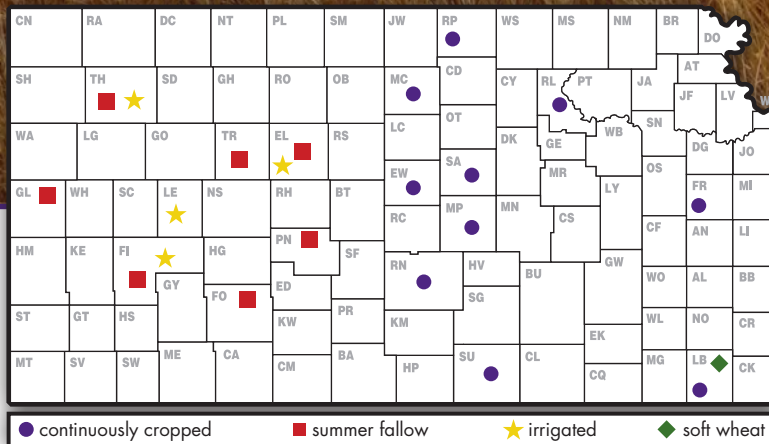


2013 Kansas Performance Tests with

Winter Wheat Varieties



Report of Progress 1090



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*Excerpts from the National Winter Canola Variety Trial, Report of Progress 1098, Kansas State University Agricultural Experiment Station and Cooperative Extension Service (to be published in winter 2013-2014).

2013 WHEAT CROP REVIEW

Weather and Crop Development

Following the drought-stricken conditions of 2012, the 2012-2013 Kansas wheat crop struggled to get established early in the growing season. Snowfall in December and February helped the wheat get through the winter months, but it was not until March that state-wide rains and warm temperatures improved the condition of the wheat crop.

The warm temperatures did not continue, however, and many fields were damaged by hard freezes in late April. May brought more fluctuations of warm-then-cool temperatures, slowing progress of the crop to a more normal rate of development than in 2012, which ranked as the earliest on record for Kansas. Many acres of wheat received a boost from rains during grain fill, but in general, the wheat crop in Kansas was not able to overcome the persistent dryness and challenging conditions. At harvest, 33% of the crop was rated as good or excellent, 24% was rated as fair, and 43% was rated as poor to very poor. (*Crop Progress and Conditions* report, Kansas Agricultural Statistics)

Diseases

The influence of diseases on wheat production was low in 2013 relative to many recent years. Both stripe rust and leaf rust remained at low levels in most areas of the state this year, but moderate levels of rust were reported in the Southeast and South Central regions. Tan spot and Septoria tritici blotch also made their presence known in the southeast and south central regions of the state, where severe disease developed late in the season and hastened the decline of the flag leaves during the dough stages of kernel development.

Although viral diseases were present in many fields again this year, the incidence of barley yellow dwarf was much lower than in previous three years. Wheat streak mosaic caused severe damage in some areas of eastern and central Kansas. In most cases, fields with severe wheat streak mosaic were associated with poor control of volunteer wheat the previous summer. The incidence of wheat streak mosaic was below normal in western Kansas for the second year in a row. This low incidence of wheat streak mosaic is likely the result of persistent drought in this region of the state. (Erick De Wolf and Bill Bockus, Kansas State University Plant Pathologists)

Insects

There were sporadic reports of greenbugs and bird cherry-oat aphid infestations from southeast and south central Kansas in mid-October to mid-November, but infestations never really materialized into any significant problems, and sampling for barley yellow dwarf virus, in plants where aphids were reported also proved insignificant.

Spring infestations of English grain aphids became very significant in many areas across the state just as the berries were filling. Some growers sprayed for these aphids but most did not, and lady beetles eventually controlled the aphids or the wheat matured to the point where the aphids could no longer suck juice from the developing berry. English grain aphids are common throughout wheat fields in the spring, but populations that developed in 2013 were much more significant than in past years.

Several reports of wheat curl mites and wheat streak mosaic disease were verified (as far east as Highway 77). Controlling volunteer wheat and planting as late as agronomically practical is still the best way to minimize problems caused by these pests. (Jeff Whitworth, Kansas State University Extension Entomologist)

Harvest Statistics

The Kansas Agricultural Statistics June 12 estimate of the 2013 crop was 307.8 million bushels from 8.1 million acres, down 21% from last year's crop. Yield per harvested acre is expected to average 38 bushels, down 4 bushels from last year's final yield. (June 12, 2013, *Crops Report*, Kansas Agricultural Statistics)

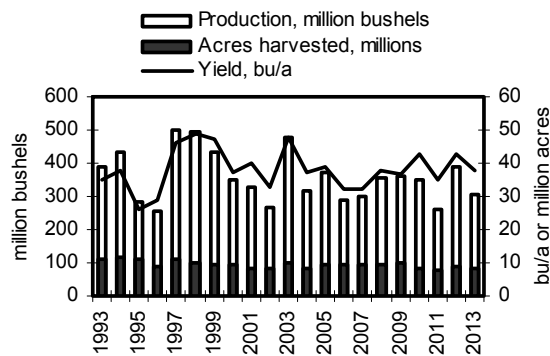


Figure 1. Historical Kansas wheat production

Everest became the leading variety of wheat seeded in Kansas. It accounted for 14.3% of the state's wheat and was the most popular variety in the eastern two-thirds of the state. TAM 111 fell to second with 10.8% of acreage and is the leading variety in the western third of the state. Armour remained in third place with 6.7%. TAM 112, and Fuller switched spots in the ranking, accounting for 5.1% and 4.2% of wheat acres, respectively. (February 8, 2013, *Wheat Variety*, Kansas Agricultural Statistics)

Acreage Distribution

TAM 111 29 (19) Fuller 9 (9) TAM 112 7 (6) Postrock 7 (11) Winterhawk 6	Everest 16 (11) Armour 11 (13) Fuller 6 (8) Postrock 4 (8) TAM 111 4	Everest 23 (12) Armour 10 (4) Karl/Karl 92 8 (4) Santa Fe 6 (8) Art 3
TAM 111 21 (29) TAM 112 15 (10) T158 9 (5) Hatcher 7 (9) Postrock 4 (4)	Everest 23 (15) Armour 14 (18) TAM 111 6 Postrock 5 (6) Art 5	Everest 36 (22) Armour 8 Art 4 (6) Santa Fe 3 (8) Fuller 2 (5)
TAM 111 22 (24) TAM 112 15 (12) T158 9 Jagalene 5 (7) Postrock 4 (5)	Everest 21 (13) Duster 9 (8) Armour 8 (10) Fuller 5 (8) Endurance 5	Everest 54 (37) Armour 4 (7) Fuller 4 (8) Overley 3 Santa Fe 3

Figure 2. Leading wheat varieties in Kansas; percentage of seeded acreage for 2013 and (2012) crops

2013 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.

Environmental Factors

Drought and freeze damage were determining factors in many of the tests in the 2012-2013 growing season. **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 from Nebraska, Oklahoma, and Colorado with potential for successful use in Kansas. Some are included as long-term checks. Others are entered at the request of the originating institution. Twenty-six public wheat varieties were entered for testing.

Originators or marketers enter privately developed varieties on a voluntary basis. Entrants choose both the entries and test sites. The 2013 private entrants are listed in Table 1. Eight private entrants provided a total of 37 varieties for testing.

Table 13 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 similar 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.

Results and Variety Characterization

Results from Kansas tests are presented in Tables 4 through 12. Yields are reported as bushels per acre (60 lb/bu) and are 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.

Electronic Access

To access crop performance testing information electronically, visit the website at: <http://www.agronomy.ksu.edu/kscpt>

Research and Duplication Policy

When companies submit entries, permission is given to Kansas State University to test varieties and/or hybrids designated on the entry forms in the manner indicated in the test announcements. Seed submitted for testing should be a true sample of the seed being offered for sale.

All results from Kansas Crop Performance Tests belong to the University and the public and shall be controlled by the University to produce the greatest benefit to the public. Performance data may be used in the following ways: 1) Tables may be reproduced in their entirety, provided the source is referenced and data are not manipulated or reinterpreted; and 2) advertising statements by an individual company about the performance of its entries may be made as long as they are accurate statements about the data as published, with

no reference to other companies' names or cultivars. In both cases, the following must be included with the reprint or ad citing the appropriate publication number and title: "See the official Kansas State University Agricultural Experiment Station and Cooperative Extension Service Report of Progress 1090 '2013 Kansas Performance Tests with Winter Wheat Varieties,' or the Kansas Crop Performance Test website, <http://www.agronomy.ksu.edu/kscpt> for details. Endorsement or recommendation by Kansas State University is not implied."

