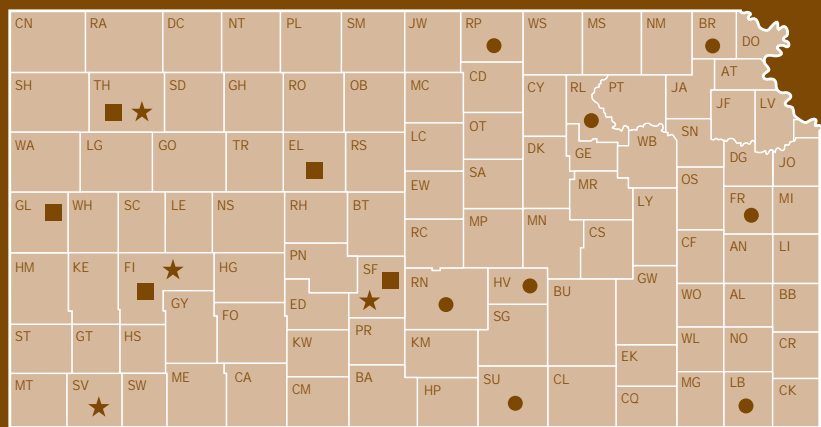


# 1998

## KANSAS PERFORMANCE TESTS WITH WINTER WHEAT VARIETIES

REPORT OF PROGRESS 816

Kansas State University  
Agricultural Experiment Station  
and Cooperative Extension Service



■ summer fallow      ● continuously cropped land      ★ irrigated

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# 1998 KANSAS WHEAT PERFORMANCE TEST

## INTRODUCTION

This publication presents results from the 1997-98 Kansas Winter Wheat Performance Tests and other information related to winter wheat variety performance. The information included in the report is intended to assist wheat producers in the variety selection process. The first section summarizes statewide growing conditions and harvest information for the entire 1998 Kansas wheat crop. Statewide acreage distribution of leading Kansas varieties and a summary of important agronomic and quality traits for these varieties follows. The third section presents procedures and results for the 1998 Kansas Winter Wheat Performance Tests.

Temperatures were also favorable for the most part. The coldest weather of the season occurred in March. Fortunately, there was also considerable snow cover over much of the state. Warm weather returned in April. May and June brought above-normal temperatures throughout much of the state. Hot temperatures in late May and early June caused some concern during the grain filling period.

An extensive outbreak of severe weather occurred during the weekend of May 23-24. Hail, high winds, and tornadoes affected much of the southern third of the state. Severe hailstorms were more isolated in June, but produced hail of 3 and 4 inches. Figure 2 shows some of the hail and tornado events.

## 1998 CROP CONDITIONS

### Weather Conditions

The critical weather factors for wheat are precipitation and temperature. Precipitation for the 1998 wheat season was generally favorable. Only the eastern third of the state reported below-normal precipitation during the critical October to May period. Figure 1 shows the 1997-98 amounts versus the 1961-90 normals.

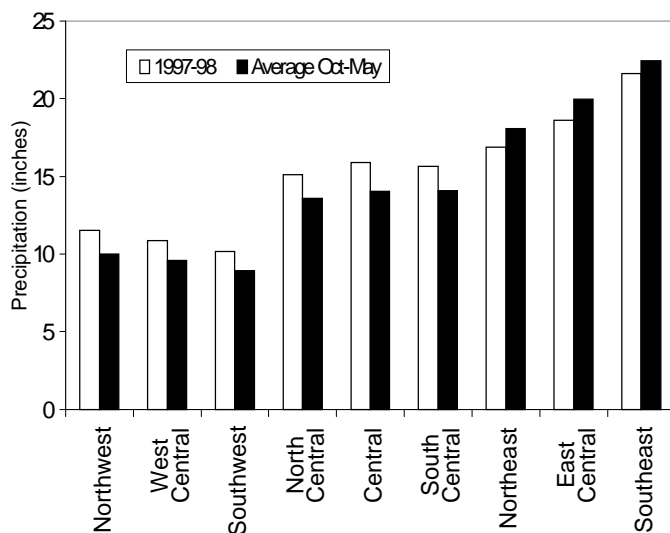


Figure 1. Critical precipitation (October - May) by crop reporting district.

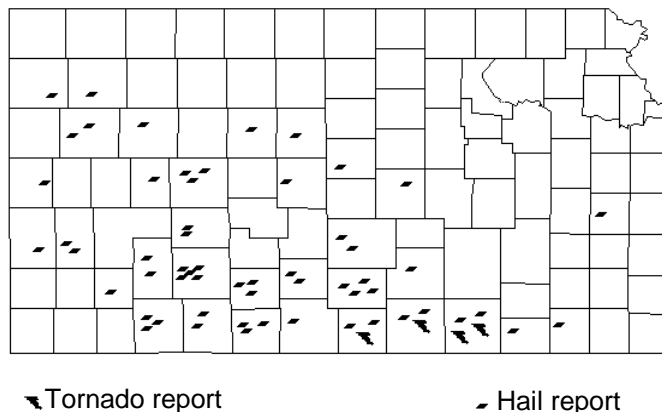
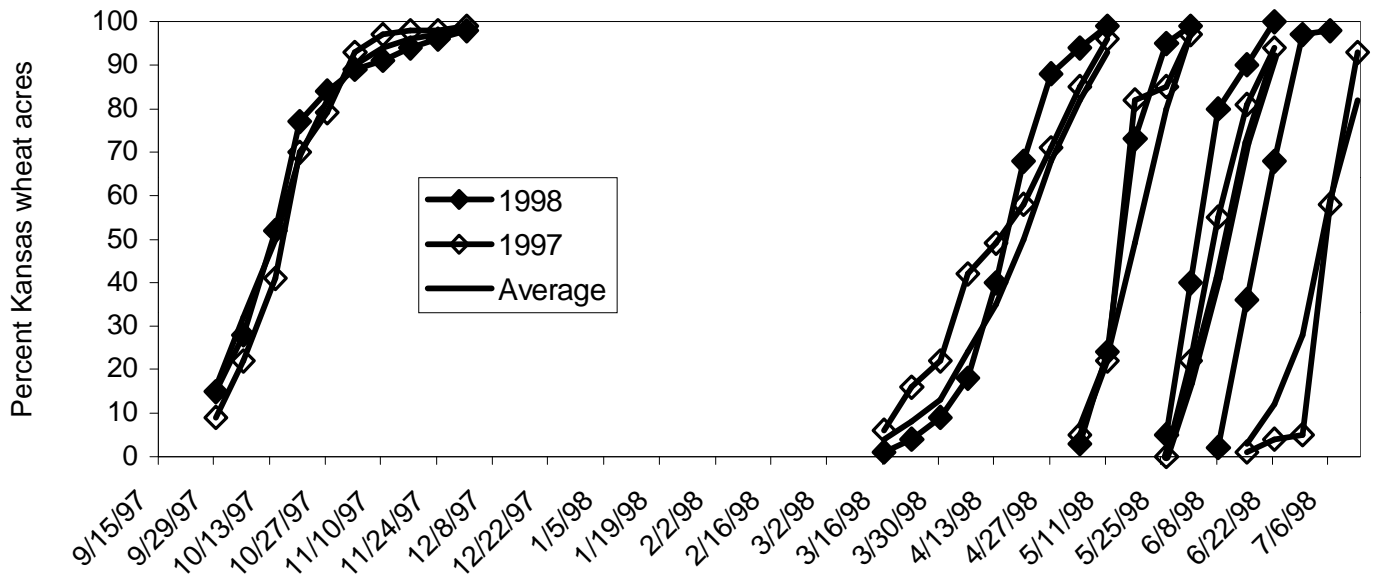


Figure 2. May and June hail and tornado events.

(From Mary Knapp, KSU State Climatologist).

### Crop Development

Figure 3 presents the rate and timing of various stages of development of the 1998 crop. Emergence started in late September, similar to the average for the past 5 years but ahead of the previous year. Jointing started slowly in mid-March and was behind average until early April, but then it progressed more rapidly than in previous years. Heading was similar to that in past years. The crop turned color and ripened much more rapidly than in previous years, likely because of the warm, dry weather in late May

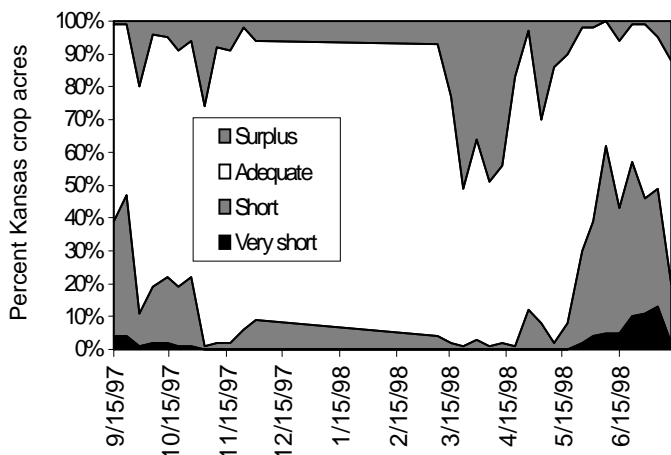
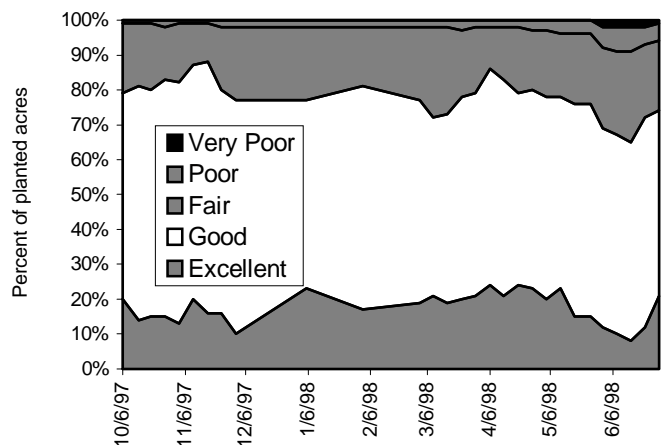


**Figure 3. Statewide development of the 1997-98 winter wheat crop.**

and early June. Harvest started about the same time as in previous years but progressed very rapidly until the first week in July. Widespread rains slowed harvest of the remaining wheat acres.

Nearly 80% of the crop acres were rated as good or excellent for most of the growing season (Figure 4). A slight dip in condition occurred in early June as a result of hot, dry weather and some severe hail and wind. However, the crop rebounded quickly and went on to produce record yields in most areas.

Soil moisture was generally adequate for most of the season (Figure 5). Dry conditions in early fall gave way to adequate or even surplus moisture in many areas during the winter. Some producers were prevented from topdressing fertilizers in early spring because of the excess moisture. By late May, soil moisture became depleted in most of the state. Concerns were raised about a shortened grain filling period from the depleted moisture and high temperatures. However, the crop later appeared not to be as adversely affected as expected. Hot, dry conditions in late June and early July enabled harvest to proceed rapidly across the state. (From *Crop-Weather* reports, Kansas Agricultural Statistics, Topeka).



**Figure 5. Statewide status of topsoil moisture, 1997-1998.**

## Diseases

Above-average rainfall in the summer of 1997 promoted a good crop of volunteer wheat over much of the state. Luckily, most producers did a nice job of cleaning it up before planting. The fall was mild with good rains over most of the state. In September, some volunteer wheat was turned yellow by a heavy infection of leaf rust. Leaf rust, speckled leaf blotch, and wheat streak were all reported in the new crop by mid-October. Cold temperatures at the end of October halted further disease development.

The winter was fairly mild, and most leaves remained green through January. February had good precipitation and was warmer than average. This prompted concerns about development of speckled leaf blotch and leaf rust. However, March and April were cooler than normal, and this apparently had a negative impact on disease development in the southern plains. By early April, disease levels were generally low throughout Kansas and Oklahoma. Spindle streak mosaic and soilborne mosaic showed up in northwestern Kansas in some fields for the first time. Fall rains must have been perfect for infection.

In mid-April, powdery mildew was reported in some fields. A few hotspots of wheat streak showed up where volunteer wheat had gone undisturbed. Speckled leaf blotch was found almost everywhere but was not moving aggressively up the plants. By late April, tan spot began to move up the plants. It eventually became the most important disease in many fields. Leaf rust became more noticeable in early to mid-May, especially in areas that received some rain. After heading in early May, serious barley yellow dwarf virus was reported in some southeast Kansas fields but was rare elsewhere. Most wheat fields reached the soft dough stage before leaf diseases caused much defoliation. Extreme heat at the end of May and early June put an end to disease development over most of the state. Yield losses from disease were generally low.

(From Robert Bowden, State Extension Plant Pathologist).

## Insects

Insect problems were unusually light in the 1998 wheat crop. In September, some producers in northwest Kansas expressed concern about noticeable numbers of white grub larvae (usually this is southern masked chafer, an annual species) just prior to planting. Some delayed planting in an attempt to avoid injury to wheat. We followed up on some reports but were unable to confirm any actual damage in planted wheat.

Army cutworms caused some concern in both wheat and alfalfa in parts of southwest Kansas during February and March. This year, the majority of the heavier infestations were confined to alfalfa in the sandy area south of the Arkansas River. Though the insects could be found in wheat, most were at noneconomic levels, except for some scattered fields in two or three counties in a pattern similar to that experienced last year. Pale western cutworm, an occasional damaging problem in the western third of Kansas, was not observed in 1998.

Aphid numbers were unusually low throughout the state. The Russian wheat aphid, which had been moderately active during May of 1997 in the counties bordering Colorado (at levels as high as 28 to 30% of the tillers infested) was not recorded in 1998.

Bird cherry-oat aphids were fairly common for a brief period in April, especially in parts of south central Kansas. Toward the end of the month, occasional small colonies of greenbugs appeared, but beneficial insects were also abundant and soon eliminated most signs of aphid activity.

Though they were not observed during the fall, winter grain mites were quite numerous in isolated fields for a short period in February. In some fields, the wheat began to exhibit reduced growth and off-color symptoms. By March following a late winter storm, mites had declined, and symptoms in most fields gradually diminished.

Damaging infestations of Hessian fly were not observed in 1998, although low levels of infestation (2% - 3% on average) were found in some susceptible varieties westward from Manhattan to Lane and Ness counties. (From Leroy Brooks, State Extension Entomologist).

## Harvest Statistics

The Kansas Agricultural Statistics' July 10 estimate of the 1998 crop was 494.9 million bushels harvested from 10.1 million acres (Figure 6). This estimate was up 26% from the June 1 forecast and down only 2% from last year's record production. The statewide yield average of 49 bushels per acre set a new record, up 3 bushels from last year's record average yield per acre. Estimates of total production were higher than those for last year in all western districts and the North Central district. Total production was significantly lower in the Central district and slightly lower in the Eastern districts. (From July 10, 1998 *CROPS* report, Kansas Agricultural Statistics, Topeka).

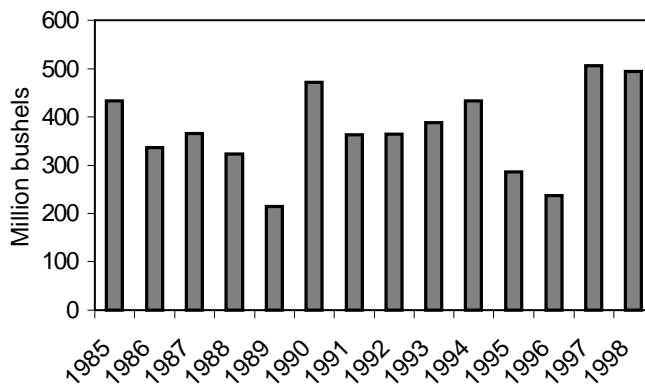


Figure 6. Historical Kansas winter wheat production.

## WHEAT VARIETIES GROWN IN KANSAS

### Acresage Distribution

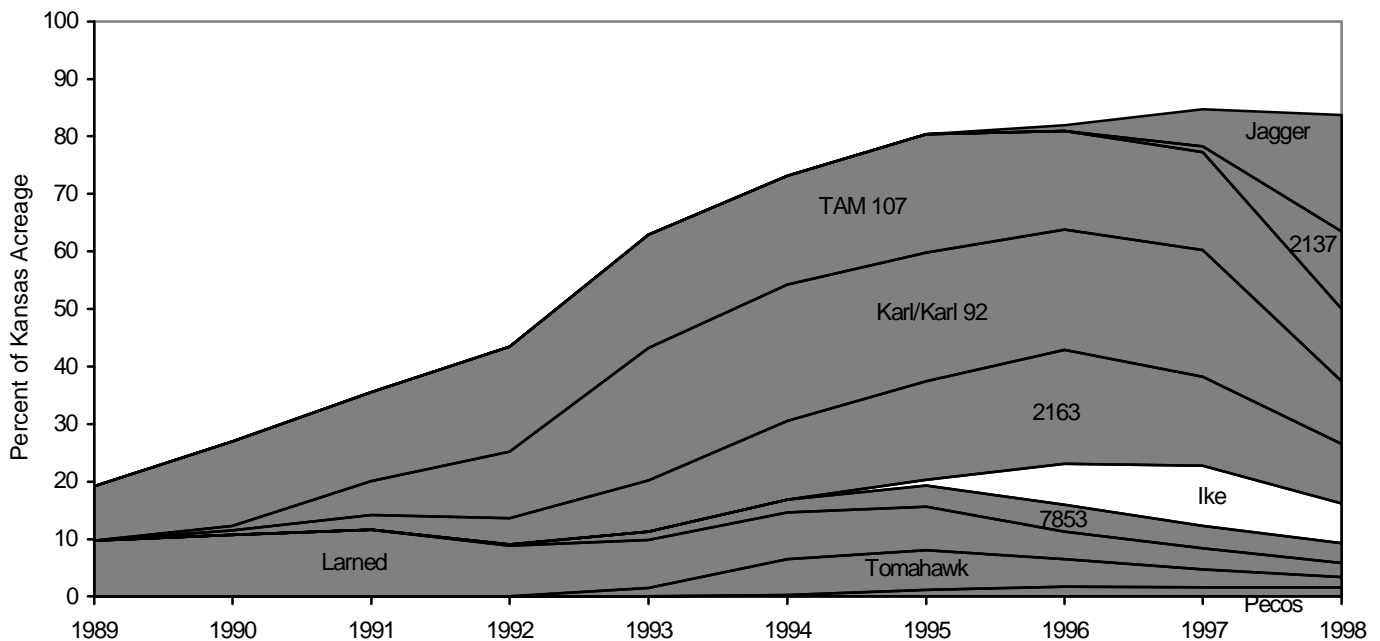
The leading wheat varieties planted in Kansas are reported in Figures 7 and 8 and in Table 1. The top 5 varieties occupied 67.6% of the state's seeded acreage in 1998.

The top 10 varieties for each crop-reporting district are presented in Figure 7. In the western

districts TAM 107, Ike, and Larned acreages generally decreased, but Jagger and 2137 acreages increased. Vista acreage continued to grow in the Northwest district. Karl/Karl 92, 2163, and Ike acreages dropped substantially in the central districts, while 2137 and Jagger acreages increased dramatically. Karl/Karl 92 was still the most prevalent variety in eastern Kansas but its acreage was much lower than in 1997. Jagger and 2137 acreages increased dramatically in most areas. The acreage of 2163 generally held steady in eastern Kansas.

