

2015



KANSAS WHEAT SEED BOOK



KANSAS PERFORMANCE TESTS WITH WINTER WHEAT VARIETIES

REPORT OF PROGRESS 1119
Kansas State University Agricultural Experiment Station and Cooperative Extension Service

KANSAS CERTIFIED SEED DIRECTORY of producers of field crops including wheat, spring oats, triticale, canola, and winter barley





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2015 WHEAT CROP REVIEW

Weather and Crop Development

The 2014-2015 wheat crop enjoyed a productive start in the fall for most of the state with adequate moisture and mild temperatures. Planting for some areas of Kansas was delayed a few weeks by rain, but overall the wheat experienced very good emergence and establishment.

This would take a turn in November, however, when the crop was forced to contend with a roller coaster of fluctuating temperatures. The most extreme fluctuation was a 75°F-drop in temperature in 24 hours in western Kansas, but most areas of the state had some level of winter injury. Winterkill, combined with an early spring drought, resulted in many acres of stressed wheat.

Relief of sorts came in late spring, when precipitation greatly picked up across the state. However, with the increased rainfall came an explosion of wheat diseases that further impacted the yield and grain quality of the stressed crop. Test weights of varieties susceptible to foliar diseases and head scab were significantly diminished to the point that some producers could not find an outlet to sell their wheat. Resistant varieties that had survived the winter with minimal damage tended to yield much better, but still reported reduced test weight and grain quality. At the time of harvest, 67% of the 2015 wheat crop was rated as fair to very poor. (*Crop Progress and Conditions* report, Kansas Agricultural Statistics)

Diseases

Diseases were a major production factor in 2015. The cool temperatures, frequent rainfall and extended periods of high relative humidity favored the development of multiple fungal diseases. Stripe rust was the most important disease this year and was severe in all regions of the state. Statewide, stripe rust caused more than 10% yield loss, and losses exceeding 20% were common in individual fields. The yield of wheat varieties with resistance to stripe rust was above-average at most locations.

Fusarium head blight (head scab) was an issue for many wheat growers in eastern Kansas where disease incidence often exceeded 40% in susceptible varieties. Leaf rust also reappeared this season with a flush of disease late in the growing season. Fortunately, this leaf rust was late enough that it did not cause significant yield loss relative to other diseases this year.

Wheat streak mosaic reemerged as a serious problem in western Kansas this year. In most cases, fields with severe wheat streak mosaic were associated with poor control of volunteer wheat the previous summer. Mild temperatures last fall likely aided the spread of this viral disease beyond fields directly adjacent to those with volunteer wheat. Overall, the 2015 growing season will be ranked among the most severe disease years on record in Kansas. (Erick De Wolf, Kansas State University Plant Pathologist)

Insects

No seed or seedling pest problems were reported early in the fall. By mid to late October, grasshoppers were moving into the growing wheat fields and causing concern for many growers. Grasshoppers don't usually cause any impact on growing wheat, as was the case in the fall of 2014. Populations were soon eliminated by the first freeze. One additional fall insect problem was an abundance of armyworms moving from sorghum into the growing wheat, especially in southcentral and northcentral Kansas. Armyworms don't overwinter in Kansas wheat, but army cutworms do and there were many reports of army cutworm feeding in early spring.

Hessian flies also continue to cause problems. Several fields across the state, all south of Interstate 70, were severely infested with Hessian fly, to the point that most were plowed under in early spring. Some plants not plowed under did produce tillers but considerable thinning had already occurred. This, followed by serious lodging just prior to harvest, rendered yields negligible. Also, there was considerable concern relative to aphids (both greenbugs and bird cherry-oat) as the wheat was heading. Many beneficials (both lady beetles and parasitic wasps) were noted however, and insecticide applications were not warranted over most of Kansas, especially at this late wheat growth stage. (Jeff Whitworth, Kansas State University Extension Entomologist)

Harvest Statistics

The Kansas Agricultural Statistics July 10 estimate of the 2015 crop was 334 million bushels from 8.8 million acres, up 36% from last year's crop. Yield per harvested acre is expected to average 38 bushels, up 10 bushels from last year's final yield. (July 10, 2015, *Crops Report*, Kansas Agricultural Statistics)

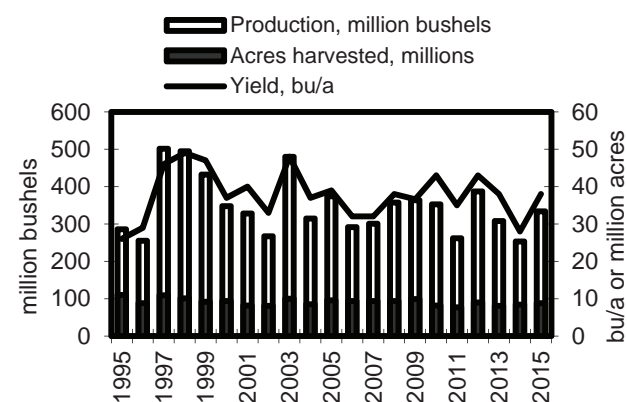


Figure 1. Historical Kansas wheat production



Everest remained the leading variety of wheat seeded in Kansas. It accounted for 15.8% of the state's wheat and was the most popular variety in the eastern two-thirds of the state. TAM 111 remained at second with 9.1% of acreage and is the leading variety in the western third of the state. T158 remained in third place, accounting for 5.1% of wheat acres; WB Cedar jumped to fourth place with 4.9%; and TAM 112 dropped one place to fifth with 4.0% of wheat acres. (February 2015, *Wheat Variety*, Kansas Agricultural Statistics)