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Table 1. Private entrants in the 2013 Kansas wheat performance tests

AgriPro-Syngenta

AgriPro Wheat, Inc.
11783 Ascher Rd.
Junction City, KS 66441
785-210-0218

AGSECO

P.O. Box 7
Girard, KS 66743
620-724-6223

Kansas Wheat Alliance

2005 Research Park Circle
Manhattan, KS 66502
785-477-3400

Limagrain Cereal Seeds

2040 SE Frontage Road
Fort Collins, CO 80525
970-498-2200

MFA

MFA Incorporated
201 Ray Young Dr.
Columbia, MO 65201
573-876-5363

Pioneer Brand

Pioneer Hi-Bred Intl., Inc.
8100 South 15th
Lincoln, NE 68512
800-228-4050

Scott Seed Company

Box 1732
Hereford, TX 79045
806-364-3484

Sipes Seed

12894 S. Road X
Manter, KS 67862
620-493-4693

WestBred-Monsanto

540 Dickinson St.
Kiowa, KS 67543
620-825-4315

Table 3. Wheat performance test site descriptions and management in 2013

Region and location	Soil type previous crop	N	P ₂ O ₅	K ₂ O	Plant-harvest seed rate	Conditions
<u>Northeast Dryland</u>						
Ashland Agronomy Farm Manhattan (MA)	Reading silt loam Soybean	70	--	--	Fall 10/5/2012-7/10/2013 75 lb/a	Variable stands due to dryness in the fall.
<u>Southeast Dryland</u>						
East Central KS Experiment Field Ottawa (OT)	Woodson silt loam Grain sorghum	75	52	23	Fall 10/9/2012-6/27/2013 60 lb/a	Very good growing conditions during grain fill.
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Corn	50	0	0	Fall 10/9/2012-6/25/2013 75 lb/a	Good stands but wheat did not tiller well in the fall. Wheat had moisture stress until late February.
<u>Soft Wheat</u>						
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Corn	50	0	0	Fall 10/9/2012-6/25/2013 75 lb/a	Good stands but wheat did not tiller well in the fall. Wheat had moisture stress until late February.
<u>North Central Dryland</u>						
North Central KS Experiment Field Belleville (BE)	Crete silt loam Fallow	80	30	0	Fall 10/3/2011-7/3/2013 90 lb/a	Cool, late spring.
North Central KS Farmer's Field Beloit (BL)	Harney silt loam Wheat	100	80	0	Fall 10/2/2012-7/2/2013 80 lb/a	Cool, late spring.
<u>Central Dryland</u>						
Central KS Farmer's Field Gypsum (GY)	Silty clay loam Fallow	50	--	--	Fall 10/19/2012-7/3/2013 90 lb/a	Dry in the fall but rebounded for decent performance.
Central KS Farmer's Field Lorraine (LR)	McCook silt loam Fallow	60	--	--	Fall 10/13/2012-6/30/2013 60 lb/a	Test struggled to establish a stand in the fall.
<u>South Central Dryland</u>						
South Central KS Farmer's Field McPherson (MC)	Crete silt loam Fallow	60	--	--	Fall 10/2/2012-6/29/2013 60 lb/a	Very dry fall and winter months.
South Central KS Experiment Field Hutchinson (HU)	Ost silt loam Fallow	80	40	--	Fall 10/24/2012-7/3/2013 60 lb/a	Dry conditions throughout growing season.
South Central KS Farmer's Field Conway Springs (CW)	Sandy loam Fallow	40	--	--	Fall 10/4/2012-6/26/2013 60 lb/a	Very dry fall and winter months.
<u>Northwest Dryland</u>						
Agricultural Research Center Hays (HA)	Harney silt loam Fallow	80	--	--	Fall 9/23/2012-6/22/2013 50 lb/a	Good conditions throughout growing season.
Northwest Research-Extension Center Colby (CO)	Keith silt loam Fallow	60	25	0	Fall 9/25/2012-7/5/2013 60 lb/a	Winter had little snowfall. A hard freeze in April set everything back with 1 variety with severe winter kill.
Northwest Research-Extension Center Tribune (TR)	Richfield silt loam Fallow	65	20	0	Fall 10/8/2012-7/4/2013 55 lb/a	Test had good moisture in the fall; dry for rest of the season.
Northwest KS Farmer's Field Wakeeny (WA)	Harney clay loam Grain Sorghum	50	20	0	Fall 9/23/2012-7/8/2013 50 lb/a	Dry conditions throughout season.
<u>Southwest Dryland</u>						
Southwest KS Farmer's Field Larned (LA)	Harney clay loam Grain sorghum	75	0	0	Fall 9/29/2012-6/29/2013 50 lb/a	Decent growing season.
Southwest KS Farmer's Field Dodge City (DC)	Harney clay loam Fallow	60	--	--	Fall 9/29/2012- 45 lb/a	Abandoned; no stand established in fall.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam Wheat	60	--	--	Fall 10/4/2012-7/8/2013 65 lb/a	Relatively good conditons during growing season.
<u>Western Irrigated</u>						
Northwest Research-Extension Center Colby (CO)	Keith silt loam Fallow	110	35	0	Fall 9/24/2012-7/16/2013 90 lb/a	Good stands were established. A late freeze in April delayed maturity.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam Corn	80	--	--	Fall 10/4/2012-7/9/2013 75 lb/a	Good stands in the fall.
Western KS Farmer's Field Scott City (SC)	Scott silt loam Fallow	90	--	--	Fall 10/4/2012- 80 lb/a	Abandoned; extreme variability.

Table 4. 2013 NORTHEAST Kansas dryland winter wheat performance tests

Brand / Name	MA ¹	MA	2yr MA	3yr MA	MA	MA	MA
	yield (bu/a)	% of test average	multiyear av. (bu/a)		tw (lb/bu)	head (+/- Everest)	height (in.)
Kansas							
1863	47	94	44	--	--	--	--
Everest	45	91	45	51	--	--	--
Fuller	46	93	40	47	--	--	--
Limagrain							
LCH08-80	53	107	--	--	--	--	--
LCSMint	51	102	--	--	--	--	--
T153	54	108	47	--	--	--	--
T154	52	104	46	53	--	--	--
T158	46	92	44	--	--	--	--
Oklahoma							
Billings	51	103	47	54	--	--	--
Duster	50	101	45	53	--	--	--
Gallagher	52	105	--	--	--	--	--
Iba	49	99	48	--	--	--	--
Ruby Lee	51	103	50	--	--	--	--
WestBred							
Armour	49	99	41	48	--	--	--
Santa Fe	46	92	43	50	--	--	--
WB-4458	51	103	--	--	--	--	--
WB-Cedar	49	99	48	54	--	--	--
WB-Redhawk	52	105	--	--	--	--	--
Averages	50	50	--	--	--	--	--
CV (%)	8	8	--	--	--	--	--
LSD (0.05)*	5	11	--	--	--	--	--

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

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

Table 5. 2013 SOUTHEAST Kansas dryland winter wheat performance tests

Brand / Name	OT ¹ PA ² Av.			OT PA Av.			-OT- 2yr 3yr		-PA- 2yr 3yr		OT PA Av.			OT PA Av.			OT PA Av.					
	yield (bu/a)			% of test average			multiyear av. (bu/a)				tw (lb/bu)			head (+/- Everest)			height (in.)					
Kansas																						
1863	65	53	59	103	116	110	60	--	60	--	60	60	60	3	-5	-1	--	37	37			
Everest	62	48	55	99	105	102	62	63	62	58	59	60	59	0	0	0	--	34	34			
Fuller	62	50	56	100	109	104	62	62	53	50	60	60	60	1	1	1	--	34	34			
Limagrain																						
LCH08-80	67	49	58	108	107	107	--	--	--	--	61	60	60	3	-8	-3	--	35	35			
LCSMint	62	40	51	99	86	92	--	--	--	--	60	59	60	3	-5	-1	--	33	33			
T153	60	45	52	96	97	97	61	--	59	--	60	60	60	-1	2	1	--	34	34			
T154	65	45	55	104	98	101	64	65	54	46	61	60	60	-2	1	-1	--	35	35			
T158	62	46	54	100	100	100	--	--	--	--	59	60	59	0	-3	-1	--	36	36			
Oklahoma																						
Endurance	60	44	52	96	96	96	62	63	56	52	59	60	59	3	-8	-2	--	38	38			
Garrison	66	47	57	106	102	104	62	--	58	--	59	60	59	4	-7	-2	--	36	36			
Ruby Lee	71	52	61	113	114	113	64	--	57	--	60	60	60	1	-3	-1	--	37	37			
Syngenta																						
Art	63	35	49	101	76	88	62	--	46	--	60	60	60	2	-3	-1	--	33	33			
CJ	64	41	52	102	88	95	57	57	58	50	60	60	60	2	-4	-1	--	37	37			
JackPot	70	46	58	112	100	106	65	65	59	54	59	60	59	0	-3	-2	--	36	36			
SY Southwind	54	36	45	87	78	82	61	--	51	--	58	60	59	3	-4	0	--	34	34			
WestBred																						
Armour	61	53	57	98	115	106	66	65	62	57	58	59	59	2	-3	-1	--	31	31			
Santa Fe	57	52	55	91	113	102	57	59	57	53	59	60	59	1	-1	0	--	34	34			
WB-4458	51	43	47	81	94	87	--	--	--	--	57	60	58	-1	3	1	--	35	35			
WB-Cedar	58	42	50	93	91	92	60	62	67	60	60	60	60	0	1	0	--	33	33			
WB-Redhawk	70	53	62	112	116	114	--	--	--	--	59	60	59	1	1	1	--	34	34			
Averages	62	46	54	62	46	54	--	--	--	--	59	60	59	1	-2	-1	--	35	35			
CV (%)	7	5	6	7	5	6	--	--	--	--	1	0	1	0	1	0	--	4	4			
LSD (0.05)*	6	3	5	10	7	9	--	--	--	--	1	0	1	0	1	0	--	2	2			

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

² 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. 2013 SOUTHEAST Kansas SOFT winter wheat performance tests

Brand / Name	PA ¹	PA	-PA-		PA	PA	PA
	yield (bu/a)		% of test average	2yr			
Georgia							
GA-031086-10E26	62	115	--	--	60	0	34
GA-031257-10LE34	58	108	--	--	60	-5	32
GA-04570-10E46	51	95	--	--	60	-2	35
Kansas							
Everest	50	94	66	--	60	0	34
Fuller	52	96	55	--	60	1	33
Limagrain							
LCS08-12	47	88	--	--	60	-4	33
MFA							
(S) 2135	51	95	--	--	59	-4	35
(S) 2166	51	95	--	--	60	-5	37
(S) 2525	56	105	74	--	60	-11	40
Pioneer							
(S) 25R30	56	104	86	--	60	-7	34
(S) 25R32	60	112	--	--	60	-7	35
(S) 25R39	50	94	77	--	60	-10	34
Syngenta							
SY Harrison	53	99	--	--	60	-7	33
Averages							
Averages	54	54	--	--	60	-5	34
CV (%)	5	5	--	--	0	1	3
LSD (0.05)*	4	7	--	--	0	1	2