TAM 107 Jagger Vista Ike Arapahoe	25(30) 15(6) 12(10) 12(16) 6(7)	2137 Karl/Karl 92 Larned Ogallala Newton	6(1) 5(8) 3(5) 2(2) 2(1)	Karl/Karl 92 Jagger 2137 2163 Ike	21(28) 15(6) 15(1) 14(22) 5(9)	Tomahawk Champ Victory TAM 107 7853	4(7) 4(3) 2(3) 2(1) 2(3)	Karl/K92 2137 2163 Jagger Ike	53(66) 13(1) 12(12) 11(11) 2(1)	Domin. 2(-) Champ 1(1) T-hawk 1(1) 7853 0(1) Arapa. 0(0)
TAM 107 Ike Jagger Larned 2137	48(49) 12(19) 9(3) 6(7) 5(-)	Karl/Karl 92 Ogallala Akron 2163 Vista	3(5) 2(4) 2(-) 1(2) 1(1)	2137 2163 Jagger Karl/Karl 92 Ike	21(1) 17(29) 16(7) 15(24) 6(9)	TAM 107 7853 Tomahawk Larned Pecos	3(6) 3(5) 2(5) 2(2) 1(3)	Karl/Karl 92 2163 Jagger 2137 Pecos	43(61) 20(16) 12(6) 11(1) 2(3)	7853 1(1) Victory 1(1) Dominator 1(-) T-hawk 1(2) TAM 107 1(1)
TAM 107 Ike Jagger Larned 2137	34(40) 21(20) 10(4) 8(10) 4(1)	Scout(s) 7853 Ogallala Karl/Karl 92 Tomahawk	4(3) 3(4) 2(2) 1(2) 1(2)	Jagger 2137 2163 Karl/Karl 92 7853	31(10) 17(1) 14(28) 11(26) 6(7)	Pecos Coronado Ike Tomahawk Hickok	3(3) 2(-) 2(4) 2(4) 1(2)	Jagger Karl/Karl 92 2137 2163 7853	30(7) 29(63) 15(2) 11(13) 5(2)	Tomahawk 2(1) Ike 1(1) Pecos 1(1) Hickok 1(0) T-bird 1(0)

Figure 7. Leading wheat varieties in Kansas in 1998, presented as percent of seeded acreage by crop reporting district for 1998 and 1997 (1997 in parentheses). From Wheat Variety report, Kansas Agricultural Statistics, February 4, 1998.



**Figure 8. Historical acreage distribution of top 10 varieties in 1998. From Kansas Agricultural Statistics, Topeka.**

Figure 8 illustrates the historical statewide distribution of the top 10 varieties in 1998. These varieties occupied 83.8% of the planted wheat acres in 1998. Jagger, 2137, and Ike are fairly recent releases that together accounted for 40.7% of the 1998 acres. Karl 92, 2163, and TAM 107 were the predominant varieties for most of the 1990s and accounted for 33.9% of the acreage in 1998.

The remaining 25.4% of 1998 wheat acres was split between an older public variety and three private releases. Larned is a public release that was very popular in the 1980s but has slowly lost acreage for the past several years. AGSECO 7853 has maintained 3% - 4% of the state acreage since 1995. AgriPro Tomahawk acreage grew rapidly to 7% of the state total in 1995 but has dropped off since then. AgriPro Pecos has maintained 1% - 2% of the statewide acreage since 1995, primarily in central and eastern Kansas. (From February 4, 1998, *Wheat Variety* report, Kansas Agricultural Statistics, Topeka).

### Agronomic Characteristics

Comparative ratings for important agronomic traits, pest resistance, and milling and baking

quality are listed in Table 1. Varieties are included in this table if they appear in the annual *Wheat Variety* survey report from Kansas Agricultural Statistics. Ratings for a given trait in this table are experts' best estimates of the relative performance of the varieties based on information and observations over several seasons and from numerous sources. The ratings are updated annually to account for changes in performance that occur over time and to adjust for the changes in ranking that arise with the continued additions of new varieties.

### New Variety Descriptions

Brief descriptions of new public entries in the performance tests are included below. These descriptions are abstracted from release notices or other material provided by releasing agencies.

**IL90-7514** soft red winter wheat variety released by the Illinois Agricultural Experiment Station and the USDA-ARS has shown some promise for production in Kansas. It was high yielding with excellent test weight and winter hardiness in Illinois trials. IL90-7514 is several days earlier than Cardinal and is similar to Cardinal in height, perhaps slightly taller. At maturity, IL90-7514 is tan-chaffed and exhibits erect flag leaves that tend to be twisted. It has shown good resistance



**Table 1. Comparisons of leading winter wheat varieties grown in Kansas.<sup>1</sup>**

Brand	Variety	Percent Kansas seeded acreage 1998 <sup>2</sup>	Relative <sup>3</sup>				Resistance or tolerance to: <sup>4</sup>							Relative milling and baking quality <sup>5</sup>
			Matur-ity	Test Wt.	Straw Str.	Winter hard-ness	Tan spot	Spck. leaf blotch	Leaf rust	Stem rust	Hes-sian fly	Wheat streak mos.	Soil-borne mos.	
----	Jagger	20.2	1	4	3	6	3	3	6	3	9	3	1	EX
----	2137	13.5	3	4	1	3	4	3	6	6	2	3	1	AC
----	TAM 107	12.6	1	4	2	2	7	6	9	4	9	6	8	LD
----	Karl/Karl 92	10.8	1	3	4	3	3	5	9	7	9	9	1	EX*
----	2163	10.5	3	6	1	4	5	4	7	4	1	5	1	LD
----	Ike	7.0	4	3	4	3	7	8	8	2	1	9	1	AC
AGSECO	7853	3.4	3	4	4	5	6	9	8	4	9	5	1	EX
----	Larned	2.4	4	4	5	3	9	7	8	3	3	7	8	AC
AgriPro	Tomahawk	1.8	3	4	3	2	4	8	3	3	9	8	1	AC
AgriPro	Pecos	1.6	1	4	1	5	6	5	7	4	1	7	1	AC
----	Vista	1.1	5	4	6	2	8	5	5	5	1	8	8	AC*
AgriPro	Ogallala	0.8	3	2	2	4	6	5	4	3	9	6	9	EX
AgriPro	Coronado	0.8	2	3	1	5	6	6	6	3	3	4	1	AC
----	Scout(s)	0.7	4	4	6	3	9	7	8	3	9	7	9	AC
AgriPro	Hickok	0.6	2	2	3	6	7	8	3	3	9	5	1	AC
AgriPro	Victory	0.6	3	4	4	3	5	9	5	6	9	8	1	AC
----	Arapahoe	0.5	6	4	6	3	8	4	5	2	3	7	8	AC
AgriPro	Thunderbird	0.5	2	3	3	2	9	6	7	3	9	5	1	AC
----	2180	0.5	1	4	1	7	7	5	6	5	2	9	1	LD
Star	Champ	0.5	4	5	5	3	6	6	6	6	9	5	1	--
----	Eagle	0.4	4	4	6	3	9	7	8	4	7	8	9	EX*
----	TAM 200	0.4	4	2	4	6	6	3	7	4	9	7	9	LD
----	Triumph(s)	0.4	1	3	7	6	5	9	9	8	9	4	8	LD
----	Akron	0.4	5	3	5	3	--	9	8	3	8	8	9	--
----	Newton	0.3	3	4	4	5	9	9	9	3	9	6	1	AC
AgriPro	Laredo	0.2	4	4	3	3	6	8	6	4	9	7	7	LD
AgriPro	Longhorn	0.2	5	3	2	3	6	7	6	1	8	5	8	LD
AgriPro	Big Dawg	0.2	6	4	1	5	3	2	4	5	9	6	1	AC
AGSECO	Mankato	0.2	4	5	5	3	6	6	6	5	7	5	1	--
Polansky	Dominator	0.2	4	4	3	3	6	4	6	3	3	8	1	AC
AGSECO	7805	0.2	4	4	4	5	7	8	8	1	8	8	9	--
Other Hard Varieties		6.6												
Other Soft Varieties		0.0												

<sup>1</sup> Varieties listed in the Feb. 4, 1998, Wheat Variety survey, KS Ag. Statistics. Ratings are expert's best estimates, based on information and observations from several sources. Rated on a scale of 1 to 9; except for maturity (where 1 is earliest), 1 best and 9 poorest; -- = not tested.

<sup>2</sup> From February 4, 1998 Wheat Variety survey, Kansas Ag. Statistics Office, Topeka, KS.

<sup>3</sup> Agronomic information and some disease ratings provided by Rollin Sears, Dept. of Agron., K.S.U. and some by John Moffatt, AgriPro Seeds.

<sup>4</sup> Disease ratings provided by R.L. Bowden and W.W. Bockus, Dept. of Plant Path.; Hessian fly ratings by J.H. Hatchett, Dept. of Entomology.

<sup>5</sup> Ratings compiled by P.J. McCluskey are based on data from the K.S.U. Department of Grain Science and Industry, the U.S. Grain Marketing and Production Research Center, and inputs from the milling and baking industries.

EX = Exceptional Quality; usually large kernels; high protein content; very good milling, and commercial bread baking performances.

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

LD = Less Desirable Quality; 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.

to leaf and stem rusts in Illinois trials. (From University of Illinois variety description).

**Yumar** hard red winter wheat was released by the Colorado State University Agricultural Experiment Station in 1997. This variety was developed by backcrossing Russian wheat aphid resistance from PI 372129 onto Yuma. The resulting variety is similar to Yuma in all respects except that it is resistant to the Russian wheat aphid and is slightly taller. (From November 25, 1997, release notice, Colorado State University Department of Soil and Crop Sciences).

## 1998 PERFORMANCE TESTS

### Objectives

To help Kansas growers select wheat varieties suited for their area and conditions, the Kansas Agricultural Experiment Station annually compares both new and currently grown varieties and hybrids in the state's major crop-producing areas. The objective is to provide Kansas growers with unbiased performance information on all varieties and hybrids likely to become available in the state.

### Varieties Included in Tests

Parentage and origin of public varieties included in the 1998 performance tests are listed below. Public varieties are selected for inclusion in the tests based on several criteria. Most represent new or established varieties with potential for successful utilization by Kansas wheat producers. Some are included as long-term checks for use in environment or maturity comparisons. Others are entered at the request of the originating institution.

Privately developed varieties are entered into the Kansas Wheat Performance Tests by their originators or marketers. Entry is voluntary. Entrants choose both the entries and test sites and pay a fee for each entry-location to help defray test expenses. The program is similar to those for corn, sorghum, soybeans, and alfalfa.

The 1998 private entrants and entries are listed in Table 3. Eleven entrants provided a total of 39 varieties and hybrids for testing at locations of their choice. Public and private entries were grown together at random in the same tests.

Growers interested in more detailed descriptions of private entries should contact the entrants directly (see addresses and telephone numbers in Table 3 or consult the Kansas Crop Improvement Certified Seed Directory).

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. Relative performance of a given variety or hybrid comparable to that obtained in these tests is best assured under similar environmental conditions and cultural practices and with the use of certified or professionally prepared seed.

**Table 2. Parentage of public wheat varieties.**

Variety	Parentage	Release state yr.
Akron	TAM 107/Hail	CO 1994
Alliance	Arkan/Colt//Chisholm	NE 1994
Arapahoe	Brule/3/Pkr*4/Agent/Beloterkovskaia	198/Lancer NE 1988
Custer	F29-76/TAM 105// Chisholm	OK 1994
Halt	Sumner/CO820026,F <sub>1</sub> //PI372129,F <sub>1</sub> /3/TAM 107	CO 1994
Ike	Dular/Eagle//2*Larned/Cheney/3/Colt	KS 1993
Jagger	KS82W418/Stephans	KS 1994
Karl 92	F <sub>11</sub> head row selection from 'Karl'	KS 1992
Larned	Scout*5/Ottawa	KS 1976
Nekota	Bennett/TAM 107	NE 1994
Newton	Pitic62/Chris sib//2*Sonora64/Klein Rendidor /4/Scout	KS 1977
Niobrara	TAM 105*4/Amigo//Brule	NE 1994
Scout 66	Composite of 85 Scout selections	NE 1967
TAM 107	TAM 105*4/Amigo	TX 1984
TAM 200	TX71A1039-V1*3/Amigo	TX 1987
Vista	NE68513/NE68457//Centurk/3/Brule	NE 1992
Windstar	TX79A2729//Caldwell/Brule field sel #6 /3/Siouxland	NE 1997
Yuma	NS14/NS25//2*Vona	CO 1991
Yumar	Yuma/PI 372129, F <sub>1</sub> //CO850034/3/4*Yuma	CO 1997
2137	W2440/W9488//2163	KS 1995
2163	Pioneer line W558/5/Etoile de Choisy//Thorne/ Clarkan/3/CI15342/4/Purdue 4946A4-18-2 (Pioneer)	KS 1989
2174	IL 71-5662/PL 145//2165	OK 1997
Caldwell	Benhur sib *2/Siette Cerros	IN 1981
Cardinal	Logan 2*/3/Va63-52-12/Logan/Blueboy	OH 1986
Ernie	Pike/3/(MO9965,Stoddard/Blueboy// Stoddard/D1707)	MO 1994
IL90-7514 (not available)		IL 1998

**Table 3. Private entrants and entries in 1998 Kansas Wheat Performance Tests.**

AgriPro Seeds, Inc. 806 N. Second St., PO Box 30 Berthoud, CO 80513 (970) 532-3721	<b>AgriPro</b>	Big Dawg Coronado Hondo Laredo Ogallala Pecos Rowdy Tomahawk D93*7163 (S) Elkhart (S) Patton (S)	HybriTech Seed Intl., Inc. 5912 N. Meridian Wichita, KS 67204 (800) 346-2256	<b>Quantum</b>	7406 AP 7501 AP 7510 H1881 Exp WX94-3504
AGSECO, Inc. P.O. Box 7 Girard, KS 66743 (316) 724-6223	<b>AGSECO</b>	7853 Colby 94 Mankato Onaga TAM 110	Novartis 1060 Wheatland Dr. Buhler, KS 67522 (316) 543-2707	<b>NK</b>	Coker 9474 (S) Coker 9543 (S) Coker 9663 (S)
American White Wheat Producers Association P.O. Box 326 Atchinson, KS 66002 (913) 367-4422	<b>Public, KS AgriPro</b>	Arlin (W) Oro Blanco (W)	Pioneer Hi-Bred Intl., Inc. 1616 S Kentucky St. Suite C-150 Amarillo, TX 79102 (806) 356-0160	<b>Pioneer</b>	2540 (S)
Drussel Seed and Supply 2197 W. Parallel Road Garden City, KS 67846 (316) 275-2359	<b>Drussel</b>	T81	Polansky Seed P.O. Box 306, 2729 M St. Belleville, KS 66935 (785) 527-2271	<b>Polansky</b>	Dominator
Goertzen Seed Research 14604 S. Haven Rd. Haven, KS 67543 (316) 465-2675	<b>Goertzen</b>	Cossack Enhancer G1878	Star Seed, Inc. Box 504 Beloit, KS 67420 (800) 782-7611	<b>Star</b>	Champ
			Terra International, Inc. Terra Centre, 600 Fourth St. Sioux City, IA 51102 (712) 233-3609	<b>Terra</b>	SR 204 (S) SR 205 (S) SR 211 (S) Exp 215 (S) Exp 216 (S) Exp 217

### EAST

#### Environmental Factors Affecting Individual Tests

Locations of test sites are shown on the map on the front cover. Only one of the 17 tests had to be discarded in 1998. Descriptions of environmental conditions are included below. Environmental factors should be considered when examining the results for a particular location. Site descriptions and management practices for each site are summarized in Table 4.

**Performance test summary:** The performance tests were subjected to much the same regimen as described under the statewide growing conditions. A number of the tests yielded much better than expected after the hot, dry weather in late May and early June. The location codes listed in parentheses after each location name are used as column headers in the data tables.

**Brown County (BR):** Good moisture at seeding depth and warm soil temperatures resulted in excellent stands. No significant winter injury, disease infestations, or insect damage was noted. Several small rain and hailstorms prior to harvest contributed to lodging and shattering. The soft wheat varieties appeared to have shattered more than the hard-seeded varieties.

**Riley County (RL):** Good stands were obtained in the fall. No measurable winter damage occurred. Spring conditions were near ideal, and plant development was excellent. Drying conditions in late April and May reduced disease development. Extremely hot, windy days on May 29 and 30 reduced ultimate yield potentials. Heavy rains and strong winds lodged the nursery 3 days before harvest, resulting in difficult harvest conditions. Yields were average for this location.

**Table 4. Wheat Performance Test site descriptions and management in 1998.**

County and Cooperator	Site, nearest town, and location code	Dates of planting & harvest	Soil type and previous crop	Fertilizers applied, lbs/acre				Seeding rate <sup>2/</sup> and row spacing
				<sup>1/</sup>	N	P	K	
<b>EAST</b>								
BROWN Brian Marsh	Cornbelt Expt Field Powhattan (BR)	10/6	Grundy silty clay loam pH 6.7, Oats, 1997	F	75	--	35	90 lb/a
		6/26		S	--	--	--	7.5" row spacing
RILEY Rollin Sears	Ashland Agron Farm Manhattan (RL)	10/7	Reading silt loam Oats, 1997	F	70	25	--	75 lb/a
		7/3		S	50	--	--	9" row spacing
FRANKLIN Keith Janssen	EC KS Expt Field Ottawa (FR)	10/22	Woodson silt loam Soybeans, 1997	F	6	26	13	1,200,000 seeds/a
		7/6		S	80	--	--	7" row spacing
LABETTE Jim Long	SE Agric Res Ctr Parsons (LB)	10/10	Parsons silt loam Corn, 1997	F	128	92	120	75 lb/a
		6/16		S	--	--	--	7" row spacing
<b>CENTRAL</b>								
REPUBLIC Barney Gordon	NC KS Expt Field Belleville (RP)	9/25	Crete silt loam pH 5.9, Soybeans, 1997	F	90	30	--	60 lb/a
		6/26		S	--	--	--	7.5" row spacing
HARVEY Mark Claassen	Harvey Co Expt Field Hesston (HV)	10/7	Ladysmith silty clay loam, Oats, 1997	F	90	32	--	60 lb/a
		6/20		S	--	--	--	8" row spacing
RENO Bill Heer	SC KS Expt Field Hutchinson (RN)	10/18	Ost silt loam Grain sorghum, 1996	F	75	40	--	60 lb/a
		6/17		S	50	--	--	8" row spacing
STAFFORD Dry Victor Martin	Sandyland Expt Field St. John (SD)	10/9	Pratt loamy fine sand Grain sorghum, 1996	F	Unavailable			60 lb/a
		7/14		S				7" row spacing
SUMNER Rollin Sears	Max Kolarik Farm Caldwell (SU)	10/22	Sandy loam Wheat, 1997	F	70	25	--	60 lb/a
		6/16		S	--	--	--	9" row spacing
<b>WEST</b>								
ELLIS T. Joe Martin	Agric Res Ctr - Hays Hays (EL)	9/30	Harney clay loam Wheat, 1996	F	50	--	--	60 lb/a
		6/28		S	--	--	--	12" row spacing
THOMAS Dry Pat Evans	NW Res-Ext Ctr Colby (TD)	9/26	Keith silt loam Wheat, 1996	F	53	--	--	60 lb/a
		6/29		S	--	--	--	12" row spacing
GREELEY Dry Alan Schlegel	SW Res-Ext Ctr Tribune (GD)	9/18	Richfield silt loam Sunflower, 1996	F	10	47	--	50 lb/a
		6/29		S	80	--	--	10" row spacing
FINNEY Dry Merle Witt	SW Res-Ext Ctr Garden City (FD)	9/26	Keith silt loam Wheat, 1996	F	60	--	--	45 lb/a
		6/22		S	--	--	--	10" row spacing
<b>IRRIGATED 3/</b>								
STAFFORD Irr Victor Martin	Sandyland Expt Field St. John (SI)		Abandoned					
THOMAS Irr Pat Evans	NW Res-Ext Ctr Colby (TI)	9/18	Keith silt loam Wheat, 1997	F	95	--	--	90 lb/a
		7/1		S	--	--	--	12" row spacing
FINNEY Irr Merle Witt	SW Res-Ext Ctr Garden City (Fi)	10/2	Keith silt loam Corn, 1996	F	90	--	--	90 lb/a
		6/23		S	--	--	--	10" row spacing
STEVENS Irr Rollin Sears	Jim Kramer Farm Hugoton (ST)	10/10	Richfield sandy loam Corn, 1997	F	50	30	--	90 lb/a
		6/30		S	50	--	--	

<sup>1/</sup> F = fall application; S = spring

<sup>2/</sup> Seed weight of 1998 entries ranged from 28 to 45 grams/1000 kernels, averaging 36 grams/1000 kernels (see Table 13).

