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Solar Energy based efficient plant for preparing Turpentine oil and Rosin from Pin Resin



Modified Pump used as Turbine



Roller for felt making machine



Thread sample made on Modified wool charkha



RuTAG IIT Roorkee

Rural Technology Action Group (RuTAG)
-A Mechanism to develop and disseminate technologies for rural areas by the Office of the Principal Scientific Adviser to the Government of India

Modified Bageshwari Wool Charkha



Developed Modified Bageshwari Wool Charkha

Details/Cost/Novelty

Spinning wool by drop spindle or spinning wheel has been a traditional occupation of communities in the Himalayan regions. Hand spinning of wool is laborious and time consuming. A spinner normally spins nearly 70 grams of 8 count woolen yarn in 8 hours. Whereas a spinner spins 250 grams of 8 count wool by using paddle operated spinning wheel during the same time. Spinning wool is not highly remunerative as a livelihood. Local people are gradually giving up spinning as a source of income.

Bageshwari charkha is commonly used in Uttarakhand for spinning wool for the last 80 years. There has not been any modification in the charkha for increasing productivity in spinning. RuTAG, IIT Roorkee initiated improvement in spinning wheel for reduction of drudgery in spinning and improving the productivity.

The following are the main features of modified Bageshwari Wool Charkha:

- The charkha has been motorized with speed control mechanism while its foot-paddle mechanism has been retained.
- Only 80 Watt power is required and speed can go upto 2000rpm.
- Wooden frame is replaced by light weight steel pipe.
- Modified charkha is an improved spinning wheel which has speed adjustment, light weight structure for easy transportation as its components can be easily assembled and dissembled.
- High quality thread can be produced using the modified charkha.
- Cost is about Rs.8,000/-

Field Trial Observation

The improved version of Bageshwari Charkha was tested for improvement in performance.

A five day's training program was organized for assessment and spinning production. Two women spinner from Bageshwar district of Uttarakhand participated in the training and assessment of the spinning wool.

During the training programme the following performance parameters were observed and recorded:

- Benefits to the spinner for the production of yarn as number of operating hours and quantity of yarn spun in a given time.
- Improved quality of yarn and number of hanks prepared in a given time.
- Ease of operation of modified motorized charkha in comparison with paddle operated Bageshwari spinning wheel.

Five sets of modified wool charkha fabricated by RuTAG are undergoing field trials at *Himalaya Trust, Bageshwar, Johar Mahila Janjati Utthan Samiti, Dehradun and Badrish Himalaya Janjati Sewa Samiti, Badrinath.*

Suitability for States

Uttarakhand and Himachal Pradesh, and J&K, Arunachal Pradesh and other wool growing states of India

Country and Present Status:

Bageshwari charkha is widely used in Kumaon and Garhwal region. It is estimated that a large numbers of families are involved in hand spinning and weaving in state of Uttarakhand and these may be directly benefitted from the developed Charkha.

Prototype disseminated so far and aspects like entrepreneur, Government support etc. explored.

The prototype is ready for dissemination. The design shall be handed over to the local manufactures for technology transfer through state industry development. We have already initiated the process of dissemination of the technology developed by RuTAG in association with NABARD and Uttarakhand state industry department. Local manufactures shall be given training for these modifications in the spinning wheel so that the modified spinning wheel will be available locally.
