Planting Nursery Trees

Even nursery trees of the highest quality can perform badly if not managed adequately.

Key steps when planting nursery trees

Calculating spacing and density

If you wish to calculate tree numbers per planted hectare for your own spacings the following formula can be used:

Single row systems = 10,000 (10,000 square metres = 1 hectare) / (row width x in row spacing)

Example = 10,000 / (3.75 x 1.85) = 10000 / (6.94) = 1,441 trees/planted hectare

Please note these numbers are based on a planted hectare, no allowance has been made for headlands. The row widths for the Double Row systems are based on row centre to row centre and therefore are accurate irrespective of actual gap between the two rows that form each double row.

Planting site prepared in advance

Site preparation, irrigation and trellis installation should occur well before planting. It is essential that plants have irrigation available immediately after planting. Wind can cause major issues with newly planted and un-supported trees so having a trellis system already in place will minimise this risk.

Figure 1: Pear nursery trees being planted

Tree roots must *not* be allowed to dry out

Rapid root growth and optimum function is essential for early establishment and growth of trees. Roots of nursery trees must be kept moist prior to and at planting. Planting a nursery tree when the roots are even partially dry will result in root damage and will inhibit tree growth and may even cause tree death.

Ideally trees should be placed in a heeling-in trench upon delivery from a nursery. This trench should be in a protected location, with good drainage. Roots should be watered well before being covered with loose soil. Regular watering will be needed if there is some time before the trees are to be planted.

If it is not practical to use a heeling-in trench, trees can be placed in cool storage at about 4^{o}C. This should not be done in the same rooms where fruit is stored and trees must be fully dormant. Trees should be stood upright with roots covered by sawdust. Tops will need to be kept moist.

Tree roots should be kept below 7°C

New root growth occurs when temperatures exceed 7°C, which draws on the trees reserves and increases the risk of root damage when planting (Brown 2008). Some root growth will occur between 2 to 7°C, but this should not cause problems providing storage is not for an extended period . Check with your nursery tree supplier for advice on how long trees can be stored.

Plant trees as early as possible

Ideally trees should be planted between June and mid-August.

Trees should be planted when dormant in winter, or as early in spring as possible. Early planting reduces tree stress and allows roots to settle and recommence growth before shoot growth.

Plant trees with bud union at least 100mm out of the ground

Trees need to be planted with the bud union out of the ground to avoid scion-rooting. Scion-rooting occurs when the variety grafted onto the rootstock starts to develop its own roots. This will happen where the bud union is in contact with the ground. Trees should be planted with bud/graft unions at a consistent height above the soil - ideally 100mm.

Irrigate as soon as possible after planting

It’s very important that new trees don’t suffer water stress. This is one of the most common problems when establishing new blocks. Ideally trees should be watered immediately after planting and receive regular short intervals thereafter. While the root system is still very small, it may deplete the moisture immediately surrounding each root, and even though the moisture is found at the surface close to the tree, the soil around the roots may be dry. New trees do not require large volumes of water, but need enough to create a humid environment around the roots.

Adequate nutrition after planting

It is not recommended to place fertiliser in holes at planting because it may harm roots. However, trees should receive adequate nutrition either through fertigation or soil application to ensure good growth. Amount and frequency will depend on the soil conditions at the site.

Control weeds

Weed growth can compete with a young tree for soil moisture, nutrients and sunlight. In the first season after planting it is important that weeds are controlled to ensure the young tree can achieve maximum growth. It can be risky to use chemical weed control in the first season so tillage or mulches may be useful.

Further information

These Australian and international sites may be useful for growers. However they are intended as an information source only. Any specific recommendations may be outdated or irrelevant for Australian conditions and growers should seek local advice.

Australian Resources

Caring for young trees over summer: Victorian Department of Environment & Primary Industries: http://www.depi.vic.gov.au/agriculture-and-food/horticulture/fruit-and-nuts/orchard-management/dry-season-information-young-fruit-trees

Successfully Replanting Orchards, Five Easy Steps, A Best Practice Guide by Paul James. This book is available by contacting the Apple and Pear Growers Association of South Australia aplnpear@ozemail.com.au.

International Resources

Planting and care of young orchards: Washington State University: http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/Planting_and_Care_of_New_Orchards.aspx

References (Note full access may incur a fee)

Westwood, M.N. (1993) Temperate Zone Pomology: Physiology and Culture. Timber Press. Portland.

Brown, G. (2008) Successful Orchard Planting Techniques. Fruitgrower 2(5): 10-12.