

GOOD NURSERY PRACTICE

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Planting good nursery trees constitutes one of the most important factors in the development of a new avocado orchard. The trees are the foundation of the grove and to a large extent determine whether the enterprise will be successful and profitable. They will reflect the growth and bearing habits of their parent trees; therefore, great care should be taken to know where and how the trees are grown and the source of seed and budwood. Nursery trees should be grown in good soil from vigorous, disease-free seed, with buds taken from high yielding record trees, and grown by an experienced grower in order to produce trees of top quality.

A nursery tree is a combination of four prime factors: soil, seed, buds, and growing practices. Let us examine each of these in detail in two nursery methods that are used to produce avocado trees for commercial planting. Most factors are the same for each method but a different type of tree is raised by the standard field grown method in contrast to the tip graft or container grown tree.

STANDARD FIELD GROWN AVOCADO NURSERY TREES

To grow avocado nursery trees under field conditions the first important step is the selection of a proper site — a site that has good soil, good water supply, freedom from frost and severe winds, and preferably virgin land in order to be as free as possible from contamination and diseases. The land selected should be of a light type soil with good drainage and away from older avocado trees that might become a possible source of infection.

Seed for rootstock should be from Mexican seedling type trees carefully selected for their proven vigor, freedom from sun-blotch disease, and general good growing habits. Generally seeds are planted directly in the carefully prepared field in nursery rows about 3½ feet apart and spaced 15 inches apart in the row. Soda fountain paper cones with the tips removed are quite often placed over the seeds to offer protection in starting. The seeds develop slowly for the first 2 to 3 months but grow quite rapidly when well established, usually reaching budding size in 6 to 8 months from planting. The nursery is watered with sprinklers at weekly intervals and kept clean of weeds by cultivation and hoeing.



Figure 1. Seedling in nursery row 6 months from planting seed.



Figure 2. Budded nursery 18 months from planting of seed.

The next important step is selection of the best possible budwood of the desired variety. The parent tree must have good bearing habits and must certainly be free from sun-blotch or other diseases as it is hoped the nursery trees will be duplicates of the parent in all phases. Buds chosen are inserted under the bark by standard budding procedure and wrapped in place with a plastic strip. The top of the seedling is cut partly back to check the terminal growth and to help force the bud. From here on special nursery experience is necessary to develop the bud into a sturdy well shaped tree. The seedling part is periodically cut back and eventually cut off entirely at the union to leave the new budding as the new tree. This period usually takes from 8 to 15 months. Just before the tree bailer takes over to dig and wrap the tree the leaves and side branches are cut back to balance the root system that will be left in the ball. The balled tree is generally kept in a lath house for about 2 weeks before planting. Careful culling of any and all trees that do not measure up to high standards is carried on during the entire growing period to insure that only the finest trees remain.



Figure 3. Bud with seedling part removed at the bud union.



Figure 4. Balled tree at lath house ready to plant.

TIP GRAFT OR CONTAINER GROWN TREES

This type of nursery tree differs from the standard tree only in the manner in which it is grown. The seed and bud are just as carefully selected and are as important as are the growing practices. The trees are grown in tarpaper containers and may be raised in the open or forced under glass or other cover. Soil to be used maybe mixed with sand and mulching material to provide proper texture and fertility and should be fumigated to protect from soil diseases. The soil mix is then placed in open end tarpaper containers and lightly compacted. These containers are made of 30 lb. asphalt felt paper cut to size to form cylinders 5 to 6 inches in diameter by 12 to 18 inches high. These filled containers are then placed in groups in the desired growing area. Good drainage must be provided under the containers. Seeds are placed in the top of the soil mix with the soil just barely covering the seed tip. Growth maybe forced by the addition of heat so that tip grafting may be done in about 3 months from time of planting. Tip grafted trees develop fast under hot-house conditions and may be large enough for field planting in from 6 to 12 months. Seeds planted in the open are usually m the larger size containers and are grown to a larger tree size and are ready to plant in 12 to 18 months from the time of planting the seed. These trees are generally budded by standard methods. Constant care and proper timing are necessary to produce trees of good quality. Trees raised by the container method are somewhat smaller than the standard balled tree but are of equal quality and produce desirable results in the orchard.



Figure 5. Container grown seedlings 6 months from planting.



Figure 6. Budded tree ready for orchard planting.

In all of these growing procedures selection and culling are most important and necessary. Trees which are weak or have poor growing habits should be destroyed as they show up in the nursery rows. Trees in which buds fail to take after a couple of times, fall behind the others in their development and so should be eliminated. A good nursery is a uniform nursery with most trees growing in a like manner and reaching the

final nursery stage at or about the same time.

Good nursery practice consists of knowledge of what is to be done, care in selection of soil, seed, and buds and, above all, considerable nursery experience.