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County Fair summary and photos on back page. Complete results and more photos are online at lancaster.unl.edu

Establishing and Maintaining LAWNS IN LOW LIGHT

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Trees and shade create a pleasing environment in the landscape. However, it is difficult to grow grass under trees because the quantity and quality of the light changes in the shade. In full sun, light is in the “near red” range of wavelengths; in the shade it shifts to the “far red,” which is less effective in photosynthesis. Dense canopies, particularly those of conifers, filter out the blue component of sunlight, which is critical for plant growth. The result of these changes is a reduction in photosynthesis and its products, including carbohydrates needed for plant growth.

Leaves, leaf cuticles and stems of plants are thinner in shade. Rhizome and stolon numbers decrease. Plant tissues are succulent and there is an increase in susceptibility to environmental stresses and disease. Transpired moisture from trees and grass and moisture from dew forming under trees, take longer to dissipate, and the additional moisture may contribute to an increase in disease.

Shady conditions in combination with other plant stresses contribute to the difficulty of growing grasses under trees. For example, tree roots compete with turf for water and nutrients and this competition can further weaken turf growing in shade. Allelopathic effects, such as the inhibitory effect of silver maple upon Kentucky bluegrass, are important between certain species of plants. Excessive organic matter from leaf litter will also inhibit grass. One or more of these factors make it particularly difficult to grow grass under maple and unpruned pin oak. On the other hand, grass is easier to grow under locust trees.

Success with growing grass in shade can be increased if the tree canopy is thinned and branches from the lower third of the tree are selectively removed. **Prune trees with dense canopies, such as maples**, to allow additional light to pass through to the turfgrass. Prune lower branches to a height of six feet and all the way back to the trunk or a main leader so the area under the canopy is clear. Also, trees can sometimes be removed without

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disrupting the harmony and function of the landscape. Thinning shrubs in the landscape will improve air circulation and lower humidity.

Select and use grasses that have improved shade tolerance. Most of the fine fescues have very good shade tolerance. The hard, sheep and Chewings fescues are usually preferred over the other fine fescues when using a monoculture in shady locations. Turf-type tall fescues have good shade tolerance, while Kentucky bluegrass is the least shade tolerant of the cool-season grasses. Zoysiagrass and buffalograss should not be used in shady locations. In areas where shade-tolerant grasses fail, consider shade-tolerant groundcovers or mulched beds instead of grass.

Avoid excessive nitrogen fertilization, which promotes shoot

growth at the expense of roots, lowers carbohydrates and promotes soft, succulent tissue that is more susceptible to disease. Shade-tolerant grasses such as the fine fescues should receive no more than 2 pounds of nitrogen per 1,000 square feet per year. Apply fertilizer in shady areas in the fall just as leaves begin to drop. Rake and remove leaves before they accumulate on turf. If fall fertilization was missed, fertilize in late winter or early spring, about a month before trees begin to leaf. Mow turf at 2-1/2 to 3 inches to allow maximum interception of reduced light by the thin turfgrass. Avoid scalping turf. Decline of turf in shade often begins after a single episode of scalping.

Irrigate only enough to avoid droughty soil conditions in shady locations during summer months. When moisture is needed, water infrequently and deeply. Avoid frequent irrigation that will lead to increased humidity and disease. Irrigate in the early morning to allow maximum time for drying. Do not water in the evening; turf may remain wet and ambient humidity may remain high throughout the night, thus increasing the chance of disease. Above all, do not overwater turf in shade. Dry conditions are always preferable to wet conditions for fescues growing in shade.

Limit traffic. Core aerify compacted areas that receive heavy traffic.

Avoid using herbicides in shady areas if weed problems do not exist. Many weeds, especially crabgrass, will not grow in shade.

Some allelopathic trees, the chemicals they produce and the plants they affect.

ALLELOPATHIC SPECIES	TYPE OF CHEMICAL	AFFECTED SPECIES
Sugar Maple	Phenolics	Yellow Birch, White Spruce
Hackberry	Coumarins	Herbs, grasses
Black Walnut	Juglone (Quinone)	Pines (Austrian, Scots, red, white), Apple, Birch, Black Alder, Hackberry, Basswood, Azalea, et al.
Juniper	Phenolics	Grasses
Sycamore (Planetree)	Coumarins	Yellow Birch, herbs, grasses
Black Cherry	Cyanogenic glycosides	Red Maple, Red Pine
Oaks	Coumarins	Herbs, grasses

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