

Planting Shade Trees and Shrubs



Oklahoma Cooperative Extension Service • Division of Agricultural Sciences and Natural Resources

F-6414

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Trees, shrubs, and turf are the only things that truly increase in value around the home. All other things depreciate. A combination of trees and shrubs can also lower energy consumption. Trees have the greatest impact on the living environment; thus, it's best to select adapted pest-free trees and locate and plant them properly.

Planting begins with the selection of species adapted to the site and climate. For example pin oak and sweetgum become progressively less climatically adapted west of State Highway 48. Yet sweetgum will tolerate poorly drained clay soils that would kill an oak. While an oak has some drought tolerance, sweetgum has none.

The time to decide on the species is long before you go to the nursery to select the tree. For more information, visit your county Extension office, local nursery, park or arboretum, or areas of your city that have mature trees.

Planting Times and Plant Types

Always choose a fresh quality plant. Packaged plants should be dormant or not showing new growth. Roots should not be growing out of container drain holes. Burlap should be tight around root balls. The ball should move with the plant as it is tilted.

Planting time varies from fall to spring by plant type and method of growing. OSU research suggests that early fall planting is best for container-grown shade and ornamental trees and pines, but spring planting for broadleaf evergreens, such as holly and magnolia. Shade trees planted in the early fall may be twice as big as spring-planted shade trees when measured the following fall if both are treated the same.

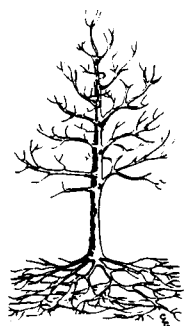


Figure 1.
"BR" plants.



Figure 2.
"B&B" plants.



Figure 3.
"C" or "P" plants.

Most bare-root (BR) or packaged plants should be planted between mid-February and mid-April or up to the end of the frost period. March is a major planting month, although many fruit tree growers prefer January for planting. Other than seedling-sized evergreens, only deciduous plants can be transplanted with bare roots, and then only when dormant or leafless. (See Figure 1.)

The BR plant is often prepackaged in a colorful bag. Open the bag immediately and see that the roots are kept damp until planting. At planting remove all bags, strings, or wires.

Balled and burlapped (B&B) plants have been dug with roots and soil intact and covered with burlap. Still, about 50 percent of the roots have been lost. Evergreens and large trees are often sold B&B. These plants will be more expensive than bare-root plants because of labor costs both in digging and handling. (See Figure 2.)

Breaking the root ball is often fatal to young trees and shrubs, especially pines.

Burlap may be left around the roots to decay in the soil. Cut away the portion covering the top of the plant, being especially careful to remove strings from around the stem. Plants bound in machine-made balls are a less expensive. They are bare-root plants that have had soil or peat formed or balled around the roots, and then wrapped in burlap. Ask your dealer about the balling method.

Container growing (C) is the predominant method of producing most better quality plants and the cost is similar to B&B. Less loss from transplanting container-grown plants occurs since no roots are lost if the plant was grown in the container.

Potted plants (P) are BR plants that have been grown in the field, but they are put in a soil mix in papier mâché pots for ease of handling. This does not provide the same quality plant as a plant grown in a container. When planting potted plants, tear the sides off the pot and handle carefully. (See Figure 3.)

Some plants are grown in polyethylene bags. The bag is not durable, so be prepared to plant when you bring the plant home.

Whether the container is metal, papier mâché, ridged plastic, or polyethylene, remove it at the time of planting.

Roots (BR) of mail order plants should be placed in water immediately upon receipt or lined out in the flower bed or garden until permanent planting can be done. It is necessary to keep the roots of all plants damp or moist until the moment of planting. When handling B&B and container plants, handle them by the ball or can. Be careful when planting not to break the ball of roots.

Planting Sizes

The optimum planting size for a tree is a 1 1/2- to 2 1/2-inch trunk diameter or a five-gallon container. Five-gallon-sized container-grown shrubs or 24- to 30-inch packaged shrubs are preferable. Both smaller and larger plants may require considerably more care to help them survive and become established.

Planting the optimum-sized tree in properly prepared soil is usually the quickest way to success. However, in thin, rocky soils, planting a tree seed in a well prepared seed bed may produce a tree with the greatest success in the least amount of time.

Preparing the Hole

Soil drainage or percolation is the greatest limitation to successful transplants in urban soils beyond climatic adaptation. A poorly drained clay soil is either too wet or too dry for all but the toughest type trees. Bald cypress is one of the few trees that tolerates both wet and fairly dry sites and clay or sandy soils. Sweetgum is adapted to a wet clay or swamp as is cypress; however, it has little or no drought tolerance. Azalea, dogwood, peach, and pines will not tolerate poorly drained soils.

