

Yellow Stripe Rust in Wheat

During the spring of 2005 we experienced a rather serious epidemic of Yellow Strip Rust in winter wheat. Deloris was the cultivar most severely impacted, though there was damage in other varieties as well. Weather conditions this spring are very similar to the spring of 2005. If these weather patterns persist we could see another stripe rust epidemic. As such, we encourage wheat producers to monitor their fields closely, watching for another potential outbreak. USU Extension personnel will also be in the fields observing conditions. We will attempt to keep growers informed of what we are finding.

Yellow Stripe Rust is caused by the fungus *Puccinia striiformis f. sp. tritici*. It is a serious problem on wheat in regions like the Pacific Northwest where cool temperatures prevail through the wheat growing season. Certain fungus populations also over-winter just fine in Idaho. Mild, open winters followed by unusually cool, wet springs can greatly enhance its spread. This particular rust can develop at lower temperatures than other rusts and, therefore, infects wheat earlier in the spring and acts upon the host plant for a longer period of time.

Yellow Stripe Rust is generally not a common problem in Utah. First, stripe rust apparently does not over-winter in Utah, so it is likely that rust spores are blown in from the Pacific Northwest. Second, some of our varieties have moderate resistance to the stripe rust races that were prevalent in Utah last year. Third, hot weather at the end of May and into early June usually puts a halt to the epidemic before significant economic damage occurs. Stripe rust, however, has the potential to cause losses of 40% or more if the variety is very susceptible and the stripe rust moves in early.

The first sign to look for is the appearance of small, yellow, elongated pustules in rows on the leaf. These rows resemble sewing machine stitches. When the pustules mature, they break open and release a yellow-orange mass of spores. Usually, the pustules develop in long, narrow, yellow stripes on leaves. Stripe rust goes by the name of yellow rust because it is a slightly lighter color than leaf rust or stem rust. Once infected, plant tissue becomes brown and dry and plants have a scorched, droughty appearance. Spores develop and spread rapidly when temperatures are between 50 to 70 degrees F and when intermittent rain falls. Temperatures must reach the 80's for several days before the spread is slowed. Wheat is the only host of consequence, but barley and some perennial grasses may occasionally become infected.

Although warm weather will eventually stop a stripe rust epidemic, it may be cost effective to spray fields with systemic fungicides to interrupt epidemic outbreaks. Timing is a critical and elusive consideration and one never knows if they are making the proper decision when considering fungicide and application costs as compared to potential yield losses.

The plant fungicides most commonly recommended for control of Yellow Stripe Rust is Tilt, Quilt, and Headline. The label for Tilt (Propiconazole) lists control for stripe rust on

the supplementary label. As such, growers may miss it as a control option. Quilt is a combination of two chemicals (Azoxytobion and Propiconazole), but has lower percentages of active ingredients per ounce of product. Headline is a strobilin compound that contains Pyraclostrobin. In addition to stripe rust control, all three of these chemicals are effective against a number of other foliar diseases of cereal grains. Their use may protect the crop from potential harm from other sources. In all situations, it is required by law that the user/applicator follow rates and recommendations listed on the product label. Additional information is available at <http://extension.usu.edu/files/publications/factsheet/wheat-stripe-rust08.pdf>.

