

2009

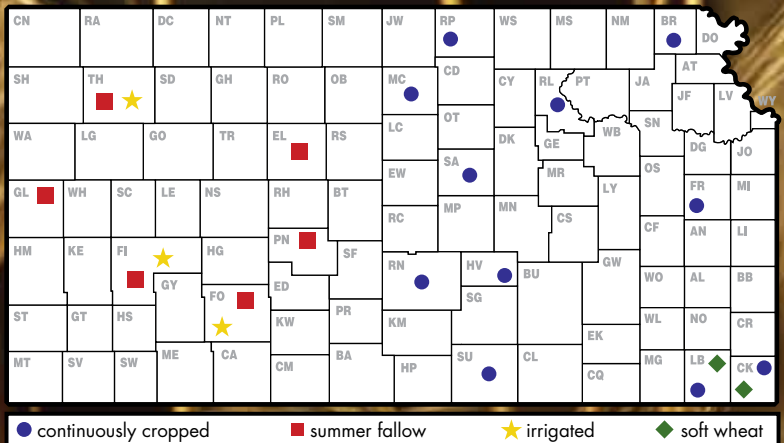
Kansas Performance Tests with

Winter Wheat Varieties

Report of Progress 1018



Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service



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*Excerpts from the 2009 National Winter Canola Variety Trial, Report of Progress 1026, Kansas State University Agricultural Experiment Station and Cooperative Extension Service (to be published in winter 2009-2010).

2009 WHEAT CROP REVIEW

Weather and Crop Development

Seeding of wheat acres for the 2008-2009 growing season began the second week of September and was ahead of average until mid-October, when heavy rains arrived statewide. After moderate amounts of snow and freezing rain in December, precipitation was below average for the rest of the winter. Temperatures across the state were below normal in December and above normal in January and February. Spring rains were unevenly distributed throughout the state, and some areas received little to no precipitation in late May; however, most areas enjoyed adequate soil moisture during the grain-filling period. (*Crops* report, Kansas Agricultural Statistics, Topeka)

Severe weather continued to pose a significant threat in 2009, with 763 hail events occurring from Sept. 1, 2008, until July 13, 2009. The worst single day was May 15, 2009, with 64 hail events. (Mary Knapp, K-State Weather Data Library)

Wheat conditions declined during the winter and were rated 50% good to excellent by the end of February. The quality of the wheat crop improved somewhat as the season continued so that 63% was rated good to excellent, 25% was rated fair, and 12% was rated poor to very poor as harvest was nearing completion. (*Crop Weather* report, Kansas Agricultural Statistics)

Diseases

In general, the disease levels in the 2009 wheat crop were lower than in the previous 2 years; however, some regions of Kansas experienced significant losses. Dry conditions in Texas and Oklahoma slowed the development of leaf rust in March, and yield reductions were largely restricted to parts of south central and central Kansas on varieties known to be susceptible to the disease. Speckled leaf blotch was also common in many fields and likely contributed to the yield reductions experienced in south central Kansas. Stripe rust was detected at low levels in many areas this season but was most common in northwestern Kansas. As with leaf rust, the late arrival of stripe rust relative to crop development minimized the potential for disease-related yield losses. Head scab continues to be a persistent problem in parts of Kansas, and in 2009, the disease was severe in the southeastern portion of the state. The most prevalent viral disease this past year was barley yellow dwarf. The level of barley yellow dwarf observed in many regions was clearly above normal, and the disease likely contributed to the early maturity and low test weights observed in some fields. (Erick DeWolf, K-State Extension Plant Pathologist)

Insects

The 2009 Kansas wheat crop escaped large, area-wide losses due to insect and mite damage. However, scattered reports of Hessian fly infestations and consequent yield losses once again increased, especially in both south and

north central Kansas. Significant infestations were also noted in some areas of far western Kansas and eastern Colorado, which is somewhat unusual. Aphid populations (both greenbug and bird cherry-oat) again were common throughout the state, but densities never reached treatment levels. Barley yellow dwarf was a concern, however, which indicates these aphids were present at some point, even if populations went undetected, because they are the primary vectors of this viral pathogen. (Jeff Whitworth, K-State Extension Entomologist)

Harvest Statistics

The Kansas Agricultural Statistics June 10 estimate of the 2009 crop was 340.0 million bushels from 8.5 million acres with a 40 bushel/acre yield average, equal to last year's yield. (June 10, 2009, *Crops* report, Kansas Agricultural Statistics, Topeka)

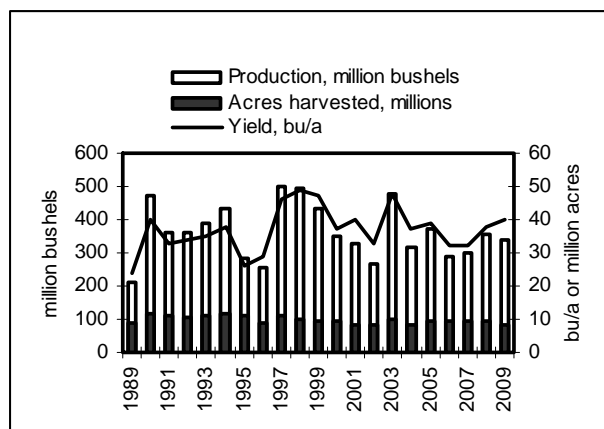


Figure 1. Historical Kansas wheat production

Acreage Distribution

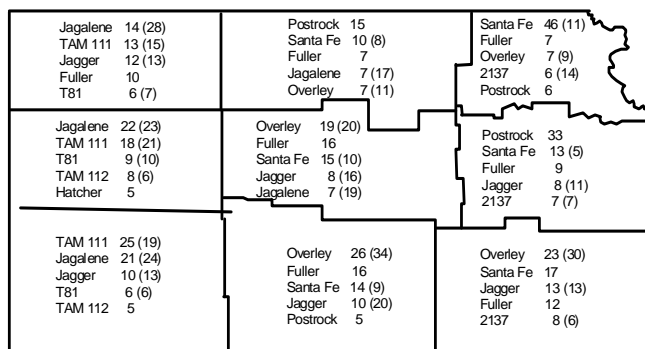


Figure 2. Leading wheat varieties in Kansas

Percentage of seeded acreage for 2009 and (2008) crops
Overlay became the leading variety of wheat seeded in Kansas, accounting for 14% of the state's wheat, and the most popular variety in three of the nine districts. New to the top ten list and ranking as the second-most-seeded variety was Fuller. Santa Fe and Jagalene occupied the third and fourth spots, respectively. Jagger came in fifth, with 9% of the acreage. (February 13, 2009, *Wheat Variety*, Kansas Agricultural Statistics, Topeka)

2009 PERFORMANCE TESTS

The Kansas Agricultural Experiment Station annually compares both new and currently grown varieties in the state's major crop-producing areas. These performance tests generate unbiased performance information designed to help Kansas growers select wheat varieties suited for their area and conditions.

Site descriptions and management practices for each site are summarized in Table 3. One-year or one-location results can be misleading because of the possibility of unusual weather or pest conditions. **Be sure to keep extenuating environmental conditions in mind when examining test results.**

Varieties

Public varieties are selected for inclusion in the tests on the basis of several criteria. Most represent new or established varieties with potential for successful use in Kansas. Some are included as long-term checks. Others are entered at the request of the originating institution.

Originators or marketers enter privately developed varieties on a voluntary basis. Entrants choose both the entries and test sites. The 2009 private entrants are listed in Table 1. Twelve entrants provided a total of 39 varieties for testing.

Table 12 describes the characteristics of seed submitted for testing. Seed quality-including factors such as size, purity, and germination-can be important in determining the performance of a variety. Wheat seed used for entries in the Kansas Crop Performance Tests is prepared professionally and usually meets or exceeds Kansas Crop Improvement Certification standards. Performance of a given variety comparable to that obtained in these tests is best assured under similar environmental and cultural conditions and with the use of certified or professionally prepared seed.

Environmental Factors

Leaf rust was reported at several testing locations but in most cases arrived late in the season and did not contribute to yield losses. Head scab due to the frequent rains was reported at many test locations and was a significant problem for the Columbus, KS, test.

Results and Variety Characterization

Results from Kansas tests are presented in Tables 4 through 11. Yields are reported as bushels per acre (60 lb/bu) adjusted to a moisture content of 13%, where moistures were reported at harvest. Yields also are converted to percentages of the test average to speed recognition of highest-yielding entries. Multi-year averages are presented for those varieties entered more than 1 year.

Additional information, such as test weight, heading date, and plant height, is helpful for fine-tuning variety comparisons. Planting varieties with a range of maturities helps minimize weather risks.

At the bottom of each table is the (0.05) LSD (least significant difference) for each column of replicated data. One can think of the LSD as a "margin of error" that shows how big the difference between two varieties must be for one to be 95% confident that the difference is real. The use of the LSD is intended to reduce the chance of overemphasizing small differences. Small variations in soil structure, fertility, water-holding characteristics, and other test-site characteristics can cause considerable yield variation among plots of one variety.

Table 1. Private entrants in the 2009 Kansas wheat performance tests

AgriPro Wheat, Inc. AgriPro Wheat, Inc. 11783 Ascher Rd. Junction City, KS 66441 785-210-0218	DC Seed/Dodge City Coop 710 W. Trail Dodge City, KS 67801 620-225-4193	Horinek Brothers HC 2 Box 36 Trenton, NE 69044 785-626-3608	Scott Seed Company Box 1732 Hereford, TX 79045 806-364-3484
AgriPro Coker 778 CR 680 Bay, AR 72411 870-483-7691	Drussel Drussel Seed and Supply 2197 W. Parallel Road Garden City, KS 67846 620-275-2359	MFA MFA Incorporated 201 Ray Young Dr. Columbia, MO 65201 573-876-5363	Watley Watley Seed PO Box 51 Spearman, TX 79081 806-659-3838
AGSECO, Inc. AGSECO, Inc. PO Box 7 Girard, KS 66743-0007 620-724-6223	Ehmke Seed 74 W. Road 130 Healy, KS 67850 620-397-2766	Pioneer Brand Pioneer Hi-Bred Intl., Inc. 8100 South 15th Lincoln, NE 68512 800-258-5604	WestBred WestBred LLC 14604 S. Haven Rd. Haven, KS 67543 620-465-2675

