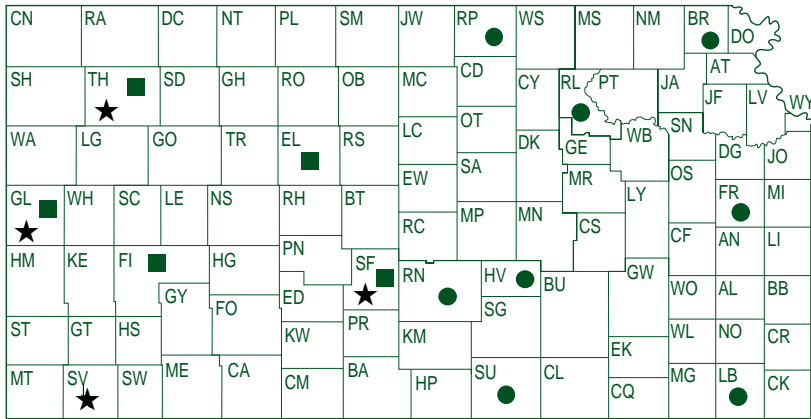


# 1996

## KANSAS PERFORMANCE TESTS WITH WINTER WHEAT VARIETIES



**Report of Progress 769**

Agricultural Experiment Station • Kansas State University, Manhattan • Marc A. Johnson, Director

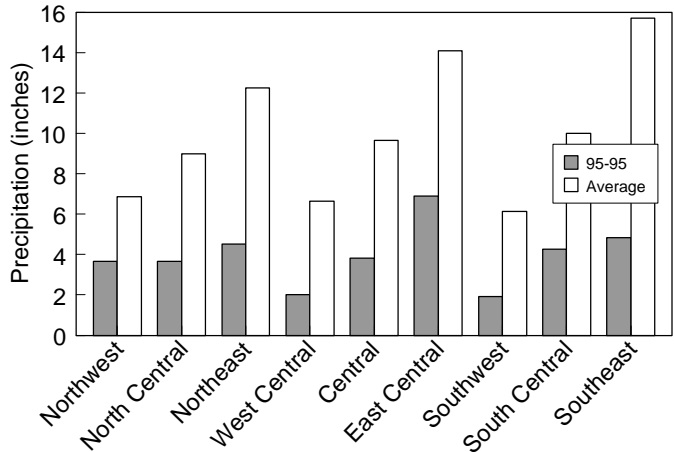
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# 1996 KANSAS PERFORMANCE TESTS WITH WINTER WHEAT VARIETIES

## INTRODUCTION

This publication presents results from the 1995-96 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 includes a summary of statewide growing conditions and harvest information for the entire 1996 Kansas wheat crop. The second section includes the statewide acreage distribution of leading Kansas varieties and a summary of important agronomic and quality traits for these varieties. The third section presents procedures and results for the 1996 Kansas Winter Wheat Performance Tests.



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

## 1996 CROP CONDITIONS

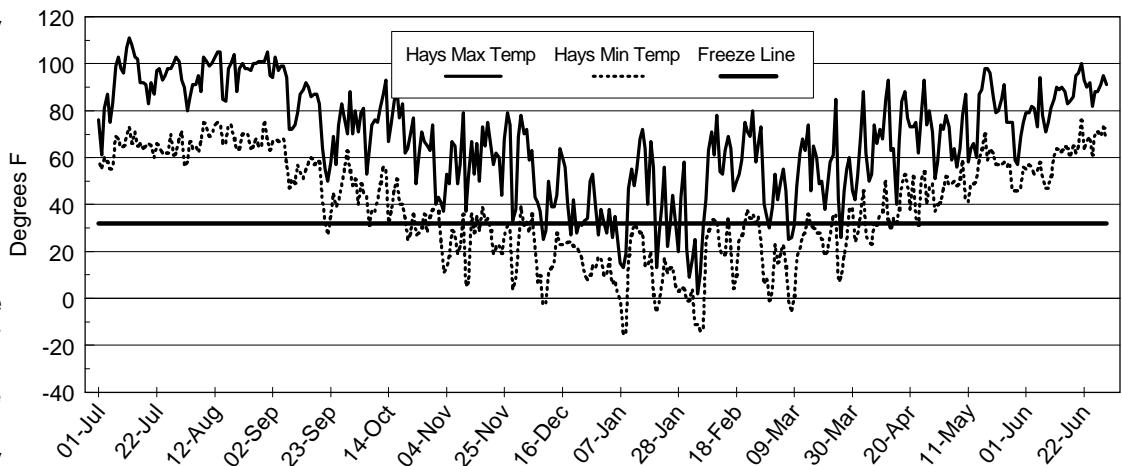
### Weather Conditions

The critical weather factors for wheat are precipitation and temperature. The precipitation for the 1995-96 wheat season was extremely low. During the important October to April period, seven of the nine crop reporting districts reported the lowest average precipitation since 1895. The North Central district reported the second driest, and the Northwest reported the 13th driest period. Figure 1 shows the 1995-96 amounts versus the 100-year average amounts.

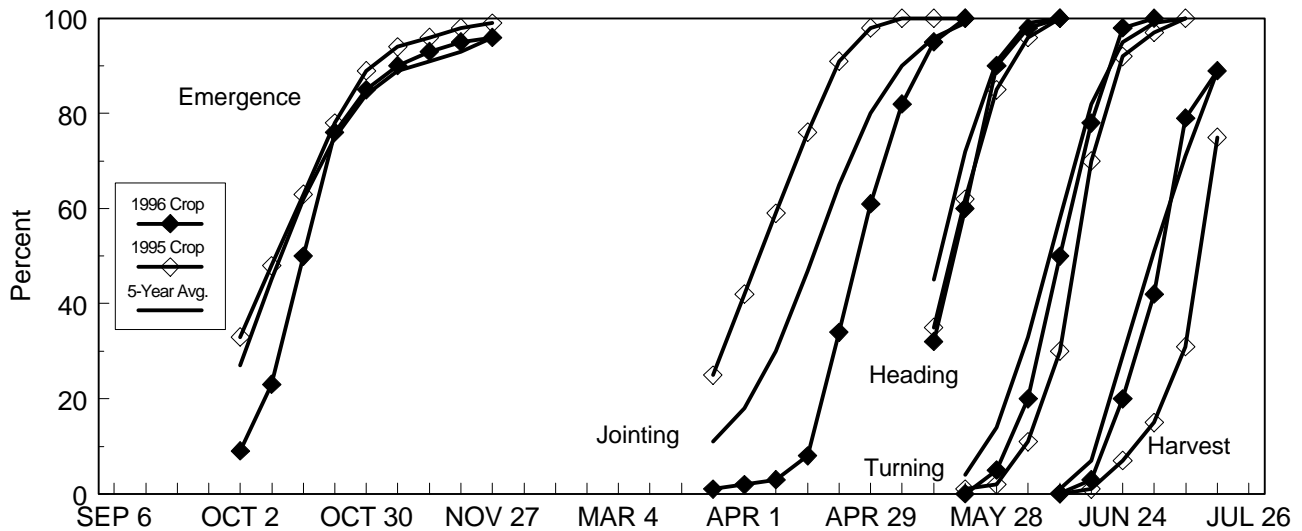
the freezing temperatures in late April. Note also the rapid swings in the high and low temperatures. Similar patterns were evident across the state. All of this placed considerable stress on the wheat.

The temperature swings and the dry conditions resulted in periodic dust storms throughout the winter and early spring. Rains returned in May but were frequently in the form of severe thunderstorms with torrential

The extremely dry conditions also affected the temperatures, because air with little moisture can both warm and cool more rapidly than moist air. Figure 2 shows the daily high and low temperatures for Hays during the 1995-96 season. Note the extremely low temperatures in late March and



**Figure 2. High and low temperatures, Hays, Kansas, 1995-1996.**



**Figure 3. Statewide development of winter wheat crop**

downpours, high winds, and hail. (From Mary Knapp, KSU State Climatologist).

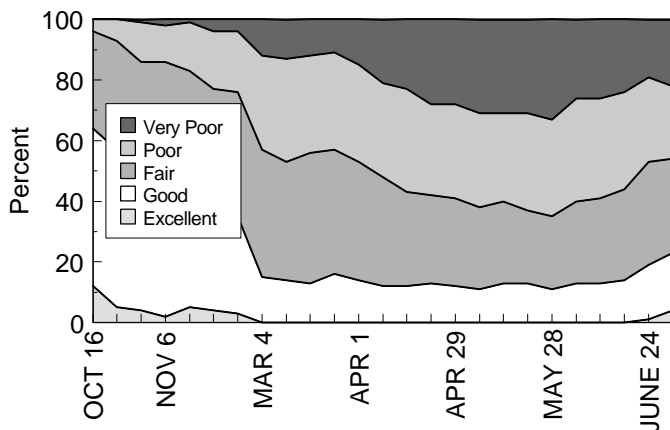
**Crop Development**

The temperature and moisture extremes described above had a major impact on crop development (Figure 3) and condition (Figure 4). This was evident already last fall when emergence was delayed because of dry soil conditions. Cool spring temperatures significantly delayed jointing, but the crop nearly caught up with the 5-year average by heading time. Harvest was close to the 5-year average and well ahead of the late 1995 harvest.

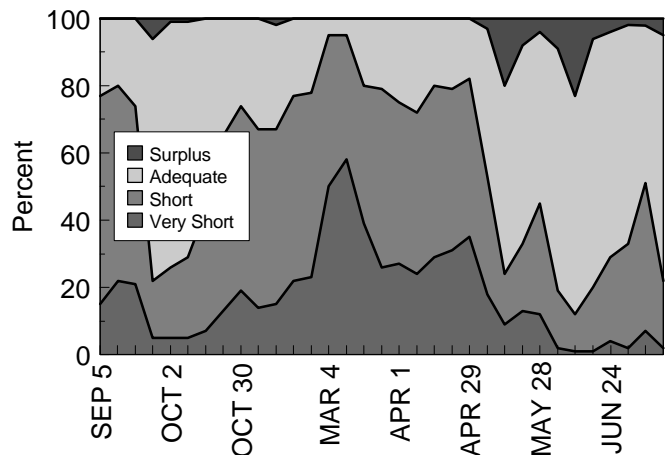
The 1996 wheat crop started out in good condition last fall but declined until just before harvest (Figure 4). Early in the fall, 96% of the crop was rated as fair or better. That percentage dropped to 76% by late fall. However, in early spring only 57% was fair or better,

and in late May, that percentage dropped to 35%. Small portions of the acreage were rated as excellent in the fall and summer. None of the acreage was in excellent condition from March through May. The condition of the crop improved during June, so that only 46% was rated as poor or very poor by harvest. Some of that improvement may have resulted from abandonment of the worst fields, but much was due to timely rains and favorable temperatures that allowed the wheat to develop and finish the season under close to ideal conditions.

Soil moisture played a large role in determining the condition of the wheat crop (Figure 5). Low soil moisture through the fall and winter months limited fall growth and made the plants more susceptible to winter and spring freeze injury. However, dry spring conditions limited disease development. Rains in May and June helped improve the condition of the crop during the critical grain-filling period. (From



**Figure 4. Condition of Kansas winter wheat crop 1995-1996.**



**Figure 5. Statewide status of topsoil moisture 1995-1996.**

*Crop-Weather* reports, Kansas Agricultural Statistics, Topeka).

### Diseases

Relatively low disease levels contributed to better than expected yields in much of the state. However, the discovery of Karnal bunt in Arizona durum wheat provided much material for discussion and activity by disease-monitoring agencies and others in the wheat industry.

Dry fall conditions contributed to the lowest level of fall disease development in several years. State plant pathologists detected trace levels of wheat streak mosaic in central and western Kansas fields planted next to wheat stubble. Some central and south central fields contained very low levels of speckled leaf blotch and tan spot.

Although the continued dry weather during the winter months contributed to the severity of winter injury, freeze damage, and wind injury suffered by much of the state's wheat, it had the benefit of limiting disease development. In early May, wheat streak mosaic was active in some fields in western Kansas, but no leaf rust was detected there or in central Kansas.

Some relatively unusual disease situations developed late in the growing season. Many central Kansas fields had low to moderate levels of almost pure *Stagonospora nodorum* leaf blotch. Speckled leaf blotch reached fairly high levels in far northwestern Kansas. Stem rust was detected on late-maturing varieties in eastern Kansas fields. Some scab appeared in north central fields. (From *Plant Disease Survey Reports*, Kansas State Board of Agriculture).

### Insects

Although some fields experienced severe insect damage, many did not or were much more severely affected by other environmental conditions.

Treatment for fall armyworms began last September but was cut short in most areas by the early freeze. State entomologists generally detected very little fall activity for greenbugs, oat birdcherry aphids, Russian wheat aphids, or wheat curl mites.

Cold winter temperatures slowed or killed many insect populations, but the low winter precipitation favored others. Greenbugs caused some noticeable damage in southeastern fields last fall, but didn't cause much additional damage in the spring in that area. Greenbugs moved from Oklahoma into south central Kansas in March and April and caused severe damage in some fields.

Brown wheat mites were favored by the dry winter. They were the predominant insect pest on wheat in southwest Kansas, although many of the dryland fields where they were found were in marginal condition from the winter, freeze, and wind damage and were not treated.

Russian wheat aphids and oat birdcherry aphids remained at very low levels through the spring. (From *Cooperative Economic Insect Survey Reports*, Kansas State Board of Agriculture).

### Harvest Statistics

Although early estimates were much lower, the Kansas Agricultural Statistics office's July 12 estimate of the 1996 crop was 237.6 million bushels harvested from 8.8 million acres (Figure 6). This estimate was down 17% from the 1995 harvest, but up 30% from the June 1 forecast. The statewide yield average of 27 bushels per acre was actually up 1 bushel from last year. Estimates of total production were lower than last year in all but the eastern districts, which were 28-67% above last year. The eastern districts had very low yields and production in 1995 and better than expected yields in 1996. Much of the decrease in total production was due to a high rate of abandonment, especially in the West Central Crop Reporting District where only half as many acres were harvested in 1996 as in 1995. (From July 12, 1996 *CROPS* report, Kansas Agricultural Statistics, Topeka).

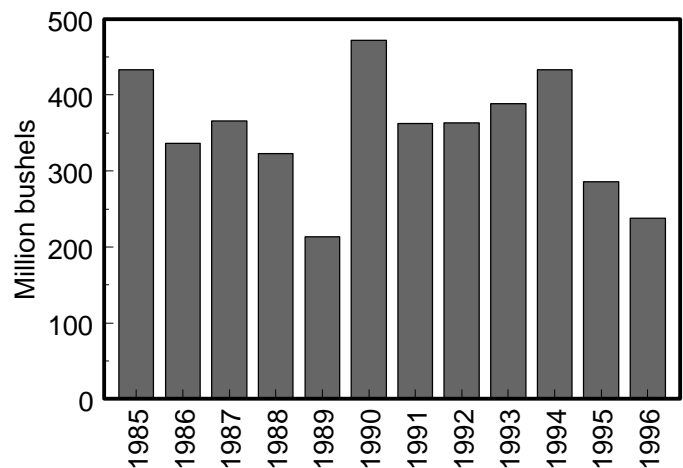


Figure 6. Historical Kansas winter wheat production.

