

Fertilizer applied to one plant will also be absorbed by the roots of a nearby plant. This can be a good thing, but excessive fertilization of either trees or turf can result in excessive aboveground growth or reduced disease and pest resistance.

Lawn watering is beneficial to trees if done correctly. Trees need, on average, the equivalent of 1 inch (2.5 cm) of rain every 7 to 10 days, depending on the species. Frequent, shallow watering does not meet the needs of either trees or turf, and can be harmful to both. Allow turf to grow to the top of its recommended mowing height to increase health and rooting depth and decrease irrigation, fertilization, and weed control requirements. Mowing no more than one-third of the grass blade's height and letting the clippings remain on the lawn promotes a healthy and vigorous lawn. Encourage communication between tree and lawn care professionals to prevent duplication of maintenance activities.



*Read herbicide labels to avoid tree damage.*



*Avoid excessive fertilization of trees or turf.*

### Special Situations

- **Placing fill soil around existing trees.** Fill soil is frequently added around existing mature trees to cover roots and re-establish turf. Fill soil can reduce soil oxygen levels and suffocate tree roots. Consult an ISA Certified Arborist before adding soil over tree roots.
- **Establishing lawns around existing trees.** Soil preparation prior to seeding can disrupt the upper 4 to 6 inches (10 to 15 cm) of topsoil. This may result in significant tree root damage and decline of the tree canopy.
- **Lawn watering in arid sites.** In arid regions, the watering that is required to maintain turf is especially harmful to tree species adapted to dry climates. Excess soil moisture encourages root rot that can kill trees or increase the likelihood of uprooting by excessive winds.

Sparse turfgrass growing around mower-scarred, weak trees does not need to be a common sight in the landscape. With proper planning, selection, and management, the benefits of both trees and turf can be readily achieved.

This brochure is one in a series published by the International Society of Arboriculture as part of its Consumer Information Program. You may have additional interest in the following titles currently in the series:

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# Trees and Turf



Tree and grass selection, competition among plants, maintenance practices, and special situations must all be considered when trees and turf share a landscape.



Woody plants and turfgrasses are critical design elements in urban and suburban landscapes. Trees and turf offer distinct personal, functional, and environmental benefits. The intended benefits of these plants may never be obtained, however, if potential incompatibilities are not addressed.

Thinning grass under large shade trees; large tree roots that hinder mowing; young trees that don't seem to grow; tree trunks badly damaged by lawn mowers or string trimmers – all of these undesirable effects can be caused by tree and turfgrass conflicts.

Turfgrasses provide many of the same environmental benefits as trees. They:

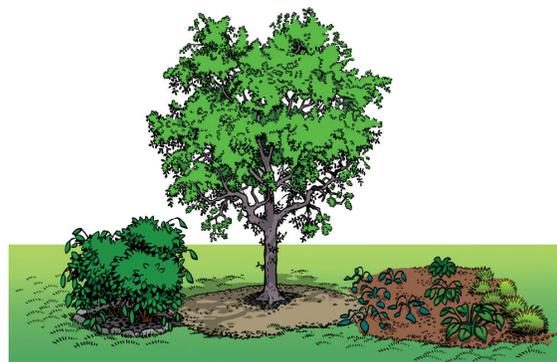
- take up carbon dioxide and produce oxygen via photosynthesis
- cool the air by changing water into water vapor
- filter dust and particulates
- entrap air polluting gases
- reduce erosion

Turfgrasses, in addition to being environmentally beneficial, are attractive in formal and informal designs. There are many advantages to combining trees and turf in the landscape.

### Selection

When trees and turf are used in the same area, extra attention must be given to plant material selection to ensure tree and lawn compatibility. Grass is generally a sun-loving plant. Most species will not grow well in areas that get less than 50 percent open sunlight. However, new shade tolerant grass varieties are being introduced.

In areas where the lawn is the primary design feature, select woody plants that are small, have open canopies (to allow sunlight to penetrate to the ground), or have a high canopy. Select trees that do not root near the soil surface. Surface rooting is most prevalent where shallow topsoil or clay soils are present.



A landscape design should provide adequate plant spacing to minimize competition.

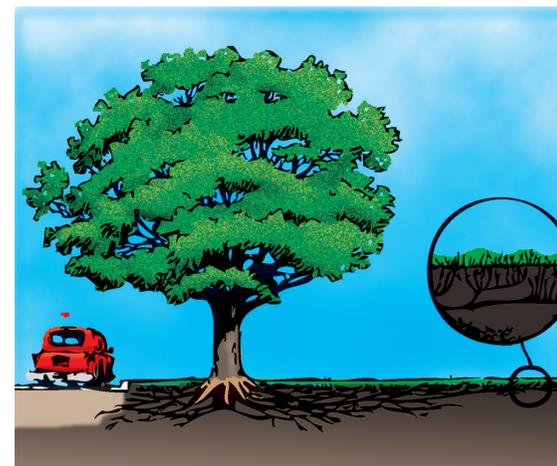
### Competition

All plants require sunlight, water, and rooting space for growth. In the landscape, plants compete with their neighbors for these resources. Some plants even release chemicals in the soil to restrict growth

of nearby plants. A landscape design should provide adequate space for plants (keeping size at maturity in mind) to minimize competition.

While shading is the most obvious form of competition, roots also compete below ground for water, nutrients, and space. The majority of fine, water-absorbing tree and grass roots are in the top 6 inches (15 cm) of soil. In this region, grass roots ordinarily occupy a much greater percentage of the soil volume than tree roots and absorb more of the available water and nutrients (especially around young trees). However, grass root density is often much lower in areas where trees were established first. In these situations, shading and other factors help to make tree roots more competitive.

Competition is especially important when transplanting, seeding, or sodding. The newest plant in the area must be given special treatment to become established.



Fine, water-absorbing tree and grass roots are in top 6 (15 cm) inches of soil.

Competing sod should be removed from around transplanted trees and shrubs. Water new transplants and seedlings as needed.

Mulching is the best alternative to turf around trees. A 2- to 4-inch (5- to 10-cm) layer of wood chips, bark, or other organic material over the soil beneath the tree's drip line is recommended because it:

- helps retain soil moisture
- helps reduce weeds and grass competition
- increases soil biology and fertility as it decomposes
- improves appearance
- protects the trunk from serious injuries caused by lawn care equipment
- improves soil structure (better aeration, temperature, and moisture conditions)

### Maintenance Practices

Trees and turf have different requirements. Given the close proximity of tree and turf roots, treatment of one plant may damage the other.

Many broadleaf herbicides used in lawn care can cause severe damage to trees when misapplied. Herbicide drift on windy days and vaporization on hot days can cause damage to non-target woody plants. While most herbicides do not kill tree roots, some, such as soil sterilants, do. Herbicides that can cause tree damage will note this on their labels.