<sup>3/</sup> Irrigated tests received irrigations necessary to maintain vigorous plant growth.

**Franklin County (FR):** Favorable conditions at planting resulted in excellent stands. The mild winter enabled all entries to survive with no noticeable injury. May rainfall was 3.06 inches below average. The rainfall shortage continued into early June. Flag leaf health suffered from the dry conditions and leaf rust infestation. Insects caused no apparent problems.

**Labette County (LB):** Favorable weather conditions for the entire season provided little direct stress to the crop. Leaf diseases (barley yellow dwarf virus, leaf rust, septoria leaf blotch) damaged susceptible varieties.

### CENTRAL

**Republic County (RP):** Stand establishment, fall tillering, and fall growth were all good. Winter weather was mild. March and April were wetter than normal, but May was very dry. Hot, dry weather in May probably reduced test weight and yield potential. Insect pests caused no significant problems. A late leaf rust infestation likely caused little yield loss. Septoria leaf blotch also was noted on some varieties.

**Harvey County (HV):** Ample rainfall after planting ensured good wheat stands. Precipitation for October-December was above normal. Fall growth was affected by below-normal temperatures, particularly in mid-November. January to March precipitation exceeded normal by more than 2 inches. April followed with normal rainfall, before a much drier period in May and June hastened wheat maturity and concluded the growing season. Temperatures were below normal in March and April but were above normal thereafter. Insect activity was limited to some aphids that caused no noticeable damage.

Diseases caused minimal damage. Some irregularity in plant growth of some varieties may have resulted from barley yellow dwarf virus. Powdery mildew was present in some varieties in late April and early May. Leaf rust again arrived too late to affect yields. Dry weather provided excellent harvest conditions but likely reduced an otherwise very high yield potential.

**Reno County (RN):** Favorable soil and weather conditions contributed to good stands. Winter weather was mild. May and June were dry. Late May and early June had extremely high

temperatures. The only variety to lodge to any extent was Scout 66, which was nearly 50% lodged at harvest.

**Stafford County, dryland (SD):** Emergence and resulting stands were variable after heavy rains pounded the soil surface soon after planting. Some varieties may have been more adversely affected as a result. Yield variability was higher than desired, but differences were large enough to detect varietal differences. Extremely high temperatures in late May and early June depleted soil moisture and increased variability as well. Test weights were decreased by rainfall that occurred after ripening but before harvest.

**Sumner County (SU):** Good stands were obtained, and mild temperatures allowed the wheat to grow throughout the winter months. Leaf disease pressure was present but less than in most years. Aluminum toxicity may have affected the performance of extremely susceptible genotypes. Yields at this site were very good and above average.

### WEST

**Ellis County (EL):** Good moisture at planting resulted in good, uniform stands. Mild winter weather caused no freezing damage. Favorable spring growing conditions continued until mid-May, when higher than normal temperatures and low precipitation stressed the crop during the critical grain filling period. Leaf rust and septoria blotch were present but had little effect because of the high temperatures and drought stress. Note shattering ratings in Table 12. Varieties with a rating greater than 5 suffered significant grain loss.

**Thomas County, dryland (TD):** Favorable conditions at planting resulted in good stands and adequate growth going into winter. Very heavy snow on October 26 provided additional moisture. The winter months were relatively mild with no extremely cold temperatures. Timely showers and cool temperatures from May through June provided favorable grain filling conditions. No significant insect or disease problems were present. No plots shattered to any extent. Scout 66 was the only variety with noticeable lodging, and it had less than 10% of stalks lodged. The final yields were outstanding.

**Greeley County, dryland (GD):** Dry surface conditions required deep planting (3 inches) to reach moisture, however, resulting stands were acceptable. Mild winter weather resulted in little damage. A late freeze (32°) on June 6 caused no apparent damage. Outstanding yields demonstrated the lack of weather or disease stresses experienced by this test.

**Finney County, dryland (FD):** Seedbed conditions were good, but moisture disappeared quickly with hot winds soon after planting. Emergence was uneven early, but stands eventually evened up. The early stand variability didn't appear to have a significant effect on final yields. May and June were very dry, shortening the grain filling period.

### IRRIGATED

**Stafford County, irrigated (SI):** This test was abandoned because unexplained variability caused significant differences in performance within a small distance.

**Thomas County, irrigated (TI):** Favorable conditions at planting resulted in good stands and adequate growth going into winter. Very heavy snow on October 26 provided additional moisture. The winter months were relatively mild with no extremely cold temperatures. Timely showers and cool temperatures from May through June provided favorable grain filling conditions. No significant insect or disease problems were present. Only a few isolated spots had lodging, and very little shattering occurred. A performance gradient was evident across the test in June. Nearest neighbors analysis was able to account for the variation very well. Variety yield averages presented in the tables have been adjusted accordingly.

**Finney County, irrigated (GI):** Seedbed conditions were good, but hot dry weather after planting caused some variation in timing of emergence. The plots eventually evened up, and no effect on yields was apparent. May and June were very hot and dry shortening the grain filling period and making late season diseases unimportant.

**Stevens County, irrigated (ST):** Good stands were obtained, and mild temperatures allowed the crop to grow throughout the winter months.

Extremely light disease pressure and good management allowed for high yield expression. Hot, windy weather in late May may have speeded grain fill.

### Test Results and Variety Characterization

Results from Kansas tests are presented in Tables 5 through 13. The information in these tables is derived from replicated varietal comparisons at several sites representing various wheat-producing areas of the state.

Characteristics of specific 1998 entries can best be determined by examining Table 1 and data in Tables 5 through 13 for the relative performance of new varieties or hybrids of interest compared to those the grower is currently planting. Yields are reported in Table 5 as bushels per acre (60 pounds per bushel) adjusted to a moisture content of 12.5%, where moistures were reported at harvest. In Table 6, bushel yields are converted to yields as percentages of the test averages to speed recognition of highest yielding entries (more than 100%, the test average). The excellent performances of several of the entries are highlighted in these tables.

Growers should examine Table 7 to check the performance of entries over several years at locations closest to their farms. These tables present yields averaged over 2, 3, and 4 years. One-year or one-location results can be misleading because of the possibility of unusual weather conditions.

Measurements of characteristics often contributing to yield performance are shown in Table 8 (test weights); Table 9 (relative heading dates); Table 10 (heights); Table 11 (lodging), Table 12 (shattering and disease ratings); and Table 13 (planted seed characteristics, coleoptile lengths, and Hessian fly ratings).

At the bottom of each table is the LSD (least significant difference) for each column of replicated data. The use of the LSD is intended to reduce the chance of overemphasizing small differences in yield or other characteristics. Small variations in soil structure, fertility, water-holding characteristics, and other test-site characteristics can cause considerable yield variation among plots of the same variety grown only a short distance apart.

Another statistical parameter is the coefficient of variation (CV) shown at the bottom of most columns. This figure, if properly interpreted, can be used to estimate the degree of confidence one may have in the data presented. In this testing program, CV's below 10% generally indicate reliable, uniform data, whereas CV's from 11% to 15% usually indicate less desirable but generally useful data for the rough performance comparisons desired from these tests.

### **Coleoptile Measurements**

Coleoptile length is a primary factor in determining the relative ability of a variety to emerge from deep planting. We have no evidence that coleoptile length plays a significant role in a variety's ability to emerge through a crust or compacted soil. However, long coleoptiles elongate faster than short coleoptiles, thereby sometimes escaping crusting problems as the result of quicker emergence.

Coleoptile length measurements will predict the relative ability of a cultivar to emerge from deep plantings through noncrusted soil. The actual planting depth for a variety is not limited to its coleoptile length. Once the coleoptile has reached its maximum length, the primary leaf breaks through the coleoptile and has the ability to move through an additional 2 to 3 inches of dry, noncompacted soil. Recent tests demonstrated that if a coleoptile elongated to 3.75 inches, the plant still had an 80% chance of emerging from a 6-inch planting depth. Emergence decreased to 40% for 2.5 inch coleoptiles and 20% for 2.0 inch coleoptiles.

Maximum coleoptile elongation of a variety is influenced heavily by soil temperature. As soil temperature increases from 65° F to 85° F, the coleoptile lengths of all varieties are reduced about 30%. As soil temperature decreases from 65° F, coleoptile lengths of standard height varieties, Larned and Eagle, change very little, but the coleoptiles of semidwarf varieties TAM 107, Karl 92, and TAM 200 actually increase in length. At 53° F, the coleoptile lengths of TAM 107, Karl 92, and TAM 200 are equal to those of Eagle, and at 40° F, they are equal to Larned. If a producer is faced with deep planting 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 our optimum planting times when soil temperature is already below 65° F. Plantings made in the latter part of August or early September when soil temperature is high will be the most vulnerable to poor emergence because of coleoptile length. If plantings have to be made deeper than 3.5 inches when soil temperature is high, it is advisable to use a variety that has a long coleoptile.

Coleoptile ratings reported in Table 13 are based on measurements at 75° F, which is the average soil temperature in western Kansas on Sept 1 at the 4-inch depth. Varieties with a rating of 8 had average coleoptile lengths of 2.6±.2 inches, whereas those rated 2 averaged 4.2±.2 inches. For one variety to be significantly different from another, the ratings must differ by at least 2 points.

### **Protein Content**

Samples of grain from each variety harvested from Kansas Wheat Performance Tests are submitted annually for analysis of protein content, kernel hardness, and kernel weight and other tests. Screening for protein and other analyses are conducted by the staff at the U.S. Grain Marketing and Production Research Center in Manhattan, Kansas. Because of the time requirement for obtaining analyses, protein results included in this report are for the previous year's tests. Results for the 1997 harvest are presented in Table 14.

### **Graphical Performance Summaries**

Figures 9-12 summarize performance information for several varieties. Varieties are included if they were entered in 1998 tests and at least one prior year, if they were included in at least two tests within a given region in each year of entry, and if they were named and released cultivars.

Varieties are ranked left to right based on desirable performance characteristics. Yield and test weight are sorted in decreasing order for obvious reasons. Heading date and height are sorted in increasing order, because early maturing, relatively short varieties have tended to be more desirable under Kansas growing

conditions. Early maturing varieties fill grain sooner and may avoid the heat and moisture stresses often encountered later in the season. Shorter varieties may be less susceptible to lodging; however, straw strength is not necessarily related to height.

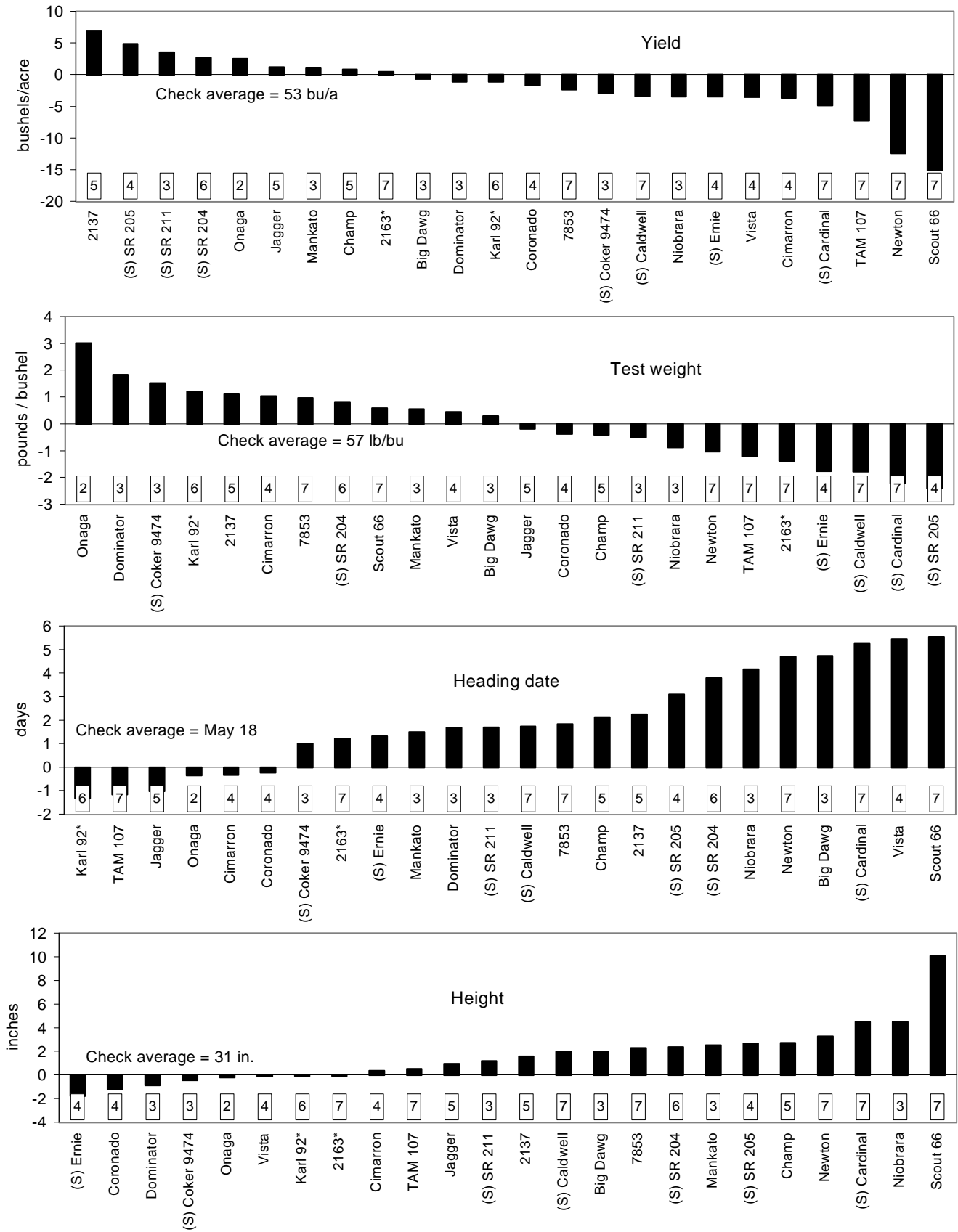
Figures 9-12 illustrate the difference of each variety from the average of two check varieties. TAM 107 and Ike were used as checks in the western and irrigated tests. Karl 92 and 2163 were checks in the eastern and central tests. The zero line in each graph represents the average of the checks.

The number of direct comparisons of a given variety with the check varieties has a bearing on the confidence one can place in the differential performance of that variety. The number in the box directly above each variety name shows the number of years that variety was compared to the check varieties in at least two tests within that region. In general, the greater the number of years that a variety has been tested, the greater confidence one can put in comparisons of that variety with the checks.

As with individual test results, small differences should not be overemphasized. Rather, relative ranking and large differences are better indicators of varietal performance.