1 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. 2013 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			multiyear av. (bu/a)				tw (lb/bu)			(+/- Everest)		height (in.)			
Kansas																			
1863	85	67	76	100	84	92	89	--	73	--	60	59	59	--	--	--	--	--	--
Everest	89	81	85	104	102	103	91	95	85	88	60	59	59	--	--	--	--	--	--
Fuller	78	77	78	92	96	94	86	86	77	77	60	59	60	--	--	--	--	--	--
Limagrain																			
LCH08-109	87	78	82	102	98	100	--	--	--	--	58	57	57	--	--	--	--	--	--
LCH08-80	85	86	85	100	108	104	--	--	--	--	60	58	59	--	--	--	--	--	--
LCSMint	83	86	85	98	108	103	--	--	--	--	60	60	60	--	--	--	--	--	--
T153	77	83	80	90	104	97	81	--	74	--	61	58	59	--	--	--	--	--	--
T154	82	82	82	96	103	100	85	85	75	--	61	58	59	--	--	--	--	--	--
T158	85	84	84	99	105	102	88	--	78	--	61	59	60	--	--	--	--	--	--
Oklahoma																			
Gallagher	90	78	84	106	98	102	--	--	--	--	61	59	60	--	--	--	--	--	--
Iba	80	84	82	93	106	100	85	--	70	--	61	60	60	--	--	--	--	--	--
Scott Seed																			
TAM 304	91	87	89	106	109	108	--	--	--	--	58	58	58	--	--	--	--	--	--
Syngenta																			
Art	91	83	87	107	104	105	83	85	73	74	59	59	59	--	--	--	--	--	--
CJ	91	73	82	106	92	99	86	88	67	70	60	59	60	--	--	--	--	--	--
Postrock	88	80	84	103	101	102	83	87	74	73	59	59	59	--	--	--	--	--	--
SY Gold	93	92	92	109	115	112	--	--	--	--	60	59	59	--	--	--	--	--	--
SY Southwind	84	72	78	98	91	95	94	--	79	--	57	58	58	--	--	--	--	--	--
SY Wolf	84	78	81	98	98	98	91	91	74	--	60	59	60	--	--	--	--	--	--
WestBred																			
Armour	94	78	86	110	98	104	88	95	71	76	58	58	58	--	--	--	--	--	--
Deuce	63	61	62	74	77	75	--	--	--	--	61	57	59	--	--	--	--	--	--
WB-4458	80	88	84	93	110	102	--	--	--	--	60	58	59	--	--	--	--	--	--
WB-Cedar	87	89	88	102	111	107	96	99	82	89	61	57	59	--	--	--	--	--	--
WB-Grainfield	86	76	81	101	95	98	--	--	--	--	59	59	59	--	--	--	--	--	--
WB-Redhawk	97	76	87	114	96	105	--	--	--	--	60	58	59	--	--	--	--	--	--
Winterhawk	87	84	86	102	106	104	91	--	83	79	59	61	60	--	--	--	--	--	--
Averages	85	80	82	85	80	82	--	--	--	--	60	59	59	--	--	--	--	--	--
CV (%)	4	5	4	4	5	4	--	--	--	--	--	--	0	--	--	--	--	--	--
LSD (0.05)*	4	4	4	5	5	5	--	--	--	--	--	--	0	--	--	--	--	--	--

¹ BE = Belleville, KS, North Central KS 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. 2013 CENTRAL Kansas dryland winter wheat performance tests

Brand / name	GY ¹ LR ² Av.			GY LR Av.			-GY-		-LR-		GY LR Av.			GY LR Av.					
	yield (bu/a)			% of average			multiyear av. (bu/a)				tw (lb/bu)		head (+/- Everest)			height (in.)			
	GY	LR	Av.	GY	LR	Av.	2yr	3yr	2yr	3yr	GY	LR	Av.	GY	LR	Av.	GY	LR	Av.
Kansas																			
1863	49	41	45	84	102	93	46	--	39	--	--	--	--	--	--	--	--	--	--
Everest	60	40	50	103	100	101	52	52	47	46	--	--	--	--	--	--	--	--	--
Fuller	56	36	46	95	91	93	48	49	40	37	--	--	--	--	--	--	--	--	--
Limagrain																			
LCH08-109	51	33	42	87	81	84	--	--	--	--	--	--	--	--	--	--	--	--	--
LCH08-80	71	44	58	122	111	116	--	--	--	--	--	--	--	--	--	--	--	--	--
LCH09-19	56	31	44	95	79	87	--	--	--	--	--	--	--	--	--	--	--	--	--
LCH09-43	54	34	44	92	84	88	--	--	--	--	--	--	--	--	--	--	--	--	--
LCSMint	61	45	53	105	112	108	--	--	--	--	--	--	--	--	--	--	--	--	--
T153	76	41	59	130	103	116	62	--	42	--	--	--	--	--	--	--	--	--	--
T154	57	42	50	97	105	101	54	55	49	45	--	--	--	--	--	--	--	--	--
T158	61	41	51	104	103	104	53	--	44	--	--	--	--	--	--	--	--	--	--
Oklahoma																			
Billings	54	37	45	92	93	92	52	52	44	42	--	--	--	--	--	--	--	--	--
Duster	50	39	45	86	97	92	46	50	42	46	--	--	--	--	--	--	--	--	--
Gallagher	58	42	50	99	105	102	--	--	--	--	--	--	--	--	--	--	--	--	--
Garrison	64	42	53	109	104	106	47	--	44	--	--	--	--	--	--	--	--	--	--
Iba	61	40	51	104	100	102	54	--	44	--	--	--	--	--	--	--	--	--	--
Ruby Lee	59	43	51	100	108	104	55	--	48	--	--	--	--	--	--	--	--	--	--
Scott Seed																			
TAM 304	54	39	47	92	98	95	52	--	43	--	--	--	--	--	--	--	--	--	--
Syngenta																			
Art	54	40	47	92	100	96	42	44	41	41	--	--	--	--	--	--	--	--	--
CJ	52	34	43	89	84	87	--	--	--	--	--	--	--	--	--	--	--	--	--
Postrock	54	48	51	91	120	106	--	--	--	--	--	--	--	--	--	--	--	--	--
SY Southwind	57	41	49	97	104	101	50	--	44	--	--	--	--	--	--	--	--	--	--
SY Wolf	58	41	50	99	103	101	--	--	--	--	--	--	--	--	--	--	--	--	--
WestBred																			
Armour	56	36	46	96	91	94	47	48	38	38	--	--	--	--	--	--	--	--	--
WB-4458	66	44	55	113	111	112	--	--	--	--	--	--	--	--	--	--	--	--	--
WB-Cedar	74	43	59	127	107	117	64	62	52	48	--	--	--	--	--	--	--	--	--
WB-Grainfield	58	39	49	99	98	99	--	--	--	--	--	--	--	--	--	--	--	--	--
WB-Redhawk	59	42	51	101	105	103	--	--	--	--	--	--	--	--	--	--	--	--	--
Averages	59	40	49	59	40	49	--	--	--	--	--	--	--	--	--	--	--	--	--
CV (%)	11	10	11	11	10	11	--	--	--	--	--	--	--	--	--	--	--	--	--
LSD (0.05)*	9	6	7	16	14	15	--	--	--	--	--	--	--	--	--	--	--	--	--

¹ GY = Gypsum, KS, Saline County.

² LR = Lorraine, KS, Ellsworth County.

(W) = Hard white wheat.

