Managing Wheat Diseases

Leaf rust, stripe rust, powdery mildew, tan spot, and occasionally stem rust and Septoria leaf and glume blotches comprise the primary foliar fungal diseases of wheat in the central Great Plains. In southeast Nebraska, leaf and stripe rusts, powdery mildew, and Septoria leaf blotch (Septoria tritici blotch) are the most common and important foliar diseases. Tan spot can be a problem, especially where wheat follows wheat.

These diseases are most damaging when severity on the upper leaves reaches a high level by mid-June. Early loss of these leaves shortens the grain filling period and results in reduced yields and lower test weights. Statewide, foliar diseases reduce yields by about 1 percent, but from 2002 to 2006, stripe rust reduced yields in susceptible varieties by as much as 30 percent.

Fungicides need to be applied to protect wheat from leaf diseases before Feekes stage 10.5. This is when heading is complete and before the onset of flowering. This means fungicide application should occur after the boot stage when the flag leaf has emerged and before heading is complete. We may or may not have any idea of disease threat by that time. Even if we knew a particular rust was active in Kansas, it is not a reliable indicator of profitable fungicide treatments on wheat.

What is the best indicator of profit from fungicide treatments? I believe three things enter into the management decision. Over a five year period, we are likely to see returns from treatment in two or three years. If returns averaged 15 percent yield improvement, it would be much easier to be profitable when yields are 50 plus bushels per acre and prices are in the $4.50 or higher range. Wheat varieties with a good yield record, but more than five years since their release are more likely to yield returns. This is because the leaf diseases will likely overcome bred in resistance in that time.

Fusarium head blight (scab) can affects wheat heads. It is sporadic in Nebraska, due to a variable climate, but can cause significant losses when it occurs. It is unusual for the very same disease organism to attack more than on crop. In the case of wheat scab it is caused by the very same fusarium fungus which is a stalk rot common in corn and milo. In scab years this means the disease can be more severe in wheat following corn or milo.

Fusarium head blight yield loss caused by the disease each year was about 2 percent statewide and up to 20 percent in severely affected areas. Additional loss resulted from discounts at the elevator due to vomitoxin (produced by the scab fungus) in grain.

There are fungicide treatments for Scab. The effective treatment window is three days in length during bloom, using products registered in that time frame. Since the plant blooms over a longer period of time excellent results are 60% control, if the disease is present. In other words very difficult to treat in a profitable mode.

Fungicides currently registered for leaf disease control on wheat include: Headline® (pyraclostrobin), Quadris® (azoxystrobin), Quilt® (azoxystrobin + propiconazole), Stratego® (propiconazole + trifloxystrobin), Tilt® (propiconazole), PropiMax® EC (propiconazole), Manzate Pro-Stick (75 DF) (mancozeb), Dithane® DF, F-45, M-45 (mancozeb), Caramba® (metconazole), Twinline® (pyraclostrobin + metconazole), Folicur® (tebuconazole), Proline™ (prothioconazole), and Prosaro™ (prothioconazole + tebuconazole).

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