



CEREAL RUST BULLETIN

Issued by:

Cereal Disease Laboratory

U.S. Department of Agriculture
Agricultural Research Service
1551 Lindig St, University of Minnesota
St. Paul, MN 55108-6052
(612) 625-6299
FAX (651) 649-5054
oluseyi.fajolu@usda.gov

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: oluseyi.fajolu@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 found in Texas.
- Wheat leaf rust was reported from Texas, Oklahoma, and Louisiana.
- Wheat stripe rust is the most prevalent rust disease in Louisiana. It is also present in Texas, Oklahoma, and Washington.
- Oat crown rust is severe in Louisiana.
- Oat stem rust was reported from Texas.
- Barley stripe rust was observed in Washington.
- *2020 wheat leaf rust race survey results are available.*
- *Request for cereal rust observations and samples in 2021*

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. According to the “USDA Weekly Weather and Crop Bulletin” and the “U.S. Agricultural Weather Highlights” released on April 20, warmth and dry weather prevailed in the far West, Southwest, and part of the Southeast, favoring spring planting and other fieldwork. On April 18, Washington was furthest advanced in planting progress for the barley and spring wheat. The April storm deposited snow in part of the northern and central Plains. Western Texas experienced a late-season cold blast with a morning freeze on April 20. The South is mostly warm and dry, advancing crop development and fieldwork. Rain showers occurred in some areas. The topsoil moisture was rated 43% surplus in Louisiana on April 18.

Crop conditions. According to the April 20 report, ten percent of winter wheat has headed nationwide, three and four percentage points lower than last year and the five-year average, respectively. Fifty-three percent of the 2021 winter wheat crop was rated in good to excellent condition, four percentage points below last year. Nineteen percent of the nation’s spring wheat was seeded, twelve percentage points ahead of last year and seven points above the five-year average. On April 18, 50% of the nation’s oat crop was seeded, twelve percentage points above last year and eight points above average. Thirty-one percent of the oat acreage had emerged, five percentage points higher than last year and three points above average. Twenty-six percent of the 2021 barley acreage was planted by April 18, eleven and eight percentage points above last year and the five-year average, respectively.



Wheat stem rust. On April 15, a few pustules of stem rust were found on susceptible cultivar McNair 701 in the wheat breeding nursery at Castroville, Texas. This is the first report of wheat stem rust in the country this year.

Wheat leaf rust. Wheat leaf rust is progressing in Texas and Louisiana.

Texas – Lower levels of wheat leaf rust, compared to the previous years, were observed on susceptible varieties in Castroville, College Station, and Uvalde on March 12. The disease began to progress by March 24, and virulence to *Lr24* varieties was more compared to either *Lr39/41* or *Lr21*. At the Castroville rust evaluation nursery, disease severity on lines carrying *Lr24* was rated 70S and on *Lr39/41* 30S. By April 17, leaf rust had spread uniformly across the wheat nursery, and severity and incidence had reached 100% on susceptible lines such as Jagalene. Wheat leaf rust was found developing in the trials at Wharton and had moved to the middle canopy in the small grain trials at McGregor.

Oklahoma – Wheat leaf rust was found in a demonstration trial around Stillwater (north-central OK) in late January before the severe winter weather. Leaf rust was not reported elsewhere across the state at that time. By the end of March, leaf and stripe rust were observed in more trials around Stillwater and near Perkins. Wheat fields in Major, Dewey, and Blaine counties in northwestern and western OK were scouted on April 13. Seven out of the twenty-two fields scouted had isolated leaf and/or stripe rust. The flag leaf was emerging at the time of the survey. The southwestern part of the state has been hot and dry and hence, not favorable for foliar diseases. Only a little stripe was seen in the first week of April. Scattered and low levels of leaf and stripe rust are increasing across the state.

Louisiana – Wheat leaf rust was first reported in April, seen at several nurseries, and progressing rapidly.

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](#)

2020 wheat leaf rust survey summary and results are available.

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

Wheat stripe rust. Wheat stripe rust is the most prevalent rust disease in Louisiana. The disease is present in Texas, Oklahoma, and Washington.

Texas – Wheat stripe rust was found active and spreading in an agronomy farm near College Station on March 12. During a follow-up visit on March 24, *Puccinia striiformis* was still actively spreading on the farm. Similarly, stripe rust was active and present in the lower to the middle canopy of varieties such as 'Patton soft red winter' in the small grain trials at McGregor and Greenville. In contrast, wheat stripe rust was not active in the rust evaluation nurseries at Castroville and Uvalde.

Oklahoma – See wheat leaf rust.

Washington – Wheat fields in Whitman, Adams, Lincoln, Grant, Garfield, Columbia, Walla Walla, Franklin, and Douglas counties in eastern WA were scouted on March 9, but stripe rust was not found. In similar surveillance made on February 26, 2020, active stripe rust was seen in a commercial field and a rust nursery in Lincoln and Walla Walla counties, respectively. At a follow-up survey of winter wheat fields in Columbia, Benton, and Walla Walla counties

on April 15, stripe rust was found on lower leaves of susceptible checks in nurseries near Walla Walla. At this location, the disease started about seven weeks later compared to the previous year. No rust was found in any commercial fields at that time. Wheat stripe rust was observed in the winter nursery at Mount Vernon in western WA. Disease severity was up to 40S on susceptible varieties and comparable to previous years. Wheat growth stages ranged from Feekes 4 to 6 at that time.

Louisiana – A wheat stripe rust hotspot was first observed on January 27 in a breeding nursery in Winnsboro, northern LA. By February 2, stripe rust was found in three additional locations and was spreading across the state. On March 15, Stephen Harrison reported unusual severe wheat stripe rust in southern LA that he had never seen. Wheat was in the mid-grain fill stage. Stephen also stated that wheat stripe rust was the most prevalent rust disease in Louisiana during the winter and spring of 2021. Some growers sprayed their fields for stripe rust control.

Stripe rust observation 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 crown rust. An oat crown rust pustule was first spotted in the oat yield nursery at Baton Rouge in south Louisiana on January 14. The early appearance of crown rust is not uncommon at this location. Oat plants were tillered but have not jointed at that time. Crown rust continued to spread, and by mid-April, the disease was severe on susceptible genotypes. Crown rust has not been observed in north Louisiana.

Oat stem rust. A trace level of stem rust was observed in the oat nursery at College station on April 15. Oat stem rust has not been reported elsewhere this season.

Barley stripe rust. Low levels of barley stripe rust were observed on susceptible varieties in the winter nurseries at Mount Vernon, Washington.

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). If you are able, please collect rust samples and send them to us. We sincerely thank all those who have assisted us in the past and hope the assistance continues this year and in the future.

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: Dr. Oluseyi Fajolu (oluseyi.fajolu@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 the following:

- 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, 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 2 – 3 days 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 this address:

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

**** Stripe rust collections should be sent by FedEx or UPS to:**

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 Dr. Xianming Chen, Phone 509-335-8086; e-mail: xianming@wsu.edu or xianming.chen@ars.usda.gov

Thank you in advance for your assistance!

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 Dr. Oluseyi Fajolu (oluseyi.fajolu@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.