

THE PROPAGATION OF NURSERY STOCK—THE FAILURES AND SUCCESSES OF THE NURSERYMEN

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Mr. President, Ladies and Gentlemen:

The failures, or in other words, the death of 90 per cent, of nursery stock, so far, have been caused by curly root which is started when the trees are very small, by the seed being sprouted in pots, cans and boxes, and being held in these containers for some 12 to 18 months, before being planted out in the nursery row, and later being sold for field grown stock. Others are held yet longer, being budded in these small wooden boxes and grown large enough to be planted in the orchard. I think after some of you large growers have replaced several thousands of such trees with great loss of time that you will agree with me when I say that any avocado tree that has been confined to a pot, can or box is not fit to be planted. There are yet several large avocado nurserymen growing trees that have either been started in pots or boxes, and I think that it is high time that this Association should instruct all planters to look out for such stock.

Another very great mistake is that of cutting budwood from worthless trees. Nurserymen should cut all budwood themselves, being careful to select good wood from trees that have at least two years performance record.

The success of the avocado nurserymen depends wholly on the manner in which they grow their stock. If they will grow thrifty, clean, straight field-grown stock of proven varieties they will without a question find a ready sale for all their stock.

I will endeavor to tell you how we consider the proper method of propagating such stock. Do not understand by this that I want you to think that this is the only way to grow nursery stock, but the way that we have grown our stock, which I believe will speak for itself. When looking around for seeds we are very careful to select only the very best that we can obtain, using only seeds from the small black and green Mexican varieties, as we have found from experience, that seed used from all thick skin and medium thick skin varieties such as the Harman and Ganter are undesirable, as they make a very slow growth, poor root system and also have a thick bark which is very hard to bud into. Seeds used for nursery stock should never be allowed to dry out after they have been removed from the fruit, but should be at once packed in moist, clean sand, where they will keep well for two to three months. Before they are removed from the sand, soak them well for two to three weeks. Build the beds for planting in a good sunny place above the surface of the ground, using about 12 to 15 inches of good, clean sand. Plant the seed with the top about one-quarter of an inch above the surface. Seed may be planted close together in the beds as they are removed loose rooted. After planting, soak them well and cover them over with a light coat of shavings. Seed under such

care, planted in the seed beds in January, will be ready to set out in the nursery row by May or June, when they will be from four to five inches in height and the roots about six to eight inches long. We are careful when transplanting them that the roots are not disturbed any more than possible, as the young roots are very tender. They should be planted 12 to 14 inches apart in the nursery row and the rows three feet apart. Be sure to set the seed down in the ground about one inch from the surface and never break the seed away from the young sprout. Very often more than one sprout starts out from the seed. Never leave more than one when transplanting to the nursery row. Holes for planting are dug four inches in diameter and plenty deep enough for the roots to be carefully spread out. Do not pack the dirt around but fill in with loose dirt following soon after planting with water to settle the dirt. You will find a regular post-hole digger a fine tool to dig such holes for planting. From the time the trees are set in the nursery row, never allow them to become dry, or the soil to crust around them. Deep furrows are made when irrigating to keep the water from the surface of the ground, which will tend to draw the roots downward. Cultivation should be done as soon after irrigating as possible, keeping up close to the trees, as we believe that good cultivation close to the trees is two-thirds of the growing of nursery stock. This same style of cultivation will apply after they have been set in the orchard. Never be afraid to do too much cultivating as this cannot be over-done. I would not recommend non-cultivation for avocados any more than non-cultivation for citrus trees. They all require air. The amount of water will depend very much upon the kind of soil and drainage. We water our nursery stock every 10 days. Stock planted either in May or June will be, if properly cared for, ready to bud the following March or April as soon as the sap starts.

There comes a time in the growing of nursery stock when the nurserymen should be careful to obtain the very best of budwood. For the past two years we have used only "pedigreed" budwood from orchards that have proven to be valuable fruit producers, and have when possible required a two-year performance record of trees that they are cut from. Some growers have not kept an exact record of their trees, but this should be done if possible on trees that buds are taken from. Mr. Whedon, from whom we obtained our Fuerte buds, has kept a record now for several years. The types of budwood vary a great deal, as one type of buds from one variety will do well while the same type of another will not. Budwood should, if possible, be cut early in the morning when the trees are fresh, being very careful never to cut at one time more buds than can be used in four or five days. We are very careful never to hurry when budding but see that every bud is well inserted and carefully wrapped. Some nurserymen use cotton twine or raffia for wrapping, but we have found that a good prepared waxed cloth has been much more satisfactory, as it seals more closely preventing the air from getting under the bud, which would cause them to dry and turn black. The bud eyes should never be covered over with the wrap, but the balance should be well wrapped and drawn up very tight. After the buds have been in for ten to fourteen days, go over them and if found alive the tops of the trees should be tipped off. After another fourteen days if found alive the seedling stock is cut off about six to eight inches above the bud, allowing no suckers to grow but forcing the bud eye out as fast as possible. As soon as the buds are out from four to eight inches they are at once staked. They are at this time very soft and can be started straight, which cannot be done after they have gone longer. The seedling stalk should be left on until the bud has grown out well, when it is cut off

just above the bud and either waxed or painted over. We go over our stock at least twice a month to break off all suckers and to retie.

Balling of trees depends greatly on the size of the seedling stock. Do not make large, loose balls as they only break all the fibrous roots. If you furrow deeply for watering you will find that a ball for yearling trees made from seven to eight inches in diameter and from fourteen to sixteen inches in depth, will be large enough.

All trees after balling should be held under cover for at least ten to fourteen days before they are delivered for orchard planting.