

Stripe Rust (*Puccinia striiformis*, f. sp. *hordei*) Data – 2007 Spring Barley Nurseries

The attached data was provided by Dr. Xianming Chen, Plant Pathologist, USDA/ARS, Pullman, WA that lists the stripe rust evaluations for spring barley varieties included in the 2007 WSU Extension Uniform Cereal Variety Testing Program nurseries. We appreciate the support that Dr. Chen provides on conducting these evaluations. The data represents stripe rust evaluations at two field sites managed by Dr. Chen in 2007: (Loc 4, Whitlow Farm near Pullman) and (Loc 5, at Mt. Vernon in northwestern Washington). , one (Loc 6 at Walla Walla) in southeastern Washington, and one (Loc 7 at Lind) in central Washington.

Included in the data is a listing of Infection Type (IT) {see discussion below} and Severity (%) – the percent of leaf area of a variety that is infected by stripe rust at the time of evaluation. In some situations there are two numbers separated by a comma (,) under the IT (infection type) column. When this occurs the majority of the plants of a variety have an IT represented by the first number and a few have IT represented by the second number. In addition to stripe rust, Dr. Chen reports on other foliar diseases when observed.

STRIPE RUST: INFECTION TYPES: A 0-9 scale described below was used for recording infection types (ITs). Generally, an infection type (IT) from 0-4 shows necrotic symptoms with slight rust sporulation. Scores of 5-9 indicate damaging infection – the rust is continuing to develop and infect. **SEVERITY (%):** Severity is a percentage of the leaf area of a variety that is being infected with stripe rust. The following scale is described in: *Technical Bulletin Number 1788, Virulence, Aggressiveness, Evolution, and Distribution of Races of Puccinia striiformis (the Cause of Stripe Rust of Barley) in North America, 1968-87, Feb. 1992*. Both scales are used in the data sets to depict the impact of stripe rust on varieties.

0 = no visible signs or symptom

1 = necrotic and/or chlorotic flecks; no sporulation

2 = Necrotic and/or chlorotic blotches or stripes; no sporulation

3 = Necrotic and/or chlorotic blotches or stripes; trace sporulation

4 = Necrotic and/or chlorotic blotches or stripes; light sporulation

5 = Necrotic and/or chlorotic blotches or stripes; intermediate sporulation

6 = Necrotic and /or chlorotic blotches or stripes; moderate sporulation

7 = Necrotic and/or chlorotic blotches or stripes; abundant sporulation

8 = Chlorosis behind sporulating areas; abundant sporulation

9 = No necrosis or chlorosis; abundant sporulation

Attached is the stripe rust data file for 2007 Spring Barley Variety Trial Nursery. Except for Lind, we had adequate rust severity for reliable data in all locations. Most entries showed good level of resistance. Let me know if there are any questions. Thanks.

TABLE XMC0752. STRIPE RUST INFECTION TYPE (IT) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE WSU EXTENSION UNIFORM CEREAL VARIETY SPRING BARLEY VARIETY TRIAL NURSERY (EXP52) AT WHITLOW FARMS (LOC 04) NEAR PULLMAN AND MT VERNON (LOC 05), WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH IN 2007 UNDER INCOLULATED (WHITLOW) OR NATURAL (MT VERNON) INFECTION. Chen, X., Plant Pathologist, USDA/ARS, Pullman, WA., 2007.

NOTE: 1) ONLY THE MT VERNON LOCATION HAD SEVERE STRIPE RUST FOR GOOD DATA. STRIPE RUST WAS LIGHT AT WHITLOW DUE TO THE LATE INOCULATION AND DRY AND HOT JULY WEATHER. THEREFORE, ENTRIES THAT HAD IT 8 SHOULD BE CONSIDERED SUSCEPTIBLE. 2) THERE WERE ALMOST NO STRIPE RUST AND OTHER DISEASES IN NURSERIES PLANTED AT THE SPILLMAN AND PLANT PATH FARMS NEAR PULLMAN, WALLA WALLA, AND LIND.

