CEREAL RUST BULLETIN

Report No. 8
July 17 2014

Issued by:

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Or, send an email to: Mark.Hughes@ars.usda.gov

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- Wheat stem rust was found in nursery plots in eastern South Dakota and southwestern Minnesota.
- Wheat leaf rust was found in plots in Minnesota and South Dakota.
- Low levels of wheat stripe rust were observed in a nursery plot in eastern South Dakota.
- Oat crown rust was heavy in fields and plots in southern Minnesota and southeastern South Dakota.

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 links found throughout the bulletin. The cereal rust observation maps (Maps) can also be found on the CDL website.

Cool wet conditions in the northern Great Plains that had slowed winter wheat maturation and spring-sown crop development eased last week. Hot dry weather dominated California and the Pacific Northwest areas.

The U.S. winter wheat crop was 69% harvested by July 12, slightly ahead of the 5-year average. By July 12, 69% of the spring wheat crop was at or beyond heading, slightly ahead of the 5-year average. Seventy percent of the spring wheat crop was reported in good to excellent condition.

Ninety percent of the oat crop was at or beyond the heading stage by July 12, two points behind the 5-year average. Twenty nine percent of the oat crop was harvested. Sixty four percent of the oat crop was reported in good to excellent condition. The spring barley crop was 83% headed or beyond by July 12, six points ahead of the 5-year average. Barley development was well ahead of average in the Pacific Northwest, but well behind average in Minnesota. Sixty four percent of the barley crop was reported in good to excellent condition.

Wheat stem rust. Trace levels of wheat stem rust were found in plots of the cultivar Rubidoux in Brookings County in eastern South Dakota the second week of July. On July 10, trace to moderate levels of wheat stem rust were found in plots of the susceptible spring wheat cultivar Baart in plots at Lamberton in southwestern Minnesota. Wheat stem rust has yet to be reported in commercial fields this year. Previously, stem rust was reported in nurseries in Texas, Louisiana, Arkansas, North Carolina, Kansas, Nebraska and Wisconsin (see CRS). Race QFCSC, the most commonly identified wheat stem rust race in recent years, was identified from collections made at Weslaco and Castroville in South Texas and Lincoln in southeastern Nebraska.

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

Wheat leaf rust. Leaf rust has been found at low levels in the northern Great Plains.

South Dakota – Leaf rust was still at moderate to high levels in winter wheat plots in Brookings County in eastern South Dakota the second week of July. Leaf rust was first found in the plots in late June. Low levels of leaf rust were found in adjacent spring wheat plots.

Minnesota – Wheat leaf rust was observed at trace levels in plots of spring wheat in southern Minnesota on July 10. In a plot of Marshall wheat with *Lr2a*, *Lr10* and *Lr34*, heavy leaf rust infections were found. Plots of winter wheat had light to heavy leaf rust infections. Previously, leaf rust was found at very low levels in plots at St. Paul in southeastern Minnesota in late June.

North Dakota – Wheat leaf rust, at low levels with severities between 5 and 10%, was found on the lowest leaves in plots at Fargo on July 2.

Wisconsin – Trace levels of leaf rust were observed in fields and plots in northeastern Wisconsin the second week of July. This season wheat leaf rust was observed on several cultivars in wheat growing areas of Wisconsin. Flag leaf severities were 10% or less and the rust generally did not appear until late in the growing season.

Wheat leaf rust races identified to date from 2014 collections.

