

COTTON PROCESSING: HARVESTING

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Cotton processing begins at harvest. This section describes the two mechanical harvesting methods and how they differ and the effects of those differences.

Once the cotton bolls have matured, they are mechanically removed from the plant by either of two harvest methods: cotton strippers or cotton pickers. A cotton harvester is self-propelled with special heads that harvest the cotton and a basket to hold the seed cotton. In some parts of the world, cotton is still harvested by hand.

Pickers (Figure 51) remove only the seed cotton from the boll, leaving the burrs (dried locules) and the plant intact in the field. Cotton pickers utilize a series of spindles stacked on a spindle bar in the picker drum. The spindles, which rotate, are round, tapered and fluted with barbs. The entire spindle bar is rotating as it enters the row of cotton plants. As the rotating spindles come in contact with the seed cotton on the plant, the cotton is pulled out of the burr (locule).

The bar continues to rotate and comes into contact with a spinning doffer that wipes the cotton off the spindle and into a pneumatic conveying system that moves it to the basket.

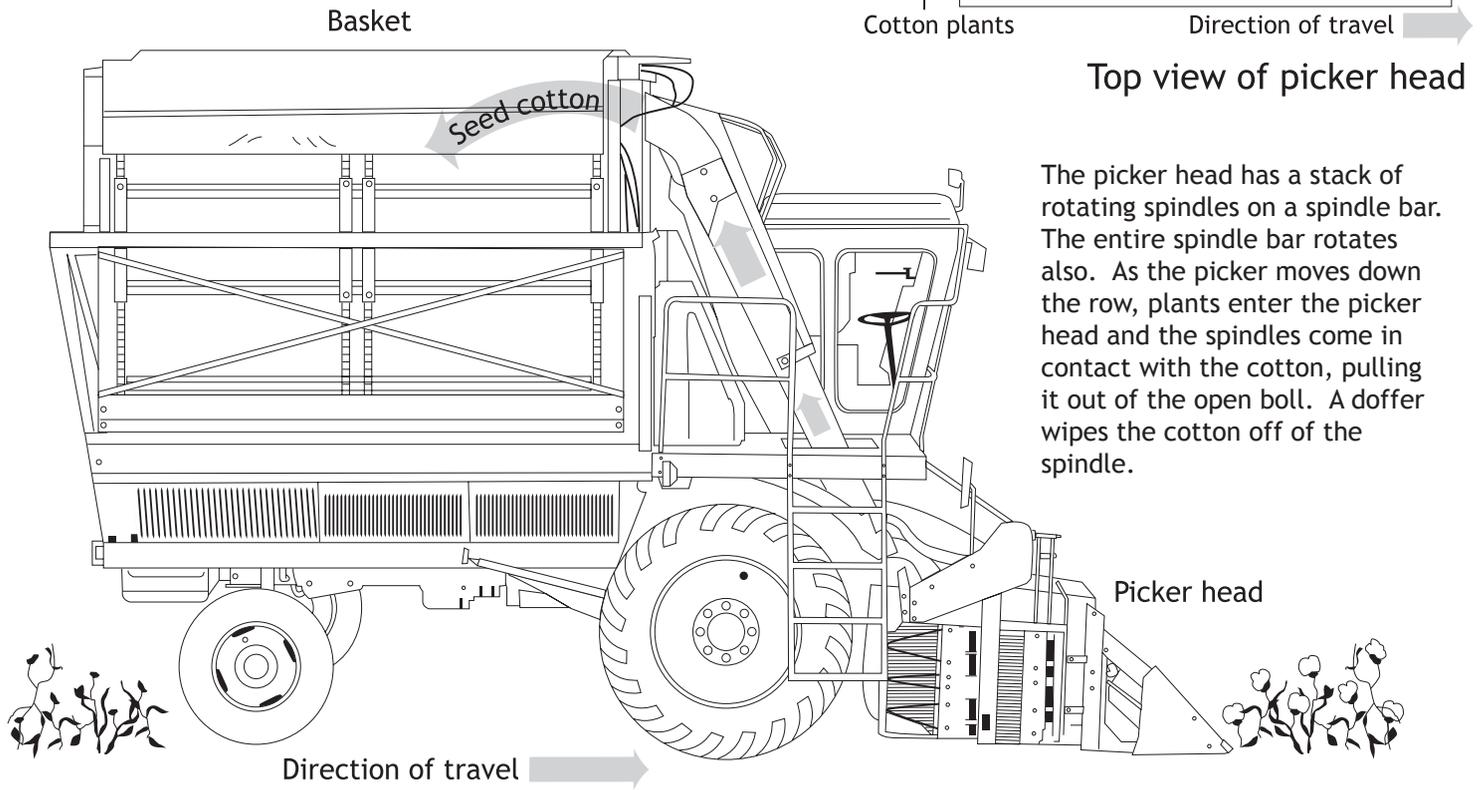
Strippers (Figure 52) are used in areas with storm proof cotton varieties (these varieties minimize field losses from weather). The seed cotton is held in the boll until the plant is killed by cold weather or chemical harvest aids. The cotton stripper removes the complete boll from the plant utilizing two counter-rotating stripper rolls consisting of nylon brushes and rubber bats. This method of harvest will result in a higher trash content of harvested seed cotton. Some strippers have field cleaners that can separate the burrs and sticks from the seed cotton that goes into the basket, leaving the trash in the field.

