California Avocado Society 1948 Yearbook 33:108-112

A Rapid Method of Propagating The Guava

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The common guava usually is propagated by seed but seedlings cannot be relied upon to produce fruit identical with that of the parent tree. Choice varieties can be increased only by some vegetative means of propagation.

Varieties are rather difficult to propagate by the usual vegetative methods employed for other fruits. Shield and patch budding and side-veneer grafting are possible on young stock plants but it is difficult to obtain a high percentage to live. These methods are also rather slow, since a period of two to three years is necessary from the time seed is planted to produce a salable tree. Furthermore, guavas are grown in many areas in Florida where the trees are liable to be frozen to the ground occasionally. It is desirable to have the root system of the same variety as the top to avoid complete loss from freezing.

Fairly large trees may be crown-bark or cleft grafted but usually the tree persists in suckering below the graft union and a severe freeze may cause the loss of the desired variety. Root cuttings will often grow with fair success. Mowry (3) reported 70 percent success with root cuttings planted during November. Webber (4) recommended root cuttings as the easiest method of propagating superior guava varieties in California.

Another method of making a limited number of plants, unless the parent tree has been produced by graftage, is to sever roots two or three feet away from the trunk with a spade or mattock and after sprouts develop from the severed portions, to transplant them, disturbing the roots as little as possible. Some success has also attended attempts to root stem cuttings and Cooper and Knowlton (1) reported a higher percentage of rooted cuttings and a greater number of roots per cutting when the basal ends were treated with hormones. These methods are rather slow, however, and require considerable work and close attention to details for success.

It has been known for years that the guava can be air-layered successfully by the ancient method employed by the Chinese for propagating the lychee, but the expense of watering the soil or moss used as rooting medium is a serious drawback to the method. An improved method of air-layering recently described by Grove (2) for rooting lychee and other trees has proved to be an excellent method for propagating the guava.

The method is quite rapid and is relatively simple. Limbs of $^{1}/_{2}$ inch or more in diameter are girdled by removing a strip of bark about one and one-half times the width of the limb. The girdled area is bound with a ball of moistened sphagnum several inches in diameter and four to five inches long, which is then wrapped with a sheet of a heavy grade of translucent rubber plastic film (Vitalon) and tied securely at each end with rubber bands or string (Fig. 2).

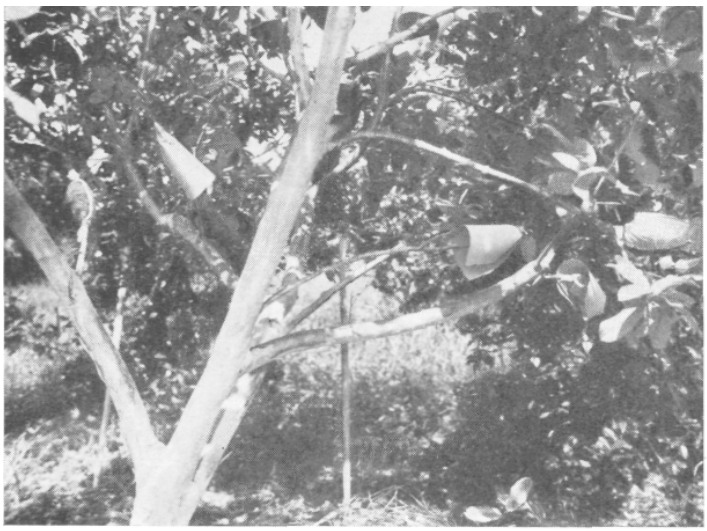

Fig. 1. Air-layering from bearing guava tree.

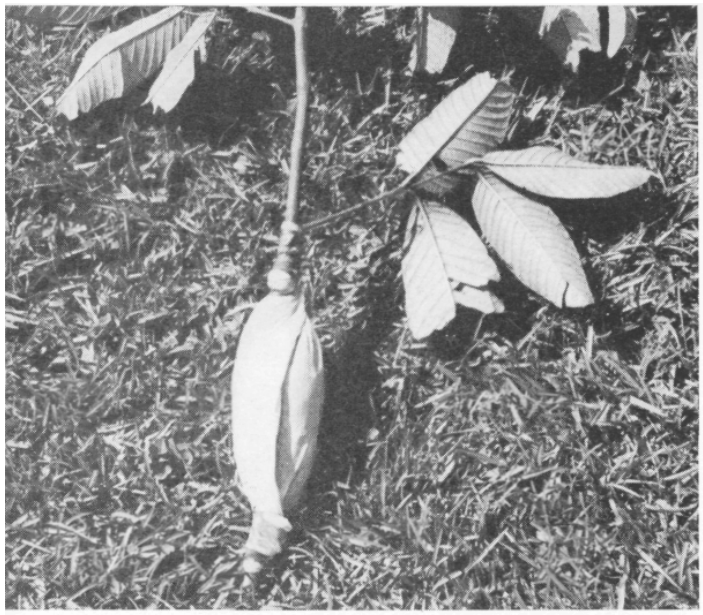

Fig. 2. Layered branch removed from parent tree after roots appear under plastic wrapper.