TAM 107 Ike Newton Arapahoe Larned	30(40) 14(2) 7(6) 7(5) 6(11)	Karl/Karl 92 Vista 7853 Ogallala TAM 200	6(6) 5(2) 4(5) 4(-) 2(2)	2163 Karl/Karl 92 Tomahawk Ike 7853	28(21) 25(24) 13(18) 7(1) 5(5)	Victory TAM 107 Pecos Sierra Larned	4(8) 2(5) 2(2) 2(1) 1(2)	Karl/K92 2163 T-hawk Jagger 7853	58(51) 26(24) 3(6) 3(-) 1(2)	Victory Pecos T-bird Ike Ponderosa	1(3) 1(2) 1(2) 1(-) 1(-)
TAM 107 Ike Larned Ogallala 7853	48(58) 16(2) 10(14) 3(1) 3(3)	2163 Karl/Karl 92 Scout(s) Tomahawk Thunderbird	3(1) 2(1) 2(1) 2(3) 2(3)	2163 Karl/Karl 92 7853 TAM 107 Tomahawk	32(31) 22(22) 7(6) 7(9) 7(10)	Ike Pecos Larned Victory Thunderbird	5(1) 3(1) 2(5) 2(3) 2(3)	Karl/Karl 92 2163 Pecos 7853 Tomahawk	56(60) 26(18) 4(3) 3(3) 2(6)	Victory Jagger Sierra TAM 107 Hickok	1(2) 1(-) 1(2) 1(-) 1(-)
TAM 107 Larned Ike Scout(s) TAM 200	40(41) 12(20) 11(1) 5(4) 4(4)	7853 Tomahawk Ogallala Karl/Karl 92 2163	3(2) 3(3) 2(1) 2(4) 2(1)	2163 Karl/Karl 92 7853 Tomahawk TAM 107	36(33) 28(32) 7(4) 5(8) 3(3)	Pecos 2180 Larned Ike Thunderbird	3(2) 3(4) 2(2) 2(-) 2(3)	Karl/Karl 92 2163 Jagger 7853 Tomahawk	69(75) 16(10) 2(-) 2(1) 1(2)	Pecos Ike TAM 107 Thunderbird Ponderosa	1(1) 1(-) 1(1) <1(1) <1(-)

**Figure 7. Leading wheat varieties in Kansas in 1996, presented as percent of seeded acreage by crop reporting districts for 1996 and 1995 (1995 in parentheses). From Wheat Variety report, Kansas Agricultural Statistics, February 8, 1996.**

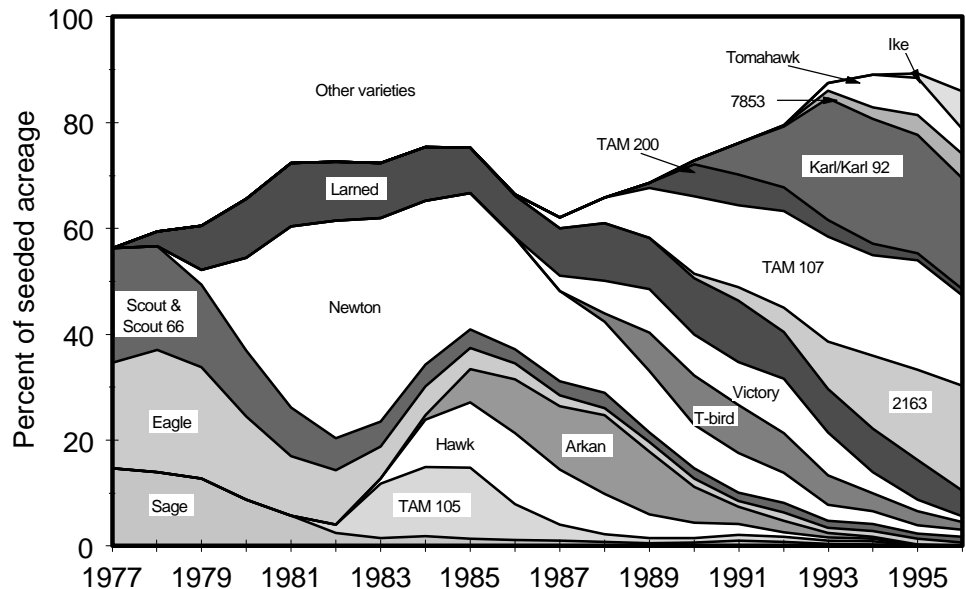
## WHEAT VARIETIES GROWN IN KANSAS

### Acreage Distribution

The leading wheat varieties planted in Kansas are reported in Figures 7 and 8 and in Table 1. The top 10 varieties occupied 83.9% of the state's seeded acreage.

The top 10 varieties for each crop reporting district are presented in Figure 7. TAM 107, Ike, and Larned predominated in western Kansas. Newton, Arapahoe, Karl/Karl 92, Scout/Scout 66, and Vista also occupied significant acreage in the west. 2163 and Karl/Karl 92 were the most popular varieties in the central and eastern districts. These two varieties occupied over 80% of the acreage in the eastern districts. Other popular varieties in the central third of the state included AgriPro Tomahawk, AGSECO 7853, TAM 107, and Ike.

Figure 8 illustrates the statewide distribution of several leading varieties from 1977 through 1996. These varieties occupied 86.1% of the planted wheat acres in 1996. Scout/Scout 66, Eagle, and Sage combined



**Figure 8. Historical distribution of leading varieties, percent of statewide acreage. From Kansas Agricultural Statistics, Topeka**

**Table 1. Comparisons of leading winter wheat varieties grown in Kansas.**

Brand	Variety	Percent Kansas seeded acreage 1996 <sup>2</sup>	Relative <sup>3</sup>				Resistance or tolerance to <sup>4</sup>							Relative milling and baking quality <sup>5</sup>
			Maturity	Test Weight	Straw Str.	Winter hardiness	Tan spot	Speck. leaf blotch	Leaf rust	Stem rust	Hessian fly	Wheat streak mosaic	Soil-borne mosaic	
----	Karl/Karl 92	20.9	1	3	4	3	3	4	8	7	9	9	1	EX*
----	2163	19.8	3	6	1	4	4	4	7	4	1	5	1	LD
----	TAM 107	17.1	1	4	2	2	6	7	9	4	9	3	8	LD
----	Ike	7.2	4	3	4	3	7	8	6	2	2	9	1	AC
----	Larned	4.8	4	4	5	3	9	7	8	3	3	7	8	AC
AgriPro	Tomahawk	4.7	3	4	3	2	4	8	3	3	9	8	1	AC
AGSECO	7853	4.6	3	4	4	5	6	9	8	4	9	5	1	EX
AgriPro	Pecos	1.8	1	4	1	5	6	5	7	4	1	7	1	AC
AgriPro	Thunderbird	1.5	2	3	3	2	9	6	7	3	9	5	1	AC
AgriPro	Ogallala	1.5	3	2	2	4	6	5	4	3	9	6	9	EX
----	TAM 200	1.3	4	2	4	6	5	3	7	4	9	4	9	LD
----	Newton	1.3	3	4	4	5	9	9	9	3	9	6	1	AC
----	Scout(s)	1.2	4	4	6	3	9	7	8	3	9	7	9	AC
AgriPro	Victory	1.1	3	4	4	3	5	9	5	6	9	8	1	AC
----	Jagger	1.0	1	4	3	6	2	3	2	3	9	3	1	EX
----	Arapahoe	1.0	6	4	6	3	7	3	5	2	5	7	8	AC
----	2180	1.0	1	4	1	7	8	5	6	5	2	9	1	LD
----	Vista	0.8	5	4	6	2	8	5	4	5	2	8	8	AC*
AgriPro	Sierra	0.6	5	4	1	5	4	2	4	3	9	8	1	LD
AgriPro	Laredo	0.6	4	4	3	3	6	7	6	4	9	7	7	LD
----	Eagle	0.6	4	4	6	3	9	7	8	4	7	9	9	EX*
AgriPro	Longhorn	0.5	5	3	2	3	6	6	6	1	8	5	8	LD
AgriPro	Abilene	0.5	4	3	2	2	6	7	8	2	9	5	1	AC
AgriPro	Ponderosa	0.3	3	3	3	3	5	8	3	3	9	8	1	EX*
AgriPro	Hickok	0.3	2	2	3	6	5	8	3	3	9	5	1	AC
----	TAM 202	0.3	4	3	2	7	7	5	7	4	9	4	9	LD
AGSECO	7805	0.2	4	4	4	5	7	8	8	1	8	8	9	--
AgriPro	Mesa	0.2	1	2	2	6	6	6	9	4	9	5	1	AC
----	Triumph(s)	0.2	1	3	7	6	5	9	9	8	9	4	8	LD
Other Hard Varieties		2.9												
Other Soft Varieties		0.2												

<sup>1</sup> Varieties listed in the Feb. 8, 1996, 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 8, 1996 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 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, mixing, 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.

for nearly 60% of the statewide acreage in the late 1970's. In the early 1980's, Newton and Larned dominated, with over 50% of the acreage devoted to these two varieties. Larned consistently maintained nearly 10% of the planted acreage during the 1980's but has begun to drop off in recent years. Newton has dropped from a high of over 40% in 1982 to 1.3% in 1996. TAM 107 predominated in the early 1990's. In 1993, Karl/Karl 92 displaced TAM 107 as the leading variety. Karl/Karl 92, TAM 107, and 2163 together made up 57.8% of the total wheat acreage in 1996. (From February 8, 1996, *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**

General descriptions of new public entries in the Kansas Wheat Performance Tests are included below. These descriptions are abstracted from release notices or other material provided by the releasing agencies.

**2137** hard red winter wheat was released by the Kansas Agricultural Experiment Station in 1995. Foundation and registered seed should be available for fall planting in 1996. 2137 is intended to replace 2163 with improvements in yield, test weight, flour yields, and leaf rust resistance. Although similar, 2137 is generally 2 inches taller and 1 day later in heading than 2163. 2137 is adapted across Kansas, but will do best in areas where 2163 has done well, namely central, north central, and western Kansas. See Kansas State University Cooperative Extension Service Publication L-906, "2137 Hard Red Winter Wheat", for more complete information about this variety.

**Nekota** hard red winter wheat was developed cooperatively by the South Dakota Experiment Station; Nebraska Experiment Station; and the Northern Plains Area, Agricultural Research Service, U.S. Department of Agriculture. Released in 1994, this variety is most likely adapted to north central and northwest Kansas. Nekota's flowering date is similar to that of Alliance, later than TAM 107's, and earlier than Arapahoe's. Nekota is

moderately susceptible to leaf rust, and is susceptible to soilborne and wheat streak mosaic viruses and Hessian fly. Additional information about this variety can be obtained from the Nebraska Foundation Seed Division, Department of Agronomy, University of Nebraska-Lincoln.

**TAM 110** hard red winter wheat should be released very soon by the Texas Agricultural Experiment Station. This variety is similar to TAM 107 in type and quality but possesses resistance to greenbug biotype E. A more complete description of this variety will be available with the official release notice.

## **1996 PERFORMANCE TESTS**

### **Objectives**

To help Kansas growers select wheat cultivars 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 1996 Kansas Agricultural Experiment Station tests are given in Table 2. 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 1996 private entrants and entries are listed in Table 3. Twelve entrants provided a total of 47 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 public and private entries in the Kansas Crop Performance Tests is prepared professionally and usually meets or exceeds Kansas Crop Improvement Certification standards (See Table 12). 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.

### Environmental Factors Affecting Individual Tests

Locations of test sites are shown on the map on the front cover. Six of the 17 tests had to be discarded in 1996. Specific reasons for abandonment and 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. Winter survival and spring injury notes from the 1996 performance tests are listed in Table 11. The location codes listed in

**Table 2. Parentage and origin of public winter wheat varieties grown in 1996 tests.**

Type and variety	Parentage	State and year of release	
<b>HARD RED WINTER</b>			
Akron	TAM 107/Hail	Colorado	1994
Alliance	Arkan/Colt//Chisholm	Nebraska	1994
Arapahoe	Brule/3/Pkr*4/Agent/Beloterkovskaia 198/Lancer	Nebraska	1988
Arkan	Sage/Arthur	Kansas	1982
Custer	F29-76/TAM 105// Chisholm	Oklahoma	1994
Halt	Sumner/CO820026,F <sub>1</sub> //PI372129,F <sub>1</sub> /3/TAM 107	Colorado	1994
Ike	Dular/Eagle//2*Larned/Cheney/3/Colt	Kansas	1993
Jagger	KS82W418/Stephans	Kansas	1994
Jules	NE76667/Hawk	Colorado	1993
Karl 92	F <sub>11</sub> head row selection from 'Karl' breeder's seed increase	Kansas	1992
Larned	Scout*5/Ottawa	Kansas	1976
Nekota	Bennett/TAM 107	Nebraska	1994
Newton	Pitic 62/Chris sib//2*Sonora 64/Klein Rendidor/4/Scout	Kansas	1977
Niobrara	TAM 105*4/Amigo//Brule	Nebraska	1994
Scout 66	A composite of 85 selections from Scout	Nebraska	1967
TAM 107	TAM 105*4/Amigo	Texas	1984
TAM 200	TX71A1039-V1*3/Amigo	Texas	1987
Tonkawa	F29-76/TAM 105//Chisholm	Oklahoma	1994
Triumph 64	Purification of Danne's "Rust Resistant" Triumph	Oklahoma	1967
Vista	NE68513/NE68457//Centurk/3/Brule	Nebraska	1992
Yuma	NS14/NS25//2*Vona	Colorado	1991
2137	W2440/W9488//2163	Kansas	1995
2163	Pioneer line W558/5/Etoile de Choisy//Thorne/Clarkan/3/CI15342/4/ Purdue 4946A4-18-2	Kansas (Pioneer)	1989
2180	TAM W-101/5/Etoile de Choisy// Thorne/Clarkan/3/CI15342/4/Purdue 4946A4-18-2/6/W558	Kansas (Pioneer)	1988
<b>SOFT RED WINTER</b>			
Caldwell	Benhur sib *2/Siette Cerros	Indiana	1981
Cardinal	Logan 2*/3/Va63-52-12/Logan/Blueboy	Ohio	1986
Clark	Complex pedigree including Beau, Sullivan, and Logan	Indiana	1987
Ernie	Pike/3/(MO9965,Stoddard/Blueboy//Stoddard/D1707)	Missouri	1994
Excel	Purdue 5672A7-1-1-1-2/Arthur//Logan/Timwin-F <sub>2</sub>	Ohio	1990
Freedom	GR876/OH217 (OH217=Logan*3/3/Va 63-52-12/Logan//Blueboy-F <sub>2</sub> )	Ohio	1991
Jackson	Saluda/Coker 762	Virginia	1993

parentheses after each location name are used as column headers in the data tables.

was severe and variable for the remaining varieties. Disease damage was minimal on all varieties.

### EAST

**Brown County (BR):** Adequate moisture at planting facilitated good stand establishment and decent fall growth. Warm periods alternating with very cold periods caused severe stand loss and winter injury in many varieties. Below-freezing soil temperatures quickly following extensive periods of warm weather likely caused most of the damage. Yield and other characteristics are reported for only those entries with greater than 50% survival. Winter injury and stand loss

**Riley County (RL):** Planted in early October, varieties in this test established good stands and received little winter damage. The nursery received timely rains, and although plant height was reduced by a dry spring, yields were not reduced. Because of the dry spring, the usual diseases caused no significant yield reduction except for a late infection of stem rust, which reduced yields of late-maturing, susceptible entries. Virtually no lodging occurred in this trial, and yields were well above average.

