CEREAL RUST BULLETIN

Issued by:

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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 leaf rust is high in central Texas.
- Wheat stripe rust outbreak was reported in Georgia.
- Oat stem rust is present in Louisiana and Florida.
- High oat crown rust was found in Louisiana and Florida.
- Barley stripe rust was observed in Washington.
- *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 April 19, late-season snow accompanied by blizzard conditions occurred in the northern Plains causing harsh cold snap and weekly temperatures at least 10 – 20°F below normal. In contrast, warm and dry weather prevailed across the central and southern Plains resulting in temperatures greater than 10°F above average in some parts of the region. Chilly to freezing weather covered most areas of the West and the upper Midwest. The lowest-ever April temperatures were recorded in some Washington locations on April 15.

Crop conditions. According to the April 19 report, seven percent of winter wheat has headed nationwide, two and five percentage points lower than last year and the five-year average, respectively. Thirty percent of the 2022 winter wheat crop was rated in good to excellent condition, 23 points below last year. Eight percent of the nation's spring wheat was seeded, ten percentage points behind last year and one point behind the five-year average. By April 17, 34% of the 2022 oat crop was seeded, fourteen percentage points below last year and five points below average. Twenty-four percent of the oat acreage had emerged, six and four percentage points below the previous year and the five-year average, respectively. Seventeen percent of the nation's barley acreage was planted by April 17, seven percentage points behind last year but two points above the five-year average.

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

Wheat leaf rust. Wheat leaf rust is moderate to high in Texas but developing late in Louisiana and Georgia.

Texas – On March 2, a few scattered wheat leaf rust pustules were found on the lower canopy of winter wheat Jagalene and TAM 110 at the rust evaluation nurseries in Uvalde and Castroville, south TX. At Uvalde, leaf and stripe rust symptoms were observed on the same leaves of Jagalene. By the end of March, leaf rust had moved to the mid-canopy of susceptible genotypes at both locations. In early April at Castroville, virulence to *Lr24* was rated 40S in the lower canopy and 20S upper canopy and spreading faster than virulence to Lr39/41 or Lr21. Leaf rust severity was higher at McGregor in central TX, where susceptible varieties had reached 90S on the flag leaf. Wheat growth stages ranged from Feekes 6 to 10.

Louisiana – Wheat leaf rust was seen in south LA but developing very late.

Georgia – Wheat leaf rust was observed in Miller County on April 19. It is the first report of the disease in GA.

New York – A wheat leaf rust sample was received at the Cereal Disease Laboratory from Jefferson County, NY.

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. Stripe rust has been reported in six states: Texas, Oklahoma, Washington, Oregon, Louisiana, and Georgia. Stripe rust is severe in commercial wheat fields in Georgia but low to high in other states.

Texas – In early March, wheat stripe rust pressure on Jagalene ranged from 50 – 60% severity at the Uvalde nursery. Infection on soft-red winter Patton ranged from trace to 20S throughout the canopy levels. During the last week of March, stripe rust had spread uniformly across the field, and severity ratings were up to 80S and 50S in the lower and upper canopies, respectively. At that time, wheat growth stages were between Feekes 6 – 8.

Oklahoma – A trace level of wheat stripe rust was reported in the first week of March in Jackson County, southwestern OK. On April 11, an initial stripe rust infection was observed on the variety OK Bullet in Stillwater, Payne County (north-central OK).

Washington – Wheat stripe rust was high as usual in the winter nurseries at Mount Vernon, western Washington. The disease was up to 60% severity on susceptible varieties on April 13. In contrast, stripe rust was not found on wheat plants during the March 1 and April 15 field scout in Benton, Walla Walla, Columbia, and Garfield counties in the eastern WA, however, stripe rust was observed on wild grasses in the nurseries at Garfield County on March 30. In similar surveillance made on April 15, 2021, active stripe rust was present in the rust nurseries at Walla Walla County. Wheat growth stages ranged from Feekes 3 to 6.

Oregon – Winter wheat fields in Umatilla County were scouted on April 15, but stripe rust was only found on wild grass in the rust monitoring nursery at the Hermiston Station.

Louisiana – Wheat stripe rust was first noticed in a grower's field near Alexandria, central Louisiana, on January 19. At that time, the wheat crop had not reached the joint stage yet. In March, the rust was found in more growers' fields in the state. Stripe rust is widespread and severe in some research plots in Winnsboro, north LA, but disease pressure is lower in Baton Rouge, south LA.

Georgia – There is a wheat stripe rust outbreak in Georgia. According to Dr. Alfredo Martinez, the current growing season has been challenging for wheat growers in many counties, especially those in the southwest and center of the state. The disease was not only severe on susceptible varieties but was found on AGS 2024, which contains the *Yr17* gene considered to be resistant to *Puccinia striiformis*. Spring weather conditions in the state was prime for stripe rust development. Most of the growers sprayed fungicides to control the disease.

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 is present in Louisiana and Florida.

Louisiana – Oat stem rust appeared unusually early. The rust is typically seen in spring in LA, and the earliest appearance in recent years was January 25, 2020. In this growing season, oat stem rust was observed on December 15 in winter oat Secretariat LA495 plots at Baton Rouge in south Louisiana. Such early detection indicates a natural overwinter of stem rust. Severity was low, but rust was found scattered on multiple plots. Baton Rouge experienced warmer fall weather and heavy dew, conditions that favor stem rust infection and development. The rust spread rapidly, and by mid-April, the disease pressure had increased significantly on susceptible genotypes.

