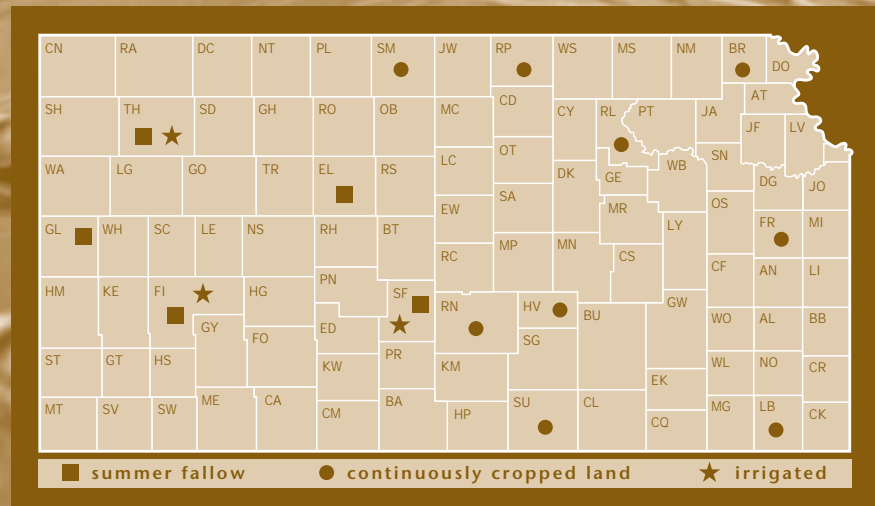


2000

KANSAS PERFORMANCE TESTS WITH WINTER WHEAT VARIETIES

REPORT OF PROGRESS 857

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service



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2000 KANSAS WHEAT PERFORMANCE TEST

INTRODUCTION

This publication presents results from the 1999-2000 Kansas Winter Wheat Performance Tests and other information related to winter wheat variety performance. The information included in the report is intended to assist wheat producers in the variety selection process. The first section summarizes statewide growing conditions and harvest information for the entire 2000 Kansas wheat crop. Statewide acreage distribution of leading Kansas varieties and a summary of important agronomic and quality traits for these varieties follow. The third section presents procedures and results for the 2000 Kansas Winter Wheat Performance Tests.

2000 CROP CONDITIONS

Weather Conditions

Weather conditions varied considerably across the state during the 1999-2000 wheat season. Most of the difference occurred in the amount of precipitation that was received.

Figure 1 shows the 1999-2000 amounts versus the 1961-90 averages.

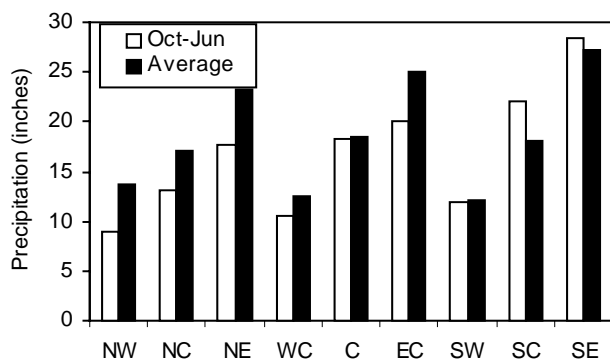


Figure 1. Critical precipitation (October - June) by crop reporting district.

The drought conditions in the northern third of the state began to improve only in June. Figure 2 shows the June rainfall by division and its departure from normal.

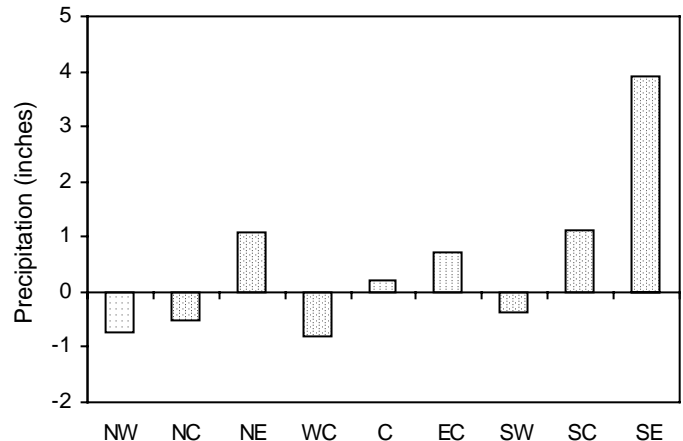


Figure 2. June rainfall departures from normal.

Several unusual conditions occurred in the 1999-2000 season. Temperatures were unseasonably warm during the winter. This resulted in wheat ripening as much as 3 weeks ahead of normal. A brief period of hot temperatures and high winds occurred during the grain fill. This was particularly common in the southwestern division. In contrast, heavy rains in the northeastern division delayed harvest. The warmer winter temperature coupled with very wet conditions contributed to some unusual disease problems, particularly in the south central division.

(From Mary Knapp, KSU State Climatologist).

Crop Development

Figure 3 compares several key stages of crop development for the current year with last year and the 5-year average. Seeding and therefore emergence got off to an early start; however, by mid-November emergence was lagging behind that for previous years. Below-normal rainfall during October and November resulted in slow and often spotty emergence, especially in the west and north central areas. Mild winter temperatures enabled the wheat to break dormancy early in the spring. The crop reached the joint stage earlier than last year and much earlier than the 5-year average. Heading followed suit and was complete nearly a week

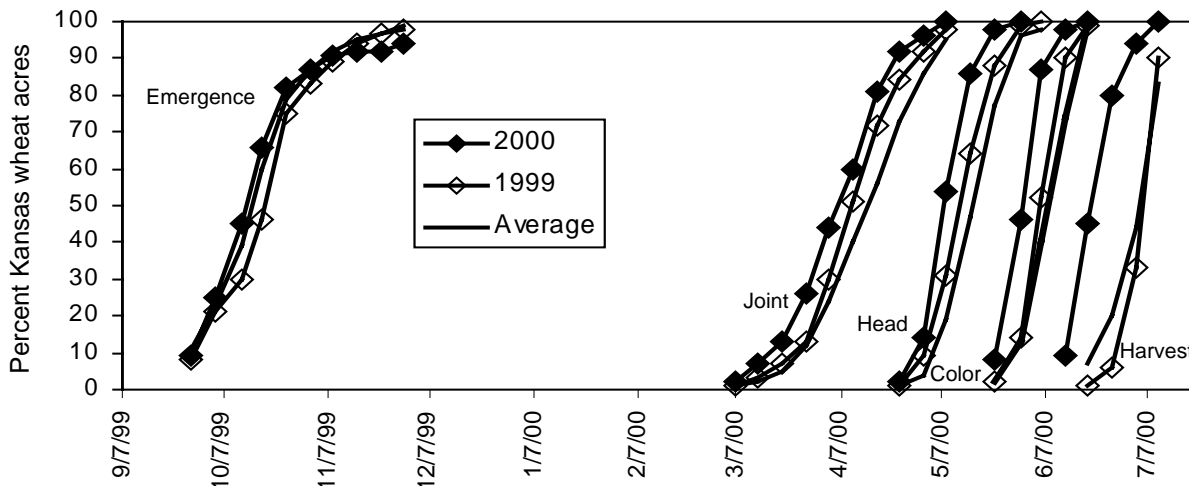


Figure 3. Statewide development of the 1999-2000 winter wheat crop.

earlier than last year and nearly 2 weeks earlier than the 5-year average. The crop matured rapidly under warm, dry conditions. Harvest was well under way by the middle of June and was finished by early July, far ahead of normal.

Nearly 80% of the 2000 crop started out in good to excellent condition (Figure 4). Low rainfall amounts in much of the state contributed to a decline in condition, so that by early December, less than 40% of the crop was classified as good

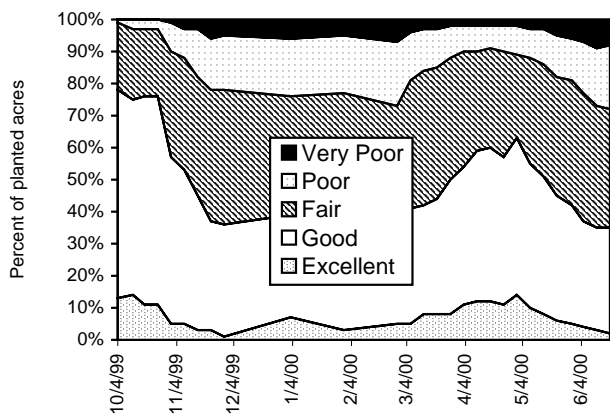


Figure 4. Condition of Kansas winter wheat crop, 1999-2000.

or excellent. A mild winter with little freeze or wind damage caused little change in condition until March and April, when rains spurred spring growth. Although the condition of the crop improved, it never recovered to the initial levels. From early May until the conclusion of harvest,

the condition of the crop continued to decline. Lack of precipitation was a major reason for the poor condition of much of the crop, but diseases and insects caused some damage as well.

Soil moisture was short or very short on a large percentage of the acres early in the planting season (Figure 5). Adequate rains over much of the state provided some relief in late September, but soil moisture returned to a short/very short status on about 80% of the wheat acres by early December. Spring rains improved the situation in March and April, but dry conditions prevailed over nearly half the wheat acres by early June.

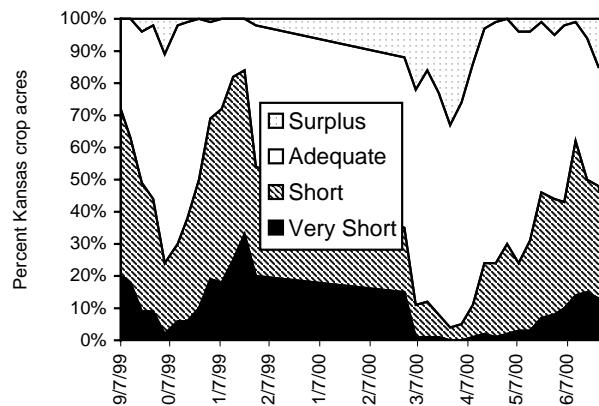


Figure 5. Statewide status of topsoil moisture, 1998-1999.

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

Diseases

The long, warm, dry fall was ideal for the spread of wheat streak mosaic virus (WSMV). By November, a few early-planted fields in western Kansas already showed stunting and yellowing from WSMV. The warm weather was also favorable for the spread of barley yellow dwarf virus (BYDV) by aphids.

Temperatures also were relatively mild during the winter months, so wheat leaves remained green throughout the winter. This raised fears that leaf rust and other foliar diseases would overwinter extensively in Kansas.

In early March, levels of spindle streak mosaic virus and soilborne mosaic virus were below average, because infections require wet soils in the fall. In late March, tan spot got off to a good start in many continuous wheat fields. Cool weather promoted the development of powdery mildew in a few fields. Speckled leaf blotch also was reported in some fields.

By early April, it was clear that BYDV was a major disease problem in eastern and central Kansas. Many fields showed extensive stunting and yellowing. In western Kansas, WSMV incidence was above average. Leaf rust overwintering was lighter than expected, so leaf rust was rare over most of the state in early April. A few overwintering hotspots were found in western Sedgwick, Kingman, Sumner, and Harper counties. In late April, stripe rust was found in the state. Stripe rust is favored by cool, humid weather and is rare in Kansas. The prevalence and severity were the highest seen in many years. Custer, Hondo, 2137, AP7510, and the experimental line KS89180B showed significant leaf injury in some locations, but most varieties had sufficient resistance.

In mid-May, strawbreaker foot rot caused serious lodging in many continuous wheat fields in central and southcentral Kansas. The areas around Haven and Andale seemed to be hardest hit. This unusual outbreak was blamed on mild temperatures and excess rain during January to March in that area. In late May, leaf rust became severe in parts of southcentral and central Kansas, especially on the variety Jagger. Tan spot was the second most important foliar disease. Traces of stem rust were noted at the end of the season, but disease development was cut short by hot dry weather.

(From Robert Bowden, State Extension Plant Pathologist).

Insects

Mild, dry weather is often favorable for greenbug development. This turned out to be true during the fall of 1999, when mild, dry weather was present throughout October and well into November. In early October, greenbugs were virtually absent in wheat. Numbers were still low in late October. However, some light frost had occurred by this time, and populations of some natural enemies were declining. Also, nights were getting cooler. In early November, greenbug populations began to increase. Soon they were appearing in noticeable numbers in many fields across the state. Toward the end of November, most of the acreage in the southern areas of the state was infested, often at levels of around 50 to 75/ft of row. In fact, by the end of November, it was hard to find fields that were free of greenbugs. Fortunately, temperatures declined in December, and the rate of increase slowed.

Generally, greenbugs do not survive the winter in Kansas. When they do, survival typically is restricted to the southernmost counties. Overwintering in northern Kansas is quite rare, occurring roughly once or twice in 25 years. However, last year, infestations survived across Kansas in the dry areas, primarily in the western third of the state. Even parasites that are cold sensitive were active throughout the winter. Around Hoxie and Colby, numbers of 25 to 50 greenbugs/ft. of row were common in early March, with higher populations in southwest Kansas. Numbers rose as temperatures increased in March and April. Insecticides were applied on much of the acreage west of the line from Oakley to Garden City. Some growers who waited too long in making treatment decisions suffered serious losses.

Low, scattered populations of bird cherry-oat aphids were observed in various parts of the state during the fall and early winter.

Russian wheat aphid began to appear during March and early April. It occasionally caused damage in the western portion of the state, but in many cases, it appeared to be more of a secondary problem to the greenbug. In the past, it usually has been the other way around.

Scattered signs of infestation were observed during March as far east as Wilson in Ellsworth County for the first time in a few years.

The dry weather during the fall and spring was probably mostly unfavorable for Hessian fly development. Some fall infestations in parts of southwest Kansas were reported, and some spring damage was noted in Barton County; however, the overall incidence of Hessian fly infestation was not well documented.

After 2 years of significant army cutworm damage, there were fewer reports of infestations this year. Mite infestations were minimal, and armyworm infestations failed to develop. (From Leroy Brooks, State Extension Entomologist).

Harvest Statistics

The Kansas Agricultural Statistics' June 9 estimate of the 2000 crop was 386.4 million bushels harvested from 9.2 million acres (Figure 6). This estimate was down 5% from the May 1 forecast and down 11% from last year's production. The statewide yield average of 42 bushels per acre was down 2 bushels from the May 1 prediction and down 5 bushels from last year's average. (From June 9, 2000 *CROPS* report, Kansas Agricultural Statistics, Topeka).

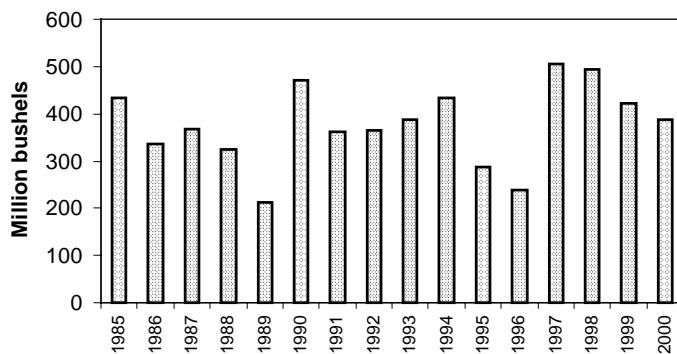


Figure 6. Historical Kansas winter wheat production.

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 five varieties occupied 71.0% of the state's seeded acreage in 2000.

The top 10 varieties for each crop-reporting district are presented in Figure 7. In the western districts, Jagger and 2137 acreages increased. Acreages of TAM 107 and Ike continued to decline, but both varieties maintained a sizable presence. Jagger replaced TAM 107 as the leading variety in the western districts. TAM 110 acreage increased most significantly in the west

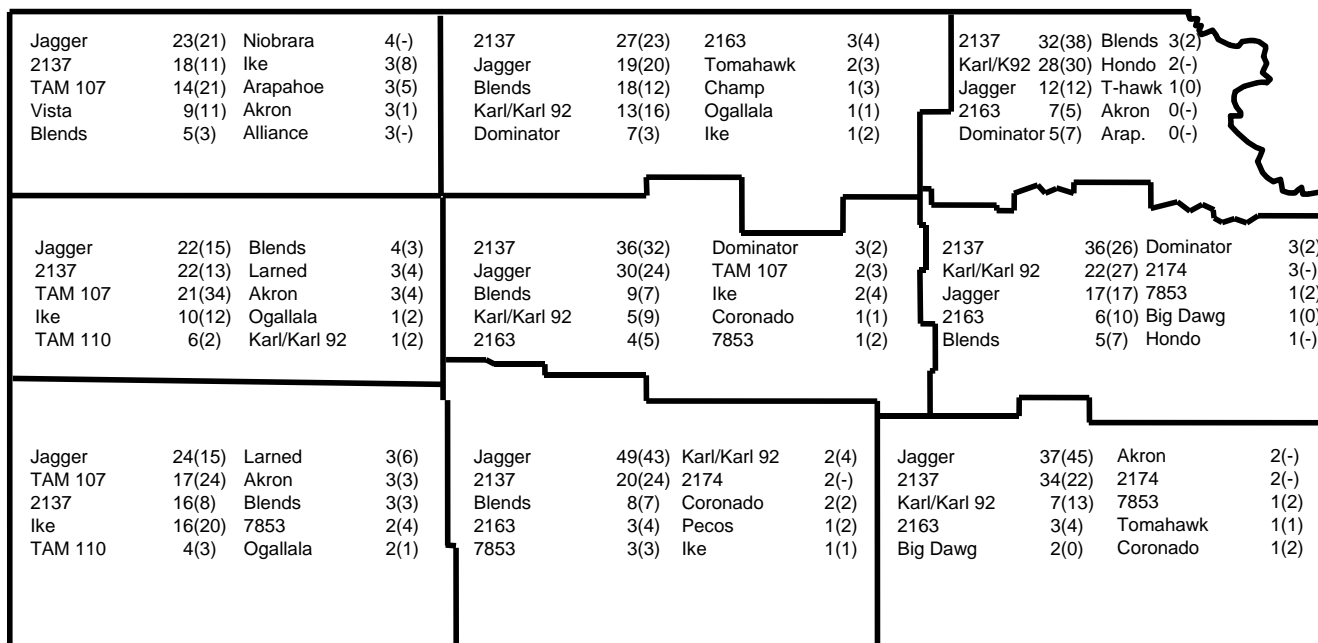


Figure 7. Leading wheat varieties in Kansas in 2000, presented as percent of seeded acreage by crop reporting district for 2000 and 1999 (1999 in parentheses). From Wheat Variety report, Kansas Agricultural Statistics, February 9, 2000.

central district. Niobrara and Alliance, both developed in Nebraska, appeared in the top 10 for the first time in the northwest district.

Jagger and 2137 were the most popular varieties in the central districts. 2137 was the most popular variety in the north central and central districts, whereas Jagger occupied nearly half the acreage in the south central district. The acreage of Dominator continued to grow in the north. Varietal blends increased in popularity in all three central districts. Karl/Karl 92, 2163, Ike, and 7853 acreages continued to drop.

2137, Jagger, and Karl/Karl 92 were the most prevalent varieties in eastern Kansas once again. Jagger had the edge in the southeast, but 2137 and Karl/Karl 92 were the top two varieties in the northeast and east central districts. Akron, Arapahoe, Hondo, and 2174 appeared in the top 10 for the first time in the eastern districts.

Figure 8 illustrates the historical statewide distribution of the top 10 varieties in 2000. These varieties occupied 78.7% of the planted wheat acres in 2000. Jagger and 2137 together accounted for 57.1% of the 2000 acres. Karl 92, 2163, and TAM 107, the predominant varieties for most of the 1990s, accounted for 12.1% of the acreage in 2000. The remaining 5 varieties in the top 10 accounted for 9.5% of 2000 wheat acres. Ike and 7853 have been popular in the mid to late

1990s, but have declined in recent years. Larned was very popular in the 1980s but has slowly lost acreage for the past several years. Dominator and TAM 110 are relatively new varieties with increasing acreages. (From February 9, 2000, *Wheat Variety* report, Kansas Agricultural Statistics, Topeka).

