CEREAL RUST BULLETIN

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From:

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- Oat crown rust was unusually severe in nurseries in Ohio and Pennsylvania in 1995.
- Traces of wheat stem rust were found in plots of susceptible wheat at several locations in the northern Great Plains.
- Barley stripe rust was severe in Klamath Valley in south-central Oregon; also barley stripe rust was reported for the first time in Pullman, Washington.

The winter wheat harvest has begun from southwestern New York to southeastern South Dakota. In the northern Great Plains, most of the spring-sown grains are in good condition and a few days behind normal crop development.

Wheat stem rust. In mid-July, traces of wheat stem rust were found in plots of the susceptible spring wheat Baart in east central South Dakota, southeastern North Dakota and west central Minnesota. The stem rust development this year throughout the northern plains was normal with more rust than last year on the same date. Commercial spring wheats will not be damaged because their stem rust resistance is still highly effective.

In mid-July, traces of stem rust were detected in wheat plots in the Pullman, Washington nursery.

There have been no new wheat stem rust races identified since the July 11 Cereal Rust Bulletin.

Wheat leaf rust. In mid-July, severities of trace-60% were common on flag leaves in east central Minnesota and eastern South Dakota winter wheat plots. In susceptible spring wheat plots, trace-20% severities were common, while in spring wheat fields, no leaf rust was noted in the northern Great Plains.

In mid-July, in the Palouse area of Washington, 80% severities were observed on susceptible winter wheat cultivars growing in nurseries while in fields, rust was less but was increasing.

The wheat leaf rust races identified so far in the 1995 survey are presented in Table 1. There has been an increase in the number of races with *Lr* 26 as part of their virulence package. In 1994, five

different races with *Lr* 26 virulence had been identified by mid-July, while ten races with *Lr* 26 virulence have been identified in 1995. Race SBD (virulent on *Lr* 1,2a,2c,17) was identified from two *Triticum* (*Aegilops*) *cylindrica* collections made in southwestern Oklahoma. This is the same race identified from *T. cylindrica* collections in previous surveys. The interesting thing about this race is that it is avirulent on *Lr* 3 and 10 and has not been identified from collections made from wheat in southwestern Oklahoma and northern Texas.

Table 1. Wheat leaf rust races identified through July 24, 1995

		Number of isolates by state											
Race	Virulence formula	AL	AR	CA	FL	GA	IN	KS	LA	NC	OK	SC	TX
CBG-10,18	3,10,11,18					2							
FBT-18	2c,3,3ka,11,17,18,30	1											
FCD-10	2c,3,10,17,26												2
LBB-10,18	1,12,18										3		
LCG-10,18	1,10,11,18,26									5			
MBB-10	1,3,10			14									
MBG	1, 3, 11	6								1			
MBG-10	1,3,10,11	18	8	13	2	2			4	14	2		1
MBG-10,18	1,3,10,11,18					6							
MBJ-10	1,3,10,11,17										1		2
MBR-10	1,3,3ka,10,11,30	14	12	1				3	2	3	5	1	12
MCB-10	1,3,10,26			2									1
MCD-10	1,3,10,17,26												2
MCG-10	1,3,10,11,26			1									
MCH-10	1,3,10,11,26,30			2									
MCR-10	1,3,3ka,10,11,26,30	3								3	1		5
MCR-10,18	1,3,3ka,10,11,18,26,30			3									
MDB-10	1,3,10,24							1			1		2
MDG-10	1, 3, 10, 11, 24		1										1
MDR-10	1,3,3ka,10,11,24,30										7		6
MFB-10	1,3,10,24,26												1
MGB-10	1,3,10,16												1
PBG-18	1, 2c, 3, 11, 18											2	
PBR-10,18	1,2c,3,3ka,10,11,18,30		2				2						
PNM-10,18	1,2c,3c3ka,9,10,11,24,30		2										
PNR-10	1,2c,3,3ka,9,10,11,24,30	2											2
TBG	1, 2a, 2c, 3, 11	1											
TBG-10	1,2a,2c,3,10,11											1	3
TDB-10	1,2a,2c,3,10,24												2
TDG-10	1,2a,2c,3,10,11,24		1										7
TFB-10	1,2a,2c,3,10,11,24									1	1		7
TFG-10	1,2a,2c,3,10,11,24,26	3									1		
TLG-18	1,2a,2c,3,9,11,18	6			2	4				7	3	4	2
No. of isolates		54	26	36	4	14	2	4	6	34	25	8	59

1 Near isogenic resistances evaluated: *Lr* 1,2a,2c,3,3ka,9,10,11,16,17,18,24,26,30

Wheat stripe rust. During early July, traces of wheat stripe rust were found in an irrigated winter wheat field in the panhandle of Nebraska.

Stripe rust was severe in plots of susceptible winter wheat in the Palouse area of Washington in early July, but stripe rust was not a problem in commercial fields with adult plant resistance.

Oat stem rust. In mid-July, traces of oat stem rust were found in plots in east central Minnesota, but no rust was found on a disease survey throughout eastern South and North Dakota. Much less oat stem rust was found in the northern Great Plains this year than in previous years. The reduced amount of oat stem rust seems to be associated with a decline in oat production. Oat acreage in the United States is projected to be the lowest since records began in 1866. No new oat stem rust races have been identified since Cereal Rust Bulletin #7.

Oat crown rust. In mid-July, trace-40% crown rust severities were found on oat flag leaves throughout the eastern Dakotas, southern Minnesota and southern Wisconsin fields. The most severe rust was found in fields where rust occurred early and conditions were conducive for rust development. Buckthorn growing in close proximity to oat fields provided some of the initial inoculum in these areas, i.e., southern Wisconsin and southern Minnesota. In mid-July, only traces of crown rust were recorded in northwestern North Dakota plots. Losses will be lighter than last year, but the most heavily infected fields will still suffer significant damage.

For the first time in the past 12 years, crown rust was observed in the oat nursery at Wooster, Ohio. Severities ranged from traces to 90% on the flag leaf. Also for the first time in 35 years, crown rust is severe in the oat nursery near University Park in central Pennsylvania.

Barley stem rust. During mid-July, traces of stem rust were found in spring barley plots in east central Minnesota and on wild barley (*Hordeum jubatum*) growing on the roadside in northeastern South Dakota. This is the least amount of barley stem rust that has been reported in the last five years. Stem rust will cause little or no yield loss in barley this year, because most of the crop in the southern barley-growing area of the Northern Plains is in the soft dough stage or more mature.

Barley leaf rust. During mid-July, light barley leaf rust (<10%) was found in southern and west-central Minnesota plots and a field in central Minnesota.

Barley stripe rust. In early July, severe barley stripe rust was reported in fields in the Klamath Valley of south central Oregon and light severities in south central Idaho fields. In mid-July, light barley stripe rust was found scattered throughout the nurseries at the Pullman, Washington experiment station. This was the most barley stripe rust ever seen at this location.

Barley crown rust. In mid-July, barley crown rust was observed in Hypana barley plots in southern and east-central Minnesota.

Rye stem rust. There have been no new reports of rye stem rust.

Rye leaf rust. In mid-July, 20% rye leaf rust severities were observed in southern and west-central Minnesota plots of the spring rye cultivar Prolific.

Rust on other grasses. During the third week in July, severe (65% severity) stem rust was found on quackgrass (*Agropyron repens*) that was growing within 100 yards of the common barberry (*Berberis vulgaris*) in southeastern Minnesota.