

# Identification and Control of Turfgrass Disease

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Identifying turf problems requires expertise, experience and, sometimes, good detective work. A homeowner may correctly identify a turf problem 30 to 50% of the time and an experienced turf manager might correctly identify a turf problem 70 or 80% of the time, but neither will be correct 100% of the time. The problems and their interactions are often too numerous and complex to correctly identify.

Recognizing that a turf problem exists does not require much expertise, but correctly identifying the problem does. Often a turf manager inherits problems. At least, that is the rationale we use. Other problems result from environmental stress such as shade, drought or extreme temperatures. Some problems are the result of turf pests. The most common problems, however, those we are least likely to identify, are the ones we create through our management practices.

Early recognition and identification of a problem is essential to the maintenance of fine turfs. Early symptoms of a turf problem rarely attract the attention of a non-professional. A subtle change in color or growth rate, wilting or foot printing earlier in the day than normal, cottony growth on the grass in the early morning, birds or other animals actively feeding in the turf or a combination of these symptoms may be the tip-off to a serious problem ahead. After the turf thins out or brown patches appear in the turf, the opportunities for effective control are greatly reduced.

The turf manager must make regular inspections of his turf to establish a reference by which abnormalities can be readily recognized. For example, difference in soil conditions may cause the grass in one area to wilt sooner than in another area. Also, changes in the color or growth of a turf may indicate a nutrient deficiency and requires frequent observation to detect. The height of the grass before mowing, the number of baskets of clippings removed from a golf green or lawn or the frequency of mowing required all provide a reference to detect changes in growth rate. Color changes require even closer observations, but they can be an early warning to a serious turf problem. A subtle change in color may signal a nutrient deficiency, a disease occurrence or an insect infestation. A turf manager familiar with the normal color and growth rate of a particular turf is most likely to recognize these early symptoms of a problem.

Maintaining a daily log in enough detail to show what, when, why and how with respect to management practices performed is helpful. Fertilization records can help explain changes in turf color or growth rate. Include cultural practices such as mowing, watering, aeration, vertical mowing and topdressing in the daily records. Record insect, disease and weed control treatments along with the response obtained. The turf manager trying to identify a problem without these records is at a serious disadvantage. Often, by reviewing well-kept records, some potential causes of the problem can be eliminated. For example, a recent application of nitrogen to a turf that appears chlorotic and stunted along with a soil test report that shows adequate levels of nutrients suggests that nutrition is not the problem.

In addition to the records of daily operations, keep soil tests, water and plant analyses for several years for reference purposes. In critical situations these analyses could provide helpful information.

Extension publications, conference proceedings, trade journal articles and turfgrass news letters can provide valuable reference information. This printed information can be added to this workbook for reference purposes.

**Classifying Problems as to Origin.** Turf problems should first be identified as to their nature - cultural (man-made), environmental or pest-related. Often two or more of these factors contribute to the problem. For example, a grass that has limited shade tolerance (environmental) should not be mowed too close (cultural). Likewise, a nitrogen deficiency (cultural) can be a contributing factor to an outbreak of dollar spot (pest); or shade (environmental) and over-fertilization (cultural) can contribute to an occurrence of leaf spot (pest). When two or more factors contribute to the problem, all factors must be identified before the problem can be effectively corrected.

Too often we identify only one factor contributing to a turfgrass problem, when in fact, several factors are responsible. For example, many pest problems are a result of environmental conditions and cultural practices. In fact, pest-related problems such as dollar spot may be controlled most effectively by changing the cultural practices that contributed to the problem. Pest management programs must consist of more than the shotgun application of pesticides to turf. Accurate identification of factors contributing to the problem and timely application of pesticides is a better alternative.

Disease problems require accurate identification to obtain effective and safe control. In addition to the symptoms expressed by the grass, environmental conditions, grass species and previous cultural practices should be considered when identifying pest-related problems. Turfgrass diseases are particularly difficult to identify. Often, environmental conditions modify the disease. Also, after the grass has been killed, it becomes increasingly difficult to identify the cause. In many cases, microscopic examination by experts is required to accurately diagnose a turfgrass disease problem.

Key to the identification of common turfgrass diseases.

**Group I.** Grass affected in distinct patches.

- Individual patches 2 to 3 inches in diameter, leaf lesions present.

