



Wheat Variety Disease and Insect Ratings 2017

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Variety selection is one of the most important decisions a wheat grower makes. This choice profoundly influences the potential wheat crop's productivity. Agronomic characteristics, such as height, acid soil tolerance, and maturity, determine how well a variety is adapted for a region or desired cropping system. Selecting a good variety also influences how well the crop tolerates drought or resists diseases and insects.

The agronomic characteristics and resistance ratings in this publication summarize results of multiple field and greenhouse tests by public and private wheat researchers.

The ratings are intended to help producers select wheat varieties according to their specific needs. The paragraphs below contain suggestions for using this information to minimize the potential for production problems and resulting yield losses. Growers should consult the latest K-State wheat performance test report for additional information about varieties that have yielded well in their area.

Although great efforts were made to confirm the accuracy of these ratings, no guarantee can be made that the information is without error. A variety's agronomic characteristics are generally stable but can be influenced by unanticipated interactions with production practices or environment. Disease and pest reactions are influenced by regional populations of the pathogens or insects and may vary between years.

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How to Use the Variety Ratings

Evaluate how well a variety is adapted for your area. The agronomic characteristics of a wheat variety influence its ability to provide consistent, high yields. The importance of characteristics such as relative maturity, height, and drought tolerance vary regionally in Kansas. For example, varieties successful in western Kansas tend to have a medium or medium-late maturity and medium height or taller, as well as good drought tolerance (Table 1). In contrast, wheat varieties with early or medium-early maturity, medium or shorter height, and good acid soil tolerance are most successful in central Kansas. Information about the characteristics of

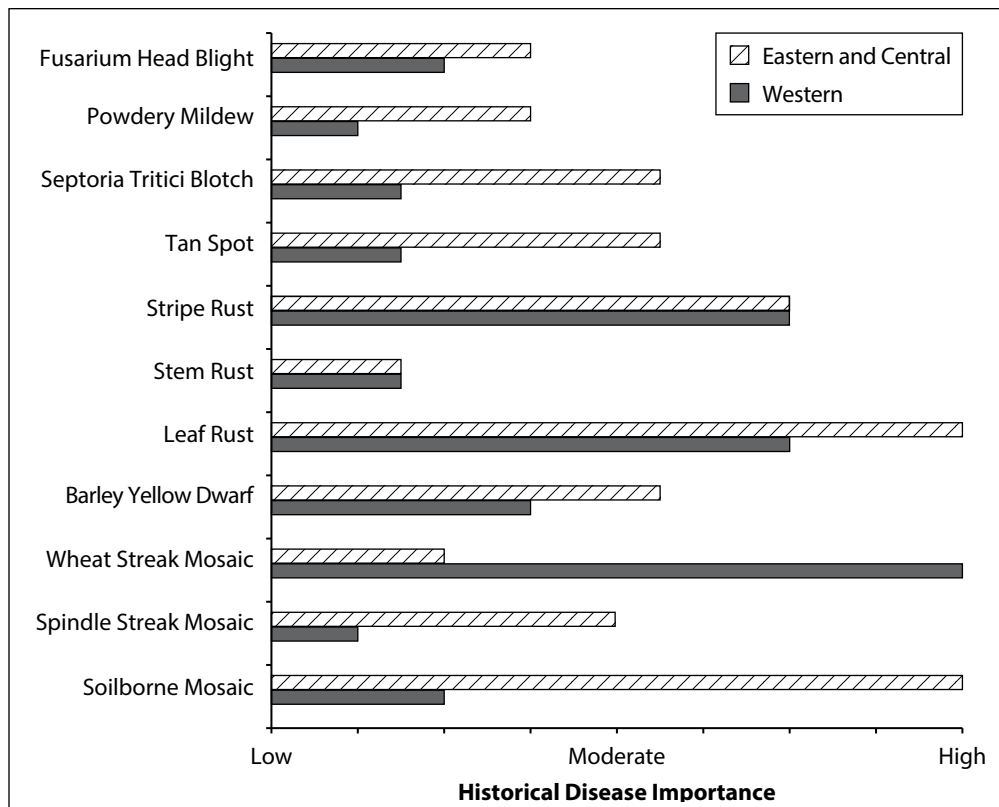


Figure 1. Regional importance of wheat diseases in Kansas. The importance of wheat diseases is based on their potential to cause yield loss and how often it reaches damaging levels in different regions of the state. The relative importance of the diseases is the product of historical records of disease losses in Kansas 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.

wheat varieties can be found in the variety profiles and the overall listing of agronomic characteristics (Appendix 2).

Determine which diseases are most important. 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). These diseases should be top priorities when selecting wheat varieties for that region. In eastern and 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 these regions of Kansas include soilborne mosaic, spindle streak mosaic, barley yellow dwarf, leaf rust, stripe rust, tan spot, and Septoria tritici blotch.

It may be helpful to consider a disease resistance summary that combines the historical estimates of regionally important diseases with the variety disease ratings

(Table 2). Varieties with genetic resistance to historically important diseases are considered above average, compared to more susceptible varieties. Detailed information about a variety's disease and insect reactions can be found in the variety profiles and the overall listing of disease and insect reactions (Appendix 1).

Table 1. Agronomic characteristics of wheat varieties that were successful in Kansas historically.

Characteristic	Eastern and Central Kansas	
	Central Kansas	Western Kansas
Maturity	Medium or earlier	Medium-late or earlier
Height	Medium or shorter	Medium or taller
Drought tolerance	Moderately good or good	Good or excellent
Straw strength	Average or better	Average or better
Acid soil tolerance	Moderately tolerant or better	Generally not applicable

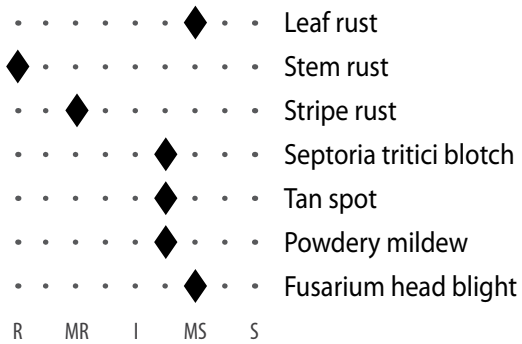
The agronomic characteristics presented here are based on historical records of varieties that occupied 5 percent or more of the acres within a region during the last 20 years. Varieties with these characteristics are most likely to provide consistent, high yields in a given region of the state.

Table 2. Experimental wheat disease resistance summary. *The wheat disease resistance summary combines resistance ratings for multiple diseases. It weights each disease relative to its historical regional importance in Kansas. Varieties with genetic resistance to the historically important diseases within a region are ranked above average relative to more susceptible varieties. The summary is intended to facilitate comparisons among varieties. The more complete lists of disease and insect ratings (Appendix 1) should be consulted after narrowing the list of potential varieties.*

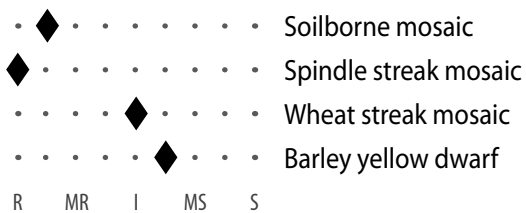
Disease Resistance Grouping	Eastern and Central			Western		
Above Average: Varieties have moderate or high levels of genetic resistance to most diseases common in this region	Aspen (W)	Everest	SY Wolf	1863	Iba	Tatanka
	Clara CL (W)	Gallagher	WB4303	Aspen (W)	Joe (W)	T158
	Doublestop CL Plus	LCS Chrome	WB-Cedar	Billings	KanMark	WB4303
	Duster	SY Monument		Clara CL (W)	Larry	WB4458
Average: Varieties have moderate or high levels of genetic resistance to some of the diseases common in this region				Doublestop CL Plus	LCS Chrome	WB4721
				Duster	Oakley CL	WB-Cedar
				Everest	SY Grit	WB-GrainField
				Fuller	SY Monument	Zenda
				Gallagher	SY Wolf	
				Antero (W)	Endurance	Ruby Lee
				AP503 CL2	Hatcher	TAM 111
				Armour	LCS Mint	TAM 112
				Brawl CL Plus	LCS Pistol	TAM 114
				Byrd	LCS Wizard	TAM 304
Below average: Varieties are susceptible to many of the diseases common in this region				Danby (W)	SY Flint	Winterhawk
				Denali	PostRock	
				Antero (W)	Endurance	PostRock
				AP503 CL2	Hatcher	TAM 111
				Brawl CL Plus	Karl/Karl 92	TAM 112
				Byrd	LCS Pistol	TAM 114
				Danby (W)	LCS Wizard	WB4721
			Denali	Oakley CL	Winterhawk	

(W) = White wheat varieties

Fungal diseases

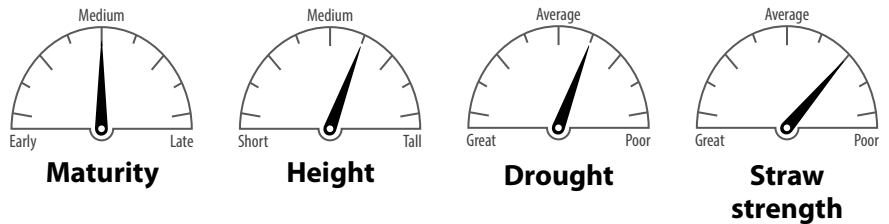


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Overlay sibling, Karl 92, and Cutter.

