IT'S STILL THE WEATHER

By Houston B. Couch

ATMOSPHERIC MOISTURE AND TURFGRASS DISEASE DEVELOPMENT

For many of the fungus-incited turfgrass diseases, free water on the surface of the leaves is a necessary requisite to successful infection by the pathogen. Also, for many of these diseases, splashing water and wind driven rain serve as the primary means of transport for the spores of the pathogens. It is reasonable, then, to relate both initial outbreaks and the relative severity of certain diseases of turfgrasses with prescribed periods of rainfall. However, several of the so called "wet weather" diseases also occur in high incidence during periods of prolonged dry weather. Sclerotinia dollar spot for example is most severe during periods of low soil moisture content. In fact, in tall cut grass the disease is often mistaken for drought injury. The foliar blighting phase of Fusarium blight has also been observed to be particularly severe during warm, dry spells.

The reason for this seeming paradox is that periods of low rainfall and high night temperatures are often accompanied by heavy ground fogs that persist until midday. As the result, free water is deposited on the surface of the leaves and remains well beyond the time necessary for promotion of the maximum number of infections. In the final analysis, then, when relating atmospheric moisture to the incidence and severity of turfgrass diseases, primary consideration should be given to the length of time the leaves are wet (*wetting period*), rather than the source of the moisture.

WARM WEATHER DISEASES OFTEN OCCUR IN GROUPS

The climatic conditions for development of many of the more important warm weather turfgrass diseases are similar. For example, Rhizoctonia brown patch; Fusarium blight, Pythium blight and Helminthosporium leaf spot are all most severe under prolonged wetting periods and daytime air temperatures of 85°-90°F and night temperatures that do not fall below 70°F. It is not uncommon, then, for these diseases to occur simultaneously in the same stand of turfgrass. This has most certainly been the case for Virginia during this part of the growing season.

When these combinations do occur, field diagnosis is very difficult. Often-time, the problem is identified as simply one disease with attending "atypical symptoms." This type of diagnosis can lead to serious problems. Many of the turfgrass fungicides now in use are limited in their spectrum of disease control. The primary materials used for Pythium blight control, for example, will not control the other three diseases mentioned above. The most efficient fungicide for Fusarium blight control will not control Pythium blight or Helminthosporium leaf spot. Programs developed for the control of summer diseases, then, should contain fungicides of sufficient spectrum to cover all of the major problems that may be encountered. Furthermore, the turfgrass management specialist should not become so preoccupied with the control of one disease that he allows attending disease situations to get out of hand before he is fully aware of their presence.

SPRAY NOW — DRENCH LATER?

The systemic fungicides now in use in turfgrass management move upward in the plants. This has lead to a theory that watering the area after it has been sprayed with a systemic fungicide will enhance the material's effectiveness by washing it down to the root zone of the plants. While there are apparently some rather strong opinions about the merits of this program, the research information that is available would not seem to support it. Field research with systemic fungicides for the control of stripe smut (*Ustilago striiformis)* and Fusarium blight (*F. roseum*) indicates that there is no difference in levels of disease control when the materials are applied at dilution rates ranging from 10 gallons to 50 gallons per 1000 square feet of turfgrass. Assuming an initial application of a systemic fungicide as a normal dilute spray of 4 to 5 gallons of water per 1000 square feet, additional drenching of the area by irrigation or syringing would probably not significantly increase the effectiveness of the material. On the other hand, since the material is systemic, this procedure probably won't decrease its effectiveness either. It would seem, then, that this is one of those rare instances in turfgrass disease control programing where either approach is equally appropriate.

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