Dollar spot. Diseased spots are light tan or straw-colored. Light tan lesions may be found near the top of the grass blade. Fine, cobwebby, mycelial growth can be seen covering the spots in the early morning when dew is present.

- Individual patches usually larger than 2 to 3 inches in diameter, leaf lesions not present.

Fairy Ring. Dark green "halo" or circular or crescent-shaped patches present; mushrooms may be present in circular pattern outside of dark green "halo", grass appears normal in the center of the patch.

- Dark green "halo" or mushrooms not present in circular pattern.

Pythium Blight. Grass blades matted together in affected area; greasy, water-soaked appearance, fading to a light tan as grass blades dry and shrivel; cottony appearance in early morning hours; blighted areas may merge to form large irregular areas or long streaks.

Brown patch. Outer edge of circular patch may be yellowish-brown in color occasionally giving it a "smoke-ring" appearance; grass blades at the margin of patch can be easily pulled from the stolon; green grass may appear within the patch.

Take-all Patch (Bermuda decline). Outer edge of irregular patch is chlorotic to straw-colored; grass within the patch is straw-colored and "crisp" leaves not easily pulled from the stolon.

Fusarium Blight. Circular, doughnut-shaped patches of chlorotic, tan or straw-colored grass; patches no more than 3 feet in diameter with green grass in the center producing the "frog-eye" pattern; chiefly on cool season grasses.

Spring Dead Spot. Circular patches of grass appear brown in early spring; grass does not recover from winter dormancy (bermudagrass only).

## **Group II.** Grass not affected in distinct patches.

- Spots distinct on leaf blades.

Rust. Orange or red bumps on leaf surface; rust-colored spores readily rub off the leaf surface.

St. Augustine Decline. Leaf blades show chlorotic mottling (St. Augustinegrass and centipedegrass only).

Gray Leaf Spot. Oval-shaped spots with tan or gray-colored center and brown margin surrounded by chlorotic tissue; spots apparent on leaves and stems.

Bipolaris and Exserohilum (Helminthosporium) Leaf Spot. Small, elongated spots with dark brown or purple margins; spots increase in size and the centers fade to a brown or straw color; where leaf spots are numerous leaves may be completely killed; spots apparent on leaves and stems.

Powdery Mildew. Small superficial patches of white to light-gray dusty fungus on leaves, lower leaves often completely covered; leaf tissue under the mildew becomes yellow and fades to brown; heavily infected leaves gradually dry up and die.

- Spots not distinct on leaf blades and grass appears chlorotic.

Curvularia Fading Out, Nigrospora Stolon Rot, Centipedegrass Decline. Affected areas appear yellow, thin and generally unhealthy; grass roots appear normal.

Nematodes. Affected areas appear yellow, thin, and not responsive to treatment, grass roots stunted, swollen or blackened.

Nitrogen or Iron Deficiency (check soil analysis for other possible nutrient deficiencies). Grass appears chlorotic, seed stalks abundant, growth rate noticeably slower than normal, and no

distinct boundaries to the affected area (except possible fertilizer distribution pattern), root system appear normal.

- Spots not distinct on leaf blades and grass not generally chlorotic.

Mower blades dull or not properly adjusted. Leaf tips frayed, grass not wilted; turf has a brown appearance several days after mowing; mowing patterns noticeable.

Drought stress, soil compaction or hydrophobic soil (common on sandy soils). Grass wilted in localized spots; turf has a gray cast in wilted areas and turns brown where condition persists; leaves rolled; soil dry or compacted (sloping site).

Wet wilt, poor drainage. Grass wilted in localized spots; soil moist; water stands in places after rainfall or irrigation; weak root system.

Fertilizer burn. Grass appears burned in spots or streaks; leaf blades are first to turn brown; occurs shortly after application of soluble fertilizer.

Grass scalped, excessive thatch accumulation. Grass not wilted and has a brown appearance shortly after mowing; grass stems or crown exposed.

Too much nitrogen. Turf has healthy color, but appears to be thinning out; grass grows rapidly after mowing; grass is shallow-rooted.

**Group III.** Grass affected in distinct circular patches or streaks.

**Poor distribution of fertilizer.** Alternate streaks or patches of yellow and green grass.

**Improper mowing.** Grass scalped; grass stems or crown exposed.

**Improper application of chemicals or fertilizer burn.** Tips of leaves burned.

**Gas, oil, hydraulic fluid or fertilizer spill.** Grass leaves rolled, bleached or brown grass in spots or streaks.