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

Table 9. 2013 SOUTH CENTRAL Kansas dryland winter wheat performance tests

Brand / Name	MC ¹ HU ² CW ³ Av.				-MC- -HU- -CW-				MC HU CW Av.				MC HU CW Av.									
	yield (bu/a)				% of average				multiyear av. (bu/a)				tw (lb/bu)				head (+/- Everest)					
Kansas																						
1863	37	40	38	38	79	99	96	91	41	--	37	--	45	--	--	55	--	55	--	--	--	--
Everest	42	41	39	41	90	101	100	97	48	48	37	40	49	44	--	55	--	55	--	--	--	--
Fuller	41	34	35	37	87	83	90	87	41	43	34	36	47	42	--	52	--	52	--	--	--	--
Limagrain																						
LCH08-109	42	36	36	38	89	89	92	90	--	--	--	--	--	--	--	52	--	52	--	--	--	--
LCH08-80	51	41	45	45	108	101	113	107	--	--	--	--	--	--	--	51	--	51	--	--	--	--
LCH09-19	36	42	39	39	77	104	99	93	--	--	--	--	--	--	--	55	--	55	--	--	--	--
LCH09-43	52	46	37	45	110	113	93	105	--	--	--	--	--	--	--	51	--	51	--	--	--	--
LCSMint	46	31	39	39	99	77	100	92	--	--	--	--	--	--	--	55	--	55	--	--	--	--
T153	55	42	34	43	116	102	86	102	57	--	44	--	45	--	--	55	--	55	--	--	--	--
T154	54	42	35	44	114	104	89	102	56	52	43	42	45	41	--	55	--	55	--	--	--	--
T158	46	33	38	39	99	81	98	92	52	--	34	--	47	--	--	54	--	54	--	--	--	--
Oklahoma																						
Billings	43	48	36	42	91	118	91	100	49	48	46	44	48	44	--	56	--	56	--	--	--	--
Centerfield	48	40	39	42	102	99	100	100	49	47	44	43	44	39	--	54	--	54	--	--	--	--
Doublestop CL Plus	51	43	38	44	108	104	96	103	--	--	--	--	--	--	--	57	--	57	--	--	--	--
Duster	42	36	30	36	90	88	77	85	45	47	38	39	40	40	--	53	--	53	--	--	--	--
Endurance	48	39	37	41	102	95	93	97	49	48	42	44	42	40	--	54	--	54	--	--	--	--
Gallagher	46	43	52	47	97	105	132	111	--	--	--	--	--	--	--	55	--	55	--	--	--	--
Garrison	47	39	37	41	99	95	95	96	45	--	33	--	45	--	--	53	--	53	--	--	--	--
Iba	40	42	45	42	84	102	115	100	46	--	44	--	47	--	--	55	--	55	--	--	--	--
Ruby Lee	54	45	44	48	115	111	111	112	53	--	44	--	51	--	--	56	--	56	--	--	--	--
Scott Seed																						
TAM 304	56	40	37	44	118	99	95	104	57	--	42	--	47	--	--	53	--	53	--	--	--	--
Syngenta																						
Art	49	46	34	43	103	113	87	101	43	40	38	39	45	42	--	57	--	57	--	--	--	--
JackPot	39	37	38	38	84	90	98	91	--	--	--	--	--	--	--	54	--	54	--	--	--	--
SY Southwind	42	38	26	35	89	92	66	82	47	--	38	--	41	--	--	53	--	53	--	--	--	--
WestBred																						
Armour	48	42	51	47	102	103	129	111	46	45	31	33	54	48	--	53	--	53	--	--	--	--
WB-4458	61	47	46	51	130	114	117	121	--	--	--	--	--	--	--	56	--	56	--	--	--	--
WB-Cedar	50	39	46	45	107	97	118	107	56	53	52	50	56	47	--	54	--	54	--	--	--	--
WB-Redhawk	52	50	49	50	111	122	125	119	--	--	--	--	--	--	--	55	--	55	--	--	--	--
Averages	47	41	39	42	47	41	39	42	--	--	--	--	--	--	--	54	--	54	--	--	--	--
CV (%)	11	10	10	10	11	10	10	10	--	--	--	--	--	--	--	2	--	2	--	--	--	--
LSD (0.05)*	7	6	6	6	15	14	14	15	--	--	--	--	--	--	--	2	--	2	--	--	--	--

¹ MC = McPherson, KS, McPherson County.

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

³ CW = Conway Springs, KS, Sumner County.

(W) = Hard white wheat.

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

Table 10. 2013 NORTHWEST Kansas dryland winter wheat performance tests

Brand / Name	1 2 3 4					-HA- -CO- -TR-					-HA- -CO- -TR-					-HA- -CO- -TR-										
	HA	CO	TR	WA	Av.	HA	CO	TR	WA	Av.	2yr	3yr	2yr	3yr	2yr	3yr	HA	CO	TR	WA	Av.	HA	CO	TR	Av.	
	yield (bu/a)					% of test average					multiyear av. (bu/a)					tw (lb/bu)					height (in.)					
AGSECO																										
TAM 113	65	29	40	32	41	104	73	129	91	99	64	--	47	--	40	--	63	59	59	60	60	27	18	20	22	
Kansas																										
(W) Clara CL	71	42	45	39	49	114	106	145	112	119	70	--	48	--	43	--	63	59	61	59	61	28	20	22	24	
(W) Danby	64	49	31	41	46	103	122	101	118	111	64	64	56	51	37	40	61	62	61	61	61	28	23	21	25	
1863	62	40	36	31	42	99	99	117	89	101	66	--	50	--	36	--	61	61	60	60	60	28	20	20	24	
Everest	53	38	24	34	37	85	96	79	97	89	59	57	47	43	34	34	60	61	60	60	60	25	19	19	22	
Fuller	56	32	26	29	36	91	81	85	83	85	60	59	47	43	32	37	60	59	58	58	59	28	18	21	23	
KS09H19-2-3	62	40	29	40	43	100	100	95	114	102	--	--	--	--	--	--	61	59	60	59	60	29	21	20	25	
Limagrain																										
LCH08-80	66	44	31	34	44	107	111	99	99	104	--	--	--	--	--	--	62	61	60	58	60	27	20	21	23	
LCSMint	61	53	37	35	47	99	132	121	99	113	--	--	--	--	--	--	63	63	62	60	62	28	23	22	26	
T153	64	33	17	32	36	103	82	54	91	83	66	--	49	--	32	--	61	59	59	59	59	26	18	17	22	
T154	68	36	24	35	41	111	90	77	102	95	69	--	48	--	32	--	61	60	60	59	60	27	19	19	23	
T158	73	37	45	44	50	118	91	145	128	120	66	--	50	--	46	--	61	60	59	59	60	28	18	20	23	
Oklahoma																										
Gallagher	64	40	29	32	41	103	99	94	91	97	--	--	--	--	--	--	61	58	60	60	60	27	20	21	23	
Iba	59	38	38	40	44	95	94	123	115	107	64	--	50	--	38	--	63	61	60	60	61	28	18	21	23	
Ruby Lee	61	34	19	27	35	98	86	62	77	81	62	--	45	--	27	--	62	61	60	59	61	28	20	17	24	
PlainsGold																										
(W) Antero	73	53	43	54	56	119	132	139	156	136	--	--	--	--	--	--	61	61	60	58	60	29	22	21	25	
(W) Thunder CL	64	32	31	32	40	104	80	99	93	94	64	63	47	44	40	44	60	59	59	57	59	26	19	21	22	
Bill Brown	55	42	36	40	43	89	104	117	115	106	60	61	51	49	35	40	60	61	61	59	60	27	20	21	23	
Brawl CL Plus	56	43	35	35	42	90	107	115	102	104	65	64	54	49	37	38	62	61	61	60	61	29	21	22	25	
Byrd	74	44	34	33	46	120	109	112	94	109	70	69	51	48	41	39	60	61	60	58	60	29	20	21	25	
Denali	61	49	39	40	47	98	121	128	115	116	59	59	57	52	36	38	62	61	57	59	60	29	19	22	24	
Hatcher	55	41	37	43	44	89	101	121	123	109	59	61	52	49	32	37	61	61	60	59	60	26	19	20	22	
Scott Seed																										
TAM 304	63	41	29	31	41	101	101	94	89	96	68	66	51	49	38	41	59	59	57	57	58	27	20	18	23	
Syngenta																										
Greer	61	36	23	21	36	99	91	75	62	82	67	66	48	45	31	36	59	59	57	56	58	28	20	19	24	
Postrock	64	40	19	27	37	104	99	60	78	86	68	66	52	47	31	35	61	61	60	59	60	27	20	19	23	
SY Gold	55	33	27	36	38	89	82	88	102	91	--	--	--	--	--	--	61	58	59	58	59	27	19	18	23	
SY Southwind	52	36	29	31	37	84	90	94	89	89	--	--	--	--	--	--	58	59	57	57	58	26	19	19	22	
SY Wolf	60	42	26	43	42	97	104	84	123	102	63	62	55	53	33	35	61	61	60	60	60	28	21	20	24	
TAM 111	62	40	40	38	45	101	100	129	108	109	64	64	50	49	41	42	62	61	60	56	60	29	22	22	26	
WestBred																										
Armour	62	28	30	30	37	100	70	97	86	88	61	61	42	42	33	37	60	59	59	58	59	27	16	18	21	
Deuce	39	28	13	15	24	63	70	44	44	55	--	--	--	--	--	--	60	59	57	51	57	25	19	17	22	
WB-4458	67	38	26	27	40	108	96	84	79	92	--	--	--	--	--	--	61	60	60	57	60	29	21	21	25	
WB-Cedar	58	41	24	36	40	95	102	79	105	95	63	61	55	47	31	33	59	61	57	58	59	24	18	17	21	
WB-Grainfield	72	48	34	35	47	116	121	110	100	112	--	--	--	--	--	--	60	60	59	58	59	29	23	22	26	
WB-Redhawk	67	40	27	25	40	108	99	89	71	92	--	--	--	--	--	--	61	62	60	58	60	29	19	21	24	
Winterhawk	63	45	26	49	45	102	111	84	139	109	68	66	56	52	34	38	62	61	61	57	60	28	22	22	25	
Averages	62	40	31	35	42	62	40	31	35	42	--	--	--	--	--	--	61	60	59	58	60	27	20	20	24	
CV (%)	7	8	12	7	9	7	8	12	7	9	--	--	--	--	--	--	1	2	1	2	1	4	7	7	5	
LSD (0.05)*	9	5	5	4	6	14	12	17	10	13	--	--	--	--	--	--	1	1	1	1	1	2	2	2	2	

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

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

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

⁴ 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 11. 2013 SOUTHWEST Kansas dryland winter wheat performance tests

