

**ILLINOIS TURFGRASS FOUNDATION  
CONFERENCE, DECEMBER, 1963**

**CONTROLLING GRASS DISEASES  
Malcolm C. Shurtleff**

Americans spend at least \$9 to 10 billions annually on the care of some 35 million home lawns, parks, athletic fields, cemeteries and other non-golf turfgrass areas. The accepted standards for all types of turf are constantly rising. People now expect a uniform, living green carpet for their money.

The maintenance of this carpet of millions of grass plants crowded together—growing under the “artificial” conditions of close mowing, high rates of fertility, extra water, and pest control—is no easy task. We are now trying to grow many more grass plants with more leaves in a unit area than we were 10 and 20 years ago.

All of these factors—plus the elimination of many weeds and insects, low or unbalanced fertility, compaction, and other turfgrass problems—has led to an upsurge in the importance and recognition of turf diseases.

**Diseases Just Don't Happen**

In general, the more grass plants that are growing in a unit area the greater is the potential danger from diseases. Crowded grass plants compete for air and soil space, light, water nutrients—and diseases. The humidity among such plants is higher, and the chances for disease spread from plant to plant are greater, than in a thin grass stand.

With the exception of nematode injury, all of the important diseases of turfgrasses are caused by fungi.

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Fungi are plants that lack the green pigment chlorophyll. Unlike green plants, fungi are unable to produce their own food from water, carbon dioxide, and the sun's energy. To get food, they feed on dead or decaying green plant parts or attack and feed on living green plants. Most of the fungi that attack turfgrasses are microscopic. Usually you can see only the results of action by these fungi after they have attacked and fed on grass tissues. A few fungi produce fruiting bodies or structures that are visible to the unaided eyes. These include mushrooms and puffballs of fairy ring fungi, the cobwebby or dusty fungus growth associated with brown patch, dollar spot, snow molds, powdery mildew, rusts, and smuts.

Fungi spread from plant to plant and one turf area to another by wind- or water-borne spores; use of infested seed, soil, or topdressing; in clippings; or soil adhering to shoes, and various types of equipment.

#### Diagnosis

For successful disease control, early and accurate diagnosis is essential. Different fungicides and cultural practices are effective against different disease-causing fungi. An incorrect disease diagnosis may easily lead to serious loss of turf before an effective fungicide and cultural control program are used. When a new problem arises, determine the real cause and the best possible methods of control.

We use the plural—methods, —instead of method, because a disease is an "end result" commonly brought about by a series of conditions. These are the right temperature, the right humidity and moisture, a susceptible grass, the presence of a disease-causing fungus, and an effective method for its distribution. All of these factors must be present and in balance before a disease can develop.

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### Successful Disease Control

This is **preventive** in action and requires the timely application of the correct fungicide plus the correction of cultural practices that may contribute to the diseased condition. Modern turf fungicides are so effective that we tend to depend more and more heavily on them and relegate good cultural practices to second place. Yet, some slip in turf management usually leads directly to disease situations! Why not carry out the best cultural practices—that are also best for growing grass in most cases—and use fungicides only where these are not completely effective?

Many home owners, plus those who maintain our parks, athletic fields and cemeteries, are frequently not in a position to apply fungicides on a regular basis. This means primary disease control must be placed on a sound management program.

#### When Disease Strikes

1. Make an early and correct diagnosis.
2. Carry out recommended control practices.
3. Try and figure out "What went wrong?" and correct the situation.
4. Keep records of disease occurrence, application times and amounts of fungicides used, weather conditions, and other factors.

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