The harvester basket full of seed cotton is then dumped into a module builder. The module builder (Figure 53) can pack the cotton into an eight to twelve bale module. The module of cotton is left in the field to be picked up by a module truck and taken to the yard of the gin to wait for ginning.

Cotton Picker

Figure 51. Mechanical cotton picker. It removes only the seed cotton from the open boll, leaving plants in the field. The cotton picker moves down the rows of cotton plants, picking the cotton from the bolls. The cotton is conveyed to the cotton basket.

(T. Lee, K. Charlton)



Cotton Stripper

The stripper head consists of two counter-rotating rolls with long brushes and rubber bats spaced close together and slanted towards the ground. As the stripper moves, plants enter the head and the whole boll is snapped off of the dried plant by the bats. The boll is conveyed up to the basket by augers and pneumatic conveyors.

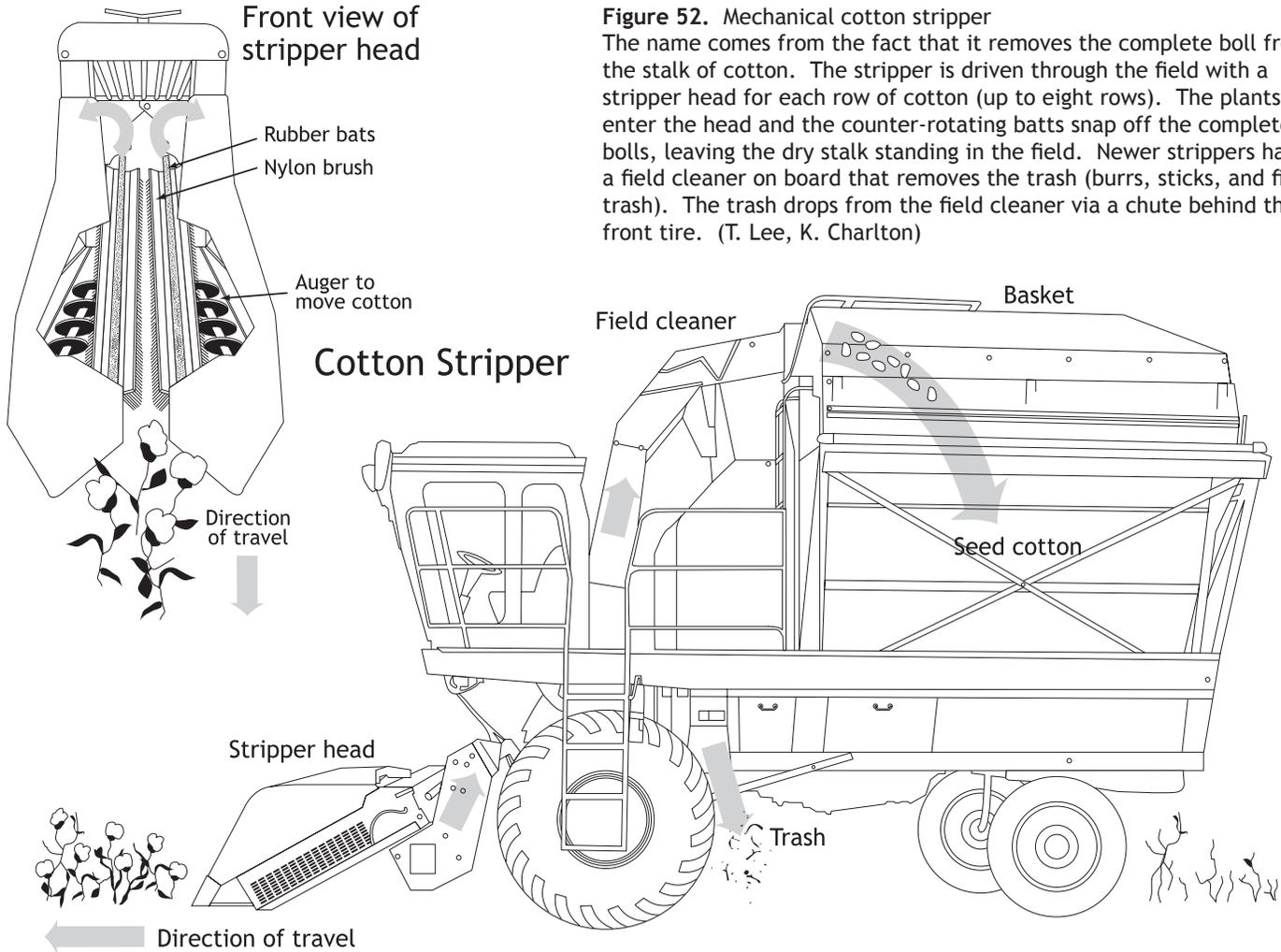


Figure 52. Mechanical cotton stripper

The name comes from the fact that it removes the complete boll from the stalk of cotton. The stripper is driven through the field with a stripper head for each row of cotton (up to eight rows). The plants enter the head and the counter-rotating bats snap off the complete bolls, leaving the dry stalk standing in the field. Newer strippers have a field cleaner on board that removes the trash (burrs, sticks, and fine trash). The trash drops from the field cleaner via a chute behind the front tire. (T. Lee, K. Charlton)