Most urban soils have been abused during the construction process. Nice, loamy soils have often been compacted during construction. The foundation is also a favorite burial ground for building debris. Probe the bed 12 to 18 inches deep for building debris and remove it. Soil drainage, compaction, and building debris problems must be solved before planting is done.

To test how well the soil drains, dig a hole two to three feet deep with a post hole auger. Fill the hole with water. Let it drain and refill it unless the ground is already wet from rain. Within 24 hours, half or more of the water should have drained from the hole. If little or no water drains from the test hole, follow the planting procedure shown in Figure 4 B. If the hole drains satisfactorily, prepare the hole as shown in Figure 4 A.

Leafmold or peat moss may be mixed with the backfill soil, but it is not recommended because it delays establish-

ment of the tree. Under no circumstances add ground tree bark or woodchips to the backfill soil or planting hole. Tree bark stunts the growth of young trees.

The best backfill around a new tree or shrub is a good loamy soil. Most ornamental trees and shrubs grow well in a variety of soils. If necessary, replace your soil.

Planting Bare Root Trees and Shrubs

Trees and shrubs should be planted at the same depth at which they were growing in the container or field nursery. There is a texture and color change between the trunk or stem and the roots. The stem should not be covered with more than about one inch of soil. Planting too deep is a major cause of plant failure, especially in poorly drained clay soil.

The easiest way to help a young tree or shrub survive is to dig the planting hole much wider than is normally done. In fact, it is much better to dig an entire bed area for shrubs, rather than individual holes. The sizes of the holes discussed in this fact sheet are considered minimum.

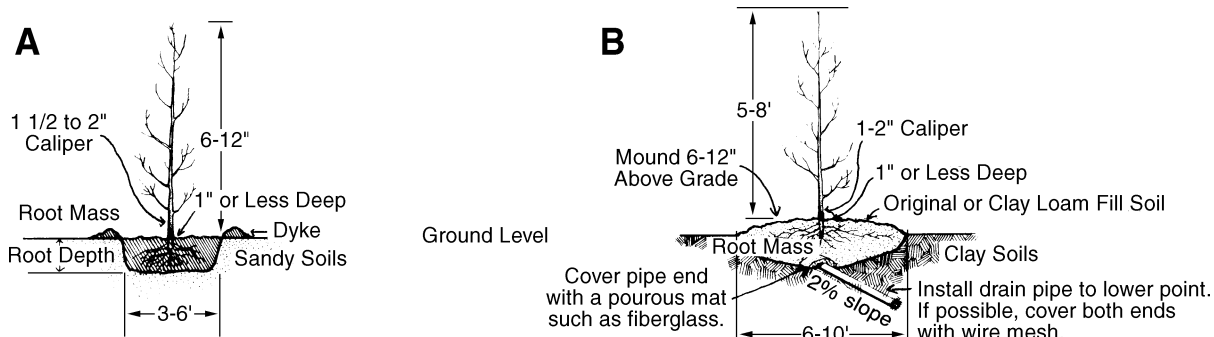
Thoroughly water B&B, C, and P plants before planting. A dry root ball may not get thoroughly wet at planting. Never leave roots exposed to air. Keep the roots damp and covered while preparing the planting hole.

Holes for bare-rooted (BR) plants should be dug large enough to accommodate the roots without crowding or twisting. The hole should be no deeper than the original root depth and at least twice the spread of roots. Broken and badly damaged roots should be removed.

Backfill to the proper depth with good soil before planting. A mound may be made in the center of the hole to accommodate the spread of roots. Pack or firm the soil to remove air pockets and place the tree or shrub in the hole. (See Figure 4 A.)

Work the soil under and around the roots. Firm the soil while filling until the hole is three-quarters full, and then fill the hole with water. This will settle soil around the roots. After the water has soaked in, finish filling the hole with soil and water again. If the soil around the plant settles, bring it back up to grade with additional soil.

Figure 4. Planting procedures.



- A. Well drained soils.
- B. Flat sites with tight clay soils.

Trees: up to 12 feet.

Note: depth of planting is the same for B&B, BR, P, or C.

The denser the soil, the more shallow the hole; planting mounds or berms may be used instead.

Keep a 3- to 4-foot grass-free circle around all young plants for two years. Keep plants mulched.

Balled and Burlapped, Container-Grown, and Potted Plants

Follow the procedure discussed on the previous page, except omit the mound of soil in the planting hole (Figure 5).

When planting in poor soils, it is advisable to plant only small, broomstick-sized trees, since even in a good soil little more than immediate appearance is gained by planting a big tree. For proper establishment and growth, a tree 6 to 12 feet in height or 1 1/2 to 2 1/2 inches in caliper should be the optimum size. If a tree dies from transplanting stress, a year or more of growth has been lost.

