TREES & SHRUBS

How to Plant Trees and Shrubs no. 7.417

by J.E. Klett and D.E. Whiting [1]

Quick Facts...

Nursery plants can be bare root, balled-and-burlapped or container-grown. Bare root plants are available only in spring.

Keep newly purchased plants moist and in the shade until planting.

Soil preparation with organic matter is important, especially if the soil is a heavy clay.

Dig holes 2 to 4 inches shallower than the root ball and three to five times as wide.

Mulch with wood chips after planting to reduce the need for frequent watering.

Keep pruning of newly planted trees and shrubs to a minimum.

Colorado State University Cooperative Extension

Trees and shrubs are a permanent part of a home landscape. If properly selected and planted correctly in an appropriate location, they improve a home's appearance and increase its value, as well as provide shade, weather protection, privacy and year-round enjoyment. Because they are such an important investment, take care with their planting. Inadequate soil preparation and improper planting are frequent causes of plant failure.

When To Plant

The ideal planting time is early spring as soon as the ground can be worked. Avoid disturbing any plant that recently has broken bud and is producing new, soft growth.

Plant balled-and-burlapped stock before bud break or after growth has hardened (after mid-June), but not during the soft growth stage. Most container stock can be planted all season, but planting is most risky when new growth is soft. Fall planting is more risky, especially for evergreens. If it must be done, plant before mid-October and mulch with 3 to 4 inches of wood chips or similar material to prevent early freezing of soil.

Care Before Planting

Plants purchased from a nursery may be bare-root, balled-and-burlapped or container-grown. Machine-dug (spade-dug) trees also are available through some nurseries, arborists and landscape contractors.

Bare-root deciduous trees and shrubs are available only in smaller sizes. In Colorado, they usually are sold for early spring planting. When purchased, the roots are wrapped in a moist, loose material such as shredded wood or sphagnum. Keep this material moist, but not soggy, until planting. Keep the package away from direct sunlight or other sources of heat.

Protect balled-and-burlapped and container-grown plants during transportion. If tops, particularly of evergreens, protrude from car windows or trunks, cover them with paper or burlap to reduce damage and water loss from air rushing over them. Once home, water plants and place them in a shaded location. If planting is delayed, keep the soil ball or container watered but avoid getting soil too wet, particularly just prior to planting time.

Preparing Soil For Planting

Few plants thrive in clay, heavy or poorly drained soils. These soils are usually not suitable for most plants because they are low in the oxygen required for root growth. Improving the drainage and aeration of a heavy soil often is difficult and may require extensive preparation. Ideally, soils with poor drainage should be tiled using perforated pipe or open-jointed 4-inch agricultural tile prior

to final property grading. In most cases, however, this procedure is not performed by the contractor. It is often too expensive to install tile in established properties.

An alternate solution is to incorporate organic matter into the soil as deeply as possible and adjust planting depth. Use only well-rotted barnyard manure, coarse sphagnum peat or thoroughly decomposed compost. Avoid fine-textured organic matter, such as sewage sludge or mountain peat. These materials do not "open up" clay soils but instead decrease pore spaces.

For every 1,000 square feet of area to be planted, thoroughly work 2 or 3 yards of organic matter into the soil by hand-spading followed by rototilling. A garden tractor with plow attachments may be used for large areas. This equipment is available for rent in most localities.

Bare Root Plants

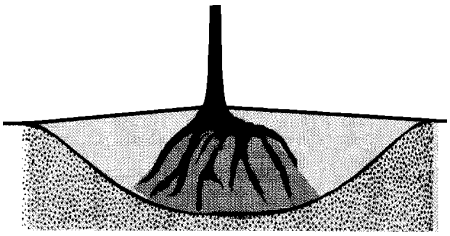

Figure 1: For bare-root plants, spread roots on a mound of firm soil. Trunk flare should be visible above ground level.

Holes for bare root plants should be large enough to permit the roots to be spread out without crowding or curving around the wall of the hole and give space for root growth (Figure 1). Hold the plant so that the crown (area where the roots and top meet) is at least 2 inches **above** the surrounding soil or lawn level. This allows for settling of soil and roots so that the final depth is the same as or slightly above the surrounding grade. Add backfill and apply water slowly.

With extra soil, form a small, temporary dike just beyond the rim of the hole. Fill the dike with water and allow it to settle. **Do not tamp the backfill.** Check the moisture level weekly by digging down near the edge of the dike. Water as needed. In irrigated lawns, remove the dike after 6 to 8 weeks. In non-irrigated plantings, allow the dike to remain until the second growing season.

Plants with heavy tops may need to be staked for one or two growing seasons. Use strips of soft cloth or straps 2 to 3 inches wide to loosely tie trees to stakes. Do not use pieces of hose with wire through them. While this is a common method to guy trees, it usually causes girdling of trunks. (See fact sheet 7.226, *Care of Young Transplanted Trees*.)

