

# CEREAL RUST BULLETIN

Report No. 5

May 21, 1997

From:

CEREAL RUST LABORATORY  
U.S. DEPARTMENT OF AGRICULTURE  
UNIVERSITY OF MINNESOTA, ST. PAUL 55108

(612) 625-6299 FAX (612) 649-5054  
Internet: markh@puccini.crl.umn.edu  
<http://www.crl.edu/>  
rust survey mail list: cereal-rust-survey@coafes.umn.edu

Issued by:

AGRICULTURAL RESEARCH SERVICE  
U.S. DEPARTMENT OF AGRICULTURE  
(In cooperation with the Minnesota  
Agricultural Experiment Station)

- Wheat leaf rust is more severe than usual in Texas with some indication that new races may be attacking previously resistant cultivars.
- Although wheat stem rust overwintered in Louisiana, it was not found in Texas until early May, where it is too late for it to cause significant damage.

By the second week in May, winter wheat harvest had started from southern Georgia across southern Texas to southern California. Much of the crop in the central plains is a few days behind normal maturity for this date, but with more warm dry weather, the crop should develop at near normal rate. The cold weather in the spring grain-growing area delayed planting and crop emergence behind average for this date. Spring grain planting will be 2-3 weeks later than normal near the Red River of the North .

**Wheat stem rust.** The first report of stem rust in Texas was in early May in varietal plots in central Texas. As reported in the previous bulletin, stem rust overwintered in Louisiana, and is locally severe in at least one field in northeast Louisiana. In mid-May, traces of stem rust were found in plots in both southern and northeast Louisiana. Wheat in the Mississippi Valley will be most at risk from the northward spread of stem rust from Louisiana this year.

**Wheat leaf rust.** By harvest time in south Texas, wheat leaf rust was more severe than normal. By the second week in May, leaf rust was severe in plots in central Texas. Most commercial cultivars in Texas are showing susceptible reactions to leaf rust this year, which suggests that there may be new races in the area. Reports indicate that resistance of the cultivars Big Dawg, Longhorn and Tomahawk is still holding up fairly well. By testing leaf rust collections at the Cereal Rust Lab, we should be able to determine what new races, if any, developed in Texas this year. The earliest collections have turned out to be races that have occurred in previous years.

Leaf rust was found on flag leaves of wheat in the southern tier of counties of Kansas (excluding the far southwest) early in May. By mid-May, leaf rust severity on flag leaves in south central Kansas was as high as 40% in some fields of susceptible winter wheat cultivars. In plots in the same area, severities on the flag leaves ranged from 0 to 60%. In mid-May, leaf rust was also found on flag leaves throughout central and northern Kansas, but in those areas there was little rust on the lower leaves. The lack of rust on lower leaves indicates that the flag leaf infections came from spore showers from outside the region. From the timing of the infection, it appears that Texas was the most likely source of the spores. Leaf rust that overwintered on lower leaves of wheat in southern Kansas was slow to develop due to the cooler than normal night temperatures. In southern Kansas, the rust was late in moving to the flag leaves from which it could be spread farther north by wind. Leaf rust can now be found throughout Kansas (Fig. 1). Wheat in the west and south central areas of the state is under moisture stress. Overall, leaf rust is developing more slowly than expected, but recent warm temperatures and more moisture will result in faster increase of rust, so significant damage may still occur.

In southern Arkansas during early May, leaf rust development on flag leaves was severe in many late-planted fields of susceptible cultivars. Cultivars most affected were Wakefield, Hazen, Jackson, Coker 9803, Hickory and Pioneer 2580. While the leaf rust epidemic in t epidemic in southern Arkansas was too late to cause major damage on the whole wheat crop, this is the most significant rust problem in several years in the state and will cause damage in late-maturing fields.

In mid-May, in the coastal plain of South Carolina, wheat leaf rust caused premature senescence of the state's predominant cultivar (Coker 9835). No preliminary estimates of yield losses to leaf rust are available yet for South Carolina.

Leaf rust was severe in the San Joaquin Valley of California by mid-May, but because of the advanced crop development, losses are not expected to be significant.

The leaf rust races identified so far in the 1997 survey (Table 1) were also found in previous surveys. Race MBRL, the most commonly identified race this year, was also the most common race the last four years.

Table 1. Wheat leaf rust races identified through May 16, 1997

Prt code	Virulence formula <sup>1</sup>	Number of isolates per state				
		AL	AR	GA	LA	TX
MBBL	1,3,10		1			
MBRL	1,3,3ka,10,11,30	3	6		2	3
MCBL	1,3,10,26					1
MFBL	1,3,10,24,26		3			
TBBL	1,2a,2c,3,10			1		
TDBL	1,2a,2c,3,10,24		2			6
TDRL	1,2a,2c,3,3ka,10,11,24,30					2
TFCL	1,2a,2c,3,10,24,26,30			1		
TLGG	1,2a,2c,3,9,11,18			2		
Number of isolates		3	12	4	2	12
Number of collections		2	6	2	1	8

<sup>1</sup>Single gene resistances evaluated: *Lr* 1, 2a, 2c, 3, 3ka, 9, 10, 11, 16, 17, 18, 24, 26, 30.

**Wheat stripe rust.** In mid-May in Arkansas, south of I-40, stripe rust was still active in many wheat fields because of the cool temperatures. Fungicides were sprayed in some fields to control the rust.

Wheat stripe rust was increasing in central Washington in mid-May on hard red winter and club wheats. Little rain has fallen in the last two weeks so rust infection periods have decreased.

**Oat stem rust.** During the second week in May, oat stem rust was increasing rapidly in varietal plots in College Station, Texas. Severe oat stem rust was found in varietal plots and fields throughout central and northeastern Louisiana by mid-May.

In early May, oat stem rust was found in plots in the Sacramento Valley of California.

From collections made in south Texas in late March, the common race NA-27 was identified.

**Oat crown rust.** Throughout the southern U.S., crown rust has continued to increase on oats and is now as severe as in any of the last 3 years. Inoculum from the south is likely to have an impact on crown rust increase farther north.

Crown rust pycnia appeared on buckthorns in St. Paul on May 19. The infections apparently came from basidiospores released from germinating teliospores on infected straw during rains on May 7-8. Buckthorn bushes are the alternate host for crown rust and generally provide the initial spores for crown rust infections of the northern oat crop. Aeciospores, which can infect oats, will likely begin to be produced on the infected buckthorn leaves within 1 to 2 weeks.

**Barley stem rust.** As of May 20, no barley stem rust has been reported in the U.S. this year. Limited amounts of barley are grown commercially in the southern states. Stem rust on barley rarely occurs in this area.

**Barley leaf rust.** There have been no new reports of barley leaf rust since the April 22 bulletin.

**Stripe rust on barley.** There have been no new reports of barley stripe rust since the last bulletin.

**Rye rusts.** Rye leaf rust was found in a nursery in Plains, Georgia on May 13. Forty-percent leaf rust severities were observed on winter rye in fields in north central Oklahoma on May 19. As of May 20, no rye stem rust has been reported in the U.S.

Cereal Rust Bulletin #6 is tentatively scheduled for June 3.

**Special Note:** CRL web page and mail problem

The Cereal Rust Lab web page is moving; please update your bookmarks. The new url is:  
<http://www.crl.umn.edu/>

We apologize for the difficulty that some of you have had in getting messages to us and in some cases receiving messages from us. Many of the messages were delayed by a glitch in the campus computer system. We believe the problem is now fixed.

Fig. 1. Leaf rust severities in wheat fields on May 21, 1997