Do not top or cut back shade trees at planting. It does not benefit the plant and often causes an undesirable fork in the main trunk. Pecan trees are the exception to this rule. Their survival is greatly increased if the trunk or branching is cut back to 50 percent of its total length at planting. If young fruit trees are to be planted to double as yard trees, you may want to cut them back to stimulate branching. However, avoid low branching—harvest comes but once a year.

Fertilize young plants on the soil surface immediately after the first two to three growing seasons. Small amounts of fertilizer applied regularly are preferred to one large dose. Most urban soils have been disturbed and are often low in plant nutrients. In addition, BR and B&B plants have lost many roots that must be replaced before growth occurs. The container-grown plant is usually in a “soilless” mix with very little plant nutrients in reserve.

At planting, choose a complete fertilizer, such as 12-24-12 or 16-8-8, and use it as follows: one-gallon sized or 18 to 24 inches in height, one tablespoon; five-gallon sized or 6 to 8 feet in height, three to four tablespoons; larger plants, 1/2 to 1 cup. The first number of a complete fertilizer represents nitrogen (N), followed by phosphorus (P) and potassium (K) in that order. The higher the nitrogen, the less amount of fertilizer is applied at any one time. During the growing season, use urea form nitrogen as a top dressing and plenty of water.

Keep a three- to four-foot, grass-free circle around young

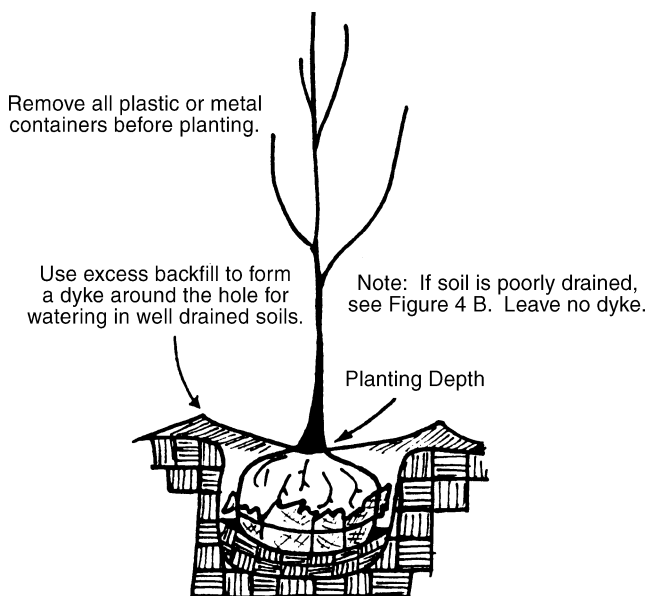


Figure 5. B&B and various container plants.

trees and shrubs the first two to three years. Scatter the fertilizer in the circle the first year. As the branches reach out, follow them with larger doses of fertilizer.

Young trees may be fertilized in February, March, April, May, June, September, and October. For more information on fertilizing, refer to fact sheet F-6412, “Fertilizing Shade and Ornamental Trees and Shrubs.”

The hydraulic tree spade is a popular tool for transplanting large specimen trees. Perhaps the first consideration in any transplanting operation should be given to soil types. For example, a tree root ball of sandy loam planted into a heavy clay may not be compatible and the tree may stunt or die as a result. Even heavy clays may be poorly compatible without special preparation as outlined in Figure 4 B.

All methods of transplanting cause plant stress. If planting takes more than 45 minutes, polyethylene sheeting or some other covering must be put around the tree spade root ball to prevent root desiccation.

A tree planted with a tree spade will prosper more if the transplant hole is partially hand dug. Dig around the top of the tree spade hole 12 to 18 inches deep. Then when the tree spade ball is in place, break some soil from the side of the hole and pack the backfill around the sides of the root ball. Give the plant a thorough watering to help settle the soil, thus reducing air pockets that retard root growth.

Keep the grass-free circle filled with two to four inches of organic mulch, such as leaf mold, compost, bark, grass clippings, or straw. DO NOT use plastic under the mulch to prevent weeds. Roots are drawn to the surface to be damaged by summer heat and winter cold. Do not use rock mulches that transfer heat directly to the roots or limestone chat that releases calcium into the soil. Pull the mulch three to four inches away from stems in late fall to prevent mouse damage. For more information on mulching, refer to fact sheet F-6005, “Mulching Garden Soils.”

Generally, young plantings need an equivalent of one inch of rain per week. Water by flooding or by trickle. During periods of water rationing, supplement your irrigation with gray water from the dishes or bath.

Apply water slowly at the stem of newly planted container-grown trees and shrubs. Their soilless mixes can dry while the bed or surrounding soil remains damp. If you have several young trees and shrubs, a trickle irrigation system would be wise.

