



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 reported in Texas and Louisiana
- Wheat leaf rust was observed in Texas, Louisiana, and Georgia
- Wheat stripe rust was found in Texas and Oklahoma
- Oat stem rust was reported in Texas and Louisiana
- Oat crown rust is widespread in Georgia. It is also present in Texas, Louisiana, and Florida
- Rye stem rust was detected in Texas.
- *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 April 25, scattered rain in the central and south Plains eased drought conditions that caused significant stress to pasture and winter wheat. The Plains experienced rapid temperature fluctuations. Cool conditions prevail in the South. In the Midwest, accumulated snow followed an unusually warm spring contributed to delayed planting. La Crosse, WI, received 9.5 inches of snow on April 16–17 after three consecutive days of high temperatures between 85–90° F. Wintry weather lingers in most parts of the Midwest since mid-April. Cold weather and scattered showers persisted in the Northwest. The below-normal temperatures limit spring grains' emergence and development, but the showers increased topsoil moisture for winter grains.

Crop conditions. According to the April 25 report, eighteen percent of winter wheat has headed nationwide, eight and four percentage points above last year and the five-year average, respectively. Twenty-six percent of the 2023 winter wheat crop was rated in good to excellent condition, one percentage point below last year. Five percent of the nation's spring wheat was seeded, seven percentage points behind last year and the five-year average. By April 23, 42% of the 2023 oat crop was seeded, four percentage points ahead of the previous year but the same as the five-year average. Twenty-eight percent of the oat acreage had emerged, one percentage point above last year but one point below average. Ten percent of the nation's barley crop was planted by April 23, thirteen and twelve percentage points behind last year and the five-year average, respectively.



Wheat stem rust. High levels of wheat stem rust were reported in Texas and Louisiana. Before 2023, wheat stem rust was last seen in the U.S. in 2021. A few pustules were observed in Texas only that year ([see Cereal Rust Bulletin 2021](#)).

Texas – Wheat stem rust was first detected on April 11 at the naturally inoculated rust nursery in Castroville, Medina County. Severity and incidence were up to 80% on susceptible cultivar Morocco. The disease was present on the stem, leaf, and head. Wheat had completed the heading growth stage during observation.

Louisiana – The first wheat stem rust in LA was observed at the Baton Rouge nursery on April 10. The wheat crop was at the ripening growth stage. The disease is high on susceptible cultivars and still spreading in the nursery.

Wheat leaf rust. Wheat leaf rust severity was high in Texas, and the disease incidence was high in Georgia, but disease levels were moderate in Louisiana.

Texas – Low levels of leaf rust were observed at the Castroville nursery on March 6. The wheat crop was at the first node visible growth stage. By mid-March, virulence to *Lr24* was spreading faster than virulence to *Lr39/41*, and this was consistent with observations in the previous years. The disease was uniform in the lower to mid-canopy on susceptible genotypes. By the second week of April, severity and incidence were high, and flag leaves were fully covered. Hard red winter Jagalene carrying *Lr24* and TAM112 carrying *Lr39/41* were rated 100S. Similarly, high levels of wheat leaf rust were observed on several genotypes used in the sentinel plots in Weslaco, Hidalgo County, and a nursery in McGregor, McLennan County.

Louisiana – Wheat leaf rust infection was slow at the beginning of the season at the Baton Rouge and Winnsboro nurseries but began to progress quickly on susceptible varieties in early April as the environmental conditions for the disease became favorable. Disease severity is moderate in Baton Rouge but low in Winnsboro. The Cereal Disease Laboratory received leaf rust samples from naturally infected cooperative nurseries in Bossier City and Baton Rouge. Wheat had completed heading during sampling.

Georgia – Wheat leaf rust was detected earlier in the season compared to previous years. The disease incidence was high across many counties, including Brooks, Colquitt, Dooly, Grady, Peach, Seminole, Sumter, and Taylor. Widespread leaf rust was common in southwest and central-east Georgia in mid-March. Moderate severity but high incidence leaf rust was reported on the breeding line at Plains Nursery (west central GA) on March 31. The wheat growth stage was at the ligule of the flag leaf visible. Weather conditions in the state changed to a cooler temperature in April, preventing new leaf rust infection.

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. Hot spots of wheat stripe rust were found in Texas and Oklahoma. Wheat stripe rust was not detected in Louisiana this growing season. According to Steve Harrison, this is an unusual year with unfavorable conditions for *Puccinia striiformis* infection. He had consistently, over many years, found stripe rust in LA except for 2023.

Texas – Hot spots of wheat stripe rust were found in the mid to upper canopy of susceptible soft red winter Patton on March 6 in Castroville. The disease did not progress when the site was revisited on March 15, and stripe rust was no longer active by April 11.

Oklahoma – Wheat stripe rust was found in research plots at the OSU south center station in Chickasha, Grady County. Severity and incidence were generally low, but there were a few hot spots.

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.

Texas – Oat stem rust was observed at low severity and incidence at the Castroville nursery in late March but became severe and uniform across the nursery by April 11. Severity and incidence increased to 80% or more.

Louisiana – Oat stem rust was severe at the Baton Rouge nursery but at low levels on spreaders at the Winnsboro nursery.

Oat crown rust. Oat crown rust is widespread in Georgia and severity varied in Texas, Louisiana, and Florida.

Texas – Crown rust was severe in nurseries at Castroville and Weslaco. Varieties Rodney, Coker 227, and Marvelous were rated 80–100S. In contrast, the disease ranged between 1–20% severity and incidence in the nursery at College Station.

Louisiana – Oat crown rust was developing rapidly in north and south Louisiana in early April. The disease was severe on susceptible cultivar Brooks in the Baton Rouge nursery (South LA) but low in Winnsboro (North LA) by the third week of April.

Florida – Crown rust was detected in mid-February. The disease appeared around a month earlier compared to previous years due to excessively high temperatures in the region. Crown rust progressed rapidly within five to six weeks, and severity ranged from 0–100% depending on the variety. Some varieties were immune, and some were killed by the last week of March before heading. Thirty-one oat crown rust collections of different varieties/lines were received at the Cereal Disease Laboratory from the uniform winter oat trial plots in Gainesville, Alachua County. Varieties/lines with high severity include Brooks, Marvelous, PC-14, 36, 38, 39, 40, 55, 56, and 68.

Georgia – Oat crown rust is widespread and severe in many counties, especially in the south and central part of the state. Growers usually apply fungicides on oat and wheat to control diseases.

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

Rye stem rust. Cereal Disease Laboratory received stem rust on spring rye Prolific from a sentinel plot in Weslaco, Texas.

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.