Table 2. Comparisons of leading winter wheat varieties - agronomy and quality

Variety ¹	% of Kansas seeded acreage 2009 ¹	Relative ²											Resistance or tolerance to: ⁵													
		Test weight	Straw strength	Maturity	Height ³	Coleop- tile		Winter hardi- ness	Acid toler- ance	Sprout toler- ance	Protein content ³	Relative milling and baking quality ⁴	Soil- borne mosaic	Spindle streak mosaic	Wheat streak mosaic	Barley yellow dwarf	Leaf rust	Stem rust	Speckled			Powd- dery	Hes- sian fly	Russ. wheat aphid ⁶		
						length	Shat- tering												Stripe rust	leaf blotch	Glume blotch				Tan spot	Head scab
Overley	13.7	3	3	1	6	5	7	6	MT	2	3	EX	1	4	5	5	8	3	2	5	--	5	7	9	9	9
Fuller	10.9	5	4	2	5	5	2	3	I	3	3	AC	1	1	5	6	3	7	2	6	--	6	6	7	9	9
Santa Fe	9.5	3	3	2	6	2	3	3	MT	--	5	AC	1	--	7	6	3	4	3	2	--	5	6	7	9	9
Jagalene	9.1	3	3	2	4	6	4	5	MT	2	4	EX	2	3	5	7	9	2	4	4	--	7	9	8	9	9
Jagger	8.5	4	4	1	5	6	5	6	T	3	3	EX*	2	4	5	7	9	5	3	3	6	4	7	7	9	9
TAM 111	6.8	3	2	4	6	2	2	7	MS	2	7	AC	8	8	7	7	8	1	3	5	--	5	6	7	7	9
PostRock	6.0	2	2	3	5	--	3	3	MT	3	6	AC	2	5	7	7	4	7	3	8	--	6	8	7	9	9
2137	2.9	4	1	3	5	7	5	3	T	2	7	AC	1	5	6	5	7	7	8	5	7	5	4	8	8	9
T81	2.5	4	2	2	4	7	3	3	I	2	6	AC	8	4	8	6	8	3	3	7	7	6	3	5	8	9
TAM 112	2.0	2	4	2	5	2	2	5	T	--	3	AC	8	8	5	6	7	3	8	5	--	6	1	8	9	9
Hatcher	1.3	5	6	3	5	2	3	2	MS	--	4	--	7	8	8	8	8	4	4	5	--	5	5	6	5	9
Shocker	1.0	3	2	1	5	5	5	6	MT	--	4	--	1	2	8	7	4	4	2	4	--	6	5	8	9	9
Karl/Karl 92	0.8	3	4	1	3	7	3	3	S	3	3	EX*	1	3	9	8	8	6	5	5	3	3	4	6	9	9
Ike	0.8	3	4	4	6	7	2	3	S	2	3	AC	1	5	9	6	9	3	6	7	6	8	6	6	3	9
Art	0.8	--	--	--	--	--	--	--	--	--	--	--	1	1	6	8	3	2	2	5	--	6	3	6	9	9
2174	0.7	3	1	3	4	5	3	4	I	1	3	AC	1	5	8	5	7	8	7	5	7	5	2	6	9	9
Danby+	0.7	3	4	3	6	5	2	2	MS	4	5	AC	7	--	5	8	8	2	2	6	--	8	7	7	9	9
T136	0.7	4	3	1	3	7	2	6	I	3	--	--	1	--	--	--	8	3	3	--	--	--	7	--	--	--
TAM107	0.6	--	--	--	--	--	--	--	--	--	--	--	8	7	5	8	9	3	8	5	6	6	1	7	9	9
OK Bullet	0.5	--	--	--	--	--	--	--	--	--	--	AC	4	4	6	6	8	7	3	6	--	5	8	7	7	9
Endurance	0.4	--	--	--	--	--	--	--	--	--	--	--	2	8	7	5	5	7	5	5	--	7	5	6	8	9
Larned	0.4	4	5	4	9	3	3	3	S	3	4	AC	9	8	9	9	8	2	2	8	8	9	5	5	3	9
Above	0.4	--	--	--	--	--	--	--	--	--	--	--	9	--	5	7	9	3	8	6	--	7	1	--	9	9
Stanton	0.4	4	3	3	5	6	2	2	--	2	4	AC	8	5	6	8	2	2	7	7	--	9	9	7	8	9
Smoky Hill	0.3	--	--	--	--	--	--	--	--	--	--	AC	1	--	8	8	5	6	1	4	--	5	5	8	9	9
Thunderbolt	0.3	2	--	3	7	6	6	--	MS	2	3	AC	8	8	6	7	7	8	5	6	--	7	7	7	9	9
Cutter	0.3	4	4	3	5	5	5	3	T	3	4	AC	3	4	6	7	8	2	3	6	--	6	7	8	9	9
Dominator	0.3	4	3	4	2	8	7	3	I	5	3	AC	1	4	7	6	9	4	6	5	4	5	4	7	5	9
Coronado	0.2	--	--	--	--	--	--	--	--	--	--	--	1	4	6	6	7	5	6	6	6	6	5	9	5	9
Hawk	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Keota	0.2	3	2	2	7	2	3	3	MT	--	6	--	1	--	7	8	9	7	3	7	--	6	7	8	9	9
2145	0.2	4	2	3	3	6	6	3	I	3	3	AC	1	--	9	6	8	3	5	5	--	8	8	8	5	9
Protection	0.2	4	3	2	7	--	--	6	I	--	5	--	4	3	7	8	9	4	2	6	--	7	7	8	9	9
Scout/S.66	0.2	--	--	--	--	--	--	--	--	--	--	--	9	7	7	9	8	3	1	7	9	9	5	--	9	9
Blends	10.7																									
Other White	0.3																									
Other Red	5.1																									
Other Soft	0.1																									

¹ Hard white variety Scale: 1=Best 1=Best 1=Early 1=Short 1=Long 1=Best 1=Best T=Toler 1=Best 1=Best 9=Poor 9=Poor 9=Late 9=Short 9=Short 9=Poor 9=Poor S=Susc 9=Poor 9=Poor Scale: 1=Most resistant/tolerant 9=Least resistant/tolerant

¹ Varieties and percentage seeded acreage from the Feb. 13, 2009, wheat variety survey, Kansas Agricultural Statistics, Topeka, KS.

² Most ratings are estimates based on information and observations from many sources over several years. Agronomic information by Joe Martin - Hays, and Allan Fritz, Jim Shroyer, and Steve Watson - K-State Agronomy.

³ Summary of crop performance test results from recent years.

⁴ Ratings from Rebecca Miller - K-State Wheat Quality Laboratory, using inputs from the U.S. Grain Marketing and Production Research Center and industry.

EX = Exceptional; large kernels; high protein content; very good milling, mixing, and commercial bread-baking.

LD = Less Desirable; one or more serious quality defects.

-- = Inadequate information or conflicting data.

AC = Acceptable; milling and baking attributes acceptable, but not outstanding, for all properties; may have minor defects.

*Strong blending wheat; needed for blending with weaker wheats; may not be suitable alone for bread flour.

⁵ Ratings by Allan Fritz - Manhattan, Joe Martin - Hays, Erick DeWolf and Bill Bockus - K-State Plant Pathology, Phil Sloderbeck - K-State Entomology.

Final ratings and descriptions of disease and insect pests are available in "Wheat Variety Disease and Insect Ratings 2009," Publication MF991 from Kansas State University.

⁶ New Russian wheat aphid biotype is thought to be virulent on all currently available commercial varieties.

Table 3. Wheat performance test site descriptions and management in 2009

Region and location	Soil type previous crop	N	P₂O₅	K₂O		Plant-harvest seed rate	Conditions
<u>Northeast Dryland</u>							
Northeast KS Bunck Seed Farms Everest (EV)	Grundy silty clay loam	--	--	--	Fall	Abandoned 90 lb/a	Variable stands.
Ashland Agronomy Farm Manhattan (MA)	Reading silt loam Fallow	28	--	--	Fall	10/21/2008-6/26/2009 75 lb/a	Planted into excellent moisture.
<u>Southeast Dryland</u>							
East Central Kansas Exp. Field Ottawa (OT)	Woodson silt loam Soybean	90	32	15	Fall	10/30/2008-6/29/2009 1200000 seeds/a	Very good growing conditions this year despite some evidence of barley yellow dwarf and scab.
Southeast Agricultural Research Center Columbus (CL)	Parsons silt loam Sorghum	130	50	75	Fall	10/21/2008-6/26/2009 75 lb/a	Good fall conditions; very dry in early spring. Rains in the late spring caused problems with scab.
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Soybean	70	40	30	Fall	10/20/2008-6/22/2009 75 lb/a	Excellent growing conditions all year.
<u>Soft Wheat</u>							
Southeast Agricultural Research Center Columbus (CL)	Parsons silt loam Sorghum	130	50	75	Fall	10/21/2008-6/26/2009 75 lb/a	Good fall conditions; very dry in early spring. Rains in the late spring caused problems with scab.
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Soybean	70	40	30	Fall	10/20/2008-6/22/2009 75 lb/a	Excellent growing conditions all year.
<u>North Central Dryland</u>							
North Central Kansas Exp. Field Belleville (BE)	Crete silt loam Fallow	100	30	--	Fall	10/1/2008-7/2/2009 90 lb/a	Dry period in May but the wheat never ran short of moisture because of rains during October.
North Central KS Farmer's Field Beloit (BL)	Harney silt loam Wheat	120	30	--	Fall	9/29/2008-6/26/2009 80 lb/a	Similar conditions to Belleville, but too little rainfall in April and a very dry May reduced yields.
<u>South Central Dryland</u>							
Harvey County Exp. Field Hesston (HE)	Ladysmith silty clay loam Soybean	91	33	--	Fall	10/10/2008-6/24/2009 90 lb/a	Precipitation was below normal during Nov.-Mar. April rains were well above normal and proved to be crucial.
South Central Kansas Exp. Field Hutchinson (HU)	Ost silt loam Canola	75	40	--	Fall	11/1/2008-6/25/2009 60 lb/a	Wet conditions in the fall delayed planting. April, May, and June were also wet and cool.
South Central KS Farmer's Field Caldwell (CS)	Sandy loam Wheat	110	40	--	Fall	10/28/2008-6/25/2009 60 lb/a	Generally good growing conditions; some disease incidence at the end of the season.
<u>Northwest Dryland</u>							
Agricultural Research Center Hays (HA)	Harney silt loam Fallow	32	--	--	Fall	10/1/2008-6/26/2009 50 lb/a	Good moisture at planting; record low precipitation from November through March.
Northwest Research-Extension Center Colby (CO)	Keith silt loam Fallow	60	40	--	Fall	9/19/2008-6/30/2009 60 lb/a	Winter and early spring were dry before rains and cooler-than-normal temperatures started in late spring.
Southwest Research-Extension Center Tribune (TR)	Richfield silt loam Sorghum	60	25	--	Fall	9/16/2008-6/26/2009 55 lb/a	Good moisture at planting; extremely dry for the rest of the growing season. Some BYD present.
<u>Southwest Dryland</u>							
Southwest KS Farmer's Field Larned (LA)	Harney clay loam	--	--	--	Fall	Abandoned 50 lb/a	Uneven emergence.
Southwest KS Farmer's Field Dodge City (DC)	Harney clay loam	--	--	--	Fall	Abandoned 45 lb/a	Ruined by hail storm in May.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam Wheat	30	--	--	Fall	9/26/2008-6/26/2009 65 lb/a	Good moisture at planting. Very dry through March until rains started in April, then very wet until harvest.
<u>Irrigated</u>							
Northwest Research-Extension Center Colby (CO)	Keith silt loam Wheat	110	45	--	Fall	9/22/2008-7/9/2009 90 lb/a	Winter and early spring were dry before rains and cooler-than-normal temperatures started in late spring.
Southwest KS Farmer's Field Dodge City (DC)		--	--	--	Fall	Abandoned 80 lb/a	Variable emergence and stands.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam	--	--	--	Fall	Abandoned 75 lb/a	Uneven emergence and stands; planted late after soybeans.

Table 4. 2009 NORTHEAST Kansas dryland winter wheat performance tests

Brand / Name	EV ¹ MA ² Av.			EV MA Av.			-EV- 2yr 3yr		-MA- 2yr 3yr		EV MA Av.			EV MA Av.			EV CA Av.					
	yield (bu/a)			% of test average			multi-year av. (bu/a)				tw (lb/bu)		head (+/- Jagger)			height (in.)						
AgriPro																						
Art	--	61	61	--	110	110	45	--	--	--	--	58	58	--	--	--	--	--	--	--	--	--
Hawken	--	52	52	--	94	94	40	--	--	--	--	56	56	--	--	--	--	--	--	--	--	--
Jagalene	--	52	52	--	93	93	33	48	55	--	--	57	57	--	--	--	--	--	--	--	--	--
Postrock	--	50	50	--	90	90	41	53	51	--	--	56	56	--	--	--	--	--	--	--	--	--
RustBuster-N	--	49	49	--	88	88	--	--	--	--	--	56	56	--	--	--	--	--	--	--	--	--
AGSECO																						
Infinity CL	--	44	44	--	79	79	--	--	46	--	--	57	57	--	--	--	--	--	--	--	--	--
Santa Fe	--	69	69	--	125	125	48	58	65	--	--	57	57	--	--	--	--	--	--	--	--	--
Shocker	--	51	51	--	93	93	--	--	--	--	--	57	57	--	--	--	--	--	--	--	--	--
Smoky Hill	--	51	51	--	92	92	33	50	53	--	--	57	57	--	--	--	--	--	--	--	--	--
Kansas																						
(W) Danby	--	48	48	--	86	86	29	41	46	--	--	57	57	--	--	--	--	--	--	--	--	--
2137	--	65	65	--	116	116	43	55	58	--	--	58	58	--	--	--	--	--	--	--	--	--
Everest	--	68	68	--	123	123	--	--	--	--	--	59	59	--	--	--	--	--	--	--	--	--
Fuller	--	52	52	--	94	94	38	53	54	--	--	55	55	--	--	--	--	--	--	--	--	--
Jagger	--	51	51	--	92	92	36	50	50	--	--	55	55	--	--	--	--	--	--	--	--	--
Overlay	--	55	55	--	99	99	35	47	57	--	--	57	57	--	--	--	--	--	--	--	--	--
Nebraska																						
Overland	--	51	51	--	91	91	46	--	--	--	--	59	59	--	--	--	--	--	--	--	--	--
Wesley	--	45	45	--	81	81	39	53	51	--	--	55	55	--	--	--	--	--	--	--	--	--
WestBred																						
Armour	--	59	59	--	106	106	--	--	--	--	--	57	57	--	--	--	--	--	--	--	--	--
Hitch	--	65	65	--	116	116	--	--	--	--	--	56	56	--	--	--	--	--	--	--	--	--
HV9W03-539R	--	56	56	--	100	100	--	--	--	--	--	53	53	--	--	--	--	--	--	--	--	--
HV9W03-696R-2	--	66	66	--	119	119	--	--	--	--	--	58	58	--	--	--	--	--	--	--	--	--
HV9W96-1383R	--	66	66	--	119	119	--	--	--	--	--	57	57	--	--	--	--	--	--	--	--	--
Winterhawk	--	53	53	--	95	95	42	--	--	--	--	58	58	--	--	--	--	--	--	--	--	--
Averages	--	56	56	--	56	56	--	--	--	--	--	57	57	--	--	--	--	--	--	--	--	--
CV (%)	--	10	10	--	10	9.8	--	--	--	--	--	2	2	--	--	--	--	--	--	--	--	--
LSD (0.05)*	--	8	8	--	14	14	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--

¹ EV = Everest, KS, Bunck Seed Farm, Brown County. Abandoned; uneven stands.