Agronomic Characteristics

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

New Variety Descriptions

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

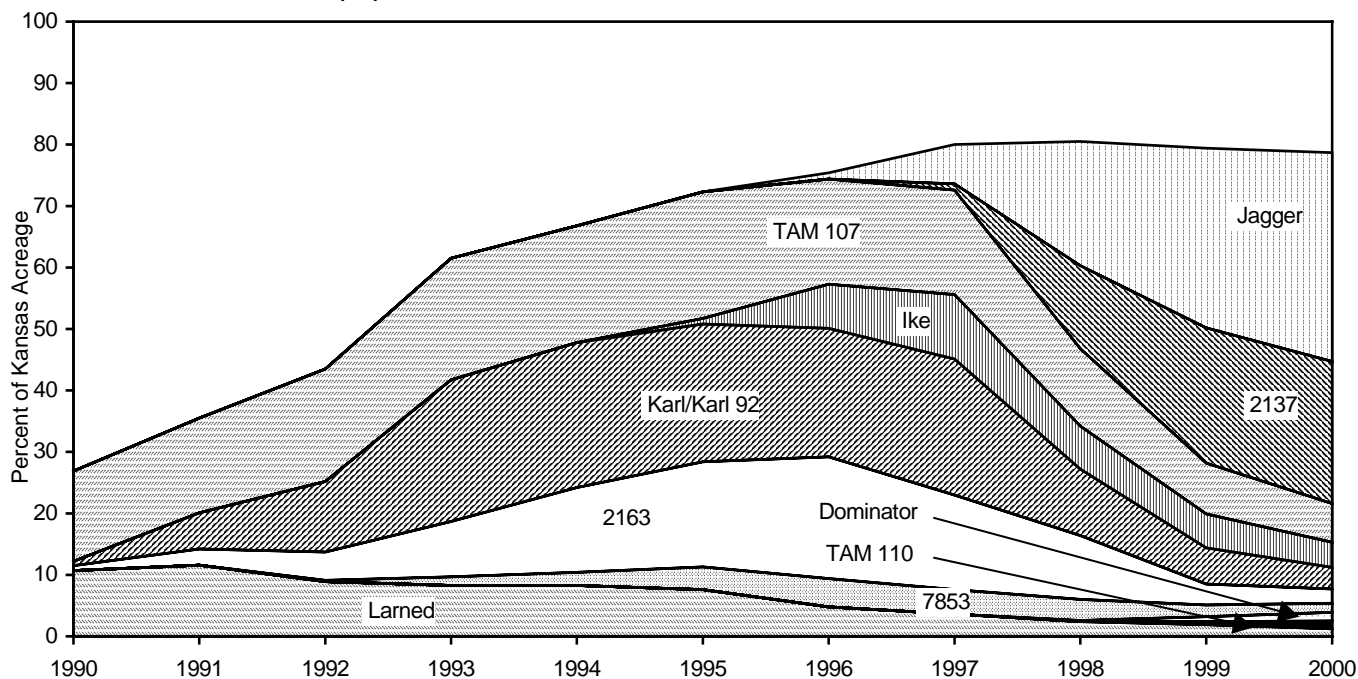


Figure 8. Historical acreage distribution of top 10 varieties in 2000. From Kansas Agricultural Statistics, Topeka.

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

Variety	Percent Kansas seeded acreage 2000 ²	Relative ³						Resistance or tolerance to: ⁴						Relative milling and baking quality ⁵		
		Matur-ity	Test wt.	Straw str.	Shat-tering	AI Toler-ance	Winter hardi-ness	Spck.			Barley Hes- sian				Wheat streak mos.	Soil-borne mos.
								Tan spot	leaf blotch	Leaf rust	Stem rust	yellow dwarf	fly			
Jagger	34.0	1	4	4	5	3	6	3	3	8	3	6	9	4	1	EX*
2137	23.1	3	4	1	5	2	3	4	4	7	7	6	2	4	1	AC
TAM 107	6.3	1	4	2	2	9	2	6	6	9	3	8	9	5	8	LD
Ike	4.1	4	3	4	2	8	3	7	8	9	3	6	1	9	1	AC
Karl/Karl 92	3.5	1	3	4	3	9	3	3	5	9	6	8	9	9	1	EX*
2163	2.3	3	6	1	6	2	4	4	4	7	4	6	1	4	1	LD
7853	1.5	3	4	4	3	8	5	6	9	8	4	6	9	5	1	EX
Dominator	1.4	4	4	3	7	8	3	4	4	8	3	6	3	7	1	AC
TAM 110	1.3	1	3	2	2	8	--	7	6	9	3	8	9	5	9	AC
Larned	1.2	4	4	5	3	8	3	9	8	8	3	9	3	9	8	AC
2174	1.1	3	3	1	3	5	4	5	4	6	8	4	5	7	1	AC
Akron	1.0	5	3	5	3	--	3	5	9	8	3	--	8	9	9	AC
Coronado	1.0	2	3	1	4	3	5	6	6	7	3	6	3	6	1	AC
Vista	0.9	5	4	6	3	7	2	8	5	7	5	--	1	9	8	AC*
Ogallala	0.8	3	2	2	6	5	4	6	5	5	3	7	9	5	9	EX
Tomahawk	0.8	3	4	3	3	8	2	4	8	4	3	8	9	8	1	AC
Pecos	0.7	1	4	1	4	5	5	6	5	7	4	7	1	6	1	AC
Big Dawg	0.5	6	4	1	3	5	5	4	2	7	5	6	9	4	1	AC
Niobrara	0.5	3	4	5	3	--	3	8	7	7	3	--	9	7	8	AC
Arapahoe	0.4	6	4	5	--	6	3	8	4	5	2	--	3	7	8	AC
TAM 105	0.4	1	4	2	2	9	2	9	6	8	8	8	8	6	8	AC
Alliance	0.3	4	4	4	3	--	3	7	7	8	2	--	5	9	9	AC
Scout(s)	0.3	4	4	6	3	--	3	9	7	8	3	9	9	7	9	AC
Champ	0.2	4	5	5	--	7	3	6	6	6	6	7	9	5	1	--
Eagle	0.2	4	4	5	2	--	3	9	7	8	4	9	7	7	9	EX*
Hondo	0.2	5	3	1	4	3	3	6	3	3	4	6	6	4	1	--
Longhorn	0.2	5	3	1	5	--	--	6	7	5	1	6	8	5	9	LD
T81	0.2	2	--	--	--	--	--	6	7	7	3	7	7	6	8	--
Blends	7.5															
Hard Whites	0.2															
Other Hard	3.9															
Other Soft	0.0															

¹ Varieties listed in the Feb. 9, 2000, Wheat Variety survey, KS Ag. Statistics. Ratings are experts' 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.

² From February 9, 2000 Wheat Variety survey, Kansas Ag. Statistics Office, Topeka, KS.

³ Agronomic information and some disease ratings provided by Joe Martin, Hays, and Allen Fritz, Jim Shroyer, Ray Lamond, KSU Agronomy.

⁴ Disease ratings provided by R.L. Bowden and W.W. Bockus, KSU Plant Path.; Hessian fly ratings by J.H. Hatchett, KSU Entomology.

⁵ Ratings compiled by P.J. McCluskey are based on data from the KSU Department of Grain Science and Industry, the U.S. Grain Marketing and Production Research Center, and inputs from the milling and baking industries. See annual update of "Milling & Bread-baking Qualities of Hard Winter Wheat Varieties" for more information.

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.

Kaskaskia soft red winter wheat was released by the Illinois Agricultural Experiment Station in 1998. Kaskaskia heads several days earlier than Cardinal and is about the same height or slightly taller. It is bearded and has tan chaff at maturity. Kaskaskia is moderately resistant to soil borne wheat mosaic virus and wheat spindle streak mosaic virus and resistant to some races of leaf rust. It is susceptible to stem rust and powdery mildew. (University of Illinois Agricultural Experiment Station variety description).

Millennium hard red winter wheat was released jointly in 1999 by the Nebraska Agricultural Experiment Station, the USDA-ARS, and the South Dakota Agricultural Experiment Station. Millennium appears to be broadly adapted to the dryland wheat production systems of the High Plains. Its appearance is similar to Arapahoe with a moderately open, upright canopy and an erect, twisted, flag leaf. Millennium is moderately resistant to stem rust, leaf rust, and Hessian fly but is susceptible to wheat soilborne mosaic virus and barley yellow dwarf virus. Initial evaluations indicate bread-baking quality similar to that of Arapahoe. (Release notice from Nebraska Agricultural Experiment Station).

Nuplains hard white winter wheat was released by the USDA-ARS and the Nebraska Agricultural Experiment Station in cooperation with the Agricultural Experiment Stations of South Dakota and Wyoming in 1999. Nuplains is an awned, white-glumed, semidwarf cultivar with straw strength superior to that of Arapahoe. It has averaged 1.2 inches shorter than 2137 and 4 inches shorter than Arapahoe. It has a short coleoptile, similar to that of Jagger and TAM 107. Winterhardiness of Nuplains has been less than that of Alliance and Arapahoe but superior to that of Jagger. Nuplains is a medium-maturing cultivar under Nebraska conditions, with heading dates averaging 2 to 3 days earlier than those of Arapahoe. Nuplains has exhibited adult-plant and seedling resistance to stem rust. It is moderately susceptible to current races of leaf rust and is susceptible to soilborne mosaic virus, wheat streak mosaic virus, the Great Plains biotype of Hessian fly, and the Russian wheat aphid. Nuplains possesses an intermediate level of resistance to weather-induced preharvest sprouting, comparable to that of Rio Blanco and Trego. Based on current information, Nuplains appears to be best suited for dryland production

areas in north central and northwest Kansas. It also has shown promise for use in irrigated production systems.

Nuplains was found to have acceptable end-use quality for commercial bread applications. In evaluations for Taiwanese raw and Hokkien-style noodles, it received acceptable ratings for dough handling, machining properties, and noodle texture. Noodle color ratings varied, but generally were considered as less than desirable due to discoloration after 24 hrs of storage.

Prairie Red hard red winter wheat was developed by the Colorado Agricultural Experiment Station and released to seed producers in September 1998. It was released because of its resistance to the Russian wheat aphid and high grain yield under the severe stresses of eastern Colorado. Prairie Red is an awned, brown-chaffed, semidwarf, hard red winter wheat similar to TAM 107 in all respects except that it is resistant to the RWA. Prairie Red is moderately susceptible to the prevalent races of leaf rust and resistant to prevalent races of stem rust. Based on field observations for incidence of wheat streak mosaic virus, Prairie Red is moderately resistant. In Colorado and regional milling and baking tests, Prairie Red has been similar in overall quality to TAM 107, a lower, but acceptable quality wheat.

Prowers 99 hard red winter wheat was developed by the Colorado Agricultural Experiment Station and released to seed producers in September 1999. Prowers 99 was derived from a modified bulk procedure following single plant selection (during 1997 and 1998) within the cultivar Prowers for improved resistance to the Russian wheat aphid. Prowers 99 has about 13% symptomatic plants compared to 53% in Prowers.

Prowers 99 is an awned, white-chaffed, medium tall, medium late, hard red winter wheat similar to and indistinguishable from Lamar in all respects except that it is resistant to the Russian wheat aphid. Prowers 99 is moderately susceptible to the prevalent races of leaf rust and resistant to prevalent races of stem rust. Based on field observations for incidence of wheat streak mosaic virus, Prowers 99 is susceptible.

Based on composite samples from several Colorado locations, its wheat and flour protein contents are similar to those of Lamar. It has

strong mixing characteristics as determined by the mixograph. In Colorado milling and baking tests, Prowers 99 has been similar in overall quality to Lamar, a high quality standard.

TAM 302 hard red winter wheat was released by the Texas Agricultural Experiment Station in 1998. It is an awned, semidwarf variety with white chaff. TAM 302 is medium to late in maturity in Texas, similar to 2137 and Ogallala, but maturity may be medium to early in Kansas. It is resistant to soilborne mosaic virus, has adult-plant resistance to leaf rust, and may tolerate barley yellow dwarf virus better than other varieties. TAM 302 tolerates acid soils fairly well.

Trego hard white wheat was released by the Kansas Agricultural Experiment Station in 1999. Trego is an awned, white-chaffed, hard white wheat variety. It is medium late in maturity (equal to 2137) and has only moderate straw strength (equal to Jagger's but weaker than that of 2137). Trego's coleoptile length is average for a semi-dwarf variety, and winter hardiness is good. Trego is nonshattering and has a moderate level of sprouting tolerance. It has effective levels of resistance to leaf rust, stem rust, soilborne mosaic virus, and wheat streak mosaic virus. The Hessian fly reaction of Trego is mixed; approximately half the plants are resistant. Trego is susceptible to the wheat curl mite and the Russian wheat aphid.

The primary area of adaptation for Trego is dryland production in western Kansas. It also has performed well in eastern Colorado and southwest Nebraska. In some years, Trego has done well in central Kansas tests, but its yields have been erratic.

Trego has produced hard white grain with excellent test weights and flour extraction rates. Its protein level has been equal to that of 2137. Trego's bread baking quality has been rated as above average. The overall Asian noodle qualities of Trego have not been good.

PERFORMANCE TEST RESULTS

Objectives

To help Kansas growers select wheat varieties suited for their area and conditions, the Kansas Agricultural Experiment Station annually compares both new and currently grown varieties

and hybrids in the state's major crop-producing areas. The objective is to provide Kansas growers with unbiased performance information on all varieties and hybrids likely to become available in the state.

Varieties Included in Tests

Parentage and origin of public varieties included in the 2000 performance tests are listed below.

Table 2. Parentage of public wheat varieties.

Variety	Parentage	Release state yr.
<u>HARD RED:</u>		
Akron	TAM 107/Hail	CO 1994
Alliance	Arkan/Colt//Chisholm	NE 1994
Arapahoe	Brule/3/Pkr*4/Agent/Beloterkovskaia	198/Lancer NE 1988
Culver	Trapper//CMN/OT/3/CIMMYT /Scout/4/ sib/Homestead/5/Arapahoe	Buckskin NE 1998
Custer	F29-76/TAM 105//Chisholm	OK 1994
Ike	Dular/Eagle//2*Larned/Cheney/3/Colt	KS 1993
Jagger	KS82W418/Stephans	KS 1994
Karl 92	F ₁₁ head row selection from 'Karl'	KS 1992
Millennium	Arapahoe/Abilene//Colt/3/Warrior 5* /Agent//Kavkaz	NE 1999
Newton	Pitic62/Chris sib//2*Sonora64/Klein Rendidor /4/Scout	KS 1977
Niobrara	TAM 105*4/Amigo//Brule	NE 1994
Prairie Red	CO850034/PI372129//5*TAM 107	CO 1998
Prowers 99	CO850060/PI372129//5*Lamar	CO 1999
Scout 66	Composite of 85 Scout selections	NE 1967
TAM 107	TAM 105*4/Amigo	TX 1984
TAM 301	Mit/Kavkaz	TX 1995
TAM 302	Probrand 812/Caldwell//TX86D1310	TX 1998
Vista	NE68513/NE68457//Centurk/3/Brule	NE 1992
Wesley	PlainsmanV/Odesskaya51//Colt/Cody	NE 1998
Windstar	TX79A2729//Caldwell/Brule field sel #6 /3/Siouxland	NE 1997
Yuma	NS14/NS25//2*Vona	CO 1991
Yumar	Yuma/PI 372129, F1//CO850034/3/4*Yuma	CO 1997
2137	W2440/W9488//2163	KS 1995
2163	Pioneer line W558/5/Etoile de Choisy//Thorne/ Clarkan/3/CI15342/4/Purdue 4946A4-18-2 (Pioneer)	KS 1989
2174	IL 71-5662/PL 145//2165	OK 1997
<u>HARD WHITE:</u>		
Betty	Jagger 'Sib' selection	KS 1998
Heyne	Plainsman V/KS75216//SWM754308/3/ Plainsman V/Lindon//KS82W422	KS 1998
Nuplains	Abilene//PlainsmanV//Newton/Arthur71	NE 1999
Trego	RL6005/RL6008//2*Larned/3/Cheney/Larned/4/ Bennet sib/5/TAM 107/6/Rio Blanco	KS 1999
<u>SOFT RED:</u>		
Caldwell	Benhur sib *2/Siette Cerros	IN 1981
Kaskaskia	IL77-2933/IL77-3956//Pike/Caldwell	IL 1998

Public varieties are selected for inclusion in the tests based on several criteria. Most represent new or established varieties with potential for successful use in Kansas. 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 2000 private entrants and entries are listed in Table 3. Ten entrants provided a total of 31 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).

Table 12 describes the characteristics of seed submitted for testing. Seed quality, including such factors as size, purity, and germination, can be important in determining the performance of a variety. Wheat seed used for entries in the

Kansas Crop Performance Tests is prepared professionally and usually meets or exceeds Kansas Crop Improvement Certification standards. Performance of a given variety or hybrid comparable to that obtained in these tests is best assured under similar environmental and cultural conditions and with the use of certified or professionally prepared seed.

Environmental Factors Affecting Individual Tests

Locations of test sites are shown on the map on the front cover. The Stevens County irrigated test had to be eliminated in 2000. Data from the Greeley County test near Tribune were not used because of high variability caused by dry spring weather, uneven greenbug infestations, and barley yellow dwarf. 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 tests were subjected to conditions similar to those described under the statewide growing conditions. Location codes in parentheses after each location name are used as column headers in the data tables.

Table 3. Private entrants and entries in the 2000 Kansas Wheat Performance Tests.

AgriPro AgriPro Biosciences Inc 12115 July Hill Rd Junction City, KS 66441 785-776-6603 Hondo Thunderbolt	Drussel Drussel Seed and Supply 2197 W Parallel Road Garden City, KS 67846 316-275-2359 T81	NK Novartis Seeds PO Box 340 Hartsville, SC 29551 843-332-8151 (S) BL930390 (S) Coker 9474 (S) Coker 9663	Quantum Hybritech US PO Box 1320 806 N 2nd St Berthoud, CO 80513 970-532-8016 7406 7588 AP 7510 XH1711 XH3207 XH7463 XH9801 XH9806 XH9815
AGSECO DeLange Seed (AGSECO) PO Box 7 Girard, KS 66743 316-724-6223 7853 Mankato Onaga TAM 110	General Mills General Mills Operations Inc PO Box 5022 Great Falls, MT 59403 406-761-6252 (W) GM10001 (W) GM10002 (W) GM10003 (W) NuWest	Polansky Polansky Seed PO Box 306 2729 M St Belleville, KS 66935 785-527-2271 Dominador	
AWWPA Am White Wheat Prod Assn PO Box 326 Atchinson, KS 66002 785-367-4422 (W) Arlin (W) Oro Blanco	Goertzen Goertzen Seed Research 14604 S Haven Rd Haven, KS 67543 316-465-2675 Enhancer G15048 Exp Kalvesta Venango		Terra Terra Seed 37540 Crescent Hill Rd Osawatomie, KS 66064 913-755-4818 HR 217

Table 4. Wheat Performance Test site descriptions and management in 2000.

