

CEREAL RUST BULLETIN

Report No. 6

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From:
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Agricultural Experiment Station)

- Barley stripe rust now seems firmly established in the Pacific Northwest
- Wheat leaf rust is severe from eastern Virginia to north-central Kansas
- Stem rust was found on wheat in southern Illinois, southeastern Indiana and southern Minnesota

Spring-sown small grains are in good condition and moisture is adequate in most of the northern Great Plains. Some small grain fields were still being planted on June 14 in North Dakota. Growth stages varied considerably between fields.

Wheat stem rust. During the second week in June, wheat stem rust foci were observed in fields of soft red winter wheat in southern Illinois and in wheat plots in southwestern Indiana at the soft dough stage. In the center of the foci, 40% severities were common; however, eight feet from the center only traces of rust were present. Stem rust spores apparently were deposited 4-6 weeks ago, but expansion of the foci from sites of initial infections was restricted by frequent rains that kept the wheat canopy wet and prevented newly produced spores from being released and carried out of the canopy by wind currents.

Traces of wheat stem rust were found on the susceptible spring wheat cultivar Baart in southern Minnesota plots on June 19.

Wheat leaf rust. During early June in central Kansas, rust severities ranged from greater than 60% to less than 10% in fields only short distances apart. Damage will vary with local conditions, but some fields will suffer losses in yield. Hot dry weather in Kansas and southern Nebraska in mid-June prematurely dried many leaves on the wheat plants, thereby slowing leaf rust development. Goatgrass (*Aegilops cylindrica*) in a wheat field in Rooks Co., Kansas had 80% leaf rust severity. Forty to sixty percent severities were found on susceptible wheat cultivars in plots in east-central Nebraska the third week of June.

Traces to 40% severities were observed in soft red winter wheat fields and nurseries at the soft dough stage in southern Illinois and southwestern Indiana in mid-June (Fig. 1). Moderately severe leaf rust has been found from Nebraska through much of the rest of Illinois, Indiana, and Ohio. Most wheat to the north of this area has trace to light leaf rust. Fields and plots in northwestern Ohio at the half-berry stage in mid-June had only traces of rust. In central Michigan, however, leaf rust was moderately severe by the second week in June, suggesting that leaf rust overwintered there.

Traces of leaf rust were found in the lower canopy of winter wheat near Aurora in the Finger Lakes area of New York at the watery-ripe growth stage, suggesting that leaf rust may have overwintered there.

In southern Minnesota plots, the susceptible cultivar Baart had 10% leaf rust severity on the lower leaves during the third week in June. No leaf rust was present in plots at Fargo, ND as of June 7. Leaf rust was found on the winter wheat cultivar Roughrider in southeastern North Dakota fields on June 2, by June 15 the incidence and severity (traces) were relatively unchanged. Leaf rust was detected on flag leaves of wheat growing in winter wheat plots south of Winnipeg, Canada by mid-June. The infections were heavier than normal for this early in the season.

Leaf rust severities as high as 80% have been found in irrigated winter wheat at early dough stage in central Washington. Severities are light to moderate in dry land wheat in central Washington and trace to light in the Palouse area of eastern Washington.

No new leaf rust races have been identified since Cereal Rust Bulletin # 5.

Wheat stripe rust. There have been no new reports of wheat stripe rust being found in the central U.S. wheat-growing area since the last bulletin. Recent hot weather in the Great Plains is expected to stop stripe rust development throughout this area. Cool, wet weather in the Pacific Northwest in early June favored stripe rust increase. Dry weather in May had retarded earlier stripe rust development there.

Oat stem rust. There have been no new reports of oat stem rust since the last bulletin.

Oat crown rust. During the third week in June, trace to 10% crown rust severities were found on lower leaves in oat plots in southern Minnesota. Oats in the buckthorn nursery at St. Paul are severely infected. Oat spreader plots in a buckthorn nursery in southern Ontario are heavily infected with crown rust.