Acreage Distribution

TAM 111 21 (22) Winterhawk 8 (9) SY Wolf 7 (4) Denali 7 TAM 112 6	Everest 18 (17) SY Wolf 8 (4) Winter Hawk 7 WB Cedar 5 (5) Armour 4 (10)	Everest 34 (30) WB Cedar 5 Santa Fe 5 (5) Fuller 3 (4) Karl/Karl 92 3
TAM 111 17 (21) T158 13 (11) TAM 112 9 (13) Winter Hawk 4 Denali 3	Everest 24 (26) WB Cedar 7 (3) Armour 7 (10) TAM 111 6 (6) T158 3	Everest 41 (39) WB Cedar 5 (4) Armour 4 (4) Pioneer 25R47 2 SY Wolf 1
TAM 111 21 (22) T158 11 (11) TAM 112 11 (11) Winter Hawk 6 (4) Danby 5	Everest 25 (24) WB Cedar 8 Duster 3 (7) Armour 3 (4) Endurance 3 (5)	Everest 66 (60) WB Cedar 3 (3) Pioneer 25R78 2 (1) Overley 2 Pioneer 25R40 2 (2)

Figure 2. Leading wheat varieties in Kansas; percentage of seeded acreage for 2015 and (2014) crops

2015 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

Winterkill and disease were determining factors in most of the tests in the 2014-2015 growing season. **Be sure to keep extenuating environmental conditions in mind when examining test results.** Results from the dryland tests at Colby and Garden are not reported due to crop failure because of winter injury and heavy disease pressure. The soft wheat test at Parsons was not reported due to a planting error that led to unacceptable variability. For more information on winter survival ratings, please visit: <http://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 Georgia, Nebraska, Oklahoma, Texas, 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 2015 private entrants are listed in Table 1. Eleven private entrants provided a total of 40 varieties for testing.

Results and Variety Characterization

Results from Kansas tests are presented in Tables 4 through 11. Yields are reported as bushels per acre (60 lb/bu) 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) 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://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 1119 '2015 Kansas Performance Tests with Winter Wheat Varieties,' or the Kansas Crop Performance Test website, <http://www.agronomy.ksu.edu/services/crop-performance-tests> for details. Endorsement or recommendation by Kansas State University is not implied."

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Table 1. Private entrants in the 2015 Kansas wheat performance tests

Agrimaxx Wheat Company 7167 Highbanks Road Mascoutah, IL 62258 855-629-9432	Dyna-Gro Seed 6221 Riverside Drive Dublin, OH 43017 614-761-4110 ext. 3	MFA MFA Incorporated 201 Ray Young Dr. Columbia, MO 65201 573-876-5363	Watley Seed Box 51 Spearman, TX 79081 800-659-3838
AGSECO P.O. Box 7 Girard, KS 66743 620-724-6223	Kansas Wheat Alliance 2005 Research Park Circle Manhattan, KS 66502 785-477-3400	Scott Seed Company Box 1732 Hereford, TX 79045 806-364-3484	WestBred-Monsanto 800 North Lindbergh Blvd St. Louis, MO 63167 314-694-5305
DuPont Pioneer Pioneer Hi-Bred Intl., Inc. 8100 South 15th Lincoln, NE 68512 800-228-4050	Limagrain Cereal Seeds 2040 SE Frontage Road Fort Collins, CO 80525 970-498-2200	Syngenta AgriPro AgriPro Wheat, Inc. 11783 Ascher Rd. Junction City, KS 66441 785-582-0101	

Table 3. Wheat performance test site descriptions and management in 2015

Region and 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			
<u>Northeast Dryland</u>							
Ashland Agronomy Farm Manhattan (MA)	Reading silt loam Soybean	70	0	0	Fall	10/30/2014-6/30/2015 75 lb/a	Leaf rust was present later in the season. Freeze injury was an issue for some varieties.
<u>Southeast Dryland</u>							
East Central KS Experiment Field Ottawa (OT)	Woodson silt loam Soybean	94	40	13	Fall	10/21/2014-6/23/2015 60 lb/a	Good moisture throughout growing season, which expedited infections of leaf rust and head scab.
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Corn	100	0	20	Fall	10/29/2014-6/24/2015 90 lb/a	Good establishment in the fall; mild winter with little snow cover followed by a very wet spring and cool, wet summer.
<u>Soft Wheat</u>							
Southeast Agricultural Research Center Parsons (PA)	Parsons silt loam Corn	100	0	20	Fall	10/29/2014-6/24/2015 90 lb/a	Planting error led to extreme variability; test is not reported.
<u>North Central Dryland</u>							
North Central KS Experiment Field Belleville (BE)	Crete silt loam Fallow	80	30	0	Fall	10/08/2014-7/01/2015 90 lb/a	Stands were reduced by winterkill for many varieties and further affected by low temperatures in April and May.
North Central KS Farmer's Field Beloit (BL)	Harney silt loam Wheat	90	25	0	Fall	10/17/2014-6/30/2015 80 lb/a	Stands were reduced by winterkill for many varieties and further affected by low temperatures in April and May.
<u>Central Dryland</u>							
Central KS Farmer's Field Gypsum (GY)	Silty clay loam Fallow	50	0	0	Fall	10/28/2014-7/13/2015 90 lb/a	Stripe rust and leaf rust were prevalent.
Central KS Farmer's Field Lorraine (LR)	McCook silt loam Fallow	60	0	0	Fall	10/07/2014-6/24/2015 60 lb/a	Stripe rust and leaf rust were prevalent.
<u>South Central Dryland</u>							
South Central KS Farmer's Field McPherson (MC)	Crete silt loam Fallow	60	0	0	Fall	10/06/2014-6/28/2015 60 lb/a	Favorable conditions throughout growing season; some leaf rust late in the season.
South Central KS Experiment Field Hutchinson (HU)	Funmar-Taver loam Canola	116	0	0	Fall	10/21/2014-6/20/2015 75 lb/a	Fluctuating temperatures in the fall and winter impacted plant stands; severe leaf and stripe rust infections in the spring.
South Central KS Farmer's Field Conway Springs (CW)	Sandy loam Fallow	40	0	0	Fall	10/06/2014-6/22/2015 60 lb/a	Stripe rust and leaf rust were prevalent.
<u>Northwest Dryland</u>							
Agricultural Research Center Hays (HA)	Harney silt loam Wheat	80	0	0	Fall	10/06/2014-6/28/2015 60 lb/a	Dry conditions and low temperatures caused winter injury. Early spring drought was relieved by precipitation later in the season.
Northwest Research-Extension Center Colby (CO)	Keith silt loam Fallow	60	20	0	Fall	9/22/2014-7/02/2015 60 lb/a	Severe infections of wheat streak mosaic, leaf rust, and stripe rust caused extreme variability. Test is not reported.
Northwest Research-Extension Center Tribune (TR)	Richfield silt loam Fallow	65	25	0	Fall	9/26/2014-6/29/2015 55 lb/a	Rapid drop in temperature in the fall and dry conditions caused winterkill in some varieties.
Northwest KS Farmer's Field Wakeeny (WA)	Harney clay loam Grain Sorghum	40	0	0	Fall	9/28/2014-7/04/2015 50 lb/a	Winter injury to some varieties. The test was sprayed with a fungicide around heading time.
<u>Southwest Dryland</u>							
Southwest KS Farmer's Field Larned (LA)	Harney clay loam Grain sorghum	75	0	0	Fall	9/27/2014-6/25/2015 50 lb/a	Winter injury to some varieties. The test was sprayed with a fungicide around heading time.
Southwest KS Farmer's Field Dodge City (DC)	Harney clay loam Grain Sorghum	60	0	0	Fall	9/29/2014-6/24/2015 45 lb/a	Early drought stress in the spring. Stripe rust was present.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam Wheat	60	0	0	Fall	9/26/2014- 65 lb/a	Winter injury followed by dry conditions in the early spring. Test was abandoned.
<u>Western Irrigated</u>							
Northwest Research-Extension Center Colby (CO)	Keith silt loam Fallow	110	20	0	Fall	9/22/2014-7/02/2015 90 lb/a	Stripe rust and leaf rust were prevalent; winterkill was an issue with many varieties.
Southwest Research-Extension Center Garden City (GC)	Keith silt loam Corn	100	0	0	Fall	9/29/2014-6/30/2015 75 lb/a	Winter injury to some varieties. Stripe rust and wheat streak mosaic were present.
Western KS Farmer's Field Healy, Lane County (LN)	Scott silt loam Fallow	90	0	0	Fall	9/24/2014-7/12/2015 80 lb/a	Dry, early spring conditions were relieved by later precipitation. Less winter injury than in other western tests.



Table 4. 2015 NORTHEAST Kansas dryland winter wheat performance test

Brand / Name	MA ¹ yield (bu/a)	MA % of test average	MA multiyear av. (bu/a)		MA tw (lb/bu)	MA head (+/- Everest)	MA height (in.)
			2 yr	3 yr			
Dyna Gro							
Underwood	50	91	--	--	52	--	--
Limagrain							
LCS Mint	50	92	62	62	50	--	--
LCS Pistol	58	107	--	--	52	--	--
LCS Wizard	38	69	54	--	47	--	--
T158	66	122	64	61	55	--	--
Oklahoma Genetics							
Doublestop CL+	55	102	63	--	54	--	--
Duster	53	97	56	56	50	--	--
Gallagher	64	118	65	63	51	--	--
Iba	50	91	57	56	49	--	--
Ruby Lee	49	91	59	59	49	--	--
WestBred							
Armour	39	72	54	55	49	--	--
Santa Fe	62	114	--	--	54	--	--
WB-4458	58	107	62	60	53	--	--
WB-Cedar	60	111	62	60	54	--	--
WB-Redhawk	46	85	59	60	47	--	--
Wildcat Genetics							
1863	65	120	64	61	55	--	--
Everest	53	98	56	55	54	--	--
Fuller	51	94	--	--	50	--	--
KanMark	55	101	60	--	51	--	--
Experimentals							
KS61406-LN-37 <small>Kansas</small>	63	116	65	--	51	--	--
Averages	54	54	--	--	51	--	--
CV (%)	5	5	--	--	2	--	--
LSD (0.05)	4	7	--	--	2	--	--

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

Table 5. 2015 SOUTHEAST Kansas dryland winter wheat performance test

Brand / Name	OT ¹			PA ²			-OT-				-PA-				OT			PA			Av.		
	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.	
	yield (bu/a)			% of test average			multiyear av. (bu/a)				tw (lb/bu)			head (+/- Everest)			height (in.)						
Limagrain																							
LCS Pistol	47	45	46	89	97	93	--	--	--	--	56	53	55	2	2	2	--	--	--				
LCS Wizard	49	40	45	77	106	92	70	--	45	--	55	55	55	3	3	3	--	--	--				
Oklahoma Genetics																							
Doublestop CL+	42	49	45	80	107	93	64	--	49	--	56	55	55	2	4	3	--	--	--				
Gallagher	42	35	38	79	76	78	66	--	43	--	54	51	52	4	2	3	--	--	--				
Garrison	47	43	45	89	92	91	66	69	40	40	57	54	55	3	3	3	--	--	--				
Iba	39	42	40	74	91	83	66	--	46	--	54	52	53	4	3	4	--	--	--				
Ruby Lee	65	51	58	125	111	118	82	83	49	49	60	55	58	0	0	0	--	--	--				
Syngenta AgriPro																							
Jackpot	57	43	50	109	93	101	74	76	40	41	59	54	56	0	3	2	--	--	--				
SY Llano	57	62	60	108	133	121	--	--	--	--	64	56	60	0	-1	-1	--	--	--				
WestBred																							
Armour	56	47	52	107	101	104	70	78	46	47	59	52	56	1	3	2	--	--	--				
WB-4458	51	28	39	97	61	79	72	72	34	36	58	50	54	0	2	1	--	--	--				
WB-Cedar	69	61	65	131	132	131	76	74	50	46	62	55	59	0	-1	-1	--	--	--				
WB-Redhawk	65	37	51	125	79	102	81	82	38	38	58	51	54	1	1	1	--	--	--				
Wildcat Genetics																							
Everest	64	57	61	122	122	122	76	75	48	46	64	56	60	0	0	0	--	--	--				
KanMark	46	46	46	88	99	94	67	--	41	--	58	52	55	3	2	3	--	--	--				
Averages	52	46	49	52	46	49	--	--	--	--	58	53	56	1	2	2	--	--	--				
CV (%)	9	10	9	9	10	9	--	--	--	--	2	4	3	1	1	1	--	--	--				
LSD (0.05)	7	7	7	13	15	14	--	--	--	--	2	3	2	1	2	1	--	--	--				

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

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



Table 6. 2015 NORTH CENTRAL Kansas dryland winter wheat performance test

Brand / Name	BE ¹ BL ² Av.			BE BL Av.			-BE- 2 yr 3 yr 2 yr 3 yr				BE BL Av.			BE BL Av.			BE BL Av.			
	yield (bu/a)			% of test average			multiyear av. (bu/a)				tw (lb/bu)			head (+/- Everest)			height (in.)			
Dyna-Gro																				
Underwood	27	47	37	63	67	65	--	--	--	--	53	56	55	--	--	--	27	27	27	
Limagrain																				
LCS Mint	35	60	48	81	86	83	58	66	--	73	53	58	55	--	--	--	33	25	29	
LCS Pistol	50	76	63	116	108	112	--	--	--	--	56	58	57	--	--	--	29	23	26	
LCS Wizard	23	43	33	52	61	57	47	--	--	--	56	58	57	--	--	--	26	25	25	
T158	47	84	65	108	120	114	63	69	--	84	56	58	57	--	--	--	29	22	26	
Nebraska																				
Freeman	48	56	52	111	81	96	63	--	--	--	56	55	55	--	--	--	30	24	27	
Robidoux	43	79	61	100	113	107	65	--	--	--	56	57	57	--	--	--	33	23	28	
Oklahoma Genetics																				
Doublestop CL+	36	64	50	83	92	87	57	--	--	--	56	59	57	--	--	--	33	23	28	
Iba	29	50	40	67	72	70	51	60	--	67	54	57	56	--	--	--	29	24	26	
Syngenta AgriPro																				
SY Flint	41	75	58	95	107	101	--	--	--	--	58	59	59	--	--	--	29	24	27	
SY Monument	58	87	72	134	124	129	68	--	--	--	55	59	57	--	--	--	30	22	26	
SY Southwind	42	81	61	96	115	106	55	62	--	77	55	57	56	--	--	--	28	24	26	
SY Wolf	39	63	51	89	90	90	58	66	--	71	53	57	55	--	--	--	29	28	29	
Texas AgriLife																				
TAM 114	51	100	76	119	142	131	--	--	--	--	58	62	60	--	--	--	32	23	28	
Watley Seed																				
TAM 204	52	71	62	121	101	111	--	--	--	--	55	59	57	--	--	--	31	27	29	
WestBred																				
Armour	23	49	36	54	70	62	43	54	--	64	51	55	53	--	--	--	25	21	23	
WB-4458	35	73	54	80	104	92	56	63	--	81	57	60	59	--	--	--	28	27	28	
WB-Cedar	51	73	62	118	104	111	57	63	--	54	56	56	56	--	--	--	26	23	25	
WB-Grainfield	65	87	76	150	124	137	69	73	--	82	58	56	57	--	--	--	30	22	26	
WB-Redhawk	30	40	35	69	57	63	58	69	--	58	53	61	57	--	--	--	28	23	26	
Winterhawk	40	60	50	92	86	89	59	67	--	72	57	58	57	--	--	--	32	25	29	
Wildcat Genetics																				
1863	55	81	68	126	116	121	66	71	--	74	57	60	58	--	--	--	29	22	26	
Denali	42	69	55	96	98	97	--	--	--	--	57	58	58	--	--	--	33	27	30	
Everest	35	62	49	82	88	85	55	64	--	72	59	59	59	--	--	--	27	23	25	
KanMark	42	54	48	98	78	88	57	--	--	--	57	58	57	--	--	--	25	24	24	
Wabash Blend	48	71	60	112	101	106	--	--	--	--	58	59	59	--	--	--	29	24	26	
Experimentals																				
LCH12-012 Limagrain	49	85	67	113	122	118	--	--	--	--	56	59	57	--	--	--	33	24	28	
LCH12-014 Limagrain	43	90	66	99	129	114	--	--	--	--	56	61	59	--	--	--	33	25	29	
LCH13DH-20-87 Limagrain	63	91	77	145	131	138	--	--	--	--	58	59	58	--	--	--	35	28	32	
NE10589 Nebraska	56	78	67	129	112	121	--	--	--	--	56	57	57	--	--	--	34	26	30	
Averages	43	70	57	43	70	57	--	--	--	--	56	59	57	--	--	--	30	24	27	
CV (%)	9	7	8	9	7	8	--	--	--	--	3	9	6	--	--	--	6	10	8	
LSD (0.05)	7	8	7	15	11	13	--	--	--	--	3	8	6	--	--	--	3	4	3	

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

²BL=Beloit, KS, Farmer's Field, Mitchell County.

Table 7. 2015 CENTRAL Kansas dryland winter wheat performance test

Brand / Name	GY ¹	LR ²	Av.	GY	LR	Av.	-GY-		-LR-		GY	LR	Av.	GY	LR	Av.	GY	LR	Av.
	yield (bu/a)			% of test average			multiyear av. (bu/a)				tw (lb/bu)			head (+/- Everest)			height (in.)		
	2 yr	3 yr	2 yr	3 yr	GY	LR	Av.	GY	LR	Av.	GY	LR	Av.	GY	LR	Av.	GY	LR	Av.
Limagrain																			
LCS Mint	45	51	48	85	93	89	55	57	60	59	48	57	52	--	--	--	--	--	--
LCS Pistol	53	45	49	99	83	91	--	--	--	--	49	55	52	--	--	--	--	--	--
LCS Wizard	45	32	39	85	59	72	52	--	44	--	50	60	55	--	--	--	--	--	--
T158	56	57	57	105	105	105	57	58	59	56	52	57	55	--	--	--	--	--	--
Oklahoma Genetics																			
Billings	63	49	56	118	90	104	58	56	49	47	53	55	54	--	--	--	--	--	--
Doublestop CL+	54	57	55	101	105	103	60	--	54	--	54	60	57	--	--	--	--	--	--
Duster	48	42	45	91	77	84	51	51	53	52	49	58	53	--	--	--	--	--	--
Gallagher	60	67	63	113	122	118	61	60	64	60	50	54	52	--	--	--	--	--	--
Garrison	29	38	34	55	70	62	43	49	43	43	42	54	48	--	--	--	--	--	--
Iba	47	44	46	89	80	85	55	57	50	49	52	53	52	--	--	--	--	--	--
Ruby Lee	42	40	41	79	73	76	49	52	46	46	46	59	52	--	--	--	--	--	--
Syngenta AgriPro																			
SY Monument	69	64	67	131	117	124	69	--	64	--	52	54	53	--	--	--	--	--	--
SY Wolf	63	70	67	119	128	124	65	64	66	61	51	55	53	--	--	--	--	--	--
TAM 111	48	45	47	91	82	87	54	--	53	--	47	50	49	--	--	--	--	--	--
Texas AgriLife																			
TAM 114	62	50	56	117	93	105	--	--	--	--	52	55	54	--	--	--	--	--	--
Watley Seed																			
TAM 204	60	65	62	113	119	116	--	--	--	--	50	53	51	--	--	--	--	--	--
WestBred																			
Armour	33	53	43	63	98	80	45	49	51	48	43	53	48	--	--	--	--	--	--
WB-4458	65	72	68	122	133	127	63	63	65	60	52	58	55	--	--	--	--	--	--
WB-Cedar	61	67	64	116	124	120	59	61	59	55	51	58	55	--	--	--	--	--	--
WB-Grainfield	72	68	70	137	125	131	66	63	61	56	54	58	56	--	--	--	--	--	--
WB-Redhawk	47	48	48	89	88	89	52	54	45	44	46	50	48	--	--	--	--	--	--
Winterhawk	52	59	55	97	108	102	57	--	62	--	52	57	54	--	--	--	--	--	--
Wildcat Genetics																			
1863	52	44	48	97	80	89	51	51	47	47	54	58	56	--	--	--	--	--	--
Denali	45	49	47	85	90	87	--	--	--	--	51	57	54	--	--	--	--	--	--
Everest	34	63	48	63	116	90	44	48	57	53	50	58	54	--	--	--	--	--	--
Fuller	54	56	55	102	102	102	--	--	--	--	50	55	53	--	--	--	--	--	--
KanMark	56	56	56	105	103	104	59	--	56	--	51	57	54	--	--	--	--	--	--
Wabash Blend	55	64	59	104	117	110	--	--	--	--	53	58	55	--	--	--	--	--	--
Experimentals																			
LCH12-012 Limagrain	50	47	49	94	87	91	--	--	--	--	48	54	51	--	--	--	--	--	--
LCH12-014 Limagrain	56	56	56	106	103	104	--	--	--	--	49	54	52	--	--	--	--	--	--
LCH13DH-20-87 Limagrain	67	71	69	127	131	129	--	--	--	--	53	56	54	--	--	--	--	--	--
Averages	53	54	54	53	54	54	--	--	--	--	50	56	53	--	--	--	--	--	--
CV (%)	9	9	9	9	9	9	--	--	--	--	2	5	3	--	--	--	--	--	--
LSD (0.05)	7	7	7	13	12	12	--	--	--	--	1	4	3	--	--	--	--	--	--

