



Issued by:

Cereal Disease Laboratory

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- Wheat stem rust was found in a nursery in south central Georgia.
- Wheat leaf rust was increasing in central Oklahoma.
- Wheat stripe is widespread in the U.S., now reported in 24 states.
- Oat crown rust has now been reported in Texas, Louisiana, Mississippi, Alabama and North Carolina.
- High levels of barley leaf rust were found in nurseries in eastern and eastern shore areas of Virginia.
- Mature aecia were found on common barberry in southeastern Minnesota.
- Aecia were appearing on common buckthorn in southeastern 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.

A very active weather pattern last week interfered with fieldwork in the Midwest. A late week cool spell resulted in cool conditions and raised concerns with newly emerged crops in the Upper Midwest. Weekly temperatures averaged 5 degrees below normal across large areas of the northern Plains and the Upper Midwest. Temperatures in the South and West were near normal or above. Temperatures in the Southeast and Pacific Coast states averaged at least 5 degrees above normal promoting rapid crop development. Light showers fell across the Pacific Northwest where it has been generally dry in recent weeks.

Nationally, 62% of the winter wheat crop was reported in good to excellent condition, 17 percentage points ahead of last year at this time. Sixty eight percent of the winter wheat crop was heading or beyond by May 15. Eighty nine percent of the spring wheat crop was seeded by May 15, twenty-five percentage points ahead of the 5-year average. By May 15, 94% of the oat crop was seeded, 11% ahead of the 5-year average. Ninety percent of the barley crop was planted by May 15, nineteen percentage points ahead of the 5-year average. Sixty eight percent of the barley crop had emerged, 26 percentage points ahead of the 5-year average.

Wheat stem rust. Since the last bulletin a single wheat stem rust collection was received from a nursery in Tift County in south central Georgia, otherwise, no new reports or additional collections were received. To date wheat stem rust has been reported in Texas, Louisiana, Mississippi and Georgia, generally at low levels (see [CRS](#)). Race QFCSC has been identified from collections made in sentinel plots in extreme southern Texas and plots at Uvalde in south Texas. Race QFCSC is 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 southern and central Great Plains to Virginia and as far north as southern Wisconsin (see [wheat leaf rust observation map](#)). While wheat leaf rust is generally at low levels, it was increasing in north central Oklahoma and was at high levels in nurseries in eastern Virginia.



Texas – Wheat leaf rust was at moderate levels in Hill and Williamson Counties the first week of May and at light to moderate levels in Concho County in central Texas on May 5. Wheat in the area was at soft dough stage. Harvest has begun in some areas of south Texas.

Oklahoma – Leaf rust was increasing and severe around Stillwater, but leaf rust had developed to a lesser extent in northern Oklahoma in early May. By the second week of May, leaf rust was predominant around Stillwater and was found at low levels in Major County (northwestern OK) and Kay County (north central OK).

Kansas – Low levels of wheat leaf rust were found in south central Kansas the second week of May. Wheat was in grain filling growth stages.

Nebraska – There have been no new reports of wheat leaf rust from the state since Cereal Rust Bulletin # 2. Stripe is still the larger concern in the state. Previously, wheat leaf rust was reported at low levels in the Panhandle, south central and eastern Nebraska (see CRB #2, CRS).

Louisiana – There have been no new reports from the state since Cereal Rust Bulletin #2 when it was reported that wheat leaf rust was spreading rapidly in the nursery at Baton Rouge in southeastern Louisiana by April 7 and was at moderate levels on April 15 at Crowley in southwestern Louisiana. Conditions were favorable for increased leaf rust development.

Mississippi – By early May wheat leaf rust was the predominant rust in the state. Stripe rust development had slowed due to the warmer temperatures.

Georgia – Wheat leaf rust has been found in four different nursery locations from south central to northwestern Georgia.

Tennessee – There have been no new reports from the state since Cereal Rust Bulletin #3 when wheat leaf rust was reported at very low incidence and severity in plots at Jackson in western Tennessee the fourth week of April.

Arkansas – There have been no new reports from the state since the first bulletin when leaf rust was reported in Desha and Jefferson Counties in southeastern Arkansas in early March.

Kentucky – Wheat leaf rust was found in plots in western Kentucky in early May.

Illinois – Wheat leaf rust was found in plots in southern Illinois in early May.

South Carolina – There have been no new reports from the state since Cereal Rust Bulletin #2 when wheat leaf rust was reported in fields of Pioneer 26R10 in northeastern South Carolina the second week of April and was also reported on multiple cultivars in plots at Blackville in southwestern South Carolina.

North Carolina – There have been no new reports from the state since the first bulletin when leaf rust was widespread, unusually early and at heavy levels across the Coastal Plain of North Carolina due to the warm winter.

