California Avocado Society 1955 Yearbook 39: 118-120

BRACE GRAFTING AVOCADO TREES

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The Agricultural Extension Service in Riverside County with the cooperation of growers has established plots to test the performance of promising avocado varieties in different areas of Riverside County. Whenever possible, large trees were grafted to the variety to be tested. More rapid growth and earlier fruit production results from grafts on these large trees. Several large seedling trees in desirable locations have been used.

A problem with this procedure is that the rapidly growing grafts on the stumps require several years to make a strong union. The cut surface of the stump must be partly covered over with new callus growth before the graft is mechanically braced to withstand even moderate strains. The graft is particularly susceptible to breakage when a pull occurs in a direction away from the stump. Breakage of the graft .when the pull is across the top of the stump is seldom seen. Grafts growing on large stumps are most likely to break when they are 2 to 4 years old. At that time the top growth has been forced rapidly and produces a large growth in relation to the area joined to the stump.

In order to reduce the danger from this loss of new varieties by breaking at the stump, a growth from the opposite side of the stump is inarched or technically "approach grafted" to the graft to form a brace. One or more of these growths can be joined to the growth of the desired variety. This supplies additional bracing from different directions and mechanically strengthens the union of the scion with the root.

This practice was started in Riverside County avocado variety plots in 1952. In a recent discussion with Mr. Elwood Trask, he mentioned that this method of protecting grafts had been used on the El Mirador Ranch of Mrs. Paul G. Hoffman in Pasadena. There the trees were brace grafted about 15 to 20 years ago and are growing well.

The method followed in brace grafting in Riverside County was to select growths from opposite sides of the stump. One must be from a graft of the desired variety; the other, which will act as a brace, can be a sucker from the stump or the growth from another graft. Best results have occurred when they were about the same diameter and when the work was done the first year after the stump was grafted.

To make the graft, hold the two growths together to determine where they will touch each other. Cut away a section about 3" or 4" long on the side of each branch at that place. Remove about 1/3 of the diameter of the branch with each section. Make a straight even cut so that the surfaces of each will fit together. It may be necessary to hold the cut surfaces together and trim the high places where irregularities prevent a continuous contact.

Fig. 1. Brace grafted tree, grafted about 18 years ago. The two trunks which were joined have completely covered the old stump. El Mirador Ranch, Pasadena.

Fig. 2. Brace grafted tree, grafted about 18 years ago. The original tree was cut off at the ground level and the stump has rotted away. El Mirador Ranch Pasadena.

Fig. 3. Brace grafted tree, grafted about 18 years ago. Three shoots were joined to brace the trunk. The old stump has rotted away. El Mirador Ranch, Pasadena.

Tie the two branches together firmly so that there will be no movement. Budding tape or black friction tape is satisfactory for holding the graft in place. After the two are firmly grown together, the tape should be removed and the top of the undesirable growth cut off above the inarch. It will take several months for the two surfaces to grow together. Be sure to remove the tape if the rapid growth produces a constriction which prevents normal enlargement of the trunk. The top should be tied to a stake or braced to prevent a sudden strain from breaking the new union.

If growths of the same diameter are not available, growths of different diameters may be joined. Select branches from opposite sides of the stump which can be held together. Remove a strip of bark from the larger branch 3" to 4" long and the same width as the diameter of the smaller branch. Remove from the smaller branch a section of bark and wood about 3" to 4" long. Cut about 1/3 to 1/2 the way through the small branch. Place the small branch in the groove where the strip of bark was removed from the large branch. Tie firmly with tape. Care after this is the same as above. If the brace is much smaller than the graft it does not have the mechanical strength to make a good support. Small grafts may be inarched into a large brace for additional strength and vigor.