



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 Oklahoma, Kansas, Missouri, and Georgia.
- Wheat leaf rust was observed in 11 states but generally at low to moderate levels.
- Wheat stripe rust was found in 30 states and widespread within some states.
- Race TGN was dominant in the oat stem rust samples tested.
- Oat crown rust was reported in Kansas, Minnesota, and California.
- Barley leaf rust was detected in New York.
- Moderate barley stripe rust was observed in Washington.
- Rye leaf rust was found in Kansas and Minnesota.
- *2023 wheat leaf rust race survey results are available.*
- *Request for cereal rust observations and samples in 2024.*

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 June 11, the central and eastern U.S. experienced heavy showers and locally severe thunderstorms. Rainfall stretched from Kansas into southern Missouri toward the Mississippi Delta. This was much-needed rain, especially in the driest areas of the central Plains. Dodge City, KS, received 5.7 inches during the first 9 days of June. The northern Plains and part of the Northwest also received heavy precipitation. Most of the West except part of Washington was dry and hot. Weekly temperatures averaged 5 to 10° F above normal in most areas from Oregon and California to central and southern sections of the Rockies and southern Plains. Summer wet season occurred in the South. On June 9, topsoil moisture was rated 39% surplus in Louisiana, and 37% in Kentucky. Cool and dry weather prevails in the Midwest except for a few showers in the upper part of the region. The dry weather favors winter wheat maturation and final summer crop planting.

Crop conditions. According to the June 11 report, 89% of the nation’s winter wheat has headed, two and three percentage points above last year and the five-year average, respectively. Twelve percent of the 2024 winter wheat acreage was harvested by June 9. Forty-seven percent of the nation’s winter wheat crop was rated in good to excellent condition, nine percentage points above last year. Ninety-eight percent of the nation’s spring wheat was seeded, two percentage points ahead of the previous year and the five-year average. By June 9, 87% of the spring wheat crop had emerged, one percentage point above last year and four points above average. Seventy-two percent of the nation’s spring wheat was rated in good to excellent condition, twelve percentage points above last year. By June 9, 92% of oat has emerged nationwide, one percentage point ahead of the previous year and two points ahead of average. Forty-one percent of the 2024 oat acreage had headed, the same value as last year but five percentage points above the five-year average. Seventy percent of the nation’s oat



acreage was rated in good to excellent condition, 17 points above last year. Ninety-eight percent of the 2024 barley crop was planted by June 9, two percentage points ahead of the previous year and one point ahead of the five-year average. Eighty-three percent of the barley crop had emerged, the same as last year but three percentage points below average. By June 9, 76% of the barley acreage was rated in good to excellent condition, 18 points above the previous year.

Wheat stem rust. Wheat stem rust isolates, from Texas, Louisiana, and Florida, tested to date were identified as race QFCSC – dominant race in the United States.

Oklahoma – In mid-May, wheat stem rust was observed in winter wheat nurseries at Payne, Grady, and Kay counties. Disease severity ranged from 10 – 25S on varieties OK bullet, AP Roadrunner, and ND.

Kansas – Stem rust foci were present in the variety-demonstration plots in the south central (Sedgwick and Reno counties) and north central (Dickinson and Shawnee counties) areas in mid-May. Stem rust was up to 50% severity but about 1% incidence in plots at Ashland in Riley County. The pathogen was detected earlier than usual in the state this year. Stem rust samples from these locations were submitted to the Cereal Disease Laboratory for race identification. The wheat crop ranged from heading to grain fill growth stages. No additional stem rust was detected during the early June wheat field tours that covered the north-central and northwestern regions of the state.

Missouri – In mid-May, wheat stem rust was detected in a commercial field in Cole County and research plots in Boone County. Severity was about 2%.

Georgia – An infected soft white wheat ‘Breeding head’ sample from Sumter County was submitted to the Cereal Disease Laboratory. During sampling, stem rust was 80% severity, and the wheat crop was at the milky ripe growth stage.

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

Wheat leaf rust. Since our previous report of leaf rust in Texas, Alabama, Florida, and Virginia (see [Cereal Rust Bulletin #1](#) and [#2](#)), the disease has been observed in seven additional states.

Oklahoma – In mid-May, moderate to high wheat leaf rust severity and incidence were observed in fields in Grady and Payne counties. The wheat crop was at the ripening growth stage.

Missouri – Wheat leaf rust was first observed in mid-May.

Kansas – Wheat leaf rust was found in several counties but advanced in the south-central counties including Sedgwick, Harvey, Sumner, McPherson, and Barber. Disease was up to 40% severity in susceptible varieties. Leaf rust appeared late in the season and is unlikely to cause significant yield losses.

Nebraska – Low levels of wheat leaf rust were reported in Lancaster and Webster counties. The disease arrived late in the season and was not expected to impact yield.

Minnesota – On June 10, wheat leaf rust was found on a flag leaf in the experimental plot at the University of Minnesota Northwest Research Centers Crookston, Polk County. A low level of leaf rust was seen in a research plot at Saint Paul, Ramsey County.

Kentucky – Leaf rust at moderate severity and high incidence was observed in the wheat nursery at Princeton, Caldwell County. Low levels of wheat leaf rust were detected in a nursery at Simpson County.

Georgia – The Cereal Disease Laboratory received two wheat leaf rust collections from Pike and Sumter counties. The disease was at moderate severity during sampling.

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](#)

2023 wheat leaf rust survey summary and results are available.

