



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 TX, OK, KS, and LA.
- Wheat leaf rust was reported in six additional states and severe in Washington.
- Wheat stripe rust is widespread in Kansas.
- Oat crown rust was observed in Minnesota.
- Barley leaf rust was found in Washington and New York.
- Barley stripe rust was reported in Washington and Arizona.
- *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 June 13, showers and thunderstorms across most parts of the Plains benefited immature winter grains, pastures, and summer crops but slowed winter wheat harvest. Warm weather persisted across the northern Plains and Northwest, and the daily high on June 7 was 97° F in Huron, SD, and 82° F in Bellingham, WA. In the Midwest, hazy conditions linger across the upper region as additional smoke from Canadian forest fires drifts southward. Dry weather favors winter wheat maturation, but many summer crops lack adequate soil moisture resulting in uneven summer crop emergence. Showers and thunderstorms extend from Arkansas to Georgia. To the south of it, hot and humid weather prevails. To the north is cool and dry air.

Crop conditions. According to the June 13 report, 89% of winter wheat has headed nationwide, four percentage points above last year and one point above the five-year average. Eight percent of the nation’s winter wheat acreage was harvested by June 11, one percentage point below the previous year and five-year average. Thirty-eight percent of the 2023 winter wheat crop was reported in good to excellent condition, seven percentage points above the same time last year. Ninety-seven percent of the spring wheat crop was seeded, five percentage points ahead of last year but equal to the 5-year average. By June 11, 90% of the nation’s spring wheat crop had emerged, 20 percentage points ahead of last year and three points ahead of average. Sixty percent of the nation’s spring wheat was rated in good to excellent condition, six percentage points ahead of last year. Ninety-three percent of the 2023 oat acreage had emerged, six percentage points above the previous year but the same as average. By June 11, 45% of the nation’s oat acreage had headed compared to 31% last year and 37% over the past five years. Fifty-three percent of the oat acreage was rated in good to excellent condition, five percentage points below the same time last year. As of June 11, 97% of the nation’s barley crop was planted, one percentage point ahead of



last year but one point behind the five-year average. Eighty-eight percent of the nation's barley crop had emerged, three percentage points ahead of the previous year but two points behind average. On June 11, 58% of the 2023 barley acreage was rated in good to excellent condition, compared to 49% at the same time last year.

Wheat stem rust. Wheat stem rust was reported in Texas, Oklahoma, Kansas, and Louisiana. Races QFCSC and MCCDC were identified from stem rust samples collected from Louisiana, but only race QFCSC was detected from Texas and Oklahoma samples (see [Cereal Rust Bulletin # 3](#)).

Kansas – Wheat stem rust was first detected on varieties LCS Atomic AX, LCS Galloway, and Crescent AX on June 2 in Lane and Thomas counties - west central and northwest regions of Kansas, respectively. After ten days, stem rust incidence at Thomas County had increased to approximately 3% and was easy to find. By mid-June, low to moderate stem rust incidence was observed on susceptible varieties in Republic, Wallace, Riley, Jewell, and Decatur counties located in the north-central, western, and northwest regions. The wheat crop in the west-central and northwest was at the milk and early dough growth stages.

Wheat leaf rust. Wheat leaf rust was seen in six additional states since the previous report. To date, leaf rust has been reported in 15 states. Disease severity was high in Washington and Southeast states (see [Cereal Rust Bulletin # 3](#)).

Kansas – Leaf rust was observed at multiple locations but developed late in the season, thus posing no threat to crop yields.

Colorado – A trace level of leaf rust was reported in Kit Carson County in the 3rd week of May.

South Carolina – A wheat leaf rust collection was received at the Cereal Disease Laboratory from Florence County.

Maryland – The Cereal Disease Lab received four wheat leaf rust collections from Howard and Prince counties in early June.

New York – Wheat fields in central and eastern New York were surveyed during the week of June 5. Only a trace incidence of leaf rust was seen in a wheat breeding plot in Ithaca, Tompkins County. No rust was found in any commercial fields visited. Winter wheat was at Feekes 10.5.1 growth stage.

Washington – Severe leaf rust was reported in germplasm screening nurseries at Mount Vernon, Skagit County. According to Xianming Chen, the level of wheat leaf rust was higher than those observed in the last five years.

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 widespread in Kansas. So far this year, stripe rust has been reported in Texas, Oklahoma, Kansas, Nebraska, Louisiana, Mississippi, South Carolina, Virginia, Kentucky, New York, California, Oregon, and Washington (see [Cereal Rust Bulletin # 3](#)).

Kansas – Wheat stripe has increased significantly across the state from two counties previously reported to 27 counties. Kansas experienced prolonged drought conditions from the start of the 2023 growing season to April. Trace stripe rust was found in May as the state began to receive drought-relieving showers. Stripe rust became established in mid-June as the wheat crop approached heading and flowering growth stages in the west-central and northwestern regions. At these locations, the disease had reached 100% incidence and 10-30% severity in the upper canopy of susceptible varieties. Elsewhere, severity was generally low, and rust was restricted to the lower leaves. According to Erick DeWolf's observations, varieties' responses to stripe rust this season were consistent with those of the previous years, suggesting there were no changes over these years in the virulence of the *Puccinia striiformis* population on common sources of genetic resistance in the state.

Nebraska – Wheat stripe rust was first reported in the state during the second week of June. The disease was confirmed in six counties in the west-central, southwest, and southern Panhandle of Nebraska. Recent showers and cool temperatures in these regions favored stripe rust development. Late arrival of the rust would limit its impact on yield. Wheat crop growth stages ranged from flowering to soft dough.

Washington – As usual, stripe rust was up to 100% severity on susceptible winter wheat varieties and up to 60% severity on spring wheat varieties in nurseries at Mount Vernon. Minute stripe rust was detected on a leaf in spreader rows of winter wheat plots in Ferry (Garfield County) on May 31. In Walla Walla County, trace stripe rust was found in spreader rows of winter wheat plots. There is no report of stripe rust in commercial fields. Winter wheat was at the soft dough growth stage.

Oregon – Stripe rust had developed to 60% severity on winter wheat under irrigation in the rust monitoring nurseries at Hermiston, but the spring wheat is not yet infected. Winter and spring wheat were at the soft dough and heading growth stages, respectively.

New York – On June 5, a localized stripe rust epidemic was observed in three growers' fields in Yates County. In one of these fields with organic production of a heritage wheat variety, the disease had progressed to the flag leaves by anthesis, and yield losses are expected. The level of stripe rust was probably due to local inoculum from overwintering *Puccinia striiformis* in the field. Wheat stripe rust was not reported elsewhere in the state.

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 were no new observations 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, Florida, and Minnesota (see [Cereal Rust Bulletin # 3](#)).

Minnesota – Oat crown rust was found at the University of Minnesota research plots in St. Paul, Ramsey County. Previously, moderate crown rust aecia infection was found on common buckthorn (see [Cereal Rust Bulletin # 3](#)).

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

Barley leaf rust.

Washington – Severe barley leaf rust was observed in the germplasm screening nurseries at Mount Vernon on June 7.

New York – A trace of barley leaf rust was found on a breeding line in the Ithaca research plot on June 19.

Barley stripe rust. Stripe rust was up to 80% severity on winter barley varieties and up to 40% severity on spring barley varieties in nurseries at Mount Vernon, Washington. Stripe rust was previously reported in Arizona (see [Cereal Rust Bulletin # 2](#)).

Alternate host. Crown rust aecia at moderate incidence and severity was present on buckthorn in central and western New York in May but no crown rust infection on oat crop yet.

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.