

## **Influence of initial disease severity on performance of chlorothalonil for dollar spot control. R. Latin, Professor of Plant Pathology**

### **Objective:**

The objective of this research was to determine how high and low levels of initial disease influence the performance of chlorothalonil for controlling dollar spot on creeping bentgrass.

### **Rationale:**

Fungicide performance may be affected by disease pressure. In general, more fungicide will be required to achieve satisfactory levels of disease control under conditions of high disease pressure. Disease pressure has three components--associated with the host, pathogen, and environment. The pathogen component can be measured in terms of the amount of inoculum (or disease) present when fungicides are applied. This experiment was designed to observe the performance of a fungicide (chlorothalonil) applied at two rates in field plots with high and low levels of dollar spot symptom expression.

### **Procedures:**

The research was conducted at the Purdue University Daniel Turfgrass Research and Diagnostic Center in West Lafayette, IN, during fall of 2008. The plots were located on a sward of creeping bentgrass (cv. L-93) maintained at a height of 0.5 in. Agronomic maintenance operations were done according to standard practices for creeping bentgrass fairways in the lower Midwest.

Individual treatment plots measured 3.3 ft by 6.6 ft (1m x 2m) and were randomized within each of the 4 replications. The experimental design was a randomized complete block. Each plot of the high disease treatments was inoculated on September 9. Inoculum consisted of *Sclerotinia homoeocarpa*-infested grains of white sorghum. Fifty grains were uniformly distributed over each "high disease" plot.

Fungicide treatments were applied on September 29, when dollar spot severity in high disease plots ranged between 3% and 4%, and disease severity in low disease plots was less than 1%. High and low disease plots were treated with two rates of Daconil Ultrex, 3.2 oz and 1.6 oz per 1000 ft<sup>2</sup>. Fungicide was applied using a custom-built boom sprayer. Three Tee-Jet air induction nozzles (AI9503EVS for the middle, AIUB8503EVS for both sides) were mounted approximately 12 in. apart on the boom located 14 in. from the ground. The sprayer was calibrated to deliver 2 gal per 1000 ft<sup>2</sup> at 40 psi.

Disease severity was monitored and recorded at 3-6 day intervals over the 21 days following fungicide application. Data were subjected to analysis of variance and mean separation procedures.

### **Results and Interpretation**

During the week following fungicide application, disease severity increased in untreated plots (Figure 1). Over the three weeks of the experiment, there was only a slight decline in dollar

spot severity in high disease plots treated with the 1.6 oz rate of Daconil Ultrex. In high disease plots treated with the 3.2 oz rate of Daconil Ultrex, dollar spot severity declined to about 1%, but only after approximately two weeks of unacceptable levels of disease-related damage. In the low disease plots treated with 1.6 oz rate of Daconil Ultrex, disease severity remained below 1%, reinforcing the view that less fungicide will be required to manage disease when pressure is low. It also suggests that fungicides may be used more efficiently when used prior to dollar spot outbreaks, than when fungicides are applied after an outbreak is evident.

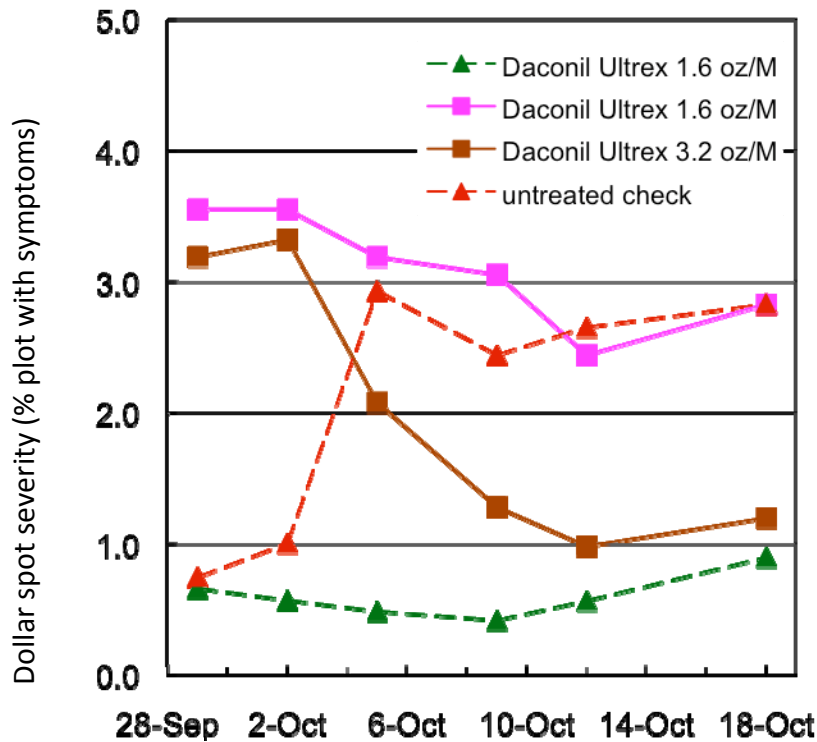


Figure 1. Dollar spot severity in plots with high (3%-4%) and low (less than 1%) levels of disease when treated with two rates of Daconil Ultrex.