



ANR-1066

## Plant Disease Notes

# Rust Diseases of Wheat

**Persistence And Spread.** Wind currents can carry leaf rust spores and stem rust spores from tropical countries to Alabama fields. However, local spread is also an important source for rust infection. Volunteer wheat and susceptible host grasses carry rust spores over from one season to the next. Periods of wet weather lasting from 6 to 8 hours are sufficient for rust infection. Visible pustules containing spores appear within 7 to 14 days from infection. Frequent showers and heavy dews coupled with warm temperatures (72°F to 75°F) is ideal for rust development and spread.

**Control.** Rust diseases of wheat are best controlled by using the following strategies:

- Rust resistant wheat varieties are the least expensive and best means of controlling leaf rust and stem rust.
- Both leaf rust and stem rust produce new strains that can attack previously resistant wheat varieties. Avoid growing the same wheat variety year after year and avoid planting the same wheat variety over a large region. Continuous exposure of wheat varieties to rust will hasten the production of new rust strains that can overcome this resistance.
- Control volunteer wheat and grasses during the period between wheat crops to deprive rust a place to survive.
- Foliar fungicides can be cost effective when applied at the proper time during rust outbreaks.



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Use chemicals **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed.

The pesticide rates in this publication are recommended only if they are registered with the Environmental Protection Agency and the Alabama Department of Agriculture and Industries. If a registration is changed or canceled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your county Extension agent for the latest information.

Trade names are used only to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

**For more information**, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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Rusts are the most important and devastating diseases of wheat worldwide. Leaf rust (*Puccinia recondita* f. sp. *tritici*) and stem rust (*Puccinia graminis* f. sp. *tritici*) are the two most common rust diseases in Alabama.

Leaf rust occurs more frequently in Alabama and causes more damage to wheat. Leaf rust is found primarily in the extreme southern wheat growing region of Alabama. Leaf rust has reduced wheat yields over 50 percent in some fields when conditions were favorable for its development. Rust damage is greatest when it becomes established on wheat in the late winter or early spring and conditions remain favorable for continued infection for the remainder of the growing season. Leaf rust affects wheat yield by reducing grain weight, reducing the total number of grain, and reducing tillering.

Stem rust is probably the most damaging and widely distributed wheat disease throughout the world. Stem rust can be especially devastating to wheat yields. Fortunately, over the last few years, stem rust outbreaks have been isolated and have caused little damage in Alabama. Stem rust damages wheat by causing lodging due to weakened stems and to a reduction in grain weight.

**Symptoms.** Leaf rust can occur on wheat any time during the growing season, but in Alabama it is usually seen in the spring. This rust appears on and is generally confined to the lower wheat leaves during initial infection. If conditions are favorable for rust development, the rust will move to the upper leaves and then to the flag leaf. Leaf rust is seldom found on the stem or the head.

Leaf rust forms small, oval pustules that contain masses of spores which resemble a reddish-orange powder-like substance. If the pustules are rubbed with a white cloth, the cloth will turn a rusty color. When rust infection is severe, rust pustules will turn the entire leaf a rust color. As wheat nears maturity, rust pustules will turn from reddish-orange to black. Severely infected leaves may turn yellow and die. When severely infected, entire fields can have a yellow cast.

Stem rust produces similar symptoms on wheat. It can be easily distinguished from leaf rust by pustule color and appearance. Stem rust lesions are brick-red in color. Lesions are more elongated, larger, and the epidermis covering the spore masses is usually broken with jagged edges. Stem rust, unlike leaf rust, appears on all parts of the wheat plant including the stem and head.

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