



CEREAL RUST BULLETIN

Issued by:

Cereal Disease Laboratory

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For the latest cereal rust news from the field, subscribe to the cereal-rust-survey listserv. To subscribe, please visit:

<http://www.ars.usda.gov/Main/docs.htm?docid=9970>

Or, send an email to: Sam.Gale@ars.usda.gov

Reports from this list as well as all Cereal Rust Bulletins are maintained on the CDL website (<http://www.ars.usda.gov/mwa/cdl/>)

- Wheat stem rust was reported in a single location in sentinel plots planted in the lower Rio Grande Valley.
- Wheat leaf rust was reported at low incidence and low severity from very few locations in the southern Great Plains and Southeast Areas.
- Wheat stripe rust is the most widespread rust disease across the country with reports from the Pacific Northwest, Southeast, Plains, and Midwest Areas, however, disease emergence and progression is generally later and slower than in previous years.
- Oat crown rust and oat stem rust is developing in the Southeast Area.
- *2017 Wheat leaf rust race survey results are now available.*
- *Request for cereal rust observations and samples in 2018.*

For original, detailed reports from our cooperators and CDL staff, please visit the [Cereal Rust Situation](#) (CRS) reports page on the [CDL website](#).

Weather conditions. As reported in the USDA Weekly Weather and Crop Bulletin, much of the country experienced wet conditions in early to mid-April. A late snow storm delivered record April snowfall in parts of the northern Plains and upper Midwest, while significant rainfall was observed throughout parts of the Southeast and Northeast. Yet, severe drought conditions persist throughout much of the southwest and southern Plains, with extreme to exceptional drought conditions in the Texas and Oklahoma panhandles and extending into southern Kansas. Long-term drought has also persisted in western South Dakota, western North Dakota, and northeastern Montana. In early April, average temperatures were higher than normal in the Southwest, but lower than normal across most other regions. In the second week of April, the largest deviation (<12 degrees below normal) was observed throughout the entirety of North Dakota and Minnesota, as well as in northeastern Montana, northern South Dakota, northern Iowa, and most of Wisconsin. Cold temperatures of four to eight degrees below average extended southward through portions of the central and southern Plains (Nebraska, Kansas, Oklahoma, and Texas) as well as into the southern states (Arkansas, Louisiana, Mississippi). The Northeast and coastal Southeast also experienced below average temperatures.

Crop conditions. According to the Crop Progress report by the USDA National Agricultural Statistics Service, on April 22, 13% of the winter wheat crop has headed nationwide, compared to 30% last year and an average of 19% over the past five years. Only 31% of the crop is reported in good to excellent condition, compared to 54% of the crop last year at this time. Colder than average temperatures and wet conditions have delayed planting of spring wheat and other small grains in the Northern Great Plains, Midwest, and Pacific Northwest compared to the previous year and the previous five year averages in these regions. Only three percent of the spring wheat crop has been planted nation wide, which lags far behind the typical average of 25% by this time of the year. Only 11% of the barley crop has been planted, which is 14% behind last year and 22% behind the five-year average. Only 31% of the oat crop has been planted nationwide, which also lags behind the average of 55% planted by this time over the past five years.

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Wheat stem rust. On January 26, wheat stem rust was observed in sentinel plots planted with susceptible wheat in watermelon field windbreaks in the lower Rio Grande Valley of Texas. Follow-up observations were made at this location on February 28 and March 23. Affected susceptible cultivars include 'Morocco' and 'LMPG6.' Wheat stem rust has not been reported elsewhere this season.

Wheat stem rust collection map. Please visit: <http://www.ars.usda.gov/Main/docs.htm?docid=9757>.

Wheat leaf rust.

Plains Area

Texas – Compared to recent years, leaf rust disease pressure has been generally low across Texas, likely as a result of a colder than typical winter. The first observation of wheat leaf rust was reported on February 9. However, only trace amounts of rust were observed on susceptible border rows of 'Patton' in experimental plots in Uvalde, TX. At the time, no leaf rust or other cereal rusts were observed during scouting across numerous variety trial locations (Castroville, College Station, Thrall, Hillsboro, McGregor, and Muenster). By March 21, leaf rust was observed in a grower's fields near Waco. At the end of March, low, but building leaf rust pressure was observed in Castroville.

