

Wheat Disease Update April 20, 2020

Tessa Albrecht: tessa.albrecht@colostate.edu

Punya Nachappa: punya.nachappa@colostate.edu



AGRICULTURAL BIOLOGY
COLORADO STATE UNIVERSITY



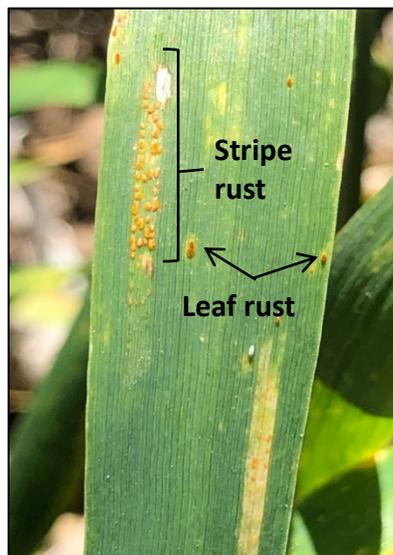
Colorado Wheat
Administrative Committee

Winter wheat is a little behind schedule this year likely due to inadequate moisture and lower than average temperatures. Much of eastern Colorado is experiencing moderate drought conditions and southern Colorado is under moderate to severe drought. However, thus far the wheat looks good and without disease symptoms, though some frost damage even before the snowstorm.

While there are currently no reports that stripe rust overwintered in Colorado this year, we do need to be on the look-out. Stripe rust has been reported in eastern Kansas. Bob Hunger, Extension wheat Pathologist at Oklahoma State University, reports stripe rust “hotspots” in central Oklahoma. Leaf rust is prevalent in Texas. Texas and Oklahoma are the locations where the inoculum builds up and could affect eastern Colorado later in the season.

Stripe rust is caused by the fungal pathogen *Puccinia striiformis* and is spread by wind over long distances. It can also overwinter on volunteer wheat and weedy grasses. Symptoms include small oval shaped yellow-orange pustules that form in stripes along the leaf veins. When stripe rust pustules erupt, spores are released and the disease spreads. Temperatures between 50-64°F, with substantial dew periods are optimal growth conditions. The primary management practice for stripe rust is planting of resistant varieties (see [CSU Variety Characteristics Table](#)), timely foliar fungicide application (see [K-state Foliar Fungicide Efficacy Ratings](#)), late planting and control of wheat residue..

Leaf rust is caused by the fungal pathogen *Puccinia triticina* forming small round orange pustules that are typically scattered on the leaf as opposed to the stripe pattern formed by stripe rust pustules. Management for leaf rust is the same as for stripe rust.

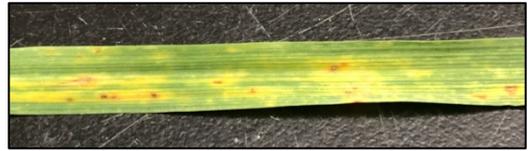


Other pathogens that we saw in 2019 may show up again this year, especially in irrigated fields or fields with continuous wheat.

Cephalosporium stripe, caused by the fungal pathogen *Cephalosporium gramineum*, was unusually prevalent last season. This disease is characterized by long yellow stripes along the veins of the leaves progressing downward from the leaf tips. Yield losses due to this pathogen are typically low.



Tan Spot (*Pyrenophora tritici-repentis*) was also widespread last season. Leaf symptoms are small tan oval-shaped lesions surrounded by a yellow halo that form dark centers with maturity. Fungal spores survive in crop residue and yield losses can be up to 50% under favorable conditions. Management includes control of wheat residue, non-host rotation and foliar fungicide application.



Stagonospora/Septoria leaf blotch caused by fungal pathogens *Stagonospora nodorum* or *Septoria tritici*, was also observed last season. Leaf symptoms are initially dark brown round lesions surrounded by a yellow halo that coalesce to form large regions of necrotic tissue often with small black pycnidia. *Stagonospora* can also affect glumes causing infection of seeds which can transmit this pathogen. The fungi survive in crop residue and can be spread by wind over long distances. Management strategies include genetic resistance, control of wheat residue, non-host rotation, planting treated seed and foliar fungicide application.



Bacterial leaf streak is caused by *Xanthomonas translucens* and was relatively prevalent on wheat last year. Likely because this pathogen is favored by wet conditions. Symptoms include water-soaked elongated light brown lesions. Symptoms can easily be confused with those of the fungal pathogens above. Proper diagnosis should be done before any chemical control is applied if any of these pathogens are suspected. The bacteria can survive in crop residue. Management strategies include genetic resistance, control of wheat residue and non-host rotation. There is no chemical control for bacterial leaf streak.



Wheat curl mite (WCM) transmitted

viruses were widespread across all of eastern Colorado last year. As of yet we have not found mites at ARDEC. WCM-transmitted viruses include **Wheat streak mosaic virus**



(WSMV), **Triticum mosaic virus (TriMV)** and **High Plains wheat mosaic virus (HPWMOV)**, with WSMV being the most prevalent and damaging. WCMs over-summer on volunteer wheat, weedy grasses and corn, then can infest winter wheat when it germinates in the fall. Fall infections are most damaging but spring infections may also occur. WCMs can be blown by the wind over long distances from other wheat producing regions later in the season. Virus symptoms are small yellow lesions on the leaves. Management includes genetic resistance, late planting and control of wheat residue. There is no chemical control for the mite or viruses.