IMPACT
University of Idaho Extension

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The re-emergence of Fusarium head blight in Idaho

The Situation

During the summer of 2012, *Fusarium* head blight (FHB) was observed in several fields in southeastern Idaho at epidemic levels. Grain infections were observed in fourteen fields across the state. Optimal weather conditions and irrigation at flowering allowed for the proliferation of FHB responsible fungi. Some fields were reported having up to 40% infection. Grain elevators also reported detecting deoxynivalenol (DON) toxin levels up to 23 parts per million (ppm). Levels at 1 ppm are considered unsafe for human consumption. It was the fourth year in a row where infection was recorded in the region.

Early planting and pathogen development in 2012 resulted in the dispersal of the infective spores coinciding with grain flowering, when infection is most likely to occur. Favorable temperatures, cloudy or rainy conditions, and irrigation occurred at flowering in many areas. These conditions are optimal for the growth and proliferation of FHB fungi, which resulted in very high disease pressure during 2012. Infection was also reported in "Volt," a less susceptible variety of hard red spring wheat grown regionally.

Barley samples were also confirmed having FHB infection near the St. Anthony area. Barley has been less likely to show obvious signs and symptoms of infection, but toxin concentrations are often recorded even in non-symptomatic heads. The presence of FHB in barley heads indicates that disease pressure during this season was extremely high.

Irrigated producers need to be especially aware and cautious of infection in their fields since levels of relative humidity greater than 80% (often occurring under irrigation) favors disease development. No infections were observed in dryland production areas.

Our Response

For the past three years, educational presentations on FHB epidemiology and control were conducted at various cereal meetings throughout the state, including the UI annual cereal schools. In the summer of 2011 and 2012, growers were notified of the presence of FHB in wheat fields across the region. In 2012, reports of infection across the state were recorded and fields were observed for infection. Triazole fungicide applications were recommended for hard red and hard white spring wheat in the flowering stage when wheat was planted following corn. Flowering is the latest growth stage that many fungicides effective for preventing FHB infection can be applied.

Recommended crop rotations should NOT include planting wheat and barley following corn. The introduction of corn into crop rotations in southern and eastern Idaho has increased the inoculum of *F. graminearum*, the more aggressive species of *Fusarium*

responsible for infection and higher DON concentrations. The presence of corn residues at the soil surface increases the risk of FHB infection, especially when conditions are ideal. Recommendations include planting the less susceptible varieties in high-risk situations as well as spraying triazole fungicides at flowering on all varieties if planted following corn. In non-epidemic years, planting less susceptible varieties can offer good control of FHB.

The Cereals Extension Program is developing a Current Information Series bulletin to address education needs of producers and consultants. Conditions favorable for the development of FHB are the temperature (65-85°F) and relative humidity (>85%) present under field conditions. The University of Idaho has been monitoring these conditions at various field locations across the state to develop a weather based prediction system to identify when infection is likely to be severe.

All wheat varieties grown in Idaho have varying degrees of susceptibility to FHB infection. However, the University of Idaho wheat breeding program is integrating genes for resistance into new varieties, including the newest release "UI Stone," which is a soft white spring wheat variety with high yield potential.

Program Outcomes

- Surveys were conducted to determine the predominant *Fusarium* species in the fields to provide accurate control recommendations (rotation and variety recommendations).
- Training of growers, fieldmen, and ag consultants to identify and scout for FHB development.
- The release of varieties with less susceptibility to FHB.

FOR MORE INFORMATION

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