

Turfgrass management in shady areas of lawns

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■ Like all plants, turfgrasses need light to grow, at least four hours of full sunlight per day.

Trees with dense crowns cast a deeper shade than trees with more open canopies. Deciduous trees selectively filter the sunlight, casting a "green shade" that is low in the parts of the light spectrum that are most important for lawn growth (blue and red light). Coniferous trees have a shadow that is largely unfiltered and block less light because of their needle-like leaf shape, more open canopies and narrow shapes.

Sunflecks are pockets of sunlight that penetrate the tree canopy and move across a turf. They greatly increase the ease of managing turf under shaded conditions. Sunflecking can be increased by opening the tree canopy through selective pruning. Dead and diseased limbs are good candidates for initial removal.

Shaded areas:

- ✓ are more humid,
- ✓ have restricted air flow,
- ✓ have fewer dews that "burn off" later in the day, and
- ✓ are cooler during the summer and winter months.

In response to this altered environment, turf in shade has:

- ✓ a more upright growth,
- ✓ lower food reserves,
- ✓ a more shallow root system,
- ✓ a decreased stand density, and
- ✓ a more succulent shoot tissue.

Overall, shaded turf is less able to compete with weeds and pests. On the other hand, some weeds, like crabgrass and goosegrass, also grow poorly in shaded conditions and are less of a problem.

Turf, particularly warm-season grass, often suffers more winter injury in shaded settings. Under shade, a lawn's vigor and wear tolerance is reduced. Increased humidity, restricted wind movement and the longer duration of dew all enhance the

potential for lawn disease in the shade.

Shade tolerance—Diseases—like powdery mildew, brown patch, leaf spot, melting out and Fusarium blight—are a dominant factor limiting turf survival in the shade. Within a species, shade tolerance can range from poor to excellent, depending on the cultivar. Excellent shade tolerance does not ensure survival or acceptable performance.

Deeply shaded sites will not support a quality turf. In these settings, managers should consider using groundcovers and landscape mulches. If turf is necessary, pruning and/or removing trees may be needed to allow greater light penetration.

Many years ago, turf scientists demonstrated that shade disease problems were reduced when mixtures of turfgrasses (e.g. Kentucky bluegrass and fine fescues, tall fescue and Kentucky bluegrass) were used. Tall fescue has a much finer leaf blade under shade than in open sunny areas and has performed well in mixtures with Kentucky bluegrasses (80:20 or 90:10 by weight) or with Kentucky bluegrass and fine fescues (80:10:10 by weight).

Among warm-season turfgrasses, St. Augustinegrass is clearly the most shade tolerant, with the exception of Floratam.

—The author is a member of the turf faculty at North Carolina State University. This article originally appeared in the winter/92-93 issue of the North Carolina Turfgrass Council newsletter.

Shade tolerance of selected turfgrasses

Kentucky bluegrasses: *Good*—A-34, Georgetown, Glade; *Moderate*—Adelphi, America, Bristol, Enmundi, Fylking, Midnight, Nugget, Ram I; *Poor*—Birka, Columbia, Eclipse, Mystic, Sydsport, Touchdown.

Fine fescues: *Excellent*—Aurora, Biljart, Reliant, Scaldis, Sparta, SR3000, Waldina; *Good*—Center, Enjoy, Highlight, Jamestown, Shadow, Victory, Waldorf; *Moderate to poor*—Commodore, Flyer, Fortress, Pennlawn, Pernille, Robot, Ruby

Perennial ryegrass: *Good*—Allstar, Birdie II, Cowboy, Elka; *Moderate*—Gator, Palmer, Pennant, Repell; *Poor*—Yorktown II

Roughstalk bluegrass: *Moderate*—Laser; *Poor*—Sabre

Tall fescue: *Excellent*—Trident; *Good*—Adventure, Apache, Arid; *Moderate*—Finelawn I, Hounddog, Jaguar, Bonanza, Falcon; *Poor*—Pacer, Rebel, Rebel II, Mustang, Olympic

St. Augustinegrass: *Excellent*—common, Roselawn, Bitterblue, Floratam, Floratine, Raleigh

Zoysiagrass: *Moderate*—Belair; *Poor*—Cashmere, Emerald, Meyer

Bermudagrass: *Poor*—common, Vamont, Tifway

Bahiagrass: *Moderate*—Argentine, Pensacola

Centipedegrass: *Good*—common, Oaklawn, Tennessee Hardy, Centennial

Shade management tips

1) Select shade-tolerant cultivars. A groundcover may be necessary for deeply-shaded locations.

2) Use mixtures or blends of cool-season turfgrasses when renovating or establishing the site.

3) Improve the air flow across the landscape by removing trees and ornamentals which obstruct wind movement.

4) Prune lower tree branches to improve light penetration.

5) Selectively prune upper tree limbs to improve light penetration.

6) Increase your lawn mower's cutting

height by ½ to 1 inch.

7) Prune tree and ornamental roots using spades or edge the lawn with a trencher periodically. Do not remove more than half of the viable roots beneath the drip line. Some trees are sensitive to root pruning; check before beginning this work.

8) Reduce traffic on the lawn.

9) Promptly remove fallen tree leaves and clumps of mowing clippings.

10) Water deeply and infrequently. Avoid late afternoon and evening irrigation, which promotes disease.

11) Minimize nitrogen fertilization and maximize potassium fertilization.

12) Apply fungicides, when necessary, to check disease outbreaks.

13) Leave a two- to four-foot turf-free zone around small trees to improve their growth.

14) Provide broadleaf weed control and watch for encroachment by difficult-to-control weeds.

15) Keep soil pH adjusted.

16) Fertilize trees separately and at rootball depth.

—J.M.D.