CEREAL RUST BULLETIN

Report No. 8
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Issued by:

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- Low levels of wheat stem rust were observed in South and North Dakota and plots in Minnesota.
- Low to moderate levels of wheat leaf rust were observed in South and North Dakota and plots in Minnesota and New York.
- Stripe rust was very widely distributed in the U.S. in 2012.
- Stripe rust disease pressure is high in southeastern Washington and northeastern Montana.
- Oat stem rust was observed in the Dakotas, Minnesota and New York.
- Low levels of oat crown rust were observed in South and North Dakota, New York and plots in Minnesota.

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 harvest is now underway in parts of Montana and Utah while the spring wheat harvest has begun in areas of South Dakota and Minnesota. The oat harvest has begun in parts of South and North Dakota, Minnesota and Michigan. The barley harvest has begun in North Dakota. The small grain harvest east of the Rockies generally is well ahead of average by two to three weeks. Eighty eight percent of the winter wheat crop and 38% of the oat crop was harvested by the end of last week, 15% and 24% ahead of the 5-year average, respectively.

Wheat stem rust. Stem rust was found in a few counties of central and southern Michigan just prior to crop senescence in late June. Low levels of stem rust were found scattered in plots of winter and spring wheat in Tompkins County in south central New York in early July, but it had not been reported in commercial fields in the state. The winter wheat harvest in New York began in late June.

Stem rust was widespread, but at very low levels in north central and northeastern South Dakota and southeastern North Dakota in mid-July. Many fields in this area were treated with fungicides thereby reducing the incidence of stem, leaf and stripe rust. Stem rust was also present at low levels in plots in west central and south central Minnesota.

To date, race QFCSC, the predominantly identified race in recent years, is the only race identified from 2012 collections except for one collection made on a McNair 701 plot in Hutchinson, Kansas that was identified as MCCDC.

Wheat leaf rust.

Minnesota – Leaf rust was found at low to moderate levels in resistant plots in west central Minnesota in mid-July. Plots of Fuller (*Lr21*) had leaf rust severity of 30S while susceptible cultivars had severities of 50-60S. Wheat leaf

rust is generally increasing in the state with high incidences and severity reported in Otter Tail County in west central Minnesota. Previously, low levels of leaf rust were found in plots in southeastern Minnesota.

North Dakota **–** Low levels of wheat leaf rust were found in fields and plots in southeastern North Dakota in mid-July. Previously, trace levels of leaf rust were found in eastern and southwestern North Dakota in mid-June.

Michigan **–**Leaf rust developed late in the season, but had some limited yield impact on the most susceptible cultivars.

New York – Leaf rust was found at low levels in spring wheat plots in Tompkins County in south central New York in early July. Previously, leaf rust was found at low severity and incidence in fields in northwestern New York and in plots in south central New York in late May.

Manitoba, Canada – Leaf rust was observed in winter wheat plots at Carman in south central Manitoba in late July. Lower leaves of some plants showed heavy infection.

Wheat leaf rust races identified to date from 2012 collections.

Virulence code	Virulences	No. of isolates
MBDSD	1,3,17,B,10,14,39/41	3
MBTNB	1,3,,3ka,11,17,30,B,14a	3
MCDSB	1,3,26,17,B,10,14a	3
MCDSD	1,3,26,17,B,10,14a,39/41	2
MCNSB	1,3,26,3ka,17,B,10,14a	1
MCRJG	1,3,26,3ka,11,30,10,14a,28	1
MCTNB	1,3,26,3ka,11,17,30,B,14a	4
MDNSB	1,3,24,3ka,17,B,10,14a	2
MFBSB	1,3,24,26,B,10,14a	1
MFDSB	1,3,24,26,17,B,10,14a	4
MFNSB	1,3,24,26,3ka,17,B,10,14a	2
MFPSB	1,3,24,26,3ka,17,30,B,10,14a	3
MLDSD	1,3,9,17,B,10,14a,39/41	7
MMPSD	1,3,9,26,3ka,17,30,39/41	1
PCDQG	1,2c,3,26,17,B,10,28	1
TBBGJ	1,2a,2c,3,10, 28,39/41	6
TBBQJ	1,2a,2c,3,B,10,28,39/41	1
TBRKG	1,2a,2c,3,3ka,11,30,10,14a,18,28	3
TCGJG	1,2a,2c,3,26,11,10,14a,28	1
TCRKG	1,2a,2c,3,26,3ka,11,30,10,14a,18,28	5
TDBGJ	1,2a,2c,3,24,10,28,39/41	1
TFGJG	1,2a,2c,3,24,26,11,10,14a,28	1
TFPSB	1,2a,2c,3,24,26,3ka,17,30,B,10,14a	1
TNBGJ	1,2a,2c,3,9,24,10,28,39/41	12
TNBJJ	1,2a,2c,3,9,24,10,14a,28,39/41	5
TPBGD	1,2a,2c,3,9,24,26,10,39/41	1
TPBGJ	1,2a,2c,3,9,24,26,10,28,39/41	3
TPBQJ	1,2a,2c,3,9,24,26,B,10,28,39/41	1
Total		79

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. In 2012, stripe rust was very widely distributed in the U.S., reaching from the west coast to the east coast and from Texas to North Dakota.