² MA = Manhattan, KS, Ashland Bottoms Research Farm, Riley County.

(W) = Hard white wheat.

* Least significant difference, similar to margin of error, indicates difference needed to overcome test error.

Table 5. 2009 SOUTHEAST Kansas dryland winter wheat performance tests

Brand / Name	¹ OT ² CL ³ PA Av.				OT CL PA Av.				-OT- 2yr 3yr				-CL- 2yr 3yr				-PA- 2yr 3yr				OT CL PA Av.				OT CL PA Av.				OT CL PA Av.			
	yield (bu/a)				% of test average				multi-year av. (bu/a)				tw (lb/bu)				head (+/- Jagger)				height (in.)											
AgriPro																																
Art	67	38	46	50	98	120	96	105	49	--	51	--	46	--	58	57	54	57	3	1	3	2	--	30	34	32						
JackPot	70	35	51	52	102	110	107	106	--	--	--	--	--	--	57	57	53	56	2	1	2	1	--	31	34	32						
Jagalene	66	29	40	45	96	92	84	90	40	34	42	32	44	44	57	57	53	56	4	3	3	3	--	30	34	32						
AGSECO																																
Santa Fe	70	34	41	48	102	108	86	99	46	40	50	40	48	44	58	57	53	56	2	1	-1	0	--	32	33	32						
Shocker	60	29	49	46	88	92	103	94	39	31	50	38	49	46	58	58	55	57	2	1	1	1	--	29	33	31						
Kansas																																
(W) Danby	68	18	44	43	99	57	93	83	41	37	38	31	45	44	56	57	54	56	3	3	3	3	--	31	36	33						
2137	67	29	50	48	98	89	104	97	50	43	47	40	52	47	58	57	53	56	4	2	2	2	--	29	35	32						
Everest	72	47	59	59	106	147	124	125	--	--	--	--	--	--	59	57	59	58	1	-1	-4	-3	--	31	34	33						
Fuller	66	33	52	50	96	104	108	103	47	37	50	39	50	48	58	57	54	56	3	0	0	0	--	30	34	32						
Jagger	67	33	42	47	98	103	88	97	46	36	49	38	43	43	59	57	53	56	0	0	0	0	--	32	35	33						
Overley	59	14	47	40	86	45	99	77	43	34	40	32	44	45	57	57	53	56	0	0	-2	-1	--	31	34	33						
Oklahoma																																
Duster	68	25	45	46	100	79	93	91	44	37	42	33	50	--	57	57	52	55	4	3	3	3	--	31	33	32						
Endurance	70	32	47	50	103	101	98	101	--	--	--	--	--	--	56	57	54	56	2	2	1	2	--	31	35	33						
Scott Seed																																
TAM 304	71	21	45	46	103	67	93	88	49	--	43	--	52	--	56	58	52	55	2	0	-3	-1	--	30	32	31						
WestBred																																
Armour	69	35	46	50	102	110	96	102	51	--	50	--	48	--	56	57	54	56	3	1	0	1	--	30	32	31						
Hitch	70	45	55	57	103	141	115	120	58	--	57	--	60	--	57	57	54	56	4	2	2	2	--	31	32	32						
HV9W03-539R	67	32	51	50	99	100	107	102	--	--	--	--	--	--	55	57	54	55	3	3	3	3	--	30	34	32						
HV9W03-696R-2	69	34	52	52	101	107	108	105	--	--	--	--	--	--	59	57	54	57	1	0	-2	-1	--	30	34	32						
HV9W96-1383R	76	35	49	53	111	109	102	108	--	--	--	--	--	--	57	57	56	57	0	-1	-4	-2	--	29	31	30						
Winterhawk	74	38	46	53	108	120	96	108	58	48	53	40	51	--	58	57	55	56	2	3	3	3	--	30	35	32						
Averages	68	32	48	49	68	32	48	49	--	--	--	--	--	--	57	57	54	56	2	1	1	1	--	30	34	32						
CV (%)	5	9	9	8	5	9	9	8	--	--	--	--	--	--	1	0	3	1	--	--	--	--	--	8	4	6						
LSD (0.05)*	5	4	6	5	7	13	13	11	--	--	--	--	--	--	1	0	2	1	--	--	--	--	--	3	2	3						

¹ OT = Ottawa, KS, East Central Experiment Field, Franklin County

² CL = Columbus, KS, Cherokee County.

³ PA = Parsons, KS, Southeast Agricultural Research Center, Labette County.

(W) = Hard white wheat.

* Least significant difference, similar to margin of error, indicates difference needed to overcome test error.

Table 6. 2009 SOUTHEAST Kansas SOFT winter wheat performance tests

Brand / Name	CL ¹ PA ² Av.			CL PA Av.			-CL- 2yr 3yr		-PA- 2yr 3yr		CL PA Av.			CL PA Av.			CL PA Av.		
	yield (bu/a)			% of test average			multi-year av. (bu/a)				tw (lb/bu)			head (+/- Jagger)			height (in.)		
AgriPro																			
Art	37	47	42	88	78	83	--	--	--	--	57	53	55	1	0	1	29	34	31
JackPot	36	50	43	86	84	85	--	--	--	--	58	53	55	1	-2	-1	32	34	33
Jagalene	30	41	36	73	68	71	51	--	48	--	58	51	54	3	0	1	29	34	32
AgriPro COKER																			
(S) BO30543	49	59	54	117	98	107	--	--	--	--	57	57	57	3	-2	0	30	34	32
(S) Coker 9553	36	64	50	86	108	97	56	--	64	--	58	55	56	1	1	1	30	36	33
Dyna-Gro																			
Baldwin	52	56	54	124	93	109	--	--	--	--	57	57	57	4	2	3	35	38	37
Georgia																			
(S) 991209-6E33	39	71	55	92	118	105	--	--	--	--	58	55	56	0	-2	-1	35	35	35
(S) 991336-6E9	35	58	46	84	97	90	--	--	--	--	58	53	55	2	0	1	31	33	32
(S) 991371-6E12	34	64	49	82	107	94	--	--	--	--	58	53	55	2	0	1	30	34	32
Kansas																			
2137	28	50	39	66	84	75	49	--	56	--	58	53	55	3	-2	1	31	35	33
Jagger	33	41	37	80	68	74	56	--	46	--	58	53	55	0	0	0	30	35	32
MFA																			
(S) 2525	52	59	55	123	99	111	--	--	--	--	57	55	56	4	0	2	33	40	36
(S) 2609	45	68	56	107	113	110	60	--	66	--	57	55	56	2	0	1	33	37	35
Pioneer																			
(S) 25R47	56	80	68	134	133	134	63	--	72	--	57	54	56	2	-2	0	29	34	31
(S) 25R62	59	72	65	140	121	130	67	--	62	--	58	51	54	3	-1	1	30	35	33
(S) 25R78	49	78	63	117	130	124	--	--	--	--	58	55	56	2	-2	0	32	33	32
Averages	42	60	51	42	60	51	--	--	--	--	58	54	56	2	-1	1	31	35	33
CV (%)	10	7	8	10	7	8	--	--	--	--	0	2	1	--	--		6	4	5
LSD (0.05)*	6	6	6	14	9	12	--	--	--	--	0	1	1	--	--		3	2	2

¹ CL = Columbus, KS, Cherokee County.

² PA = Parsons, KS, Southeast Agricultural Research Center, Labette County.

(S) = Soft red wheat.

* Least significant difference, similar to margin of error, indicates difference needed to overcome test error.

Table 7. 2009 NORTH CENTRAL Kansas dryland winter wheat performance tests

Brand / Name	BE ¹ BL ² Av.			BE BL Av.			-BE- 2yr 3yr		-BL- 2yr 3yr		BE BL Av.			BE BL		BE BL Av.		
	yield (bu/a)			% of test average			multi-year av. (bu/a)				tw (lb/bu)			(+/- Jagger)		height (in.)		
AgriPro																		
Art	116	91	104	111	117	114	100	93	80	68	60	60	60	1	--	36	33	34
Hawken	103	69	86	98	89	94	88	84	71	63	59	59	59	2	--	34	30	32
Jagalene	102	79	90	97	101	99	84	75	71	62	59	60	60	0	--	36	33	34
Postrock	108	87	97	102	112	107	93	85	81	70	60	60	60	0	--	36	32	34
RustBuster-N	108	66	87	103	85	94	92	--	69	--	59	60	60	1	--	35	34	35
AGSECO																		
Infinity CL	96	76	86	91	98	95	--	--	--	--	59	60	59	--	--	38	33	35
Protection CL	92	74	83	88	95	91	81	75	72	62	59	57	58	0	--	35	33	34
Santa Fe	108	72	90	102	93	98	93	92	72	64	59	59	59	2	--	34	30	32
Shocker	97	75	86	92	96	94	84	--	70	--	59	60	59	2	--	36	32	34
Smoky Hill	111	83	97	105	107	106	95	89	76	66	60	60	60	2	--	36	34	35
Kansas																		
(W) Danby	103	71	87	98	91	94	86	79	72	59	61	59	60	1	--	35	34	35
2137	108	90	99	102	116	109	90	87	82	72	59	59	59	1	--	35	30	32
Everest	111	77	94	106	99	102	--	--	--	--	60	61	61	--	--	33	30	32
Fuller	110	74	92	105	95	100	96	87	75	64	59	60	60	2	--	35	31	33
Jagger	96	71	83	91	91	91	82	71	69	58	59	59	59	--	--	35	31	33
Karl 92	101	73	87	96	94	95	--	--	--	--	59	60	59	3	--	32	27	30
Overley	106	83	95	101	107	104	85	79	81	69	59	59	59	1	--	37	34	35
Nebraska																		
Overland	111	81	96	106	104	105	96	89	78	66	59	60	60	2	--	38	36	37
Wesley	103	76	89	98	98	98	92	84	76	66	59	58	59	1	--	34	30	32
WestBred																		
Armour	106	74	90	101	95	98	94	--	72	--	60	59	60	1	--	34	30	32
Hitch	110	83	96	104	107	106	95	--	77	--	59	60	60	1	--	35	32	33
HV9W03-539R	105	76	90	99	98	99	--	--	--	--	59	59	59	1	--	36	32	34
HV9W03-696R-2	106	74	90	101	95	98	--	--	--	--	59	59	59	--	--	35	31	33
HV9W96-1383R	107	83	95	102	107	104	--	--	--	--	59	59	59	0	--	34	31	32
Winterhawk	105	85	95	100	109	105	86	79	76	65	60	60	60	0	--	34	31	33
Averages	105	78	91	105	78	91	--	--	--	--	59	59	59	0	--	35	32	33
CV (%)	3	4	3	3	4	3	--	--	--	--	0	0	0	--	--	4	4	4
LSD (0.05)*	4	5	5	4	7	5	--	--	--	--	0	0	0	--	--	2	2	2

¹ BE = Belleville, KS, North Central Experiment Field, Republic County.

² BL = Beloit, KS, Mitchell County.

(W) = Hard white wheat.

* Least significant difference, similar to margin of error, indicates difference needed to overcome test error.

