USDA ARS CEREAL RUST BULLETIN

Report No. 7
June 26, 2013

Issued by:

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- Low levels of wheat stem were found in plots in south central Wisconsin and south central Kansas.
- Wheat leaf rust increased rapidly in plots and fields in southeastern Nebraska and eastern Virginia.
- Wheat leaf rust was reported in Minnesota and Wisconsin.
- Stripe rust is spreading on susceptible winter wheat cultivars in southern and eastern Idaho.
- Low levels of barley leaf rust were found in plots and fields in central and western New York.

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 U.S. winter wheat crop was 95% headed or beyond by June 23. Overall, 32% of the U.S. winter wheat crop was reported in good to excellent condition. Twenty percent of the U.S. winter wheat crop was harvested by June 23, 17% behind the 5-year average. The winter wheat harvest has progressed as far north as northern Kansas, parts of Ohio and Indiana to Virginia.

By June 23, 96% of the spring wheat crop was sown, 3% behind the 5-year average. Overall, 70% of the crop was reported in good to excellent condition up 8% from two weeks ago. Timely rains in the Pacific Northwest improved crop conditions. Fifty three percent of the oat crop was at or beyond heading by June 23, 12% behind the 5-year average. Overall, 57% of the crop was reported in good to excellent condition. Ninety three percent of the barley crop was sown by June 23, 5% behind the 5-year average. Additional rain in North Dakota limited planting progress there. Overall, 69% of barley crop was reported in good to excellent condition.

Wheat stem rust. Very low levels of wheat stem rust were found in winter wheat plots at Janesville in south central Wisconsin on June 20. The stem rust was localized to several plots. Wheat was at milk to early dough growth stages. Low levels of wheat stem rust were found in plots at Hutchinson in south central Kanas on June 14. To date, wheat stem rust has also been found at low levels in plots in central Oklahoma and central Missouri, volunteer wheat in southeastern Missouri and a few plants in a field in west central Mississippi.

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

Wheat leaf rust.

Kansas – There have been no new reports from the state since the last bulletin when low levels of wheat leaf rust were reported in fields in south central Kansas and plots in north central and northeastern Kansas (see CRS). No rust had been reported in Ellis, Rush, Ness, Lane and Russell Counties in central and west central Kanas where the wheat is in very poor condition due to drought.

Nebraska – Wheat leaf rust development increased rapidly the last couple of weeks in winter wheat plots and surrounding fields at Mead and Lincoln in southeastern Nebraska. Flag leaves of susceptible lines had high severities

and the rust was widespread in the fields. Leaf rust was also observed in fields in south central Nebraska. Wheat was mostly in dough growth stages.

Iowa – There have been no new reports from the state since trace amounts of wheat leaf rust were reported in a field in Lee County in extreme southeastern Iowa on June 8.

Missouri – There have been no new reports from the state since wheat leaf rust was found in plots in west central and central Missouri and fields in northeastern Missouri in early June (see CRS).

Minnesota – Trace levels of wheat leaf rust were found in winter wheat plots in southeastern Minnesota on June 14. The infections were highly localized and not distributed throughout the plots**.**

Wisconsin – Very low levels of wheat leaf rust were found on winter wheat in plots at Janesville in south central Wisconsin on June 20.

Michigan – Wheat leaf rust was found in plots at Mason in central Michigan in mid-June**.**

North Carolina –There have been no new reports from the state since wheat leaf rust was reported in plots in eastern and east central North Carolina (see CRS).

Virginia – Leaf rust was severe on susceptible lines in plots at Warsaw in eastern Virginia on June 11. A few weeks earlier only trace amounts of wheat leaf rust were found in the plots. Previously, low levels of wheat leaf rust were reported in plots in western Virginia and low to moderate levels in plots in eastern Virginia in late May.

New York – Low levels of wheat leaf rust were observed on winter wheat in central and western New York the fourth week of June.

Ontario, Canada – Trace amounts of wheat leaf rust were found in winter wheat plots at Ridgetown in southwestern Ontario (about an hour east of Detroit) on June 21.

Wheat leaf rust races identified to date from 2013 collections.