Balled-and-Burlapped and Container-Grown Stock

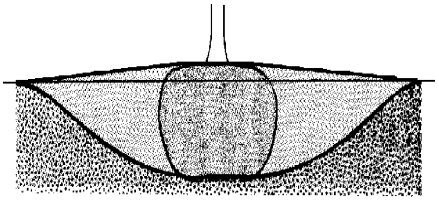

Figure 2: For balled-and-burlapped or container-grown stock, dig a bowl-shaped hole. The hole should be three to five times wider and a few inches shallower than the root ball (five times wider on clay and compacted soils). Place the root ball on undug soil to prevent sinking and tilting.

If the soil is a heavy clay, make the planting hole 2 to 4 inches shallower than the soil ball. If the soil is sandy, the hole should be no deeper than the root ball. Dig a dish-shaped hole 3 to 5 times wider than the root ball. Place the plant in the center of the hole on undug soil (see Figure 2). It is important to remove all container materials, netting, wires and ties on the top and sides of the plant; they can be left on the bottom. Remove the top two-thirds of wire baskets after placing the plant in the hole.

If the plant is wrapped in burlap, remove the burlap on the upper two-thirds of the root ball. **Make sure that twine around the trunk and across the top of the ball is cut and removed**.

Put backfill into the hole and water slowly. With the extra soil, form a temporary water basin or dam just beyond the edge of the backfill. In about one week, fill the reservoir with water. Reapply water only when the soil begins to feel dry at a depth of 4 to 6 inches. Avoid frequent, light waterings. Because of differing water requirements and potential damage to tree trunks during mowing, it generally is best to keep lawn areas well away from trees.

Pot-Bound Container Stock

Shrubs and trees often are grown in containers long enough that roots become pot-bound, resulting in the development of roots that encircle the root ball. Over the years, they may girdle the trunk or stems.

When containers are removed prior to planting, check the root ball. If a mass of encircling roots is present, with a sharp knife cut up and down the ball 1/2-inch deep in four or five places, then plant immediately. If the majority of the

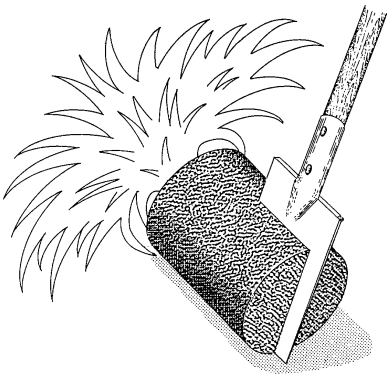

Figure 3a: Container-grown plants with pot-bound roots at the bottom of the root mass should be split half way up the ball with a sharp spade.

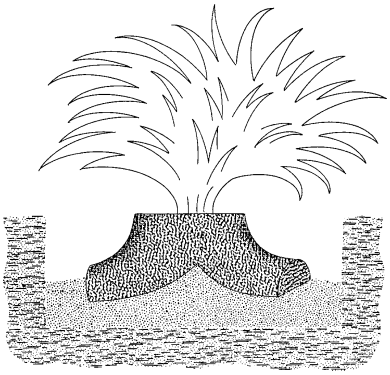

Figure 3b: Spread halves on a mound of good soil in a shallow but wide hole. Backfill and water well.

roots are at the bottom of the ball, split the root ball **all the way through** from the bottom about half way to the top. Spread the two halves over a mound of soil in the planting hole. Backfill and water immediately (see Figures 3a and 3b).

CAUTION: **Do not use** this method on newly potted plants, balled-and-burlapped plants or container plants where roots are not pot-bound at the base.

Mulching

Apply a loose mulch, such as wood chips, over the planted area to a depth of 3 to 4 inches. This eliminates the need for cultivating and reduces the frequency of watering. The best mulches for trees and shrubs are wood chips, bark chunks or similar materials. **Do not use solid polyethylene sheet plastics.** Plastic films exclude air exchange to roots. This can kill your plants.

Fertilizing

Do not fertilize newly planted trees and shrubs until the second growing season. Never put fertilizers such as dry pellets or fertilizer “spikes” containing nitrogen in the backfill because root injury may result. (See 7.226.)

Protecting Young Trees

Young trees, particularly thin-barked types such as soft maple, honeylocust and crabapples, may be sunscalded during the first year or two after transplanting. This injury, usually on the southwest sides of trees, is caused by sudden temperature changes and water loss in late winter. Wrap the trunk and large branches prior to winter to reduce this problem. Remove wrap in the spring to prevent harboring of insects and diseases beneath the wrap.

Use commercial crepe-type tree wrap. Start at the bottom, overlapping the wrap as it is applied upward to the second branch. Secure the top end with a staple or small tack. Do not use twine or tape to hold wrap in place because this may result in girdling of the tree.

Pruning

Give newly planted trees and shrubs only minimal pruning. Removing too much top affects the production of food energy (carbohydrates) and can result in poor root development. After planting, prune out broken branches and those with weak or narrow crotches. With trees, leave some of the lower limbs and sprouts even though they will be removed later. These limbs provide the closest source of food energy for root development.

For more information on pruning, see 7.003, *Training and Pruning Fruit Trees*; 7.205, *Pruning Evergreens*; 7.206, *Pruning Shrubs*; 7.207, *Pruning Deciduous Trees*; and 7.208, *Hedges*.

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