Cotton Module Builder

The harvester basket full of seed cotton is dumped into a module builder. A module builder is a metal box with no top or bottom and a moveable trumper that packs the cotton into an eight to twelve bale module, much like a trash compactor. When finished, the rear door opens, the builder is lifted

by hydraulics and pulled away from the module by a tractor to another location where the next module can be compacted. The module of cotton usually has a tarp pulled over the top. It is left in the field to be picked up by a module truck and taken to the gin. The development of the module builder as a replacement for cotton trailers helped eliminate storage and handling problems between the field and the gin.

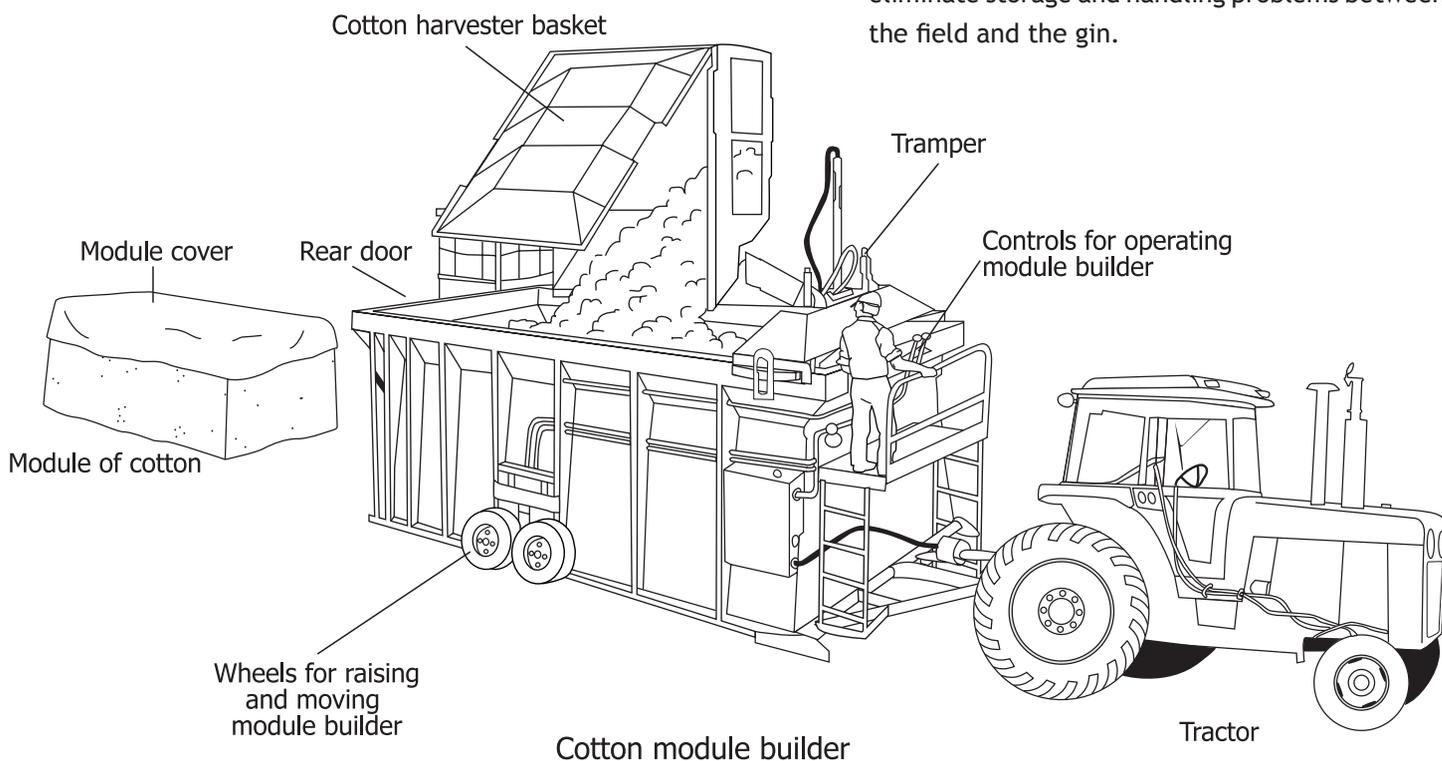


Figure 53. Module builder receiving a load of cotton from a harvester. When the module is completed, the builder is pulled away to the next site and filled again. A module truck from the gin will pick up the modules in the field. (L. Lalor)