**Table 3. Private entrants and entries in 1996 Kansas Wheat Performance Tests.**

Entrant	Brand	Variety/Hybrid	Entrant	Brand	Variety/Hybrid	
AgriPro Seeds, Inc. 806 N. Second St., PO Box 30 Berthoud, CO 80513 (303) 532-3721	<b>AgriPro</b>	AP 7501	HybriTech Seed Intl., Inc. 5912 N. Meridian Wichita, KS 67204 (800) 346-2256	<b>HybriTech</b>	566	
		AP 7510			579	
		AP 7601			XH1706 Exp	
		Big Dawg				
		Coronado				
		Hickok			<b>Northrup King</b>	Coker 9474 (S)
		Laredo				Coker 9543 (S)
		Longhorn				Coker 9803 (S)
		Ogallala				
		Pecos				
		Rowdy			<b>Ohlde</b>	T441 (S)
		Tomahawk				
		Victory				
		WX92-3210 Exp				
WX94-1604 Exp						
Elkhart (S)	<b>Pioneer</b>	2548 (S)				
Platte (W)		2552 (S)				
Solomon (W)						
AGSECO, Inc. P.O. Box 7 Girard, KS 66743 (316) 724-6223	<b>AGSECO</b>	7853	Pioneer Hi-Bred Intl., Inc. 6333 NE Indian Ck Rd. Topeka, KS 66617 (913) 246-0535	<b>Pioneer</b>		
		9001				
		Colby 94				
American White Wheat Producers Association P.O. Box 326 Atchinson, KS 66002 (913) 367-4422	<b>AgriPro</b>	Rio Blanco (W)	Polansky Seed P.O. Box 306 2729 M St. Belleville, KS 66935 (913) 527-2271	<b>Polansky</b>	Dominator	
		Oro Blanco (W)				
	<b>Public, KS</b>	Arlin (W)	Star Seed, Inc. Box 504 Beloit, KS 67420 (800) 782-7611	<b>Star</b>	Champ	
		84HW196(W)			Champ Extra	
		(Experimental)				
Greenbush Seed&Supply 315 S. Adams, P.O. Box 661 Hutchinson, KS 67504 (316) 662-6659	<b>Century II</b>	Discovery	Terra International, Inc. Terra Centre, 600 Fourth St. Sioux City, IA 51102 (712) 233-3609	<b>Terra</b>	HR 153	
		G2500 (S)			SR 204 (S)	
Drussel Seed and Supply 2197 W. Parallel Road Garden City, KS 67846 (316) 275-2359	<b>Drussel</b>	T81			SR 205 (S)	
					Exp 211 (S)	

**Table 4. Wheat Performance Test site descriptions and management in 1996.**

County and cooperater	Site, nearest town, and location code	Dates of planting & harvest	Soil type and previous crop	Fertilizers applied, lbs/a			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)	10/5 7/7	Grundy silty clay loam Oats, 1995	F 75 --- 45 S --- --- ---			90 lb/a 8" row spacing
RILEY Rollin Sears	Ashland Agron Farm Manhattan (RL)	10/6 7/1	Reading silt loam Oats, 1995	F 100 25 --- S --- --- ---			75 lb/a 9" row spacing
FRANKLIN Keith Janssen	EC KS Expt Field Ottawa (FR)	10/11 7/11	Woodson silt loam Soybeans, 1995	F --- --- --- S 70 --- ---			1,100,000 seeds/a 7" row spacing
LABETTE Jim Long	SE Agric Res Ctr Parsons (LB)	10/11 6/25	Parsons silt loam Wheat, 1995	F 18 72 72 S 69 --- ---			90 lb/a 7" row spacing
<b>CENTRAL</b>							
REPUBLIC Barney Gordon	NC KS Expt Field Belleville (RP)	10/5 7/3	Crete silt loam Soybeans, 1995	F 100 30 --- S --- --- ---			60 lb/a 7.5" row spacing
HARVEY Mark Claassen	Harvey Co Expt Fld Hesston (HV)	10/11 7/4	Ladysmith silty clay loam Oats, 1995	F 90 35 --- S --- --- ---			65 lb/a 7" row spacing
RENO William Heer	SC KS Expt Field Hutchinson (RN)	10/13 6/21	Ost silt loam Oats, 1995	F 75 40 --- S 30 --- ---			60 lb/a 8" row spacing
STAFFORD Dry Victor Martin	Sandyland Expt Field St. John (SD)	10/? NA	Pratt loamy fine sand Grain sorghum, 1994		Abandoned - Wind damage in fall and again in spring.		
SUMNER Rollin Sears	Max Kolarik Farm Caldwell (SU)	10/17 6/21	Sandy loam Wheat, 1995	F 60 20 --- S --- --- ---			60 lb/a 9" row spacing
<b>WEST</b>							
ELLIS T. Joe Martin	Agric Res Ctr - Hays Hays (EL)	10/? NA	Harney clay loam Sorghum, 1994		Abandoned - Dry fall and winter, unexplained, non-uniform stunting		
THOMAS Dry Pat Evans	NW Res-Ext Ctr Colby (TD)	9/27 7/16	Keith silt loam Wheat, 1994	F 50 --- --- S --- --- ---			50 lb/a 12" row spacing
GREELEY Dry Alan Schlegel	SW Res-Ext Ctr Tribune Unit (GD)	9/? NA	Richfield silt loam Wheat, 1994		Abandoned - Non-uniform stunting over large part of test		
FINNEY Dry Merle Witt	SW Res-Ext Ctr Garden City Unit (FD)	9/? NA	Keith silt loam Wheat, 1994		Abandoned - Dry fall and winter, winter and spring freeze injury		
<b>IRRIGATED</b>							
STAFFORD Irr 3/ Victor Martin	Sandyland Expt Field St. John (SI)	10/? NA	Pratt loamy fine sand Corn, 1994		Abandoned - Combination of winter injury, wind, and soil-borne mosaic		
THOMAS Irr 3/ Pat Evans	NW Res-Ext Ctr Colby (TI)	9/28 7/4	Keith silt loam Soybeans, 1995	F 90 --- --- S --- --- ---			90 lb/a 12" row spacing
GREELEY Irr 3/ Alan Schlegel	SW Res-Ext Ctr Tribune Unit (GI)	9/18 7/12	Ulysses silt loam Wheat, 1994	F 10 26 --- S 120 --- ---			90 lb/a 10" row spacing
STEVENS Irr 3/ Rollie Sears	Jim Kramer Farm Hugoton (ST)	10/11 NA	Richfield sandy loam Corn, 1995		Abandoned - Early spring wind damage		

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

<sup>2/</sup> Seed weight of 1996 entries varied from 25.0 to 47.3 grams/1000 kernels, averaging 33.2 grams/1000 kernels (see Table 12).

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

**Franklin County (FR):** Dry soil at planting delayed emergence and fall tiller development. Stands were generally good before winter. Winter temperatures varied widely. Several cycles of extreme cold and warm caused major stand loss in many varieties. Favorable moisture and limited disease pressure resulted in good yields for varieties with sufficient stand survival.

**Labette County (LB):** Although the topsoil was very dry at planting, seedlings in most plots emerged well. Stand establishment was likely aided by drilling deep enough to reach moisture and by planting on a summer-fallow field. Seedlings emerged in some small, scattered spots after a late October rainfall. Temperatures varied widely during a very dry winter with no snow cover during the coldest periods. Low temperatures in early February and early March severely injured some varieties. Some rain in April combined with heavy rains in May facilitated high yields by some varieties but also resulted in scab in late May.

### CENTRAL

**Republic County (RP):** The fall months were extremely dry, causing poor growth, although all varieties established good stands. Dry conditions continued through the winter. No snow cover persisted to alleviate the impact of very low temperatures. A succession of spring freezes caused significant loss of stand in many varieties. Cool, wet conditions in May allowed the surviving varieties to develop a higher than expected yield. Diseases were minimal because of the dry conditions in early spring.

**Harvey County (HV):** Despite dry conditions, stand establishment was nearly normal. However, fall growth was limited by the absence of any meaningful precipitation until mid-December. Dry conditions continued through the winter and early spring, with negligible precipitation from January through April. Several cycles of extreme cold and warm temperatures continued into late March, causing major stand loss in many varieties. Favorable moisture and temperatures in May and June enabled the surviving varieties to attain good to excellent yield, despite delayed maturity. Some speckled leaf blotch, nodorum leaf blotch, and leaf rust were observed in June, but they developed too late to significantly reduce yields.

**Reno County (RN):** Soil moisture was very good at planting, resulting in excellent stands. Low rainfall for the remainder of the fall resulted in minimal growth before winter. Dry conditions continued through the cold winter months and on into early spring. Rains finally came in May. Alternating warm and very cold temperatures, including some hard freezes, damaged some varieties. The dry spring combined with the later rains enabled the test to escape the leaf diseases

normally prevalent at this site, while providing enough moisture for excellent yields.

**Stafford County, dryland (SD):** Although all entries established good stands, a dry windy fall limited early growth. Strong winds in early spring completely destroyed the surviving plants. No results are available from this test.

**Sumner County (SU):** All entries emerged well and established good stands. A very dry, open winter along with several cold temperature events (Feb. 2, March 5-6, and March 25-26) resulted in freeze back in some varieties. This site has low soil pH (5.1) and aluminum toxicity problems. Stress caused by aluminum toxicity and drought interacted with the cold temperatures. Blowing soil further reduced vigor and yield potential in late February and early March. It was necessary to spray the nursery three times to control greenbugs. Although control was obtained, the greenbugs caused some damage. These problems in the fall, winter, and spring, plus drought and high temperatures during grain filling, resulted in low yields at this site.

### WEST

**Ellis County (EL):** Very dry conditions persisted from before planting until late spring, when freezes damaged some varieties. Plants were very short and had minimal yield potential. Unexplained stunting and variability in three of the four replications further contributed to the decision to abandon this test.

**Thomas County, dryland (TD):** A wet snow on September 18 enabled good stand establishment, but fall growth was limited. The winter and spring months were very dry, with several periods of below-zero temperatures alternating with warm periods. For example, temperatures reached 80°F on March 24 but dropped to 1°F with blowing snow on the next day. Very little snow cover protected the plots during the coldest periods. Favorable conditions in late spring resulted in good yields for most varieties that withstood the rigorous winter. After maturity, cool, wet weather delayed harvest.

**Greeley County, dryland (GD):** Dry fall and winter weather likely contributed to serious freeze injury to some varieties. Nonuniform variability caused by a large area of stunted plots in the middle of the test caused this test to be abandoned before harvest.

**Finney County, dryland (FD):** Dry fall and winter weather limited early growth and made most varieties susceptible to early spring winds and late spring freezes. Damage was not uniform and prevented the collection of useful information from this test.

## IRRIGATED

**Stafford County, irrigated (SI):** Good fall growth and adequate survival until early spring made this test a candidate for good yields. However, soilborne mosaic, strong winds, and late freezes caused so much nonuniform variation that this test was abandoned.

**Thomas County, irrigated (TI):** A preplant irrigation and a wet snow on September 18 enabled good stand establishment and early growth. The winter and spring months were very dry, with several periods of below-zero temperatures alternating with warm periods. For example, temperatures reached 80°F on March 24 but dropped to 1°F with blowing snow on the next day. Very little snow cover protected the plots during the coldest periods. Favorable conditions in late spring resulted in excellent yields for most varieties that withstood the rigorous winter.

**Greeley County, irrigated (GI):** Dry conditions prevailed during the fall and winter. Adequate fall growth likely minimized damage from cold spring temperatures. Diseases and insects caused no damage to varieties in this test.

**Stevens County, irrigated (ST):** All varieties emerged well and established good stands after the October 11 planting. Although winter temperatures caused minor damage, all entries survived the winter and were growing vigorously in late February. In early March, high winds, gusting above 80mph at times, resulted in severe soil blowing and drifting within the irrigated circle where the test was planted. After 2 consecutive days of severe winds, the entire circle containing this test had to be destroyed because of the damage caused by blowing soil.

### 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 1996 entries can best be determined by examining Table 1 and data in Tables 5 through 12 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 multiyear yields as percent of the test average for the past 4 years. One-year or one-location results can be misleading because of the possibility of unusual weather conditions, such as those experienced this year.

Measurements of characteristics often contributing to yield performance are shown in Table 8 (test weights); Table 9 (maturity differences); Table 10 (heights); Tables 11 (winter injury and disease ratings); and Table 12 (planted seed characteristics, coleoptile lengths, and Hessian fly ratings).

At the bottom of each table is the L.S.D. (least significant difference) for each column of replicated data. The use of the L.S.D. 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 (C.V.) 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, C.V.'s below 10% generally indicate reliable, uniform data, whereas C.V.'s from 11 to 15% usually indicate less desirable but generally useful data for the rough performance comparisons desired from these tests.

### Protein Content

Samples of grain from each variety harvested from Kansas Wheat Performance Tests are submitted annually for protein content, kernel hardness, kernel weight analysis, 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 1995 harvest are presented in Table 13.

**Table 5. Yield (bushels per acre) 1996 Kansas Winter Wheat Performance Tests.**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
AgriPro	AP 7501	--	--	--	--	--	--	--	--	--	--	46	78	58	68
AgriPro	AP 7510	--	81	--	--	--	62	--	60	--	--	49	82	66	74
AgriPro	AP 7601	--	--	--	--	--	--	--	--	--	--	--	80	62	71
AgriPro	Coronado	--	70	41	46	52	41	15	53	7	29	--	--	--	--
AgriPro	Hickok	--	68	--	--	--	34	6	54	--	--	--	69	51	60
AgriPro	Laredo	--	--	--	--	--	--	--	--	--	--	43	77	56	67
AgriPro	Longhorn	--	--	--	--	--	--	--	--	--	--	34	--	--	--
AgriPro	Ogallala	--	--	--	--	--	--	--	--	--	--	42	74	64	69
AgriPro	Pecos	--	--	40	46	--	--	15	50	14	--	--	69	62	66
AgriPro	Rowdy	--	--	--	--	--	--	--	--	--	--	34	74	70	72
AgriPro	Tomahawk	--	81	48	--	--	60	44	60	16	45	--	--	--	--
AgriPro	Victory	--	--	--	--	--	50	--	--	--	--	--	--	--	--
AgriPro	Big Dawg	--	77	35	48	53	41	3	48	--	--	42	--	--	--
AgriPro	WX92-3210 Exp	--	--	--	--	--	--	--	--	--	--	--	--	64	--
AgriPro	WX94-1604 Exp	--	87	--	--	--	--	13	56	--	--	--	--	--	--
AgriPro	(S) Elkhart	--	--	47	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Platte	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Solomon	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AGSECO	7853	--	66	33	48	49	46	27	64	14	38	41	65	--	--
AGSECO	9001	--	--	--	--	--	--	--	--	--	--	47	77	64	71
AGSECO	Colby 94	--	--	--	--	--	55	--	--	--	--	56	--	--	--
AGSECO	Mankato	32	--	--	--	--	60	62	65	--	--	52	--	--	--
AWWPA	(W) Arlin	--	--	--	--	--	31	--	47	5	--	35	78	63	70
AWWPA	(W)KS84HW196Exp	--	--	--	--	--	--	--	--	--	--	33	--	--	--
AWWPA	(W) Oro Blanco	--	74	--	48	--	36	37	55	19	37	45	80	62	71
AWWPA	(W) Rio Blanco	--	--	--	--	--	--	--	--	--	--	44	80	--	--
Century II	(S) G2500	--	84	44	50	59	48	55	63	--	--	--	--	--	--
Century II	Discovery	17	66	33	41	47	45	27	48	15	34	--	--	--	--
Drussel	T81	--	--	--	--	--	--	--	--	--	--	54	85	69	77
Hybritech	566	--	--	--	--	--	--	--	--	--	--	57	--	--	--
Hybritech	579	--	--	--	--	--	--	32	56	11	--	--	--	60	--
Hybritech	XH1706 Exp	--	--	--	--	--	--	--	--	--	--	50	86	57	71
Northrup King	(S) Coker 9474	--	--	45	47	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9543	--	--	22	52	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9803	--	--	1	26	--	--	--	--	--	--	--	--	--	--
Ohlde	(S) T441	--	--	33	47	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2548	--	--	--	62	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2552	--	--	--	54	--	--	--	--	--	--	--	--	--	--
Polansky	Dominator	--	71	40	--	--	60	37	61	--	--	--	85	61	73
Star	Champ	--	81	52	--	--	60	60	65	--	--	--	--	--	--
Star	Champ Extra	31	80	54	--	--	65	63	66	--	--	--	--	--	--
Terra	(S) Exp211	--	--	39	50	--	--	--	--	--	--	--	--	--	--

