USDA ARS CEREAL RUST BULLETIN

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Issued by:

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For the latest cereal rust news from the field, subscribe to the cereal-rust-survey listserv list. To subscribe, please visit: http://www.ars.usda.gov/Main/docs.htm?docid=9970

Or, send an email to: Mark.Hughes@ars.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 increasing rapidly in plots in South Texas.
- Stripe rust hot spots have been found in eastern Arkansas and western Mississippi.
- Oat stem rust was found in South Texas.
- Barley leaf rust was found in South Texas and in eastern Virginia.
- *Request for cereal rust observations and samples in 2012*

For original, detailed reports from our cooperators and CDL staff, please visit the Cereal Rust Situation (CRS) reports page on the CDL website or click the CRS link found throughout the bulletin.

The winter wheat crop in much of the Central and South Plains is rated in good condition. Recent rains in many areas have improved soil moisture and the crop is well ahead of average in many areas due to the mild winter and warm temperatures. Soft red winter wheat is rated significantly better this year compared to last year.

Wheat stem rust. Not yet reported this year in the U.S.

Wheat leaf rust.

Texas **–** Significant rainfall and recent warm temperatures have promoted wheat growth in most of the state with the exception of parts of the High Plains that are still in need of additional rain. Leaf rust was developing in the lower canopies of spreader rows at Castroville in South Texas by March 1. By mid-March leaf rust had increased rapidly and uniformly in the spreader rows with severities of 60S-80S. Leaf rust was increasing rapidly in plots at College Station in southeastern Texas by March 7. By late March flag leaves of some lines in the plots had severities of 90-100s. Low levels of leaf rust were found in plots in Uvalde in South Texas on March 7. Leaf rust was not found in plots at Commerce in northeastern Texas on March 13. Spring wheat plots in the Rio Grande Valley in southern Texas had severe leaf rust on March 23. The cultivar Morocco was prematurely killed by leaf rust.

Oklahoma –Scattered pustules were found in Jackson County in southwestern Oklahoma in early March, otherwise, there have been no reports of leaf rust in the state so far this year (see CRS). Increased precipitation and warm temperatures are creating conditions favorable for foliar diseases.

Kansas – Leaf rust has not yet been reported in the state, however, wheat is growing rapidly due to the warm temperatures (see CRS).

Louisiana **–** Leaf rust was found at low severity and incidence in two plots at the Ben Hur Farm in Baton Rouge in southeastern Louisiana in early February, however, most of plots were rust free**.** By early March leaf rust was severe on susceptible entries in the plots (see CRS).

***Mississippi* –** Leaf rust was found in two fields in Noxubee County in eastern Mississippi in late February. The rust was found on volunteer plants in one field and at low levels in the other field.

***Arkansas* –** A trace of leaf rust was found in plots at Fayetteville in northwestern Arkansas on March 14, this is the first report of leaf rust in the state this year.

***Georgia* –** Light levels of leaf rust were found in Washington County in east central Georgia by March 19.

Wheat leaf rust 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.

Wheat stripe rust.

***Texas* –** An isolated stripe rust hot spot was found in a plot of Cedar at College Station on March 1. By March 24 the stripe rust hot spot had dried up and no other stripe rust was found in the nursery. A stripe rust hot spot was found in a Uvalde nursery on March 6. Some plots of the susceptible cultivar Patton at Commerce were heavily infected with stripe rust in early March. Stripe rust severities ranged from 30S-70S on the Patton borders at McGregor on March 19. TAM 111 had the highest plot reading at 40S while Jagger and Jagalene had trace severities.

***Louisiana* –** A few reports of stripe rust were noted in commercial fields in early March, but it does not appear it will be a major disease in the state in 2012 (see CRS).

***Mississippi* –** Stripe rust was found on a few plants in winter wheat fields in Bolivar County in northwestern Mississippi in late January. This is likely the earliest report of stripe rust in the state. By late February, hot spots had been found in many fields in northwestern part of the state. The hot spots were generally rather large, ranging from 20-60 sq feet.