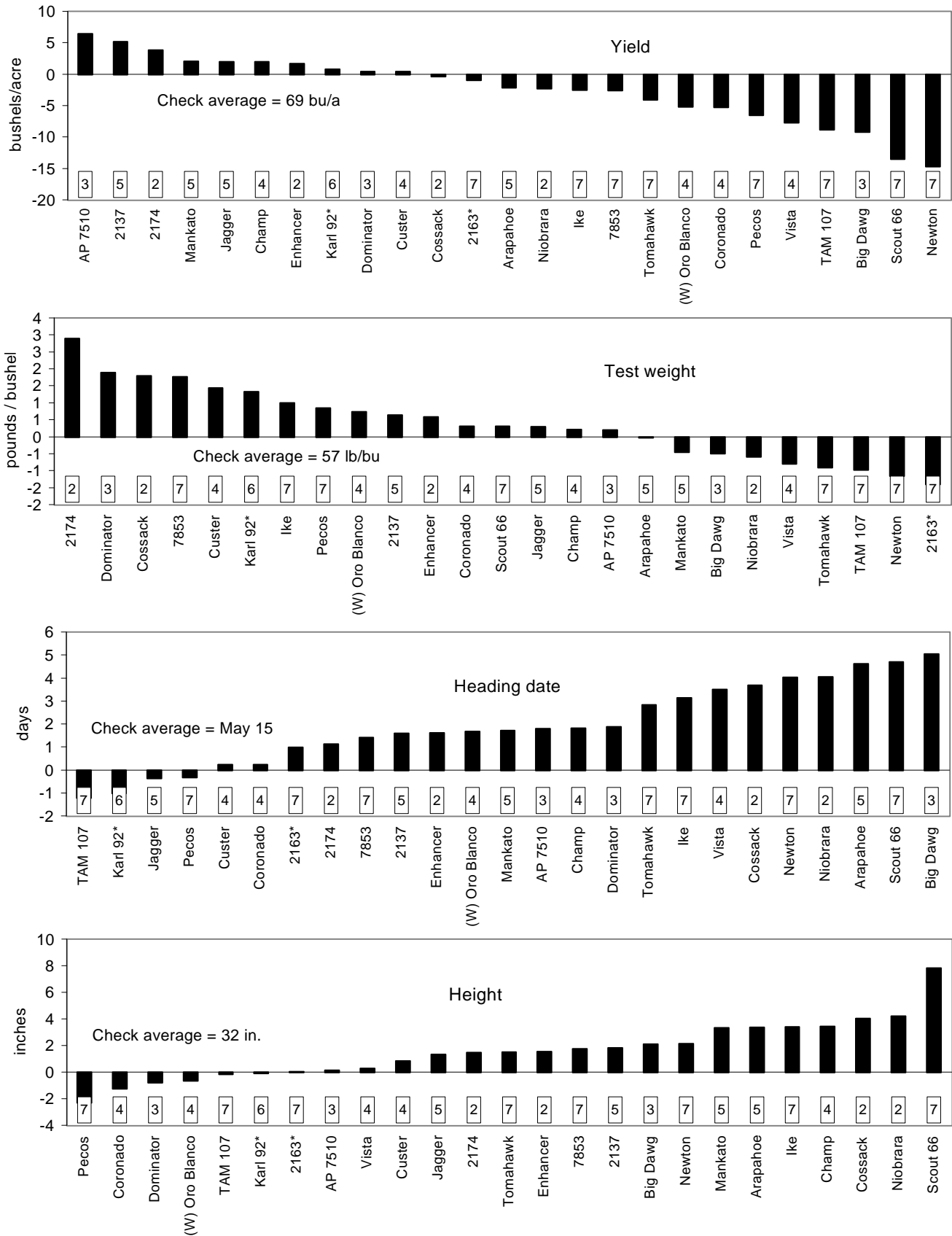


**Figure 9. Eastern Kansas wheat variety performance summary, 1992-1998.**



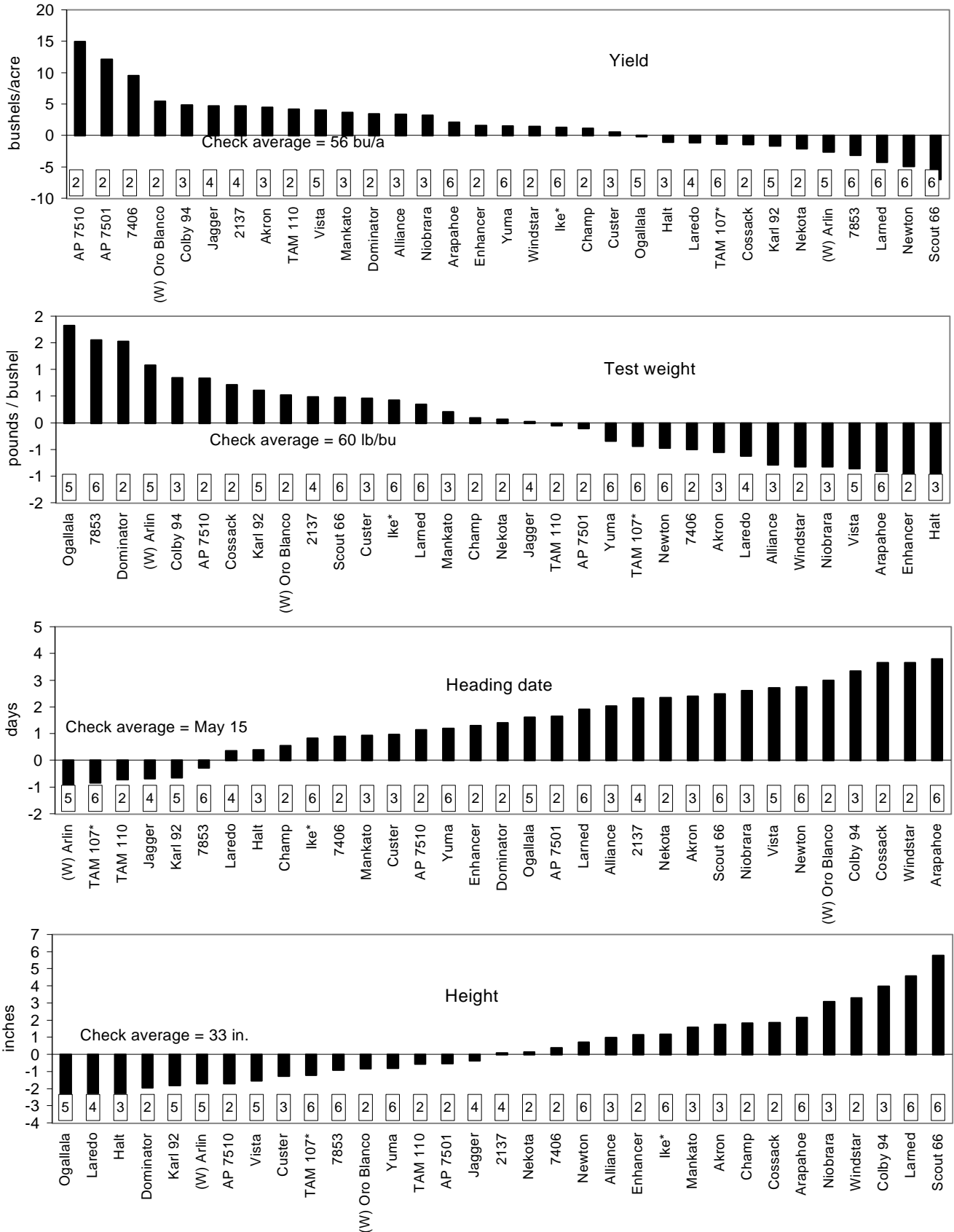
Bars show differences between variety and average of checks\*. Values in boxes are the numbers of years variety was tested.

**Figure 10. Central Kansas wheat variety performance summary, 1992-1998.**



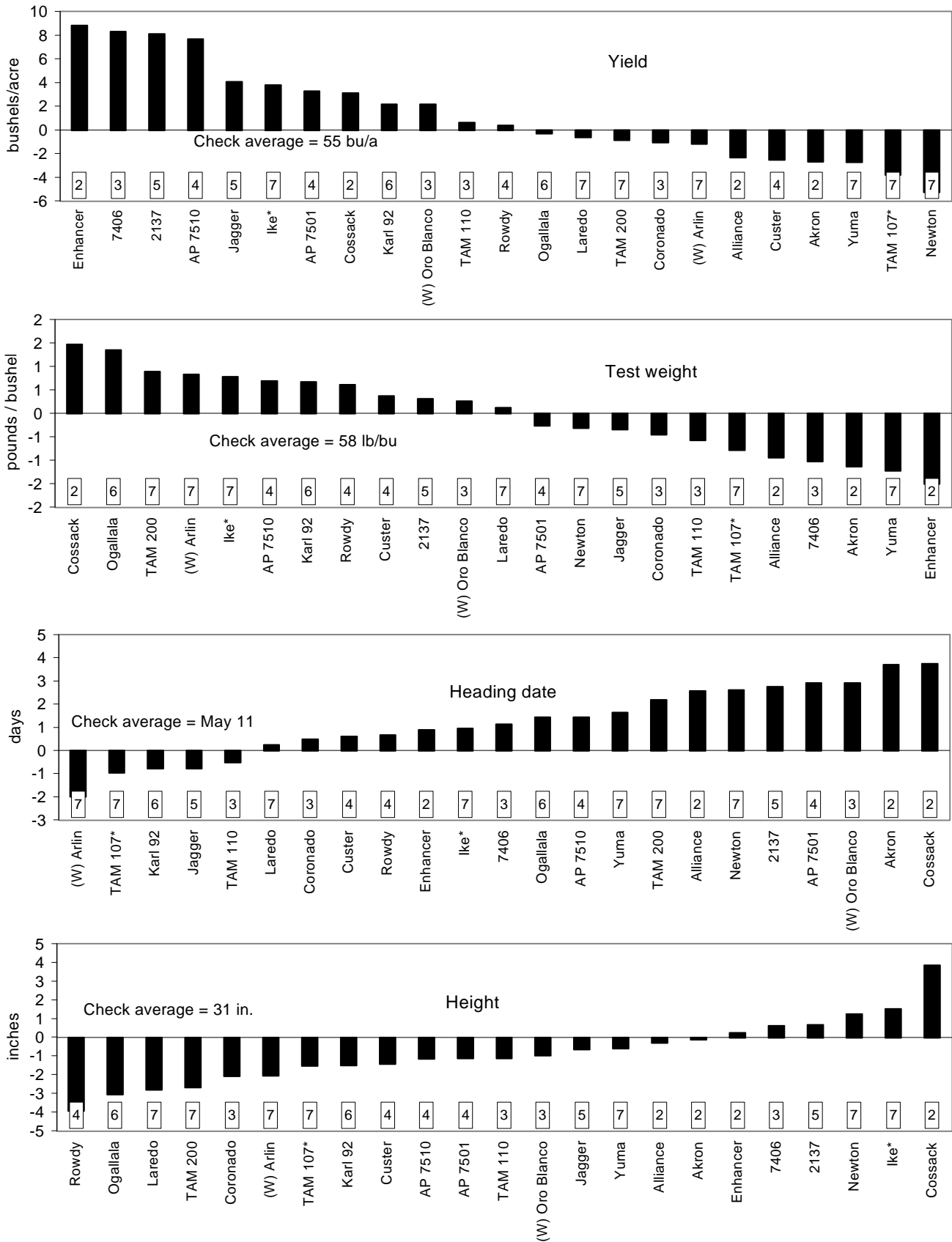
Bars show differences between variety and average of checks\*. Values in boxes are the numbers of years variety was tested.

**Figure 11. Western Kansas wheat variety performance summary, 1992-1998.**



Bars show differences between variety and average of checks \*.  
 Values in boxes are the numbers of years variety was tested.

Figure 12. Kansas irrigated wheat variety performance summary, 1992-1998.



Bars show differences between variety and average of checks\*. Values in boxes are the numbers of years variety was tested.

**Table 5a. Yield (bushels per acre)  
1998 EASTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	57	--	60	--	--	2137	62	61	64	61	62
Mankato	58	48	--	--	--	2163	58	57	61	57	58
Onaga	52	67	62	60	60	Custer	--	--	--	71	--
<b>AgriPro</b>						Jagger	60	49	58	60	57
Big Dawg	60	49	66	54	57	Karl 92	58	48	54	47	52
Coronado	57	56	63	52	57	KS84063-2W Exp	45	51	61	58	54
Pecos	--	--	63	--	--	KS85W663 Exp	55	60	56	56	57
Hondo	61	57	61	50	57	KS95H167-3	48	49	60	51	52
(S) D93*7163	--	--	--	64	--	KS95H176-1 Exp	56	35	52	28	43
(S) Elkhart	--	--	64	--	--	KS95HW62-6 Exp	59	51	57	58	56
(S) Patton	54	--	--	--	--	Newton	56	35	51	40	46
<b>Goertzen</b>						Niobrara	60	46	--	--	--
G1878	60	52	--	--	--	Scout 66	52	28	38	43	40
Cossack	58	47	--	--	--	TAM 107	56	31	54	59	50
Enhancer	64	51	--	--	--	Vista	53	47	--	--	--
<b>NK</b>						(S) Caldwell	47	43	49	55	49
(S) Coker 9474	--	--	47	62	--	(S) Cardinal	35	37	41	45	39
(S) Coker 9543	--	--	--	62	--	(S) Ernie	45	45	55	49	48
(S) Coker 9663	--	--	--	62	--	(S) IL90-7514	49	53	56	61	55
<b>Pioneer</b>						Test Average	55	48	56	57	54
(S) 2540	--	--	--	67	--	CV (%)	7	13	6	6	--
<b>Polansky</b>						LSD (0.05)**	5	8	4	4	--
Dominator	60	51	56	--	--						
<b>Star</b>											
Champ	52	50	57	--	--						
<b>Terra</b>											
(S) SR 204	57	--	--	64	--						
(S) SR 205	55	--	--	60	--						
(S) SR 211	48	--	--	66	--						
(S) Exp215	51	--	--	59	--						
(S) Exp216	55	--	--	65	--						
Exp217	57	--	--	59	--						

<sup>1</sup> BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

<sup>2</sup> RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

<sup>3</sup> FR = Franklin County test at East Central Experiment Field near Ottawa, KS.

<sup>4</sup> LB = Labette County test at KSU Southeast Agricultural Research Center near Parsons, KS.

(S) = Soft red winter wheat.

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 5b. Yield (bushels per acre)  
1998 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.	Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.
<b>AGSECO</b>							<b>Public</b>						
7853	76	58	52	55	41	56	2137	81	62	57	65	54	64
Colby 94	77	--	--	--	--	--	2163	69	56	50	61	42	55
Mankato	79	60	50	--	--	--	2174	--	59	56	67	45	--
Onaga	80	62	59	55	50	61	Alliance	76	--	--	42	--	--
<b>AWWPA</b>							Arapahoe	72	--	--	57	--	--
(W) Oro Blanco	76	58	44	66	39	57	Custer	77	64	66	60	45	62
<b>AgriPro</b>							Ike	70	62	45	48	29	51
Big Dawg	--	61	48	57	42	--	Jagger	81	63	59	74	53	66
Coronado	70	56	55	67	40	58	Karl 92	87	63	54	53	39	59
Pecos	--	63	53	54	44	--	KS84063-2W Exp	77	56	47	60	34	55
Tomahawk	66	65	55	37	44	54	KS85W663 Exp	80	59	55	68	55	63
Hondo	72	55	41	58	47	55	KS95H167-3	72	60	53	49	42	55
<b>Goertzen</b>							KS95H176-1 Exp	63	58	40	54	32	49
G1878	74	59	46	50	42	54	KS95HW62-6 Exp	76	66	55	53	41	58
Cossack	64	51	52	60	32	52	Nekota	77	--	--	--	--	--
Enhancer	67	64	53	50	41	55	Newton	61	53	38	53	23	46
<b>Polansky</b>							Niobrara	78	--	--	58	--	--
Dominator	80	58	50	59	39	57	Scout 66	56	47	40	49	28	44
<b>Quantum</b>							TAM 107	76	58	47	60	18	52
AP 7510	86	--	57	70	--	--	Vista	66	--	--	28	--	--
H1881 Exp	79	--	58	79	--	--	Windstar	62	--	--	42	--	--
<b>Star</b>							Yuma	76	--	--	--	--	--
Champ	70	60	49	50	44	55	Yumar	81	--	--	--	--	--
<b>Terra</b>							Test Average	74	57	51	56	40	56
(S) SR 204	--	51	--	--	--	--	CV (%)	6	4	4	18	11	--
(S) SR 205	--	47	--	--	--	--	LSD (0.05)**	5	3	3	12	5	--
(S) SR 211	--	40	--	--	--	--							
(S) Exp215	--	46	--	--	--	--							
(S) Exp216	--	47	--	--	--	--							
Exp217	--	60	--	--	--	--							

<sup>1</sup> RP = Republic County test at North Central Experiment Field near Belleville, KS.

<sup>2</sup> HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

<sup>3</sup> RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

<sup>4</sup> SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

<sup>5</sup> SU = Sumner County test at Max Kolarik farm near Caldwell, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 5c. Yield (bushels per acre)  
1998 WESTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	77	69	56	50	63	2137	84	76	72	51	71
Colby 94	79	74	--	--	--	2174	85	--	--	--	--
Mankato	79	80	71	47	69	Akron	78	78	77	42	69
TAM 110	83	74	72	49	69	Alliance	77	77	78	40	68
<b>AWWPA</b>						Arapahoe					
(W) Arlin	83	--	61	51	--	Custer	82	69	66	47	66
(W) Oro Blanco	76	75	76	46	68	Halt	71	74	72	49	66
<b>AgriPro</b>						Ike					
Big Dawg	83	--	--	--	--	Jagger	81	82	73	53	73
Laredo	81	70	61	--	--	Karl 92	86	75	66	47	68
Ogallala	76	68	67	44	64	KS84063-2W Exp	72	69	65	47	63
<b>Drussel</b>						KS85W663 Exp					
T81	--	--	76	--	--	KS95H167-3	79	74	82	48	71
<b>Goertzen</b>						KS95H176-1 Exp					
G1878	75	69	68	47	65	KS95HW62-6 Exp	80	75	82	46	71
Cossack	77	70	63	49	65	Larned	72	67	68	40	62
Enhancer	77	75	74	47	68	Nekota	77	69	70	43	65
<b>Polansky</b>						Newton					
Dominator	85	--	--	47	--	Niobrara	78	78	71	42	67
<b>Quantum</b>						Scout 66					
7406	82	86	--	--	--	TAM 107	78	71	71	47	67
AP 7501	81	86	--	--	--	Vista	81	72	76	43	68
AP 7510	82	83	--	--	--	Windstar	72	74	78	43	67
H1881 Exp	82	87	--	--	--	Yuma	81	81	73	51	71
<b>Star</b>						Yumar					
Champ	77	78	--	--	--	Test Average	77	75	71	46	67
<b>Terra</b>						CV (%)					
(S) SR 204	78	--	--	--	--	LSD (0.05)**	5	5	4	5	--
(S) SR 205	71	--	--	--	--		5	4	4	3	--
(S) SR 211	58	--	--	--	--						
(S) Exp215	60	--	--	--	--						
(S) Exp216	65	--	--	--	--						
Exp217	72	--	--	--	--						

<sup>1</sup> EL = Ellis County test at KSU Agricultural Research Center near Hays, KS.

<sup>2</sup> TD = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> GD = Greeley County test at KSU Southwest Research Extension Center near Tribune, KS.

<sup>4</sup> FD = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 5d. Yield (bushels per acre)  
1998 IRRIGATED Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>SI</b> <sup>1</sup>	<b>TI</b> <sup>2</sup>	<b>FI</b> <sup>3</sup>	<b>ST</b> <sup>4</sup>	<b>Avg.</b>	<b>Brand / Name</b>	<b>SI</b> <sup>1</sup>	<b>TI</b> <sup>2</sup>	<b>FI</b> <sup>3</sup>	<b>ST</b> <sup>4</sup>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	--	--	--	--	--	2137	--	80	73	76	77
TAM 110	--	81	79	88	83	Akron	--	84	67	84	78
<b>AWWPA</b>						Alliance	--	84	62	82	76
(W) Arlin	--	69	77	92	79	Custer	--	74	70	94	79
(W) Oro Blanco	--	84	64	81	76	Ike	--	85	73	78	79
<b>AgriPro</b>						Jagger	--	83	76	87	82
Big Dawg	--	70	54	80	68	Karl 92	--	76	76	98	83
Coronado	--	76	71	93	80	KS84063-2W Exp	--	70	63	79	71
Laredo	--	73	--	88	--	KS85W663 Exp	--	75	64	89	76
Ogallala	--	78	61	86	75	KS95H167-3	--	82	72	85	80
Rowdy	--	80	63	82	75	KS95H176-1 Exp	--	73	62	84	73
<b>Drussel</b>						KS95HW62-6 Exp	--	85	70	87	81
T81	--	--	72	--	--	Newton	--	74	59	71	68
<b>Goertzen</b>						TAM 107	--	76	74	88	79
G1878	--	76	64	72	71	TAM 200	--	74	71	78	75
Cossack	--	78	65	85	76	Yuma	--	85	67	83	79
Enhancer	--	80	72	80	77	Yumar	--	81	68	77	75
<b>Polansky</b>						Test Average	--	79	68	85	77
Dominator	--	--	--	--	--	CV (%)	--	4	6	6	--
<b>Quantum</b>						LSD (0.05)**	--	4	5	6	--
7406	--	86	75	98	86						
AP 7501	--	85	67	91	81						
AP 7510	--	86	67	90	81						
H1881 Exp	--	--	71	--	--						
WX94-3504 Exp	--	87	70	86	81						
<b>Terra</b>											
(S) SR 204	--	--	--	--	--						
(S) SR 205	--	--	--	--	--						
(S) SR 211	--	--	--	--	--						
(S) Exp215	--	--	--	--	--						
(S) Exp216	--	--	--	--	--						
Exp217	--	--	--	--	--						

<sup>1</sup> SI = Stafford County test at Sandyland Experiment Field near St. John, KS. Abandoned in 1998 because of plot variability.

<sup>2</sup> TI = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> FI = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

<sup>4</sup> ST = Stevens County test at Jim Kramer farm near Hugoton, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.



**Table 6a. Yield (% of test average)  
1998 EASTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	104	--	107	--	--	2137	113	126	114	106	115
Mankato	106	99	--	--	--	2163	106	118	108	99	107
Onaga	95	138	110	105	112	Custer	--	--	--	123	--
<b>AgriPro</b>						Jagger	109	102	103	105	105
Big Dawg	110	101	116	94	105	Karl 92	107	100	96	81	96
Coronado	105	115	112	90	105	KS84063-2W Exp	82	105	108	101	99
Pecos	--	--	112	--	--	KS85W663 Exp	102	125	99	98	106
Hondo	111	117	107	88	106	KS95H167-3	87	101	107	88	96
(S) D93*7163	--	--	--	112	--	KS95H176-1 Exp	103	73	91	49	79
(S) Elkhart	--	--	113	--	--	KS95HW62-6 Exp	108	105	102	101	104
(S) Patton	98	--	--	--	--	Newton	102	73	90	71	84
<b>Goertzen</b>						Niobrara	109	94	--	--	--
G1878	109	108	--	--	--	Scout 66	94	59	68	74	74
Cossack	105	98	--	--	--	TAM 107	103	64	97	102	91
Enhancer	117	105	--	--	--	Vista	98	96	--	--	--
<b>NK</b>						(S) Caldwell	86	89	87	95	89
(S) Coker 9474	--	--	83	109	--	(S) Cardinal	64	77	72	79	73
(S) Coker 9543	--	--	--	109	--	(S) Ernie	83	92	98	85	89
(S) Coker 9663	--	--	--	107	--	(S) IL90-7514	89	110	99	106	101
<b>Pioneer</b>						Test Average	55	48	56	57	54
(S) 2540	--	--	--	117	--	CV (%)	7	13	6	6	--
<b>Polansky</b>						LSD (0.05)**	8	8	7	8	--
Dominator	110	106	98	--	--						
<b>Star</b>											
Champ	95	104	102	--	--						
<b>Terra</b>											
(S) SR 204	105	--	--	111	--						
(S) SR 205	101	--	--	105	--						
(S) SR 211	87	--	--	116	--						
(S) Exp215	92	--	--	103	--						
(S) Exp216	101	--	--	114	--						
Exp217	104	--	--	103	--						

<sup>1</sup> BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

<sup>2</sup> RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

<sup>3</sup> FR = Franklin County test at East Central Experiment Field near Ottawa, KS.

