Performance of sericulture during the winter season in Karnataka

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Sericulture is an important agro-based industry in Karnataka, providing sustainable income and employment to rural households. Karnataka is the leading silk-producing state in India due to its favorable climate, skilled farmers, and well-established infrastructure for mulberry cultivation, silkworm rearing, and cocoon marketing. Among the different rearing seasons, winter sericulture (December to February) plays a significant role in maintaining year-round silk production.

Winter season in Karnataka is characterized by relatively low temperatures, cool nights, and moderate humidity, which influence mulberry leaf growth and silkworm physiology. These climatic conditions pose certain challenges such as reduced mulberry leaf availability, slow larval growth, and increased sensitivity of silkworms to temperature fluctuations. However, when managed scientifically, winter conditions can also be advantageous, particularly for bivoltine silkworm rearing, as cooler temperatures often result in better cocoon quality and higher shell ratio.

With appropriate mulberry garden management, selection of suitable silkworm races, and effective control of temperature and humidity in rearing houses, successful cocoon crops can be obtained during winter. Therefore, winter sericulture in Karnataka offers a valuable opportunity for farmers to ensure continuous income, produce quality cocoons, and meet the growing demand for superior raw silk.

Sericulture in Winter Season (December–February) in Karnataka

Winter sericulture is feasible and productive in many parts of Karnataka if proper management practices are followed, especially temperature and leaf quality management.

1. Climatic Conditions

- **Temperature:** 18–28 °C (night temperature may fall to 12–15 °C in North Karnataka)
- **Relative Humidity:** 65–80%
- **Challenges:**
  - Low night temperature
  - Slow mulberry growth
  - Higher leaf moisture loss

2. Mulberry Management in Winter

- Irrigate at 10–12-day intervals (light irrigation preferred).
- Apply FYM (20–25 t/ha/year) and recommended NPK in split doses.
- Prefer morning harvesting of leaves to avoid dryness.
- Use shade nets or mulching to reduce moisture loss.
- Control pests like thrips and tukra with eco-friendly methods.

3. Suitable Silkworm Races

- Bivoltine hybrids: CSR2 × CSR4, FC1 × FC2 (better for cooler climate)
- Cross-breeds (for farmers): PM × CSR2, KA × NB4D2

4. Silkworm Rearing Management

- Maintain rearing room temperature:
  - Early in stars: 26–28 °C
  - Late in stars: 24–26 °C
- Use heaters, charcoal stoves, or electric bulbs at night.
- Maintain RH using wet gunny cloth or humidifiers.
- Chop leaves finely for young larvae to avoid wastage.
- Reduce feeding quantity during very cold nights.

5. Disease & Pest Precautions

- Higher risk of muscardine and grasserie due to temperature fluctuation.

- Follow strict disinfection (formalin, bleaching powder).
- Use recommended bed disinfectants.
- Ensure proper ventilation during daytime.

6. Cocoon Yield & Quality

- Cocoon yield may be 10–15% lower if temperature is not managed.
- With good management:
  - Higher shell ratio
  - Better filament strength
  - Good market price (winter cocoons often fetch better rates)

7. Advantages of Winter Sericulture

✓ Lower insect pest pressure

✓ Better cocoon quality

✓ Stable cocoon prices

✓ Suitable for bivoltine silk production

8. Areas in Karnataka Suitable in Winter

- **North Karnataka:** Vijayapura, Kalaburagi, Raichur (needs temperature control)
- **Central Karnataka:** Davanagere, Chitradurga
- **South Karnataka:** Ramanagara, Mandya, Mysuru (most favorable)

Conclusion

Winter sericulture in Karnataka is profitable and technically viable with proper temperature, humidity, and leaf management**.** Adoption of bivoltine hybrids and scientific rearing practices ensures good cocoon yield and quality**.**

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