

# Mechanized Cucumber Picking

self-propelled machine designed for use in harvesting pickling cucumbers reduces labor and time requirements

Bernarr J. Hall and John H. MacGillivray

**Pickling cucumbers** were harvested from a field in San Diego County during the 1955 season at the rate of 274 pounds per hour—with an average of 335 fruit per 100 pounds—by the use of a specially designed machine.

Data obtained in other areas where the machine was not used showed a picking rate of from 80 to 100 pounds per hour.

Cucumbers grow rapidly, so they need to be picked every two or three days if the choice small-sized pickle-cucumbers are to be harvested.

During the 1955 season, one grower harvested 45 acres of cucumbers with 24 men and the machine. The customary hand picking was used only in a few triangular areas. The previous season he harvested 50 acres with 42 men, using both methods of picking.

The machine eliminates trampling of the vines and permits cleaner picking, so there are fewer culls. Much of the increase in output by the pickers may be attributed to the reduction in their fatigue and the effects of the pace setting by the machine.

At the beginning of the season, a field may yield only 500 pounds per acre per pick, but later the yield can reach two tons per pick. With light picks, the traveling speed of the machine can be increased.

**During picking operation the shoulders of the pickers extend beyond platform.**



**The wings of the machine can be raised at the end of the row in preparation for turning.**

The harvester is self-propelled and powered by a four-cylinder automobile engine. The gear arrangement permits 20 forward speeds that provide a range of from 3' to 35' per minute. Mounted on four wheels located close to the engine, the machine has a turning radius of 8' to 9'. Turning time is about 1.6 to 2.0 minutes, including 0.50 minute for unloading the filled sacks.

On either side of the engine are wing-platforms—supported by cables—that can be elevated when the machine is

turning or for clearing obstructions. The over-all width when the platforms are in picking position is 44'. One man can operate the machine and have 40% to 50% of his time available for supervision. Six men pick from each wing. They lie prone on a 1½" foam rubber pad with their arms and shoulders forward of the platform edge for freedom of arm movement when picking.

The picked cucumbers are placed on a conveyor—under the platform—that moves toward the center of the machine. There the fruit is collected and elevated into cloth sacks for delivery to the processor.

For a yield of 3,000 pounds per acre, the machine moves at a rate of 12' per minute and can harvest about three fourths of an acre per hour.

The machine served another purpose last spring when the cucumber field needed weeding and thinning. Men working from the machine platforms doubled the 0.4 to 0.45 acre per day usually accomplished when the picking crew is walking.

Equipment such as the cucumber harvester probably might be used for such crops as summer squash and bush snap beans.

*Bernarr J. Hall is Farm Advisor, San Diego County, University of California.*

*John H. MacGillivray is Professor of Vegetable Crops, University of California, Davis.*

*Grower Tom Imaizumi of Valley Center, San Diego County, who constructed the harvester, co-operated in the study reported here.*