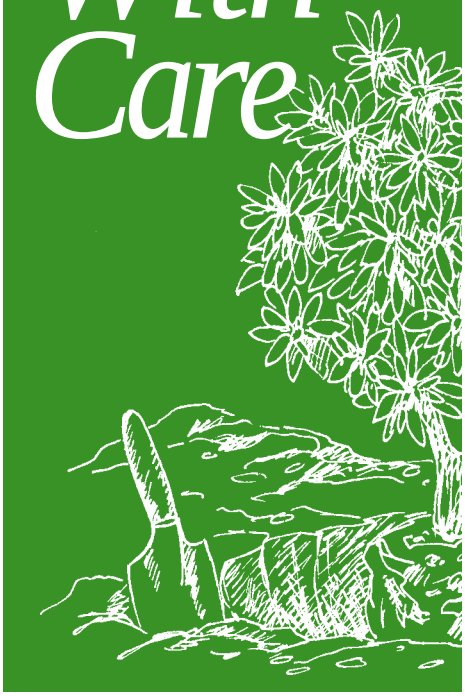
CREATING HEALTHY LANDSCAPES

**IPM FACT SHEET #3**

# Plant With Care



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One of the most important steps you can take to ensure the health and long life of your plants is to plant them correctly. The best time to plant is either early spring or early fall when days are relatively short, air temperatures are cool, and soil remains moist. Poor plant growth and death of plants most often are caused by failure to follow the recommended planting procedures listed below.

## 1. DIG THE HOLE

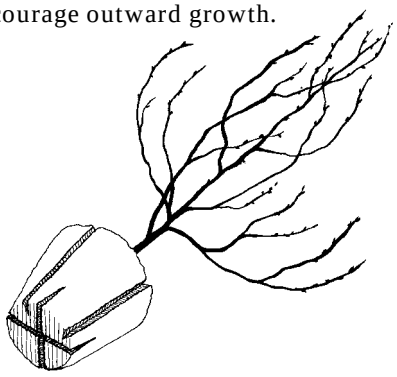
When planting a tree, first examine the soil at the site. The soil quality will determine the diameter of the planting hole. If the soil is rich and well drained, the hole needs to be wide enough only to allow for shifting the plant and getting it properly oriented. In most cases, this is about six inches wider than the sides of the root ball. If the soil is hard to dig, contains lots of rocks and stones, or clumps together, prepare a hole two to four times the diameter of the root ball. When digging in sticky, clay soils, you might compress or glaze the sides of the hole with the shovel. Always scratch the sides of the hole to break up this layer, since it can be a barrier to root growth.

Next, make sure the planting hole is no deeper than the depth of the root system of the plant. Find the "root flare," the part of the trunk that widens out just above the first roots. When a tree is planted correctly, the root flare will be at the level of the surrounding soil. All trees and shrubs should rest on solid soil in the bottom of the hole. This will prevent the plant from settling too deeply into the hole over time. When a plant settles into a planting hole, the roots may be deprived of oxygen needed for growth. When planting bare-root plants, shape the hole to fit the form of the root system. Never bend or twist roots to fit the hole. It is best to prune the root to fit the hole, or better still, to make the hole larger.

In most cases, it is best to backfill the hole with the soil that came out of it. New roots should have no trouble growing from this backfill soil into the soil beyond the hole. If the backfill soil is amended with an abundance of organic matter, roots sometimes circle around within the amended soil, rather than penetrate into the less hospitable "native" soil outside. Only if the soil quality is very poor, contains a lot of clay or clumps, or is very sandy, should you consider adding some organic matter to the backfill soil; in that case, add no more than one part well-rotted organic matter to three parts existing soil.

## 2. PREPARE THE PLANTS

Inspect the plants before setting them into the holes. Check bare-root plants for evidence of split or broken roots, and trim any damaged roots with a sharp shears to make a clean cut. The root system of container-grown plants is usually dense and often circles the inside of the container. Roots that are left in this circular pattern when planted will continue to grow in that direction and eventually could strangle the plant. Disrupt this circling pattern by making several vertical cuts in the sides of the root ball and an X-shaped cut across the bottom with a sharp knife (see below). If the root system is still very dense, tease some of the roots out of the ball to encourage outward growth.



*Cutting root system of container plant*

## 3. PLANTING

Set all plants into the hole so the top of the root system is *no deeper* than the surrounding soil level. Set the plant in the hole, making certain the plant is upright and correctly positioned. Stabilize the plant by placing a small amount of backfill around the bottom of the root ball.