2007 ENTRY	VARIETY NAME	IDENTITY	CLASS	Whitlow Farm (Pullman)		Mt Vernon, WA			
				LOC 04 ⁽¹⁾		LOC 05			
				7/16/07		5/31/07		7/9/07	
				FS 11.2 ⁽¹⁾		FS 6		FS 11.1	
				IT	%	IT	%	IT	%
1	BARONESSE	BARONESSE	2-Row	0	0	5	1	5	50
2	FARMINGTON	WA9504-94	2-Row	0	0	2	1	2	1
3	BOB	WA8682-96	2-Row	0	0	2	1	2	1
4	RADIANT	98NZ223	2-Row	0	0	2	2	8	40
5	BOULDER	BZ596-117	2-Row	2	1	5	1	8	90
6	CHAMPION	YU-501-385D	2-Row	0	0	8	10	8	100
7	HE-8805	HE-8805	2-Row	0	0	2	1	8	90
8	HARRINGTON	WA006783	2-Row	2	5	0	0	8	80
9	AC METCALFE	AC METCALFE	2-Row	0	0	0	0	5	1
10	SPAULDING	PB1-95-2R-522	2-Row	8	10	5	1	8	100
11	BURTON	98ID0251	2-Row	2	1	5	1	8	100
12	MOREX	M25	6-Row	8	5	8	1	8	100
13	LEGACY	6B93-2978	6-Row	0	0	8	20	9	100
14	HAXBY	MT950186	2-Row	2	1	5	1	8	100
15	01NZ111	01NZ111	2-Row	0	0	2	1	8	1
16	03NZ199	03NZ199	2-Row	0	0	5	1	8	5
17	01NZ706	01NZ706	6-Row	0	0	5	1	8	100
18	01NZ392	01NZ392	6-Row	0	0	2	1	8	50
19	01NZ384	01NZ384	6-Row	0	0	2	1	8	100
20	02WA-7028.9	02WA-7028.9	2-Row	0	0	8	5	8	30
	Step toe	(S Check)		8	30	8	5	8	100
21	02WA-7052.9	02WA-7052.9	2-Row	2	1	2	1	5	1
22	02WA-7018.13	02WA-7018.13	2-Row	0	0	2	1	5	5
23	02WZN-1015	02WZN-1015	2-Row	0	0	5	1	8	20
24	02WZN-1095	02WZN-1095	2-Row	0	0	8	10	8	30
25	02WZN-1100	02WZN-1100	2-Row	2	1	5	1	8	60
26	02WZN-1821	02WZN-1821	2-Row	0	0	5	1	2	1
27	02WZN-1990	02WZN-1990	2-Row	0	0	2	1	8	30
28	03WZN-045	03WZN-045	2-Row	0	0	2	1	8	1
29	04WZN-90	04WZN-90	2-Row	0	0	0	0	8	5
30	04WZN-55	04WZN-55	2-Row	8	1	5	1	8	80
31	04WZN-286	04WZN-286	2-Row	2	1	5	1	5	10
32	03WA-192.4	03WA-192.4	6-Row	8	1	8	10	8	5
33	01WA-13860.5	01WA-13860.5	2-RowNWx	2	10	5	10	8	60
34	02WA-7037.25	02WA-7037.25	2-RowNWx	2	1	5	1	8	80
35	WA 9820-98	WA 9820-98	2-RowNWx	0	0	2	1	0	0
36	MERESSE	BZ 594-35	2-RowNWx	0	0	5	5	8	90
	Step toe	(S Check)		8	20	8	1	8	100
	Step toe	(S Check)		8	30	8	1	8	100
	Oat Fill	(Fill)		0	0	0	0	0	0

⁽¹⁾ Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible.

⁽²⁾ Feekes cereal development scale: 11.2 (soft dough); 6 (1st node); 11.1 (medium-milk).