Brand / Name	¹ LA ² DC ³ GC Av.				-LA- -DC- -GC-				LA DC GC Av.	LA DC GC Av.	LA DC GC Av.	LA DC GC Av.													
	yield (bu/a)		% of test average		multiyear av. (bu/a)								tw (lb/bu)		head (+/- Everest)		height (in.)								
AGSECO																									
TAM 113	38	--	15	27	83	--	95	89	31	--	--	--	57	--	51	54	--	--	-6	-6	--	--	--		
Kansas																									
(W) Clara CL	47	--	21	34	104	--	127	116	36	--	--	--	60	--	58	59	--	--	1	1	--	--	--		
(W) Danby	53	--	17	35	117	--	102	110	37	45	44	42	40	44	60	--	54	57	--	--	0	0	--	--	--
1863	41	--	13	27	90	--	77	83	31	--	--	--	57	--	51	54	--	--	-4	-4	--	--	--		
Everest	45	--	16	31	100	--	97	99	36	44	40	42	46	--	57	--	53	55	--	--	0	0	--	--	--
Fuller	38	--	13	26	85	--	81	83	31	41	--	--	39	41	57	--	56	56	--	--	-3	-3	--	--	--
KS09H19-2-3	44	--	19	31	97	--	117	107	--	--	--	--	58	--	57	57	--	--	-2	-2	--	--	--		
Limagrain																									
LCH08-80	59	--	18	39	131	--	110	120	--	--	--	--	58	--	57	58	--	--	1	1	--	--	--		
LCSMint	42	--	21	31	92	--	130	111	--	--	--	--	59	--	58	59	--	--	0	0	--	--	--		
T153	48	--	18	33	107	--	108	107	39	--	--	--	58	--	56	57	--	--	0	0	--	--	--		
T154	39	--	19	29	87	--	114	101	31	--	--	--	58	--	58	58	--	--	1	1	--	--	--		
T158	43	--	14	29	94	--	89	92	34	--	--	--	57	--	54	56	--	--	1	1	--	--	--		
Oklahoma																									
Deliver	50	--	5	27	110	--	28	69	--	--	--	--	58	--	50	54	--	--	-7	-7	--	--	--		
Duster	47	--	17	32	104	--	104	104	34	--	48	--	57	--	53	55	--	--	-1	-1	--	--	--		
Endurance	55	--	19	37	122	--	118	120	40	46	41	42	47	48	58	--	58	58	--	--	1	1	--	--	--
Gallagher	36	--	15	25	79	--	90	85	--	--	--	--	57	--	54	55	--	--	-4	-4	--	--	--		
Iba	43	--	17	30	95	--	107	101	33	--	--	--	60	--	58	59	--	--	0	0	--	--	--		
Ruby Lee	41	--	11	26	92	--	66	79	35	--	--	--	59	--	50	55	--	--	-3	-3	--	--	--		
PlainsGold																									
(W) Antero	51	--	23	37	112	--	142	127	--	--	--	--	58	--	55	57	--	--	2	2	--	--	--		
(W) Thunder CL	37	--	14	25	81	--	87	84	26	38	40	41	43	--	58	--	53	55	--	--	-1	-1	--	--	--
Bill Brown	46	--	19	33	102	--	119	111	36	47	46	46	49	50	57	--	58	58	--	--	-1	-1	--	--	--
Brawl CL Plus	55	--	15	35	121	--	94	107	39	--	43	--	59	--	59	59	--	--	1	1	--	--	--		
Byrd	45	--	19	32	99	--	117	108	33	--	46	--	56	--	58	57	--	--	1	1	--	--	--		
Denali	33	--	26	29	73	--	159	116	27	--	43	--	57	--	58	58	--	--	-4	-4	--	--	--		
Hatcher	46	--	22	34	101	--	133	117	32	43	43	45	47	51	57	--	57	57	--	--	2	2	--	--	--
Scott Seed																									
TAM 304	53	--	12	32	116	--	73	95	39	--	45	--	56	--	55	55	--	--	1	1	--	--	--		
Sipes Seed																									
BC 98 331-11W	40	--	13	27	88	--	82	85	--	--	--	--	57	--	51	54	--	--	1	1	--	--	--		
Syngenta																									
Greer	49	--	16	33	108	--	98	103	37	--	44	--	56	--	51	54	--	--	-1	-1	--	--	--		
Postrock	46	--	18	32	101	--	113	107	32	40	43	41	48	49	58	--	57	57	--	--	0	0	--	--	--
TAM 111	51	--	15	33	112	--	93	103	35	44	40	42	48	49	57	--	51	54	--	--	-3	-3	--	--	--
TAM 401	36	--	7	22	80	--	44	62	--	--	--	--	55	--	50	52	--	--	0	0	--	--	--		
WestBred																									
Deuce	35	--	11	23	78	--	67	72	--	--	--	--	57	--	55	56	--	--	-4	-4	--	--	--		
WB-4458	52	--	15	33	115	--	90	102	--	--	--	--	58	--	50	54	--	--	-1	-1	--	--	--		
WB-Grainfield	49	--	17	33	109	--	106	108	--	--	--	--	56	--	55	56	--	--	2	2	--	--	--		
Winterhawk	52	--	20	36	114	--	121	118	39	49	47	47	49	50	60	--	60	60	--	--	-1	-1	--	--	--
Averages	45	--	16	31	45	--	16	31	--	--	--	--	58	--	55	56	--	--	-1	-1	--	--	--		
CV (%)	10	--	12	11	10	--	12	11	--	--	--	--	2	--	1	1	--	--	1	1	--	--	--		
LSD (0.05)*	6	--	3	5	14	--	17	16	--	--	--	--	1	--	1	1	--	--	2	2	--	--	--		

¹ LA = Larned, KS, Pawnee County.

² DC = Dodge City, KS, Ford County. Abandoned; dry conditions throughout growing season.

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 12. 2013 WESTERN Kansas irrigated winter wheat performance tests

Brand / Name	CO ¹ GC ² LN ³ Av.				CO GC LN Av.				-CO- 2yr 3yr				-GC- 2yr 3yr				-LN- 2yr 3yr				CO GC LN Av.				CO GC LN Av.									
	yield (bu/a)				% of test average				multiyear av. (bu/a)				tw (lb/bu)				head (+/-Everest)																	
AGSECO																																		
TAM 113	71	59	--	65	81	147	--	114	77	--	64	--	--	--	57	58	--	58	-6	-4	--	-5												
Kansas																																		
(W) Clara CL	93	50	--	72	106	125	--	115	--	--	--	--	--	--	59	61	--	60	-1	1	--	0												
(W) Danby	97	38	--	67	110	95	--	102	85	88	55	--	77	--	58	58	--	58	-3	1	--	-1												
1863	94	35	--	65	108	88	--	98	88	--	49	--	--	--	58	59	--	59	-1	-2	--	-2												
Everest	86	32	--	59	98	79	--	89	79	81	52	--	67	--	58	59	--	58	0	0	--	0												
Fuller	74	37	--	55	84	92	--	88	80	81	46	--	71	--	55	57	--	56	-3	-3	--	-3												
Limagrain																																		
LCH08-80	94	48	--	71	107	119	--	113	--	--	--	--	--	--	59	61	--	60	-1	2	--	1												
LCSMint	100	51	--	76	114	127	--	121	--	--	--	--	--	--	60	61	--	61	-1	2	--	1												
T153	82	46	--	64	94	115	--	104	89	--	56	--	--	--	57	57	--	57	1	-1	--	0												
T154	87	36	--	61	99	88	--	94	90	--	54	--	--	--	58	58	--	58	1	0	--	0												
T158	95	32	--	63	108	80	--	94	99	--	54	--	--	--	59	58	--	58	1	1	--	1												
Oklahoma																																		
Billings	82	34	--	58	93	84	--	89	87	88	57	--	68	--	58	59	--	58	-4	-2	--	-3												
Gallagher	95	31	--	63	108	78	--	93	--	--	--	--	--	--	57	58	--	57	-6	-4	--	-5												
Iba	98	51	--	74	112	126	--	119	95	--	57	--	--	--	59	60	--	60	-4	0	--	-2												
PlainsGold																																		
(W) Antero	104	56	--	80	119	139	--	129	--	--	--	--	--	--	59	60	--	59	-1	2	--	0												
(W) Thunder CL	62	39	--	50	71	96	--	83	74	76	55	--	71	--	55	57	--	56	-4	-3	--	-4												
Brawl CL Plus	87	47	--	67	99	116	--	108	88	89	58	--	80	--	59	59	--	59	0	2	--	1												
Byrd	93	50	--	72	106	124	--	115	81	79	58	--	74	--	58	58	--	58	-3	-1	--	-2												
Denali	94	46	--	70	107	115	--	111	83	85	52	--	69	--	59	57	--	58	-5	-3	--	-4												
Scott Seed																																		
TAM 304	88	30	--	59	101	76	--	88	91	94	54	--	82	--	54	54	--	54	0	1	--	0												
Syngenta																																		
Postrock	81	39	--	60	92	98	--	95	81	84	53	--	--	--	59	57	--	58	-1	-42	--	-21												
SY Gold	79	35	--	57	90	86	--	88	82	88	52	--	--	--	57	58	--	58	-5	0	--	-2												
SY Wolf	83	40	--	62	95	99	--	97	88	--	58	--	--	--	57	59	--	58	-4	-1	--	-2												
TAM 111	86	33	--	60	98	82	--	90	--	--	--	--	--	--	59	59	--	59	-3	0	--	-1												
WestBred																																		
Armour	76	29	--	52	86	71	--	78	69	75	49	--	65	--	55	54	--	54	-2	-2	--	-2												
Deuce	41	35	--	38	47	88	--	67	--	--	--	--	--	--	56	53	--	55	-6	-2	--	-4												
WB-Cedar	87	33	--	60	99	81	--	90	99	98	49	--	78	--	58	55	--	57	0	1	--	0												
Winterhawk	97	34	--	66	110	86	--	98	--	--	--	--	--	--	59	59	--	59	-1	1	--	0												
Averages	86	40	--	63	86	40	--	63	--	--	--	--	--	--	58	58	--	58	-2	-2	--	-2												
CV (%)	6	9	--	7	6	9	--	7	--	--	--	--	--	--	2	2	--	2	1	3	--	2												
LSD (0.05)*	7	4	--	6	8	10	--	9	--	--	--	--	--	--	1	2	--	2	2	4	--	3												

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

² GC = Garden City, KS, Southwest Research-Extension Center, Finney County.

³ LN =Healy, KS, Farmers Field, Lane County. Abandoned: extreme variability.

(W) = Hard white wheat.