REGION COUNTY and Cooperator	Site, location code, and nearest town	Dates of planting, harvest	Soil type and previous crop	Fertilizer lbs/acre			Seeding rate ¹ and row spacing	
				N	P	K		
<u>EAST</u>								
BROWN Larry Maddux	Cornbelt Experiment Field (BR) Powhattan	10/15/99 6/23/00	Grundy silty clay loam Soybean, 1999	75 --	-- 20	-- --	Fall Spring	90 lb/a 7.5 in. row spacing
RILEY Allan Fritz	Ashland Agronomy Farm (RL) Manhattan	10/15/99 6/23/00	Reading silt loam Oats, 1998	75 50	25 --	-- --	Fall Spring	75 lb/a 9 in. row spacing
FRANKLIN Keith Janssen	EC KS Experiment Field (FR) Ottawa	10/18/99 6/25/00	Woodson silt loam Soybean, 1999	-- 80	-- 26	-- 13	Fall Spring	1200000 seeds/a 7 in. row spacing
LABETTE Jim Long	SE Agric Res Ctr (LB) Parsons	10/7/99 6/13/00	Parsons silt loam Wheat, 1999	70 --	50 --	50 --	Fall Spring	75 lb/a 7 in. row spacing
<u>NORTH CENTRAL</u>								
REPUBLIC Barney Gordon	NC KS Experiment Field (RP) Belleville	10/1/99 6/23/00	Crete silt loam Grain sorghum, 1998	-- 80	-- 30	-- --	Fall Spring	60 lb/a 7.5 in. row spacing
SMITH Barney Gordon	Farmer's Field (SM) Smith Center	9/30/99 6/21/00	Silty loam Corn, 1998	-- 80	-- 50	-- --	Fall Spring	60 lb/a 7.5 in. row spacing
<u>SOUTH CENTRAL</u>								
HARVEY Mark Claassen	Harvey Co Expt Field (HV) Hesston	10/15/99 6/14/00	Ladysmith silty clay loam Soybean, 1999	90 --	32 --	-- --	Fall Spring	60 lb/a 8 in. row spacing
RENO Bill Heer	SC KS Experiment Field (RN) Hutchinson	10/18/99 6/24/00	Ost silt loam Soybean, 1999	75 50	40 --	-- --	Fall Spring	60 lb/a 8 in. row spacing
STAFFORD Vic Martin	Sandyland Expt Field (SD) St. John	9/30/99 6/22/00	Pratt loamy fine sand Sorghum, 1998	68 50	46 --	-- --	Fall Spring	60 lb/a 7 in. row spacing
SUMNER Allan Fritz	Max Kolarik Farm (SU) Caldwell	10/6/99 6/12/00	Sandy loam Wheat, 1999	70 --	25 --	-- --	Fall Spring	60 lb/a 9 in. row spacing
<u>WEST</u>								
ELLIS T. Joe Martin	Agric Res Ctr - Hays (EL) Hays	9/22/99 6/15/00	Harney clay loam Wheat, 1998	-- 75	-- --	-- --	Fall Spring	60 lb/a 12 in. row spacing
THOMAS Pat Evans	NW Res-Ext Ctr (TD) Colby	9/21/99 6/21/00	Keith silt loam Wheat, 1998	-- 65	-- --	-- --	Fall Spring	60 lb/a 12 in. row spacing
GREELEY Alan Schlegel	SW Res-Ext Ctr (GD) Tribune	9/17/99 6/21/00	Richfield silt loam Sunflower, 1998	-- 80	-- --	-- --	Fall Spring	55 lb/a 10 in. row spacing
FINNEY Merle Witt	SW Res-Ext Ctr (FD) Garden City	9/23/99 6/19/00	Keith silt loam Wheat, 1998	-- 50	-- --	-- --	Fall Spring	45 lb/a 10 in. row spacing
<u>IRRIGATED</u>								
STAFFORD Vic Martin	Sandyland Expt Field (SI) St. John	10/1/99 6/23/00	Pratt loamy fine sand Corn, 1998	68 50	46 --	-- --	Fall Spring	90 lb/a 7 in. row spacing
THOMAS Pat Evans	NW Res-Ext Ctr (TI) Colby	9/15/99 6/26/00	Keith silt loam Canola, 1999	110 --	35 --	-- --	Fall Spring	90 lb/a 12 in. row spacing
FINNEY Merle Witt	SW Res-Ext Ctr (FI) Garden City	9/24/99 6/20/00	Keith silt loam Corn, 1998	-- 90	-- --	-- --	Fall Spring	90 lb/a 10 in. row spacing

¹ Seed weight of 2000 entries ranged from 23 to 53 grams/1000 kernels, averaging 36 grams/1000 kernels (see Table 14).

EAST

Brown County (BR), Cornbelt Experiment Field, Powhattan: Below-normal rainfall was the dominant influence on variety performance in this test. Precipitation was 10.25 inches below normal from September through May. The flag leaves of most varieties senesced soon after heading.

Riley County (RL), Ashland Research Farm, Manhattan: Uneven distribution of soilborne mosaic virus caused much of the variability in this test. Leaf diseases were relatively light this year. Hot, dry winds during grain fill likely lowered test weights and speeded maturation.

Franklin County (FR), East Central Experiment Field, Ottawa: Excellent seedbed conditions resulted in excellent stands and good fall growth. Below-average precipitation until mid-June likely limited the performance of early-maturing varieties. Observed diseases included barley yellow dwarf and leaf rust.

Labette County (LB), Southeast Agricultural Research Center, Parsons: Fall conditions favored excellent emergence and early growth. Dry, mild, winter weather enabled aphids to survive nearly all year. Severe barley yellow dwarf may have limited yields of some varieties. Spring weather was dry and cool early but became wetter as harvest approached, resulting in high grain moisture at harvest. Armyworms defoliated some varieties late in the season. Strawbreaker and leaf rust also appeared late in the season.

NORTH CENTRAL

Republic County (RP), North Central Experiment Field, Belleville: Dry fall conditions may have limited fall growth but did not inhibit stand establishment. Dry, mild conditions continued throughout the winter months. Adequate rainfall in late February and March facilitated good spring growth; however, below-normal precipitation from then on likely limited performance. Some barley yellow dwarf was noted.

Smith County (SM), Farmer's field, Smith Center: Timely fall rains resulted in good stands and fall tillering. Aside from good rains in March, below-normal precipitation probably limited performance and foliar disease development.

SOUTH CENTRAL

Harvey County (HV), Harvey County Experiment Field, Hesston: Dry conditions after planting caused uneven emergence and final stands. However, fall growth was favored by above-normal temperatures in late fall. Precipitation totals for December, February, and March were well above normal. Mean temperatures also were above average for January and February and near normal in March. Both mean temperatures and precipitation were below average for the April-June period. Light to moderate barley yellow dwarf was the only disease of consequence. Minor soilborne mosaic virus symptoms occurred briefly in early April after temperatures dropped to freezing. Leaf rust incidence was both light and late in occurrence. Dry weather hastened maturity of the crop and also allowed for timely harvest and high grain test weights.

Reno County (RN), South Central Experiment Field, Hutchinson: Planting conditions were favorable, resulting in uniform emergence and stand establishment. Mild winter temperatures combined with more moisture than most of the other test locations resulted in higher levels of leaf diseases such as tan spot, leaf rust, stripe rust, and powdery mildew. Low test weights resulted from several factors: a 100° plus day in the middle of May; high levels of disease; and the humid, relatively cool weather at harvest time.

Stafford County, dryland (SD), Sandyland Experiment Field, St. John: Good stands and fall growth combined with a mild winter allowed the test to enter spring in good condition. Heavy March rains likely contributed to increased yield variability by leaching nitrogen and causing ponding in the root zone.

Sumner County (SU), Max Kolarik farm, Caldwell: Leaf diseases, particularly leaf rust and stripe rust, caused significant loss of leaf area. Hot, dry winds during late May and early June further limited grain filling.

WEST

Ellis County (EL), KSU Agricultural Research Center, Hays: Adequate soil moisture allowed the establishment of good stands and early fall growth. However, inadequate moisture began to limit growth later in the fall. Dry conditions continued all winter with no significant

precipitation from October through March. Mild winter temperatures allowed the wheat to overwinter with little or no freeze-back of foliage. Good rains in April and early May combined with above-normal temperatures caused the crop to develop about 10 days ahead of normal. A March application of Lorsban controlled a minor infestation of Russian wheat aphids. Barley yellow dwarf virus occurred in small spots throughout the test, increasing variation in yields. Leaf rust built up late in the season and caused some damage to susceptible varieties.

Thomas County, dryland (TD), Northwest Research-Extension Center, Colby: Favorable planting conditions allowed good stand establishment. Warm, dry conditions during the winter months continued into spring. The first half of June was particularly hot, dry, and windy. An insecticide application controlled Russian wheat aphids and greenbugs. Disease observations included wheat streak mosaic and barley yellow dwarf virus.

Greeley County, dryland (GD), Southwest Research-Extension Center, Tribune: Abandoned because of variability caused by dry spring weather, uneven greenbug infestations, and barley yellow dwarf.

Finney County, dryland (FD), Southwest Research-Extension Center, Garden City: Warm, dry conditions prevailed during most of the wheat growing season. Greenbugs and bird cherry oat aphids survived in low numbers all winter. March rains enabled the test to survive and produce acceptable yields, even though hot, dry weather in the spring and summer; barley yellow dwarf virus; and wheat streak mosaic virus all caused loss of leaf area and contributed to general plant stress.

IRRIGATED

Stafford County, irrigated (SI), Sandyland Experiment Field, St. John: See notes for dryland test at this location. Soilborne mosaic virus also added to test variability.

Thomas County, irrigated (TI), Northwest Research-Extension Center, Colby: Favorable planting conditions allowed good stand establishment. Warm, dry conditions during the winter months continued into spring. The first half of June was particularly hot, dry, and windy. No Russian wheat aphids were observed in this test.

Disease observations included wheat streak mosaic and barley yellow dwarf virus.

Finney County, irrigated (FI) Southwest Research-Extension Center, Garden City: Good fall emergence and resulting stands allowed the test to enter the winter months in good condition. Aphids survived all winter and spring. Above-normal May temperatures and below-normal May and June rainfall contributed to premature leaf loss. Barley yellow dwarf virus was observed.

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 2000 entries can best be determined by examining Table 1 and data in Tables 5 through 13 for the relative performance of new varieties or hybrids of interest compared to those the grower is currently planting. Yields are reported in Table 5a-d as bushels per acre (60 pounds per bushel) adjusted to a moisture content of 13%, where moistures were reported at harvest. In Table 6a-d, 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 7a-d to check the performance of entries over several years at locations closest to their farms. These tables present yields averaged over 2, 3, and 4 years. One-year or one-location results can be misleading because of the possibility of unusual weather conditions.

Measurements of characteristics often contributing to yield performance are shown in Table 8a-d (test weights); Table 9a-d (relative heading dates); Table 10a-d (heights); Table 11 (disease and lodging notes); and Table 12 (planted seed characteristics, coleoptile lengths, and Hessian fly ratings). No significant shattering occurred in the tests in 2000.

At the bottom of each table is the LSD (least significant difference) for each column of replicated data. The use of the LSD is intended to reduce the chance of overemphasizing small

differences in yield or other characteristics. Small variations in soil structure, fertility, water-holding characteristics, and other test-site characteristics can cause considerable yield variation among plots of the same variety grown only a short distance apart.

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

Coleoptile Measurements

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

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

Maximum coleoptile elongation of a variety is influenced heavily by soil temperature. As soil temperature increases from 65° F to 85° F, the coleoptile lengths of all varieties are reduced about 30%. As soil temperature decreases from 65° F, coleoptile lengths of the standard height varieties Larned and Eagle change very little, but the coleoptiles of semidwarf varieties TAM 107, Karl 92, and TAM 200 actually increase in length. At 53° F, the coleoptile lengths of TAM 107, Karl

92, and TAM 200 are equal to that of Eagle, and at 40° F, they are equal to that of Larned. If a producer is faced with deep planting because of dry soil late in the planting season, choice of variety will have minimal effects on stand establishment. The same can be said for plantings made during our optimum planting times when soil temperature is already below 65° F. Plantings made in the latter part of August or early September when soil temperature is high will be the most vulnerable to poor emergence because of coleoptile length. If plantings have to be made deeper than 3.5 inches when soil temperature is high, it is advisable to use a variety that has a long coleoptile.

Coleoptile ratings reported in Table 12 are based on measurements at 75° F, which is the average soil temperature in western Kansas on Sept 1 at the 4-inch depth. Varieties with a rating of 8 had average coleoptile lengths of 2.4±.2 inches, whereas those rated 3 averaged 4.2±.2 inches. For one variety to be significantly different from another, the ratings must differ by at least 2 points.

Graphical Performance Summaries

Figures 9-12 summarize the performance of each variety standardized to the average of two check varieties. TAM 107 and Ike were used as checks in the western and irrigated tests. Karl 92 and 2163 were the checks in the eastern and central tests.

The number of direct comparisons of a given variety with the check varieties has a bearing on the confidence one can place in the performance of that variety. The number beside each bar shows the number of years that variety was compared to the check varieties. In general, the greater the number of years that a variety has been tested, the greater confidence one can put in comparisons of that variety with the checks.

Symbols beside each bar indicate if a given variety was significantly greater (+) or lower (-) than the average of the check varieties. As with individual test results, small differences should not be overemphasized. Rather, relative ranking and large differences are better indicators of varietal performance.