Virulence code	Virulences	State	No. of isolates
MBDSB	1,3,17,B,10,14a,	TX	1
MBDSD	1,3,17,B,10,14a,41	TX	3
MBPSB	1,3,3ka,17,30,B,10,14a,	TX	4
MBPSD	1,3,3ka,17,30,B,10,14a,41	TX	1
MBTNB	1,3,3ka,11,17,30,B,14a,	LA, MS	3
MCTNB	1,3,26,3ka,11,17,30,B,14a,	LA	4
MDPSB	1,3,24,3ka,17,30,B,10,14a,	TX	2
MFNSB	1,3,24,26,3ka,17,B,10,14a,	TX	2
MFPSB	1,3,24,26,3ka,17,30,B,10,14a,	TX	5
MLDSD	1,3,9,17,B,10,14a,41	TX	2
MMPSD	1,3,9,26,3ka,17,30,B,10,14a,41	TX	1
PBDGJ	1,2c,3,17,10,28,41	TX	2
PCDGJ	1,2c,3,26,17,10,28,41	TX	2
TBBGJ	1,2a,2c,3,10,28,41	TX	1
TBBGS	1,2a,2c,3,10,21,28,41	TX	1
TCTSB	1,2a,2c,3,26,3ka,11,17,30,B,10,14a,	LA	2

TDBJG	1,2a,2c,3,24,10,14a,28	TX	1
TDBJQ	1,2a,2c,3,24,10,14a,21,28	TX	3
TFPJB	1,2a,2c,3,24,26,3ka,17,30,10,14a,	TX	1
TNBGJ	1,2a,2c,3,9,24,10,28,41	TX	2
TNBJJ	1,2a,2c,3,9,24,10,14a,28,41	TX	3
Total			46

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.

***Kansas* –** There have been no new reports from the state since trace amounts of wheat stripe rust were found in fields in south central Kansas and trace to low levels were found in plots in north central and northeastern Kansas in early June. Stripe rust has generally not developed much in the state this year, likely due to the higher temperatures.

***Nebraska* –** Stripe rust at low incidence and trace to moderate severity was observed in the Nebraska Panhandle on June 25. In plots at Sidney, in the southern Panhandle, stripe rust was easy to find and hot spots with severities ranging from trace to 35% were found. Recent rains in the area favored stripe rust development. Similar severities and hot spots were found in a dryland field in the northern Panhandle that appeared stressed from lack of moisture. Wheat in the Panhandle was in the early to late dough growth stages. Significant additional stripe rust development is not expected in the Panhandle due to higher summer temperatures and lack of continuous moisture in this area. Stripe rust incidence in plots at Mead and Lincoln in southeastern Nebraska remained generally low, but there were some hot spots at Mead by June 20. Warm temperatures have slowed stripe rust development in the hot spots. Stripe rust was also found in fields in Clay and Nuckolls Counties in south central Nebraska. Wheat was mostly in dough growth stages.

***Missouri* –** There have been no new reports from the state since stripe rust was reported in plots in west central and central Missouri and in fields in southeastern and east central Missouri (see CRB #6).

Illinois – There have been no new reports from the state since stripe rust at low incidence and severity was reported in southwestern and south central Illinois the fourth week of May and there was no new development or spread of stripe rust previously reported in east central Illinois.

***Wisconsin* –** Stripe rust increased to 100% incidence and 75% severity on susceptible winter wheat cultivars in plots at Janesville in south central Wisconsin by June 20. Wheat was at milk or early dough stage.

***Michigan* –** Wheat stripe was observed on susceptible soft winter wheat plots in Allegan (western Michigan), Ingham (central Michigan) and Lenawee (southern Michigan) Counties the week of June 9. The plants were one to two weeks past early flowering. Severities up to 50% were observed on a few leaves (flag and #2 leaf) of the cultivar Red Ruby in Allegan County. Stripe rust was not found in plots in eastern Michigan.

North Carolina – There have been no new reports from the state since severe stripe rust was in plots in central North Carolina and low levels were reported in plots in eastern North Carolina (see CRS).

Virginia – Stripe rust in plots at Blacksburg in western Virginia had increased to 90% severity on highly susceptible lines. Previously, low levels of stripe rust were reported in plots in eastern and southern Virginia (see CRS).

