

California Avocado Society Yearbook 67 (1983): 69-72.

Clonal Propagation of the Avocado Through "Franqueamiento"

S. Salazar-Garcia

Subtropical Fruit Researcher, CEICADAR-Colegio de Postgraduados, Apd, Postal 1-2 Puebla, Pue., Mexico

M.W. Borys

Research and Visiting Professor from Poland, Department de Fitotecnia, Universidad Autónoma Chapingo ChapLgT

Introduction

For several years, researchers, nurseries, and producers from avocado regions all over the world have tried to produce avocado root cuttings from some avocado varieties. Results have not been very encouraging.

At the present time, some avocado materials chosen because of their adaptation to drought 'conditions, to floods, to saline soils and to calcareous soils, as well as for their resistance to *Phytophthora cinnamomi* are available in Mexico.

The best results in avocado clonal propagation have been obtained with the techniques described by Frolich (1), Frolich and Platt (2), and Moll and Wood (3); however, we think it possible to develop a more practical and less expensive method.

In 1979, some research activities were initiated with the purpose of finding a safer and more efficient method of vegetative propagation which was expected to work with any genotype of the West Indian, Guatemalan and Mexican races of *Persea americana* Mill.

As a result of this, at the present time we have a procedure being used in research activities at the Fruit Research and Development Unit of the Puebla Plan, which belongs to the Training and Research Center for the Regional Agricultural Development of the Graduate School.

Description of Method

The entire procedure is carried out under partially shaded nursery conditions.

The seed, healthy and previously disinfected, is planted in a small container (100 mm diameter and 140 mm tall) filled with sterilized soil (*Fig. 1*). After the new plant has reached a stem diameter of 5 mm, the variety or selection chosen is grafted as low as possible on the stem (*Fig. 2*) When the grafted selection has reached a growth of 150 mm and has from eight to twelve leaves (*Fig. 3*), a lengthwise cut is made from bottom to top with a very sharp blade (*Fig. 4*); then, a thin piece of wood (10x10x1 mm) free of resins and previously saturated with *Radix 10,000*TM (which contains in-dole-3-butyric acid, 10,000 ppm, and naphthalene acetic acid, 300 ppm, in alcoholic solution) is

introduced into the cut. Then, with a piece of thin cotton thread, the small tongue of the stem is pressed against the introduced piece of wood, fastening it tightly (*Fig. 5*).

After the piece of wood is placed in the stem, a piece of black plastic tube is placed in such a way that it embraces the plant from the soil surface of the container up to 100 mm above the graft point, the leaves covered by the plastic tube being removed; and the tube is filled with sterilized soil. (*Fig. 6*).

It is essential to keep enough humidity in the tube as well as in the mother plant during all of the procedure.

If the material to be rooted is going to be used as rootstock, 30 days after placement of the tube the plant may be grafted with the chosen variety to be later detached and used as a grafted rootstock. The rooting plant can be detached from the mother plant (*Fig. 7*) without risk 70 days after initiation of the rooting process, moving it to a bigger container (*Fig. 8*) so it can continue its growth, and it may be grafted and/or transplanted to the field.

Conclusions

This technique has been proved with such different varieties as Hass, Wurtz, Fuerte, Duke 6, Duke 7, Edranol, Waldin, and some other local selections with excellent results, hi addition to the low investment requirement for equipment.

This method, pioneered in Mexico, will give a solution to the lack of a technique in clonal propagation of avocado, thus expediting experiments with clonal material showing tolerance to adverse conditions and factors limiting the avocado industry.

Literature Cited

- FROLICH, E.F., 1951, Rooting Guatemalan avocado cuttings. Calif. Avocado Soc. Yearbook 36:136-8.
- FROLICH, E.F., and R.G. PLATT, 1972. Use of the etiolation technique in rooting avocado cuttings. Calif. Avocado Soc. Yearbook 55:97-109.
- MOLL, J.N., and R. WOOD, 1980. An efficient method for producing rooted avocado cuttings. Inf. Bull. Citrus and Subtropical Fruit Res. Inst, Nelspruit. I(II):9-12.

