

# **FUNGICIDE EVALUATIONS FOR POWDERY MILDEW AND RUST CONTROL ON KENTUCKY BLUEGRASS, 1994**

Marvin Butler, Faith Potter, and Ed Clark

## **Abstract**

Fungicide trials were conducted to evaluate efficacy against powdery mildew and rust on Kentucky bluegrass grown for seed in central Oregon. Applications were made at two locations, on the Agency Plains and in the Culver area. Materials included Tilt, Bayleton, Folicur, and Orthorix, alone and in combination. The fungicides were applied every 3 weeks, while the sulfur product, Orthorix, was applied biweekly. Results indicate Tilt, Bayleton, and a combination of the two provided significant protection from powdery mildew compared to untreated plots at both locations. Adequate symptoms did not develop for an evaluation of rust control.

## **Introduction**

Powdery mildew and rust are major disease concerns of Kentucky bluegrass seed growers in central Oregon. Both diseases are weather-dependent, but powdery mildew usually appears during April and May and rust from May to June. Materials commonly used are Bayleton and Tilt, with Bayleton often being used earlier and Tilt used later in the season. The objective of this research was to evaluate two products which were applied alone and in combination, against the industry standards, Tilt and Bayleton. The two new materials included Orthorix, a sulfur product which was evaluated alone and in combination with Tilt, and the fungicide Folicur which is expected to receive registration in the near future.

## **Methods and Materials**

Research was conducted at two locations, at a rugby field (Harris) on Agency Plains and in the Culver area (H & T) on a gnome field. Materials were applied with a CO<sub>2</sub> pressurized boom sprayer at 40 psi at a carrier rate of 20 gal./a to 10-foot x 20-foot replicated plots. Treatments were initiated on May 2 and were completed on June 11, 1994, with biweekly applications for Orthorix and application every 3 weeks for the other fungicides (Table 1). Application rates were 1/2 gallon for Orthorix, and 4 ounces for Tilt, Folicur, and Bayleton. Silwet-77 at 8 oz/100 gal and R-56 at 1 pt/100 gal were applied to the non-Orthorix treatments. There was a maximum of four Orthorix applications, three applications of the other fungicides, and combinations thereof. Fields were evaluated for the presence of powdery mildew on May 7 and 8, 1994, by rating 20 observations per plot on a scale from 0 (none) to 5 (throughout). Evaluation of rust was not possible since the disease did not adequately develop at either location.

## **Results and Discussion**

Results (Table 2) indicate Tilt, Bayleton, and the combination of the two provided significant protection from powdery mildew compared to the untreated plots at both locations. Folicur and Orthorix treatments were significantly different from the untreated plots at the Culver location,

but not on the Agency Plains where the disease was more severe. Orthorix alone did not significantly reduce powdery mildew when compared to the untreated plots; however the trend shows reduced incidence of the disease at both locations. From informal observation, the Orthorix appears to provide its best control when plants are small and good coverage can be achieved, with incidence of the disease increasing as penetration of the material becomes more difficult.

Table 1. Spray schedule of fungicide applications for powdery mildew and rust control on Kentucky bluegrass grown for seed in central Oregon, 1994

| Treatment | May 2     | May 16    | May 23   | May 30   | June 11  |
|-----------|-----------|-----------|----------|----------|----------|
| 1         | Orthorix  | Orthorix  |          | Orthorix | Orthorix |
| 2         | Orthorix  | Orthorix  |          | Orthorix | Tilt     |
| 3         | Orthorix  | Orth+Tilt |          |          | Tilt     |
| 4         | Orthorix  | Tilt      |          |          | Tilt     |
| 5         | Tilt      |           | Tilt     |          | Tilt     |
| 6         | Folicur   |           | Folicur  |          | Folicur  |
| 7         | Bayleton  |           | Bayleton |          | Bayleton |
| 8         | Bay+Tilt  |           | Bay+Tilt |          | Bay+Tilt |
| 9         | Untreated |           |          |          |          |

Table 2. Influence of fungicides on incidence of powdery mildew on Kentucky bluegrass grown for seed on Agency Plains and in the Culver area of central Oregon, 1994

| Treatment                              | Agency Plains        | Culver |
|--|----------------------|--------|
| Orthorix, Orthorix, Orthorix, Orthorix | 1.11 ab <sup>2</sup> | 0.6 ab |
| Orthorix, Orthorix, Orthorix, Tilt     | 1.4 ab               | 0.2 a  |
| Orthorix, Orthorix+Tilt, Tilt          | 0.2 ab               | 0.1 a  |
| Orthorix, Tilt, Tilt                   | 0.1 ab               | 0 a    |
| Tilt, Tilt, Tilt                       | 0 a                  | 0 a    |
| Folicur, Folicur, Folicur              | 0.6 ab               | 0 a    |
| Bayleton, Bayleton, Bayleton           | 0 a                  | 0 a    |
| Bay+Tilt, Bay+Tilt, Bay+Tilt           | 0 a                  | 0 a    |
| Untreated                              | 1.8 b                | 1.1 b  |

1 rating scale from 0 to 5, 0=none, 1=few spots, 2=light, 3=moderate, 4=heavy, 5=throughout

<sup>2</sup> mean separation at P < 0.05