

The Royal Horticultural Society

Horticultural Advisory Services

May 2005



Tree Planting

Careful preparation and planting as well as aftercare are vital in helping a tree to establish quickly and grow well.

SELECTING PLANTING MATERIAL

It is important to choose species suited to local conditions, such as soil type and exposure, and those that will not outgrow the space available. Select good quality, healthy trees with a well-balanced branch system. If grafted, the union should be well-healed. Check for obvious signs of damage to the trunk.

Size

Occasionally, large, semi-mature trees are required for screening or other purposes. However, trees less than 1.2m (4ft) tall, called 'whips' or 'maidens', are much cheaper and establish more quickly, soon catching up with larger specimens planted at the same time. The larger the tree, the greater the risk of it failing to establish. Check the supplier's warranty and replacement policy if buying a large, expensive tree.

Container

Some trees, such as magnolias and Eucalyptus, that do not like root disturbance, establish better from container-grown stock. The container should be appropriate to the size of tree. A tall tree growing in a small container will almost certainly be pot-bound. Avoid container-grown specimens which have moss or liverworts on the compost surface as these indicate old stock. Ensure container-grown trees are not pot-bound, taking them out of the container to inspect the root system. Also avoid trees with long circling roots or where thick roots protrude through the drainage holes.

Bare-rooted

Young bare-rooted trees one to three years old establish well but are increasingly difficult to obtain compared with container grown stock. Pre-ordered bare-rooted stock is usually available from about November and should arrive wrapped in polythene to prevent drying out of the fibrous roots. The tree should have a well-developed root system spreading evenly in all directions. Do not buy trees with 'hockey stick' roots, where all the growth is on one side. Early planting will allow some root growth before temperatures rise in the spring.

Root-balled

Larger semi-mature trees and some evergreens, especially conifers, are available root-balled. This is where the root system has been held in place with fabric and, sometimes, wire mesh. Root-balled trees have usually been 'undercut' (root pruned) or transplanted several times to encourage the development of a fibrous root system. They often establish better than container-grown trees as they have been grown in soil in the open ground rather than a peat-based commercial compost. Although these trees are relatively expensive, the fibrous root system remains more intact. Buy and plant root-balled trees when dormant, in autumn or early spring, following the same criteria as for bare-root and container-grown trees.

PLANTING METHOD

Timing

The ideal time to plant a deciduous tree, whether bare-rooted, root-balled or container-grown, is from autumn to early winter. Evergreens also establish well planted in autumn or early spring. Do not plant in frozen or waterlogged soil and avoid the summer months when trees are likely to dry out.

It is often necessary or opportune to buy a container-grown tree or shrub in leaf or blossom when conditions for planting are not ideal. Rather than plant, it is better to place the container in a sheltered position. Water as necessary and occasionally feed with a liquid fertilizer until the best planting time. This will ensure the plant gets off to a good start.

Planting preparation

Make the planting hole at least three times the diameter of the root spread of bare rooted plants, or three times the diameter of the pot if container-grown. Excavate to about a spit's depth or 30cm (1ft). The diameter of the hole is more important than the depth as the majority of root activity takes place in the top 30cm (1ft) of the soil. Fork over the base and sides of the hole to break through smeared surfaces and aid drainage, but do not dig over the base because the disturbed soil will settle, resulting in the tree being too deep once planted. In grassed areas round planting holes are easier to mow around, but square planting holes aid root penetration at the corners on heavy soils. A square hole within a mowing circle combines the two.

Containerised trees

With pot-grown trees it is vital to remove excess compost from above the root collar (the point from which the roots naturally start to grow). If the tree is planted to the original level of compost in the pot, as usually recommended, it could already be about 7.5cm (3in) too deep. Secondary adventitious roots are common in pot-grown trees, originating from the buried part of the trunk. These should be pruned off close to their point of origin.

Thoroughly tease out the roots. Do not be afraid to open up a congested root ball using a sharpened piece of cane to disentangle the roots if necessary. If this is not done, the roots will frequently fail to grow out into the soil and the tree will fail to establish. Any damaged roots should also be trimmed back.