Oklahoma – Drought last fall and into the spring resulted in low cereal rust pressure across the state. Nonetheless, significant scouting efforts were made across the state this spring, including organized efforts of extension groups in southern and mid-Oklahoma. On February 21, the first specific observation of leaf rust was reported from Stillwater, though only a few pustules were found in experimental fields. Reports from around the state at that time indicated low leaf rust disease pressure. No leaf rust was observed during additional scouting across southern and central Oklahoma (updates received on March 12, March 29, April 6, and April 13). Throughout April, the weather has not been conducive for further development of cereal rusts.

Southeast Area

Louisiana – Leaf rust was observed on March 12 in Baton Rouge experimental plots. At the time it was at low incidence and severity, though it continued to develop in this area through early April. Further north in Winnsboro, leaf rust was first observed in experimental plots on April 3. At that time, the wheat was heading and leaf rust was at low incidence and severity.

Wheat leaf rust collection map. Please visit: <http://www.ars.usda.gov/Main/docs.htm?docid=9757>.

Wheat cultivar *Lr* gene postulation database.

Please visit: [Leaf rust resistance gene postulation in current U.S. wheat cultivars](#)

2017 wheat leaf rust survey summary and results are now available.

Please visit: [Wheat leaf rust race survey results](#).

Wheat stripe rust.

Pacific Northwest Area. In general, compared to previous years, stripe rust disease pressure was initially very low in the region and little evidence of overwintering was observed. Modeling suggests that infection will increase to average epidemic levels across the region this year.

Oregon – On February 21, the first observation of wheat stripe rust in Oregon was reported in Corvallis. This was isolated to a single plot in an experimental nursery. On March 3, a follow-up visit at this location did not find

evidence of spreading to any adjacent plots in this field or in nearby nurseries. Also on March 3, known susceptible 'Foote' soft white winter wheat plots were surveyed, but no evidence of stripe rust was found. Early April scouting in northeastern Oregon found wheat stripe rust only in an isolated hotspot in experimental plots in Umatilla County, Oregon. On April 21, further development of stripe rust was observed in Umatilla County on a known susceptible variety 'Mary,' in an untreated plot that was planted earlier than usual in a Pendleton experimental station.

Washington – The first observation of stripe rust was in early March on susceptible wheat in experimental fields in Walla Walla. However, in contrast to previous years, stripe rust was absent from commercial fields in the area. On April 3, two isolated foci of severe stripe rust were observed in 'Rosalyn' wheat in northwestern Oregon (North Plains). Early April scouting in southeastern Washington and northeastern Oregon found wheat stripe rust mostly isolated to a few hotspots in experimental plots (Garfield and Walla Walla counties). Commercial fields in several counties across the region were scouted on April 10. Stripe rust was found at low incidence in fields in Franklin and Benton Counties. No stripe rust was found in fields in Whitman, Garfield, Columbia, Walla Walla, and Adams counties.

Southeast Area. In contrast to recent years, wheat stripe rust developed late in this region. The first observations were reported in late March, which is a month behind observations from last year.

Arkansas – On March 20, an isolated incidence of wheat stripe rust was observed in central Arkansas experimental plots.

Louisiana – On April 3, wheat stripe rust was observed in a single experimental plot in Winnsboro.

Mississippi – On March 21, several foci of stripe rust were observed in winter wheat experimental plots in Stoneville. The high severity only in isolated foci suggest that the rust overwintered in these plots.

North Carolina – On April 18, wheat stripe rust was observed in two fields in the central coastal area (Greene County) on a known susceptible variety, 'Shirley.'

Northeast Area. There have not been any observations of wheat stripe rust from this region.

Plains Area.

Texas – On February 9, wheat stripe rust was first observed on susceptible border rows of 'Patton' in experimental plots in Uvalde. At that time, no stripe rust was observed during scouting of variety trials elsewhere across the region (Castroville, College Station, Thrall, Hillsboro, McGregor, and Muenster). By March 9, wheat stripe rust was also observed in College Station experimental plots, but was restricted to 'Sisson' and 'WB 4303' varieties. Stripe rust has not been observed by growers in the area.

