

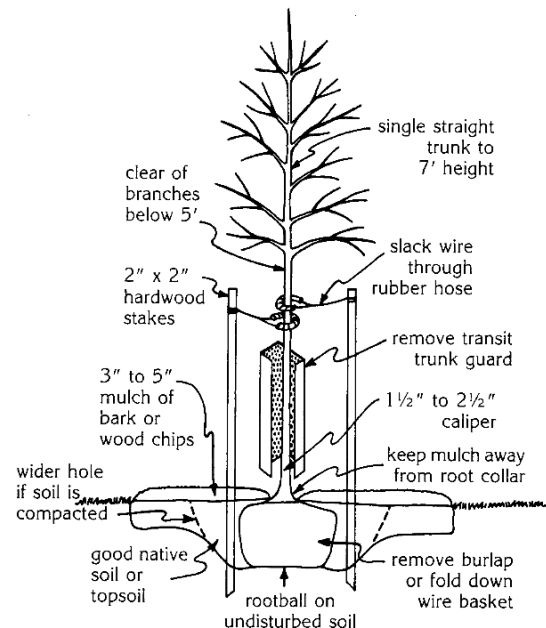
Plant Health Care Recommendations for Newly Planted Trees

When trees are first planted, there is an establishment period lasting at least two years when intensive maintenance is required. Studies show that transplanted trees lose as much as 95% of their root system during digging. Subsequently, most of the plants energy is initially channeled into root regeneration. During the establishment period, shoot growth and leaf size is reduced and wilting and leaf browning may occur. These symptoms are often referred to as “transplant shock”. If a newly planted tree cannot rapidly regenerate roots, the tree generally fails to establish and dies. This usually can be attributed to one or more of the following causes:

Soil Moisture Extremes: Due to root loss during digging, new plantings are very sensitive to moisture extremes. Root balls tend to dry out rapidly during periods of low rainfall leading to desiccation and death of the plant. This is particularly a problem with plants that were transplanted from containers. Excessive-irrigation can kill new plantings by reducing soil oxygen levels which causes root mortality.

Planting Related Causes: Many plants fail to establish because the root ball was installed below grade or it settled in the planting hole following installation. When the root ball is “too deep”, roots can “suffocate”. Soil or mulch against the stem can directly damage these tissues and lead to insect and disease infestations.

Compacted soil, which commonly occurs on new developments, has low oxygen levels, poor moisture retention characteristics and imposes a physical resistance to root growth. These characteristics severely impede root growth which prevents establishment.



Plants also frequently die because synthetic burlap, wire baskets, and nylon twine and strapping are left on the root ball. These materials will restrict root development and can eventually girdle the stem or major roots years after planting.

Pest Problems: Many plant species are highly prone to pest problems when stressed by transplanting. Borers, bark beetles, scale, mites and canker and root diseases are common on stressed plants. New transplants also are less capable of tolerating defoliating insect and disease pests.

A key objective of PHC programs for newly planted trees is to encourage root regeneration. New plantings also require frequent inspections and intensive care to maintain them through the critical establishment period. In order to achieve these goals, a program of monitoring, soil treatments and pest management is required.

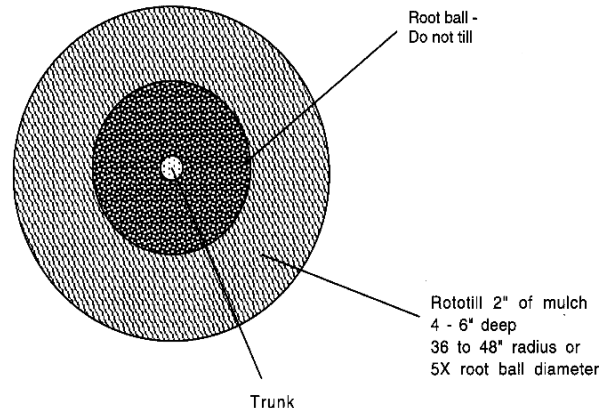
New plantings are very fragile and can decline and die rapidly due to environmental stress or pest infestations. Frequent inspections are essential to detect subtle changes in plant health and pest infestations. Homeowners should inspect new plantings several times each week during the growing season. A professional arborist should monitor plants on a bi-monthly basis.

Irrigation is the most critical factor for survival of recently transplanted trees. When rainfall is insufficient during the establishment period, water must be applied to the root ball and the surrounding soil. Do not apply excessive amounts of water which causes saturated soil conditions which can lead to root disease and mortality. Soil moisture must be monitored every few days during the growing season by sampling the soil or by installing a tensiometer to measure soil moisture.

Since a plant's energy for growth and other physiological processes comes from the leaves, avoid removing any live branches during the establishment period. Dead, dying, diseased and broken branches should be removed. Removing any competing leaders to maintain a strong central terminal should be considered soon after planting.

Maintaining adequate soil fertility and the recommended pH for the plant species will promote root growth. Fertilization and soil amendments should be based on soil test reports. Use slow release fertilizers such as Bartlett BOOST. Quick release agricultural fertilizers can injure woody plants.

If plants were installed in compacted or severely disturbed soil, the area surrounding the root ball should be cultivated to improve physical characteristics. This involves roto-tilling organic matter such as compost into the upper 4-6 inches of soil. The area treated should be three-to-five times larger than the diameter of the root ball.



The root flare should be visible on all new plantings. If the flare is covered by soil and/or mulch, excavation is required. Inspect the top of the root ball for plastic twine, and straps, synthetic burlap and wire baskets that may have been left at planting time. Remove these materials or pull them back from the top of the ball when it is not practical to remove them.

Organic mulches are highly effective for improving the soil environment for root growth. Mulches moderate soil temperatures, conserve moisture, provide organic matter and buffer the soil against compaction. Two-to-four inches of wood chips, bark nuggets or similar organic matter should be placed on the root ball and surrounding area. Do not allow mulch to accumulate against bark tissues.

Guys or stakes should be examined frequently to ensure that wires or ties are not girdling stem tissues. Generally supports can be removed after 1 to 2 years. If a trunk wrap was used, remove it before the growing season. Increased risk of borer and canker infestations can occur if wraps remain during spring and summer months. Wraps can be re-applied during the dormant months, however research shows that wraps do not protect stem tissues from temperature extremes.

An aggressive pest management program using integrated pest management technology is essential to plant survival. The MoniTor® Integrated Pest Management program provides regular inspections and treatments to prevent significant injury from pests. Cultural, biological and/or chemical treatments are used to maintain pest populations below damaging levels.