

GENERAL TURFGRASS SECTION

SELECTION AND MAINTENANCE OF TREES FOR TURFGRASS AREAS

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Trees are selected for use in a landscape for a variety of reasons including their aesthetic characteristics such as form, height, texture, foliage, color, flower and fruit as well as cooling shade, and the privacy they provide.

However, when selecting trees for turfgrass areas an additional set of characteristics become important. Trees should be selected which do not interfere with turfgrass maintenance and minimize competition with turfgrass for light, nutrients and water. Competition between trees and turf cannot be eliminated but the proper selection of trees and turfgrass can result in a compatible combination.

The ideal tree for turfgrass areas should have the following characteristics: (1) a light open foliage canopy allowing for considerable sunlight penetration, (2) naturally high branching allowing for easy maintenance of turf beneath the tree, (3) small leaves which will not smother the turfgrass during leaf fall, (4) no fruit (or small fruit) to interfere with turfgrass mowing, (5) a deep root system that does not directly compete with turf and will not rise above the soil surface and interfere with turfgrass mowing, (6) does not produce suckers or vigorous seedlings in the turf which might interfere with turf maintenance.

The proper maintenance of trees in turfgrass requires that competition be minimized by satisfying the requirements of both trees and turf for sunlight, water, soil aeration, and nutrients. The turf will show signs of water or nutrient deficiency much quicker than trees because the turfgrass is shallow rooted and at most times of the year is growing more rapidly than shade trees. Turfgrass can be used as an indication of the availability of water and nutrients for both the turfgrass and an established tree--so long as the grass shows no signs of requiring more nutrients or water (after deep irrigation) it is safe to assume the requirements of the tree are being met as well.

Fertilizer Requirements

Unless the tree is showing nutrient deficiency symptoms such as yellowing or purpling of the foliage, stunted growth, unseasonal leaf fall, etc., there is little justification for applying additional nutrients other than nitrogen for the tree. Recent studies have shown that nitrogen is generally the only limiting nutrient of shade trees in most soils. Nitrogen is the largest constituent of most turfgrass fertilizers and is readily leached into and through the soil. Therefore the usual surface applications of turfgrass fertilizer applied to the turf under the tree will be leached down to

the tree roots with normal precipitation and irrigation. Usually no additional application should be necessary for an established tree other than that normally applied for the turfgrass alone.

Poor soil aeration in clay soils can be a serious problem for trees as well as turfgrass, particularly where there is heavy pedestrian traffic. The soil must be loosened and aerated to a greater depth for the tree than is necessary for turfgrass. Aeration can be improved by drilling holes (2" diameter, 18-24" deep, 2' apart) in the soil beneath the tree. Compressed air can be blasted into the holes to loosen the soil and the holes refilled with a well aerated soil mix.

Irrigation Requirements

Frequent light applications of irrigation water will tend to make both turfgrass and tree shallow rooted. Both shallow rooted turfgrass and trees will be more severely injured if for some reason irrigation is stopped even for a relatively short time. Excessive irrigation particularly on poorly drained soil can kill large established trees while the more shallow rooted turfgrass may survive. This is common when irrigating freshly placed turfgrass sod on clay soils next to a recently planted tree. In attempting to keep the sod moist until it has established an extensive root system, the soil becomes saturated and the tree roots are killed. This may be prevented by lightly syringing the sod in order to keep it moist yet not applying so much water that the soil beneath becomes saturated.

Mower Injury

Lawn mower injury to the tree trunk just above the ground is quite likely the most common problem in growing trees in turfgrass. This type of injury rarely kills the tree directly or immediately. However, it has a debilitating effect on the tree, killing a section of the cambium, reducing translocation potential and providing an easy entry for a variety of insect, virus, rot and canker diseases. The injured tissue is also more prone to winter injury.

This type of injury was in part responsible this past year for a serious stem canker disease of crabapples. The canker disease organism gains entrance only through stem wounds, generally those caused by turfgrass mowers. When the stem canker disease is combined with drought stress many crabapple trees were killed. The canker disease can best be controlled by preventing infection which requires that injury to the trunk be prevented.

