

Wheat Variety Disease and Insect Ratings 2010

MF-991 • Wheat Ratings



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Diseases and insect pests reduce wheat yields in Kansas almost every year. Genetic resistance to diseases and insect pests is usually the most effective, economical, and environmentally sound method of control. The resistance ratings in this publication represent the results of multiple field and greenhouse evaluations by public and private wheat researchers (Table 1). The ratings are intended to help producers select wheat varieties and the paragraphs below contain suggestions for using this information to minimize the potential for serious yield losses. Growers should consult the latest K-State wheat performance test report for details about

other important characteristics including yield potential and maturity class.

Although great efforts were made to confirm the accuracy of these ratings, no guarantee can be made that the information is without error. Disease and pest reactions may vary with weather and changes within populations of pathogens or pests.

How to Use the Variety Ratings

Evaluate which diseases and insects are important for your region. The importance of any disease or insect pest depends on its potential to cause yield loss

and how often it reaches damaging levels within a given region of the state.

In western Kansas, wheat streak mosaic, leaf rust and stripe rust are among the most damaging and common diseases (Figure 1) and these diseases should be top priorities when selecting wheat varieties for that region.

In central Kansas, the environment is often more conducive for disease development, and additional factors should be considered when selecting a variety. Important diseases to consider in central Kansas include: soilborne mosaic, wheat spindle streak mosaic, barley yellow dwarf, leaf rust, stripe rust, tan spot, and Septoria leaf blotch.

The list of potential problems in eastern Kansas includes those already listed for central Kansas, but should be further adjusted to
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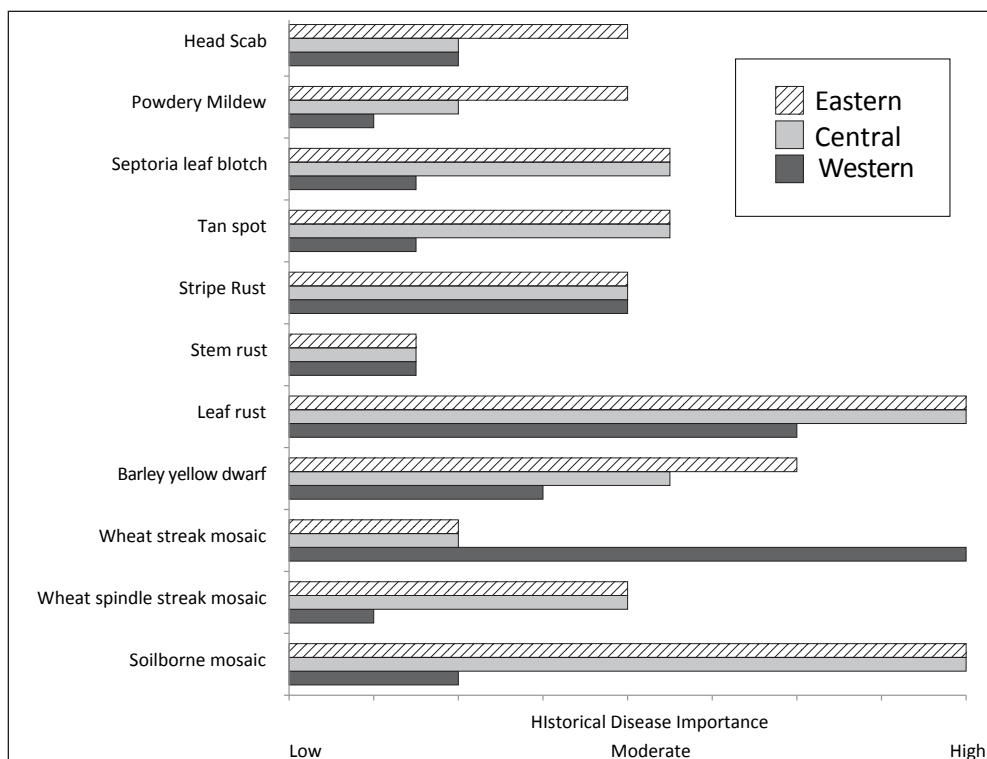


Figure 1. Regional importance of wheat diseases in Kansas. *The importance of wheat diseases is based on their potential to cause yield loss and how often it reaches damaging levels in eastern, central, and western Kansas. The relative importance of the diseases is the product of historical records of disease losses in the state and expert opinion by wheat disease specialists. Not all diseases and insect pests are considered in the figure. Growers may need to adjust their priorities based on previous crop production practices on their farms.*

Table 1. Disease and insect resistance ratings.