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

Wheat stripe rust. Wheat stripe rust is widespread across the country this year. So far stripe rust has been reported in 30 states: Louisiana, Texas, Washington, Arizona, Oregon, Georgia, Mississippi, Alabama, North Carolina, Oklahoma, Kansas, California, Virginia, Nebraska, Indiana, Illinois, Kentucky, Tennessee, Arkansas, Maryland, Idaho, Michigan, New York, South Dakota, North Dakota, Utah, Missouri, Wisconsin, Montana, and Minnesota.

Missouri – Wheat stripe rust was found in commercial fields in Moniteau and Audrain counties in mid-May.

Kansas – Wheat stripe rust is widespread in KS and found in most counties with wheat acreage. The disease level varied but was severe in central and western Kansas. Wheat variety reactions to stripe rust were consistent with those in the previous years. Isolates virulent on SY Monument, LCS Chrome, and Bob Dole (formerly considered resistant to *Puccinia striiformis*) have increased in Kansas. Previously, wheat stripe rust was reported in 41 counties (see [Cereal Rust Bulletin #2](#)).

Nebraska – Wheat fields in the southeast, south-central, southwest, and Panhandle of Nebraska were surveyed in mid-May. Stripe rust was found in many southern counties of NE but at low levels. The disease was not detected in any of the counties visited in the Panhandle. The wheat growth stage ranges from flag leaf emerging to flowering. A follow-up survey was conducted during the week of June 10. Stripe rust was found in all the wheat-growing regions of Nebraska and was the dominant disease in these regions. The rust had progressed to a high severity level, greater than 70S on flag leaves, and was widespread in fields, especially those planted with susceptible varieties. In some fields, stripe rust had advanced from the uredinial to the telial stage. So far, stripe rust has been reported in Cheyenne, Lincoln, Chase, Frontier, Red Willow, Furnas, Harlan, Franklin, Webster, Nuckolls, Thayer, Jefferson, Gage, Johnson, Pawnee, Lancaster, Saunders, Kearney, Saline, and Antelope counties.

South Dakota – On June 7, wheat stripe rust was reported in Hughes, Tripp, Brookings, Codington, and Bon Homme counties.

North Dakota – Stripe rust was observed in Cass, Slope, and Hettinger counties in early June.

Montana – Stripe rust was first reported in wheat trials at Sidney, Richland County, on June 12. The disease ranged from 5 – 10 % severity on flag leaves. Stripe rust was also detected in a commercial field in Chouteau County. The wheat crop in the region has completed the heading growth stage.

Washington – During a follow-up visit to wheat fields in the Palouse region (Whitman County) on May 30, stripe rust pressure had increased significantly from the low canopy, previously reported, to the flag leaves of winter wheat in the germplasm screening and breeding nurseries. By June 10, disease severity was up to 90S on susceptible checks. *P. striiformis* was not found in any commercial winter and spring fields visited. The winter wheat crop ranged from boot to heading, and spring wheat from early tillering to early stem elongation growth stages. Stripe rust was reported

to reemerge in winter wheat fields previously sprayed with fungicides in central Washington due to low temperatures and cool weather conditions favoring *P. striiformis* infection and development.

Minnesota – In the last week of May, low levels of stripe rust were detected in the winter wheat nursery fields in Saint Paul, Ramsey County.

Wisconsin – Wheat stripe rust was reported in Columbia, Dodge, and Fond de Lac counties in late May.

Michigan – Stripe rust was found in 14 counties: Newaygo, Mecosta, Montcalm, Kent, Gratiot, Clinton, Ingham, Saginaw, Midland, Bay, Tuscola, Sanilac, Huron, Kalamazoo.

New York – In late May, wheat stripe rust was confirmed in Allegany, Genesee, Onondaga, Seneca, Tompkins, Livingston, and Wyoming counties. Disease incidence and severity varied across counties.

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. Race TGN is common in the oat stem rust samples tested to date. There were no new observations of oat stem rust since it was reported in Texas, Louisiana, Florida, and California (see [Cereal Rust Bulletin #2](#)).

Oat crown rust. Our previous report indicated oat crown rust in Texas, Louisiana, Florida, and Georgia (see [Cereal Rust Bulletin #1](#) and [#2](#)).

Kansas – Oat crown rust was detected in Riley County near Manhattan in the first week of June.

Minnesota – Crown was first observed on Marvelous at the research plots in Saint Paul, Ramsey County, on June 7.

California – Oat crown rust was found in Marin County in mid-May. Previously, moderate to high oat crown rust was reported in Yolo County (see [Cereal Rust Bulletin #2](#)).

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

Barley leaf rust. Trace levels of barley leaf rust were observed on Stander barley in research plots under irrigation in Ithaca, NY.

Barley stripe rust. On May 30, stripe rust had progressed to the mid-canopy in the barley nurseries near Pullman, Whitman County, WA. The barley crop was at the flowering growth stage. Barley stripe rust was previously reported in the winter nurseries at Mount Vernon, WA.

Rye leaf rust. Rye leaf rust was observed on winter rye in Kingman County, Kansas, and Ramsey County, Minnesota, in early May and mid-June.

Alternate host. As usual, widespread crown rust aecia on buckthorn (*Rhamnus cathartica*) was observed in New York and Minnesota in May. In early June, light aecial infections of common barberry (*Berberis vulgaris*) were observed in southeast MN and northeast WI.

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
Washington State University 410 SE Dairy RD, 114B - 101 Pullman, WA 99164

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.