<sup>4</sup> LB = Labette County test at KSU Southeast Agricultural Research Center near Parsons, KS.

(S) = Soft red winter wheat.

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 6b. Yield (% of test average)  
1998 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.	Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.
<b>AGSECO</b>							<b>Public</b>						
7853	103	101	102	98	102	101	2137	110	108	111	115	135	116
Colby 94	104	--	--	--	--	--	2163	93	97	98	109	104	100
Mankato	107	104	97	--	--	--	2174	--	102	109	119	112	--
Onaga	108	107	116	97	125	111	Alliance	103	--	--	75	--	--
<b>AWWPA</b>							Arapahoe	97	--	--	102	--	--
(W) Oro Blanco	103	101	86	118	98	101	Custer	104	112	128	106	113	113
<b>AgriPro</b>							Ike	94	108	88	85	71	89
Big Dawg	--	106	93	102	106	--	Jagger	110	110	115	132	131	120
Coronado	95	98	107	119	99	104	Karl 92	118	110	106	94	97	105
Pecos	--	109	104	96	109	--	KS84063-2W Exp	104	98	93	107	84	97
Tomahawk	90	113	108	66	110	97	KS85W663 Exp	109	103	108	120	138	115
Hondo	98	96	81	103	117	99	KS95H167-3	97	105	104	88	104	100
<b>Goertzen</b>							KS95H176-1 Exp	85	101	79	96	79	88
G1878	101	103	90	89	105	98	KS95HW62-6 Exp	103	115	107	94	102	104
Cossack	87	89	102	108	80	93	Nekota	105	--	--	--	--	--
Enhancer	91	112	104	90	102	100	Newton	83	92	75	94	57	80
<b>Polansky</b>							Niobrara	106	--	--	103	--	--
Dominator	109	101	98	106	98	102	Scout 66	76	83	78	88	70	79
<b>Quantum</b>							TAM 107	103	102	92	106	45	90
AP 7510	116	--	112	125	--	--	Vista	89	--	--	49	--	--
H1881 Exp	107	--	114	140	--	--	Windstar	84	--	--	74	--	--
<b>Star</b>							Yuma	103	--	--	--	--	--
Champ	95	105	97	89	109	99	Yumar	109	--	--	--	--	--
<b>Terra</b>							Test Average	74	57	51	56	40	56
(S) SR 204	--	89	--	--	--	--	CV (%)	6	4	4	18	11	--
(S) SR 205	--	83	--	--	--	--	LSD (0.05)**	7	5	5	21	13	--
(S) SR 211	--	69	--	--	--	--							
(S) Exp215	--	79	--	--	--	--							
(S) Exp216	--	82	--	--	--	--							
Exp217	--	105	--	--	--	--							

<sup>1</sup> RP = Republic County test at North Central Experiment Field near Belleville, KS.

<sup>2</sup> HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

<sup>3</sup> RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

<sup>4</sup> SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

<sup>5</sup> SU = Sumner County test at Max Kolarik farm near Caldwell, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 6c. Yield (% of test average)  
1998 WESTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	101	92	79	109	95	2137	110	102	101	110	106
Colby 94	103	99	--	--	--	2174	111	--	--	--	--
Mankato	103	107	99	101	103	Akron	102	105	108	91	101
TAM 110	108	99	102	106	104	Alliance	101	103	109	86	100
<b>AWWPA</b>						Arapahoe	95	104	109	100	102
(W) Arlin	109	--	86	111	--	Custer	107	92	93	103	99
(W) Oro Blanco	99	101	108	100	102	Halt	93	99	101	107	100
<b>AgriPro</b>						Ike	96	96	104	111	102
Big Dawg	108	--	--	--	--	Jagger	106	110	103	116	109
Laredo	106	94	86	--	--	Karl 92	112	101	93	102	102
Ogallala	99	91	94	96	95	KS84063-2W Exp	94	92	91	101	95
<b>Drussel</b>						KS85W663 Exp	99	100	99	106	101
T81	--	--	107	--	--	KS95H167-3	103	100	115	105	106
<b>Goertzen</b>						KS95H176-1 Exp	100	99	112	92	101
G1878	98	92	96	101	97	KS95HW62-6 Exp	105	100	116	99	105
Cossack	100	93	88	107	97	Larned	94	89	96	88	92
Enhancer	101	101	104	102	102	Nekota	100	92	99	93	96
<b>Polansky</b>						Newton	85	92	100	86	91
Dominator	111	--	--	101	--	Niobrara	102	104	100	91	99
<b>Quantum</b>						Scout 66	92	86	85	77	85
7406	106	115	--	--	--	TAM 107	102	96	99	101	100
AP 7501	106	116	--	--	--	Vista	105	96	108	93	101
AP 7510	107	111	--	--	--	Windstar	93	99	110	93	99
H1881 Exp	108	117	--	--	--	Yuma	105	108	102	111	107
<b>Star</b>						Yumar	102	99	96	106	101
Champ	100	105	--	--	--	Test Average	77	75	71	46	67
<b>Terra</b>						CV (%)	5	5	4	5	--
(S) SR 204	101	--	--	--	--	LSD (0.05)**	6	5	5	6	--
(S) SR 205	92	--	--	--	--						
(S) SR 211	75	--	--	--	--						
(S) Exp215	78	--	--	--	--						
(S) Exp216	85	--	--	--	--						
Exp217	94	--	--	--	--						

<sup>1</sup> EL = Ellis County test at KSU Agricultural Research Center near Hays, KS.

<sup>2</sup> TD = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> GD = Greeley County test at KSU Southwest Research Extension Center near Tribune, KS.

<sup>4</sup> FD = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 6d. Yield (% of test average)  
1998 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.	Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.
<b>AGSECO</b>						<b>Public</b>					
7853	--	--	--	--	--	2137	--	102	107	90	99
TAM 110	--	102	115	104	107	Akron	--	106	98	99	101
<b>AWWPA</b>						Alliance	--	106	90	97	98
(W) Arlin	--	87	112	109	103	Custer	--	94	102	111	102
(W) Oro Blanco	--	106	94	95	98	Ike	--	108	107	92	102
<b>AgriPro</b>						Jagger	--	106	111	103	106
Big Dawg	--	89	79	94	88	Karl 92	--	96	111	116	107
Coronado	--	96	103	110	103	KS84063-2W Exp	--	89	92	93	91
Laredo	--	92	--	103	--	KS85W663 Exp	--	94	93	104	97
Ogallala	--	99	90	102	97	KS95H167-3	--	104	105	101	103
Rowdy	--	101	92	97	97	KS95H176-1 Exp	--	92	90	99	94
<b>Drussel</b>						KS95HW62-6 Exp	--	107	102	103	104
T81	--	--	106	--	--	Newton	--	94	86	84	88
<b>Goertzen</b>						TAM 107	--	96	109	103	103
G1878	--	96	93	85	91	TAM 200	--	93	104	92	97
Cossack	--	99	95	100	98	Yuma	--	108	98	98	101
Enhancer	--	101	105	95	100	Yumar	--	102	100	91	98
<b>Polansky</b>						Test Average	--	79	68	85	77
Dominator	--	--	--	--	--	CV (%)	--	4	6	6	--
<b>Quantum</b>						LSD (0.05)**	--	5	7	7	--
7406	--	109	110	116	111						
AP 7501	--	107	98	107	104						
AP 7510	--	109	97	107	104						
H1881 Exp	--	--	103	--	--						
WX94-3504 Exp	--	110	102	101	104						
<b>Terra</b>											
(S) SR 204	--	--	--	--	--						
(S) SR 205	--	--	--	--	--						
(S) SR 211	--	--	--	--	--						
(S) Exp215	--	--	--	--	--						
(S) Exp216	--	--	--	--	--						
Exp217	--	--	--	--	--						

<sup>1</sup> SI = Stafford County test at Sandyland Experiment Field near St. John, KS. Abandoned in 1998 because of plot variability.

<sup>2</sup> TI = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> FI = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

<sup>4</sup> ST = Stevens County test at Jim Kramer farm near Hugoton, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 7a. Multiyear yield averages (bu/acre) Kansas Wheat Performance Tests - EAST.**

Brand / Name	Brown-Powhattan			Riley-Manhattan			Franklin-Ottawa			Labette-Parsons		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
<b>AGSECO</b>												
7853	58	53	52	--	--	--	67	56	52	--	--	--
Mankato	58	54	54	58	--	--	--	--	--	--	--	--
Onaga	55	--	--	--	--	--	62	--	--	--	--	--
<b>AgriPro</b>												
Big Dawg	58	--	--	58	64	--	66	55	--	68	62	--
Coronado	57	48	--	62	65	52	67	58	54	66	59	53
Pecos	--	--	--	--	--	--	67	58	54	--	--	--
(S) Elkhart	--	--	--	--	--	--	67	60	--	--	--	--
<b>NK</b>												
(S) Coker 9474	--	--	--	--	--	--	55	52	--	66	60	56
(S) Coker 9543	--	--	--	--	--	--	--	--	--	77	68	61
(S) Coker 9663	--	--	--	--	--	--	--	--	--	69	--	--
<b>Polansky</b>												
Dominator	59	--	--	62	65	--	--	--	--	--	--	--
<b>Star</b>												
Champ	56	51	52	59	66	53	62	59	--	--	--	--
<b>Terra</b>												
(S) SR 204	58	56	--	--	--	--	--	--	--	71	68	61
(S) SR 205	58	60	--	--	--	--	--	--	--	75	66	60
(S) SR 211	55	--	--	--	--	--	--	--	--	80	70	--
<b>Public</b>												
2137	61	51	54	69	77	63	74	65	58	68	67	60
2163	56	51	49	67	72	59	68	60	56	71	63	57
Custer	--	--	--	--	--	--	--	--	--	72	63	54
Jagger	63	59	55	63	68	58	50	42	42	73	65	61
Karl 92	52	49	49	57	64	52	61	57	51	61	56	50
KS84063-2W Exp	52	--	--	57	--	--	70	--	--	65	--	--
Newton	47	38	40	42	49	39	51	44	40	51	53	45
Niobrara	59	52	--	53	62	49	--	--	--	--	--	--
Scout 66	54	45	43	40	45	35	41	38	32	50	51	42
TAM 107	53	45	42	44	53	42	53	49	45	63	57	49
Vista	56	50	48	55	59	46	--	--	--	--	--	--
(S) Caldwell	53	52	49	61	70	59	55	53	52	66	61	56
(S) Cardinal	46	47	44	54	61	54	45	39	42	63	61	57
(S) Ernie	46	49	--	61	66	56	53	45	45	64	57	51
Test Average	56	51	49	58	64	52	61	52	49	66	60	54

**Table 7b. Multiyear yield averages (bu/acre) Kansas Wheat Performance Tests - CENTRAL.**

Brand / Name	Republic-Belleville			Harvey-Hesston			Reno-Hutchinson			Stafford-St. John			Sumner-Caldwell		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
<b>AGSECO</b>															
7853	69	61	60	62	50	45	52	56	47	36	36	40	40	31	28
Colby 94	73	67	65	--	--	--	--	--	--	--	--	--	--	--	--
Mankato	74	70	67	68	66	--	51	56	47	--	--	--	--	--	--
<b>AWWPA</b>															
(W) Oro Blanco	70	58	57	59	51	45	48	50	42	38	--	--	37	31	26
<b>AgriPro</b>															
Big Dawg	--	--	--	66	45	--	46	47	--	--	--	--	40	--	--
Coronado	72	61	58	61	45	42	53	53	46	41	--	--	37	27	23
Pecos	--	--	--	58	44	39	50	50	44	--	--	--	37	29	26
Tomahawk	69	66	61	65	58	47	51	54	44	26	32	37	43	34	--
<b>Goertzen</b>															
G1878	--	--	--	63	--	--	45	--	--	--	--	--	--	--	--
Cossack	--	--	--	59	--	--	55	--	--	--	--	--	--	--	--
Enhancer	--	--	--	68	--	--	54	--	--	--	--	--	--	--	--
<b>Polansky</b>															
Dominator	80	73	--	63	54	--	51	54	--	--	--	--	38	--	--
<b>Quantum</b>															
AP 7510	85	77	75	--	--	--	56	57	--	--	--	--	--	--	--
<b>Star</b>															
Champ	72	68	67	66	64	--	50	55	--	34	--	--	--	--	--
<b>Public</b>															
2137	84	75	69	66	67	57	54	59	52	40	41	--	51	42	34
2163	73	69	70	61	53	47	49	51	44	39	37	41	40	32	30
2174	--	--	--	62	--	--	52	--	--	--	--	--	46	--	--
Alliance	83	78	72	--	--	--	--	--	--	--	--	--	--	--	--
Arapahoe	74	70	67	--	--	--	--	--	--	36	36	39	--	--	--
Custer	75	70	66	69	51	47	59	58	51	33	--	--	54	39	35
Ike	71	67	65	61	57	49	--	--	--	33	33	37	33	26	21
Jagger	69	61	64	70	49	48	59	57	53	45	41	--	49	38	36
Karl 92	76	70	67	65	62	55	51	55	47	33	33	38	38	33	28
KS84063-2W Exp	70	--	--	67	--	--	51	--	--	--	--	--	37	--	--
Nekota	78	72	--	--	--	--	--	--	--	--	--	--	--	--	--
Newton	57	52	49	47	34	28	38	43	34	32	34	39	23	19	15
Niobrara	79	73	68	--	--	--	--	--	--	37	--	--	--	--	--
Scout 66	61	57	52	50	42	34	39	45	35	28	30	34	28	22	18
TAM 107	72	63	59	56	47	40	48	54	45	34	34	38	24	20	17
Vista	72	69	64	--	--	--	--	--	--	23	28	35	--	--	--
Windstar	72	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yuma	70	61	60	--	--	--	--	--	--	--	--	--	--	--	--
Test Average	72	65	62	61	51	45	50	53	45	34	35	38	40	31	27

**Table 7c. Multiyear yield averages (bu/acre) Kansas Wheat Performance Tests - WEST.**

Brand / Name	Ellis-Hays			Thomas-Colby			Greeley-Tribune			Finney-Garden City		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
<b>AGSECO</b>												
7853	69	60	54	63	56	49	52	47	44	49	41	44
Colby 94	75	65	--	69	65	62	--	--	--	--	--	--
Mankato	73	64	58	72	65	63	61	56	--	46	--	--
TAM 110	78	--	--	68	61	--	64	--	--	52	--	--
<b>AWWPA</b>												
(W) Arlin	--	--	--	--	--	--	--	--	--	49	38	41
<b>AgriPro</b>												
Big Dawg	75	--	--	--	--	--	--	--	--	--	--	--
Laredo	76	64	59	64	57	52	55	50	47	--	--	--
Ogallala	71	64	57	63	56	56	61	58	53	46	41	44
<b>Goertzen</b>												
G1878	--	--	--	--	--	--	56	--	--	45	--	--
Cossack	--	--	--	--	--	--	53	--	--	52	--	--
Enhancer	--	--	--	--	--	--	63	--	--	49	--	--
<b>Polansky</b>												
Dominator	77	--	--	--	--	--	--	--	--	--	--	--
<b>Quantum</b>												
7406	--	--	--	80	70	66	--	--	--	--	--	--
AP 7501	--	--	--	75	65	64	--	--	--	--	--	--
AP 7510	--	--	--	73	65	66	--	--	--	--	--	--
<b>Star</b>												
Champ	69	61	56	69	--	--	--	--	--	--	--	--
<b>Public</b>												
2137	77	65	59	70	65	63	62	59	55	54	46	48
2174	74	--	--	--	--	--	--	--	--	--	--	--
Akron	76	65	--	72	64	60	66	61	--	49	41	--
Alliance	73	63	--	69	65	64	62	--	--	46	--	--
Arapahoe	71	64	57	68	62	62	63	59	53	48	42	45
Custer	74	65	--	62	53	53	56	55	--	45	37	--
Halt	67	56	--	68	62	56	66	57	--	47	38	--
Ike	70	61	56	64	57	56	60	53	50	51	44	47
Jagger	78	69	61	76	65	63	65	58	52	53	43	47
Karl 92	72	63	56	64	58	55	54	51	48	45	37	40
KS84063-2W Exp	68	--	--	62	--	--	53	--	--	47	--	--
Larned	70	57	53	62	56	53	58	49	46	46	35	40
Nekota	69	--	--	63	58	--	59	--	--	47	--	--
Newton	57	49	46	56	51	49	56	49	47	43	35	40
Niobrara	72	63	--	70	65	63	60	56	--	47	42	--
Scout 66	67	54	51	61	56	52	55	47	44	40	32	36
TAM 107	71	60	54	66	61	56	62	54	50	47	38	42
Vista	75	67	60	65	62	63	62	59	55	50	44	47
Windstar	72	--	--	69	--	--	63	--	--	48	--	--
Yuma	78	67	--	73	65	61	62	58	53	51	43	46
Test Average	71	62	56	67	60	58	60	55	51	48	40	43

**Table 7d. Multiyear yield averages (bu/acre) Kansas Wheat Performance Tests - IRR.**

Brand / Name	Stafford-St.John			Thomas-Colby			Finney-Garden City			Stevens-Hugoton
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR
<b>AGSECO</b>										
7853	48	48	49	--	--	--	--	--	--	--
TAM 110	--	--	--	84	83	--	--	--	--	79
<b>AWWPA</b>										
(W) Arlin	34	36	37	--	--	--	44	54	57	82
(W) Oro Blanco	--	--	--	--	--	--	41	--	--	75
<b>AgriPro</b>										
Big Dawg	--	--	--	71	--	--	--	--	--	--
Coronado	--	--	--	78	--	--	43	--	--	79
Laredo	--	--	--	78	78	68	--	--	--	--
Ogallala	--	--	--	79	77	73	42	51	55	76
Rowdy	--	--	--	80	78	72	43	--	--	78
<b>Quantum</b>										
7406	--	--	--	90	88	--	--	--	--	--
AP 7501	--	--	--	83	81	76	46	--	--	--
AP 7510	--	--	--	85	84	79	50	--	--	85
<b>Public</b>										
2137	56	54	--	83	83	78	50	60	--	76
Akron	--	--	--	85	--	--	--	--	--	79
Alliance	--	--	--	85	--	--	--	--	--	77
Custer	23	--	--	74	72	66	43	--	--	87
Ike	53	52	50	84	81	72	45	56	61	73
Jagger	38	45	--	87	84	77	49	59	--	79
Karl 92	39	43	45	75	74	68	47	56	60	83
KS84063-2W Exp	--	--	--	71	--	--	--	--	--	76
Newton	43	46	45	74	74	66	34	44	47	65
TAM 107	18	21	23	82	83	72	45	52	53	77
TAM 200	28	36	36	78	78	72	44	50	53	74
Yuma	22	--	--	88	86	77	40	51	53	77
Test Average	40	42	43	80	79	72	43	52	55	77



**Table 8a. Test Weight (pounds per bushel)  
1998 EASTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	52	--	58	--	--	2137	56	58	57	57	57
Mankato	56	56	--	--	--	2163	54	56	55	54	55
Onaga	59	60	59	59	59	Custer	--	--	--	58	--
<b>AgriPro</b>						Jagger	56	58	58	56	57
Big Dawg	57	58	56	57	57	Karl 92	55	59	58	57	57
Coronado	55	59	58	55	57	KS84063-2W Exp	56	58	57	58	57
Pecos	--	--	59	--	--	KS85W663 Exp	57	59	58	57	58
Hondo	58	60	58	58	58	KS95H167-3	51	59	57	57	56
(S) D93*7163	--	--	--	57	--	KS95H176-1 Exp	51	59	57	57	56
(S) Elkhart	--	--	57	--	--	KS95HW62-6 Exp	56	59	58	58	58
(S) Patton	56	--	--	--	--	Newton	58	58	57	54	57
<b>Goertzen</b>						Niobrara	55	56	--	--	--
G1878	56	61	--	--	--	Scout 66	58	58	57	56	57
Cossack	56	58	--	--	--	TAM 107	53	57	56	54	55
Enhancer	57	58	--	--	--	Vista	57	56	--	--	--
<b>NK</b>						(S) Caldwell	55	58	54	54	55
(S) Coker 9474	--	--	58	58	--	(S) Cardinal	54	57	54	54	55
(S) Coker 9543	--	--	--	55	--	(S) Ernie	54	57	56	54	55
(S) Coker 9663	--	--	--	57	--	(S) IL90-7514	57	58	57	57	57
<b>Pioneer</b>						Test Average	55	58	57	56	57
(S) 2540	--	--	--	54	--	CV (%)	5	2	1	1	--
<b>Polansky</b>						LSD (0.05)**	3	1	0	1	--
Dominator	56	60	58	--	--						
<b>Star</b>											
Champ	56	55	56	--	--						
<b>Terra</b>											
(S) SR 204	55	--	--	56	--						
(S) SR 205	50	--	--	53	--						
(S) SR 211	55	--	--	54	--						
(S) Exp215	56	--	--	55	--						
(S) Exp216	51	--	--	54	--						
Exp217	57	--	--	57	--						

<sup>1</sup> BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

<sup>2</sup> RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

<sup>3</sup> FR = Franklin County test at East Central Experiment Field near Ottawa, KS.

