AgriLIFE EXTENSION
Texas A&M System

PLANT PATHOLOGY & MICROBIOLOGY

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Stripe Rust (Yellow Rust) of Wheat

Symptoms

Stripe rust develops in early spring favored by cool temperatures and high humidity. Primary symptoms consist of narrow orange-yellow stripes on leaves, sheaths, awns and glumes (Fig. 1 and Fig.2). Severe infections affect yield by reducing kernel numbers, weight and overall quality.

Fig. 1. Stripe (Yellow) rust on wheat. Photo: Tom Isakeit.

Fig. 2. The stripe pattern runs along the vascular bundles and resembles powdery stitches. Photo: Ronald French.

Causal Agent

The fungus *Puccinia striiformis* (syn. *P. glumarum*) causes stripe rust. There are several pathogenic races of this fungus.

This fungus requires living host plants and survives between seasons on volunteer plants. Wheat is the main host, but barley, triticale, rye and related grasses are also affected.

Inoculum Source and Conditions

Infections are initiated from wind-borne spores carried either from long distances or from nearby alive hosts. Spores germinate at temperatures between 37˚F (3˚C) and 59˚F (15˚C), and infection is favored by free moisture (rain or dew) and temperatures between 50˚F (10˚C) and 59˚F (15˚C). Pathogen may be found in “hot spots” in a field so good monitoring is essential.

For infection to occur, leaves need prolonged wetness, especially overnight, and temperatures conducive for spore germination and fungal activity.

Disease Management/Control

•Use of resistant varieties can potentially halt disease development and secondary inoculum production.
•Destruction of volunteer wheat and other hosts could reduce the primary inoculum.
•Application of seed dressings and foliar fungicides to protect the foliage. Foliar fungicides such as strobilurins (Qol inhibitors; good preventative activity) and triazoles (Ergosterol inhibitors; good post-infection activity) are labeled for management of stripe rust.
•Protecting the flag-leaf during grain-fill is critical.
•Early spray may require a second spray; late spray may be too late if infection is rampant.

When to Spray

•One scenario is when rust level in crop gets to 1% leaf coverage but before it covers 5% of leaf area. Yet another scenario is when 10% of crop is infected.
•If losses may top 10%, spraying may be warranted.
•Yield potential, price, weather, variety resistance, and fungicide costs need to also be taken into account.

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