Technologies / Products developed & patented / commercialized by Institute

To cater the need of tropical and temperate tasar culture, the Institute has developed a number of technologies/practices on pre- and post-cocoon sectors. Many of these technologies are being adopted in field for the production of quality silkworm seeds, cocoons and raw silk yarn, resulting in augmentation of the income of stakeholders. The Institute has also developed a number of products / implements / machines which are adopted as the components of technology packages for enhancement of productivity in pre- and post cocoon sectors.

Technologies for Tropical Tasar

Technologies for Host Plants

1. Nursery technique for raising *Terminalia arjuna* and *T. tomentosa* seedlings.
2. Vegetative propagation through air layering, soft cuttings and juvenile cuttings.
3. Integrated package for raising and maintenance of host plants as Economic Plantation.
4. Establishment of Chawki garden for two crop system.
5. Application of secondary nutrient combination - SM5 for boosting the leaf yield.
6. Foliar application of Urea as economical method of boosting leaf production in *Terminalia* plants.
7. Integrated nutrient management through organic manures, chemical fertilizers, green manuring, micro- and secondary nutrients.
8. Integrated farming system for augmenting the farmers' income.
9. Integrated management of diseases and pests in *Terminalia* plants.
10. Utilization of farm refuses through composting and vermi composting.

Technologies for Tasar Silkworm Culture

1. Commercialization of three wild Tasar Ecoraces (Daba TV, Daba BV & Sukinda).
2. Development of inter-specific silkworm hybrid and breeds.
5. Preservation of cocoons for tasar silkworm seed production.
6 Outdoor preservation of cocoons in moderate climate for synchronized emergence in the shorter span with lower disease incidence.
9. Moth mating and oviposition for higher production of tasar silkworm seeds.
10. Mother moth examination for production of disease free layings of tasar silkworm.
11. Technology for loose egg production.
12. 'Depuratex' for cleaning and surface sterilization of tasar silkworm eggs.
13. Integrated silkworm seed production technology.
14. Module for disinfection and hygiene in rearing field.
15. Egg incubation and larval brushing technique.
16. Package for young-age (Chawki) silkworm rearing.
17. Chawki rearing of tasar silkworm under nylon net.
18. Chawki rearing of tasar silkworm on Semisynthetic diet – 'Tasar Amrit'.
19. Integrated package of late-age silkworm rearing.
20. Indoor silkworm rearing technology.
21. Sodium hypochlorite as foliar application to check virosis and bacteriosis.
22. 'Tasar Keet Oushad' against silkworm diseases.
23. 'Leaf Surface Microbe (LSM)' for silkworm disease management.
25. IPM against insect pest - Uzify.
27. Pebrine visualization solution (PBS) for easy detection of pebrine.
Technologies for Post- Cocoon Sector
2. Non-peroxide cooking method for tasar cocoons.
3. Use of Cocoonase enzyme for softening of tasar cocoons.
4. Dry and Wet reeling processes.
5. Improved Reeling Charkha and Reeling Machines.
7. Twin Charkha.
8. Hand operated Wet Reeling Machine
10. Motorized Tasar Reeling Machine / Charkha
11. Vegetable and Lac based dyeing of tasar fabrics.
12. Reeling of core spun and fancy yarn to reduce cost.
Technologies for Temperate (Oak) Tasar

1. Raising of host plant seedlings and maintenance of plantation.
3. Development of inter-specific silkworm hybrid and breeds.
4. Commercialization of RTRS-1 : A cross breed of Oak tasar silkworm
5. Commercialization of C27 : A cross breed of Oak tasar silkworm
6. Voltinism regulation through thermo-photo periodic and altitudinal deviations.
7. Indoor Chawki rearing technique.
8. Outdoor rearing technique for late age silkworm.
9. Silkworm disease management.
10. Crop regulation by development of rearing schedules for different altitudes.
11. Technology for maintenance of cocoon quality and fecundity.

Products developed by CTR&TI, Ranchi

1. Nylon bag for oviposition and brushing of worms.
2. Egg transportation basket.
3. Egg drying tray.
4. Flame gun device for disinfection of field and grainage.
7. Cocoonase enzyme isolated from pupa for cooking/softening of cocoons.
8. 'Resham Keet Oushadh' for silkworm disease management.
9. 'LSM' for prevention of tasar silkworm diseases.
10. ‘Jeewan Sudha’ - Botanical formulation for tasar silkworm protection from Virosis.
11. New Drug formulation for the control of Pebrine.
14. Hand operated Wet Reeling Machine
15. 'Kamdhenu' - Improved Vertical Reeling cum-Spinning Machine
16. Motorized Tasar Reeling Machine
17. Pebrine visualization solution (PBS) for easy detection of pebrine
Products & Technologies patented and commercialized

1. A Tent – Tasar Chawki Nylon Net
2. A Drug Formulation for the control of Pebrine Disease in Tasar Silkworm
3. 'Jeevan Sudha' – A process for the preparation of Jeevan Sudha for the control of Virosis in Tasar Silkworm, Antheraea mylitta Drury
4. 'Depuratex' - A product and process for cleaning and surface sterilization of tasar silkworm, Antheraea mylitta Drury eggs.
5. A process of dyeing silk with Lac dye.

Under process of Patenting & Commercialization

1. Grainage tray (Reg. # PAT/4.3.20.1/98100)
2. Nursery technique for raising Terminalia arjuna seedlings (Reg. # PAT/4.3.40.1/98103)
3. Application of lac dye on tasar silk textiles (Reg. # IPR/4.3.1/08027)
4. 'Jeevan Dhara' for Indian tasar silkworm protection (Reg. # IPR/4.3.1/08028)
5. 'Jeevan Suraksha' for prevention of diseases in tasar silkworm, Antheraea mylitta D. (Reg. # IPR/4.3.10.1/08029)
6. Tasar egg carrying and incubation device (Reg. # IPR/4.3.20/08030)
7. Cooling incubator for tasar silkworm eggs (Reg. # IPR/4.21.3/08056)
8. 'Tasar Amrit' : An ideal feed for Tasar silkworm, Antheraea mylitta Drury; filed as “A Feed for Silkworm” (Reg. # IPR/FA/11059-L/2011)
10. Motorized Reeling Charkha for reeling of tasar cocoons (Reg. # IPR/FA/13037/2013)
11. 'Kamdhenu' - A Reeling-cum-spinning Machine for tasar silk yarn production [Reg. # IPR/FA/13036/2013].