Oklahoma – Despite extensive proactive survey efforts, no stripe rust was observed in Oklahoma in March. On April 5, the first confirmed observation of wheat stripe rust was made in Stillwater in an experimental plot. Very low incidence was observed in an isolated plot and further development has not been reported. At that time, no stripe rust was observed during organized scouting efforts across southern and mid-Oklahoma (Jackson, Dewey, Washita, Blaine, and Kingfisher Counties). On April 13, an isolated incidence of stripe rust infection was observed in south central Oklahoma near Ardmore. Active infection as well as telia were observed at this location.

Kansas – In mid April, foci of stripe rust were observed in a single field in southeast Kansas on the known susceptible variety, 'Everest.' No stripe rust was observed while surveying nearby fields. In general, the wheat crop in the southeast and south-central regions are at flag leaf emergence, while wheat across central and western regions are at or near jointing. Unusually cold weather may have caused freeze injury throughout the state.

Tennessee – On April 6, stripe rust was observed in the western part of the state (Gibson, Madison, and Lake counties).

Midwest Area.

Kentucky – On April 11, stripe rust was observed at very low incidence and severity in research plots in the western part of the state (Caldwell County). At the time of this observation, wheat in the area was nearing flag leaf emergence and the weather was not conducive for further rust development.

Illinois – On April 16, stripe rust was observed in southern Illinois (Gallatin County) in a field planted with a known susceptible variety ‘25R46.’ At the time, neighboring fields were free of rust, however, the weather was conducive for further spread of the disease. Wheat in the area were delayed in maturity due to unusually cold weather, however, some crops were at or nearing flag leaf emergence.

Wheat stripe rust collection map. Please visit: <http://www.ars.usda.gov/Main/docs.htm?docid=9757>.

Please send wheat and barley stripe rust collections as soon as possible after collection to: Dr. Xianming Chen, USDA-ARS (Washington State University; see details in attached rust collection guide).

Oat stem rust. On February 28 and again on March 23, oat stem rust was observed in sentinel plots planted in watermelon windbreaks in the lower Rio Grande Valley in Texas. On March 23, earlier than typical for this region, a few pustules of oat stem rust were also observed in a Baton Rouge, Louisiana oat nursery. However, reports of oat stem rust are absent from the surrounding areas.

Oat stem rust collection map. Please visit: <http://www.ars.usda.gov/Main/docs.htm?docid=9757>.

Oat crown rust. On March 5, oat crown rust was observed on susceptible spreader rows planted with ‘Brooks’ oats in an oat nursery in Baton Rouge, Louisiana. The weather was conducive for further rust development in this area and crown rust spread through the nursery through March.

Oat crown rust collection map. Please visit: <http://www.ars.usda.gov/Main/docs.htm?docid=9757>.

Barley leaf rust. Barley leaf rust was observed throughout southern Maryland and Delaware in mid April. Additional observations have not been reported since the last bulletin.

Barley stem rust. Barley stem rust has not been reported this season.

Barley leaf rust collection map. Please visit: <http://www.ars.usda.gov/Main/docs.htm?docid=9757>.

Rye leaf rust. On March 23, leaf rust was observed on rye in experimental plots in Baton Rouge, Louisiana.

Identifying rust diseases of wheat and barley

A guide developed by the multi-state extension and research committees for small grain diseases, NCERA-184 & WERA-97, is available at: http://www.ars.usda.gov/SP2UserFiles/ad_hoc/36400500Publications/Rust_Diseases_National.pdf

Current cereal rust situation

For the latest cereal rust situation reports, please subscribe to the cereal rust survey listserv list*.

Instructions can be found at:

<http://www.lsoft.com/scripts/wl.exe?SL1=CEREAL-RUST-SURVEY&H=LISTS.UMN.EDU>

Or, if you prefer, simply send a subscription request to Sam Gale (Sam.Gale@ars.usda.gov).

All messages sent to the list are archived on the CDL website: <http://www.ars.usda.gov/Main/docs.htm?docid=9757>

*The sole purpose of the Cereal Rust Survey listserv list is to provide a format for cereal researchers and extension personnel to share observations of cereal rusts and other cereal diseases. We make no warranty about any information shared on this listserv or its utility or applicability. Mention of any product, brand, or trademark does not imply endorsement or recommendation of that product, brand, or trademark by USDA-ARS, or any of the participants on this listserv. By enrolling on this listserv list, participants understand and agree to abide by these conditions.