Table 8. 2009 SOUTH CENTRAL Kansas dryland winter wheat performance tests

Brand / Name	¹ ² ³								-HE-	-HU-	-CW-															
	HE	HU	CW	Av.	HE	HU	CW	Av.	2yr	3yr	2yr	3yr	2yr	3yr	HE	HU	CW	Av.	HE	HU	CW	Av.	HE	HU	CW	Av.
	yield (bu/a) (lb/a)				% of average				multi-year av. (bu/a)				tw (lb/bu)				head (+/- Jagger)				height (in.)					
AgriPro																										
Art	59	64	54	59	108	108	110	109	57	--	52	--	52	--	59	58	57	58	1	4	--	2	33	36	--	35
Hawken	53	62	45	53	99	90	105	98	--	--	--	--	--	--	60	57	58	58	3	5	--	4	33	37	--	35
Jagalene	51	57	30	46	95	60	97	84	41	--	30	--	43	--	60	55	56	57	2	4	--	3	33	37	--	35
Postrock	50	60	41	50	92	83	103	93	48	--	38	--	50	--	60	58	56	58	3	4	--	3	33	35	--	34
RustBuster-S	58	65	54	59	107	109	110	109	57	--	51	--	52	--	59	58	56	58	1	4	--	2	34	37	--	35
AGSECO																										
Protection CL	54	50	40	48	100	81	86	89	47	--	37	--	39	--	57	54	53	55	0	0	--	0	36	39	--	37
Santa Fe	57	65	52	58	105	104	112	107	53	--	49	--	52	--	59	57	57	58	1	3	--	2	33	35	--	34
Shocker	53	57	52	54	98	105	98	100	49	--	50	--	49	--	59	57	56	57	1	2	--	2	33	35	--	34
Kansas																										
(W) Danby	42	63	45	50	78	90	107	92	42	--	41	--	52	--	61	57	57	58	7	4	--	6	32	40	--	36
2137	52	63	49	55	96	98	107	101	49	--	49	--	59	--	60	58	56	58	3	2	--	3	33	37	--	35
Everest	57	59	68	61	105	137	101	114	--	--	--	--	--	--	61	60	57	60	1	-3	--	-1	32	36	--	34
Fuller	53	55	51	53	97	103	93	98	53	--	50	--	47	--	60	58	58	58	1	1	--	1	32	35	--	33
Jagger	50	58	38	49	93	77	98	89	43	--	34	--	43	--	59	54	56	56	0	0	--	0	33	36	--	34
Overley	58	55	42	52	107	84	95	95	50	--	40	--	46	--	59	56	55	57	-2	0	--	-1	36	38	--	37
Oklahoma																										
Duster	60	52	58	57	112	116	89	106	51	--	51	--	49	--	61	58	55	58	2	3	--	2	33	36	--	35
Endurance	59	64	60	61	110	121	110	114	--	--	--	--	--	--	60	58	56	58	1	-3	--	-1	35	38	--	36
OK Bullet	44	49	29	41	82	58	84	75	41	--	32	--	41	--	60	56	56	57	3	4	--	4	35	39	--	37
WestBred																										
Armour	57	56	53	55	105	106	96	102	58	--	53	--	43	--	58	57	54	56	0	3	--	1	31	34	--	32
Hitch	53	63	52	56	98	105	108	104	54	--	52	--	52	--	60	58	55	57	3	5	--	4	31	35	--	33
HV9W03-539R	61	57	52	57	113	104	97	105	--	--	--	--	--	--	58	56	53	55	1	4	--	2	34	36	--	35
HV9W03-696R-2	58	58	62	59	107	125	99	110	--	--	--	--	--	--	59	58	56	58	-1	-3	--	-2	32	34	--	33
HV9W96-1383R	50	55	67	57	93	135	94	107	--	--	--	--	--	--	59	57	54	57	1	-3	--	-1	29	32	--	30
Averages	54	58	50	54	54	50	58	54	--	--	--	--	--	--	59	57	56	57	1	2	--	2	33	36	--	35
CV (%)	5	7	10	7	5	10	7	7	--	--	--	--	--	--	1	1	1	1	--	--	--	--	2	2	--	2
LSD (0.05)*	4	6	7	6	7	14	11	10	--	--	--	--	--	--	1	1	1	1	--	--	--	--	1	1	--	1

¹ HE = Hesston, KS, Harvey County Experiment Field, Harvey County.

² HU = Hutchinson, KS, South Central Experiment Field, Reno County.

³ CW = Caldwell, KS, Sumner County.

(W) = Hard white wheat.

* Least significant difference, similar to margin of error, indicates difference needed to overcome test error.

Table 9. 2009 NORTHWEST Kansas dryland winter wheat performance tests

Brand / Name	1 2 3				-HA-				-CO-				-TR-														
	HA	CO	TR	Av.	HA	CO	TR	Av.	2yr	3yr	2yr	3yr	2yr	3yr	HA	CO	TR	Av.	HA	CO	TR	Av.	HA	CO	TR	Av.	
	yield (bu/a)				% of test average				multi-year av. (bu/a)				tw (lb/bu)				head (+/- Jagger)				height (in.)						
AgriPro																											
(W) NuDakota	59	86	21	55	92	106	95	98	61	57	76	77	42	43	60	--	48	54	6	4	--	5	27	35	--	31	
Art	65	77	20	54	102	95	90	96	62	--	70	74	35	42	62	--	52	57	2	2	--	2	30	34	--	32	
Hawken	62	76	19	52	97	94	83	92	63	--	68	71	35	40	62	--	50	56	2	1	--	2	27	35	--	31	
Jagalene	61	75	19	52	96	93	86	92	61	55	69	70	36	37	62	--	53	58	4	3	--	4	27	36	--	31	
Postrock	62	80	22	54	98	99	96	97	61	55	73	76	38	43	63	--	50	56	3	2	--	2	27	34	--	31	
TAM 111	70	86	23	60	111	107	104	107	66	58	75	77	39	46	63	--	52	57	3	4	--	3	31	37	--	34	
AGSECO																											
Keota	63	79	20	54	99	98	89	95	56	51	69	72	35	38	63	--	52	57	3	4	--	3	31	37	--	34	
Protection CL	65	81	23	56	102	101	104	102	59	56	72	74	36	39	60	--	49	54	2	0	--	1	31	36	--	34	
Smoky Hill	72	97	22	63	113	120	97	110	66	57	80	80	39	40	62	--	52	57	5	4	--	4	31	37	--	34	
Colorado																											
Bill Brown	59	70	17	49	93	87	78	86	61	--	70	--	39	--	62	--	51	56	1	3	--	2	28	35	--	31	
Bond CL	63	--	--		99	--	--		60	55	--	--	--	--	61	--	--		3	--	--		32	--	--		
Hatcher	64	71	26	54	101	88	116	102	64	57	70	75	44	48	63	--	53	58	2	3	--	3	27	35	--	31	
Ripper	67	80	25	58	106	99	113	106	64	--	72	72	42	46	61	--	51	56	4	2	--	3	29	37	--	33	
DC Seed																											
T-151	63	75	24	54	100	93	107	100	--	--	--	--	--	--	63	--	53	58	2	1	--	1	29	35	--	32	
Drussel																											
T81	62	83	25	57	98	102	111	104	62	56	70	71	41	42	63	--	51	57	3	1	--	2	30	38	--	34	
Ehmke Seed																											
Ike	57	78	25	53	90	97	110	99	--	--	--	--	--	--	63	--	52	57	2	1	--	2	31	36	--	34	
Kansas																											
(W) Danby	65	87	30	61	102	108	135	115	66	61	78	76	44	45	64	--	58	61	4	4	--	4	29	37	--	33	
2137	62	75	26	54	97	93	115	102	62	55	66	69	39	45	63	--	51	57	2	5	--	3	29	36	--	32	
Fuller	61	80	18	53	97	99	80	92	60	54	72	74	38	42	63	--	50	56	2	0	--	1	29	35	--	32	
Jagger	59	78	21	53	93	97	94	95	55	51	70	73	37	38	62	--	51	56	0	0	--	0	29	35	--	32	
KS05HW136-3	66	88	17	57	104	109	76	97	--	--	--	--	--	--	62	--	51	56	3	4	--	3	27	33	--	30	
Overley	60	75	19	51	94	93	83	90	57	53	69	73	34	41	63	--	51	57	2	0	--	1	30	37	--	33	
Nebraska																											
Overland	66	79	23	56	104	98	102	101	67	--	71	75	41	47	62	--	49	56	5	5	--	5	32	39	--	35	
Wesley	68	80	21	56	107	99	95	100	67	58	68	69	39	42	61	--	49	55	5	4	--	5	30	36	--	33	
Trio-Research																											
T-140	64	76	21	54	101	94	96	97	61	--	71	--	33	--	61	--	51	56	2	2	--	2	32	37	--	35	
Watley																											
TAM 112	66	87	30	61	104	108	133	115	66	63	81	81	45	51	63	--	56	59	1	1	--	1	30	37	--	33	
WestBred																											
Armour	66	85	19	57	104	105	85	98	69	--	74	--	34	--	62	--	48	55	0	2	--	1	26	36	--	31	
Aspen	64	82	29	58	100	102	131	111	64	--	72	75	40	46	62	--	51	57	2	2	--	2	25	33	--	29	
Hitch	60	84	23	56	94	104	104	101	61	--	72	--	37	--	62	--	50	56	4	4	--	4	27	33	--	30	
HV9W03-539R	66	79	20	55	103	98	92	98	--	--	--	--	--	--	61	--	48	55	1	1	--	1	30	35	--	32	
HV9W96-1383R	59	89	23	57	93	110	105	103	--	--	--	--	--	--	62	--	51	57	0	0	--	0	26	34	--	30	
Winterhawk	67	84	21	57	105	104	95	102	63	--	75	--	39	--	62	--	51	57	2	3	--	2	31	38	--	34	
Averages	64	81	22	56	64	81	22	56	--	--	--	--	--	--	62	--	51	57	2	2	--	2	29	36	--	32	
CV (%)	10	6	12	9	10	6	12	9	--	--	--	--	--	--	1	--	2	1	--	--	--		4	3	--	4	
LSD (0.05)*	9	7	4	7	14	9	17	13	--	--	--	--	--	--	1	--	1	1	--	--	--		2	2	4	2	

¹ HA = Hays, KS, K-State Agricultural Research Center - Hays, Ellis County.

² CO = Colby, KS, Northwest Research-Extension Center, Thomas County.

³ TR = Tribune, KS, Southwest Research-Extension Center, Greeley County.

(W) = Hard white wheat.

* Least significant difference, similar to margin of error, difference needed to overcome test error.

