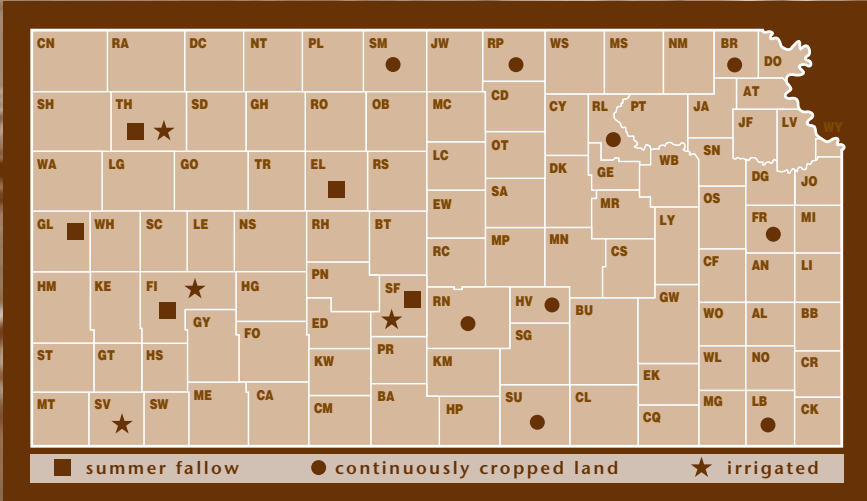


2001

KANSAS PERFORMANCE TESTS WITH WINTER WHEAT VARIETIES

REPORT OF PROGRESS 879

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service



CONTENTS

INTRODUCTION	1
2001 WHEAT CROP	
Weather Conditions.....	1
September precipitation Figure 1.....	1
October and November temps Figure 2.....	1
Crop Development	2
Statewide crop development Figure 3.....	2
2000-2001 Wheat crop condition Figure 4.....	2
Topsoil moisture Figure 5.....	2
Diseases.....	3
Insects	3
Harvest Statistics.....	4
Historical wheat production Figure 6.....	4
WHEAT VARIETIES GROWN IN KANSAS	
Acreage Distribution	4
Leading wheat varieties Figure 7.....	4
Acreage of top 10 varieties Figure 8.....	5
New Variety Descriptions	5
Agronomic Characteristics of Leading Winter Wheat Varieties, Table 1	6
PERFORMANCE TEST RESULTS	
Objectives.....	8
Varieties Included in Tests	8
Parentage and Origin of Public Varieties Table 2.....	8
Private Entrants and Their Entries Table 3.....	9
Environmental Factors Affecting Individual Tests	9
Site Descriptions and Management Table 4.....	10
Test Results and Variety Characterization.....	12
Coleoptile Measurements	13
Graphical Performance Summaries, 1998-2001	13
Eastern Kansas tests Figure 9.....	14
Central Kansas tests Figure 10.....	16
Western Kansas tests Figure 11.....	18
Irrigated tests Figure 12.....	20
Yield (bushels per acre) Table 5.....	22
(% of test average) Table 6.....	26
Multiyear Averages Table 7.....	30
Test Weight (lb per bushel) Table 8.....	34
Heading (days +/- check) Table 9.....	38
Plant Height (inches) Table 10.....	42
Disease and Lodging Notes Table 11.....	46
Planted Seed Characteristics, Coleoptile Lengths, and Hessian Fly Ratings, Table 12	47
Protein Values from 2000 Tests Table 13.....	48
APPENDIX	
Electronic Access, University Research Policy, and Duplication Policy	back cover
Contributors.....	back cover

2001 KANSAS WHEAT PERFORMANCE TEST

INTRODUCTION

This publication presents results from the 2000-2001 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 2001 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 2001 Kansas Winter Wheat Performance Tests.

2001 CROP CONDITIONS

Weather Conditions

The 2000-2001 wheat season had some interesting weather that contributed to a less than ideal growing season. The first challenge was the extremely hot and dry planting period. Rainfall ranged from 3/4" to 2 1/5" below the 30-year average in September (Figure 1). This was on top of extremely hot and dry conditions in August.

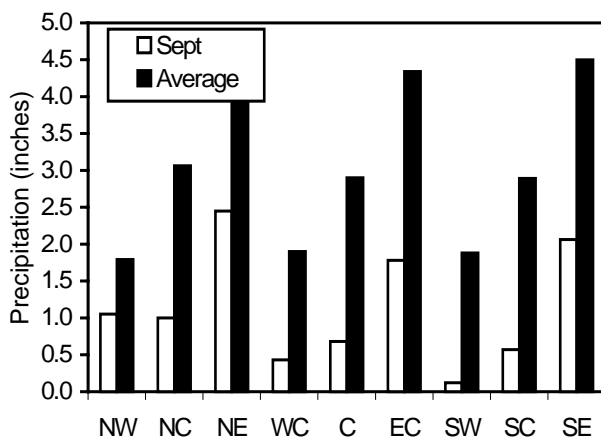


Figure 1. September 2000 precipitation by crop reporting district.

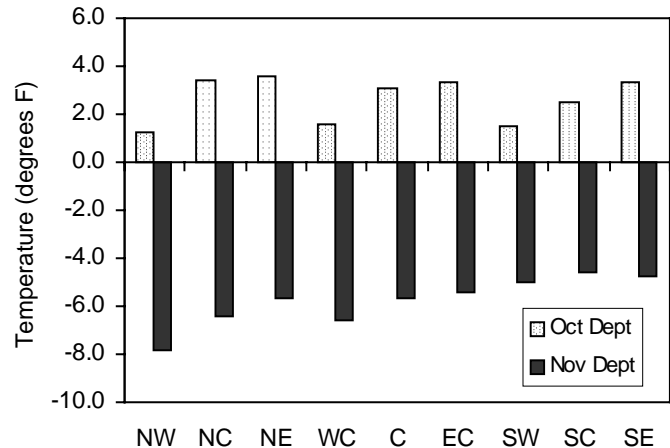


Figure 2. October and November temperature departures from normal.

Although the dry conditions moderated at the end of October, temperatures took a very quick nose-dive (Figure 2). October average temperatures ranged 1 - 3 °F above normal. In contrast, November average temperature ranged from 5 to almost 8 °F below normal. This meant the wheat had very little time for growth and tillering before entering dormancy.

Winter conditions, unlike recent years, were fairly close to normal. There were periods of snow cover, favorable moisture, and very little sub-zero weather.

Spring conditions continued to be fairly normal. This meant periods of cool, wet weather broken by short periods of extremely warm conditions. The western third of the state tended toward warmer and drier conditions than the rest of the state.

Cool, wet conditions in early June allowed for an extended grain fill period. Excessive rainfall was a particular problem in the northeastern division. The Seasonal (October-June) total precipitation was above normal in all divisions, but this did not totally offset the earlier unfavorable conditions.

(From Mary Knapp, KSU State Climatologist).

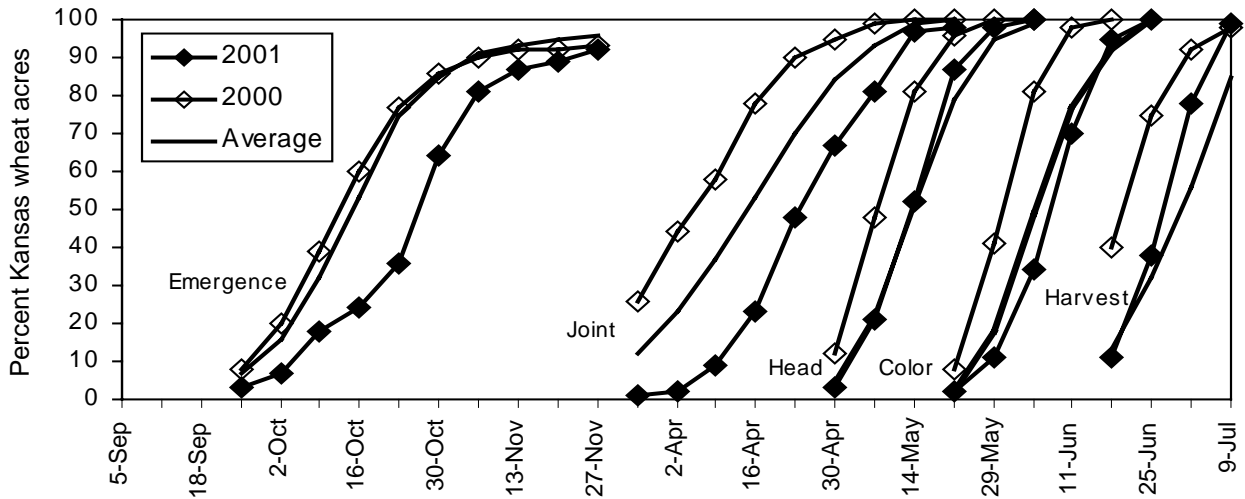


Figure 3. Statewide development of the 2000-2001 winter wheat crop.