Virginia – Wheat leaf rust was moderately severe in plots at Holland in southeastern Virginia on May 12. In nurseries at Painter in the eastern shore region, leaf rust was prevalent and heavy on susceptible lines. Leaf rust was widely prevalent and severities were increasing and had reached 90% severity in plots at Warsaw in eastern Virginia. Previously, it was reported that plots at Mt. Holly in eastern Virginia were heavily infected with wheat leaf rust from the bottom leaves to the flag leaves on May 2.



Delaware – There have been no new reports of leaf rust in the state since the first bulletin when leaf rust was reported as developing on wheat at pre-jointing stage in early February.

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](#)

2015 wheat leaf rust survey summary and results. Please visit: [Wheat leaf rust race survey results](#).

Wheat stripe rust. Wheat stripe rust is very widespread across the U.S., having been reported in 24 states to date and is likely in a few more states, but has not been reported (see [wheat stripe rust observation map](#)). Stripe rust is still a serious concern in areas of the Great Plains, Ohio, Illinois, Kentucky, Virginia and the Pacific Northwest.

Washington, Oregon – In a survey through southeastern Washington into northeastern Oregon, low levels of stripe rust were found in several commercial fields on May 4. The low levels of stripe are a result of planting resistant cultivars and timely applications of fungicides. Susceptible cultivars in nurseries near Walla Walla, Washington and Hermiston, Oregon had 95% to 100% severities, respectively indicating that stripe rust disease pressure in the area was high. Winter wheat in the commercial fields ranged from Feekes 8 to 10.5. Due to the early onset of stripe rust, high temperature adult plant (HTAP) resistance has not reached its fullest effect.

Previously, moderate to high levels of stripe rust were found on susceptible cultivars not treated with fungicides in many locations in eastern Oregon the last week of April.

Idaho – By May 5, wheat stripe rust was found from south central to eastern Idaho and was likely more widespread (see [wheat stripe rust observation map](#)). Stripe rust was often found on the soft white winter wheat cultivar Brundage.

Louisiana – There have been no new reports from the state since [Cereal Rust Bulletin #2](#) when stripe rust was still active in plots in southeastern Louisiana, but not at high incidences in most plots and was found at low incidence, but high severity in nurseries in central Louisiana and was also found in nurseries in northeastern Louisiana. With warming temperatures, stripe rust development slowed considerably.

Mississippi – By early May stripe rust development in the state had slowed considerably due to warmer temperatures. Telia were forming on old stripe rust infections.

Arkansas – There have been no new reports from the state since the first bulletin when stripe rust was found in Desha, Jefferson and Woodruff Counties in southeastern and eastern Arkansas, respectively. Low incidences with a few hot spots were observed in Desha and Jefferson Counties.

Tennessee – There have been no new reports from the state since [Cereal Rust Bulletin #2](#) when stripe rust was reported in a field in Madison County in western Tennessee the last week of March. By April 19 stripe rust was the predominant rust in nurseries at Jackson in Madison County.

Kentucky – Stripe rust was widespread across western Kentucky in late April and early May.

Illinois – Stripe rust was widespread across southern Illinois in early May.



Indiana – There have been no new reports from the state since Cereal Rust Bulletin #2 when stripe rust, at low incidence and severity, was confirmed in a commercial field in Posey County in southwestern Indiana the third week of April.

Ohio – Stripe was confirmed in Circleville in southern Ohio on May 5. Wheat in the area was between Feeks 9 and 10. Conditions, cool and rainy, in the area have been conducive for stripe rust development.

North Carolina – There have been no new reports from the state since the first bulletin when low to medium levels of stripe were reported in a few fields in northeastern North Carolina and in the central Coastal Plain (see CRB #1).

Virginia – Wheat stripe rust was moderately severe in plots at Holland in southeastern Virginia on May 12. In nurseries at Painter, in the eastern shore region, stripe rust was prevalent and heavy on susceptible lines. Stripe rust was widely prevalent and severities had increased to 90% severity in plots at Warsaw in eastern Virginia. Previously, wheat stripe rust was reported at trace levels in one headrow in a nursery at Mt. Holly in eastern Virginia on May 2.

Maryland, Delaware – There have been no new reports from the state since the last bulletin when stripe rust was reported along the eastern shore of Maryland and was found in nurseries in southeastern Delaware in late April. Incidence and severity was extremely low in all cases, however, with predictions for rain and cool weather conditions were favorable for additional development.

Texas – In central Texas, stripe rust was still active in early May in plots in Concho County while in Hill and Williamson Counties stripe rust was no longer active sporulating, but instead producing telia. With increasing temperatures leaf rust development is favored over stripe rust development in the state. Winter wheat harvest is underway in areas of south Texas.

