Motorized Tasar Reeling Machine

- The 4-ends motorised reeling Charkha is simple and durable, user-friendly device operated by a person.
- The capacity of reeling is 300-350 cocoons/day/operator.
- The productivity of this machine is 275-325 g/8 hours/operator for 60/70 denier tasar silk yarn at field level.
- Conventional (Natwa) reeling process can be replaced by this improved reeling machine.
- It can reduce drudgery to reellers and save on cost of work in bulk reeling.
- It can facilitate better economic returns to reellers in tasar producing states.
- The machine has been offered to NRDC, New Delhi for commercialization.
Kamdhenu - Vertical Reeling-cum-Spinning Machine

- Efficiency Machine is 80 % and weight of new machine is low (20kg).
- Dual option for reeling and spinning function.
- User friendly machine, having adjustable spindle speed and perfect yarn delivery speed.
- Capacity to reel 200-250 cocoons/day/operator
- Better quality of yarn which can be directly used as warp and weft thread to produce handloom fabric.
- It is portable machine and it requires low maintenance.
- The machine has been offered to NRDC, New Delhi for commercialization.
Non-peroxide Cooking Process for Tasar Cocoon

- Cooking recipe has been developed for tasar cocoon cooking.
- Easy and energy efficient process to produce
good quality silk yarn.
- New cooking recipe would be established for
reeling-spinning in tasar sector.
- Better quality fabric will be produced from
better quality Tasar reeled yarn.
- Retention of natural colour and sericin of tasar
silk yarn.
- It is economical process and Reelers/spinners
will be benefited.
Horizontal Tasar Silk Spinning Machine

- The machine has single spindle to produce spun yarn (Katia) and has lower power consumption.
- It has capacity to spin 300-350 cocoons and gives 280-300 gram per day productivity of spun yarn.
- All defective cocoons would be utilized for optimum spun yarn production.
- The developed machines utilizing for tasar silk spinning in Jharkhand, Chhattisgarh Uttar Pradesh, Orissa and Madhya Pradesh.
- It reduces drudgery and can be operated at home for part time work in villages.
- It can be operated by solar energy or electricity for spinning.
Development of a Model for Marketing of Tasar Cocoons by weight

- Cocoon transaction (sale & purchase) can be finished within a short time.
- Primary growers/tasar silkworm rearers can fetch correct remuneration for their produce.
- Exploitation by middlemen can be checked and stopped up to a great extent.
- Primary growers and reelers are being motivated.
- It is capable to remove existing visual Grading and count system. Reduce manpower as well as time saving.

It can reduce drudgery, manpower and time to tasar farmers/reelers/spinners.
Hand Operated Wet Reeling Machine

- Its yarn can minimize the silk waste during preparatory processes (winding, doubling and twisting).
- The wet reeling machine/device (6 or 12 ends) capable of reeling like mulberry sector.
- The machine is simple and user-friendly and operated without electricity.
- The yarn produced is lusturous, fine textured having 50/60 denier size and the machine has a capacity to reel 600-700 tasar cocoons per 8 hours.
- It is suitable for reeling tropical and temperate tasar cocoons.
- Wet reeled yarn is useful for weavers to reduce weaving defects caused by yarn and eliminates dyeing variations.
- It also provides better working environment for reelers and also helpful to increase his/her work efficiency.
- The developed machines are being utilized for tasar silk reeling production in Jharkhand, Uttar Pradesh, Orissa and Madhya Pradesh.
- Wet Reel machine has been offered to NRDC, New Delhi for commercialization.
Preparation of Tasar Fancy yarns for Product Diversification

- Tasar silk waste including defective cocoons can be used for production of fancy yarns.
- Tasar fancy yarns mainly used as weft in weaving for development of diversified tasar silk garments.
- The technology was adopted by JSDI & Jharcraft, Ranchi Jharkhand.
- 1/3rd of the reeled yarn on Amber Charkha and spinning machine.
- The process developed for value addition to the end products using tasar silk wastes.
Twin Charkha for Tasar Cocoon Reeling

- It is hand operated device, easy to adopt and no extra skill is required.
- It can be utilized for dry reeling and also used as re-reeling.
- Easy to assemble and dismantle.
- It is low cost device and can be easily manufactured.
- The twin Charkha can be operated by three persons without electricity.
- Such devices working at CFCs/DOS Jharkhand, Chhattisgarh, Baripada / Kulyana village DOS Orissa U.P. and M.P.
Application of Lac Dye on Tasar Silk

- Twelve different colours/shades were developed with the combination of Lac dye and different mordants.
- The dyeing technique adopted by Department of Sericulture, Jharkhand for organic silk production.
- These natural shades can be exploited in all tasar producing states in weaving and dyeing clusters for diversified products.
- The technique of applying lac-dye on tasar silk has been filed for patenting.
- Natural and eco-friendly lac–dye can be applied to tasar silk (both yarn & fabrics) in combination with permitted mordants.
Development of Tasar Core-Spun Yarn and Fabrics

- Tasar core spun yarns have been produced with other fibre's yarn in the core wrapped with tasar silk waste. The quality of the core-spun fabrics has been found to be satisfactory.

- Core spinning of tasar silk is techno economically feasible.

- tasar silk waste can be converted to core-spun yarn using grey cotton, mercerized cotton, polyester and jute etc. in the core.

- Cost of tasar fabric is reduced to 1/3rd using core-spun tasar yarn.
Reeling of Pierced/Emerged Cocoons

Pierced cocoons of tasar silkworm, *Antheraea mylitta* are reelable and raw silk recovery in the range of 35 to 40% can be achieved. Cost of pierced cocoons is approximately 1/3rd of the good cocoons.

Silk recovery is 2/3rd as compared to good (reelable) cocoons.

Technology was adopted by tasar producing states.
Peduncle/Balkal Yarn Spinning

- Tasar cocoon’s peduncle is fibrous and proteineous in nature.
- The peduncles can process by using chemicals and biomaterials to obtain silk filament.
- It can be spun with the help of New Model Charkha.
- A spinner can spun 250-350 g/day by tasar peduncles spin using Ambar Charkha.
- The developed yarn has natural coffee colour and can use to develop diversified products
- The technology adopted by DOS Jharkhand, Orissa, Chhattisgarh and West Bengal.