

DIAGNOSING TURF PROBLEMS

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A dictionary might define diagnosis as a careful examination and analysis of the facts in an attempt to understand or explain something. So whether it is a human heart or a sports field "careful examination and analysis" is key. Recognizing that a turf problem exists does not require much expertise, but correctly identifying the problem does, and correct diagnosis is essential to assure appropriate action. Unfortunately, like the human body, turf problems and their interactions are often too numerous and complex to correctly identify, especially under intense management.

Like a physician, good training and practical experience are essential to success. Think and work professionally. Basic qualifications include common sense and good judgment, and basic knowledge of turfgrass growth and the major pests. The ability to look, to listen, to ask good questions, and to use all available resources is also important. Resources may come in the form of accurate and timely records, past experiences, peers, and

turf specialists, and useful publications.

Early recognition and identification of a problem are essential. A subtle change in color or growth rate, wilting or foot printing earlier in the day than normal, cottony growths on the grass in the morning, birds or other animals actively feeding in the turf may all be symptoms of a problem.

Other problems also result from environmental stresses such as shade, drought, water quality, traffic, or extreme temperatures. Some problems are the result of turf pests. The most common problems are the ones created by intensive management.

Regular inspections of turf areas are important to establish a reference from which changes can be recognized. For example, differences in soil conditions may cause the grass in one area to wilt sooner than in another area. The height of the grass before mowing, or the frequency of mowing required all help to detect changes in growth rate. Color changes require even closer observations, but they can be

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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.

Detailed and accurate records of what, when, why and how management practices were performed and the environmental conditions are all important pieces of information. Cultural management practices such as mowing, fertilization, irrigation, aeration, vertical mowing and top-dressing should all be included in the daily records. Insect, disease and weed control treatments must be recorded 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 a problem can be eliminated. Trade journals, conference proceedings, and turfgrass newsletters can provide valuable reference information.

Turf problems can be categorized as 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 low (cultural). Likewise, a nitrogen deficiency (cultural) can be a contributing factor to an outbreak of dollar spot (*Sclerotinia*, a

pest); or shade (environmental) and over fertilization (cultural) can contribute to leaf spot (pest). When two or more factors contribute to the problem all factors must be identified before the problem can be effectively corrected.

Cultural problems are created and are often the most difficult to identify because accepting blame can be tough to swallow. One of the most common is improper irrigation. Light, frequent irrigation encourages a never-ending cycle like shallow rooting, algae, and soil compaction. When applying a chemical to any turf area, and particularly when trying to solve a problem, place a small 24-inch square on the turf to prevent an area from being treated. You now have something to compare with and you might be surprised by what does and does not work.

Environmental problems include soil conditions (acidity, alkalinity, salinity, poor physical conditions, dry spots), drought, shade, winterkill, heat stress and combinations of these conditions can cause serious problems for turfgrasses. Characteristics such as stand deterioration, localized dry spots, chlorosis, desiccation, foot printing and scald may occur where environmental conditions are not favorable. Often the factors that cause the problem are not apparent when the symptoms are observed and the turf

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manager must depend on records to accurately identify the problem. Drought stress, winterkill and scald are all caused by temporary environmental conditions that may not exist when the damage is most apparent.

Soil compaction is often referred to as a "hidden" stress because in most instances reduced plant activity is not noticeable. However, soil compaction influences soil aeration and drainage, plant and soil moisture relationships and soil temperature.

Pest problems often are only one factor contributing to a situation. Knotweed (*Polygonum aviculare*), Annual bluegrass (*Poa annua*), and Goosegrass (*Eleusine indica*) are often a symptom of soil compaction. Many diseases don't become serious until moisture stress is a factor. Turf diseases result from the combination of a susceptible host, virulent pathogen, and environmental conditions favorable for disease development. Turfgrass diseases are particularly difficult to identify because environ-

mental conditions modify the visual symptoms.

Once the cause (or causes) of the problem has been determined, it is necessary to decide if control measures are justified based on economics and the severity of the problem. Choose the safest and most effective control measures. Such measures include the use of adapted grasses, changes in the management regime and the use of chemicals. If chemical control is necessary, select the proper pesticide and read and follow label directions. Become familiar with the proper use of the pesticide and time your applications when the pesticide will be most effective. Determine the area to be treated to control the targeted pest. Monitor the effectiveness of the treatment. Finally, take the necessary steps to insure that the problem will not recur. Remember, if you are a professional, you must be able to document your observations and practices.



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