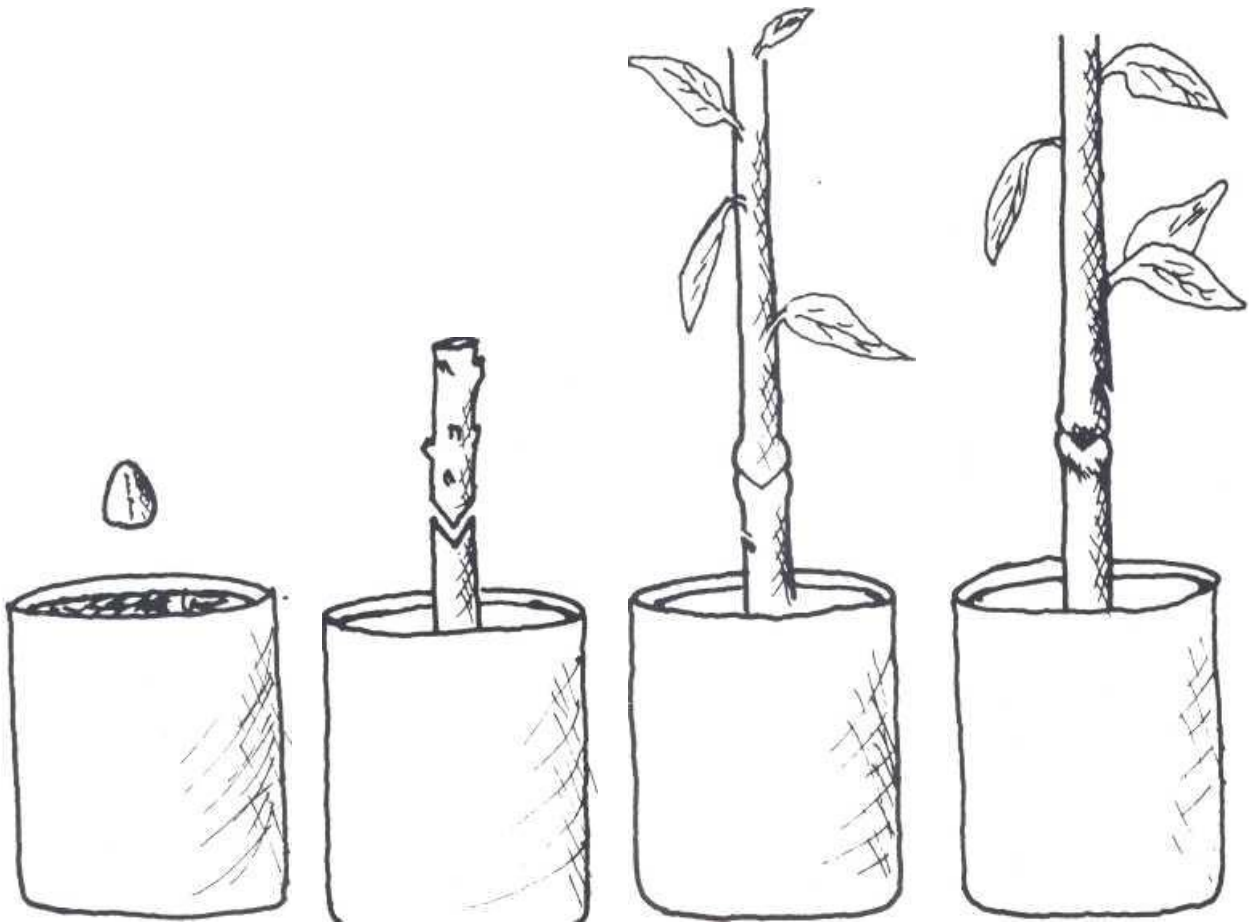


Figure 1

Figure 2

Figure 3

Figure 4

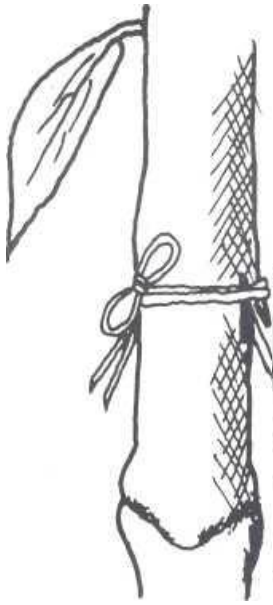


Figure 5

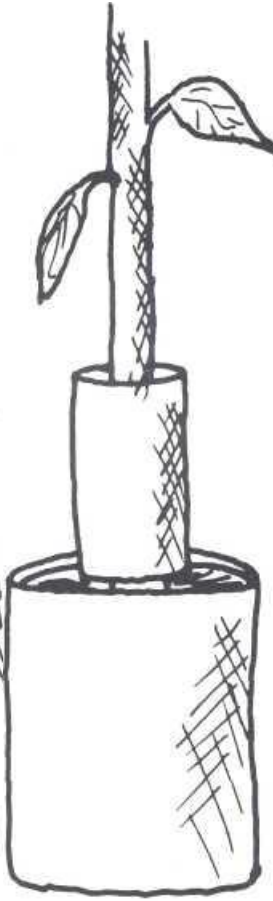


Figure 6



Figure 7



Figure 8