



Alternative Uses of Cotton Stalks for Enhancing Farm Income - CIRCOT's Approach



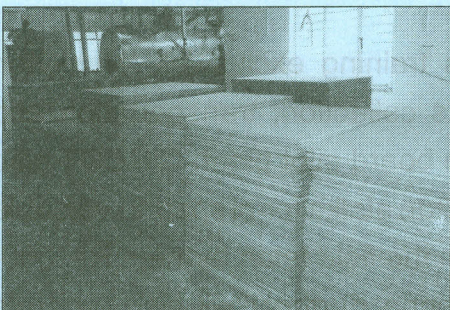
Introduction



Cotton stalks

It is estimated that about 30 million tonnes of cotton stalk is generated in India every year. Most of the stalk produced is treated as waste though a part of it is used as fuel by rural masses. The bulk of the stalk is burnt off in the field after the harvest of the cotton crop. Cotton stalk is comparable to the most common species of hardwood in respect of fibrous structure, chemical composition and hence it can be used for the manufacture of particle boards. Presently, boards are mainly made from wood particles.

Alternative Uses of Cotton Stalks



Particle boards from cotton stalks



Corrugated boxes from cotton stalks



Bioenriched compost

● Particle board preparation

Use of cotton stalks as a raw material for particle board industry would fetch an additional income of about 5% to the cotton farmers. Also this would have a positive impact on environment reducing the use of wood for particle board manufacture and thereby contributing significantly to the slowing down of the deforestation process.

● Corrugated boxes for fruits packing

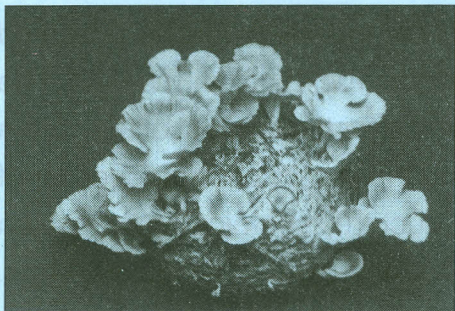
The kraft paper made from cotton stalks can be conveniently used for the preparation of good quality 3-ply and 5-ply corrugated boards that are conforming to BIS specifications. Suitability of these boxes was ascertained by conducting actual packaging, transportation and storage trials with fruits like oranges.

● Compost preparation (Accelerated process)

Cost of production of cotton compost is similar to FYM and we could save 60 – 75 days for the preparation of compost compared to FYM. NPK content (%) is higher in cotton stalk compost compared to FYM while performance is at par with FYM on growth and yield of cotton.



Compost form cotton stalks



Mushroom from cotton stalks

- **Mushroom cultivation**

Mushroom yields upto 600 g per kg of the chipped cotton stalk; and the same yield can be enhanced to 1 kg on supplementation with Bengal gram flour @ 3%

- **Briquettes formation (Renewable energy source)**

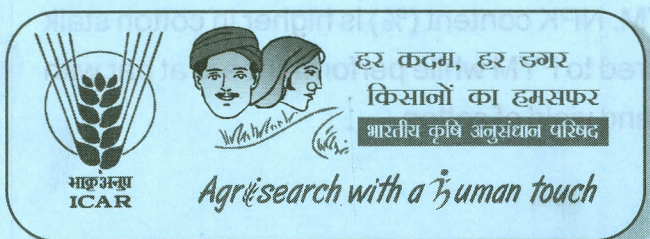
Pellets prepared from cotton stalk have calorific value of 4000kcal/kg with very less ash content. Briquettes can be transported to long distance economically due to compaction. Pelleting of agro waste will reduce dependency on coal, LPG etc. and also reduce the CO₂ emission in to the environment.

Other potential uses of cotton stalks:

- Power generation, cooking and boiler operation
- Biogas generation

Additional Income to Farmers...

Ginning Training Centre (GTC) unit of CIRCOT at Nagpur delivers training exclusively on cotton processing and by products utilisation. The logistics for cotton stalks collection, transportation and utilisation has been designed and implemented for their use in particle board pilot plant. CIRCOT also created awareness among farmers and various end users for use of cotton stalks for preparing valuable products. Institute delivered methodology of cotton stalk collection from the field fetch farmers Rs. 500-700/tonne and if chipped at farmers' field, it could fetch Rs. 1200-1500/tonne. Further it will also generate employment in rural areas, provide alternate fuel to rural community for cooking and also help indirectly to forest conservation.



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