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

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



Table 8. 2015 SOUTH CENTRAL Kansas dryland winter wheat performance test

Brand / Name	MC ¹	HU ²	CW ³	Av.	MC	HU	CW	Av.	-MC-		-HU-		-CW-		MC	HU	CW	Av.	MC	HU	CW	Av.	MC	HU	CW	Av.	
									2 yr	3 yr	2 yr	3 yr	2 yr	3 yr													
	yield (bu/a)				% of test average				multiyear av. (bu/a)						tw (lb/bu)				head (+/- Everest)				height (in.)				
Limagrain																											
LCS Mint	53	35	37	41	84	110	104	100	47	45	47	46	38	38	58	57	59	58	--	--	--	--	--	33	--	33	
LCS Pistol	48	23	32	35	77	75	91	81	--	--	--	--	--	--	54	50	51	52	--	--	--	--	--	31	--	31	
LCS Wizard	58	19	36	38	92	62	101	85	44	--	36	--	36	--	57	51	55	54	--	--	--	--	--	31	--	31	
T158	58	26	34	39	92	83	96	91	43	41	39	40	34	34	57	51	55	54	--	--	--	--	--	30	--	30	
Oklahoma Genetics																											
Billings	65	39	32	45	104	123	90	106	44	40	45	44	31	32	57	56	56	56	--	--	--	--	--	34	--	34	
Doublestop CL+	64	42	40	48	102	133	112	116	48	46	45	45	41	41	59	60	59	59	--	--	--	--	--	37	--	37	
Duster	49	22	33	34	77	69	92	80	38	37	38	40	38	38	56	49	59	55	--	--	--	--	--	30	--	30	
Gallagher	73	32	34	46	116	102	96	105	52	47	38	40	34	37	57	53	55	55	--	--	--	--	--	33	--	33	
Garrison	55	18	36	36	88	56	103	82	42	51	33	37	36	36	49	44	55	49	--	--	--	--	--	33	--	33	
Iba	62	23	39	41	98	74	110	94	45	41	41	44	41	42	59	51	59	56	--	--	--	--	--	32	--	32	
Ruby Lee	67	39	33	46	107	123	92	107	47	45	43	44	35	37	55	55	56	55	--	--	--	--	--	35	--	35	
Syngenta AgriPro																											
Jackpot	64	31	30	41	101	97	85	95	46	42	36	37	33	33	56	54	54	55	--	--	--	--	--	31	--	31	
SY Flint	72	34	41	49	114	107	114	112	--	--	--	--	--	--	59	54	57	56	--	--	--	--	--	34	--	34	
SY Llano	53	32	30	39	85	103	85	91	--	--	--	--	--	--	56	56	53	55	--	--	--	--	--	30	--	30	
SY Monument	58	53	46	53	93	170	129	131	--	--	--	--	--	--	57	58	56	57	--	--	--	--	--	35	--	35	
SY Southwind	69	29	35	45	110	93	99	101	51	47	38	40	34	33	55	52	55	54	--	--	--	--	--	32	--	32	
Texas AgriLife																											
TAM 114	57	46	35	46	91	148	99	112	--	--	--	--	--	--	58	61	56	58	--	--	--	--	--	34	--	34	
Watley Seed																											
TAM 204	77	28	35	47	122	91	98	104	--	--	--	--	--	--	55	44	54	51	--	--	--	--	--	30	--	30	
WestBred																											
Armour	64	19	29	37	102	62	81	82	47	44	31	35	33	37	52	50	53	52	--	--	--	--	--	30	--	30	
WB-4458	81	38	39	53	129	121	109	120	58	54	47	49	40	41	58	57	56	57	--	--	--	--	--	33	--	33	
WB-Cedar	61	25	38	41	97	80	106	94	45	43	32	34	38	39	58	50	56	55	--	--	--	--	--	29	--	29	
WB-Redhawk	63	28	35	42	101	89	99	96	47	57	40	43	35	37	53	54	56	54	--	--	--	--	--	31	--	31	
Wildcat Genetics																											
1863	65	38	37	47	103	120	105	109	49	44	41	41	35	36	59	58	57	58	--	--	--	--	--	33	--	33	
Everest	64	23	33	40	102	74	93	89	33	40	33	36	35	36	59	54	56	56	--	--	--	--	--	30	--	30	
KanMark	61	22	30	38	98	69	84	84	43	--	35	--	35	--	56	49	50	52	--	--	--	--	--	28	--	28	
Wabash Blend	66	34	39	46	105	108	109	107	--	--	--	--	--	--	58	57	57	57	--	--	--	--	--	33	--	33	
Experimentals																											
LCH12-012 Limagrain	62	32	39	44	98	101	109	103	--	--	--	--	--	--	53	54	56	54	--	--	--	--	--	35	--	35	
LCH12-014 Limagrain	48	27	34	36	77	85	96	86	--	--	--	--	--	--	53	52	60	55	--	--	--	--	--	33	--	33	
LCH13DH-20-87 Limagrain	74	44	38	52	118	140	106	121	--	--	--	--	--	--	57	58	56	57	--	--	--	--	--	34	--	34	
OK09125 OGI	63	41	47	50	100	132	132	121	--	--	--	--	--	--	55	57	56	56	--	--	--	--	--	33	--	33	
(W) OK10728W OGI	67	30	30	42	106	95	84	95	--	--	--	--	--	--	55	54	54	54	--	--	--	--	--	32	--	32	
(W) OK11754WF OGI	70	34	31	45	111	108	88	102	--	--	--	--	--	--	59	56	53	56	--	--	--	--	--	32	--	32	
Averages	63	31	35	43	63	31	35	43	--	--	--	--	--	--	56	54	56	55	--	--	--	--	--	32	--	32	
CV (%)	10	10	10	10	10	10	10	10	--	--	--	--	--	--	4	3	7	5	--	--	--	--	--	5	--	5	
LSD (0.05)	9	5	5	6	14	15	14	14	--	--	--	--	--	--	4	3	5	4	--	--	--	--	--	2	--	2	

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.

