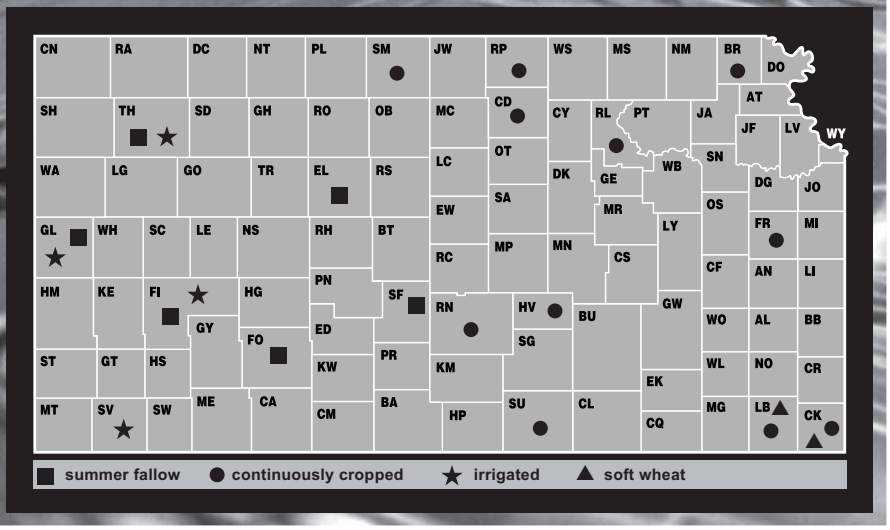
2005

KANSAS PERFORMANCE TESTS WITH

WINTER WHEAT VARIETIES

REPORT OF PROGRESS 947

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service



CONTENTS

Table 1. Private entrants in the 2005 Kansas Wheat Performance Tests.

AgriPro	***Farmer Direct***	***M-Pride***	***Polansky***
AgriPro Wheat, Inc.	Farmer Direct Foods, Inc.	Midwest Premium Genetics	Polansky Seed
6515 Ascher Rd.	PO Box 326	523 S. Main, PO Box 688	PO Box 306, 2729 M St.
Junction City, KS 66441	Atchinson, KS 66002	Concordia, MO 64020	Belleville, KS 66935
785-210-0218	913-367-4422	800-662-1150	785-527-2271
AGSECO	***General Mills***	***NK***	***Rinck***
AGSECO, Inc.	General Mills Ag. Research	Syngenta Seeds, Inc.	Rinck Seed Farm, Inc.
PO Box 7	1201 North 4th	358 R.L. Honeycutt Drive	PO Box 141, 720 Road 29
Girard, KS 66743-0007	Le Sueur, MN 56058	Wilmington, NC 28412	Niotaze, KS 67355
620-724-6223	507-665-4456	910-452-5597	620-673-5343
Drussel	***MFA***	***Pioneer Brand***	***WestBred***
Drussel Seed and Supply	MFA Incorporated	Pioneer Hi-Bred Intl., Inc.	WestBred LLC
2197 W. Parallel Road	201 Ray Young Dr.	1616 S. Kentucky, Suite C350	14604 S. Haven Rd.
Garden City, KS 67846	Columbia, MO 65201	Amarillo, TX 79102	Haven, KS 67543
620-275-2359	573-876-5363	800-258-5604	877-921-0950

Contribution No. 06-11-S from the Kansas Agricultural Experiment Station

2005 WHEAT CROP REVIEW

Crop Development

The 2005 wheat crop developed at or ahead of an average pace through jointing, but began to fall behind at heading in late April and May. Planting, emergence, and jointing all occurred at a pace similar to last year's. In mid-April, 2005 jointing actually was ahead of the 2004 pace, both of which were ahead of the 5-year average. Relatively cool temperatures in April and May slowed crop development so that heading lagged behind last year's by about a week. The crop turned color and ripened at a pace that was also behind that of last year, but not far off the 5-year average. Mid-June rains delayed the start of harvest, causing it to lag as much as a week or more behind previous years' pace early on, but harvest progressed rapidly thereafter and finished up sooner than last year.

The condition of the 2005 wheat crop changed little over the winter, but declined steadily during May and June. The portion of the crop classified as good or excellent fluctuated around 75% until late April. By early June, less than 40% of the crop was rated good or excellent. By the time harvest was under way in late June, 25% of the crop was rated as poor or very poor. Drought stress, diseases, and late freezes all contributed to the overall decline in crop condition during that period. During May, 25% to almost 50% of the Kansas crop area was short or very short of topsoil moisture. June rainfall recharged soil moisture, but was too late to have a significant impact on most of the wheat crop. The portion of the crop classified as good or excellent increased slightly in late June.

(*Crop-Weather* reports, Kansas Ag. Statistics)

Weather

The 2004-2005 growing season started out with a favorable weather pattern, but presented challenges as the season progressed. The first challenge was the planting period. The western third of the state enjoyed wetter-than-normal conditions, whereas the eastern third saw much drier-than-normal conditions.

Winter conditions were wetter than normal throughout the state. Despite some subzero readings, most of the winter had favorable growing conditions. This changed in May with record low temperatures in early May. Although May temperatures averaged nearly normal, it was a roller coaster of hot and cold weather, which caused additional stress for the crop. Parts of the eastern third of the state saw the driest March through May on record.

Harvest was complicated by extremely wet conditions in the first half of June. Flooding and hail damage occurred in spots. Excessive rainfall was a particular problem in the northeast. The seasonal (Oct-June) total precipitation was above normal statewide, but this did not offset the earlier unfavorable conditions.

(Mary Knapp, KSU Weather Data Library).

Diseases

Both foliar and root and crown diseases were prevalent on the 2005 wheat crop in Kansas. Beginning in late fall of 2004, excellent stands of wheat from above-average rainfall began to turn yellow. In most areas, this was due to *leaf rust*. Early planting in some areas and poor management of land between crops in other areas resulted in a high inoculum load of the *leaf rust* pathogen. Abundant rainfall also led to a greater incidence of *soilborne mosaic virus* (*WSBMV*), which was not evident until spring. The presence of *WSBMV* was confirmed across the entire state in spring 2005; most varieties have some resistance, but it is possible that some yield loss occurred. The most severe disease in 2005 was *stripe rust*. As in 2001 and 2003, *stripe rust* was severe across large areas of Kansas, with an estimated yield loss of 8%. As in 2004, *leaf rust* developed rapidly, causing yield loss in some fields. Indications are that many races of the rust pathogen were present again this year. Similar observations were made for both *stripe rust* and *leaf rust* in several states.

Unlike the previous year, the incidence and severity of *powdery mildew* was high only in a few areas, and significant yield loss was rare. *Wheat Streak Mosaic Virus* (*WMSV*) was severe in many fields in western, north central, and northeastern Kansas. In some fields, yield loss was 50% or more. The wide prevalence and severity of *WSMV* could be traced in many instances to the large amount of volunteer wheat and the large populations of the wheat curl mite. ***It is very important to clean up fields that have volunteer wheat and other weeds*** that support the virus and mites at least 10 days before planting. As in 2004, *High Plains Virus* (*HPV*) was detected in a small number of fields, mostly in western Kansas. In those fields that had both *HPV* and *WSMV*, yields were significantly reduced. The new strain of *HPV* detected in 2004 was also detected in 2005. In experimental plots, the infection was severe, and yield was reduced. *Take all* was not prevalent in Kansas in 2005. Although national disease-forecast models indicated greater risk of *head scab* for central Kansas in 2005, little occurred. In northeastern Kansas, significant *ergot* occurred, resulting in much wheat being rejected at the elevators.

Root and crown rot developed in many fields across the state, probably linked to early planting and local environmental conditions, including above-normal fall rainfall in some areas and inadequate rain in others. The prevalence of Hessian fly damage further increased the severity of *root and crown rot*. Although the plants survived, it is possible that yield was reduced. Two strains of *Barley Yellow Dwarf Virus* were detected in Kansas, but not at damaging levels over a wide area. *Loose smut* was prevalent again this year, but slightly less than in 2004. *Common Bunt* was reported from some areas at harvest. If you are saving seed from a field that has either *loose smut* or *common bunt*, you should consider using a seed-applied fungicide before planting that seed in the fall.

(KSU Extension Plant Pathologist, James Stack).

Insects

Hessian fly infestations continued to increase throughout the western two-thirds of the state, mainly west of Highway 77. Several heavily infested fields were grazed and then destroyed due to severity of fly infestations. This problem is not going to go away. Proven management practices must be implemented: resistant varieties; planting after the fly-free date, although this has been impractical in recent years due to mild fall weather; timely destruction of stubble and volunteer wheat; and considering use of insecticide-treated seed.

Scattered infestations of true armyworms were reported, but were limited mainly to outside edges of fields. Most infestations occurred close enough to harvest that insecticide application was not feasible.

Army cutworm populations were small, compared with those in 2003 and 2004. Outbreaks of this insect seem to occur when a dry July is followed by a wet fall.

(KSU Extension Entomologist, Jeff Whitworth).

Harvest Statistics

The Kansas Agricultural Statistics' July 12 estimate of the 2005 crop was 374.4 million bushels from 9.6 million acres, with a 39 bushels/acre yield average. These are significant increases from last year's crop and are close to the averages for the past 10 years.

(July 12, 2005, C*ROPS* report, Kansas Ag. Statistics, Topeka).

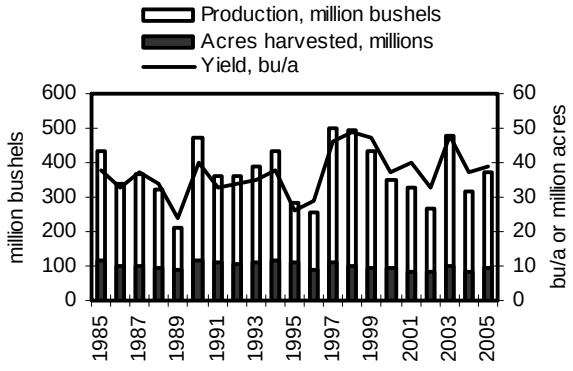


Figure 1. Historical Kansas wheat production

Acreage Distribution

The proportion of Jagger and 2137 planted on Kansas wheat acres continued to decline in 2005. Those two varieties occupied more than 50% of the state's wheat acreage from 1999 to 2003. Jagger still occupied the largest percentage of planted wheat acreage in 2005 at 28.5%, but Jagalene came in second at 21.2%. Hard white varieties occupied 3.9% of the 2005 wheat acreage, down from 4.9% in 2004. The acreage of blends decreased in 2005 to 11.3% from a high of 15.2% in 2004.

(February 4, 2005, *Wheat Variety*, Kansas Ag. Statistics, Topeka).

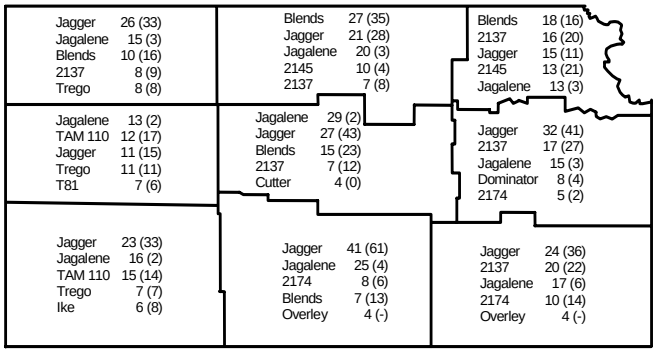


Figure 2. Leading wheat varieties in Kansas
Percentage of seeded acreage for 2005 and (2004) crops

2005 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.

Varieties Included

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

Originators or marketers enter privately developed varieties on a voluntary basis. Entrants choose both the entries and test sites and pay a fee to help defray test expenses. The 2005 private entrants are listed in Table 1. Twelve entrants provided a total of 36 varieties for testing.

Table 15 describes the characteristics of seed submitted for testing. Seed quality, including such factors as size, purity, and germination, can be important in determining the performance of a variety. Wheat seed used for entries in the Kansas Crop Performance Tests is prepared professionally and usually meets or exceeds Kansas Crop Improvement Certification standards. Performance of a given variety or hybrid comparable to that obtained in these tests is best assured under similar environmental and cultural conditions and with the use of certified or professionally prepared seed.

Environmental Factors

Three locations had to be abandoned in 2005. One location had heavy rains after late planting, resulting in poor stands. Low precipitation in winter and spring, combined with inconsistent pH, introduced additional variability. Another test had so much volunteer wheat emerge after planting that it was impossible to distinguish the plot rows. The third was planted late after corn harvest, limiting fall growth. A

late spring freeze set the test back even more. Late freezes also affected some of the tests that are included in this report. Site descriptions and management practices for each site are summarized in Table 4. Be sure to keep extenuating environmental conditions in mind when examining test results.

Results and Variety Characterization

Results from Kansas tests are presented in Tables 5 through 14. Yields are reported as bushels per acre (60 pounds per bushel) adjusted to a moisture content of 13%, where moistures were reported at harvest. Yields also are converted to percentages of the test average to speed recognition of highest yielding entries. Multi-year averages are presented for those varieties entered more than one year. One-year or one-location results can be misleading because of the possibility of unusual weather or pest conditions.

Additional information, such as test weight, heading date, and plant height, is helpful for fine-tuning variety comparisons. For example, a relatively tall variety may yield well in the tests, but may not be appropriate for some situations. Conversely, some producers may want a tall variety for straw production. 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.

Coleoptile length (Table 15) predicts the relative ability of a cultivar to emerge from deep plantings through noncrusted soil. Maximum coleoptile elongation of a variety is influenced heavily by soil temperature. If deep planting is needed because of dry soil late in the planting season, choice of variety will have minimal effects on stand establishment. The same can be said for plantings made during optimum times when soil temperature is already less than 65° F. Plantings made in late August or early September, when soil temperature is high, will be the most vulnerable to poor emergence because of coleoptile length. If plantings must be made deeper than 3.5 in. when soil temperature is high, use a variety that has a long coleoptile.

Graphical Performance Summaries

Figures 3 through 10 summarize the performance of each variety standardized to the average of two check varieties: Jagger and 2137, two widely grown varieties. The number at the base of each bar indicates the number of direct comparisons with the check varieties. In general, as the number of comparisons increases, the reliability of a value increases. Values that differ significantly from the average of the two check varieties are indicated by a + or – at the end of the bar.

Falling Number

Falling number is a standard unit for the degree of sprouting in wheat. The method measures the number of seconds needed for a plunger to fall through the gelatinized starch in a slurry of ground grain. Severely sprouted grain has a low falling number because starch-degrading enzymes were activated during sprouting. The minimum acceptable falling number for grain intended for bread flour is about 300 seconds.