***South Dakota* –** Traces of old stripe rust infections were found in some fields in southeastern South Dakota the second week of July, it appeared most fields were earlier sprayed with fungicides. The winter wheat crop was 82% harvested by the end of last week while 12% of the spring wheat crop was harvested.

***North Dakota* –** Traces of active stripe rust were found in two fields in southeastern North Dakota the second week of July. Many fields were treated with fungicides. Previously, stripe rust was reported across the state on both winter and spring wheat cultivars.

Minnesota – Stripe rust was still prevalent across the state the second week of July, but development had slowed considerably by the third week of July due to high temperatures. Previously, it was noted that the cultivar Faller was one of the most impacted cultivars in the state, while stripe rust was also found on Vantage.

***Washington* –** Stripe rust had reached 100% severity on susceptible winter wheat entries in plots near Walla Walla and Pullman in southeastern Washington by late June. Stripe rust had reached 50% severity in the Walla Walla spring wheat plots and 30% in the Pullman spring wheat plots. Despite the heavy disease pressure low levels of stripe rust were found in commercial spring and winter wheat fields in the area due to cultivar resistance and fungicide applications.

***Idaho* –** Low levels of stripe rust were appearing in winter and spring wheat in southeastern Idaho in early July. Previously, stripe rust was reported in a field in northwestern Idaho, three fields in central Idaho and plots in southwestern Idaho (see CRB 7).

***Montana* –** Stripe rust developed and spread quickly resulting in a severe outbreak in areas south of Richland in Valley County in northeastern Montana in late June. The winter wheat cultivar Jerry was most severely impacted while Buteo had some lesions and Yellowstone was not yet affected. Previously**,** stripe rust at Kalispell in northwestern Montana was still at low levels but developing while low levels of stripe rust were found in south central Montana in early June.

Manitoba, Canada – Stripe rust was observed in winter wheat plots at Carman in south central Manitoba in late July. Lower leaves of some plants showed heavy infection. Stripe rust was found on one spring wheat plant at low severity at Brandon in southwestern Manitoba in late July.

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. Oat stem rust at very low levels was widely scattered in north central and northeastern South Dakota and southeastern North Dakota the second week of July. As is typical, the stem rust arrived late and the infection was found on the upper leaves. Moderate levels of oat stem rust were observed in plots in south central Minnesota the second week in July. Oat stem rust was severe in plots at St. Paul in southeastern Minnesota on July 19. Oat stem rust was found in Oneida County in central New York in mid-July. These are the first reports of oat stem rust outside of Texas in 2012 (see CRB #1).

Oat crown rust. Crown rust was prevalent on the oat cultivar Pennuda, however, little or no rust was found on other cultivars and lines in plots in south central New York in early July. Crown rust was also reported in Oneida and Seneca Counties in central New York. Low levels of oat crown rust were found in fields in north central and northeastern South Dakota and southeastern North Dakota the second week of July. Moderate levels of oat crown rust were found on susceptible lines in plots in west central Minnesota.

Barley stem rust. Low levels of barley stem rust were found in scattered spring barley plots in Tompkins County in south central New York on July 9. This is the first report of barley stem rust in 2012.

Barley leaf rust. Barley leaf rust was found in a spring barley field (unknown cultivar) in northwestern Wisconsin in the first week of July. Disease was distributed unevenly in the field, from trace amount in some areas to 90S in other areas. The crop was at the late boot to heading stage. Barley leaf rust was found on experimental plots of barley planted in Minnesota, South Dakota, and New York. Previously, barley leaf rust was reported in plots in the southern San Joaquin Valley and at UC Davis in California, southeastern Nebraska and east central Georgia, Delaware, Virginia and extreme southern Texas (see CRS).

Barley stripe rust. Barley stripe rust was found on susceptible entries in plots near Walla Walla in southeastern Washington in late June. No barley stripe rust was observed in commercial fields at the time. Previously, barley stripe rust was reported at low severities in nurseries in the Sacramento and San Joaquin Valleys in California and in western Oregon and western Washington (see CRS).

Rye stem rust. Significant levels of rye stem rust were showing on winter rye in plots in south central New York the first week of July. Rye stem rust was found at one location in South Dakota the second week of July. Low levels of rye stem rust were found in plots in west central Minnesota the second week of July.

Rye leaf rust. Rye leaf rust was found in Parke County in west central Indiana on June 6. This was the first report of rye leaf rust in 2012. Rye leaf was found in many areas of north central and eastern South Dakota and southeastern North Dakota and western Minnesota the second week of July. Severities ranged from 10-60% in areas not sprayed with fungicides.