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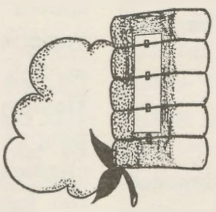
Mechanical Harvesting of Cotton

With one of the largest acreages of cotton in many years virtually assured in the Southwest, the job of harvesting the crop will be a major task. Much can happen between now and harvest, but the probable acreage suggests that a very large crop may be produced in the area, and the wise farmers will prepare now to handle the maximum production from their acreage.

The problem of cotton harvesting is aggravated this year by the fact that manpower requirements of the Armed Forces and of industry (at high wages) are steadily reducing the supply of farm labor. Some migratory labor will be available, but with the prospect of a very large crop, even this addition to the farm labor force may be inadequate to handle the harvest.



In attempting to meet the problems of labor shortages at harvest time, many farmers will turn to machines. Last year there were about 300 spindle-type cotton pickers operating in south and central Texas and an estimated 7,500 strippers in the High Plains area of the State. Large numbers of the spindle-type pickers have also been used in the Delta areas of Louisiana and in the irrigated sections of New Mexico and Arizona.

However, many cotton growers are not familiar with the problems involved in mechanical harvesting of cotton and will be greatly disappointed if they resort to this method of getting out their crop unless they are fully aware of the limitations of the machines and unless they follow recommended procedures in their operation. Thus, a brief discussion of the experience and recommendations of the A. and M. Colleges of Texas and of Oklahoma may be helpful to many cotton farmers.

The first item to check in considering mechanical harvesting is whether or not gin facilities for handling mechanically harvested cotton are available within a reasonable distance of the farm. Special cleaning equipment is needed to turn out a good sample, and if these gin facilities are not available, harvesting with machines is not likely to be profitable.

Also, it is important that growers, ginners, and bankers cooperate in making arrangements to store seed cotton if mechanical harvesters are used in the community. If gins do a satisfactory job, they cannot keep up with mechanical harvesters. Thus, it is often necessary to store the seed cotton and permit the gin to operate well past the harvest season.

There are two types of mechanical cotton harvesters—strippers and pickers. Stripping machines are referred to as "strippers" because they actually strip the cotton stalks, removing all of the cotton—including the bur—at one time. The two types of strippers are the roll type, in which the stripping unit consists of two iron rolls operating at about a 45° angle to the ground, and the finger type, in which the stripping mechanism consists of steel fingers about 12 to 18 inches in length and about 2 inches apart. These fingers move parallel to the ground, with the cotton stalk being drawn in between them, thus stripping the cotton and burs. In both machines the cotton is conveyed back to a wagon.

Mechanical cotton pickers actually "pick" cotton from the bolls. The picking unit consists of two vertical, revolving drums on which are mounted many small spindles, or fingers. As the machine moves over the ground, the cotton plant passes between these revolving drums and the fingers pick the lint from the bolls.

Mechanical strippers can be used on any variety of cotton but are best adapted to short, stormproof varieties. Inasmuch as they strip the cotton plant, the harvesting operation must be delayed until all bolls are mature; this practice causes considerable loss in quality, as well as in quantity, of open-boll varieties. On the other hand, stormproof varieties which produce a tight, compact boll can be left in the field until after frost with very little loss in grade or in quantity of lint harvested.

Mechanical pickers work very well on open-boll varieties but will not pick stormproof varieties. The picker can be used several times on the same field, enabling the farmer to harvest early maturing bolls and then go over the field a second or third time to pick bolls that open later.

Costs

The costs of mechanically harvesting cotton vary within rather wide limits, depending upon variety, yield per acre, skill of the operator, and the number of bales or acres harvested each season. It is difficult to arrive at any "hard-and-fast" cost figure that can be used to fit a wide variety of circumstances. Moreover, the relative advantage of machine harvesting also depends upon the cost of hand labor. For example, mechanical pickers have stood idle in some seasons because hand labor was plentiful and cheap. On the other hand, in 1949, when sufficient hand labor was not available at any price in some communities, it became a question not of which method was cheaper but of which would "get the crop out" That situation may prevail again this year

Mechanical strippers can harvest from 15 to 20 acres of cotton per day, and mechanical pickers will pick about two bales per day in cotton yielding one-third of a bale per acre and four to six bales in cotton yielding one to one and one-half bales per acre.

Figures obtained by Texas A. and M. College may be helpful in giving a more definite picture of the costs of mechanical harvesting. In 1948, machine stripping of cotton on dry land cost $12.32 per bale, including both operating costs and depreciation allowance on the machinery. About 50 percent of this cost was depreciation on equipment and about 25 percent was labor. These costs are based on the use of the stripper on 195 acres per season and an average estimated life of 7 years for the machine.

In 1949, machine picking in central Texas cost $17.79 per bale, including operating costs and depreciation. In this case, a somewhat higher proportion of that cost was represented by depreciation because the picking machine cost about 7 times as much as the stripper.

Another "cost" is the loss in grade due to mechanical harvesting. Experiments have shown that the loss in grade when open-boll varieties are stripped mechanically is as high as 2½ grades but averages about 1 grade. However, loss in grade from mechanical stripping of stormproof varieties is negligible. Mechanical picking of cotton usually results in the loss of quality amounting to ½ to 1½ grades. This grade differential decreases rapidly as the harvest season progresses. In other words, after about midseason the difference in grade between machine-picked and hand-picked cotton is very small.