Last year, several of the 2003-2004 tests were subjected to heavy rains that delayed harvest and stimulated preharvest sprouting. Falling number was determined for samples from the white varieties and three hard red varieties from the most severely affected locations (Table 2). In general, the red varieties had larger falling numbers than the white varieties did. At some locations, however, individual white varieties were equal to or better than individual red varieties. Similar results were reported for samples from the 1999 performance tests (see 'Preharvest sprouting of hard red and hard white wheats in Kansas', SRL 124, November, 1999). In 2004 at Colby, Garden City Irrigated, and Tribune Irrigated, all red and white varieties had falling-number values that were less than the 300 minimum. At Hutchinson, all falling numbers were larger than 300. At Garden City, values of some varieties from both red and white market classes were more than 300 and some were less. Although timely harvest is essential to avoid sprouting and falling numbers less than 300, some varieties seem to resist or delay sprouting better than others.

Table 2. Falling number from rain-delayed locations in 2004.

Class and variety	Hutch-inson	Colby	Garden City	Garden City Irr.	Tribune Irr.
Hard Red					
2137	502	144	292	262	119
2174	380	215	323	296	179
Jagger	424	153	152	230	122
Hard White					
Avalanche	--	90	214	--	--
Baker's White	--	--	--	71	--
Betty	--	69	137	85	71
Burchett	--	97	358	218	--
GM10006	361	--	--	--	--
Intrada	--	79	178	148	89
Lakin	--	66	135	134	78
NuFrontier	--	63	102	85	69
NuHills	365	97	169	142	76
NuHorizon	--	63	130	130	77
Nuplains	--	78	329	191	190
Platte	--	--	--	63	62
Trego	--	69	203	116	77
Prairie White	--	67	--	--	--
LSD (0.50)*	NS	18	31	46	50
CV (%)	23	13	10	21	35

*Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

Table 3. Comparisons of leading winter wheat varieties - agronomy and quality.

Variety[1]	% of Kansas seeded acreage 2005 [1]	Relative[2]										Relative milling and baking quality[4]	Resistance or tolerance to:[5]														
		Test weight	Straw strength	Maturity	Height[3]	Coleoptile length	Shattering	Winter hardiness	Al Tolerance	Sprout Tolerance	Protein content[5]		Soilborne mosaic	Spindle streak mosaic	Wheat streak mosaic	Barley yellow dwarf	Leaf rust	Stem rust	Stripe rust	Speckled leaf blotch	Glume blotch	Tan spot	Powdery mildew	Head scab	Hessian fly	Russ. wheat aphid
Jagger	28.2	4	4	1	5	6	5	6	3	3	3	EX*	2	2	4	7	8	3	1	3	6	3	7	7	9	9
Jagalene	21.2	3	3	2	4	6	4	5	4	2	4	AC	2	--	4	--	5	2	3	4	--	7	7	7	8	9
2137	5.7	4	1	3	5	7	5	3	2	2	7	AC	1	5	4	6	7	7	8	5	7	4	4	8	5	9
TAM 110	3.3	3	2	1	5	5	2	--	8	3	7	AC	9	7	5	8	9	3	8	6	6	7	1	7	9	8
2174	3.0	3	1	3	4	5	3	4	5	1	3	AC	1	5	7	5	6	8	5	4	7	4	2	6	9	9
Trego+	2.9	3	4	3	4	6	2	2	8	5	7	AC	2	4	5	7	3	2	8	7	5	7	8	9	7	9
2145	2.2	4	2	3	3	6	6	3	8	3	3	AC	1	--	9	--	6	3	4	4	--	8	8	7	5	9
Overley	2.2	3	3	1	6	5	--	--	--	--	3	EX	--	--	--	--	--	--	--	3	--	--	--	9	--	--
Cutter	1.7	4	4	3	5	5	5	3	--	3	4	AC	3	--	4	--	3	2	2	5	--	6	7	8	8	9
Thunderbolt	1.7	2	--	3	7	6	6	--	7	2	3	AC	8	7	5	7	7	8	5	6	--	6	7	7	9	9
T81	1.6	4	--	2	4	7	--	--	--	--	8	AC	8	4	6	7	7	3	3	7	--	6	1	--	8	9
Karl/Karl 92	1.5	3	4	1	3	7	3	3	9	3	3	EX*	1	3	9	8	9	6	3	5	3	3	3	6	9	9
Ike	1.4	3	4	4	6	7	2	3	8	2	3	AC	1	5	9	6	9	3	6	8	6	8	6	6	3	9
Stanton	1.4	4	3	3	5	6	2	2	--	2	4	AC	8	--	5	8	2	2	6	7	--	--	--	7	6	3
Dominator	1.1	4	3	4	2	8	7	3	8	5	3	AC	1	1	7	6	8	3	6	5	4	4	4	7	4	9
TAM 107	1.0	4	2	1	4	5	2	2	9	3	6	LD	8	7	5	8	9	3	8	5	6	6	1	7	9	7
Akron	0.5	3	5	4	6	6	3	3	--	2	7	AC	9	9	9	9	8	3	4	9	7	7	1	7	8	9
Coronado	0.4	3	1	2	3	8	4	5	3	--	3	AC	1	3	6	6	7	3	6	6	6	6	4	9	5	9
Custer	0.3	3	1	2	6	8	--	--	--	--	4	LD	--	--	--	--	--	--	--	--	--	5	--	5	--	--
Larned	0.3	4	5	4	9	3	3	3	8	3	4	AC	9	8	9	9	8	2	2	8	8	9	5	5	3	9
NuHills+	0.3	3	3	2	4	7	--	--	--	--	3	AC	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vista	0.3	4	6	5	2	8	3	2	7	5	6	AC*	8	7	9	7	7	6	2	5	6	8	4	6	1	9
2163	0.2	6	1	3	3	7	6	4	2	--	7	LD	1	4	4	6	7	4	7	5	8	4	2	8	3	9
Dumas	0.2	2	1	2	5	6	--	--	--	--	3	AC	--	--	--	--	--	--	--	8	--	--	--	--	--	--
Longhorn	0.2	3	1	5	6	4	5	--	--	--	3	LD	9	--	5	8	5	1	--	7	--	7	--	--	8	--
NuFrontier+	0.2	4	3	4	6	5	3	--	--	7	5	LD	--	--	--	--	9	--	--	7	--	7	--	--	7	--
TAM 111	0.2	3	2	4	6	--	--	--	--	--	--	LD	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Venango	0.2	3	2	4	5	7	--	--	--	--	3	AC	1	--	5	--	5	5	8	9	--	6	6	--	8	9
Blends	11.3																									
Other White	0.5																									
Other Red	4.8																									
Other Soft	0.0																									
+Hard white variety	Scale:	1=Best 9=Poor	1=Best 9=Poor	1=Early 9=Late	1=Short 9=Tall	1=Long 9=Short	1=Best 9=Poor	1=Best 9=Poor	1=Best 9=Poor	1=Best 9=Poor	1=Best 9=Poor		Scale: 1=Most resistant/tolerant 9=Least resistant/tolerant													

[1] Varieties and percentage seeded acreage from the Feb. 4, 2005, Wheat Variety survey, Kansas Agricultural Statistics, Topeka, KS.

[2] Most ratings are estimates based on information and observations from many sources over several years. Agronomic information by Joe Martin - Hays, and Allan Fritz, Jim Shroyer, and Kraig Roozeboom - KSU Agronomy.

[3] Summary of crop performance test results from recent years.

[4] Ratings from Bob Bennett - KSU Grain Science and Industry, using inputs from the U.S. Grain Marketing and Production Research Center, and industry. See also "Milling & Bread-baking Qualities of Hard Winter Wheat Varieties."

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

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

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

-- = Inadequate information or conflicting data.

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

[5] Ratings by Allan Fritz - Manhattan, Joe Martin - Hays; W.W. Bockus, James Stack - KSU Plant Pathology. Final ratings and descriptions of disease and insect pests are available in "Wheat Variety Disease and Insect Ratings 2005."

Table 4. Wheat Performance Test site descriptions and management in 2005.

Region location	Soil crop	N	P	K		Plant-harvest seed rate	Conditions
Northeast							
Bunck Seed Farms	Grundy silty clay loam	75	--	--	Fall	10/17/2004-7/6/2005	Late June rains delayed harvest.
Everest (EV)	Corn, 2004	--	--	--	Spring	90 lb/a	
Ashland Agronomy Farm	Reading silt loam	50	--	--	Fall	10/10/2004-6/29/2005	Late April freeze dramatically decreased yield of early varieties.
Manhattan (MA)	Oats, 2004	50	--	--	Spring	75 lb/a	
Southeast							
EC KS Experiment Field	Woodson silt loam	8	32	--	Fall	10/6/2004-6/23/2005	Planted no-till in soybean stubble; dry early spring, wet late May - early June; hard frost on May 3.
Ottawa (OT)	Soybean, 2004	70	--	--	Spring	1200000 seeds/a	
SE Agric Res Ctr	Parsons silt loam	80	50	50	Fall	10/19/2004-6/21/2005	Saturated soil in early winter; significant disease pressure.
Parsons (PA)	Corn, 2004	--	--	--	Spring	75 lb/a	
SE Agric Res Ctr	Silt loam	70	50	50	Fall	10/19/2004-6/25/2005	Saturated soil in early winter; significant disease pressure.
Columbus (CL)	Sorghum, 2004	--	--	--	Spring	75 lb/a	
Southeast - Soft							
SE Agric Res Ctr	Parsons silt loam	80	50	50	Fall	10/19/2004-6/21/2005	Saturated soil in early winter; significant disease pressure.
Parsons (PA)	Corn, 2004	--	--	--	Spring	75 lb/a	
SE Agric Res Ctr	Silt loam	70	50	50	Fall	10/19/2004-6/25/2005	Saturated soil in early winter; significant disease pressure.
Columbus (CL)	Sorghum, 2004	--	--	--	Spring	75 lb/a	
North Central							
NC KS Experiment Field	Crete silt loam	80	30	5	Fall	9/30/2004-6/23/2005	Dry at planting; uneven emergence, some yield variability as a result.
Belleville (BE)	Sorghum, 2003	--	--	--	Spring	90 lb/a	
Farmer's field	Silt loam	90	40	20	Fall	10/20/2004-6/27/2005	Planted late after sorghum but good fall growth, favorable spring conditions.
Concordia (CN)	Sorghum, 2004	--	--	--	Spring	90 lb/a	
Farmer's Field	Silt loam	100	20	--	Fall	9/29/2004-6/24/2005	Very dry entire season.
Smith Center (SC)	Wheat, 2004	--	--	--	Spring	65 lb/a	
South Central							
Harvey Co Expt Field	Ladysmith silty clay loam	90	32	--	Fall	10/23/2004-6/27/2005	Severe stunting in some varieties from a combination of soilborne mosaic and spindle streak mosaic.
Hesston (HE)	Soybean, 2004	--	--	--	Spring	60 lb/a	
SC KS Experiment Field	Ost silt loam	75	40	--	Fall	10/18/2004-6/23/2005	Good establishment; wet, cool spring; wet summer; significant disease presence.
Hutchinson (HU)	Wheat, 2003	50	--	--	Spring	60 lb/a	
Max Kolarik Farm	Sandy loam	50	--	--	Fall	10/15/2005-Abandoned	Late planting, heavy rains, poor stands, dry winter, variable pH.
Caldwell (CA)	Wheat, 2004	--	--	--	Spring	60 lb/a	
Northwest Dryland							
Agric Res Ctr - Hays	Harney clay loam	80	--	--	Fall	9/30/2004-6/19/2005	Good fall establishment; mild winter, dry spring, hot summer; both stripe rust and leaf rust were present.
Hays (HA)	Wheat, 2003	--	--	--	Spring	45 lb/a	
NW Res-Ext Ctr	Keith silt loam	60	--	--	Fall	9/20/2004-6/24/2005	Good establishment; mild winter, cool, wet spring, hot just before harvest; severe stripe rust.
Colby (CO)	Wheat, 2003	--	--	--	Spring	60 lb/a	
SW Res-Ext Ctr	Richfield silt loam	5	25	--	Fall	9/17/2004-6/24/2005	Slight freeze damage; severe stripe rust; favorable conditions in late May and June.
Tribune (TR)	Corn, 2003	80	--	--	Spring	55 lb/a	
Southwest Dryland							
Sandyland Experiment Field	Pratt loamy fine sand	--	--	--	Fall	10/21/2004-Abandoned	Volunteer wheat contaminated plots.
St. John (SJ)	Wheat, 2004	--	--	--	Spring	seeds/a	
Farmer's Field	Harney clay loam	50	--	--	Fall	10/21/2004-6/22/2005	Good moisture at planting; hot and dry in May.
Dodge City (DC)	Sorghum, 2004	--	--	--	Spring	45 lb/a	
SW Res-Ext Ctr	Keith silt loam	50	--	--	Fall	10/18/2004-6/23/2005	Good fall; cool, dry early spring; April 30 freeze; wet late May and early June; severe stripe and leaf rust.
Garden City (GC)	Wheat, 2003	--	--	--	Spring	65 lb/a	
Irrigated							
NW Res-Ext Ctr	Keith silt loam	90	--	--	Fall	9/20/2004-6/29/2005	Good establishment; mild winter, cool, wet spring, hot just before harvest; severe stripe rust.
Colby (CO)	Wheat, 2003	--	--	--	Spring	90 lb/a	
SW Res-Ext Ctr	Ulysses silt loam	--	--	--	Fall	9/17/2004-6/29/2005	Freeze damage on May 3; some wheat streak mosaic, severe stripe rust.
Tribune (TR)	Corn, 2003	120	--	--	Spring	80 lb/a	
SW Res-Ext Ctr	Keith silt loam	50	--	--	Fall	10/1/2004-6/24/2005	Cool, dry spring; April 30 freeze; severe stripe and leaf rust; fungicide on 5/2; wet late May and early June.
Garden City (GC)	Sorghum, 2003	--	--	--	Spring	75 lb/a	
Jim Kramer Farm	Richfield sandy loam	50	30	--	Fall	10/27/2004-Abandoned	Late planting after corn limited fall growth; late freeze caused yield variability.
Hugoton (HG)	Corn, 2004	50	--	--	Spring	90 lb/a	

Table 5. 2005 NORTHEAST Kansas Winter Wheat Performance Tests.