<sup>4</sup> LB = Labette County test at KSU Southeast Agricultural Research Center near Parsons, KS.

(S) = Soft red winter wheat.

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 8b. Test weight (pounds per bushel)  
1998 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.	Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.
<b>AGSECO</b>							<b>Public</b>						
7853	59	63	58	55	59	59	2137	57	62	56	54	57	57
Colby 94	59	--	--	--	--	--	2163	56	59	53	52	54	55
Mankato	57	61	55	--	--	--	2174	--	63	58	54	60	--
Onaga	60	63	60	54	61	60	Alliance	58	--	--	49	--	--
<b>AWWPA</b>							Arapahoe						
(W) Oro Blanco	58	62	53	55	59	57	Custer	59	62	59	54	60	59
<b>AgriPro</b>							Ike						
Big Dawg	--	62	55	52	58	--	Jagger	57	61	55	53	57	57
Coronado	58	62	57	54	55	57	Karl 92	58	63	59	55	52	57
Pecos	--	62	56	53	59	--	KS84063-2W Exp	60	63	56	53	57	58
Tomahawk	58	61	57	51	58	57	KS85W663 Exp	59	63	58	55	60	59
Hondo	59	62	51	54	59	57	KS95H167-3	59	60	56	55	58	58
<b>Goertzen</b>							KS95H176-1 Exp						
G1878	60	63	60	55	61	60	KS95HW62-6 Exp	59	62	57	54	58	58
Cossack	60	63	57	55	56	58	Nekota	60	--	--	--	--	--
Enhancer	58	61	56	52	56	57	Newton	59	60	53	54	56	56
<b>Polansky</b>							Niobrara						
Dominator	59	62	56	54	59	58	Scout 66	59	61	57	54	58	58
<b>Quantum</b>							TAM 107						
AP 7510	59	--	54	53	--	--	Vista	57	--	--	52	--	--
H1881 Exp	57	--	53	53	--	--	Windstar	57	--	--	50	--	--
<b>Star</b>							Yuma						
Champ	57	61	54	52	57	56	Yumar	59	--	--	--	--	--
<b>Terra</b>							Test Average						
(S) SR 204	--	62	--	--	--	--	CV (%)	1	1	2	3	6	--
(S) SR 205	--	58	--	--	--	--	LSD (0.05)**	1	1	1	2	4	--
(S) SR 211	--	60	--	--	--	--							
(S) Exp215	--	61	--	--	--	--							
(S) Exp216	--	61	--	--	--	--							
Exp217	--	61	--	--	--	--							

<sup>1</sup> RP = Republic County test at North Central Experiment Field near Belleville, KS.

<sup>2</sup> HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

<sup>3</sup> RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

<sup>4</sup> SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

<sup>5</sup> SU = Sumner County test at Max Kolarik farm near Caldwell, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 8c. Test weight (pounds per bushel)  
1998 WESTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	63	63	61	60	62	2137	61	61	61	58	60
Colby 94	63	62	--	--	--	2174	62	--	--	--	--
Mankato	61	62	61	58	60	Akron	59	61	61	56	59
TAM 110	61	61	61	57	60	Alliance	59	61	61	55	59
<b>AWWPA</b>						Arapahoe					
(W) Arlin	63	--	61	60	--	Custer	62	61	61	59	61
(W) Oro Blanco	61	62	63	58	61	Halt	58	61	60	57	59
<b>AgriPro</b>						Ike					
Big Dawg	61	--	--	--	--	Jagger	59	62	62	58	60
Laredo	60	61	59	--	--	Karl 92	61	62	62	59	61
Ogallala	62	63	63	59	62	KS84063-2W Exp	61	61	62	57	60
<b>Drussel</b>						KS85W663 Exp					
T81	--	--	59	--	--	KS95H167-3	61	61	61	58	60
<b>Goertzen</b>						KS95H176-1 Exp					
G1878	62	62	62	60	62	KS95HW62-6 Exp	61	62	62	58	61
Cossack	62	62	62	60	62	Larned	62	62	61	58	61
Enhancer	60	61	60	55	59	Nekota	61	60	61	57	60
<b>Polansky</b>						Newton					
Dominator	63	--	--	59	--	Niobrara	59	60	60	58	59
<b>Quantum</b>						Scout 66					
7406	61	61	--	--	--	TAM 107	61	61	61	58	60
AP 7501	60	61	--	--	--	Vista	60	60	60	54	59
AP 7510	61	62	--	--	--	Windstar	59	61	61	54	59
H1881 Exp	60	61	--	--	--	Yuma	61	62	62	58	61
<b>Star</b>						Yumar					
Champ	61	61	--	--	--	Test Average	61	61	61	58	60
<b>Terra</b>						CV (%)					
(S) SR 204	60	--	--	--	--	LSD (0.05)**	1	1	1	1	--
(S) SR 205	58	--	--	--	--						
(S) SR 211	59	--	--	--	--						
(S) Exp215	60	--	--	--	--						
(S) Exp216	59	--	--	--	--						
Exp217	58	--	--	--	--						

<sup>1</sup> EL = Ellis County test at KSU Agricultural Research Center near Hays, KS.

<sup>2</sup> TD = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> GD = Greeley County test at KSU Southwest Research Extension Center near Tribune, KS.

<sup>4</sup> FD = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 8d. Test weight (pounds per bushel)  
1998 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.	Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.
<b>AGSECO</b>						<b>Public</b>					
7853	--	--	--	--	--	2137	--	61	57	58	58
TAM 110	--	61	58	57	59	Akron	--	61	54	58	58
<b>AWWPA</b>						Alliance	--	61	56	58	58
(W) Arlin	--	62	61	62	62	Custer	--	61	58	61	60
(W) Oro Blanco	--	63	58	60	60	Ike	--	61	59	60	60
<b>AgriPro</b>						Jagger	--	61	57	60	59
Big Dawg	--	60	55	60	58	Karl 92	--	61	59	61	60
Coronado	--	62	58	59	59	KS84063-2W Exp	--	60	56	58	58
Laredo	--	61	--	59	--	KS85W663 Exp	--	61	56	60	59
Ogallala	--	62	57	61	60	KS95H167-3	--	61	56	60	59
Rowdy	--	62	56	58	59	KS95H176-1 Exp	--	62	53	58	58
<b>Drussel</b>						KS95HW62-6 Exp	--	62	57	61	60
T81	--	--	59	--	--	Newton	--	62	54	59	58
<b>Goertzen</b>						TAM 107	--	61	57	58	59
G1878	--	62	60	63	62	TAM 200	--	62	60	59	60
Cossack	--	61	59	62	60	Yuma	--	62	57	58	59
Enhancer	--	59	54	57	57	Yumar	--	62	57	59	59
<b>Polansky</b>						Test Average	--	61	57	59	59
Dominator	--	--	--	--	--	CV (%)	--	1	2	2	--
<b>Quantum</b>						LSD (0.05)**	--	1	1	1	--
7406	--	61	57	57	58						
AP 7501	--	62	55	58	58						
AP 7510	--	62	56	60	59						
H1881 Exp	--	--	56	--	--						
WX94-3504 Exp	--	62	58	61	60						
<b>Terra</b>											
(S) SR 204	--	--	--	--	--						
(S) SR 205	--	--	--	--	--						
(S) SR 211	--	--	--	--	--						
(S) Exp215	--	--	--	--	--						
(S) Exp216	--	--	--	--	--						
Exp217	--	--	--	--	--						

<sup>1</sup> SI = Stafford County test at Sandyland Experiment Field near St. John, KS. Abandoned in 1998 because of plot variability.

<sup>2</sup> TI = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> FI = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

<sup>4</sup> ST = Stevens County test at Jim Kramer farm near Hugoton, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 9a. Heading (days +/- Scout 66, Scout 66 heading listed as date in May)  
1998 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR <sup>1</sup>	RL <sup>2</sup>	FR <sup>3</sup>	LB <sup>4</sup>	Avg.	Brand / Name	BR <sup>1</sup>	RL <sup>2</sup>	FR <sup>3</sup>	LB <sup>4</sup>	Avg.
<b>AGSECO</b>						<b>Public</b>					
7853	-4.5	--	-1.8	--	--	2137	-1.8	-2.5	-1.5	-1.8	-1.9
Mankato	-2.8	-2.8	--	--	--	2163	-1.8	-4.8	-2.8	-5.5	-3.7
Onaga	-5.0	-5.8	-4.0	-8.5	-5.8	Custer	--	--	--	-8.8	--
<b>AgriPro</b>						Jagger	-5.8	-5.8	-5.0	-9.5	-6.5
Big Dawg	0.0	-1.0	-0.3	-0.8	-0.5	Karl 92	-5.5	-6.5	-4.5	-9.5	-6.5
Coronado	-4.5	-6.5	-4.3	-9.3	-6.1	KS84063-2W Exp	-1.3	-2.3	0.0	-1.0	-1.1
Pecos	--	--	-4.8	--	--	KS85W663 Exp	-1.5	-2.3	-1.0	-1.3	-1.5
Hondo	1.0	1.3	1.3	0.8	1.1	KS95H167-3	-0.8	-2.3	-1.8	-4.0	-2.2
(S) D93*7163	--	--	--	-2.3	--	KS95H176-1 Exp	1.3	3.5	2.5	4.0	2.8
(S) Elkhart	--	--	-2.0	--	--	KS95HW62-6 Exp	-0.5	-2.5	-1.3	-2.5	-1.7
(S) Patton	-4.3	--	--	--	--	Newton	-1.0	-0.8	0.3	-0.5	-0.5
<b>Goertzen</b>						Niobrara	0.0	-0.5	--	--	--
G1878	-1.0	-1.5	--	--	--	Scout 66	17.8	13.8	14.5	5.5	12.9
Cossack	-0.8	-1.3	--	--	--	TAM 107	-5.0	-6.3	-5.0	-9.3	-6.4
Enhancer	-2.5	-4.5	--	--	--	Vista	0.8	1.3	--	--	--
<b>NK</b>						(S) Caldwell	-4.0	-3.8	-1.5	-1.8	-2.8
(S) Coker 9474	--	--	-2.0	-5.5	--	(S) Cardinal	0.5	-0.3	0.8	0.5	0.4
(S) Coker 9543	--	--	--	-7.0	--	(S) Ernie	-3.5	-4.0	-2.0	-6.0	-3.9
(S) Coker 9663	--	--	--	-3.8	--	(S) IL90-7514	-1.3	-2.8	-2.0	-0.8	-1.7
<b>Pioneer</b>						Test Average	-2.0	-2.6	-1.8	-3.6	-2.5
(S) 2540	--	--	--	-1.5	--	CV (%)	0.6	0.6	0.5	1.2	--
<b>Polansky</b>						LSD (0.05)**	0.9	0.9	0.8	1.7	--
Dominator	-1.8	-6.0	-2.0	--	--						
<b>Star</b>											
Champ	-3.0	-2.5	-1.5	--	--						
<b>Terra</b>											
(S) SR 204	-0.8	--	--	-2.5	--						
(S) SR 205	-1.5	--	--	-1.0	--						
(S) SR 211	-4.0	--	--	-6.0	--						
(S) Exp215	-3.3	--	--	-2.3	--						
(S) Exp216	-3.3	--	--	-3.8	--						
Exp217	-0.3	--	--	-1.0	--						

<sup>1</sup> BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

<sup>2</sup> RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

<sup>3</sup> FR = Franklin County test at East Central Experiment Field near Ottawa, KS.

<sup>4</sup> LB = Labette County test at KSU Southeast Agricultural Research Center near Parsons, KS.

(S) = Soft red winter wheat.

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 9b. Heading (days +/- Scout 66, Scout 66 heading listed as date in May)  
1998 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.	Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.
<b>AGSECO</b>							<b>Public</b>						
7853	-3.8	-3.0	-4.3	-3.5	--	-3.6	2137	-5.0	-2.0	-2.3	-2.3	--	-2.9
Colby 94	-5.0	--	--	--	--	--	2163	-7.3	-2.8	-3.5	-4.0	--	-4.4
Mankato	-5.0	-1.5	-2.0	--	--	--	2174	--	-2.3	-2.5	-2.5	--	--
Onaga	-5.0	-5.0	-5.0	-3.8	--	-4.7	Alliance	-1.5	--	--	0.8	--	--
<b>AWWPA</b>							Arapahoe						
(W) Oro Blanco	-7.5	-2.5	-2.8	-2.8	--	-3.9	Custer	-5.3	-4.5	-4.5	-3.5	--	-4.4
<b>AgriPro</b>							Ike						
Big Dawg	--	0.3	-0.3	0.5	--	--	Jagger	-6.8	-6.5	-5.0	-5.0	--	-5.8
Coronado	-7.5	-5.5	-4.5	-3.8	--	-5.3	Karl 92	-6.8	-5.3	-5.5	-6.0	--	-5.9
Pecos	--	-7.0	-5.0	-6.3	--	--	KS84063-2W Exp	-4.8	-0.3	-1.0	1.8	--	-1.1
Tomahawk	-4.0	-1.5	-0.8	-0.3	--	-1.6	KS85W663 Exp	-4.0	-2.0	-2.8	0.5	--	-2.1
Hondo	-5.0	1.0	0.3	1.8	--	-0.5	KS95H167-3	-4.0	-1.5	-2.8	-1.8	--	-2.5
<b>Goertzen</b>							KS95H176-1 Exp						
G1878	-1.3	-0.5	-1.5	-0.5	--	-0.9	KS95HW62-6 Exp	-4.5	-1.5	-2.0	-2.0	--	-2.5
Cossack	-2.0	-0.3	-1.0	1.8	--	-0.4	Nekota	-1.8	--	--	--	--	--
Enhancer	-2.8	-3.3	-3.8	-2.5	--	-3.1	Newton	-2.3	-0.3	-0.8	-1.8	--	-1.3
<b>Polansky</b>							Niobrara						
Dominator	-4.8	-3.3	-3.3	-2.8	--	-3.5	Scout 66	12.8	12.3	15.8	10.3	--	12.8
<b>Quantum</b>							TAM 107						
AP 7510	-5.0	--	-3.0	-2.8	--	--	Vista	-2.0	--	--	3.3	--	--
H1881 Exp	-3.8	--	-3.5	-3.0	--	--	Windstar	-1.5	--	--	3.8	--	--
<b>Star</b>							Yuma						
Champ	-4.8	-2.3	-2.5	-2.5	--	-3.0	Yumar	-4.5	--	--	--	--	--
<b>Terra</b>							Test Average						
(S) SR 204	--	-0.8	--	--	--	--	CV (%)	0.7	0.4	0.5	0.7	--	--
(S) SR 205	--	-0.3	--	--	--	--	LSD (0.05)**	1.1	0.6	0.8	1.0	--	--
(S) SR 211	--	-2.5	--	--	--	--							
(S) Exp215	--	-2.3	--	--	--	--							
(S) Exp216	--	-2.3	--	--	--	--							
Exp217	--	-0.3	--	--	--	--							

<sup>1</sup> RP = Republic County test at North Central Experiment Field near Belleville, KS.

<sup>2</sup> HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

<sup>3</sup> RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

<sup>4</sup> SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

<sup>5</sup> SU = Sumner County test at Max Kolarik farm near Caldwell, KS. Heading dates not recorded at this location.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 9c. Heading (days +/- Scout 66, Scout 66 heading listed as date in May)  
1998 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL <sup>1</sup>	TD <sup>2</sup>	GD <sup>3</sup>	FD <sup>4</sup>	Avg.	Brand / Name	EL <sup>1</sup>	TD <sup>2</sup>	GD <sup>3</sup>	FD <sup>4</sup>	Avg.
<b>AGSECO</b>						<b>Public</b>					
7853	-4.0	-4.0	-3.0	-2.3	-3.3	2137	-2.5	-1.3	2.0	-1.3	-0.8
Colby 94	-0.8	-0.3	--	--	--	2174	-1.8	--	--	--	--
Mankato	-2.0	-2.5	-1.0	-1.3	-1.7	Akron	-1.5	-0.3	1.0	-1.0	-0.4
TAM 110	-4.3	-5.0	-2.8	-2.5	-3.6	Alliance	-1.0	-0.8	-0.5	-0.3	-0.6
<b>AWWPA</b>						Arapahoe	1.3	-0.5	1.3	-0.5	0.4
(W) Arlin	-5.8	--	-4.5	-3.5	--	Custer	-3.5	-3.3	-0.5	-2.0	-2.3
(W) Oro Blanco	-2.3	-0.5	0.8	-1.5	-0.9	Halt	-3.5	-4.0	-1.3	-2.5	-2.8
<b>AgriPro</b>						Ike	-1.8	-2.3	-2.0	-1.8	-1.9
Big Dawg	0.3	--	--	--	--	Jagger	-3.5	-4.8	-2.8	-2.8	-3.4
Laredo	-2.0	-4.3	-2.8	--	--	Karl 92	-4.0	-4.3	-2.5	-3.0	-3.4
Ogallala	-1.8	-1.8	0.8	-0.8	-0.9	KS84063-2W Exp	-0.5	0.0	2.5	0.0	0.5
<b>Drussel</b>						KS85W663 Exp	-0.5	-0.8	1.8	-0.5	0.0
T81	--	--	-1.5	--	--	KS95H167-3	-0.8	-1.0	0.0	-1.3	-0.8
<b>Goertzen</b>						KS95H176-1 Exp	1.8	0.5	2.0	0.0	1.1
G1878	-0.8	-0.8	1.8	-0.8	-0.1	KS95HW62-6 Exp	-1.0	-0.5	1.0	-1.0	-0.4
Cossack	0.3	0.8	1.8	0.0	0.7	Larned	-0.8	-1.3	-0.5	-0.8	-0.8
Enhancer	-2.3	-2.3	0.0	-1.0	-1.4	Nekota	0.0	-1.0	-1.0	-1.0	-0.8
<b>Polansky</b>						Newton	-0.8	-1.0	-0.3	-1.0	-0.8
Dominator	-3.0	--	--	-1.8	--	Niobrara	0.0	-0.5	-0.5	0.0	-0.3
<b>Quantum</b>						Scout 66	18.0	21.0	18.5	17.8	18.8
7406	-3.0	-2.3	--	--	--	TAM 107	-4.3	-3.5	-3.0	-2.8	-3.4
AP 7501	-0.5	-1.0	--	--	--	Vista	-0.8	-1.0	0.3	-0.8	-0.6
AP 7510	-1.8	-1.0	--	--	--	Windstar	1.5	0.0	1.8	0.3	0.9
H1881 Exp	-2.0	-1.3	--	--	--	Yuma	-2.8	-2.3	0.0	-2.0	-1.8
<b>Star</b>						Yumar	-2.8	-2.3	0.8	-2.0	-1.6
Champ	-2.0	-3.0	--	--	--	Test Average	-1.6	-1.7	-0.3	-1.3	-1.2
<b>Terra</b>						CV (%)	0.4	0.5	0.6	0.3	--
(S) SR 204	-1.0	--	--	--	--	LSD (0.05)**	0.6	0.8	0.9	0.5	--
(S) SR 205	-0.3	--	--	--	--						
(S) SR 211	-2.3	--	--	--	--						
(S) Exp215	-2.5	--	--	--	--						
(S) Exp216	-1.8	--	--	--	--						
Exp217	-0.3	--	--	--	--						

<sup>1</sup> EL = Ellis County test at KSU Agricultural Research Center near Hays, KS.