Crop Development

The 2001 wheat crop lagged far behind last year at almost every stage of development (Figure 3). Dry soils delayed seeding and emergence across much of the state. November brought much-needed precipitation, but cold temperatures slowed emergence and limited fall growth. In the spring, many of the poorest fields were plowed and replanted to summer crops. The wheat was slow to break dormancy in the spring. Jointing lagged 3-4 weeks behind last year and 2 weeks behind the 5-year average. Heading did not lag as much as jointing and was comparable to the average. Adequate rainfall and mild temperatures allowed the crop to fill the grain well. Although the rate of harvest was behind

that of last year, it actually outstripped the 5-year average.

Only about 50% of the crop started out in good to excellent condition (Figure 4). The condition of the crop generally declined from there until mid-May when over 75% was rated as fair or worse. The crop rebounded in response to the mild weather in spring and early summer and ended up with over 30% in good or excellent condition.

Soil moisture was short or very short on 99% of the acres in mid-September (Figure 5). The moisture situation finally improved in November when snow and rain accompanied cold temperatures. Winter and spring precipitation recharged soil moisture so that only 2-3% of the

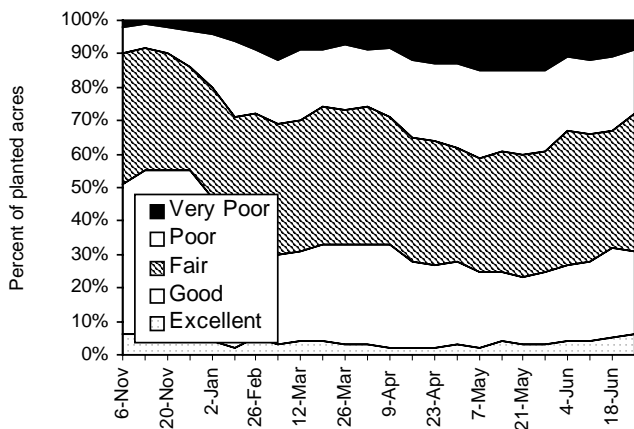


Figure 4. Condition of Kansas winter wheat crop, 2000-2001.

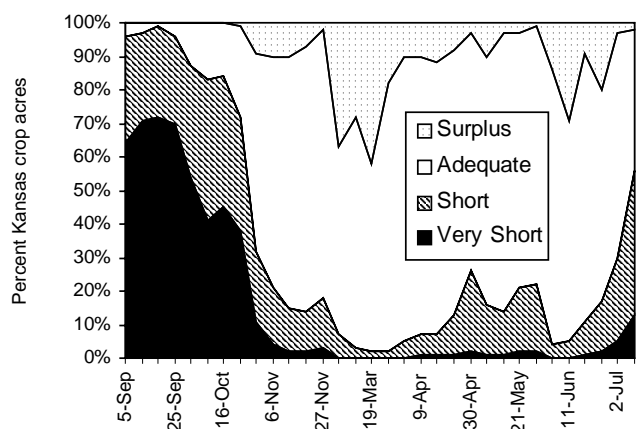


Figure 5. Statewide status of topsoil moisture, 2000-2001.

acres was ranked as short or very short of moisture by mid-March. Soils dried out somewhat in April and May, but rainfall was generally adequate for grain filling. After some early June rainfall, soil moisture declined until the completion of harvest.

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

Diseases

The hot, dry summer of 2000 greatly reduced survival of volunteer wheat. This affected wheat streak mosaic virus and leaf rust, which survive on volunteer wheat. Dry conditions in the fall slowed planting progress, which probably further reduced fall disease problems. Rains eventually came to some areas, but then cold weather set in. Stands were very variable.

Winter conditions were cold and snowy and leaves were killed back to the ground in most fields. This was expected to reduce survival of diseases like leaf rust and powdery mildew that require green leaves. Surprisingly, no snow mold was reported and winter injury was uncommon.

In March and April, disease levels were unusually low. Spindle streak mosaic virus and soilborne mosaic virus were below average, but some new locations for these diseases were reported in western areas that received fall rains. Tan spot started strong in many continuous wheat fields and eventually became the second most important foliar disease in 2001. In many cases it seemed to spread into rotated fields. Speckled leaf blotch was active in a few fields. Wheat streak mosaic virus was generally rare, although there were a few hot spots. Powdery mildew and barley yellow dwarf were hard to find. Leaf rust was essentially absent.

Wheat stripe rust was first reported in southern Kansas on May 2 at Hutchinson on the mid-canopy leaves of variety 2137. Almost every plant had at least one stripe rust infection. Since it wasn't on the flag leaf, spores must have arrived prior to flag leaf emergence, which occurred during the last week of April. During the week of May 7, reports of stripe rust on middle leaves were coming from between Dodge City and McPherson and from south of Highway 56 to the Oklahoma border. By May 14, lesions were appearing on flag leaves. The varieties 2137, Hondo, Kalvesta, Lakin, Niobrara, Oro Blanco,

Platte, Prairie Red, TAM 107, TAM 110, Trego, and Venango were most often found to have a serious problem with stripe rust.

Unusually warm weather from May 14-17 was expected to inhibit further development of the epidemic. Stripe rust lesions on most varieties began to dry and turn brownish. In some cases, only a brown necrotic stripe was produced with no new pustules. Even when the rust was inhibited, flag leaf damage was often severe from the brown necrotic stripe reaction. By May 18, stripe rust had nearly defoliated susceptible varieties at the late milk stage across a wide area, mostly south of Highway 56.

On May 19, a cool, wet period began that lasted three weeks. On May 23, we began to hear reports of serious stripe rust north of I-70. By May 29, reports came from as far east as Seneca, as far west as Goodland, and as far north as Belleville. The epidemic north of I-70 was probably due to spores moving up from south central Kansas in a second wave of migration.

Losses due to stripe rust were documented in fungicide test plots. In southwest Kansas, losses sometimes exceeded 50% on susceptible varieties. In south central and north central Kansas, losses on 2137 ranged up to 20%. These losses were somewhat mitigated by cool weather which helped grain filling.

(From Robert Bowden, K-State Extension Plant Pathologist).

Insects

Insect pests caused relatively little statewide damage to the 2001 wheat crop. Army cutworm moths were active in Kiowa County in early October. Fall armyworm was causing problems in early-planted fields in southwest Kansas by this time. Several fields in southwest Kansas were treated for this pest. Little insect activity was noted in early spring. Low numbers of flea beetles were found in western Kansas in early May. Armyworm moths were numerous in May and June, but the wheat matured fast enough to escape significant damage from this pest.

(From Kansas Department of Agriculture Cooperative Economic Insect Reports).

Harvest Statistics

The Kansas Agricultural Statistics' July 11 estimate of the 2001 crop was 327.6 million bushels harvested from 8.4 million acres. This continues the 4-year decline in total production since the 1997 crop of close to 500 million bushels (Figure 6). This estimate was up 15% from the June forecast but down 6% from last year's production. The statewide yield average of 39 bushels per acre was up 5 bushels from the June prediction and 2 bushels above last year's final average.

