

Preparation and Planting

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ORCHARD LAYOUT

Orchards should be planted in blocks. The size of the block depends on the contour of the land, soil type and variation, management, and wind exposure. Exposed orchards should have small block sizes of 1 ha or less, with high boundary shelter to the south and west. The ideal block size is a rectangle 50-80m wide (E-W) x 100-120 m long (N-S).

Trees should be planted in rows, orientated North-South. The spacing between rows should be at least 7 m, and the spacing between trees within a row should be at least 4 m. There should be at least 7 m between the edge trees and the block shelterbelt. 8 x 4 m is a commonly used spacing (312 trees / ha).

SOIL / BLOCK PREPARATION

Avocado roots are sensitive – adequate soil structure and drainage are key to growing healthy trees.

Pans in the soil and compacted soils can be broken up by ‘ripping’ prior to planting.

If the block does not have good drainage or has a shallow water table, trees should be planted on humps. Humps are formed by moving the topsoil from between planting rows onto the planting rows in order to create a mounded hump. The humps are usually 30 – 60 cm from the bottom of the hollow. The top of the hump should be flattened as pointed tops usually erode faster.



Figure 1: Humps and Hollows for a new planting.

PURCHASING TREES

Only plant trees with clonal rootstocks in replant situations. Trees produced under the High Health Scheme are certified to meet certain physical and health standards.

INSPECTING TREES

Trees should be inspected once they arrive from the nursery.

The main stem should be straight and adequately staked. The graft union should be 10 – 45 cm from the soil surface and smooth and healthy. Trees should be in a 6 L planter bag or container. The tree should be 60 – 150 cm high. The leaves should be glossy, green without deformity or discolouration. Branching should occur higher than 30 cm from the soil surface. The stem diameter at the soil surface should be greater than 9 mm. The tree should have hardened off flush and no less than 10 fully grown leaves.

The roots should be uniformly distributed through the bag, with a high proportion of white roots.

Trees must be free from symptoms of pest, disease or any other disorder.



Figure 2: Inspection for healthy, uniformly distributed roots.

TRANSPORTING TREES

Do not transport trees in open vehicles as wind damage can be severe - use well ventilated covered transport.

Never lift trees by the trunk – carry them by the bag.

Avocado roots are brittle and break easily. If bags are dropped, even from a short height, the resulting compression of the potting mix can cause root breakage. Handle bags carefully at all times.

STORING TREES

Growers should plant the young trees as soon as possible after purchase. Trees in the nursery get constant attention and are hardened off for planting. The longer the delay in planting, the higher the likelihood of stress occurring.

Never leave the trees in their bags exposed to direct sunlight for a long time, either in your yard or in the field prior to planting. The sun can cause severe heat buildup through the black plastic, killing roots. Also, storing trees in a shaded area for too long can result in sunburn when trees are planted into direct sunlight.

PLANTING TREES

- Dig a hole deeper and wider than the tree bag. This can be done with a shovel or with an auger (if using an auger, ensure the sides are not compacted).
- Saturate the potting mix of the tree (in its bag) with a solution of 2.5 mL of 40% potassium phosphonate per litre of water.
- Place the tree into the hole to check the depth – the potting mix in the planter bag should be 1-2 cm above the level of the surrounding soil.
- Carefully remove the planting bag - make a small incision and then tear the plastic away by hand.
- Position the tree in the hole such that the leafiest side is facing North.
- Fill the space between the potting mix and the hole with topsoil.
- Apply gypsum at 20g per square meter around the trees after planting.
- Soak the surrounding soil (to a distance of at least 40 cm from the potting mix) immediately after planting.

SHELTERING THE TREE

Windbreak shelters surrounding young trees provide a sheltered microclimate for the young tree to develop in. Use tall (1 – 1.5 m) 50 mm stakes spaced in 1 – 1.25 m squares and wrap windbreak around the stakes. Shelters should remain around the tree for at least one season.



Figure 3: Young trees in windbreak shelters (covers for frost)

SUPPORTING THE TREE

Supporting the avocado tree from excessive movement during early establishment is important as young avocado roots are brittle and any movement may break them, delaying the establishment of the roots into the surrounding soil. In the early planting and establishment phase a stake is usually used to hold the tree in place. Alternatively, the tree can be tied to the four stakes that support the individual shelter. There are various methods for staking trees that may differ in execution but provide the same results.

Key aspects to staking:

- Ensure the stake is located outside the root ball.
- The stake should be adequate distance that rubbing will not occur if the tree moves slightly.
- The tie securing the tree to the stake needs to stretch or grow so as not to girdle the trunk.
- Some movement is necessary to encourage the trunk to strengthen and stabilize the root system.



Figure 4: Staked young tree