Adaptation: Central and north central Kansas.

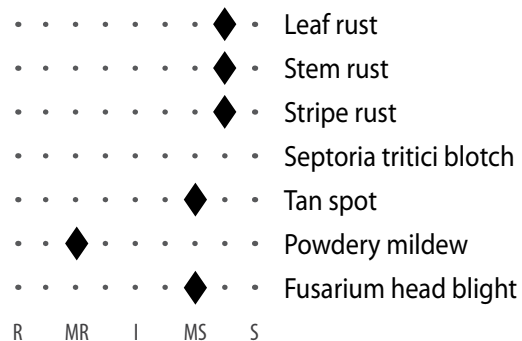
Strengths: Acid soil tolerance, good milling and baking characteristics.

Weaknesses: Below-average straw strength, susceptible to leaf rust.

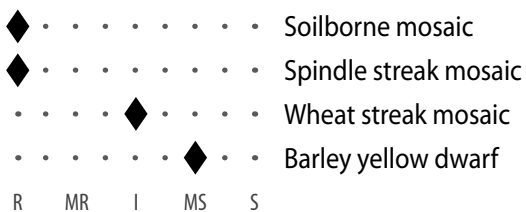
Comments: Probably best adapted for north central Kansas. A good option following soybeans in north central Kansas because it has a good tillering potential. Later planting after soybeans also may reduce the risk of lodging and resulting harvest complications.

Avery

Fungal diseases

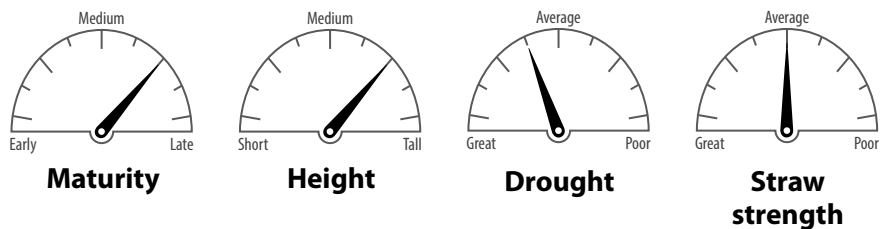


Viral diseases



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Agronomic characteristics



Pedigree: Byrd and TAM 112

Adaptation: Western Kansas.

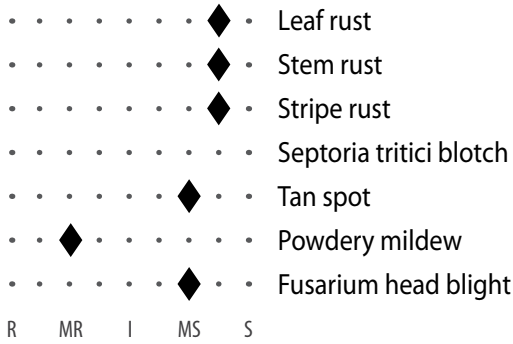
Strengths: Drought tolerance, intermediate resistance to wheat curl mite.

Weaknesses: Susceptible to all rust diseases, intermediate straw strength.

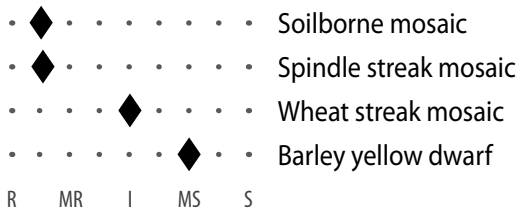
Comments: Slightly taller, later, and better yield potential than Byrd. Plan on a foliar fungicide. Resistance to wheat curl mite could reduce the risk of severe wheat streak mosaic virus.

Byrd

Fungal diseases

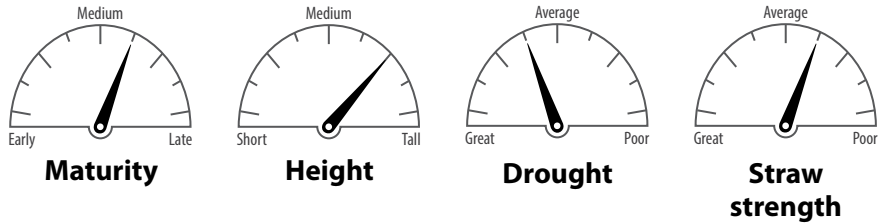


Viral diseases



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Agronomic characteristics



Pedigree: TAM 112, CSU experimental lines, Ike, and Halt.

Adaptation: Western Kansas.

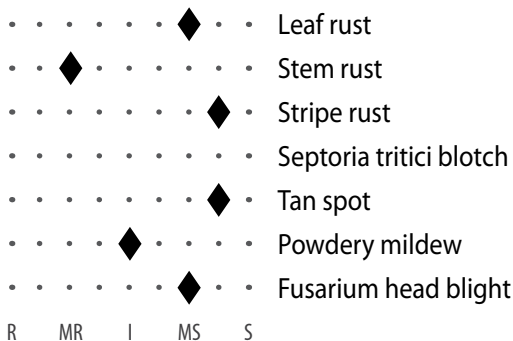
Strengths: Good drought tolerance, good yield potential, good milling and baking characteristics, intermediate resistance to wheat curl mite and wheat streak mosaic.

Weaknesses: Average test weight and straw strength. Susceptible to stripe rust, leaf rust, and stem rust.

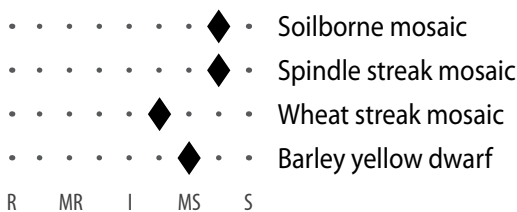
Comments: Drought tolerance is key to the success of this variety. Highly susceptible to rust diseases. Foliar fungicides may be needed to maintain its yield potential when stripe rust is a problem. Smaller seed size than many varieties. May require adjustments in planting rate to avoid plant populations that are too high.

Denali

Fungal diseases

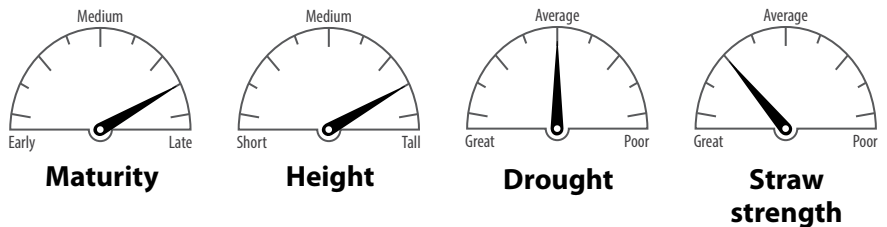


Viral diseases



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Agronomic characteristics



Pedigree: TAM 111, Colorado experimental lines, and Yumar.

Adaptation: Western Kansas.

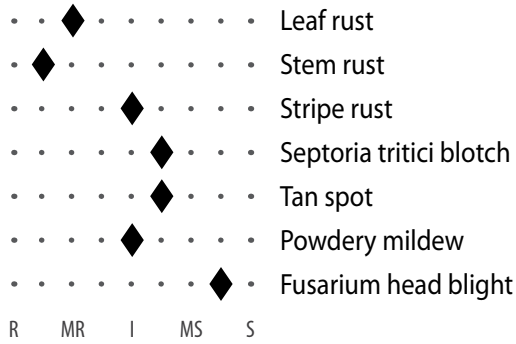
Strengths: Long coleoptile, good test weight, good yield potential, and moderately resistant to stem rust.

Weaknesses: Susceptible to stripe rust, leaf rust, and wheat streak mosaic.

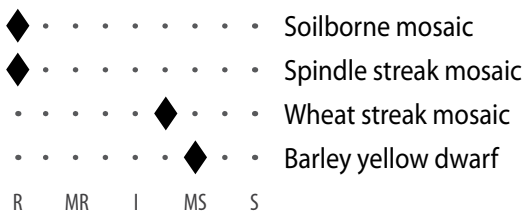
Comments: A medium-late, medium-tall variety with good yield record in northwest Kansas. Good drought tolerance. Stripe rust can increase rapidly on this variety. Growers should plan to be aggressive with foliar fungicides if stripe rust is active in the region.

