

Susceptibility of soft winter wheat varieties to common diseases

Wheat varieties exhibit a wide range of susceptibility to individual diseases. This document provides relative numerical ratings on the susceptibility (or resistance) of common varieties to various diseases. These ratings may be helpful in-season when contemplating whether a disease is likely to progress and the use of a fungicide. They may also be helpful when selecting varieties for the following season.

The ratings for soft white varieties (table 1) and soft red varieties (table 2) are based on the *MSU Michigan Wheat Performance Trial reports* (http://www.css.msu.edu/varietytrials/wheat/Variety_Results.html). In addition to the numerical scores within the tables, colored underlines are used subjectively to emphasize differences. A score underlined in red indicates a relatively high level of susceptibility for the corresponding variety, whereas a green line suggests significant resistance.

Foliar diseases

The tables contain resistance scores against four of the most commonly occurring diseases: powdery mildew, Septoria leaf spot, Stagonospora leaf blotch, and leaf rust. Some liberty has been taken in using the originating data. The lowest score used is 0.5 presuming that none of the varieties are completely resistant to the selected diseases. When leaf spots are rated in the field, there was no distinction made between Stagonospora and Septoria. The assumption here is that spots in 2010 were due to Stagonospora as it was the predominant pathogen during that season. Likewise, leaf spot scores of 2011 and 2012 were attributed to Septoria.

source	variety	powdery mildew '11/12	Septoria leaf spot '11/12	Stag.leaf blotch '10	leaf rust '11/12	head** scab '10/11
MCIA	Crystal	2.2 *	3.3 *	2.5	2.6 *	37
	AC Mtn	1.6	4.1	2.0	2.5	30
	Jupiter	1.2	6.1	2.5	2.4	29
	Coral	2.5	2.9	2.3	1.4	25
	E5024	1.3	4.5	2.3	1.2	22
	D8006	2.3	4.8	2.6	1.4	26
DF Seeds	Ambassador	0.5	6.0	2.6	2.1	36
	Aubrey	0.5	3.9	2.1	2.9	26
	Linebacker	2.5	3.3	2.5	3.9	22
Pioneer	25W43	3.9	3.1	2.2	1.4	21
Hyland	Ava	0.7	2.8	2.6	1.5	15
	TN319	1.4	2.3	1.4	1.0	33
Syngenta	1062W	0.8*	3.4 *	2.2	1.0	28
Dyna Gro	9242W	1.2	2.3	---	1.6	15*
Platinum Gen	Envoy	0.8	4.4	2.4	1.3	29
Harrington	Caledonia	2.1	4.0	2.3	3.4	39
	Abbey	1.3 *	3.8 *	1.8	1.8 *	35*

scale for leaf disease is 0 to 5, with lower scores suggesting less susceptibility.
 * estimate based on limited data;
 ** scab rating= (3x DON)+index/2; lower scores suggest less susceptibility.

Fusarium head blight

Fusarium head blight (head scab) ratings are presented in the final column in tables 1 and 2. The numerical ratings consider both the disease severity index and DON levels reported in the MSU variety performance report ((3 X DON) + index / 2)). Scores underlined in red indicate relatively high levels suggesting that the corresponding varieties are susceptible or highly susceptible. The yellow line indicates moderately susceptible varieties. There are no varieties considered to possess adequate resistance to the disease, particularly in the soft white group.

It is important to point out that both the colored-coded rankings and the equation for deriving head scab scores are made subjectively, as there is no uniform ranking system among University researchers. Growers would do well to also check with seed representatives for industry ratings for their respective varieties.

table 2: Susceptibility of soft red wheat varieties to selected diseases						
source	variety	powdery mildew '11/12	Septoria leaf spot '11/12	Stag.leaf blotch '10	leaf rust '11/12	head** scab '10/11
DynaGro	9053	4.1	4.2	---	1.9	25
	9042	2.8	3.5	1.8	3.5	20
	Shirley	0.5	2.7	---	1.8	32
	9922	1.2	2.4	1.9	1.5	21
DF Seeds	45	5.1	5.1	2.4	---	24
	55	0.7	3.4	2.6	0.8	19
	75	5.3	4.9	2.6	---	21
	105R	4.1	4.6	---	1.2	20
MCIA	Hopewell	0.9	5.0	1.8	3.5	29
	Red Ruby	1.1	4.8	1.3	3.5	27
	Butch	1.3	2.4	3.1	4.5	36
	Red Dragon	0.5	3.1	2.6	2.6	22
	Red Devil	1.1	1.6	2.0	0.8	23
	Sunburst	1.0	2.2	3.5	3.0	19
Pioneer	25R34	4.6	1.2	---	1.5	19
	25R39	2.8	3.8	2.5	1.7	23
	25R32	1.6	2.5	---	3.3	15
	25R47	2.8	4.1	2.2	1.6	22
Rupp	967	2.2	2.0	1.8	0.5	29
	935	3.6	3.8	2.8	1.4	19
Hyland	Emmit	1.9	3.3	2.3	2.4	22
Dir. Enterpr	Sienna	0.7	2.6	---	2.7	22
	Quest	2.8	5.4	---	2.2	18
Wellman	W 123	1.4	3.4	2.0	3.3	20
Syngenta	W104	0.5	3.0	1.7	1.8	21
	Branson	2.1	2.4	1.3	1.0	24

scale is 0 to 5, with lower scores suggesting less susceptibility.
 * estimate based on limited data;
 **scab= (3xDON)+index/2; lower scores suggest less susceptibility.

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