Hard Red Winter Wheat ^a														
Variety	Soilborne Mosaic	Spindle Streak Mosaic	Wheat Streak Mosaic	Barley Yellow Dwarf	Leaf Rust	Stem Rust	Stripe Rust	Septoria Leaf Blotch	Glume Blotch	Tan Spot	Powdery Mildew	Head Scab	Hessian Fly ^b	Russian Wheat Aphid ^c
2137	1	5	6	5	7	7	8	5	7	5	4	8	8	9
2145	1		9	6	8	3	5	5		8	8	8		9
2174	1	5	8	5	7	8	7	5	7	5	2	6		9
Above CL ^{d,e}	9		5	7	9	3	8	6		7	1			9
Armour	1	1	6	6	5	4	3	6	7	5	2	7		9
Art	1	1	6	8	3	2	6	5	7	6	3	6		9
Bill Brown	8	8	6	7	2	8	6			8			9	9
Centerfield ^e	2			5	7			7		7		8		9
CJ					6		7					7		9
Coronado	1	4	6	6	7	5	6	6	6	6	5	9		9
Cutter	3	4	6	7	8	2		6		6	7	8		9
Deliver	1	3	7	6	2	7	2	4		5	3	9		9
Dominator	1	4	7	6	9	4	6	5	4	5	4	7		9
Dumas	8	7	7	7	6	3	7	6		7	6	5		9
Duster	1	1	7	4	3	7	3	7		7	3	9		9
Endurance	2	8	7	5	5	7	5	5		7	5	6		9
Everest	1	1	7	4	3	7	3		5	7	3	4	5	9
Fuller	1	1	5	6	5	7	7	6	6	6	6	7	9	9
Hatcher	7	8	8	8	7	4	4	5		5	5	6		9
Hawken	1	1	9	6	2	2	8	3		5		8		9
Hitch	1	1	7	6	2	2	9	6		4	5	5	9	9
Ike	1	5	9	6	9	3	6	7	6	8	6	6	4	9
Jackpot	1	1		7		5	5	6			6	7		9
Jagalene	2	3	5	7	9	2	9	4		7	9	8		9
Jagger	2	4	5	7	9	5	7	3	6	4	7	7	9	9
Karl/Karl 92	1	3	9	8	8	6	5	5	3	3	4	6		9
Keota	1		7	6	9	7		7		6	7	8	9	9
Longhorn	9	7	5	6	4	4	6	7	5	6	4			9
Millennium	9		8	7	2	3	3	7		7		4	2	9
OK Bullet	4	4	6	6	8	7	6	6		5	7	7		9
Onaga	1	5	5	6	6	8	6	5		8	6	5		9
Overland	8		5	4	2	7		6		7		5		9
Overlay	1	4	5	5	8	3	4	5	9	5	7	9		9
PostRock	2	5	7	7	5	7	7	8	7	5	8	7		9
Protection CL ^e	4	3	7	8	9	4	7	6		7	7	8	9	9
Santa Fe	1		7	6	3	4	7	3	6	5	6	7	9	9
Shocker	1	2	8	7	4	4	7	4		6	5	8		9
Smoky Hill	1		8	8	5	6	9	4		4	6	8	9	9
Stanton ^c	8	5	6	8	2	2	7	7		9	9	7		9
Stout	1	1		6	2	3	7			5		6	1	9
Sturdy 2K	2			5	4		6	6		7	5	8		9
SY Gold	1	1				6	9					7	1	9
T81	8	4	8	6	8	3	3	7	7	6	3	5		9
TAM 110 ^d	9	9	5	8	9	4	8	6	6	7	1	8		9

Variety	Soilborne Mosaic	Spindle Streak Mosaic	Wheat Streak Mosaic	Barley Yellow Dwarf	Leaf Rust	Stem Rust	Stripe Rust	Septoria Leaf Blotch	Glume Blotch	Tan Spot	Powdery Mildew	Head Scab	Hessian Fly ^b	Russian Wheat Aphid ^c
TAM 111	8	8	7	7	8	1	3	5		6	6	7	5	9
TAM 112	8	8	5	6	7	3	8	5		6	1	8	8	9
TAM 203	1	2		8	2	2	4	6		7	4			9
TAM 304	4	2			2	7	4			6	3	8	9	9
Tarkio	3				2					7		9		9
Thunderbolt	8	8	6	7	7	8	5	6		7	7	7		9
Wesley	1	4	8	7	6	3	2	5		6	7	7		9
Winterhawk	1	1	7	5	7	8	2	7		7	6	7	9	9