Doublestop CL Plus

Fungal diseases

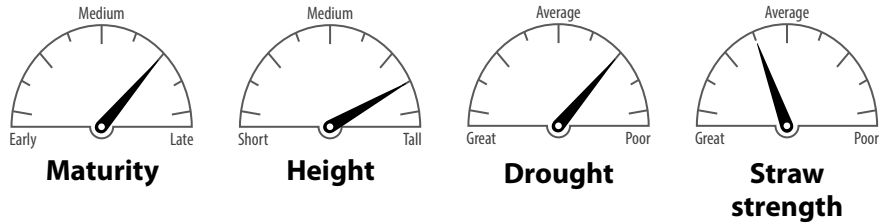


Viral diseases



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Agronomic characteristics



Pedigree: Mason SRW (CL donor), Jagger, 2174, TAM 110, and Intrada.

Adaptation: Central and west central Kansas.

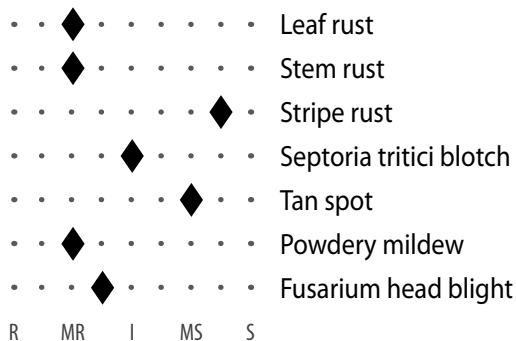
Strengths: Two-gene Clearfield, good acid soil tolerance, good grazing potential, good test weight.

Weaknesses: Intermediate reaction to stripe rust.

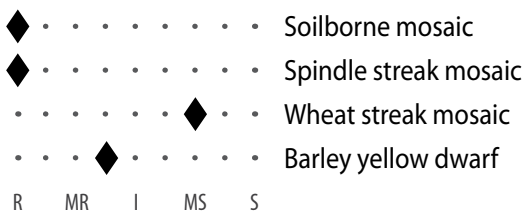
Comments: A good yield record in south central Kansas; however, its medium-late maturity increases the risk that it will be exposed to heat stress during the grain-filling stages in some years. A good Clearfield option where adapted. Often has an uneven canopy; although recent efforts by OSU may reduce this factor.

Everest

Fungal diseases

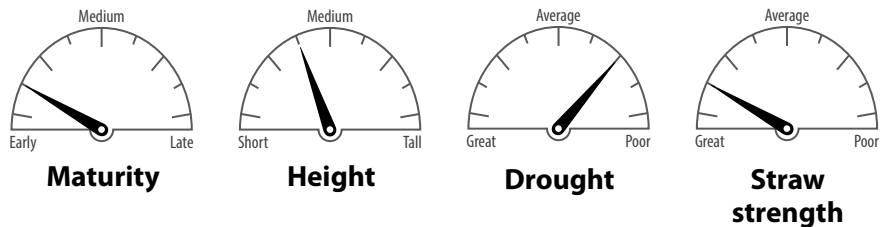


Viral diseases



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Agronomic characteristics



Pedigree: Pioneer experimental lines with the white wheat Betty.

Adaptation: Central and eastern Kansas.

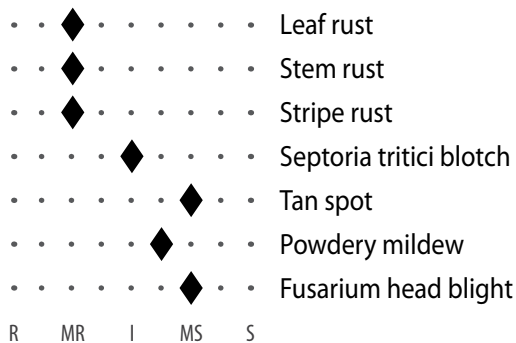
Strengths: Resistance to Hessian fly, moderate resistance to barley yellow dwarf and Fusarium head blight, acid soil tolerance.

Weaknesses: Susceptible to stripe rust, poor milling and baking characteristics.

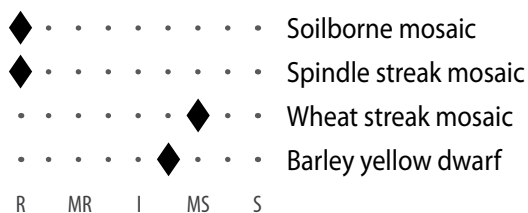
Comments: A medium to medium-short variety with early maturity. Fall tiller formation is important to ensure yield potential. Resistance to Fusarium head blight makes it a great option to follow corn in central and eastern Kansas.

Gallagher

Fungal diseases

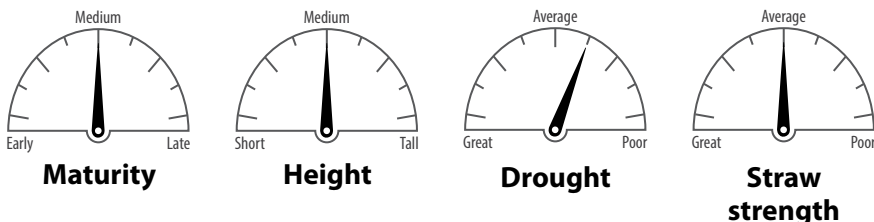


Viral diseases



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Agronomic characteristics



Pedigree: Duster and OSU experimental with Pioneer 2180.

Adaptation: South central Kansas.

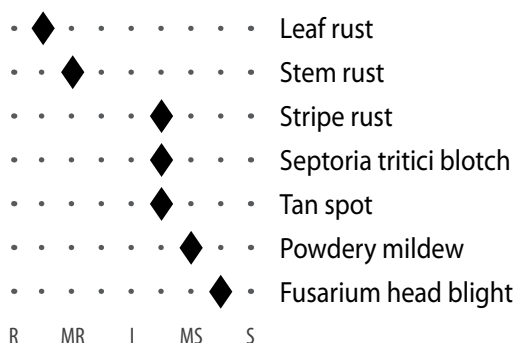
Strengths: Yield potential, Hessian fly tolerance, acid soil tolerance, excellent grazing potential, good drought tolerance.

Weaknesses: Possible physiological leaf spot in some environments, moderately susceptible to Fusarium head blight.

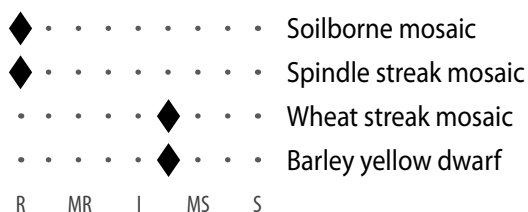
Comments: Probably best adapted to southern Kansas. A good option for grazing, but it reaches first hollow stem earlier than Duster, leaving less time for grazing in the spring. Moderate levels of stripe rust resistance have helped this variety maintain its yield potential.

KanMark

Fungal diseases

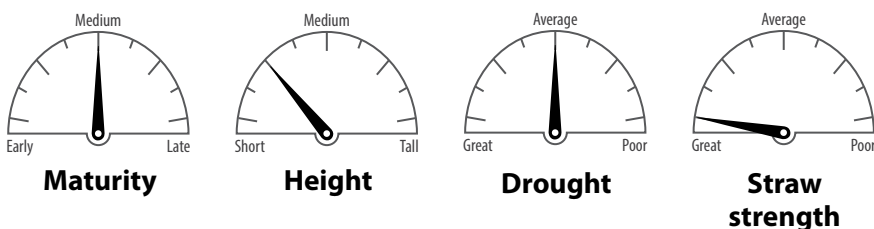


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Karl 92, WestBred experimental lines, and a CIMMYT spring wheat.

Adaptation: Central and west central Kansas, western Kansas under irrigation.

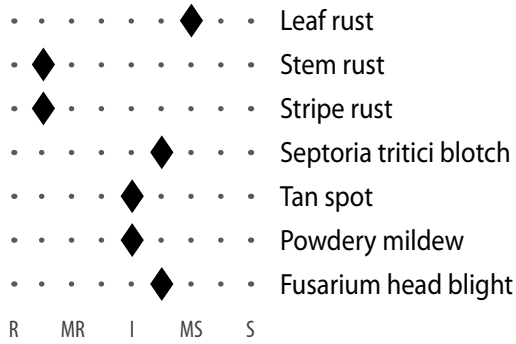
Strengths: Yield stability, excellent straw strength.

Weaknesses: Susceptible to acid soils and Fusarium head blight. Moderately susceptible to stripe rust.