If the plant is balled and burlapped, remove all twine from around the base of the trunk, and then check the "burlap." Two types of burlap commonly are

used: synthetic and natural. Synthetic burlap is made of plastic; it will not decay in the soil and will prevent outward growth of the roots. If you are not absolutely sure the burlap is made of natural fibers, use a match to burn a little piece of it. Natural burlap will turn to ash, while plastic types will melt and form a shiny bead. Use a sharp knife to cut plastic burlap and remove as much of it as possible, but be careful not to break up the root ball. Natural burlap either can be removed, or the top portion can be folded down along the sides of the root ball and left in the planting hole, where it will decompose.

If the plant has a wire basket around the root ball, cut the top row or two of the basket's squares, so it doesn't strangle the plant as it grows. Leave the bottom part of the wire basket intact and in place to protect the root ball from damage.

After setting the plant in the hole, add more backfill soil and tamp it firmly with your foot. Avoid packing the soil too tightly because you do not want to destroy the pore space between soil particles. When the hole is about half full, saturate the fill with a gentle stream of water to settle the soil and remove large air pockets. Be careful when you saturate the backfill soil; do not mix the soil into a slurry, because this will destroy its structure. After the water soaks in, finish filling the hole to the final grade. Firm the remaining soil around the sides of the root system.

Make a slightly raised, temporary ridge of soil around the outer edge of the planting hole to prevent irrigation water from running off. Remove this ridge after a few months.

## 4. STAKING

Most plants do not need to be staked or supported after planting. In fact, staking too rigidly can actually interfere with a tree's development and can girdle the stem.

In some cases, larger plants on slopes or in windy locations might need temporary support until they become established. If this is the case, trees with trunks up to two inches in diameter can be supported with a single two-by-four wooden stake extending up to the first set of branches. Drive the sharpened stake into the solid bottom of the planting hole beside the root ball before back-filling the hole. Use a biodegradable cloth strip or flexible commercial tie to loosely attach the plant to the stake.

Larger trees can be staked in a similar way, using 2 or 3 stakes spaced evenly around the tree. Be sure the stakes are placed so the lower branches cannot rub against them.

Always remove all stakes and supports after the first year. Never wrap a wire or other support tightly around a plant stem. As the stem grows and expands in diameter, it eventually will grow over the support material, which will strangle the plant.

## 5. MULCH AND CARE AFTER PLANTING

Place a two- to three-inch layer of organic mulch over the root zone of a tree or over a shrub bed area. Keep mulch pulled away from trunks or stems of plants. Prune any broken, diseased, or crossed branches. Obtain specific pruning information for the plant so you can shape it into a strong and attractive specimen as it grows.

Water the plant weekly during the first year, except during weeks when it rains enough to wet the top six inches of soil. When you water, be sure to soak the soil by allowing a hose to trickle slowly at the base of the plant and at the edges of the backfill soil. Move the hose around a tree or shrub bed to assure uniform water application. Avoid shallow, frequent watering because it will encourage the growth of shallow surface roots, which will be vulnerable to drying out. Be careful not to overwater. Frequent saturation of the surrounding soil in poor drainage areas could smother the root system. Water only when the soil under the surface is dry to the touch. Continue to monitor new trees for drought stress into their third season. They may suffer from insufficient water even when other established plants in the landscape are thriving.

A light application of fertilizer at planting and in the second and third year after planting will help new plants get established. Avoid excessive fertilization because it may produce unwanted growth that could be weak and subject to storm damage or freezing in the winter. It is best to fertilize based on soil test recommendations.

For more information on caring for your landscape plants, see fact sheet #4, "Promote Plant Health," and #5, "Keep Plants Well Groomed."

## FOR MORE INFORMATION

Penn State Cooperative Extension, Delaware Cooperative Extension, and the Southeast Pennsylvania IPM Research Group have been working together to provide information and educational materials on IPM and landscaping.

This fact sheet, "Plant with Care," is part of a series of educational fact sheets about understanding and using Integrated Pest Management. Other topics in the series include:

- Creating Healthy Landscapes—Introduction
- Choose Plants Wisely
- Promote Plant Health
- Keep Plants Well Groomed
- Monitor Pests and Keep Records
- Pest Management Methods

Copies are available from your local extension office.

The Southeast Pennsylvania IPM Research Group is a collaboration of university and industry horticulture professionals who are inspecting landscapes across the region to monitor pest populations and share current IPM data. The group is partially supported by the Pennsylvania IPM Program (PAIPM). For more information about the research group, contact: Penn State Cooperative Extension, Montgomery County, 1015 Bridge Road, Suite H, Collegeville, PA 19426-1179; telephone: (610) 489-4315.

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