Brand / Name	yield (bu/a)			% of test average			multi-year avg (bu/a)				tw (lb/bu)			head (+/- Jagger)			height (in)		
	EV[1]	MA[2]	Av.	EV	MA	Av.	-EV- 2yr	-EV- 3yr	-MA- 2yr	-MA- 3yr	EV	MA	Av.	EV	MA	Av.	EV	CA	Av.
AgriPro																			
Cutter	51	59	55	88	121	103	63	58	67	--	59	58	59	--	--	--	--	38	--
Jagalene	57	52	55	98	108	103	65	64	67	--	59	57	58	--	--	--	--	35	--
Neosho	54	55	54	93	113	102	--	--	--	--	59	58	58	--	--	--	--	36	--
W03-20	56	53	54	96	109	102	--	--	--	--	60	57	58	--	--	--	--	35	--
W04-417	41	31	36	72	65	69	--	--	--	--	56	55	55	--	--	--	--	34	--
AGSECO																			
Onaga	50	34	42	87	70	79	64	60	54	59	59	57	58	--	--	--	--	32	--
Santa Fe	58	54	56	100	111	105	--	--	--	--	56	57	57	--	--	--	--	35	--
General Mills																			
(W) GM10006	59	56	58	102	116	108	--	--	--	--	60	54	57	--	--	--	--	33	--
(W) NuFrontier	60	49	55	103	102	103	62	54	54	57	57	55	56	--	--	--	--	38	--
(W) NuHills	58	50	54	100	103	102	64	--	65	--	60	56	58	--	--	--	--	37	--
WestBred																			
HV9W99-191	72	50	61	124	104	115	--	--	--	--	57	55	56	--	--	--	--	33	--
Public																			
2137	63	49	56	109	101	105	63	62	60	63	59	57	58	--	--	--	--	36	--
2145	57	59	58	99	122	109	65	61	67	68	59	59	59	--	--	--	--	37	--
2174	58	35	46	100	72	87	65	59	55	60	60	57	59	--	--	--	--	37	--
Hallam	58	52	55	100	108	104	--	--	--	--	57	55	56	--	--	--	--	40	--
Infinity CL	71	55	63	122	113	118	--	--	--	--	58	56	57	--	--	--	--	40	--
Jagger	58	49	53	100	101	101	67	65	59	60	60	58	59	--	--	--	--	34	--
Karl 92	49	28	39	85	58	73	58	55	49	56	56	57	57	--	--	--	--	34	--
KS02HW34	52	55	53	91	113	101	--	--	--	--	62	57	60	--	--	--	--	37	--
Millennium	60	54	57	104	111	107	66	--	61	--	58	55	57	--	--	--	--	39	--
Ok102	59	41	50	103	85	95	--	--	--	--	59	55	57	--	--	--	--	31	--
Overley	53	40	47	92	84	88	61	--	61	--	58	56	57	--	--	--	--	36	--
Wahoo	66	50	58	115	104	110	67	--	56	--	57	50	53	--	--	--	--	40	--
Wesley	68	50	59	118	104	112	70	--	62	--	58	52	55	--	--	--	--	37	--
Average	58	48	53	58	48	53	--	--	--	--	58	56	57	--	--	--	--	36	--
CV (%)	9	10	10	9	10	10	--	--	--	--	2	2	2	--	--	--	--	4	--
LSD (0.05)*	7	7	5	13	14	9	--	--	--	--	2	2	1	--	--	--	--	3	--

[1] EV = Everest, KS - Bunck Seed Farm, Brown County.

[2] MA = Manhattan, KS - Ashland Bottoms Research Farm, Riley County. A late freeze damaged early varieties much more than it damaged later varieties. Yields were related to the extent of freeze damage.

(W) = Hard white wheat

* Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

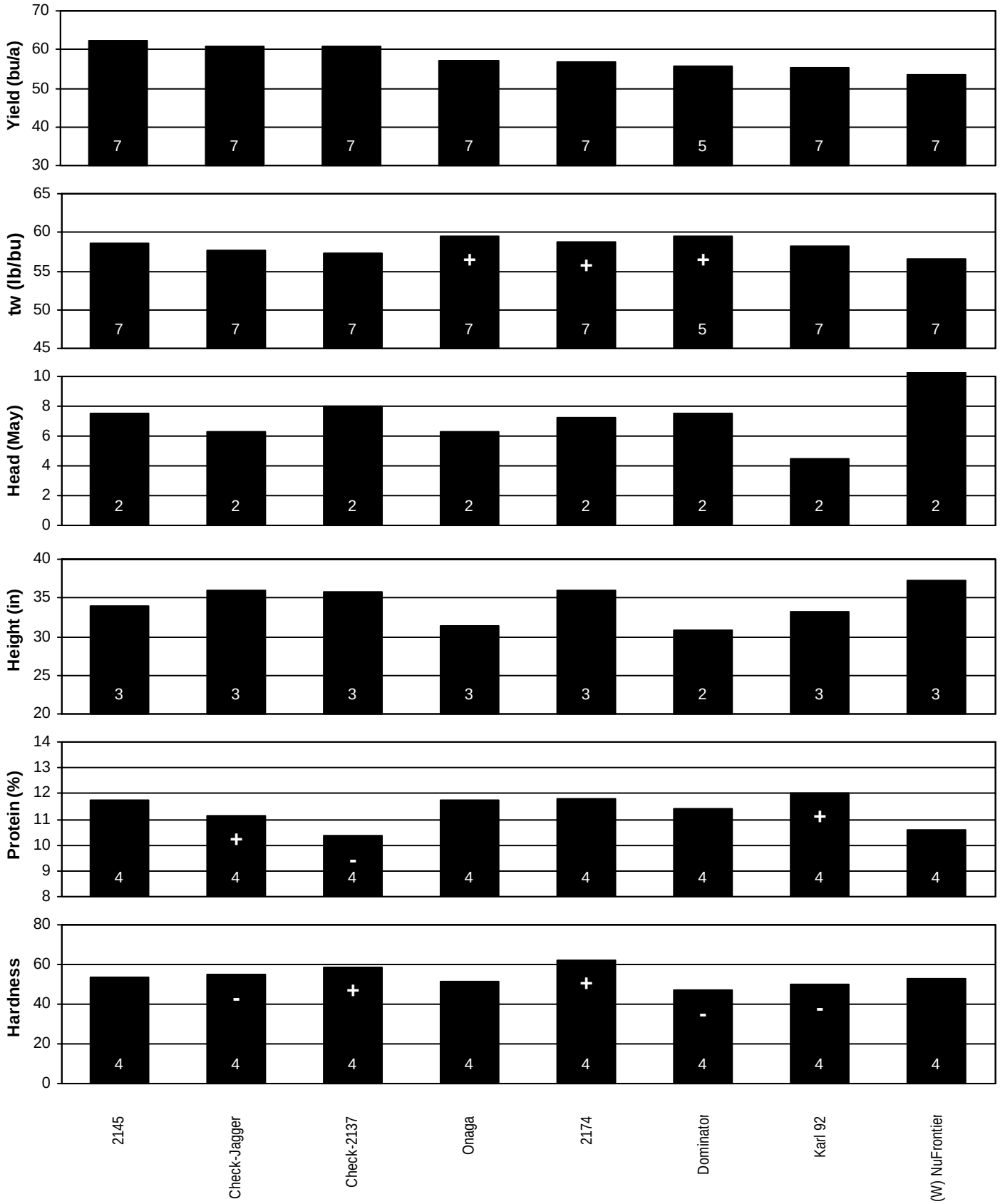


Figure 3. Wheat variety performance summary, NORTHEAST Kansas, 2001-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 6. 2005 SOUTHEAST Kansas Winter Wheat Performance Tests.

Brand / Name	yield (bu/a)				% of test average				multi-year avg (bu/a)						tw (lb/bu)				head (+/- Jagger)				height (in)			
	OT[1]	CL[2]	PA[3]	Av.	OT	CL	PA	Av.	-OT- 2yr	-OT- 3yr	-CL- 2yr	-CL- 3yr	-PA- 2yr	-PA- 3yr	OT	CL	PA	Av.	OT	CL	PA	Av.	OT	CL	PA	Av.
AgriPro																										
Cutter	49	46	52	49	93	102	92	95	57	64	45	45	52	52	59	59	58	59	3	9	11	8	32	36	35	34
Jagalene	55	48	59	54	105	105	103	104	62	71	48	49	57	60	60	58	60	59	3	5	7	5	31	33	33	32
Neosho	66	53	66	61	124	117	115	119	73	--	54	--	67	--	59	57	58	58	2	7	7	5	31	34	34	33
W03-20	47	39	58	48	89	85	103	93	--	--	--	--	--	--	60	59	61	60	3	10	11	8	30	31	33	31
W04-417	45	48	59	51	86	106	104	98	--	--	--	--	--	--	57	58	57	58	3	5	5	4	29	32	33	31
AGSECO																										
Onaga	50	43	54	49	95	96	95	95	57	65	46	51	55	61	58	60	59	59	2	6	7	5	30	32	34	32
Santa Fe	60	52	64	59	114	115	112	113	--	--	--	--	--	--	57	57	58	58	2	3	2	2	29	33	34	32
Rinck																										
Sturdy-2K	55	52	62	56	104	114	109	109	--	--	--	--	--	--	59	58	59	58	5	7	9	7	32	36	36	34
WestBred																										
HV9W99-191	53	49	56	53	101	108	98	102	--	--	--	--	--	--	59	57	57	57	3	7	7	6	30	31	33	31
Public																										
2137	50	42	57	50	94	93	100	96	56	62	47	56	55	59	61	60	59	60	4	8	12	8	31	34	34	33
2145	60	45	59	55	113	99	104	106	62	66	46	51	60	64	60	60	60	60	2	7	9	6	30	32	32	31
2174	45	36	57	46	86	80	100	89	58	65	43	49	56	63	59	59	59	59	2	7	8	6	30	31	36	32
Deliver	42	35	50	43	79	78	88	82	--	--	--	--	--	--	59	58	57	58	4	11	12	9	32	33	33	32
Endurance	61	52	60	57	115	114	105	111	--	--	--	--	--	--	59	58	59	59	2	8	8	6	32	35	35	34
Jagger	50	47	52	50	94	104	92	96	54	59	47	49	53	53	58	58	58	58	0	0	0	0	31	32	33	32
Karl 92	56	42	52	50	106	93	91	97	59	62	48	48	53	59	59	59	59	59	1	4	3	2	29	31	33	31
KS02HW34	55	43	56	52	105	96	99	100	63	--	46	--	56	--	60	60	61	60	2	9	10	7	32	34	34	33
Ok102	55	41	51	49	104	90	90	95	64	--	46	--	58	--	58	59	59	59	2	9	9	6	28	27	31	29
Overley	49	48	57	51	93	105	99	99	56	65	50	54	56	59	58	57	59	58	0	0	1	0	31	33	35	33
Average	53	45	57	52	53	45	57	52	--	--	--	--	--	--	59	58	59	59	2	6	7	5	30	32	34	32
CV (%)	6	11	12	10	6	11	12	10	--	--	--	--	--	--	1	1	1	1	0	1	1	1	3	6	6	5
LSD (0.05)*	4	7	10	4	8	15	18	8	--	--	--	--	--	--	1	1	1	1	0	2	2	1	1	3	3	1

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

[2] CL = Columbus, KS, Cherokee County.

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

* Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

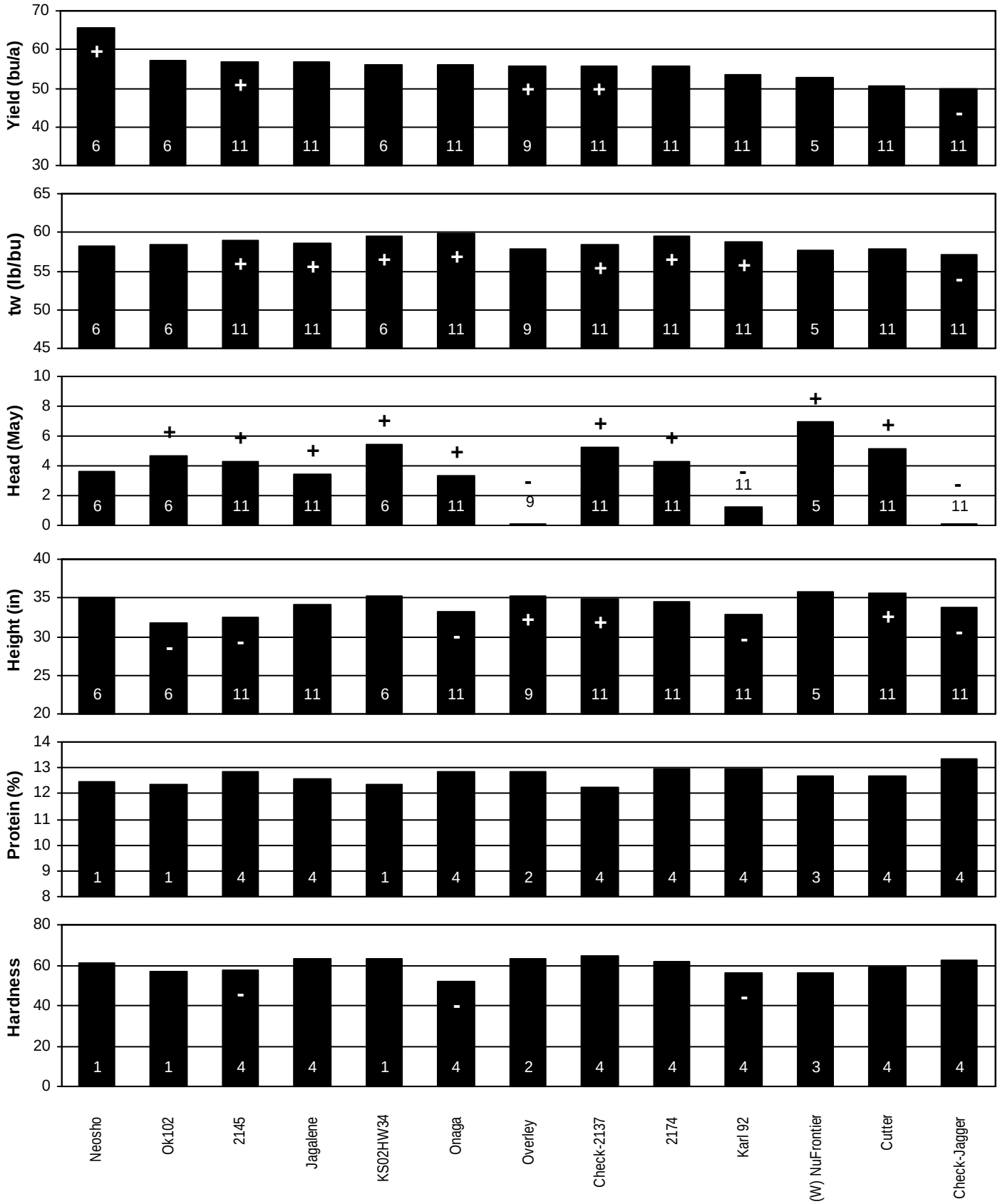


Figure 4. Wheat variety performance summary, SOUTHEAST Kansas, 2002-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 7. 2005 SOUTHEAST Kansas SOFT Winter Wheat Performance Tests.

Brand / Name	CL[1]	PA[2]	Av.	CL	PA	Av.	-CL- 2yr	-CL- 3yr	-PA- 2yr	-PA- 3yr	CL	PA	Av.	CL	PA	Av.	CL	PA	Av.
	yield (bu/a)			% of test average			multi-year avg (bu/a)				tw (lb/bu)			head (+/- Jagger)			height (in)		
MFA																			
(S) 2020	55	67	61	111	120	116	59	63	69	74	57	57	57	2	8	5	35	37	36
(S) 2204	50	49	49	100	87	93	--	--	--	--	56	56	56	3	8	6	34	34	34
(S) 766	50	54	52	100	97	98	56	60	59	63	57	57	57	-1	2	1	32	31	32
M-Pride																			
(S)MPV14S-4SRW	52	64	58	105	114	110	60	--	67	--	57	58	57	7	11	9	35	37	36
NK																			
(S) Coker 9312	54	41	47	107	73	89	--	--	--	--	57	56	57	0	2	1	32	29	31
(S) Coker 9375	50	57	53	100	102	101	--	--	--	--	55	54	55	5	12	8	35	36	35
(S) Coker 9663	57	54	55	114	96	105	59	64	61	66	57	57	57	2	8	5	36	35	35
Pioneer																			
(S) 25R47	61	65	63	122	117	119	68	--	70	--	56	55	55	4	8	6	34	33	34
(S) 25R54	56	65	60	113	116	114	65	--	71	--	56	56	56	3	10	7	34	33	33
Public																			
(S) Pat	37	49	43	74	87	81	46	57	57	65	58	57	58	10	17	14	32	34	33
(S) Roane	47	59	53	93	106	100	57	59	67	71	58	58	58	5	11	8	32	30	31
(S) Sabbe	46	49	47	91	87	89	55	64	56	68	56	55	55	5	15	10	32	32	32
(S) Truman	44	52	48	88	93	91	47	56	61	70	59	58	58	13	18	15	35	34	34
(S)951079-2E31	53	62	57	107	110	109	--	--	--	--	58	58	58	-1	1	0	35	34	35
(S)951216-2E26	47	57	52	94	102	98	--	--	--	--	58	58	58	2	5	4	36	34	35
2137	37	49	43	74	88	82	46	54	51	55	59	58	59	8	10	9	33	32	32
Jagger	54	58	56	107	103	105	52	49	55	54	57	58	58	0	0	0	33	33	33
Average	50	56	53	50	56	53	--	--	--	--	57	57	57	4	8	6	34	33	33
CV (%)	7	12	10	7	12	10	--	--	--	--	1	1	1	2	1	2	6	8	7
LSD (0.05)*	5	10	5	9	17	10	--	--	--	--	1	1	1	3	2	2	3	4	2

[1] CL = Columbus, KS, Cherokee County.

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

(S) = Soft red wheat

* Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

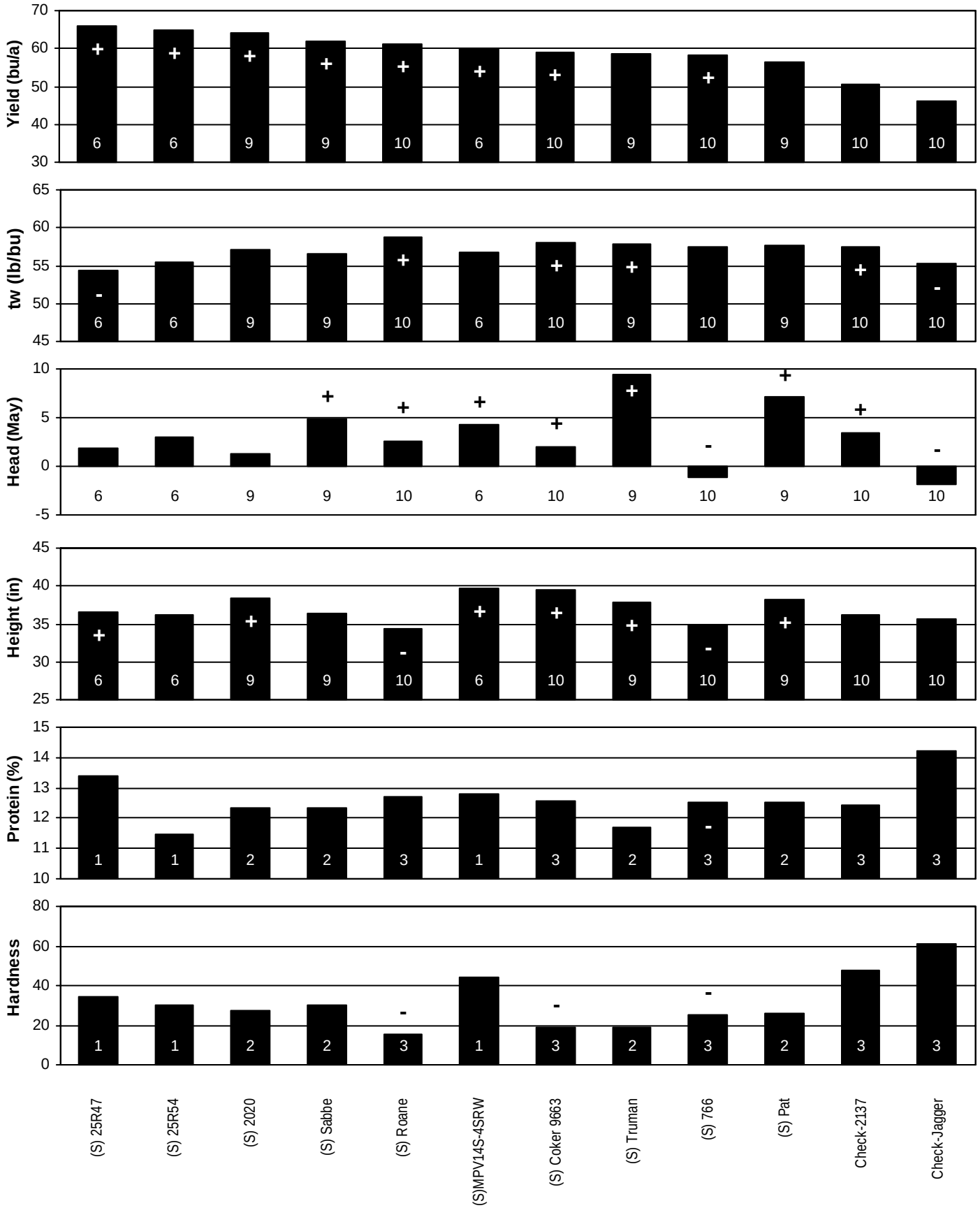


Figure 5. SOFT Wheat variety performance summary, SOUTHEAST Kansas, 2002-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 8. 2005 NORTH CENTRAL Kansas Winter Wheat Performance Tests.

Brand / Name	BE[1]	CN[2]	SC[3]	Av.	BE	CN	SC	Av.	-BE- 2yr	-BE- 3yr	-CN- 2yr	-CN- 3yr	-SC- 2yr	-SC- 3yr	BE	CN	SC	Av.	BE	BE	CN	SC	Av.
	yield (bu/a)				% of test average				multi-year avg (bu/a)						tw (lb/bu)				head (+/- Jagger)	height (in)			
AgriPro																							
Cutter	88	72	29	63	109	112	85	105	85	89	--	--	54	63	61	60	60	60	0	40	34	24	33
Jagalene	98	65	33	65	121	101	96	109	92	101	--	--	60	68	61	65	61	62	0	37	33	24	31
Neosho	73	62	33	56	90	96	96	93	75	--	--	--	53	--	61	62	61	61	0	38	34	24	32
W03-20	98	68	35	67	122	106	103	112	--	--	--	--	--	--	60	62	61	61	-1	36	34	24	32
W04-417	66	66	38	57	82	103	112	95	--	--	--	--	--	--	60	60	59	60	-1	35	32	24	30
AGSECO																							
Protection CL	81	67	36	61	100	104	105	102	--	--	--	--	--	--	60	59	60	60	-1	39	34	24	33
Santa Fe	89	68	36	65	111	106	106	108	--	--	--	--	--	--	61	60	63	62	-1	35	33	24	31
General Mills																							
(W) GM10006	80	55	34	56	99	85	100	94	--	--	--	--	--	--	61	61	63	62	0	33	32	23	29
(W) NuFrontier	80	57	42	60	99	89	124	100	74	83	--	--	57	66	59	61	61	60	3	38	34	24	32
(W) NuHills	58	68	29	51	72	105	84	86	68	85	--	--	50	61	61	62	62	62	2	36	34	24	31
Polansky																							
Dominator	71	61	30	54	87	95	88	90	75	86	--	--	49	62	62	62	61	62	-1	35	32	24	30
Rinck																							
Sturdy-2K	81	65	22	56	100	100	66	94	--	--	--	--	--	--	59	61	61	60	0	39	33	24	32
WestBred																							
(W)HV9W98-926	78	72	38	63	96	112	111	105	--	--	--	--	--	--	61	61	60	61	0	37	33	24	31
HV9W99-191	93	68	35	65	115	106	103	110	--	--	--	--	--	--	60	60	59	60	-1	37	34	24	32
Public																							
(W) Lakin	61	72	26	53	76	112	77	89	68	--	--	--	52	--	60	61	61	60	2	36	33	25	31
(W) Trego	76	62	31	56	94	96	91	94	78	87	--	--	51	59	60	60	62	61	1	38	33	25	32
2137	71	57	29	52	88	88	86	88	78	88	--	--	55	65	60	60	61	61	0	36	33	24	31
2145	85	72	32	63	105	111	94	105	84	93	--	--	54	60	61	60	62	61	1	34	32	24	30
2174	83	61	27	57	103	95	81	96	81	89	--	--	45	53	60	61	61	61	0	37	33	24	31
Hallam	82	61	39	61	102	94	116	102	--	--	--	--	--	--	59	60	57	59	2	40	34	25	33
Ike	71	61	30	54	88	95	88	90	67	74	--	--	51	62	61	61	61	61	-1	37	31	23	30
Infinity CL	98	65	47	70	121	101	137	117	--	--	--	--	--	--	59	60	62	60	4	39	34	25	33
Jagger	88	63	37	63	108	98	110	105	86	91	--	--	60	69	61	59	60	60	0	35	33	25	31
Karl 92	71	62	29	54	88	96	85	90	70	81	--	--	44	55	61	61	60	60	-2	37	31	21	30
KS02HW34	94	69	36	66	117	106	107	111	89	--	--	--	53	--	60	63	62	62	1	38	34	24	32
Millennium	76	56	43	58	94	87	125	97	74	78	--	--	53	62	57	61	62	60	5	39	35	26	33
Ok102	74	58	29	54	92	90	84	90	79	--	--	--	46	--	62	62	61	62	-1	35	33	22	30
Overley	95	71	28	65	118	110	81	108	89	99	--	--	51	59	61	61	60	61	1	41	33	24	33
Stanton	71	62	29	54	88	96	85	90	67	79	--	--	50	61	61	61	60	61	0	39	33	24	32
Wahoo	85	59	44	63	105	92	129	105	77	78	--	--	57	66	58	61	61	60	5	38	35	25	33
Wesley	90	73	49	71	112	114	144	119	85	97	--	--	60	69	58	59	61	60	3	34	31	23	29
Average	81	65	34	60	81	65	34	60	--	--	--	--	--	--	60	61	61	61	1	37	33	24	31
CV (%)	12	6	11	10	12	6	11	10	--	--	--	--	--	--	2	2	2	2	1	3	2	4	3
LSD (0.05)*	15	6	6	6	19	10	18	10	--	--	--	--	--	--	2	2	2	1	1	2	1	2	1

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

[2] CN = Concordia, KS, Cloud County.

[3] SC = Smith Center, KS, Smith County.

(W) = Hard white wheat

* Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

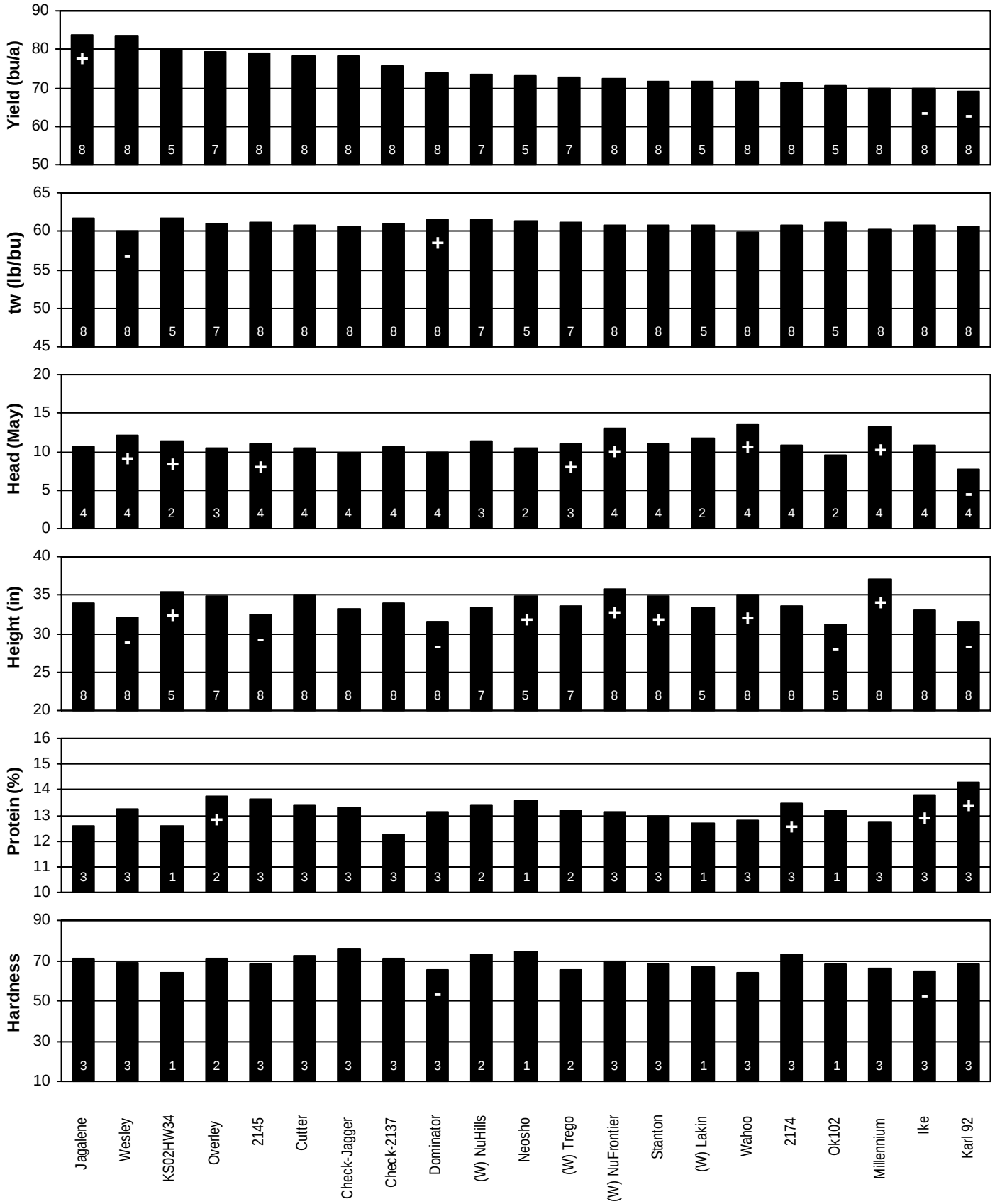


Figure 6. Wheat variety performance summary, NORTH CENTRAL Kansas, 2002-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 9. 2005 SOUTH CENTRAL Kansas Winter Wheat Performance Tests.

Brand / Name	yield (bu/a)				% of test average				multi-year avg (bu/a)						tw (lb/bu)				head (+/- Jagger)				height (in)			
	HE[1]	HU[2]	CA[3]	Av.	HE	HU	CA	Av.	-HE- 2yr	-HE- 3yr	-HU- 2yr	-HU- 3yr	-CA- 2yr	-CA- 3yr	HE	HU	CA	Av.	HE	HU	CA	Av.	HE	HU	CA	Av.
AgriPro																										
Cutter	41	47	--	44	92	92	--	92	48	52	48	53	43	39	57	56	--	56	4	3	--	3	32	38	--	35
Jagalene	42	50	--	46	93	97	--	95	48	56	49	55	37	39	58	58	--	58	4	2	--	3	32	35	--	33
Neosho	47	56	--	52	105	109	--	107	52	--	55	--	--	--	58	57	--	57	3	0	--	1	33	39	--	36
AGSECO																										
Protection CL	40	50	--	45	89	98	--	94	--	--	--	--	--	--	55	55	--	55	1	0	--	1	35	39	--	37
Santa Fe	53	53	--	53	117	104	--	110	--	--	--	--	--	--	57	57	--	57	1	0	--	0	33	35	--	34
General Mills																										
(W) GM10006	40	55	--	48	90	107	--	99	44	--	52	--	--	--	58	57	--	57	6	4	--	5	29	33	--	31
(W) NuFrontier	34	49	--	41	76	95	--	86	--	--	--	--	--	--	56	55	--	55	8	4	--	6	31	37	--	34
(W) NuHills	32	51	--	41	71	98	--	86	43	49	50	53	38	--	57	56	--	56	4	2	--	3	28	36	--	32
Polansky																										
Dominator	54	51	--	52	119	100	--	109	52	59	51	48	29	--	59	57	--	58	3	0	--	1	32	35	--	33
Rinck																										
Sturdy-2K	55	48	--	51	123	93	--	107	--	--	--	--	--	--	58	55	--	57	4	3	--	4	35	36	--	35
WestBred																										
HV9W99-191	47	56	--	51	103	108	--	106	--	--	--	--	--	--	54	54	--	54	1	1	--	1	33	36	--	34
Public																										
2137	49	51	--	50	108	99	--	103	52	54	54	50	39	39	58	55	--	56	4	3	--	3	33	35	--	34
2145	50	55	--	53	112	107	--	109	51	55	54	58	39	36	58	57	--	57	3	2	--	3	31	35	--	33
2174	48	49	--	48	106	95	--	100	52	55	51	55	41	38	60	56	--	58	3	3	--	3	33	36	--	35
Deliver	44	46	--	45	97	90	--	93	--	--	--	--	--	--	59	57	--	58	4	2	--	3	34	37	--	35
Endurance	44	50	--	47	98	97	--	97	--	--	--	--	--	--	59	56	--	58	4	3	--	3	33	36	--	34
Jagger	44	49	--	47	99	95	--	97	48	56	44	50	31	32	56	56	--	56	0	0	--	0	34	37	--	35
Karl 92	51	52	--	52	113	101	--	107	54	60	51	54	40	40	58	57	--	58	0	0	--	0	33	35	--	34
KS02HW34	19	54	--	36	41	105	--	75	38	--	53	--	--	--	56	57	--	57	10	4	--	7	27	35	--	31
Ok101	48	51	--	50	107	99	--	103	49	53	47	47	30	32	58	55	--	57	2	0	--	1	33	36	--	34
Ok102	52	50	--	51	116	97	--	106	54	58	50	52	36	--	59	56	--	57	4	1	--	3	28	34	--	31
Overley	56	60	--	58	124	116	--	120	55	62	56	66	50	--	58	57	--	57	-1	0	--	-1	35	38	--	36
Average	45	52	--	48	45	52	--	48	--	--	--	--	--	--	58	56	--	57	3	2	--	2	32	36	--	34
CV (%)	5	9	--	8	5	9	--	8	--	--	--	--	--	--	1	1	--	1	0	0	--	0	5	3	--	4
LSD (0.05)*	3	7	--	4	8	13	--	8	--	--	--	--	--	--	1	1	--	1	1	1	--	1	2	2	--	1

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

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

[3] CA = Caldwell, KS, Max Kolarik farm, Sumner County; abandoned because of poor stands, multi-year averages from 2002-2004.

(W) = Hard white wheat

* Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

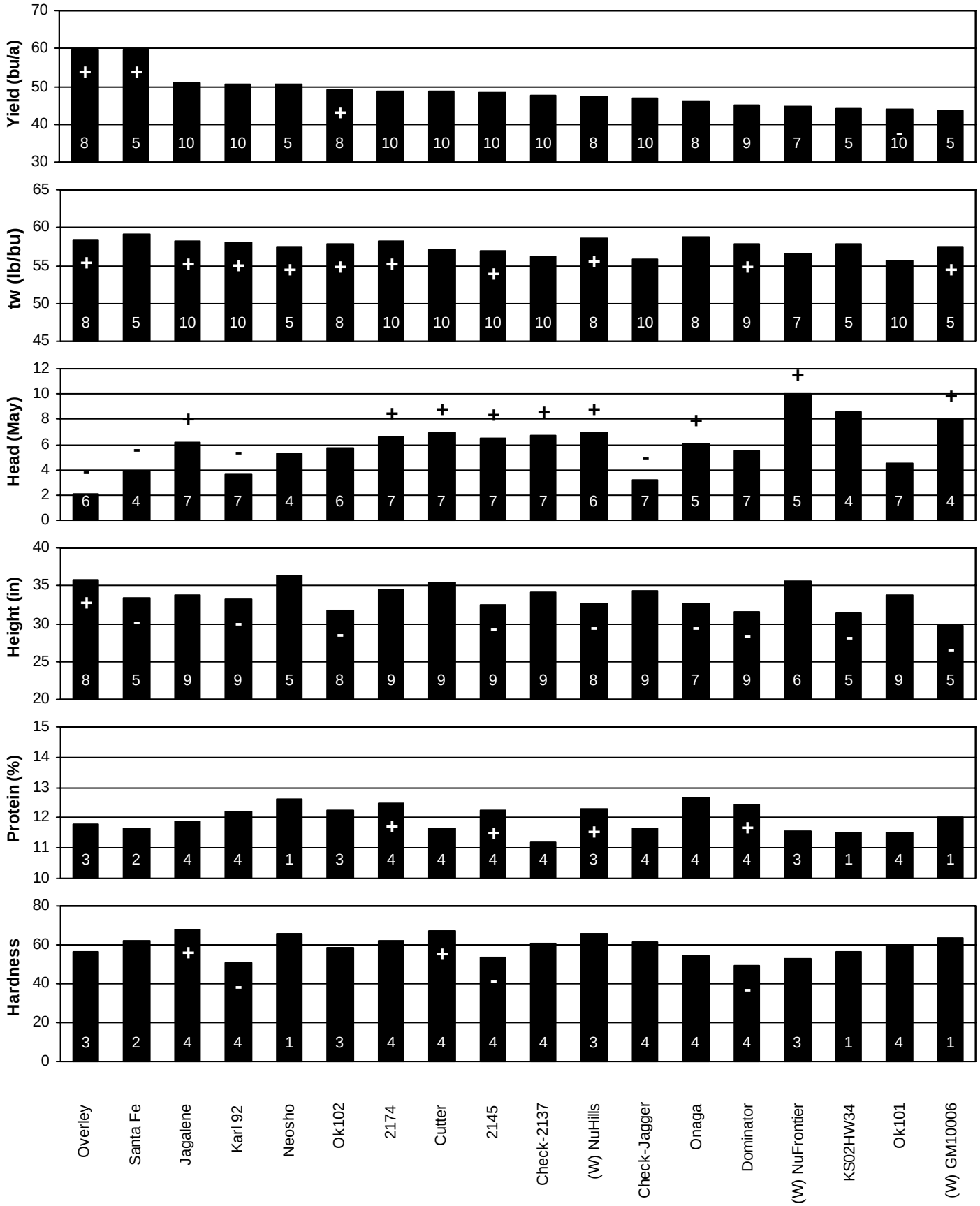


Figure 7. Wheat variety performance summary, SOUTH CENTRAL Kansas, 2002-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 10. 2005 NORTHWEST DRYLAND Kansas Winter Wheat Performance Tests.

Brand / Name	yield (bu/a)				% of test average				multi-year avg (bu/a)						tw (lb/bu)				head (+/- Scout)				height (in)			
	HA[1]	CO[2]	TR[3]	Av.	HA	CO	TR	Av.	-HA- 2yr	-HA- 3yr	-CO- 2yr	-CO- 3yr	-TR-[4] 2yr	-TR-[4] 3yr	HA	CO	TR	Av.	HA	CO	TR	Av.	HA	CO	TR	Av.
AgriPro																										
AP502CL	73	65	52	63	107	93	84	95	62	68	61	66	34	32	59	62	--	61	-1	0	0	0	36	31	36	34
Cutter	71	72	77	73	104	104	124	110	65	76	63	65	50	41	61	64	--	63	3	3	2	3	40	35	41	38
Jagalene	71	74	75	73	105	107	121	110	64	76	68	71	47	40	62	64	--	63	2	3	2	2	36	31	35	34
TAM 111	77	77	75	77	113	111	122	115	65	--	65	--	--	--	62	63	--	63	2	3	3	3	38	33	37	36
Thunderbolt	64	69	67	67	93	99	108	100	60	70	61	64	46	41	63	65	--	64	3	4	3	3	38	34	36	36
W04-417	64	65	51	60	93	94	83	90	--	--	--	--	--	--	60	63	--	62	2	2	2	2	36	29	34	33
AGSECO																										
TAM 110	76	64	46	62	111	92	74	93	66	70	59	65	31	29	61	63	--	62	0	1	0	0	38	30	37	35
Drussel																										
T81	77	75	74	76	113	109	120	114	66	--	63	--	--	--	62	63	--	63	1	2	1	1	37	32	35	35
Farmer Direct																										
(W) Burchett	71	70	62	68	104	100	101	102	62	73	60	66	43	--	63	64	--	63	2	3	2	2	35	32	33	33
(W)PrairieWhite	78	70	60	69	115	101	97	104	64	74	59	66	41	--	61	64	--	62	1	0	1	0	36	31	32	33
General Mills																										
(W) GM10006	67	70	61	66	98	100	99	99	--	--	--	--	--	--	64	64	--	64	3	4	3	3	34	29	31	31
(W) NuFrontier	58	72	67	66	86	104	109	99	57	67	64	67	46	35	62	64	--	63	5	5	3	4	40	33	39	37
(W) NuHills	70	74	67	70	102	107	108	106	64	79	67	71	42	--	63	65	--	64	2	3	2	2	36	30	35	33
WestBred																										
(W)HV9W98-411	72	72	67	70	105	104	108	106	--	--	--	--	39	--	60	65	--	63	1	1	2	1	37	34	34	35
HV9W98-143	72	78	66	72	106	112	107	108	--	--	--	--	--	--	62	62	--	62	2	3	3	3	40	34	38	37
Public																										
(W) Avalanche	67	68	55	63	98	97	89	95	62	69	61	66	39	35	62	64	--	63	3	3	2	3	39	33	39	37
(W) Lakin	69	60	43	57	101	86	70	86	60	64	56	63	28	25	61	63	--	62	3	4	3	3	36	30	35	34
(W) Trego	61	67	63	64	89	96	102	96	58	68	60	66	39	35	62	64	--	63	3	4	3	3	36	31	36	34
2137	61	64	51	59	90	92	82	88	57	66	57	61	38	33	62	63	--	62	4	4	4	4	37	29	34	33
2145	62	65	61	63	92	93	98	94	59	69	58	61	40	32	62	65	--	63	3	4	3	3	36	30	34	33
2174	54	65	48	55	79	93	77	83	53	63	57	63	33	27	62	63	--	62	3	5	3	4	35	31	34	33
Above	76	64	56	65	112	92	90	98	68	73	61	67	36	33	60	63	--	61	0	1	0	0	38	32	35	35
Ankor	74	69	52	65	108	99	83	97	66	71	62	68	36	--	62	62	--	62	3	4	4	4	37	32	34	34
Bond CL	75	77	72	75	110	111	117	112	--	--	--	--	--	--	60	62	--	61	2	2	1	2	39	35	37	37
Hallam	68	73	57	66	100	104	91	99	--	--	--	--	--	--	58	63	--	60	2	2	1	1	41	35	40	39
Hatcher	76	80	68	74	111	115	110	112	--	--	--	--	--	--	61	63	--	62	2	3	2	2	37	29	33	33
Ike	72	66	60	66	106	95	98	100	63	72	58	65	38	33	61	63	--	62	3	2	0	1	38	32	36	36
Infinity CL	73	75	69	72	108	108	111	109	--	--	--	--	--	--	62	63	--	62	4	4	2	3	39	34	38	37
Jagger	72	72	70	71	106	103	114	107	63	73	61	65	45	34	60	64	--	62	0	0	0	0	38	32	36	35
Karl 92	50	54	60	55	74	78	98	82	45	61	50	56	35	29	60	63	--	62	1	1	1	1	37	30	34	33
KS02HW34	72	77	68	72	105	111	110	109	66	--	68	--	--	--	64	64	--	64	3	4	3	3	36	34	35	35
Millennium	69	71	62	68	101	103	101	102	61	70	59	66	43	39	62	63	--	62	6	6	4	5	38	36	40	38
Ok102	57	61	54	58	84	88	88	87	53	--	56	--	--	--	62	63	--	62	3	4	3	3	34	28	33	32
Overley	60	69	70	67	88	100	114	100	57	69	62	66	46	--	60	64	--	62	-1	0	0	0	39	34	36	36
Prairie Red	75	58	55	63	110	83	89	94	64	70	57	64	35	31	60	63	--	61	1	2	0	1	36	30	33	33
Stanton	56	69	62	62	82	99	100	94	51	63	60	64	39	33	62	63	--	63	3	4	3	3	38	32	38	36
Wahoo	66	80	67	71	97	115	108	107	64	73	67	71	45	39	61	62	--	62	5	4	3	4	38	34	40	37
Wesley	64	71	58	65	94	102	94	97	58	70	61	66	39	37	61	62	--	62	4	3	2	3	33	31	33	33
Average	68	70	62	67	68	70	62	67	--	--	--	--	--	--	61	63	--	62	2	3	2	2	37	32	36	35
CV (%)	5	4	7	5	5	4	7	5	--	--	--	--	--	--	1	1	--	1	0	1	0	0	3	5	4	4
LSD (0.05)*	5	4	6	3	7	5	9	4	--	--	--	--	--	--	1	1	--	1	1	1	1	0	2	2	2	1

[1] HA = Hays, KS, K-State Research and Extension Center - Hays, Ellis County.

