

CEREAL RUST BULLETIN

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- • Wheat leaf rust is found throughout the Great Plains.
- • Wheat stripe rust is severe throughout the central Great Plains.
- • Rust is severe on barberry (alternate wheat stem rust host) in southeastern Minnesota.

The small grain harvest is underway from southern South Carolina to central Oklahoma. Winter wheat is at normal maturity throughout much of the central plains. Small grain planting is completed throughout most of the northern grain growing area and development of earlier planted small grains is ahead of average maturity.

Wheat stem rust. During late May, traces of stem rust were found in a plot of the susceptible cultivar McNair 701 in north central Oklahoma. In late May, stem rust was found in late maturing lines in the nursery at Baton Rouge, Louisiana. Wheat stem rust is very light throughout the U.S. this year.

Wheat leaf rust. During the last week in May, leaf rust was severe in plots and fields of susceptible cultivars from central Kansas to west central Missouri (Fig. 1). In fields of Jagger at the late berry stage in south central Kansas, 60% severities were found on flag leaves. In fields of Jagger in northeast Kansas, 10% severities were observed on flag leaves. In central Kansas varietal plots, rust severities ranged from trace to 60%. Throughout Kansas and Missouri wheat leaf rust and stripe rust were competing on many cultivars for the same leaf tissue. Usually the stripe rust wins the battle because it can develop earlier and increase at cooler temperatures than leaf. In southern Kansas, losses due to leaf rust will be severe in cultivars like Jagger but in other leaf rust susceptible cultivars losses will be light. Leaf rust in Oklahoma developed late when the crop was at the dough growth stage so the rust won't cause much of a yield reduction. The southern leaf rust sites will provide leaf rust inoculum for the northern wheat growing area.

During late May, 20% leaf rust severities were observed on *Aegilops cylindrica* (goatgrass) growing in the roadside in south central Kansas. In some years, significant stripe rust is observed on goatgrass but this year stripe rust was light on goatgrass.

In late May in eastern Arkansas, leaf rust had developed late on several cultivars including 9663 that has been resistant in the adult stage. Since stripe rust was present first there was not much leaf tissue for leaf rust to develop on in the soft red winter wheats.

In late May, traces of wheat leaf rust were found in winter wheat plots in east central Minnesota. On May 28, traces of wheat leaf were observed in spring wheat fields in south central and eastern North Dakota. These spring wheat rust observations are earlier than normal for that date.



In late May, no leaf rust was found in plots in the Blacksburg, Virginia nursery.

By mid-late May, wheat leaf rust was severe (50-80% severity) on susceptible cultivars in yield trials and fields in the Central Valley of California. High levels were detected on the few susceptible cultivars that were not affected by stripe rust, but known leaf rust susceptible cultivars that had been severely damaged by stripe rust had no green tissue remaining for leaf rust to infect. No leaf rust was detected on durum wheat in the Central Valley.

From leaf rust collections made in early April in central Texas, the following races were identified: MBDS, MCDS, MGBS, MFBJ, TFBJ, TCDS and TJDS. Races MBDS, MCDS and TCDS are virulent to Jagger which has Lr17. MGBS and TJDS are virulent to cultivars with Lr16. MFBJ and TFBJ are virulent to cultivars with Lr24 and 26.

Wheat stripe rust. In late May, stripe rust was severe (60% severities) in central and southern Kansas plots and fields (Fig. 2). There was much more stripe rust in Oklahoma and Kansas in 2003 than in 2002. In both 2003 and 2002, a cool spring with nighttime temperatures in the 40s and 50s plus humid weather were conducive for stripe rust development throughout the Great Plains. However, the rust inoculum load from Texas in 2003 was greater accounting for more rust development this year. Wheat stripe rust development in 2003 in the southern and central Great Plains is comparable to 2001. Losses to stripe rust in Oklahoma will be less than 2001 because of the drought-like conditions in some areas of the state in May.

