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Care of young transplanted trees

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Quick Facts

Late March to mid-April is the best time of year to plant trees.

A vigorous root system, important in establishing new transplants, can be favored by watering to a depth of 12 to 18 inches below the soil surface.

Mulching around the transplant's base reduces soil moisture loss, improves water and air penetration into the soil, and keeps soil temperature above freezing longer in the fall.

Young transplants are susceptible to sunscald injury during winter and early spring.

Selective removal of crowded, interfering or weak branches is the only pruning that should be done at planting time.

Top-heavy trees and evergreens with high wind resistance may need to be guyed.

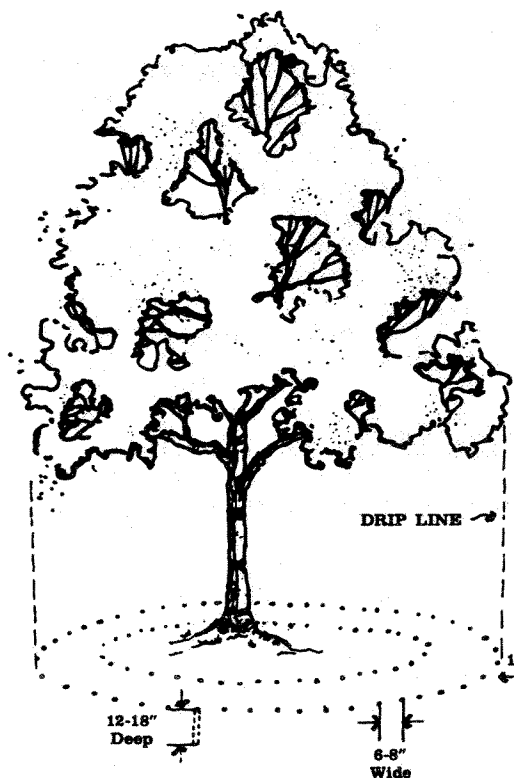


Figure 1: Proper root watering for young transplanted trees.

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Proper soil preparation before a tree is transplanted often means the difference between success and failure. Soil preparation promotes favorable growing conditions by improving soil drainage and reducing compaction problems. For more information on soil preparation, see Service in Action 7.222, *Soil – the key to successful gardening*.

Planting trees in early spring helps ensure their survival during the first year. Soil temperatures in late March to mid-April are warm enough for root growth to occur, firmly anchoring the tree in its new environment. This early root growth is important to the tree since foliage development and warmer, drier weather demands considerable amounts of water from the newly established root

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system. Trees planted in the fall are often subject to low survival if a cold spell occurs early. This is because roots need to become established before the drying, cold conditions common in winter. If fall planting is a must, do so no later than mid-October (see 7.417, *How to plant trees and shrubs*).

Transpiration occurs throughout the year, but the amount of water lost increases dramatically with foliage growth. Moisture stress often occurs in summer-planted trees because the tree transpires more water than the unestablished root system is capable of absorbing. Severe moisture stress weakens the tree and can even cause its death.

Proper Watering

Trees require water, but **improper** watering practices can cause more harm than good. Over-watering, a main cause of transplant failure, forces oxygen out of the soil and results in oxygen starvation of roots. This causes death of roots and leads to an eventual decline of the tree. The yellowing of foliage, developing first low and on the inside of the tree and progressing to the outer leaves, is an indication of oxygen starvation. Avoid frequent light waterings; this promotes shallow root systems susceptible to dessication in winter and heat stress in summer.

Determine the timing of watering by the moisture level of the soil just above the root zone – the area containing most of the tree's absorbing roots, generally 6 to 10 inches below the soil surface. Dig down 6 to 8 inches at the edge of the planting hole. If the soil at that depth feels powdery or crumbles when squeezed in your hand, the tree should be watered; soil that forms a ball and clings together when squeezed contains adequate moisture. By using the digging method to determine soil moisture, a watering schedule for your situation should become evident. Adhering to this schedule with compensation for natural precipitation, will eliminate the need to continually check moisture level by digging.

A vigorous root system, important in establishing new transplants, can be favored by deep watering – watering to a depth of 12 to 18 inches below the soil surface. A commonly used method of deep watering is flooding the soil surface until water eventually soaks down to the desired depth. However, flooding is wasteful of water and temporarily drives oxygen out of the soil, smothering tree roots. Placing water at the proper depth initially is a more efficient way to deep water.

A soil needle or root feeder garden hose attachment releases water under pressure at the correct depth without causing oxygen starvation problems. The area halfway between the trunk and the outer stretch of the branches, out to approximately 1 foot beyond the "drip line" (directly below the branch extremities) is the area to be watered.

Use the soil needle in a zigzag pattern around the tree to be sure all the feeder roots receive adequate moisture; the more needle insertions the better. Insert the needle to a depth of 12 to 18

inches, leave in place for 30 to 60 seconds, then move a distance of 6 to 8 inches (see Figure 1). After the entire root system is watered, repeat the procedure with the needle slanted slightly away from the tree. First and second year balled-and-burlapped trees will benefit from inserting the root feeder directly into the original root ball during each watering. Caution: Reduce water pressure when inserting soil needle into root ball or near backfill.