**Table 5. Yield (bushels per acre) 1996 Kansas Winter Wheat Performance Tests.**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
Terra	(S) SR 204	21	--	43	64	--	--	--	--	--	--	--	--	--	--
Terra	(S) SR 205	--	--	34	48	--	--	--	--	--	--	--	--	--	
Terra	HR 153	--	--	43	51	--	--	30	62	--	--	--	--	--	
---	2137	30	92	46	65	68	57	67	68	24	54	53	82	73	78
---	2163	--	82	43	48	58	61	36	55	16	42	49	85	66	76
---	2180	--	--	--	--	--	--	14	46	8	--	--	--	--	--
---	Akron	--	--	--	--	--	--	--	--	--	--	48	--	--	--
---	Alliance	--	--	--	--	--	66	--	--	--	--	58	--	--	--
---	Arapahoe	31	69	--	--	--	61	--	--	--	--	52	--	--	--
---	Arkan	--	66	26	41	44	34	7	46	7	23	--	--	--	--
---	Custer	--	79	33	43	52	59	17	56	11	36	36	68	48	58
---	Halt	--	--	--	--	--	--	--	--	--	--	48	--	--	--
---	Ike	--	--	--	--	--	59	49	65	11	46	44	75	51	63
---	Jagger	--	77	27	51	52	45	6	54	16	30	45	79	61	70
---	Jules	--	--	--	--	--	--	--	--	--	--	53	--	--	--
---	Karl 92	32	78	48	45	57	57	57	62	24	50	46	72	61	66
---	Larned	--	--	--	--	--	48	31	63	8	37	45	--	--	--
---	Nekota	--	--	--	--	--	60	--	--	--	--	49	--	--	--
---	Newton	--	65	29	57	51	42	8	53	11	28	40	75	45	60
---	Niobrara	26	81	--	--	--	61	--	--	--	--	55	--	--	--
---	Scout 66	22	55	33	51	47	50	27	57	9	36	46	--	--	--
---	TAM 107	--	71	42	45	53	47	30	65	13	39	51	85	62	74
---	TAM 200	--	--	--	--	--	35	2	58	8	26	35	79	64	71
---	TAM 110	--	--	--	--	--	45	20	64	18	37	48	81	59	70
---	Tonkawa	--	69	41	35	48	42	30	56	9	35	37	59	55	57
---	Vista	--	67	--	--	--	63	--	--	--	--	57	--	--	--
---	Yuma	--	--	--	--	--	43	--	--	--	--	48	83	59	71
---	(S) Caldwell	26	89	48	52	63	--	--	--	--	--	--	--	--	--
---	(S) Cardinal	--	77	27	57	54	--	--	--	--	--	--	--	--	--
---	(S) Clark	--	69	6	27	34	--	--	--	--	--	--	--	--	--
---	(S) Ernie	--	77	29	42	49	--	--	--	--	--	--	--	--	--
---	(S) Excel	23	72	43	47	54	--	--	--	--	--	--	--	--	--
---	(S) Freedom	--	71	26	48	48	--	--	--	--	--	--	--	--	--
---	(S) Jackson	--	56	5	31	31	--	--	--	--	--	--	--	--	--
---	(S) MO12258 Exp	--	69	16	42	42	--	--	--	--	--	--	--	--	--
---		--	--	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		27	74	35	48	--	51	31	58	13	--	46	77	60	--
C.V. (%)		14	7	13	8	--	7	10	4	12	--	3	4	8	--
L.S.D.(0.05)**		5	6	11	5	--	4	4	3	3	--	2	3	5	--

\* Brown Co. results are excluded from the 'East' averages because so few varieties in that test survived the winter.

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

**Table 6. Yield (% of test average) 1996 Kansas Winter Wheat Performance Tests.**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
AgriPro	AP 7501	--	--	--	--	--	--	--	--	--	--	99	101	97	99
AgriPro	AP 7510	--	109	--	--	--	122	--	103	--	--	106	107	109	108
AgriPro	AP 7601	--	--	--	--	--	--	--	--	--	--	--	104	104	104
AgriPro	Coronado	--	95	118	96	103	80	47	92	57	69	--	--	--	--
AgriPro	Hickok	--	91	--	--	--	66	21	94	--	--	--	89	85	87
AgriPro	Laredo	--	--	--	--	--	--	--	--	--	--	94	100	93	97
AgriPro	Longhorn	--	--	--	--	--	--	--	--	--	--	73	--	--	--
AgriPro	Ogallala	--	--	--	--	--	--	--	--	--	--	91	95	106	101
AgriPro	Pecos	--	--	113	96	--	--	49	86	108	--	--	89	104	96
AgriPro	Rowdy	--	--	--	--	--	--	--	--	--	--	73	97	116	106
AgriPro	Tomahawk	--	110	136	--	--	118	142	103	121	121	--	--	--	--
AgriPro	Victory	--	--	--	--	--	99	--	--	--	--	--	--	--	--
AgriPro	Big Dawg	--	104	99	101	101	81	11	83	--	--	91	--	--	--
AgriPro	WX92-3210 Exp	--	--	--	--	--	--	--	--	--	--	--	--	107	--
AgriPro	WX94-1604 Exp	--	117	--	--	--	--	42	97	--	--	--	--	--	--
AgriPro	(S) Elkhart	--	--	135	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Platte	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Solomon	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AGSECO	7853	--	89	95	101	95	90	87	111	109	99	89	85	--	--
AGSECO	9001	--	--	--	--	--	--	--	--	--	--	102	100	107	103
AGSECO	Colby 94	--	--	--	--	--	108	--	--	--	--	121	--	--	--
AGSECO	Mankato	120	--	--	--	--	118	202	113	--	--	112	--	--	--
AWWPA	(W) Arlin	--	--	--	--	--	61	--	81	37	--	76	101	104	102
AWWPA	(W)KS84HW196Exp	--	--	--	--	--	--	--	--	--	--	70	--	--	--
AWWPA	(W) Oro Blanco	--	99	--	100	--	70	119	95	146	108	97	103	102	103
AWWPA	(W) Rio Blanco	--	--	--	--	--	--	--	--	--	--	95	104	--	--
Century II	(S) G2500	--	112	126	105	115	95	178	109	--	--	--	--	--	--
Century II	Discovery	64	89	94	86	90	88	88	82	118	94	--	--	--	--
Drussel	T81	--	--	--	--	--	--	--	--	--	--	118	111	114	112
Hybritech	566	--	--	--	--	--	--	--	--	--	--	123	--	--	--
Hybritech	579	--	--	--	--	--	--	103	97	82	--	--	--	99	--
Hybritech	XH1706 Exp	--	--	--	--	--	--	--	--	--	--	109	111	95	103
Northrup King	(S) Coker 9474	--	--	127	99	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9543	--	--	62	109	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9803	--	--	2	55	--	--	--	--	--	--	--	--	--	--
Ohlde	(S) T441	--	--	94	99	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2548	--	--	--	130	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2552	--	--	--	114	--	--	--	--	--	--	--	--	--	--
Polansky	Dominator	--	96	114	--	--	118	121	105	--	--	--	110	101	105
Star	Champ	--	109	149	--	--	119	196	112	--	--	--	--	--	--
Star	Champ Extra	118	108	155	--	--	128	205	115	--	--	--	--	--	--
Terra	(S) Exp211	--	--	112	105	--	--	--	--	--	--	--	--	--	--



**Table 6. Yield (% of test average) 1996 Kansas Winter Wheat Performance Tests.**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
Terra	(S) SR 204	81	--	123	134	--	--	--	--	--	--	--	--	--	--
Terra	(S) SR 205	--	--	97	101	--	--	--	--	--	--	--	--	--	
Terra	HR 153	--	--	121	108	--	--	96	107	--	--	--	--	--	
---	2137	115	124	132	136	131	112	218	117	183	157	115	106	122	114
---	2163	--	110	124	101	112	120	117	95	119	113	105	111	110	111
---	2180	--	--	--	--	--	--	44	79	60	--	--	--	--	--
---	Akron	--	--	--	--	--	--	--	--	--	--	105	--	--	--
---	Alliance	--	--	--	--	--	130	--	--	--	--	125	--	--	--
---	Arapahoe	118	93	--	--	--	119	--	--	--	--	113	--	--	--
---	Arkan	--	88	74	87	83	67	23	79	56	56	--	--	--	--
---	Custer	--	106	95	91	97	116	54	96	86	88	77	88	80	84
---	Halt	--	--	--	--	--	--	--	--	--	--	105	--	--	--
---	Ike	--	--	--	--	--	117	159	112	88	119	96	98	84	91
---	Jagger	--	104	76	107	96	89	21	93	124	82	97	102	101	101
---	Jules	--	--	--	--	--	--	--	--	--	--	116	--	--	--
---	Karl 92	120	105	137	95	112	112	186	108	181	147	100	94	100	97
---	Larned	--	--	--	--	--	95	99	108	61	91	98	--	--	--
---	Nekota	--	--	--	--	--	118	--	--	--	--	107	--	--	--
---	Newton	--	88	83	121	97	82	25	91	88	71	86	97	75	86
---	Niobrara	98	110	--	--	--	120	--	--	--	--	120	--	--	--
---	Scout 66	82	74	95	108	92	98	87	98	70	88	99	--	--	--
---	TAM 107	--	96	118	95	103	92	99	113	98	100	110	111	103	107
---	TAM 200	--	--	--	--	--	68	8	99	60	59	76	102	106	104
---	TAM 110	--	--	--	--	--	89	64	110	136	100	103	105	97	101
---	Tonkawa	--	93	117	73	95	83	97	97	72	88	79	77	92	84
---	Vista	--	91	--	--	--	124	--	--	--	--	124	--	--	--
---	Yuma	--	--	--	--	--	85	--	--	--	--	104	108	98	103
---	(S) Caldwell	98	119	138	110	122	--	--	--	--	--	--	--	--	--
---	(S) Cardinal	--	103	76	121	100	--	--	--	--	--	--	--	--	--
---	(S) Clark	--	93	18	56	56	--	--	--	--	--	--	--	--	--
---	(S) Ernie	--	104	82	88	91	--	--	--	--	--	--	--	--	--
---	(S) Excel	85	97	123	100	107	--	--	--	--	--	--	--	--	--
---	(S) Freedom	--	95	73	100	89	--	--	--	--	--	--	--	--	--
---	(S) Jackson	--	75	14	65	51	--	--	--	--	--	--	--	--	--
---	(S) MO12258 Exp	--	93	47	88	76	--	--	--	--	--	--	--	--	--
---		--	--	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		27	74	35	48	--	51	31	58	13	--	46	77	60	--
C.V. (%)		14	7	13	8	--	7	10	4	12	--	3	4	8	--
L.S.D.(0.05)**		20	8	31	10	--	8	12	5	21	--	4	5	9	--

\* Brown Co. results are excluded from the 'East' averages because so few varieties in that test survived the winter.

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

**Table 7a. Period-of-years yield (% of test average) Kansas Winter Wheat Tests - E**

Brand	Name	Brown				Riley				Franklin				Labette			
		96	95	94	92	96	95	94	92	96	95	94	93	96	95	94	93
AgriPro	AP 7510	--	--	--	--	109	132	--	--	--	--	--	--	--	--	--	--
AgriPro	Coronado	--	71	--	--	95	78	--	--	118	106	--	--	96	98	--	--
AgriPro	Hickok	--	82	96	--	91	75	--	--	--	--	--	--	--	--	--	--
AgriPro	Pecos	--	--	--	92	--	--	--	85	113	103	124	119	96	84	83	103
AgriPro	Tomahawk	--	--	111	124	110	--	--	161	136	--	--	81	--	--	--	70
AgriPro	Big Dawg	--	--	--	--	104	--	--	--	99	--	--	--	101	--	--	--
AgriPro	WX94-1604 Exp	--	--	--	--	117	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(S) Elkhart	--	--	--	--	--	--	--	--	135	--	--	--	--	--	--	--
AGSECO	7853	--	104	117	141	89	101	129	131	95	105	130	90	101	111	92	83
AGSECO	Mankato	120	113	124	--	--	--	100	--	--	--	--	--	--	--	--	--
AWWPA	(W) Oro Blanco	--	86	--	--	99	110	--	--	--	90	--	--	100	95	--	--
Century II	(S) G2500	--	112	76	--	112	174	109	--	126	114	109	126	105	109	103	115
Century II	Discovery	64	106	77	75	89	117	98	114	94	84	100	80	86	119	88	86
Northrup King	(S) Coker 9474	--	--	--	--	--	--	--	--	127	--	--	--	99	121	120	--
Northrup King	(S) Coker 9543	--	--	--	--	--	--	--	--	62	--	--	--	109	108	--	--
Northrup King	(S) Coker 9803	--	--	--	--	--	--	--	--	2	--	--	--	55	--	--	--
Ohlde	(S) T441	--	159	127	87	--	163	103	129	94	136	113	116	99	135	124	109
Pioneer	(S) 2548	--	--	71	--	--	--	--	--	--	--	95	147	130	--	146	131
Pioneer	(S) 2552	--	--	--	--	--	--	--	--	--	--	--	--	114	--	--	--
Polansky	Dominator	--	--	--	--	96	--	--	--	114	--	--	--	--	--	--	--
Star	Champ	--	100	130	--	109	88	105	--	149	--	--	--	--	--	--	--
Star	Champ Extra	118	--	--	--	108	--	--	--	155	--	--	--	--	--	--	--
Terra	(S) Exp211	--	--	--	--	--	--	--	--	112	--	--	--	105	--	--	--
Terra	(S) SR 204	81	132	--	141	--	--	--	--	123	112	--	109	134	109	114	121
Terra	(S) SR 205	--	161	--	--	--	--	--	--	97	152	--	--	101	114	106	--
Terra	HR 153	--	97	--	141	--	--	--	--	121	97	--	93	108	110	--	82
---	2137	115	77	137	--	124	127	131	--	132	97	--	--	136	107	132	--
---	2163	--	104	97	121	110	114	113	127	124	109	95	114	101	115	91	98
---	Arapahoe	118	114	81	154	93	64	88	90	--	--	--	--	--	--	--	--
---	Arkan	--	65	104	81	88	43	93	80	74	77	82	100	87	72	74	100
---	Custer	--	100	--	--	106	98	--	--	95	122	--	--	91	77	--	--
---	Jagger	--	124	95	--	104	155	122	--	76	102	--	--	107	133	114	--
---	Karl 92	120	103	114	--	105	99	96	--	137	89	124	121	95	99	95	104
---	Newton	--	49	102	118	88	36	87	39	83	71	98	79	121	59	99	71
---	Niobrara	98	90	--	--	110	60	--	--	--	--	--	--	--	--	--	--
---	Scout 66	82	65	84	126	74	22	49	39	95	36	91	65	108	49	93	77
---	TAM 107	--	72	76	104	96	63	106	47	118	82	90	120	95	73	95	110
---	Tonkawa	--	91	--	--	93	68	--	--	117	106	--	--	73	84	--	--
---	Vista	--	94	96	--	91	51	105	--	--	--	--	--	--	--	--	--
---	(S) Caldwell	98	129	91	92	119	147	108	143	138	127	41	75	110	110	87	95
---	(S) Cardinal	--	122	78	85	103	177	112	104	76	129	107	80	121	131	105	109
---	(S) Clark	--	100	112	79	93	186	68	153	18	93	82	73	56	108	78	114
---	(S) Ernie	--	136	--	--	104	147	--	--	82	108	--	--	88	101	142	--
---	(S) Excel	85	78	103	--	97	83	94	--	123	98	81	--	100	116	73	--
---	(S) Freedom	--	92	60	88	95	75	93	155	73	99	102	112	100	93	84	105
---	(S) Jackson	--	138	--	--	75	135	--	--	14	121	--	--	65	113	--	--
---	(S) MO12258 Exp	--	134	--	--	93	177	--	--	47	114	--	--	88	107	--	--
---		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		27	40	44	37	74	17	39	25	35	40	42	40	48	35	39	46
C.V. (%)		14	9	11	--	7	25	12	--	13	10	9	--	8	9	9	--
L.S.D.(0.05)**		20	10	13	23	8	30	14	23	31	12	15	17	10	10	10	8

