CEREAL RUST BULLETIN

Report No. 5
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Reports from this list as well as all Cereal Rust Bulletins are maintained on the CDL website (*http://www.ars.usda.gov/mwa/cdl*)

- Low levels of wheat stem rust were found in North Carolina; traces were found in plots in central Kansas. Race QFCSC was identified from samples collected in a plot in northwestern Mississippi.
- Wheat leaf rust was found in plots and fields in southeastern and south central Nebraska, respectively and fields in west central Michigan. Wheat leaf rust severities reached 100S in plots in south central Kansas.
- Trace levels of leaf rust were found in winter wheat plots at St. Paul Minnesota.
- Stripe rust was found in plots in the Dakotas and Montana and fields in Minnesota, Wisconsin, Indiana, Michigan, Ontario and throughout the Central Valley in California.
- Oat crown rust was found in southern and central Kansas and southwestern Missouri.
- Barley leaf rust was found alongside roads in central Missouri and plots in southern San Joaquin Valley and UC Davis in California.
- Barley stripe rust was found in nurseries in the Sacramento and San Joaquin Valleys.

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.

Small grain development continues to be well ahead of normal in most areas east of the Rockies. The winter wheat harvest has now begun in parts of Oklahoma Arkansas, Missouri, Georgia, South Carolina and Virginia and is progressing in Texas, the Gulf States and southern wheat areas in California. The barley harvest has begun in Virginia.

Wheat stem rust. Low levels of wheat stem rust were found on multiple cultivars at an extension field day at Aurora in eastern North Carolina on May 11. The stem rust did not appear to be widespread. The wheat crop was maturing and economic losses due to stem rust are not expected. Wheat stem rust is not commonly found in North Carolina.

A few pustules of wheat stem rust were found on one stem of a McNair 701 plant in plots at Hutchinson in south central Kansas on May 16. The wheat was at milk to dough stage. Trace levels of stem rust were found in Winterhawk plots at three locations (Harper, Barber, and Ellsworth Counties) in central Kansas in mid-May.

Previously, wheat stem rust was found in plots in northwestern Mississippi (see CRS).

Race QFCSC, the most predominantly identified race east of the Rockies in recent years, was identified from collections made in plots at Schlater in northwestern Mississippi in early May.

Wheat leaf rust.

Oklahoma – The wheat harvest moved north into west central Oklahoma by May 21 by which time 14% of wheat crop was harvested.

Kansas – Leaf rust was impacting wheat in many south central counties the second week in May. Plots in south central Kansas had leaf rust severities greater than 40%. . Cultivars with high levels of leaf rust included Overley (Lr39/41), Jagalene (Lr24), Jagger (Lr17), Fuller (Lr17,Lr39/41) and PostRock (Lr39/41). Fuller and PostRock are still grown on reasonable acreage in the state. By May 17, the cultivars Jagger, Jagalene, Overley, TAM110, and others were at 100S in the nursery in south central Kansas. Fields in eastern Kansas had leaf rust severity of trace to 20% and higher in the third week of May. Leaf rust was most severe in central and northern Kansas. Wheat development in the state is still 2-3 weeks ahead of normal.

Nebraska – Wheat leaf rust increased from trace to 5% severity in the last two weeks in plots at Lincoln in southeastern Nebraska on May 17. Some lines had 30% severity on flag leaves. Many lines had both leaf and stripe rust on the flag leaves. Leaf rust was also found in fields in Clay County in south central Nebraska by May 18 and in plots at Mead in southeastern Nebraska on May 15.

Minnesota – Trace levels of leaf rust were found on lower leaves in winter wheat plots at St. Paul Minnesota, May 22. Winter wheat is at boot to heading stage in St. Paul nurseries.

Michigan – Leaf rust was beginning to appear in fields in west central Michigan by May 23**.** Most wheat in central Michigan is in heading to early flower stages.

Missouri – Leaf rust was observed at trace to 10% severities and at higher severities in small hotspots in the state the third week in May.

Illinois – Leaf rust was at low severity on several cultivars in plots in Fayette County in south central Illinois the second week of May.

Indiana – There have been no new reports since the last bulletin. Previously, leaf rust was observed at low incidence and severity in several fields in southern Indiana the second week of April.

