# CEREAL RUST BULLETIN

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- Wheat stem rust is widespread on wild barley and has appeared in check plots of susceptible spring wheats in the upper Midwest.
- Leaf rust is less severe than last year on spring wheat in the upper Midwest; winter wheat became severely rusted by soft dough stage.
- Stripe rust is widespread on winter wheat in South Dakota.
- Barley stripe rust is severe enough to warrant fungicide sprays in eastern Washington fields.

The small grain harvest has commenced from southwestern New York to northern South Dakota. Winter wheat is generally in good condition and 1-2 weeks ahead of normal maturity throughout most of the U.S. In the northern small grain area, the spring-sown grains are ahead of normal crop development and in some wheat fields near the Red River of the North they are under stress because of too much water.

**Wheat stem rust.** By the first week in July, trace-20% stem rust severities were observed on the susceptible spring wheat varieties Baart and Morocco in central Minnesota and eastern South Dakota plots. In the same south central Minnesota plots on June 22, only traces were observed on Baart wheat. The rust development was due to spores which were deposited with rains in early to mid-June. During the third week in June, most of the stem rust development was found on the leaves and by the first week in July, stem rust was found on both leaves and stems.

By late June, 20% stem rust severities were reported in plots of susceptible winter wheat cultivars, e.g., 2174, in east central South Dakota and east central Minnesota. In winter wheat fields in northern Kansas and southern Nebraska, wheat stem rust developed late and since most of the wheat cultivars are early maturing they escaped the stem rust. The southern and central Great Plains, where the winters were mild this year, provided spores for susceptible wheats farther north. In much of the northern Great Plains the recent temperatures have been near normal and moisture has been ideal for the spore infection process to occur.

As in 1999, the number of stem rust samples received at the Cereal Disease Lab this year is twice as great as in recent years. The increased severity of stem rust can be attributed to the large amount of inoculum produced on susceptible winter wheat cultivars, e.g. 2137, farther south in the Central Plains and to the temperature and moisture, which have been ideal for stem rust infection in the Northern Plains this year. If current spring wheat cultivars were susceptible to stem rust, a serious epidemic with substantial yield losses would occur.

**Wheat leaf rust.** During the final week in June, leaf rust on winter wheat was moderate in central and western South Dakota and moderate to severe in eastern South Dakota. Susceptible cultivars like Alliance, Jagger, TAM 107 and Rose had 100% severities at the soft dough maturity stage in east central South Dakota varietal plots. The rust infections

in South Dakota probably originated from inoculum sources in Oklahoma and Kansas. As in previous years winter wheat flag leaves dried up quickly because of leaf rust and hot windy conditions throughout South Dakota.

During the first week in July, leaf rust severities of 60% were reported on the flag leaves of susceptible spring wheat cultivars, e.g., 2375, and Oxen, in south central Minnesota plots. In fields, severities ranged from trace to 10% on the lower leaves of spring wheats in western Minnesota and eastern South Dakota. This year, leaf rust is not as severe and concentrated in the Upper Midwest as last year. Less inoculum arrived from the south, but weather conditions still favored infection. The spring wheat cultivars currently grown are more susceptible than those planted 10 years ago.

In late June, susceptible winter wheat cultivars had leaf rust severities ranging from 20-50% in southeastern North Dakota plots.

In early July, wheat leaf rust was increasing on spring wheats in eastern Washington fields and susceptible wheats in nurseries had 60-70% severities.

**Wheat stripe rust.** In late June, wheat stripe rust was widespread in central and eastern South Dakota on winter wheat. In plots at Brookings, some winter wheat plots had a high level of infection, e.g., 80% on Siouxland. Traces of stripe rust were found easily in spring wheat fields and nursery plots. In foci centers, 30% severities were observed in some spring varieties and lines. By the later part of the first week in July, stripe rust development had slowed in South Dakota because of the hot temperatures during the day and temperatures at night that were greater than 60 degrees.

By late June, wheat stripe rust was starting to increase on spring wheats in the Pacific Northwest, and the susceptible cultivars were sprayed with fungicides. Rust losses will be minimal, since most of the cultivars have high temperature, adult plant resistance.

**Oat stem rust.** During late June, 1% oat stem rust severities were found in commercial fields in south central Wisconsin and trace-5% severities were reported in plots in south central Minnesota and east central South Dakota. In general, oat stem rust is more scattered than last year on the same date, throughout the northern oat-growing area.

**Oat crown rust.** By early July, 40% severities were observed on flag leaves of oat in south central Minnesota plots, while in fields 1-5% severities were found on the lower leaves. In early July, crown rust had developed very slowly at east central South Dakota and west central Minnesota nurseries with trace to 20% severities on lower leaves of cultivars at the milk growth stage.

In late June, crown rust severities were more severe and infections earlier than normal on susceptible oat yield plots at Guelph, Canada.

**Barley stem rust**. In early July, 5% stem rust severities were observed on 10% of the

plants of the 2 row barley Hypana, in west and south central Minnesota plots. No stem rust was found on barleys with the T-gene, e.g., Robust.

In mid-July, 10% stem rust severities were reported on wild barley (*Hordeum jubatum*) growing alongside the roadway in eastern South Dakota and west central Minnesota. The last 2 years stem rust observed on wild barley was very extensive throughout the northern Great Plains. The rust developed early on the wild barley because of the early spring and resulting earlier maturity of the wild barley. In general, the barleys are more susceptible to stem rust as they mature. If current spring wheat cultivars were susceptible to stem rust, the stem rust on wild barley would be a significant source of inoculum and substantial yield losses would occur.

**Barley leaf rust.** In early July, 40% severities were reported on lower leaves in spring barley plots in south and east central Minnesota and east central South Dakota.

In late June, barley leaf rust was moderate on winter barley yield plots and was starting to appear on susceptible spring barley near winter barley strips at the Guelph, Canada research station.

**Stripe rust on barley.** By late June, stripe rust on barley was starting to increase on spring barley in eastern Washington and susceptible cultivars were rated from 20 to 50% in plots. Fields of susceptible cultivars were sprayed with fungicides and rust losses will be minimal.

**Barley crown rust.** In late June, traces of crown rust were found in plots and fields in eastern South Dakota and in south central and east central Minnesota plots.

**Rye leaf rust.** By early July, 40% leaf rust severities were found on upper leaves of spring rye in plots in southern and west central Minnesota.

**Rye stem rust**. There have been no new reports of rye stem rust since CRB #3 (http://www.cdl.umn.edu/CRB/2000CRB/00crb3.html).

**Stem rust on Barberry.** There have been no new reports of stem rust on barberry since CRB #6 (http://www.cdl.umn.edu/CRB/2000CRB/00crb6.html).