CEREAL RUST BULLETIN

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Issued by:

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- Wheat stem rust has appeared from Indiana to North Dakota.
- Wheat leaf rust is developing slowly throughout the northern Great Plains.
- Wheat stripe rust is more widespread this year through the northern soft red winter wheat areas than has been seen for at least 20 years.

The winter wheat harvest has begun from southern Pennsylvania to southern Nebraska. Most of the northern planted spring small grains are 1 to 2 weeks ahead of normal crop maturity.

Wheat stem rust. In mid-June, foci of stem rust were found in soft red winter wheat fields in northeastern Missouri, east central Illinois, west central Indiana, and south central Wisconsin. Rust severity ranged from 1 to 20% in the center of the foci to traces at about 1 foot from the center. In eastern Nebraska, leaves of hard red winter wheat were heavily infected, but stems were only slightly infected. On June 18, traces of stem rust were found on the hard red winter wheat cultivar 2137 in southeastern North Dakota. Rust pustules were on both the leaf blades and leaf sheaths, which is unusual for stem rust except when the spores are rain deposited, as likely occurred in the infections found in North Dakota and those seen in Nebraska.

Wheat leaf rust. By the second week in June, 40% leaf rust severities were reported in plots of susceptible soft red winter wheat cultivars from northeastern Missouri to northwestern Ohio and in fields severities ranged from 0 to 10% (Fig. 1). In fields in northwestern Ohio, 5% severities were noted on 20% of the wheat plants at the 1/2 berry maturity stage. The latest rains should provide enough moisture for further rust increase before harvest.

During the first week in June, 10% leaf rust severities were observed on the flag leaves of susceptible winter wheat cultivars and traces on the lower leaves of susceptible spring wheats in Rosemount, Minnesota plots.

By mid-June, 20% severities were reported on susceptible winter wheat cultivars at the early boot stage in east central North Dakota. In mid-June, trace to 15% severities were observed on susceptible spring wheat cultivars in central North Dakota.

In mid-June, traces levels of wheat leaf rust were common in wheat fields of central and western New York and southern Wisconsin. Both May and June were characterized by above normal precipitation and below normal temperatures.

The preliminary leaf rust race identifications from collections made in the southern U.S. in March and April are presented in Table 1. As stated in the previous bulletin the most significant change in the race population has been an increase in the T-- races (virulent to Lr1, 2a,2c, 3, +), particularly, an increase in T-- races with virulence to *Lr*9 and 10 .

Wheat stripe rust. By mid-June, wheat stripe rust development was extensive from central Illinois to southwestern Michigan and severities ranged from traces to 20%. This was the most widely dispersed stripe rust development observed throughout the northern soft red winter wheat area in at least 20 years. In the northern most locations rust severities ranged from trace to 10% and the pustules were healthy looking. If conditions stay cool and moist the rust should continue to increase. At many of these locations stripe rust was found together with leaf rust on the same leaf which could mean that they developed from the same spore shower. Much of this stripe rust development originated from spores produced farther south in Texas, Arkansas, or adjacent states.

On June 8, light amounts of wheat stripe rust were found in soft red winter wheat plots at Rosemount, Minnesota. Hot temperatures that followed the initial rust sighting in the Minnesota plots may have set back the rust development, but cooler weather in mid-June may result in further increase.

In mid-June, traces of wheat stripe rust were found on the 2137 cultivar in southeastern North Dakota.

During the second week in June, wheat stripe rust was found in a northeastern Colorado field. Normally, stripe rust is found at higher elevations in Colorado, i.e, San Luis Valley (7,500 ft) or front range of the Rockies.

Oat stem rust. In mid-June, trace to 40% stem rust severities were observed in oat plots at the berry growth stage in northeastern Missouri.

Oat crown rust. By mid-June, oat in the buckthorn nursery in St. Paul, Minnesota, had severe (80% severities) crown rust infection on lower leaves and 5% severities on the upper leaves in the spreader row. Traces of crown rust were found on oat in the other St. Paul nurseries. In mid- June, trace levels of oat crown rust were detected in south central Wisconsin fields.