Oklahoma – Stripe rust sporulation had mostly stopped in the Stillwater area, but a bit to the north and west stripe rust was still active at Lahoma and to a lesser extent Alva in early May. The effects of stripe rust in the area were dramatic on susceptible cultivars not treated with fungicides. As stripe rust development winds down, wheat leaf rust is increasing and becoming severe around Stillwater. Wheat ranged from milk to soft dough around Stillwater and full kernel to milk stage in more northern Oklahoma. The second week of May stripe rust, at low levels, was still active in Major County in northwestern Oklahoma.

Kansas – Stripe is severe in many fields in the state not treated with fungicides. Severities had exceeded 80% in demonstration plots of susceptible cultivars in south central Kansas and had nearly reached 100% severity on flag leaves in plots in Ellsworth in central Kansas. The weather the third week of May looks to be conducive for further stripe rust development and the risk of severe disease is high in northwestern and west central Kansas where low levels of stripe rust have been reported on flag leaves. Wheat in central and south central Kansas are in grain filling stages. Many growers are applying fungicides to control stripe rust.

Colorado – Wheat stripe rust had been found in many areas in the eastern part of the state by May 12. The rust was generally at low levels, but conditions were favorable for further stripe rust development. Wheat in the southeast had headed while wheat ranged from boot to heading in other areas. Stripe rust was slowly spreading in fields in Mesa County in western Colorado. Wheat there was in boot stage.

Nebraska – Stripe rust was widespread, but mostly at low levels across southern Nebraska, including southern parts of the Panhandle in early May. West central areas and the Panhandle are at highest risk to stripe rust development as temperatures are cooler, particularly at night and there has been moisture. The



wheat in these areas ranges from Feekes 6 to 8. While stripe rust is present in the eastern part of the state, it has not developed to the damaging levels experienced in 2015. There have been significant rainfalls recently and more are anticipated.

South Dakota – Wheat stripe rust, ranging from trace to moderately severe, was observed in fields in Hutchinson County in south central South Dakota on May 13. Stripe rust was also reported in central and eastern South Dakota. Wheat in the state ranged from jointing to flag leaf emergence. Stripe rust was first reported in the state on April 6 in a field in central South Dakota (see [CRB #2](#), [CRS](#)).

Minnesota – Stripe rust was active in plots at Lamberton in southwestern Minnesota the third week of May. Previously, stripe rust was reported in a commercial field in northwestern Minnesota and nursery in southeastern Minnesota.

Wisconsin – Wheat stripe rust at low incidence and severity was found in two nurseries in southern Wisconsin on May 11. The rust was found on emerging leaves and appeared to have arrived recently. Recent conditions, wet and cool, were conducive for further development in the state.

Michigan – There have been no new reports from the state since the last bulletin when a single wheat stripe rust infection was reported in a nursery line at East Lansing in early May. Conditions have been favorable for stripe rust development.

Ohio – Wheat stripe was confirmed in Pickaway County in south central Ohio on May 5. Wet and cool conditions have been very favorable for stripe rust development and spread. Wheat was between Feekes 9 and 10.

Ontario, Canada – A single plant with stripe rust infected leaves was found in a commercial field near London in southeastern Ontario (2 hours from Detroit) on May 5. This is the first stripe rust report in the province in 2016. The wheat was at Feekes 7. It had been cool and wet in the area.

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 [Cereal Rust Bulletin #2](#). Previously, oat stem rust was reported in plots in southeastern Louisiana and south Texas (see [CRS](#)). Race TJS has been identified from collections made from *Avena strigosa* (black oat) used in watermelon windbreaks and from a collection made in a nursery at Castroville in south Texas.



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

Oat crown rust. Oat crown rust has now been found in Texas, Louisiana, Mississippi, Alabama and North Carolina. The crown rust reached high incidence and severity in nurseries in Texas and Louisiana.

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

Barley leaf rust. Barley leaf rust was prevalent and heavy on susceptible lines in plots at Painter in the eastern shore region of Virginia. At Warsaw in eastern Virginia, barley leaf rust was widely prevalent with increasing severities that reached 90% in plots. Barley leaf rust was found on the winter barley cultivar Thoroughbred in plots in Caldwell County in western Kentucky. A few pustules of barley leaf rust were found on winter barley in plots at Lamberton in southwestern Minnesota the third week of May. Previously, barley leaf rust was reported in nurseries in central North Carolina and in south Texas.

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

Barley stripe rust. Barley stripe rust was found on AB Voyager in Twin Falls County in south central Idaho the first week of May.

Rust on barberry. Mature rust aecia were found on common barberry (*Berberis vulgaris*) in southeastern Minnesota on May 16. Common barberry is the alternate host for stem rust.

Rust on buckthorn. Pycnia were appearing on common buckthorn (*Rhamnus cathartica*), the alternate host for oat crown rust, in the Matt Moore Buckthorn Nursery at St. Paul in southeastern Minnesota on May 6. Aecia were just beginning to appear on the buckthorn in the nursery on May 13. Aecia from buckthorn can infect oat resulting in oat crown rust.