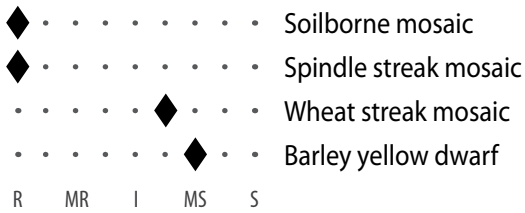
Comments: Has an upright plant growth habit that makes it look thin, but generally yields better than it looks. Can be pushed for yields under irrigation due to good straw strength. Moderately susceptible to stripe rust and will often benefit from a foliar fungicide application.

Larry

Fungal diseases

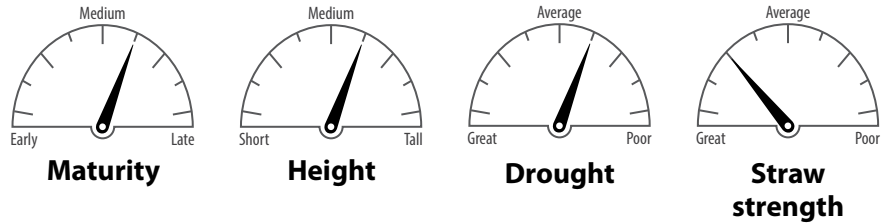


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Overlay sibling, Karl 92, and experimental lines.

Adaptation: Central and west central Kansas.

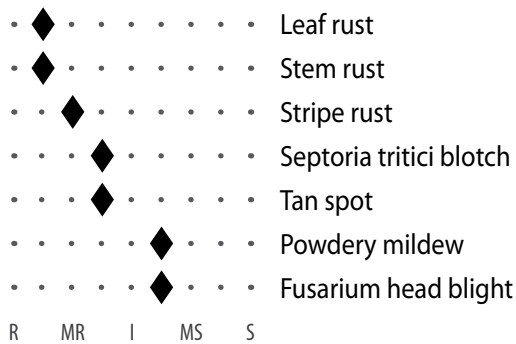
Strengths: Tolerance to moderate drought, high tillering capacity, resistance to stripe rust, good acid soil tolerance.

Weaknesses: Moderately susceptible to leaf rust.

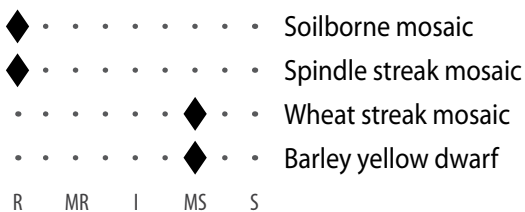
Comments: A new variety from the Kansas Wheat Alliance with a strong yield record in central Kansas. Currently has stripe rust resistance but is moderately susceptible to leaf rust. A better baking quality than Everest. Larry should be widely available in the fall of 2017.

LCS Chrome

Fungal diseases

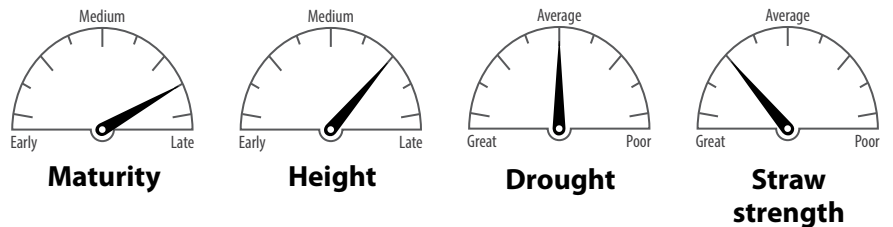


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Unknown

Adaptation: Central and western Kansas.

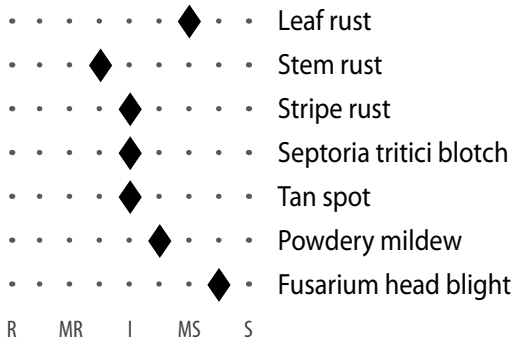
Strengths: Straw strength, acid soils, leaf and stripe rust.

Weaknesses: Wheat streak mosaic, late maturity.

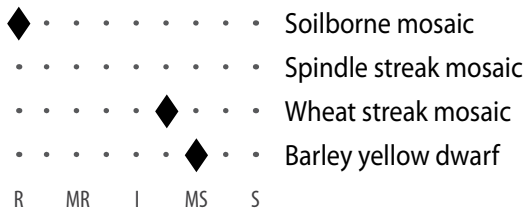
Comments: LCS Chrome showed exceptional performance in 2015 and average performance in 2016. Leaf health is one of its main strengths but late maturity might restrict its adaptation to southern environments.

LCS Mint

Fungal diseases

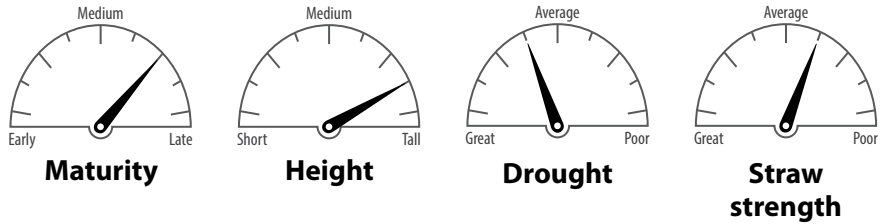


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate;
MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Colorado experimental lines.

Adaptation: Broadly adapted for many areas of Kansas but probably best suited for northern portions of the state.

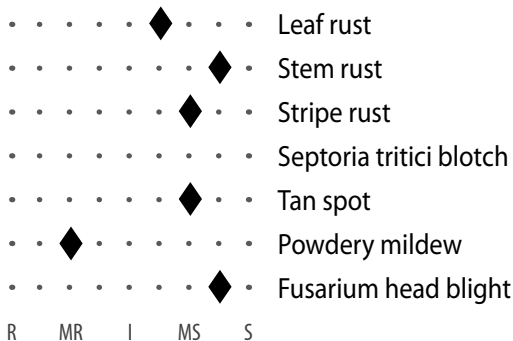
Strengths: Good drought and acid soil tolerance, good test weight, high yield potential.

Weaknesses: Susceptible to leaf rust, below-average straw strength.

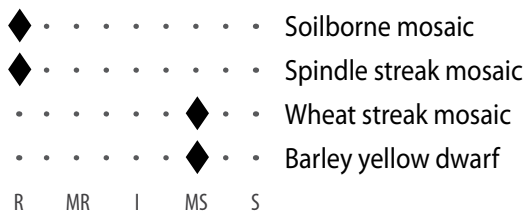
Comments: A good yield record in many areas of the state. Maturity has been hard to determine because it is photoperiod sensitive, which may cause it to head late in central and eastern Kansas where heat stress during the grain filling period is common.

LCS Pistol

Fungal diseases

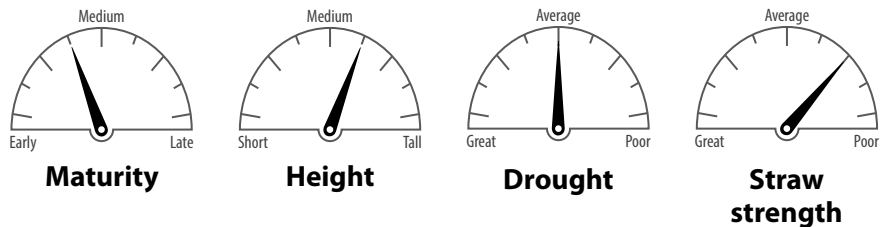


Viral diseases



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MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: T158 and T157.

Adaptation: Wide adaptability across Kansas.

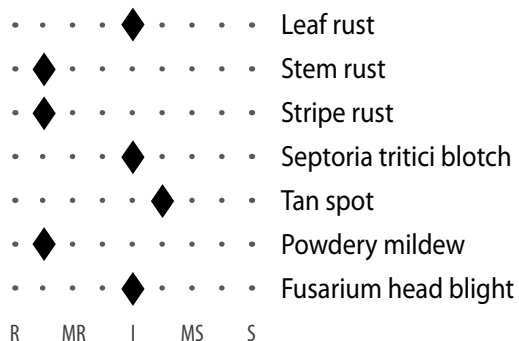
Strengths: Good acid soil tolerance, good drought tolerance, resistance to soilborne mosaic virus.

Weaknesses: Susceptible to stripe rust, stem rust, and Hessian fly.

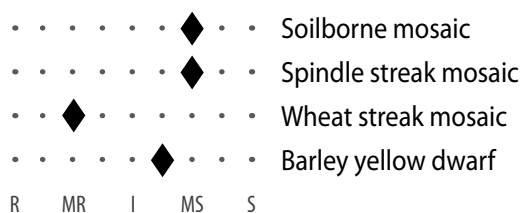
Comments: Better acid soil tolerance than T158, which may make it more broadly adapted for central Kansas. Susceptibility to stripe, leaf, and stem rusts makes it a good candidate for foliar fungicide applications. Straw strength is not as good as T158.