Table 10. 2009 SOUTHWEST Kansas dryland winter wheat performance tests

Brand / Name	1				2				3				-LA-				-DC-				-GC-							
	LA	DC	GC	Av.	LA	DC	GC	Av.	LA	DC	GC	Av.	LA	DC	GC	Av.	LA	DC	GC	Av.	LA	DC	GC	Av.				
AgriPro	yield (bu/a)				% of test average				multi-year av. (bu/a)				tw (lb/bu)				head (+/- Jagger)				height (in.)							
(W) NuDakota	--	--	51	51	--	--	100	100	--	--	--	--	--	--	--	--	--	--	54	54	--	--	--	--	--	--	32	32
Art	--	--	50	50	--	--	100	100	--	--	--	49	--	--	--	--	--	--	56	56	--	--	--	--	--	--	33	33
Hawken	--	--	48	48	--	--	96	96	--	--	52	--	--	--	--	--	--	--	56	56	--	--	--	--	--	--	32	32
Jagalene	--	--	50	50	--	--	100	100	33	--	49	--	46	38	--	--	59	59	--	--	--	--	--	--	33	33		
Postrock	--	--	51	51	--	--	101	101	28	--	53	--	50	42	--	--	58	58	--	--	--	--	--	--	32	32		
TAM 111	--	--	53	53	--	--	104	104	27	--	52	--	50	43	--	--	57	57	--	--	--	--	--	--	36	36		
AGSECO																												
Keota	--	--	48	48	--	--	95	95	30	--	50	--	48	40	--	--	58	58	--	--	--	--	--	--	35	35		
Protection CL	--	--	51	51	--	--	100	100	29	--	46	--	46	39	--	--	55	55	--	--	--	--	--	--	34	34		
Shocker	--	--	48	48	--	--	94	94	30	--	45	--	49	39	--	--	57	57	--	--	--	--	--	--	33	33		
TAM 110	--	--	50	50	--	--	98	98	31	--	50	--	45	38	--	--	57	57	--	--	--	--	--	--	34	34		
Colorado																												
Bill Brown	--	--	52	52	--	--	102	102	--	--	56	--	--	--	--	--	57	57	--	--	--	--	--	--	33	33		
Bond CL	--	--	48	48	--	--	95	95	--	--	--	--	--	--	--	--	57	57	--	--	--	--	--	--	35	35		
Hatcher	--	--	60	60	--	--	118	118	35	--	57	--	52	44	--	--	58	58	--	--	--	--	--	--	35	35		
Ripper	--	--	52	52	--	--	102	102	--	--	54	--	43	--	--	--	56	56	--	--	--	--	--	--	33	33		
DC Seed																												
T-136	--	--	48	48	--	--	96	96	--	--	--	--	--	--	--	--	58	58	--	--	--	--	--	--	33	33		
T-151	--	--	49	49	--	--	97	97	--	--	--	--	--	--	--	--	56	56	--	--	--	--	--	--	34	34		
Drussel																												
T81	--	--	50	50	--	--	99	99	31	--	49	--	43	37	--	--	56	56	--	--	--	--	--	--	35	35		
Ehmke Seed																												
Ike	--	--	54	54	--	--	108	108	27	--	--	--	47	39	--	--	58	58	--	--	--	--	--	--	36	36		
Kansas																												
(W) Danby	--	--	51	51	--	--	102	102	36	--	61	--	49	41	--	--	57	57	--	--	--	--	--	--	35	35		
2137	--	--	50	50	--	--	99	99	33	--	49	--	49	41	--	--	56	56	--	--	--	--	--	--	34	34		
Fuller	--	--	45	45	--	--	89	89	30	--	57	--	45	37	--	--	58	58	--	--	--	--	--	--	32	32		
Jagger	--	--	49	49	--	--	97	97	24	--	50	--	44	37	--	--	58	58	--	--	--	--	--	--	33	33		
KS05HW136-3	--	--	50	50	--	--	98	98	--	--	--	--	--	--	--	--	59	59	--	--	--	--	--	--	31	31		
Overley	--	--	49	49	--	--	98	98	26	--	49	--	47	38	--	--	59	59	--	--	--	--	--	--	34	34		
Oklahoma																												
Duster	--	--	50	50	--	--	99	99	--	--	48	--	46	--	--	--	58	58	--	--	--	--	--	--	34	34		
Endurance	--	--	51	51	--	--	101	101	36	--	--	--	54	44	--	--	57	57	--	--	--	--	--	--	35	35		
OK Bullet	--	--	53	53	--	--	104	104	32	--	54	--	45	38	--	--	57	57	--	--	--	--	--	--	36	36		
Watley																												
TAM 112	--	--	54	54	--	--	106	106	40	--	62	--	46	41	--	--	58	58	--	--	--	--	--	--	35	35		
WestBred																												
Armour	--	--	49	49	--	--	96	96	--	--	51	--	--	--	--	--	56	56	--	--	--	--	--	--	32	32		
Aspen	--	--	51	51	--	--	101	101	--	--	49	--	51	--	--	--	56	56	--	--	--	--	--	--	32	32		
Hitch	--	--	49	49	--	--	97	97	--	--	58	--	--	--	--	--	57	57	--	--	--	--	--	--	32	32		
HV9W03-539R	--	--	51	51	--	--	102	102	--	--	--	--	--	--	--	--	53	53	--	--	--	--	--	--	33	33		
HV9W96-1383R	--	--	51	51	--	--	102	102	--	--	--	--	--	--	--	--	59	59	--	--	--	--	--	--	32	32		
Winterhawk	--	--	52	52	--	--	103	103	--	--	48	--	--	--	--	--	58	58	--	--	--	--	--	--	35	35		
Averages	--	--	50	50	--	--	50	50	--	--	--	--	--	--	--	--	57	57	--	--	--	--	--	--	34	34		
CV (%)	--	--	9	9	--	--	9	9	--	--	--	--	--	--	--	--	3	3	--	--	--	--	--	--	3	3		
LSD (0.05)*	--	--	6	6	--	--	13	13	--	--	--	--	--	--	--	--	2	2	--	--	--	--	--	--	1	1		

¹ LA = Larned, KS, Pawnee County. Abandoned; poor emergence and stands.

² DC = Dodge City, KS, Ford County. Abandoned; hailstorm on 5/15/2009.

³ GC = Garden City, KS, Finney County.

(W) = Hard white wheat.

* Least significant difference, similar to margin of error, indicates difference needed to overcome test error.

Table 11. 2009 IRRIGATED Kansas winter wheat performance tests

Brand / Name	¹ CO ² DC ³ GC Av.				-CO- -DC- -GC-				CO DC GC Av.				CO DC GC Av.											
	yield (bu/a)				multi-year av. (bu/a)				tw (lb/bu)				head (+/- Jagger)				height (in.)							
AgriPro																								
Jagalene	73	--	--	73	96	--	--	96	88	87	--	--	56	--	--	56	2	--	--	2	40	--	--	40
TAM 111	80	--	--	80	106	--	--	106	--	--	--	--	58	--	--	58	2	--	--	2	39	--	--	39
AGSECO																								
Santa Fe	77	--	--	77	101	--	--	101	--	--	--	--	56	--	--	56	1	--	--	1	35	--	--	35
Smoky Hill	77	--	--	77	102	--	--	102	--	--	--	--	55	--	--	55	2	--	--	2	36	--	--	36
TAM 110	71	--	--	71	93	--	--	93	86	84	--	--	55	--	--	55	-1	--	--	-1	36	--	--	36
Colorado																								
Bill Brown	62	--	--	62	81	--	--	81	76	--	--	--	56	--	--	56	2	--	--	2	37	--	--	37
Bond CL	70	--	--	70	92	--	--	92	85	88	--	--	59	--	--	59	1	--	--	1	37	--	--	37
Hatcher	61	--	--	61	80	--	--	80	74	82	--	--	59	--	--	59	2	--	--	2	35	--	--	35
Drussel																								
T81	78	--	--	78	102	--	--	102	86	86	--	--	59	--	--	59	0	--	--	0	37	--	--	37
Kansas																								
(W) Danby	73	--	--	73	96	--	--	96	89	91	--	--	60	--	--	60	2	--	--	2	37	--	--	37
2137	69	--	--	69	91	--	--	91	83	85	--	--	59	--	--	59	2	--	--	2	38	--	--	38
Fuller	73	--	--	73	96	--	--	96	84	90	--	--	59	--	--	59	1	--	--	1	34	--	--	34
Jagger	64	--	--	64	84	--	--	84	78	82	--	--	57	--	--	57	0	--	--	0	35	--	--	35
KS05HW136-3	59	--	--	59	78	--	--	78	--	--	--	--	58	--	--	58	3	--	--	3	36	--	--	36
Overley	73	--	--	73	96	--	--	96	88	91	--	--	55	--	--	55	-1	--	--	-1	37	--	--	37
Oklahoma																								
OK Bullet	78	--	--	78	103	--	--	103	87	90	--	--	58	--	--	58	1	--	--	1	40	--	--	40
Scott Seed																								
TAM 304	93	--	--	93	122	--	--	122	98	--	--	--	56	--	--	56	1	--	--	1	35	--	--	35
Watley																								
TAM 112	67	--	--	67	89	--	--	89	84	88	--	--	60	--	--	60	-1	--	--	-1	38	--	--	38
WestBred																								
Armour	90	--	--	90	118	--	--	118	96	--	--	--	60	--	--	60	0	--	--	0	35	--	--	35
Aspen	98	--	--	98	129	--	--	129	104	04	--	--	56	--	--	56	1	--	--	1	36	--	--	36
Hitch	95	--	--	95	125	--	--	125	98	--	--	--	57	--	--	57	2	--	--	2	37	--	--	37
HV9W03-539R	74	--	--	74	98	--	--	98	--	--	--	--	57	--	--	57	0	--	--	0	34	--	--	34
HV9W96-1383R	95	--	--	95	125	--	--	125	--	--	--	--	59	--	--	59	0	--	--	0	35	--	--	35
Winterhawk	75	--	--	75	99	--	--	99	86	91	--	--	57	--	--	57	2	--	--	2	37	--	--	37
Averages	76	--	--	76	76	--	--	76	--	--	--	--	58	--	--	58	1	--	--	1	36	--	--	36
CV (%)	8	--	--	8	8	--	--	8	--	--	--	--	1	--	--	1	--	--	--	--	5	--	--	5
LSD (0.05)*	9	--	--	9	12	--	--	12	--	--	--	--	1	--	--	1	--	--	--	--	2	--	--	2

¹ CO = Colby, KS, Northwest Research-Extension Center, Thomas County.

² DC = Dodge City, KS, Ford County. Abandoned; extreme variation

³ GC = Garden City, KS, Finney County. Abandoned; poor emergence and stands.

(W) = Hard white wheat.

* Least significant difference, similar to margin of error, difference needed to overcome test error.

Table 12. 2009 Planted seed characteristics and Hessian fly ratings

Brand / Name	1000 Seed weight	Test weight	Seeds per lb	Hess. fly¹	Brand / Name	1000 Seed weight	Test weight	Seeds per lb	Hess. fly¹
	(grams)	(lb/bu)	(1000)	(rating)		(grams)	(lb/bu)	(1000)	(rating)
AgriPro					MFA				
(W) NuDakota	29.0	52.9	15.6	S	(S) 2525	39.5	58.4	11.5	MR
Art	25.5	61.0	17.8	S	(S) 2609	33.0	60.5	13.8	MR
Hawken	28.0	60.1	16.2	S	Nebraska				
JackPot	37.5	61.7	12.1	S	Overland	32.0	60.7	14.2	MR
Jagalene	32.0	60.8	14.2	S	Wesley	31.5	60.4	14.4	S
Postrock	36.0	62.9	12.6	S	Oklahoma				
RustBuster-N	29.0	60.6	15.6	S	Duster	27.5	59.3	16.5	R
RustBuster-S	26.5	60.1	17.1	S	Endurance	30.5	60.9	14.9	S
TAM 111	31.5	61.2	14.4	S	OK Bullet	34.0	60.0	13.3	S
AgriPro COKER					Pioneer				
(S) BO30543	23.5	58.4	19.3	S	(S) 25R47	36.5	56.4	12.4	S
(S) Coker 9553	34.0	58.9	13.3	S	(S) 25R62	30.5	57.2	14.9	S
AGSECO					Scott Seed				
Infinity CL	33.5	62.9	13.5	S	TAM 304	31.5	61.1	14.4	S
Keota	37.0	62.7	12.3	S	Trio-Research				
Protection CL	38.0	61.7	11.9	S	T-140	32.0	61.4	14.2	S
Santa Fe	33.5	56.9	13.5	S	Watley				
Shocker	29.0	55.6	15.6	S	TAM 112	31.0	58.9	14.6	S
Smoky Hill	33.0	55.9	13.8	S	WestBred				
TAM 110	32.5	62.5	14.0	S	Armour	41.0	62.3	11.1	S
Colorado					Aspen	31.0	60.5	14.6	S
Bill Brown	38.5	64.9	11.8	S	Hitch	35.5	62.9	12.8	S
Bond CL	37.5	59.5	12.1	S	HV9W03-539R	30.0	53.4	15.1	S
Hatcher	41.0	64.1	11.1	MS	HV9W03-696R-2	34.5	64.5	13.2	MR
Ripper	38.0	59.3	11.9	S	HV9W96-1383R	42.5	61.8	10.7	S
DC Seed					Winterhawk	34.0	63.9	13.3	S
T-136	25.5	57.0	17.8	S	Maximum	47.5	64.9	19.3	
T-151	32.5	62.9	14.0	S	Minimum	23.5	52.9	9.6	
Drussel					Average	33.7	60.3	13.8	
T81	35.5	63.3	12.8	S	Dyna-Gro				
Dyna-Gro					Baldwin	46.0	63.6	9.9	S
Ehmke Seed					Georgia				
Ike	26.5	58.1	17.1	MR	(S) 991209-6E33	47.5	64.0	9.6	S
Georgia					(S) 991336-6E9	46.5	62.9	9.8	S
(S) 991209-6E33	47.5	64.0	9.6	S	(S) 991371-6E12	44.0	62.7	10.3	S
(S) 991336-6E9	46.5	62.9	9.8	S	Kansas				
(S) 991371-6E12	44.0	62.7	10.3	S	(W) Danby	29.0	62.2	15.6	S
Kansas					2137	29.5	57.7	15.4	S
(W) Danby	29.0	62.2	15.6	S	Everest	30.0	58.1	15.1	S
2137	29.5	57.7	15.4	S	Fuller	31.5	56.7	14.4	S
Everest	30.0	58.1	15.1	S	Jagger	34.0	57.8	13.3	S
Fuller	31.5	56.7	14.4	S	Karl 92	34.5	61.5	13.2	S
Jagger	34.0	57.8	13.3	S	KS05HW136-3	25.5	57.1	17.8	R
Karl 92	34.5	61.5	13.2	S	Overley	40.5	60.3	11.2	S
KS05HW136-3	25.5	57.1	17.8	R					
Overley	40.5	60.3	11.2	S					

¹ Hessian fly ratings by Shauna Dendy, USDA, with inputs from Erick DeWolf, K-State Plant Pathology, and Phil Sloderbeck, K-State Entomology; S = majority of plants susceptible, MS/MR= moderately susceptible/resistant, R = majority of plants resistant. Tested with recent collection of Great Plains Hessian fly.

