

Planting and caring for trees

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The horticultural industry invests a great deal growing and planting trees. Trees create walls for the outdoors landscape and they are used to screen unwanted views. Trees increase property value and add environmental value by contributing to air quality by taking in carbon dioxide and giving off oxygen. They also provide habitat for a variety of wildlife. Trees are unique in that their character can change dramatically from one season to another. They are assets that need to be maintained.

Newly planted trees require a higher degree of care than established ones. They must be watered frequently, and mulched to keep them alive and thriving during the first season. Later, they will require pruning and fertilization. They must be protected against physical injury since mechanical damage can be a major problem. If you can keep the mowers away, you're ahead of the game. After planting, the available water within the root ball is depleted rapidly. Irrigation to surrounding turf is unlikely to fulfill the need of the roots within the ball. Proper watering may be the most important factor in getting newly planted trees established.

Planting:

Stress and physiological disorders can often be traced to poor planting practices. Some tree planting recommendations have been changed to reflect current research .Nursery grown trees are usually superior to trees collected from other sites such as woodland, since more of the roots are contained in the root ball.

Trees should have good branch spacing and trunk taper. Foliage should be evenly distributed on the upper two-thirds of the tree and not concentrated at the top. Avoid trees with many upright branches, or with twin or codominant leaders. Choose trees with an abundance of healthy, green leaves without signs of chlorosis and check for mechanical damage.

Balled and burlapped trees should have a solid root ball that has been kept moist and protected from drying. If the plant is in a container, check the root system. Brown or black roots indicate a health problem.

Selecting trees that meet the site requirements is the single most important factor in influencing the success of the plant.

Site and Hole Preparation:

Once the trees have been selected, the planting hole can be dug.

The planting hole must allow for rapid root development without restriction. It should be much wider in diameter than the root ball. If the soil is compacted, the hole should be at least two to three times the width of the root ball. Most root growth will be shallow and horizontal. A wide planting hole with sloped sides will allow the roots to spread the best. see diagram

A planting hole can act as a dish and hold water, especially in clay soils. If such is the case, there can be a lack of oxygen at the bottom and therefore poor root growth there.

When planting a tree in a poorly drained soil, one would be tempted to add gravel at the bottom to improve drainage. This would actually make the situation worst as it would create a perched water table as water would accumulate in the soil above the gravel. A better option according to the tree experts is to install a pipe drainage system.

The root ball must be handled with care. Place the tree in the planting hole gently. Make sure that the root collar will be no deeper than the soil level. Planting too deep is the most common mistake and can lead to the slow death of a tree. Where drainage is poor, it may be advisable to plant the tree 1 to 4 inches higher than the natural grade.

In most cases you should use the same soil that came out of the hole to backfill. Research has shown that soil amendments do not necessarily assist in establishing a tree. If however, the existing soil is extremely poor, amending or replacing the soil may be advisable. The backfill soil type should however match as closely as possible the soil type of the site.

Backfilling with sandy loam in a heavy clay may cause the planting hole to collect water and suffocate the roots.

If the backfill must be amended, an organic amendment such as peat moss or compost may be used to help improve soil structure and fertility. Add about 25% amendment by volume and amend as large an area as possible to provide continuity of soil texture. Where soil textures differ greatly, natural water movement may be impeded.

Work around the root ball so that no air pockets are left. The soil in the lower part of the hole, around the base of the root ball, should be tamped firmly to help support the tree. Large air pockets can cause the tree to dry out. Water thoroughly in stages while backfilling. It is sometimes helpful to create a saucer around the tree to collect water over the root zone, especially on sloped sites.

Root systems reestablishment takes longer for large trees than for smaller ones. It is not unusual for trees transplanted at a smaller size to recover and outgrow larger trees transplanted at the same time. A rule of thumb is that it will take one year to reestablish for each inch of tree diameter.

