



# 1863 Hard Red Winter Wheat

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**1863** is a new hard red winter wheat variety developed cooperatively by K-State Research and Extension and the Agricultural Research Service, United States Department of Agriculture. Foundation seed of 1863 was distributed to Kansas registered seed growers for fall planting in 2012. Certified seed will be available for fall planting in 2013. The name '1863' was chosen in honor of the K-State sesquicentennial.

**Origin and development.** 1863 is a hard red winter wheat selected from the cross Overley 'S'/Karl 92//Cutter made in 2002. Overley and Karl 92 are both hard red winter varieties released by the Kansas Agricultural Experiment Station. Cutter is a hard red winter wheat released by AgriPro. 1863 was tested as KS020319-7-3.

**Agronomic characteristics.** 1863 is an awned, white-chaffed, semi-dwarf hard winter wheat. It is a medium-tall variety with good yield potential and average straw strength. 1863 is slightly taller (1 inch) than Fuller and it is tolerant to shattering. Lodging has not been a significant concern during its development but can be observed in high-yield conditions. 1863 is a medium-maturing variety that is about 3 days later than Fuller (see Table 1). Part of the rationale for releasing 1863 is there are relatively few medium-maturing varieties currently available to Kansas wheat producers. An ability to select varieties from different maturity classes reduces the risk of spring freeze injury and allows for some diversity in harvest date.

**Resistance to pests.** 1863 has been intermediate to leaf rust throughout most of its testing, but higher levels of rust have been observed in Texas and south central Kansas (see Table 1). Producers should regard this line as susceptible. Use of fungicides is recommended when the threat of a significant leaf-rust epidemic is present. Field observations indicate 1863 is intermediate to the 2010 race of stripe rust and resistant to the 2012 race of stripe rust. Given recent changes in the race structure of stripe rust in the Great Plains, 1863 will be one of the more stripe rust resistant varieties available to producers. 1863 also is resistant to soilborne mosaic virus and spindle streak mosaic virus. It is moderately resistant to stem rust race QFCS, but susceptible to Ug99. It is intermediate for speckled leaf blotch and tan spot but moderately susceptible to powdery mildew. In limited testing, 1863 appears to have good tolerance to acid soils. It is moderately susceptible to wheat streak mosaic and is susceptible to prevalent biotypes of Hessian fly. 1863 is moderately susceptible to Fusarium head blight.

**Area of adaptation.** 1863 has performed well in central Kansas, with especially strong performance in north central Kansas (see tables 2 and 3). In 4 years of testing in central Kansas, it averaged 1.8 bushels per acre (3.7 percent) greater than Armour, a hard red winter wheat released by WestBred, and 2.0 (4 percent) bushels per acre better than Fuller, a hard red winter wheat released by the Kansas Agricultural Experiment Station. 1863 has generally performed well throughout central Kansas but did not fare as well as expected in south central Kansas in 2012. Although it had respectable performance in western Kansas, it has been less stable than desired in that area.

**Milling and baking quality.** 1863 has good milling and baking quality with excellent test weight patterns. Its test weight is more than 0.5 pounds per bushel greater than Fuller. Its average kernel hardness value is 66 and it averages about 0.5 points lower than Fuller for protein content. The average bake absorptions are

similar to Fuller and loaf volume average 930 cubic centimeters, which is slightly lower than Fuller but better than Armour. Flour yield on the experimental mill has averaged 70.5 percent, which is higher than Fuller and Armour.

**Table 3.** Four-year yield summary of 1863 and checks averaged over locations in central Kansas.

	Average Yields (bu/a)				
	4-Year	2012 <sup>1</sup>	2011 <sup>2</sup>	2010 <sup>3</sup>	2009 <sup>3</sup>
<b>1863</b>	52.8	47.7	46.7	51.2	65.6
<b>Everest</b>	-	53.3	46	53.6	-
<b>Fuller</b>	49.6	50	46	46.6	55.8
<b>Armour</b>	50	48	44.8	52.7	54.3
<b>Art</b>	49	45.9	41	48	61.1

<sup>1</sup> Tested in nine locations.

