

*Issued by:***Cereal Disease Laboratory**

U.S. Department of Agriculture  
Agricultural Research Service  
1551 Lindig St, University of Minnesota  
St. Paul, MN 55108-6052  
(612) 625-6299 FAX (651) 649-5054  
[Mark.Hughes@ars.usda.gov](mailto:Mark.Hughes@ars.usda.gov)

For the latest cereal rust news from the field, subscribe to the cereal-rust-survey listserv list. To subscribe, please visit:  
<http://www.ars.usda.gov/Main/docs.htm?docid=9970>

Or, send an email to: [Mark.Hughes@ars.usda.gov](mailto: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/>)

- Low levels of wheat stem were found in plots in Colorado, South Dakota and Michigan and fields in Ohio.
- Stem rust from light to moderate severity was found on several lines and cultivars in plots in Nebraska.
- Plots in north central Oklahoma had wheat stem rust severity of over 50%.
- High levels of wheat leaf rust were found in the thumb region of Michigan.
- Wheat plots in south central Wisconsin had leaf rust severity of 10-50% on flag leaves
- The distribution of wheat stripe rust was greater than last year, but is generally less severe than in 2012.
- Stripe rust was reported in South Dakota, Montana, Wisconsin, Ohio, Michigan and Vermont.
- Oat stem and crown rust were found in a field in west central Indiana.

*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 57% harvested by July 7. Overall, 34% of the U.S. winter wheat crop was reported in good to excellent condition. Additional rains hindered harvest in some areas. By July 7, 98% of the spring wheat crop was emerged, just slightly behind the 5-year average; 45% of the crop was at or beyond the heading stage. Overall, 72% of the crop was reported in good to excellent. Hot, windy conditions in Idaho created soil moisture issues for many producers.

Eighty one percent of the oat crop was at or beyond heading by July 7, just 5% behind the 5-year average. Overall, 59% of the crop was reported in good to excellent condition. Harvest was underway in southern locations. Ninety six percent of the barley crop was emerged by July 7, 3% behind the 5-year average; 51% of the crop was at or beyond heading stage. Overall, 66% of barley crop was reported in good to excellent condition.

**Wheat stem rust.** Wheat stem rust had been found at low levels in several states by early July (see [wheat stem rust map](#)). Stem rust from light to moderate severity and light to high prevalence was observed on several lines and cultivars in plots at Goehner in southeastern Nebraska on July 5. The plants were at Feekes growth stage 11. Low levels of stem rust were found in plots in Brookings and Aurora in eastern and southeastern South Dakota, respectively, in late June. Two small foci were found in soft white winter wheat plots at Mason in central Michigan on July 1. In a rust survey conducted from Wisconsin through northeastern Missouri, Illinois, Indiana and Ohio, stem rust was only found in three fields in western and northwestern Ohio on June 27. The stem rust was found on plants that had not yet matured. A wheat stem rust focus was observed in a nursery in Berthoud in north central Colorado in early July. Stem rust was found in nearly mature plots near Stillwater in north central Oklahoma on June 18. It appeared as though the severity reached 50% or higher.

Previously, low levels of wheat stem rust were reported in winter wheat plots in south central Wisconsin, south central Kansas, central Oklahoma and central Missouri and on 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.

**South Dakota** – On July 10, low levels of leaf rust were found in a winter wheat field in Clark County in northeastern South Dakota. Very low levels of leaf rust were found in fields in Douglas and Buffalo County in central and south central South Dakota, respectively, in late June.

**Minnesota** – Low levels of wheat leaf rust were found on Baart in plots at Lamberton in southwestern Minnesota in early July. A single pustule of wheat leaf rust was found on a hard red winter wheat line in a nursery in northwestern Minnesota on June 26. 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** – Wheat leaf rust was widespread in soft red winter wheat plots at Arlington in south central Wisconsin in early July. Flag leaf severities ranged from 10-50%. Wheat was at dough stage. Low levels of wheat leaf rust were found in fields in eastern and northeastern Wisconsin in early July. Previously, very low levels of wheat leaf rust were reported on winter wheat in plots in south central Wisconsin on June 20.

**Michigan** – High levels of wheat leaf rust were found in Sanilac County in the thumb region of Michigan in early July. Wheat leaf rust was found in plots at Mason in central Michigan in mid-June. It now seems likely that leaf rust can be found throughout the state.

**Ohio, Indiana, Illinois** – Wheat leaf rust at low levels was readily found in winter wheat fields across the northern halves of these states in late June. One field in Shelby County in west central Ohio had higher leaf rust severities. Wheat was generally at hard dough stage.

**New York** – Low levels of wheat leaf rust were observed on winter wheat in central and western New York the fourth week of June. Winter wheat harvest has begun in the state.