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

Table 13. 2013 Planted seed characteristics and Hessian fly ratings

Brand / Name	1000 Seed weight (grams)	Test weight (lb/bu)	Seeds per lb (1000)	Hess. fly ¹ (rating)	Brand / Name	1000 Seed weight (grams)	Test weight (lb/bu)	Seeds per lb (1000)	Hess. fly ¹ (rating)
AGSECO					Denali				
TAM 113	28.5	55.4	15.9	9	Hatcher	39.8	64.3	11.4	1
Georgia					Scott Seed				
GA-031086-10E26	32.3	56.1	14.1	--	TAM 304	29.0	56.7	15.6	1
GA-031257-10LE34	33.3	59.0	13.6	--	Sipes Seed				
GA-04570-10E46	37.0	57.6	12.3	--	BC 98 331-11W	--	--	--	--
Kansas					Syngenta				
(W) Clara CL	25.8	62.6	17.6	4	Art	27.5	57.5	16.5	3
(W) Danby	25.8	63.6	17.6	9	CJ	30.0	56.5	15.1	1
1863	29.0	60.8	15.6	9	Greer	37.0	58.2	12.3	3
Everest	30.3	60.9	15.0	3	JackPot	33.8	58.7	13.4	3
Fuller	34.0	59.0	13.3	9	Postrock	28.3	57.6	16.1	1
KS09H19-2-3	35.8	62.7	12.7	--	SY Gold	29.5	60.7	15.4	3
Limagrain					WestBred				
LCH08-109	24.3	51.3	18.7	--	Armour	27.3	59.5	16.7	1
LCH08-80	36.0	57.8	12.6	--	Deuce	34.5	61.5	13.2	9
LCH09-19	26.8	52.9	17.0	--	Santa Fe	27.3	59.2	16.7	9
LCH09-43	33.8	52.3	13.4	--	WB-4458	43.3	57.6	10.5	9
LCS08-12	27.0	53.4	16.8	--	WB-Cedar	47.5	56.1	9.6	9
LCSMint	42.3	62.8	10.7	9	WB-Grainfield	34.5	58.2	13.2	9
T153	44.0	56.5	10.3	9	WB-Redhawk	35.5	65.1	12.8	9
T154	35.0	56.7	13.0	3	Winterhawk	37.3	60.4	12.2	1
T158	40.5	59.5	11.2	3	Maximum	47.5	65.1	21.9	
MFA					Minimum				
(S) 2135	40.0	60.6	11.3	1	Average				
(S) 2166	32.5	56.2	14.0	1					
(S) 2525	39.5	58.8	11.5	1					
Oklahoma									
Billings	38.8	58.1	11.7	1					
Centerfield	36.0	58.5	12.6	3					
Deliver	35.3	60.4	12.9	9					
Doublestop CL Plus	30.5	56.5	14.9	--					
Duster	20.8	55.6	21.9	1					
Endurance	35.0	59.5	13.0	4					
Gallagher	33.5	56.4	13.5	1					
Garrison	31.3	56.9	14.5	9					
Iba	27.8	58.6	16.4	9					
Ruby Lee	39.0	56.8	11.6	1					
Pioneer									
(S) 25R30	40.5	57.0	11.2	1					
(S) 25R32	35.3	55.3	12.9	1					
(S) 25R39	33.8	56.9	13.4	1					
PlainsGold									
(W) Antero	--	--	--	5					
(W) Thunder CL	28.8	56.3	15.8	5					
Bill Brown	39.0	64.5	11.6	8					
Brawl CL Plus	41.3	62.9	11.0	9					
Byrd	34.5	62.7	13.2	5					

¹ Hessian fly ratings by Ming Chen, USDA, Jeff Whitworth, K-State Entomology; 1-Highly resistant; 5-Intermediate; 7-Moderately susceptible; 9-Highly susceptible. Ratings are based on greenhouse results with Kansas (Great Plains) biotype of Hessian fly.

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

2013 National Winter Canola Variety Trial

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Objectives

The objectives of the National Winter Canola Variety Trial (NWCVT) are to evaluate the performance of released and experimental varieties, determine where these varieties are best adapted, and increase visibility of winter canola across the nation. Breeders, marketers, and producers use data collected from the trials. In the past decade, the number of environments and entries tested have increased. The NWCVT is planted at locations in the Great Plains, Midwest, northern U.S., and Southeast.

Procedures

Seed for the NWCVT was distributed to 40 cooperators in 22 states for the 2012-2013 growing season. Of the 50 entries, 24 are commercially available and 26 are experimental. These entries were provided by 11 global seed suppliers. All entries in the trial were treated with either Helix XTra or Prosper FX seed treatments to control insects and diseases through the late fall and early winter months.

All trials were planted in small research plots (150 ft²) with three replications. Cultural practices, site descriptions, growing conditions, and performance data are provided for each harvested location. Yield results for some locations include 2-year summaries. Results are listed alphabetically by seed supplier.

2012-2013 Growing Conditions

Temperature and precipitation data are shown 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 “12-13” represents actual precipitation. If weather data were not provided, they were taken from a nearby town.

In general, the 2012-2013 growing season saw above-normal temperatures and normal to below-normal precipitation. Several rounds of late spring freezes reduced plant height and delayed the crop at some locations. A cooler than normal May provided ideal conditions for grain fill and resulted in high test weights.

Test Sites and Results

Of the seven NWCVT sites planted in Kansas, four were harvested. Three trials are included in this report: Andale, Belleville, and Hutchinson. Garden City was harvested but suffered winterkill, multiple late spring freezes, and severe hail. Kiowa did not establish because of dry soils last fall. Manhattan was not harvested because of

variability in plant stands. Yield potential was reduced at Marquette because of an early fall freeze and a slow warm up in the spring.

The “percentage of test average” yield calculation is included in this year’s results. This relative yield calculation allows for some comparison of performance across environments. Entries yielding more than 100 percent of the test average across multiple locations merit some consideration.

Overall, yields were above average where moisture was not limited at planting. All sites averaged over 2,000 lb/acre. Belleville’s two-year average is 3,500 lb/acre. Hutchinson recovered extremely well from the late spring freezes. Canola weighs 50 lb/bushel, so a 2,000 lb/acre yield is 40 bushels/acre.

Variety Selection

Winter hardiness is an important trait to consider when selecting a winter canola variety. This trait has been improved over the past several years, but variability still exists where differential winterkill occurs. Winter canola varieties should show consistent survival across multiple years and locations. Other traits to consider include herbicide resistance, tolerance to carryover from sulfonylurea herbicides, maturity, disease tolerance, and yield potential. Use more than one year of data to make an informed variety selection decision.

Some sites include High Erucic Acid Rapeseed (HEAR). By definition, HEAR is not canola because it produces greater than 2% erucic acid in the processed oil. The harvested seed cannot be mixed with canola

seed, and the oil can be used for industrial purposes only. If HEAR is commercially grown, it will be under contract and a delivery point must be identified before planting. View Table 1 for seed sources, brand names, and traits of the winter canola varieties and hybrids grown in the NWCVT.

Acknowledgments

This work was funded in part by the Supplemental and Alternative Crops Competitive Grants Program, which is administered by the U. S. Department of Agriculture-National Institute of Food and Agriculture, and the Kansas Agricultural Experiment Station. Assistant scientist Scott Dooley and student workers Emma Gantz, Jessica Martin, and Baylee Showalter assisted with organizing, packaging, planting, harvesting, and data collection. Sincere appreciation is expressed to all participating researchers and seed suppliers who have a vested interest in expanding winter canola acres and increasing production in the USA.

Table 1. Seed sources for entries in the 2012-2013 National Winter Canola Variety Trial

Developer / Marketer	Type ¹	Trait ^{2,3}	Release Date	Maturity ⁴	Developer / Marketer	Type ¹	Trait ^{2,3}	Release Date	Maturity ⁴
Kansas State University Canola Breeding Program Michael J. Stamm (mjstamm@ksu.edu)					DuPont Pioneer William McClure (william.mcclure@pioneer.com)				
KS4428	OP	---	---	M	46W94	Hyb	RR	2011	M
KS4475	OP	---	---	M	46W99	Hyb	RR	2011	M
KSUR21	OP	SU	---	F	PT211	Hyb	---	---	M
KSR07363	OP	RR	---	M	X10W443C	Hyb	---	---	M
Riley	OP	---	2010	M	X10W665C	Hyb	SD	---	F
Sumner	OP	SU	2003	E	X12W377C	Hyb	SD	---	F
Wichita	OP	---	1999	M					
DL Seeds Inc. (Developer) Kevin McCallum (kevin.mccallum@dlseeds.ca)					Syngenta Patrick.Carruthers@SYNGENTA.COM				
Rubisco Seeds LLC (Marketer) Claire Caldbeck (info@rubiscoseeds.com)					NK PETROL Hyb --- --- M				
Baldur	Hyb	---	2004	M	NK Technic	Hyb	---	---	M
Dimension	Hyb	---	2008	E	Gladius	Hyb	---	---	M
Dynastie	Hyb	---	2007	F	SY Regata	Hyb	---	---	E
Edimax	Hyb	CL	2012	M					
Flash	Hyb	---	2007	F	CROPLAN by WinField Mark Torno (Mtorno@landolakes.com)				
Hornet	Hyb	---	2008	M	HyClass 115W	OP	RR/SURT	2008	E
Inspiration	Hyb	---	---	M	HyClass 125W	OP	RR/SURT	2010	M
NPZ 1005	Hyb	---	---	M					
Rumba	Hyb	---	---	M	Virginia State University Agricultural Experiment Station Dr. Harbans Bhardwaj (hbhardwj@vsu.edu)				
Safran	Hyb	---	2008	M	Virginia	OP	---	2003	M
Sitro	Hyb	---	2007	M	VSX-3	OP	---	---	M
Visby	Hyb	---	2008	M					
High Plains Crop Development Dr. Charlie Rife (charlie@highplainscd.com)					Technology Crops International Jeff Riddle (jriddle@techcrops.com)				
Claremore	OP	IMI	2011	F	Rossini	H	HEAR	2009	E
HPX-7228	OP	---	---	E	TCI16	H	HEAR	---	E
HPX-7341	OP	---	---	M	TCI17	H	HEAR	---	M
					TCI/F13	H	---	---	M
MOMONT, France Dr. Thierry Momont (tmomont@momont.com)									
Chrome	Hyb	---	2010	M	¹ OP = open pollinated, Hyb = hybrid				
MH07J14	Hyb	---	---	M	² SU & SURT = sulfonylurea carryover tolerant; CL = Clearfield (imidazolinone resistant); IMI = imidazolinone carryover tolerant; RR = Roundup Ready; SD = semi dwarf				
MH09E3	Hyb	---	---	E	³ 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.				
MH09H19	Hyb	---	---	M	⁴ E = Early; M = Medium; F = Full				
Monsanto / DEKALB James Bosch (james.c.bosch@monsanto.com)									
DKW41-10	OP	RR	2008	E					
DKW44-10	OP	RR	2009	M					
DKW46-15	OP	RR/SURT	2008	M					
DKW47-15	OP	RR/SURT	2008	F					