(From July 11, 2001 *CROPS* report, Kansas Agricultural Statistics, Topeka).

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 70.3% of the state's seeded acreage in 2001.

The top 10 varieties for each crop-reporting district are presented in Figure 7. In the western districts, 2137 and TAM 110 acreages increased. Acreages of Jagger, TAM 107, Ike, and Larned acreages were steady or dropped slightly. TAM

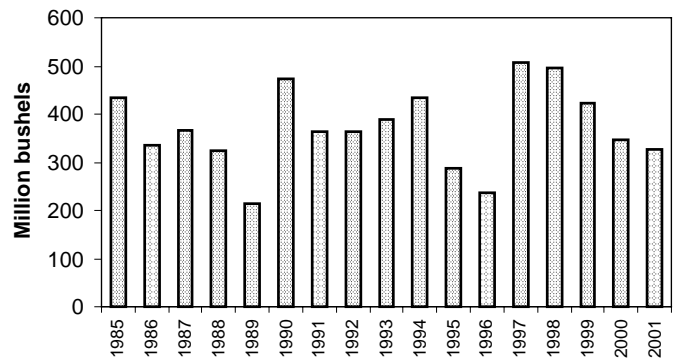


Figure 6. Historical Kansas winter wheat production.

107, the acreage leader for many years, ranked as low as the third variety in two of the three western districts. Blends maintained or increased their share of the acreage in the southwest and west central districts, but dropped in the northwest district.

Jagger and 2137 were still the most popular varieties in the central districts. However, blends ranked second in the north central district with 21% of the acreage. Karl/Karl 92 continue to occupy a significant portion of the acreage, especially in the north central district. The acreage of 2163 continues to drop in this region.

2137, Jagger, and Karl/Karl 92 were the most prevalent varieties in eastern Kansas once again. Jagger tended to dominate in the southeast with 50% of the acreage, but 2137 was the leading

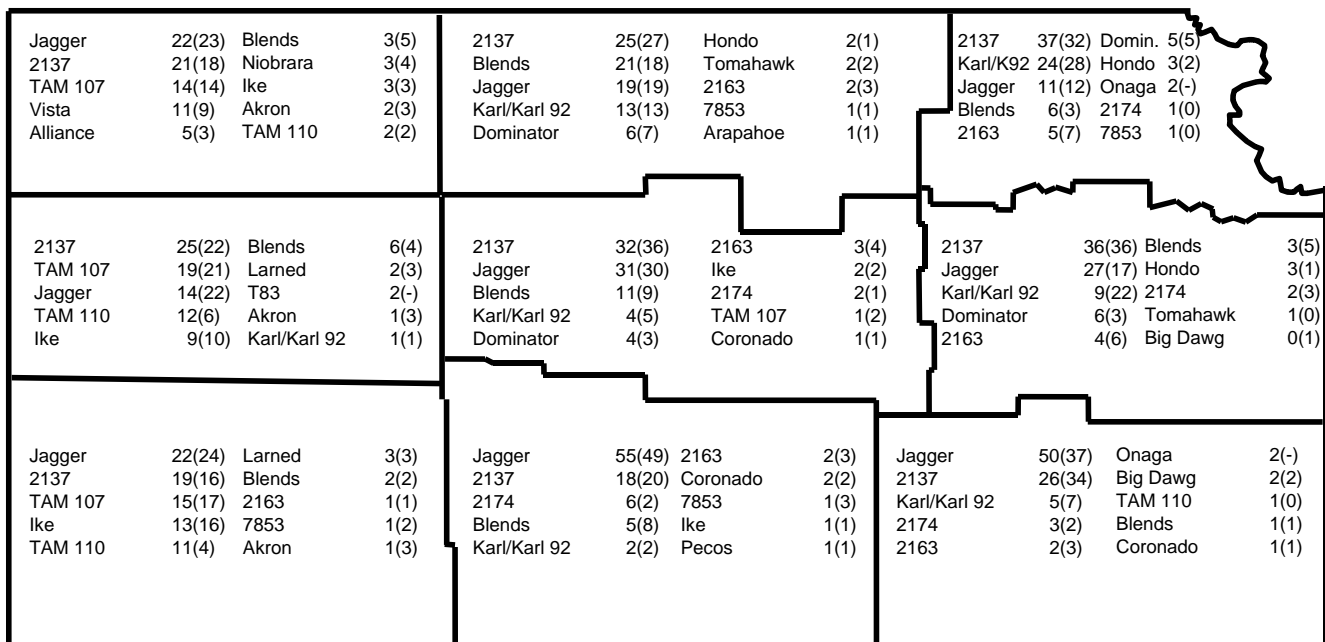


Figure 7. Leading wheat varieties in Kansas, presented as percent of seeded acreage by crop reporting district for 2000 and 2001 (2000 in parentheses). From Kansas Agricultural Statistics, Topeka.

variety in the northeast and east central districts. Onaga appeared in the top ten of the northeast and southeast districts for the first time.

Figure 8 illustrates the historical statewide distribution of the top 10 varieties in 2001. These varieties occupied 80.7% of the planted wheat acres in 2001. Jagger and 2137 together accounted for 58.1% of the 2001 acres. The percentage of acres occupied by Karl 92, 2163, and TAM 107, the predominant varieties for most of the 1990s, continued to decline at 10.6% in 2001. The remaining 5 varieties in the top 10 accounted for 12% of 2001 wheat acres. Ike was popular in the mid to late 1990s, but has declined in recent years. The acreage of Coronado has been relatively steady for the past 3 years. 2174, TAM 110, and Dominator are relatively new varieties with increasing acreages. (From February 12, 2001, *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. Disease and insect ratings are from the annual report, *Wheat Variety Disease and Insect Ratings* by Robert L. Bowden and H. Leroy Brooks. Agronomic ratings are from

wheat breeders, extension specialists, and researchers. 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.

Intrada is the first hard white winter wheat variety released by the Oklahoma Agricultural Experiment Station. It is of medium late maturity and is intermediate in timing of first hollow stem stage. Test weight has been outstanding and grain yields have been competitive in Oklahoma tests. Baking evaluations for Intrada have been good to excellent.

Intrada is resistant to soilborne mosaic virus and stem rust, moderately resistant to leaf rust, moderately susceptible to tan spot and powdery mildew. It is susceptible to Russian wheat aphid, greenbug, and Hessian fly and has intermediate tolerance to acid soils.