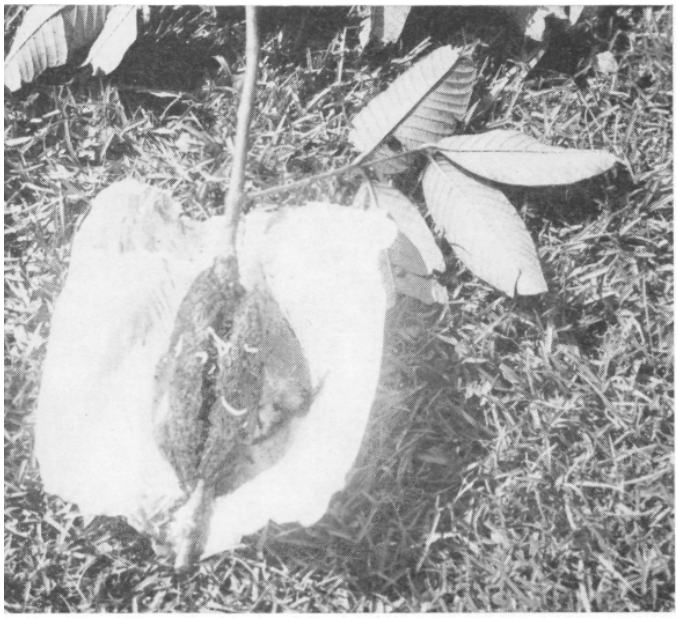

Fig. 3. Roots running through spagnum ball at time of removal of layered branch.

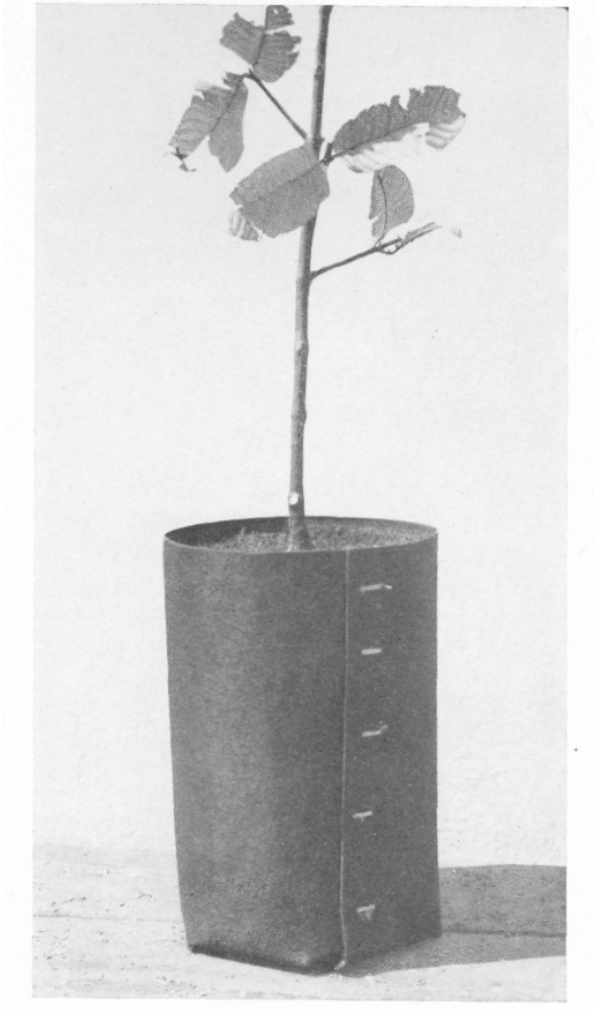

Fig. 4. Layered branch headed back and planted in soil in tar-paper cylinder.

Fig. 5. Layered tree five months from the time the branch was girdled and the girdled area wrapped. It has been hardened off and is ready for planting in the field.

A piece of newspaper or wrapping paper tied loosely over the wrap (Fig. 1) prevents birds from pecking holes through the plastic and also prevents the moistened moss from overheating from the sun's rays directly striking the plastic. The plastic film allows passage of respiratory gases but retains moisture. The wrap is left attached until sufficient roots can be observed through the plastic. Usually they begin to form in three to five weeks. If they do not begin to show after six weeks, the wrap should be removed and the girdled area examined. In some instances callous grows over the girdled area before root development begins. Regirdling and re-wrapping usually is followed by root formation in a few weeks.

As soon as roots grow through the ball of moss, the stem may be severed below the girdled area. The plastic is then removed (Fig. 3), some of the top is headed back (Fig. 4), and the new tree is planted in soil in a plant container of sufficient size and placed in a shady place until new foliage is produced. The soil is then given a light application of a fertilizer mixture of low analysis and the foliage is sprayed with a nutritional spray containing copper, zinc and manganese. When the new twigs are six to eight inches or more in length the tree is ready for hardening in full sunlight in preparation for planting in

the field (Fig. 5).

Trees can be made in four or five months at relatively low cost by this method. The cost of material is but a few cents per tree and labor cost is low because the expense of watering is eliminated. Guava trees have been propagated at the Florida Sub-Tropical Experiment Station during the past two years with close to 100 percent success by this method. The few failures which have occurred were the result of breakage by hurricane winds or from birds pecking holes in the plastic film. It probably is advisable to prepare the layers in Florida before July 1, to be certain that they can be removed before the height of the hurricane season.

The method should prove adaptable for nurseries. The plastic film used thus far is manufactured by the Goodyear Tire and Rubber Company and is now available in small or large quantities. It is probable that rubber plastic films manufactured by other firms will prove equally satisfactory.

LITERATURE CITED

1. Cooper, Wm. C. and Kenneth R. Knowlton. The effect of synthetic growth substances on the rooting of subtropical fruit plants. Proc. Amer. Soc. for Hort. Science for 1939, 37: 1093-1098. 1940.
2. Grove, Wm R. Wrapping air-layers with rubber plastic. Proc. Fla. State Hort. Soc., 1947: 184-187. 1948.
3. Mowry, Harold. Propagation of guavas. Fla. Agr. Exp. Sta. P. Bull. 383. 1928.
4. Webber, H. J. The guava and its propagation. Calif. Avocado Soc. Yearbook, 1944: 40-43.