



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: 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 Oklahoma.
- Wheat leaf rust was severe in the Southeast states.
- Wheat stripe rust was reported in seven states and generally at low levels.
- There was no new observation of oat stem rust since it was reported in Texas, Louisiana, Mississippi, and Florida.
- Oat crown rust was observed in more counties in Alabama.
- No new report of barley leaf and stripe rust since the previous bulletin.
- *2022 wheat leaf rust race survey results are available.*
- *Request for cereal rust observations and samples in 2023*

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 23, most parts of the West experienced heat waves with temperatures of 10–15° F above normal. Vancouver, WA, recorded five days of 90° F between May 12 and 17, breaking the monthly record set in 1987. Hermiston, OR, recorded a consecutive daily high of 96–97° F on May 19–20. Topsoil moisture was rated 47% very short in Oregon and 40% short in Washington on May 21. Recent showers across the central and southern Plains benefited pastures and summer crops but came too late to rescue winter wheat from the drought damage. Hot and humid conditions persist in the South. Localized heavy showers were common across this region.

Crop conditions. According to the May 23 report, 61% of winter wheat has headed nationwide, the same as last year and the five-year average. Thirty-one percent of the 2023 winter wheat crop was rated in good to excellent condition, three percentage points above the same time last year. However, 69% of the winter wheat crop in Kansas was rated in poor to very poor condition. Sixty-four percent of the spring wheat crop was seeded, sixteen percentage points above last year but 9 points below the five-year average. Thirty-two percent of the nation’s spring wheat crop had emerged, five percentage points ahead of the previous year but 8 points behind average. By May 21, oat producers had seeded 82% of the 2023 acreage, six percentage points ahead of the previous year but three points behind the five-year average. Sixty-five percent of the oat acreage had emerged, nine percentage points above last year but two points below average. Fifty-eight percent of the nation’s oat crop was rated in good to excellent condition, 13% points above the same time last year. As of May 21, 70% of the nation’s barley crop was planted, the same as last year but ten percentage points below average. Thirty-three percent of the nation’s barley crop had emerged, twelve and seventeen percentage points below last year and the five-year average, respectively.



Wheat stem rust. Races *QFCSC* and *MCCDC* were identified from wheat stem rust samples collected from Louisiana, but only race *QFCSC* was detected from the Texas sample (see [Cereal Rust Bulletin # 2](#)).

Oklahoma – On May 22, high wheat stem rust pressure was observed on variety LCS Galloway AX and a few breeding lines at the Oklahoma State University Research Station in Chickasha, Grady County.

Wheat leaf rust. Wheat leaf rust was moderate to high in the Southeast states, and the rust epidemic was reported in Georgia and North Carolina. To date, leaf rust has been observed in nine states: Texas, Oklahoma, Louisiana, Mississippi, Alabama, Georgia, North Carolina, Virginia, and Kentucky (see [Cereal Rust Bulletin # 2](#)).

Oklahoma – Wheat leaf rust was first reported in Oklahoma on May 10 at a trace level in the OSU research plots at Stillwater, Payne County. Although disease incidence and severity had increased by May 22, rust pressure is still low at this location. Severe leaf rust was observed on some varieties at the Chickasha trial plots. Low levels of leaf rust were reported in Morris, Okmulgee County, on May 16.

Alabama – In early May, moderate levels of wheat leaf rust were observed in the variety trials at Headland (Henry County), but only a trace of leaf rust was found in the trials at Prattville, Autauga County. Leaf rust at moderate severity was previously reported in Escambia and Baldwin counties (see [Cereal Rust Bulletin # 2](#)).

North Carolina – Wheat leaf rust epidemic was reported in North Carolina, especially in the eastern region. About one-third of the counties where wheat is grown had leaf rust this season. The disease developed late in the season after wheat had headed, hence, might have little to no impact on yield.

Virginia – Wheat fields in the eastern shore area of the state had severe leaf rust late in the season, but only a few lesions were present in Virginia's northern neck. The Cereal Disease Lab received four wheat leaf rust collections from Nottoway and Accomack counties. The disease incidence and severity ranged from moderate to high during sampling. The wheat crop was at the mealy ripe growth stage.

Kentucky – Low levels of wheat leaf rust were observed in research trials at Logan County in mid-May.

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](#)

2022 wheat leaf rust survey summary and results are available.

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

Wheat stripe rust. Wheat stripe rust is generally low this year. Drought conditions experienced in most parts of the south and central Plains contributed to the low or lack of *Puccinia striiformis* infection. So far this year, stripe rust has been reported in Texas, Oklahoma, Kansas, Louisiana, Mississippi, Virginia, and Washington.

Oklahoma – A few wheat stripe rust lesions were observed in the OSU research plots at Stillwater in early May. Low levels of stripe rust were previously reported in Grady and Garfield counties (see [Cereal Rust Bulletin # 2](#)).

Kansas – In addition to the previous report of trace stripe rust in irrigated fields in Edwards County, a few stripe rust lesions were found on variety Jagalene in Reno County on May 12. Wheat stripe rust is not gaining traction in Kansas and the neighboring states this year due to dry weather conditions and the late appearance of the rust.

Virginia – Low levels of wheat stripe rust were reported in the state.

Washington – Winter wheat fields in Whitman, Garfield, Columbia, Walla Walla, Franklin, and Adams counties were surveyed on May 16. There was no rust in the commercial and experimental fields scouted, similar to the outcome of the April 28, 2023 survey. However, *Puccinia striiformis* was active in the artificially inoculated trials in Whitman County. Winter wheat ranged from joint to flowering growth stages. Previously, severe stripe rust was reported in the winter nurseries at Mount Vernon, Skagit County (see [Cereal Rust Bulletin # 2](#)).

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. There was no new observation of oat stem rust since it was reported in Texas, Louisiana, Mississippi, and Florida. Oat stem rust samples tested to date were identified as race TGN (see [Cereal Rust Bulletin # 2](#)).

Oat crown rust. Oat crown rust was found in Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida.

Alabama – Oat crown rust was up to 100% incidence and 50% severity in the variety trials at Headland but about 20% incidence and 1% severity in the variety trials at Tallassee, Elmore County. Previously, severe crown rust was reported in Fairhope, Baldwin County (see [Cereal Rust Bulletin # 2](#)).

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

Barley leaf rust. No new report of barley leaf rust since the previous bulletin (see [Cereal Rust Bulletin # 2](#)).

Barley stripe rust. There was no new observation of barley stripe rust since it was reported in Washington and Arizona (see [Cereal Rust Bulletin # 2](#)).

Alternate host. Aecial infection of common buckthorn (*Rhamnus cathartica*) by crown rust pathogen is moderate in Minnesota. Mature aeciospores are released, and crown rust infection on oats is expected in 7-10 days.

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.