

Mechanized Rice Production

mechanical equipment involving high investments has greatly reduced needs for scarce and expensive labor

Gordon R. Sitton

The degree to which mechanical equipment has replaced labor in rice production is shown by analysis of the costs incurred.

A California farmer operating 300 acres of rice—using a 65 horsepower tractor and two small self-propelled combines—uses an estimated 7.5 hours of labor per acre of rice.

The cost of labor—including the owner-operator's unpaid labor at the wages of the displaced hired labor—would be approximately \$9 per acre at 1950 wage rates. That makes labor cost equal to one tenth of total costs on a farm operated by the owner—for production of what is generally considered one of the world's most labor-intensive crops.

For comparison, published figures on rice production in Peru, for example, indicate a labor input of 677 hours per year—and this is relatively low when compared with the hand labor required to cultivate transplanted rice in Asia.

Equipment

Almost as striking is the investment in equipment required for 300 acres of rice in California which—at 1950 prices—would cost from \$40,000 to \$52,000, or as much as \$173 per acre.

The tractor is the most important item of equipment on the rice farm. Powerful crawler tractors permit operations on the wet clay soils because their wide treads enable them to maneuver on wet fields and thus extend the period of time over which the work can be performed.

Since many rice farms grow rice only a tractor is used from one to two months in the spring season—perhaps for some fallow work in the fall—and during rice harvest.

Tractors of 45 horsepower and up—found on the farms surveyed in 1951—varied in meter hours of annual use from 300 to 3,000. With the low hours of annual use, many farmers found old tractors adequate for their needs.

The question of adequacy of harvest equipment for any given acreage involves consideration of the characteristics of the soil drainage, location relative to flood areas, and drier capacity available to the grower.

The common practice today is to combine rice and dry it artificially to the 14%

moisture at which it can be stored safely.

Combining the standing rice and artificially drying reduce the risk of loss from fall rainstorms, because in that way rice can be harvested when moisture content has reached the level of 22% to 25%, rather than the 14% or 15% necessary if it were to dry in the field.

Tenant-Operators

Often a grower's entire capital is invested in equipment and he does not own the land or the operating capital needed. As a result, much of California's rice is produced by tenant-operators.

Operating capital available to a tenant-operator is often governed by the amount of planting and harvesting equipment he has at his disposal for the proper operation of a specific farm.

In years when acreage allotments are in force, land-owners may not be interested in a tenant who does not have an allotment. Neither will a lending agency be willing to lend to a man whose rice may not be eligible for price support. Furthermore, the Agricultural Act of 1949—in discussing apportionment of national acreage allotments—says that the state acreage allotment is to be apportioned on the basis of several criteria including the equipment which is available for production of rice.

Labor Required

In recent years the labor shortage has hastened the mechanization of rice production.

There are two crucial periods when skilled labor is required: 1, during the spring work season when tractor drivers are needed; and 2, during harvest when truck drivers, and combine operators—in addition to tractor drivers—are necessary.

Some growers have acquired larger tractors so they can perform the field work with less hired labor. This adjustment is small when compared with those made in the harvesting machinery itself, as a result of the labor shortage. Much wider use is made of self-propelled combines than would be the case if more labor were available.

A grower with a self-propelled combine—which he can operate—requires

only tractor and truck drivers to complete his harvest. With the pull-combine the same type of labor is needed, but at least one extra tractor driver is required on any crew. This harvesting crew presupposes a second major adjustment in the combine used for rice—handling in bulk rather than in sacks.

Bulk Handling

As sack sewers became increasingly scarce—at any given wage—more and more growers converted their combines and other harvest equipment to bulk handling. However, the labor supply was limited as indicated—during the 1951 season—when a large operator said one of his combines was not moved from the farm yard the entire season, because he was unable to hire the labor necessary to operate that machine.

The labor requirement and the farm investment are lowered by the use of hired airplane services for seeding, fertilizing, and spraying. Fifty-three of 55 farms from which records were obtained, seeded rice by airplane in 1950.

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