Incidence of virulence for 1995 crown rust isolates tested to date can be found in Table 1.

Barley stem rust. There have been no new reports of barley stem rust since traces were found in a north-central Texas plot in late April. Limited amounts of barley are grown commercially in the southern and central plains states. Barley stem rust was not found in this area in the last two years.

Barley leaf rust. By the first week in June, barley leaf rust severities were greater than 5% in central Michigan fields. Twenty percent severities were found in plots in east-central Nebraska and traces in southern Minnesota plots the third week of June.

Barley at Lincoln, Nebraska and DeWeese, southeast of Hastings, Nebraska, was heavily infected with leaf rust on June 7.

Barley leaf rust was severe on some winter barleys in a nursery in southern Ontario, while leaf rust on spring barleys in the nursery is currently limited due to the amount of mildew.

Barley stripe rust. Greenhouse tests have confirmed earlier reports of barley stripe rust on barley in western Washington and Oregon. Barley stripe rust moved north from southern Texas in just four years and now seems to be firmly established in the Pacific Northwest.

Rye leaf rust. During the second week in June, severe leaf rust (20% rust on lower leaves) was observed in a winter rye field in southern Illinois. Winter rye in a southeastern North Dakota field was heavily rusted (20-40% severity, 100% incidence) in mid-June, suggesting the rust overwintered, while rye in fields 5 miles away were free of rust.

Crown rust on Buckthorn. Aecial infections on buckthorn, the alternate host for crown rust, were heavy in northern Iowa and southern Minnesota this year, but light in Wisconsin and Illinois. Aecial infections varied from light to heavy in North Dakota. In early June, aecia were found on buckthorn bushes in Winnipeg, Canada.

Stem rust on Barberry. During the first week in June, the aecial stage of stem rust was found on barberry bushes in southeastern Minnesota and in southern Wisconsin.

Note: Thanks to those of you who took the time to contact Dr. Dunkle in support of the Cereal Rust Laboratory and the Cereal Rust Bulletin; we appreciate the support. If you missed the note in the previous bulletins, you will find it repeated in the next paragraph.

As you no doubt know, all Federal Government agencies are reviewing their program priorities. If you feel that this publication and the related activities of the Cereal Rust Lab are important to you, you can help us by calling the USDA, ARS Midwest Area Director, Dr. Richard Dunkle, 1815 N. University Street, Peoria, IL 61604, phone# 309-681-6602 (Internet address: !A03ADMWA@ATTMAIL.COM). Dr. Dunkle will be glad to discuss how you can make your feelings known in Washington.

TABLE 1. Incidence of virulence in 1995 oat crown rust isolates tested to date (6-16-95)

Differential	Percent of isolates virulent		
	AL, FL, GA	LA	TX
Pc 14	78	71	80
Pc 35	78	76	42
Pc 36	22	2	41
Pc 38	17	18	24
Pc 39	11	4	23
Pc 40	83	78	92
Pc 45	6	6	6
Pc 46	33	35	56
Pc 48	11	0	0
Pc 50	28	22	42
Pc 51	83	82	77
Pc 52	11	0	0
Pc 53	0	0	0
Pc 54	6	20	8
Pc 56	11	0	36
Pc 57	0	0	15
Pc 58 TAM-O-301	27	38	13
Pc 59 TAM-O-312	56	82	16
Pc 60 Coker 227	89	92	82
Pc 61 Coker 234	89	82	79
Pc 62	0	0	0
Pc 63	11	4	21
Pc 64	0	12	3
Pc 67	17	16	76
Pc 68	0	4	0
Pc 70	12	6	20
Pc 71	11	4	23
H548	6	0	0
Dane	0	0	6
WI X4361-9	0	0	2
TAM-O-386R	0	0	17
TAM-O-393	0	8	3
Mitchell	86	72	82
No. of isolates	18	49	66

Fig. 1. Leaf rust severities in wheat fields on June 20, 1995

