Machine or Hand Cotton Picking?

Here Are Things to Consider In Answering This Question

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Shall I use machines or hand pickers to harvest my cotton this year? How do machine picking costs compare with the costs of hand picking? What about field losses? Grade losses? These are questions Arizona farmers are facing.

Comparison of the two methods of harvesting cotton—machine or hand picking—is not simple. It involves consideration not only of actual picking costs, but also of differences in cultural costs, grades, ginning charges and field losses associated with the two harvesting methods.

Direct Picking Costs

The costs of operating and maintaining a one-row harvester as reported by a number of farmers are as follows:

	per season	per bale	per cwt. seed cotton
Overhead	$1850	$ 6.61	$ .46
Repairs	850	3.04	.21
Operating Costs	1265	4.52	.32
TOTAL	$3965	$14.17	$ .99

These costs are based on picking 140 acres of two-bale cotton, of which 120 acres are picked a second time; an average picking rate of 4.7 acres per day for the season (4 acres first picking and 6 acres second picking); and an operating season of 55 days. The costs per bale or per hundredweight of seed cotton would be higher for lower yields or where the picker harvested fewer acres than those used in the above example. Conversely, lower costs per bale could be expected for higher yields and for machines used more in one season.

Defoliation Costs

Defoliation is assumed to cost $4.50 per acre for materials and application.

Grade Losses

Comparisons were made of the grade distributions of hand picked and machine picked cotton at 26 Arizona gins during the 1951 and 1952 seasons. These indicated that average grade losses for machine picked cotton amounted to $3.25 per bale during the 1951 season and $4.50 per bale during the 1952 season. Here a grade loss of 75 points or $3.75 per bale was used.

Ginning Charges

An additional ginning charge of 15 cents per hundredweight of seed cotton is attributed to machine-picked cotton since this cotton is usually passed through both lint cleaners and driers. In the case of clean, hand-picked cotton it is frequently possible to by-pass this equipment.

Field Losses

The most important factor determining whether it is more profitable to machine harvest or hand harvest is the field loss. Hand harvest will have about 5 percent loss. Experimental results at the University show picker efficiencies with machines of approximately 83 percent on A-44, or losses of 17 percent. Losses reported by farmers using machines ranged from 7 percent to 30 percent.

Farmers reporting the highest field losses attributed this to tall, rank, high yielding cotton. When cotton is tangled and has many laterals it is difficult for the machines to go through the field without causing loss. Under favorable weather conditions some cotton can be recovered by hand gleaning.

To compare total costs of machine harvesting with hand picking rates, these costs have been converted to a hundredweight basis at various levels of field loss (see graph).

A few farmers reported machine picking field losses of 7 to 8 percent, only slightly greater than what would be expected from hand picking. Cost of machine picking under these ideal conditions would correspond to a hand picking rate of less than $2.00 per hundredweight of seed cotton. With a field loss of 16 to 17 percent or about 1/3 bale per acre on two-bale cotton, machine picking costs correspond to a hand picking rate of $3.00. This conforms to reported losses in machine picking tests at the University.

A few farmers reported gleaning nearly half a bale per acre on two-bale cotton, a field loss of about 23 percent. With these high losses, machine costs correspond to a hand picking rate of $4.00.

Other factors such as timeliness of harvest, uncertainty associated with obtaining sufficient hand laborers, and problems of using large numbers of hand pickers also affect the farmer's decision as to whether to machine or hand pick.

(See Bulletin No. 259, "Costs of Harvesting Upland Cotton in Arizona.")

Machine vs. Hand Picking Costs