Soft Red Winter Wheat

Variety	Soilborne Mosaic	Spindle Streak Mosaic	Wheat Streak Mosaic	Barley Yellow Dwarf	Leaf Rust	Stem Rust	Stripe Rust	Septoria Leaf Blotch	Glume Blotch	Tan Spot	Powdery Mildew	Head Scab	Hessian Fly ^b	Russian Wheat Aphid ^c
Coker 9663	7	6		3	6			7				6		9
MFA 2020					7						6			9
Pat	1	1		6	4			7			9			9
Pioneer 25R47					6						1			9
Roane	7	7		3	5	8		5	7	7	1	5		9
Sabbe	4	7	5		8			1			1			9
Truman	3	6		5	6	6		4			9	3		9

Hard White Winter Wheat

Variety	Soilborne Mosaic	Spindle Streak Mosaic	Wheat Streak Mosaic	Barley Yellow Dwarf	Leaf Rust	Stem Rust	Stripe Rust	Septoria Leaf Blotch	Glume Blotch	Tan Spot	Powdery Mildew	Head Scab	Hessian Fly ^b	Russian Wheat Aphid ^c
Aspen	1	1	6	8	6	4	3	5		6	2	6		9
Danby	7		5	8	8	2	8	6		8	7	7	9	9
NuFrontier	4		8	6	9			7		7	2	4		9
NuHills	2	2	6	6	9			7		7	8	5		9
Platte	4	4	6		4	3	9	7		7	7			9
RonL	4		2	7	7	6	3	6		7	5	8	9	9
Snowmass	6				6	6	3						9	9
Tiger	2	3	6		2	3	2			7			2	9
Trego	2	4	7	7	8	3	8	7	5	8	8	9		9

^a Rating codes are: 1 – Highly resistant; 3 – Moderately resistant; 5 – Intermediate; 7 – Moderately susceptible; 9 – Highly susceptible. Blanks indicate insufficient information.

^b Hessian fly ratings are undergoing major revision in 2010. Ratings are based on results of greenhouse tests with Kansas (Great Plains) biotype of Hessian fly. Hessian fly populations are often a mixture of biotypes thus results can vary among years and locations.

^c New Russian wheat aphid biotype is thought to be virulent on all currently available commercial varieties.

^d Resistant to greenbug biotypes E, I, and K.

^e CLEARFIELD® variety, which is resistant to Beyond herbicide.

Table 2. Experimental wheat disease resistance index. *The wheat disease resistance index combines resistance ratings for multiple diseases. The index weights each disease relative to their historical importance in eastern, central and western Kansas. Varieties with genetic resistance to the historically important diseases within a region will have a lower value relative to more susceptible varieties. The index is intended to facilitate comparisons among varieties. The more complete lists of disease and insect ratings should be consulted after narrowing the list of potential varieties. The calculation of the index does not include all diseases and insect pests. Growers may establish their own priorities based previous crop production practices on their farms.*

Variety	Wheat disease resistance index		
	Eastern	Central	Western
2137	523	460	379
Armour	407	353	299
Art	417	357	303
Bill Brown	617	548	359
Duster	415	355	307
Endurance	521	462	357
Everest	357	317	281
Fuller	485	415	335
Hatcher	638	570	412
Hawken	419	349	349
Hitch	404	346	316
Jagalene	617	528	405
Jagger	558	481	380
Karl/Karl 92	510	446	412
Keota	622	538	434
Overley	515	436	339
PostRock	578	497	392
Protection CL	661	577	443
Santa Fe	408	338	320
Shocker	474	401	366
Smoky Hill	498	418	398
T81	606	556	398
TAM 111	662	589	398
TAM 112	640	586	388
Winterhawk	494	427	354

account for a greater risk of head scab and barley yellow dwarf.

Narrow the focus. Sorting through all the information available about wheat varieties can be a complex and exhausting process. The disease resistance index proposed in Table 2 combines the historical estimates of regionally important diseases with the variety disease ratings. The disease resistance index summarizes the available information and simplifies the comparison of varieties for three unique production regions of Kansas. Varieties with genetic resistance to the diseases that are historically important within a region will have a low disease resistance index relative to more susceptible varieties. When considered along with the yield potential and other important agronomic traits of a variety, the index should help narrow the search for acceptable wheat varieties. The specific disease and insect ratings should be consulted once several candidate varieties are identified (Table 1).

Consider management options. Wheat varieties often have one or more weaknesses that are not adequately addressed by genetic resistance. When resistance is not available, it may be possible to minimize the risk of severe yield losses with other management options. For example, foliar fungicides could be used to manage leaf rust when genetic resistance is lacking in an otherwise desirable variety. Pursuing this management option, however, may increase the input costs required to produce the crop if leaf rust emerges as a problem. This approach will be less effective for viral diseases, including soilborne mosaic, wheat streak mosaic, and barley yellow dwarf, because these diseases are difficult to control with other cultural practices.

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