



Wheat Variety Comparison

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David Marburger
Small Grains Extension Specialist

Bob Hunger
Extension Plant Pathologist

Brett Carver
Wheat Breeder

Tom Royer
Extension Entomologist and IPM Coordinator

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Importance of Variety Selection

Variety selection will dictate many of the decisions made in producing a wheat crop. Reactions to foliar diseases or insects, for example, will determine which pesticides are needed and when. Therefore, wheat farmers should carefully review variety characteristics and choose varieties that match their management style. This publication is designed to help wheat farmers make educated decisions about which varieties to grow. Additional information on yield potential of varieties can be found at www.wheat.okstate.edu

Variety Developer and Licensee

The variety developer listed in this fact sheet indicates the breeding program that released the variety. This may or may not be the same organization marketing the variety (i.e., the licensee). The Oklahoma Crop Improvement Association (www.okcrop.com) can be contacted to obtain a listing of certified seed producers in Oklahoma.

Lodging

Lodging ratings are based on a 1 to 5 scale with 1 indicating good straw strength and 5 indicating a greater propensity for lodging. This rating represents the genetic propensity for lodging and does not account for environmental factors, such as excessive nitrogen fertilization, which can also lead to lodging.

First Hollow Stem

First hollow stem is the growth stage when cattle should be removed from dual-purpose wheat pasture. A variety with a very late (VL) rating would offer one to two weeks more grazing in most years than a variety with a very early (VE) rating.

Maturity

Maturity ratings are primarily based on observations within the OSU wheat breeding and variety testing programs. Spreading acreage among a range of wheat maturities is a good way to hedge against spring freeze injury, some wheat diseases and to spread harvest workload.

High Temperature Germination Sensitivity

Some varieties do not germinate well in hot soils and are not good candidates for early sowing. This chart uses a 1 to 5 scale to rate varieties with a 1 indicating a variety that will germinate well in hot soils and a 5 indicating a variety that does not germinate well in hot soils and should not be sown before October 1. For more information on this topic, consult OSU Extension Fact Sheet PSS-2256 'Factors Affecting Wheat Germination and Stand Establishment in Hot Soils.'

Coleoptile Length

The coleoptile is a rigid, protective structure that covers the emerging shoot to aid in reaching the soil surface. If the coleoptile does not reach the soil surface, the plant will die. Therefore, coleoptile length should dictate planting depth. Coleoptile length is highly correlated to plant height at maturity and is shortened by hot soil conditions. In this chart, a rating of 1 indicates a relatively long coleoptile and a rating of 5 indicates a relatively short coleoptile. For more information on this topic consult OSU Extension Facts PSS-2256 'Factors Affecting Wheat Germination and Stand Establishment in Hot Soils.'

Hessian Fly

Hessian fly is a troublesome problem in some Oklahoma wheat fields. Hessian fly overwinters and oversummers in wheat residue, so it is most prevalent in, but not restricted to, continuous no-till wheat fields. Therefore, growers who no-till wheat after wheat should consider sowing varieties that have a resistant (R) or at least partially resistant (PR) rating. Likewise, growers who sow prior to October 1 might benefit from a variety with an R or PR rating, as early-sowing is a risk factor for Hessian fly. For more information on reducing the

Table 1. Recommended acid soil tolerance ratings for given soil pH and production systems.

<i>soil pH</i>	<i>Grain only</i>	<i>Dual Purpose</i>
< 5.0	1	1
5.0 - 5.4	1-2	1
5.5 - 5.9	1-4	1-3
> 6.0	1-5	1-5

likelihood of Hessian fly infestation, refer to OSU Extension Fact Sheet EPP-7086 'Hessian Fly Management in Oklahoma Winter Wheat.'

Acid Soil Tolerance

When soil pH drops below 5.5, essential plant nutrients can become unavailable, while some elements such as aluminum can become toxic. This publication uses a 1 to 5 scale, with 1 being most tolerant to low soil pH and 5 being least tolerant. Table 1 shows acceptable acid soil tolerance ratings for a range of pH conditions and production systems. It is also important to note in-furrow application of phosphorus at planting will increase early-season growth in most low-pH settings regardless of acid soil tolerance.