(W) = Hard white wheat. (S) = Soft red wheat.

2009 National Winter Canola Variety Trial

Michael J. Stamm, NWCVT Coordinator and Senior Author

Winter canola production is a good fit for small-grains cropping systems because both use the same equipment. Canola is an excellent crop to rotate with winter wheat because it is a broadleaf, allowing use of more effective herbicides to control grassy winter annual weeds. Canola and wheat have no major diseases in common, so growing canola breaks disease cycles. Because canola is an oilseed, its commodity price is not tied to prices of cereal grains, which spreads economic risk over more than one commodity class.

Objectives

Objectives of the National Winter Canola Variety Trial (NWCVT) are to evaluate germplasm over a wide range of environments, determine where released and experimental varieties are best adapted, and increase visibility of winter canola across the nation. Information obtained from these trials aids producers with variety selection. The trial is planted at locations in the Great Plains, Midwest, Northern Plains, and Southeast. The wide diversity of environments has improved our knowledge and understanding of winter canola variety performance.

Procedures

The 2008-2009 NWCVT was distributed to 65 locations in 26 states. The trial included 26 released and 28 experimental varieties from 11 participating seed suppliers. All entries were treated with either Helix Xtra or Prosper FX seed treatment to control insects and diseases during winter months.

Management guidelines were supplied to cooperators, but previous experience at the location influenced final management decisions. Agronomic information, site descriptions, and growing conditions are described for each location. All trials were planted in small research plots (approximately 100 ft²) and replicated three times. Yield results are grouped by brand.

Of the 10 NWCVT sites planted in Kansas and Oklahoma, six were harvested. Four sites were negatively affected by drought, winterkill, severe storms, and insects. The four included in this report are Clearwater, Hutchinson, and Manhattan, KS, and Enid, OK.

2008-2009 Growing Conditions

Temperature and precipitation data are plotted at the top of the page for each location. Thick black lines on the temperature graphs represent long-term average high and low temperatures (°F) for the location. The upper thin line represents actual daily high temperatures, and the lower thin line represents actual daily low temperatures. On the precipitation graph, the line labeled "normal" represents long-term average precipitation, and the line labeled "08-09" represents actual precipitation.

Overall, the 2008-2009 growing season produced better than average yields. Adequate fall stands were recorded at most locations, and plants compensated where stands were thin. Winter canola showed a tremendous capacity to recover following a drought period over the winter and a hard spring freeze at flowering.

Acknowledgments

Assistant Scientist Cynthia La Barge assisted with planting, care, harvest, and data preparation. Special thanks are extended to K-State South Central Experiment Field Agronomist William Heer, K-State Alternative Crops Agronomist Victor Martin, Sedgwick County ANR Agent Gary Cramer, OSU North Central Research Station Manager Raymond Sidwell, Johnston's Seeds, and canola producer Shane O'Daniel for their management of trials at off-station sites.

Table 1. Seed sources for entries in the 2008-2009 National Winter Canola Variety Trial

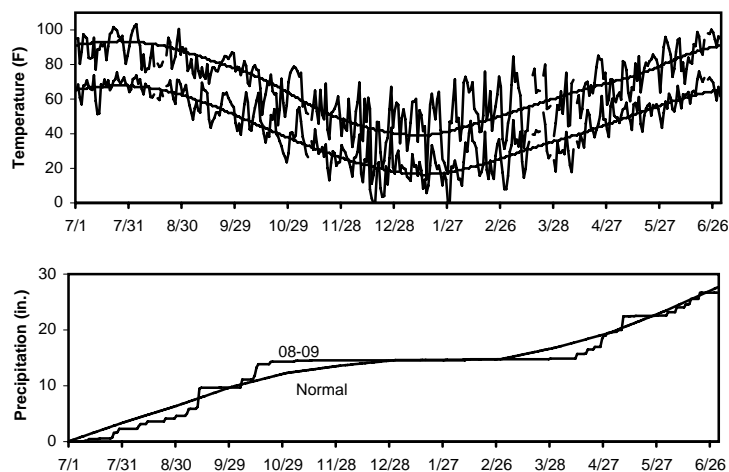
Brand/Name	Type ¹	Trait ²	Release date	Sd trt ³	Brand/Name	Type ¹	Trait ²	Release date	Sd trt ³
Kansas State University/Oklahoma State University Canola Breeding Program 2004 Throckmorton, Manhattan KS 66506 Michael J. Stamm (mjstamm@ksu.edu)					Pioneer Hi-Bred Cole Randol (cole.randol@pioneer.com)				
KS3074	OP	---	---	H	46W14	Hyb	---	---	H
KS3077	OP	---	---	H	46W99	Hyb	RR	---	H
KS3132	OP	---	---	H	45D03	Hyb	---	---	H
KS3254	OP	---	---	H	University of Arkansas Dr. Jim Kelly (jkelly@uark.edu)				
KS3302	OP	---	---	H	ARC2189-2	OP	---	---	H
KS4022	OP	---	---	H	ARC00004-2	OP	---	---	H
KS4085	OP	---	---	H	ARC00005-2	OP	---	---	H
KS4158	OP	---	---	H	ARC00024-2	OP	---	---	H
KS9135	OP	---	---	H	Winfield Solutions / Croplan Genetics Jay Bjerke (jimberke@landolakes.com)				
Sumner	OP	SU	2003	H	HyClass 107W	OP	RR	2007	P
Wichita	OP	---	1999	H	HyClass 110W	OP	RR	2008	P
DL Seeds Inc. Kevin McCallum (kevin.mccallum@dlseeds.ca)					HyClass 115W	OP	RR/SURT	2008	P
Baldur	Hyb	---	2004	H	HyClass 154W	Hyb	RR	2008	H
Dimension	Hyb	---	2008	H	Monsanto Company Robert Ihrig (robert.a.ihrig@monsanto.com)				
Flash	Hyb	---	2007	H	CWH095D	Hyb	---	---	P
Hornet	Hyb	---	2007	H	CWH101D	Hyb	---	---	P
Kronos	Hyb	---	2003	H	CWH111	Hyb	---	---	P
NPZ0604	Hyb	---	---	H	CWH633	OP	RR/SURT	---	P
Safran	Hyb	---	2008	H	DKW41-10	OP	RR	2008	P
Sitro	Hyb	---	2007	H	DKW45-10	OP	RR	2008	P
Visby	Hyb	---	2008	H	DKW46-15	OP	RR/SURT	2008	P
Blue Sun Biodiesel Dr. Charlie Rife (charlie@gobluesun.com)					DKW47-15	OP	RR/SURT	2008	P
BSX-501	OP	IMI	---	H	Technology Crops International Neal Boughton (nboughton@techcrops.com)				
BSX-6131	OP	---	---	H	Hearty	OP	HEAR ⁴	2007	H
BSX-6242	OP	---	---	H	Rossini	OP	HEAR	2008	H
BSX-6271	OP	---	---	H	Virginia State University Agricultural Experiment Station Dr. Harbans Bhardwaj (hbhardwj@vsu.edu)				
BSX-6406	OP	---	---	H	Virginia	OP	---	2003	H
MOMONT, France Dr. Thierry Momont (tmomont@momont.com)					¹ OP = open pollinated, Hyb = hybrid.				
Hybrigold	Hyb	---	2008	H	² RR = Roundup Ready, IMI = imidazolinone resistant. SU/SURT = sulfonyleurea carryover tolerant.				
Hybristar	Hyb	---	2006	H	³ Sd trt = Seed treatment (H = Helix Xtra, P = Prosper FX).				
Hybrisurf	Hyb	---	2008	H	⁴ HEAR = High erucic acid rapeseed. Contains greater than 2% erucic acid in the processed oil. Can be used only for industrial purposes. HEAR is not canola.				
Hybrilux	Hyb	---	2008	H					
Kadore	OP	---	2007	H					
Alabama A&M University Dr. Ernst Cebert (ernst.cebert@aamu.edu)									
AAMU-18-07	OP	---	---	H					
AAMU-33-07	OP	---	---	H					

HUTCHINSON, Kansas

Cooperator:
William Heer
South Central Experiment Field
Redd Foundation Field
Kansas State University

Planted: 9/22/2008 at 5 lb/a in 9-in. rows
Swathed: 6/15/2009
Harvested: 6/23/2009
Herbicides: Trifluralin 1.0 qt/a
Insecticides: None
Fertility: 50-0-0 lb N-P-K fertilizer in the fall
75-0-0 lb N-P-K fertilizer in the spring

Previous crop: Wheat
Soil type: Loam
Elevation: 1611
Latitude: 37°58'N



Comments: Adequate soil moisture at planting resulted in vigorous fall stands. There was no winterkill observed. The hard spring freeze in April caused moderate freeze damage to the earliest varieties and hybrids. Because of periodic wet weather, the plot was swathed at the end of the optimum swathing window. This resulted in slight shattering of the ripest plots. A heavy thunderstorm prior to harvest resulted in additional shatter and yield loss. Average shattering loss ranged from 25% to 50% across the field. In addition, moderate feeding by lygus bugs and diamondback moth larvae at full bloom reduced yield potential.

Table 2. Results of the 2009 National Winter Canola Variety Trial at Hutchinson, KS