Andale, Kansas

Brent Gruenbacher and Mike Patry

Planted: 9/18/2012 at 5 lb/a in 9-in. rows
 Swathed: 6/13/2013
 Harvested: 6/22/2012
 Irrigation: None
 Soil Test: NA
 Soil Type: Blanket silt loam
 Elevation: 1393 ft Latitude: 37° 47'N
 Comments: Spotty stands caused by fallow sorghum residue. The canola compensated well and produced exceptional yields.

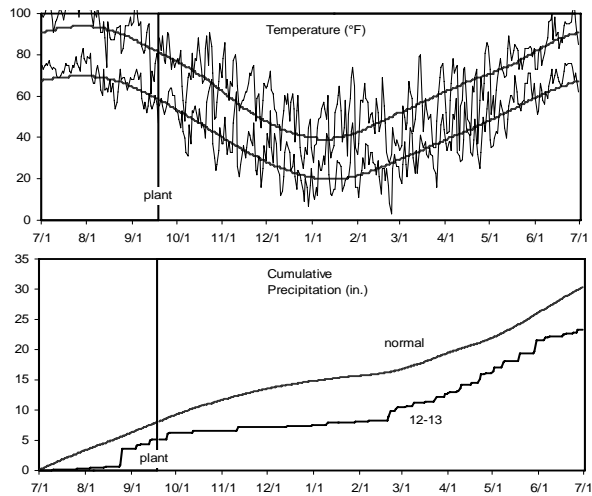


Table 2. Results for the 2013 National Winter Canola Variety Trial at Andale, KS

Name	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Fall stand	Plant height	Moisture	Test weight	Oil
	2013	2012	2-yr.	2013	2013	2012	2-yr.	(0-10)	(in.)	(%)	(lb/bu)	(%)	
CROPLAN by WinField													
HyCLASS115W	2892	---	---	99	---	---	---	7	49	8.7	50.6	---	
HyCLASS125W	2614	---	---	90	---	---	---	6	51	8.8	47.2	---	
DL Seeds Inc. / Rubisco Seeds LLC													
Baldur	2950	---	---	101	---	---	---	6	49	9.7	50.3	---	
Dimension	3078	---	---	105	---	---	---	5	47	8.6	48.8	---	
Dynastie	2858	---	---	98	---	---	---	5	53	9.5	46.6	---	
Flash	2730	---	---	94	---	---	---	6	55	9.1	48.3	---	
Hornet	2416	---	---	83	---	---	---	6	51	8.8	49.9	---	
Safran	2799	---	---	96	---	---	---	6	53	8.9	48.8	---	
Sitro	3032	---	---	104	---	---	---	7	52	8.6	49.0	---	
Visby	2834	---	---	97	---	---	---	5	46	9.0	50.9	---	
DuPont Pioneer													
46W94	3148	---	---	108	---	---	---	7	51	8.5	48.8	---	
46W99	2950	---	---	101	---	---	---	5	49	8.7	48.3	---	
Kansas State University													
Riley	2823	---	---	97	---	---	---	6	52	8.3	47.5	---	
Sumner	2590	---	---	89	---	---	---	6	51	8.2	48.5	---	
Wichita	3067	---	---	105	---	---	---	6	51	8.9	50.2	---	
MOMONT													
CHROME	3380	---	---	116	---	---	---	4	51	8.8	51.4	---	
Monsanto / DEKALB													
DKW41-10	2590	---	---	89	---	---	---	8	46	8.3	51.9	---	
DKW44-10	2823	---	---	97	---	---	---	7	49	8.4	48.8	---	
DKW46-15	2776	---	---	95	---	---	---	6	47	8.0	48.1	---	
DKW47-15	2544	---	---	87	---	---	---	5	51	10.1	48.5	---	
Syngenta													
Gladius	3287	---	---	113	---	---	---	6	51	8.9	50.6	---	
NK PETROL	3218	---	---	110	---	---	---	5	50	9.4	49.6	---	
NK Technic	3438	---	---	118	---	---	---	7	47	8.4	49.4	---	
SY Regata	3194	---	---	109	---	---	---	5	49	9.0	48.2	---	
Mean	2918	---	---	---	---	---	---	6	50	8.8	49.2	---	
CV	10	---	---	---	---	---	---	21	9	5.9	4.6	---	
LSD (0.05)	473	---	---	---	---	---	---	2	NS	0.9	NS	---	

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.

Belleville, Kansas

Randall Nelson
Kansas State University

Planted: 9/6/2012 at 5 lb/a in 9-in. rows
Swathed: 6/26/2013
Harvested: 7/2/2013
Irrigation: None
Soil Test: NA
Soil Type: Crete silt loam
Elevation: 1530 ft Latitude: 39° 48'N
Comments: Ideal weather at seed fill resulted in excellent yields. No negative effects from late freezes.

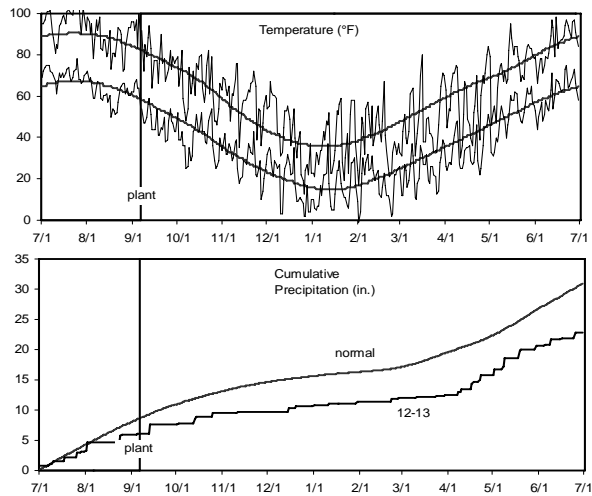


Table 3. Results for the 2013 National Winter Canola Variety Trial at Belleville, KS

Name	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Fall stand	Plant Vigor	Plant height	Moisture	Oil
	2013	2012	2-yr.	2013	2013	2012	2-yr.	(0-10)	(1-5)	(in.)	(%)	(%)	
Bayer CropScience													
RG29101	2985	---	---	101	---	---	---	8	4	47	6.9	---	
RG29102	2985	---	---	101	---	---	---	8	3	47	7.0	---	
CROPLAN by WinField													
HyClass 115W	2509	3552	3031	85	---	---	---	8	3	47	7.0	---	
HyClass 125W	2939	3725	3332	99	---	---	---	9	3	49	6.6	---	
DL Seeds Inc. / Rubisco Seeds LLC													
Baldur	3160	3689	3424	107	---	---	---	8	3	47	7.1	---	
Dimension	3090	---	---	104	---	---	---	7	3	49	7.3	---	
Dynastie	3043	4328	3686	103	---	---	---	6	3	51	7.1	---	
Edimax	2892	---	---	98	---	---	---	8	4	52	6.8	---	
Flash	2904	3765	3334	98	---	---	---	8	4	51	7.2	---	
Hornet	2811	3804	3308	95	---	---	---	7	4	47	7.0	---	
Inspiration	3020	---	---	102	---	---	---	8	5	50	6.9	---	
NPZ 1005	3403	4846	4125	115	---	---	---	9	5	49	7.1	---	
Rumba	3090	4382	3736	104	---	---	---	9	5	45	7.1	---	
Safran	3078	4392	3735	104	---	---	---	5	3	51	6.9	---	
Sitro	2985	3892	3439	101	---	---	---	5	4	46	7.0	---	
Visby	3136	4174	3655	106	---	---	---	8	3	47	7.2	---	
DuPont Pioneer													
46W94	3113	4249	3681	105	---	---	---	8	3	46	7.0	---	
46W99	2881	3851	3366	97	---	---	---	6	3	45	7.3	---	
PT211	3194	---	---	108	---	---	---	9	5	47	7.1	---	
X10W443C	3659	---	---	124	---	---	---	9	3	47	7.2	---	
X10W665C	3299	---	---	112	---	---	---	9	4	47	7.1	---	
X12W377C	3276	---	---	111	---	---	---	5	3	46	7.1	---	
High Plains Crop Development													
Claremore	2707	3040	2873	92	---	---	---	9	3	50	7.2	---	
HPX-7228	2916	3768	3342	99	---	---	---	7	4	45	6.8	---	
HPX-7341	2753	3910	3331	93	---	---	---	8	4	50	7.0	---	
Kansas State University													
KS4428	2497	4029	3263	84	---	---	---	2	2	49	7.3	---	
KS4476	2916	---	---	99	---	---	---	7	2	53	7.6	---	
KSR07363	2788	---	---	94	---	---	---	7	2	45	6.9	---	
KSUR21	2799	---	---	95	---	---	---	6	2	53	7.4	---	
Riley	2974	4310	3642	101	---	---	---	8	3	51	7.2	---	
Sumner	2451	4063	3257	83	---	---	---	7	2	47	7.3	---	
Wichita	2753	3470	3112	93	---	---	---	8	2	47	6.9	---	