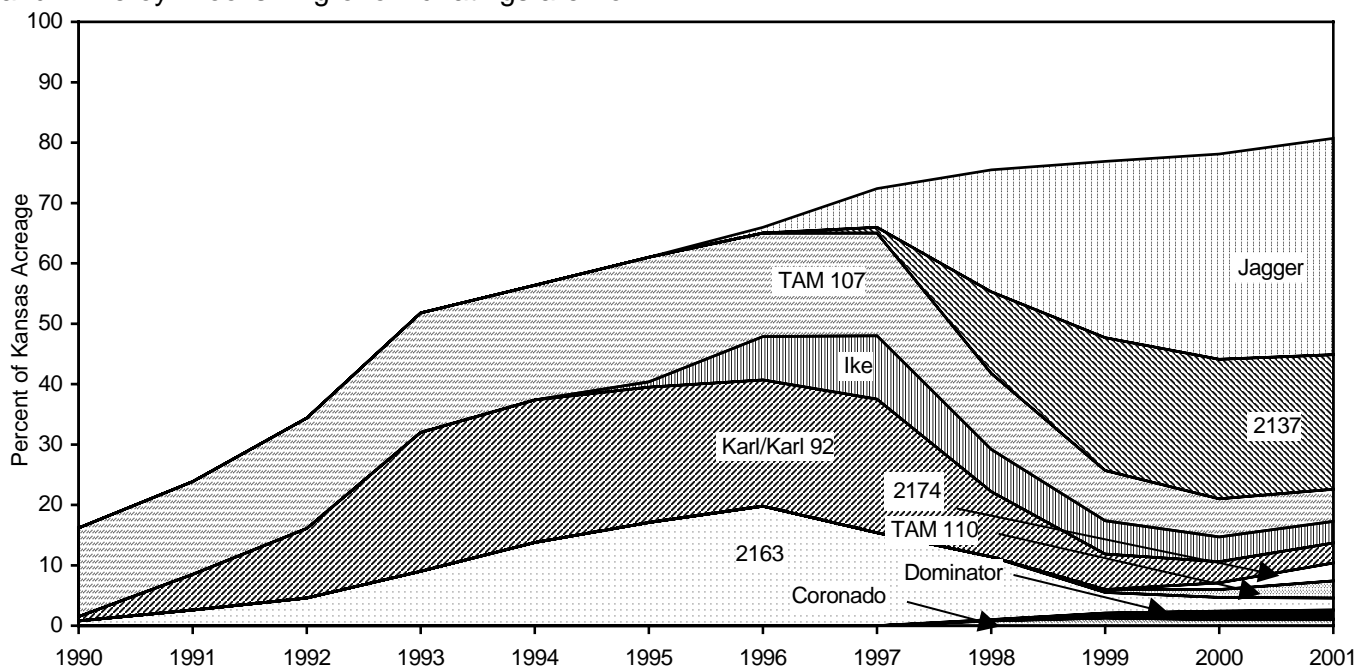


Figure 8. Historical acreage distribution of top 10 varieties in 2001. From Kansas Agricultural Statistics, Topeka.

Table 1a. Comparisons of leading winter wheat varieties - agronomy & quality.

Variety ¹	Percent Kansas seeded acreage 2001 ¹	Relative ²									Relative milling and baking quality ⁴
		Test weight	Straw strength	Matur- ity	Height ⁵	Coleop- tile length	Shat- tering	Winter hardi- ness	AI Toler- ance	Protein content ³	
Jagger	35.8	4	4	1	5	6	5	6	3	3	EX*
2137	22.3	4	1	3	5	7	5	3	2	7	AC
TAM 107	5.3	4	2	1	4	5	2	2	9	6	LD
Ike	3.6	3	4	4	6	7	2	3	8	3	AC
Karl/Karl 92	3.3	3	4	1	3	7	3	3	9	3	EX*
2174	3.0	3	1	3	4	5	3	4	5	3	AC
TAM 110	2.8	3	2	1	5	5	2	--	8	7	AC
2163	2.0	6	1	3	3	7	6	4	2	7	LD
Dominator	1.5	4	3	4	2	8	7	3	8	3	AC
Coronado	1.1	3	1	2	2	8	4	5	3	3	AC
Larned	1.0	4	5	4	9	3	3	3	8	4	AC
Vista	1.0	4	6	5	2	8	3	2	7	6	AC*
7853	0.9	4	4	3	5	7	3	5	8	3	EX
Alliance	0.5	4	4	4	6	8	3	3	--	8	AC
Hondo	0.5	3	1	5	--	6	4	3	3	--	--
Akron	0.4	3	5	5	6	6	3	3	--	7	AC
Ogallala	0.4	2	2	3	2	7	6	4	5	2	EX
Pecos	0.4	4	1	1	--	7	4	5	5	--	AC
Tomahawk	0.4	4	3	3	--	6	3	2	8	--	AC
Big Dawg	0.3	4	1	6	7	4	3	5	5	2	AC
Niobrara	0.3	4	5	3	7	6	3	3	6	8	AC
G1878	0.2	3	--	4	--	5	--	--	5	--	--
Arapahoe	0.2	4	5	6	6	7	--	3	6	5	AC
Eagle	0.2	4	5	4	--	--	2	3	--	--	EX*
Newton	0.2	4	4	3	6	6	2	5	9	6	AC
Onaga	0.2	3	--	3	2	6	--	--	--	3	--
T81	0.2	--	--	2	--	7	--	--	--	--	--
T83	0.2	--	--	--	--	--	--	--	--	--	--
Thunderbolt	0.2	2	--	3	7	6	--	--	7	4	AC
Blends	7.0										
Hard Whites	0.8										
Other Hard	3.8										

Scale: 1=Best 9=Poor 1=Best 9=Poor 1=Early 9=Late 1=Short 9=Tall 1=Long 9=Short 1=Best 9=Poor 1=Best 9=Poor 1=Best 9=Poor 1=Best 9=Poor

¹ Varieties and % seeded acreage from the Feb. 12, 2001, Wheat Variety survey, KS Ag. Statistics, Topeka, KS.

² Most ratings are experts' best estimate based on information and observations from many sources.

Agronomic information by Joe Martin, Hays, and Allen Fritz, Jim Shroyer, Ray Lamond, Kraig Roozeboom KSU Agronomy.

³ Summary of crop performance test results from recent years.

⁴ 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; large kernels; high protein content; very good milling, mixing, and commercial bread-baking.

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

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

-- = Inadequate information or conflicting data.

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

Table 1b. Comparisons of leading winter wheat varieties - diseases & insects.

Resistance or tolerance to: ⁵														
Soil-borne mosaic	Spindl streak mosaic	Wheat streak mosaic	Barley yellow dwarf	Leaf rust	Stem rust	Stripe rust	Speckl leaf blotch	Glume blotch	Tan spot	Powdery mildew	Head scab	Hessian fly	Russ. wheat aphid	Variety
1	2	4	7	8	3	1	3	6	3	7	8	9	9	Jagger
1	5	4	6	7	7	8	4	7	4	4	9	2	9	2137
8	7	5	8	9	3	8	6	6	7	1	7	9	7	TAM 107
1	5	9	6	9	3	6	8	6	7	6	7	1	9	Ike
1	3	9	8	9	6	3	5	3	3	3	5	9	9	Karl/Karl 92
1	5	7	5	6	8	5	4	7	5	2	5	9	9	2174
9	7	5	8	9	3	8	6	6	7	1	--	9	9	TAM 110
1	4	4	6	7	4	7	4	8	5	2	9	2	9	2163
1	1	7	6	8	3	6	4	4	5	4	7	3	9	Dominator
1	3	6	6	7	3	6	6	6	6	4	9	5	9	Coronado
9	8	9	9	8	2	2	7	8	9	5	6	3	9	Larned
8	7	9	7	7	6	1	5	6	8	4	--	1	9	Vista
1	5	5	6	7	4	7	9	5	6	4	7	9	9	7853
9	7	9	--	8	2	3	7	--	7	--	--	2	9	Alliance
1	3	4	6	3	4	9	3	3	6	2	3	4	9	Hondo
9	9	9	9	8	3	4	9	7	5	1	--	8	9	Akron
9	8	5	7	5	3	6	5	6	6	6	--	9	9	Ogallala
1	6	6	7	7	5	8	5	4	6	6	--	3	9	Pecos
1	4	8	8	4	3	8	8	8	4	3	9	9	9	Tomahawk
1	2	4	7	7	5	1	2	3	3	6	7	9	9	Big Dawg
8	7	7	--	7	3	8	7	7	8	--	--	9	9	Niobrara
1	2	7	--	8	6	--	--	--	7	4	--	9	9	G1878
8	7	7	--	5	2	4	4	5	8	6	--	1	9	Arapahoe
9	9	7	9	8	4	--	7	--	9	5	--	9	9	Eagle
1	6	6	9	9	3	4	9	8	9	6	--	9	9	Newton
1	5	5	6	5	8	6	5	--	8	4	5	5	8	Onaga
8	4	6	7	7	3	2	7	--	6	1	--	8	9	T81
--	--	--	--	--	--	2	--	--	6	--	--	--	--	T83
8	7	5	7	1	8	5	--	--	6	7	--	9	9	Thunderbolt Blends
														Hard Whites
														Other Hard

Scale: 1=Most resistant/tolerant
9=Least resistant/tolerant

⁵ Disease and insect resistance ratings provided by R.L. Bowden and W.W. Bockus, KSU Plant Pathology; and Leroy Brooks, KSU Entomology.