Name	Brand	Fall	Vigor ^a	Freeze	Plant	Test			Yield rank		
		stand	(1-5)	damage ^b	height	Moisture	weight	Yield		Yield	Yield
		(0-10)		(1-5)	(in.)	(%)	(lb/bu)	(lb/a)	(bu/a)	(% of mean)	
AAMU-18-07	Alabama A&M	7.3	4.3	5.0	34	5.9	43.7	692	13.8	63.8	49
AAMU-33-07	Alabama A&M	4.7	4.0	2.3	39	5.7	50.0	1082	21.6	99.8	26
BSX-501	Blue Sun Biodiesel	5.0	3.7	2.3	43	5.6	49.1	1318	26.4	121.5	10
BSX-6131	Blue Sun Biodiesel	6.0	4.3	2.0	43	6.0	48.1	1312	26.2	121.1	12
BSX-6242	Blue Sun Biodiesel	6.7	3.7	2.7	41	5.9	48.1	938	18.8	86.5	34
BSX-6271	Blue Sun Biodiesel	5.7	4.0	3.0	41	5.7	49.0	1259	25.2	116.1	17
BSX-6406	Blue Sun Biodiesel	7.0	4.3	2.7	40	5.8	49.6	1270	25.4	117.2	15
HyClass107W	Croplan Genetics	4.0	3.0	2.0	41	5.7	46.9	782	15.6	72.1	43
HyClass110W	Croplan Genetics	5.3	3.0	5.0	35	5.7	47.6	794	15.9	73.2	42
HyClass115W	Croplan Genetics	2.3	2.7	3.0	38	5.7	47.0	609	12.2	56.2	50
HyClass154W	Croplan Genetics	5.3	4.0	1.0	43	6.0	49.4	1251	25.0	115.4	18
CWH095D	DEKALB/Monsanto	6.3	4.7	2.0	39	5.7	48.0	1616	32.3	149.1	1
CWH101D	DEKALB/Monsanto	6.7	4.0	3.3	36	5.6	47.3	1192	23.8	109.9	21
CWH111	DEKALB/Monsanto	6.0	4.7	5.0	35	5.8	48.6	916	18.3	84.5	36
CWH633	DEKALB/Monsanto	5.0	3.3	2.7	39	5.6	47.6	1013	20.3	93.5	30
DKW41-10	DEKALB/Monsanto	6.3	3.3	4.7	37	5.7	47.5	580	11.6	53.5	51
DKW45-10	DEKALB/Monsanto	5.3	3.0	4.3	35	5.9	46.3	718	14.4	66.2	47
DKW46-15	DEKALB/Monsanto	5.0	3.0	2.0	38	5.5	47.1	1050	21.0	96.8	28
DKW47-15	DEKALB/Monsanto	5.7	3.3	2.3	39	5.6	47.2	782	15.6	72.1	44
Baldur	DL Seeds	5.0	4.3	1.7	42	6.0	50.0	1394	27.9	128.6	7
Dimension	DL Seeds	5.7	4.7	3.0	40	5.9	48.1	697	13.9	64.3	48
Flash	DL Seeds	6.3	4.7	2.3	41	5.7	48.7	1366	27.3	126.0	9
Hornet	DL Seeds	5.0	4.3	3.0	41	5.8	49.1	1137	22.7	104.9	23
Kronos	DL Seeds	4.0	3.7	1.7	44	5.9	49.5	1260	25.2	116.2	16
NPZ0604	DL Seeds	5.3	4.0	4.0	38	5.5	47.7	953	19.1	87.9	32
Safran	DL Seeds	5.3	4.0	1.7	39	5.5	49.4	1513	30.3	139.5	3
Sitro	DL Seeds	5.7	4.3	3.3	38	5.9	49.2	1388	27.8	128.0	8
Visby	DL Seeds	4.3	4.0	3.7	37	5.9	49.7	1274	25.5	117.5	14
Sumner	KSU	2.3	3.0	3.0	38	5.6	48.6	946	18.9	87.3	33
Wichita	KSU	4.3	3.3	2.0	40	5.9	49.1	1238	24.8	114.2	19
KS3074	KSU/OSU	5.7	3.3	2.0	41	5.6	47.3	1035	20.7	95.5	29
KS3077	KSU/OSU	6.0	3.0	2.0	42	5.7	48.4	1196	23.9	110.3	20
KS3132	KSU/OSU	5.7	3.3	1.3	43	5.8	49.4	1530	30.6	141.2	2
KS3254	KSU/OSU	6.0	3.7	1.0	44	5.7	48.9	1317	26.3	121.4	11
KS4022	KSU/OSU	5.7	3.3	1.7	42	5.7	48.4	1097	21.9	101.2	25
KS4085	KSU/OSU	7.0	4.0	2.3	44	5.6	49.0	1278	25.6	117.9	13
KS4158	KSU/OSU	5.7	3.3	1.7	41	5.6	49.2	1479	29.6	136.4	4

Table 2 continued. Results of the 2009 National Winter Canola Variety Trial at Hutchinson, KS

Name	Brand	Fall	Vigor ^a	Freeze	Plant	Moisture	Test			Yield rank	
		stand	(1-5)	damage ^b	height		weight	Yield	Yield		Yield
		(0-10)	(1-5)	(1-5)	(in.)	(%)	(lb/bu)	(lb/a)	(bu/a)	(% of mean)	
KS9135	KSU/OSU	6.0	4.0	2.7	43	6.0	47.9	1120	22.4	103.3	24
Hybrigold	Momont	5.3	4.3	2.7	39	6.0	48.2	968	19.4	89.3	31
Hybrilux	Momont	5.3	4.0	3.0	43	6.0	47.1	739	14.8	68.1	46
Hybristar	Momont	6.7	5.0	3.0	39	5.7	48.4	869	17.4	80.1	40
Hybrisurf	Momont	6.0	4.3	2.3	40	5.9	47.9	777	15.5	71.7	45
Kadore	Momont	3.7	3.3	1.0	39	5.9	48.5	1465	29.3	135.1	5
45D03	Pioneer Hi-Bred	6.0	4.3	2.0	39	5.5	48.1	1396	27.9	128.8	6
46W14	Pioneer Hi-Bred	6.0	4.7	2.7	39	5.9	48.7	1080	21.6	99.6	27
46W99	Pioneer Hi-Bred	3.7	4.3	2.7	39	5.7	49.0	875	17.5	80.7	39
ARC00004-2	Univ of Arkansas	6.3	5.0	2.3	47	5.7	49.2	906	18.1	83.6	37
ARC00005-2	Univ of Arkansas	6.7	4.3	2.3	40	6.1	48.4	864	17.3	79.7	41
ARC00024-2	Univ of Arkansas	6.0	4.3	2.7	44	5.9	48.7	936	18.7	86.3	35
ARC2189-2	Univ of Arkansas	4.7	4.0	2.3	46	5.8	48.0	1148	23.0	105.9	22
Virginia	Virginia State	5.7	4.0	2.7	36	5.9	47.7	876	17.5	80.8	38
Mean		5.5	3.9	2.6	40	5.8	48.3	1084	21.7	---	---
CV		19.6	15.0	19.2	4	4.6	2.4	25	24.6	---	---
LSD (0.05)		1.7	0.9	0.8	3	NS	1.9	433	8.7	---	---

Bold - Superior LSD Group - Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ^aVigor is rated on a scale of 1=least and 5=most. ^bFreeze damage is rated 1=slight and 5=severe.

CLEARWATER, Kansas

Cooperators:

Gary Cramer, K-State Research and Extension

Victor Martin, K-State Alternative Crops Agronomist

Planted: 9/23/2008 at 5 lb/a

Harvested: 7/8/2009

Previous crop: Wheat

Soil type: Loam

Herbicide: Fusion

Comments: Seeding was delayed because of wet soils; however, fall stand establishment was excellent. Soil moisture remained adequate throughout the winter, and no winterkill was observed. Moderate diamondback moth larvae and lygus bug feeding was reported at full bloom. Slight to moderate freeze damage occurred in the early maturing varieties, and recovery was excellent.

Table 3. Results of the 2009 National Winter Canola Variety Trial at Clearwater, KS

Name	Brand	Fall	Vigor	Freeze	Plant	Moisture	Test			Yield rank	
		stand	(1-5)	damage	height		weight ^a	Yield	Yield		Yield
		(0-10)	(1-5)	(1-5)	(in.)	(%)	(lb/bu)	(lb/a)	(bu/a)	(% of mean)	
HyClass107W	Croplan Genetics	---	---	---	---	9.9	38.9	2077	41.5	146.2	2
HyClass110W	Croplan Genetics	---	---	---	---	10.1	38.7	1423	28.5	100.1	7
HyClass115W	Croplan Genetics	---	---	---	---	9.6	35.5	1253	25.1	88.2	9
DKW41-10	DEKALB/Monsanto	---	---	---	---	11.0	34.7	1170	23.4	82.3	12
DKW45-10	DEKALB/Monsanto	---	---	---	---	10.3	34.5	1051	21.0	74.0	13
DKW46-15	DEKALB/Monsanto	---	---	---	---	10.1	38.4	1175	23.5	82.7	11
DKW47-15	DEKALB/Monsanto	---	---	---	---	9.8	36.5	1625	32.5	114.4	4
Baldur	DL Seeds	---	---	---	---	10.2	36.0	1279	25.6	90.0	8
Dimension	DL Seeds	---	---	---	---	10.1	35.9	1448	29.0	101.9	5
Flash	DL Seeds	---	---	---	---	11.1	38.6	2298	46.0	161.8	1
Sumner	K-State	---	---	---	---	9.9	35.0	1441	28.8	101.4	6
Wichita	K-State	---	---	---	---	10.1	34.4	1012	20.2	71.2	14
Hybrigold	Momont	---	---	---	---	10.1	35.9	1193	23.9	83.9	10
Hybrisurf	Momont	---	---	---	---	11.4	36.3	1871	37.4	131.7	3
Virginia	Virginia State	---	---	---	---	11.2	34.6	996	19.9	70.1	15
Mean		---	---	---	---	10.3	36.3	1421	28.4	---	---
CV		---	---	---	---	11.2	10.5	29	29.4	---	---
LSD (0.05)		---	---	---	---	NS	NS	699	14.0	---	---

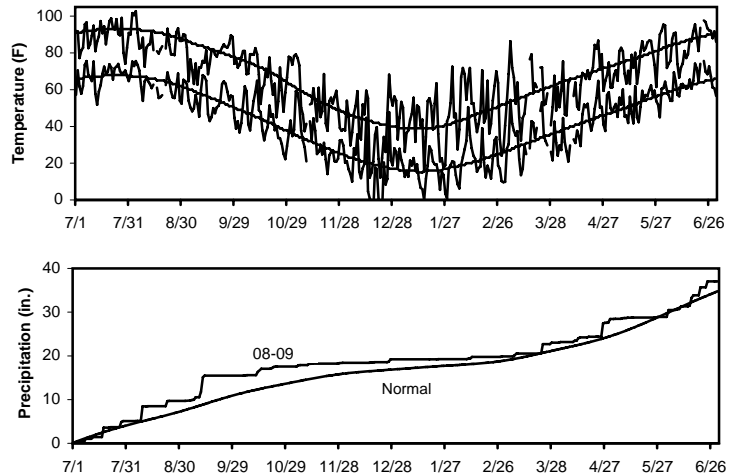
^aLow test weights are a result of immature seed at harvest.

Cooperator:
 Mike Stamm
 Kansas State University
 Oklahoma State University

Planted: 9/18/2008 at 5 lb/a in 9-in. rows
 Swathed: 6/19/2009
 Harvested: 6/29/2009
 Herbicides: Trifluralin 1.5 pt/a
 Insecticides: None
 Fertility: 20-10-0 lb N-P-K fertilizer in the fall
 70-0-0 lb N-P-K fertilizer in the spring

Previous crop: Soybean
 Soil type: Sandy loam
 Elevation: 1064 ft
 Latitude: 39°12'N

MANHATTAN, Kansas



Comments: Fall stands were poor because seeds were planted deeper than optimum. Winterkill was significant at this location. Bare, thin plots had an overgrowth of weeds. This site was swathed on the later side of optimum. Minor shattering was noted in some of the earliest varieties. Seed moisture was very low, which contributed to cracked seed in the harvested samples. Because of cool and moist growing conditions, there was considerable black mold on the ripening seed pods. Some mold was observed in seed pods, resulting in seed loss and very poor test weights.

Table 4. Results of the 2009 National Winter Canola Variety Trial at Manhattan, KS