FIGURE 9. WHEAT VARIETY PERFORMANCE SUMMARY, EASTERN REGION, 1997-2000

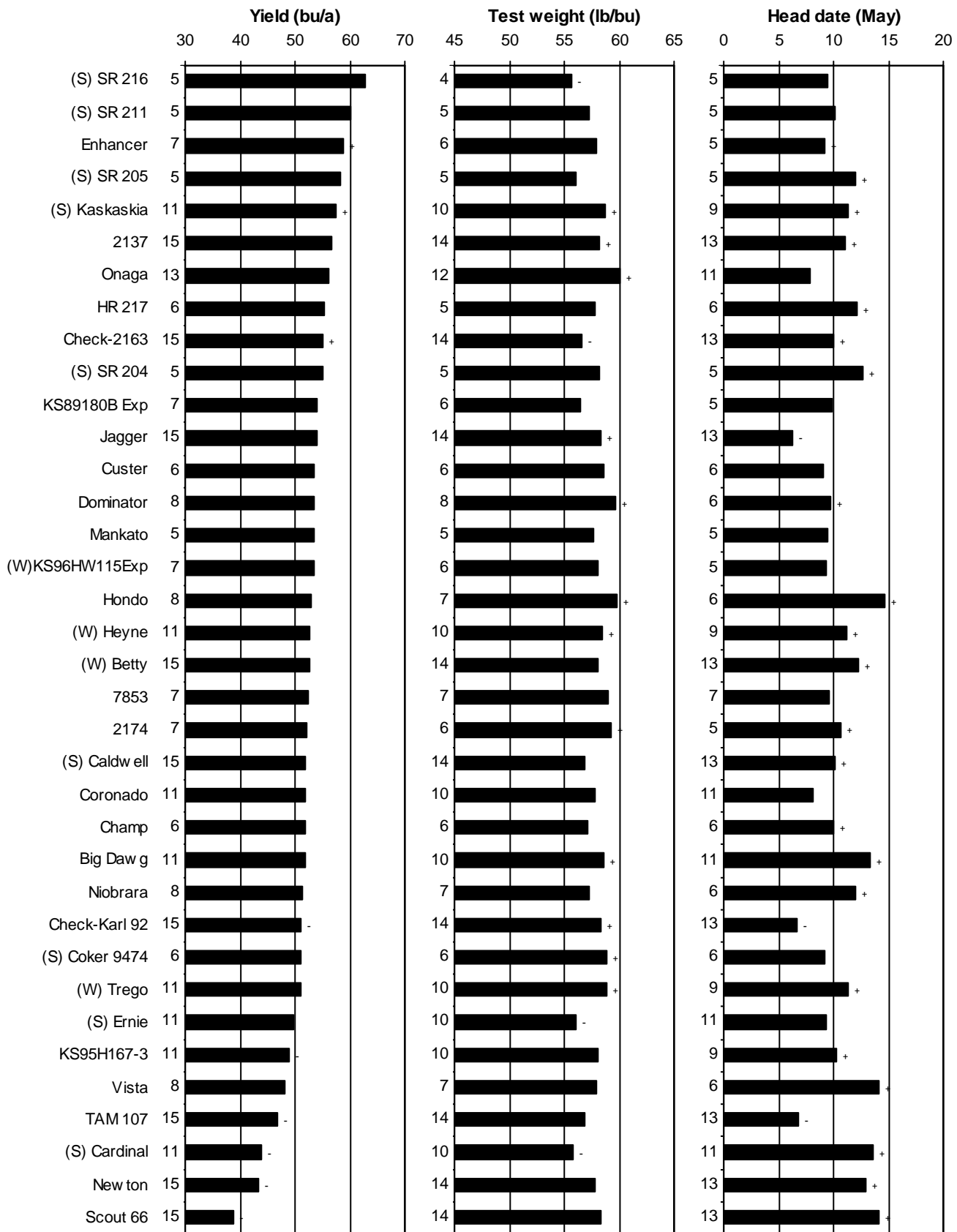


FIGURE 9. WHEAT VARIETY PERFORMANCE SUMMARY, EASTERN REGION, 1997-2000

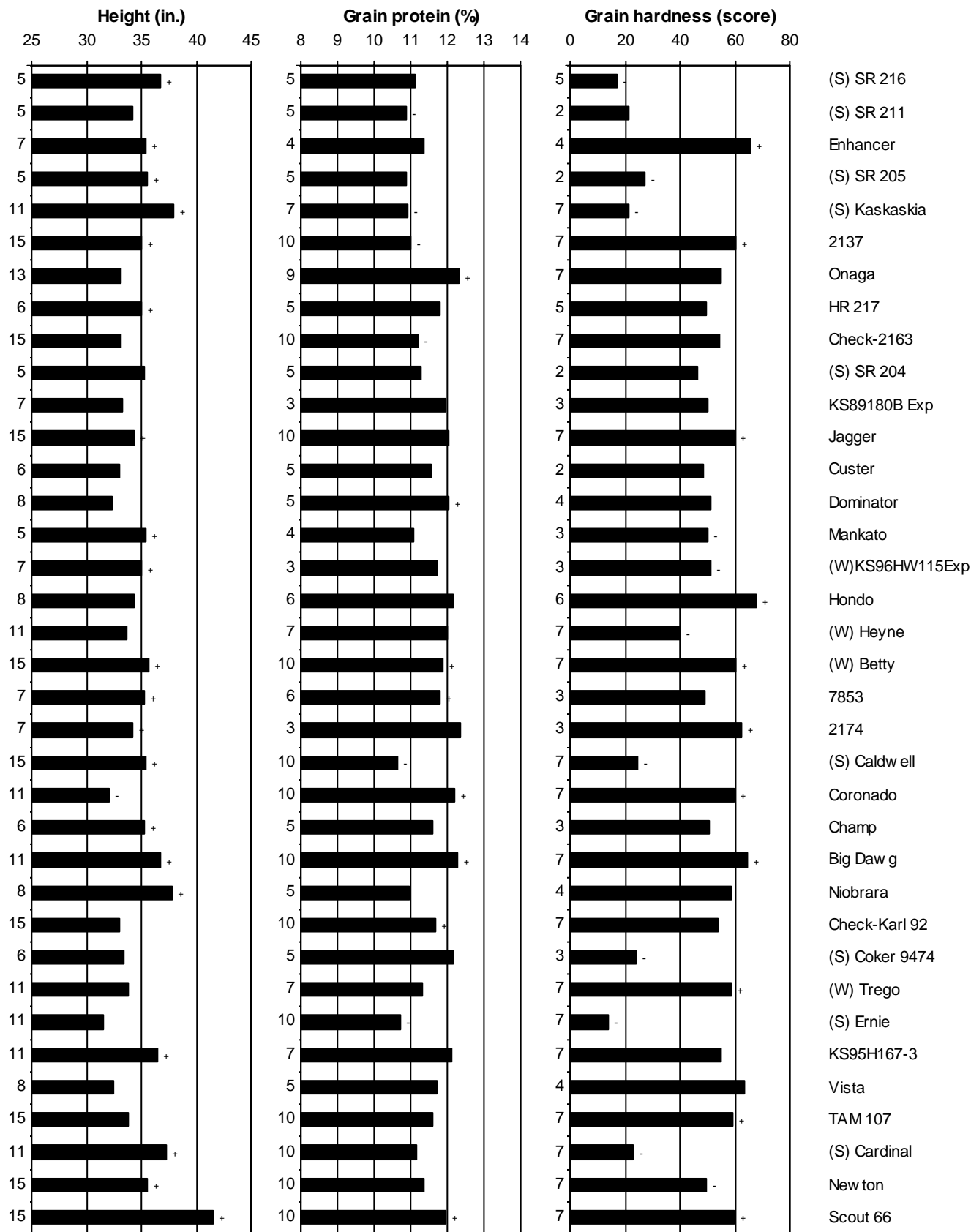


FIGURE 10. WHEAT VARIETY PERFORMANCE SUMMARY, CENTRAL REGION, 1997-2000

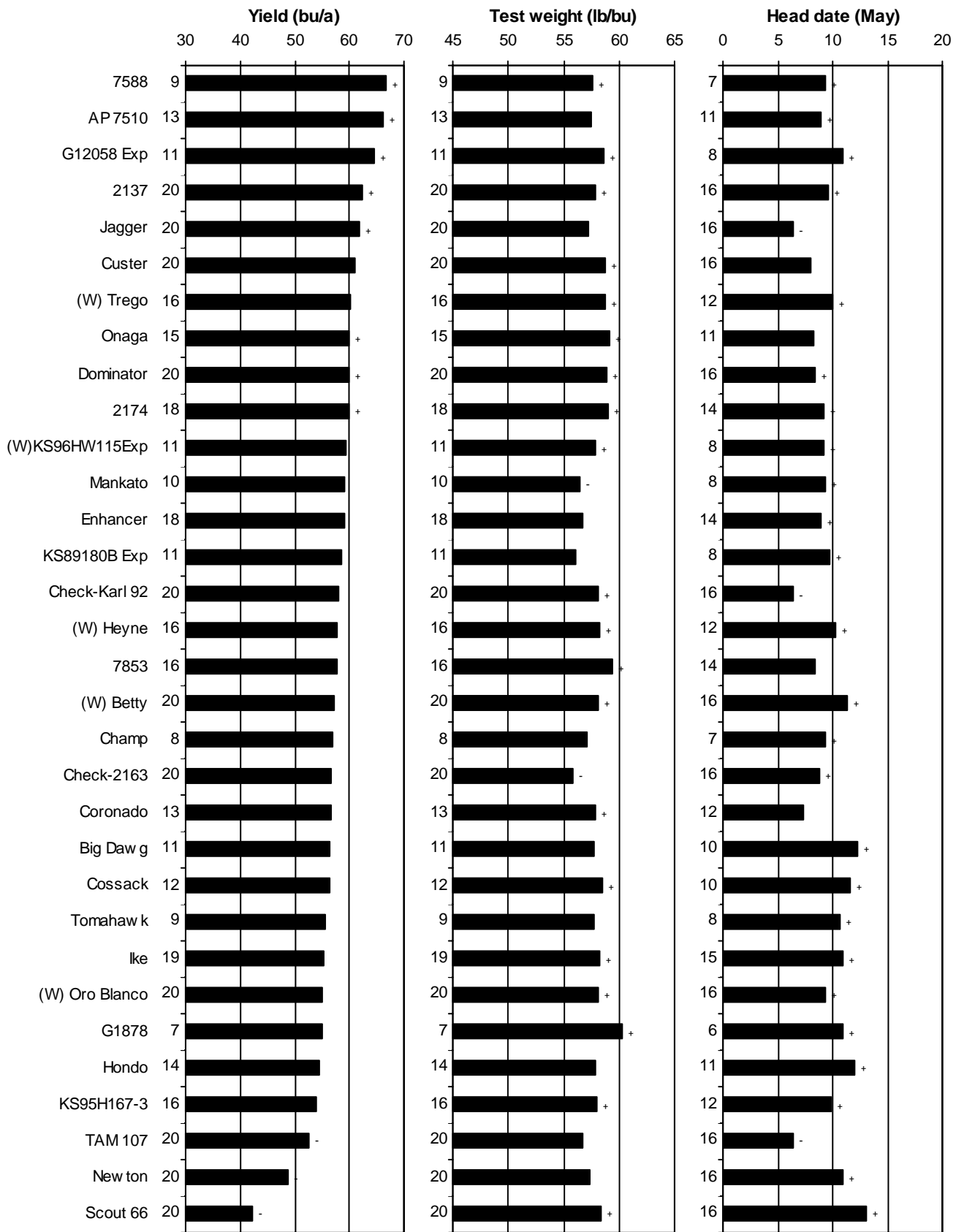


FIGURE 10. WHEAT VARIETY PERFORMANCE SUMMARY, CENTRAL REGION, 1997-2000

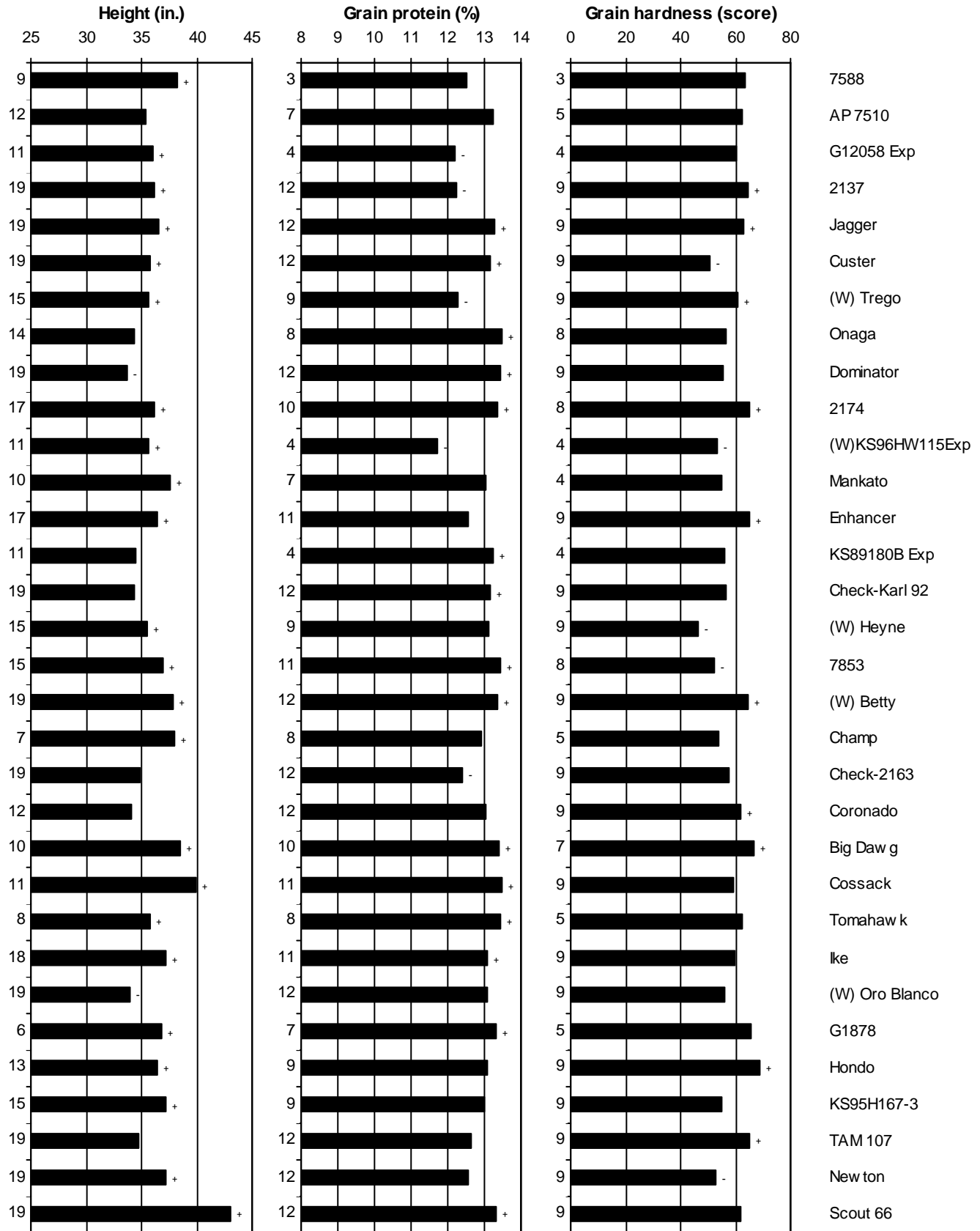


FIGURE 11. WHEAT VARIETY PERFORMANCE SUMMARY, WESTERN REGION, 1997-2000

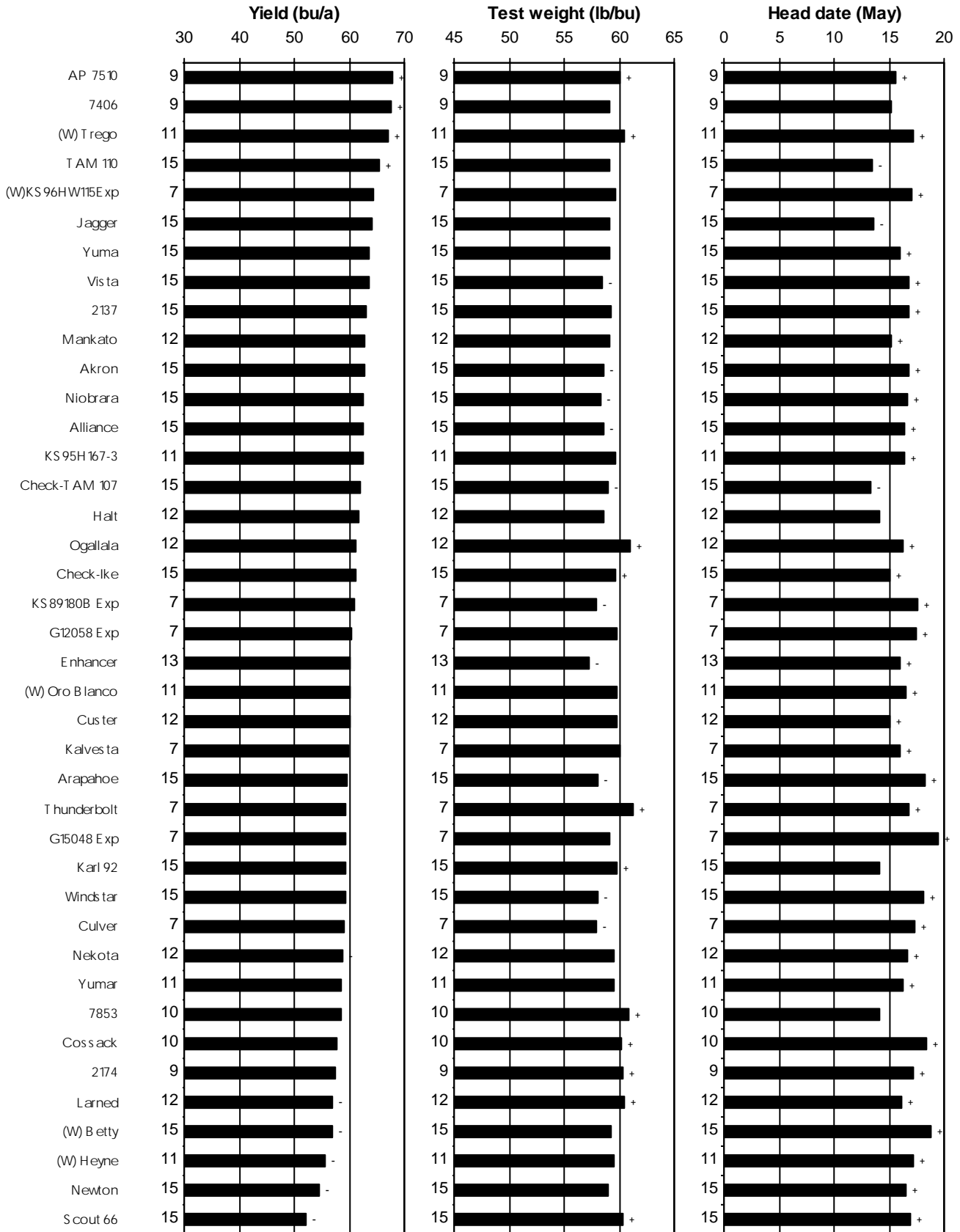


FIGURE 11. WHEAT VARIETY PERFORMANCE SUMMARY, WESTERN REGION, 1997-2000

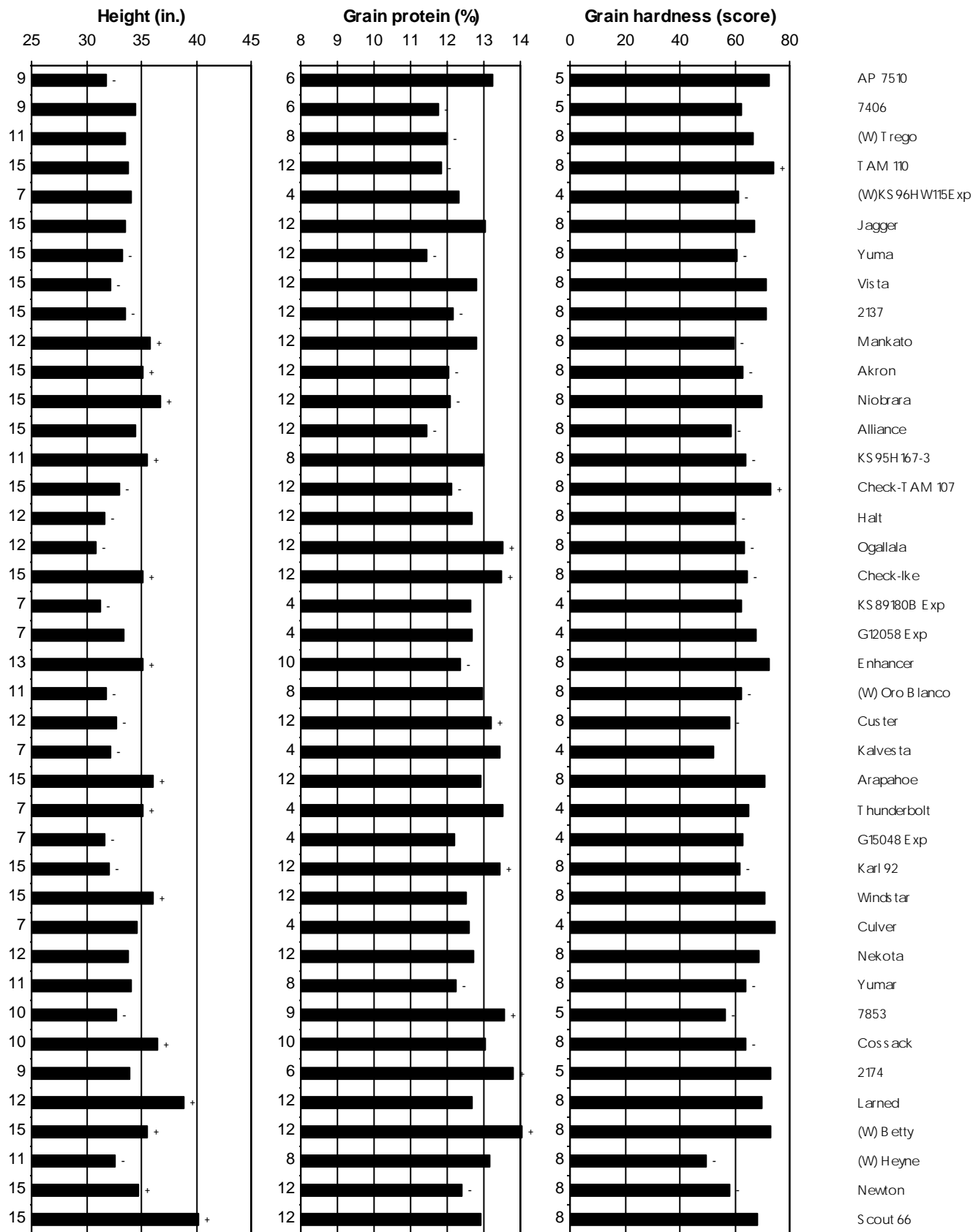


FIGURE 12. WHEAT VARIETY PERFORMANCE SUMMARY, IRRIGATED REGION, 1997-2000

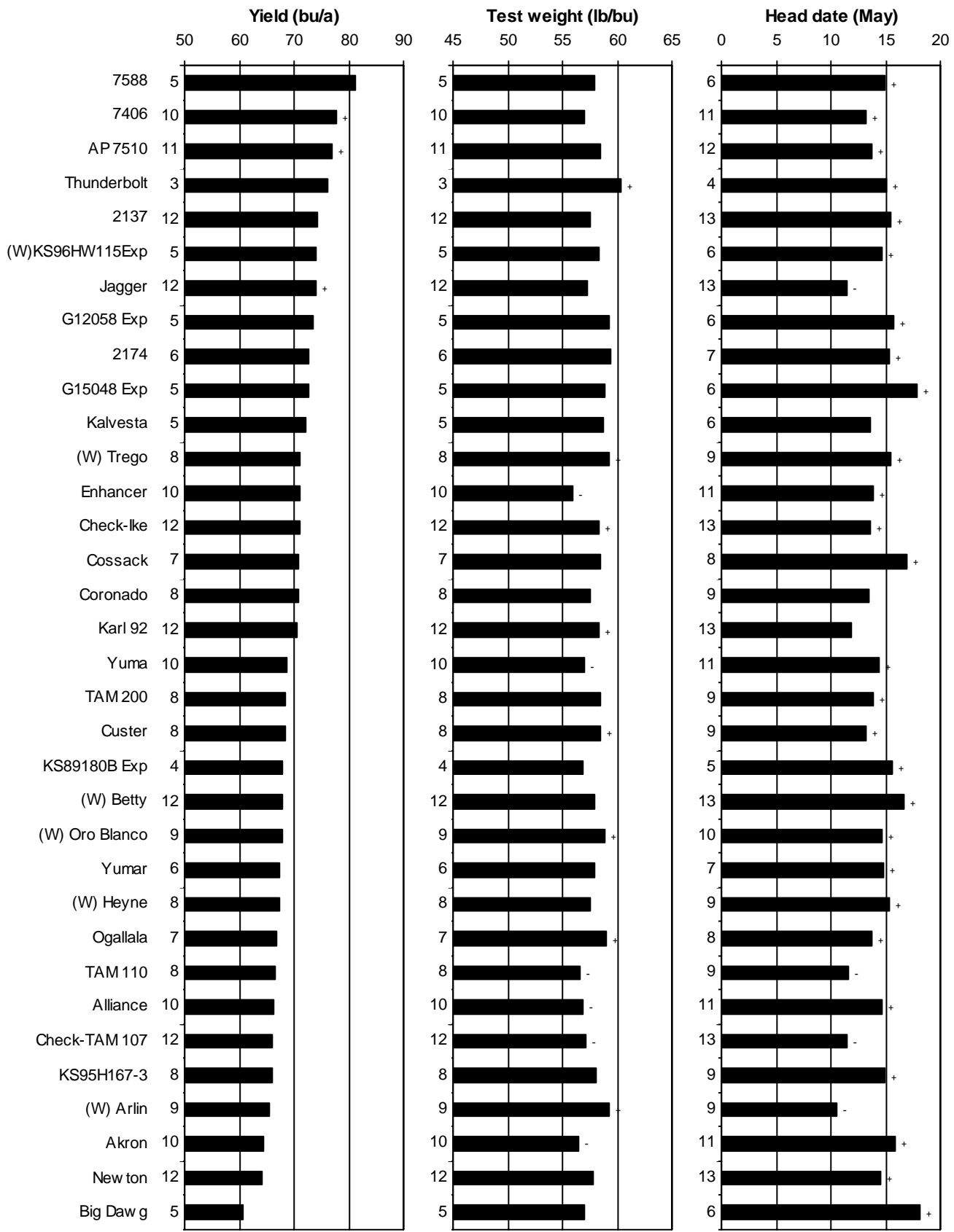
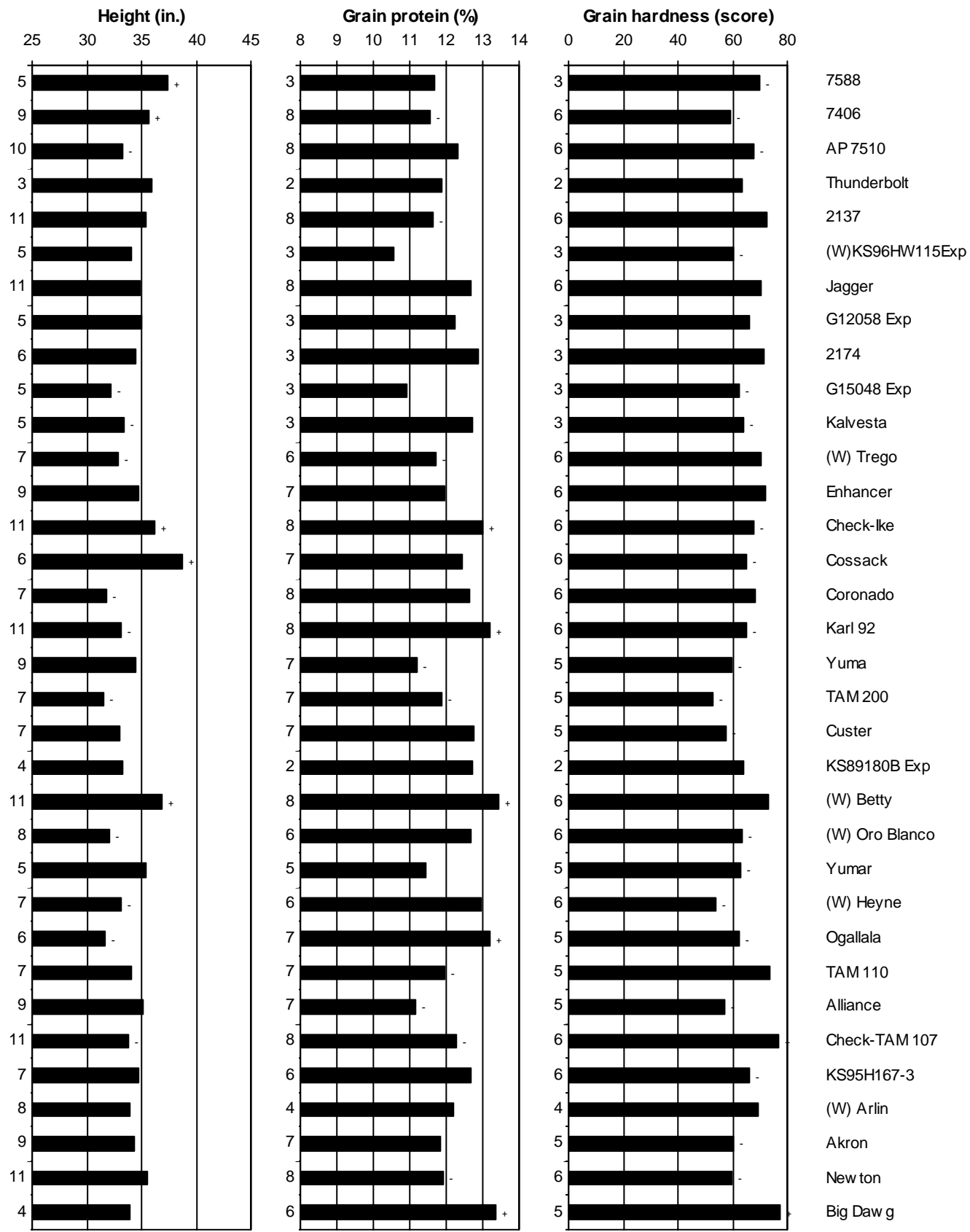


