

Mechanical Cotton Harvesters

acreage controls, changes in cultural practices and prices affect economics of machine harvesting on individual farms

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Cotton acreage for a sample of California growers averaged 75 acres in 1957 instead of their 145-acre average in 1950. This sample represented growers with one harvesting machine each when obtained.

Beginning in 1950 many change-making forces came into being in cotton production. Some of the changes tended to increase costs and to lower profits for cotton growers. Other forces tended to reduce costs and make it easier to use the mechanical picker profitably. In 1950, and again in 1954 and continuing through the 1957 season, cotton quotas and individual acreage allotments were in effect. During the same period, a reasonably steady and continuing upward trend in expenses and costs persisted.

Acreage allotment has had a strong negative influence on profitable mechanical picking. Another important adverse factor—rises in prices and costs—has aggravated the reduced acre problem because the major cost item in mechanical harvesting is the high overhead related to the initial outlay for equipment. Rising prices raised the original equipment cost from somewhat less than \$10,000 to about \$13,000 for comparable equipment. Increased equipment cost and some increases in operating costs—plus the drop in acreage—raised cost of mechanical harvesting to \$43 per acre for 75 acres in 1957 as compared to \$20 per acre for 145 acres in 1950.

Probably the most important factor to the grower in his effort to hold down costs and maintain profits has been the dramatic increase in yields since 1950. In addition, there has been—and continues to be—improvement in the tailoring of cotton production for effective machine harvesting.

Growers are paying close attention to such practices as nematode control and supervised insect control to increase yields from plants uniform in growth and maturity. Higher rates of fertilization require more attention to irrigation frequency. High fertility levels and frequent irrigation result in excessive vegetative growth which necessitates topping to prevent lodging because lodged cotton is difficult to defoliate, boll rot increases and machine harvesting losses are greater.

More attention is given to preparation

of fields for irrigation by frequently re-leveling the land to the grade best suited to the soil type. Length of irrigation runs has been shortened and many runs of one mile have been cut to one-half mile and one-half mile runs cut to one-quarter mile.

In maintaining the quality of machine harvested cotton, growers are aware of the preparation problems in picker twists, green leaf stain, excessive trash, oil and grease and other extraneous matter.

Improved technology has enabled the grower to increase the number of bales produced per acre, and to do so without increasing harvesting time—and costs—per acre. Those gains offset much of the cost-increasing and profit-depressing influences of acreage cuts and price rises. Under 1957 conditions, the cotton grower with 75 acres had direct costs of \$19 per bale for mechanical harvesting as compared with \$15 in 1950. Without the yield increases the 1957 cost would have been \$28 per bale.

Direct costs of mechanical harvesting have been lowered also by farm machinery companies which have made improvements that have simplified seasonal maintenance and repair problems. Mechanical pickers have been developed to the point where growers—who utilize the services available to obtain a thoroughgoing annual reconditioning—usually experience only minor difficulties during the harvest season. This fact is highly important in reducing annual depreciation costs.

Assuming that 500 hours of operation represent a normal season's use for a mechanical picker, a grower could harvest about 160 acres at 2.25 bales per acre, which is—approximately—the yield growers in 1950 would have under 1957 conditions with the same proportional increase as the state average. Therefore, with a 75-acre cotton allotment the 1957 growers were able to use only about half of the potential capacity of their pickers.

In terms of 1957 conditions, the total direct cost for machine picking an acre of cotton with one machine—2.3 bales per acre—varied from \$21 for 200 acres to \$59 for 50 acres. The indirect costs of machine harvesting—grade and field loss—averaged slightly over \$10 for

grade loss when comparing machine with hand picking in 1950 and field loss was slightly over \$1 per bale.

Total machine-picking cost—\$10 for indirect cost and \$19 for direct cost—per acre for a 2.3 bale yield would be \$29 per bale for a 75-acre operation or a savings of \$10 per bale if the hand picking cost were \$2.75 per cwt.—hundredweight. On a per acre basis the savings would amount to \$23.

The relation between number of acres picked and picking costs per bale is influenced by varying yields. In a 75-acre operation the total cost per bale would range from \$25 for a three-bale yield to \$63 for a yield of 0.75 bale per acre. The range in savings per bale for machine operation—with hand picking at \$2.50 per cwt.—would be between \$9.50 with a three-bale yield and a loss of \$28 per bale at a 0.75 bale yield.

High yields are essential for the small operator whose cotton acreage allotment has cut him sharply below the potential season's capacity for one mechanical picker. However, with acreage yields of 2.25 bales per acre—and upward—a mechanical picking can be profitable in a cotton operation of 50 acres or more.

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CALIFORNIA AGRICULTURE

Progress Reports of Agricultural Research, published monthly by the University of California Division of Agricultural Sciences.

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