Oakley CL

Fungal diseases

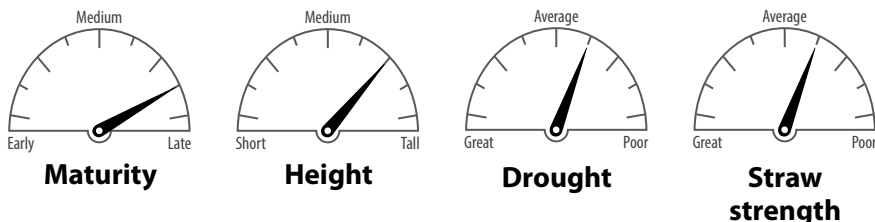


Viral diseases



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Agronomic characteristics



Pedigree: Above, Danby, and K-State Experimental lines.

Adaptation: Western Kansas.

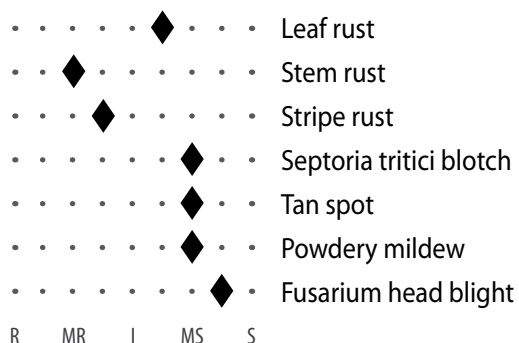
Strengths: Resistance to wheat streak mosaic virus and stripe rust, good drought tolerance.

Weaknesses: Average straw strength, susceptible to acid soils.

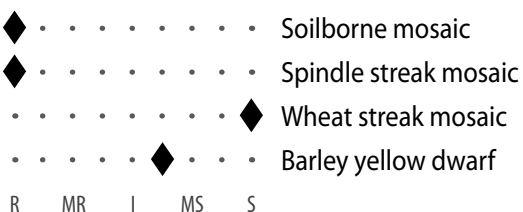
Comments: An excellent yield record in western Kansas. It is a single gene Clearfield variety, which means it cannot tolerate the high rate of Beyond herbicide or methylated seed oils that improve the performance of this herbicide. Resistance to wheat streak mosaic is not effective at high temperatures and does not provide protection against Triticum mosaic.

SY Flint

Fungal diseases

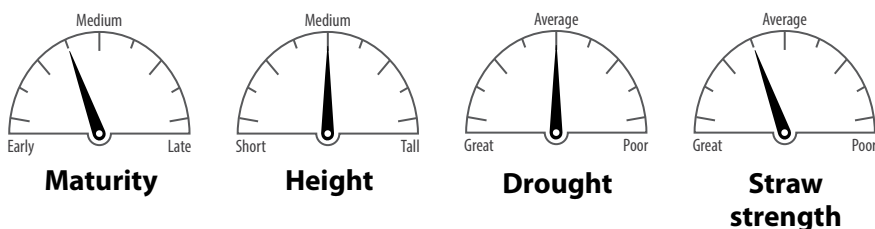


Viral diseases



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Agronomic characteristics



Pedigree: WGRC experimental line, Jagalene, and Duster.

Adaptation: Central Kansas.

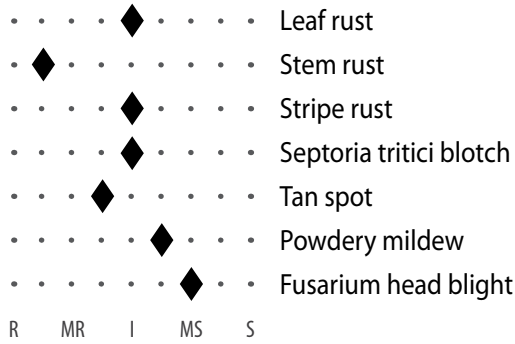
Strengths: Intermediate stripe rust resistance, Hessian fly resistance, good straw strength, and good grazing potential.

Weaknesses: Average drought tolerance, susceptible to leaf rust and wheat streak mosaic.

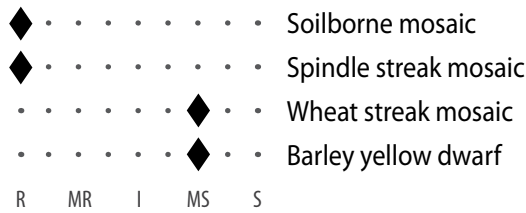
Comments: It appears to be best adapted for south central Kansas, where its grazing potential may be attractive to some growers. Its stripe rust resistance has been a plus in recent years.

SY Grit

Fungal diseases

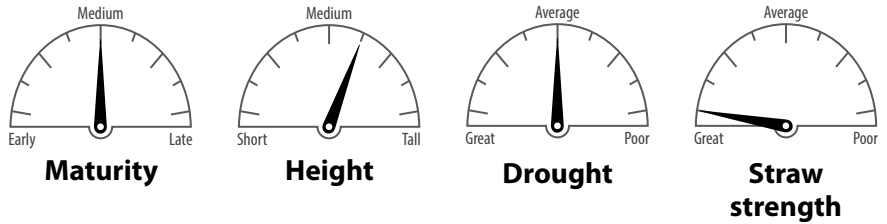


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Post Rock and experimental lines.

Adaptation: Central and Western Kansas.

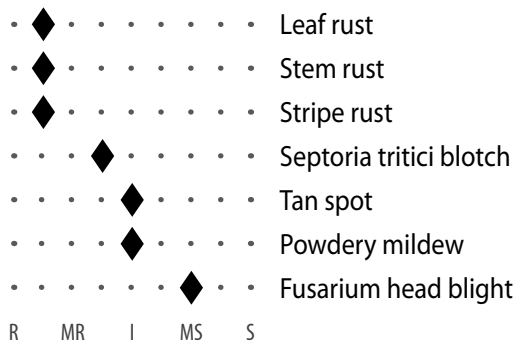
Strengths: Straw strength, resistance to soilborne mosaic virus.

Weaknesses: Susceptibility to acid soils and Hessian fly, moderate susceptibility to wheat streak mosaic and barley yellow dwarf.

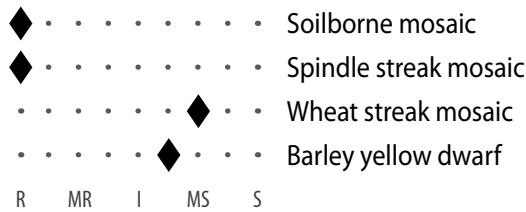
Comments: Similar to Post Rock in many characteristics. Intermediate to stripe and leaf rust, can benefit from a fungicide application. Avoid planting on low pH soils.

SY Monument

Fungal diseases

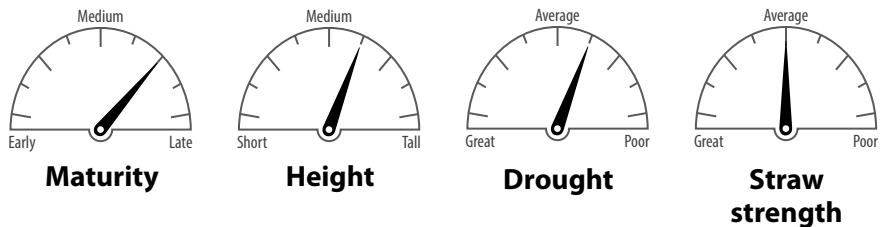


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: AgriPro experimental lines.

Adaptation: Central and western Kansas.

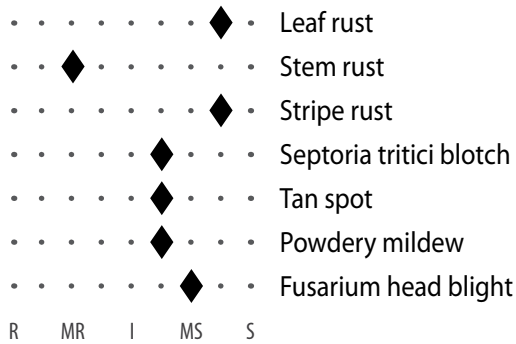
Strengths: Good disease package, good test weight, high tillering potential.

Weaknesses: Average straw strength.

Comments: Excellent yield record across Kansas, although its medium-late maturity suggests it is best adapted for northern Kansas. It currently has good resistance to stripe rust and leaf rust. A good option following soybeans in north central Kansas, because the later planting may reduce the risk of lodging.

