

CONTROL OF FUNGUS DISEASES ON TURFGRASS

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Control of fungus diseases on turfgrass is a troublesome and expensive problem. There are a number of management practices that can lessen, if not totally prevent the incidence of diseases caused by plant pathogenic fungi. Since fungus spores require moisture for their production and germination, any practice that will lower relative humidity or prevent the prolonged presence of free water on foliage will generally be helpful in controlling many turf diseases. Thinning tree and shrub foliage to reduce shade and increase air movement over turf areas should lower atmospheric humidity and increase evaporation of water from leaf surface. Removal of dew and plant exudates from grass on fairways, greens and tees by syringing or dragging a hose across these areas is frequently practiced by golf course superintendents. Dethatching and aerification are helpful in reducing over-wintering inoculum and improving soil drainage, the latter being particularly important in the control of certain soil borne fungi such as Pythium.

A balanced fertilization program will also do a great deal to minimize the incidence of disease. Generally speaking, a vigorous, healthy plant is less susceptible to attack by disease-causing micro-organisms. Therefore, any management practice which encourages good plant growth will probably aid in disease control.

In some instances, cultural practices are not enough to prevent disease initiation and fungicides are required. One needs to answer several questions before deciding what fungicide to use in a disease control program: What is the disease? What fungicides are effective against the disease and which ones are available? What is the cost of the fungicides that are known to be effective on a per unit area basis at the recommended rate?

The disease type will frequently determine whether systemic or contact fungicides should be used. Presently, systemic fungicides are more effective than contact fungicides for the control of Fusarium blight and striped smut. However, there are no systemic fungicides that are known to control Helminthosporium leaf spot or melting out. Similarly, only contact fungicides are currently available for control of Pythium blight. In some instances, as with Sclerotinia dollar spot, both systemic and contact fungicides are available for control of a disease. The choice of fungicides in this situation should not be made solely on the price of the chemical per pound of packaged weight, but rather on the amount of material needed per unit area and the duration of time for which the fungicide will be effective. Even though most systemic fungicides are generally more expensive per pound, they usually are applied at lower rates and are effective for longer periods of time.

Another consideration in the choice of fungicides is the possibility of treating more than one disease with a single fungicide when there is overlap of diseases. By carefully examining the labels of fungicides and personally observing their performances regarding disease control, it may be possible to save time and money at certain times of the growing season by using a single fungicide to control more than one disease. In these situations, one should take note of whether the fungicide rates applied are adequate for control of all components of the disease complex. For example, the

rate of systemic fungicide necessary to effectively control Fusarium blight is about 3-4 times higher than that needed for Sclerotinia dollar spot, whereas similar rates of several commercially available contact fungicides are effective against both Helminthosporium leaf spot and dollar spot.

The decision as to whether to treat a disease on a preventive or an "as needed" (curative) basis is governed by several factors. A primary concern usually is cost of the material. If there has been no history of a given disease in that area, we could certainly not recommend the indiscriminate use of a fungicide, or any pesticide, where they are not needed. Pythium blight is an example of a disease which is generally treated on a curative basis, since incidence of the disease is not always certain every year even though an area may have a history of the disease. Fungicides that are presently available for Pythium blight control are contact fungicides, usually having a residual property of no longer than a few days to a week. Therefore, effective, practical control of Pythium blight is dependent on daily early morning inspection of the suspected areas and the immediate application of an appropriate fungicide at the first sign of disease.

Helminthosporium leaf spot, Fusarium blight and striped smut are examples of diseases that are extremely difficult to control unless you use a preventive program. This implies that the fungicide is first applied prior to the time when the fungus first becomes active or before disease symptoms appear. Leaf spot is a disease in which spores are produced on the leaves of diseased plants. Since no systemic fungicides are available for leaf spot control, uniform applications of contact fungicides at regular intervals are required to provide continued protection. Fusarium blight and striped smut are both caused by fungi which invade the vascular tissue of plants. This makes disease control difficult after these pathogens have invaded the grass plant. Once symptoms appear on grass infected with the Fusarium blight or striped smut pathogens, it is quite difficult to control the diseases even with systemic fungicides. This observation points to the need for awareness of when these diseases usually occur during a growing season so that fungicides can be applied prior to the initiation of disease activity, but still not so early that unnecessary or premature fungicide application will occur.

Recommendations concerning specific fungicide use for turfgrass diseases can be obtained from Extension Service bulletins available from The Ohio State University.

The preceding comments on disease control are certainly not all-encompassing, but they are intended to aid in making decisions concerning the use of fungicides for controlling turfgrass diseases.

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A chap who spent most of Sunday in front of his television set watching one football game after another finally fell asleep there and spent the night in his chair. When his wife arose in the morning she was afraid that he would be late for work. "Get up dear," she said. "It's twenty to seven."

In an instant the man was fully awake. "In whose favor?" he asked.

The Oregon Freemason