

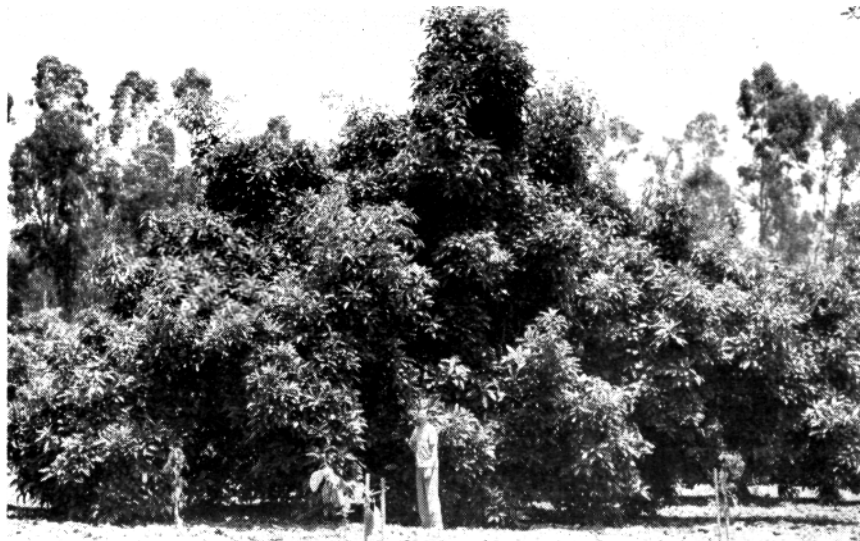
THE SCOTT AVOCADO

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The possibility of obtaining clonal rootstock material for avocado plantings as well as the possibility of obtaining rootstocks resistant to avocado root rot are of extreme interest to avocado growers. In the summer of 1953 Mr. C. C. Scott, who at that time was manager of avocado properties for Findley Brothers in Santa Ana, called our attention to a large Fuerte avocado tree that was in excellent condition, even though most of the trees adjacent to it had died or had been replaced because of avocado root rot. Fortunately there were several suckers growing from the rootstock of this tree where it had been injured by disking. Some of this sucker growth was taken to the University of California at Los Angeles and rooted so that various studies could be made of it. Zentmyer and Schroeder (5) and Cameron (1) have already referred to cuttings of this material as Scott cuttings in a report on resistance to avocado root rot.

This particular avocado tree was 35 years old at the time. The anise odor of the leaves suggests that the rootstock is a Mexican seedling. The present owners state that the tree has produced some 20 or 25 boxes of fruit per year for several years. Figure 1 is a photograph of this tree taken in 1955.



Cuttings from sucker wood growing from the Mexican rootstock of this particular Fuerte avocado have become known as "Scott cuttings" or "Scott avocados." Note that it has been necessary to replace adjacent trees because of avocado root rot.

Several rooted cuttings were made by Mr. E. Frolich from the material brought in by the grafting-etiolation method previously described (2). These cuttings were used for various purposes. Some were sent to the Citrus Experiment Station at Riverside for tests of resistance to *P. cinnamomi* by Dr. George Zentmyer. Others were transplanted to a plot infested with *P. cinnamomi* at the University of California at Los Angeles and still others were potted into both calcareous and non-calcareous soils for glasshouse studies.

The laboratory tests by Dr. Zentmyer indicated that this particular rootstock was not resistant to the *P. cinnamomi* fungus. However, the cuttings planted in the infested area are still growing vigorously two years after they were set out. Because of the rapid growth of these plants the possibility exists that roots are produced faster than they can be destroyed by the fungus. This, however, has not been proved.

The vigorous production of roots by this material corresponds with its ease of rooting. Mr. Frolich observed that cuttings of this material root very easily by conventional methods. He has made a number of cuttings of this material by both methods and obtained almost 100% rooting. Mr. Scott has done equally as well with ordinary cuttings. Cuttings rooted by conventional methods do not produce as extensive root systems initially as do those rooted by the etiolation technique.

The nutritional studies with the Scott avocado in the glasshouse have indicated the distinct possibility that this particular seedling may be extremely resistant to lime-induced chlorosis. It appears to be more resistant than most Mexican seedlings, which generally exhibit greater resistance to lime-induced chlorosis than do Guatemalan seedlings (3). Cuttings maintained in calcareous soils with treatments that had always caused other Mexican seedlings to become iron chlorotic did not cause chlorosis in this avocado in more than two years' time. In recent months some iron deficiency patterns appeared for a short while, but they soon disappeared.

In similar studies it has been observed that cuttings of this material were not injured by sodium bicarbonate or sodium chloride applications equal to those that caused severe injury to other avocado materials (4). Application of 25 grams of sodium chloride to these materials in five-gallon cans caused no injury whatsoever. Sodium had not translocated to the leaves of the plants and only 0.55% chlorine was present in the leaves 14 days after application. This is one-fourth to one-third as much leaf chlorine as has been observed for other avocado materials in pots (4). Smaller applications resulted in a smaller content of chlorine in the leaves, while leaves of plants supplied no chlorine except that occurring in irrigation water contained 0.10% chlorine.

Dr. R. Seaney made some interesting cytogenetic observations on the flowers of this avocado. He reported that it appears to be a variable multiploid which may be sterile.

The Scott avocado may not be the answer to any of the problems that distress the avocado industry. However, there are some interesting implications that can be derived from the observations which have been made concerning its behavior. One of these is that either resistance or immunity to diseases or physiological disorders may be found among avocado materials already growing in southern California. Even though immunity to a given disorder cannot be found, it still may be possible to discover a form that is sufficiently tolerant to serve as a satisfactory rootstock. Another interesting possibility is

that the ease of rooting of the Scott avocado would facilitate preparation of clonal avocado material for field planting. It would even be possible to duplicate both the scion and the rootstock in commercial plantings if desirable. Of course, there are many unsolved problems that enter into this. How well a rooted cutting will last through the years as a rootstock is not known. How well the Scott material will graft with other varieties is not too well known, although Mr. Frolich has made several Hass-Scott and Fuerte-Scott combinations. How well this material will do in a different micro-climate also is not known.

Several varieties have been budded to this rootstock and a number of young trees have been placed in different localities for evaluation. Many years will necessarily pass before the value of this clone as a rootstock can be determined. Meanwhile, because of the extremely interesting characteristics referred to above, it seems to merit at least limited trials. It is contemplated that some experiments involving the use of the Scott as a clonal rootstock will be undertaken. The rights of Mr. C. C. Scott have been respected in all experimental work done with the Scott avocado. Any root rot tests with it will be under Dr. Zentmyer's direction.

LITERATURE CITED

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