**Table 7b. Period-of-years yield (% of test average) Kansas Winter Wheat Tests - Centr**

Brand	Name	Republic				Harvey				Reno				Sumner			
		96	95	94	93	96	95	94	93	96	95	94	93	96	95	94	93
AgriPro	AP 7510	122	128	--	--	--	--	--	103	--	--	--	--	--	--	--	--
AgriPro	Coronado	80	87	--	--	47	124	--	--	92	105	--	--	57	86	--	--
AgriPro	Hickok	66	97	110	--	21	102	109	--	94	117	97	--	--	--	87	--
AgriPro	Pecos	--	--	--	--	49	95	100	116	86	128	97	103	108	101	116	119
AgriPro	Tomahawk	118	82	114	82	142	56	107	89	103	68	101	93	121	--	107	79
AgriPro	Victory	99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	Big Dawg	81	--	--	--	11	--	--	--	83	--	--	--	--	--	--	--
AgriPro	WX94-1604 Exp	--	--	--	--	42	--	--	--	97	--	--	--	--	--	--	--
AGSECO	7853	90	101	119	100	87	103	113	101	111	89	99	114	109	129	132	121
AGSECO	Colby 94	108	109	--	--	--	--	--	--	--	92	--	--	--	--	--	--
AGSECO	Mankato	118	106	110	--	202	--	--	--	113	85	106	--	--	--	--	--
AWWPA	(W) Arlin	61	96	109	66	--	138	101	101	81	108	96	107	37	104	87	126
AWWPA	(W) Oro Blanco	70	98	--	--	119	91	--	--	95	77	--	--	146	89	--	--
Century II	(S) G2500	95	103	101	--	178	162	91	--	109	139	107	--	--	--	--	--
Century II	Discovery	88	90	83	101	88	114	93	104	82	104	96	109	118	156	--	113
Hybritech	579	--	--	--	--	103	--	110	--	97	--	108	--	82	--	94	--
Polansky	Dominator	118	--	--	--	121	--	--	--	105	--	--	--	--	--	--	--
Star	Champ	119	117	107	--	196	--	--	--	112	--	--	--	--	--	--	--
Star	Champ Extra	128	--	--	--	205	--	--	--	115	--	--	--	--	--	--	--
Terra	HR 153	--	--	--	--	96	95	115	104	107	94	103	108	--	--	--	--
---	2137	112	96	103	--	218	107	102	--	117	145	115	--	183	87	131	--
---	2163	120	131	92	106	117	116	93	128	95	98	97	120	119	185	109	103
---	2180	--	--	83	122	44	131	99	118	79	116	89	103	60	130	90	126
---	Alliance	130	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
---	Arapahoe	119	111	107	130	--	--	--	--	--	--	--	--	--	--	128	115
---	Arkan	67	74	80	94	23	66	80	103	79	68	91	92	56	42	81	80
---	Custer	116	97	--	--	54	125	--	--	96	128	--	--	86	143	--	--
---	Ike	117	109	116	143	159	85	118	88	112	66	105	104	88	61	95	106
---	Jagqer	89	135	103	--	21	169	109	--	93	175	109	--	124	219	126	--
---	Karl 92	112	106	117	140	186	125	100	113	108	108	105	115	181	83	102	104
---	Larned	95	83	105	90	99	41	90	81	108	37	90	74	61	47	72	74
---	Nekota	118	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
---	Newton	82	73	92	89	25	48	100	89	91	34	99	75	88	19	92	69
---	Niobrara	120	96	--	--	--	--	--	--	--	--	--	--	--	--	--	--
---	Scout 66	98	68	86	90	87	36	84	74	98	28	89	72	70	54	78	73
---	TAM 107	92	86	109	104	99	71	114	81	113	94	103	86	98	40	55	51
---	TAM 200	68	93	103	116	8	91	87	118	99	86	99	97	60	57	99	113
---	TAM 110	89	--	--	--	64	--	--	--	110	--	--	--	136	--	--	--
---	Tonkawa	83	76	--	--	97	82	--	--	97	115	--	--	72	140	--	--
---	Triumph 64	--	--	--	--	--	57	91	91	--	75	90	105	--	85	82	96
---	Vista	124	94	99	97	--	--	--	--	--	--	--	--	--	--	105	95
---	Yuma	85	105	105	106	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		51	55	74	54	31	27	50	47	58	22	56	37	13	14	28	32
C.V. (%)		7	10	9	--	10	11	5	--	4	14	5	--	12	27	13	--
L.S.D.(0.05)**		8	12	11	22	12	13	6	7	5	17	6	9	21	32	18	16

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

**Table 7c. Period-of-years yield (% of test average) Kansas Winter Wheat Tests - We**

Brand	Name	Thomas - Dry.				Thomas - Irr.				Greeley - Irr.			
		96	95	94	93	96	95	94	93	96	95	94	93
AgriPro	AP 7501	99	119	--	--	101	119	--	--	97	133	--	--
AgriPro	AP 7510	106	132	--	--	107	131	--	--	109	144	--	--
AgriPro	AP 7601	--	109	--	--	104	114	--	--	104	118	--	--
AgriPro	Hickok	--	--	94	--	89	95	98	--	85	94	102	--
AgriPro	Laredo	94	76	99	123	100	81	106	120	93	64	96	122
AgriPro	Longhorn	73	93	92	99	--	--	103	90	--	--	91	94
AgriPro	Ogallala	91	110	96	67	95	120	101	59	106	93	104	97
AgriPro	Pecos	--	--	--	--	89	94	103	107	104	103	112	108
AgriPro	Rowdy	73	--	--	--	97	110	--	--	116	99	--	--
AgriPro	Big Dawg	91	--	--	--	--	--	--	--	--	--	--	--
AgriPro	WX92-3210 Exp	--	121	--	--	--	119	--	--	107	123	--	--
AGSECO	7853	89	60	97	88	85	65	--	85	--	79	105	95
AGSECO	9001	102	113	106	103	100	115	89	--	107	145	--	--
AGSECO	Colby 94	121	106	--	--	--	--	--	--	--	--	--	--
AGSECO	Mankato	112	110	--	--	--	115	103	--	--	106	112	--
AWWPA	(W) Arlin	76	89	79	121	101	105	93	110	104	71	100	104
AWWPA	(W)KS84HW196Exp	70	54	96	136	--	48	93	143	--	--	--	--
AWWPA	(W) Oro Blanco	97	117	--	--	103	126	--	--	102	118	--	--
AWWPA	(W) Rio Blanco	95	87	91	134	104	90	101	112	--	--	104	90
Drussel	T81	118	--	--	--	111	--	--	--	114	--	--	--
Hybritech	566	123	--	107	--	--	--	--	--	--	--	--	--
Hybritech	579	--	--	--	--	--	--	--	--	99	--	--	--
Hybritech	XH1706 Exp	109	107	--	--	111	--	--	--	95	--	--	--
Polansky	Dominator	--	--	--	--	110	--	--	--	101	--	--	--
---	2137	115	112	114	--	106	131	110	--	122	130	125	--
---	2163	105	110	92	68	111	131	106	51	110	99	101	108
---	Akron	105	98	--	--	--	--	--	--	--	--	--	--
---	Alliance	125	117	--	--	--	--	--	--	--	--	--	--
---	Arapahoe	113	117	104	107	--	--	94	--	--	--	--	--
---	Custer	77	102	--	--	88	96	--	--	80	114	--	--
---	Halt	105	76	--	--	--	--	--	--	--	--	--	--
---	Ike	96	99	107	144	98	91	110	157	84	111	103	115
---	Jagger	97	113	108	--	102	107	104	--	101	107	103	--
---	Jules	116	113	98	118	--	--	100	146	--	--	54	91
---	Karl 92	100	93	104	106	94	98	98	91	100	86	109	111
---	Larned	98	84	100	111	--	--	--	--	--	--	--	--
---	Nekota	107	--	--	--	--	--	--	--	--	--	--	--
---	Newton	86	90	104	101	97	87	103	120	75	64	88	94
---	Niobrara	120	109	--	--	--	--	--	--	--	--	--	--
---	Scout 66	99	79	91	107	--	--	--	--	--	--	--	--
---	TAM 107	110	82	108	117	111	79	96	129	103	77	106	91
---	TAM 200	76	113	97	93	102	109	100	112	106	93	108	103
---	TAM 110	103	--	--	--	105	--	--	--	97	--	--	--
---	Tonkawa	79	99	--	--	77	83	--	--	92	122	--	--
---	Vista	124	126	112	131	--	--	--	--	--	--	--	--
---	Yuma	104	95	--	63	108	102	--	68	98	87	105	90
---		--	--	--	--	--	--	--	--	--	--	--	--
---		--	--	--	--	--	--	--	--	--	--	--	--
Test Average		46	51	50	31	77	50	48	27	60	29	70	74
C.V. (%)		3	9	5	--	4	8	7	--	8	10	8	--
L.S.D.(0.05)**		4	11	7	14	5	9	9	14	9	12	10	13

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

**Table 8. Test weight (lbs per bushel) 1996 Kansas Winter Wheat Performance Test**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
AgriPro	AP 7501	--	--	--	--	--	--	--	--	--	--	57	62	57	59
AgriPro	AP 7510	--	61	--	--	--	61	--	59	--	--	57	63	59	61
AgriPro	AP 7601	--	--	--	--	--	--	--	--	--	--	--	62	58	60
AgriPro	Coronado	--	60	53	57	57	60	54	60	59	58	--	--	--	--
AgriPro	Hickok	--	62	--	--	--	60	54	63	--	--	--	63	60	62
AgriPro	Laredo	--	--	--	--	--	--	--	--	--	--	57	63	59	61
AgriPro	Longhorn	--	--	--	--	--	--	--	--	--	--	56	--	--	--
AgriPro	Ogallala	--	--	--	--	--	--	--	--	--	--	58	62	60	61
AgriPro	Pecos	--	--	57	59	--	--	56	61	60	--	--	62	60	61
AgriPro	Rowdy	--	--	--	--	--	--	--	--	--	--	57	63	61	62
AgriPro	Tomahawk	--	60	54	--	--	59	56	60	51	56	--	--	--	--
AgriPro	Victory	--	--	--	--	--	59	--	--	--	--	--	--	--	--
AgriPro	Big Dawg	--	61	53	57	57	57	53	58	--	--	57	--	--	--
AgriPro	WX92-3210 Exp	--	--	--	--	--	--	--	--	--	--	--	--	59	--
AgriPro	WX94-1604 Exp	--	60	--	--	--	--	53	59	--	--	--	--	--	--
AgriPro	(S) Elkhart	--	--	56	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Platte	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Solomon	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AGSECO	7853	--	62	54	59	58	61	56	62	59	60	57	62	--	--
AGSECO	9001	--	--	--	--	--	--	--	--	--	--	56	61	58	59
AGSECO	Colby 94	--	--	--	--	--	61	--	--	--	--	58	--	--	--
AGSECO	Mankato	57	--	--	--	--	61	58	61	--	--	56	--	--	--
AWWPA	(W) Arlin	--	--	--	--	--	59	--	60	59	--	57	63	60	62
AWWPA	(W)KS84HW196Exp	--	--	--	--	--	--	--	--	--	--	56	--	--	--
AWWPA	(W) Oro Blanco	--	61	--	58	--	60	56	62	58	59	57	62	58	60
AWWPA	(W) Rio Blanco	--	--	--	--	--	--	--	--	--	--	57	62	--	--
Century II	(S) G2500	--	61	56	58	58	60	58	61	--	--	--	--	--	--
Century II	Discovery	52	60	53	57	57	60	56	61	58	59	--	--	--	--
Drussel	T81	--	--	--	--	--	--	--	--	--	--	58	63	60	61
Hybritech	566	--	--	--	--	--	--	--	--	--	--	57	--	--	--
Hybritech	579	--	--	--	--	--	--	55	59	59	--	--	--	59	--
Hybritech	XH1706 Exp	--	--	--	--	--	--	--	--	--	--	57	62	57	60
Northrup King	(S) Coker 9474	--	--	58	57	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9543	--	--	46	57	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9803	--	--	53	56	--	--	--	--	--	--	--	--	--	--
Ohlde	(S) T441	--	--	53	56	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2548	--	--	--	56	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2552	--	--	--	57	--	--	--	--	--	--	--	--	--	--
Polansky	Dominator	--	62	58	--	--	61	58	62	--	--	--	63	60	62
Star	Champ	--	60	56	--	--	60	57	61	--	--	--	--	--	--
Star	Champ Extra	55	60	54	--	--	61	58	60	--	--	--	--	--	--
Terra	(S) Exp211	--	--	53	58	--	--	--	--	--	--	--	--	--	--

**Table 8. Test weight (lbs per bushel) 1996 Kansas Winter Wheat Performance Test**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
Terra	(S) SR 204	50	--	55	59	--	--	--	--	--	--	--	--	--	--
Terra	(S) SR 205	--	--	48	55	--	--	--	--	--	--	--	--	--	
Terra	HR 153	--	--	55	59	--	--	57	62	--	--	--	--	--	
---	2137	57	61	58	59	59	61	58	62	58	60	57	62	60	61
---	2163	--	59	55	57	57	59	56	58	57	57	56	62	58	60
---	2180	--	--	--	--	--	--	53	58	57	--	--	--	--	--
---	Akron	--	--	--	--	--	--	--	--	--	--	56	--	--	--
---	Alliance	--	--	--	--	--	59	--	--	--	--	56	--	--	--
---	Arapahoe	55	61	--	--	--	59	--	--	--	--	56	--	--	--
---	Arkan	--	60	50	57	56	58	53	58	58	57	--	--	--	--
---	Custer	--	61	53	57	57	60	55	60	59	59	55	62	59	60
---	Halt	--	--	--	--	--	--	--	--	--	--	56	--	--	--
---	Ike	--	--	--	--	--	62	58	61	57	59	57	62	60	61
---	Jagger	--	60	48	58	56	60	52	58	56	56	57	62	59	61
---	Jules	--	--	--	--	--	--	--	--	--	--	56	--	--	--
---	Karl 92	56	62	56	58	59	61	58	62	58	60	56	62	59	60
---	Larned	--	--	--	--	--	60	56	58	58	58	57	--	--	--
---	Nekota	--	--	--	--	--	60	--	--	--	--	57	--	--	--
---	Newton	--	61	51	59	57	58	54	58	58	57	56	62	58	60
---	Niobrara	52	60	--	--	--	59	--	--	--	--	56	--	--	--
---	Scout 66	49	61	55	59	58	60	56	59	58	58	57	--	--	--
---	TAM 107	--	60	55	58	58	60	56	61	57	59	57	62	59	60
---	TAM 200	--	--	--	--	--	59	56	60	60	59	56	63	61	62
---	TAM 110	--	--	--	--	--	59	55	61	56	58	57	62	60	61
---	Tonkawa	--	60	55	57	57	61	58	62	59	60	57	62	61	61
---	Vista	--	60	--	--	--	60	--	--	--	--	57	--	--	--
---	Yuma	--	--	--	--	--	60	--	--	--	--	56	62	58	60
---	(S) Caldwell	52	60	53	57	57	--	--	--	--	--	--	--	--	--
---	(S) Cardinal	--	59	46	55	54	--	--	--	--	--	--	--	--	--
---	(S) Clark	--	59	47	53	53	--	--	--	--	--	--	--	--	--
---	(S) Ernie	--	60	50	55	55	--	--	--	--	--	--	--	--	--
---	(S) Excel	47	57	52	49	53	--	--	--	--	--	--	--	--	--
---	(S) Freedom	--	56	48	52	52	--	--	--	--	--	--	--	--	--
---	(S) Jackson	--	56	45	52	51	--	--	--	--	--	--	--	--	--
---	(S) MO12258 Exp	--	56	44	56	52	--	--	--	--	--	--	--	--	--
---		--	--	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		53	60	53	57	--	60	56	60	58	--	57	62	59	--
C.V. (%)		--	1	4	2	--	1	1	2	--	--	1	1	1	--
L.S.D.(0.05)**		--	1	3	1	--	1	1	1	--	--	1	1	1	--

\* Brown Co. results are excluded from the 'East' averages because so few varieties in that test survived the winter.