TAM 111

Fungal diseases

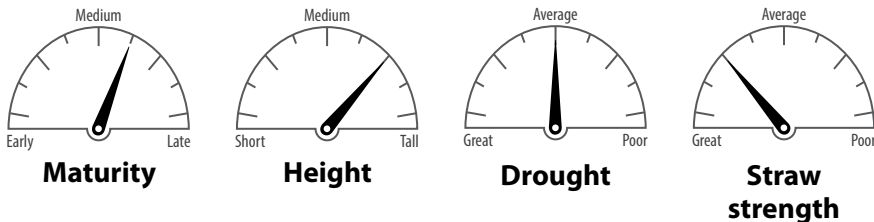


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: TAM 107, Centurk, and Texas experimental lines.

Adaptation: Western Kansas.

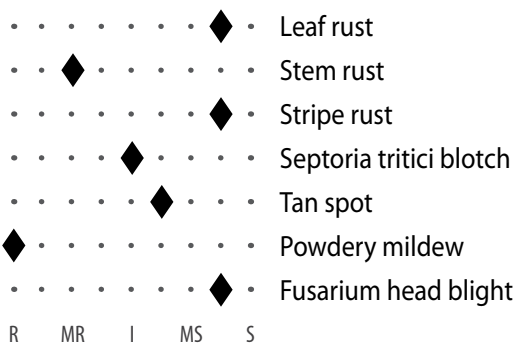
Strengths: Drought tolerance, good yield potential if treated with a foliar fungicide, good shattering reputation, stem rust resistance, and good test weight.

Weaknesses: Susceptible to acid soils, leaf rust, stripe rust, barley yellow dwarf, and wheat streak mosaic.

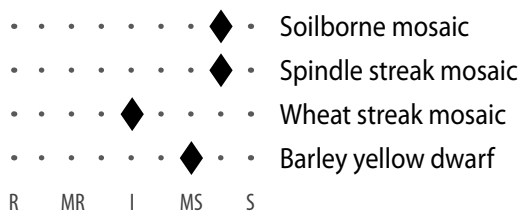
Comments: A successful variety in western Kansas because of its drought tolerance. In recent years, its disease susceptibility has resulted in lower yields relative to other, more resistant varieties. Still a good option in western Kansas, but plan to use a fungicide in years when stripe rust and leaf rust are a problem.

TAM 112

Fungal diseases

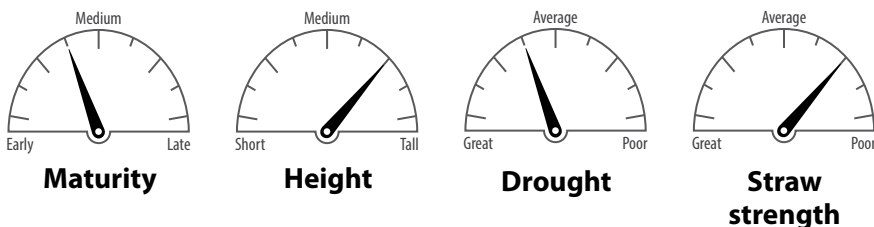


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: TAM 110 sibling, TAM 200, and WGRC experimental lines.

Adaptation: Western Kansas.

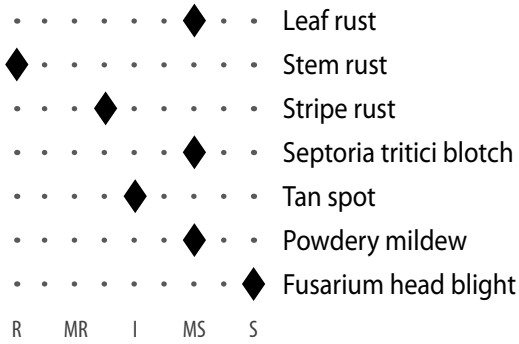
Strengths: Good drought tolerance, good grazing potential, good yield potential if treated with a foliar fungicide, intermediate reaction to wheat streak mosaic.

Weaknesses: Susceptible to stripe rust and leaf rust, below-average straw strength.

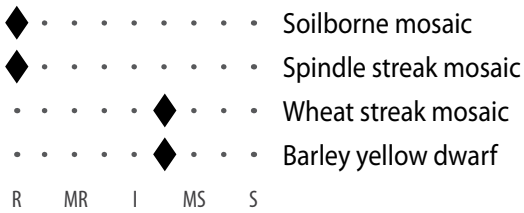
Comments: A reliable wheat variety for western Kansas. Susceptible to stripe rust and leaf rust. Benefits from a foliar fungicide when these diseases are active. Weak straw strength may predispose it to lodging and complications at harvest.

WB4458

Fungal diseases

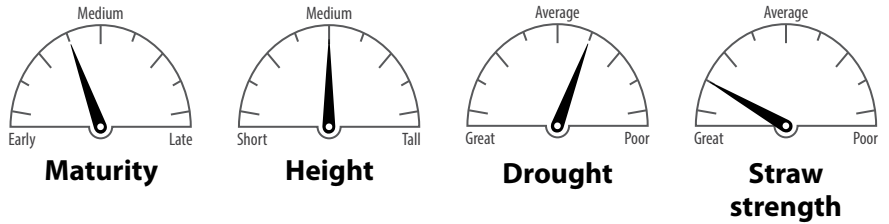


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Overlay and WestBred experimental lines.

Adaptation: Central and west central Kansas.

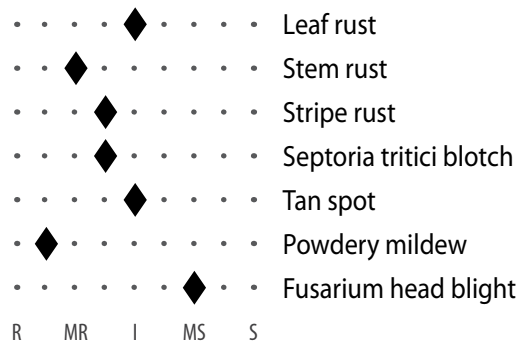
Strengths: Good yield potential, good straw strength, tolerance to acid soils.

Weaknesses: Susceptible to Fusarium head blight and powdery mildew, below-average tillering potential.

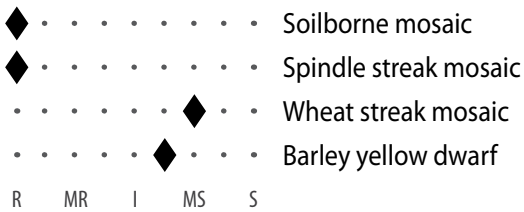
Comments: Excellent yield record in central Kansas. May not be a good choice following corn because it is highly susceptible to Fusarium head blight. Above-average seed size may require adjustments in seeding rate to avoid suboptimal stands.

WB-Cedar

Fungal diseases

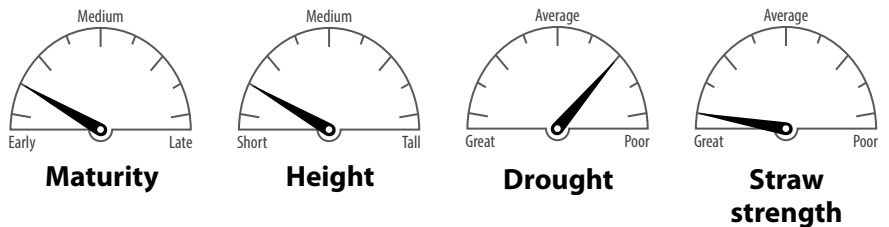


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: TAM 203 and Pioneer experimental lines with 2180.

Adaptation: Central and eastern Kansas, western Kansas under irrigation.

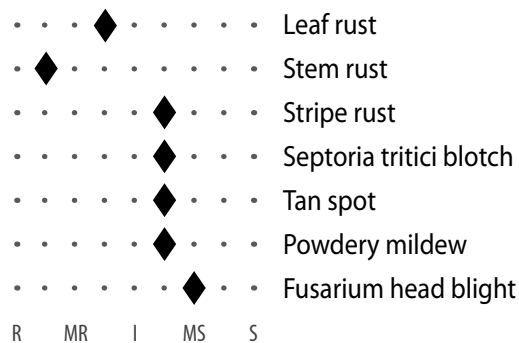
Strengths: Good yield potential, good straw strength, moderate resistance to stripe rust, good acid soil tolerance.

Weaknesses: Short stature may complicate harvest in dry years. Moderately susceptible to wheat streak mosaic.

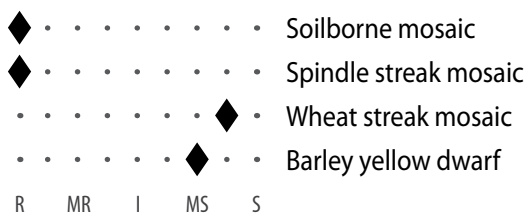
Comments: A short variety with early maturity. Good yield record in central Kansas, but its early maturity makes it vulnerable to spring freeze injury. Often used in blends for central Kansas.