Virulence code	Virulences	State	No. of isolates
MBDSB	1,3,17,B,10,14a,	TX	1
MBDSD	1,3,17,B,10,14a,39	TX	16
MBPSD	1,3,3ka,17,30,B,10,14a,39	TX	2
MBTNB	1,3,3ka,11,17,30,B,14a,	LA	1
MCDSB	1,3,26,17,B,10,14a,	TX	3
MCDSD	1,3,26,17,B,10,14a,39	TX	8
MCTNB	1,3,26,3ka,11,17,30,B,14a,	LA	1
MFNSB	1,3,24,26,3ka,17,B,10,14a,	TX	2
MFPSB	1,3,24,26,3ka,17,30,B,10,14a,	TX	1
MLDSD	1,3,9,17,B,10,14a,39	TX	5
MLPSD	1,3,9,3ka,17,30,B,10,14a,39	TX	7
MMDSD	1,3,9,26,17,B,10,14a,39	TX	1
MMPSD	1,3,9,26,3ka,17,30,B,10,14a,39	TX	7
PBDQJ	1,2c,3,17,B,10,28,39	TX	2
PBDSJ	1,2c,3,17,B,10,14a,28,39	TX	1
PLDDJ	1,2c,3,9,17,14a,28,39	TX	1
TBBGJ	1,2a,2c,3,10,28,39	TX	6
TBBGS	1,2a,2c,3,10,21,28,39	TX	1
TCLJG	1,2a,2c,3,26,3ka,10,14a,28	TX	1
TLBGJ	1,2a,2c,3,9,10,28,39	TX	1
TNBGJ	1,2a,2c,3,9,24,10,28,39	TX	12
TNBJJ	1,2a,2c,3,9,24,10,14a,28,39	TX	3
TPBGJ	1,2a,2c,3,9,24,26,10,28,39	TX	2
Total			85

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.

Washington, Idaho – In an early July survey of fields in the Palouse region of Washington and Idaho (Whitman and Spokane Counties in eastern Washington and Latah County in northwestern Idaho) stripe rust was only found in one winter wheat field in Whitman County and one winter wheat field in Spokane County. One or two small hot spots (<1 foot diameter) with mixed resistant and susceptible reactions were found in the fields. Stripe rust was found in about 60% of the spring wheat fields in Whitman County and about 40% in Latah and Spokane Counties. When found in the spring wheat fields the incidence was less than 1%. Stripe rust may increase in fields with susceptible and moderately susceptible cultivars due to rains in mid and late June. However, most cultivars should do fine due to the generally low disease pressure and adult plant resistance.

Stripe rust was found in areas of eastern and southern Idaho, but only on the soft white winter wheat cultivars Brundage and WB 470 by early July. Winter wheat was in flowering to milk stages.

Montana – There have been no new reports from the state since the bulletin 6. Wheat stripe rust was previously reported on the cultivar Yellowstone in the Hardin area south central Montana in late May (see CRB #5).

South Dakota – Trace levels of wheat stripe rust were found in winter wheat plots at Brookings in eastern South Dakota on July 10. This is the first report of stripe rust in the state. Increasing temperatures will likely preclude significant development.

Alberta, Canada – Low to moderate levels of wheat stripe were found in commercial winter wheat fields and plots in the Beaverlodge area in west central Alberta (see CRS) in early July.

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

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361 Johnson Hall
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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 stem rust was found in plots in DeKalb County in north central Illinois on July 10. A focus of oat stem rust was found in oat plots in St. Paul, Minnesota on July 16. Previously, oat stem rust was reported in Louisiana and central and southeastern Texas.

Oat crown rust. Oat crown rust was found at moderate to high incidence and severity in plots in DeKalb County in north central Illinois on July 10. Crown rust was heavy in oat fields and plots from southern Minnesota to southeastern South

Dakota on July 10. The abundant rain this spring and early summer in these areas created favorable conditions for buckthorn infection and the resulting aeciospores that infect oat. Low levels of crown rust were found on the lower leaves of spring oats at Chilton and Arlington in eastern and south central Wisconsin, respectively. Crown rust was observed on volunteer oat in plots at Blacksburg in western Virginia the first week of July.

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

Barley stem rust. Barley stem rust was found on barley in plots at Lincoln in southeastern Nebraska in early July. Due to severe winter injury the barley development was delayed. As is often the case there, stem rust can develop on late maturing barley. This is the first report of barley stem rust in 2014.

Barley leaf rust. Barley leaf rust at high incidence and low to high severity was found in plots at Corvallis in western Oregon on June 25. Barley was at Feekes 11.2 stage. Previously, barley leaf rust was reported in plots in eastern and western Virginia and northwestern Washington (see CRS).

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

Barley stripe rust. Stripe rust was reported in a spring feed barley field in south central Idaho in early July. The barley was in milk to soft dough stage.