setting for looking at how women shape and support sericulture in Pilibhit, both socially and economically

MATERIALS AND METHODS

1. Spatial Distribution and Production Clusters within the Study Area

Sericulture in Pilibhit District isn't scattered randomly-it follows a pretty orderly pattern across all seven administrative blocks. The main technical work, big mulberry sapling nurseries, and state-backed gardens sit in Kolhapur Khaas, Chetrampur and Lalaurikhera villages, all within the Lalaurikhera Block. This block acts as a hub where new techniques and technologies get passed along to others.

If you head into the forest-edged, humid villages-Sherpur, Ghanshyampur, Jadupur and Ramnagar in the Puranpur Block-commercial, home-based silkworm rearing runs the show. The northern border villages of Kalyanpur, Niranjapur, and Sardah in Amaria Block also focus on this, thanks to their ideal climate for breeding hardy bivoltine hybrids.

Financially, grassroots groups really drive things forward here. Women-led Self-Help Groups and cooperative sorting projects thrive in Tandola, Barkhera Kalan, and Gajraula in Barkhera Block, then stretch into more urban-feeling clusters like Karanpur, Dundpur, and Marori in Marori Block.

Meanwhile, several villages have begun transitioning away from the risks associated with sugarcane monoculture. Villages such as Deoraniya and Intgaon in Bisalpur Block, along with Bamrauli and Marori Khaas in Bilsanda Block, have increasingly adopted diversified farming systems that incorporate sericulture. This shift has contributed positively to local economic development and livelihood diversification. By selecting interconnected villages from all seven blocks of Pilibhit district, the study captures a representative geographical spread of the region. Such an approach enables a comprehensive understanding of women's participation and contributions across different stages of the sericulture value chain in Pilibhit.

Mulberry sericulture plays a big role in Uttar Pradesh's agricultural scene, especially because it's so hands-on and labor-heavy. It helps keep the state's raw silk production steady and growing. In places like Pilibhit District, making silk starts with two main jobs: first, farmers grow mulberry trees (Shahtoot), and then they rear silkworms (*Bombyx mori*) indoors. The tree part feels more like regular farming, while raising silkworms is almost an indoor cottage industry-precise and demanding.

What really stands out is how much the work depends on skilled people, especially women. They aren't just helping out as hired hands; they actually run the show and make important calls about how production operates, right from their homes. Data shows women are much more involved in cocoon production than men here. That makes this industry really important for pushing gender equality in rural areas

2. Sampling Design and Data Framework

So, here's how the study came together. We used a mixed-methods approach, pulling in both numbers and personal insights. The sample? 120 active female silkworm rearers, handpicked with a careful multi-stage purposive random sampling process from seven different blocks. To really get the story, we went door-to-door with pre-tested structured interview schedules, observed what was happening in the field, and double-checked records using the District Statistical Handbook. For more context and backup, we drew baseline reference data straight from the online portals of the Central Silk Board-specifically, the SILKS Pilibhit Hub-and the Directorate of Sericulture, Uttar Pradesh.

WORK PARTICIPATION OF WOMEN AND AGRONOMIC PARAMETERS

1. Women's Role in the Value Chain

Mulberry sericulture keeps things pretty busy in Uttar Pradesh. It's no small operation-the industry adds a steady amount to the state's silk output and demands a lot of hands-on work. In Pilibhit District, silk production at the household level breaks down into two main jobs: growing the mulberry trees (Shahtoot) and raising silkworms (*Bombyx mori*) indoors. The farming side happens out in the field, but silkworm rearing is a precise, home-based job. Both parts depend a lot on skilled people-especially rural women. Here, women aren't just working as helpers; they're making decisions and handling logistics. Data from Pilibhit shows women participate at higher rates than men when it comes to producing cocoons. This makes the industry a strong foundation for promoting gender equality.

2. Mulberry Cultivation on the Farm

Setting up mulberry plantations in Pilibhit's blocks takes careful attention to the local Terai zone's soil and farming needs. The district's alluvial soil works best when it's slightly acidic or neutral, with a pH between 6.5 and 7.0-ideal for growing productive mulberry nurseries. According to local extension advice, the best time to start is just before the monsoon, in June or July, using semi-hardwood cuttings.

Transplanting saplings happens in paired rows, which helps use space wisely and ties in with seasonal rains. Once the roots take hold, the area's high-water table (about 10-15 feet deep) cuts down the costs of pumping water from underground, but regular irrigation and fertilization using organic chemicals are still a must. Farms in Pilibhit use climate-resilient mulberry varieties like S-146, Sahana, and S-1, with each acre producing 15 to 20 metric tons of green, nutrient-rich leaves per year. Women are constantly on top of pest control, tackling leaf infestations so the silkworms always have healthy food.

