

Stripe Rust (*Puccinia striiformis*, *F. sp. hordei*) Data – 2008 Barley Nurseries
Data provided by Dr. Xianming Chen, Plant Pathologist, USDA/ARS, Pullman, WA

The table below shows the stripe rust evaluations for barley varieties included in the 2008 WSU Extension Uniform Cereal Variety Testing Program nurseries. We appreciate the support that Dr. Chen provides on conducting these evaluations. These data represent stripe rust evaluations at six field sites managed by Dr. Chen in 2008. The nurseries were located at six field sites. Three sites (Loc 1, Loc 3, and Loc 4) are near Pullman in eastern Washington, one (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. The Pullman, WA locations include:

- WSU Spillman Agronomy Farm (location 01)
- WSU Plant Pathology Farm (location 02)
- WSU Whitlow Farm (location 04)

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 notations 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 will report 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 Wheat) in North America, 1968-87, Feb. 1992*. Both scales are used in these 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

STRIPE RUST INFECTION TYPE (IT*) AND PERCENT (%) ON CULTIVARS AND LINES IN THE SPRING BARLEY EXTENSION NURSERY AT SPILLMAN (LOC1), PLANT PATH FARM (LOC03) AND WHITLOW FARM (LOC 04) NEAR PULLMAN AND MT VERNON (LOC 05), WALLA WALLA (LOC 6), AND LIND (LOC 7), WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH IN 2008 UNDER NATURAL INFECTION. SUSCEPTILITY TO POWDERY MILDEW (PM), AND LEAF RUST (LR) AND SCALD WAS MARKED. NOTE: STRIPE RUST DATA WERE ADEQUATE IN MT VERNON, BUT NOT ADEQUATE IN OTHER LOCATIONS BECAUSE OF LATE AND LIGHT DEVELOPMENT. DATA PROVIDED BY XIANMING CHEN USDA-ARS, PULLMAN, WA..

VARIETY NAME	Barley Class	2008 PLOT	Stripe Rust								Susceptible to other disease		
			LOC1	LOC3	LOC4	LOC5		LOC 6	LOC 7				
			7/24/08	7/22/08	7/16/08	6/6/08	7/8/08	7/1/08	7/3/08				
			S. dough	S. dough	S. dough	Jointing	Milk	Milk	Milk				
IT %	IT %	IT %	IT %	IT %	IT %	IT %	IT %	PM	LR	scald			
BOB	2-Row	1	0 0	0 0	2 1	8 1	5 30	0 0	0 0				
RADIANT	2-Row	2	8 1	0 0	8 1	8 1	8 80	0 0	0 0				
BARONESSE	2-Row	3	8 1	0 0	8 1	8 1	8 90	0 0	0 0				
CHAMPION	2-Row	4	8 1	8 1	8 1	8 2	8 100	0 0	0 0				
RWA 1758	2-Row	5	0 0	2 1	8 1	8 2	8 100	0 0	0 0				
KENT	2-Row	6	8 5	0 0	8 1	8 1	8 90	0 0	0 0				
HARRINGTON	2-Row	7	8 1	8 1	2 1	8 5	8 90	0 0	0 0				
AC METCALFE	2-Row	8	0 0	0 0	2 1	2 1	8 60	0 0	0 0				
SPAULDING	2-Row	9	8 1	8 5	8 1	2 1	8 100	0 0	0 0				
MOREX	6-Row	10	8 1	8 1	2 1	8 10	8 100	0 0	0 0				
LEGACY	6-Row	11	8 5	8 10	2 1	8 10	8 100	0 0	0 0				
CDC COPELAND	2-Row	12	8 1	8 1	8 1	8 5	8 80	0 0	0 0				
LENETAH	2-Row	13	8 1	2 1	2 1	8 5	8 100	0 0	0 0	PM			
HAXBY	2-Row	14	8 1	2 1	2 1	8 10	8 100	0 0	0 0	PM			
01NZ706	6-Row	15	2 1	2 1	8 1	8 5	8 100	0 0	0 0	PM			
01NZ384	6-Row	16	0 0	8 1	8 5	8 20	8 100	0 0	0 0	PM			
03NZ199	2-Row	17	0 0	0 0	8 1	2 1	5 30	0 0	0 0				
2004NZ151	2-Row	18	0 0	0 0	2 1	8 5	7 80	0 0	0 0				
2004NZ163	2-Row	19	0 0	0 0	8 1	8 1	7 80	0 0	0 0				
02WA-7028.9	2-Row	20	5 1	0 0	8 1	8 5	7 80	0 0	0 0	PM			
Steptoe		21	8 5	0 0	8 10	8 10	8 100	0 0	0 0	PM			
02WNZ-1095	2-Row	22	8 1	0 0	8 1	8 20	8 90	0 0	0 0	PM			
04WNZ-90	2-Row	23	0 0	0 0	8 1	8 1	8 90	0 0	0 0				
04WNZ-286	2-Row	24	0 0	0 0	8 1	8 2	8 90	0 0	0 0				

VARIETY NAME	Barley Class	2008 PLOT	Stripe Rust								Susceptible to other disease				
			LOC1	LOC3	LOC4	LOC5		LOC 6	LOC 7						
			7/24/08	7/22/08	7/16/08	6/6/08	7/8/08	7/1/08	7/3/08						
			S. dough	S. dough	S. dough	Jointing	Milk	Milk	Milk						
IT	%	IT	%	IT	%	IT	%	IT	%	IT	%	PM	LR	scald	
04WA-113.22	2-Row	25	0	0	8	1	8	10	8	90	0	0			
03WA-129.18	2-Row	26	8	1	0	0	8	5	8	1	8	100	0	0	0
04WA-122.20	2-Row	27	0	0	0	0	8	1	8	10	8	90	0	0	0
04WA-122.9	2-Row	28	0	0	0	0	8	1	8	1	8	100	0	0	0
04WNZ-124	2-Row	29	2	1	0	0	8	1	8	1	8	50	0	0	0
04WA-102.49	2-Row	30	0	0	0	0	8	1	2	1	1	1	0	0	0
04WA-101.45	2-Row	31	0	0	0	0	8	1	8	5	7	60	0	0	0
03WA-109.2	2-Row	32	0	0	0	0	8	1	8	1	8	90	0	0	0
04WA-113.A	2-Row	33	0	0	0	0	8	1	8	1	8	80	0	0	0
01WA-13860.5	2-RowNWx	34	8	1	0	0	8	5	8	1	8	100	0	0	0
WA 9820-98	2-RowNWx	35	0	0	0	0	8	1	8	1	8	40	0	0	0
MERLIN	2-RowNWx	36	8	1	0	0	8	90	8	5	8	100	0	0	0
MERESSE	2-RowNWx	37	8	1	0	0	8	10	8	2	8	100	0	0	0
Steptoe		38	8	5	0	0	8	10	8	10	8	100	0	0	0
Steptoe		39	8	5	0	0	8	10	8	10	8	100	8	10	0
Lemhi		40	8	5	0	0	8	90	8	10	8	100	1	1	8

* 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. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs.