

2018 KANSAS

WHEAT SEED BOOK



*Kansas Crop
Improvement Association*

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**KANSAS PERFORMANCE
TESTS WITH WINTER WHEAT
VARIETIES AND CANOLA**

REPORTS OF PROGRESS 1143 and 1141

Kansas State University Agricultural
Experiment Station and Cooperative
Extension Service

KANSAS CERTIFIED SEED

DIRECTORY of producers of field
crops including wheat, spring oats,
triticale, rye, canola, and winter barley



TABLE OF CONTENTS

KANSAS PERFORMANCE TESTS WITH WINTER WHEAT VARIETIES

2018 WHEAT CROP REVIEW	5
Weather and Crop Development, Diseases, and Insects	
2018 PERFORMANCE TESTS	7
Harvest Statistics, Acreage Distribution, Varieties, Results and Variety Characterization, Electronic Access, Research and Duplication Policy, and Contributors	
Private Entrants	Table 1..... 8
Comparisons of Leading Winter Wheat Varieties	Table 2..... 9
Site Descriptions and Management	Table 3..... 10
Northeast Dryland Test	Table 4..... 11
Southeast Dryland Tests	Table 5..... 12
Southeast Soft Test	Table 6..... 13
North Central Dryland Tests	Table 7..... 14
Central Dryland Tests	Table 8..... 15
South Central Dryland Tests	Table 9..... 16
Northwest Dryland Tests	Table 10..... 18
Southwest Dryland Tests	Table 11..... 19
Western Irrigated Tests	Table 12..... 20
Excerpts from the 2018 National Winter Canola Trial	21
Objectives, Procedures, Growing Conditions, Test Sites and Results Variety Selection, Acknowledgements	
Manhattan, Kansas open-pollinated	Table 1 22
Manhattan, Kansas hybrid cultivars	Table 2 23
Norwich, Kansas open-pollinated	Table 3 24
Norwich, Kansas hybrid cultivars	Table 4 25
Seed sources for entries	Table 5 26

KANSAS CERTIFIED SEED DIRECTORY

KCIA Directors, Officers & Staff, Plant Variety Protection	27			
Hard Red Winter Wheat	28			
1863..... 28	Everest..... 31	LCS Fusion AX..... 36	SY Benefit..... 38	TAM 204..... 41
6452018..... 28	Gallagher..... 32	LCS Link..... 36	SY Flint..... 38	Tatanka..... 41
AG Gallant..... 28	Greer..... 33	LCS Mint..... 36	SY Grit..... 38	Underwood..... 42
AG Icon..... 29	Hatcher..... 33	LCS Pistol..... 36	SY Legend CL2..... 39	WB-Cedar..... 42
AG Robust..... 29	Iba..... 33	Lonerider..... 37	SY Llano..... 39	WB-Grainfield..... 42
AM Eastwood..... 29	Jackpot..... 33	Long Branch..... 37	SY Monument..... 39	WB-Redhawk..... 42
AP503 CL2..... 29	Jagger..... 33	NE10589..... 37	SY Rugged..... 39	WB4269..... 42
Avery..... 29	KanMark..... 33	Oakley CL..... 37	SY Sunrise..... 40	WB4303..... 43
Bentley..... 30	Karl 92..... 33	Overley..... 37	SY Wolf..... 40	WB4418..... 43
Bob Dole..... 30	Langin..... 33	Paradise..... 37	T154..... 40	WB4458..... 43
Brawl CL Plus..... 30	Larned..... 33	PostRock..... 37	T158..... 40	WB4462..... 43
Byrd..... 30	Larry..... 33	Smiths Gold..... 37	TAM 111..... 41	WB4515..... 43
Denali..... 30	LCH14-0089..... 34	Spirit Rider..... 37	TAM 112..... 41	WB4721..... 43
Doublestop CL Plus..... 30	LCS Avenger..... 34	SY 517 CL2..... 37	TAM 113..... 41	Winterhawk..... 43
Duster..... 31	LCS Chrome..... 34	SY Achieve CL2..... 38	TAM 114..... 41	Zenda..... 44
Hard White Winter Wheat	45			
Antero..... 45	Bakers White..... 45	Clara CL..... 45	Joe..... 45	LCS Yeti..... 46
Aspen..... 45	Breck..... 45	Danby..... 45		
Other Crops - Barley, Oats, Rye, Soft Red Wheat, Canola	46			
KCIA Approved Conditioners	48, 49			

2018 WHEAT CROP REVIEW

Weather and Crop Development

The 2017-18 winter wheat growing season tested the resiliency of the winter wheat crop in Kansas from its start until its end. In fact, the sentence “Wheat has nine lives” was thoroughly put to the test due to different, subsequent, uncontrollable, environmental challenges to which the crop was exposed.

Fall and winter challenges

The growing season started with extremely dry months during August and September, which resulted in lack of soil moisture holding back producers who often plant wheat early. As a consequence, only about 20% of the wheat crop was planted by late September 2017. This dry period was followed by a very wet period during late September and early-to-mid October, when the state received anywhere from 2 to 7 inches of precipitation, with the exception of the far southwest corner of the state which received virtually zero rainfall during the period. The cool temperatures, coupled with excessive rainfall observed during this period, made it challenging for producers to continue their planting operations, resulting in the slowest sowing progress of the wheat crop in Kansas since 1994. By October 10, when sowing progress is historically around 75%, only around 35% of the wheat crop had been sown. Thus, the majority of the Kansas wheat crop was planted relatively late. Additionally, the excessive rainfall caused waterlogging in some of the early-sown fields, which resulted in the need for re-planting. After the early October rains, the rest of the fall was extremely dry and fields planted too late (for instance, several weeks after the last rainfall event) resulted in scattered stands.

The late sowing of the crop was followed by a quick onset of cold temperatures in late October, which severely limited the fall tillering potential of the 2017-18 wheat crop. The majority of the crop sown after the October rainfall events went into winter dormancy with the main stem and one or two tillers, which decreased the crop’s ability to handle cold winter temperatures. There were two extremely cold events during the winter that caused some winterkill in localized parts of the state, the first during January 1 and the second during January 13-15. While some tiller loss and winterkill occurred, this was not nearly as widespread or severe as winterkill experienced in previous years (for example, the temperature drop during November 2014).

One benefit from dry soils during late summer is that volunteer wheat emergence during this period was minimal. In fact, the majority of the volunteer wheat emerged together with the new crop after the early-October precipitation. Late-emerged volunteer wheat acts similar to a planted crop when it comes to hosting diseases and pests, such as the wheat curl mite which transmits wheat streak mosaic virus. Lack of volunteer crop emergence, coupled with cool fall temperatures, could be

among the reasons why there was low incidence and severity of wheat streak mosaic virus during the 2017-18 winter wheat growing season.

Spring challenges

The first and foremost challenge experienced by the wheat crop during the spring of 2018 was prolonged and severe drought stress. After the October precipitation, parts of central Kansas did not receive any precipitation until late March; other parts towards mid-to-late April, and many regions of the state, especially southwest Kansas, did not receive measurable precipitation until early to mid-May. These rainfall events were very sparse and spotty across the region, resulting in similar pattern to the wheat crop. The lack of precipitation had direct consequences on crop’s response to applied inputs such as N, as the fertilizer likely did not make it into the root zone until later during crop development.

This prolonged drought was coupled with below-normal temperatures until late April, when temperatures ranged from 5 to 9°F below normal. This combination slowed down crop development, resulting in a crop that was anywhere from two to four weeks behind in its normal course. For instance, while the wheat is typically around the boot stages of development in the northwest part of the state during early May; it was still at the jointing stages this growing season. Similarly, the wheat crop in south central Kansas is typically flowering through early grain fill during this time period, and was still at the boot stage of development during the 2017-18 growing season.

The delayed development of the crop may have helped withstand two freeze events that happened April 7 and April 16, when temperatures as low as 7°F were measured. These freeze events had the potential to cause severe damage to the crop, especially in the southeast, south central, and central parts of the state. Some freeze damage was observed in the entire area spanning the counties in between McPherson County in the northeast corner of the affected area through Barber County in the southwest corner. The signs of freeze damage were not the usual damaged heads: instead, we observed a much denser lower canopy as compared to a thinner upper canopy as a result of tiller abortion due to cold temperature stress. This difference in symptoms likely occurred because the crop was not far along in development when the freeze event occurred.

One of the coldest Aprils on record was followed by one of the warmest Mays on record. Average temperatures during May were 5 to 9°F above normal, which accelerated crop development towards the later phase of the growing season. In fact, the crop went from being 2 to 4 weeks behind in development during early May to being as much as about 5 days ahead of schedule in early June. High



temperatures compressed the reproductive phase of the crop, resulting in likely less than 30 days of grain filling period for the majority of the state. This compares to over 40 days of grain filling during both 2016 and 2017 harvest years, and helps justify the lower grain yield achieved in 2018. Not only were the entire months of May and June above-normal in temperature, but a couple of extreme heat events also damaged the crop by hastening senescence. The period between May 23 and 28 had as many as 17 hours above 90°F and prematurely decreased the crop's green leaf area especially in central and north central Kansas. This caused the crop in north central Kansas to be harvested virtually at the same time as the crop in south central Kansas. Later, during June, another extreme heat event accelerated crop development in northwest Kansas.

Grain yield, test weight, and protein

Grain yield was very variable across Kansas due to the high variability in weather conditions. Producers reported anywhere from low teens to upper 70s for dryland production, with the majority of the reports around 25-40 bu/a. Crop rotation had a large effect on grain yield during this growing season. In the western part of the state, the crop following a fallow period had much greater yield potential as compared to a crop grown as continuous wheat or in other rotations with a shortened fallow period. Similarly, in central Kansas, yields following a soybean crop were reduced when compared to continuous wheat or even following a corn crop. The effects of crop rotation during this growing season were likely greater than usual due to the prolonged drought conditions during fall and spring. Surprisingly, test weights were usually maintained about 60 lbs/bu or above, despite the extreme heat during May. Protein concentration was typically high (above 12-13%), likely due to the decreased yield. (Romulo Lollato, Kansas State University Extension Wheat Specialist, and Mary Knapp, Kansas State University Climatologist.)

Diseases

Diseases had a minor influence on the productivity of the wheat crop in 2018. Dry conditions dominated much of the early growing season and this slowed the development of stripe rust, septoria leaf spot, and tan spot. Leaf rust was present in many locations but arrived late enough in the growing season that yield losses were minimal.

Wheat streak mosaic (WSM) was not a serious production issue for most growers this year. This was a welcome relief after the 2017 WSM epidemic that affected much of western Kansas. The lower levels of WSM can be attributed to control of volunteer wheat, and cold temperatures last fall that reduced the activity of the wheat curl mite. (Erick DeWolf, Kansas State University Department of Plant Pathology.)

Insects

In the fall of 2016, extending into the spring of 2017, wheat curl mites advanced significantly eastward in Kansas. Usually, wheat curl mites are most problematic in about the

western third of the state and eastern Colorado. However by spring of 2017, wheat curl mites, and most specifically viruses vectored by these mites which cause wheat streak mosaic, had caused several fields to be plowed under as far east as Dickinson and Marion counties. This created much concern and a reemphasis on controlling volunteer wheat throughout the state. Thus, wheat curl mite infestations were reduced to the extent that no fields were reported destroyed or required plowing in the fall of 2017 or spring of 2018.

A few fields had minor infestations of wheat head army worms as kernels were filling; however infestations were not significant enough to cause widespread insecticide applications. Hessian fly infestations were also reported from scattered locations around the state. Otherwise, pest problems for the 2017-2018 wheat crop were relatively negligible. (Holly Davis and Jeff Whitworth, Kansas State University Department of Entomology.)

Harvest Statistics

The Kansas Agricultural Statistics' estimate of the 2018 crop was 270 million bushels from 7.3 million acres, up 3% from last year's crop. Yield per harvested acre is expected to average 37 bushels, down 10 bushels from last year's final yield. (June 29, 2018, *Crops Report*, Kansas Agricultural Statistics.)

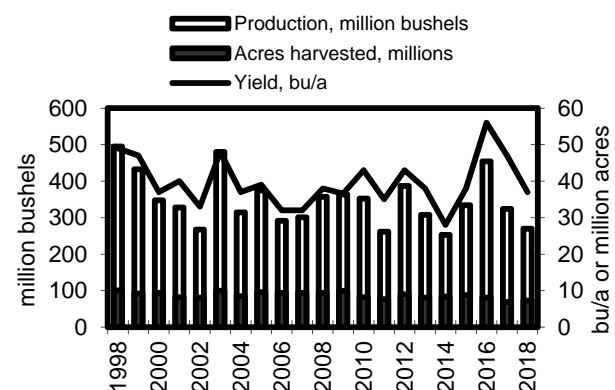


Figure 1. Historical Kansas wheat production

Everest remained the leading variety of wheat seeded in Kansas for the sixth consecutive year. It accounted for 9.3% of the state's wheat. SY Monument overtook T158 as the second most popular variety, accounting for 6.6% and 6.1%, respectively. WB Grainfield moved up into fourth place with 5.5%, while Winterhawk slipped down a spot for the first time in nine years with 4.2% of acres planted. (March 2018, *Wheat Variety*, Kansas Agricultural Statistics.)

Acresage Distribution

WB-Grainfield 11.8	SY Monument 13.1	Everest 33.5
Byrd 10.9	Everest 8.3	1863 3.1
Winterhawk 10.5	WB-Grainfield 6.7	Zenda 3.0
TAM 114 4.9	Winterhawk 3.8	2137 1.9
Denali 4.6	SY Wolf 3.4	
T158 13.9	SY Monument 11.3	Everest 34.8
WB-Grainfield 9.2	Everest 9.7	SY Monument 11.3
Byrd 8.3	WB-Grainfield 6.3	Zenda 3.3
Joe+ 7.2	WB4458 5.1	WB-Cedar 2.8
TAM 112 5.8	T158 4.0	WB 4303 2.1
T158 13.9	Gallagher 12.8	Everest 60.8
Darby 9.4	Everest 10.8	Zenda 6.2
Winterhawk 7.6	SY Monument 9.2	Gallagher 2.8
TAM 112 7.3	LCS Mint 6.0	Pioneer 25R78 1.2
TAM 111 6.7	Doublestop CL Plus 3.3	

Figure 2. Leading wheat varieties in Kansas; percentage of seeded acreage for 2018 crop

2018 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.** For more information please visit: agronomy.ksu.edu/services/crop-performance-tests/index.html.

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.

Originators or marketers enter privately developed varieties voluntarily. Entrants choose both the entries and test sites. The 2018 private entrants are listed in Table 1.

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 the 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) least significant difference (LSD) 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:

agronomy.ksu.edu/services/crop-performance-tests/index.html.

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 1143, '2018 Kansas Performance Tests with Winter Wheat Varieties,' or the Kansas Crop Performance Test website, agronomy.ksu.edu/services/crop-performance-tests/index.html

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CONTRIBUTORS

Main Station, Manhattan

Jane Lingenfelter, assistant agronomist (Senior Author)
 Holly Davis, Extension Entomologist
 Erick DeWolf, Extension Plant Pathologist
 Allan Fritz, Wheat Breeder
 Mary Knapp, Weather Data Librarian
 Romulo Lollato, Extension Agronomist
 Rebecca Miller, Grain Science and Industry
 Jeff Whitworth, Extension Entomologist

Experiment Fields

Eric Adee, Ottawa
 Gary Cramer, Hutchinson
 Andrew Esser, Scandia
 James Kimball, Ottawa
 Michael Larson, Scandia
 Keith Thompson, Hutchinson

Research Centers

Lucas Haag, Colby
 Lonnie Mengarelli, Parsons
 Alan Schlegel, Tribune
 Clayton Seaman, Hays
 Guorong Zhang, Hays

Cooperators

Justin Knopf, Gypsum

Table 1. Private entrants in the 2018 Kansas wheat performance tests

AgriMAXX Wheat Company 7167 Highbanks Road Mascoutah, IL 62258 855-629-9432	DuPont Pioneer P.O. Box 1000 Johnston, IA 50131 515-535-3200	Limagrain Cereal Seeds 2040 SE Frontage Road Fort Collins, CO 80525 970-498-2218	Polansky Seed, Inc 2729 M Street Belleville, KS 66935 785-527-2271
AGSECO P.O. Box 7 Girard, KS 66743 620-724-6223	Dyna-Gro Seed 117 East Laurel St. Garden City, KS 620-214-9024	MFA Incorporated 201 Ray Young Dr. Columbia, MO 65201 573-876-5490	Syngenta-AgriPro 11783 Ascher Rd. Junction City, KS 66441 620-532-6283
Croplan 1080 County Road F West Shoreview, MN 651-375-6220	Frontier Seed P.O. Box 781 Concordia, MO 64020 (844)2-FRONTIER	Monsanto Company-WestBred 800 North Lindbergh Boulevard St. Louis, MO 63167 314-694-1000	Watley Seed Company P.O. Box 51 Spearman, TX 79081 806-659-3838

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

Variety ¹	% of Kansas acres 2018	Agronomic Ratings ²			Relative milling and baking quality ³	Resistance or tolerance to: ²											
		Straw strength ²	Maturity	Height		Soil-borne mosaic	Spindle streak mosaic	Wheat streak mosaic	Barley yellow dwarf	Leaf rust	Stem rust	Septoria		Tan spot	Powdery mildew	Head scab	Hessian fly
Everest	9.3	5	1	6	LD	1	1	7	4	3	3	8	4	7	3	4	6
SY Monument	6.6	5	8	6	AC	1	1	7	6	2	2	2	4	5	5	7	7
T158	6.1	1	3	5	AC	2	2	5	5	8	8	2	7	4	2	8	4
WB Grainfield	5.5	3	6	7	AC	1	1	8	7	4	2	6	6	6	6	7	8
Winterhawk	4.2	5	5	8	AC	1	1	7	5	7	8	6	7	6	6	7	3
Gallagher	4.0	2	4	5	AC	1	1	7	6	3	3	3	5	7	6	7	1
LCS Mint	3.5	5	5	7	AC	1	--	6	7	7	4	5	5	5	6	8	9
Byrd	2.8	1	5	5	AC	2	2	5	7	8	8	8	--	7	3	7	9
TAM 112	2.4	4	2	5	AC	8	8	5	7	8	3	8	5	6	1	8	8
TAM 111	1.9	2	4	6	AC	8	8	7	7	8	3	8	5	6	6	7	6
Joe+	1.9	2	7	7	AC	8	8	6	7	7	3	8	--	8	5	7	2
WB 4458	1.8	2	4	5	AC	1	1	6	6	7	1	4	7	5	7	9	9
TAM 114	1.8	4	6	6	EX	8	8	7	6	4	7	2	5	7	5	7	7
Danby*	1.7	4	3	6	AC	7	--	5	8	8	2	5	6	8	7	7	9
WB Cedar	1.7	1	1	1	AC	1	1	7	6	5	3	3	4	5	2	7	9
Doublestop CL Plus	1.3	2	9	7	AC	1	1	6	6	3	2	5	6	6	5	8	9
Oakley CL	1.3	6	7	7	AC	7	7	3	6	5	2	2	5	6	2	5	9
Zenda	1.3	2	4	6	AC	1	1	7	6	3	2	3	4	5	5	4	5
Denali	1.2	2	7	7	AC	8	8	6	7	7	3	8	--	8	5	7	2
SY Wolf	1.0	1	5	5	AC	2	--	6	6	2	2	6	3	3	5	7	7
LCS Chrome	0.8	3	8	7	AC	1	1	7	7	2	2	3	4	4	6	7	1
KanMark	0.8	1	5	3	AC	1	1	6	6	2	3	6	6	6	7	8	9
1863	0.7	7	5	7	AC	2	1	5	6	7	1	3	6	6	6	7	9
Jagger	0.7	4	1	5	EX	2	4	5	7	9	3	5	3	4	7	7	8
Endurance	0.6	5	5	7	AC	2	8	7	5	5	7	5	5	7	5	6	9
Avery	0.5	5	7	7	AC	1	1	5	7	8	8	8	--	7	3	7	9
PostRock	0.4	2	3	5	AC	2	5	6	7	7	3	5	8	5	8	7	8
SY Flint	0.4	4	4	5	AC	1	1	9	6	6	3	4	7	7	7	8	2
Larry	0.4	3	6	6	AC	1	1	6	7	7	2	2	6	5	5	6	9
LCS Pistol	0.4	7	4	6	LD	1	1	7	7	6	8	7	--	7	3	8	9
WB 4515	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AP503 CL2	0.3	1	5	5	AC	2	5	6	7	8	2	5	4	7	7	7	6
Blends	12.2																
Other White	1.1																
Other Red	18.8																
Other Soft	0.3																

*Hard white variety Scale: 1=Best 1=Early 1=Short 9=Poor 9=Late 9=Tall Scale: 1=Most resistant/tolerant 9=Least resistant/tolerant

¹ Varieties and percentage seeded acreage from the March 2018 wheat variety survey, Kansas Agricultural Statistics, Topeka, KS.

² Ratings by Erick DeWolf et al., K-State Plant Pathology. Final ratings and descriptions of disease and insect pests are available in "Wheat Variety Disease and Insect Ratings 2018" Publication MF991 from Kansas State University.

³ Ratings from Rebecca Miller, K-State Wheat Quality Laboratory. EX= excellent baking quality; AC=acceptable baking quality; LD= least desirable baking quality.



Table 3. Wheat performance test site descriptions and management in 2018

Region location	Soil type previous crop	N P ₂ O ₅ K ₂ O				Plant-harvest seed rate	Conditions
		N	P ₂ O ₅	K ₂ O	Fall		
<u>Northeast Dryland</u>							
Ashland Agronomy Farm Manhattan (MA)	Reading silt loam Soybean	70	0	0	Fall	10/30/2017-6/23/2018 75 lb/a	Dry with timely rains. No disease pressure and no fungicide applied.
<u>Southeast Dryland</u>							
East Central KS Experiment Field Ottawa (OT)	Woodson silt loam Soybean	122	50	17	Fall	11/1/2017-6/27/2018 60 lb/a	Dry conditions delayed growth until rains in March before and during heading. No fungicide applied.
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Corn	110	46	30	Fall	11/1/2017-6/15/2018 90 lb/a	Dry with timely rains. No disease pressure and no fungicide applied.
<u>Soft Wheat</u>							
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Corn	110	46	30	Fall	11/1/2017-6/15/2018 90 lb/a	Dry with timely rains. No disease pressure and no fungicide applied.
<u>North Central Dryland</u>							
North Central KS Experiment Field Belleville (BE)	Crete silt loam Fallow	80	30	0	Fall	10/19/2017-6/29/2018 90 lb/a	No fungicide applied.
North Central KS Farmer's Field Beloit (BL)	Harney silt loam Wheat	110	40	0	Fall	10/19/2017-6/28/2018 80 lb/a	No fungicide applied.
<u>Central Dryland</u>							
Central KS Farmer's Field Gypsum (GY)	Silty clay loam Fallow	50	0	0	Fall	10/18/2017-6/29/2018 60 lb/a	Dry throughout growing season. No fungicide applied.
Central KS Farmer's Field Lorraine (LR)	McCook silt loam Wheat	60	0	0	Fall	10/17/2017 60 lb/a	Intensive management comparison trial available. No disease and no fungicide applied to standard-input trial.
<u>South Central Dryland</u>							
South Central KS Farmer's Field McPherson (MC)	Crete silt loam Wheat	60	0	0	Fall	10/19/2017-6/21/2018 60 lb/a	Intensive management comparison trial available. No disease and no fungicide applied to standard-input trial.
South Central KS Experiment Field Hutchinson (HU)	Funmar-Taver loam Soybean	100	0	0	Fall	10/25/2017-6/18/2018 75 lb/a	Dry periods resulted in poor tillering. No fungicide applied.
South Central KS Farmer's Field Conway Springs (CW)	Sandy loam Fallow	40	0	0	Fall	10/18/2017-6/19/2018 60 lb/a	Intensive management comparison trial available. No disease and no fungicide applied to standard-input trial.
<u>Northwest Dryland</u>							
Agricultural Research Center Hays (HA)	Harney silt loam Wheat	60	0	0	Fall	10/3/2017-6/30/2018 60 lb/a	Dry throughout growing season. No fungicide applied.
Northwest Research-Extension Center Colby (CO)	Keith silt loam Fallow	60	0	0	Fall	10/13/2017-7/8/2018 60 lb/a	Dry with some moisture in the spring. No diseases and no fungicide applied.
Northwest Research-Extension Center Tribune (TR)	Richfield silt loam Grain Sorghum	100	24	0	Fall	10/12/17-6/30/2018 60 lb/a	Good establishment but dry for the remainder of the season. No fungicide applied.
Northwest KS Farmer's Field Decatur (DC)	Harney clay loam Grain Sorghum	40	0	0	Fall	10/15/2017-7/11/2018 90 lb/a	Poor tillering in the spring. No fungicide applied.
<u>Southwest Dryland</u>							
Southwest KS Farmer's Field Larned (LA)	Harney clay loam Grain sorghum	80	40	8	Fall	10/14/2017-6/28/2018 90 lb/a	Dry with some moisture in the spring. No diseases and no fungicide applied.
Southwest KS Farmer's Field Mullinville (MV)	Harney clay loam Grain Sorghum	100	0	0	Fall	10/11/2017-6/19/2018 90 lb/a	Dry throughout growing season. No fungicide applied.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam Wheat	60	0	0	Fall	-- 65 lb/a	Abandoned: uneven stands throughout growing season.
<u>Western Irrigated</u>							
Northwest Research-Extension Center Colby (CO)	Keith silt loam Fallow	100	0	0	Fall	10/13/2017-7/8/2018 120 lb/a	Dry with some moisture in the spring. No diseases and no fungicide applied.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam Corn	100	0	0	Fall	10/14/2017-7/9/2018 120 lb/a	Dry throughout growing season. No fungicide applied.
Western KS Farmer's Field Healy, Lane County (LN)	Scott silt loam Fallow	90	0	0	Fall	-- 80 lb/a	Abandoned: large hail after heading.



Table 4. 2018 NORTHEAST Kansas dryland winter wheat performance test

Brand / Name	MA ¹	MA	-MA-	
	yield (bu/a)	% of test average	2 yr multiyear av. (bu/a)	3 yr
AgriMAXX				
AM Eastwood	38	81	--	--
AGSECO				
AG Gallant	48	104	75	66
AG Icon	49	106	61	--
AG Robust	42	91	64	57
Hot Rod	47	102	68	62
OGI				
Gallagher	47	101	76	63
Iba	43	91	71	64
Polansky				
Paradise	46	100	76	--
Syngenta				
Bob Dole	48	103	62	--
SY Benefit	48	104	68	--
SY Flint	47	101	71	--
SY Grit	50	108	67	--
SY Monument	43	93	64	--
SY Wolf	49	105	68	59
WestBred				
WB4269	48	104	66	--
WB4418	45	97	--	--
WB4515	48	104	63	--
WB-Grainfield	50	108	70	62
Wildcat Genetics				
1863	44	94	66	60
Everest	44	95	70	65
Larry	51	109	--	48
Zenda	45	98	62	58
Experimentals				
Croplan EXP 26-16	41	89	--	--
Croplan EXP 69-16	46	99	--	--
Averages	47	47	--	--
CV (%)	8	8	--	--
LSD (0.05)*	5	12	--	--

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

*Yields must differ by more than the LSD value to be considered statistically different.



Table 5. 2018 SOUTHEAST Kansas dryland winter wheat performance test

Brand / Name	OT ¹			PA ²			-OT-				-PA-			OT			PA			Av.		
	yield (bu/a)			% of test average			multiyear av. (bu/a)				tw (lb/bu)			head (+/- Everest)			height (in)					
	OT	PA	Av.	OT	PA	Av.	2 yr	3 yr	2 yr	3 yr	OT	PA	Av.	OT	PA	Av.	OT	PA	Av.	OT	PA	Av.
AgriMAXX																						
AM Eastwood	36	57	46	93	110	101	42	--	52	--	64	59	61	1	2	2	--	26	26			
AGSECO																						
AG Gallant	37	45	41	95	87	91	42	--	58	57	62	59	61	-2	1	-1	--	27	27			
AG Icon	38	47	43	100	92	96	40	--	50	--	64	57	61	3	3	3	--	32	32			
AG Robust	34	48	41	89	92	90	41	--	51	53	62	59	61	-1	1	0	--	27	27			
Hot Rod	32	58	45	84	113	98	38	--	64	68	62	58	60	2	1	1	--	27	27			
Dyna-Gro																						
Long Branch	36	41	39	93	80	87	47	--	49	51	63	58	60	6	8	7	--	31	31			
Limagrain																						
LCS Chrome	42	63	52	109	122	115	46	--	59	63	65	57	61	7	9	8	--	32	32			
OGI																						
Gallagher	41	50	45	106	96	101	--	--	--	--	63	55	59	3	5	4	--	27	27			
Ruby Lee	38	57	48	99	110	105	43	--	58	60	64	59	61	3	3	3	--	33	33			
Syngenta																						
Bob Dole	44	49	47	116	95	105	41	--	57	--	64	57	61	-1	2	1	--	33	33			
SY Benefit	41	45	43	107	88	97	45	--	51	--	64	57	61	1	1	1	--	30	30			
SY Grit	44	50	47	116	97	106	--	--	--	56	63	57	60	1	3	2	--	30	30			
SY Wolf	37	52	45	97	101	99	--	--	--	--	64	59	62	2	7	4	--	29	29			
WestBred																						
WB4269	39	49	44	101	94	97	43	--	52	--	63	59	61	5	2	4	--	28	28			
WB4515	40	60	50	104	116	110	40	--	61	--	65	58	61	6	5	5	--	29	29			
WB-Cedar	32	43	38	84	83	84	37	--	51	57	62	59	60	3	0	1	--	26	26			
Wildcat Genetics																						
Everest	36	49	42	94	94	94	39	--	55	60	64	59	62	-1	0	0	--	28	28			
Zenda	37	44	40	97	84	91	43	--	53	57	66	60	63	2	4	3	--	30	30			
Experimentals																						
AgriMAXX EXP HRW	33	58	46	87	112	99	--	--	--	--	63	57	60	0	2	1	--	30	30			
Croplan EXP 26-16	41	61	51	107	117	112	--	--	--	--	64	59	62	5	7	6	--	33	33			
Croplan EXP 69-16	42	54	48	109	104	107	--	--	--	--	64	58	61	7	10	8	--	29	29			
Averages	38	52	45	38	52	45	--	--	--	--	64	58	61	2	4	3	--	29	29			
CV (%)	9	9	9	9	9	9	--	--	--	--	1	2	1	0	0	0	--	4	4			
LSD (0.05)*	5	6	6	13	12	12	--	--	--	--	1	1	1	1	0	0	--	2	2			

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

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

*Yields must differ by more than the LSD value to be considered statistically different.

Table 6. 2018 SOUTHEAST Kansas SOFT winter wheat performance test

Brand / Name	PA ¹	PA	PA		PA	PA	PA
	yield (bu/a)	% of test average	2 yr	3 yr	tw (lb/bu)	head (+/- Zenda)	height (in.)
			multiyear av. (bu/a)				
AgriMAXX							
415	57	95	75	77	58	1	29
444	59	98	69	71	56	4	30
463	63	104	73	80	55	0	29
473	65	109	74	--	58	4	31
475	56	94	--	--	57	1	28
Croplan							
SRW 8550	64	107	--	--	57	4	31
SRW 9415	65	108	--	69	57	5	27
SRW 9606	56	93	--	--	56	2	29
DuPont Pioneer							
(S) 25R40	66	110	73	76	57	4	28
(S) 25R50	57	95	--	--	57	5	29
(S) 25R61	62	103	67	--	58	2	31
(S) 25R74	65	109	73	--	56	1	27
(S) 25R77	54	91	69	73	57	0	29
Frontier							
Magnus 1069	61	103	--	--	56	1	30
MFA							
(S) 2449	64	107	65	70	56	4	30
(S) 2542	63	105	72	--	59	1	29
(S) 2622	58	97	--	--	58	2	27
(S) 2633	60	100	--	--	57	1	30
Wildcat Genetics							
Zenda HRW Check	44	73	--	--	60	0	30
Averages	60	60	--	--	57	2	29
CV (%)	6	6	--	--	3	0	3
(0.05)*	5	8	--	--	2	0	1

¹ PA= Parsons, KS, Southeast Agricultural Research Center, Labette County.

* Yields must differ by more than the LSD value to be considered statistically different.



Table 7. 2018 North Central Kansas dryland winter wheat performance test

Brand / Name	BE ¹	BL ²	Av.	BE	BL	Av.	-BE-		-BL-		BE	BL	Av.	BE	BL	Av.	
							2 yr	3 yr	2 yr	3 yr							
	yield (bu/a)			% of test average			multi-year av. (bu/a)				test weight (lb/bu)			height (in)			
AgriMAXX																	
AM Eastwood	48	31	40	109	109	109	66	--	55	--	65	57	61	23	23	23	
AGSECO																	
AG Gallant	43	29	36	96	102	99	66	82	53	--	60	59	60	24	22	23	
AG Icon	43	30	36	97	102	100	65	--	55	--	63	57	60	28	24	26	
AG Robust	51	25	38	115	86	100	78	89	48	--	57	56	57	24	20	22	
Hot Rod	51	29	40	116	101	108	65	84	52	--	63	60	61	23	22	22	
Dyna-Gro																	
Long Branch	47	27	37	105	92	99	71	71	51	--	63	56	60	27	25	26	
Limagrain																	
LCS Chrome	43	25	34	97	87	92	69	70	48	--	63	57	60	26	25	26	
LCS Link	41	24	33	93	83	88	--	--	--	--	64	57	60	27	24	25	
LCS Pistol	44	28	36	98	97	98	--	50	--	--	63	58	61	25	23	24	
LCSMint	40	32	36	89	111	100	61	56	50	--	64	57	61	27	26	26	
T158	44	29	37	100	101	101	74	76	50	--	62	58	60	25	23	24	
OGI																	
Bentley	42	30	36	94	105	99	68	69	54	--	66	56	61	27	27	27	
Lonerider	52	32	42	117	112	115	--	--	--	--	64	53	59	23	22	22	
PlainsGold																	
Langin	43	33	38	96	116	106	--	--	--	--	63	58	60	25	23	24	
Polansky																	
Paradise	42	28	35	93	97	95	71	--	59	--	63	58	60	26	23	24	
Syngenta																	
Bob Dole	41	31	36	92	108	100	65	--	51	--	62	59	61	29	28	29	
SY 517 CL2	48	25	36	107	87	97	69	--	53	--	65	58	61	26	24	25	
SY Benefit	52	28	40	117	98	108	73	--	54	--	63	58	60	26	24	25	
SY Flint	45	32	38	101	111	106	62	69	51	--	63	57	60	26	25	25	
SY Grit	47	32	39	105	110	107	69	73	52	--	63	56	59	27	25	26	
SY Monument	42	30	36	95	103	99	64	70	51	--	63	56	59	26	26	26	
SY Rugged	43	33	38	97	113	105	57	--	50	--	63	57	60	23	23	23	
SY Wolf	46	30	38	104	105	104	64	68	45	--	64	57	61	25	24	25	
WestBred																	
WB4269	45	27	36	102	95	98	62	--	53	--	63	57	60	24	22	23	
WB4303	43	31	37	98	109	103	61	71	55	--	62	56	59	25	23	24	
WB4418	46	27	36	102	93	98	--	--	--	--	63	57	60	26	24	25	
WB4458	55	30	42	124	102	113	72	77	55	--	63	58	60	27	26	26	
WB4721	49	26	37	110	88	99	70	75	51	--	64	64	64	26	25	25	
WB-Cedar	39	25	32	87	85	86	72	86	51	--	61	58	60	22	19	21	
WB-Grainfield	42	28	35	94	97	96	68	67	50	--	63	63	63	26	27	26	
Winterhawk	37	28	32	84	97	90	64	68	53	--	64	58	61	29	26	27	
Wildcat Genetics																	
1863	43	25	34	97	87	92	64	65	46	--	63	61	62	26	26	26	
Everest	41	29	35	92	99	96	63	66	55	--	63	58	61	24	23	24	
Larry	42	34	38	94	117	105	63	72	52	--	63	56	59	26	24	25	
Tatanka	40	29	34	90	100	95	62	70	55	--	65	57	61	27	24	25	
Zenda	52	29	41	118	100	109	68	84	50	--	63	57	60	25	25	25	
Experimentals																	
AgriMAXX EXP HRW	40	29	35	91	100	95	--	--	--	--	63	58	60	25	23	24	
Croplan EXP 26-16	40	33	37	90	114	102	--	--	--	--	63	57	60	28	28	28	
Croplan EXP 69-16	42	25	33	94	86	90	--	--	--	--	63	57	60	25	24	25	
Husker Genetics NE10478-1	48	31	39	107	106	106	--	--	--	--	63	60	62	25	25	25	
Kansas KS14HW106-6-6	44	29	37	99	102	101	--	--	--	--	63	63	63	25	24	25	
Limagrain LCH14-89	40	30	35	91	105	98	72	--	50	--	62	57	60	24	23	23	
Plainsgold CO13003C	40	30	35	89	106	97	--	--	--	--	63	53	58	28	26	27	
Plainsgold CO13D1783	41	23	32	93	81	87	--	--	--	--	64	56	60	27	28	27	
Averages	44	29	37	44	29	37	--	--	--	--	63	58	60	26	24	25	
CV (%)	10	11	11	10	11	11	--	--	--	--	3	6	5	5	6	6	
LSD (0.05)*	7	5	6	15	16	15	--	--	--	--	3	5	4	2	2	2	

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

²BL=Beloit, KS, farmer's field, Mitchell County.

*Yields must differ by more than the LSD value to be considered statistically different.

Table 8. 2018 CENTRAL Kansas dryland winter wheat performance test

Brand / Name	GY ¹	LR ²	Av.	GY	LR	Av.	-GY-		-LR-		Intensive Management		
							2 yr	3 yr	2 yr	3 yr	LRim ³	LRim	Diff.
	yield (bu/a)			% of test average			multiyear av. (bu/a)				(bu/a)	% of average	(bu/a)
AgriMAXX													
AM Eastwood	38	65	52	94	98	96	--	--	85	--	67	91	2
AGSECO													
AG Gallant	41	63	52	99	95	97	--	57	81	75	74	101	11
AG Icon	44	63	53	108	95	101	--	--	77	--	71	97	8
AG Robust	37	57	47	92	87	89	--	47	69	64	67	92	10
Hot Rod	40	66	53	99	99	99	--	61	77	72	70	96	4
Dyna-Gro													
Long Branch	40	64	52	99	98	98	--	63	75	68	76	104	11
Limagrain													
LCS Chrome	41	65	53	100	98	99	--	63	80	72	72	98	7
LCS Link	38	69	54	94	104	99	--	--	--	--	77	105	8
LCS Pistol	37	64	50	90	97	94	--	59	74	61	68	93	4
LCS Mint	46	72	59	112	109	110	--	66	79	66	77	106	5
T158	41	61	51	101	92	97	--	57	73	65	68	93	7
OGI													
Bentley	38	69	54	93	105	99	--	58	83	73	75	102	5
Doublestop CL Plus	47	60	54	116	91	104	--	60	72	63	69	95	9
Gallagher	42	72	57	103	109	106	--	--	--	--	76	104	4
Iba	37	61	49	92	93	92	--	--	--	--	70	96	9
Lonerider	43	69	56	106	105	105	--	--	--	--	76	104	7
Smith's Gold	37	66	52	92	99	95	--	--	--	--	73	100	7
Spirit Rider	35	66	51	86	100	93	--	--	--	--	70	96	4
PlainsGold													
Langin	43	63	53	106	96	101	--	--	--	--	67	92	4
Polansky													
Paradise	39	59	49	94	89	92	--	--	--	--	70	96	11
Syngenta													
Bob Dole	44	69	57	109	104	107	--	--	75	--	82	112	13
SY 517 CL2	41	63	52	100	95	98	--	--	64	--	75	102	12
SY Achieve CL2	37	62	50	92	94	93	--	--	74	--	70	95	7
SY Benefit	43	64	54	106	97	101	--	--	77	--	74	101	10
SY Flint	43	73	58	105	111	108	--	57	73	66	73	100	0
SY Grit	43	68	55	104	103	104	--	62	82	76	73	100	5
SY Monument	39	74	57	96	112	104	--	63	83	73	74	101	-1
SY Rugged	40	64	52	97	97	97	--	--	75	--	69	95	5
SY Wolf	42	67	55	103	101	102	--	61	78	68	77	105	10
Watley													
TAM 204	42	69	56	103	104	104	--	--	--	--	76	104	7
WestBred													
WB4269	42	72	57	103	108	106	--	--	75	--	79	109	8
WB4303	40	65	52	97	98	98	--	60	84	73	68	94	4
WB4418	42	64	53	104	97	100	--	--	--	--	70	97	6
WB4458	39	64	51	96	96	96	--	55	79	70	71	97	7
WB-Cedar	38	69	53	93	104	99	--	56	74	66	78	106	9
WB-Grainfield	41	73	57	101	110	106	--	65	85	72	75	102	2
Winterhawk	43	68	55	104	103	104	--	62	81	70	77	106	9
Wildcat Genetics													
1863	39	59	49	96	90	93	--	56	69	70	67	91	7
Everest	39	64	51	96	96	96	--	57	77	62	70	96	7
Larry	42	61	51	102	92	97	--	59	76	68	71	98	11
Zenda	42	68	55	104	102	103	--	59	82	74	71	97	3
Experimentals													
Husker Genetics NE10478-1	39	66	52	96	99	98	--	--	--	--	73	100	7
Kansas KS14HW106-6-6	42	64	53	103	97	100	--	--	--	--	81	111	17
OGI OK12716	44	75	59	107	113	110	--	--	84	--	82	113	8
Plainsgold CO13003C	41	64	53	101	97	99	--	--	--	--	72	99	8
Plainsgold CO13D1783	43	79	61	105	120	112	--	--	--	--	76	104	-3
Averages	41	66	53	41	66	53	--	--	--	--	73	73	7
CV (%)	9	9	9	9	9	9	--	--	--	--	9	9	--
LSD (0.05)*	5	9	7	13	14	14	--	--	--	--	10	14	--

¹GY=Gypsum, KS, Farmer's Field, Saline County.

²LR=Lorraine, KS, Farmer's Field, Ellsworth County.

³LRim= Lorraine, KS, Farmer's Field, Ellsworth County. Intensive management: + 40 lbs N/ac; 2 fl oz/ac Priaxor fungicide; 9 fl oz/ac Twinline fungicide.

* Yields must differ by more than the LSD value to be considered statistically different.



Table 9. 2018 South Central Kansas dryland winter wheat performance test

Brand / Name	MC ¹	HU ²	CW ³	Av.	MC	HU	CW	Av.	-MC-		-HU-		-CW-		HU	Intensive Management				
									2 yr	3 yr	2 yr	3 yr	2 yr	3 yr		MCim ⁴	MCim diff.	CWim ⁵	CWim diff.	
	yield (bu/a)				% of test average				multi-year av. (bu/a)						tw (lb/bu)	yield (bu/a)				
AgriMAXX																				
AM Eastwood	54	26	46	42	97	92	93	94	62	--	60	--	55	--	53	57	3	48	2	
AGSECO																				
AG Gallant	57	24	48	43	102	83	98	94	--	57	--	43	--	60	53	53	-3	52	4	
AG Icon	56	31	50	46	101	107	103	104	64	--	68	--	61	--	52	53	-2	54	3	
AG Robust	52	25	49	42	94	89	99	94	63	64	61	59	59	61	55	51	-1	51	3	
Hot Rod	50	35	49	45	90	123	100	104	62	64	66	61	58	62	53	55	6	51	2	
Dyna-Gro																				
Long Branch	60	22	54	45	109	76	110	99	62	60	57	57	62	63	50	67	6	53	-1	
Limagrain																				
LCS Chrome	63	24	49	45	114	84	99	99	60	63	61	58	53	60	53	60	-3	52	3	
LCS Mint	75	32	54	54	136	113	109	119	69	66	61	62	55	60	53	68	-7	54	0	
LCS Pistol	58	20	48	42	106	70	98	91	62	58	58	59	61	62	50	57	-2	49	1	
T158	57	22	50	43	103	76	103	94	55	55	57	54	54	61	52	48	-9	51	1	
OGI																				
Bentley	57	33	54	48	104	116	110	110	65	64	59	58	59	61	55	65	8	58	4	
Doublestop CL Plus	54	31	47	44	98	109	95	101	63	65	60	58	57	60	57	57	3	49	3	
Gallagher	53	26	47	42	95	93	96	95	67	68	67	64	63	67	53	48	-5	51	4	
Iba	50	21	49	40	91	75	99	89	67	68	63	58	58	63	54	52	1	54	5	
Lonerider	52	27	48	42	94	96	97	96	--	--	--	--	--	--	51	55	3	53	5	
Ruby Lee	49	29	47	42	89	102	97	96	57	57	62	61	58	55	53	55	6	51	3	
Smith's Gold	55	27	46	43	99	97	94	97	64	--	68	--	54	--	50	57	3	47	0	
Spirit Rider	55	33	47	45	99	114	95	103	66	--	66	--	55	--	54	50	-4	49	2	
(W) Stardust	53	22	44	40	95	76	90	87	58	--	61	--	50	--	51	54	1	49	4	
PlainsGold																				
Brawl CL Plus	47	26	49	41	85	93	99	92	--	--	--	--	--	--	54	52	5	52	3	
Langin	49	43	52	48	88	152	107	116	--	--	--	--	--	--	58	51	2	57	4	
Polansky																				
Paradise	54	36	49	46	97	126	99	107	68	--	71	--	59	--	52	59	6	54	5	
Syngenta																				
Bob Dole	58	35	45	46	106	123	92	107	63	--	70	--	53	--	54	59	1	51	6	
SY Achieve CL2	46	28	43	39	83	99	88	90	56	--	63	--	54	--	52	46	0	46	3	
SY Benefit	55	21	47	41	100	73	95	89	58	--	58	--	57	--	52	55	0	52	5	
SY Flint	55	26	48	43	100	91	98	96	63	64	57	57	59	65	52	59	4	54	5	
SY Grit	57	33	47	46	103	118	95	105	60	59	68	62	54	59	54	60	3	50	3	
SY Monument	58	27	53	46	105	96	108	103	62	61	65	63	61	65	52	54	-4	55	2	
SY Rugged	48	28	50	42	88	97	103	96	60	--	60	--	49	--	51	55	7	50	0	
Watley																				
TAM 204	57	27	46	43	103	95	95	97	--	66	--	40	--	62	50	60	3	49	2	
WestBred																				
WB4269	59	20	53	44	106	71	108	95	67	--	56	--	62	--	55	60	2	57	4	
WB4303	61	33	48	47	110	116	97	107	67	68	67	63	55	58	51	59	-1	47	-1	
WB4418	48	24	47	39	86	84	95	89	--	--	--	--	--	--	52	56	9	51	4	
WB4458	53	34	45	44	95	118	91	102	62	64	67	64	53	56	53	55	2	50	5	
WB4515	56	38	51	49	102	135	104	114	63	--	66	--	54	--	55	62	6	55	4	
WB-Cedar	48	25	48	40	86	86	97	90	62	57	65	60	54	58	51	47	0	53	5	
WB-Grainfield	54	35	49	46	98	121	99	106	60	61	69	65	60	64	54	55	1	51	2	
Winterhawk	58	27	49	44	104	94	99	99	62	62	67	65	55	61	59	56	-1	53	4	
Wildcat Genetics																				
1863	54	26	46	42	97	90	93	93	62	57	62	62	50	54	56	51	-2	48	2	
Everest	50	28	48	42	91	97	98	95	57	57	62	60	57	61	56	51	1	53	4	
Larry	55	26	55	45	100	93	111	101	67	69	61	60	61	66	52	54	-1	58	4	
Zenda	56	26	48	43	102	92	98	97	62	64	59	58	65	69	52	51	-5	51	3	

Table 9 continued. 2018 South Central Kansas dryland winter wheat performance test

Brand / Name	MC ¹	HU ²	CW ³	Av.	MC	HU	CW	Av.	-MC-		-HU-		-CW-		HU	Intensive Management				
									2 yr	3 yr	2 yr	3 yr	2 yr	3 yr		MCim ⁴	MCim diff.	CWim ⁵	CWim diff.	
	yield (bu/a)				% of test average				multi-year av. (bu/a)						tw (lb/bu)	yield (bu/a)				
Experimentals																				
Croplan EXP 26-16	58	39	52	50	105	137	105	116	--	--	--	--	--	--	52	59	1	59	7	
Croplan EXP 69-16	55	24	45	41	99	86	92	92	--	--	--	--	--	--	57	60	5	49	4	
Husker Genetics NE10478-1	57	29	50	45	103	103	101	103	--	--	--	--	--	--	51	59	2	53	3	
Kansas KS13HW92-3	48	23	49	40	88	82	100	90	--	--	--	--	--	--	57	53	5	50	0	
Kansas KS14HW106-6-6	56	38	53	49	101	135	108	115	--	--	--	--	--	--	52	56	0	56	3	
OGI OK12716	53	27	53	44	96	94	108	99	63	--	71	--	59	--	51	50	-3	55	2	
Plainsgold CO13003C	60	31	47	46	108	108	95	104	--	--	--	--	--	--	52	60	0	50	4	
Plainsgold CO13D1783	70	20	54	48	127	69	109	102	--	--	--	--	--	--	50	72	1	57	4	
Averages	55	28	49	44	55	28	49	44	--	--	--	--	--	--	53	56	1	52	3	
CV (%)	10	9	4	7	10	9	4	7	--	--	--	--	--	--	3	9	--	5	--	
LSD (0.05)*	9	3	4	5	16	12	8	12	--	--	--	--	--	--	2	9	--	5	--	

¹MC= McPherson, KS, farmer's field, McPherson County.

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

³CW=Conway Springs, KS, farmer's field, Sumner County.

⁴MCim=Intensive management: + 40 lbs N/a; 2 applications fungicide.

⁵CWim=Intensive management: + 40 lbs N/a; 2 applications fungicide.

*Yields must differ by more than the LSD value to be considered statistically different. LSD=Least significant difference.

(W) indicates hard white variety.



Table 10. 2018 NORTHWEST Kansas dryland winter wheat performance test

Brand / Name	HA ¹	CO ²	TR ³	DC ⁴	Av.	HA	CO	TR	DC	Av.	-CO-		-TR-		Av.	Av.	Av.	
											2 yr	3 yr	2 yr	3 yr				
	yield (bu/a)					% of test average					multiyear av. (bu/a)				tw (lb/bu)	head (+Zenda)	ht (in)	
AgriMAXX																		
AM Eastwood	39	42	63	36	45	85	91	97	103	94	58	--	67	--	58	2	25	
AGSECO																		
AG Gallant	43	44	65	33	46	94	97	101	95	97	65	--	61	--	59	3	24	
AG Icon	51	51	61	40	51	111	111	94	116	108	58	--	46	--	59	-2	26	
TAM 114	52	46	61	38	49	113	102	94	108	104	63	73	45	53	60	1	26	
Dyna-Gro																		
Long Branch	57	59	62	33	53	126	130	95	94	111	73	77	58	61	58	-1	27	
Limagrain																		
(W) LCS Yeti	42	36	63	31	43	92	78	97	90	89	--	--	--	--	57	1	27	
LCS Avenger	49	48	53	36	47	107	104	82	105	100	--	--	--	--	59	-1	24	
LCS Chrome	39	33	61	35	42	86	72	93	100	88	56	65	48	52	57	-2	29	
LCS Mint	49	42	66	42	50	106	93	102	121	105	57	60	45	54	61	-1	28	
LCS Pistol	50	57	66	33	52	109	125	102	97	108	71	70	60	65	59	2	26	
T158	51	53	68	34	51	112	115	104	98	108	68	66	56	58	60	2	26	
OGI																		
Lonerider	57	51	71	40	55	125	111	109	117	116	68	--	64	--	58	1	24	
Plainsgold																		
Avery	53	56	68	32	52	116	122	105	92	109	63	62	58	63	58	-1	29	
Brawl CL Plus	49	51	69	31	50	108	111	106	88	103	59	63	53	58	58	2	28	
Byrd	40	48	64	27	45	89	104	99	78	93	59	61	57	61	57	1	28	
Denali	54	49	64	35	50	117	108	98	102	106	59	63	46	50	59	-3	29	
Langin	37	46	68	35	46	82	101	104	100	97	66	--	57	--	58	3	27	
Polansky																		
Paradise	40	34	63	30	42	88	74	97	87	86	--	--	--	--	58	2	26	
Syngenta																		
SY Grit	38	39	68	37	46	83	86	105	107	95	51	57	52	55	58	2	27	
SY Legend CL2	37	42	58	39	44	81	91	90	113	94	--	--	--	--	58	0	27	
SY Monument	39	43	62	35	45	86	95	95	102	94	55	64	47	54	57	-2	27	
SY Rugged	44	47	71	37	50	95	103	109	106	103	64	--	56	--	58	0	25	
SY Sunrise	42	48	69	35	49	91	105	106	102	101	59	66	55	57	57	-3	25	
SY Wolf	35	40	66	35	44	76	87	102	102	92	55	62	47	52	58	-2	27	
TAM 111	41	49	61	38	47	90	108	94	109	100	54	60	54	58	59	-1	27	
Watley																		
TAM 112	47	47	68	35	49	102	104	104	101	103	--	56	--	66	59	1	28	
TAM 204	41	40	58	27	41	90	87	89	78	86	--	59	--	62	56	-2	26	
WestBred																		
WB4418	44	43	64	39	47	97	93	98	113	100	--	--	--	--	57	1	25	
WB4458	39	36	66	31	43	86	78	101	89	89	50	60	50	51	58	0	27	
WB4462	38	40	67	33	44	84	87	103	96	92	61	--	60	--	57	1	29	
WB4721	43	47	55	29	44	95	104	85	84	92	65	73	48	55	58	0	26	
WB-Grainfield	32	39	68	34	43	69	86	104	99	89	64	71	59	63	57	0	27	
Winterhawk	45	46	63	30	46	98	101	97	88	96	61	67	52	55	59	0	28	
Wildcat Genetics																		
(W) Joe	40	42	62	40	46	89	92	95	117	98	62	72	59	65	59	0	30	
KanMark	51	37	66	31	46	111	80	101	89	95	53	61	55	58	59	0	24	
Oakley CL	51	50	65	41	52	111	110	101	118	110	70	75	65	66	60	-1	27	
Tatanka	50	54	72	41	54	109	118	111	120	114	72	77	70	70	59	1	26	
Zenda	48	44	60	36	47	104	97	93	105	100	--	59	--	62	59	0	26	
Experimentals																		
AgriMAXX EXP HRW	42	33	66	28	42	92	73	102	81	87	--	--	--	--	56	1	27	
Croplan EXP 26-16	46	38	65	34	46	101	83	100	99	96	--	--	--	--	57	0	27	
Croplan EXP 69-16	56	48	67	36	52	122	104	104	105	109	--	--	--	--	59	0	27	
Husker Genetics NE10478-1	46	44	69	37	49	102	96	106	108	103	--	--	--	--	59	2	26	
Kansas (W) KS13HW92-3	42	45	65	34	46	91	99	99	98	97	--	--	--	--	59	-1	27	
Kansas KS14H180-4-6	58	60	76	37	58	126	132	117	107	121	--	--	--	--	60	2	28	
Kansas (W) KS14HW106-6-6	43	37	71	38	47	93	80	110	110	98	--	--	--	--	60	2	26	
Limagrain LCH14-89	56	49	63	33	50	123	107	96	95	105	63	--	59	--	59	2	26	
Plainsgold CO13003C	46	48	66	31	48	101	105	101	91	99	--	--	--	--	58	-1	28	
Plainsgold CO13D1783	53	62	68	38	55	117	135	105	110	117	--	--	--	--	56	-4	29	
Averages	46	46	65	35	48	46	46	65	35	48	--	--	--	--	58	0	27	
CV (%)	10	9	8	10	9	10	9	8	10	9	--	--	--	--	4	0	6	
LSD (0.05)*	6	6	7	5	6	14	12	11	14	13	--	--	--	--	3	0	2	

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

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

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

⁴DC= Decatur, KS, farmer's field, Decatur County.

⁵(W) indicates hard white wheat.

*Yields must differ by more than the LSD value to be considered statistically different.

Table 11. 2018 SOUTHWEST Kansas dryland winter wheat performance test

Brand / Name	LA ¹	MV ²	GC ³	Av.	LA	MV	GC	Av.	-LA-		-MV-		LA	MV	Av.	LA	MV	Av.
	yield (bu/a)				% of test average				multiyear av. (bu/a)				tw (lb/bu)			height (in)		
	2 yr	3 yr	2 yr	3 yr	2 yr	3 yr	2 yr	3 yr	2 yr	3 yr	2 yr	3 yr	2 yr	3 yr	2 yr	3 yr	2 yr	3 yr
AgriMAXX																		
AM Eastwood	74	48	--	61	94	88	--	91	80	--	73	--	61	60	60	27	18	23
AGSECO																		
AG Gallant	71	48	--	60	90	89	--	90	--	--	--	--	59	61	60	26	20	23
AG Icon	80	64	--	72	102	119	--	110	81	--	79	--	59	61	60	30	23	27
TAM 114	86	56	--	71	109	105	--	107	77	84	83	90	62	62	62	31	22	26
Dyna-Gro																		
Long Branch	83	54	--	69	105	100	--	103	86	84	79	88	57	60	59	32	24	28
Limagrain																		
(W) LCS Yeti	71	50	--	61	90	94	--	92	--	--	--	--	59	61	60	31	22	26
LCS Avenger	80	42	--	61	101	77	--	89	--	--	--	--	58	59	58	27	17	22
LCS Chrome	72	60	--	66	91	112	--	101	69	78	72	83	59	60	59	31	24	27
LCS Mint	75	69	--	72	94	129	--	112	74	76	80	88	60	62	61	32	26	29
LCS Pistol	84	54	--	69	106	100	--	103	77	78	78	87	58	59	59	29	21	25
T158	83	49	--	66	105	91	--	98	83	90	76	85	60	60	60	28	21	24
OGI																		
Gallagher	76	52	--	64	96	97	--	97	81	85	75	77	60	61	60	29	22	25
Lonerider	87	56	--	71	109	104	--	107	85	--	80	--	57	58	57	25	19	22
Plainsgold																		
Avery	81	61	--	71	102	113	--	107	79	74	81	87	57	60	58	33	24	28
Brawl CL Plus	84	50	--	67	106	93	--	100	85	86	70	81	59	61	60	30	21	26
Byrd	78	53	--	65	99	98	--	98	79	76	78	87	58	59	58	32	23	27
Denali	81	57	--	69	103	106	--	105	80	--	78	--	59	62	60	32	25	29
Langin	84	60	--	72	106	112	--	109	77	--	85	--	60	60	60	29	21	25
Polansky																		
Paradise	74	49	--	61	93	91	--	92	--	--	--	--	58	60	59	28	21	25
Syngenta																		
SY Grit	78	47	--	62	98	86	--	92	75	82	67	70	57	57	57	31	21	26
SY Monument	79	56	--	68	101	105	--	103	76	85	77	88	57	60	59	31	22	26
SY Rugged	82	55	--	68	104	101	--	102	72	--	76	--	59	59	59	27	21	24
TAM 111	76	46	--	61	95	86	--	91	76	75	69	77	59	61	60	32	23	27
Watley																		
TAM 112	75	55	--	65	94	103	--	98	--	73	--	71	60	63	61	31	23	27
TAM 204	70	49	--	60	89	92	--	90	--	91	--	78	55	58	57	31	22	27
WestBred																		
WB4418	78	48	--	63	99	89	--	94	--	--	--	--	58	60	59	27	21	24
WB4458	76	53	--	65	96	98	--	97	78	93	74	79	58	61	59	30	24	27
WB4462	77	52	--	64	97	96	--	97	83	--	76	--	56	60	58	32	23	27
WB4721	80	54	--	67	101	100	--	101	76	--	74	--	61	63	62	31	22	27
WB-Grainfield	81	67	--	74	102	125	--	114	83	93	90	96	58	60	59	32	24	28
Winterhawk	73	47	--	60	92	87	--	90	76	87	74	81	62	62	62	32	22	27
Wildcat Genetics																		
(W) Joe	78	60	--	69	98	112	--	105	88	90	83	99	59	63	61	33	24	28
KanMark	76	47	--	62	96	87	--	92	79	84	70	80	59	59	59	26	19	23
Larry	88	66	--	77	111	122	--	116	86	93	83	93	58	60	59	31	23	27
Oakley CL	88	62	--	75	111	114	--	113	83	87	83	93	62	64	63	31	24	28
Tatanka	89	55	--	72	112	103	--	107	86	96	83	94	61	61	61	30	21	26
Zenda	79	52	--	65	100	97	--	98	--	96	--	80	60	58	59	29	22	25
Experimentals																		
AgriMAXX EXP HRW	76	46	--	61	96	85	--	90	--	--	--	--	60	61	60	28	21	25
Croplan EXP 26-16	80	60	--	70	101	111	--	106	--	--	--	--	57	59	58	32	24	28
Croplan EXP 69-16	85	53	--	69	107	98	--	103	--	--	--	--	59	59	59	31	21	26
Kansas (W) KS13HW92-3	76	51	--	63	96	95	--	95	--	--	--	--	60	61	60	31	21	26
Kansas KS14H180-4-6	82	58	--	70	104	108	--	106	--	--	--	--	59	60	59	30	22	26
Kansas (W) KS14HW106-6-6	83	52	--	67	104	96	--	100	--	--	--	--	62	63	62	29	22	25
Limagrain LCH14-89	82	43	--	62	103	79	--	91	79	--	69	--	59	59	59	28	19	24
Plainsgold CO13003C	74	56	--	65	94	104	--	99	--	--	--	--	59	60	60	33	24	28
Plainsgold CO13D1783	76	62	--	69	96	116	--	106	--	--	--	--	55	59	57	34	26	30
Averages	79	54	--	66	79	54	--	66	--	--	--	--	59	60	60	30	22	26
CV (%)	6	8	--	7	6	8	--	7	--	--	--	--	4	3	3	3	4	4
LSD (0.05)*	7	6	--	6	8	11	--	10	--	--	--	--	3	3	3	1	1	1

¹LA= Larned, KS, Farmer's Field, Pawnee County.

²MV= Mullinville, KS, Farmer's Field, Kiowa County.

³GC= Garden City, KS, Southwest Agricultural Research Center, Finney County. Abandoned: emergence and stand issues.

(W) denotes hard white wheat variety.

*Yields must differ by more than the LSD value to be considered statistically different.



Table 12. 2018 Western Kansas irrigated winter wheat performance test

Brand / Name	CO ¹	GC ²	LN ³	Av.	CO	GC	LN	Av.	-CO-		-GC-		-LN-		CO	GC	Av.
									2 yr	3 yr	2 yr	3 yr	2 yr	3 yr			
	yield (bu/a)				% of test average				multi-year av. (bu/a)						test weight (lb/bu)		
AgriMAXX																	
AM Eastwood	99	72	--	86	99	95	--	97	95	--	86	--	--	--	58	58	58
AGSECO																	
AG Gallant	110	71	--	91	110	94	--	102	--	--	--	--	--	--	62	61	62
AG Icon	95	79	--	87	95	104	--	100	87	--	84	--	--	--	61	56	59
TAM 114	104	88	--	96	103	116	--	110	90	98	93	101	--	76	62	60	61
Dyna-Gro																	
Long Branch	103	91	--	97	102	120	--	111	91	102	94	105	--	72	58	59	59
Underwood	95	63	--	79	95	83	--	89	91	100	80	89	--	85	60	60	60
Limagrain																	
(W) LCS Yeti	91	67	--	79	91	89	--	90	--	--	--	--	--	--	62	61	62
LCS Avenger	104	82	--	93	104	108	--	106	--	--	--	--	--	--	59	56	58
LCS Chrome	88	52	--	70	88	68	--	78	85	97	67	86	--	64	60	62	61
LCS Link	99	90	--	95	99	119	--	109	--	--	--	--	--	--	62	59	61
T158	110	84	--	97	110	111	--	111	92	100	91	97	--	81	62	60	61
OGI																	
Lonerider	113	83	--	98	112	109	--	111	108	--	101	--	--	--	59	57	58
PlainsGold																	
Langin	105	64	--	84	105	84	--	94	94	--	80	--	--	--	61	61	61
Polansky																	
Paradise	104	65	--	84	104	85	--	94	--	--	--	--	--	--	61	60	60
Syngenta																	
SY Flint	97	80	--	88	97	105	--	101	92	101	87	95	--	80	62	60	61
SY Grit	100	71	--	85	100	93	--	96	79	96	82	92	--	68	60	59	59
SY Monument	101	74	--	87	101	97	--	99	89	100	85	95	--	74	60	61	60
SY Sunrise	108	77	--	93	108	102	--	105	95	105	86	96	--	94	60	60	60
SY Wolf	100	77	--	88	100	101	--	100	81	92	80	92	--	80	62	61	61
TAM 111	97	84	--	91	97	111	--	104	78	93	91	103	--	79	62	61	61
Watley																	
TAM 112	80	79	--	79	79	104	--	92	--	94	--	100	--	50	60	60	60
TAM 204	95	76	--	85	95	100	--	97	--	109	--	101	--	85	59	56	57
WestBred																	
WB4303	111	74	--	93	111	98	--	105	94	103	87	95	--	89	59	55	57
WB4418	102	68	--	85	102	89	--	95	--	--	--	--	--	--	60	58	59
WB4458	100	69	--	84	100	91	--	95	91	102	84	90	--	100	61	59	60
WB4721	101	80	--	90	100	105	--	103	106	--	87	--	--	--	62	61	62
WB-Cedar	110	67	--	88	110	88	--	99	98	--	87	--	--	--	60	59	60
WB-Grainfield	102	70	--	86	101	93	--	97	98	105	84	96	--	89	60	58	59
Wildcat Genetics																	
(W) Joe	95	70	--	82	95	92	--	93	85	99	84	94	--	79	59	60	59
KanMark	101	81	--	91	100	106	--	103	89	100	90	96	--	85	59	62	61
Oakley CL	92	96	--	94	92	126	--	109	--	109	--	113	--	78	60	61	61
Zenda	103	79	--	91	102	104	--	103	--	103	--	100	--	101	62	60	61
Experimentals																	
AgriMAXX EXP HRW	103	68	--	86	103	90	--	97	--	--	--	--	--	--	62	60	61
Croplan EXP 26-16	95	84	--	90	95	110	--	103	--	--	--	--	--	--	59	60	59
Croplan EXP 69-16	108	59	--	83	108	77	--	92	--	--	--	--	--	--	60	62	61
Kansas (W) KS14HW106-6-6	100	60	--	80	100	80	--	90	--	--	--	--	--	--	63	61	62
Limagrain LCH13-32	102	67	--	84	102	88	--	95	--	--	--	--	--	--	63	59	61
Limagrain LCH14-89	106	78	--	92	106	102	--	104	94	--	93	--	--	--	61	61	61
Plainsgold CO13D1783	84	85	--	84	84	112	--	98	--	--	--	--	--	--	55	57	56
Averages	100	76	--	88	100	76	--	88	--	--	--	--	--	--	60	60	60
CV (%)	3	6	--	5	3	6	--	5	--	--	--	--	--	--	3	4	4
LSD (0.05)*	5	6	--	6	5	8	--	7	--	--	--	--	--	--	3	3	3

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

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

³LN=Healy, KS, farmer's field, Lane County. Abandoned; hail damage after heading.

⁴(W) indicates hard white wheat.

*Yields must differ by more than the LSD value to be considered statistically different.



2018 National Winter Canola Variety Trial

Senior Authors

Michael Stamm and Scott Dooley

Department of Agronomy, Kansas State University, Manhattan

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 the visibility of winter canola across the United States. Breeders, marketers, and producers use data collected from the trials to make informed variety selections. 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 19 states for the 2017–2018 growing season. Of the 37 entries, 22 are commercial and 15 are experimental. Twentyone entries are open-pollinated and 15 entries are hybrids. These entries were supplied by 8 seed suppliers. All entries in the trials are treated with insecticide and fungicide seed treatments to control insects and seedling diseases through the fall.

Open-pollinated and hybrid cultivars were planted in side-by-side trials at sites where all 37 entries were planted. Results for each trial were analyzed individually and are presented in separate tables. Differences between openpollinated and hybrid cultivars can be compared to the common checks in each trial. Two open-pollinated cultivars, Quartz and Wichita, were used as checks.

All trials have approximately 125 ft² research plots with three replications. Cultural practices, site descriptions, growing conditions, and performance data are provided for each location. Results are presented alphabetically by seed supplier. Two-year averages are provided when available.

2017–2018 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 “17- 18” represents actual precipitation. If weather information was not provided, data were taken

from a nearby town.

In general, the 2017–2018 growing season saw fluctuating temperatures and belownormal precipitation. Fall temperatures were moderate. Along with dry conditions, the canola crop had less biomass than previous years going into winter. This resulted in winterkill and crown damage when cold temperatures arrived around New Years. The spring remained dry with a colder-than-normal April and above-normal temperatures in May. Yields were respectable despite the challenges shown by the weather.

Test Sites and Results

Of the eight NWCVT sites planted in Kansas, four were harvested. Two trials are included in this report: Norwich and Manhattan. The Belleville, Hutchinson, Kiowa, and Troy trials were lost to insufficient soil moisture and subsequent winterkill. The Colby and Garden City results will be impacted by severe hail.

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.

Caution should be used when evaluating data from locations with coefficient of variation (CV) values greater than 20. Lower values suggest less error was observed at the location. Inestimable differences in soil type, weather, and environmental conditions play a part in increasing experimental error and CV values.

Variety Selection

Winter hardiness is an important trait to consider when selecting a winter canola variety. This trait has been improved, 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, yield potential, and oil content. Data for oil content of the test entries will be available at a later date. Use more than one year of data to make an informed variety selection decision. Canola weighs 50 lb/bushel, so a 2,000 lb/acre yield is 40 bushels/acre. A 2,000 lb/acre

yield is what we typically target for all of Kansas.

View Table 5 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, the Kansas Agricultural Experiment Station, and entry fees collected to support the trials. Sincere appreciation is expressed to all participating researchers, cooperating producers, and seed suppliers who have a vested interest in expanding winter canola acres and increasing production in the U.S.



Manhattan, Kansas

Michael Stamm
Kansas State University

Planted: 9/20/2017 in 10-in. rows
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Swathed: 6/7/2018 (OP) 6/11/2018 (H)
Harvested: 6/11/2018 (OP) 6/16/2018 (H)
Herbicides: 1 qt/a Treflan, 10 oz/a Assure II
Insecticides: None
Irrigation: None
Previous crop: Wheat
Soil test: NA
Fertilizer: 35-0-0-30 lb N-P-K-S fertilizer in fall
100-0-0 lb N-P-K fertilizer in spring
Soil type: Rossville silt loam
Elevation: 1064 ft Latitude: 39° 12'N
Comments: Dry soils reduced fall growth. Crown damage was observed. Extremely dry growing season. Yields were respectable for the conditions.

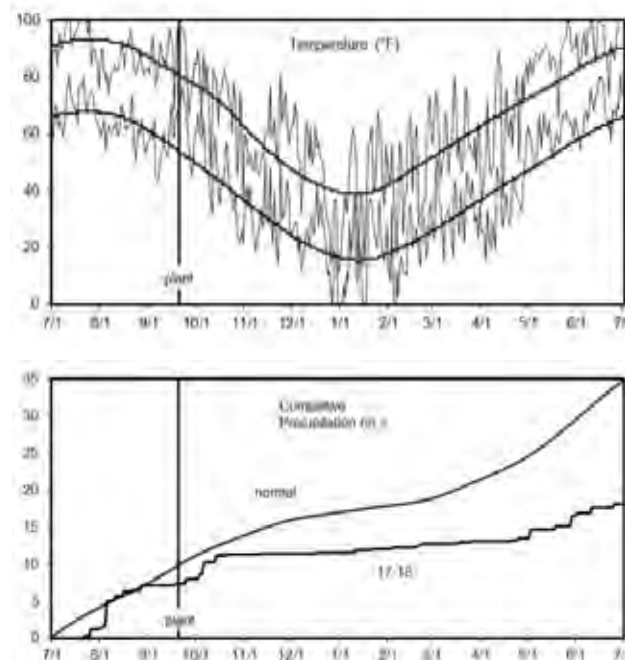


Table 1. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Manhattan, KS

Name	Type ¹	Yield (% of test)				50% Plant			Test weight (lb/bu)	Protein (%)	Oil (%)		
		Yield (lb/a)	2017	2-yr. avg.)	2018	Winter survival (%)	bloom (d)	height (in.)					
		2018	2017	2-yr. avg.)	2018	2017	2-yr. avg.)	(d)	(in.)	(lb/bu)	(%)	(%)	
CROPLAN by WinField													
HyCLASS115W	OP	1640	1997	1818	91	95	99	97	115	36	45.2	---	---
HyCLASS225W	OP	1764	2006	1885	98	90	98	94	117	37	45.5	---	---
CP320W	OP	1411	1929	1670	79	88	100	94	114	37	41.8	---	---
Kansas State University													
KS4670	OP	2108	---	---	117	98	---	---	113	42	45.4	---	---
KS4675	OP	2298	1926	2112	128	97	99	98	117	41	46.2	---	---
KSR4723	OP	1847	---	---	103	93	---	---	117	38	43.2	---	---
KSR4724S	OP	1610	---	---	90	97	---	---	114	39	42.5	---	---
Surefire	OP	2320	2093	2206	129	93	99	96	120	45	46.6	---	---
Riley	OP	1943	2036	1990	108	95	99	97	116	37	45.2	---	---
Sumner	OP	1760	1602	1681	98	98	100	99	115	37	45.4	---	---
Wichita	OP	1790	1756	1773	100	92	97	94	118	40	45.8	---	---
KWS-MOMONT													
Quartz	OP	1109	1886	1498	62	84	99	92	118	32	35.0	---	---
Monsanto / DEKALB													
DKW44-10	OP	2311	2012	2161	129	93	99	96	119	35	46.7	---	---
DKW45-25	OP	1910	1842	1876	106	90	97	94	116	39	45.0	---	---
DKW46-15	OP	1455	1816	1635	81	95	99	97	117	37	41.2	---	---
Ohlde Seed Farms													
Torrington	OP	1721	2007	1864	96	89	100	95	117	41	46.5	---	---
Star Specialty Seed													
Star 915W	OP	1359	1705	1532	76	83	98	90	117	39	44.1	---	---
Star 930W	OP	1997	1796	1897	111	95	99	97	117	39	46.3	---	---
Grand Mean		1797	1816	---	---	92	97	---	116	38	44.3	---	---
Common Check OP Mean		1449	1893	---	---	88	98	---	118	36	40.4	---	---
Common Check Hybrid Mean		1673	1818	---	---	92	98	---	118	37	44.5	---	---
CV		18	10	---	---	8	3	---	1	6	6.0	---	---
LSD (0.1)		576	305	---	---	NS	6	---	2	4	4.6	---	---

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. 2017 alpha level = 0.05.

Table 2. Results for the 2017 National Winter Canola Variety Trial, hybrid cultivars, at Manhattan, KS

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			50% bloom			Plant height (in.)	Test weight (lb/bu)	Protein (%)	Oil (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(d)					
DL Seeds Inc.														
Atora	H	1888	---	---	101	85	---	---	119	43	45.1	---	---	
Event	H	2251	---	---	120	94	---	---	117	37	46.7	---	---	
Phoenix CL	H	1751	---	---	93	83	---	---	117	39	44.3	---	---	
Plurax CL	H	2188	1938	2063	117	90	98	94	116	39	46.5	---	---	
Temptation	H	1889	---	---	101	85	---	---	119	39	47.1	---	---	
Kansas State University														
Wichita	OP	2081	1747	1914	111	98	99	98	117	40	48.9	---	---	
KWS-MOMONT														
HIDYLLE	H	1503	---	---	80	67	---	---	120	40	44.2	---	---	
HAMOUR	H	2303	---	---	123	80	---	---	119	43	45.2	---	---	
MH 15HIB001	H	1230	---	---	66	62	---	---	121	43	41.5	---	---	
MH 15HIB002	H	947	---	---	51	47	---	---	122	41	38.2	---	---	
MH 15AY085	H	1316	---	---	70	60	---	---	120	39	42.8	---	---	
MH 15HT229	H	2055	---	---	110	88	---	---	119	41	45.0	---	---	
Quartz	OP	1266	1867	1566	68	87	96	91	119	33	40.0	---	---	
Monsanto / DEKALB														
DK Imiron CL	H	2301	2148	2225	123	97	100	99	117	40	46.0	---	---	
DK Imistar CL	H	2291	2044	2168	122	91	100	96	117	43	45.8	---	---	
DK Sensei	H	1875	2013	1944	100	94	99	97	118	42	37.5	---	---	
DK Severnyi	H	2076	1982	2029	111	88	99	94	118	37	41.5	---	---	
Rubisco Seeds														
Edimax CL	H	2026	2014	2020	108	85	94	90	118	44	45.7	---	---	
Inspiration	H	1999	2118	2059	107	67	90	78	119	41	45.7	---	---	
Mercedes	H	2018	2351	2185	108	92	99	95	118	39	47.0	---	---	
Popular	H	2104	2010	2057	112	87	97	92	118	37	48.0	---	---	
Grand Mean		1874	2055	---	---	82	97	---	118	40	45.2	---	---	
Common Check Hybrid Mean		1673	1818	---	---	92	98	---	118	37	44.5	---	---	
Common Check OP Mean		1449	1893	---	---	88	98	---	118	36	40.4	---	---	
CV		15	8	---	---	13	4	---	1	4	5.4	---	---	
LSD (0.05)		462	269	---	---	18	NS	---	1	3	4.1	---	---	

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.

¹Type: H=hybrid, OP=open pollinated



Norwich, Kansas

Cody & David Swinehart

Planted: 10/2/2017 in 10-in. rows
 Seeding Rate OP: 500,000 seeds/a
 Seeding Rate Hybrid: 300,000 seeds/a
 Swathed: NA
 Harvested: 6/15/2018
 Herbicides: 1 qt/a Treflan
 Insecticides: None
 Irrigation: None
 Previous crop: Wheat
 Soil test: NA
 Fertilizer: 35-0-0-30 lb N-P-K-S fertilizer in fall
 100-0-0 lb N-P-K fertilizer in spring
 Soil type: Renfrow clay loam
 Elevation: 1496 ft Latitude: 37° 24'N
 Comments: Yields are representative of local producers' fields. Dry conditions post-establishment resulted in smaller than normal plants. Winterkill was observed in the spring.

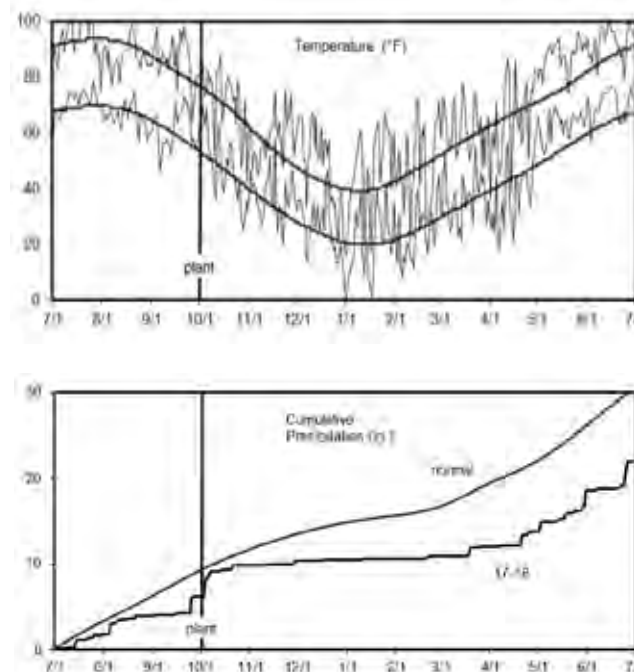


Table 3. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Norwich, KS

Name	Type ¹	Yield (% of test)				50% Plant			Test				
		Yield (lb/a)		avg.)	Winter survival (%)	bloom	height	weight	Protein	Oil			
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(d)	(in.)	(lb/bu)	(%)	(%)
CROPLAN by WinField													
HyCLASS115W	OP	814	---	---	56	60	---	---	117	---	47.3	---	---
HyCLASS225W	OP	1516	---	---	105	80	---	---	116	---	49.0	---	---
CP320W	OP	1632	---	---	113	70	---	---	116	---	51.1	---	---
Kansas State University													
KS4670	OP	1615	---	---	112	70	---	---	116	---	48.9	---	---
KS4675	OP	1541	---	---	107	70	---	---	116	---	49.8	---	---
KSR4723	OP	1435	---	---	99	70	---	---	116	---	50.4	---	---
KSR4724S	OP	1402	---	---	97	65	---	---	116	---	48.6	---	---
Surefire	OP	1685	---	---	117	80	---	---	116	---	50.0	---	---
Riley	OP	1527	---	---	106	75	---	---	116	---	50.1	---	---
Sumner	OP	1639	---	---	114	75	---	---	117	---	52.3	---	---
Wichita	OP	1708	---	---	118	80	---	---	116	---	50.1	---	---
KWS-MOMONT													
Quartz	OP	1520	---	---	105	70	---	---	118	---	48.6	---	---
Monsanto / DEKALB													
DKW44-10	OP	1320	---	---	91	70	---	---	118	---	48.3	---	---
DKW45-25	OP	1550	---	---	107	65	---	---	117	---	51.1	---	---
DKW46-15	OP	1089	---	---	75	60	---	---	118	---	48.0	---	---
Ohlde Seed Farms													
Torrington	OP	1612	---	---	112	75	---	---	116	---	50.9	---	---
Star Specialty Seed													
Star 915W	OP	892	---	---	62	70	---	---	117	---	47.1	---	---
Star 930W	OP	1485	---	---	103	75	---	---	117	---	52.1	---	---
Grand Mean		1443	---	---	---	71	---	---	116	---	49.6	---	---
Common Check OP Mean		1614	---	---	---	75	---	---	117	---	49.3	---	---
Common Check Hybrid Mean		1547	---	---	---	77	---	---	117	---	49.7	---	---
CV		11	---	---	---	13	---	---	1	---	4.0	---	---
LSD (0.1)		321	---	---	---	NS	---	---	1	---	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.



Table 4. Results for the 2017 National Winter Canola Variety Trial, hybrid cultivars, at Norwich, KS

Name	Type ¹	Yield (% of test)				50% bloom	Plant height	Test weight	Protein	Oil			
		Yield (lb/a)		avg.)	Winter survival (%)								
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(d)	(in.)	(lb/bu)	(%)	(%)
DL Seeds Inc.													
Atora	H	1064	---	---	67	60	---	---	118	---	46.2	---	---
Event	H	1900	---	---	119	80	---	---	115	---	50.4	---	---
Phoenix CL	H	1198	---	---	75	67	---	---	116	---	47.8	---	---
Plurax CL	H	1902	---	---	119	80	---	---	117	---	49.7	---	---
Temptation	H	1578	---	---	99	67	---	---	118	---	48.2	---	---
Kansas State University													
Wichita	OP	1440	---	---	90	77	---	---	117	---	50.0	---	---
KWS-MOMONT													
HARMOUR	H	1788	---	---	112	73	---	---	117	---	48.1	---	---
HIDYLLE	H	1408	---	---	88	73	---	---	118	---	49.4	---	---
MH 15HIB001	H	1236	---	---	78	60	---	---	118	---	40.8	---	---
MH 15HIB002	H	1235	---	---	78	50	---	---	118	---	44.0	---	---
MH 15AY085	H	1421	---	---	89	60	---	---	118	---	44.1	---	---
MH 15HT229	H	1758	---	---	110	73	---	---	117	---	46.7	---	---
Quartz	OP	1653	---	---	104	77	---	---	118	---	49.4	---	---
Monsanto / DEKALB													
DK Imiron CL	H	1687	---	---	106	73	---	---	116	---	50.9	---	---
DK Imistar CL	H	1482	---	---	93	73	---	---	117	---	49.3	---	---
DK Sensei	H	1660	---	---	104	80	---	---	116	---	49.6	---	---
DK Severnyi	H	1897	---	---	119	77	---	---	116	---	47.8	---	---
Rubisco Seeds													
Edimax CL	H	1292	---	---	81	63	---	---	116	---	45.9	---	---
Inspiration	H	1571	---	---	99	70	---	---	116	---	49.0	---	---
Mercedes	H	1818	---	---	114	77	---	---	115	---	50.5	---	---
Popular	H	1850	---	---	116	80	---	---	115	---	50.7	---	---
Grand Mean		1572	---	---	---	71	---	---	117	---	48.0	---	---
Common Check Hybrid Mean		1547	---	---	---	77	---	---	117	---	49.7	---	---
Common Check OP Mean		1614	---	---	---	75	---	---	117	---	49.3	---	---
CV		14	---	---	---	12	---	---	1	---	4.6	---	---
LSD (0.05)		367	---	---	---	12	---	---	2	---	3.8	---	---

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.

¹Type: H=hybrid, OP=open pollinated



Table 5. Seed sources for entries in the 2017-2018 National Winter Canola Variety Trial

Source	Type ¹	Trait ²	Available date	Maturity ³	Source	Type ¹	Trait ²	Available date	Maturity ³
CROPLAN by WinField Paul Gregor (psgregor@landolakes.com)					KWS MOMONT Thierry Momont (tmomont@momont.com)				
HyCLASS115W	OP	RR/SURT	2008	ME	Photosyntech Bob Amstrup (bob.amstrup@photosyntech.com)				
HyCLASS225W	OP	RR/SURT	2014	M	HAMOUR	H	---	---	F
CP320W	OP	RR	2017	E	HIDYLLE	H	---	---	F
DL Seeds Inc. Kevin McCallum (kevin.mccallum@dlseeds.ca)					MH 15HIB001	H	CL	---	M
Atora	H	---	---	M	MH 15HIB002	H	CL	---	ME
Event	H	---	---	M	MH 15AY085	H	---	---	F
Phoenix CL	H	CL	---	M	MH 15HT229	H	---	---	F
Plurax CL	H	CL	2018	E	Quartz	OP	---	2015	M
Temptation	H	---	---	F	Monsanto / DEKALB David Kelner (david.j.kelner@monsanto.com)				
Rubisco Seeds LLC Claire Caldbeck (info@rubiscoseeds.com)					DK Imiron CL	H	SD/CL	---	M
Edimax CL	H	CL	2012	M	DK Imistar CL	H	CL	---	M
Inspiration	H	---	2014	M	DK Sensei	H	SD	---	M
Mercedes	H	---	2014	M	DK Severnyi	H	SD	---	M
Popular	H	---	2016	E	DKW44-10	OP	RR	2009	ME
Kansas State University Canola Breeding Program Michael J. Stamm (mjstamm@ksu.edu)					DKW45-25	OP	RR/SURT	2013	M
KS4670	OP	---	---	M	DKW46-15	OP	RR/SURT	2008	M
KS4675	OP	---	---	M	Ohlde Seed Farms Shane Ohlde (shane@ohldeedseed.com)				
KSR4723	OP	RR	---	M	Torrington	OP	---	2016	M
KSR4724S	OP	RR/SURT	---	E	Star Specialty Seed, Inc. Jim Johnson (jimj_star@hotmail.com)				
Riley	OP	---	2010	M	Star 915W	OP	RR/SURT	2014	M
Sumner	OP	SU	2003	ME	Star 930W	OP	RR	2013	ME
Surefire	OP	SU	2017	F					
Wichita	OP	---	1999	M					

¹ OP = open pollinated, H = hybrid

² SU and SURT = sulfonylurea carryover tolerant; CL = Clearfield (imidazolinone resistant); RR = Roundup Ready; SD = semi dwarf

³ E = Early; ME = Medium/Early; M = Medium; MF = Medium/Full; F = Full