Establishing one acre of mulberry trees takes about 25 to 50 man-days of work. Women do most of the heavy lifting-about 51% of the labor, which works out to around 25 female man-days per acre. That's a clear sign woman is heavily involved throughout the process.

Table 1: Phase-wise Distribution of Female Labor in One-Acre Mulberry Establishment

S.No.	Cultivation Activity Phase	Operational Task Component	Female Labor Share (%)	Primary Role Assessed
1.	Weeding Operations	Inter-cultural weed removal and cleaning	22.80%	Highest share of female participation
2.	Specialized Planting	Handling semi-hardwood cuttings & row placement	14.5%	Specialized manual planting labor
3.	Soil Enrichment	Application of Farm Yard Manure (FYM) & compost	Significant Share	High household involvement
4.	Garden Maintenance	Post-establishment irrigation, manuring, & weeding	56.2%	Absolute female operational dominance

3. Silkworm Rearing and Cocoon Metrics

Silkworm rearing in Pilibhit centers on *Bombyx mori* and relies mostly on mulberry sericulture. Spring is the prime season since the weather's just right for the larvae. People raise the worms at home in carefully cleaned spaces, following strict cleaning routines to keep any disease at bay. They feed the Chawki (young) worms fresh, tender mulberry leaves, keep a close watch on temperatures, and make sure everything stays clean.

Lab tests in Pilibhit, using bivoltine silkworm lines, show the best results when the rearing rooms stay at about 31°C and 62% humidity. That's when the silkworms grow strong and cocoon yields are highest. What makes Pilibhit unique is that Western Uttar Pradesh's only silk thread factory is here, and a local women's Self-Help Group runs the whole thing. There's even a plan in the works to expand into weaving handloom garments. On top of that, people living near the edges of Pilibhit's

forests gather wild Tasar silkworm cocoons (*Antheraea mylitta*) outdoors, giving the region more variety in its silk production.

In almost every household where silkworms are raised, women do about 60% of the annual work-a fact highlighted in Table 2. Their efforts drive the local sericulture, connecting an old tradition to new opportunities.

Table 2: Gender Participation Ratios and Metrics in Cocoon Production (Per Acre/Year)

S.No.	Production Phase	Primary Task Component	Male Share (%)	Female Share (%)	Dominance Profile
1.	Pre-Rearing Phase	Disinfection of rearing houses, cleaning tools	45.00%	55.00%	Balanced / Shared
2.	Larval Feeding	Leaf chopping, timed feeding, bed cleaning	15.00%	85.00%	Absolute Female Dominance
3.	Disease Control	Applying bed disinfectants, tracking pest traps	20.00%	80.00%	Absolute Female Dominance
4.	Harvesting Phase	Picking mature worms, cocoon sorting	30.00%	70.00%	High Female Concentration
5.	Post-Harvest	Transporting green cocoons to auction yards	75.00%	25.00%	Male Dominated
6.	Combined Cycle	Total Annual Cocoon Production Cycle	40.00%	60.00%	Primary Female Workforce

RESULTS AND DISCUSSION

1. Socio-Demographic Profile and Economic Metrics

Let's take a look at the data gathered from 120 women. Most of them-about 65%-are between 31 and 50, and they make up the biggest chunk of the workforce. Over half (52.5%) have studied up to primary or middle school. What stands out is that almost 80% have picked up formal technical skills, thanks to training from local Resham Vibhag extension offices.

Table 3 captures how things have changed economically. When households started combining silk farming with their usual sugarcane crops, you can see the difference in several key indicators.

Table 3: Pre- and Post-Adoption Socio-Economic Matrix (N=120)

Assessment Index Parameter	Before Adoption	After Adoption	Impact Classification
Annual Income Frequency	1 Time / Year (Sugarcane mills lag)	4 to 5 Times / Year (Short crops)	Highly Regularized Cash Flow
Average Household Savings	Less than ₹8,000 annually	₹25,000 to ₹45,000 annually	Quantifiable Income Increase
Revenue Account Control	Male-headed Joint Accounts	Individual Female Bank Accounts	Direct Financial Inclusion

2. Gender Dynamics and Decision-Making Disparities

There's a strange contradiction playing out when it comes to who actually gets to make decisions around cocoon production. Women put in most of the work-about 85% of the specialized labor, according to Table 2. But as soon as big decisions come up, like investing in equipment or joining wholesale cocoon auctions, men take over. The major money moves are still locked behind old-school patriarchal attitudes.

