

For Immediate Release
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Will Stripe Rust Reach Colorado Winter Wheat? Wilma Trujillo

There are now numerous reports of stripe rust (*Puccinia striiformis*) in Oklahoma, Texas and Kansas. With the current cool and rainy weather conditions, the development of stripe rust in Colorado wheat could be possible.

Stripe rust is one of the most challenging diseases of wheat because of its wide distribution, its capacity to form new races that can attack previously resistant cultivars, its ability to move long distances, and its potential to develop rapidly under optimal environmental conditions.

The disease usually occurs in the spring, when temperature ranges from 55° F to 75° F. High humidity and rainfall are favorable conditions for increasing the infection. Stripe rust causes yellow, blister-like lesions arranged in long, narrow stripes on leaves, leaf sheaths and heads.

Since many races of rust fungi exist, it is difficult to develop wheat varieties resistant to all of them. Growing resistant varieties is still the best and most economical method of minimizing yield losses. A number of cultural practices also can decrease disease incidence. Practices such as controlling grassy weeds and volunteer wheat, late planting and avoiding excessive water and fertilizer reduce the risk of infection. In addition, fungicide seed treatments and timely application of foliar fungicides to protect rust-susceptible varieties from severe infection are effective practices to managing stripe rust.



Timely disease scouting is the first step in assessing the need for foliar fungicide applications. Several factors should be considered when assessing the risk for your wheat to stripe rust infection. Use the following criteria to decide whether treatment is

warranted: (1) susceptibility of the wheat variety, (2) quality of stand and yield potential, (3) presence of rust infection in the southern states, Oklahoma, Kansas and Texas, (4) earliness or lateness of the crop, (5) weather conditions,

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and (6) price of wheat. Damage to the flag leaf is most associated with reduced yield. In general, if trace amounts of rust are present on the flag leaf in the early boot stage of development, and infection below the flag leaf is moderate or moderately severe, it is likely that the flag leaf will become severely infected and a fungicide application should be cost effective.

The best timing of a fungicide application to control foliar fungal diseases of wheat is when the flag leaf has emerged. Flag leaf timing is aimed at protecting the flag leaf because, compared to the other leaves, it contributes the most to grain fill. However, depending on how severe stripe rust is, an earlier application may be warranted

Dr. Tessa Albrecht, a plant pathologist at Colorado State University (CSU), emphasizes the importance of knowing the yield potential and the susceptibility of your wheat varieties before applying any fungicide. Every year, Dr. Scott Haley, CSU's wheat breeder, rates wheat varieties according to their degree of susceptibility to stripe rust. (1) Varieties at relatively higher risk due to susceptibility are Avery, Byrd, Byrd CL Plus, Denali, Snowmass and Sunshine; and (2) Varieties considered resistant or moderately resistant: Antero, Breck, Canvas, Langin, LCS Chrome, Long Branch, Monarch, Snowmass 2.0, SY Monumet, SY Rugged, SY Wolf, WB Grainfield and Whistler. A complete list of susceptibility ratings of wheat varieties to stripe rust and other diseases can be found in the CSU Crop Testing Program's report, Making Better Decision: 2019 Colorado Winter Wheat Variety Performance Trials or online at: https://webdoc.agsci.colostate.edu/csucrops/reports/winterwheat/wheatreport_2019.pdf.

Applying a foliar fungicide to wheat does not guarantee higher yields. In the event of serious disease pressure, timely application with the right product will protect yields and be worth the cost. According to KSU research, a single application can result in a 4-13% yield increase in susceptible varieties relative to wheat that remained untreated. However, if you treat the field and the disease levels never develop beyond light or moderate, the return on your investment will be less and could result in a break-even or loss scenario. A list of foliar fungicides, efficacy ratings and harvest restrictions could be accessed at <https://bookstore.ksre.ksu.edu/pubs/EP130.pdf>.

There are no reports of stripe rust in NE Colorado. Based on the current weather pattern, cool and wet, and the presence of the disease in the southern states, there is a significant chance it will develop in Colorado. Therefore, it is recommended that fields be scouted regularly for early detection of stripe rust and other diseases such as septoria tritici blotch, tan spot, and powdery mildew. A great resource to identify diseases in the field could be downloaded from <https://webdoc.agsci.colostate.edu/wheat/linksfiles/MF2994.pdf>

If you think you may have disease symptoms in your wheat fields, contact the CSU Extension office in your area or send samples to the CSU Plant Disease Diagnostic Clinic: <https://plantclinic.agsci.colostate.edu/> for proper identification of the disease.