Table 9. 2015 NORTHWEST Kansas dryland winter wheat performance test

Brand / Name	yield (bu/a)					% of test average					multiyear av. (bu/a)						tw (lb/bu)					height (in.)					
	HA ¹	CO ²	TR ³	WA ⁴	Av.	HA	CO	TR	WA	Av.	-HA-		-TR-		-WA-		HA	CO	TR	WA	Av.	HA	CO	TR	WA	Av.	
											2 yr	3 yr	2 yr	3 yr	2 yr	3 yr											
AGSECO																											
TAM 113	65	--	49	51	55	94	--	66	88	83	48	48	48	47	56	53	56	--	52	56	55	30	--	36	--	33	
Limagrain																											
LCS Mint	65	--	61	49	58	95	--	83	84	87	53	51	61	57	57	55	61	--	57	55	57	31	--	37	--	34	
LCS Pistol	75	--	75	61	70	110	--	102	106	106	--	--	--	--	--	--	62	--	57	56	59	30	--	36	--	33	
LCS Wizard	46	--	49	38	45	67	--	67	66	67	42	--	52	--	50	--	57	--	56	53	55	26	--	35	--	30	
T158	73	--	83	73	76	106	--	112	127	115	55	55	65	59	72	67	64	--	57	60	60	27	--	36	--	31	
Nebraska																											
Robidoux	76	--	84	58	73	111	--	114	101	108	--	--	--	--	--	--	62	--	57	57	59	30	--	38	--	34	
Oklahoma Genetics																											
Iba	53	--	51	50	51	77	--	70	86	77	47	48	53	50	58	56	58	--	55	59	57	28	--	36	--	32	
Plainsgold																											
(W) Antero	76	--	90	65	77	110	--	122	113	115	57	57	74	66	71	69	60	--	56	57	58	30	--	38	--	34	
Brawl CL Plus	60	--	71	58	63	87	--	96	100	94	53	52	63	57	66	62	62	--	57	58	59	30	--	36	--	33	
Byrd	70	--	65	63	66	101	--	88	110	100	51	52	56	51	70	65	61	--	57	57	58	31	--	37	--	34	
Hatcher	60	--	59	46	55	87	--	80	79	82	52	51	56	52	57	57	59	--	56	53	56	27	--	36	--	32	
Syngenta AgriPro																											
SY Flint	70	--	59	54	61	102	--	80	94	92	--	--	--	--	--	--	63	--	55	57	58	28	--	33	--	31	
SY Monument	79	--	83	70	77	115	--	113	121	116	58	--	66	--	65	--	61	--	57	56	58	29	--	37	--	33	
SY Sunrise	82	--	90	59	77	120	--	123	102	115	--	--	--	--	--	--	60	--	56	57	58	26	--	35	--	30	
SY Wolf	62	--	70	46	59	90	--	95	80	88	52	51	61	53	55	55	55	--	55	54	55	29	--	36	--	32	
TAM 111	57	--	50	42	50	83	--	68	73	75	43	44	45	43	54	53	59	--	56	56	57	30	--	38	--	34	
Texas AgriLife																											
TAM 114	80	--	89	62	77	117	--	121	107	115	--	--	--	--	--	--	64	--	56	56	59	29	--	35	--	32	
Watley Seed																											
TAM 112	71	--	65	45	60	104	--	88	78	90	51	--	57	--	56	--	64	--	57	56	59	30	--	37	--	33	
TAM 204	65	--	67	55	62	94	--	91	95	93	--	--	--	--	--	--	60	--	56	56	58	27	--	35	--	31	
WestBred																											
WB-4458	61	--	64	55	60	88	--	86	95	90	49	50	60	53	61	56	59	--	55	57	57	29	--	34	--	31	
WB-Cedar	63	--	81	58	67	92	--	110	100	101	53	52	69	60	61	57	61	--	56	57	58	22	--	33	--	28	
WB-Grainfield	78	--	96	79	84	114	--	130	136	127	58	57	79	68	77	69	64	--	56	62	61	29	--	37	--	33	
Winterhawk	64	--	73	60	66	93	--	100	104	99	53	58	61	53	65	63	59	--	57	57	58	30	--	37	--	33	
Wildcat Genetics																											
(W) Clara CL	75	--	90	67	77	109	--	123	116	116	57	55	63	56	65	60	62	--	56	59	59	30	--	38	--	34	
(W) Danby	70	--	84	67	74	101	--	115	116	110	54	53	64	55	69	65	60	--	56	57	58	31	--	38	--	34	
Denali	61	--	53	56	56	88	--	71	97	86	43	43	53	51	66	63	58	--	57	52	56	31	--	39	--	35	
Everest	57	--	72	56	61	83	--	98	97	92	45	44	52	44	59	55	62	--	56	61	60	26	--	36	--	31	
Fuller	60	--	65	41	55	87	--	89	71	82	47	46	61	55	49	47	63	--	56	50	56	28	--	35	--	32	
KanMark	64	--	73	62	66	93	--	99	108	100	54	--	64	--	62	--	61	--	56	59	59	25	--	34	--	30	
Oakley CL	74	--	99	53	75	107	--	135	92	111	57	55	72	60	61	58	62	--	56	57	58	31	--	37	--	34	
Experimentals																											
KS11HW39-5-4 Kansas	85	--	111	68	88	123	--	150	119	131	--	--	--	--	--	--	61	--	56	60	59	31	--	39	--	35	
LCH12-012 Limagrain	84	--	88	71	81	123	--	119	123	121	--	--	--	--	--	--	61	--	57	57	58	33	--	38	--	35	
LCH13DH-14-53W Limagrain	75	--	56	65	66	109	--	77	113	100	--	--	--	--	--	--	60	--	57	58	58	31	--	39	--	35	
LCH13DH-20-87 Limagrain	82	--	89	61	77	119	--	121	106	115	--	--	--	--	--	--	61	--	56	58	58	32	--	38	--	35	
Averages	69	--	74	58	67	69	--	74	58	67	--	--	--	--	--	--	61	--	56	57	58	29	--	36	--	33	
CV (%)	6	--	7	8	7	6	--	7	8	7	--	--	--	--	--	--	3	--	1	3	3	4	--	4	--	4	
LSD (0.05)	6	--	7	7	7	8	--	10	12	10	--	--	--	--	--	--	3	--	1	3	2	2	--	2	--	2	

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

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

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

⁴WA= Wakeeney, KS, Farmer's Field, Trego County.



