CEREAL RUST BULLETIN

Report No. 8
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Issued by:

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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 found at moderate levels in South Dakota and Minnesota.
- Wheat stripe rust active in South Dakota and North Dakota.
- Oat crown rust was severe in nurseries in South Dakota and Minnesota.
- Barley leaf rust severe in nursery in northwestern Washington.

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.

Showers occurred in areas of the Plains and South while heavier amounts of rain fell in areas of the Upper Midwest this past week. Conditions were generally dry in the lower Great Lakes area. The Pacific Northwest experienced cooler than average temperatures with occasional showers.

Nationally, 76% of the winter wheat crop was harvested by July 17, three percentage points ahead of the 5-year average. The winter wheat harvest was complete or near completion in 10 of the 18 estimating states. Ninety six percent of the spring wheat crop was at or beyond heading by July 17, fifteen percentage points ahead of the 5-year average. Sixty nine percent of the spring wheat crop was rated as good to excellent, slightly behind last year at this time. By July 17, 22% of the oat crop was harvested, two percentage points ahead of the 5-year average. Sixty six percent of the oat crop was reported in good to excellent condition. Ninety five percent of the barley crop was at heading or beyond by July 17, nine percentage points ahead of the 5-year average. Seventy three percent of the barley crop was reported in good to excellent condition, 2 percentage points ahead last year.

Wheat stem rust. There have been no new reports of wheat stem rust since the last bulletin when stem rust, severities ranging between 5 to 20%, was reported on secondary growth in trial plots in east central Illinois on June 20 (see CRS). Wheat stem rust was also reported at trace levels in a winter wheat field in in eastern Indiana the fourth week of June. Wheat stem rust has been found in Texas, Louisiana, Mississippi, Georgia, Illinois and Indiana to date. Race QFCSC was identified from collections made in the aforementioned states. Race QFCSC was the most commonly identified wheat stem rust race in the U.S. the last decade.

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

Wheat leaf rust. Wheat leaf rust is widespread from the Great Plains to the east coast and as far north as North Dakota and the Great Lakes states (see wheat leaf rust observation map). Moderate levels of wheat leaf rust have been observed in eastern South Dakota and south central Minnesota.

South Dakota – Wheat leaf rust was found at low incidence and severity on spring wheat in central South Dakota the third week of July. Higher levels of wheat leaf rust were found on susceptible lines and cultivars in nurseries in northeastern and east central South Dakota. Spring wheat in all these areas ranged from milk to soft dough growth stages. Previously, low levels of wheat leaf rust were found on some winter wheat cultivars in nurseries at Volga in eastern South Dakota in late June.

North Dakota – There have been no new leaf rust reports from the state since wheat leaf rust was reported in a winter wheat plot at Fargo in eastern North Dakota on June 8.

Minnesota – Leaf rust was present at low to moderate levels in plots of spring wheat in south central Minnesota in mid July. The incidence of leaf rust varied across the different cultivars and breeding lines in the plots. Previously, wheat leaf rust was reported in plots in west central and southeastern Minnesota (see CRS).

Wheat leaf rust races identified to date from 2016 collections.

Virulence code	Virulences	State	No. of isolates
BBBDB	14a	NC	1
MBDSB	1,3,17,B,10,14a	MS, TX	3
MBDSB	1,3,17,B,10,14a	TX	2
MBDSD	1,3,17,B,10,14a,39	KS, LA, TX	17
MBPSB	1,3,3ka,17,30,B,10,14a	LA, TX	11
MBTNB	1,3,3ka,11,17,30,B,14a	MS, NC, VA	23
MBTSB	1,3,3ka,11,17,30,B,10,14a	LA, MS	3
MCDSB	1,3,26,17,B,10,14a	TX	1
MCDSD	1,3,26,17,B,10,14a,39	TX	1
MCPSB	1,3,26,3ka,17,30,B,10,14a	TX	1
MCTNB	1,3,26,3ka,11,17,30,B,14a	LA, MS, NC, TX, VA	11
MCTSB	1,3,26,3ka,11,17,30,B,10,14a	MS	2
MDTSB	1,3,24,3ka,11,17,30,B,10,14a	TX	1
MFGJG	1,3,24,26,11,10,14a,28	NC	1
MGPSB	1,3,16,3ka,17,30,B,10,14a	TX	2
MGPSD	1,3,16,3ka,17,30,B,10,14a,39	LA	1
MLDSB	1,3,9,17,B,10,14a	NC	1
MLDSD	1,3,9,17,B,10,14a,39	NC, TX	2
MLPSD	1,3,9,3ka,17,30,B,10,14a,39	AR, KS, NC, TX	15
MMDSD	1,3,9,26,17,B,10,14a,39	TX	1
MMNSD	1,3,9,26,3ka,17,B,10,14a,39	TX	1
MMPSD	1,3,9,26,3ka,17,30,B,10,14a,39	KS, TX	9
MNDSD	1,3,9,24,17,B,10,14a,39	TX	1
MNPSD	1,3,9,24,3ka,17,30,B,10,14a,39	AR, KS, LA, TX	15
MPPSD	1,3,9,24,26,3ka,17,30,B,10,14a,39	TX	4
MPTSD	1,3,9,24,26,3ka,11,17,30,B,10,14a,39	TX	1
PBDQJ	1,2c,3,17,B,10,28,39	TX	1
PBJQJ	1,2c,3,11,17,B,10,28,39	KS	1
TBBGJ	1,2a,2c,3,10,28,39	TX	1
TBBGS	1,2a,2c,3,10,21,28,39	TX	2
TBNJJ	1,2a,2c,3,3ka,17,10,14a,28,39	TX	3