Grass must be mowed near the base of the tree for aesthetic as well as cultural reasons. Long grass near the base of the tree encourages nesting of mice and the resulting bark girdling by mice. It would be best to prevent the growth of turfgrass right at the base of the tree with an appropriate herbicide and/or mulch. This would eliminate the need for hand clipping and the temptation to run the mower into the base of the tree. For newly transplanted trees when irrigation is not practical it is usually necessary to conserve moisture by mulching the soil beneath the tree. This mulch retards evaporation and prevents the growth of grass which would transpire moisture. After the tree has become established (3 to 4 years) the mulch may be removed and replaced with grass.

Pruning

The pruning of trees in turfgrass areas is very similar to trees in other areas with the possible exception of raising the tree canopy and opening up the center of the canopy. Raising the tree canopy by removing lower limbs will facilitate low mowing near the tree. Opening up the center of the canopy by thinning out center branches will allow more sunlight to penetrate the canopy and thus better turfgrass growth.

Turfgrass and most trees are not naturally adapted to growing in the same habitat. However, with proper selection of trees and turfgrass varieties as well as good culture, a compatible association of tree and turfgrass can be obtained.

SHADE AND FLOWERING TREES FOR
TURFGRASS AREAS

Acer rubrum Bowhall - Pyramidal shaped Red Maple 75'. Slow growing, brilliant scarlet fall color.

Acer rubrum Scanlon - Conical shaped Red Maple, orange amber-red fall color.

Acer saccharum Newton Sentry - Columnar Silver Maple 80'. Rapid growing.

Acer saccharum Temples Upright (Monumentale) - Slender columnar Silver Maple with dark green foliage.

Aesculus cornea - Red Horse-Chestnut 40'. With scarlet flowers and glossy Green foliage.

Aesculus hippocastanum Baumannii - Double flowered Horse-Chestnut 60', with no fruit.

Carpinus betulus Columnaris - European Hornbeam 50'. Narrow upright or
Fastigiata pyramidal forms best. Questionably hardy
Pyramidalis north of Flint, Michigan.

Cornus florida (most cultivars) - Flowering Dogwood 30'. Any of the selected forms hardy in the area.

Cornus kousa (most cultivars) - Japanese Dogwood 20'.

Fagus sylvatica Dawyckii or - Upright European Beech 80'. Glossy green
Fastigiata leaves with smooth gray bark.

Fraxinus pennsylvanica lanceolata (Marshall's Seedless) - Male form of Green Ash 60'. Does not produce fruit with dark green foliage.

Ginkgo biloba (most cultivars) - Maidenhair Tree 75'. Open wide spreading branches with fan-shaped leaves.

Gleditsia triacanthos (most cultivars) - Honey Locust 75'. Fine leaf texture, broad open branching.

Malus baccata Columnaris - Flowering Crabapple. Narrow head.

Malus baccata Jackii - Flowering Crabapple, broad upright white.

Malus baccata Scheideckeri - Flowering Crabapple, semi upright double pink.

Malus baccata Van Eseltine - Flowering Crabapple, columnar double pink.

Nyssa sylvatica - Black Tupelo, excellent fall color flowering.

Ostrya virginiana - Hop Hornbeam 40-50', open light shade.

Prunus sargentii Columnaris - Columnar Sargent Cherry 60'.

Pyrus calleryana Bradford - Bradford Callery Pear 28'. Pyramidal white flowers very small fruit.

Quercus palustris Sovereign - Pin Oak 50-75'. Lower branches semi upright.

Quercus robur fastigiata - Columnar English Oak 50-75', with upright branching.

Salix pentandra - Laurel Willow

Tilia cordata Pyramidalis - Pyramidal form of Little Leaf Linden 75'.

Tilia euchlora Redmond - Pyramidal form of Crimean Linden 50'.