Table 10. 2015 SOUTHWEST Kansas dryland winter wheat performance test

Brand / Name	LA ¹				DC ²				GC ³				Av.				-LA-				-DC-				-GC-				LA				DC				GC				Av.			
	yield (bu/a)				% of test average				multiyear av. (bu/a)				tw (lb/bu)				head (+/- Everest)				height (in.)																							
AGSECO																																												
TAM 113	50	58	--	54	67	99	--	83	47	44	--	--	--	--	55	60	--	58	--	--	--	--	33	27	--	30																		
Limagrain																																												
LCS Mint	76	60	--	68	103	103	--	103	62	57	--	--	--	--	60	63	--	62	--	--	--	--	35	26	--	30																		
LCS Pistol	73	60	--	66	99	102	--	100	--	--	--	--	--	--	58	62	--	60	--	--	--	--	32	26	--	29																		
LCS Wizard	41	48	--	45	56	82	--	69	38	--	--	--	--	--	55	61	--	58	--	--	--	--	31	25	--	28																		
T158	84	58	--	71	115	98	--	107	59	51	--	--	--	--	62	62	--	62	--	--	--	--	33	25	--	29																		
Oklahoma Genetics																																												
Gallagher	69	62	--	66	94	105	--	100	58	53	--	--	--	--	59	61	--	60	--	--	--	--	32	25	--	28																		
Iba	64	55	--	59	87	93	--	90	55	51	--	--	--	--	60	64	--	62	--	--	--	--	33	26	--	30																		
Plainsgold																																												
(W) Antero	92	55	--	74	125	94	--	110	69	62	--	--	--	--	62	60	--	61	--	--	--	--	34	27	--	31																		
Brawl CL Plus	65	60	--	63	89	103	--	96	51	50	--	--	--	--	58	61	--	59	--	--	--	--	34	29	--	32																		
Byrd	78	62	--	70	105	105	--	105	63	57	--	--	--	--	60	61	--	60	--	--	--	--	35	26	--	30																		
Hatcher	62	59	--	61	85	100	--	92	50	47	--	--	--	--	58	60	--	59	--	--	--	--	33	25	--	29																		
Scott Seed																																												
TAM 304	64	51	--	58	87	86	--	87	52	50	--	--	--	--	55	58	--	57	--	--	--	--	33	25	--	29																		
Syngenta AgriPro																																												
Greer	76	62	--	69	103	105	--	104	--	--	--	--	--	--	58	64	--	61	--	--	--	--	33	26	--	30																		
SY Flint	74	57	--	66	100	97	--	99	--	--	--	--	--	--	59	61	--	60	--	--	--	--	32	24	--	28																		
SY Monument	89	59	--	74	121	100	--	111	64	--	--	--	--	--	61	62	--	62	--	--	--	--	34	26	--	30																		
TAM 111	66	53	--	59	90	89	--	90	54	52	--	--	--	--	60	62	--	61	--	--	--	--	36	28	--	32																		
Texas AgriLife																																												
TAM 114	67	58	--	62	91	99	--	95	--	--	--	--	--	--	56	62	--	59	--	--	--	--	34	24	--	29																		
Watley Seed																																												
TAM 112	78	61	--	69	106	103	--	104	58	--	--	--	--	--	62	63	--	63	--	--	--	--	34	28	--	31																		
TAM 204	86	65	--	76	117	111	--	114	--	--	--	--	--	--	63	61	--	62	--	--	--	--	34	27	--	30																		
WestBred																																												
WB-4458	68	55	--	62	93	93	--	93	54	51	--	--	--	--	61	61	--	61	--	--	--	--	32	27	--	30																		
WB-Cedar	70	53	--	62	95	91	--	93	--	--	--	--	--	--	60	59	--	59	--	--	--	--	29	26	--	27																		
WB-Grainfield	88	63	--	76	120	107	--	113	62	56	--	--	--	--	63	65	--	64	--	--	--	--	33	26	--	30																		
WB-Redhawk	61	52	--	56	83	88	--	85	--	--	--	--	--	--	59	58	--	59	--	--	--	--	33	26	--	29																		
Winterhawk	70	60	--	65	95	102	--	99	59	56	--	--	--	--	60	61	--	60	--	--	--	--	35	28	--	31																		
Wildcat Genetics																																												
(W) Clara CL	76	51	--	64	104	87	--	96	55	50	--	--	--	--	61	60	--	60	--	--	--	--	33	24	--	29																		
(W) Danby	84	65	--	74	114	110	--	112	64	58	--	--	--	--	62	64	--	63	--	--	--	--	34	28	--	31																		
Denali	58	55	--	57	79	94	--	86	51	46	--	--	--	--	57	59	--	58	--	--	--	--	36	29	--	32																		
Everest	69	55	--	62	94	93	--	93	48	44	--	--	--	--	62	61	--	61	--	--	--	--	31	25	--	28																		
KanMark	74	62	--	68	101	105	--	103	58	--	--	--	--	--	60	63	--	62	--	--	--	--	30	25	--	27																		
Oakley CL	87	66	--	76	119	111	--	115	74	66	--	--	--	--	63	64	--	63	--	--	--	--	33	27	--	30																		
Experimentals																																												
(W) KS11HW39-5-4 Kansas	92	65	--	79	125	111	--	118	--	--	--	--	--	--	64	63	--	63	--	--	--	--	35	27	--	31																		
(W) LCH11-113W Limagrain	81	62	--	72	110	106	--	108	--	--	--	--	--	--	61	64	--	63	--	--	--	--	36	27	--	31																		
(W) LCH11-117W Limagrain	84	67	--	76	114	114	--	114	--	--	--	--	--	--	62	64	--	63	--	--	--	--	35	28	--	31																		
LCH12-012 Limagrain	91	71	--	81	124	120	--	122	--	--	--	--	--	--	59	62	--	61	--	--	--	--	35	28	--	31																		
(W) LCH13DH-14-53W Limagrain	60	54	--	57	81	92	--	87	--	--	--	--	--	--	57	61	--	59	--	--	--	--	35	24	--	29																		
LCH13DH-20-87 Limagrain	81	61	--	71	109	103	--	106	--	--	--	--	--	--	61	61	--	61	--	--	--	--	34	26	--	30																		
Averages	74	59	--	66	74	59	--	66	--	--	--	--	--	--	60	62	--	61	--	--	--	--	33	26	--	30																		
CV (%)	5	8	--	6	5	8	--	6	--	--	--	--	--	--	3	3	--	3	--	--	--	--	3	5	--	4																		
LSD (0.05)	5	7	--	6	7	11	--	9	--	--	--	--	--	--	2	3	--	3	--	--	--	--	1	2	--	2																		

¹LA= Larned, KS, Farmer's Field, Pawnee County.²DC= Dodge City, KS, Farmer's Field, Ford County.³GC= Garden City, KS, Southwest Agricultural Research Center, Finney County. Abandoned.