FIGURE 12. WHEAT VARIETY PERFORMANCE SUMMARY, IRRIGATED REGION, 1997-2000



**Table 5a. Yield (bushels per acre)
2000 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.	Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.
AgriPro						2163	34	53	56	53	49
Hondo	37	57	--	--	--	2174	40	50	53	47	48
AGSECO						Culver	37	54	--	--	--
Onaga	42	54	50	47	48	Jagger	44	54	43	56	49
Goertzen						Karl 92	43	55	44	47	47
Enhancer	45	57	58	--	--	KS89180B Exp	42	56	55	49	50
Kalvesta	44	56	54	--	--	KS95H167-3	40	46	53	36	44
Venango	39	61	57	--	--	KS97-PO630 Exp	39	65	55	51	53
NK						Newton	38	40	54	49	45
(S) BL930390	--	--	--	53	--	Niobrara	39	55	--	--	--
(S) Coker 9474	--	--	--	54	--	Scout 66	34	28	46	25	33
(S) Coker 9663	--	--	--	69	--	TAM 107	39	42	54	44	45
Polansky						TAM 302	40	45	58	59	51
Dominator	43	48	--	--	--	Vista	41	47	--	--	--
Terra						Average	41	51	53	50	49
HR 217	--	--	--	50	--	CV (%)	6	12	5	7	--
Public						LSD (0.05)**	3	7	3	4	--
(S) Caldwell	42	49	54	54	50						
(S) Kaskaskia	44	62	55	56	54						
(W) Betty	45	46	49	50	47						
(W) Heyne	42	53	47	50	48						
(W) Trego	41	47	51	42	45						
(W)KS96HW115Ex	49	47	56	46	50						
2137	38	56	57	53	51						

¹ BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

² RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

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

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

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

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

**Table 5b. Yield (bushels per acre)
2000 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	NORTH			SOUTH			Brand / Name	NORTH			SOUTH				
	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵		SU ⁶	Avg.	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵
AgriPro							(W)OK95G701Exp	77	86	82	--	--	--	--	--
Hondo	57	60	59	41	22	--	2137	74	77	76	41	35	57	50	46
Thunderbolt	68	72	70	--	--	--	2163	56	75	65	42	38	47	41	42
AGSECO							2174	70	71	71	40	42	48	41	43
7853	--	--	--	39	37	53	Alliance	63	80	72	--	--	48	--	--
Mankato	67	67	67	--	--	--	Arapahoe	60	75	68	--	--	36	--	--
Onaga	67	73	70	43	46	47	Culver	69	78	74	--	--	45	--	--
AWWPA							Custer	80	79	79	43	39	44	40	42
(W) Oro Blanco	63	71	67	41	25	47	Ike	71	79	75	39	30	50	34	38
General Mills							Jagger	73	71	72	46	32	48	46	43
(W) GM10001	65	67	66	--	--	--	Karl 92	74	80	77	41	40	41	37	40
(W) GM10002	63	78	71	--	--	--	KS89180B Exp	69	70	70	43	26	47	41	39
(W) GM10003	63	66	64	--	--	--	KS95H167-3	66	66	66	44	35	40	38	39
(W) NuWest	37	49	43	--	--	--	KS97-PO630 Exp	76	86	81	44	52	48	53	49
Goertzen							Millennium	64	71	68	--	--	--	--	--
Enhancer	68	70	69	46	33	53	Newton	61	70	65	40	23	47	37	37
Kalvesta	72	73	72	--	--	--	Niobrara	64	79	72	--	--	55	--	--
Venango	73	83	78	45	38	52	Scout 66	44	45	45	33	18	35	26	28
Polansky							TAM 107	67	72	69	48	32	53	29	40
Dominator	73	78	76	43	32	46	TAM 301	--	--	--	32	26	35	38	33
Quantum							TAM 302	66	78	72	42	29	45	40	39
7588	70	83	76	52	42	53	Vista	61	68	65	--	--	49	--	--
AP 7510	75	77	76	47	39	57	Wesley	68	75	72	--	--	--	--	--
XH7463	76	76	76	47	41	59	Windstar	58	65	61	--	--	41	--	--
Public							Yuma	62	71	66	--	--	--	--	--
(W) Betty	66	76	71	44	30	46	Yumar	65	65	65	--	--	--	--	--
(W) Heyne	69	67	68	38	34	26	Average	67	73	70	43	34	47	40	41
(W) Nuplains	76	83	80	--	--	--	CV (%)	5	4	--	6	10	10	9	--
(W) Trego	71	79	75	47	37	51	LSD (0.05)**	4	4	--	3	4	6	5	--
(W)KS96HW115Ex	72	78	75	43	28	40									

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

² SM = Smith County test near Smith Center, KS.

³ HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

⁴ RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

⁵ SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

⁶ SU = Sumner County Dryland test at Max Kolarik farm near Caldwell, KS.

(W) = Hard white wheat.

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

**Table 5c. Yield (bushels per acre)
2000 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.	Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.
AgriPro						(W) Heyne	55	30	--	28	37
Hondo	58	40	--	29	42	(W) Nuplains	66	43	--	--	--
Thunderbolt	65	46	--	36	49	(W) Trego	75	51	--	33	53
AGSECO						(W)KS96HW115Ex	63	44	--	37	48
7853	--	--	--	35	--	(W)OK95G701Exp	66	40	--	38	48
TAM 110	72	50	--	37	53	2137	59	43	--	38	46
AWWPA						2174	61	33	--	33	43
(W) Arlin	--	--	--	30	--	Akron	60	42	--	29	44
(W) Oro Blanco	60	44	--	33	45	Alliance	66	38	--	35	46
Drussel						Arapahoe	62	34	--	28	42
T81	--	--	--	37	--	Culver	60	41	--	30	44
General Mills						Ike	66	45	--	38	50
(W) GM10001	62	41	--	31	44	Jagger	60	41	--	31	44
(W) GM10002	67	39	--	35	47	Karl 92	61	38	--	34	44
(W) GM10003	61	35	--	26	41	KS89180B Exp	64	38	--	32	45
(W) NuWest	36	26	--	15	26	KS95H167-3	67	42	--	35	48
Goertzen						KS97-PO630 Exp	69	42	--	36	49
Enhancer	54	35	--	34	41	Millennium	62	43	--	--	--
G15048 Exp	57	38	--	34	43	Newton	61	41	--	29	44
Kalvesta	59	45	--	35	47	Niobrara	65	43	--	36	48
Venango	65	47	--	35	49	Prairie Red	71	48	--	35	51
Polansky						Prowers 99	41	35	--	26	34
Dominator	63	--	--	--	--	Scout 66	52	40	--	26	39
Quantum						TAM 107	69	47	--	35	50
7406	65	48	--	38	50	TAM 302	65	43	--	33	47
7588	68	49	--	34	50	Vista	59	52	--	36	49
AP 7510	68	49	--	36	51	Wesley	61	41	--	--	--
XH1711	--	46	--	--	--	Windstar	56	35	--	27	39
XH3207	75	48	--	34	52	Yuma	62	42	--	32	46
XH7463	77	48	--	37	54	Yumar	55	37	--	28	40
XH9806	71	49	--	36	52	Average	63	42	--	33	46
Public						CV (%)	7	11	--	7	--
(W) Betty	62	42	--	35	46	LSD (0.05)**	5	6	--	3	--

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

² TD = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ GD = Greeley County test at KSU Southwest Research-Extension Center near Tribune, KS.

⁴ FD = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

**Table 5d. Yield (bushels per acre)
2000 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	Avg.	Brand / Name	SI ¹	TI ²	FI ³	Avg.
AgriPro					Public				
Thunderbolt	--	67	62	--	(W) Betty	63	55	52	56
<hr/>					(W) Heyne	56	52	41	49
AWWPA					(W) Trego	44	73	53	57
(W) Arlin	38	53	44	45	(W)KS96HW115Ex	43	63	56	54
(W) Oro Blanco	48	59	48	52	2137	53	65	64	61
<hr/>					2174	48	58	63	56
Drussel					Akron	--	58	45	--
T81	--	--	54	--	Alliance	--	65	48	--
<hr/>					Ike	45	64	53	54
General Mills					Jagger	60	63	54	59
(W) GM10001	52	63	53	56	Karl 92	61	61	60	61
(W) GM10002	37	61	50	49	KS89180B Exp	47	60	48	52
(W) GM10003	42	58	56	52	KS95H167-3	23	67	54	48
(W) NuWest	26	42	18	29	KS97-PO630 Exp	56	60	57	58
<hr/>					Newton	55	55	45	52
Goertzen					TAM 107	45	69	52	55
Enhancer	34	56	54	48	TAM 302	67	66	55	63
G15048 Exp	54	60	52	55	Yuma	--	57	51	--
Kalvesta	57	57	59	58	Yumar	--	59	44	--
Venango	45	65	57	56	<hr/>				
<hr/>					Average	51	62	53	55
Quantum					CV (%)	19	6	9	--
7406	50	64	63	59	LSD (0.05)**	11	5	5	--
7588	50	70	57	59	<hr/>				
AP 7510	65	67	58	63					
XH1711	--	71	--	--					
XH3207	64	71	55	63					
XH7463	57	70	57	61					
XH9801	66	57	59	61					
XH9806	63	67	60	63					
XH9815	54	57	62	58					

¹ SI = Stafford County test at Sandyland Experiment Field near St. John, KS.

² TI = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ FI = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

**Table 6a. Yield (% of test average)
2000 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.	Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.
AgriPro						2163	83	103	106	107	100
Hondo	90	112	--	--	--	2174	98	98	101	96	98
AGSECO						Culver	91	105	--	--	--
Onaga	103	106	95	95	100	Jagger	107	106	82	112	102
Goertzen						Karl 92	105	108	83	95	98
Enhancer	110	111	110	--	--	KS89180B Exp	102	109	105	98	103
Kalvesta	107	109	102	--	--	KS95H167-3	98	90	101	72	90
Venango	96	119	108	--	--	KS97-PO630 Exp	96	128	104	102	108
NK						Newton	94	78	103	100	94
(S) BL930390	--	--	--	107	--	Niobrara	96	107	--	--	--
(S) Coker 9474	--	--	--	109	--	Scout 66	83	55	87	51	69
(S) Coker 9663	--	--	--	140	--	TAM 107	97	81	103	89	93
Polansky						TAM 302	97	89	111	120	104
Dominator	106	93	--	--	--	Vista	100	91	--	--	--
Terra						Average	41	51	53	50	49
HR 217	--	--	--	102	--	CV (%)	6	12	5	7	--
Public						LSD (0.05)**	7	14	6	9	--
(S) Caldwell	103	95	103	109	102						
(S) Kaskaskia	109	122	105	112	112						
(W) Betty	110	90	94	100	98						
(W) Heyne	103	103	88	101	99						
(W) Trego	101	91	97	84	93						
(W)KS96HW115Ex	119	93	107	92	103						
2137	94	109	107	107	104						

¹ BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

² RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

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

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

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

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

**Table 6b. Yield (% of test average)
2000 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	NORTH			SOUTH			Brand / Name	NORTH			SOUTH				
	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵		SU ⁶	Avg.	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵
AgriPro							(W)OK95G701Exp	115	118	117	--	--	--	--	--
Hondo	86	82	84	96	65	--	2137	111	106	108	96	102	122	125	111
Thunderbolt	102	98	100	--	--	--	2163	83	103	93	98	113	101	104	104
AGSECO							2174	105	98	101	95	125	103	103	106
7853	--	--	--	92	108	114	Alliance	94	110	102	--	--	102	--	--
Mankato	100	92	96	--	--	--	Arapahoe	90	103	97	--	--	76	--	--
Onaga	100	100	100	102	135	101	Culver	104	107	106	--	--	97	--	--
AWWPA							Custer	119	108	114	102	116	94	101	103
(W) Oro Blanco	94	98	96	97	74	100	Ike	106	108	107	93	90	106	86	93
General Mills							Jagger	109	98	104	107	96	102	116	105
(W) GM10001	97	92	95	--	--	--	Karl 92	110	109	110	96	118	88	93	99
(W) GM10002	95	107	101	--	--	--	KS89180B Exp	104	97	100	101	75	100	104	95
(W) GM10003	94	91	92	--	--	--	KS95H167-3	99	90	95	103	102	85	96	96
(W) NuWest	55	67	61	--	--	--	KS97-PO630 Exp	114	117	116	103	153	103	134	123
Goertzen							Millennium	96	97	97	--	--	--	--	--
Enhancer	102	96	99	107	98	114	Newton	92	96	94	95	69	100	95	90
Kalvesta	108	99	104	--	--	--	Niobrara	97	108	102	--	--	118	--	--
Venango	110	113	111	106	113	112	Scout 66	66	62	64	77	54	74	65	67
Polansky							TAM 107	100	98	99	113	94	113	73	98
Dominator	109	107	108	102	94	98	TAM 301	--	--	--	74	77	74	96	80
Quantum							TAM 302	99	107	103	99	86	97	101	96
7588	105	113	109	123	123	114	Vista	92	94	93	--	--	104	--	--
AP 7510	112	106	109	109	116	122	Wesley	102	103	103	--	--	--	--	--
XH7463	113	103	108	110	122	126	Windstar	87	89	88	--	--	88	--	--
Public							Yuma	93	97	95	--	--	--	--	--
(W) Betty	99	104	101	103	89	99	Yumar	97	90	93	--	--	--	--	--
(W) Heyne	104	92	98	88	101	56	Average	67	73	70	43	34	47	40	41
(W) Nuplains	115	113	114	--	--	--	CV (%)	5	4	--	6	10	10	9	--
(W) Trego	106	108	107	110	108	110	LSD (0.05)**	6	5	--	7	11	12	13	--
(W)KS96HW115Ex	108	107	107	101	83	86									

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

² SM = Smith County test near Smith Center, KS.

³ HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

⁴ RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

⁵ SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

⁶ SU = Sumner County Dryland test at Max Kolarik farm near Caldwell, KS.

(W) = Hard white wheat.

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

**Table 6c. Yield (% of test average)
2000 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.	Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.
AgriPro						(W) Heyne	87	71	--	84	81
Hondo	93	95	--	88	92	(W) Nuplains	106	102	--	--	--
Thunderbolt	104	111	--	111	108	(W) Trego	120	121	--	102	114
AGSECO						(W)KS96HW115Ex	101	106	--	112	106
7853	--	--	--	108	--	(W)OK95G701Exp	106	95	--	116	106
TAM 110	116	118	--	112	115	2137	94	102	--	114	104
AWWPA						2174	98	80	--	102	93
(W) Arlin	--	--	--	91	--	Akron	96	100	--	89	95
(W) Oro Blanco	96	104	--	99	100	Alliance	106	92	--	107	101
Drussel						Arapahoe	100	81	--	87	89
T81	--	--	--	113	--	Culver	96	97	--	91	95
General Mills						Ike	106	108	--	116	110
(W) GM10001	99	98	--	94	97	Jagger	96	97	--	95	96
(W) GM10002	107	94	--	106	102	Karl 92	98	90	--	103	97
(W) GM10003	98	84	--	81	87	KS89180B Exp	103	92	--	98	98
(W) NuWest	58	62	--	44	55	KS95H167-3	107	100	--	105	104
Goertzen						KS97-PO630 Exp	110	101	--	108	106
Enhancer	87	83	--	105	91	Millennium	99	103	--	--	--
G15048 Exp	91	90	--	102	94	Newton	97	99	--	88	94
Kalvesta	95	108	--	107	103	Niobrara	104	104	--	110	106
Venango	103	112	--	106	107	Prairie Red	114	115	--	106	112
Polansky						Prowers 99	66	82	--	80	76
Dominator	101	--	--	--	--	Scout 66	83	96	--	78	86
Quantum						TAM 107	111	112	--	106	110
7406	104	114	--	115	111	TAM 302	103	103	--	100	102
7588	109	117	--	103	109	Vista	95	123	--	111	109
AP 7510	108	117	--	109	111	Wesley	97	97	--	--	--
XH1711	--	110	--	--	--	Windstar	89	83	--	83	85
XH3207	120	114	--	105	113	Yuma	100	101	--	97	99
XH7463	122	115	--	112	116	Yumar	89	89	--	86	88
XH9806	114	117	--	111	114	Average	63	42	--	33	46
Public						CV (%)	7	11	--	7	--
(W) Betty	99	100	--	105	102	LSD (0.05)**	8	13	--	8	--

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

² TD = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ GD = Greeley County test at KSU Southwest Research-Extension Center near Tribune, KS.

⁴ FD = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

**Table 6d. Yield (% of test average)
2000 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	Avg.	Brand / Name	SI ¹	TI ²	FI ³	Avg.
AgriPro					Public				
Thunderbolt	--	109	117	--	(W) Betty	124	89	97	103
<hr/>					(W) Heyne	110	84	77	90
AWWPA					(W) Trego	87	119	100	102
(W) Arlin	76	86	82	81	(W)KS96HW115Ex	85	103	105	98
(W) Oro Blanco	95	95	91	94	2137	106	106	121	111
<hr/>					2174	95	94	118	102
Drussel					Akron	--	94	84	--
T81	--	--	102	--	Alliance	--	105	90	--
<hr/>					Ike	89	103	100	97
General Mills					Jagger	119	102	101	108
(W) GM10001	102	102	100	101	Karl 92	120	99	113	111
(W) GM10002	73	99	93	88	KS89180B Exp	94	97	90	94
(W) GM10003	83	94	105	94	KS95H167-3	46	108	102	85
(W) NuWest	50	68	35	51	KS97-PO630 Exp	112	97	108	106
<hr/>					Newton	109	90	86	95
Goertzen					TAM 107	88	111	98	99
Enhancer	68	90	102	87	TAM 302	132	107	104	115
G15048 Exp	107	97	97	100	Yuma	--	93	95	--
Kalvesta	113	93	111	106	Yumar	--	96	83	--
Venango	90	106	107	101	<hr/>				
<hr/>					Average	51	62	53	55
Quantum					CV (%)	19	6	9	--
7406	98	104	118	107	LSD (0.05)**	22	7	10	--
7588	99	113	107	106	<hr/>				
AP 7510	128	108	110	115					
XH1711	--	115	--	--					
XH3207	126	116	104	115					
XH7463	112	114	106	111					
XH9801	131	93	111	112					
XH9806	124	108	113	115					
XH9815	108	92	117	106					

¹ SI = Stafford County test at Sandyland Experiment Field near St. John, KS.