TBRKG	1,2a,2c,3,3ka,11,30,10,14a,18,28	VA	1
TBRKJ	1,2a,2c,3,3ka,11,30,10,14a,18,28,39	MS	1
TBTNB	1,2a,2c,3,3ka,11,17,30,B,14a	NC	4
TCRKG	1,2a,2c,3,26,3ka,11,30,10,14a,18,28	MS, NC, SC, VA	11
TCTKG	1,2a,2c,3,26,3ka,11,17,30,10,14a,18,28	SC	1
TCTNB	1,2a,2c,3,26,3ka,11,17,30,B,14a	NC	3
TCTSB	1,2a,2c,3,26,3ka,11,17,30,B,10,14a	SC	1
TDRJG	1,2a,2c,3,24,3ka,11,30,10,14a,28	MS	1
TDTSB	1,2a,2c,3,24,3ka,11,17,30,B,10,14a	AR, NC	2
TFBJJ	1,2a,2c,3,24,26,10,14a,28,39	TX	1
TLPSD	1,2a,2c,3,9,3ka,17,30,B,10,14a,39	TX	1
TNBGJ	1,2a,2c,3,9,24,10,28,39	KS, NC, TX	13
TNBJJ	1,2a,2c,3,9,24,10,14a,28,39	LA, TX	12
TNRJJ	1,2a,2c,3,9,24,3ka,11,30,10,14a,28,39	TX	1
Total			190

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. Wheat stripe rust was very widespread across the U.S. in 2016, reported in 31 states and 4 Canadian provinces (see wheat stripe rust observation map). Recent cool temperatures in the Pacific Northwest were conducive for continued stripe rust development there. In many areas the application of fungicides and use of resistant cultivars mitigated the heavy stripe rust disease pressure.

Washington – There have been no new reports from the state since the last bulletin when it was reported that much cooler weather after June 8 allowed stripe rust to develop, particularly on spring wheat (see CRS). Stripe rust was mostly controlled on winter wheat in the state in 2016.

South Dakota – Active stripe rust was found in central and eastern South Dakota the third week of July. Previously, stripe rust was reported in eastern, central and western South Dakota (see CRS).

North Dakota – Stripe rust, at low incidence and severity, was beginning to appear on spring wheat and durum in the state in late June. Favorable dews were conducive for stripe rust spread. Most spring wheat was flowering or in early kernel formation. High levels of stripe rust were found in a few winter wheat fields in southeastern North Dakota and yield will likely be impacted. Previously, stripe rust was reported in winter wheat in northeastern North Dakota in early June and in commercial winter wheat fields in the north central part of the state and in nurseries in eastern and southwestern North Dakota the fourth week of May.

Minnesota – Stripe rust was present on spring wheat in plots at Lamberton in southwestern Minnesota in late June. The incidence and severity were at levels much lower than were found earlier on susceptible winter wheat. Previously, wheat stripe rust was reported at variable incidences and severities in winter wheat nurseries in central, south central and southeastern Minnesota in early June.

Ontario, Canada – There have been no new reports from the province since Cereal Rust Bulletin #4 when wheat stripe rust was reported in commercial fields of susceptible cultivars, e.g. P25R46, Emperor and Branson in most of southwestern and south central Ontario by late May (see CRS, CRB #5).

Manitoba, Canada – Stripe rust, at 10% incidence and low severity, was found in a spring wheat nursery at Brandon in southwestern Manitoba in early July. The inoculum likely arrived two weeks previously. Spring wheat was at boot stage. Previously, stripe rust was reported in a commercial winter wheat field in south central Manitoba in early June (see CRS).

Saskatchewan, Canada – There have been no new reports from the province since the last bulletin when stripe rust was reported in nurseries at Swift Current and Outlook in southern Saskatchewan and in commercial fields at Kandahar also in southern Saskatchewan the fourth week of June (see CRS).

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

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Pullman, WA 99164-6430
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***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 the last bulletin when it was reported in nurseries in eastern Illinois on June 20 (see CRS). That was the first new report of oat stem rust since Cereal Rust Bulletin #2. Race TGB was identified from a collection made at Castroville in south Texas. Races TGN, THS and TJS were identified from collections made in nurseries in south Texas. Race TGN and TJJ were identified from collections made from *Avena strigosa* (black oat) used in watermelon windbreaks in extreme south Texas. Race TJN was identified from collections made in a nursery at Corpus Christi in southeastern Texas. Previously, oat stem rust was reported in plots in southeastern Louisiana and south Texas (see CRS).

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

Oat crown rust. Oat crown rust was severe on many cultivars in plots at Lamberton in southwestern Minnesota in late June. Telia, the overwintering stage, were appearing on the oat. Telia were beginning to appear on oat in the Matt Moore Buckthorn Nursery at St. Paul in early July. High levels of oat crown rust were found in plots at Volga in eastern South Dakota in late June. Oat crown rust was found in plots at Aberdeen and Watertown in northeastern South Dakota and Volga the third week of July. The crown rust was most severe at Watertown and Volga. Oat crown rust has now been reported in Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, North Carolina, Virginia, Illinois, Ohio, South Dakota and Minnesota.

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

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Barley leaf rust. Barley leaf rust was severe in plots at Mt. Vernon in northwestern Washington the second week of July. Previously, barley leaf rust was reported in Texas, Alabama Kentucky, North Carolina, Virginia, Nebraska, Minnesota and New York (see CRS).

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