Georgia – The winter wheat harvest is underway in Georgia with 45% of the crop harvested by May 21. In 2012, leaf rust was observed in commercial fields in central and southern Georgia. The incidence was localized to a few counties, but severity was high in a few fields in central and extreme southern Georgia. Leaf rust was found on susceptible cultivars and lines in plots in south, west central and northwestern Georgia in 2012.

North Carolina – There have been no new reports of leaf rust in North Carolina since the last bulletin. Previously, wheat leaf rust was reported as widespread in eastern North Carolina the first week of May and at low levels in central North Carolina (see CRS).

Virginia –Wheat leaf rust was at low levels, but widespread at Blackstone (Piedmont area) and Holland (Tidewater are) in southeastern Virginia the second week of May. High levels of leaf rust infections were found at Painter on the Eastern Shore area of the state**.**

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. Stripe rust was being reported across the northern plains and the Great Lake states, northwestern Montana, southeastern Washington and northeastern Oregon the fourth week of May.

Oklahoma – The wheat harvest moved north into west central Oklahoma by May 21 by which time 14% of state's wheat crop was harvested. Most wheat in central, southern, southwestern and western Oklahoma had lost their leaves by May 4. Previously, stripe rust was reported across southwestern, central, south central and west central Oklahoma, but not heavy or severe at any location surveyed (see CRB #2, CRS).

Kansas – Stripe rust was still active in fields in northwestern and north central Kansas the second week of May. Elsewhere in the state stripe rust development had slowed dramatically. Stripe rust was generally inactive in fields and plots in southern and central Kansas by the fourth week of May, though some late sporulation was usually found at trace levels. Generally, the wheat crop is 2-3 weeks ahead of normal. Previously, stripe had increased in south central and central Kansas and was most severe on cultivars previously thought to be resistant (see CRB #3, CRS).

Nebraska – Stripe rust was the predominant foliar disease in plots at Lincoln in southeastern Nebraska on May 17. Many leaves, however, had both wheat stripe rust and wheat leaf rust. Wheat was mostly in dough stages of development. Stripe rust development had slowed with the recent dry, warm weather. Previously, stripe rust was reported at low incidence and severity throughout fields in south central and southwestern Nebraska on May 3 and trace to low levels of stripe rust were reported in fields in the southern and central Nebraska Panhandle on May 4-5 (see CRS).

Colorado – There have been no new reports since stripe rust was found at low levels in Phillips County in eastern Colorado in early May.

South Dakota – Wheat stripe rust was found on the cultivars McGill, Robidoux, Jagalene and Smoky Hill in plots in Tripp County in south central South Dakota on May 23. Stripe rust was also found in Lyman County (fields) and Hughes County (plots) in south central South Dakota and Pennington County (fields) in southwestern South Dakota by May 24.

North Dakota – Stripe rust was found in a field of the cultivar Mayville west of Grand Forks in east central North Dakota the fourth week of May.

Minnesota - Traces of wheat stripe rust were found on winter wheat at late boot to heading stage in plots at St. Paul, on May 21. Stripe rust was found at low incidence and severity in fields in Lyon County in southwestern Minnesota the fourth week of May.

Wisconsin – Low levels of stripe rust were found on flag leaves in a winter wheat field in Dodge County in southeastern Wisconsin on May 18. The wheat was beginning to flower. No rust was found in 14 other wheat fields scouted.

Michigan – Stripe rust was appearing in central Michigan fields by May 24. In one field 10% of the flag leaf area was covered with pustules. Most wheat in central Michigan is in heading to early flower stages. Further spread and development is anticipated.

Illinois – Stripe rust had been found across the southern two thirds of the state by May 10. Depending on the cultivar, stripe rust severities ranged from 0 to 75% on flag leaves. Previously, stripe rust was reported across several southern counties on April 19.

Indiana – Stripe rust was severe in fields in west central Indiana in late May. Previously, stripe rust was observed at low incidence and severity in a field in southern Indiana the second week of April.

***Missouri* -** Stripe rust was inactive in fields in southern and central Missouri, though some late sporulation was usually found at trace levels. Stripe rust had been very severe before becoming inactive in many fields. Unsprayed variety plots at Novelty, in northeastern Missouri, displayed over 60% severities on a few unknown lines. Overall, stripe rust severities were low to moderate (5-20%) in the yield trial nursery.