Request for cereal rust observations and samples

Cereal Disease Laboratory, USDA-ARS, St. Paul, MN

(Please save this for future reference)

Cooperators' assistance is critical to our work

We depend on the assistance of our cooperators for cereal rust observations and samples (as well as other significant small grain disease observations). Without this assistance our job would be much more difficult. We sincerely thank all those who have assisted us in the past and hope the assistance continues this year and in future years.

Observations

If you have information on the cereal rust situation in your area that you would be willing to share with the group, please email your observations to:

CEREAL-RUST-SURVEY@LISTS.UMN.EDU

Or, to: Katie Liberatore (Katie.Liberatore@ars.usda.gov)

We would like to include your name and email address so others can contact you. If, however, you prefer not having your name or email address appear with the information, please let us know when submitting your observations.

Information of most importance

We welcome any information you can provide, but are particularly interested in:

- ∞ Location (state, county, city)
- ∞ Rust (leaf rust, stem rust, stripe rust, crown rust)
- ∞ Host (wheat, barley, oat, grasses, etc.)
- ∞ Cultivar or line name if known
- ∞ Grain class if known
- ∞ Severity and prevalence
- ∞ Growth stage: when the rust likely arrived, when infection was first noted and current growth stage
- ∞ Where rust is found on the plants, e.g., lower leaves, flag leaf, etc.

Guidelines for making cereal rust uredinial collections**

Reports on the distribution of races of cereal rust fungi are an important part of our annual cereal rust surveys. We routinely collect and test isolates of stem rust (wheat, oat, and barley), wheat leaf rust, oat crown rust and barley leaf rust. We are most interested in small grain collections (wheat, barley, oat and rye), but are also interested in stem rust, leaf rust, and stripe rust collections from grasses, e.g.:

Jointed goatgrass (*Aegilops cylindrica*) Ryegrasses
(*Elymus* spp.) Wheatgrasses (*Elytrigia* spp.)
Wild barleys (*Hordeum* spp.) Wild oat (*Avena*
fatua)

Common grasses, e.g., *Agropyron*, *Agrostis*, *Festuca*, *Leymus*, *Lolium*, *Phleum*, and *Psathyrostachys* spp.

Images and descriptions of the above grass species can be found on the USDA Natural Resources Conservation Service's [PLANTS Database](#) website

1. Rust pustules should be fresh and fully developed, except when this may not be possible, i.e., the first uredinial collections found early in the season.
2. When rusted small grain or grass plants are encountered, please cut 5 to 10 sections of plant stem (if possible, avoid including plant nodes as they do not readily air dry) or leaf, 4 inches long with large and small pustules and place in a regular paper mail envelope (**Please Do Not use plastic or waterproof envelopes**). Do not staple or tape the envelope, instead fold the flap shut.
3. Important information should be recorded for each collection, e.g., date, county, state, cultivar or line, crop stage, whether collection is from a nursery or commercial field, etc. Please use our data collection form ([standard pdf](#) or [fillable pdf](#)) if possible. If the grass genus or species is unknown to the collector, please send a head in a separate bag or envelope if possible, indicating which collection it is associated with to aid in identification.
4. Please avoid exposing samples to direct sunlight or unusual heat of any kind, e.g. car dashboard, outside mailboxes, etc. Samples should be kept at room temperature for 24 hours to allow the plant material to dry. Afterwards the samples should be placed in a cooler or refrigerator before they are mailed. Please do not keep samples in a freezer. The samples should be sent to us as soon as possible after the samples have dried.
5. Please promptly mail the envelope(s) with the appropriate collection form inside each envelope to:

Cereal Disease Laboratory, USDA-ARS 1551 Lindig Street
University of Minnesota St. Paul,
Minnesota 55108

**** Stripe rust collections should be sent to:**

By FedEx or UPS:

Dr. Xianming Chen USDA-ARS
361 Johnson Hall Washington State University Pullman, WA 99164-6430

By regular mail: Dr. Xianming Chen 361 Johnson Hall

P.O. Box 646430 Washington State University Pullman, WA 99164-6430

Note: Stripe rust collections are vulnerable to heat and do not survive long at warm temperatures; therefore, if shipment of collections for race identification is delayed their viability will be greatly reduced. An overnight courier service is preferred for sending stripe rust collections.

If you have any questions regarding stripe rust samples, contact: Xianming Chen, Phone 509-335-8086; e-mail: xianming@wsu.edu or xianming.chen@ars.usda.gov

Thank you in advance for your assistance!