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UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Plant Pathology Fact Sheet

Weather Favorable for Cottony Blight in Turfgrasses

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Hot, humid weather with occasional showers is favorable for cottony blight, caused by various *Pythium* species. This disease, also known as Pythium blight, can be very destructive in swards of creeping bentgrass and perennial ryegrass in a high-maintenance setting, such as golf courses, croquet courts, etc. Cottony blight can occasionally be found on other cool-season turfgrasses, though very infrequently.

Hot weather puts great stress on these cool-season turfgrasses, and muggy weather with occasional showers favors growth, sporulation, and dispersal of the *Pythium* fungi. Because these fungi can also produce a spore that actually swims through water, the *Pythium* fungi are often called "water molds." Thus, any cultural practice that lengthens periods of saturation can aggravate the disease.

The following models may be useful in forecasting Pythium cotton blight on cool season grasses in Kentucky:

Predictive Model #1

This model was developed and evaluated in Ohio (Shane, 1994). Research there and in Kentucky indicates that the model is rather conservative in that it has a high probability of forecasting *Pythium* outbreaks. However, it also has a somewhat high rate of false positives in which the disease is forecast, but no disease occurs.

Cottony blight activity is predicted when the following conditions are observed during a

24 hour period from noon of the previous day to noon of the current day:

>> The maximum air temperature is greater than or equal to 82° F and

>> The minimum air temperature is greater than or equal to 68° F and

>> Relative humidity is greater than equal to 90% (or leaves remain wet) for 9 hours or more.

Predictive Model #2

This model was developed and evaluated in Pennsylvania (Nutter, 1983). Research in Ohio suggests that this model is more likely to issue a false negative forecast than Predictive Model #1. A false negative is a forecast of no disease when, in fact, disease occurs. However, Model #2 is more likely than Model #1 to identify days when Pythium disease activity is unlikely.

Cottony blight risk is high when the following conditions are observed during a 24 hour period from noon of the previous day to noon of the current day:

>> The maximum temperature is greater than 86° F

>> Followed by at least 14 hours of a relative humidity exceeding 90% with a minimum temperature of greater than 68° F.

Summary

Neither model is foolproof. No predictive model ever is—there are just too many site-related variables that are part of the picture (amount and timing of rainfall, soil drainage, species of *Pythium* present, etc). In my own experience, the second model tends to be conservative, issuing warnings when almost any activity is possible, which occasionally leads to false alarms. Nevertheless, these models provide some guidelines that can be useful to turfgrass managers when deciding whether to make preventative applications of fungicides for controlling cottony blight.

Additional Resources

Disease management advice can be found in the following University of Kentucky publications available at County Extension offices, as well as on the Internet.

- Chemical Control of Turfgrass Diseases (2009)
http://www.ca.uky.edu/agc/pubs/ppa/ppa1/ppa1.pdf

- Disease Management in the Home Lawn, ID-105 (no year)
http://www.ca.uky.edu/agc/pubs/id/id105/id105.htm

Additional Information on the Predictive Models

Nutter, F.W., Cole, H., Jr., and Schein, R.D. 1983. Disease forecasting system for warm weather Pythium blight of turfgrass. Plant Disease 67:1126-1138.

Shane, W.W. 1994. Use of disease models for turfgrass management decisions. pp 397-404 in *Handbook of integrated Pest Management for Turf and Ornamentals*. Anne R. Leslie, ed. CRC Press. 660 pp.

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