***North Carolina* –** There have been no new reports since the last bulletin. Previously, stripe was reported in the Coastal Plain, south central, east central North Carolina and a plot in southeastern North Carolina (see CRB #3, CRS).

***Delaware* –** Stripe rust was found scattered in a few fields in Kent Count in central Delaware in early May.

California – Wheat stripe rust was found throughout the Central Valley by early May. By May 23, stripe rust increased in distribution, incidence and severity. The highest severities were observed in UC Davis nurseries on only a few cultivars. Stripe rust was most severe in plots in the Sacramento/San Joaquin Delta (site west of Stockton) and the UC Davis Agronomy Farm and later in the growing season, in Fresno and King counties in the San Joaquin Valley. Among the cultivars grown on significant acreage in California, Joaquin was most severely affected. Other cultivars with severe stripe rust included Anza, Mika, Joaquin, Redwing, Cristallo and several advanced breeding lines (see CRS). Among previously resistant cultivars, Redwing showed moderately severe levels of stripe rust at the widely separated locations of the Sacramento/San Joaquin Delta site and the Kings county site (Corcoran). Also, for the first time, infection (though only of moderate severity) was detected on the variety Blanca Fuerte.

***Washington, Oregon* –** Stripe rust was found in Columbia, Walla Walla, Benton, Franklin and Adams counties in southeastern Washington and Umatilla County in northeastern Oregon on May 22. Stripe rust was also found in plots near Pullman in Whitman County. In nurseries near Walla Walla 40% severities were found in susceptible spreader rows. Winter wheat fields ranged from Feekes 9 to Feekes 10.5 growth stage; spring wheat ranged from not emerged to Feekes 4 growth stage. Stripe rust disease pressure in the area is relatively low compared to 2010 and 2011, however, rapid stripe rust increases are likely in the next two to three weeks (see CRS).

***Idaho* –** To date there have been no reports of stripe rust from southeastern to western Idaho. Anticipated cooler weather and high winds likely delivering spores from the west may create favorable conditions for stripe rust development.

***Montana* –** Stripe rust was found in winter wheat nurseries in Kalispell in northwestern Montana on May 10. The disease levels are currently low and not progressing rapidly.

***Ontario, Canada* -** Stripe rust was found in a 100 acre commercial field of Pioneer 25R47 in the Chatham area (~ 50 miles east of Detroit) on May 22. The field incidence was 2-3% with severities ranging from 0 to 60%. The wheat ranged from Feekes 10.0 to 10.5. The stripe rust was only found on the flag leaves. There were issues with the Nitrogen application to the field resulting strips of high N and low N. Stripe rust was only found in the high N areas. Stripe rust was also found in another field 10 miles away.

Stripe rust samples
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. There have been no new reports of oat stem rust at locations other than reported earlier (extreme southern Texas and College Station Texas (see CRB #1).

Oat crown rust. Oat crown rust was found on oat planted as an alfalfa nurse crop in southern and central Kansas and southwestern Missouri in mid-May. Previously, crown rust was reported in plots in North Carolina, Louisiana and Texas (see CRS).

The first crown rust infections on oat from aecia on buckthorn, in the Matt Moore Buckthorn Plots at St. Paul, Minnesota, were observed on oat spreader rows on May 14. This is about 3 weeks earlier than normal in recent years. Pycnia and aecia on the buckthorn appeared more than a month earlier than normal.

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

Barley leaf rust. Barley leaf rust at moderate severities was found in a couple plots in Fresno County in the southern San Joaquin Valley and plots at UC Davis in California by early May. In mid-May, barley leaf rust was found on volunteer barley growing on the side of the road in Cooper County in central Missouri. Previously, barley leaf rust was reported in east central Georgia, Delaware, Virginia and extreme southern Texas (see CRS).

Barley stripe rust. Barley stripe rust was at low severities in nurseries in the Sacramento and San Joaquin Valleys by late May (see CRS). Barley stripe rust was also found in western Oregon and western Washington (see CRS) by late May.

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

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

Rust on barberry. Pycnia were found on leaves of a barberry bush near Potlach in northern Idaho on May 14. The pycnia appeared about the same time as last year which is about a week later than normal. Aecial infections on common barberry were observed at several locations in east and southeast Wisconsin. Results of inoculation experiments indicated aecial infections on common barberry from southeast Minnesota (CRB #3) were of rye stem rust (*Puccinia graminis* f. sp. *secalis*).