Name	Brand	Fall	Winter	Plant	Test			Yield rank		
		stand	survival	height	Moisture	weight	Yield			
		(0-10)	(1-10)	(in.)	(%)	(lb/bu)	(lb/a)	(bu/a)	(% of mean)	
AAMU-18-07	Alabama A&M	4.7	6.3	35	6.4	35.9	226	4.5	26.3	50
AAMU-33-07	Alabama A&M	4.0	8.0	40	5.8	38.0	974	19.5	113.2	20
BSX-501	Blue Sun Biodiesel	3.0	9.0	40	5.7	31.8	532	10.6	61.8	42
BSX-6131	Blue Sun Biodiesel	3.0	8.7	43	7.5	35.2	665	13.3	77.3	38
BSX-6242	Blue Sun Biodiesel	5.0	9.0	43	5.5	40.5	1249	25.0	145.1	6
BSX-6271	Blue Sun Biodiesel	3.3	9.0	42	5.8	40.7	1248	25.0	145.0	7
BSX-6406	Blue Sun Biodiesel	4.0	9.0	43	5.7	42.2	1177	23.5	136.7	10
HyClass107W	Croplan Genetics	3.0	7.3	40	5.6	40.7	879	17.6	102.2	27
HyClass110W	Croplan Genetics	3.0	5.7	32	6.2	37.1	149	3.0	17.4	51
HyClass115W	Croplan Genetics	1.0	5.3	37	5.9	39.6	332	6.6	38.6	49
HyClass154W	Croplan Genetics	3.0	8.3	43	5.8	37.6	976	19.5	113.4	19
CWH095D	DEKALB/Monsanto	4.0	9.3	39	5.6	41.7	1533	30.7	178.1	1
CWH101D	DEKALB/Monsanto	3.7	9.0	39	5.5	40.3	1229	24.6	142.7	8
CWH111	DEKALB/Monsanto	2.7	8.0	35	6.1	36.1	449	9.0	52.1	47
CWH633	DEKALB/Monsanto	3.3	7.0	37	5.9	39.3	550	11.0	63.9	41
DKW41-10	DEKALB/Monsanto	3.7	8.3	34	6.1	35.7	697	13.9	81.0	33
DKW45-10	DEKALB/Monsanto	1.7	7.7	35	6.0	41.7	498	10.0	57.9	44
DKW46-15	DEKALB/Monsanto	2.0	9.0	35	5.4	34.3	557	11.1	64.7	40
DKW47-15	DEKALB/Monsanto	3.0	8.0	38	5.6	39.9	688	13.8	80.0	34
Baldur	DL Seeds	3.0	8.0	42	6.3	42.1	1089	21.8	126.5	15
Dimension	DL Seeds	4.7	7.7	39	5.9	40.6	970	19.4	112.7	24
Flash	DL Seeds	3.3	7.7	42	5.9	39.8	1045	20.9	121.4	16
Hornet	DL Seeds	3.0	9.0	41	5.5	43.6	1363	27.3	158.3	3
Kronos	DL Seeds	1.7	7.3	40	6.2	41.3	811	16.2	94.3	28
NPZ0604	DL Seeds	4.3	9.0	41	5.6	40.0	761	15.2	88.4	29
Safran	DL Seeds	3.3	7.0	41	6.1	41.2	1144	22.9	132.9	12
Sitro	DL Seeds	4.3	8.7	41	5.7	41.5	1424	28.5	165.5	2
Visby	DL Seeds	1.7	8.3	38	5.9	38.8	688	13.8	79.9	34
Sumner	KSU	1.3	7.7	35	5.5	43.8	479	9.6	55.6	46
Wichita	KSU	3.7	8.0	39	6.0	36.8	970	19.4	112.7	24
KS3074	KSU/OSU	3.3	8.7	43	5.5	42.0	1105	22.1	128.4	13
KS3077	KSU/OSU	3.3	7.3	39	5.9	33.9	490	9.8	56.9	45
KS3132	KSU/OSU	3.3	8.7	42	5.5	40.1	1278	25.6	148.5	5
KS3254	KSU/OSU	3.0	8.7	43	6.1	41.4	1103	22.1	128.2	14
KS4022	KSU/OSU	3.0	9.7	43	6.3	41.9	1176	23.5	136.7	11
KS4085	KSU/OSU	4.0	9.0	45	6.3	43.3	1207	24.1	140.3	9
KS4158	KSU/OSU	4.3	8.3	40	5.9	43.0	1353	27.1	157.2	4

Table 4 continued. Results of the 2009 National Winter Canola Variety Trial at Manhattan, KS

Name	Brand	Fall	Winter	Plant	Test			Yield rank		
		stand	survival	height	Moisture	weight	Yield		Yield	Yield
		(0-10)	(1-10)	(in.)	(%)	(lb/bu)	(lb/a)	(bu/a)	(% of mean)	
KS9135	KSU/OSU	3.7	9.0	44	5.8	39.8	971	19.4	112.8	23
Hybrigold	Momont	3.0	6.0	39	6.3	37.4	423	8.5	49.1	48
Hybrilux	Momont	3.3	7.3	40	5.9	40.8	509	10.2	59.1	43
Hybristar	Momont	4.3	6.7	37	5.8	36.6	666	13.3	77.3	37
Hybrisurf	Momont	3.3	7.7	37	6.1	36.0	680	13.6	79.0	36
Kadore	Momont	2.3	8.0	37	6.4	39.1	923	18.5	107.2	26
45D03	Pioneer Hi-Bred	3.7	7.3	39	6.1	39.3	974	19.5	113.2	20
46W14	Pioneer Hi-Bred	4.0	5.3	37	6.3	38.5	712	14.2	82.7	32
46W99	Pioneer Hi-Bred	2.7	6.0	36	6.4	39.8	565	11.3	65.7	39
ARC00004-2	Univ of Arkansas	3.7	7.3	43	6.4	33.4	717	14.3	83.4	31
ARC00005-2	Univ of Arkansas	4.0	8.0	45	6.4	41.0	974	19.5	113.2	20
ARC00024-2	Univ of Arkansas	5.3	8.3	45	5.7	40.5	984	19.7	114.3	18
ARC2189-2	Univ of Arkansas	3.3	8.0	43	6.1	38.3	1017	20.3	118.1	17
Virginia	Virginia State	4.7	7.7	40	5.8	38.7	718	14.4	83.5	30
Mean		3.4	7.9	40	6.0	39.3	861	17.2	---	---
CV		28.9	12.8	5	8.3	10.5	37	37.2	---	---
LSD (0.05)		1.6	1.6	3	0.8	NS	519	10.4	---	---

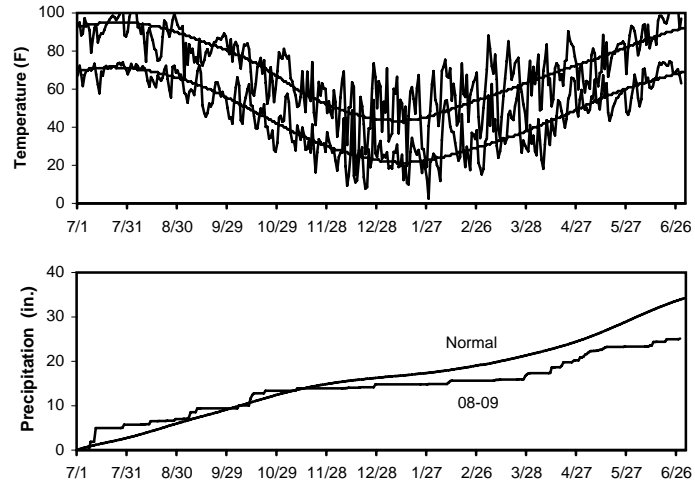
Bold - Superior LSD Group - Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other.

Cooperator:
Gene McVey and John Lamle
Johnston Seed Company

Planted: 9/23/2008 at 5 lb/a in 9-in. rows
Swathed: 6/1/2009
Harvested: 6/9/2009
Herbicides: Trifluralin 1.5 pt/a
Insecticides: None
Fertility: 100-0-0 lb N-P-K fertilizer in the fall
50-0-0 lb N-P-K fertilizer in the spring

Previous crop: Canola
Soil type: Silt loam
Elevation: 1227 ft
Latitude: 36°26'N

ENID, Oklahoma



Comments: Plant stands averaged 60% in the fall. There was minimal winterkill. The late hard freeze caused only slight to moderate damage to the earliest maturities. Swathing occurred at 30%-80% seed color change. Windrows had zero shatter losses. Ideal conditions allowed for optimum dry down. Sclerotinia stem rot was observed in some plots prior to swathing, but infection was not widespread. Overall, the site had little weed pressure.

Table 5. Results of the 2009 National Winter Canola Variety Trial at Enid, OK

Name	Brand	Plant		Test		Yield ^b (lb/a)	Yield ^b (bu/a)	Yield (% of mean)	Yield rank
		Bloom ^a (%)	height (in.)	Moisture (%)	weight (lb/bu)				
AAMU-18-07	Alabama A&M	92	31	9.3	49.0	1710	34.2	73	51
AAMU-33-07	Alabama A&M	88	38	10.1	51.0	2488	49.8	107	19
BSX-501	Blue Sun	25	43	9.6	52.3	2587	51.7	111	8
BSX-6131	Blue Sun	72	40	9.2	51.1	2216	44.3	95	35
BSX-6242	Blue Sun	75	40	9.0	52.2	2427	48.5	104	24
BSX-6271	Blue Sun	80	41	9.3	51.3	2532	50.6	109	14
BSX-6406	Blue Sun	82	42	9.5	51.7	2242	44.8	96	33
HyClass107W	Croplan Genetics	68	40	8.9	51.5	2408	48.2	103	25
HyClass110W	Croplan Genetics	90	35	8.7	50.3	2153	43.1	92	40
HyClass115W	Croplan Genetics	78	36	9.5	50.4	1861	37.2	80	47
HyClass154W	Croplan Genetics	63	40	9.9	51.7	2198	44.0	94	37
CWH095D	DeKalb/Monsanto	82	35	9.4	52.2	2159	43.2	93	39
CWH101D	DeKalb/Monsanto	93	37	9.3	51.7	2709	54.2	116	3
CWH111	DeKalb/Monsanto	93	35	8.9	52.0	2109	42.2	90	42
CWH633	DeKalb/Monsanto	80	35	9.8	50.8	1954	39.1	84	44
DKW41-10	DeKalb/Monsanto	92	32	9.1	50.4	1835	36.7	79	49
DKW45-10	DeKalb/Monsanto	87	35	8.7	51.0	2179	43.6	94	38
DKW46-15	DeKalb/Monsanto	78	35	9.2	50.6	2126	42.5	91	41
DKW47-15	DeKalb/Monsanto	80	37	9.1	50.9	1933	38.7	83	45
Baldur	DL Seeds	75	40	9.8	53.0	2697	53.9	116	5
Dimension	DL Seeds	58	39	9.6	52.3	2651	53.0	114	6
Flash	DL Seeds	47	41	9.6	51.6	2517	50.3	108	15
Hornet	DL Seeds	83	37	9.0	52.0	2085	41.7	89	43
Kronos	DL Seeds	80	39	9.6	52.5	2391	47.8	103	27
NPZ0604	DL Seeds	85	36	8.9	51.9	2320	46.4	100	29
Safran	DL Seeds	65	39	9.7	53.2	2731	54.6	117	2
Sitro	DL Seeds	70	37	9.7	51.2	1907	38.1	82	46
Visby	DL Seeds	77	38	9.3	52.2	2447	48.9	105	23
Sumner	KSU	80	38	9.1	51.1	2465	49.3	106	21
Wichita	KSU	75	39	9.4	52.0	2547	50.9	109	13
KS3074	KSU/OSU	77	42	9.4	52.2	2556	51.1	110	11
KS3077	KSU/OSU	72	39	9.6	52.5	2448	49.0	105	22
KS3132	KSU/OSU	82	40	9.4	51.9	2578	51.6	111	9
KS3254	KSU/OSU	57	43	10.3	52.2	2490	49.8	107	18
KS4022	KSU/OSU	75	39	9.7	51.0	2256	45.1	97	30
KS4085	KSU/OSU	80	43	9.4	51.5	2394	47.9	103	26
KS4158	KSU/OSU	73	41	9.7	51.6	2698	54.0	116	4
KS9135	KSU/OSU	60	43	9.4	52.2	2211	44.2	95	36

Table 5 continued. Results of the 2009 National Winter Canola Variety Trial at Enid, OK

Name	Brand	Plant		Test			Yield	Yield rank	
		Bloom ^a (%)	height (in.)	Moisture (%)	weight (lb/bu)	Yield ^b (lb/a)			Yield ^b (bu/a)
Hybrigold	Momont	60	37	9.3	52.7	2229	44.6	96	34
Hybrilux	Momont	70	41	8.8	51.4	2342	46.8	100	28
Hybristar	Momont	63	35	9.9	52.1	1792	35.8	77	50
Hybrisurf	Momont	57	39	10.1	51.0	1835	36.7	79	48
Kadore	Momont	83	35	9.8	51.8	2503	50.1	107	16
45D03	Pioneer Hi-Bred	82	37	9.3	52.7	2759	55.2	118	1
46W14	Pioneer Hi-Bred	77	36	9.8	51.9	2498	50.0	107	17
46W99	Pioneer Hi-Bred	78	37	9.0	51.9	2248	45.0	96	32
ARC00004-2	Univ of Arkansas	8	46	9.8	52.3	2571	51.4	110	10
ARC00005-2	Univ of Arkansas	77	43	9.4	52.7	2592	51.8	111	7
ARC00024-2	Univ of Arkansas	5	46	9.9	52.3	2254	45.1	97	31
ARC2189-2	Univ of Arkansas	50	43	9.4	51.6	2551	51.0	109	12
Virginia	Virginia State	85	35	8.7	50.8	2470	49.4	106	20
Mean		72	39	9.4	51.7	2330	46.6	---	---
CV		11	5	6.5	1.5	10	10.5	---	---
LSD (0.05)		13	3	NS	1.3	395	7.9	---	---

Bold - Superior LSD Group - Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ^aBloom is recorded as percentage of open buds on Apr.15, 2009. ^bYields adjusted to 9% moisture.

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Permission is hereby given to Kansas State University (KSU) to test varieties and/or hybrids designated on the attached entry forms in the manner indicated in the test announcements. I certify that seed submitted for testing is a true sample of the seed being offered for sale.

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