

STOP 2

PREDICTION MODELS FOR ANTHRACNOSE AND DOLLARSPOT

K. Danneberger and J. M. Vargas, Jr.

In order to develop a prediction model for anthracnose, we collected environmental data and disease severity ratings from turf sites in Michigan and northern Ohio during the years 1980 and 1981. We found average daily temperatures (celcius) and hours of leaf wetness to be highly correlated with anthracnose development. The minimum conditions needed for infection are three days of temperatures above 22°C and at least 6 hours of continuous leaf wetness. The model developed is a second order equation with the form:

$$ASI = b_0 + b_1T^2 + b_2LW^2 + b_3T + b_4LW + b_5(LW \times T)$$

ASI = Anthracnose Severity Index

b = Partial Regression Coefficients

T = Temperature (celcius)

LW = Leaf Wetness (hours)

The ASI values calculated are between 1 and 5 with 1 = no disease and 5 = greater than 50 percent damage. A value of 2.5 is the threshold we set for applying a fungicide treatment.

Currently, we are field testing our model at the Hancock Field Lab and Glengary C.C. in northern Ohio. The preliminary results have been excellent. This summer we have calculated ASI values greater than 2.5 fifteen times and been correct 13 times. The two times we missed were made early in the season (May). A possible reason for the error might be the pathogen was still living as a saprophyte.