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Chip Mills

Stationary, stand-alone satellite chip mills are used in the USA to extend wood supply area and secure long-term wood supply for pulp mills. A chip mill gathers trees from surrounding areas, debark and chip trees and thus produce clean chips to pulp mill. The use of satellite chip mills increases the wood procurement area and reduces the space needed at a pulp mill site. Also transportation of chips is cheaper than full-length-log transportation used typically in the USA. The machinery of a typical chip mill consists of a crane, debarker, chipper and conveyors.

SATELLITE CHIP MILLS HAVE SEVERAL ADVANTAGES

Stationary, stand-alone satellite chip mills are used in the USA to extend wood supply area and secure long-term wood supply for pulp mills. A chip mill gathers trees from surrounding areas, debark and chip trees and thus produce clean chips to be used in a pulp mill.

The advantages in utilizing chip mills are manifold:

- The use of satellite chip mills increases the wood procurement area and reduces the space needed at a pulp mill site.
- Compared with a full-length-log transportation used typically in the USA, transportation of chip per volume unit is cheaper because the processing of chips (loading and unloading) can be automatized and the whole load contains useful chips in pulping as bark is removed.
- The road safety increases as chips are transported in closed containers instead of the open logging trucks.

The first satellite chip mill was started in 1956 but their use became more common in the 1980s and 1990s. Chips are transported to a pulp mill by train, barge or by truck. Typical chip mill daily production in the 1990's was 2 000 tons.

Figures 1-3 present the layouts of some chip mills. The machinery of a typical chip mill consists of a crane that unloads trucks and feeds trees to the debarker. Debarked logs are then chipped and conveyors are used to transporting chips to a chip pile or to loading them straight to the train. The debarker used in a satellite chip mill is typically a drum debarker).

Figure 1. *Georgia Pacific chip mill at Brookneal, VA, USA. 37.068189, -78.972202 (left) and A chip mill located at Bernice, LA, owned currently by Georgia Pacific. 32.825747, -92.695672 (right).*

CHIP MILL IN FINLAND

A chip mill in Finland utilizes combined use of flail chain debarking and drum debarking to remove bark. In this mill, the whole tree material can be first delimbed and partly also debarked using a flail debarker. After primary debarking, debarking is finalized using a small drum debarker.

Delimbed roundwood can also be first processed in a flail chain debarker that weakens the adhesion between bark and wood. After the primary debarking, debarking by a drum debarker is easier. The use of a rotor debarker has also been tried but the capacity of a rotor debarker, processing small diameter roundwood, was found to be too small.

The process uses a dick chipper to comminute roundwood and screening to control the particle size. In addition, conveyors for different purposes, and machinery to process the bark is needed. This mill is able to produce good quality chips from the first thinning wood for pulp production.

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Figure 3. Georgia-Pacific chip mill at Jackson's Gap, Ala. 32.878267, -85.815720.

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