In late May, traces of stripe rust were found in plots of susceptible wheat in south central Nebraska. During late May, trace amounts of stripe rust were found at the late jointing growth stage in east central South Dakota winter wheat plots.

In early June, traces of stripe rust were found in winter wheat plots at the Rosemount Experiment Station in east central Minnesota.

In late May in west-central Missouri, 20% wheat stripe rust severities were observed on flag leaves of soft red cultivars at the early berry stage. In both 2003 and 2002, stripe rust was severe in the soft wheat area growing areas of Arkansas and Missouri. This year favorable weather conditions and stripe rust inoculum from infection sites in Louisiana and Texas lead to increased stripe rust in Arkansas and Missouri.

In late May, wheat stripe rust foci were observed in plots at the Blacksburg, Virginia experiment station. The incidence of stripe rust in the plots were trace to 5% while the severity for the major foci was about 15-50% of the leaves infected. The severity in the outlying foci was 5-15%. The VA cultivar Sisson that has 1B/1R resistance had stripe rust suggesting that the race is similar to those previously identified in the southern wheat growing areas of the U.S.

By the fourth week in May, wheat stripe rust continued to increase on common and durum wheat in nurseries throughout the Central Valley of California. This year stripe was more severe in California than last year because the moist conditions and cool temperatures were much favorable for rust development throughout the growing season.



By late May, 5 to 20% wheat stripe rust severities were observed on susceptible winter wheat cultivars growing in fields and plots in the Palouse region of eastern Washington. In fields of soft white winter wheat, stripe rust infections were common, but mostly with resistant to moderately resistant reactions. In late May, light stripe rust was found in a winter wheat field in northwestern Idaho. As of late May, stripe rust has not been found on spring wheat in the Palouse region of Washington.

Oat stem rust. In late May, traces of oat stem rust were found in the spring oat plots at Hutchinson in south central Kansas. Oat stem rust development is less than normal throughout the southern U.S. this year.

By mid-May, oat stem rust was severe in plots of susceptible cultivars (e.g., Swan) at Davis, California.

Oat crown rust. In mid May, oat crown rust was severe in plots of susceptible cultivars (Montezuma, Kanota) at Davis, California. During mid and late May crown rust was found on late plants of wild oat (*Avena fatua*) growing alongside trails in the Rohnert Park area (north of San Francisco).

Buckthorn. In late May, crown rust aecial infections were moderate to severe at the St. Paul, Minnesota buckthorn nursery. Uredinial infections were observed on oat spreader rows in the nursery on May 29. The good moisture and warm temperatures have been ideal for infection. Light aecial infections were found on buckthorn bushes at Red Wing, MN and Grantsburg, WI in late May and early June, respectively.

Barley stem rust. There have been no more reports of barley stem rust since it was found in early April in southern Texas plots.

Barley leaf rust. In mid-late May, low levels of barley leaf rust were observed in yield trials in the Central Valley of California. By late May, leaf rust was severe on susceptible lines in nurseries at Davis, California.

Stripe rust on barley. By late May, barley stripe rust had increased in nurseries at Davis, California to 100% severity on susceptible lines. Susceptible cultivars (Max, Commander) also had 100% severity by late May in yield trials in the Central Valley.

In late May, stripe rust was severe on winter barley and was developing quickly on spring barley in northwestern Washington fields and nurseries. The first report of barley stripe rust in eastern Washington (regions east of the Cascade Mountains) was on May 29 in a winter barley field of 'Hoody' at the Othello Experiment Station. At the station, plots of the spring barleys 'Bob' and 'Calпсо' had traces of stripe rust on the lower leaves. In one of the spring barley nurseries near Pullman, Washington, one pustule of stripe rust was found on May 28. Cool, moist weather is forecasted for the first seven days of June and if that occurs stripe rust should continue to develop.

Barley crown rust. There have been no reports of crown rust on barley yet this year.

Rye leaf rust. In late May, light leaf rust was observed on rye in a field in south central Kansas.



Rye stem rust. There have been no reports of rye stem rust this year.