## Wheat leaf rust races identified to date from 2013 collections.

Virulence code	Virulences	State	No. of isolates
MBDSB	1,317,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	5
MBPSD	1,3,3ka,17,30,B,10,14a,41	TX	1
MBTNB	1,3,3ka,11,17,30,B,14a	LA, MS	15
MCTNB	1,3,26,3ka,11,17,30,B,14a	AL, LA, MS, TX	10
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	8
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
SBDGG	1,2a,2c,17,10,28	MS, TX	2
TBBGJ	1,2a,2c,3,10,28,41	TX	3
TBBGS	1,2a,2c,3,10,21,28,41	TX	1
TBBJG	1,2a,2c,3,10,14a,28	LA, MS	2
TBRKG	1,2a,2c,3,3ka,11,30,10,14a,18,28	AL, MS	7



TCRKG	1,2a,2c,3,26,3ka,11,30,10,14a,18,28	AL, AR	5
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
TNBJG	1,2a,2c,3,9,24,10,28,41	TX	2
TNBJJ	1,2a,2c,3,9,24,10,14a,28,41	AL, TX	7
Total			90

**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.** The distribution of stripe rust appears to have exceeded last year's record distribution in the U.S., however, stripe rust has generally not been as severe as last year in most locations. Dry conditions in the Pacific Northwest along with widespread use of fungicides have limited development this year. Widespread, significant rain in late June in the Pacific Northwest created more optimum conditions for stripe rust, but recent hot weather and reduced inoculum may hinder further development.

**South Dakota** – On July 10 low levels of stripe rust were found in a winter wheat field in Clark County in northeastern South Dakota. Trace levels of stripe rust were found in a field in Buffalo County in central South Dakota in late June. Stripe rust (~20% severity) was also observed in four fields between Chamberlain and Platte in south central South Dakota. Stripe rust was also found in one field in Tripp County in south central South Dakota. Wheat in central and south central South Dakota was at heading to milk growth stages.

**Wisconsin** – Trace levels of stripe rust were found in winter wheat fields in northeastern Wisconsin in early July. Recent dry conditions in the area have slowed the rust development and hastened crop maturity. Previously, stripe rust had increased to 100% incidence and 75% severity on susceptible winter wheat cultivars in plots in south central Wisconsin by June 20.

**Ohio** – Wheat stripe rust was found in a winter wheat field in Logan County in west central Ohio in late June.

**Michigan** – Low levels of stripe rust were found on the cultivar Hopewell in Sanilac County in the thumb region of Michigan and in Presque Isle County in the far northern lower peninsula in early July. It appears stripe rust is widespread in the state, but at lower incidence and severity than in 2012.

**New York** – Stripe rust was found in winter wheat plots at Ithaca in south central New York in late June. Previously, stripe rust was reported in a commercial field of the soft red winter wheat Emmit in Hamlin in northwestern New York on June 20.

**Vermont** – Wheat stripe rust was found in plots at Alburgh in northwestern Vermont.

**Idaho** – There have been no new reports from the state since stripe rust was reported on the soft white wheat cultivar Brundage and other susceptible winter wheat cultivars throughout southern and eastern Idaho in mid-June (see [CRS](#)). Recent hot, windy weather in the state has likely slowed stripe rust development.

**Montana** – Stripe rust is widespread on winter wheat in Montana and is now moving into susceptible spring wheat cultivars. High levels of stripe were observed in susceptible plots and a field of the cultivar Decade in Pondera



County in northwestern Montana this week. Resistance in the winter wheat cultivar Yellowstone is still holding up well.

**Pacific Northwest** – Wheat stripe rust was generally at very low levels on winter and spring wheat in Oregon and Washington in late June. Widespread use of fungicides and very dry conditions earlier in the season greatly reduced the rust inoculum. Rains in late June and favorable temperatures created favorable conditions for stripe rust development, but recent hot weather likely slowed further stripe rust development (see [CRS](#) for more details).

**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](mailto: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 on wild oat growing in a spring wheat field in Brookings County in eastern South Dakota on July 10. Oat stem rust was only found in one field in Tippecanoe County in west central Indiana in a multi-state survey of the Ohio Valley (see [CRS](#)) in late June. Previously, 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.** A few pustules of oat crown rust were found in plots at Ithaca in south central New York in early July and there have been no reports of oat crown rust in commercial fields in the state. Oat crown rust was only found in one field in Tippecanoe County in west central Indiana in a multi-state survey of the Ohio Valley (see [CRS](#)) in late June. Previously, crown 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.** There have been no new reports of barley leaf rust since the last bulletin. Previously, barley leaf rust was reported in plots at Corvallis, Oregon and on winter barley in plots and fields in Cayuga, Livingston, Monroe, and Tompkins Counties central and western New York and 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.** There have been no new reports of barley crown rust since trace levels of barley crown rust were reported on Aim barley at the early boot stage in the buckthorn nursery at St. Paul, Minnesota.

**Stripe rust on barley.** Barley stripe rust is generally at very low levels in the Pacific Northwest. The widespread use of fungicides and dry weather earlier in the season greatly reduced rust inoculum. Previously stripe rust was reported in winter barley plots in northwestern and southeastern 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.** Rye leaf rust was found in Tomkins County, New York in late June. This was the first report of rye leaf rust in the U.S. this year.