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

**Table 9. Maturity (days +/- Scout 66 or Newton) 1996 Kansas Winter Wheat Perf. T**

Brand	Name	East*					Central				West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	Ava	TD	TI	GI	Ava
AgriPro	AP 7501	--	--	--	--	--	--	--	--	--	-0.3	0.0	0.3	0.1
AgriPro	AP 7510	--	-1.5	--	--	--	-1.0	--	-1.8	--	0.3	-0.5	-0.3	-0.4
AgriPro	AP 7601	--	--	--	--	--	--	--	--	--	--	0.0	-0.5	-0.3
AgriPro	Coronado	--	-3.8	-6.0	-2.0	-3.9	-5.5	-7.3	-1.5	-4.8	--	--	--	--
AgriPro	Hickok	--	-2.8	--	--	--	-2.0	-5.3	-3.5	-3.6	--	-1.0	-2.5	-1.8
AgriPro	Laredo	--	--	--	--	--	--	--	--	--	-2.3	-4.0	-2.5	-3.3
AgriPro	Longhorn	--	--	--	--	--	--	--	--	--	6.3	--	--	--
AgriPro	Ogallala	--	--	--	--	--	--	--	--	--	0.8	-0.5	-1.8	-1.1
AgriPro	Pecos	--	--	-5.3	-4.0	--	--	-5.8	-1.8	--	--	-1.5	-3.0	-2.3
AgriPro	Rowdy	--	--	--	--	--	--	--	--	--	2.8	0.0	-2.0	-1.0
AgriPro	Tomahawk	--	-1.3	-1.3	--	--	-2.3	-3.3	0.0	-1.8	--	--	--	--
AgriPro	Victory	--	--	--	--	--	-2.5	--	--	--	--	--	--	--
AgriPro	Big Dawg	--	0.8	-0.5	-1.0	-0.3	-0.3	-0.3	1.0	0.2	7.5	--	--	--
AgriPro	WX92-3210 Exp	--	--	--	--	--	--	--	--	--	--	--	-1.3	--
AgriPro	WX94-1604 Exp	--	-3.8	--	--	--	--	-6.3	-2.8	--	--	--	--	--
AgriPro	(S) Elkhart	--	--	-2.3	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Platte	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Solomon	--	--	--	--	--	--	--	--	--	--	--	--	--
AGSECO	7853	--	-2.3	-0.5	-1.0	-1.3	-2.3	-3.3	-2.3	-2.6	-1.5	-2.8	--	--
AGSECO	9001	--	--	--	--	--	--	--	--	--	-1.0	-0.3	-1.5	-0.9
AGSECO	Colby 94	--	--	--	--	--	-1.3	--	--	--	0.0	--	--	--
AGSECO	Mankato	-6.3	--	--	--	--	-2.8	-7.5	-3.3	-4.5	-2.5	--	--	--
AWWPA	(W) Arlin	--	--	--	--	--	-1.3	--	-2.3	--	-0.3	-1.0	-1.5	-1.3
AWWPA	(W)KS84HW196Exp	--	--	--	--	--	--	--	--	--	0.3	--	--	--
AWWPA	(W) Oro Blanco	--	-1.8	--	-2.5	--	-2.0	-8.3	-2.0	-4.1	0.0	0.8	0.5	0.6
AWWPA	(W) Rio Blanco	--	--	--	--	--	--	--	--	--	5.3	1.3	--	--
Century II	(S) G2500	--	-1.0	-4.3	-0.3	-1.8	-3.3	-10.	-1.0	-4.8	--	--	--	--
Century II	Discovery	-2.0	-2.3	-4.5	-3.0	-3.3	-4.0	-7.3	-4.3	-5.2	--	--	--	--
Drussel	T81	--	--	--	--	--	--	--	--	--	-3.5	-2.8	-2.5	-2.6
Hybritech	566	--	--	--	--	--	--	--	--	--	2.8	--	--	--
Hybritech	579	--	--	--	--	--	--	-11.	-5.8	--	--	--	-3.0	--
Hybritech	XH1706 Exp	--	--	--	--	--	--	--	--	--	-4.3	-2.0	-1.8	-1.9
Northrup King	(S) Coker 9474	--	--	-5.3	-4.8	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9543	--	--	0.0	-2.8	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9803	--	--	0.5	-1.0	--	--	--	--	--	--	--	--	--
Ohlde	(S) T441	--	--	-0.5	-1.3	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2548	--	--	--	-1.3	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2552	--	--	--	-1.8	--	--	--	--	--	--	--	--	--
Polansky	Dominator	--	-1.5	-4.5	--	--	-3.5	-6.0	-1.5	-3.7	--	-0.8	-0.3	-0.5
Star	Champ	--	-1.5	-3.3	--	--	-2.8	-7.5	-2.5	-4.3	--	--	--	--
Star	Champ Extra	-4.7	-2.0	-5.5	--	--	-4.0	-8.3	-2.8	-5.0	--	--	--	--
Terra	(S) Exp211	--	--	-2.3	-4.0	--	--	--	--	--	--	--	--	--

**Table 9. Maturity (days +/- Scout 66 or Newton) 1996 Kansas Winter Wheat Perf. T**

Brand	Name	East*					Central				West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	Ava	TD	TI	GI	Ava
Terra	(S) SR 204	-2.7	--	-3.5	-1.5	--	--	--	--	--	--	--	--	--
Terra	(S) SR 205	--	--	-2.8	-1.3	--	--	--	--	--	--	--	--	--
Terra	HR 153	--	--	-2.3	-1.8	--	--	-3.5	-2.5	--	--	--	--	--
---	2137	-7.0	-2.5	-6.0	-2.5	-3.7	-3.0	-11.	-3.3	-5.8	-2.0	0.3	0.0	0.1
---	2163	--	-2.5	-5.8	-2.3	-3.5	-4.0	-8.8	-2.0	-4.9	-1.0	-1.0	-0.5	-0.8
---	2180	--	--	--	--	--	--	-9.0	-5.3	--	--	--	--	--
---	Akron	--	--	--	--	--	--	--	--	--	-1.8	--	--	--
---	Alliance	--	--	--	--	--	-1.8	--	--	--	-1.3	--	--	--
---	Arapahoe	-1.0	0.5	--	--	--	-1.8	--	--	--	0.3	--	--	--
---	Arkan	--	-1.8	-0.8	-3.5	-2.0	1.5	-2.8	-1.0	-0.8	--	--	--	--
---	Custer	--	-4.0	-5.0	-2.5	-3.8	-3.3	-8.0	-4.0	-5.1	-1.3	-1.3	-1.5	-1.4
---	Halt	--	--	--	--	--	--	--	--	--	-3.5	--	--	--
---	Ike	--	--	--	--	--	-2.8	-3.0	-2.5	-2.8	-0.5	-2.5	-3.0	-2.8
---	Jagger	--	-4.0	-1.5	-2.8	-2.8	-2.8	-4.8	-3.5	-3.7	-0.5	-2.3	-2.3	-2.3
---	Jules	--	--	--	--	--	--	--	--	--	5.5	--	--	--
---	Karl 92	-9.0	-5.0	-8.0	-5.0	-6.0	-5.0	-13.	-6.3	-8.2	-5.5	-1.3	-2.8	-2.0
---	Larned	--	--	--	--	--	-0.5	-0.3	-0.5	-0.4	1.0	--	--	--
---	Nekota	--	--	--	--	--	-2.0	--	--	--	-1.0	--	--	--
---	Newton	--	-0.3	0.8	0.0	0.2	2.0	2.3	0.8	1.7	1.5	0.0	0.0	0.0
---	Niobrara	0.0	-0.8	--	--	--	-0.8	--	--	--	-0.8	--	--	--
---	Scout 66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
---	TAM 107	--	-4.8	-6.3	-4.0	-5.0	-5.3	-7.3	-5.3	-5.9	-5.5	-3.8	-3.5	-3.6
---	TAM 200	--	--	--	--	--	-0.8	0.3	0.3	-0.1	6.3	0.8	-0.8	0.0
---	TAM 110	--	--	--	--	--	-2.0	-6.5	-5.3	-4.6	-2.8	-2.8	-3.3	-3.0
---	Tonkawa	--	-2.5	-5.0	-2.5	-3.3	-2.0	-7.8	-3.8	-4.5	-1.5	-1.0	-1.3	-1.1
---	Vista	--	-0.8	--	--	--	0.0	--	--	--	1.0	--	--	--
---	Yuma	--	--	--	--	--	-1.8	--	--	--	-1.5	-0.3	-1.0	-0.6
---	(S) Caldwell	-5.0	-3.3	-4.3	-4.5	-4.0	--	--	--	--	--	--	--	--
---	(S) Cardinal	--	-0.3	1.3	-0.5	0.2	--	--	--	--	--	--	--	--
---	(S) Clark	--	-3.0	-1.5	-2.0	-2.2	--	--	--	--	--	--	--	--
---	(S) Ernie	--	-2.8	-2.0	-3.0	-2.6	--	--	--	--	--	--	--	--
---	(S) Excel	-2.3	-1.0	-1.5	-2.3	-1.6	--	--	--	--	--	--	--	--
---	(S) Freedom	--	-0.3	1.5	0.3	0.5	--	--	--	--	--	--	--	--
---	(S) Jackson	--	0.0	0.8	0.8	0.5	--	--	--	--	--	--	--	--
---	(S) MO12258 Exp	--	-1.3	-0.5	-3.8	-1.8	--	--	--	--	--	--	--	--
---		--	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		-3.6	-2.0	-2.6	-2.1	--	-2.2	-6.0	-2.7	--	-0.4	-1.1	-1.6	--
C.V. (%)		5.4	4.1	4.5	0.7	--	3.0	4.2	6.7	--	3.2	3.3	2.7	--
L.S.D.(0.05)**		2.0	0.8	1.1	1.0	--	0.7	1.0	1.0	--	0.9	0.8	0.7	--

\* Brown Co. results are excluded from the 'East' averages because so few varieties in that test survived the winter.

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



**Table 10. Plant height (inches) 1996 Kansas Winter Wheat Performance Tests.**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
AgriPro	AP 7501	--	--	--	--	--	--	--	--	--	--	28	31	33	32
AgriPro	AP 7510	--	34	--	--	--	25	--	29	--	--	28	31	34	32
AgriPro	AP 7601	--	--	--	--	--	--	--	--	--	--	--	31	33	32
AgriPro	Coronado	--	33	22	21	25	24	20	27	26	24	--	--	--	--
AgriPro	Hickok	--	33	--	--	--	23	18	27	--	--	--	29	31	30
AgriPro	Laredo	--	--	--	--	--	--	--	--	--	--	26	31	30	30
AgriPro	Longhorn	--	--	--	--	--	--	--	--	--	--	30	--	--	--
AgriPro	Ogallala	--	--	--	--	--	--	--	--	--	--	25	29	30	30
AgriPro	Pecos	--	--	22	19	--	--	20	25	35	--	--	28	29	28
AgriPro	Rowdy	--	--	--	--	--	--	--	--	--	--	24	28	28	28
AgriPro	Tomahawk	--	37	29	--	--	25	26	31	37	30	--	--	--	--
AgriPro	Victory	--	--	--	--	--	26	--	--	--	--	--	--	--	--
AgriPro	Big Dawg	--	37	25	21	28	28	18	28	--	--	30	--	--	--
AgriPro	WX92-3210 Exp	--	--	--	--	--	--	--	--	--	--	--	--	33	--
AgriPro	WX94-1604 Exp	--	37	--	--	--	--	21	29	--	--	--	--	--	--
AgriPro	(S) Elkhart	--	--	25	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Platte	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Solomon	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AGSECO	7853	--	35	29	26	30	25	26	32	36	30	27	30	--	--
AGSECO	9001	--	--	--	--	--	--	--	--	--	--	28	33	34	33
AGSECO	Colby 94	--	--	--	--	--	25	--	--	--	--	32	--	--	--
AGSECO	Mankato	31	--	--	--	--	25	26	33	--	--	28	--	--	--
AWWPA	(W) Arlin	--	--	--	--	--	25	--	28	21	--	26	31	31	31
AWWPA	(W)KS84HW196Exp	--	--	--	--	--	--	--	--	--	--	27	--	--	--
AWWPA	(W) Oro Blanco	--	33	--	20	--	24	21	27	39	28	26	30	32	31
AWWPA	(W) Rio Blanco	--	--	--	--	--	--	--	--	--	--	26	28	--	--
Century II	(S) G2500	--	35	23	24	27	24	22	30	--	--	--	--	--	--
Century II	Discovery	25	37	24	23	28	24	21	27	39	28	--	--	--	--
Drussel	T81	--	--	--	--	--	--	--	--	--	--	27	31	35	33
Hybritech	566	--	--	--	--	--	--	--	--	--	--	34	--	--	--
Hybritech	579	--	--	--	--	--	--	20	26	34	--	--	--	30	--
Hybritech	XH1706 Exp	--	--	--	--	--	--	--	--	--	--	28	33	33	33
Northrup King	(S) Coker 9474	--	--	23	20	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9543	--	--	25	21	--	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9803	--	--	18	17	--	--	--	--	--	--	--	--	--	--
Ohlde	(S) T441	--	--	25	23	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2548	--	--	--	22	--	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2552	--	--	--	24	--	--	--	--	--	--	--	--	--	--
Polansky	Dominator	--	34	24	--	--	24	23	28	--	--	--	31	33	32
Star	Champ	--	39	27	--	--	25	25	34	--	--	--	--	--	--
Star	Champ Extra	31	40	28	--	--	26	25	34	--	--	--	--	--	--
Terra	(S) Exp211	--	--	26	22	--	--	--	--	--	--	--	--	--	--