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

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

[4] Tribune 2-yr means from 2003 and 2005, 3-yr means from 2002, 2003, and 2005.

(W) = Hard white wheat

* Least Significant Difference, similar to 'Margin of Error', difference needed to overcome test error.

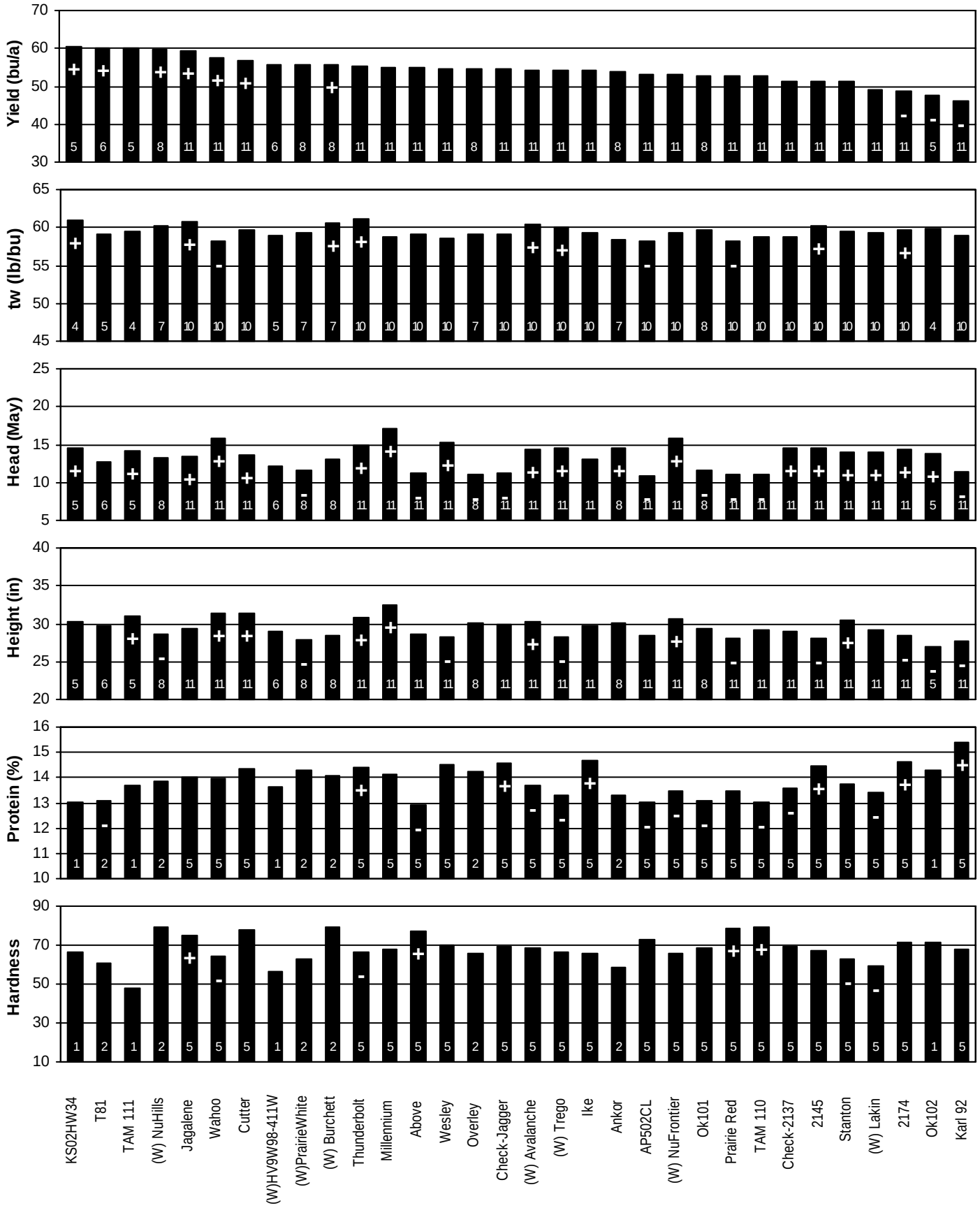


Figure 8. DRYLAND Wheat variety performance summary, NORTHWEST Kansas, 2002-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 11. 2005 SOUTHWEST DRYLAND Kansas Winter Wheat Performance Tests.

Brand / Name	SJ[1]	DC[2]	GC[3]	Av.	SJ	DC	GC	Av.	-SJ- 2yr	-SJ- 3yr	-DC- 2yr	-DC- 3yr	-GC- 2yr	-GC- 3yr	SJ	DC	GC	Av.	SJ	DC	GC	Av.	SJ	DC	GC	Av.
	yield (bu/a)				% of test average				multi-year avg (bu/a)						tw (lb/bu)				head (+/- Jagger)				height (in)			
AgriPro																										
AP502CL	--	47	33	40	--	97	84	91	--	--	49	49	32	34	--	56	59	58	--	-1	-1	-1	--	31	28	30
Cutter	--	48	45	47	--	99	114	106	--	--	50	52	37	36	--	60	62	61	--	2	2	2	--	36	32	34
Jagalene	--	48	44	46	--	100	110	104	--	--	53	55	38	39	--	61	62	61	--	2	3	3	--	32	29	31
TAM 111	--	53	56	55	--	109	142	124	--	--	52	--	44	--	--	60	62	61	--	2	2	2	--	34	32	33
Thunderbolt	--	45	47	46	--	94	120	105	--	--	50	52	42	41	--	62	63	63	--	4	3	3	--	32	30	31
W04-417	--	55	39	47	--	114	97	106	--	--	--	--	--	--	--	59	61	60	--	1	1	1	--	33	28	30
AGSECO																										
Protection CL	--	53	42	47	--	110	105	108	--	--	--	--	--	--	--	57	61	59	--	1	1	1	--	36	32	34
TAM 110	--	51	33	42	--	104	84	95	--	--	50	52	34	35	--	58	60	59	--	-1	1	0	--	32	28	30
Drussel																										
T81	--	50	48	49	--	102	121	111	--	--	49	52	42	41	--	59	62	61	--	1	1	1	--	33	31	32
Farmer Direct																										
(W) Burchett	--	51	44	48	--	106	112	108	--	--	54	55	38	37	--	62	63	62	--	1	2	1	--	34	31	32
General Mills																										
(W) GM10006	--	48	41	45	--	100	104	102	--	--	--	--	--	--	--	61	62	62	--	4	3	4	--	29	28	28
(W) NuFrontier	--	38	49	44	--	79	124	99	--	--	42	46	41	40	--	59	62	60	--	4	2	3	--	34	31	32
(W) NuHills	--	60	41	50	--	124	104	115	--	--	60	58	35	35	--	62	62	62	--	3	2	2	--	33	30	31
Rinck																										
Sturdy-2K	--	42	36	39	--	87	90	88	--	--	--	--	--	--	--	58	61	59	--	3	3	3	--	34	30	32
WestBred																										
(W)HV9W98-411	--	51	30	40	--	105	75	91	--	--	--	--	--	--	--	58	61	60	--	1	2	1	--	32	30	31
HV9W98-143	--	53	40	47	--	110	102	106	--	--	--	--	--	--	--	62	62	62	--	2	2	2	--	36	31	34
Public																										
(W) Avalanche	--	44	35	40	--	90	89	90	--	--	46	51	35	36	--	61	62	62	--	3	3	3	--	32	29	31
(W) Lakin	--	44	30	37	--	90	76	84	--	--	47	51	34	37	--	60	61	61	--	3	1	2	--	33	28	30
(W) Trego	--	43	35	39	--	90	88	89	--	--	46	52	34	34	--	60	62	61	--	3	3	3	--	31	26	28
2137	--	46	30	38	--	95	75	86	--	--	47	50	30	32	--	58	61	60	--	3	2	2	--	32	28	30
2145	--	50	43	46	--	103	108	105	--	--	51	50	36	37	--	59	62	61	--	2	3	2	--	32	28	30
2174	--	47	33	40	--	97	83	91	--	--	48	51	32	33	--	61	62	62	--	2	3	2	--	32	28	30
Above	--	49	30	40	--	102	77	91	--	--	51	52	33	35	--	58	60	59	--	-1	1	0	--	31	28	30
Ankor	--	44	32	38	--	91	80	86	--	--	46	49	32	35	--	60	61	60	--	3	3	3	--	33	28	30
Bond CL	--	41	38	39	--	85	96	90	--	--	--	--	--	--	--	58	61	60	--	1	2	2	--	33	31	32
Deliver	--	53	45	49	--	109	113	111	--	--	--	--	--	--	--	62	62	62	--	2	2	2	--	34	31	32
Endurance	--	54	43	49	--	112	109	110	--	--	--	--	--	--	--	60	62	61	--	2	1	1	--	32	30	31
Hatcher	--	51	48	50	--	106	122	114	--	--	--	--	--	--	--	60	62	61	--	1	2	2	--	33	29	31
Ike	--	45	36	40	--	93	91	92	--	--	49	52	37	37	--	59	60	59	--	3	2	2	--	32	30	31
Infinity CL	--	51	49	50	--	106	124	114	--	--	--	--	--	--	--	60	62	61	--	4	3	4	--	33	31	32
Jagger	--	48	43	45	--	100	108	103	--	--	49	54	35	36	--	59	61	60	--	0	0	0	--	35	32	33
Karl 92	--	51	31	41	--	106	79	94	--	--	49	51	26	27	--	60	60	60	--	-1	0	-1	--	34	30	32
KS02HW34	--	57	45	51	--	118	114	116	--	--	56	--	41	--	--	62	63	62	--	3	3	3	--	32	29	31
Ok102	--	49	33	41	--	101	83	93	--	--	47	--	33	--	--	61	62	62	--	2	2	2	--	30	27	29
Overley	--	43	40	42	--	89	101	94	--	--	46	50	34	36	--	59	62	60	--	0	0	0	--	36	31	33
Prairie Red	--	45	29	37	--	93	72	84	--	--	48	51	32	33	--	57	60	59	--	0	1	0	--	31	28	30
Stanton	--	48	42	45	--	99	106	102	--	--	48	50	38	38	--	61	62	61	--	3	2	3	--	32	29	31
Wesley	--	43	46	44	--	88	116	101	--	--	47	52	40	40	--	59	61	60	--	4	3	3	--	31	29	30
Average	--	48	40	44	--	48	40	44	--	--	--	--	--	--	--	60	61	61	--	2	2	2	--	33	29	31
CV (%)	--	7	7	7	--	7	7	7	--	--	--	--	--	--	--	1	0	1	--	0	0	0	--	3	4	3
LSD (0.05)*	--	5	4	3	--	10	9	7	--	--	--	--	--	--	--	1	0	1	--	1	1	0	--	2	1	1

[1] SJ = St. John, KS, Sandyland Experiment Field, Stafford County.

[2] DC = Dodge City, KS, Ford County.

[3] GC = Garden City, KS, Southwest Research-Extension Center, Finney County.

(W) = Hard white wheat

* Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

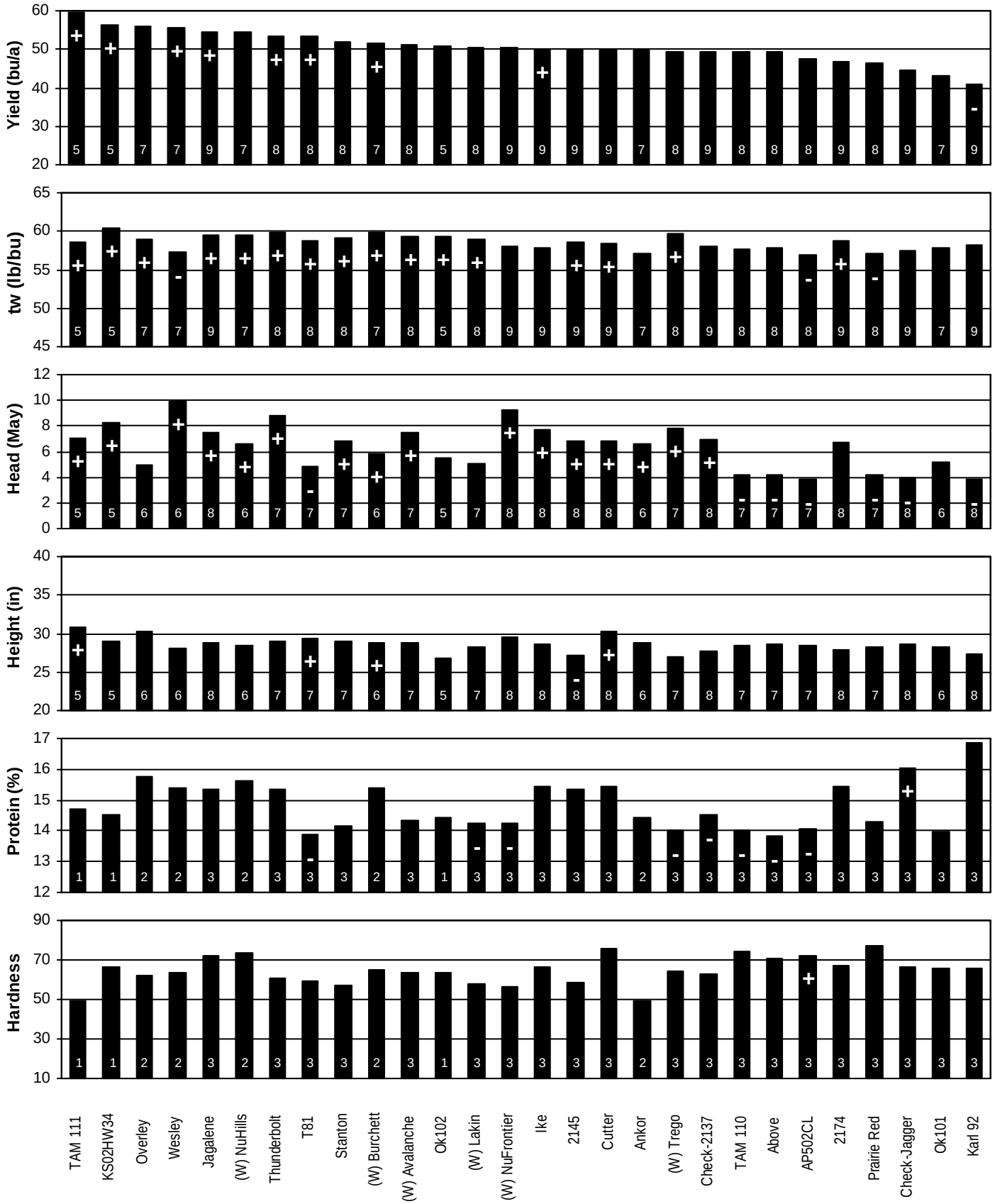


Figure 9. DRYLAND Wheat variety performance summary, SOUTHWEST Kansas, 2002-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 12. 2005 IRRIGATED Kansas Winter Wheat Performance Tests.

