

Wheat Disease Update May 20, 2020

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Overall, wheat is looking good and disease incidence is low. The Wheat Disease Identification Guide is an excellent resource for identifying wheat diseases and management options. <https://webdoc.agsci.colostate.edu/wheat/linksfiles/MF2994.pdf>. Drought conditions continue to increase across Colorado with 79% of the state abnormally dry, 62% in moderate drought, 46% in severe and 14% in extreme drought as of May 12. This does not account for rainfall over the last week so hopefully the moisture situation will continue to improve.

Stripe rust

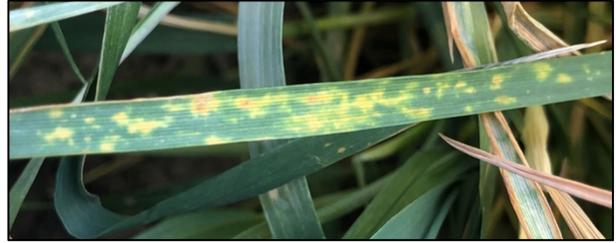
There are no reports of **stripe rust** or leaf rust in Colorado yet this year. Bob Hunger, OSU Extension Wheat Pathologist, reports stripe rust in the Oklahoma panhandle. Kelsey Andersen Onofre and Erick DeWolf, KSU Research and Extension, have new reports of stripe rust in north central Kansas. Some symptoms are present on the upper leaves but still with low incidence and severity. No stripe rust has been observed in counties in northwestern Kansas yet, but some has been observed on lower leaves in southwestern Kansas. There are also reports of stripe rust on varieties historically known to have good resistance to the pathogen, potentially suggesting a shift in the stripe rust pathogen population. This is noteworthy because resistant varieties may be affected more than usual, and this information may merit an adjustment of management decisions if stripe rust does infect Colorado wheat this season. **Scouting efforts are critical to management of stripe rust infections especially with the recent precipitation across eastern Colorado.** Scouting is particularly important for producers growing known susceptible varieties.



The primary management practice for stripe rust is planting of resistant varieties. To see the most current variety ratings see the CSU Variety Characteristics Table at <https://col.st/eNE8h>, or search by stripe rust and other characteristics on the Colorado Wheat Variety Database at <http://ramwheatdb.com>. Timely foliar fungicide application to affected varieties can be an effective control measure (see KSU Foliar Fungicide Efficacy Ratings at <https://bookstore.ksre.ksu.edu/pubs/EP130.pdf>). There are several considerations when making fungicide decisions such as varietal susceptibility level, severity of infection and timing of application, and wheat market prices. With stripe rust infections, minimal yield losses are observed when the flag leaf is protected so applying fungicide when the flag leaf is fully emerged is critical. The severity of disease will be affected by upcoming weather conditions. Stripe rust is favored by cooler temperatures with substantial dew periods therefore, hot dry weather would likely slow disease progression significantly making fungicide application unnecessary. Additional management strategies for stripe rust include control of volunteer wheat and weedy grasses to prevent overwintering and nutrient management.

Tan spot

Tan spot is present on the lower to mid-canopy in Weld, Kiowa and Prowers counties but does not appear to be affecting the upper canopy. Leaf symptoms are small tan oval-shaped lesions surrounded by a yellow halo that form dark centers with maturity. Lesions coalesce causing large regions of diseased tissue. Fungal



spores survive in crop residue and can be blown by wind. Tan spot can be common in our region but typically does not persist into the upper canopy unless under irrigation or continuous wheat. Management includes control of wheat residue, non-host rotation and foliar fungicide application. Genetic resistance to tan spot has not been analyzed in our current germplasm.

Wheat curl mite and mite-transmitted viruses

Symptomatic wheat samples from Kit Carson, Kiowa and Prowers counties tested positive for **Wheat streak mosaic virus (WSMV)**. Virus symptoms in these locations are sporadic with the lowest incidence in Kit Carson county. WSMV was not detected in samples from a second location in Kit Carson county, Lincoln and Larimer counties. Thus far, **wheat curl mite-transmitted virus** incidence is low compared to this time last season. WCM-transmitted viruses include WSMV, **Triticum mosaic virus (TriMV)** and **High Plains wheat mosaic virus (HPWMoV)**, with WSMV being the most prevalent and damaging. Symptoms include small yellow streaks scattered across the leaf and are nearly indistinguishable among the three viruses. Previously collected occurrence data for Colorado suggests low incidence of TriMV and HPWMoV but if present, typically they occur with WSMV. Management for WCM-transmitted viruses includes genetic resistance (see variety ratings at <http://ramwheatdb.com>), delayed planting, and control of volunteer wheat and weedy grasses.



Aphid-transmitted viruses

We have found aphids on wheat near Brandon, CO. Leaf symptoms are consistent with **Barley yellow dwarf virus (BYDV)** or **Cereal yellow dwarf virus (CYDV)** which include yellowing and/or red/purple leaf tips and stunting. The aphids were identified as greenbugs, 1.6 millimeters (1/16 inch), yellowish green aphids with a darker green stripe down the middle of the back. They are commonly known to vector yellow dwarf viruses (YDVs). BYDV can be transmitted by 25 different species of aphids but, the most



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common vectors are English grain aphid, bird-cherry oat aphid, corn leaf aphid and greenbug. Infestations may occur at irregular spots within the field or as a general infestation throughout the field. As they suck plant sap, the aphid injects toxic salivary secretions into the plant cells. The toxin kills the cells and results in a yellow or reddish stippling on the leaves.



Fall infections are most damaging but spring infections do occur. A wide range of losses due to YDVs has been reported. Management strategies include late planting, genetic resistance or tolerance, and control of weedy grasses as YDVs can host on a variety of cultivated and wild grasses. Using insecticide treated seed should protect seedlings from fall infection and increased losses. Consider an insecticide application if greenbug abundance exceeds the levels indicated below. Glance 'n Go and the Greenbug Calculator (<https://www.noble.org/news/publications/ag-news-and-views/2007/november/glance-n-go-a-simple-scouting-method-for-greenbugs/>) also can be used to determine the need to treat with an insecticide.

Small grain aphids per stem which justify chemical control:

Type of aphid	Seedling	Boot to heading	Flowering	Milky ripe	Milk-medium dough
Greenbug	5-15	25	>25	>25	>25
Corn leaf aphid	20	30	>25	>25	>25
Bird-cherry oat aphid	20	30	5	10	>10
English grain aphid	30	50	5	10	>10