<sup>2</sup> TD = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> GD = Greeley County test at KSU Southwest Research Extension Center near Tribune, KS.

<sup>4</sup> FD = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 9d. Heading (days +/- Newton, Newton heading listed as date in May)  
1998 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.	Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.
<b>AGSECO</b>						<b>Public</b>					
7853	--	--	--	--	--	2137	--	1.8	0.0	2.0	1.3
TAM 110	--	-1.3	-3.0	-7.0	-3.8	Akron	--	2.8	0.3	2.0	1.7
<b>AWWPA</b>						Alliance	--	0.5	0.0	2.0	0.8
(W) Arlin	--	-3.5	-2.8	-9.0	-5.1	Custer	--	-1.0	-1.3	-6.0	-2.8
(W) Oro Blanco	--	1.8	0.0	-2.8	-0.3	Ike	--	0.0	-0.8	-5.5	-2.1
<b>AgriPro</b>						Jagger	--	-1.8	-1.8	-7.0	-3.5
Big Dawg	--	3.8	2.5	3.0	3.1	Karl 92	--	-0.5	-2.0	-6.0	-2.8
Coronado	--	-0.3	-0.8	-5.0	-2.0	KS84063-2W Exp	--	3.8	2.0	1.0	2.3
Laredo	--	-2.3	--	-3.8	--	KS85W663 Exp	--	2.5	0.8	1.5	1.6
Ogallala	--	1.3	-0.3	-4.3	-1.1	KS95H167-3	--	2.0	0.3	-2.3	0.0
Rowdy	--	-2.3	-1.5	-5.8	-3.2	KS95H176-1 Exp	--	3.8	1.3	1.0	2.0
<b>Drussel</b>						KS95HW62-6 Exp	--	1.3	0.8	-4.0	-0.7
T81	--	--	-2.0	--	--	Newton	--	17.5	16.0	18.0	17.2
<b>Goertzen</b>						TAM 107	--	-1.8	-3.0	-7.0	-3.9
G1878	--	2.0	0.0	-0.5	0.5	TAM 200	--	1.3	-1.3	-3.8	-1.3
Cossack	--	3.0	1.5	2.0	2.2	Yuma	--	1.3	-1.3	-4.8	-1.6
Enhancer	--	1.3	-0.8	-3.3	-0.9	Yumar	--	2.0	-0.3	-4.0	-0.8
<b>Polansky</b>						Test Average	--	0.7	-0.4	-2.9	-0.9
Dominator	--	--	--	--	--	CV (%)	--	0.7	0.4	1.2	--
<b>Quantum</b>						LSD (0.05)**	--	1.1	0.6	2.8	--
7406	--	-0.3	-1.3	-5.0	-2.2						
AP 7501	--	2.0	0.8	0.0	0.9						
AP 7510	--	0.3	0.0	-4.0	-1.3						
H1881 Exp	--	--	-0.3	--	--						
WX94-3504 Exp	--	-0.3	-0.5	-5.5	-2.1						
<b>Terra</b>											
(S) SR 204	--	--	--	--	--						
(S) SR 205	--	--	--	--	--						
(S) SR 211	--	--	--	--	--						
(S) Exp215	--	--	--	--	--						
(S) Exp216	--	--	--	--	--						
Exp217	--	--	--	--	--						

<sup>1</sup> SI = Stafford County test at Sandyland Experiment Field near St. John, KS. Abandoned in 1998 because of plot variability.

<sup>2</sup> TI = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> FI = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

<sup>4</sup> ST = Stevens County test at Jim Kramer farm near Hugoton, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.



**Table 10a. Plant height (inches)  
1998 EASTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>BR<sup>1</sup></b>	<b>RL<sup>2</sup></b>	<b>FR<sup>3</sup></b>	<b>LB<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	29	--	33	--	--	2137	28	39	34	37	35
Mankato	29	39	--	--	--	2163	28	37	33	34	33
Onaga	29	36	33	35	33	Custer	--	--	--	35	--
<b>AgriPro</b>						Jagger	30	39	35	36	35
Big Dawg	32	42	36	39	37	Karl 92	26	38	33	34	33
Coronado	28	36	32	33	32	KS84063-2W Exp	29	40	34	38	35
Pecos	--	--	29	--	--	KS85W663 Exp	30	38	32	36	34
Hondo	29	37	34	38	34	KS95H167-3	27	41	36	40	36
(S) D93*7163	--	--	--	33	--	KS95H176-1 Exp	33	39	40	38	38
(S) Elkhart	--	--	37	--	--	KS95HW62-6 Exp	27	37	34	35	33
(S) Patton	30	--	--	--	--	Newton	30	40	34	38	35
<b>Goertzen</b>						Niobrara	30	40	--	--	--
G1878	29	41	--	--	--	Scout 66	33	42	44	47	42
Cossack	32	42	--	--	--	TAM 107	30	34	34	35	33
Enhancer	29	39	--	--	--	Vista	25	34	--	--	--
<b>NK</b>						(S) Caldwell	31	40	34	38	36
(S) Coker 9474	--	--	34	37	--	(S) Cardinal	34	41	37	41	38
(S) Coker 9543	--	--	--	34	--	(S) Ernie	27	32	34	32	31
(S) Coker 9663	--	--	--	42	--	(S) IL90-7514	32	44	37	41	38
<b>Pioneer</b>						Test Average	30	39	35	37	35
(S) 2540	--	--	--	35	--	CV (%)	5	5	5	4	--
<b>Polansky</b>						LSD (0.05)**	2	2	2	2	--
Dominator	28	36	33	--	--						
<b>Star</b>											
Champ	27	40	36	--	--						
<b>Terra</b>											
(S) SR 204	32	--	--	37	--						
(S) SR 205	31	--	--	38	--						
(S) SR 211	31	--	--	36	--						
(S) Exp215	34	--	--	40	--						
(S) Exp216	30	--	--	38	--						
Exp217	29	--	--	36	--						

<sup>1</sup> BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

<sup>2</sup> RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

<sup>3</sup> FR = Franklin County test at East Central Experiment Field near Ottawa, KS.

<sup>4</sup> LB = Labette County test at KSU Southeast Agricultural Research Center near Parsons, KS.

(S) = Soft red winter wheat.

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 10b. Plant height (inches)**  
**1998 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.	Brand / Name	RP <sup>1</sup>	HV <sup>2</sup>	RN <sup>3</sup>	SD <sup>4</sup>	SU <sup>5</sup>	Avg.
<b>AGSECO</b>							<b>Public</b>						
7853	36	38	35	--	39	37	2137	37	37	36	--	39	37
Colby 94	40	--	--	--	--	--	2163	34	36	35	--	37	35
Mankato	38	40	38	--	--	--	2174	--	38	38	--	37	--
Onaga	37	35	35	--	35	35	Alliance	37	--	--	--	--	--
<b>AWWPA</b>							Arapahoe						
(W) Oro Blanco	35	36	34	--	35	35	Custer	38	37	37	--	36	37
<b>AgriPro</b>							Ike						
Big Dawg	--	41	39	--	39	--	Jagger	37	38	38	--	39	38
Coronado	34	35	33	--	35	34	Karl 92	37	35	35	--	35	36
Pecos	--	34	33	--	33	--	KS84063-2W Exp	39	40	38	--	39	39
Tomahawk	37	38	36	--	35	36	KS85W663 Exp	37	37	37	--	38	37
Hondo	38	37	35	--	37	37	KS95H167-3	37	39	40	--	40	39
<b>Goertzen</b>							KS95H176-1 Exp						
G1878	37	39	37	--	38	38	KS95HW62-6 Exp	36	37	36	--	36	36
Cossack	43	40	42	--	41	41	Nekota	36	--	--	--	--	--
Enhancer	37	38	38	--	39	38	Newton	37	40	39	--	38	39
<b>Polansky</b>							Niobrara						
Dominator	35	36	34	--	34	35	Scout 66	41	43	43	--	48	44
<b>Quantum</b>							TAM 107						
AP 7510	36	--	34	--	--	--	Vista	35	--	--	--	--	--
H1881 Exp	38	--	38	--	--	--	Windstar	37	--	--	--	--	--
<b>Star</b>							Yuma						
Champ	39	38	39	--	39	39	Yumar	37	--	--	--	--	--
<b>Terra</b>							Test Average						
(S) SR 204	--	38	--	--	--	--	CV (%)	4	3	3	--	3	--
(S) SR 205	--	39	--	--	--	--	LSD (0.05)**	2	2	1	--	1	--
(S) SR 211	--	39	--	--	--	--							
(S) Exp215	--	40	--	--	--	--							
(S) Exp216	--	39	--	--	--	--							
Exp217	--	36	--	--	--	--							

<sup>1</sup> RP = Republic County test at North Central Experiment Field near Belleville, KS.

<sup>2</sup> HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

<sup>3</sup> RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

<sup>4</sup> SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS. No plant heights recorded at this location.

<sup>5</sup> SU = Sumner County test at Max Kolarik farm near Caldwell, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 10c. Plant height (inches)**  
**1998 WESTERN Kansas Winter Wheat Performance Tests.**

<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>	<b>Brand / Name</b>	<b>EL<sup>1</sup></b>	<b>TD<sup>2</sup></b>	<b>GD<sup>3</sup></b>	<b>FD<sup>4</sup></b>	<b>Avg.</b>
<b>AGSECO</b>						<b>Public</b>					
7853	37	32	32	34	34	2137	37	35	33	34	35
Colby 94	42	39	--	--	--	2174	40	--	--	--	--
Mankato	40	38	34	36	37	Akron	38	38	35	34	36
TAM 110	38	34	33	33	34	Alliance	39	35	35	35	36
<b>AWWPA</b>						Arapahoe					
(W) Arlin	36	--	32	33	--	Custer	36	34	32	33	34
(W) Oro Blanco	35	33	34	32	33	Halt	37	33	31	33	34
<b>AgriPro</b>						Ike					
Big Dawg	40	--	--	--	--	Jagger	40	34	34	36	36
Laredo	36	33	31	--	--	Karl 92	37	33	31	34	33
Ogallala	34	31	30	31	31	KS84063-2W Exp	39	37	35	36	37
<b>Drussel</b>						KS85W663 Exp					
T81	--	--	34	--	--	KS95H167-3	41	38	35	38	38
<b>Goertzen</b>						KS95H176-1 Exp					
G1878	38	35	35	34	35	KS95HW62-6 Exp	37	34	36	34	35
Cossack	41	39	37	37	39	Larned	45	41	36	40	40
Enhancer	39	36	35	36	36	Nekota	38	35	34	34	35
<b>Polansky</b>						Newton					
Dominator	36	--	--	31	--	Niobrara	40	37	35	38	37
<b>Quantum</b>						Scout 66					
7406	38	34	--	--	--	TAM 107	36	34	33	32	34
AP 7501	37	33	--	--	--	Vista	36	33	32	33	34
AP 7510	36	33	--	--	--	Windstar	40	37	37	37	38
H1881 Exp	39	37	--	--	--	Yuma	38	35	34	34	35
<b>Star</b>						Yumar					
Champ	39	37	--	--	--	Test Average	38	35	34	35	36
<b>Terra</b>						CV (%)					
(S) SR 204	40	--	--	--	--	LSD (0.05)**	1	2	3	1	--
(S) SR 205	39	--	--	--	--						
(S) SR 211	37	--	--	--	--						
(S) Exp215	40	--	--	--	--						
(S) Exp216	38	--	--	--	--						
Exp217	38	--	--	--	--						

<sup>1</sup> EL = Ellis County test at KSU Agricultural Research Center near Hays, KS.

<sup>2</sup> TD = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> GD = Greeley County test at KSU Southwest Research Extension Center near Tribune, KS.

<sup>4</sup> FD = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 10d. Plant height (inches)**  
**1998 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.	Brand / Name	SI <sup>1</sup>	TI <sup>2</sup>	FI <sup>3</sup>	ST <sup>4</sup>	Avg.
<b>AGSECO</b>						<b>Public</b>					
7853	--	--	--	--	--	2137	--	34	38	--	36
TAM 110	--	37	37	--	37	Akron	--	39	39	--	39
<b>AWWPA</b>						Alliance	--	37	37	--	37
(W) Arlin	--	32	36	--	34	Custer	--	36	37	--	36
(W) Oro Blanco	--	33	37	--	35	Ike	--	37	38	--	37
<b>AgriPro</b>						Jagger	--	34	37	--	36
Big Dawg	--	36	38	--	37	Karl 92	--	33	36	--	34
Coronado	--	32	35	--	33	KS84063-2W Exp	--	38	40	--	39
Laredo	--	33	--	--	--	KS85W663 Exp	--	34	37	--	35
Ogallala	--	32	35	--	33	KS95H167-3	--	41	39	--	40
Rowdy	--	31	35	--	33	KS95H176-1 Exp	--	44	42	--	43
<b>Drussel</b>						KS95HW62-6 Exp	--	35	37	--	36
T81	--	--	38	--	--	Newton	--	38	41	--	39
<b>Goertzen</b>						TAM 107	--	35	38	--	37
G1878	--	36	38	--	37	TAM 200	--	33	36	--	34
Cossack	--	41	40	--	40	Yuma	--	35	39	--	37
Enhancer	--	35	37	--	36	Yumar	--	37	38	--	38
<b>Polansky</b>						Test Average	--	35	38	--	36
Dominator	--	--	--	--	--	CV (%)	--	5	5	--	--
<b>Quantum</b>						LSD (0.05)**	--	2	2	--	--
7406	--	36	38	--	37						
AP 7501	--	34	38	--	36						
AP 7510	--	32	38	--	35						
H1881 Exp	--	--	39	--	--						
WX94-3504 Exp	--	34	38	--	36						
<b>Terra</b>											
(S) SR 204	--	--	--	--	--						
(S) SR 205	--	--	--	--	--						
(S) SR 211	--	--	--	--	--						
(S) Exp215	--	--	--	--	--						
(S) Exp216	--	--	--	--	--						
Exp217	--	--	--	--	--						

<sup>1</sup> SI = Stafford County test at Sandyland Experiment Field near St. John, KS. Abandoned in 1998 because of plot variability.

<sup>2</sup> TI = Thomas County test at KSU Northwest Research Extension Center near Colby, KS.

<sup>3</sup> FI = Finney County test at KSU Southwest Research Extension Center near Garden City, KS.

<sup>4</sup> ST = Stevens County test at Jim Kramer farm near Hugoton, KS. No plant heights recored at this location.

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

\*\* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

**Table 11. Lodging (% of lodged stalks) from 1998 Kansas Wheat Performance Tests.**

Brand / Name	Lodging %						Brand / Name	Lodging %					
	BRO	RIL	LAB	REP	HAR	STE		BRO	RIL	LAB	REP	HAR	STE
<b>AGSECO</b>							<b>Terra</b>						
7853	0	--	--	0	2	--	(S) SR 204	0	--	1	--	1	--
Colby 94	--	--	--	9	--	--	(S) SR 205	0	--	4	--	2	--
Mankato	0	68	--	40	10	--	(S) SR 211	0	--	5	--	5	--
Onaga	0	0	1	0	0	--	(S) Exp215	0	--	10	--	3	--
TAM 110	--	--	--	--	--	0	(S) Exp216	0	--	5	--	1	--
<b>AWWPA</b>							<b>Public</b>						
(W) Arlin	--	--	--	--	--	0	2137	0	8	1	0	1	0
(W) Oro Blanco	--	--	--	0	0	0	2163	0	13	4	1	5	--
<b>AgriPro</b>							2174						
Big Dawg	0	0	1	--	0	0	Akron	--	--	--	--	--	10
Coronado	0	0	4	0	0	0	Alliance	--	--	--	3	--	5
Laredo	--	--	--	--	--	0	Arapahoe	--	--	--	80	--	--
Ogallala	--	--	--	--	--	0	Custer	--	--	1	1	1	0
Pecos	--	--	--	--	0	--	Halt	--	--	--	--	--	--
Rowdy	--	--	--	--	--	0	Ike	--	--	--	6	1	10
Tomahawk	--	--	--	0	3	--	Jagger	0	65	4	26	1	25
Hondo	0	13	3	0	2	--	Karl 92	3	55	13	0	2	10
(S) D93*7163	--	--	0	--	--	--	KS84063-2W Exp	0	33	10	0	2	0
(S) Elkhart	--	--	--	--	--	--	KS85W663 Exp	0	40	0	0	1	0
(S) Patton	0	--	--	--	--	--	KS95H167-3	5	5	3	9	4	5
<b>Drussel</b>							KS95H176-1 Exp						
T81	--	--	--	--	--	--	KS95HW62-6 Exp	0	60	3	8	4	30
<b>Goertzen</b>							Larned						
G1878	0	15	--	1	1	0	Nekota	--	--	--	4	--	--
Cossack	0	78	--	1	8	0	Newton	0	50	6	1	8	5
Enhancer	0	68	--	13	6	35	Niobrara	0	40	--	0	--	--
<b>NK</b>							Scout 66						
(S) Coker 9474	--	--	0	--	--	--	Scout 66	5	85	36	48	81	--
(S) Coker 9543	--	--	11	--	--	--	TAM 107	0	3	6	1	1	0
(S) Coker 9663	--	--	8	--	--	--	TAM 200	--	--	--	--	--	30
<b>Pioneer</b>							Vista						
(S) 2540	--	--	0	--	--	--	Vista	0	3	--	0	--	--
<b>Polansky</b>							Windstar						
Dominator	0	70	--	4	6	--	Windstar	--	--	--	58	--	--
<b>Quantum</b>							Yuma						
7406	--	--	--	--	--	0	Yuma	--	--	--	0	--	5
AP 7501	--	--	--	--	--	0	Yumar	--	--	--	0	--	0
AP 7510	--	--	--	0	--	0	(S) Caldwell	0	5	9	--	--	--
H1881 Exp	--	--	--	0	--	--	(S) Cardinal	0	0	4	--	--	--
WX94-3504 Exp	--	--	--	--	--	0	(S) Ernie	0	13	1	--	--	--
<b>Star</b>							(S) IL90-7514						
Champ	8	68	--	15	6	--	(S) IL90-7514	0	5	1	--	--	--
							Test Average						
							CV (%)						
							LSD (0.05)**						
							1	31	5	10	5	5	
							290	64	103	97	52	190	
							2	23	5	11	3	17	