If a tree needs to be staked, use no more than absolutely necessary. Leave the tree as much freedom to move as possible. As the tree flexes or “exercises,” it develops greater strength faster. Do not make the trunk rigid. Also, do not run wires or anything else around the trunk. Instead, insert a wire through a webbing with a grommet (Figure 6). Then, attach the wire to a stake. Pull the tree straight as you attach the wire to a stake. The stake should be short enough so that the tree does not rub against it in the wind.

Use straps of chair webbing made of plastic or cotton fiber, or use recycled rubber tubing available commercially that already has a grommet inserted through the ends. Then, put the strap through the grommet and tie it to a stake. This soft webbing material should be less abrasive than the hose and wire method in common use.

Young, thin-barked trees such as honeylocust and maples often sunscald unless protected. The twigs that shade the trunk should be left, but cut back a few inches so they

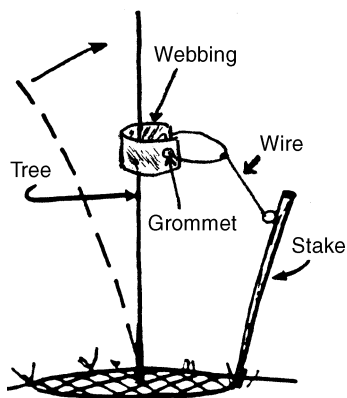


Figure 6. This method in no way damages the tree trunk, unless the webbing is too abrasive or if the wind bangs the tree against the stake.

become denser. A twiggly trunk is preferable to tree wraps, but not all trees have enough twigs. Commercial tree wrap is available or aluminum foil from the kitchen may be used shiny side out. Tie the wrap firmly but not tightly, and check it about once a month during the growing season. Twigs or wraps are usually left for three or more growing seasons. Vigorous twigs should be cut back two to three times each season. (See Figure 7.)

Seedling trees and shrubs or baby plants may need a shelter during weather extremes either the winter or summer. Cheesecloth or various other windbreaks can be used. Unfortunately, antidesiccants do not relieve plant stress in Oklahoma in winter or summer. A daily mist shower after dark in hot dry weather is good for young junipers, pines, and spruces which don't prosper in shade. (See Figure 8.)

In summary, 1) check or correct soil drainage, 2) use no soil amendments in the backfill soil, 3) mulch with organic matter such as pine bark or straw, 4) do not put plastic under mulch, 5) keep a grass-free circle around young trees for two years, 6) do not prune back the tops of trees except to remove

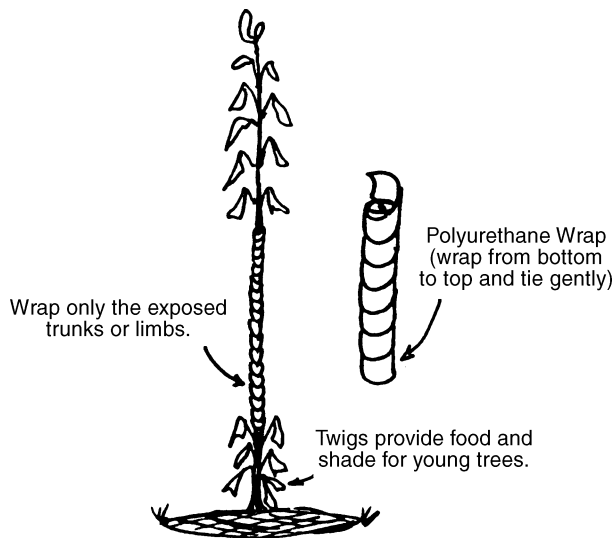


Figure 7. Wrapping young trees.

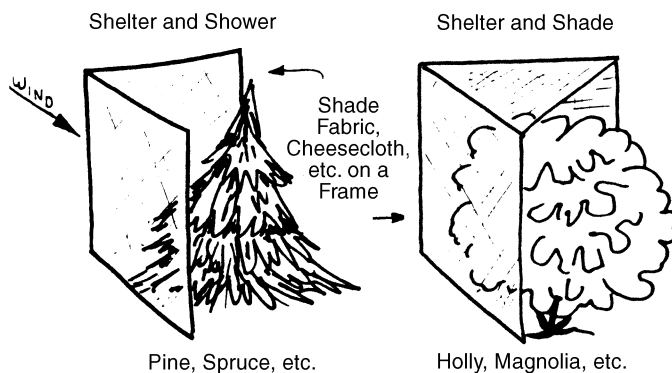


Figure 8. Protect young plants from wind and sun.

narrow "V" forks in the main trunks, 7) fertilize trees and shrubs on the soil surface as soon as planting is complete and the mulch is in place, and 8) stake only if necessary.

Good trees, when properly planted, will bless the planter and the next generation with growth, shade, and shelter.

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