Wheat Streak Mosaic

Wheat streak mosaic virus is transmitted by the wheat curl mite. Mites overwinter on alternative host crops such as corn, volunteer wheat, and many grassy weeds. Wheat curl mites only live about seven to 10 days, so the best way to combat this virus is to make sure that any host crops are completely dead (not just sprayed) at least two weeks prior to sowing. Tolerance ratings are on a 1 to 5 scale, with 1 indicating tolerance and 5 indicating no tolerance. For more information on wheat streak mosaic virus, refer to OSU Extension Fact Sheet EPP-7328 'Three Virus Diseases of Wheat in Oklahoma.'

Wheat Soil-borne Mosaic/Wheat Spindle Streak Mosaic

Wheat soil-borne mosaic is a virus most prevalent in areas east of a line from Altus to Alva. Once a field has been infested with wheat soil-borne mosaic, the only alternative is to plant resistant varieties. Susceptibility ratings are on a 1 to 5 scale, with 1 being the most resistant and 5 indicating susceptibility. Fields with a history of wheat soil-borne mosaic should only be sown to varieties with a 1 or 2 rating. Wheat spindle streak mosaic is another virus disease that can be present with wheat soil-borne mosaic, but typically is not as damaging or as widespread in Oklahoma as wheat soil-borne mosaic. A few varieties are resistant to wheat soil-borne mosaic but susceptible to wheat spindle streak mosaic. These varieties are indicated with an asterisk in the comparison chart.

Septoria Leaf Blotch and Tan Spot

Septoria leaf blotch and tan spot are two foliar diseases of wheat that become more prevalent with adoption of conser-

vation and no-till farming practices that leave wheat residue on the soil surface. These diseases rarely reach economic threshold levels in tilled Oklahoma wheat fields, but growers employing conservation or no-till farming practices should avoid planting varieties highly susceptible to these diseases. Ratings are on a 1 to 5 scale, with 1 indicating the most resistance and 5 indicating the least resistance.

Powdery Mildew

Powdery mildew is a very common foliar disease in Oklahoma, but one that rarely justifies a fungicide application by itself. Powdery mildew is generally most prevalent in early-sown wheat fields with adequate or surplus nitrogen fertility and dense plant canopies. Varieties with a 1 or 2 rating are not likely to be significantly impacted by powdery mildew. Varieties with a rating of 3 can have moderate amounts of powdery mildew if conditions are favorable for disease development. Varieties with a rating of 4 or 5 are most likely to have severe powdery mildew infestations and may require treatment.

Leaf Rust

Leaf rust probably has more impact on wheat yield in Oklahoma than any other foliar disease. While less aggressive than stripe rust, leaf rust occurs more frequently than stripe rust. For this reason, some producers choose to apply fungicides to control leaf rust if the crop yield potential and price warrant control. Ratings for leaf rust are on a 1 to 5 scale, with 1 representing the greatest resistance to current disease races. It is important to note disease races can shift. Planting a variety with a rating of 1 will not eliminate the possibility of leaf rust, but will greatly decrease the likelihood that leaf rust reaches economic threshold levels. For more information on control of foliar diseases in wheat, consult OSU Extension Current Report CR-7668 'Foliar Fungicides and Wheat Production in Oklahoma.'

Stripe Rust

Stripe rust is the most aggressive of the foliar diseases listed in this publication. Fortunately, stripe rust is not a widespread problem every year, but this does make it difficult to accurately track genetic resistance to stripe rust. Ratings for stripe rust are on a 1 to 5 scale with 1 representing the greatest resistance to current disease races. It is important to note disease races can shift. So planting a variety with a rating of 1 will not eliminate the possibility of stripe rust, but will greatly decrease the likelihood that stripe rust reaches economic threshold levels. For more information on control of foliar diseases in wheat, consult OSU Extension Current Report CR-7668 'Foliar Fungicides and Wheat Production in Oklahoma.'