Extended dry periods, especially in fall and winter, may cause atmospheric humidity and soil moisture to drop below required levels for shallow-rooted trees. The result of this drying is injury or death to roots. Winter watering prevents drying damage by replenishing soil moisture levels. Water early in the day when temperatures are above freezing and use a soil needle to avoid problems getting the water to soak in by nightfall. (Refer also to 7.211, *Fall and winter watering*).

Mulching around the transplant's base reduces soil moisture loss, improves water and air penetration into the soil, and keeps soil temperature above freezing longer in the fall. These conditions are conducive to root growth and therefore improve tree vigor. Wood chips, shredded bark, dried grass clippings or pine needles all can be used for mulch. Cover the area dug up during transplanting with a mulch to about a 5-inch depth. Avoid mounding mulch next to tree trunk.

Fertilizers

Because soils in Colorado usually contain adequate nutrient reserves, fertilizer applications are seldom necessary until the second year after transplanting. Consult your local Colorado State University Cooperative Extension office for assistance in obtaining a soil test to determine nutritional needs.

For best results, fertilize once in the spring after leafing. There are several methods for applying fertilizer to the tree. The easiest and most economical method of fertilizing is broadcasting, or simply spreading the material under the tree as you would on the lawn. Follow this by a thorough watering to carry the minerals to the root zone. **Warning:** The quantity of fertilizer required by established trees can burn lawns if broadcast in a single application. In these cases it is best to apply the recommended amount in several partial applications.

Mild solutions of fertilizer can also be applied directly to foliage. **Use only products formulated and labeled for "foliar feeding."** To avoid burn, carefully follow dilution rates on the label and apply when foliage is not in direct sun. Late afternoon is the best time.

Time-release packets designed to be placed in the planting hole often release nutrients too slowly and do not give good nutrient distribution. They also tend to continue to release nitrogen late in the summer, encouraging succulent growth susceptible to winter injury. Tree spikes do not give good distribution of nutrients in Colorado's heavy clay soils.

Sunscald Prevention

With the exception of birch and aspen, young transplants and thin-barked trees, especially those planted on the south side of buildings, are susceptible to an injury called "sunscald" during the winter and early spring. The surface temperature of trees is elevated above that of the surrounding air by the absorption of sunlight. This rise in surface temperature occurs long enough to make cells in the bark active and thus vulnerable to injury during the sudden nighttime temperature drop.

Wrapping the tree trunk with a commercial crepe wrap reduces the heating effect leading to sunscald damage because light is reflected rather than absorbed. Starting at the base of the trunk, overlap the wrap as it is wound upward. Secure the top end with a single staple or small tack. The wrap should be placed on the tree from November through April for maximum protection, then removed during spring and summer to prevent harboring insect and disease organisms.

Pruning

Selective removal of crowded, interfering or weak branches is the only pruning that should be done at planting time. Nutrients necessary to support future growth are stored in branches, therefore indiscriminate pruning depletes the tree's food reserves. Pruning also reduces the amount of foliage the tree has to produce food needed for growth during the growing season.

Avoid pruning back from branch tips. Pruning this way alters the tree's natural shape and removes the buds that produce the strongest growth. Tip pruning also tends to stimulate weak sucker growth or "water sprouts." Do not paint pruning cuts because paint increases wound drying time and promotes disease development on the cut. For more information on recommended pruning methods, see 7.207, *Pruning deciduous shade trees*.

Guying

Trees that are top-heavy or have high wind resistance, such as evergreens, may need to be guyed until the end of the second season to prevent wind throw. Attach guy wires or ropes through grommets at the ends of any strong, soft, wide strips of material to avoid girdling injury. **Do not use wire through garden hose.** Indoor-outdoor carpet cut in strips 3 to 4 inches wide, or webbed strapping like that used in backpacks, is suitable. Place guying traps around tree **below** the midpoint. Wires or ropes should have a slight sag to allow for natural sway, but not so loose that the tree can uproot (see Figure 2).

Proper care can prevent injury to any tree. Take care of your new trees so you won't have to start over next year replacing transplant failures.

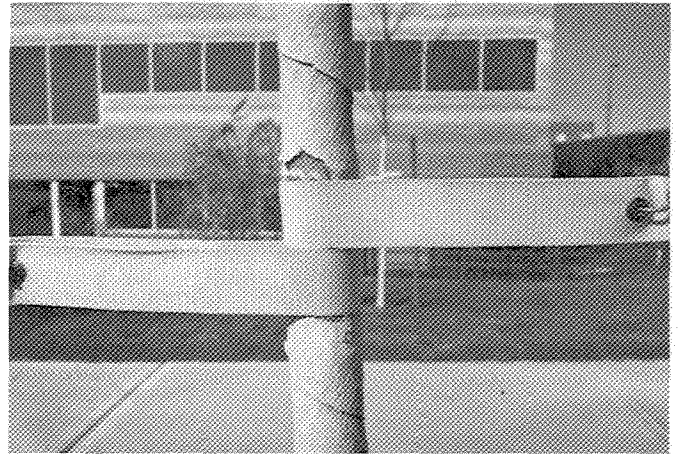


Figure 2: Use grommets fabric to avoid girdling the tree.