Stem rust on barberry. In late May, severe stem rust was observed on susceptible common barberry bushes (alternate host for stem rust) growing in southeastern Minnesota. The bushes were infected with rust spores early in the season and the infections were so heavy that they defoliated the bushes. According to Bob Laudon (retired barberry eradication expert) this is the heaviest infection of rust seen on bushes in the last 40 years. In the 1950s and early 60s it was common to see bushes this badly rusted, but not in recent years.



Fig. 1. Leaf rust severities in wheat fields - June 3, 2003

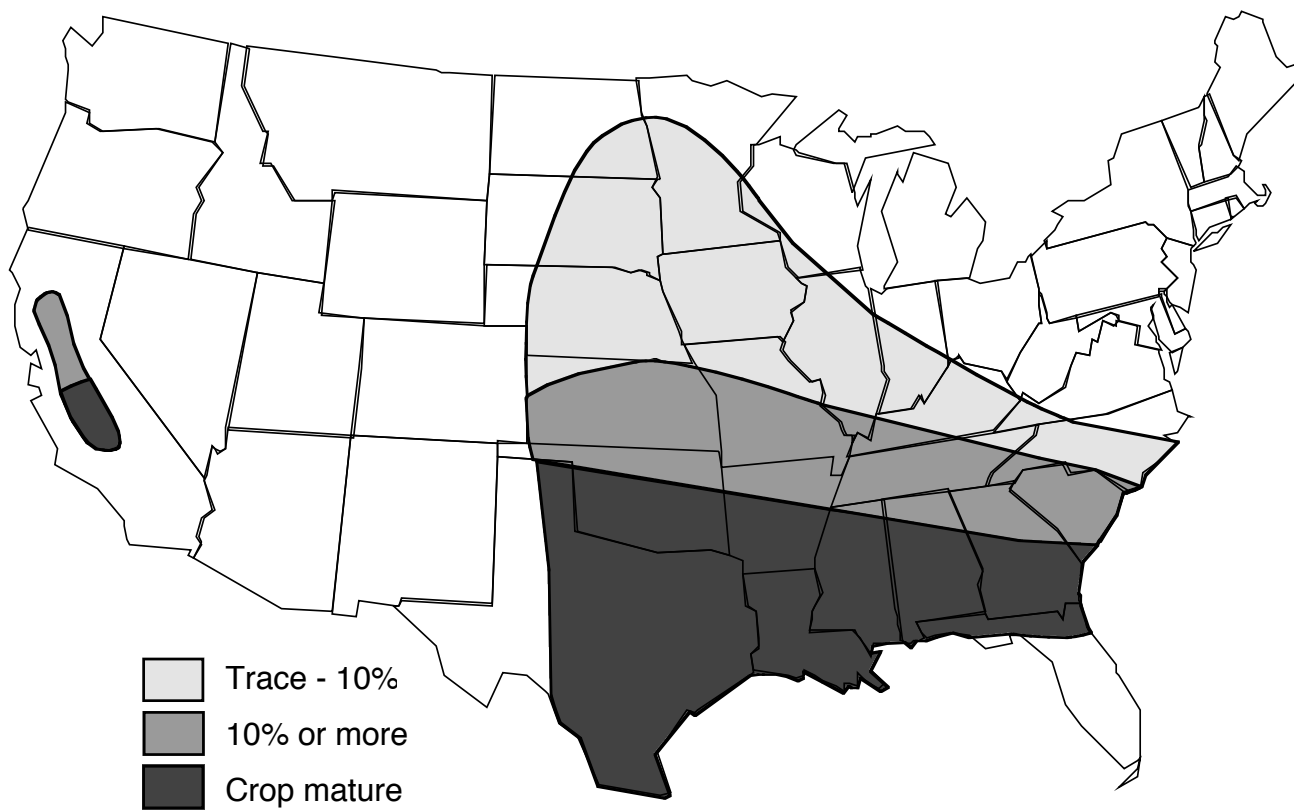


Fig. 2. Stripe rust severities in wheat fields - June 3, 2003