Some trees transplant more easily than other. Digging a tree for transplanting can remove as much as 95% of absorbing roots. Therefore, trees that are difficult to transplant should be moved when conditions are optimal. In general, the best time to move most trees is in the early spring or autumn. Many deciduous trees can be moved just after leaf drop in the fall.

If soil is warm enough, roots have a chance to grow and begin to establish before the ground freezes.

Some trees are more easily transplanted in the spring before bud break. Transplanting dormant trees reduces the demand for moisture. Evergreens are more readily transplanted while dormant.

If you know that you will be transplanting a tree in the future, you have a big advantage. You can increase the percentage of roots in the root ball by root pruning a year or two in advance. Prune the roots back to one root ball size smaller than the size that will be moved. The remaining roots will generate prolific smaller roots from the cuts.

Caring for newly planted trees

Pruning of a newly planted tree should be limited to corrective pruning to remove torn or broken branches. Save further pruning for the second or third year.

Trees should not be pruned when planted to compensate for loss root. They need their leaves and shoot tips to provide food and growth hormones to stimulate new root production. Unpruned trees establish faster and with stronger root systems, than trees pruned at the time of planting.

Wound Dressing

Wound dressings were once used to speed up wound closure, protect against insects and diseases, and reduce decay. However, research has shown that dressings do not reduce decay or speed closure, and rarely prevent insect or disease infestation. Most tree experts recommend that wound dressing not be used unless it is done for aesthetic reasons.

Fertilization:

Trees require essential nutrient elements to function and grow. Fertilization of a tree can increase growth, reduce susceptibility to certain diseases and pests and can even reverse declining health. Trees growing in a forest environment usually have sufficient quantities of nutrients to maintain good growth. Some growing sites in the urban environment however, pose a challenge to the growing of trees especially when the topsoil has been striped and one is left with very poor subsoil.

The nutrient phosphorus is the key mineral nutrient used to encourage rapid root proliferation after planting.

Once the trees are established, nutrient elements that would likely be deficient in trees would be nitrogen, phosphorus, potassium, calcium, magnesium, iron, manganese and zinc. There are other essential elements such as sulfur, copper, molybdenum and boron but those are unlikely to be deficient. Fertilizer uptake is the greatest during periods of rapid root growth, so applications should be made during spring and fall.

The rate of fertilizer application depends on the vigor of the tree, the form of fertilizer, the soil and site conditions, and the method of application. The general recommendation is to apply 2 to 4 pounds of actual nitrogen per 1,000 square feet of root area to be fertilized. When a slow release form of fertilizer is used, a higher application rate of up to 6 pounds of actual nitrogen per 1,000 ft² can be used. Tree fertilizers can last for as long as two years due to newly developed slow release coating technologies.

Application Techniques:

There are a number of techniques for applying fertilizer to trees; You can surface broadcast, drill-hole , soil inject , foliar apply or implant in the trunk. Fertilizer can be applied by surface broadcast over the area. This is the fastest and most economical method. The main disadvantage is that the turf will compete with the trees for uptake of nutrients.

The drill-hole method places granular fertilizer in holes 6 to 12 inches deep and 2 to 3 feet apart throughout the root zone of the tree. It is an effective method although somewhat time consuming.

A third and common option is to use a liquid injection method. Fertilizer is dissolved or suspended in water and is injected into the soil under pressure.

Foliar application is a technique employed to correct micronutrient deficiencies. For example, iron sprays can be used to spray trees known to be with deficient in iron. This method can provide rapid but temporary treatment for iron deficiency. In cases where trees are too large or where foliar spraying is not practical, micronutrient deficiencies can be treated using implants and injections directly into the tree's xylem tissue.

This method relies on the transpiration stream for uptake and distribution. Treatment using this method has shown very good results that can last for more than one year. The use of implants should be limited to situations where no other options are practical.

Trees generally require proportionately less maintenance time than turf or flowers. Newly planted trees however, require a higher degree of care especially during the first couple of years.

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