Women, meanwhile, get the reins only when it comes to everyday work inside the home. If the men aren't around, women make all the important calls-what the larvae eat, keeping the beds clean, disinfecting with chemicals. These aren't minor tasks; they directly affect whether the crop survives and how much silk you end up with. So, in a way, women completely control the outcome of production-but as soon as it's time to cash in, their voices disappear. They're essential to the process but left out of the profits.

3. Institutional Achievements and Drudgery Reduction

Sericulture has made a real difference in rural Pilibhit. It's helped local people pick up new skills, earn their own income, and feel more confident about themselves. At the same time, a push for better, easier ways to work means less physical strain-especially for women. That's why you'll see more women-friendly technologies in use these days. Table 4 shows the mechanical innovations that are helping cut down the hard labor.

Table 4: Mechanical Interventions for Drudgery Reduction among Women Workers

S.No.	Technical Tool Innovation	Targeted Phase	Operational	Ergonomic and Functional Benefit
1.	Mechanical Leaf Chopper	Larval Feed Preparation		Cuts leaf processing time by 60%; eliminates knife drudgery.
2.	Plastic Collapsible Mountages	Silkworm Spinning Phase		Replaces heavy bamboo trays; lightweight; reduces manual fatigue.
3.	Automated Cocoon Deflosser	Post-Harvest Sorting		Five-fold increase in outer silk peeling output per hour.
4.	Power Disinfection Sprayers	Pre/Post Sanitation	Rearing	Replaces manual pumps; uniform mist; protects respiratory tracts.

4. Biological and Field Constraints: The Dipteran Menace

Even though the economics look promising, female rearers face some tough challenges in the field. One major issue is the Uzi Fly (*Exorista bombycis*), a Dipteran pest that hits hard during certain seasons. In the Terai region, high humidity makes the perfect breeding ground for these parasites. They attack silkworm larvae and can wipe out a big chunk of the crop. Table 5 shows how dipteran pest outbreaks are spread across different blocks and highlights which areas are most vulnerable.

Table 5: Incidence of Dipteran Pest (Uzi Fly) Damage across Sampled Blocks

Sampled Block Hubs in Pilibhit	Average Larval Crop Loss (%)	Dominant Field Vulnerability Observed	Sampled Block Hubs in Pilibhit
Lalaurikhera & Amaria	12% to 15% Loss	Fragmented micro-sprayer chemical supplies	Lalaurikhera & Amaria
Puranpur & Marori	18% to 22% Loss	Inadequate insulation of home rearing rooms	Puranpur & Marori
Bisalpur & Bilsanda	25% to 30% Loss	Complete absence of physical nylon wire window meshes	Bisalpur & Bilsanda

On top of dealing with pests, women run into big roadblocks just because they don't have land in their own names. Since most land titles belong to men, banks won't give women low-interest loans-they have nothing official to put up as collateral. It gets worse. There isn't a government-supported cocoon auction center anywhere nearby in Pilibhit. That means women have no choice but to sell through middlemen, who take a big cut and leave them with far less money.

CONCLUSION AND STRATEGIC POLICY RECOMMENDATIONS

1. Conclusion

Sericulture isn't just an interesting idea for rural development in Pilibhit District, Uttar Pradesh-it's actually changing things for women and the local economy. After years of skill-training programs, women who once did unpaid work at home are stepping out as micro-entrepreneurs in silk farming. They're raising four or five cocoon crops a year, which means reliable income that they manage themselves. And it's not just about earning money-the income goes straight back into their families. Kids get a shot at better education, families pay for healthcare without leaving town, and women start saving up on their own.

But it's not all smooth sailing. Some problems keep cropping up. Lots of women still struggle to get loans because they don't own land. Silk crops face pests like *Exorista bombycis*. And selling cocoons is tough since there aren't enough auction centers nearby, so the market isn't fair.

Sericulture is pushing things forward, but these stubborn barriers are keeping it from reaching its full potential.

2 Strategic Policy Recommendations

Set up local auction terminals. The UP Department of Sericulture should open a cocoon terminal with open bidding right in Pilibhit-maybe in Puranpur. This way, women skip the middlemen and actually get paid what their work's worth. Offer credit without collateral through SHGs. Banks, both commercial and rural, need to create micro-loan schemes and Kisan Credit Cards just for sericulture. Forget about land deeds-they should trust group guarantees from Self-Help Groups. Roll out local pest control programs. Extension desks should hand out fully subsidized nylon window meshes and Uzi traps to households at risk in Bisalpur and Bilsanda. These tools give families a real shot at keeping their crops healthy. Bring in labor-saving tools everywhere. The state should ramp up subsidies-cover as much as 90% of the costs-for powered leaf choppers and sprayers. It'll lighten the workload, especially for rural women juggling double shifts every day.

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