² TI = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ FI = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

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

Brand / Name	<u>Brown-Powhattan</u>			<u>Riley-Manhattan</u>			<u>Franklin-Ottawa</u>			<u>Labette-Parsons</u>		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
AgriPro												
Hondo	39	46	--	47	50	--	--	--	--	--	--	--
AGSECO												
Onaga	48	49	52	52	57	--	56	58	--	37	45	--
Goertzen												
Enhancer	51	55	--	53	52	--	--	--	--	--	--	--
NK												
(S) Coker 9474	--	--	--	--	--	--	--	--	--	39	47	53
(S) Coker 9663	--	--	--	--	--	--	--	--	--	51	55	60
Polansky												
Dominator	--	--	--	42	45	52	--	--	--	--	--	--
Terra												
HR 217	--	--	--	--	--	--	--	--	--	44	49	--
Public												
(S) Caldwell	45	46	49	43	43	52	52	55	53	40	45	53
(S) Kaskaskia	51	50	--	57	56	--	56	--	--	42	48	--
(W) Betty	41	42	47	42	45	49	55	63	--	42	47	54
(W) Heyne	45	48	--	42	48	--	51	--	--	35	42	--
(W) Trego	41	47	--	38	42	--	54	--	--	33	41	--
2137	37	45	49	45	51	57	61	68	63	42	48	55
2163	40	46	48	46	49	56	58	64	59	39	45	55
2174	43	--	--	44	--	--	--	--	--	35	--	--
Custer	--	--	--	--	--	--	--	--	--	--	--	--
Jagger	45	50	54	46	47	55	51	48	43	43	48	58
Karl 92	48	51	50	47	47	52	49	55	53	36	39	48
KS95H167-3	40	43	--	42	44	--	57	--	--	27	35	--
Newton	33	41	40	37	36	39	53	52	46	36	38	44
Niobrara	43	48	51	44	44	48	--	--	--	--	--	--
Scout 66	37	42	45	26	27	33	42	43	40	20	28	35
TAM 107	41	46	47	41	37	42	54	53	50	31	40	47
Vista	37	43	46	39	41	47	--	--	--	--	--	--
Average	42	46	49	44	46	51	55	58	52	38	44	52

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

Brand / Name	Republic-Belleville			Smith-Smith Center			Harvey-Hesston			Reno-Hutchinson			Stafford-St. John			Sumner-Caldwell		
	2YR	3YR	4YR	2YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR		
AgriPro																		
Hondo	73	73	--	70	49	51	--	41	41	--	--	--	--	--	--	--		
AGSECO																		
7853	--	--	--	--	47	51	55	53	53	53	58	57	47	38	38	32		
Mankato	78	78	76	76	--	--	--	--	--	--	--	--	--	--	--	--		
Onaga	73	75	--	77	48	52	--	57	58	--	--	--	--	48	--	--		
AWWPA																		
(W) Oro Blanco	71	73	70	76	47	50	53	42	42	45	51	56	45	39	38	33		
Goertzen																		
Enhancer	77	74	--	79	53	57	60	49	50	51	55	53	--	41	--	--		
Polansky																		
Dominator	80	80	80	81	54	55	58	47	48	49	56	57	--	40	39	--		
Quantum																		
AP 7510	88	88	87	87	--	--	--	54	55	55	--	--	--	--	--	--		
Public																		
(W) Betty	74	75	72	77	52	53	59	42	44	46	55	57	--	34	36	--		
(W) Heyne	72	75	--	73	45	50	--	52	53	--	44	52	--	49	--	--		
(W) Trego	82	80	--	85	51	56	--	51	52	--	57	56	--	35	--	--		
2137	80	80	82	83	46	52	56	48	51	51	55	59	48	52	50	44		
2163	68	68	71	74	47	50	54	50	50	50	54	56	47	41	40	34		
2174	80	--	--	78	46	50	54	50	52	51	53	58	--	43	44	--		
Alliance	72	73	77	82	--	--	--	--	--	--	52	49	--	--	--	--		
Arapahoe	74	74	74	80	--	--	--	--	--	--	43	48	39	--	--	--		
Custer	86	83	80	83	35	44	52	56	59	58	46	51	40	42	49	40		
Ike	79	76	75	81	46	51	54	43	44	--	51	50	42	31	33	28		
Jagger	75	77	72	73	55	57	62	51	54	55	58	64	52	49	48	40		
Karl 92	80	82	78	81	49	54	57	51	52	51	45	48	39	38	37	34		
KS95H167-3	78	76	--	75	37	45	--	48	49	--	41	44	--	40	--	--		
Newton	67	65	62	73	47	49	47	38	38	38	52	53	42	30	28	24		
Niobrara	75	76	77	84	--	--	--	--	--	--	58	58	48	--	--	--		
Scout 66	53	54	57	55	27	34	39	30	33	34	41	44	35	27	27	23		
TAM 107	70	72	71	77	37	44	46	48	48	48	51	54	43	24	26	22		
TAM 301	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Vista	72	70	72	75	--	--	--	--	--	--	46	40	35	--	--	--		
Windstar	67	65	70	72	--	--	--	--	--	--	51	48	--	--	--	--		
Yuma	76	76	73	81	--	--	--	--	--	--	--	--	--	--	--	--		
Yumar	74	76	--	75	--	--	--	--	--	--	--	--	--	--	--	--		
Average	75	75	74	78	47	51	54	48	49	49	53	54	44	40	40	33		

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

Brand / Name	Ellis-Hays			Thomas-Colby			Greeley-Tribune (95-99)			Finney-Garden City		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
AgriPro												
Hondo	--	--	--	--	--	--	--	--	--	--	--	--
AGSECO												
7853	--	--	--	--	--	--	--	--	--	47	48	48
Mankato	--	--	--	--	--	--	79	70	64	--	--	--
TAM 110	76	78	77	59	64	64	77	70	--	52	51	52
AWWPA												
(W) Arlin	--	--	--	--	--	--	--	--	--	44	46	46
(W) Oro Blanco	66	70	--	54	61	--	79	--	--	45	46	--
Drussel												
T81	--	--	--	--	--	--	82	--	--	50	--	--
Goertzen												
Enhancer	68	71	--	50	58	--	78	69	--	45	45	47
Polansky												
Dominator	71	76	74	--	--	--	--	--	--	--	--	--
Quantum												
7406	72	75	--	57	67	68	--	--	--	--	--	--
AP 7510	78	79	--	60	67	66	--	--	--	--	--	--
Public												
(W) Betty	64	67	66	52	57	57	66	58	--	46	46	47
(W) Heyne	64	68	--	41	52	--	72	--	--	42	44	--
(W) Trego	79	79	--	64	67	--	86	--	--	52	50	--
2137	66	72	71	53	61	62	76	68	64	51	51	53
2174	65	72	70	46	--	--	--	--	--	46	--	--
Akron	69	72	73	52	60	62	82	73	68	45	44	47
Alliance	72	73	72	54	61	61	84	71	--	50	46	48
Arapahoe	66	68	69	47	57	57	79	69	64	43	44	46
Ike	72	72	71	52	59	58	75	66	59	52	52	51
Jagger	72	75	75	50	61	63	77	70	64	48	50	51
Karl 92	68	74	70	53	60	58	72	62	58	49	48	47
KS95H167-3	70	73	--	53	60	--	81	--	--	51	50	--
Newton	65	65	61	51	57	53	74	63	56	42	42	43
Niobrara	71	73	71	56	64	63	77	68	63	52	49	49
Scout 66	56	61	61	47	53	54	59	56	50	38	37	39
TAM 107	74	75	72	55	61	60	76	68	61	49	48	48
Vista	68	72	72	63	66	64	83	71	67	50	47	50
Windstar	64	67	68	46	55	58	79	68	--	43	43	45
Yuma	71	74	74	55	64	64	78	69	64	46	48	49
Yumar	67	70	--	50	58	--	74	--	--	43	45	--
Average	69	71	70	52	60	60	76	67	62	47	47	47

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

Brand / Name	<u>Stafford-St.John</u>			<u>Thomas-Colby</u>			<u>Finney-Garden City</u>		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
AWWPA									
(W) Arlin	--	--	--	61	--	--	60	44	51
(W) Oro Blanco	62	--	--	71	--	--	56	43	--
Drussel									
T81	--	--	--	--	--	--	63	--	--
Goertzen									
Enhancer	59	65	--	68	--	--	63	--	--
Quantum									
7406	72	--	--	75	81	82	69	--	--
AP 7510	82	--	--	76	79	80	63	53	--
Public									
(W) Betty	68	71	--	63	66	--	57	--	--
(W) Heyne	72	--	--	63	--	--	52	--	--
(W) Trego	62	--	--	79	--	--	61	--	--
2137	70	76	63	73	77	78	69	55	61
2174	63	67	--	--	--	--	--	--	--
Akron	--	--	--	71	76	--	56	--	--
Alliance	--	--	--	74	78	--	55	--	--
Ike	61	68	57	74	77	77	63	48	55
Jagger	80	73	59	73	79	79	65	51	58
Karl 92	74	69	56	68	70	71	68	51	57
KS95H167-3	46	--	--	74	--	--	63	--	--
Newton	72	72	57	65	68	69	52	38	44
TAM 107	58	48	38	72	77	79	63	47	52
Yuma	--	--	--	71	78	79	59	43	51
Yumar	--	--	--	70	--	--	56	--	--
Average	67	66	53	70	74	75	61	47	52

**Table 8a. Test weight (pounds per bushel)
2000 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.	Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.
AgriPro						2163	54	58	58	58	58
Hondo	60	60	--	--	--	2174	60	61	59	60	60
AGSECO						Culver	58	58	--	--	--
Onaga	61	59	60	59	59	Jagger	59	59	59	59	59
Goertzen						Karl 92	59	59	58	59	59
Enhancer	58	58	58	--	--	KS89180B Exp	59	56	56	57	56
Kalvesta	59	60	58	--	--	KS95H167-3	59	60	58	59	60
Venango	59	58	59	--	--	KS97-PO630 Exp	58	58	59	59	59
NK						Newton	58	60	58	59	59
(S) BL930390	--	--	--	57	--	Niobrara	58	57	--	--	--
(S) Coker 9474	--	--	--	59	--	Scout 66	58	59	58	59	59
(S) Coker 9663	--	--	--	58	--	TAM 107	56	58	57	57	58
Polansky						TAM 302	56	57	56	56	56
Dominator	60	60	--	--	--	Vista	60	57	--	--	--
Terra						Average	58	59	58	58	59
HR 217	--	--	--	58	--	CV (%)	1	2	1	1	--
Public						LSD (0.05)**	1	2	1	1	--
(S) Caldwell	58	58	57	58	58						
(S) Kaskaskia	59	59	58	59	59						
(W) Betty	60	58	58	59	58						
(W) Heyne	59	60	57	59	59						
(W) Trego	58	62	58	59	60						
(W)KS96HW115Ex	59	59	58	59	59						
2137	56	59	58	59	59						

¹ BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

² RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

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

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

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

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

**Table 8b. Test weight (pounds per bushel)
2000 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	NORTH			SOUTH			Brand / Name	NORTH			SOUTH				
	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵		SU ⁶	Avg.	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵
AgriPro							(W)OK95G701Exp	57	60	59	--	--	--	--	--
Hondo	56	58	57	63	52	--	2137	56	58	57	63	53	55	61	58
Thunderbolt	57	59	58	--	--	--	2163	53	56	54	61	52	53	59	56
AGSECO							2174	56	59	58	64	55	54	62	59
7853	--	--	--	65	55	56	Alliance	53	58	56	--	--	55	--	--
Mankato	54	56	55	--	--	--	Arapahoe	55	58	56	--	--	54	--	--
Onaga	55	58	56	64	57	54	Culver	56	59	57	--	--	52	--	--
AWWPA							Custer	57	58	57	63	55	56	62	59
(W) Oro Blanco	56	58	57	64	52	58	Ike	56	58	57	63	54	57	61	59
General Mills							Jagger	54	58	56	62	52	53	61	57
(W) GM10001	57	59	58	--	--	--	Karl 92	56	58	57	63	56	53	62	58
(W) GM10002	57	60	58	--	--	--	KS89180B Exp	53	56	55	62	48	55	59	56
(W) GM10003	52	55	54	--	--	--	KS95H167-3	56	59	58	63	57	52	62	58
(W) NuWest	53	56	54	--	--	--	KS97-PO630 Exp	56	59	57	64	55	58	62	60
Goertzen							Millennium	56	58	57	--	--	--	--	--
Enhancer	52	56	54	61	50	54	Newton	56	58	57	64	52	56	60	58
Kalvesta	56	59	57	--	--	--	Niobrara	55	58	56	--	--	55	--	--
Venango	56	59	58	64	54	58	Scout 66	56	58	57	62	55	55	61	58
Polansky							TAM 107	54	58	56	61	54	54	59	57
Dominator	57	59	58	64	54	57	TAM 301	--	--	--	62	52	54	60	57
Quantum							TAM 302	53	57	55	61	49	53	58	55
7588	54	58	56	62	54	54	Vista	55	57	56	--	--	55	--	--
AP 7510	56	59	58	63	51	56	Wesley	53	57	55	--	--	--	--	--
XH7463	55	58	57	62	54	56	Windstar	53	57	55	--	--	50	--	--
Public							Yuma	55	57	56	--	--	--	--	--
(W) Betty	57	58	57	64	53	57	Yumar	54	58	56	--	--	--	--	--
(W) Heyne	55	58	57	64	53	52	Average	55	58	57	63	53	55	61	58
(W) Nuplains	58	60	59	--	--	--	CV (%)	2	2	--	0	3	5	1	--
(W) Trego	56	60	58	64	56	57	LSD (0.05)**	1	1	--	0	2	3	1	--
(W)KS96HW115Ex	56	59	58	62	54	57									

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

² SM = Smith County test near Smith Center, KS.

³ HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

⁴ RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

⁵ SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

⁶ SU = Sumner County Dryland test at Max Kolarik farm near Caldwell, KS.

(W) = Hard white wheat.

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

**Table 8c. Test weight (pounds per bushel)
2000 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.	Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.
AgriPro						(W) Heyne	61	56	--	58	58
Hondo	60	56	--	58	58	(W) Nuplains	61	58	--	--	--
Thunderbolt	62	59	--	60	60	(W) Trego	62	58	--	59	59
AGSECO						(W)KS96HW115Ex	61	56	--	58	58
7853	--	--	--	59	--	(W)OK95G701Exp	63	58	--	60	60
TAM 110	60	57	--	57	58	2137	60	53	--	57	57
AWWPA						2174	61	56	--	59	58
(W) Arlin	--	--	--	58	--	Akron	59	54	--	57	57
(W) Oro Blanco	61	58	--	59	59	Alliance	59	56	--	57	57
Drussel						Arapahoe	59	55	--	57	57
T81	--	--	--	58	--	Culver	58	55	--	57	57
General Mills						Ike	61	56	--	58	58
(W) GM10001	61	56	--	59	59	Jagger	60	54	--	57	57
(W) GM10002	60	58	--	58	59	Karl 92	62	56	--	59	59
(W) GM10003	57	50	--	58	55	KS89180B Exp	59	54	--	56	56
(W) NuWest	53	50	--	53	52	KS95H167-3	60	57	--	58	58
Goertzen						KS97-PO630 Exp	60	56	--	58	58
Enhancer	58	51	--	55	55	Millennium	58	56	--	--	--
G15048 Exp	59	55	--	58	57	Newton	60	55	--	57	57
Kalvesta	61	58	--	60	60	Niobrara	59	56	--	56	57
Venango	62	57	--	58	59	Prairie Red	60	56	--	57	58
Polansky						Prowers 99	60	56	--	59	58
Dominator	61	--	--	--	--	Scout 66	62	58	--	58	59
Quantum						TAM 107	60	56	--	57	58
7406	60	55	--	58	58	TAM 302	57	52	--	55	55
7588	60	55	--	58	57	Vista	60	57	--	57	58
AP 7510	61	57	--	58	59	Wesley	58	53	--	--	--
XH1711	--	57	--	--	--	Windstar	58	55	--	56	56
XH3207	61	57	--	58	59	Yuma	60	54	--	57	57
XH7463	60	54	--	58	57	Yumar	60	55	--	58	58
XH9806	60	56	--	57	58						
Public						Average	60	56	--	58	58
(W) Betty	60	56	--	58	58	CV (%)	1	2	--	2	--
						LSD (0.05)**	1	1	--	1	--

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

² TD = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ GD = Greeley County test at KSU Southwest Research-Extension Center near Tribune, KS.

⁴ FD = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

**Table 8d. Test weight (pounds per bushel)
2000 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	Avg.	Brand / Name	SI ¹	TI ²	FI ³	Avg.
AgriPro					Public				
Thunderbolt	--	59	60	--	(W) Betty	55	57	58	57
<hr/>					(W) Heyne	52	56	58	55
AWWPA					(W) Trego	57	58	59	58
(W) Arlin	55	58	57	57	(W)KS96HW115Ex	55	57	56	56
(W) Oro Blanco	56	57	58	57	2137	55	56	57	56
<hr/>					2174	58	56	58	57
Drussel					Akron	--	55	56	--
T81	--	--	57	--	Alliance	--	56	55	--
<hr/>					Ike	53	56	57	55
General Mills					Jagger	54	53	56	54
(W) GM10001	55	57	59	57	Karl 92	55	57	58	57
(W) GM10002	51	59	57	56	KS89180B Exp	53	55	55	54
(W) GM10003	54	51	54	53	KS95H167-3	54	57	59	57
(W) NuWest	53	54	53	53	KS97-PO630 Exp	55	57	57	56
<hr/>					Newton	57	56	56	56
Goertzen					TAM 107	52	56	57	55
Enhancer	53	51	54	53	TAM 302	55	54	54	54
G15048 Exp	55	57	59	57	Yuma	--	56	57	--
Kalvesta	58	57	59	58	Yumar	--	57	58	--
Venango	56	58	59	58	<hr/>				
<hr/>					Average	55	56	57	56
Quantum					CV (%)	4	2	2	--
7406	53	55	57	55	LSD (0.05)**	2	1	1	--
7588	54	57	58	56	<hr/>				
AP 7510	54	57	57	56					
XH1711	--	58	--	--					
XH3207	56	57	57	57					
XH7463	54	55	56	55					
XH9801	57	57	58	57					
XH9806	54	55	57	55					
XH9815	53	56	58	56					

¹ SI = Stafford County test at Sandyland Experiment Field near St. John, KS.

² TI = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ FI = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

⁴ ST = Stevens County test at Jim Kramer farm near Hugoton, KS.

(W) = Hard white wheat.

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

**Table 9a. Heading (days +/- Scout 66, Scout 66 heading listed as date in May)
2000 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.	Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.
AgriPro						2163	--	--	-0.8	-5.0	-2.9
Hondo	--	--	--	--	--	2174	--	--	-2.0	-3.8	-2.9
AGSECO						Culver	--	--	--	--	--
Onaga	--	--	-2.8	-6.8	-4.8	Jagger	--	--	-6.8	-11.0	-8.9
Goertzen						Karl 92	--	--	-4.8	-8.0	-6.4
Enhancer	--	--	-2.8	--	--	KS89180B Exp	--	--	-2.3	-3.3	-2.8
Kalvesta	--	--	-2.8	--	--	KS95H167-3	--	--	-2.8	-4.0	-3.4
Venango	--	--	-0.3	--	--	KS97-PO630 Exp	--	--	-1.5	-3.8	-2.6
NK						Newton	--	--	-0.5	-2.0	-1.3
(S) BL930390	--	--	--	-4.3	--	Niobrara	--	--	--	--	--
(S) Coker 9474	--	--	--	-7.5	--	Scout 66	--	--	2.8	2.0	2.4
(S) Coker 9663	--	--	--	-8.3	--	TAM 107	--	--	-6.3	-8.3	-7.3
Polansky						TAM 302	--	--	0.3	-2.5	-1.1
Dominator	--	--	--	--	--	Vista	--	--	--	--	--
Terra						Average	--	--	-2.0	-4.7	-3.3
HR 217	--	--	--	-2.8	--	CV (%)	--	--	1.6	0.7	--
Public						LSD (0.05)**	--	--	0.6	1.0	--
(S) Caldwell	--	--	-2.3	-5.8	-4.0						
(S) Kaskaskia	--	--	-2.0	-3.0	-2.5						
(W) Betty	--	--	2.3	-3.5	-0.6						
(W) Heyne	--	--	-1.3	-4.5	-2.9						
(W) Trego	--	--	-1.0	-3.0	-2.0						
(W)KS96HW115Ex	--	--	-3.0	-3.8	-3.4						
2137	--	--	-1.3	-2.8	-2.0						

¹ BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS. No maturity notes available for 2000.