Variety Protection

Varieties listed as having PVP protection can only be sold as a certified class of seed. For more information on PVP protection laws, visit www.farmersyieldinitiative.com

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2018 Wheat Variety Comparison Chart

Developer	Licensee	Variety	Lodging			High-temp Germination Sensitivity			Acid Soil Tolerance				Hessian Fly				Barley Yellow Dwarf				Wheat Streak Mosaic				Wheat Soil-borne Mosaic				Leaf Rust		Stripe Rust		Powdery Mildew		Septoria Leaf Blotch		Tan Spot		Variety Protection	
			Lodging	First Hollow Stem	Maturity	High-temp Germination Sensitivity	Coleoptile Length	Acid Soil Tolerance	Hessian Fly	Barley Yellow Dwarf	Wheat Streak Mosaic	Wheat Soil-borne Mosaic	Leaf Rust	Stripe Rust	Powdery Mildew	Septoria Leaf Blotch	Tan Spot	Variety Protection																						
HARD WINTER WHEAT VARIETIES																																								
AgriPro	AgriPro	AP503CL2	2	L	L	2	3	3	S	3	3	1	4	3	4	2	4	Y																						
KSU	AgriPro	Bob Dole	3	M	M	-	3	1	S	3	4	1	1	1	2	-	-	P																						
AgriPro	AgriPro	Doans	2	M	E	1	1	3	S	5	-	2	1	1	2	2	-	Y																						
AgriPro	AgriPro	Fannin	3	VE	VE	2	1	1	-	2	-	1	1	1	2	-	-	Y																						
AgriPro	AgriPro	Greer	2	E	M	1	2	3	S	3	-	1	3	2	3	3	3	Y																						
AgriPro	AgriPro	Jackpot	1	E	E	2	3	1	S	3	-	2	3	2	2	3	3	Y																						
AgriPro	AgriPro	SY Achieve CL2	3	VE	VE	-	3	2	S	3	4	1	3	1	3	3	3	P																						
AgriPro	AgriPro	SY Benefit	2	VE	E	-	3	1	S	3	4	1	4	2	3	2	2	P																						
AgriPro	AgriPro	SY Flint	1	E	VE	4	3	1	R	3	4	1	3	2	3	4	4	Y																						
AgriPro	AgriPro	SY Grit	1	E	E	5	3	4	S	3	4	1	3	3	3	3	3	Y																						
AgriPro	AgriPro	SY Llano	1	VE	VE	4	3	1	S	2	3	1	3	1	4	-	4	Y																						
AgriPro	AgriPro	SY Monument	3	L	L	4	3	1	S	3	4	1	1	1	3	2	2	Y																						
AgriPro	AgriPro	SY Razor	2	VE	E	3	-	2	-	3	-	3	2	2	1	-	-	Y																						
AgriPro	AgriPro	SY Rugged	3	E	E	-	3	1	S	4	3	1	2	1	3	4	3	P																						
AgriPro	AgriPro	SY Southwind	1	E	E	3	4	1	R	2	3	2	2	1	3	3	4	Y																						
TAMU	AgriPro	TAM 111	3	L	M	2	1	5	S	4	4	5	5	5	3	4	4	Y																						
TAMU	AgriPro	TAM 401	2	E	E	1	2	1	S	5	4	2	2	2	2	-	-	Y																						
Not disclosed	AGSECO	AG Robust	2	E	VE	3	3	2	S	4	-	1	2	1	2	4	4	P																						
TAMU	AGSECO	TAM 113	4	M	M	1	4	2	S	4	4	5	1	1	4	-	4	Y																						
TAMU	AGSECO	TAM 114	2	E	M	2	1	1	S	3	4	5	1	1	3	4	4	Y																						
Not disclosed	Dyna-Gro	Long Branch	2	M	VL	4	-	-	S	2	-	1	4	2	2	3	4	-																						
KSU	KWA	1863	4	E	M	-	4	2	S	3	3	1	4	2	4	3	3	Y																						
KSU	KWA	Everest	1	E	VE	2	3	1	R	2	4	1	2	5	2	3	4	Y																						
KSU	KWA	Fuller	3	VE	E	2	3	4	S	4	3	1	3	3	3	3	3	Y																						
KSU	KWA	Jagger	4	VE	VE	1	3	1	S	4	3	2	5	3	5	2	3	Y																						
KSU	KWA	Joe (w)	2	L	L	2	4	4	S	3	1	4	1	1	2	3	2	Y																						
KSU	KWA	KanMark	1	M	M	4	3	4	S	3	3	1	1	4	4	3	3	Y																						
KSU	KWA	Karl 92	3	M	E	2	4	4	S	4	5	1	4	3	3	3	2	Y																						
KSU	KWA	Larry	2	M	M	4	3	2	S	4	3	1	4	1	3	3	3	Y																						
KSU	KWA	Oakley CL	3	L	L	4	2	4	S	3	1	4	3	1	3	3	3	Y																						
KSU	KWA	Overley	1	VE	VE	5	3	1	S	3	3	1	4	3	4	3	3	Y																						
KSU	KWA	Tatanka	4	M	M	4	3	2	S	3	4	1	3	1	4	4	4	P																						
KSU	KWA	Zenda	1	E	E	4	3	2	I	3	4	1	2	2	3	2	3	P																						