Delaware – There have been no new reports since the report of low levels of stripe rust in commercial winter wheat fields in eastern Kent County on May 14. At that time there had been no reports of rust in Newcastle or Sussex County.

New York – Trace levels of wheat stripe rust were found in a commercial field of the soft red winter wheat Emmit in Hamlin in northwestern New York on June 20. This is the first report of stripe rust in the state in 2013.

Vermont – There appears to be significant stripe rust development in the state, we hope to have more details soon.

Idaho – Wheat stripe rust continued to develop on the soft white wheat cultivar Brundage and other susceptible winter wheat cultivars throughout southern and eastern Idaho in mid-June. With recent favorable conditions for stripe rust development it is anticipated that stripe rust will begin showing up in spring wheat fields. For more information and details on susceptible cultivars grown in Idaho please see CRS.

Washington – There have been no new reports from the state since stripe rust was reported in plots near Pullman, on May 23 and only one pustule was found in commercial fields in the area. No rust was found in spring wheat fields. Most winter wheat fields in central and southeastern Washington were treated with fungicides and this, in combination with dry conditions and high temperatures in early May, limited stripe rust infections and development.

Ontario, Canada – High levels of stripe rust (100% incidence up to 30% severity) were observed on the soft read winter wheat cultivar Brooklyn in plots at Ridgetown in southwestern Ontario (about an hour east of Detroit) on June 21.

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 since it was reported in plots in southeastern Louisiana (early April) and in southern Texas (late February and again in early May, see CRS). Race TJS was identified from collections made in late February in southern Texas.

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

Oat crown rust. Oat crown rust continues to develop at the USDA-ARS buckthorn nursery in St. Paul, Minnesota. Buckthorn plants and inoculated spreader rows displayed high severities of oat crown rust and the disease is developing in the entry rows and hill plots. Previously, **c**rown rust was confirmed in a field in southeastern Mississippi, several oat fields from southwestern to east central Georgia, plots in southeastern Texas, the Florida panhandle and in southeastern Louisiana.

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

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

Barley leaf rust. Barley leaf rust has been observed in plots at Corvallis, Oregon. Low levels of barley leaf rust were found on winter barley in plots and fields in Cayuga, Livingston, Monroe, and Tompkins Counties central and western New York the fourth week of June. Previously, barley leaf rust was reported as widespread in winter barley plots in northwestern Washington and in plots in eastern and western Virginia (see CRS).

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

Barley crown rust. Trace levels of barley crown rust were observed on Aim barley at the early boot stage in the buckthorn nursery at St. Paul, Minnesota.

Stripe rust on barley. There have been no new reports of barley stripe rust since barley stripe rust was reported in a winter barley plot in southeastern Washington. Previously stripe rust was reported in winter barley plots in northwestern Washington and on wild barley in Yolo County, California (see CRS).

Rye stem rust. There have been no new reports of rye stem rust. Previously, stem rust was reported as severe on *T. monoccum* (Einkorn) at Feekes 10.5 growth stage in a plot at Davis, California on May 6. The rust on the Einkorn has been tentatively identified as rye stem rust.

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

Rust on other grasses. There have been no new reports of rusts on grasses since rust was reported on *Aegilops cylindrica* in a nursery in central Kansas, stem and stripe rust were found on *Lolium* sp. (possibly *L. multiflorum*) in southeastern Missouri and crown rust was reported on Italian ryegrass in northwestern Mississippi (see CRB #4, CRS).

Rust on barberry. Light amounts of aecial infection were found on common barberry (*Berberis vulgaris*) in eastern Wisconsin this week. Previously, light amounts of early aecial infections were observed on common barberry in southeastern Minnesota and south central Wisconsin.

Rust on buckthorn. Oat crown rust continues to develop at the USDA-ARS buckthorn nursery in St. Paul, Minnesota. Common buckthorn plants (*Rhamnus cathartica*) and inoculated spreader rows displayed high severities of oat crown rust and the disease is developing in the entry rows and hill plots. Trace levels of barley crown rust were observed on Aim barley at the early boot stage in the buckthorn nursery. Previously, crown rust aecia were reported on common buckthorn in southeastern Minnesota and northwestern Wisconsin in early June and in central New York in late May.