Brand / Name	yield (bu/a)				% of test average				multi-year avg (bu/a)						tw (lb/bu)				head (+/- Jagger)				height (in)			
	CO[1]	TR[2]	GC[3]	Av.	CO	TR	GC	Av.	-CO- 2yr	-CO- 3yr	-TR- 2yr	-TR- 3yr	-GC- 2yr	-GC- 3yr	CO	TR	GC	Av.	CO	TR	GC	Av.	CO	TR	GC	Av.
AgriPro																										
(W) Platte	59	25	58	47	81	60	93	80	70	--	42	54	76	74	55	47	63	55	5	4	4	5	29	33	35	32
Dumas	70	39	61	56	96	93	97	96	75	68	53	59	78	76	57	47	62	56	3	2	1	2	34	39	38	37
Jagalene	85	50	70	69	118	120	113	117	95	83	58	64	86	82	59	53	63	58	4	3	3	3	34	39	39	37
TAM 111	91	64	72	76	126	151	116	128	--	--	62	--	87	--	59	54	63	59	4	2	3	3	35	40	41	39
Thunderbolt	77	41	--	59	106	96	--	99	--	--	--	--	--	--	60	54	--	57	4	4	--	7	36	39	--	37
AGSECO																										
Santa Fe	74	52	57	61	103	124	92	104	--	--	--	--	--	--	58	48	61	56	0	0	-1	0	31	37	37	35
TAM 110	58	32	68	53	80	77	109	90	75	68	41	53	82	80	51	44	61	52	1	0	-1	0	32	39	38	36
Drussel																										
T81	84	54	69	69	116	128	111	117	--	--	56	--	88	83	60	54	63	59	2	1	0	1	33	39	39	37
Farmer Direct																										
(W) Burchett	78	44	62	61	108	105	100	104	--	--	--	--	79	76	60	50	63	58	4	2	1	2	32	36	38	35
(W)Bakers White	--	--	67	67	--	--	108	114	--	--	--	--	81	76	--	--	62	62	--	--	0	-6	--	--	36	36
General Mills																										
(W) GM10006	76	57	62	65	105	136	100	111	--	--	--	--	--	--	57	55	64	58	5	3	3	4	28	36	36	33
(W) NuFrontier	87	50	70	69	121	120	113	118	80	73	53	63	78	77	60	56	62	59	5	3	3	3	37	41	41	40
(W) NuHills	87	53	60	67	120	126	96	113	96	--	59	67	77	77	61	55	62	60	3	2	1	2	31	36	38	35
WestBred																										
(W)HV9W98-411	73	35	64	57	101	82	102	97	--	--	--	--	--	--	60	49	62	57	1	-1	-1	0	33	36	39	36
(W)HV9W98-926	76	34	57	56	105	81	92	94	--	--	--	--	--	--	60	49	61	57	3	2	3	2	34	38	38	37
HV9W98-143	83	55	61	66	115	131	97	112	--	--	--	--	--	--	58	54	62	58	3	2	1	2	35	39	39	38
Public																										
(W) Avalanche	62	29	59	50	86	69	94	85	--	--	--	--	--	--	55	47	62	55	4	2	1	3	36	38	39	38
(W) Lakin	37	21	58	39	51	51	92	66	57	57	40	53	75	73	46	46	61	51	4	2	3	3	33	36	38	35
(W) Trego	59	31	57	49	82	74	91	83	67	65	39	53	71	70	50	49	62	54	5	3	3	4	33	38	37	36
2137	54	33	58	48	75	78	92	82	69	64	45	57	76	73	52	51	62	55	4	4	3	4	32	37	39	36
2145	72	49	70	64	100	117	112	108	79	70	55	62	74	71	58	52	62	57	4	3	3	3	31	39	39	36
2174	68	31	55	51	94	74	88	87	74	67	44	57	78	74	56	51	62	57	5	4	3	4	34	36	38	36
Bond CL	76	41	67	61	105	98	107	104	--	--	--	--	--	--	54	48	62	55	2	1	1	1	35	38	40	38
Hatcher	85	42	62	63	118	99	99	107	--	--	--	--	--	--	58	54	62	58	3	1	1	2	34	36	38	36
Jagger	82	49	68	66	114	116	108	112	88	75	50	56	76	75	58	50	61	57	0	0	0	0	32	38	39	36
Karl 92	69	44	47	53	96	104	75	90	75	68	46	55	69	70	59	55	60	58	1	0	-1	0	33	36	37	35
KS02HW34	90	51	66	69	124	122	106	117	--	--	56	--	79	--	58	54	63	58	5	3	4	4	35	39	38	37
Ok102	57	37	57	50	78	87	91	85	--	--	46	--	75	72	53	49	62	55	5	4	2	4	31	36	36	34
Overley	83	52	65	67	115	124	104	113	84	--	48	53	76	73	60	55	61	59	0	-1	-1	0	34	38	39	37
Prairie Red	50	26	65	47	69	62	103	80	--	--	--	--	--	--	51	47	61	53	1	-1	-1	0	33	37	37	36
Stanton	66	42	57	55	91	100	91	93	75	70	49	62	78	77	54	50	61	55	4	3	3	3	35	38	40	38
Wesley	74	39	68	60	103	93	109	103	--	--	--	--	--	--	57	51	61	56	5	2	3	3	31	36	36	34
Average	72	42	62	59	72	42	62	59	78	70	48	57	77	74	57	51	62	57	3	2	2	2	33	37	38	36
CV (%)	6	9	7	7	6	9	7	7	--	--	--	--	--	--	3	4	0	3	0	1	1	1	5	4	5	5
LSD (0.05)*	6	5	6	3	8	13	9	6	--	--	--	--	--	--	2	3	0	1	1	1	1	1	2	2	2	1

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

[2] TR = Tribune, KS, Southwest Research-Extension Center, Greeley County.

[3] GC = Garden City, KS, Southwest Research-Extension Center, Finney County.

(W) = Hard white wheat

* Least Significant Difference, similar to 'Margin of Error', difference needed to overcome test error.

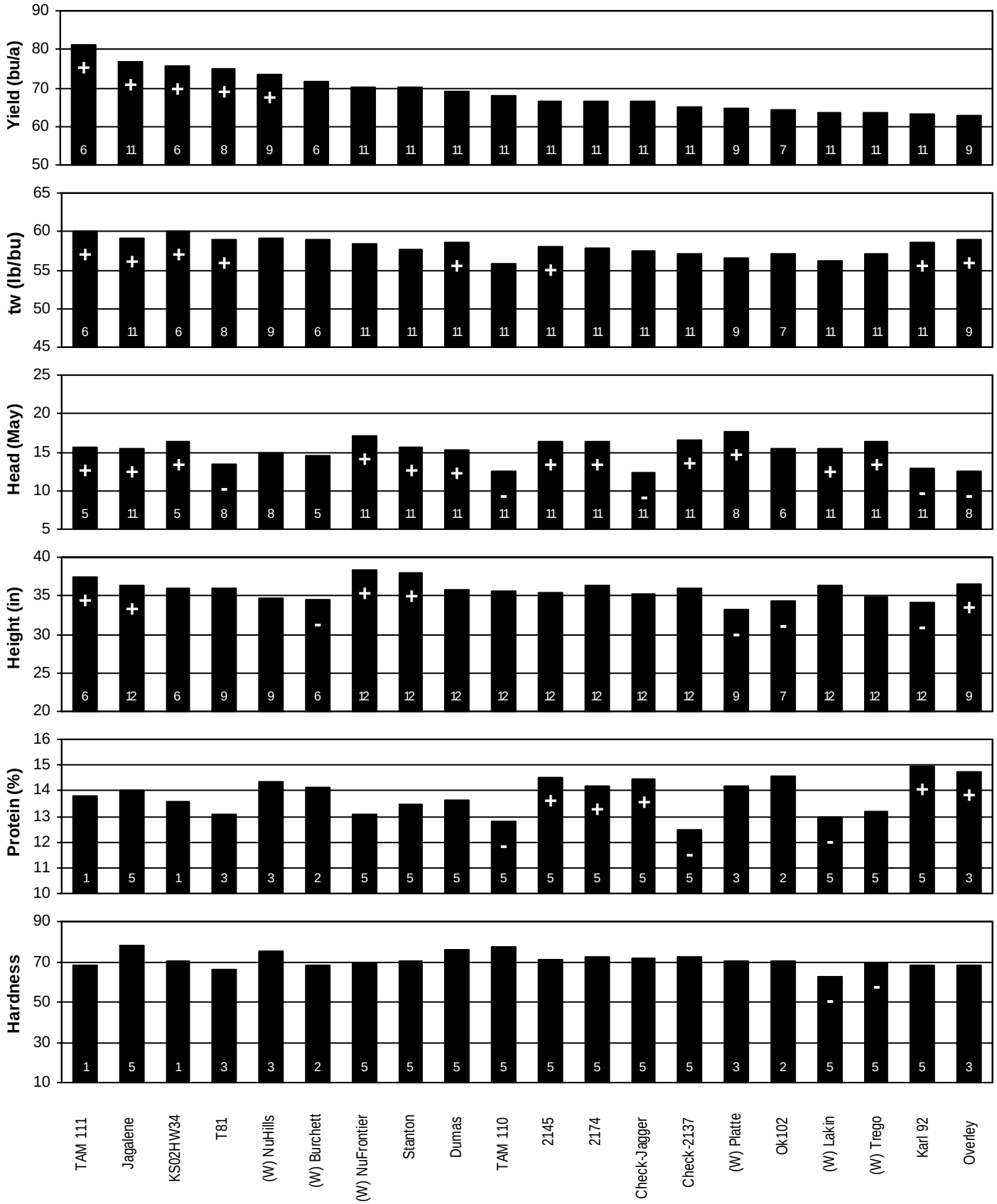


Figure 10. Wheat variety performance summary, IRRIGATED sites in Kansas, 2002-2005.

Values inside bars indicate the number of comparisons with checks. Symbols (+,-) indicate if statistically greater or less than mean of checks.

Table 13. Shattering, lodging, disease, and freeze damage notes from 2005 Kansas Winter Wheat Performance Tests.

	Shatt. (%)[1]			Lodg. (%)[2]			Disease[3]			FD[4]
Brand / Name	**HA**	**CD**	**CI**	**OT**	**HE**	**HU**	**HE**	**GL**	**GS**	**DC**
AgriPro										
(W) Platte	--	--	0	--	--	--	--	3	6	--
AP502CL	4	3	--	--	--	--	--	--	--	0
Cutter	5	10	--	8	10	48	2	--	--	1
Dumas	--	--	0	--	--	--	--	4	6	--
Jagalene	5	3	0	2	2	18	1	6	2	1
Neosho	--	--	--	2	1	40	2	--	--	--
TAM 111	4	3	1	--	--	--	--	3	2	3
Thunderbolt	5	15	8	--	--	--	--	--	--	1
W03-20	--	--	--	3	--	--	--	--	--	--
W04-417	6	5	--	2	--	--	--	--	--	1
AGSECO										
Onaga	--	--	--	1	--	--	--	--	--	--
Protection CL	--	--	--	--	3	35	2	--	--	0
Santa Fe	--	--	1	1	1	18	1	2	2	--
TAM 110	3	0	0	--	--	--	--	6	7	0
Drussel										
T81	3	0	0	--	--	--	--	5	3	3
Farmer Direct										
(W) Burchett	3	0	0	--	--	--	--	6	5	2
(W)Bakers White	--	--	--	--	--	--	--	5	1	--
(W)PrairieWhite	3	0	--	--	--	--	--	--	--	--
General Mills										
(W) GM10006	3	0	0	--	2	15	2	5	6	1
(W) NuFrontier	3	0	0	--	2	33	5	7	4	4
(W) NuHills	3	0	0	--	4	30	2	6	2	1
Polansky										
Dominator	--	--	--	--	0	30	1	--	--	--
Rinck										
Sturdy-2K	--	--	--	0	0	28	3	--	--	2
WestBred										
(W)HV9W98-411W	5	3	0	--	--	--	--	2	5	2
(W)HV9W98-926W	--	--	1	--	--	--	--	3	6	--
HV9W98-143	3	0	0	--	--	--	--	6	1	1
HV9W99-191	--	--	--	5	1	43	1	--	--	--

	Shatt. (%)[1]			Lodg. (%)[2]			Disease[3]			FD[4]
Brand / Name	**HA**	**CD**	**CI**	**OT**	**HE**	**HU**	**HE**	**GL**	**GS**	**DC**
Public										
(W) Avalanche	3	3	0	--	--	--	--	2	7	2
(W) Lakin	5	0	0	--	--	--	--	3	8	4
(W) Trego	2	3	0	--	--	--	--	4	6	2
2137	5	0	0	0	0	30	2	2	7	2
2145	5	6	0	0	0	10	2	4	5	2
2174	3	0	0	0	0	13	2	4	6	2
Above	3	0	--	--	--	--	--	--	--	1
Ankor	4	3	--	--	--	--	--	--	--	3
Bond CL	3	3	0	--	--	--	--	4	6	3
Deliver	--	--	--	1	1	48	1	--	--	1
Endurance	--	--	--	1	3	18	7	--	--	1
Hallam	5	5	--	--	--	--	--	--	--	--
Hatcher	3	0	0	--	--	--	--	3	5	2
Ike	3	0	--	--	--	--	--	--	--	3
Infinity CL	4	0	--	--	--	--	--	--	--	2
Jagger	5	6	0	2	2	33	1	7	2	1
Karl 92	3	0	0	1	0	25	1	4	4	2
KS02HW34	2	0	0	2	14	13	7	5	3	1
Millennium	4	10	--	--	--	--	--	--	--	--
Ok101	--	--	--	--	1	28	6	--	--	--
Ok102	3	0	0	0	0	10	2	4	6	1
Overley	7	15	5	2	0	33	1	2	2	1
Prairie Red	3	0	0	--	--	--	--	6	8	0
Stanton	2	0	0	--	--	--	--	3	7	3
Wahoo	3	0	--	--	--	--	--	--	--	--
Wesley	2	0	0	--	--	--	--	2	3	1
Average	4	2	1	2	2	27	2	4	4	2
CV (%)	17	139	230	120	62	38	25	38	17	65
LSD (0.05)*	1	5	2	3	2	14	1	2	1	1

[1] Shattering percentage: HA=Hays, CD=Colby Dryland, CI=Colby Irr. (W) = Hard white wheat

[2] Lodging percentage: OT=Ottawa, HE=Hesston, HU=Hutchinson.