² RL = Riley County test at Ashland Experiment Farm near Manhattan, KS. No maturity notes available for 2000.

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

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

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

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

**Table 9b. Heading (days +/- Scout 66, Scout 66 heading listed as date in May)
2000 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	NORTH				Avg.	Brand / Name	SOUTH				Avg.
	RP ¹	HV ²	RN ³	SD ⁴			RP ¹	HV ²	RN ³	SD ⁴	
AgriPro						(W)OK95G701Exp	-3.8	--	--	--	--
Hondo	-2.0	0.3	0.3	--	--	2137	-4.0	-2.8	-4.5	-2.5	-3.3
Thunderbolt	-1.8	--	--	--	--	2163	-4.5	-4.0	-5.5	-3.0	-4.2
AGSECO						2174	-4.8	-4.0	-4.8	-2.5	-3.8
7853	--	-4.5	-4.5	-5.8	-4.9	Alliance	-2.5	--	--	-2.5	--
Mankato	-3.8	--	--	--	--	Arapahoe	-0.8	--	--	2.3	--
Onaga	-4.0	-5.0	-6.8	-3.3	-5.0	Culver	-1.8	--	--	-0.5	--
AWWPA						Custer	-3.8	-6.8	-7.0	-5.3	-6.3
(W) Oro Blanco	-2.5	-3.5	-4.0	-2.3	-3.3	Ike	-2.8	-1.8	-2.3	-3.0	-2.3
General Mills						Jagger	-5.8	-7.3	-6.8	-6.5	-6.8
(W) GM10001	-0.3	--	--	--	--	Karl 92	-7.5	-5.8	-7.3	-6.0	-6.3
(W) GM10002	-0.3	--	--	--	--	KS89180B Exp	-2.8	-3.0	-3.0	-2.3	-2.8
(W) GM10003	-2.3	--	--	--	--	KS95H167-3	-3.8	-3.0	-3.8	-3.8	-3.5
(W) NuWest	0.8	--	--	--	--	KS97-PO630 Exp	-3.8	-2.8	-3.3	-2.8	-2.9
Goertzen						Millennium	-0.8	--	--	--	--
Enhancer	-2.5	-4.0	-4.8	-3.8	-4.2	Newton	-2.3	-1.3	-1.8	-2.0	-1.7
Kalvesta	-3.8	--	--	--	--	Niobrara	-1.3	--	--	-1.0	--
Venango	-2.8	-1.3	-2.0	-0.5	-1.3	Scout 66	13.8	7.0	10.8	4.5	7.4
Polansky						TAM 107	-6.5	-7.3	-8.3	-6.5	-7.3
Dominator	-4.8	-5.3	-5.5	-4.5	-5.1	TAM 301	--	-1.8	-2.0	-0.5	-1.4
Quantum						TAM 302	-3.5	-1.0	-2.3	-0.5	-1.3
7588	-3.8	-3.0	-5.8	-2.3	-3.7	Vista	-3.0	--	--	-0.3	--
AP 7510	-3.8	-3.3	-5.3	-3.5	-4.0	Wesley	-3.3	--	--	--	--
XH7463	-1.8	-6.8	-6.5	-4.5	-5.9	Windstar	-1.0	--	--	0.8	--
Public						Yuma	-2.5	--	--	--	--
(W) Betty	-1.8	-1.3	-2.5	1.3	-0.8	Yumar	-3.5	--	--	--	--
(W) Heyne	-3.5	-2.0	-3.0	-0.8	-1.9	Average	-2.8	-3.4	-4.2	-2.4	-3.3
(W) Nuplains	-1.0	--	--	--	--	CV (%)	3.8	0.4	12.6	2.3	--
(W) Trego	-2.5	-3.0	-4.3	-1.5	-2.9	LSD (0.05)**	0.5	0.5	1.0	0.9	--
(W)KS96HW115Ex	-4.0	-2.8	-4.0	-0.8	-2.5						

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

² HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

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

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

(W) = Hard white wheat.

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

**Table 9c. Heading (days +/- Scout 66, Scout 66 heading listed as date in May)
2000 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.	Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.
AgriPro						(W) Heyne	-1.0	1.8	--	-1.5	-0.3
Hondo	1.8	2.8	--	0.5	1.7	(W) Nuplains	3.0	4.0	--	--	--
Thunderbolt	-1.0	0.3	--	-1.5	-0.8	(W) Trego	-0.5	2.3	--	-0.8	0.3
AGSECO						(W)KS96HW115Ex	-2.3	1.5	--	-1.5	-0.8
7853	--	--	--	-2.5	--	(W)OK95G701Exp	-1.0	0.5	--	-1.5	-0.7
TAM 110	-4.3	-2.5	--	-3.3	-3.3	2137	-1.5	0.5	--	-1.5	-0.8
AWWPA						2174	-1.3	0.5	--	-1.8	-0.8
(W) Arlin	--	--	--	-3.3	--	Akron	-1.5	1.0	--	-1.3	-0.6
(W) Oro Blanco	-1.3	0.5	--	-1.5	-0.8	Alliance	-0.5	0.3	--	-1.5	-0.6
Drussel						Arapahoe	2.0	2.5	--	1.0	1.8
T81	--	--	--	-1.8	--	Culver	0.3	1.3	--	-0.5	0.3
General Mills						Ike	-1.8	-2.3	--	-1.5	-1.8
(W) GM10001	0.0	1.5	--	-1.0	0.2	Jagger	-4.3	-2.3	--	-2.8	-3.1
(W) GM10002	2.3	1.3	--	-0.5	1.0	Karl 92	-3.8	-2.3	--	-2.0	-2.7
(W) GM10003	-1.5	-0.5	--	-1.3	-1.1	KS89180B Exp	-1.0	2.0	--	-0.5	0.2
(W) NuWest	5.3	7.8	--	1.3	4.8	KS95H167-3	-1.8	0.5	--	-1.5	-0.9
Goertzen						KS97-PO630 Exp	-1.0	1.8	--	-1.3	-0.2
Enhancer	-1.5	0.3	--	-1.8	-1.0	Millennium	3.5	2.8	--	--	--
G15048 Exp	3.0	4.0	--	1.5	2.8	Newton	-1.3	-0.3	--	-1.3	-0.9
Kalvesta	-3.0	0.0	--	-1.5	-1.5	Niobrara	0.5	0.5	--	-0.8	0.1
Venango	-0.8	1.5	--	-0.5	0.1	Prairie Red	-4.5	-2.8	--	-2.8	-3.3
Polansky						Prowers 99	1.5	2.8	--	0.0	1.4
Dominator	-2.8	--	--	--	--	Scout 66	9.5	10.8	--	10.5	10.3
Quantum						TAM 107	-4.8	-2.8	--	-3.0	-3.5
7406	-2.8	-2.0	--	-2.0	-2.3	TAM 302	0.5	2.0	--	0.3	0.9
7588	-1.0	1.3	--	-1.3	-0.3	Vista	0.0	0.0	--	-0.5	-0.2
AP 7510	-2.8	-0.8	--	-1.5	-1.7	Wesley	0.3	1.5	--	--	--
XH1711	--	-1.3	--	--	--	Windstar	1.5	2.0	--	0.5	1.3
XH3207	-1.3	-0.8	--	-1.3	-1.1	Yuma	-1.3	0.3	--	-1.5	-0.8
XH7463	-3.0	-0.8	--	-2.0	-1.9	Yumar	-2.0	1.3	--	-1.5	-0.8
XH9806	-1.8	0.0	--	-1.5	-1.1	Average	-0.8	0.8	--	-1.2	-0.4
Public						CV (%)	8.1	6.0	--	5.4	--
(W) Betty	2.3	5.3	--	-0.3	2.4	LSD (0.05)**	0.8	0.8	--	0.6	--

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

² TD = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ GD = Greeley County test at KSU Southwest Research-Extension Center near Tribune, KS.

⁴ FD = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

**Table 9d. Heading (days +/- Newton, Newton heading listed as date in May)
2000 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	Avg.	Brand / Name	SI ¹	TI ²	FI ³	Avg.
AgriPro					Public				
Thunderbolt	--	1.5	0.3	--	(W) Betty	1.8	3.3	1.3	2.1
<hr/>					(W) Heyne	-1.0	1.0	0.3	0.1
AWWPA					(W) Trego	2.3	2.0	0.5	1.6
(W) Arlin	-5.5	-1.3	-2.8	-3.2	(W)KS96HW115Ex	-0.3	2.0	-0.5	0.4
(W) Oro Blanco	-0.8	1.3	0.3	0.3	2137	1.5	2.0	0.3	1.3
<hr/>					2174	1.0	1.8	-0.3	0.8
Drussel					Akron	--	1.0	0.3	--
T81	--	--	-1.0	--	Alliance	--	1.0	0.0	--
<hr/>					Ike	0.0	-0.8	-0.5	-0.4
General Mills					Jagger	-6.0	-1.5	-2.0	-3.2
(W) GM10001	3.8	1.3	1.5	2.2	Karl 92	-5.0	-0.8	-1.3	-2.3
(W) GM10002	1.5	1.8	1.3	1.5	KS89180B Exp	-0.8	2.0	0.8	0.7
(W) GM10003	2.0	1.8	0.3	1.3	KS95H167-3	1.3	0.0	-0.3	0.3
(W) NuWest	6.0	6.8	3.3	5.3	KS97-PO630 Exp	0.3	2.3	0.5	1.0
<hr/>					Newton	4.3	10.0	10.0	8.1
Goertzen					TAM 107	-5.5	-1.5	-2.8	-3.3
Enhancer	-1.0	0.3	-0.5	-0.4	TAM 302	-0.5	2.0	0.5	0.7
G15048 Exp	4.5	4.5	2.3	3.8	Yuma	--	0.3	-0.3	--
Kalvesta	-2.5	0.3	0.0	-0.8	Yumar	--	0.8	0.0	--
Venango	1.5	1.8	0.3	1.2	<hr/>				
<hr/>					Average	-0.4	0.9	0.0	0.2
Quantum					CV (%)	3.2	0.6	5.1	--
7406	-2.3	-1.3	-0.8	-1.4	LSD (0.05)**	1.3	0.9	0.6	--
7588	-1.3	2.0	0.5	0.4	<hr/>				
AP 7510	-0.8	-0.3	-0.3	-0.4					
XH1711	--	-1.3	--	--					
XH3207	-0.8	0.3	0.8	0.1					
XH7463	-1.8	-0.3	-0.5	-0.8					
XH9801	-3.3	-1.3	-0.5	-1.7					
XH9806	-1.5	0.5	0.3	-0.3					
XH9815	-0.5	-0.3	-0.8	-0.5					

¹ SI = Stafford County test at Sandyland Experiment Field near St. John, KS.

² TI = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ FI = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

Table 10a. Plant height (inches)
2000 EASTERN Kansas Winter Wheat Performance Tests.

Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.	Brand / Name	BR ¹	RL ²	FR ³	LB ⁴	Avg.
AgriPro						2163	26	37	33	37	33
Hondo	24	33	--	--	--	2174	26	37	34	39	34
AGSECO						Culver	25	37	--	--	--
Onaga	27	37	32	37	33	Jagger	30	37	35	36	34
Goertzen						Karl 92	26	37	33	36	33
Enhancer	28	37	37	--	--	KS89180B Exp	25	37	31	39	33
Kalvesta	25	35	32	--	--	KS95H167-3	26	40	34	40	35
Venango	25	37	34	--	--	KS97-PO630 Exp	24	38	32	38	33
NK						Newton	26	39	35	38	34
(S) BL930390	--	--	--	37	--	Niobrara	27	41	--	--	--
(S) Coker 9474	--	--	--	38	--	Scout 66	28	43	44	43	40
(S) Coker 9663	--	--	--	40	--	TAM 107	28	37	34	40	35
Polansky						TAM 302	25	37	33	38	33
Dominator	25	37	--	--	--	Vista	25	30	--	--	--
Terra						Average	26	37	34	39	34
HR 217	--	--	--	37	--	CV (%)	3	--	3	4	--
Public						LSD (0.05)**	1	--	1	2	--
(S) Caldwell	29	37	33	40	35						
(S) Kaskaskia	29	41	37	40	37						
(W) Betty	28	35	35	41	35						
(W) Heyne	27	35	32	37	33						
(W) Trego	25	37	33	38	33						
(W)KS96HW115Ex	27	37	36	38	34						
2137	25	39	35	39	34						

¹ BR = Brown County test at Cornbelt Experiment Field near Powhattan, KS.

² RL = Riley County test at Ashland Experiment Farm near Manhattan, KS.

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

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

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

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

Table 10b. Plant height (inches)
2000 CENTRAL Kansas Winter Wheat Performance Tests.

Brand / Name	NORTH			SOUTH			Brand / Name	NORTH			SOUTH						
	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵		SU ⁶	Avg.	RP ¹	SM ²	Avg.	HV ³	RN ⁴	SD ⁵	SU ⁶	Avg.
AgriPro							(W)OK95G701Exp	36	36	36	--	--	--	--	--		
Hondo	36	38	37	34	42	--	--	2137	36	36	36	33	44	36	37	37	
Thunderbolt	38	38	38	--	--	--	--	2163	36	36	36	33	44	33	39	37	
AGSECO							2174	37	37	37	34	44	34	40	38		
7853	--	--	--	35	44	40	39	40	Alliance	37	38	37	--	--	38	--	--
Mankato	38	40	39	--	--	--	--	--	Arapahoe	37	38	37	--	--	37	--	--
Onaga	35	35	35	34	43	30	39	36	Culver	36	38	37	--	--	38	--	--
AWWPA									Custer	37	38	38	35	43	33	40	38
(W) Oro Blanco	35	35	35	32	40	31	40	36	Ike	37	38	37	34	44	38	44	40
General Mills									Jagger	36	37	37	36	42	34	41	38
(W) GM10001	39	40	40	--	--	--	--	--	Karl 92	36	36	36	33	40	33	40	36
(W) GM10002	35	34	35	--	--	--	--	--	KS89180B Exp	35	36	35	33	40	34	37	36
(W) GM10003	36	36	36	--	--	--	--	--	KS95H167-3	37	39	38	35	46	35	44	40
(W) NuWest	39	40	39	--	--	--	--	--	KS97-PO630 Exp	34	36	35	32	42	31	38	36
Goertzen									Millennium	40	41	40	--	--	--	--	--
Enhancer	35	37	36	35	42	34	44	39	Newton	36	39	38	34	42	36	41	38
Kalvesta	35	35	35	--	--	--	--	--	Niobrara	38	40	39	--	--	42	--	--
Venango	37	38	37	34	41	35	41	38	Scout 66	41	44	42	39	46	42	59	47
Polansky									TAM 107	36	39	37	34	42	33	39	37
Dominator	35	34	34	33	40	32	37	36	TAM 301	--	--	--	31	36	33	37	34
Quantum									TAM 302	35	36	36	34	41	36	40	37
7588	39	38	38	35	46	36	--	--	Vista	35	36	35	--	--	32	--	--
AP 7510	35	36	35	33	44	37	--	--	Wesley	36	36	36	--	--	--	--	--
XH7463	36	37	36	35	44	36	--	--	Windstar	37	39	38	--	--	35	--	--
Public									Yuma	36	36	36	--	--	--	--	--
(W) Betty	38	38	38	35	43	38	39	39	Yumar	37	37	37	--	--	--	--	--
(W) Heyne	35	35	35	33	44	31	41	37	Average	36	37	37	34	42	35	41	38
(W) Nuplains	36	37	37	--	--	--	--	--	CV (%)	3	4	--	3	3	8	--	--
(W) Trego	35	36	36	34	41	37	38	37	LSD (0.05)**	1	2	--	1	2	4	--	--
(W)KS96HW115Ex	35	36	36	34	42	34	40	37									

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

² SM = Smith County test near Smith Center, KS.

³ HV = Harvey County test at Harvey County Experiment Field near Hesston, KS.

⁴ RN = Reno County test at South Central Experiment Field near Hutchinson, KS.

⁵ SD = Stafford County Dryland test at Sandyland Experiment Field near St. John, KS.

⁶ SU = Sumner County Dryland test at Max Kolarik farm near Caldwell, KS.

(W) = Hard white wheat.

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

Table 10c. Plant height (inches)
2000 WESTERN Kansas Winter Wheat Performance Tests.

Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.	Brand / Name	EL ¹	TD ²	GD ³	FD ⁴	Avg.
AgriPro						(W) Heyne	34	28	--	32	31
Hondo	34	28	--	32	31	(W) Nuplains	33	27	--	--	--
Thunderbolt	36	30	--	34	34	(W) Trego	34	29	--	32	32
AGSECO						(W)KS96HW115Ex	35	28	--	33	32
7853	--	--	--	33	--	(W)OK95G701Exp	32	26	--	32	30
TAM 110	36	29	--	34	33	2137	33	28	--	32	31
AWWPA						2174	34	29	--	33	32
(W) Arlin	--	--	--	32	--	Akron	35	29	--	34	33
(W) Oro Blanco	32	27	--	30	30	Alliance	35	28	--	34	32
Drussel						Arapahoe	36	30	--	34	33
T81	--	--	--	31	--	Culver	35	30	--	34	33
General Mills						Ike	36	29	--	35	33
(W) GM10001	37	31	--	33	34	Jagger	34	29	--	32	31
(W) GM10002	31	26	--	31	29	Karl 92	33	27	--	31	30
(W) GM10003	34	27	--	29	30	KS89180B Exp	33	26	--	30	30
(W) NuWest	37	30	--	33	33	KS95H167-3	37	29	--	34	33
Goertzen						KS97-PO630 Exp	32	27	--	32	30
Enhancer	36	29	--	33	33	Millennium	37	33	--	--	--
G15048 Exp	33	27	--	32	30	Newton	36	30	--	33	33
Kalvesta	32	28	--	31	30	Niobrara	37	31	--	36	34
Venango	34	29	--	33	32	Prairie Red	34	28	--	32	31
Polansky						Prowers 99	39	32	--	36	36
Dominator	32	--	--	--	--	Scout 66	43	34	--	39	38
Quantum						TAM 107	35	28	--	33	32
7406	35	29	--	33	32	TAM 302	33	29	--	31	31
7588	38	30	--	34	34	Vista	32	28	--	31	30
AP 7510	33	27	--	31	30	Wesley	32	28	--	--	--
XH1711	--	29	--	--	--	Windstar	36	30	--	34	33
XH3207	33	27	--	31	30	Yuma	34	27	--	31	31
XH7463	35	29	--	34	32	Yumar	34	28	--	31	31
XH9806	33	29	--	34	32						
Public						Average	34	29	--	33	32
(W) Betty	36	31	--	33	33	CV (%)	4	5	--	3	--
						LSD (0.05)**	2	2	--	1	--

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

² TD = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ GD = Greeley County test at KSU Southwest Research-Extension Center near Tribune, KS.

⁴ FD = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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

Table 10d. Plant height (inches)
2000 IRRIGATED Kansas Winter Wheat Performance Tests.

Brand / Name	SI ¹	TI ²	FI ³	Avg.	Brand / Name	SI ¹	TI ²	FI ³	Avg.
AgriPro					Public				
Thunderbolt	--	33	37	--	(W) Betty	41	35	36	37
<hr/>					(W) Heyne	37	30	35	34
AWWPA					(W) Trego	33	30	34	32
(W) Arlin	37	32	37	35	(W)KS96HW115Ex	38	30	36	34
(W) Oro Blanco	35	28	36	33	2137	38	31	37	35
<hr/>					2174	34	32	36	34
Drussel					Akron	--	31	33	--
T81	--	--	35	--	Alliance	--	34	38	--
<hr/>					Ike	37	33	37	36
General Mills					Jagger	41	31	35	35
(W) GM10001	36	35	38	36	Karl 92	36	31	36	34
(W) GM10002	34	29	35	32	KS89180B Exp	34	29	36	33
(W) GM10003	35	31	34	33	KS95H167-3	32	31	37	33
(W) NuWest	30	33	37	33	KS97-PO630 Exp	34	30	36	34
<hr/>					Newton	35	33	37	35
Goertzen					TAM 107	36	32	36	34
Enhancer	35	32	36	34	TAM 302	38	31	35	35
G15048 Exp	35	30	34	33	Yuma	--	32	36	--
Kalvesta	36	31	35	34	Yumar	--	32	36	--
Venango	35	32	37	35	<hr/>				
<hr/>					Average	36	31	36	34
Quantum					CV (%)	6	6	5	--
7406	38	33	37	36	LSD (0.05)**	3	2	2	--
7588	40	35	38	38	<hr/>				
AP 7510	38	30	36	35					
XH1711	--	33	--	--					
XH3207	38	30	36	34					
XH7463	36	32	37	35					
XH9801	36	30	37	34					
XH9806	37	29	36	34					
XH9815	35	32	36	34					

¹ SI = Stafford County test at Sandyland Experiment Field near St. John, KS.