Bare-rooted trees

Use secateurs to remove any badly split or torn roots. Soak bare-rooted trees for about 30 minutes prior to planting. If planting is delayed heel in trees. To do this prepare a trench, then set the tree in it. Angle the tree so that the trunk is supported and cover the roots and base of the trunk with friable soil and keep watered as necessary.

Root-balled trees

When planting it is always advisable to remove the covering from the root-ball, once the tree is in the planting hole and at the required depth. To do this, tilt the tree to one side and roll the material up under the root-ball, then tilt the tree the other way and carefully pull out the material.

With larger specimens it is not possible to remove the material from the bottom of the root-ball but cut away and remove the material from the sides. Left on, hessian and similar materials may take several years to decay, particularly in light sandy soils. Establishment failures can occur where root wrappings are left in place after planting. However, some suppliers will not guarantee to replace a tree where wrappings are removed.

Planting depth

Planting too deeply prevents essential air movement to the root system and makes the lower trunk vulnerable to disease. The point where the roots flare out from the trunk should be level with the surrounding soil. This point will be very clear on bare-rooted trees but on container-grown stock scrape away the compost from the top of the root ball to reveal this point.

Place a few spadefuls of the soil back in the centre of the planting hole and use your heel to form a low cone. Sit the tree on this cone and ensure the roots are evenly spread out. Do not add organic matter to the planting hole as it decomposes causing the tree to sink. Check whether the tree is sitting too low by placing a cane across the hole. Add more soil under the rootball to raise it.

On fertile soils it is not necessary to add additional organic matter and may be counter productive as it discourages the roots from growing out into the surrounding soil. However, on sandy or heavy clay soils, light organic material such as leaf mould or garden compost can be mixed into the backfill (the soil dug out from the hole) to improve soil structure. It is not beneficial to apply fertiliser until the following growing season. However, an inoculant of mycorrhizal fungi (increasingly available from good garden centres) is often considered to help trees establish in poor soils. It may form a symbiotic relationship with the feeder roots until natural soil organisms can take over.

Replace the backfill in the hole and work it around the roots, gently shaking the stem to settle the soil but ensuring the planting depth is not altered. Firm gently from the outside of the hole, working towards the tree to remove any air pockets. Use the heel, taking care not to damage the roots. Do not firm too heavily on clay soils as this may compact the ground and impede drainage. Avoid forming an inward sloping saucer as the accumulation of excess water and debris may, over time, result in stem or collar rot. When completed, fork the surface over lightly and water well.

Mound planting

On heavy soils prone to water-logging consider mound planting. Having prepared the planting hole as described, use soil to create a low mound in the centre 15cm (6in) high and plant on top of this. Space the roots evenly and cover with soil to the correct depth but angling the soil surface down to the sides of the planting hole.

Staking

A further benefit of planting small trees is that they do not usually need staking. It is vital, however, to stake larger trees and those planted in exposed situations. Staking helps to anchor the roots while allowing the trunk to flex in the wind, which strengthens it.

Avoid forcing the stake through the roots of container-grown or root-balled trees. The usual method is to drive a stake about 60cm (2ft) into the ground at an angle of 45 degrees over the root ball, facing into the prevailing wind. If a vertical stake is used, drive it into the ground before placing the tree in the planting hole. It is important that the stake is anchored firmly in the soil but ensure there is a gap of at least 2.5cm (1in) between the stem and the stake. Use a proprietary tie with a spacer securely nailed to the stake to secure the trunk.

The stake should be secured to the tree about one-third up the trunk and on the side of the prevailing wind so that the tree is blown away from the stake to prevent rubbing. The only exception to this is with flexible stemmed trees, such as *Malus*, where in the first year more support can be provided with a long stake that is then cut lower in the second year. For larger specimens use two stakes either side with a wooden cross piece or two or three stakes with heavy-duty rubber ties.

Larger trees are sometimes secured with guys attached to the lower branches. Use low stakes inserted at a 45 degree angle away from the tree to which strong wire can be secured. To prevent rubbing, rubber hosepipe should be used where the wire touches the trunk or branches. Proprietary underground guying systems are also available.

Windbreaks

In exposed sites young trees benefit from a temporary windbreak for two or three years until they are established. Use a suitable fabric netting on the windward side attached to strong stakes, driven firmly into the ground.

