

INTERPRETATION OF DISEASE REACTION VALUES

Six locations were evaluated for the presence of foliar and stem diseases. Data are presented in the table as an average or mean of the four replications for each variety for each location. Plant pathologists use a visual rating scale (*James' Manual of Assessment of Plant Diseases*) that has templates for us to go by when making these ratings. Leaf rust and stripe rust have diagrammatic representations of the amount of leaf area affected by each disease. We then utilize these pictorial guides to help us in making visual assessments of how much of the flag leaf of a wheat plant is showing symptoms or rust pustule or fungal/bacterial lesion development. Values can range from 0% (no symptoms present) up to about 50% (most of the leaf is diseased). The grower must keep in mind the factors contributing to the amount of disease present at a particular location and on a certain variety. These factors include stage of plant growth, rainfall amounts, humidity, temperature, inoculum or spore load, varietal susceptibility, and a host of other environmental/varietal interactions that coincide with disease incidence (the percentage of plants with symptoms) and severity (the amount of leaf area affected on those plants).

Our ratings reflect mainly the severity of infection within an entire plot. So when a value of 15% occurs in the table for a particular variety, we mean that most of the plants in that plot have similar levels of symptom development. You will notice great variation from one location to another because of the factors contributing to disease development at that particular location. One variety may be severely affected in one year and less affected in the

next year, depending on these factors. We do not attempt in this publication to place arbitrary values on what makes a variety resistant, moderately susceptible, susceptible or very susceptible. In addition, keep in mind that the main race of a particular pathogen (either leaf, stem, or stripe rust) may vary by location, as well as between years.

The grower needs to look at several years in the past for a particular variety he is interested in growing and look at the numbers over those years. Generally, disease severity values of from 0–5% would be considered resistant varieties or at least highly tolerant to foliar diseases. Values from 5–10% would be considered moderately susceptible. Values from 10–15% would be considered susceptible, and any variety with consistent severity ratings above 15% — especially around 25% — should be considered highly susceptible. These values, however, are just for generalizing the disease reaction of a variety and should not be thought of as set in stone. These values can and will vary for that variety from year to year.

Growers should pay attention to the varietal disease reactions over several years and base their preference for a particular variety on a running average along with yield potential and their own farm history of foliar wheat diseases. Variety trials are conducted without any fungicide applications to allow for assessment of varietal performance based only on environmental growing conditions and varietal genetics. We suggest that you contact your small-grain specialist or county agent to help in making variety decisions on your farm.

Table 23. Rust ratings from six locations of wheat variety trials in Mississippi.

Brand	Variety	Brooksville		Issaquena		Minter City			Newton		Cleveland		Stoneville	
		Leaf	Stripe	Leaf	Stripe	Leaf	Stem	Stripe	Leaf	Stripe	Leaf	Stripe	Leaf	Stripe
AgriMAXX	AgriMAXX 413	2.0	0.0	7.7	0.0	28.7	0.0	0.0	1.5	0.0	25.0	0.0	2.2	0.0
AgriMAXX	AgriMAXX 415	2.7	0.0	13.7	0.0	27.5	0.0	0.0	2.5	0.0	23.7	0.0	1.2	0.0
AgriMAXX	AgriMAXX 424	10.7	0.0	14.2	0.0	33.7	0.0	0.0	3.7	0.0	27.5	0.0	6.5	0.0
AGS	AGS2026	2.25	0.0	4.5	0.0	15.0	0.0	0.0	0.0	0.0	3.5	0.0	1.7	0.0
AGS	AGS2035	1.0	0.0	0.2	11.7	0.7	0.0	26.2	0.2	0.2	0.2	7.5	0.0	3.0
AGS	AGS2060	0.5	0.0	0.0	0.2	0.0	0.0	17.5	0.2	0.2	0.7	0.0	0.0	0.0
Armor	ARX1107	4.7	0.0	31.2	0.0	27.5	3.2	7.5	18.7	0.2	36.2	0.0	21.2	0.0
Armor	ARX1109	10.0	0.7	30.0	0.0	36.2	0.0	0.0	8.5	0.7	27.5	5.0	3.5	8.2
Armor	ARX1133	3.5	0.0	12.0	0.0	25.0	0.0	0.0	2.2	0.7	31.2	0.0	1.2	0.0
Armor	ARX1175	5.7	0.0	18.7	0.0	33.7	0.0	11.2	3.0	0.5	31.2	0.0	3.0	2.5
Armor	Ricochet	1.2	0.0	1.7	0.0	25.0	0.0	0.0	1.0	0.2	12.2	0.0	0.7	0.0
DeltaGrow	7300	3.7	0.5	10.5	0.0	37.5	0.0	0.0	8.2	4.2	37.5	0.0	16.2	0.0

Continued.