² TI = Thomas County test at KSU Northwest Research-Extension Center near Colby, KS.

³ FI = Finney County test at KSU Southwest Research-Extension Center near Garden City, KS.

(W) = Hard white wheat.

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Table 11. Disease and lodging notes from 2000 Kansas Wheat Performance Tests.

Brand / Name	Leaf Rust			BYD ¹	PM ²	SLB ³	LOD ⁴	Brand / Name	Leaf Rust			BYD ¹	PM ²	SLB ³	LOD ⁴
	RP	RN	SU						LB	RN	LB				
AgriPro								Public							
Hondo	2	2	--	--	1	--	10	(S) Caldwell	--	--	--	6	--	6	--
Thunderbolt	2	--	--	--	--	--	--	(S) Kaskaskia	--	--	--	6	--	5	--
AGSECO								(W) Betty	8	9	8	6	3	2	45
7853	--	8	8	--	5	--	18	(W) Heyne	7	7	8	8	5	4	11
Mankato	8	--	--	--	--	--	--	(W) Nuplains	2	--	--	--	--	--	--
Onaga	3	5	8	7	6	5	5	(W) Trego	1	2	1	8	7	4	10
TAM 110	--	--	--	--	--	--	--	(W)KS96HW115E	9	9	9	8	8	7	10
AWWPA								(W)OK95G701Ex	3	--	--	--	--	--	--
(W) Arlin	--	--	--	--	--	--	--	2137	8	7	7	6	4	5	6
(W) Oro Blanco	9	9	8	--	8	--	14	2163	6	6	7	5	2	5	4
Drussel								2174	5	5	3	5	2	3	5
T81	--	--	--	--	--	--	--	Akron	--	--	--	--	--	--	--
General Mills								Alliance	8	--	--	--	--	--	--
(W) GM10001	8	--	--	--	--	--	--	Arapahoe	3	--	--	--	--	--	--
(W) GM10002	3	--	--	--	--	--	--	Culver	7	--	--	--	--	--	--
(W) GM10003	3	--	--	--	--	--	--	Custer	5	6	7	--	3	--	23
(W) NuWest	9	--	--	--	--	--	--	Ike	8	7	7	--	6	--	18
Goertzen								Jagger	8	8	9	6	7	3	49
Enhancer	7	8	8	--	6	--	65	Karl 92	8	8	9	6	3	3	25
G15048 Exp	--	--	--	--	--	--	--	KS89180B Exp	1	1	1	6	7	3	6
Kalvesta	9	--	--	--	--	--	--	KS95H167-3	1	1	1	8	9	4	5
Venango	6	5	5	--	7	--	6	KS97-PO630 Exp	2	1	1	5	6	3	6
NK								Millennium	2	--	--	--	--	--	--
(S) BL930390	--	--	--	6	--	9	--	Newton	9	9	9	8	6	9	8
(S) Coker 9474	--	--	--	5	--	3	--	Niobrara	6	--	--	--	--	--	--
(S) Coker 9663	--	--	--	4	--	2	--	Prairie Red	--	--	--	--	--	--	--
Polansky								Prowers 99	--	--	--	--	--	--	--
Dominator	9	8	8	--	4	--	20	Scout 66	8	8	7	8	7	5	59
Quantum								TAM 107	9	9	9	7	2	3	38
7406	--	--	--	--	--	--	--	TAM 301	--	9	7	--	1	--	39
7588	1	1	--	--	5	--	8	TAM 302	2	6	6	6	6	9	6
AP 7510	3	3	--	--	1	--	5	Vista	7	--	--	--	--	--	--
XH1711	--	--	--	--	--	--	--	Wesley	8	--	--	--	--	--	--
XH3207	--	--	--	--	--	--	--	Windstar	2	--	--	--	--	--	--
XH7463	4	4	--	--	1	--	6	Yuma	8	--	--	--	--	--	--
XH9801	--	--	--	--	--	--	--	Yumar	6	--	--	--	--	--	--
XH9806	--	--	--	--	--	--	--	<hr/>							
XH9815	--	--	--	--	--	--	--	Average	5	6	6	6	5	4	18
Terra								CV (%)	11	7	--	13	--	17	84
HR 217	--	--	--	8	--	3	--	LSD (0.05)**	1	1	--	1	--	1	18

Disease ratings by Bob Bowden, Ext. Plant Pathologist; 1 = best, least disease reaction, 9 = poorest, most disease reaction. Single-location ratings should be interpreted with care. A number of ratings from many locations should be used to develop a more complete picture of disease and/or lodging reaction.

¹BYD = Barley yellow dwarf virus ²PM = Powdery mildew ³SLB = Speckled leaf blotch ⁴LOD = Lodging, %
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Table 12. Planted seed characteristics, coleoptile lengths, and Hessian fly ratings.

Brand / Name	1000					Brand / Name	1000				
	Seed weight (grams)	Test weight (lb/bu)	Seeds per lb. (1000)	Col. length (1-9) ¹	Hess. fly (1-9) ²		Seed weight (grams)	Test weight (lb/bu)	Seeds per lb. (1000)	Col. length (1-9) ¹	Hess. fly (1-9) ²
AgriPro						Public					
Hondo	40.5	60.0	11.2	6	H	(S) Caldwell	34.1	59.2	13.3	8	R
Thunderbolt	36.3	61.5	12.5	6	S	(S) Kaskaskia	31.6	58.6	14.4	6	R
AGSECO						(W) Betty	38.5	59.3	11.8	7	S
7853	38.6	62.3	11.8	7	S	(W) Heyne	35.6	61.3	12.7	6	S
Mankato	31.1	58.2	14.6	8	S	(W) Nuplains	30.3	61.9	15.0	7	S
Onaga	29.8	57.6	15.2	6	R	(W) Trego	34.2	60.9	13.3	6	H
TAM 110	37.9	61.1	12.0	5	S	(W)KS96HW115Ex	31.4	57.6	14.5	7	S
AWWPA						(W)OK95G701Exp	22.5	57.1	20.2	6	H
(W) Arlin	35.4	60.3	12.8	6	S	2137	35.8	58.8	12.7	7	H
(W) Oro Blanco	31.1	60.0	14.6	8	S	2163	29.1	57.1	15.6	7	R
Drussel						2174	30.6	58.0	14.8	5	H
T81	32.8	59.2	13.8	7	S	Akron	39.7	62.9	11.4	6	S
General Mills						Alliance	28.6	58.9	15.8	8	H
(W) GM10001	30.9	59.3	14.7	5	S	Arapahoe	32.0	57.6	14.2	7	R
(W) GM10002	37.1	61.4	12.2	5	S	Culver	41.6	56.2	10.9	6	H
(W) GM10003	38.3	57.6	11.8	7	H	Custer	42.1	56.9	10.8	8	S
(W) NuWest	29.8	60.9	15.2	8	S	Ike	33.9	60.4	13.4	7	R
Goertzen						Jagger	35.1	60.9	12.9	6	S
Enhancer	35.6	57.6	12.7	5	H	Karl 92	37.3	57.8	12.1	7	S
Venango	33.1	54.8	13.7	7	H	KS89180B Exp	29.5	57.1	15.4	7	H
G15048 Exp	31.2	57.5	14.5	8	H	KS97-PO630 Exp	34.1	59.1	13.3	6	H
Kalvesta	46.7	59.1	9.7	7	S	KS95H167-3	37.5	57.1	12.1	6	S
NK						Millennium	32.5	57.0	13.9	7	R
(S) BL930390	39.3	55.5	11.5	--	S	Newton	40.4	56.0	11.2	6	S
(S) Coker 9474	38.8	56.3	11.7	4	H	Niobrara	30.7	56.0	14.8	6	S
(S) Coker 9663	42.3	53.2	10.7	3	S	Prairie Red	39.0	59.7	11.6	5	S
Polansky						Prowers 99	43.5	59.9	10.4	3	S
Dominator	36.5	61.4	12.4	8	R	Scout 66	33.5	57.9	13.5	3	S
Quantum						TAM 107	31.4	57.6	14.5	5	S
7406	36.2	59.8	12.5	7	S	TAM 301	35.1	56.3	12.9	9	S
7588	41.3	55.8	11.0	6	S	TAM 302	31.3	54.5	14.5	5	R
AP 7510	31.2	57.8	14.5	7	S	Vista	33.0	59.9	13.8	8	R
XH1711	41.1	59.1	11.0	7	S	Wesley	30.6	52.5	14.8	7	S
XH3207	52.7	60.0	8.6	7	S	Windstar	29.9	57.4	15.2	7	S
XH7463	48.2	59.2	9.4	7	S	Yuma	38.5	60.2	11.8	8	S
XH9801	41.3	60.8	11.0	7	S	Yumar	44.1	63.1	10.3	7	S
XH9806	39.6	59.6	11.5	7	S	Maximum	52.7	63.1	20.2	9	
XH9815	42.5	59.9	10.7	7	S	Minimum	22.5	52.5	8.6	3	
Terra						Average	35.8	58.6	12.9	6	
HR 217	--	--	--	8	--						

¹ Coleoptile length measured at 75 degrees F, which is the average soil temperature at 4" in western Kansas on September 1. Coleoptile rating of 3 is long and is equal to about 4.2", a rating of 8 is short and is equal to about 2.4". See discussion of coleoptile length on page 12. Ratings provided by T. Joe Martin, Kansas State University Agricultural Research Center - Hays.

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

Protein Content

Samples of grain from each variety harvested from Kansas Wheat Performance Tests are submitted annually for analysis of protein content, kernel hardness, and kernel weight and other tests.

Screening for protein and other analyses are conducted by the staff at the U.S. Grain Marketing and Production Research Center in Manhattan, Kansas. Because of the time requirement for obtaining analyses, protein results presented below are for the previous year's tests.

Table 13. Protein (% at 14% moisture) 1999 Kansas Winter Wheat Performance Tests.

Brand / Name	East				Central				West				Irrigated					
	BR	RL	LB	Avg.	RP	HV	RN	SD	Avg.	EL	TD	GD	FD	Avg.	ST	TI	SV	Avg.
AgriPro																		
(S) Marion	--	--	10.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Patton	11.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Big Dawg	13.2	14.2	11.8	13.1	--	10.6	15.0	11.8	--	13.2	--	--	--	--	12.6	12.2	--	--
Coronado	13.2	13.7	11.3	12.7	12.1	11.4	13.7	11.4	12.2	--	--	--	--	--	11.8	12.5	13.7	12.7
Hondo	12.8	14.2	--	--	12.2	10.7	14.0	11.7	12.2	--	--	--	--	--	--	--	--	--
Ogallala	--	--	--	--	--	--	--	--	--	13.2	12.2	12.6	15.9	13.5	--	12.7	14.2	--
Thunderbolt	--	--	--	--	--	--	--	--	--	13.7	11.2	12.1	15.2	13.1	--	12.8	12.3	--
AGSECO																		
7853	--	--	11.6	--	--	11.3	14.5	11.6	--	--	--	--	15.5	--	--	--	--	--
Mankato	--	12.6	--	--	12.3	--	--	--	--	12.5	11.0	10.9	14.9	12.3	--	--	--	--
Onaga	12.5	13.1	11.4	12.3	13.4	11.2	13.4	--	--	--	--	--	--	--	12.9	--	--	--
TAM 110	--	--	--	--	--	--	--	--	--	11.9	10.7	11.1	14.1	12.0	--	12.0	14.3	--
AWWPA																		
(W) Arlin	--	--	--	--	--	--	--	--	--	--	--	--	14.3	--	--	--	13.1	--
(W) Oro Blanco	--	--	--	--	12.5	10.0	13.3	11.5	11.8	12.9	11.1	11.2	15.3	12.6	11.3	12.4	12.8	12.2
Drussel																		
T81	--	--	--	--	--	--	--	--	--	--	--	10.9	13.4	--	--	--	13.0	--
General Mills																		
(W) NuWest	--	13.8	--	--	13.1	--	--	--	--	12.5	11.2	--	--	--	--	--	--	--
Goertzen																		
Cossack	13.7	14.1	--	--	13.8	11.0	14.2	13.3	13.1	12.9	11.2	11.2	15.7	12.8	12.1	11.8	12.8	12.2
Enhancer	11.4	12.7	--	--	12.4	9.6	12.8	11.0	11.5	12.1	10.8	10.9	14.6	12.1	10.6	12.0	11.8	11.5
G15011 Exp	--	--	--	--	--	--	--	--	--	12.0	10.6	10.2	14.9	11.9	11.2	11.3	12.7	11.7
G15048 Exp	--	--	--	--	--	--	--	--	--	12.1	10.3	10.5	14.0	11.7	10.7	11.1	11.2	11.0
Kalvesta	--	--	--	--	13.5	--	--	--	--	13.4	11.4	11.8	15.2	13.0	11.6	12.9	13.9	12.8
Venango	13.0	12.8	--	--	12.0	10.1	12.6	11.1	11.5	12.8	10.8	10.2	14.9	12.2	10.8	12.6	13.5	12.3
NK																		
(S) Coker 9474	--	--	10.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Coker 9543	--	--	11.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Coker 9663	--	--	9.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pioneer																		
(S) 2540	--	--	10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polansky																		
Dominator	--	14.0	--	--	13.1	10.7	13.5	12.4	12.4	12.8	11.5	--	--	--	--	--	--	--

(continued)

Table 13. Protein (% at 14% moisture) 1999 Kansas Winter Wheat Performance Tests.

Brand / Name	East				Central					West				Irrigated				
	BR	RL	LB	Avg.	RP	HV	RN	SD	Avg.	EL	TD	GD	FD	Avg.	ST	TI	SV	Avg.
Quantum																		
7406	--	--	--	--	11.3	--	--	10.9	--	11.1	10.9	9.6	--	--	10.9	11.0	12.3	11.4
7588	--	--	--	--	13.2	--	13.2	10.4	--	12.2	10.5	10.0	--	--	11.1	11.4	12.7	11.7
AP 7510	--	--	--	--	12.6	--	14.2	--	--	12.5	11.1	12.7	--	--	11.0	12.1	12.7	11.9
XH9806	--	--	--	--	--	--	--	--	--	--	10.7	11.9	--	--	--	--	--	--
Terra																		
(S) SR 216	10.9	12.3	11.2	11.5	11.7	10.1	12.4	11.1	11.3	12.2	11.6	11.8	14.0	12.4	11.4	12.0	12.2	11.9
HR 217	13.3	13.3	10.5	12.4	13.3	10.9	13.7	11.9	12.5	13.4	11.5	11.1	15.3	12.8	12.2	12.7	11.8	12.2
Public																		
(S) Caldwell	11.2	12.4	10.3	11.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Cardinal	11.2	12.4	10.2	11.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Ernie	10.7	11.8	10.9	11.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Kaskaskia	11.2	12.2	10.6	11.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(W) Betty	11.7	13.2	11.3	12.1	13.0	10.6	13.6	12.8	12.5	13.6	12.2	12.0	16.4	13.6	12.4	12.8	14.2	13.1
(W) Heyne	13.1	14.0	11.6	12.9	13.5	10.9	13.9	11.6	12.5	13.0	12.2	10.9	15.4	12.9	12.5	10.7	13.9	12.4
(W) Trego	11.8	12.7	11.8	12.1	11.8	9.9	12.9	11.1	11.4	11.7	10.2	10.0	13.7	11.4	11.1	11.0	12.4	11.5
(W)KS96HW115Exp	12.5	12.9	10.9	12.1	11.5	9.7	12.7	10.0	11.0	12.0	10.4	10.0	14.9	11.8	10.5	10.6	10.8	10.6
2137	11.0	13.7	10.8	11.8	12.0	10.3	12.9	11.0	11.6	12.8	10.7	11.9	14.9	12.6	11.0	11.4	12.6	11.7
2163	10.7	12.6	10.6	11.3	12.2	9.9	12.6	10.8	11.4	--	--	--	--	--	--	--	--	--
2174	13.1	13.8	11.4	12.8	13.2	11.4	13.5	11.5	12.4	14.3	11.8	11.4	15.4	13.2	12.7	12.8	13.4	13.0
Akron	--	--	--	--	--	--	--	--	--	11.9	10.7	10.6	14.2	11.9	--	13.1	10.8	--
Alliance	--	--	--	--	13.3	--	--	9.7	--	11.6	9.7	9.7	13.1	11.0	--	10.8	11.3	--
Arapahoe	--	--	--	--	11.8	--	--	11.0	--	12.3	11.4	11.7	15.5	12.7	--	--	--	--
Culver	11.9	13.3	--	--	13.6	--	--	11.9	--	12.2	10.6	10.8	14.9	12.1	--	--	--	--
Custer	--	--	11.2	--	13.0	11.4	13.3	12.8	12.6	12.6	11.5	10.5	15.0	12.4	--	13.3	12.5	--
Halt	--	--	--	--	--	--	--	--	--	12.2	11.4	10.1	15.8	12.4	--	--	--	--
Ike	--	--	--	--	13.7	10.6	14.1	12.0	12.6	12.5	11.3	11.0	15.7	12.6	11.9	12.4	14.2	12.8
Jagger	12.3	13.8	10.9	12.3	13.9	10.3	13.5	12.0	12.4	11.9	11.6	11.4	15.1	12.5	11.9	12.5	13.0	12.5
Karl 92	11.0	13.7	12.4	12.4	13.6	11.3	13.8	12.2	12.7	13.0	12.0	11.6	15.1	12.9	12.1	14.0	14.9	13.7
KS89180B Exp	12.4	13.5	11.1	12.3	13.4	10.8	13.7	12.1	12.5	12.5	11.3	10.4	14.4	12.2	--	12.9	13.9	--
KS95H167-3	13.0	13.9	12.8	13.2	13.5	11.5	13.7	11.8	12.6	12.8	11.6	11.9	15.4	12.9	11.6	12.8	13.8	12.7
KS96HW94 Exp	--	--	--	--	--	--	12.5	9.9	--	11.6	10.2	11.8	13.9	11.9	10.6	11.1	10.5	10.7
Larned	--	--	--	--	--	--	--	--	--	12.4	11.2	11.4	15.0	12.5	--	--	--	--
Nekota	--	--	--	--	13.3	--	--	--	--	12.1	11.0	10.9	14.7	12.2	--	--	--	--
Newton	13.0	11.9	11.1	12.0	12.3	10.2	12.9	10.3	11.4	12.0	10.7	10.0	14.7	11.9	10.2	12.2	11.9	11.4
Niobrara	11.4	12.8	--	--	11.4	--	--	10.5	--	12.0	10.4	11.3	14.3	12.0	--	--	--	--
Scout 66	12.8	14.3	11.6	12.9	14.0	11.8	15.0	11.0	13.0	12.9	11.4	12.2	14.2	12.7	--	--	--	--
TAM 107	11.3	13.1	11.7	12.0	12.6	11.8	12.0	11.7	12.0	11.5	11.2	11.1	14.2	12.0	11.1	12.6	14.1	12.6
TAM 200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.4	13.9	--
Vista	12.2	13.5	--	--	12.1	--	--	10.8	--	12.2	11.1	11.5	16.6	12.9	--	--	--	--
Wesley	--	--	--	--	12.8	--	--	--	--	12.3	11.4	13.3	--	--	--	--	--	--
Windstar	--	--	--	--	12.7	--	--	11.4	--	12.2	11.2	12.1	15.0	12.6	--	--	--	--
Yuma	--	--	--	--	11.1	--	--	--	--	11.7	9.8	10.7	13.9	11.5	--	10.7	11.9	--
Yumar	--	--	--	--	12.0	--	--	--	--	12.1	10.5	10.6	14.6	12.0	--	11.4	10.9	--
Test Average	12.1	13.2	11.1		12.7	10.7	13.5	11.4		12.4	11.1	11.1	14.8		11.5	12.1	12.8	

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