Tree guards

In some areas it is necessary to protect young trees from damage caused by rabbits or other animals. Either surround the tree with a barrier of wire netting secured to stakes or place a proprietary tree guard around the tree trunk.

AFTERCARE

Weeding

Grasses and weeds compete with young trees for moisture, nutrients and light in the first five years after planting. If planting in a lawn leave a circle of 90cm (3ft) diameter free from turf as competing grass can seriously affect establishment and later growth.

Mulching

Mulching is a highly effective method of controlling weeds, conserving moisture and supporting the growth of mycorrhizal fungi. Suitable mulches include woven polypropylene or proprietary tree mulch mats. Organic mulches include bark mulch, leaf-mould or well-rotted manure. While clear of weeds apply a mulch 7.5cm (3in) thick over the root area (a minimum of 50-75cm (20-30in) in diameter). Draw the mulch back from the base of the stem to prevent rotting.

Watering

After poor planting technique, the commonest reason for young trees failing is drought. Particularly during the first two seasons water thoroughly in dry spells to ensure that the water reaches the full depth of the root system.

The quantity required will vary with soil type but typically 30-50 litres per square metre (4-6 watering cans) each week in dry weather will be necessary. Watering little and often may do more harm than good by encouraging roots to remain near the surface and discouraging trees from sending out roots into the surrounding soil in search of water.

Feeding

There is no need to apply fertiliser in the first growing season. The roots should be encouraged to grow out into the surrounding soil in search of nutrients and moisture to establish a healthy root system. On infertile soils, feeding the year after planting may be beneficial. Apply a balanced, general-purpose feed over the entire root area at about 70g/sqm in the spring.

Formative Pruning

Corrective pruning is best carried out while the tree is still young. This may involve shortening or removing any competing leaders and removing damaged, dead or diseased wood. Lower laterals on feathered trees may also need removing in stages over the first few years.

Adjusting ties and removing stakes

Inspect tree ties in spring and autumn and adjust ties to prevent constriction of the stem. After two growing seasons the tree should make sufficient root growth to anchor the tree and the stake can be removed.

SUPPLIERS OF MYCORRHIZAL PRODUCTS

Amenity Land Services [ALS]

Long Lane, Wellington, Telford, Shropshire
TF6 6HA

Tel: (01952) 641 949

Website: www.amenity.co.uk

(Much information on mycorrhizal tree preparations. Mycorrhizae Planting Compost = non peat-based soil conditioner and planting)

Becker Underwood Ltd

Harwood Industrial Estate, Harwood Road,
Littlehampton, West Sussex BN17 7AU

Tel: (01903) 732 323

Website: www.beckerunderwood.com

(Produce Rhizanova™ mycorrhizal fungi inoculants)

The Organic Gardening Catalogue

Riverdene Business Park, Molesey Road,
Hersham, Surrey KT12 4RG

Tel: (0845) 130 1304 for all order enquiries

Website: www.organiccatalog.com

(Suppliers of 'rootgrow', a one-off treatment for shrubs, roses and small trees when they are being planted out. 80ml sachet treats 2 x 3 litre rootballs. 10% discount for HDRA Members)

PlantWorks Limited

Innovation Centre, Sittingbourne Research
Centre, Heeley Close, Sittingbourne, Kent
ME9 8HL

Tel: (01795) 411 527

Websites: www.plantworksuk.co.uk and
www.friendlyfungi.co.uk

(Suppliers of 'rootgrow', which is suitable for use with most indigenous and exotic trees planted in the UK)

Practicality Brown Ltd

Iver Stud Nursery, Swan Road, Iver, Bucks.
SL0 9LA

Tel: (01753) 652 022

Website: www.pracbrown.co.uk

(Mycorrhizal Fungi Installation)



Compiled by the Advisory Staff
of the Royal Horticultural Society
Wisley Woking Surrey GU23 6QB
Email: advisory@rhs.org.uk
Website: www.rhs.org.uk

No: 1023 (New)

The mention of any product, supplier or service does not constitute an endorsement by the Society
©RHS – not to be copied or reproduced without prior permission