Richland Parish

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Rust Diseases in Wheat

Rusts are fungal diseases that can negatively impact wheat yields in Louisiana. Leaf and stripe rust are the most common forms in the state with occasional incidences of stem rust, which is not as prevalent in the state.

Factors that can increase the incidence of rust include environmental conditions, planting in poorly drained fields, planting susceptible varieties and cultural practices. Wheat varieties with resistance to these pathogens are available and should be a consideration when selecting varieties. Cultural practices that promote lush growth and extend leaf wetness periods should be avoided. Excessive seeding and nitrogen rates are common practices that lead to these conditions.

Stripe rusts develops best in late winter and early spring when nighttime temperatures range from 40 to 60 degrees F and 6 to 8 hours of leaf wetness, but can continue to develop when temperatures are near freezing. There is also research showing evidence that some strains of the stripe rust pathogen can continue to develop when temperatures exceed 60 degrees F. If stripe rust infects early in the season before flag leaf emergence, an early fungicide may be warranted. Early infections on seedlings often occur as small clusters, but as the plant grows, the yellow-orange pustules appear along leaf veins that form lines or stripes.

Leaf rust develops in the spring with warmer temperatures. It develops best when nighttime temperatures range from 60 to 80 degrees F and plants are exposed to 6 to 8 hours of leaf wetness. Leaf rust is characterized by small pin-point pustules on the upper leaf surface usually found on the lower foliage. Pustules are deep orange to dark red that occur randomly on the leaf.

Scouting should begin in early winter through late boot stage/early head emergence, especially with varieties susceptible to rusts. It is critical to protect the flag leaf once it has emerged. Even when planting resistant varieties, it is prudent to perform random scouting to ensure the flag leaf is protected. History has proven that resistant varieties eventually become susceptible to new strains of fungal pathogens.

Fungicides are available that adequately control rusts with proper selection, timing and rates. LSU AgCenter research has shown fungicides effective for managing stripe rust include the strobilurins (Quadris, Headline), propiconazoles (Tilt, Propimax) or combination products (Quilt, Xcel, Stratego Yld, Twinline). Stripe Rust would normally occur between jointing and flag leaf emergence especially with susceptible varieties.

Leaf rust can be controlled with a strobilurin, propiconazole or combination product. Applications (susceptible varieties) would normally occur with flag leaf emergence through heading. Check fungicide labels to ensure compliance with cut-off dates for late applications.

This table is not an exclusive list of fungicides but indicates some that should be commercially available. Remember to read and follow labels regarding rates, time of application and pre-harvest interval.

Fungicide Effectiveness			
	Stripe rust	Leaf rust	Rate/acre
Quadris	E	E	4-12 oz
Headline	E	E	6-9 oz
Twinline	E	E	7-9 oz
Quilt Xcel	E	E	10.5-14 oz
Stratego Yld	E	E	4 oz
Caramba	E	E	10-14 oz
Propimax	VG	VG	4 oz

E=Excellent VG = Very good

Corn Stand Uniformity

Optimum planting depth for corn is 1½ - 2 inches with adequate moisture for germination. However, corn seed has enough energy or "pushing power" to ensure emergence from a 3-inch depth or more. Problems associated with planting at shallower depths are likely. The initiation point near the crown of the stem is moved upward when corn seed is not planted deep enough. Nodal roots will develop near or above the soil surface exposing roots to dry soil, herbicide and insect injury. This often leads to problems later in the growing season such as nutrient deficiencies and plants that will suffer from drought stress more quickly. Corn seeds planted too shallow are also more susceptible to bird damage.

Planter speeds are often culprits of less than desirable stands and yields that result from variable plant spacing and emergence. Corn plants are sensitive to variable plant spacing because they do not tiller to adjust for plant size. Unlike other crops, they only produce one harvestable fruit. Plants clumped together tend to produce small and often poorly developed ears as well as spindly stalks due to competition for nutrients, water and light. Spindly stalks will increase the risk of lodging, creating problems at harvest and often reducing yields. Late emerging corn plants will normally experience a disparity in growth which reduces yield potential for the whole field.

These smaller, less than desirable plants will compete for nutrients and water throughout the season, robbing the healthy plants where most of the yield is produced.

Recommended maximum planter speeds are 5 mph or less. Proper planting speeds should be adjusted for soil type, tillage method and moisture. No-till fields tend to be "rougher" causing the planter to bounce, resulting in poorer seed spacing and less seed depth uniformity. This could be compared with fields that have prepared beds that have been re-hipped and rolled or dragged that normally will produce a smoother planting surface. It is important to adjust planter speed to field conditions to ensure a uniform stand, especially with planting costs and seed availability of good varieties.

2013 Calendar of Events

Pesticide Recertification and WPS Handler Training

March 6, 2013

9:00 a.m. – 10:30 a.m.

Delhi Civic Center

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