WB-Grainfield

Fungal diseases

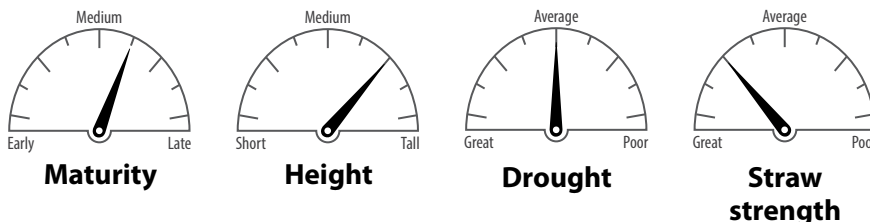


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: WestBred and K-State experimental lines.

Adaptation: Central and western Kansas.

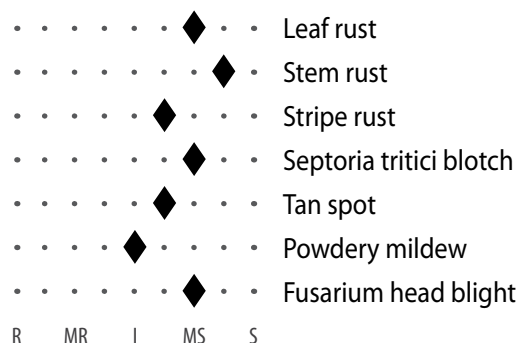
Strengths: Good drought tolerance, resistance to leaf rust, intermediate resistance to stripe rust, good shattering reputation.

Weaknesses: Moderately susceptible to barley yellow dwarf and wheat streak mosaic.

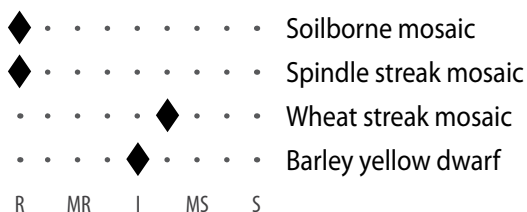
Comments: A good yield potential, but its medium-late maturity suggests it is best adapted for north central and northwest Kansas. Good drought tolerance. Stripe rust resistance has given it an advantage over many other varieties in recent years.

Winterhawk

Fungal diseases

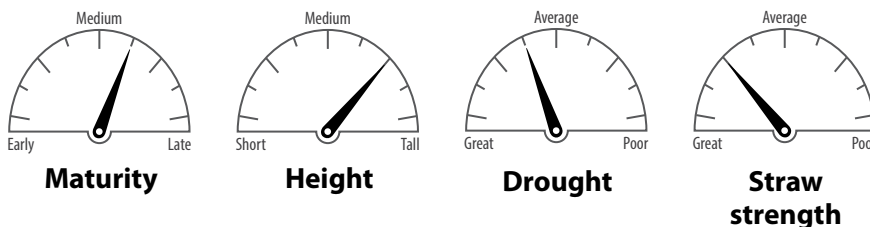


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: WestBred experimental lines.

Adaptation: Central and western Kansas.

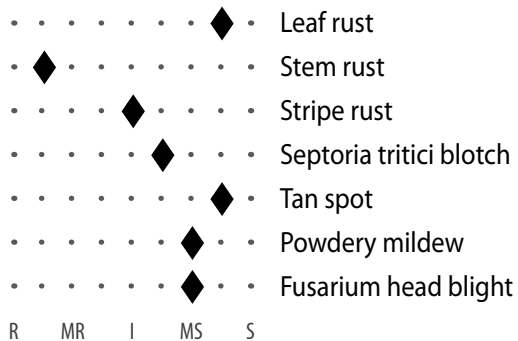
Strengths: Above average drought tolerance, good yield potential, good test weight, good straw strength.

Weaknesses: Intermediate tolerance to acid soils. Susceptible to leaf rust, stripe rust and stem rust.

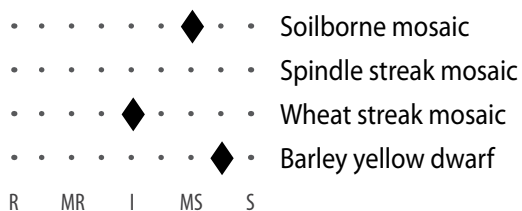
Comments: Excellent yield record under dry conditions in western Kansas and the best available drought tolerance. This variety is best adapted to northwest Kansas because of its medium-late maturity and intermediate tolerance to acid soils. Plan to use a fungicide in years that stripe rust and leaf rust are problems.

Danby (White)

Fungal diseases

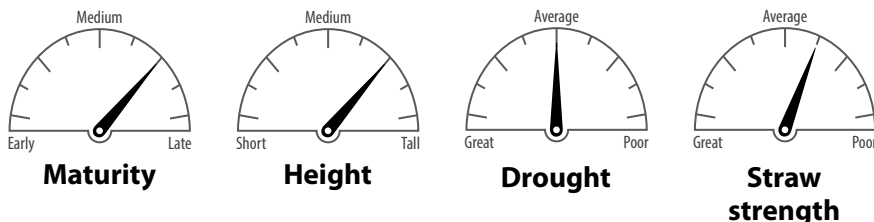


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Trego and Jagger sibling.

Adaptation: Western Kansas.

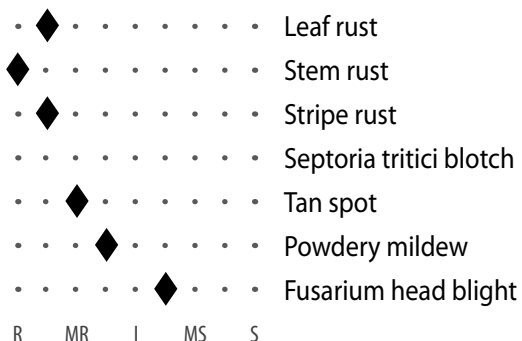
Strengths: Tolerance to pre-harvest sprouting, resistance to wheat streak mosaic virus, good test weight and milling characteristics, good drought tolerance.

Weaknesses: Susceptible to leaf rust. Below-average straw strength.

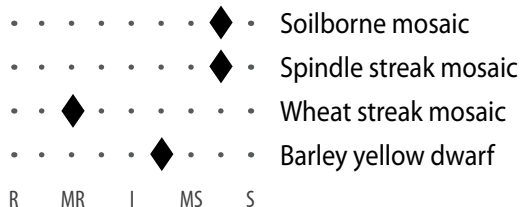
Comments: A good yield record in western Kansas and the number one white wheat in the state. Good drought tolerance. Moderately susceptible to the races of stripe rust that can overcome the Jagger type of resistance but has performed better than expected in recent years.

Joe (White)

Fungal diseases

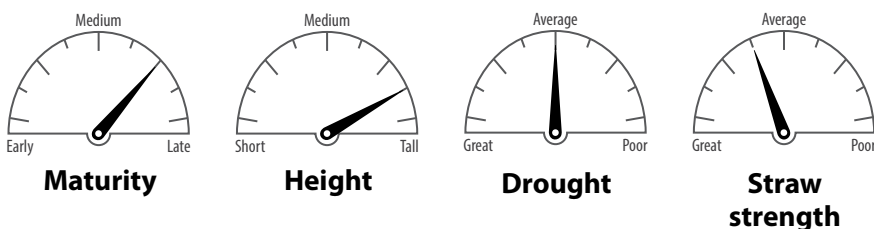


Viral diseases



R = Resistant; MR = Moderately resistant; I = Intermediate; MS = Moderately susceptible; S = Susceptible

Agronomic characteristics



Pedigree: Jagger, Arlin, Trego, and Colorado experimental lines.

Adaptation: Western Kansas.

Strengths: Excellent yield potential, resistance to wheat streak mosaic, stripe rust, leaf rust, good straw strength.

Weaknesses: Moderately susceptible to pre-harvest sprouting, susceptible to soilborne mosaic virus and Hessian fly.

Comments: A new white wheat with an excellent yield record in western Kansas. Its resistance to stripe rust and wheat streak mosaic have been an asset in recent years. Resistance to wheat streak mosaic is less effective at high temperatures. Early observations suggest that it is susceptible to Triticum mosaic. More susceptible to pre-harvest sprouting than Danby.

Appendix 1. Overall listing of disease and insect reactions.

