

## AVOCADO ROOTSTOCK INVESTIGATIONS

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This progress report covers the period from 1943 to the present. The available data so far do not warrant any statement concerning the relative merits of the different rootstocks used because, with the exception of one, none of the plots is of bearing age. Orchard surveys made during the early part of this period revealed that the avocado rootstock situation cannot be evaluated because of lack of reliable records. In practically all orchards visited the trees were found to be on Mexican rootstock and with the exception of trees grown by a few nurserymen, the rootstock was either mixed or of unknown origin. Some trees were found to be on Guatemalan stock presumably also of mixed origin. The only known way of obtaining reliable information concerning possible rootstock influences is by field trials. This is a long-term project and it requires the propagation of trees on many rootstock varieties and the establishment of many plots in different localities. It also involves the use of more than one scion variety. If for example, it should be found that the Fuerte does equally well on all types of rootstocks it does not necessarily follow that other scion varieties like MacArthur will react in the same way.

Accordingly, all efforts have been concentrated on the planting of experimental plots. Very little could be accomplished during the war, but since 1946 about 34 plots have been planted. Unfortunately losses have been greater than were anticipated. These were caused by severe freezes and neglect brought on in some cases by change in ownership of the orchard containing the plot. In some plots many trees had to be replaced because of damage caused by rabbits, gophers and deer. It is intended to continue with the plantings not only to compensate for these and possible future losses, but also to increase the number of plots.

So far 37 rootstock varieties have been used; 13 of them are Mexican, 22 Guatemalan and 2 West Indian varieties. The latter are considered too tender for California but they were included to test their alleged resistance to root rot (tree decline) and saline soil condition. With very few exceptions all are named varieties which will be available for some years to come if needed for further data.

The size of the plots varied according to the number of available trees and the space allocated by the grower cooperator. At present the average plot contains a little over 100 trees. Of course not all of the rootstock varieties are represented in every plot. Moreover some varieties were not available every year.

The present phase of the investigation is of an exploratory nature. Later the use of varieties that should prove to be undesirable will be discontinued and the use of more promising ones extended. As previously mentioned, the possible influence of the scion variety should also be considered. Accordingly, in addition to the Fuerte which is the

most important variety, MacArthur, Hass, Anaheim, and Rincon have been included.

#### TYPES OF TREES PLANTED IN 1950

Upper left: *Small tied-up bud. Arrow points to scion shoot.* Upper right: *Standard tree.*  
Lower left: *Tip-grafts in paper pots.* Lower right: *Tip-grafts in 3-gallon cans.*



Following is a summary of the plots so far established, together with losses that have occurred:

20 Fuerte plots, more than half of which were planted during the past two years. At present only 11 of them are in good condition. Four have suffered set-backs due to various causes. However it is believed that they will eventually yield information of some value. Two plots are very doubtful and 3 had to be abandoned.

Eight MacArthur plots, 7 planted in 1948 and 1 in 1950. Six of them are in good condition, one is doubtful and 2 were lost due to freezes.

Three Hass plots were planted in 1950. All are in good condition except that in one plot many replacements will be necessary. The losses were caused by gophers, rabbits and lack of adequate soil moisture at critical times. Two Anaheim plots were planted in 1950. In one of them some replanting will be necessary.

In addition to the plots, mentioned, seedlings were planted in 12 different orchards in 1950. Some of them were top-worked to Fuerte, MacArthur and Rincon. The rest will be top-worked as soon as they have fruited.

Three nurseries containing about 2,000 seedlings were budded in 1950 to Fuerte, Hass, MacArthur and Rincon. How many plantable trees these nurseries will yield for 1951 planting is impossible to say at present.

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