



# 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](mailto:oluseyi.fajolu@usda.gov)

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

Or, send an email to: [oluseyi.fajolu@usda.gov](mailto: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 leaf rust is low or absent in the major wheat-growing states.
- Wheat stripe rust has been reported from nine states.
- Race TGN was identified from an oat stem rust sample.
- There is no new observation of oat crown rust since it was reported from Texas, Louisiana, Florida, and Georgia.
- Barley leaf rust was observed in Virginia.
- Barley stripe rust was found in California and Washington.
- Rye leaf rust is present in California.
- *2021 wheat leaf rust race survey results are available*
- *2021 small grain losses due to rust*
- *Request for cereal rust observations and samples in 2022*

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 May 24, most parts of the Midwest experienced weak tornadoes, showers, and scattered frost, causing cooler than average temperatures. Late-season snow fell in parts of the West. Colorado received a total of 10.3 inches and about an inch in Montana. Widespread precipitation occurred in the Northwest, and the average temperature was greater than 5° F below normal. In contrast, hot and dry weather prevailed across California to the southern Plains stressing winter grains. On May 19, parts of Oklahoma recorded the highest May temperature since 2011. Weekly temperatures were about 10° F above average in Texas, and the state had the worst winter wheat rating (79% poor crop) in the country on May 22. Hot and humid weather persisted across Florida. Elsewhere in the South were scattered showers that eased drought and resulted in the near-normal temperatures.

**Crop conditions.** According to the May 24 report, 63% of winter wheat has headed nationwide, two percentage points behind both last year and the five-year average. As of May 22, 28% of the 2022 winter wheat crop was rated in good to excellent condition compared to 47% at the same time last year. Forty-nine percent of the nation’s spring wheat crop has been planted compared to 93% at the same time last year and 83% over the past five years. Twenty-nine percent of the spring wheat crop had emerged, thirty-four percentage points below last year and twenty-one points behind average. By May 22, 77% of the 2022 oat crop was seeded, eighteen and thirteen percentage points below last year and the five-year average, respectively. Fifty-eight percent of the oat acreage had emerged compared to 82% last year and 74% over the past



five years. Forty-five percent of the nation's oat was rated in good to excellent condition, eight percentage points lower than last year. Seventy-one percent of the 2022 barley was planted by May 22, nineteen percentage points below last year and fourteen points lower than average. Forty-seven percent of the barley acreage had emerged, fifteen percentage points below last year and eight points below average.

**Wheat stem rust.** Stem rust has not been reported on wheat in the U.S. this year.

**Wheat leaf rust.** The disease is limited in the major wheat-growing states due to drought condition. A report from Kansas indicated dry and warm weather conditions as the leading factors influencing wheat yield potential in the state in 2022. In Oklahoma, crop damage due to drought stress was noticeable after wheat heading. Dry weather in the Great Plains will impact the amount of inoculum moving to the North. Previously, wheat leaf rust was reported from Texas, Louisiana, Georgia, and New York (see Cereal Rust Bulletin #1).

*Oklahoma* – Wheat leaf rust was first observed this year in Oklahoma during the second week of May in the Stillwater Agronomy Research Station (Payne County). Disease pressure was low on susceptible variety OK Bullet and OSU breeding lines. Leaf rust appeared late in the season and at low levels compared to the previous year due to drought conditions experienced in the state. Early May shower provided favorable environmental conditions for *Puccinia triticina* infection. On May 16, leaf rust was found on hard red winter wheat Baker's Ann in Morris, Okmulgee County.

*California* – The Cereal Disease Laboratory received a leaf rust sample collected from triticale in a nursery at Davis, Yolo County.

*Virginia* – Two collections of wheat leaf rust were received at the Cereal Disease Laboratory from Accomack and Nottoway counties in Virginia. The wheat crop was at the mealy ripe growth stage during sampling.

*North Carolina* – Leaf rust is present in Washington, Wake, and Lenoir counties and across the Coastal Plain and Tidewater but occurred late in the season.

*Alabama* – Eight collections of wheat leaf rust were received at the Cereal Disease Laboratory from a nursery in Brewton, Escambia County. Disease severity ranged from low to moderate.

**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](#)

**2021 wheat leaf rust survey summary and results are available.**

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

**Wheat stripe rust.** To date, stripe rust has been reported from nine states: North Carolina, Georgia, Mississippi, Louisiana, Texas, Oklahoma, California, Oregon, and Washington.

*Oklahoma* – Only trace level of stripe rust was observed at the Stillwater Agronomy Research Station in April due to persistent dry weather. After the early May rain, stripe rust at 40 – 70% severity was observed on susceptible variety Pete in the spreader row and on a breeding line. The temperature was above average in mid-May and suppressed the fungus sporulation. The telial stage of the rust was found on May 16.

*Washington* – Winter wheat fields in Whitman, Garfield, Columbia, Walla Walla, Franklin, and Adams counties in eastern Washington were scouted on May 11. Stripe rust was observed in two commercial fields in Walla Walla County. Disease incidence was low, but rust pustules were very active. A low level of stripe rust was present in a research field in the same county. At this location, the rust was about two months later than usual. A similar level of wheat stripe rust was observed at other research fields in Central Ferry, Garfield County, and Pullman, Whitman County. Wheat growth stages ranged from Feekes 5 to 10. During the previous wheat survey, high stripe rust was found on winter wheat in western WA and only on wild grass in eastern WA (see Cereal Rust Bulletin #1).

*Oregon* – In early May, wheat stripe rust was observed in Gilliam and Morrow counties in northcentral Oregon. Previously, stripe rust was found only on wild grass in the rust monitoring nursery at Umatilla County in the northern region of the state (see Cereal Rust Bulletin #1).

*California* – Stripe rust was found on triticale.

*North Carolina* – Scattered low incidence of stripe rust was reported from Washington County.

*Mississippi* – Wheat stripe rust hot spot was observed on variety OVT in Stoneville, Washington County.

**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 stem rust.** Oat stem rust was previously reported in Florida and Louisiana (see Cereal Rust Bulletin #1). A sample from Florida was identified as race TGN, the dominant race in the last two years in the United States.

**Oat crown rust.** There have been no new observations of oat crown rust since it was reported from Texas, Louisiana, Florida, and Georgia at low to high disease pressure (see Cereal Rust Bulletin #1).

**Barley leaf rust.** Barley leaf rust was observed in Accomack County, Virginia.

**Barley stripe rust.** Barley stripe rust was found in California. Previously, the rust was reported from winter nurseries at Mount Vernon, Washington (see Cereal Rust Bulletin #1).

**Rye leaf rust.** A collection of rye leaf rust was received at the Cereal Disease Laboratory from a nursery at Davis in Yolo County, California.

**Alternate host.** Crown rust infections were observed on buckthorns (*Rhamnus cathartica*) in multiple counties in southeastern Minnesota. Low aecial infection of common barberry (*Berberis vulgaris*) is present in Winona County, southeast MN.



## 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](mailto:CEREAL-RUST-SURVEY@LISTS.UMN.EDU)

Or, to: Dr. Oluseyi Fajolu ([oluseyi.fajolu@usda.gov](mailto: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](mailto:xianming@wsu.edu) or [xianming.chen@ars.usda.gov](mailto: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](mailto: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.