Hard Red Winter Wheat^a												
Variety	Spindle		Wheat	Barley	Leaf	Stem	Stripe	Septoria		Fusarium		
	Soilborne	Streak	Streak	Yellow				Rust	Tritici	Tan	Powdery	Head
	Mosaic	Mosaic	Mosaic	Dwarf	Rust	Rust	Rust	Blotch	Spot	Mildew	Blight	Fly^b
1863	2	1	5	6	7	1	3	6	6	6	7	9 ^c
2137	1	5	6	5	7	6	8	5	5	4	8	5 ^c
AG Gallant				7	6	5	2	8	7		7	9
AG Robust				7	4	5	2	6	8		4	9
AP503 CL2 ^d	2	5	6	7	8	2	5	4	7	7	7	6
Armour	1	1	7	6	5	3	7	6	5	2	7	9
Art	1	1	7	8	3	2	6	5	6	5	6	3
Avery	1	1	5	7	8	8	8		7	3	7	9
Bentley	1	1	6	5	5	2	5		6	6	7	9
Billings	2	5	8	5	2	4	2	6	8	6	8	5
Brawl CL Plus ^d	2	2	7	7	6	7	7		7	3	8	9
Byrd	2	2	5	7	8	8	8		7	3	7	9
CJ	5	6	4	7	6	2	6	4	5	5	7	3
Denali	8	8	6	7	7	3	8		8	5	7	2 ^c
Doublestop CL Plus ^d	1	1	6	6	3	2	5	6	6	5	8	9 ^c
Duster	1	1	7	4	3	3	5	7	7	3	8	1
Endurance	2	8	7	5	5	7	5	5	7	5	6	9 ^c
Everest	1	1	7	4	3	3	8	5	7	3	4	5
Fuller	1	1	5	7	6	2	5	6	6	6	6	8
Gallagher	1	1	7	6	3	3	3	5	7	6	7	1
Garrison	1	1	6	6	6	4	8	3	4	3	6	6 ^c
Greer	1		6	7	7	2	3	5	4	5		9
Hatcher	7	8	8	8	7	3	5	5	5	3	6	7 ^c
Hot Rod	1	1		5	3	5	4	5	6	4	8	9
Iba	1	1	8	5	3	2	5	7	7	2	8	7
Jackpot	1	1	8	7	8	4	4	6	5	6	8	6
Jagalene	2	3	6	7	9	2	5	4	7	9	8	6
Jagger	2	4	5	7	9	3	5	3	4	7	7	8
KanMark	1	1	6	6	2	3	6	6	6	7	8	9
Karl/Karl 92	1	3	9	8	8	6	5	5	3	4	6	9
Larry	1	1	6	7	7	2	2	6	5	5	6	9
LCS Chrome	1	1	7	7	2	2	3	4	4	6	6	1
LCS Mint	1		6	7	7	4	5	5	5	6	8	9
LCS Pistol	1	1	7	7	6	8	7		7	3	8	9
LCS Wizard	2	1	8	6	7	9	8	5	5	4	7	1
Oakley CL ^d	7	7	3	6	5	2	2	5	6	2	5	9
Overland	8		7	4	5	5	3	6	6		5	
Overley	1	4	5	5	8	2	4	5	5	7	9	8
PostRock	2	5	6	7	7	3	5	8	5	8	7	8
Ruby Lee	1	1	7	6	6	5	8	7	5	3	8	9
SY Flint	1	1	9	6	6	3	4	7	7	7	8	3
SY Gold	1	1	6	6	2	2	5	4	5	5	7	4 ^c
SY Grit	1	1	7	7	5	2	5	5	4	6	7	9
SY Monument	1	1	7	6	2	2	2	4	5	5	7	7
SY Southwind	2		7	6	5	2	2	4	6	5	7	7
SY Sunrise	1		7		4	1	4		5	8		9
SY Wolf	2		6	6	2	2	6	3	3	5	7	7
T153	1	1	8	7	7	4	2	6	7	2		4 ^c
T154	1	1	7	7	7	6	3	5	7	2	7	5 ^c
T158	2	2	5	6	8	8	2	7	7	3	8	9 ^c

Appendix 1. Overall listing of disease and insect reactions.

Hard Red Winter Wheat^a												
Variety	Soilborne Mosaic	Spindle Streak Mosaic	Wheat Streak Mosaic	Barley Yellow Dwarf	Leaf Rust	Stem Rust	Stripe Rust	Septoria		Fusarium		
								Tritici Blotch	Tan Spot	Powdery Mildew	Head Blight	Hessian Fly^b
TAM 111	8	8	7	7	8	3	8	6	6	6	7	8
TAM 112	8	8	5	7	8	3	8	5	6	1	8	9
TAM 113	8	8	7	7	3	2	4		7	4	7	9
TAM 114	8	8	7	6	4	7	2		7	5	7	7
TAM 304	4	2	7	7	2	3	6	5	7	3	8	9
TAM 305			6	6	2	3	4		7		8	9
Tatanka	1	1	7	5	6	2	2	7	7	7	6	9
WB4303	1	1	7	7	3	1	4	6	6	5	8	9
WB4458	1	1	6	6	7	1	4	7	5	7	9	9
WB4721	8	8	8	7	2	2	2	6	6	7		8
WB-Cedar	1	1	7	6	5	3	4	4	5	2	7	9
WB-Grainfield	1	1	8	7	4	2	6	6	6	6	7	8 ^c
WB-Redhawk	1	1	6	6	2	4	8	5	6	8	8	9
Winterhawk	1	1	6	5	7	8	6	7	6	5	7	8
Zenda	1	1	7	6	3	2	3	4	5	5	4	5

Hard White Winter Wheat												
Variety	Soilborne Mosaic	Spindle Streak Mosaic	Wheat Streak Mosaic	Barley Yellow Dwarf	Leaf Rust	Stem Rust	Stripe Rust	Septoria		Fusarium		
								Tritici Blotch	Tan Spot	Powdery Mildew	Head Blight	Hessian Fly^b
Antero	4	4	7	7	7	2	4		5		6	4 ^c
Aspen	1	1	7	6	6	3	3	4	5	2	6	6 ^c
Clara CL ^d	2	2	3	7	2	2	5		7		6	1
Danby	7		5	8	8	2	5	6	8	7	7	9
Joe	8	8	3	6	2	1	2		3	4	6	
Snowmass	6		3	7	6	2	7				6	9
Tiger	2	3	6	7	2	3	9	7	7	5	8	2

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 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 Indicates resistance has been inconsistent in greenhouse testing.

d CLEARFIELD® variety, which is resistant to Beyond herbicide.

Appendix 2. Overall listing of agronomic characteristics.

Hard Red Winter Wheat ^a				
Variety	Maturity	Height	Drought Tolerance	Straw Strength
1863	5	6	6	7
AG Gallant	5	5		2
AG Robust	3	4		2
AP503 CL2	5	5	5	3
Armour	2	3	7	3
Avery	7	7	4	5
Bentley	4	8		6
Billings	3	5	8	6
Brawl CL Plus	4	7	5	3
Byrd	6	7	4	6
Denali	8	8	5	3
Doublestop CL Plus	7	8	7	4
Duster	5	5	5	7
Endurance	6	7	5	5
Everest	2	4	7	2
Fuller	3	6	6	5
Gallagher	5	5	6	5
Garrison	6	6	6	3
Greer	5	6	5	2
Hatcher	7	4	6	6
Hot Rod	3	4	7	2
Iba	5	6	6	4
Jackpot	2	5	5	3
Jagalene	5	5	5	3
Jagger	2	5	5	7
KanMark	5	3	5	1
Larry	6	6	6	3
LCS Chrome	8	7	5	3
LCS Mint	7	8	4	6
LCS Pistol	4	6	5	7
LCS Wizard	6	6	6	2
Oakley CL	8	7	6	6
Overley	2	7	6	3
PostRock	5	5	5	2

Hard Red Winter Wheat				
Variety	Maturity	Height	Drought Tolerance	Straw Strength
Ruby Lee	3	7	5	4
SY Flint	4	5	5	4
SY Grit	5	6	5	1
SY Monument	7	6	6	5
SY Southwind	4	4	7	3
SY Sunrise	8	5		2
SY Wolf	7	6	5	3
T154	3	5	6	4
T158	3	4	4	4
Tatanka	6	6	5	7
TAM 111	6	7	5	3
TAM 112	4	7	4	7
TAM 114	5	6	5	4
TAM 204	6	5		1
TAM 304	5	4	7	2
WB4303	4	4		1
WB4458	4	5	6	2
WB4721	7	7		2
WB-Cedar	2	2	7	1
WB-Grainfield	6	7	5	3
WB-Redhawk	3	6	6	2
Winterhawk	6	7	4	3
Zenda	4	6	7	2

Hard White Winter Wheat				
Variety	Maturity	Height	Drought Tolerance	Straw Strength
Antero	6	6	6	4
Aspen	2	2	7	1
Clara CL	7	7	6	6
Danby	7	7	5	6
Joe	7	8	5	4

^a Maturity: 1 = Early; 5 = Medium; 9 = Late
 Height: 1 = Short; 5 = Medium; 9 = Tall
 Drought tolerance: 1 = Excellent; 5 = Good; 9 = Poor
 Straw strength: 1 = Excellent; 5 = Good; 9 = Poor
 Blanks indicate insufficient information.

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