



# Utilizations of cotton stalk for the preparation of particle board – CIRCOT's Technology



## 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.

## CIRCOT's Particle Board Technology

CIRCOT's process involves chipping of cotton stalks, rechipping, sieving, mixing with binder and other chemicals, mat formation, followed by pressing in a hot hydraulic press to get the boards. These boards are found to have properties on par with the boards prepared from forest and other agricultural residues.

## Supply Chain for Cotton Stalks

It is easy for a farmer to collect and transport cotton stalk to the nearest chipping centre and transportation of chips to the board industry situated around 50 km from the chipping centre. Entrepreneur can establish a chipping centre in rural area, as sufficient quantity of cotton stalks at one place is assumed and feasible to produce chips by using a tractor operated chipper. The expenditure towards collection, chipping and transportation is given below:

S. No.	Particulars	Rs.
1.	Labour charges for uprooting, cleaning and chipping	1300=00
2.	Transportation charges	400=00
3.	Loading and unloading charges	100=00
4.	Raw material cost	650=00
	Total	2450=00

The techno-economic feasibility of manufacturing boards from cotton stalk has been worked out and demonstrated to the board industry for its potential use. Once the industrial use of this agro waste picks up, the farmer would be able to earn additional income from the sale of cotton stalk to the particle board manufacturers.

- Farmers can get additional income by sale of cotton stalks at the rate of Rs. 650/- per tonne.
- Board manufacturer can use cotton stalks as one of the raw material for board making.





## Cost Estimation and Profitability

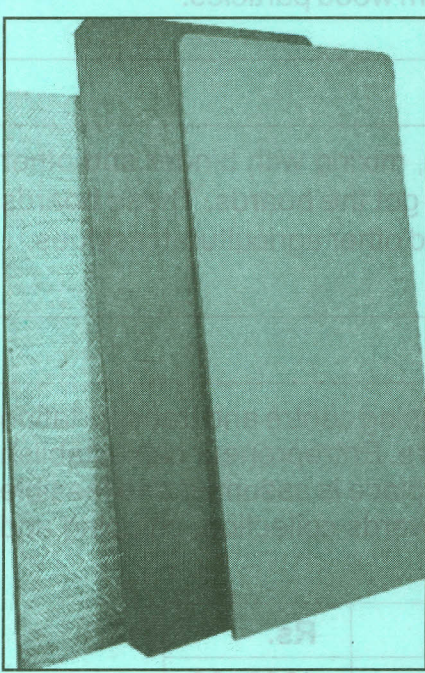
<b>Capacity</b>	: 10 TPD (360 boards of 8'x4'x12mm)
<b>Project cost</b>	: Rs. 6 crore
<b>Cost of Production</b>	: Rs. 24.00 per sq.ft.
<b>Sale Price</b>	: Rs. 32.00 per sq.ft.
<b>Return on Investment</b>	: 28 %

Cotton Stalks

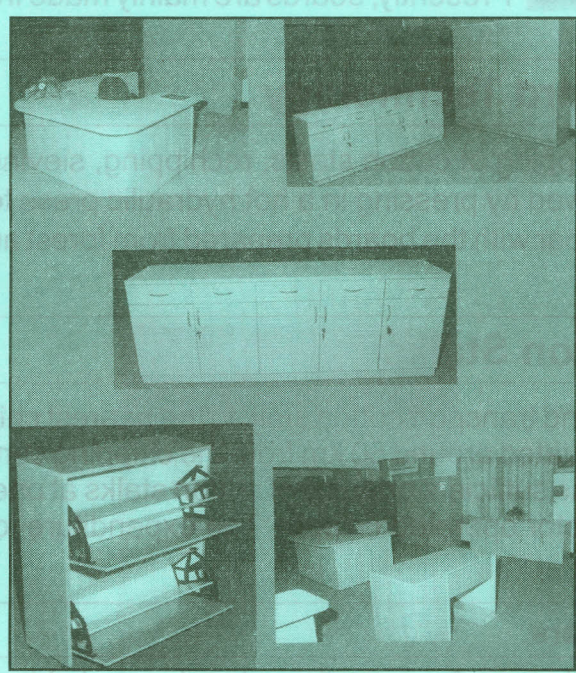
## Uses of Particle Board

Cotton stalk particle boards possessing different densities, thickness and types are manufactured to suit a wide range of applications such as: Wall paneling, Windows and door panel inserts, Furniture items, False ceiling, Roof paneling, Partitioning, Industrial and domestic flooring etc. In recent past, particle board has been used in the preparation of blocks for printing in place of commercial plywood.

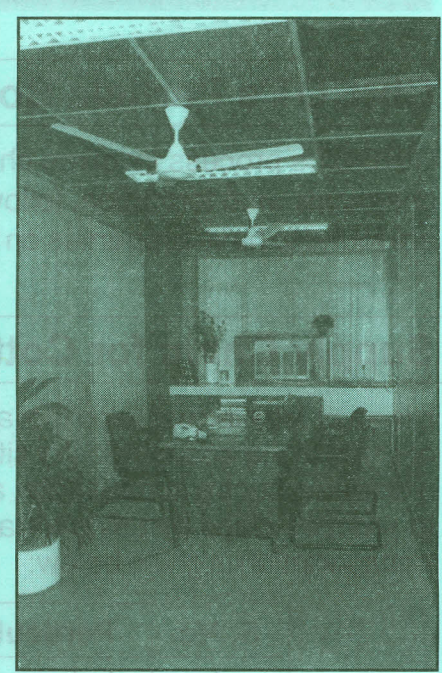
## Various uses of Particle Boards made from Cotton Stalks



**DOORS**



**FURNITURES**



**INTERIORS**

1300=00	Labour charges for unloading, cleaning and chipping	2
400=00	Transportation charges	3
100=00	Loading and unloading charges	4
650=00	Raw material cost	
2450=00	Total	

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भारतीय कृषि अनुसंधान परिषद

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**For further details, please contact:**

**The Director**

Central Institute for Research on Cotton Technology,  
Adenwala Road, Matunga, Mumbai 400019.

Web: [www.circot.res.in](http://www.circot.res.in) Email: [circot@vsnl.com](mailto:circot@vsnl.com)

Tel: 91-22-24127273/76 Fax: 91-22-24130835