**Table 12. Shattering and disease notes from 1998 Kansas Wheat Performance Tests.**

Brand / Name	Shattering			BYDV rating <sup>2</sup> LAB	Brand / Name	Shattering			BYDV rating <sup>2</sup> LAB
	LAB	HAR	ELL			LAB	HAR	ELL	
	%		rating <sup>1</sup>		%		rating <sup>1</sup>		
<b>AGSECO</b>					<b>Terra</b>				
7853	--	0	3	--	(S) SR 204	4	2	7	8
Colby 94	--	--	3	--	(S) SR 205	5	2	7	8
Mankato	--	0	5	--	(S) SR 211	7	3	9	8
Onaga	4	0	--	6	(S) Exp215	3	3	6	8
TAM 110	--	--	3	--	(S) Exp216	8	3	7	7
<b>AWWPA</b>					<b>Public</b>				
(W) Arlin	--	--	4	--	2137	1	0	6	8
(W) Oro Blanco	--	0	5	--	2163	4	0	--	9
<b>AgriPro</b>					2174				
Big Dawg	1	0	3	9	Akron	--	--	3	--
Coronado	2	0	--	7	Alliance	--	--	3	--
Laredo	--	--	3	--	Arapahoe	--	--	3	--
Ogallala	--	--	6	--	Custer	2	0	4	8
Pecos	--	0	--	--	Halt	--	--	4	--
Rowdy	--	--	--	--	Ike	--	0	3	--
Tomahawk	--	0	--	--	Jagger	4	0	5	8
Hondo	2	1	--	8	Karl 92	3	0	3	7
(S) D93*7163	3	--	--	9	KS84063-2W Exp	1	0	4	7
(S) Elkhart	--	--	--	--	KS85W663 Exp	4	1	3	7
(S) Patton	--	--	--	--	KS95H167-3	1	0	3	8
<b>Drussel</b>					KS95H176-1 Exp				
T81	--	--	--	--	KS95HW62-6 Exp	1	0	3	8
<b>Goertzen</b>					Larned				
G1878	--	0	3	--	Nekota	--	--	3	--
Cossack	--	0	5	--	Newton	1	0	3	7
Enhancer	--	0	3	--	Niobrara	--	--	3	--
<b>NK</b>					Scout 66				
(S) Coker 9474	7	--	--	9	TAM 107	1	0	3	7
(S) Coker 9543	2	--	--	9	TAM 200	--	--	--	--
(S) Coker 9663	7	--	--	9	Vista	--	--	4	--
<b>Pioneer</b>					Windstar				
(S) 2540	3	--	--	9	Yuma	--	--	5	--
<b>Polansky</b>					Yumar				
Dominator	--	0	7	--	(S) Caldwell	8	--	--	8
<b>Quantum</b>					(S) Cardinal				
7406	--	--	3	--	(S) Ernie	5	--	--	8
AP 7501	--	--	3	--	(S) IL90-7514	6	--	--	8
AP 7510	--	--	3	--	<b>Test Average</b>				
H1881 Exp	--	--	7	--	CV (%)	72	71	0	9
WX94-3504 Exp	--	--	--	--	LSD (0.05)**	2	0	0	1
<b>Star</b>									
Champ	--	0	4	--					

<sup>1</sup> Shattering rating averaged over 2 replications: 1=none, 3=very little, 5=noticeable, 7=significant, 9=severe.

<sup>2</sup> Barly Yellow Dwarf Virus rating: 10 = no symptoms, 1 = severe symptoms.

**Table 13. Planted seed characteristics, coleoptile lengths, and Hessian fly ratings.**

Brand / Name	1000					Brand / Name	1000				
	Seed weight (grams)	Test weight (lb/bu)	Seeds per lb. (1000)	Col. length (in.) <sup>1</sup>	Hess. fly (1-9) <sup>2</sup>		Seed weight (grams)	Test weight (lb/bu)	Seeds per lb. (1000)	Col. length (in.) <sup>1</sup>	Hess. fly (1-9) <sup>2</sup>
<b>AGSECO</b>						<b>Terra</b>					
7853	41.8	60.2	10.9	8	9	(S) SR 204	32.8	59.9	13.9	8	4
Colby 94	33.0	60.4	13.7	6	8	(S) SR 205	32.5	56.5	14.0	8	4
Mankato	36.5	58.4	12.4	8	8	(S) SR 211	30.3	58.0	15.0	8	3
Onaga	30.0	56.9	15.1	6	2	(S) Exp215	33.8	59.1	13.4	6	3
TAM 110	38.3	58.0	11.9	5	9	(S) Exp216	32.5	54.3	14.0	7	3
<b>AWWPA</b>						<b>Public</b>					
(W) Arlin	35.8	60.0	12.7	5	9	2137	40.8	61.1	11.1	8	2
(W) Oro Blanco	36.5	58.8	12.4	8	6	2163	31.0	56.3	14.6	7	1
<b>AgriPro</b>						2174	32.0	57.2	14.2	4	9
Big Dawg	44.5	58.2	10.2	3	9	Akron	37.3	61.5	12.2	7	5
Coronado	39.5	57.8	11.5	8	7	Alliance	29.5	57.1	15.4	8	2
Laredo	31.5	53.3	14.4	7	9	Arapahoe	29.8	60.6	15.2	7	1
Ogallala	30.5	60.8	14.9	7	9	Custer	36.3	57.9	12.5	8	7
Pecos	30.5	56.1	14.9	8	2	Halt	33.0	58.4	13.7	6	9
Rowdy	31.3	59.0	14.5	8	9	Ike	35.3	59.4	12.9	7	1
Tomahawk	35.3	59.2	12.9	7	7	Jagger	38.8	60.3	11.7	6	9
Hondo	36.0	54.8	12.6	7	6	Karl 92	39.5	60.6	11.5	7	9
(S) D93*7163	38.5	59.0	11.8	8	6	KS84063-2W Exp	38.3	60.1	11.9	8	8
(S) Elkhart	36.8	59.6	12.3	8	6	KS85W663 Exp	34.5	58.3	13.1	6	4
(S) Patton	44.5	59.1	10.2	7	6	KS95H167-3	39.8	58.1	11.4	6	3
<b>Drussel</b>						KS95H176-1 Exp	32.5	57.8	14.0	7	9
T81	32.0	57.4	14.2	8	8	KS95HW62-6 Exp	36.8	61.0	12.3	7	9
<b>Goertzen</b>						Larned	36.8	60.1	12.3	3	3
G1878	39.0	60.3	11.6	6	9	Nekota	35.8	57.1	12.7	6	8
Cossack	38.8	60.8	11.7	3	2	Newton	41.0	58.5	11.1	6	9
Enhancer	32.3	58.2	14.1	5	9	Niobrara	30.5	54.6	14.9	6	9
<b>NK</b>						Scout 66	34.5	56.6	13.1	2	9
(S) Coker 9474	32.8	58.8	13.9	2	4	TAM 107	36.8	57.7	12.3	6	9
(S) Coker 9543	32.5	56.2	14.0	8	4	TAM 200	30.3	60.1	15.0	8	9
(S) Coker 9663	43.8	59.4	10.4	2	7	Vista	32.5	56.3	14.0	8	1
<b>Pioneer</b>						Windstar	27.8	53.1	16.3	7	8
(S) 2540	36.5	57.2	12.4	6	8	Yuma	40.5	59.5	11.2	8	9
<b>Polansky</b>						Yumar	41.8	62.1	10.9	7	9
Dominator	32.3	62.2	14.1	8	3	(S) Caldwell	34.8	58.5	13.1	8	3
<b>Quantum</b>						(S) Cardinal	41.0	56.6	11.1	7	1
7406	37.8	57.7	12.0	7	9	(S) Ernie	45.0	59.6	10.1	5	9
AP 7501	32.3	56.4	14.1	8	1	(S) IL90-7514	35.5	59.1	12.8	6	9
AP 7510	35.0	57.5	13.0	8	4	Maximum	45.0	62.2	16.3	8	9
H1881 Exp	36.3	54.1	12.5	7	4	Minimum	27.8	53.1	10.1	2	1
WX94-3504 Exp	34.0	57.7	13.3	7	9	Average	35.5	58.3	13.0	7	6
<b>Star</b>											
Champ	39.0	58.8	11.6	8	8						

<sup>1</sup> Coleoptile lengths, 2 = long (about 4.2"), 8 = short (about 2.6") provided by T. Joe Martin, Kansas State University Agricultural Research Center - Hays. Tested at 75 degrees F, see discussion page 12.

<sup>2</sup> Hessian fly ratings by J. Hatchett, USDA; 1 = highly resistant, 9 = highly susceptible. Tested with the Great Plains Hessian fly.

**Table 14. Protein (% at 14% moisture) 1997 Kansas Winter Wheat Performance Tests.**

Brand / Name	East				Central				West				Irrigated			
	BR	FR	LB	Avg.	RP	HV	RN	Avg.	EL	TD	GD	FD	Avg.	TI	GI	Avg.
<b>AGSECO</b>																
Onaga	13.8	13.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7853	12.6	12.4	9.8	11.6	13.6	11.8	15.5	13.6	13.9	12.5	15.6	15.0	14.3	13.0	13.1	13.1
7853-D	--	--	10.3	--	13.7	12.3	16.0	14.0	14.3	11.8	15.6	14.9	14.2	12.2	12.7	12.4
7853-VRTU	--	--	10.0	--	13.2	11.6	15.8	13.5	13.7	12.2	15.8	14.6	14.1	12.8	13.0	12.9
9001	--	--	--	--	--	--	--	--	--	12.4	15.0	14.2	--	12.6	11.8	12.2
Colby 94	--	--	--	--	10.8	--	--	--	11.6	10.7	13.2	--	--	--	--	--
Mankato	12.6	--	--	--	12.1	11.1	15.4	12.9	13.1	11.9	14.8	13.7	13.4	--	12.3	--
TAM 110	--	--	--	--	11.2	11.6	13.3	12.0	11.2	10.8	12.9	11.9	11.7	11.1	11.0	11.1
<b>AWWPA</b>																
(W) Arlin	--	--	--	--	--	--	--	--	--	--	--	13.9	--	--	--	--
(W) Oro Blanco	--	--	--	--	12.3	11.6	15.7	13.2	--	--	--	--	--	--	--	--
<b>AgriPro</b>																
Big Dawg	13.4	12.2	9.3	11.6	11.9	11.4	16.1	13.1	12.9	12.4	15.7	--	--	13.1	--	--
Coronado	12.8	12.7	9.6	11.7	12.2	11.9	15.5	13.2	13.0	12.0	--	--	--	12.1	12.4	12.3
Hickok	--	--	--	--	--	12.3	14.3	--	12.5	--	--	--	--	12.9	13.0	12.9
Laredo	--	--	--	--	--	--	--	--	12.9	12.3	15.5	--	--	12.1	12.8	12.4
Ogallala	--	--	--	--	--	--	--	--	13.8	12.6	15.0	14.8	14.1	13.2	13.0	13.1
Pecos	--	11.7	9.1	--	11.9	12.4	14.8	13.0	12.6	--	--	--	--	--	--	--
Rowdy	--	--	--	--	--	--	--	--	12.8	11.8	--	--	--	12.5	11.9	12.2
Tomahawk	12.7	12.9	9.8	11.8	12.6	11.5	15.7	13.3	13.8	--	--	--	--	--	--	--
(S) Elkhart	--	12.5	9.4	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>Drussel</b>																
DSS-285	--	--	--	--	--	--	--	--	--	--	--	--	--	13.2	13.1	13.1
<b>Goertzen</b>																
Enhancer	--	--	--	--	--	11.4	14.4	--	--	--	13.7	13.8	--	--	12.4	--
Cossack	--	--	--	--	--	10.7	15.2	--	--	--	15.6	13.4	--	--	11.6	--
G1720 Exp	--	--	--	--	--	--	--	--	--	--	15.9	15.3	--	--	13.9	--
G1878	--	--	--	--	--	11.1	15.8	--	--	--	15.2	13.9	--	--	13.0	--
<b>NK</b>																
(S) Coker 9474	--	12.7	9.7	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Coker 9543	--	--	8.9	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Coker 9663	--	--	8.8	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>Pioneer</b>																
(S) 2548	--	--	9.4	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>Polansky</b>																
Dominator	12.5	--	--	--	12.2	12.1	15.8	13.4	13.3	11.8	--	--	--	13.0	--	--
<b>Quantum</b>																
566	--	--	--	--	--	--	--	--	--	11.8	--	--	--	--	--	--
579	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AP 7501	--	--	--	--	--	--	--	--	--	12.1	--	--	--	12.8	12.1	12.4
AP 7510	--	--	--	--	12.2	--	16.4	--	--	12.0	--	--	--	12.7	11.9	12.3
AP 7601	--	--	--	--	--	--	--	--	--	--	--	--	--	13.1	11.9	12.5
H1870 Exp	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.5	--
7504	--	--	--	--	--	11.4	15.0	--	--	--	--	--	--	--	--	--
7406	--	--	--	--	--	--	--	--	--	11.1	--	--	--	11.5	10.9	11.2
<b>Star</b>																
505	--	--	--	--	11.1	--	--	--	--	--	--	--	--	--	--	--
560	--	--	--	--	12.8	--	--	--	13.1	--	--	--	--	--	--	--
Champ	12.6	12.6	--	--	12.1	11.2	14.7	12.7	13.3	12.3	--	14.4	--	--	--	--

(continued)



**Table 14. Protein (% at 14% moisture) 1997 Kansas Winter Wheat Performance Tests.**

Brand / Name	East				Central				West				Irrigated			
	BR	FR	LB	Avg.	RP	HV	RN	Avg.	EL	TD	GD	FD	Avg.	TI	GI	Avg.
<b>Terra</b>																
(S) SR 204	11.8	11.5	9.2	10.8	--	--	--	--	--	--	--	--	--	--	--	--
(S) SR 205	11.3	11.1	8.9	10.4	--	--	--	--	--	--	--	--	--	--	--	--
(S) SR 211	11.4	10.9	8.8	10.4	--	--	--	--	--	--	--	--	--	--	--	--
HR 153	12.8	13.4	10.4	12.2	--	12.4	16.1	--	--	--	--	--	--	--	--	--
<b>Public</b>																
2137	11.4	10.9	9.0	10.4	11.6	10.6	14.3	12.2	11.6	11.1	13.6	12.3	12.1	11.3	10.7	11.0
2163	12.0	11.4	8.7	10.7	11.6	10.6	14.5	12.2	11.9	10.9	14.1	12.5	12.4	11.6	11.0	11.3
2180	--	--	--	--	--	14.7	14.4	--	--	--	--	--	--	--	--	--
Akron	--	--	--	--	--	--	--	--	12.1	10.8	13.9	12.6	12.4	11.9	11.2	11.6
Alliance	--	--	--	--	10.7	--	--	--	11.3	10.4	13.0	11.5	11.6	10.4	10.4	10.4
Arapahoe	12.2	--	--	--	12.2	--	--	--	12.7	11.8	15.2	14.3	13.5	--	--	--
BC1	12.4	11.9	8.9	11.1	12.3	11.3	15.1	12.9	--	--	--	--	--	--	--	--
BC4	12.6	11.4	9.1	11.0	12.3	11.8	15.0	13.0	--	--	--	--	--	--	--	--
BNW1	--	--	--	--	--	--	--	--	12.1	11.8	14.1	12.7	12.7	--	--	--
BNW2	--	--	--	--	--	--	--	--	12.7	11.9	14.8	13.3	13.2	--	--	--
BNW5	--	--	--	--	--	--	--	--	12.3	11.2	14.2	13.1	12.7	--	--	--
BSW3	--	--	--	--	--	--	--	--	13.1	12.0	15.2	13.9	13.5	--	--	--
Custer	12.4	12.6	9.3	11.4	12.3	11.9	14.9	13.0	13.3	12.8	15.5	14.0	13.9	13.3	12.6	12.9
Halt	--	--	--	--	--	--	--	--	12.8	11.1	12.7	13.1	12.4	--	--	--
2174	--	--	--	--	--	12.2	15.2	--	13.3	--	--	--	--	--	--	--
Ike	--	--	--	--	12.4	11.3	--	--	13.6	13.0	15.8	14.6	14.3	12.5	12.4	12.4
Jagger	13.0	14.6	9.3	12.3	12.3	11.5	15.5	13.1	12.6	11.3	15.7	15.0	13.6	12.4	12.3	12.4
Karl 92	12.2	12.4	9.2	11.3	12.3	11.0	15.6	13.0	13.9	13.4	15.2	14.5	14.3	12.8	11.3	12.1
Karl 92-G	12.0	12.1	9.2	11.1	12.5	11.2	15.6	13.1	13.5	12.4	14.7	14.8	13.8	12.4	11.6	12.0
KS84063-2W Exp	13.5	12.2	9.8	11.8	13.3	12.0	15.8	13.7	14.1	13.8	16.2	15.1	14.8	13.6	12.9	13.3
KS940935 Exp	12.9	12.1	10.3	11.8	12.8	12.1	14.6	13.2	12.6	12.7	15.3	13.7	13.6	13.4	12.4	12.9
KS941064 Exp	11.7	11.5	8.8	10.7	11.8	10.8	14.0	12.2	11.7	11.2	14.4	12.8	12.5	12.1	11.7	11.9
KS94H147Exp	12.0	12.1	8.6	10.9	11.7	11.4	15.3	12.8	12.6	11.3	13.7	13.4	12.7	11.5	11.7	11.6
Larned	--	--	--	--	11.4	11.4	14.8	12.5	12.3	11.6	14.2	13.1	12.8	--	--	--
Nekota	--	--	--	--	12.8	--	--	--	12.7	12.3	14.6	13.0	13.2	--	--	--
Newton	12.5	12.2	8.6	11.1	12.0	11.9	14.6	12.8	11.7	12.3	14.2	13.0	12.8	11.4	11.2	11.3
Niobrara	11.5	--	--	--	11.3	--	--	--	11.6	10.9	13.2	12.7	12.1	--	--	--
Scout 66	12.4	12.4	9.2	11.3	12.3	11.6	15.2	13.0	12.5	12.0	14.4	13.2	13.0	--	--	--
TAM 107	11.7	12.5	9.1	11.1	11.9	11.6	14.1	12.5	11.7	11.2	13.1	12.2	12.1	11.7	11.1	11.4
TAM 200	--	--	--	--	--	--	--	--	--	--	--	--	--	11.2	11.0	11.1
TAM 301	13.2	13.6	9.5	12.1	13.1	12.0	14.9	13.3	--	--	--	--	--	--	--	--
Tonkawa	13.4	12.5	10.5	12.1	13.7	12.4	15.9	14.0	13.6	13.7	15.4	14.4	14.3	14.8	13.3	14.1
Vista	12.2	--	--	--	12.1	--	--	--	12.4	11.9	14.5	13.3	13.0	--	--	--
Windstar	--	--	--	--	11.1	--	--	--	11.8	11.3	13.9	12.9	12.5	--	--	--
Yuma	--	--	--	--	11.2	--	--	--	11.0	10.4	12.6	11.8	11.4	10.3	10.9	10.6
(S) Caldwell	10.8	11.7	8.6	10.4	--	--	--	--	--	--	--	--	--	--	--	--
(S) Cardinal	11.9	11.9	8.6	10.8	--	--	--	--	--	--	--	--	--	--	--	--
(S) Ernie	11.8	11.3	8.4	10.5	--	--	--	--	--	--	--	--	--	--	--	--
(S) Jackson	13.2	12.6	8.7	11.5	--	--	--	--	--	--	--	--	--	--	--	--
<b>Test Average</b>	<b>12.4</b>	<b>12.2</b>	<b>9.3</b>		<b>12.2</b>	<b>11.7</b>	<b>15.1</b>		<b>12.7</b>	<b>11.9</b>	<b>14.6</b>	<b>13.6</b>		<b>12.4</b>	<b>12.0</b>	

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