**Table 10. Plant height (inches) 1996 Kansas Winter Wheat Performance Tests.**

Brand	Name	East*					Central					West	Irrigated		
		BR	RL	FR	LB	Ava	RP	HV	RN	SU	Ava	TD	TI	GI	Ava
Terra	(S) SR 204	31	--	26	25	--	--	--	--	--	--	--	--	--	--
Terra	(S) SR 205	--	--	27	24	--	--	--	--	--	--	--	--	--	
Terra	HR 153	--	--	28	28	--	--	26	32	--	--	--	--	--	
---	2137	30	37	24	25	29	24	23	32	39	30	27	33	35	34
---	2163	--	36	22	24	27	25	21	28	38	28	26	31	33	32
---	2180	--	--	--	--	--	--	19	24	31	--	--	--	--	
---	Akron	--	--	--	--	--	--	--	--	--	--	29	--	--	--
---	Alliance	--	--	--	--	--	25	--	--	--	--	31	--	--	--
---	Arapahoe	36	40	--	--	--	29	--	--	--	--	33	--	--	--
---	Arkan	--	36	25	21	27	28	20	27	30	26	--	--	--	--
---	Custer	--	36	22	22	27	25	20	29	35	27	25	31	32	31
---	Halt	--	--	--	--	--	--	--	--	--	--	24	--	--	--
---	Ike	--	--	--	--	--	26	30	34	39	32	30	32	34	33
---	Jagger	--	36	24	23	27	25	20	31	36	28	27	32	31	32
---	Jules	--	--	--	--	--	--	--	--	--	--	32	--	--	--
---	Karl 92	28	36	24	23	28	24	23	30	39	29	25	29	33	31
---	Larned	--	--	--	--	--	33	33	36	36	34	33	--	--	--
---	Nekota	--	--	--	--	--	26	--	--	--	--	29	--	--	--
---	Newton	--	38	31	26	32	28	21	31	26	27	31	34	33	34
---	Niobrara	36	41	--	--	--	27	--	--	--	--	32	--	--	--
---	Scout 66	38	43	39	33	38	36	33	37	37	36	34	--	--	--
---	TAM 107	--	37	24	23	28	24	23	31	37	29	26	30	33	32
---	TAM 200	--	--	--	--	--	25	18	27	29	25	26	30	31	30
---	TAM 110	--	--	--	--	--	24	22	31	37	29	26	30	32	31
---	Tonkawa	--	37	22	23	27	24	21	29	36	27	26	33	33	33
---	Vista	--	36	--	--	--	26	--	--	--	--	29	--	--	--
---	Yuma	--	--	--	--	--	24	--	--	--	--	28	33	36	34
---	(S) Caldwell	29	36	27	25	29	--	--	--	--	--	--	--	--	--
---	(S) Cardinal	--	41	29	29	33	--	--	--	--	--	--	--	--	--
---	(S) Clark	--	35	22	21	26	--	--	--	--	--	--	--	--	--
---	(S) Ernie	--	34	22	19	25	--	--	--	--	--	--	--	--	--
---	(S) Excel	27	35	25	25	28	--	--	--	--	--	--	--	--	--
---	(S) Freedom	--	36	26	22	28	--	--	--	--	--	--	--	--	--
---	(S) Jackson	--	33	22	19	25	--	--	--	--	--	--	--	--	--
---	(S) MO12258 Exp	--	33	22	19	25	--	--	--	--	--	--	--	--	--
---		--	--	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		31	37	25	23	--	25	23	30	35	--	28	31	32	--
C.V. (%)		4	2	5	8	--	2	4	3	10	--	3	4	4	--
L.S.D.(0.05)**		2	1	1	2	--	1	1	1	4	--	1	2	2	--

\* Brown Co. results are excluded from the 'East' averages because so few varieties in that test survived the winter.

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

**Table 11. Winter injury and disease ratings, 1996 Kansas Winter Wheat Tests.**

Brand	Name	Winter survival (% stand)							Vigor*		Freeze		Stem * rust S.L.B.	
		East				Central	West	Vigor*		TD 3/5	TI	TI 3/5	TI 6/18	
		BR 4/2	FR 4/22	LB 2/14	LB	RP	HV	TD	HV					HV
AgriPro	AP 7501	--	--	--	--	--	--	100	--	--	2.5	2.0	--	6.0
AgriPro	AP 7510	--	--	--	--	71	--	100	--	--	3.0	2.0	3.5	5.5
AgriPro	AP 7601	--	--	--	--	--	--	--	--	--	--	2.0	--	5.3
AgriPro	Coronado	13	64	96	73	69	15	--	4.3	4.5	--	--	2.0	--
AgriPro	Hickok	2	--	--	--	64	7	--	5.0	5.0	--	2.8	2.5	6.8
AgriPro	Laredo	--	--	--	--	--	--	100	--	--	3.0	2.0	--	6.5
AgriPro	Longhorn	--	--	--	--	--	--	85	--	--	4.8	--	--	--
AgriPro	Ogallala	--	--	--	--	--	--	81	--	--	5.0	3.0	--	3.0
AgriPro	Pecos	--	64	98	70	--	13	--	4.5	4.8	--	3.5	--	3.8
AgriPro	Rowdy	--	--	--	--	--	--	29	--	--	6.8	4.3	--	2.8
AgriPro	Tomahawk	32	86	--	--	63	69	--	3.3	3.0	--	--	5.0	--
AgriPro	Victory	--	--	--	--	69	--	--	--	--	--	--	--	--
AgriPro	Big Dawg	4	43	96	63	60	2	65	5.0	5.0	5.5	--	5.8	--
AgriPro	WX92-3210 Exp	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	WX94-1604 Exp	--	--	--	--	--	8	--	5.0	5.0	--	--	3.8	--
AgriPro	(S) Elkhart	4	58	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Platte	--	--	--	--	--	--	--	--	--	--	--	--	--
AgriPro	(W) Solomon	--	--	--	--	--	--	--	--	--	--	--	--	--
AGSECO	7853	19	50	99	73	64	33	81	4.3	4.3	5.0	3.0	4.8	6.3
AGSECO	9001	--	--	--	--	--	--	98	--	--	3.8	2.5	--	5.3
AGSECO	Colby 94	--	--	--	--	70	--	100	--	--	2.3	--	--	--
AGSECO	Mankato	78	--	--	--	66	94	100	3.0	1.8	2.5	--	--	--
AWWPA	(W) Arlin	--	--	--	--	54	--	50	--	--	6.0	5.0	--	3.8
AWWPA	(W)KS84HW196Exp	--	--	--	--	--	--	60	--	--	5.0	--	--	--
AWWPA	(W) Oro Blanco	5	--	98	75	45	55	95	4.3	3.3	4.0	2.5	6.0	3.5
AWWPA	(W) Rio Blanco	--	--	--	--	--	--	50	--	--	6.3	4.3	--	2.3
Century II	(S) G2500	43	75	100	88	60	93	--	2.3	1.5	--	--	4.3	--
Century II	Discovery	58	69	100	80	60	36	--	4.0	4.0	--	--	3.8	--
Drussel	T81	--	--	--	--	--	--	100	--	--	3.0	2.3	--	5.3
Hybritech	566	--	--	--	--	--	--	100	--	--	3.3	--	--	--
Hybritech	579	--	--	--	--	--	36	--	4.0	3.8	--	--	--	--
Hybritech	XH1706 Exp	--	--	--	--	--	--	100	--	--	2.0	2.0	--	6.8
Northrup King	(S) Coker 9474	--	89	98	83	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9543	--	35	99	75	--	--	--	--	--	--	--	--	--
Northrup King	(S) Coker 9803	--	6	88	58	--	--	--	--	--	--	--	--	--
Ohlde	(S) T441	--	58	99	80	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2548	--	--	99	73	--	--	--	--	--	--	--	--	--
Pioneer	(S) 2552	--	--	98	75	--	--	--	--	--	--	--	--	--
Polansky	Dominator	43	74	--	--	68	50	--	4.3	3.8	--	2.8	1.3	3.5
Star	Champ	43	84	--	--	71	91	--	3.0	2.0	--	--	6.0	--
Star	Champ Extra	70	90	--	--	69	93	--	2.5	1.8	--	--	5.5	--
Terra	(S) Exp211	13	59	98	70	--	--	--	--	--	--	--	--	--

**Table 11. Winter injury and disease ratings, 1996 Kansas Winter Wheat Tests.**

Brand	Name	Winter survival (% stand)							Vigor*		Freeze		Stem * rust S.L.B.	
		East				Central	West	HV	HV	TD	TI	TI	TI	
		BR 4/2	FR 4/22	LB 2/14	LB	RP	TD							
Terra	(S) SR 204	67	84	99	83	--	--	--	--	--	--	--	--	
Terra	(S) SR 205	37	68	96	70	--	--	--	--	--	--	--	--	
Terra	HR 153	4	69	100	75	--	33	--	4.3	4.0	--	--	--	
---	2137	85	71	99	90	75	96	100	2.0	1.0	2.0	2.0	2.3	1.5
---	2163	43	70	100	80	70	53	90	3.8	3.5	5.0	2.8	2.0	2.8
---	2180	--	--	--	--	--	18	--	4.8	4.5	--	--	--	--
---	Akron	--	--	--	--	--	--	100	--	--	2.3	--	--	--
---	Alliance	--	--	--	--	78	--	100	--	--	2.5	--	--	--
---	Arapahoe	78	--	--	--	80	--	100	--	--	2.8	--	5.3	--
---	Arkan	2	33	94	58	56	6	--	5.0	5.0	--	--	4.8	--
---	Custer	4	48	98	78	66	20	78	4.5	4.8	4.8	3.0	6.3	6.5
---	Halt	--	--	--	--	--	--	100	--	--	4.1	--	--	--
---	Ike	--	--	--	--	69	55	100	4.0	3.0	3.0	2.0	--	6.8
---	Jagger	4	35	95	60	46	5	66	5.0	5.0	5.3	3.3	2.5	1.5
---	Jules	--	--	--	--	--	--	100	--	--	2.8	--	--	--
---	Karl 92	83	84	100	83	73	94	100	2.8	1.5	2.8	2.0	2.8	3.8
---	Larned	--	--	--	--	61	33	90	4.0	4.0	4.3	--	--	--
---	Nekota	--	--	--	--	80	--	100	--	--	2.0	--	--	--
---	Newton	9	40	96	70	54	3	76	5.0	5.0	5.0	2.0	3.5	6.8
---	Niobrara	63	--	--	--	80	--	100	--	--	2.5	--	4.3	--
---	Scout 66	47	75	98	78	80	32	90	4.0	4.0	3.8	--	4.8	--
---	TAM 107	17	70	99	78	56	29	100	4.0	4.3	2.5	2.0	7.0	5.3
---	TAM 200	--	--	--	--	54	2	45	5.0	5.0	5.8	4.3	--	2.5
---	TAM 110	--	--	--	--	65	12	100	4.8	5.0	2.8	2.0	--	4.3
---	Tonkawa	7	59	96	75	51	33	90	4.0	3.8	4.0	2.5	6.5	6.0
---	Vista	30	--	--	--	79	--	100	--	--	3.3	--	8.3	--
---	Yuma	--	--	--	--	65	--	100	--	--	3.8	2.3	--	5.5
---	(S) Caldwell	50	69	99	83	--	--	--	--	--	--	--	8.0	--
---	(S) Cardinal	12	45	100	80	--	--	--	--	--	--	--	8.0	--
---	(S) Clark	8	15	--	--	--	--	--	--	--	--	--	2.5	--
---	(S) Ernie	17	48	98	75	--	--	--	--	--	--	--	3.0	--
---	(S) Excel	60	68	100	83	--	--	--	--	--	--	--	7.5	--
---	(S) Freedom	9	40	88	48	--	--	--	--	--	--	--	8.8	--
---	(S) Jackson	0	11	93	50	--	--	--	--	--	--	--	9.0	--
---	(S) MO12258 Exp	5	34	95	65	--	--	--	--	--	--	--	9.0	--
---		--	--	--	--	--	--	--	--	--	--	--	--	--
Test Average		31	57	95	71	66	41	88	4.0	3.7	3.8	2.7	4.8	4.6
C.V. (%)		52	18	4	11	7	20	5	17.4	16.4	10.9	12.9	15.9	26.2
L.S.D.(0.05)**		22	12	5	1	5	10	5	0.4	0.4	0.5	0.4	0.9	1.4

\* Vigor and freeze damage visually rated on scale of 1-5: 1 = best vigor, least freeze damage; 5 = least vigor, severe freeze damage.

Differences between two stand ratings or two vigor ratings for one location taken at different times are due to differential damage caused by extremely cold temperatures experienced in late February or late March and demonstrate the relative importance of each event at that site.

Stem rust and speckled leaf blotch (S.L.B.) rated on a scale of 1-9: 1= best (least disease); 9 = poorest (most disease).

**Table 12. Planted seed characteristics, coleoptile lengths, and Hessian fly ratings  
1996 Kansas Winter Wheat Performance Tests.**