PSS-2142-4

PSS-2142-5

Developer	Licensee	Variety	Lodging	First Hollow Stem	Maturity	High-temp Germination Sensitivity	Coleoptile Length	Acid Soil Tolerance	Hessian Fly	Barley Yellow Dwarf	Wheat Streak Mosaic	Wheat Soil-borne Mosaic	Leaf Rust	Stripe Rust	Powdery Mildew	Septoria Leaf Blotch	Tan Spot	Variety Protection
LCS	LCS	LCS Chrome	2	L	L	3	3	1	PR	3	4	1	1	1	3	2	2	P
Not disclosed	LCS	LCS Mint	3	L	L	5	2	1	S	4	3	1	4	3	4	3	3	Y
LCS	LCS	LCS Pistol	3	E	E	2	4	1	S	3	4	1	3	4	2	4	4	Y
VA Tech	LCS	LCS Wizard	1	L	M	3	3	1	R	3	4	1	4	5	3	3	2	Y
LCS	LCS	T153	1	VE	VE	2	2	4	R	5	5	1	4	1	1	4	4	C
LCS	LCS	T154	2	E	VE	1	3	2	PR	4	5	1	4	2	1	3	3	C
LCS	LCS	T158	2	M	E	1	3	5	S	3	3	1	4	1	2	4	4	C
OSU	OGI	Bentley	2	L	E	3	-	2	S	2	4	1	4	3	3	4	3	Y
OSU	OGI	Billings	3	VE	VE	1	2	1	S	4	4	1	2	1	4	3	4	Y
OSU	OGI	Centerfield	2	L	M	3	3	2	R	3	-	2	4	2	1	4	4	Y
OSU	OGI	Doublestop CL Plus	2	L	L	2	1	1	PR	3	3	1	1	1	3	3	3	Y
OSU	OGI	Duster	4	M	M	1	3	1	R	2	4	1	1	3	2	4	4	Y
OSU	OGI	Gallagher	3	E	E	1	4	3	R	3	4	1	1	2	3	3	4	Y
OSU	OGI	Garrison	2	M	M	1	3	1	S	2	-	1	3	3	5	3	2	Y
OSU	OGI	Iba	3	L	M	3	2	5	S	2	4	1	2	3	2	4	3	Y
OSU	OGI	Lonerider	1	VE	VE	1	-	1	TS**	4	-	5	3	3	3	3	4	N
Noble Found.	OGI	NF 101	2	E	VE	2	-	-	-	-	-	-	3	-	-	-	-	-
OSU	OGI	OK Bullet	1	M	M	1	2	3	S	4	4	2	5	4	4	3	4	Y
OSU	OGI	Pete	1	L	VE	1	2	3	S	5	3	1	1	5	3	3	4	Y
OSU	OGI	Ruby Lee	4	M	E	3	3	4	TS**	2	3	1	3	5	3	5	2	Y
OSU	OGI	Smith's Gold	2	E	E	3	-	3	PR	3	-	1	2	1	2	2	3	N
OSU	OGI	Spirit Rider	1	L	L	2	-	1	S	3	4	1*	2	1	4	2	2	N
OSU	OGI	Stardust (w)	2	E	E	4	-	2	S	4	-	1	4	3	2	5	3	P
OSU	OSU	2174	1	L	L	5	3	2	PR	3	4	1*	3	3	1	3	3	Y
OSU	OSU	Chisholm	3	L	E	4	4	3	PR	-	-	5	4	3	3	3	4	N
OSU	OSU	Custer	2	E	E	1	3	5	-	4	5	5	3	4	1	4	3	N
OSU	OSU	Deliver	4	L	M	1	3	5	S	4	4	1	1	2	2	3	3	Y
OSU	OSU	Endurance	2	VL	M	1	1	1	S	3	4	2*	2	3	3	4	4	Y
OSU	OSU	Triumph 64	5	L	M	5	1	5	-	-	-	4	4	-	3	4	1	N
CSU	PlainsGold	Above	2	E	VE	2	2	5	S	4	3	5	5	4	1	3	4	Y
CSU	PlainsGold	Avery	3	M	M	1	2	3	S	4	2	1	4	4	2	4	4	Y
CSU	PlainsGold	Bill Brown	2	E	M	1	4	-	S	4	4	4	2	3	3	4	4	Y
CSU	PlainsGold	Brawl CL Plus	1	L	E	2	1	5	S	4	4	1	3	4	2	4	4	Y
CSU	PlainsGold	Byrd	2	E	M	2	2	2	S	4	2	1	4	4	2	2	4	Y
CSU	PlainsGold	Hatcher	4	E	M	1	3	3	PR	4	4	4	4	3	2	3	3	Y
CSU	PlainsGold	Langin	4	L	E	-	3	2	S	-	3	1	4	2	-	-	-	Y