Arkansas – Stripe rust was first found in wheat field in Cross County in northeastern Arkansas on January 20, this is the earliest report of stripe rust for the state. The initial infection likely occurred last fall. This is roughly two months earlier than stripe rust normally appears. By March 1 stripe was confirmed in 9 counties in east central Arkansas and by March 8 it was reported in 17 counties in the eastern part of the state. The infections ranged from individually infected leaves to large hot spots. The initial infections likely occurred in the fall and the mild winter allowed the infections to increase and spread (see CRS). Generally fields with hot spots are being sprayed with fungicides and recent warm weather may also slow the stripe rust development.

Washington – No stripe rust was found in survey of fields in Whitman, Columbia, Walla Walla, Benton, and Franklin counties in southeastern Washington in early March (see CRS).

Please send wheat and barley stripe rust collections as soon as possible after collection to:

Dr. Xianming Chen
USDA-ARS
361 Johnson Hall
P.O. Box 646430
Washington State University
Pullman, WA 99164-6430
email: xianming@wsu.edu

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.

Wheat stripe rust map. *Please visit:* (http://www.ars.usda.gov/Main/docs.htm?docid=9757).

Oat stem rust. Oat, in a seed mix windbreak in Rio Grande Valley in extreme southern Texas, had stem rust severities from trace to 80S on March 23. Moderate to severe oat stem rust was found on black oats (*Avena strigosa*) planted as a green manure crop. On March 24, oat stem rust was found on a few leaves and stems in plots at College Station.

Oat crown rust. Oat crown rust was found scattered throughout susceptible spreader rows in Baton Rouge in southeastern Louisiana on February 25. Most lines were just jointing. By March 7, the crown rust had spread rapidly in the nursery with 10% severity and 90% infected plants in the spreader rows. Oat crown rust was found in multiple spots in borders of Nora in College Station Texas on March 7. Last year with drought conditions no crown rust was found in this nursery for the first time in 34 years. By late March, oat crown was increasing in the plots and on oat in road ditches. Oat, in a seed mix windbreak in Rio Grande Valley in extreme southern Texas, had crown rust severities from trace to 80S on March 23.

Buckthorn buds had broken on lower limbs of the buckthorn hedges in the Matt Moore Buckthorn Plots at St. Paul, Minnesota on March 20.

Barley stem rust. Not yet reported in the U.S. this year.

Barley leaf rust. Barley leaf rust was severe on 2- and 6-rowed barley used as a windbreak the in Rio Grande Valley in extreme southern Texas on March 23. The plants were at heading. Barley leaf rust was heavy on lower leaves in barley plots at Mount Holly in eastern Virginia on March 22, suggesting the rust was present for some time, perhaps overwintering here.

Barley stripe rust. Not yet reported this year in the U.S.

Rye stem rust. Not yet reported this year in the U.S.

Rye leaf rust. Not yet reported this year in the U.S.

Request for cereal rust observations and samples in 2012

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). Without this assistance our job would be much more difficult. We thank all those who have assisted us in the past and hope you will continue to do so into the future!

Observations
If you have information on the cereal rust situation in your area that you would be willing to share, please email your observations to:

Mark Hughes (Mark.Hughes@ars.usda.gov)

Or, to: CEREAL-RUST-SURVEY@LISTS.UMN.EDU *

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:

- 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 for 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 for 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, a head may be included 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 24 hours 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:

   Cereal Disease Laboratory, USDA-ARS
   1551 Lindig Street
   University of Minnesota
   St. Paul, Minnesota 55108

   **** Stripe rust collections should be sent to:**

   Dr. Xianming Chen
   USDA-ARS
   361 Johnson Hall
   Washington State University
   Pullman, WA 99164-6430

Thank you in advance for your assistance!

Current cereal rust situation reports
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 Mark Hughes (Mark.Hughes@ars.usda.gov).

All messages sent to the list are archived at: http://www.ars.usda.gov/Main/docs.htm?docid=9757

Identifying rust diseases of wheat and barley
A guide developed by the multi-state extension and research committees for small grain diseases, NCERA-184 & WERA-97, is available at:

http://www.ars.usda.gov/SP2UserFiles/ad_hoc/36400500Publications/Rust_Diseases_National.pdf

*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.