More complete and final ratings in addition to descriptions of disease and insect pests are available in "Wheat Variety Disease and Insect Ratings 2001" by Robert L. Bowden and H. Leroy Brooks.

Intrada is susceptible to pre-harvest sprouting and should not be grown in central and eastern Kansas as a result. Lodging may occur under conditions of high straw production or under irrigation. (Release notice from Oklahoma Agricultural Experiment Station).

Lakin hard white winter wheat was released by the Kansas Agricultural Experiment Station in August of 2000. It has performed best in southwest Kansas in both dryland and irrigated tests. Lakin is susceptible to leaf rust and has very little sprouting tolerance, thus it should not be considered for production in central or eastern Kansas. Lakin is unique in that it is the first white wheat released by K-State that has outstanding noodle quality along with above-average bread quality.

Lakin is of medium maturity, has good winterhardiness, and is intermediate in shattering resistance. It is moderately resistant to stem rust and wheat streak mosaic virus. It is resistant to soilborne mosaic virus but is susceptible to leaf rust and Hessian fly. (Release notice from Kansas Agricultural Experiment Station).

Stanton hard red winter wheat was released by the Kansas Agricultural Experiment Station in 2000. It was developed at the KSU Agricultural Research Center at Hays to address potential damage from Russian wheat aphid. Stanton derives resistance to that pest from PI222350. In the absence of Russian wheat aphid in western Kansas, Stanton has performed as well as or better than the best red wheat varieties and better than the currently available Russian wheat aphid resistant varieties.

Stanton is medium late in maturity, has white chaff, and is a tall semidwarf with good straw strength. Its winterhardiness is equal to Scout and it is non-shattering. Milling and baking characteristics are good. Stanton is moderately resistant to wheat streak mosaic virus and Hessian fly, resistant to leaf and stem rust, and susceptible to soilborne mosaic virus and barley yellow dwarf mosaic virus. (Release notice from Kansas Agricultural Experiment Station).

PERFORMANCE TEST RESULTS

Objectives

To help Kansas growers select wheat varieties

suitable 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 varieties available in the state.

Varieties Included in Tests

Parentage and origin of public varieties included in the 2001 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 1978
Niobrara	TAM 105*4/Amigo//Brule	NE 1994
Prairie Red	CO850034/PI372129//5*TAM 107	CO 1998
Scout 66	Composite of 85 Scout selections	NE 1967
Stanton	PI222350/KS87H57//TAM 200/KS87H66/3/KS87H325	KS 2000
TAM 107	TAM 105*4/Amigo	TX 1984
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
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
Intrada	Rio Blanco/TAM 200	OK 2000
Lakin	Arlin/KS89H130	KS 2000
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, soybean, and alfalfa.

The 2001 private entrants and entries are listed in Table 3. Seven entrants provided a total of 18 varieties 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. Four locations had to be abandoned because of environmental factors. Environmental factors should be considered when examining the remaining results as well. Several locations were subjected to unusual levels of stripe rust, significantly affecting test results. Site descriptions and management practices for each site are summarized in Table 4. Location codes in parentheses after each location name are used as column headers in the data tables.

EAST

Brown County (BR), Cornbelt Experiment Field, Powhattan: This test was planted after corn in adequate moisture. All plots established good stands and exhibited very good yield potential. In spite of the fact that the nursery was planted on corn ground, very little Fusarium head blight was observed.

Riley County (RL), Ashland Research Farm, Manhattan: This test was planted in adequate moisture and had very good stands going into winter resulting in very little winterkill. Soil moisture was adequate to surplus throughout the growing season. Susceptible lines showed severe symptoms of soilborne mosaic virus in late March and early April. Moderate levels of stripe rust infection were observed, and leaf rust

Table 3. Private entrants and entries in the 2001 Kansas Wheat Performance Tests.

AgriPro AgriPro Wheat, Inc. 6515 Ascher Rd Junction City, KS 66441 785-210-0218 AP 97-075 Exp Cutter Hondo Thunderbolt	Drussel Drussel Seed and Supply 2197 W Parallel Road Garden City, KS 67846 316-275-2359 T81	Goertzen Goertzen Seed Research 14604 S Haven Rd Haven, KS 67543 316-465-2675 Kalvesta Venango	Polansky Polansky Seed PO Box 306 2729 M St Belleville, KS 66935 785-527-2271 Dominator
AGSECO DeLange Seed (AGSECO) PO Box 7 Girard, KS 66743 316-724-6223 7853 Onaga TAM 110	General Mills General Mills Operations Inc PO Box 5022 Great Falls, MT 59403 406-761-6252 (W) NuFrontier (W) NuHorizon (W) Golden Spike	NK Novartis Seeds PO Box 340 Hartsville, SC 29551 800-476-1318 (S) BL930390 (S) Coker 9474 (S) Coker 9663	

Table 4. Wheat Performance Test site descriptions and management in 2001.

REGION COUNTY and Cooperator	Site, location code, and nearest town	Dates of planting, harvest	Soil type pH and previous crop	Fertilizer lbs/acre			Seeding rate ¹ and row spacing
				N	P	K	
<u>EAST</u>							
BROWN	Bunck Seed Farms	10/11/00	Grundy silty clay loam	75	--	--	Fall 90 lb/a
Allan Fritz	Everest	7/3/01	Corn, 2000	--	20	--	Spring 7.5 in. row spacing
RILEY	Ashland Agronomy Farm (RL)	10/10/00	Reading silt loam	40	--	--	Fall 75 lb/a
Allan Fritz	Manhattan	6/28/01	Oats, 2000	50	--	--	Spring 9 in. row spacing
FRANKLIN	EC KS Experiment Field (FR)	10/12/00	Woodson silt loam	8	32	16	Fall 1200000 seeds/a
Keith Janssen	Ottawa	6/18/01	Wheat, 2000	80	--	--	Spring 7 in. row spacing
LABETTE	SE Agric Res Ctr (LB)	11/20/00	Parsons silt loam	70	60	60	Fall 75 lb/a
Jim Long	Parsons	6/18/01	Corn, 2000	50	--	--	Spring 7 in. row spacing
<u>NORTH CENTRAL</u>							
REPUBLIC	NC KS Experiment Field (RP)	10/9/00	Crete silt loam 6.2	80	30	--	Fall 60 lb/a
Barney Gordon	Belleville	7/9/01	Wheat, 2000	--	--	--	Spring 7.5 in. row spacing
SMITH	Farmer's Field (SM)	10/10/00	Silty loam	--	--	--	Fall 60 lb/a
Barney Gordon	Smith Center	7/9/01	Wheat, 2000	80	50	--	Spring 7.5 in. row spacing
<u>SOUTH CENTRAL</u>							
HARVEY	Harvey Co Expt Field (HV)	10/20/00	Ladysmith silty clay loam	89	32	--	Fall 60 lb/a
Mark Claassen	Hesston	6/27/01	Soybean, 2000	--	--	--	Spring 8 in. row spacing
RENO	SC KS Experiment Field (RN)	10/21/00	Ost silt loam	75	40	--	Fall 60 lb/a
Bill Heer	Hutchinson	6/26/01	Canola, 2000	50	--	--	Spring 8 in. row spacing
STAFFORD	Sandyland Expt Field (SD)	Abandoned	Pratt loamy fine sand	68	46	--	Fall 60 lb/a
Vic Martin	St. John	N/A	Sorghum, 1999	50	--	--	Spring 7 in. row spacing
SUMNER	Max Kolarik Farm (SU)	Abandoned	Sandy loam	70	25	--	Fall 60 lb/a
Allan Fritz	Caldwell	N/A	Wheat, 2000	--	--	--	Spring 9 in. row spacing
<u>WEST</u>							
ELLIS	Agric Res Ctr - Hays (EL)	Abandoned	Harney clay loam	--	--	--	Fall 60 lb/a
T. Joe Martin	Hays	N/A	Wheat, 1999	75	--	--	Spring 12 in. row spacing
THOMAS	NW Res-Ext Ctr (TD)	9/27/00	Keith silt loam	50	--	--	Fall 60 lb/a
Pat Evans	Colby	7/4/01	Wheat, 1999	--	--	--	Spring 12 in. row spacing
GREELEY	SW Res-Ext Ctr (GD)	9/15/00	Richfield silt loam	5	25	--	Fall 55 lb/a
Alan Schlegel	Tribune	6/28/01	Corn, 1999	60	--	--	Spring 10 in. row spacing
FINNEY	SW Res-Ext Ctr (FD)	11/20/00	Keith silt loam	60	--	--	Fall 45 lb/a
Merle Witt	Garden City	7/3/01	Wheat, 1999	--	--	--	Spring 10 in. row spacing
<u>IRRIGATED</u>							
STAFFORD	Sandyland Expt Field (SI)	Abandoned	Pratt loamy fine sand	68	46	--	Fall 90 lb/a
Vic Martin	St. John	N/A	Corn, 1999	50	--	--	Spring 7 in. row spacing
THOMAS	NW Res-Ext Ctr (TI)	9/26/00	Keith silt loam 7.4	100	30	--	Fall 90 lb/a
Pat Evans	Colby	7/4/01	Soybeans, 2000	--	--	--	Spring 12 in. row spacing
FINNEY	SW Res-Ext Ctr (FI)	9/29/00	Keith silt loam	90	--	--	Fall 75 lb/a
Merle Witt	Garden City	6/25/01	Corn, 1999	--	--	--	Spring 10 in. row spacing
STEVENS	Jim Kramer Farm	10/4/00	Richfield sandy loam	50	30	--	Fall 90 lb/a
Allan Fritz	Hugoton	6/28/01	Corn, 2000	50	--	--	Spring 9 in. row spacing