Florida – A trace amount of oat stem rust was found in the oat nursery at Citra, Marion County.

Oat crown rust. Oat crown rust pressure is severe in Louisiana and Florida but low in Texas and Georgia.

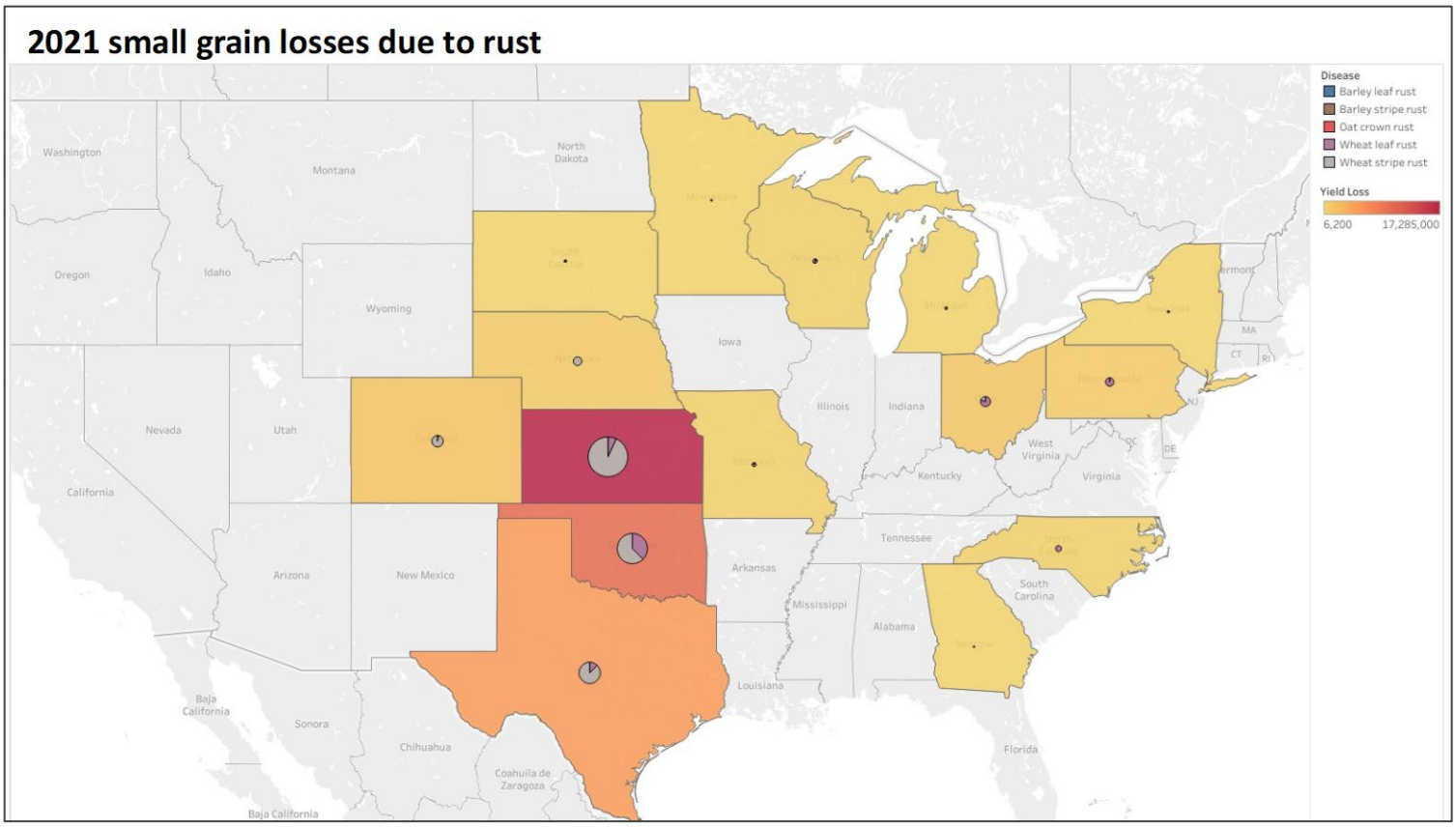
Texas – Low level of oat crown rust was found at the Castroville nursery on April 6. Oat stem rust has not been reported in the state.

Louisiana – Oat crown rust developed quickly in Baton Rouge and was severe on susceptible varieties. By the third week of April, the susceptible checks Brooks, Otana, Marvellous, and Ajay were rated 70S in the oat crown rust nursery. The crown rust population on the field appears to be the typical one based on the genotypes with known genes.

Florida – Oat crown rust pressure was higher in the oat nursery at Citra compared to a similar nursery at Baton Rouge, LA. During the third week of April, disease severity on susceptible checks had reached 90S. The oat crop was at the heading growth stage.

Georgia – Occurrences of oat crown rust were reported from the south and central Georgia.

Barley stripe rust. On April 14, barley stripe rust had reached 40% severity on susceptible varieties in the winter nurseries at Mount Vernon, Washington. The disease was relatively uniform and severe compared to observation at the same time last year.



Click for details of the 2021 small grain losses due to rust.

Click for a summary of the recent years' cereal losses.

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.