Developer	Licensee	Variety	Lodging			High-temp Germination Sensitivity			Hessian Fly				Variety Protection					
			First Hollow Stem	Maturity		High-temp Germination Sensitivity	Coleoptile Length	Acid Soil Tolerance	Hessian Fly	Barley Yellow Dwarf	Wheat Streak Mosaic	Wheat Soil-borne Mosaic	Leaf Rust	Stripe Rust	Powdery Mildew	Septoria Leaf Blotch	Tan Spot	Variety Protection
CSU	PlainsGold	Ripper	1	VE	E	-	2	4	S	-	3	-	4	5	-	-	-	Y
TAMU	Scott Seed	TAM 304	2	E	E	1	2	1	S	4	4	2	1	3	2	3	-	4
TAMU	TAMU	Lockett	5	E	VL	1	-	2	S	-	-	4	2	3	-	-	-	Y
TAMU	TAMU	TAM 110	2	E	VE	2	1	5	S	4	3	5	5	5	1	3	4	Y
TAMU	Watley Seed	TAM 112	4	E	E	1	2	1	S	4	2	5	5	5	1	3	3	Y
TAMU	Watley Seed	TAM 204	1	E	M	5	-	-	PR	-	2	1	4	2	-	-	-	Y
WestBred	WestBred	Armour	1	E	E	1	3	2	S	4	4	3	1	3	4	1	3	Y
WestBred	WestBred	WB4269	2	E	VE	-	4	2	S	-	4	1	1	1	1	2	4	P
WestBred	WestBred	WB4303	1	VE	VE	4	-	2	S	3	3	1	3	3	4	4	4	P
WestBred	WestBred	WB4458	1	E	E	4	3	1	S	3	3	1	4	2	4	3	3	Y
WestBred	WestBred	WB4515	2	E	M	4	-	2	I	1	4	1	2	2	3	3	3	P
WestBred	WestBred	WB4721	1	VE	L	3	3	4	S	3	4	5	2	2	3	3	3	P
WestBred	WestBred	WB-Cedar	1	E	VE	2	3	2	S	3	4	1	3	2	1	2	3	Y
WestBred	WestBred	WB-Grainfield	2	M	L	4	4	2	S	3	4	1	3	3	3	4	3	Y
WestBred	WestBred	WB-Redhawk	2	VE	E	3	3	2	S	3	4	1	1	4	5	3	3	Y
WestBred	WestBred	Winterhawk	2	E	M	1	2	3	S	3	3	1	4	3	3	4	3	Y

General:
 1 = Excellent
 5 = Poor

Maturity & FHS
 VE = Very Early
 E = Early
 M = Medium
 L = Late
 VL = Latest

High-temp germ. sensitivity
 1 = Less sensitive
 5 = Very sensitive

Coleoptile:
 1 = Longest
 5 = Shortest

Hessian Fly
 R = Resistant
 PR = Partially resistant
 I = Intermediate
 S = Susceptible
 TS = Temperature-sensitive

Variety Protection:
 Y = PVP protected
 N = Not protected
 C = Contract agreement

*Reaction presented is to wheat soil-borne mosaic; reaction to wheat spindle streak is a '3'
 **Hessian fly resistance is temperature sensitive, with less resistance at higher temperatures

The Oklahoma Cooperative Extension Service

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The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take

the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.

- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

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