Jointed tomato (left), on which part of the stem and calyx remain, and jointless tomato, on which none of the stem remains with the fruit to cause damage in handling.

Hand-harvesting jointless vs. jointed-stem tomatoes

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Jointless-stem fresh-market varieties take much less time to pick than jointed types

Commercially grown fresh market tomatoes, nearly all of which are shipped at the mature green stage, were harvested solely by hand until machine harvesting was introduced in 1977. During the 1980 season, several California shippers used machines to harvest all or part of their crop. Most of the crop is still harvested by hand, however, primarily because the costs of harvesting by tomato pickers paid on an incentive rate are competitive with machine harvest costs, and the labor supply is adequate.

California growers, mainly in the San Joaquin and Salinas valleys, produce 30 percent of the fresh market tomatoes grown commercially in the United States.

We conducted a four-year study to compare the efficiency of picking jointed- and jointless-stem tomato varieties by hand. The calyx and stem of jointless varieties usually remain attached to the plant when the fruit is picked. The stem of jointed varieties often separates from the plant at the stem joint, so that the stem and calyx remain attached to the picked fruit. The picker then has to take the time to remove the stem and calyx from the fruit to prevent injury to other fruit in the picking containers, trailers, and packing shed. Such punctures may lead to secondary infections by fruit rot organisms and can be a major cause of postharvest losses.

Picking tests

The tests included two jointed (Royal Flush and Sunny) and three jointless (Lucky Draw, UCT68A, and Castle Crown) green mature tomato varieties in Merced County. Each year two growers selected the jointed and jointless, determinate-vine-type varieties to be seeded in their fields for our tests. The varieties were grown in commercial fields under standard cultural practices.

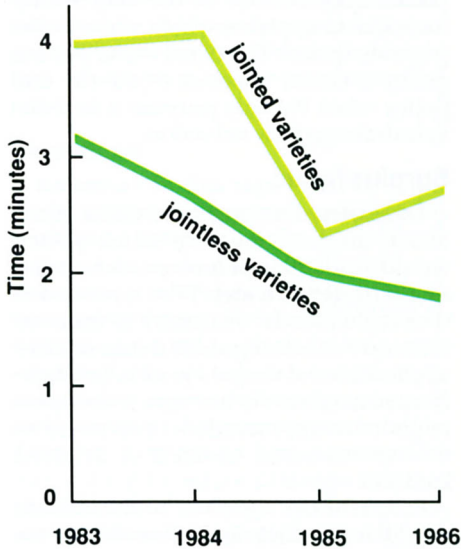

Fig. 1. Picking a 25-pound bucket of jointless tomatoes took 17 to 33 percent less time than picking jointed varieties and removing stems.

Hand-harvesting crews of 30 workers each were randomly selected to pick both varieties in a field in one eight-hour day. Individual pickers were timed, and the harvested fruit was examined for the percentage with stems attached.

Results

The saving in time spent picking the jointless over the jointed varieties varied from 17 to 33 percent, with an average of 25 percent for the four years (fig. 1). Yields in the test plots during the four years ranged from 16 to 20 tons per acre.

After picking, the fruit with stems attached averaged 0.01 per bucket of jointless varieties and 2 per bucket of jointed varieties.

Conclusion

Jointless fresh market tomato varieties provide considerable economy in picking time. With the increased efficiency of picking jointless over jointed varieties, a crew can harvest more acres in a day and reduce injury to tomato fruit and plants.

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