<sup>2</sup> Tested in six locations.

<sup>3</sup> Tested in four locations.

**Table 1.** Agronomic and pest resistance characteristics of 1863<sup>1</sup>.

	Mat	TW	WH	CL	Lod	Shat	Pm	Lr	Sr	Yr	Slb	Ts	SBMV	SSMV	WSMV	HF	Fhb	BYD
<b>1863</b>	3	3	3	6	5	2	7	7	5	5	4	5	1	1	7	9	7	7
<b>Everest</b>	1	2	3	6	3	2	3	3	6	8	4	7	1	1	7	9	4	6
<b>Fuller</b>	1	4	5	6	5	3	6	5	5	7	6	6	1	1	5	9	6	9

<sup>1</sup> Rated on a scale of 1 to 9. Except for maturity (where 1 means earliest and 9 means latest), 1–3 is good or resistant, 4–6 average or intermediate and 7–9 is poorest or susceptible.

Mat = Maturity; TW = Test weight; WH = Winterhardness; CL = Coleoptile length; Lod = Lodging; Shat = Shatter tolerance; Pm = Powdery mildew; Lr = Leaf rust; Sr = Stem rust; Yr = Stripe rust; Slb = Speckled leaf blotch; Ts = Tan spot; SBMV = Soilborne mosaic virus; WSMV = Wheat streak mosaic virus; HF = Hessian fly; Fhb = Fusarium Head blight; BYD = Barley yellow dwarf

**Table 2.** Central and eastern Kansas yields of 1863 and checks (bula) from 2009 to 2012.

	2012									2011						2010						2009			
	BA	K	SFI	SU	MP	M	GY	EW	BE	GY	K	M	MP	SU	EW	BA	CW	GY	SU	K	BE	GY	K	BA	BE
<b>1863</b>	57.2	58.1	50.7	48	54.4	42.4	29.6	36.5	52.7	46.9	39.7	65.1	42.1	38.7	47.7	48.3	56.8	50	50.6	44.7	56.9	77	71.5	50.1	63.9
<b>Everest</b>	66.5	61.1	49.8	59.1	57.9	42.9	39.5	50.9	52.1	52.4	40.1	56.5	49	39.9	38.2	46.7	60.5	54.2	56.2	49	55.2				
<b>Fuller</b>	68.6	53.3	45	58.5	47.8	38.5	39.1	37.8	61.5	51.4	35.9	54.8	45.5	36.3	52.1	43.3	51.7	44.1	54.1	37.7	48.9	73.8	53.7	37.1	58.4
<b>Armour</b>	68.2	40.9	51.6	56.6	44.4	34.3	45.5	39.1	51.1	48.8	40.4	59.8	39.9	37.8	42.2	46.8	56.9	50.4	56.2	52.7	53.3	71.5	67.5	38.1	40
<b>Art</b>	61.5	45.1	47.4	48.6	37.2	37.9	41.3	39.4	54.3	47.2	34	58.8	36.9	36.4	32.7	46	49.5	52.6	50.1	40.8	48.7	72	65.7	45.7	60.9
<b>LSD*</b>	6.2	4.6	9.1	1.5	4.9	5.3	3.7	4.5	6.6	6.7	2.8	7.4	4.7	4.2	6.9	6.6	5.8	4.2	5.6	6.2	4.7	7.1	6.2	9.3	12.6

Location Code: BA=Barber Co., BE=Belleville, CW=Caldwell, EW=Ellsworth Co., GY=Gypsum, HE=Hesston, K=Hutchinson, M=Manhattan, MP=McPherson Co., SFI=Stafford Co. irrigated, SU=Sumner Co. (Conway Springs)

\* If the yield difference between two varieties is less than the LSD value, the varieties are not statistically different.