Barley stem rust. No new occurrences of barley stem rust have been reported in the U.S. since bulletin 4 (http://www.cdl..umn.edu/CRB/2000CRB/00crb4.html).
Barley leaf rust. No new occurrences of barley stem rust have been reported in the U.S. since bulletin 4 (http://www.cdl..umn.edu/CRB/2000CRB/00crb4.html).

Stripe rust on barley. No new occurrences of barley stripe rust have been reported in the U.S. since bulletin 5 (http://www.cdl..umn.edu/CRB/2000CRB/00crb4.html).

Barley crown rust. In mid-June,traces of crown rust were observed on barley near the buckthorn nurseries at Fargo, North Dakota and St. Paul, Minnesota.

Rye leaf rust. In mid-June, 40% leaf rust severities were reported in a rye field in northwestern Ohio.

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. In mid-June, a few aecial infections were observed on common barberry bushes in south central Wisconsin.

Table 1. Preliminary wheat leaf rust race identifications through June 19, 2000

		Number of isolates						
Prt code	Virulence formula[1]	AL	AR	FL.	GA	LA	SC	TX
FBGD	2c,3,11,14a					1		
FBMT	2c,3,3ka,10,14a,18,30,B					4		
FCMT	2c,3,3ka,10,14a,18,26,30,B					2		
MBDP	1,3,10,14a,17,B							10
MBRL	1,3,3ka,10,11,30	2		1				
MBRN	1,3,3ka,10,11,14a,30	2	1					3
MBRR	1,3,3ka,10,11,18,30,B	2						
MBRS	1,3,3ka,10,11,14a,18,30	2	1				2	
MCPP	1,3,3ka,10,14a,17,26,30,B					4		
MCRS	1,3,3ka,10,11,14a,18,26,30	8		2	2	6		
MDMN	1,3,3ka,10,14a,24,30	2						
MFPN	1,3,3ka,10,14a,17,24,26,30							1
PCRT	1,2c,3,3ka,10,11,14a,18,26,30,B					2		
PLMN	1,2c,3,3ka,9,10,14a,30							1
TBBL	1,2a,2c,3,10							2
TBBM	1,2a,2c,3,10,B							2
TBDN	1,2a,2c,3,10,14a,17							1
TBGN	1,2a,2c,3,10,11,14a					2		1
TCBN	1,2a,2c,3,10,14a,26					11		1
TCDP	1,2a,2c,3,10,14a,17,26,B	1		1				2
TDRN	1,2a,2c,3,3ka,10,11,14a,24,30					2		
TFBN	1,2a,2c,3,10,14a,24,26							1
TFDP	1,2a,2c,3,10,14a,17,24,26,B					2		2
TFGN	1,2a,2c,3,10,11,14a,24,26	2						
TFRQ	1,2a,2c,3,3ka,10,11,18,24,26,30					2		
TGMT	1,2a,2c,3,10,14a,16,18,30,B					2		

TLGJ	1,2a,2c,3,9,11,14a,18	4			4			
TLGN	1,2a,2c,3,9,10,11,14a			1	2	3		1
TLGP	1,2a,2c,3,9,10,11,14a,B					6		
TLRN	1,2a,2c,3,3ka,9,10,11,14a,30				1	2		
TNGN	1,2a,2c,3,9,10,11,14a,24							2
TNRN	1,2a,2c,3,3ka,9,10,11,14a,24,30					8		1
Number of isolates		25	2	5	9	59	2	31
Number of collections		13	1	3	5	31	1	17

[1]Single gene resistances evaluated: *Lr*1, 2a, 2c, 3, 3ka, 9, 10, 11, 14a, 16, 17, 18, 24, 26, 30,

Fig. 1. Leaf rust severities in wheat fields on June 19, 2000