Table 23 (continued). Rust ratings from six locations of wheat variety trials in Mississippi.

Brand	Variety	Brooksville		Issaquena		Minter City			Newton		Cleveland		Stoneville	
		Leaf	Stripe	Leaf	Stripe	Leaf	Stem	Stripe	Leaf	Stripe	Leaf	Stripe	Leaf	Stripe
DeltaGrow	7500	2.2	0.0	11.5	0.0	35.0	0.0	0.0	2.0	0.7	27.5	0.0	0.7	0.0
DeltaGrow	7900	2.2	0.0	2.5	0.0	32.5	0.0	0.0	1.0	0.0	31.2	0.0	3.5	0.0
DeltaGrow	8300	3.2	0.0	2.7	0.0	19.2	0.0	0.5	2.0	1.5	1.0	0.0	1.0	0.0
DeltaGrow	8600	8.5	0.0	19.0	0.0	38.7	0.0	0.0	5.7	0.0	42.5	0.0	12.0	0.0
Dixie	Exp 1112	3.5	0.5	16.2	0.0	40.0	0.0	0.0	2.5	0.2	35.0	0.0	5.0	0.0
Dixie	Kelsey	4.0	0.2	7.5	0.0	20.0	0.0	0.0	1.7	0.2	16.2	0.0	2.0	0.0
Dixie	McAlister	2.7	0.0	4.0	0.0	25.0	0.0	0.0	1.5	0.0	30.0	0.0	1.0	0.0
Dixie Bell	DB412	4.7	0.0	2.0	0.0	37.5	0.0	0.0	1.0	0.7	32.5	0.0	3.0	0.0
Dixie Bell	DB620	1.5	0.0	10.0	0.0	33.7	0.0	0.0	1.5	0.2	37.5	0.0	9.0	0.0
Dixie Bell	DB7440	4.7	4.5	1.0	20.0	0.0	0.0	30.0	0.7	0.5	5.7	12.5	0.5	13.7
Dixie Bell	DB999	20.2	0.0	15.5	0.0	41.2	0.0	0.0	6.0	0.7	32.5	0.0	4.2	0.0
Dyna-Gro	9053	2.0	0.0	15.7	0.0	21.2	0.0	23.7	4.7	0.7	41.2	0.0	27.0	0.0
Dyna-Gro	9171	2.5	0.0	14.0	0.0	40.0	0.0	0.0	1.5	0.2	21.2	0.0	1.7	0.0
Dyna-Gro	Baldwin	0.5	0.0	0.5	3.0	0.0	0.0	36.2	0.0	0.2	0.7	7.2	0.0	0.0
Hornbeck	HBK 3266	4.0	0.0	0.0	26.2	0.0	0.0	27.5	0.0	0.5	0.0	7.5	0.0	3.7
JGL	Exp32110	2.5	0.0	1.5	1.2	15.2	0.0	11.2	1.0	0.2	5.2	0.0	2.0	1.2
JGL	Exp32111	10.2	1.5	26.2	0.0	20.7	0.0	0.0	6.5	1.2	28.7	0.0	6.2	3.0
JGL	Exp32112	0.5	0.7	0.7	0.0	2.0	0.0	11.2	1.0	0.2	1.2	2.5	0.5	0.5
JGL	Exp32113	6.0	0.0	15.2	0.0	32.5	0.0	0.0	4.5	0.0	42.5	0.0	10.0	0.0
Pioneer	26R10	2.5	0.0	18.0	0.0	42.5	0.0	0.0	4.2	1.2	13.5	0.0	2.7	0.0
Pioneer	26R15	2.2	0.0	4.5	0.0	32.5	0.0	0.0	2.0	0.7	8.0	4.7	0.7	0.0
Pioneer	26R20	1.0	0.0	2.5	0.0	27.5	0.2	0.0	1.0	0.0	6.2	0.0	0.7	0.0
Pioneer	26R22	9.7	0.0	1.5	3.7	5.7	0.0	33.7	0.7	0.0	11.2	0.0	1.0	5.2
Pioneer	26R87	4.0	0.0	4.0	0.0	25.0	0.0	0.0	0.2	0.0	36.2	0.0	0.2	0.0
Pioneer	XW10T	4.2	0.0	2.7	0.0	20.0	0.0	0.0	1.0	0.2	9.2	0.0	1.2	0.0
Pioneer	XW10V	4.2	0.0	4.5	0.0	27.5	0.0	0.0	1.5	0.2	23.7	0.0	1.5	0.0
Progeny	Progeny 117	10.7	4.2	13.0	11.2	8.7	0.0	33.7	5.2	1.7	12.5	16.2	1.5	11.7
Progeny	Progeny 125	8.5	0.0	12.5	0.0	37.5	0.0	0.0	3.5	0.2	10.2	10.0	4.7	0.0
Progeny	Progeny 185	4.0	3.7	5.5	0.0	23.7	0.0	37.5	2.5	1.2	11.7	10.0	3.7	6.2