Brand	Cultivar	1000 Seed weight (grams)	Test wt. (lb/bu)	Seeds per lb.	Col. length (in.)	Hess. fly*	Brand	Cultivar	1000 Seed weight	Test wt. (lb/bu)	Seeds per lb. (1000)	Col. length (in.)	Hess. fly*
AgriPro	AP 7501	35.5	60.6	12.8	3.1	2	Terra	(S) SR 204	31.5	58.7	14.4	3.0	8
AgriPro	AP 7510	27.8	58.9	16.3	3.3	2	Terra	(S) SR 205	34.8	57.0	13.1	3.3	4
AgriPro	AP 7601	31.8	57.7	14.3	3.1	2	Terra	HR 153	36.3	60.7	12.5	2.9	9
AgriPro	Coronado	40.3	59.1	11.3	2.9	2	---	2137	31.8	59.3	14.3	3.2	2
AgriPro	Hickok	29.8	61.9	15.2	3.3	9	---	2163	35.5	57.8	12.8	3.3	2
AgriPro	Laredo	29.0	53.6	15.6	3.3	8	---	2180	31.8	55.4	14.3	3.1	3
AgriPro	Longhorn	38.8	60.6	11.7	4.7	9	---	Akron	36.3	61.0	12.5	3.3	8
AgriPro	Ogallala	29.8	59.4	15.2	3.5	9	---	Alliance	30.3	54.6	15.0	2.8	2
AgriPro	Pecos	32.3	57.6	14.1	3.0	3	---	Arapahoe	28.8	54.9	15.8	3.3	1
AgriPro	Rowdy	28.8	58.9	15.8	3.1	8	---	Arkan	32.0	56.4	14.2	4.6	2
AgriPro	Tomahawk	37.0	56.3	12.3	3.5	9	---	Custer	34.3	56.8	13.2	3.1	9
AgriPro	Victory	33.8	56.8	13.4	3.4	9	---	Halt	39.0	59.6	11.6	3.2	9
AgriPro	Big Dawg	45.8	60.8	9.9	5.0	9	---	Ike	30.0	57.7	15.1	3.2	1
AgriPro	WX92-3210 Exp	29.5	56.9	15.4	3.5	9	---	Jagger	31.0	58.7	14.6	3.7	9
AgriPro	WX94-1604 Exp	32.5	54.6	14.0	3.7	9	---	Jules	31.0	55.1	14.6	2.9	9
AgriPro	(S) Elkhart	47.3	61.4	9.6	3.7	2	---	Karl 92	33.8	58.8	13.4	3.4	9
AgriPro	(W) Platte	36.3	62.5	12.5	3.2	9	---	Larned	32.3	58.4	14.1	4.3	3
AgriPro	(W) Solomon	40.0	61.0	11.3	3.6	9	---	Nekota	32.3	58.0	14.1	3.9	9
AGSECO	7853	28.3	56.7	16.1	3.0	9	---	Newton	32.3	56.9	14.1	3.5	9
AGSECO	9001	31.5	59.8	14.4	3.0	9	---	Niobrara	29.5	55.2	15.4	3.3	9
AGSECO	Colby 94	28.8	58.1	15.8	2.9	7	---	Scout 66	31.8	58.1	14.3	4.3	9
AGSECO	Mankato	31.3	59.8	14.5	2.8	7	---	TAM 107	39.8	58.6	11.4	3.9	9
AWWPA	(W) Arlin	30.3	56.8	15.0	3.2	9	---	TAM 200	30.0	61.0	15.1	3.1	9
AWWPA	(W)KS84HW196	30.5	59.5	14.9	3.9	9	---	TAM 110	36.8	58.5	12.3	4.4	9
AWWPA	(W) Oro Blanco	32.8	61.1	13.9	2.9	7	---	Tonkawa	36.3	58.2	12.5	3.5	9
AWWPA	(W) Rio Blanco	29.0	60.2	15.6	3.3	8	---	Vista	32.8	57.0	13.9	2.9	1
Century II	(S) G2500	28.8	55.1	15.8	3.5	9	---	Yuma	39.8	59.6	11.4	2.8	9
Century II	Discovery	27.8	58.4	16.3	3.3	8	---	(S) Caldwell	31.0	57.4	14.6	3.1	1
Drussel	T81	26.3	57.1	17.3	3.4	9	---	(S) Cardinal	30.8	54.3	14.8	3.7	2
Hybritech	566	30.0	55.5	15.1	3.6	8	---	(S) Clark	41.3	58.6	11.0	3.6	1
Hybritech	579	31.8	56.4	14.3	3.2	8	---	(S) Ernie	38.0	55.3	11.9	3.9	9
Hybritech	XH1706 Exp	31.5	57.1	14.4	2.8	9	---	(S) Excel	32.0	54.7	14.2	2.8	2
Northrup	(S) Coker 9474	37.3	58.8	12.2	5.1	3	---	(S) Freedom	32.5	54.8	14.0	3.4	3
Northrup	(S) Coker 9543	33.3	58.2	13.6	3.3	1	---	(S) Jackson	34.5	53.9	13.1	3.0	9
Northrup	(S) Coker 9803	36.3	56.8	12.5	3.7	9	---	(S) MO12258	25.0	48.9	18.1	3.9	5
Ohlde	(S) T441	28.5	54.8	15.9	3.0	2							
Pioneer	(S) 2548	31.0	60.0	14.6	3.5	9		Maximum	47.3	62.5	18.1	5.1	9
Pioneer	(S) 2552	44.5	57.9	10.2	3.5	9		Minimum	25.0	48.9	9.6	2.8	1
Polansky	Dominator	35.5	62.4	12.8	3.2	3		Average	33.2	57.7	13.9	3.4	6
Star	Champ	36.3	55.2	12.5	3.0	9							
Star	Champ Extra	33.3	51.1	13.6	3.0	1							
Terra	(S) Exp211	31.0	58.3	14.6	3.5	1							

\* Coleoptile lengths provided by T. Joe Martin, Kansas State University Agricultural Research Center - Hays.  
Hessian fly ratings by J. Hatchett, USDA; 1 = highly resistant, 9 = highly susceptible. Tested with the Great Plains Hessian fly.

**Table 13a. Protein (% at 14% moisture) 1995 Kansas Winter Wheat Tests - East & Central**

Brand	Name	East				Central			
		BR	FR	LB	Avg.	RP	HV	SD	Ava.
AgriPro	AP 7501	--	--	--	--	12.8	--	--	--
AgriPro	AP 7601	--	--	--	--	12.5	--	--	--
AgriPro	AP 7510	--	--	--	--	12.0	--	--	--
AgriPro	WX92-3210 Exp	--	--	--	--	13.1	--	--	--
AgriPro	Coronado	13.1	12.6	13.7	13.1	13.0	13.6	15.5	14.0
AgriPro	Rowdy	12.5	13.3	13.1	13.0	12.1	13.3	16.5	14.0
AgriPro	Hickok	12.6	--	--	--	12.3	13.8	--	--
AgriPro	Pecos	--	12.4	13.0	--	--	13.6	--	--
AgriPro	Ponderosa	--	--	--	--	13.3	14.8	17.3	15.1
AgriPro	(S) Boone	11.0	11.4	12.7	11.7	--	--	--	--
AgriPro	Tomahawk	--	--	--	--	12.1	14.1	15.0	13.7
AGSECO	Mankato	12.0	--	--	--	12.0	--	--	--
AGSECO	7853	13.1	12.9	13.1	13.0	13.9	14.6	16.1	14.9
AGSECO	Colby 94	--	--	--	--	12.0	--	--	--
AWWPA	(W) Rio Blanco	--	--	13.1	--	--	--	--	--
AWWPA	(W) Oro Blanco	12.9	13.3	13.3	13.1	12.1	13.7	15.0	13.6
Century II	Discovery	13.8	13.7	13.6	13.7	13.8	14.3	15.8	14.6
Century II	Voyager	--	--	--	--	--	--	16.0	--
Century II	(S) G2500	12.7	13.0	13.0	12.9	13.5	13.6	--	--
Northrup King	(S) Coker 9474	--	--	14.2	--	--	--	--	--
Northrup King	(S) Coker 9543	--	--	13.4	--	--	--	--	--
Ohlde	(S) T441	10.8	11.8	12.0	11.5	--	--	--	--
Star	Champ	12.0	--	--	--	11.7	--	14.5	--
Star	Salute	13.5	--	--	--	12.9	--	14.7	--
Terra	HR 153	12.7	13.0	12.7	12.8	--	14.2	--	--
Terra	(S) SR 204	11.6	12.5	13.2	12.4	--	--	--	--
Terra	(S) SR 205	10.5	11.5	11.8	11.2	--	--	--	--
---	2163	11.9	11.6	12.5	12.0	12.4	13.0	14.4	13.3
---	2172	--	--	--	--	--	13.8	16.4	--
---	2180	--	--	--	--	--	13.7	16.1	--
---	Alliance	--	--	--	--	11.5	--	--	--
---	Arapahoe	12.2	--	--	--	12.3	--	14.7	--
---	Arkan	13.9	14.4	14.6	14.3	13.9	15.3	18.6	15.9
---	Cimarron	11.7	12.5	13.0	12.4	12.2	12.9	14.7	13.2
---	Custer	12.1	12.7	14.9	13.2	12.5	13.4	15.8	13.9
---	Ike	11.5	12.4	12.5	12.1	12.5	14.0	14.9	13.8
---	Jagger	12.1	13.3	13.9	13.1	12.5	13.2	16.7	14.1
---	Karl	12.5	13.2	13.9	13.2	12.7	13.5	15.7	14.0
---	Karl 92	12.3	12.6	13.4	12.8	12.6	13.2	15.7	13.8
---	KS91H153-2	11.8	12.0	12.1	11.9	12.4	13.8	14.4	13.5
---	2137	12.0	11.9	12.3	12.1	12.1	13.2	14.1	13.1
---	Larned	12.8	13.4	13.6	13.3	12.3	14.5	16.4	14.4

**Table 13a. Protein (% at 14% moisture) 1995 Kansas Winter Wheat Tests - East & Central**

Brand	Name	East				Central			
		BR	FR	LB	Avg.	RP	HV	SD	Avg.
---	Niobrara	12.1	--	--	--	12.9	--	14.8	--
---	Newton	12.8	13.3	12.9	13.0	12.3	14.3	16.1	14.2
---	Scout 66	13.3	13.2	13.5	13.4	13.4	15.2	16.2	14.9
---	TAM 107	12.9	13.1	14.1	13.4	13.7	13.8	16.3	14.6
---	TAM 200	--	--	--	--	12.6	13.0	14.3	13.3
---	Tonkawa	13.8	14.1	14.7	14.2	14.1	14.9	16.3	15.1
---	Triumph 64	--	--	--	--	--	14.5	16.2	--
---	Vista	12.6	--	--	--	13.2	--	15.3	--
---	Yuma	--	--	--	--	11.1	--	--	--
---	(S) Caldwell	10.9	11.6	11.7	11.4	--	--	--	--
---	(S) Cardinal	11.5	12.4	11.8	11.9	--	--	--	--
---	(S) Clark	11.7	12.6	13.2	12.5	--	--	--	--
---	(S) Ernie	10.6	11.4	13.1	11.7	--	--	--	--
---	(S) Excel	11.5	12.3	12.0	11.9	--	--	--	--
---	(S) Freedom	12.6	12.6	11.9	12.3	--	--	--	--
---	(S) Jackson	11.1	11.9	13.3	12.1	--	--	--	--
---	(S) MO12258 Exp	11.5	12.4	14.0	12.6	--	--	--	--
AWWPA	(W) Arlin	12.0	12.4	12.7	12.4	12.1	13.3	15.7	13.7
Test Average		12.2	12.7	13.1	12.7	12.6	13.8	15.7	14.0

**Table 13b. Protein (% at 14% moisture) 1995 Kansas Winter Wheat Tests - West & Irrigated**

Brand	Name	West					Irrigated				
		EL	TD	GD	FD	Ava.	SI	TI	GI	FI	Ava.
AgriPro	AP 7301	--	--	--	--	--	17.7	13.8	14.4	17.4	15.8
AgriPro	AP 7501	12.3	10.8	--	--	--	15.7	11.1	12.6	16.0	13.9
AgriPro	AP 7601	--	9.9	--	--	--	16.0	11.7	13.6	15.6	14.2
AgriPro	AP 7510	12.1	10.3	--	--	--	14.6	11.3	12.5	15.0	13.4
AgriPro	WX92-3210 Exp	--	10.1	--	--	--	15.5	10.7	13.1	15.6	13.7
AgriPro	Coronado	14.1	11.4	11.2	16.7	13.4	16.2	12.2	13.8	16.0	14.5
AgriPro	Rowdy	12.1	--	--	--	--	16.6	11.6	13.3	15.6	14.3
AgriPro	Laredo	12.6	11.1	12.9	16.1	13.2	--	11.7	13.8	15.9	--
AgriPro	Longhorn	13.4	10.4	12.1	15.6	12.9	--	--	--	--	--
AgriPro	Hickok	12.3	--	--	--	--	15.7	11.5	13.0	15.0	13.8
AgriPro	Ogallala	12.9	11.8	11.1	15.7	12.9	--	12.3	13.9	15.8	--
AgriPro	Pecos	--	--	--	--	--	15.9	11.5	12.7	16.5	14.1
AgriPro	Ponderosa	13.6	--	--	--	--	17.3	--	--	--	--
AgriPro	Tomahawk	12.7	--	--	--	--	15.8	--	--	--	--
AGSECO	Mankato	12.1	10.2	11.7	--	--	--	11.1	13.1	--	--
AGSECO	7805	--	--	12.5	14.4	--	--	--	--	--	--
AGSECO	7853	13.4	13.1	12.3	16.8	13.9	16.5	13.7	14.6	16.2	15.2
AGSECO	9001	13.2	10.9	10.7	16.6	12.8	--	11.3	13.6	15.7	--
AGSECO	Colby 94	11.3	9.4	9.3	15.2	11.3	--	--	--	--	--
AWWPA	(W)KS84HW196Exp	--	12.1	--	--	--	--	14.3	--	--	--
AWWPA	(W) Rio Blanco	12.6	10.9	--	16.0	--	16.3	12.7	--	15.7	--
AWWPA	(W) Oro Blanco	12.3	10.1	11.9	15.5	12.4	16.2	17.2	12.6	15.4	15.3
Century II	Discovery	14.0	--	--	--	--	17.7	--	--	--	--
Century II	Voyager	13.9	11.7	11.2	16.9	13.4	17.8	12.5	13.8	16.8	15.2
Quantum	XH1520 Exp	12.4	9.6	10.9	--	--	--	--	--	--	--
Hybritech	XH1706 Exp	12.7	10.4	9.8	--	--	--	--	--	--	--
Star	Champ	12.3	--	--	--	--	--	--	--	--	--
Star	Salute	12.1	--	--	--	--	--	--	--	--	--
---	2163	11.8	10.2	12.6	15.1	12.4	15.3	11.2	12.6	15.7	13.7
---	2180	--	--	--	--	--	16.8	--	--	16.8	--
---	Akron	12.4	10.3	10.1	15.0	12.0	--	--	--	--	--
---	Alliance	11.3	8.7	--	15.6	--	--	--	--	--	--
---	Arapahoe	12.1	9.4	10.6	--	--	--	--	--	--	--
---	Cimarron	11.8	9.5	12.8	14.7	12.2	15.1	11.6	12.9	14.8	13.6
---	Custer	13.4	11.4	11.7	15.5	13.0	16.6	12.4	12.6	16.1	14.4
---	Halt	13.6	10.4	10.8	17.7	13.1	--	--	--	--	--
---	Ike	12.9	12.1	12.1	16.4	13.4	15.7	13.3	14.0	15.9	14.7
---	Jagger	13.5	11.2	13.3	18.6	14.1	17.2	12.5	14.0	17.9	15.4
---	Jules	11.7	9.4	9.1	13.9	11.0	--	--	--	--	--
---	Karl	13.6	11.8	12.1	16.5	13.5	16.1	14.2	13.6	16.2	15.0
---	Karl 92	12.7	11.1	12.8	16.4	13.3	16.1	13.1	13.7	15.4	14.6
---	KS91H153-2	11.9	10.9	12.1	15.4	12.6	15.5	11.8	12.7	14.0	13.5



**Table 13b. Protein (% at 14% moisture) 1995 Kansas Winter Wheat Tests - West & Irrigated**

Brand	Name	West					Irrigated				
		EL	TD	GD	FD	Ava.	SI	TI	GI	FI	Ava.
---	2137	12.3	9.5	10.3	15.2	11.9	14.8	11.1	11.9	15.3	13.3
---	Larned	12.9	11.5	12.1	15.7	13.1	--	--	--	--	--
---	Niobrara	11.4	9.7	10.2	14.4	11.4	--	--	--	--	--
---	Newton	12.2	10.3	11.7	16.0	12.5	16.2	10.5	13.1	15.6	13.8
---	Scout 66	12.7	11.4	12.4	15.4	13.0	--	--	--	--	--
---	TAM 107	13.8	11.4	11.7	15.8	13.2	16.9	12.7	13.3	15.7	14.7
---	TAM 200	11.8	10.0	12.4	14.9	12.3	15.8	11.1	12.7	14.9	13.6
---	Tonkawa	14.8	12.4	11.9	15.9	13.7	16.7	12.7	13.6	16.0	14.7
---	Triumph 64	14.3	--	--	--	--	--	--	--	--	--
---	Vista	12.1	10.3	11.1	15.4	12.2	--	--	--	--	--
---	Yuma	11.3	9.7	9.7	14.3	11.2	17.1	10.0	12.3	14.8	13.5
AWWPA	(W) Arlin	12.8	10.5	11.2	16.9	12.8	16.7	11.2	13.4	16.0	14.3
Test Average		12.7	10.7	11.5	15.9	12.7	16.3	12.2	13.3	15.9	14.4

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