¹ Seed weight of 2001 entries ranged from 24 to 44 grams/1000 kernels, averaging 32 grams/1000 kernels (see Table 12).

developed late in the growing season, but did not greatly reduce yields. Heavy rains in the month before harvest caused significant lodging.

Franklin County (FR), East Central Experiment Field, Ottawa: Favorable planting conditions resulted in good stands. Diseases caused less damage than typical for this location. However, leaf rust was present along with a trace of stripe rust.

Labette County (LB), Southeast Agricultural Research Center, Parsons: Dry weather in early fall followed by extremely wet weather delayed planting until mid-November. The wheat did not emerge until January. Cool spring weather slowed early growth, but the wheat was developing rapidly by early April. Leaf diseases were minimal.

NORTH CENTRAL

Republic County (RP), North Central Experiment Field, Belleville: Extremely dry conditions in early fall caused the test to be planted into dry soil. The wheat emerged when rains fell in late October. Good stands were obtained, but some stand was lost to winterkill. Early spring was cooler than normal with significant snowfalls in late February and early March. Cool, wet conditions in May provided very good grain filling conditions. Some stripe rust symptoms were observed in susceptible varieties.

Smith County (SM), Farmer's field, Smith Center: Adequate moisture at planting resulted in good stand establishment in mid-October. Spring weather was cool and wet. Grain filling conditions were favorable.

SOUTH CENTRAL

Harvey County (HV), Harvey County Experiment Field, Hesston: Wheat planting was delayed by extremely dry soil conditions. Heavy rainfall occurred within the first week after planting. Stand establishment was generally good, but cold temperatures in November greatly limited wheat development before winter dormancy. Winter precipitation was somewhat above normal in January, well above average in February, but below normal during the other winter months. Mean temperatures were sharply below normal in November and December and, to a lesser extent, colder than usual in February and March. Final wheat stands were somewhat less

than desirable in a few varieties. May temperatures were near normal, but the other spring months were cooler than usual. The spring period was dryer than usual, except for June. Favorable temperatures and moisture substantially benefited grain filling. Moderate soilborne mosaic symptoms occurred in late March and early April, significantly affecting subsequent growth and yield of some varieties. Stripe rust began to appear in early May, ultimately affecting the yield and test weight of susceptible varieties. No insects of significance were observed. Rain during the harvest period reduced test weight.

Reno County (RN), South Central Experiment Field, Hutchinson: Extremely dry fall conditions were mitigated by nearly an inch of rain 5 days before planting. Cool, dry conditions characterized the winter months, resulting in little wheat growth. Spring conditions were not favorable until mid to late May when the weather became wet and cool. These conditions continued through June, allowing good grain filling. A heavy rain just before harvest may have lowered test weights. Stripe rust lowered yields and test weights of susceptible varieties.

Stafford County, dryland (SD), Sandyland Experiment Field, St. John: Extremely dry, unfavorable planting conditions were followed by an early, harsh winter. Stripe rust was present on susceptible varieties. All these factors combined to make yields so variable that the test had to be abandoned.

Sumner County (SU), Max Kolarik farm, Caldwell: Heavy rains soon after planting caused severe crusting that prevented adequate stand establishment. As a result the test was abandoned.

WEST

Ellis County (EL), KSU Agricultural Research Center, Hays: A mid-October planting had very irregular stands because of non-uniform seedbed moisture. Early November rains did not improve stands appreciably, thus a second planting was attempted. Cold weather set in and delayed emergence until spring. The late-emerged stands were also poor and variable so the test was abandoned.

Thomas County, dryland (TD), Northwest Research-Extension Center, Colby: Good stands were established in all plots. Snow cover on the coldest winter days prevented winter kill. Cool temperatures and beneficial rains slowed early development until June, which was hot and dry. Stripe rust and minimal leaf rust were observed.

Greeley County, dryland (GD), Southwest Research-Extension Center, Tribune: Soil moisture was marginal at planting. Early spring conditions were dry, but the grain filling period was favorable. Susceptible varieties exhibited stripe rust symptoms.

Finney County, dryland (FD), Southwest Research-Extension Center, Garden City: Dry conditions at planting did not appear favorable, but all entries emerged. Most tillers of the more tender varieties (i.e. Newton, Heyne, and Culver) were killed during the winter. These later retillered with spring rains and below normal temperatures through the first week of June. Hot conditions in late June prematurely killed many of the late-maturing, retillered varieties. Stripe rust was severe on many varieties. Leaf rust also was noted.

IRRIGATED

Stafford County, irrigated (SI), Sandyland Experiment Field, St. John: See description for dryland test.

Thomas County, irrigated (TI), Northwest Research-Extension Center, Colby: See description for dryland test.

Finney County, irrigated (FI) Southwest Research-Extension Center, Garden City: Sprinkler irrigation in the fall facilitated good seeding establishment. The harsh winter thinned stands to some extent. May rains provided good grain filling conditions. Stripe rust symptoms were severe on susceptible varieties. Some leaf rust also was noted.

Stevens County, irrigated (SV) Kramer Seed Farms, Hugoton: This nursery was planted following corn and looked good from planting on. Good stands were obtained and the crop was well established going into winter. This nursery had very high yield potential throughout the growing season. The primary production constraint was a very heavy infection of stripe

rust. The resistant lines (i.e. Heyne, Betty, Karl 92, Jagger) did very well, but the susceptible varieties suffered yield losses of 60% or more due to the disease. Test weights of susceptible varieties also were reduced.

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 2001 entries can best be determined by examining Figures 9-12, 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. This year especially, the unusually severe outbreak of stripe rust caused otherwise excellent varieties to perform poorly at some locations.

Additional agronomic characteristics are presented in Table 8a-d (test weights); Table 9a-d (relative heading dates); Table 10a-d (heights); Table 11 (disease and lodging notes); Table 12 (planted seed characteristics, coleoptile lengths, and Hessian fly ratings); and Table 13 (protein). Minimal shattering occurred in the tests in 2001.

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: Jagger and 2137. These were the most popular varieties in 2001 with 58% of the total wheat acreage.