[3] Disease score; 1=best, 9=worst: HE=Hesston soilborne and spindle streak, GL=Garden City Irr. leaf rust, GS=Garden City Irr. stripe rust.

[4] Freeze damage score; 1=best, 9=worst: DC=Dodge City.

* Least Significant Difference, similar to 'Margin of Error', indicates difference needed to overcome test error.

Table 14. Leaf and stripe rust ratings from 2005 Kansas Winter Wheat Performance Tests.

	Leaf rust [1]					Stripe rust [1]		
Brand / Name	Manhattan 1 6/1	Manhattan 2 6/6	Parsons 5/28	Hesston 5/30	Hutchinson 5/30	Manhattan 5/29	Parsons 5/28	Colby Irr. 6/4
AgriPro								
(W) Platte	10 MSMR	--	--	--	--	Tr MR	--	90 RMR
AP502CL	100 MSS	--	--	--	--	20 MS	--	--
Cutter	30S	90 S	5 S	80 S	100 S	0	Tr MR	--
Dumas	5 RMR	--	--	--	--	Tr MRMS	--	80 MRMS
Jagalene	90 S	100 S	20 S	100 S	100 S	0	5 MRMS	5 MS
Neosho	90 S	90 S	40 S	100 S	100 S	Tr S	0	--
TAM 111	30 MSS	--	--	--	--	0	--	Tr MS
Thunderbolt	20 S	--	--	--	--	Tr MS	--	70 RMR
W03-20	Tr MR	1 RMS	Tr S	--	--	0	Tr MR	--
W04-417	10 MRMS	40 S	5 MSS	--	--	0	0	--
AGSECO								
Onaga	10 MRMS	30 MSMR	1 MSS	--	--	Tr RMR	1 MR	--
Protection CL	90 S	--	--	100 S	100 S	0	--	--
Santa Fe	Tr R	20 MRMS	Tr MS	20 RMR	10 RMR	0	0	2 MS
TAM 110	100 S	--	--	--	--	65 MSS	--	100 S
Drussel								
T81	80 S	--	--	--	--	0	--	Tr MR
Farmer Direct								
(W) Burchett	20 SMR	--	--	--	--	Tr MR	--	5 MRMS
(W)Bakers White	5 S	--	--	--	--	0	--	--
(W)PrairieWhite	20 SMR	--	--	--	--	2 MSS	--	--
General Mills								
(W) GM10006	20 MSS	60 MSMR	--	60 MSS	100 S	0	--	30 RMR
(W) NuFrontier	10 S	60 MS	--	80 MSS	100 S	0	--	5 MR
(W) NuHills	90 S	100 S	--	100 S	100 S	0	--	1 MSMR
MFA								
(S) 2020	5 MSMR	--	5 S	--	--	0	1 MR	--
(S) 2204	5 MSMR	--	1 MSS	--	--	20 MSS	80 MRMS	--
(S) 766	5 MSMR	--	1 MRMS	--	--	10 MSMR	20 MR	--
M-Pride								
(S)MPV14S-4SRW	3 MR	--	3 MRMS	--	--	0	0	--
NK								
(S) Coker 9312	Tr MS	--	Tr MR	--	--	60 MSS	80 MRMS	--
(S) Coker 9375	1 MSMR	--	Tr MS	--	--	1 MR	20 MR	--
(S) Coker 9663	Tr MSS	--	Tr MS	--	--	30 MSS	5 MRMS	--
Pioneer								
(S) 25R47	1 MRMS	--	Tr MS	--	--	1 MR	2 MRMS	--
(S) 25R54	1 MRMS	--	Tr MRMS	--	--	Tr MR	Tr MR	--
Polansky								
Dominator	50 MSS	--	--	80 S	100 S	1 MRMS	--	--
Rinck								
Sturdy-2K	1 RMR	--	0	10 RMR	20 RMR	Tr MR	Tr MR	--

Table 14. Leaf and stripe rust ratings from 2005 Kansas Wheat Performance Tests (continued).

	Leaf rust[1]					Stripe rust[1]		
Brand / Name	**Manhattan 1 6/1**	**Manhattan 2 6/6**	**Parsons 5/28**	**Hesston 5/30**	**Hutchinson 5/30**	**Manhattan 5/29**	**Parsons 5/28**	**Colby Irr. 6/4**
WestBred								
(W)HV9W98-411W	30 S	--	--	--	--	Tr MS	--	50 MS
(W)HV9W98-926W	1 MRMS	--	--	--	--	5 MS	--	80 MSS
HV9W98-143	90 S	--	--	--	--	0	--	1 MS
HV9W99-191	5 MRMS	10 MRMS	1 S	20 MSMR	80 S	Tr MR	0	--
Public								
(S) Pat	5 RMR	--	1 MR	--	--	5 MSMR	Tr MRMS	--
(S) Roane	5 MRMS	--	Tr MS	--	--	10 MS	10 MRMS	--
(S) Sabbe	2 MSS	--	5 S	--	--	1 MSMR	1 MR	--
(S) Truman	2 MSMR	--	1 MRMS	--	--	0	1 MR	--
(S)951079-2E31	1 R	--	Tr MR	--	--	0	0	--
(S)951216-2E26	2 RMR	--	Tr MS	--	--	0	0	--
(W) Avalanche	90 S	--	--	--	--	30 MS	--	90 MSMR
(W) Lakin	80 S	--	--	--	--	20 MS	--	100 S
(W) Trego	80 S	--	--	--	--	5 MRMS	--	90 MSMR
2137	5 MRMS	5 MSMR	1 MS	10 MRMS	60 MS	10 MSMR	80 MSMR	100 MSS
2145	25 MSS	50 MSMR	10 MS	80 MSS	80 S	1 R	10 RMR	80 MRMS
2174	5 MSMR	50 MRMS	2 MSMR	60 MSMR	90 MSMR	5 RMR	5 MR	80 MSMR
Above	100 S	--	--	--	--	50 MSS	--	--
Ankor	50 S	--	--	--	--	10 RMR	--	--
Bond CL	60 MSS	--	--	--	--	20 RMR	--	90 MR
Deliver	Tr MS	--	Tr MRMS	10 RMR	5 MR	Tr MRMS	5 MS	--
Endurance	Tr MRMS	--	Tr MS	30 MRMS	20 MSMR	Tr MRMS	20 MR	--
Hallam	2 RMR	10 MR	--	--	--	0	--	--
Hatcher	60 S	--	--	--	--	Tr RMR	--	30 MSMR
Ike	60 S	--	--	--	--	Tr MR	--	--
Infinity CL	1 RMR	20RMR	--	--	--	0	--	--
Jagger	100 S	100 S	20 S	100 S	100 S	0	0	2 MSS
Karl 92	30 S	50 S	5 S	80 S	90 S	0	Tr R	30 MS
KS02HW34	30 S	50 MSMR	5 MSS	80 MSMR	90 MS	0	Tr MR	5 MRMS
Millennium	1 MRMS	5 RMR	--	--	--	0	--	--
Ok101	Tr MRMS	--	--	30 MSMR	50 S	Tr MR	30 MR	--
Ok102	2 MRMS	20 MRMS	Tr MRMS	80 RMR	80 MRMS	1 RMR	--	90 MRMS
Overley	20 S	5 S	1 S	5 S	10 S	0	0	1 MS
Prairie Red	100 S	--	--	--	--	65 S	--	100 S
Stanton	1 MSMR	--	--	--	--	Tr MR	--	90 RMR
Wahoo	1 MRMS	20 MRMS	--	--	--	0	--	--
Wesley	1 MS	40 MSMR	--	--	--	0	--	40 MSMR

[1] All ratings made by Robert Bowden, USDA plant pathologist. Ratings are on the modified Cobb scale. The number indicates the percentage of possible tissue rusted, Tr=trace. Letters indicate plant response: R=resistance, MR=moderate resistance, MS=moderately susceptible, S=susceptible. The most common response is listed first, so 40MRMS is different than 40MSMR. Most ratings are a composite of 2 or 3 replications, except for the Manhattan 1 rating, which is from unreplicated plots.

Table 15. Planted seed characteristics, coleoptile lengths, and Hessian fly ratings.

Brand / Name	1000 Seed weight (grams)	Test weight (lb/bu)	Seeds per lb. (1000)	Col. length (1-9) [1]	Hess. fly [2]
AgriPro					
(W) Platte	31.4	62.0	14.5	6	S
AP502CL	34.2	57.3	13.3	5	S
Cutter	33.2	62.3	13.7	5	S
Dumas	31.4	58.9	14.5	6	S
Jagalene	36.4	61.8	12.5	6	S
Neosho	27.2	57.7	16.7	--	S
TAM 111	28.8	61.5	15.8	--	H-
Thunderbolt	28.0	61.9	16.2	6	S
W03-20	28.2	59.4	16.1	--	S
W04-417	31.2	61.2	14.5	--	S
AGSECO					
Onaga	29.0	58.8	15.6	6	H
Protection CL	37.2	59.6	12.2	--	S
Santa Fe	35.2	60.0	12.9	5	S
TAM 110	35.8	61.6	12.7	5	S
Drussel					
T81	31.2	60.0	14.5	7	S
Farmer Direct					
(W) Burchett	37.2	63.6	12.2	5	S
(W)Bakers White	40.6	63.1	11.2	6	S
(W)PrairieWhite	33.8	60.9	13.4	7	S
General Mills					
(W) GM10006	29.0	59.6	15.6	--	S
(W) NuFrontier	36.0	64.6	12.6	5	H-
(W) NuHills	36.0	65.1	12.6	7	S
MFA					
(S) 2020	35.4	59.8	12.8	--	H+
(S) 2204	34.0	59.8	13.3	--	R
(S) 766	30.8	61.0	14.7	8	S
M-Pride					
(S)MPV14S-4SRW	33.8	58.2	13.5	--	S
NK					
(S) Coker 9312	33.2	57.2	13.7	--	H-
(S) Coker 9375	31.6	53.0	14.4	--	S
(S) Coker 9663	36.0	56.3	12.6	3	S
Pioneer					
(S) 25R47	40.6	57.2	11.2	--	S
(S) 25R54	37.4	57.8	12.1	--	R-
Polansky					
Dominator	24.6	59.4	18.4	8	H
Rinck					
Sturdy-2K	31.0	62.0	14.6	--	S
WestBred					
(W)HV9W98-411W	42.8	65.6	10.6	5	S
(W)HV9W98-926W	42.6	64.5	10.7	--	S
HV9W98-143	47.6	64.4	9.5	--	S
HV9W99-191	38.8	63.5	11.7	--	S
Public					
(S) Pat	29.6	57.3	15.3	8	H-
(S) Roane	27.8	63.1	16.3	7	H-
(S) Sabbe	36.8	58.4	12.3	4	S
(S) Truman	28.4	60.1	16.0	7	S
(S)951079-2E31	34.0	61.6	13.3	--	R
(S)951216-2E26	33.4	54.6	13.6	--	S
(W) Avalanche	43.0	61.7	10.6	7	S
(W) Lakin	34.8	63.5	13.0	7	S
(W) Trego	34.0	63.4	13.3	6	S
2137	31.8	61.6	14.3	7	S
2145	30.6	58.9	14.8	6	H-
2174	28.0	58.6	16.2	5	S
Above	33.0	59.3	13.8	5	S
Ankor	37.2	60.3	12.2	5	S
Bond CL	35.4	61.3	12.8	--	S
Deliver	35.2	64.4	12.9	--	S
Endurance	34.8	62.5	13.0	--	S
Hallam	32.4	56.2	14.0	--	H-
Hatcher	39.4	60.9	11.5	--	S
Ike	28.2	61.0	16.1	7	H+
Infinity CL	31.6	58.1	14.4	--	S
Jagger	30.8	59.6	14.7	6	S
Karl 92	32.0	60.8	14.2	7	S
KS02HW34	33.4	62.1	13.6	--	S
Millennium	34.8	60.2	13.0	7	R
Ok101	33.0	58.5	13.8	8	S
Ok102	27.0	60.3	16.8	--	S
Overley	40.2	61.6	11.3	5	S
Prairie Red	42.0	60.1	10.8	5	S
Stanton	40.0	62.4	11.3	6	S
Wahoo	30.0	57.2	15.1	6	R-
Wesley	34.4	58.7	13.2	7	S
Maximum	47.6	65.6	18.4	8	
Minimum	24.6	53.0	9.5	3	
Average	33.9	60.4	13.6	6	

[1] Coleoptile length measured at 75 degrees F, which is the average soil temperature at 4" in western Kansas on September 1. Coleoptile rating of 3 is long and is equal to about 4.2", a rating of 8 is short and is equal to about 2.4". See discussion of coleoptile length in introduction. Ratings provided by T. Joe Martin, Kansas State University Agricultural Research Center - Hays.

[2] Hessian fly ratings by C.E. Parker, USDA; S = majority of plants susceptible, H = mixture of susceptible and resistant plants (heterogenous), R = majority of plants resistant. Tested with the Great Plains Hessian fly.

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