One of the most important factors to consider in deciding whether or not to use a mechanical harvester is the amount of cotton to be harvested. A farmer with 40 acres of cotton could not afford to pay several thousand dollars for a mechanical picker, because the depreciation on the machine and the interest on his investment would make the per-bale cost prohibitive. On the other hand, an operator with several hundred acres of cotton might find it very profitable to make such an investment. In order to make it possible for the small operator to take advantage of the benefits of mechanical harvesting, it probably

will be necessary for several growers to buy and operate a machine cooperatively or to rely upon custom operators.

A mechanical cotton sampler that automatically collects lint during ginning and packages a cross section of the bale into a true sample has been developed by the United States Department of Agriculture. Details of the device and its operation may be obtained from the Information Branch, Production and Marketing Administration, Washington, D. C.

Guides for Farm Rental Agreement

A good rental agreement is a basic factor to consider in improving relationships between landlords and tenants and in insuring the most profitable operation of the farm, according to Louisiana State University.

While the exact contents of the rental agreement may vary within wide limits, depending upon the desires of the landlord and tenant and special conditions pertaining to the farm, it is pointed out that when the provisions of the agreement are set down in writing and agreed to by both parties, an important step has been taken toward promoting harmony, mutual understanding, and good farming.

The following guides for drawing up a rental agreement are suggested:

- Make the farm business sufficiently large to provide a good living for both landlord and tenant (if landlord is dependent upon the farm for his income).
- Provide for a long-time farming system that will promote security and stability for both parties.
- Definitely divide responsibilities of management between landlord and tenant.
- Divide expenses and receipts according to contributions of each party.
- Make the lease flexible enough to meet changing economic and farming conditions.
- Provide for a system of farming that will conserve natural resources and increase the productivity of the farm.

Hog Vaccination Vital

Vaccination can save swine growers from severe losses due to hog cholera and cholera-like infections, which caused more than a million-dollar loss in Louisiana in 1950, says A. D. Fitzgerald, associate animal husbandman of Louisiana State University.

Reports from Louisiana and Oklahoma veterinarians point out that the disease which did so much damage in 1950 is believed to be closely related to the hog cholera virus and that the best control available is a full dose of both the virus and the serum vaccination used to prevent hog cholera. The Oklahoma A. and M. School of Veterinary Medicine suggests that the serum dose may be increased as much as 100 percent above the standard recommendations. The serum protects the animal against the virus while the virus is building up immunity to the disease.

Other points to be watched in this program are: keep hogs well fed and free from parasites and have them well rested at the time of vaccination. Many of the losses last year were among feeder pigs which had been recently moved through livestock markets. Veterinarians point out that such animals should be given comfortable quarters and an easily digested ration for at least a week after they are brought to the farm. At the end of that time, they should be treated for internal parasites and vaccinated.

The vaccination program should be carried out under the direction of a competent veterinarian.

Shade for Livestock

The value of a summer shade for livestock depends on how it is built and where it is lo-

cated, according to a recent report by agricultural engineers of the United States Department of Agriculture. This study indicates that the more important sources of heat affecting animals under a shade are the heat radiated from the ground surrounding the shadow of the livestock shade and from the underside of the roof.

Three points are recommended for consideration in building shade for livestock: (1) keep the roof as high as practicable, (2) place the shade on grassland rather than on bare ground, and (3) cover the roof with hay.

Some 250,000 tractors with allied equipment were in service on Texas farms at the end of 1950. This power was used to plow 85 percent of the land, and 88 percent of the small grains was harvested with power equipment.

Glass Bottles Cause Grass Fires

Glass bottles lying along the roadside or in pastures are a major cause of grass fires, according to an article in the *Farm and Ranch* magazine. Acting as a magnifying glass when the sun's rays reach the proper angle, almost any bottle may concentrate the heat of the sun sufficiently to ignite dry grass.

Insurance adjusters have frequently suspected that many fires blamed on matches and cigarettes dropped by passing motorists should have been charged to a bottle found in the center of the burned area. However, little attention has been given to this source of fires, and it is not uncommon to see literally dozens of bottles scattered along the roadside and even on pastures and in woodlots.

Evidence that this is a major fire hazard is found in the experience of farmers in McLennan County, Texas. Fire bugs had been suspected of setting frequent grass fires along Highway 6, but the discovery of a bottle in the center of one of the burned areas stimulated a clean-up campaign by the farmers along the highway. Pastures and roadsides were cleared of all bottles, and the grass fires were practically eliminated.

There is sufficient evidence that bottles can start grass fires to warrant a thorough clean-up campaign on the part of farmers and ranchers. Such a program may be a major step in reducing the number of destructive grass fires.

Publications

Oklahoma Agricultural Experiment Station, Stillwater:

Broiler Growing Can Be Profitable, Bulletin No. B-365, by George F. Godfrey and others.

Louisiana Agricultural Experiment Station, Baton Rouge:

Control and Use of Johnson Grass, Extension Publication 1067, by W. T. Cobb.

Feeding Cattle for Market, Extension Publication 1072, by W. T. Cobb.

New Mexico Agricultural Experiment Station, State College:

Preliminary Report on Spraying Nitrogen Fertilizer on Cotton, Press Bulletin 1048, by Glen Staten.

1517C, A High Yielding Strain of 1517 Cotton, Press Bulletin 1049, by G. N. Stroman.

Oklahoma Agricultural Experiment Station, Stillwater:

Chemical Control of Weeds and Brush in Oklahoma, Bulletin No. B-335, by W. C. Elder and others.

Texas Agricultural Experiment Station, College Station:

Control of Mesquite, Progress Report 1320, by C. E. Fisher and others.

Summary of the 1950 Grazing and Feeding Work at the Blackland Experiment Station, Progress Report 1333, by O. J. Tippit and others.

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