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, 1998-2001

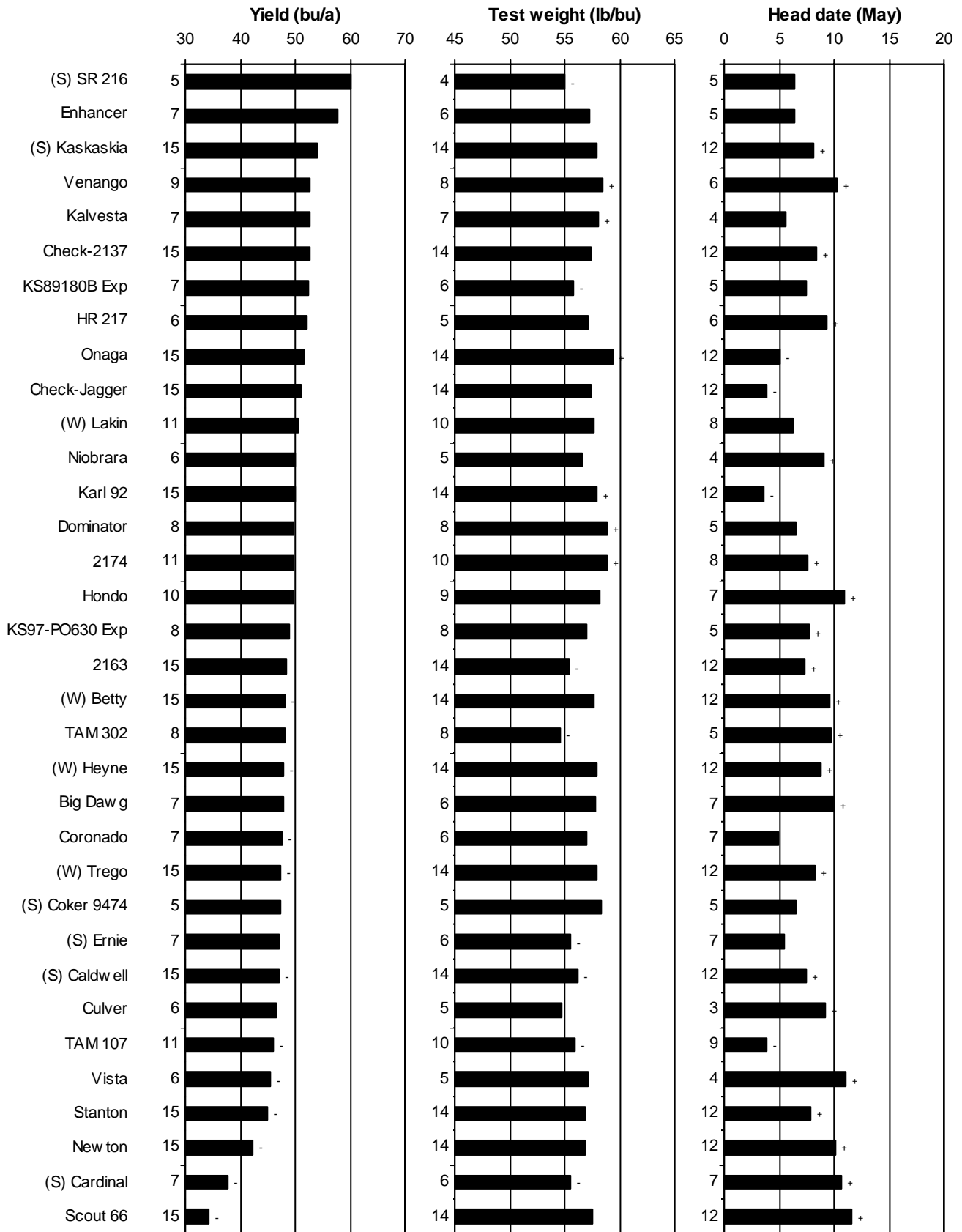


FIGURE 9. WHEAT VARIETY PERFORMANCE SUMMARY, EASTERN REGION, 1998-2001

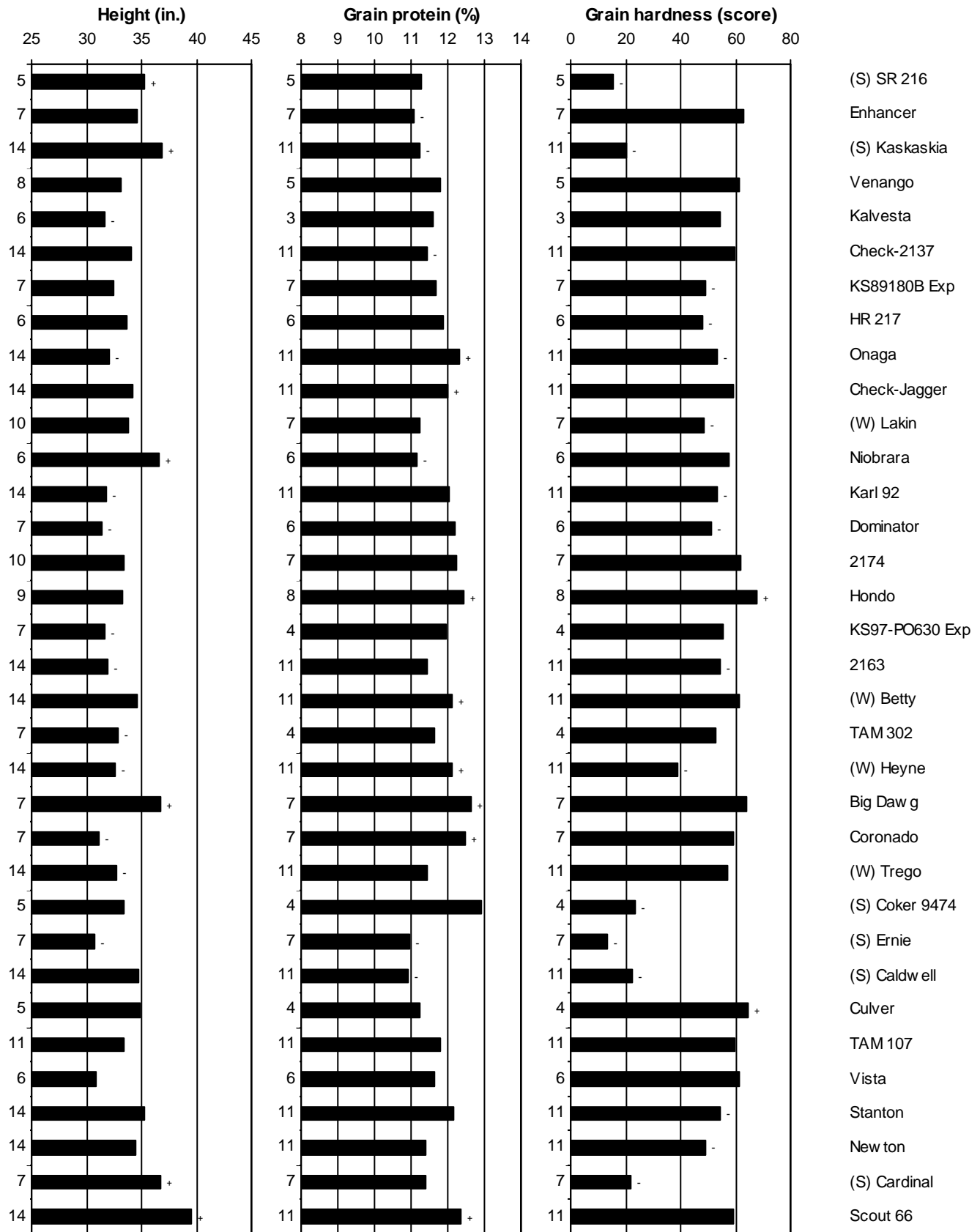


FIGURE 10. WHEAT VARIETY PERFORMANCE SUMMARY, CENTRAL REGION, 1998-2001

