Can a Cantaloup Plant Live Forever?

HERE'S SOMETHING you never saw before! This is an entire field of cantaloup, ← all offspring of the same mother plant, without the genetic mixing which comes from natural insect pollination.

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Finding the solution to a problem in breeding cantaloups has posed an interesting question: Can a cantaloup plant (with an assist from man) live forever?

In breeding such vegetables as lettuce, carrots and cabbage, the important edible portion may be evaluated before the reproductive phase of the plant's life cycle begins. With some other vegetables, such as tomatoes, early fruit may be evaluated before the plant stops flowering and setting fruit. Selection of desirable individuals in such crops, for breeding work, can be very efficient because only the best plants need be saved. This has not been so for cantaloups.

Cantaloups Are Different

One of the most important items to consider in cantaloup breeding is the mature fruit. Normally, fruit are set early by insect pollination and mature about one month later. Developing melons tend to restrict the setting of new fruit, and most flowers fall off.

For controlled breeding, flowers must be hand-pollinated. Hand pollination, never as successful as natural insect pollination, rarely results in fruit set if melons have already developed on a selected plant. This means that all selfing or crossing must be done on young plants before fruit can be evaluated. This had been done with the hope that the plants used would turn out to be the desirable ones. It is not possible to hand pollinate every plant.

Frequently then, poor quality individuals are inadvertently used for breeding, while superior sister plants are only insect pollinated and thus are of no use in the program.

Needed — A New Method

For a more rapid and reliable cantaloup improvement program a new method was needed. Breeding stocks should be grown in a manner comparable to commercial practice. Then, at fruit maturity time, all plants could be compared, so that actually each plant is in competition with all the rest. When the very best plants are chosen, it would be desirable to preserve them for breeding activity. *Vegetative propagation of cuttings from mature plants seemed to be the only feasible method.*

Many methods of getting cuttings to form roots were tried. Finally one procedure was developed and refined to give good results. This involves placing vine-tip cuttings in a chemical nutrient solution to which a small amount of a special rooting hormone is added. Air is bubbled into the solution, which is kept in the dark. A temperature of 90°F is best.

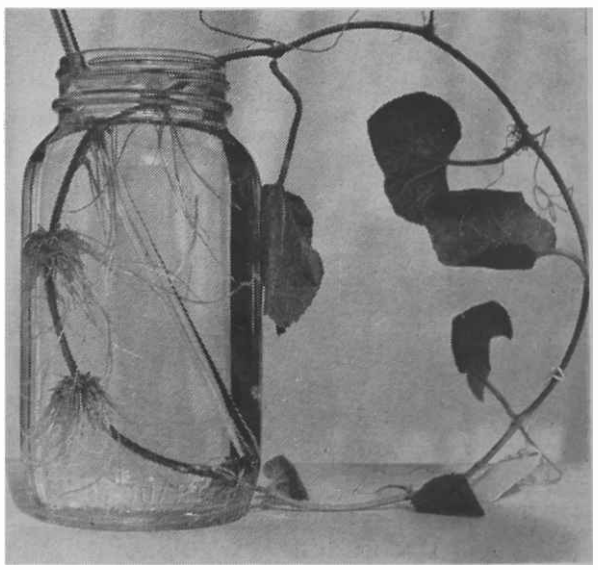
Using this method, with some further refinements, 99 cuttings out of 100 can be induced to form roots and develop into new plants. Such plants will grow and set fruit normally and, of course, can be used for any type of breeding work.

Actually new plants derived from cuttings of one individual are "extensions" of that same mother plant. Several cuttings can be started from a mature cantaloup. These, in turn, could each yield several new units, and the process continued to produce many new individuals. In this way a *single*, truly superior cantaloup plant could be used to set out an entire field!

Over and Over and Over!

A healthy mature plant, having borne fruit, can be started over by means of cuttings. This can be repeated. One such plant was carried through five vegetative "generations" over a period of about 18 months in a greenhouse at the Mesa Branch Experiment Station of the University of Arizona. Each unit produced ripe fruit, so this was comparable to five years of field production. By continuing to root cuttings successively from the same stock, parts developed from the original cantaloup plant could be kept alive, growing, and producing fruit theoretically *forever*.

THE CANTALOUP CUTTING, (below), established in a mason fruit jar, already has grown roots and new leaves, and is ready to transplant.



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