Progeny	Progeny 357	5.7	0.7	7.2	0.0	21.2	0.0	21.2	3.0	1.5	25.0	12.5	16.0	0.0
Progeny	Progeny 870	4.7	0.0	13.0	0.0	23.7	0.0	15.0	2.5	0.2	22.5	7.5	1.0	0.0
Progeny	Progeny PGX11-4	12.5	0.0	21.25	0.0	40.0	0.0	0.0	4.7	1.2	31.5	11.25	16.7	0.0
Progeny	Progeny 308	3.5	0.0	10.2	0.0	37.5	0.0	0.0	2.5	0.7	23.7	11.25	2.2	0.5
Public	GA 001138-8E36	1.0	0.0	0.2	0.7	0.0	0.0	6.2	0.0	0.2	1.5	0.0	0.0	0.0
Public	GA-021245-9E16	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.2	0.0	0.0
Public	Jamestown	4.2	0.0	11.2	0.0	22.5	0.0	1.0	1.2	0.2	8.0	0.0	1.2	0.0
Public	LA01110D-150	1.5	0.2	1.5	3.7	0.0	0.0	0.5	0.7	0.5	0.2	2.5	0.5	0.7
Public	LA02015E201	5.7	0.0	0.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Public	LA02015E58	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Public	LA02024E12	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public	LA04026D-7	2.2	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0
Public	LA04110D-7	2.5	0.0	0.2	16.2	0.7	0.0	23.7	0.5	0.2	1.0	15.0	0.0	7.7
Public	VA05W-151	0.2	0.7	0.0	22.7	0.0	0.0	40.0	0.2	0.2	1.7	18.0	0.2	13.0
Syngenta	ARCADIA	1.5	0.0	0.0	17.5	0.0	0.0	32.5	0.2	0.0	1.2	14.0	0.0	8.7
Syngenta	B050154	3.7	0.0	8.7	0.0	40.0	0.0	0.0	1.0	0.5	33.7	0.0	5.0	0.0
Syngenta	Coker 9553	4.0	0.0	12.0	0.0	22.5	0.0	31.2	1.7	0.0	11.2	10.0	1.2	0.0
Syngenta	MAGNOLIA	6.2	0.5	23.7	0.0	37.5	0.0	0.0	3.2	0.0	22.5	2.5	4.7	0.0
Syngenta	Oakes	4.2	0.2	6.0	0.0	31.2	0.0	0.0	2.2	0.0	6.7	0.0	1.5	0.5
Terral	LA821	3.0	0.0	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Terral	LA841	16.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Terral	TV8525	1.0	0.2	11.5	0.2	36.2	0.0	0.0	2.0	0.2	32.5	0.0	5.0	0.0
Terral	TV8535	3.5	0.0	2.7	0.0	36.2	0.0	4.5	1.0	0.2	23.7	0.0	1.0	0.0
Terral	TV8626	2.2	0.0	15.0	0.0	41.2	0.0	10.0	2.5	0.0	45.0	0.0	16.2	2.5
Terral	TV8848	1.5	0.0	13.7	0.0	33.7	0.0	0.0	2.0	0.7	37.5	7.5	4.5	0.0
Terral	TV8861	1.7	0.0	11.2	0.0	31.2	0.0	0.0	2.5	0.2	33.7	0.0	4.2	0.0
USG	3120	2.5	0.0	5.0	0.2	1.2	0.0	21.2	2.0	0.5	4.7	3.0	0.2	0.7
USG	3201	4.0	0.0	8.5	0.0	25.0	0.0	7.5	2.5	0.0	15.2	0.0	1.5	0.0
USG	3251	2.5	0.0	3.7	0.0	33.7	0.0	0.0	1.0	0.2	37.5	0.0	2.5	5.2
USG	3438	3.2	0.0	10.7	0.0	35.0	0.0	0.0	1.0	0.5	35.0	0.0	1.2	0.0
USG	3555	8.7	0.0	7.0	0.0	32.5	0.0	0.0	0.5	0.0	11.5	0.0	0.7	0.0
USG	3562	6.2	1.0	32.5	0.0	41.2	0.0	0.0	6.0	0.0	43.7	0.0	7.2	0.0