

Farm Labor Squeeze Means More Machinery

Editor's Note: A workable mechanical tobacco harvester that would cut labor requirements in half and double output per hour? It's in the works, one of dozens of new mechanical labor savers to meet the U.S. farmer's dilemma of scarcer and more costly labor, according to the USDA. The USDA projection is that the labor situation is so acute that most crops which aren't mechanized are doomed in the marketplace by lower priced crops which are made cheaper by mechanical harvesting. The USDA report on "Farm Machinery Reaches Out":

An experimental lettuce harvester "feels" the head and if it's mature, triggers a cutting blade. It could cut labor use by one-half.

A hay cuber chops and presses hay into animal bite-size pieces, resulting in more economical transport, less waste, and reduced storage requirements (1-3 to 1/2 as much space as bales). It makes possible the total mechanization of hay handling.

A second generation harvester for processing tomatoes has an electronic sorter that eliminates 15 to 20 hand sorters now needed on commercial harvesters.

There are harvesting machines that reach up to 50-foot palm trees to harvest dates and ones that go deep into the soil for such crops as potatoes and carrots.

These are just a few of the "1972 models" that are appearing on farms around the country.

On the whole, machinery in the works focuses on specialized fruit and vegetable crops—and on tobacco, the last major holdout for mechanized harvesting.

The need for farm machinery for these crops is accentuated by the decrease in available stoop labor, by rising farm labor costs, and by competition from foreign countries.

Take the tobacco harvester. It's probably the most talked-about new piece of machinery around. Economists foresee that if there is another big wage increase for workers, these machines will be in operation

whether all of the flaws are worked out or not.

Adoption of a mechanical tobacco harvester, plus removal of barriers to larger production units, could reduce labor input by about half from 471 hours per acre in 1967 to an estimated 246 hours in 1975, according to an ERS report. The peak harvest demand for labor would be more than halved, and output per four would be approximately doubled.

Although mechanization would be costly in flue-cured tobacco areas, ERS estimates that the mechanical harvester is the least costly means to harvest when operated to capacity (about 40 acres) and wage rates exceed \$1.35 per hour. The system would require an estimated \$52,000 capital outlay—\$40,000 for bulk-curing barns and \$12,000 for the harvester and support equipment.

The winter produce industry is another one that drives home the need for mechanization to keep up with competition. Last year Mexico exported to the U.S. a record \$191-million worth of fresh and processed fruits and vegetables. It supplies most of our fresh tomatoes in the winter.

In Florida, a tomato harvester for fresh-market tomatoes will be given a commercial test for the first time this winter season by the Florida Tomato Committee and the University of Florida. It will be tested on a new machine-harvestable variety of tomato that has a tougher skin and a jointless stem. The test will evaluate buyer and consumer acceptance of the tomato, practicability of the machine harvest system from the grower's standpoint, and the economic feasibility of the machine harvest system.

"Predictions are that any fruit or vegetable crop that cannot be mechanically harvested will disappear from the consumers' shopping lists because of economic competition from fruits and vegetables that can be mechanized," according to researchers at the Rural Manpower Center of Michigan State University.

With labor becoming increasingly more costly and less

available, an ERS study reported that even on relatively small farms, farmers are being pressured into adopting labor-saving equipment.

New machinery that cuts the amount of labor required on the farm is constantly being tried and adopted.

Tart cherries are now mostly machine harvested. They're loaded into tank trucks full of cool water and ride to the processing plants in this cushion.

A cling peach harvester shakes the tree limbs, catches the fruit, and conveys it to a bin. A minimum crew of three to four workers can harvest 6 to 10 bins, averaging 1,000 pounds each, in an hour and 4 to 5 acres in a day. This compares with a crew of about 20 workers for hand picking this output.

Other possible uses for the harvester include prunes, freestone peaches, apricots, almonds, and walnuts.

A shake-catch method is now being used in harvesting apples, and a shake method is being tried for citrus harvesting in Florida.

A cucumber harvester averages an acre an hour and can be expected to harvest 100 acres per season.

An experimental strawberry harvester combs plants and strips off berries.

The labor shortage is so acute in some areas where strawberries are produced that grower groups are earmarking

funds for harvester development. Such development will help growers meet competition from Mexico, which continues to ship in increasing quantities of fresh and frozen berries.

In Delaware, 12 harvesters took care of 1,200 acres of asparagus at about 6 acres per machine hour—replacing 400 workers. The interest in mechanized harvesting there grew after 1969 when 5,000 acres in Delaware and New Jersey went unharvested because of a shortage of workers.

A trade source estimated last year that for the farmer with 50 acres, the cost of hand harvesting would be about \$115 per acre, whereas the cost of a harvester, at around \$6,000, would be paid for in 2 years. The fact that the machines deposit spears in a jumble concerns processors, but this problem is being solved through hand sorting or by mechanical devices that align about 85 per cent of the spears.

New machinery for reduced tillage and stubble mulch puts tilling, planting, fertilizing, and pest control into one operation.

An onion harvester digs and tops the bulbs, recovering better than 90 per cent of them.

Long rubber fingers in an experimental harvester snap pineapples off, but to be economically feasible, a breakthrough is needed in getting pineapples to ripen uniformly in the field. Even then, mechanical

harvesting will be feasible only if there is a continuing severe labor shortage.

Some farm machinery, introduced only a few years ago, has already dramatically changed the harvesting of the crop for which it was tailored.

For example, a mechanical grape harvester was introduced in Washington in 1968. That year, barely one per cent of the state's grape crop was harvested mechanically. By 1970, more than 54 per cent of the grapes were mechanically picked.

Dates on palms 30 to 40 feet high are now mostly harvested by cutting the branches and lowering them to a shaker trailer. The fruit is shaken into bulk bins. About 80 per cent of the 1966-67 crop was harvested mechanically. Labor inputs were reduced by 80 per cent and harvest costs cut in half—down to 20 per cent of total production costs.

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