Table 3 continued. Results for the 2013 National Winter Canola Variety Trial at Belleville, KS

Name	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Fall stand	Vigor	Plant height	Moisture	Oil
	2013	2012	2-yr.	2013	2013	2012	2-yr.	(0-10)	(1-5)	(in.)	(%)	(%)	
MOMONT													
CHROME	3543	4663	4103	120	---	---	---	8	3	47	7.2	---	
MH07J14	3113	4767	3940	105	---	---	---	8	4	49	7.2	---	
MH09E3	3183	---	---	108	---	---	---	8	3	43	6.8	---	
MH09H19	2939	4719	3829	99	---	---	---	7	4	47	7.6	---	
Monsanto / DEKALB													
DKW41-10	2219	3332	2775	75	---	---	---	9	3	39	6.1	---	
DKW44-10	2869	4296	3583	97	---	---	---	9	3	47	7.0	---	
DKW46-15	2346	3650	2998	79	---	---	---	8	3	46	6.2	---	
DKW47-15	2463	3923	3193	83	---	---	---	9	3	49	6.8	---	
Syngenta													
Gladius	3148	---	---	106	---	---	---	8	3	47	7.1	---	
NK Technic	3345	---	---	113	---	---	---	8	4	51	7.3	---	
NK_PETROL	3264	---	---	110	---	---	---	8	4	51	7.2	---	
SY Regata	3287	---	---	111	---	---	---	7	4	49	7.3	---	
Technology Crops International													
Rossini	2765	4306	3535	93	---	---	---	8	4	42	6.7	---	
TCI/F13	2834	---	---	96	---	---	---	9	5	49	7.1	---	
TCI16	2974	---	---	101	---	---	---	9	5	47	7.2	---	
TCI17	3090	---	---	104	---	---	---	8	4	51	7.1	---	
Virginia State University													
Virginia	2869	3948	3409	97	---	---	---	9	3	46	7.2	---	
VSX-3	2625	4228	3426	89	---	---	---	9	4	46	7.0	---	
Mean	2958	3978	3468	---	---	---	---	8	3	48	7.1	---	
CV	8	11	10	---	---	---	---	11	22	8	5.3	---	
LSD (0.05)	384	735	560	---	---	---	---	1	1	6	0.6	---	

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.

Hutchinson, Kansas

Gary Cramer
Kansas State University

Planted: 9/17/2012 at 5 lb/a in 9-in. rows
 Swathed: 6/14/2013
 Harvested: 6/20/2013
 Irrigation: None
 Previous Crop: Wheat
 Soil Test: NA
 Soil Type: Funmar-Taver loam
 Elevation: 1570 ft Latitude: 37° 57'N
 Comments: The canola responded favorably after the late spring freezes. Ideal weather at seed fill resulted in very good yields.

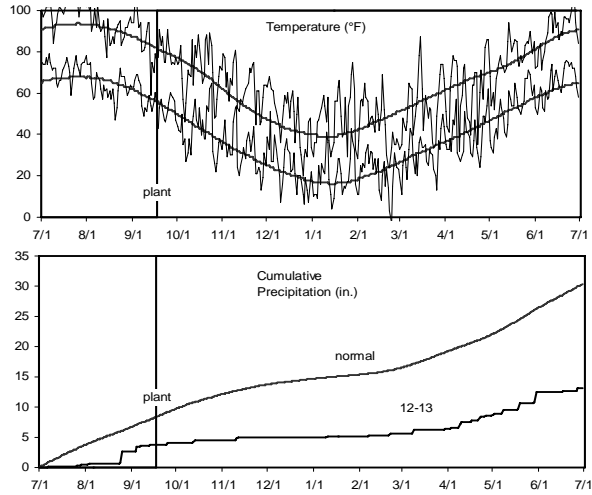


Table 4. Results for the 2013 National Winter Canola Variety Trial at Hutchinson, KS

Name	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Fall stand	Moisture	Test		
	2013	2012	2-yr.	2013	2013	2012	2-yr.	(0-10)	(%)	weight	Protein	Oil	
											(lb/bu)	(%)	(%)
Bayer CropScience													
RG29101	2063	---	---	97	---	---	---	8	11.8	---	---	---	---
RG29102	2162	---	---	102	---	---	---	8	10.2	---	---	---	---
CROPLAN by WinField													
HyClass 115W	1889	---	---	89	---	---	---	8	10.5	---	---	---	---
HyClass 125W	1723	---	---	81	---	---	---	7	10.7	---	---	---	---
DL Seeds Inc. / Rubisco Seeds LLC													
Baldur	2172	---	---	103	---	---	---	6	11.3	---	---	---	---
Dimension	2138	---	---	101	---	---	---	5	10.7	---	---	---	---
Dynastie	2067	---	---	98	---	---	---	5	11.7	---	---	---	---
Edimax	1882	---	---	89	---	---	---	7	11.0	---	---	---	---
Flash	1688	---	---	80	---	---	---	8	11.9	---	---	---	---
Hornet	2125	---	---	100	---	---	---	6	11.2	---	---	---	---
Inspiration	2085	---	---	98	---	---	---	7	10.9	---	---	---	---
NPZ 1005	2381	---	---	112	---	---	---	7	9.5	---	---	---	---
Rumba	1863	---	---	88	---	---	---	8	10.7	---	---	---	---
Safran	2179	---	---	103	---	---	---	4	11.4	---	---	---	---
Sitro	1749	---	---	83	---	---	---	6	10.5	---	---	---	---
Visby	2079	---	---	98	---	---	---	6	9.2	---	---	---	---
DuPont Pioneer													
46W94	2201	---	---	104	---	---	---	7	10.5	---	---	---	---
46W99	2114	---	---	100	---	---	---	4	10.2	---	---	---	---
PT211	2395	---	---	113	---	---	---	7	9.5	---	---	---	---
X10W443C	2765	---	---	131	---	---	---	8	11.1	---	---	---	---
X10W665C	3260	---	---	154	---	---	---	8	11.1	---	---	---	---
X12W377C	2556	---	---	121	---	---	---	5	10.6	---	---	---	---
High Plains Crop Development													
Claremore	1850	---	---	87	---	---	---	8	10.9	---	---	---	---
HPX-7228	1874	---	---	88	---	---	---	6	9.7	---	---	---	---
HPX-7341	1826	---	---	86	---	---	---	8	9.1	---	---	---	---
Kansas State University													
KS4428	1902	---	---	90	---	---	---	2	11.7	---	---	---	---
KS4476	2308	---	---	109	---	---	---	6	11.4	---	---	---	---
KSR07363	1885	---	---	89	---	---	---	7	9.6	---	---	---	---
KSUR21	1852	---	---	87	---	---	---	3	11.2	---	---	---	---
Riley	2035	---	---	96	---	---	---	8	10.0	---	---	---	---
Sumner	1677	---	---	79	---	---	---	7	10.5	---	---	---	---
Wichita	1784	---	---	84	---	---	---	7	10.8	---	---	---	---

Table 4 continued. Results for the 2013 National Winter Canola Variety Trial at Hutchinson, KS

Name	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Fall stand	Moisture	Test		Oil
	2013	2012	2-yr.	2013	2013	2012	2-yr.	(0-10)	(%)	(lb/bu)	Protein (%)	(%)	
MOMONT													
CHROME	2807	---	---	133	---	---	---	7	11.0	---	---	---	
MH07J14	2543	---	---	120	---	---	---	8	11.5	---	---	---	
MH09E3	2653	---	---	125	---	---	---	7	11.3	---	---	---	
MH09H19	2151	---	---	102	---	---	---	8	10.2	---	---	---	
Monsanto / DEKALB													
DKW41-10	1462	---	---	69	---	---	---	8	9.8	---	---	---	
DKW44-10	1877	---	---	89	---	---	---	8	10.2	---	---	---	
DKW46-15	1653	---	---	78	---	---	---	8	9.9	---	---	---	
DKW47-15	1756	---	---	83	---	---	---	7	10.2	---	---	---	
Syngenta													
Gladius	2322	---	---	110	---	---	---	7	9.9	---	---	---	
NK PETROL	2523	---	---	119	---	---	---	6	10.5	---	---	---	
NK Technic	2729	---	---	129	---	---	---	7	10.7	---	---	---	
SY Regata	2378	---	---	112	---	---	---	5	9.6	---	---	---	
Technology Crops International													
Rossini	1755	---	---	83	---	---	---	7	9.6	---	---	---	
TCI/F13	1910	---	---	90	---	---	---	8	10.8	---	---	---	
TCI16	1963	---	---	93	---	---	---	7	10.7	---	---	---	
TCI17	2115	---	---	100	---	---	---	8	11.6	---	---	---	
Virginia State University													
Virginia	2593	---	---	122	---	---	---	8	10.9	---	---	---	
VSX-3	2183	---	---	103	---	---	---	8	10.8	---	---	---	
Mean	2118	---	---	---	---	---	---	7	10.6	---	---	---	
CV	14	---	---	---	---	---	---	12	8.0	---	---	---	
LSD (0.05)	482	---	---	---	---	---	---	1	1.4	---	---	---	

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.

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