

AVOCADO PLANTING METHODS

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Mr. President, Ladies and Gentlemen:

In the early days of the industry, there was much loss from newly planted trees going back, or failing to grow. Now, with strong, well-seasoned trees, it is possible to plant out an orchard of some size without the loss of a single tree. In order to do this, however, it is necessary to give close attention to a number of precautions, the reasons for which have gradually become apparent during ten years of hard experience.

In the first place, I would caution those who are accustomed to planting citrus trees by pointing out that avocado trees are much more delicate and are likely to suffer or perish with similar treatment.

When the trees arrive at the field from the nursery they should be unloaded with great care. The average truck driver, in his haste to unload, is likely to grasp the tree by the bud-union. This will never do. The tree must be lifted with both hands under the ball and not dropped even a few inches, but set down very easily. The reason for this is that if the soil in the ball moves on itself even slightly, the close contact between root fibers and soil is broken and results in a delay of several months before the tree starts new growth, during which time it is likely to sunburn. If a ball is accidentally dropped, or if the bottom of the sack has rotted and some of the soil falls out in handling, the top of the tree must be at once cut back at least one-half. During planting, the load of delivered trees must be protected from sun and wind and the balls should be banked in moist shavings. If a rain comes before all the trees are planted and the balls become soaked and soft, they should have the shavings removed for a day or two, or until the exterior of the balls has dried and hardened enough to handle safely.

In fine deep loam soil it is only necessary to dig holes large enough to conveniently accommodate the ball. In poor, hard or shallow soils, it is well to dig larger and deeper holes and partly refill with top soil, which should be well tramped till firm. It is much better to firm soil with the feet than to depend on the water to do it. I prefer not to turn on the water till the planting of each tree is complete. Blasting is seldom advisable. Certainly, in moist adobe or clay soils the blast does not shatter, but results in a jug with compacted sides and does more harm, than good. Where there is a hard layer a few inches thick and not too far from the surface and this is underlaid with good soil, a blast will break through and greatly increase the rooting area and improve drainage. Under such conditions only is blasting worth while. No manure or fertilizer should be placed in the hole; nothing but top soil scraped from the surface round-about.

The tree is placed in the hole so that when planting is complete it will stand at the same depth and relation to the surface as it did in the nursery. It should be set with the bud-union toward the afternoon sun. The hole is then half filled with top soil and well

tramped down. The cords which hold the burlap around the bud-union are then cut and the corners turned down into the hole, which is then filled. The custom of leaving the corners of the sack exposed is bad, because they act as a wick and the water being drawn up and evaporated in the wind results in a breaking of the close contact which is needed between the two soil masses.

The planting of sandy balls in heavy soils presents no particular difficulties, but the planting of adobe balls in light sandy soils is likely to cause a great deal of trouble. In such case drastic measures are needed. After the tree is planted a pointed iron bar may be passed through the ball and gently moved back and forth till some cracks and openings are made through which the water may pass to the center of the ball. The reason for this treatment is that sandy soil takes water much faster than adobe, and the heavy balls set in sand may never be wet through if irrigated in the ordinary way. The tree roots extract what moisture was originally there, and the balls become so dry and hard that the trees are literally choked to death. When it is necessary to treat trees in this way they should be immediately severely cut back to good strong buds on the main stem.

My experience has been that the surest way to get young trees into uniformly vigorous growth is by the mulched basin method. After the tree is planted the ground is made perfectly level, and then the loose surface soil is pulled from the outside toward the tree into a ridge from four to six inches high, thus forming a flat-bottomed basin four or five feet in diameter. This is filled with mulching material such as bean straw, rain damaged hay, or coarse horse manure. If the soil is poor, a little sheep or poultry manure, or even two tablespoons of sulphate of ammonia may be added. Each application of water to the basin will carry the soluble parts of the fertilizer straight down to the roots. The mulch prevents baking, keeps the soil around the tree cool and moist, and greatly accelerates the passage of new roots from the ball into the surrounding soil. The mulch also reduces the labor of repeatedly hoeing around the trees. If weeds grow in the basins, they may be cut while the basins are filling with water and thrown in as an addition to the mulch.

Of one thing I am sure—that, as compared to citrus, avocado trees need water in small quantities more often, particularly in sandy soils. For the first few months at least the basins should be filled every ten days on heavy soils and every week on sandy soils. It is very poor policy to run the stream of water through all the basins to the end of the row. This is liable to drown and kill some trees near the upper end. It is much better to make the furrow just above the high side of the row of basins; run a good-sized stream through to fill the last basin and then cut back as each basin is filled. Irrigate one row at a time and give each tree the same amount. In this way one knows what each tree gets, none are missed, and there need not be a drop of waste water. This method provides for the time saved from hoe cultivation to be used in more careful and effective irrigation. As the season progresses, the interval between irrigations may be lengthened somewhat after the trees get well started.

The avocado tree is peculiarly susceptible to sunburn. A balled nursery tree has undergone a shock and the sap in the bark is almost at a standstill. A few hours of direct sun on a hot day will burn the bark, particularly for an inch or so just above the bud-union and in the concave side above where the stock is cut off. Protection must be

given to each tree at once and before the next tree is planted. There are several methods. Shingles placed close to the stock on the side of the afternoon sun will answer very well. Perhaps the best method is to tie newspapers around the trunk from the ground to the branches. The main trunk from the top of the paper upward should be painted with whitewash or white cold-water paint. I have seen hundreds of fine trees killed by one or two days exposure causing sunburn around the bud-union. Newspaper covering is also some protection from frost injury. It should not be forgotten that a light frost which would not cause injury to a thrifty tree several years old may do serious damage to a baby tree newly planted out. The lower branches as they grow should remain and droop down, thus giving more protection. The avocado tree is naturally modest and abhors short skirts! The custom of providing shelter by fastening burlap to stakes set in the ground at some distance from the tree is expensive and very troublesome. It is not to be recommended except in localities where ocean breezes or hot strong land winds are of such force as to make protection from the physical effects of the winds imperative.

Tall slender trees need to be staked, and perhaps all avocado trees should have stakes for the first year, but the stake should be regarded as a necessary evil and done away with as soon as possible. Where it is necessary to stake tall trees, they should be tied at several points with burlap bands or other soft material, and these wrappings should be given frequent attention. Ordinary string, or even large cord, will not be satisfactory, as the bark is so very tender that it is often severely cut when the wind whips the tree. Rather than bother with tall stakes, it is better to cut the trees back at planting. If the main trunk is cut back to a point just above a group of strong buds and the cut waxed over to prevent die-back, growth will start much quicker and a new and stronger top will soon form. Such a new top will usually be far superior to the old one, which seldom amounts to much anyway. This is particularly true of Fuerte.

Avocado trees suffer severely from root competition with pepper, eucalyptus, cypress or wild brush. Such robber trees quickly locate the basins and form a mat of roots directly under them so that the avocado trees are stunted and ruined. This is one of the commonest troubles with avocado trees in home grounds. Either a ditch or effective root-fence is necessary and should be provided at the start. Once avocado trees are stunted in this way, it is a difficult matter to bring them back into healthy growth, even though the offending roots are finally cut.

While I have mentioned a number of factors involved in giving avocado trees a good start, other unforeseen difficulties may arise. These should not be regarded as vexations, but rather as handicaps in an interesting game. However, I believe that if the suggestions outlined are painstakingly followed success will be as sure as any horticultural venture can be.