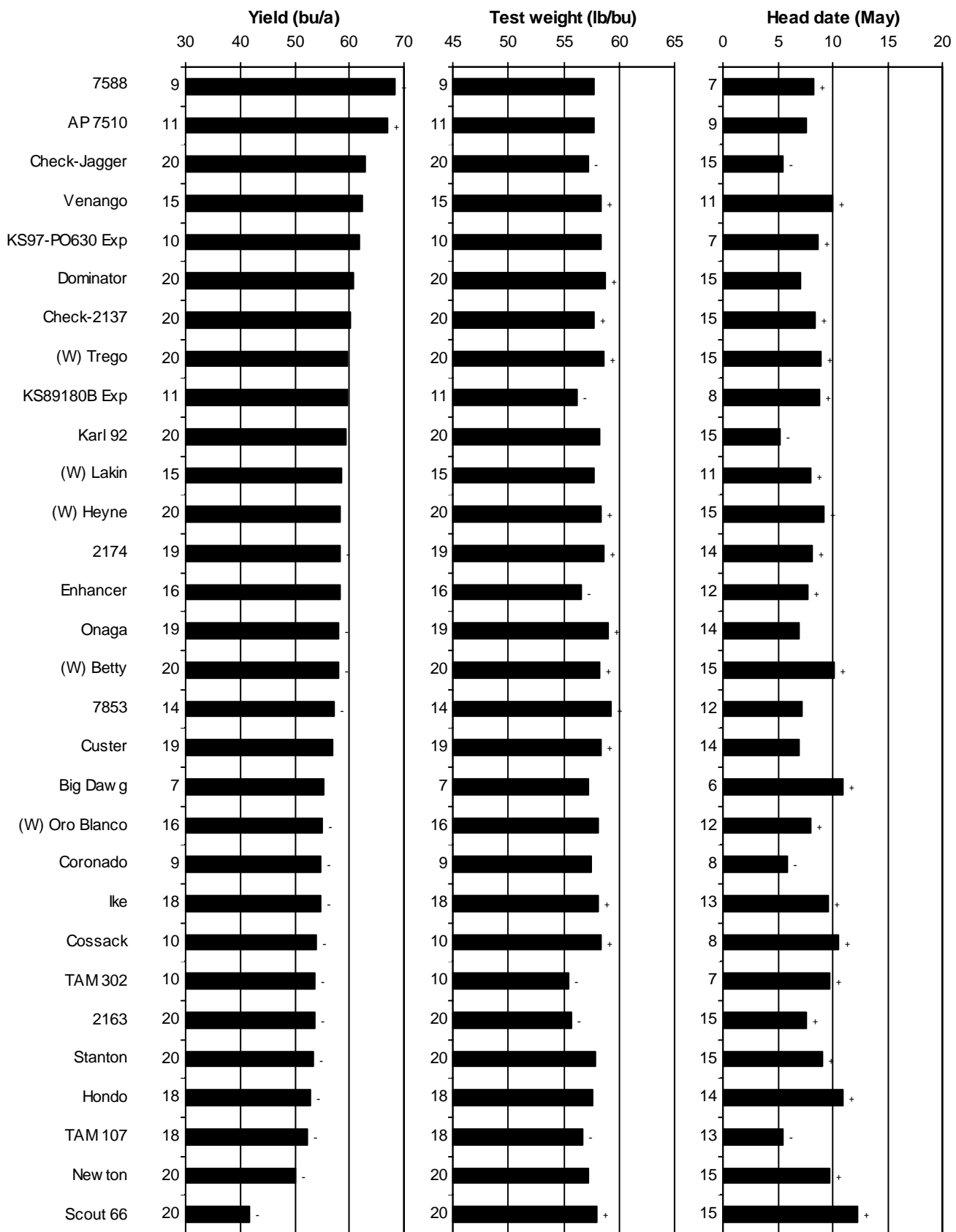


FIGURE 10. WHEAT VARIETY PERFORMANCE SUMMARY, CENTRAL REGION, 1998-2001

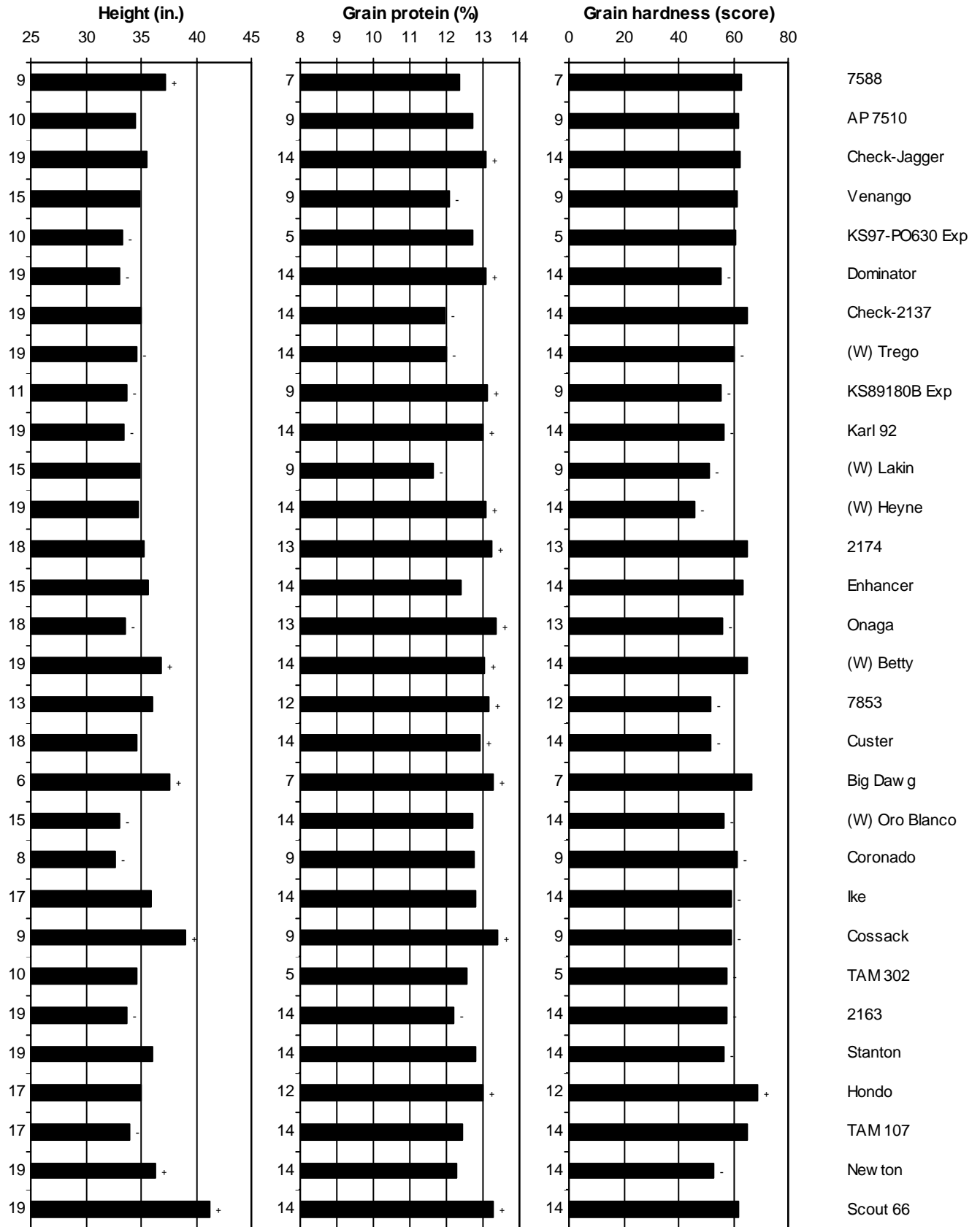


FIGURE 11. WHEAT VARIETY PERFORMANCE SUMMARY, WESTERN REGION, 1998-2001

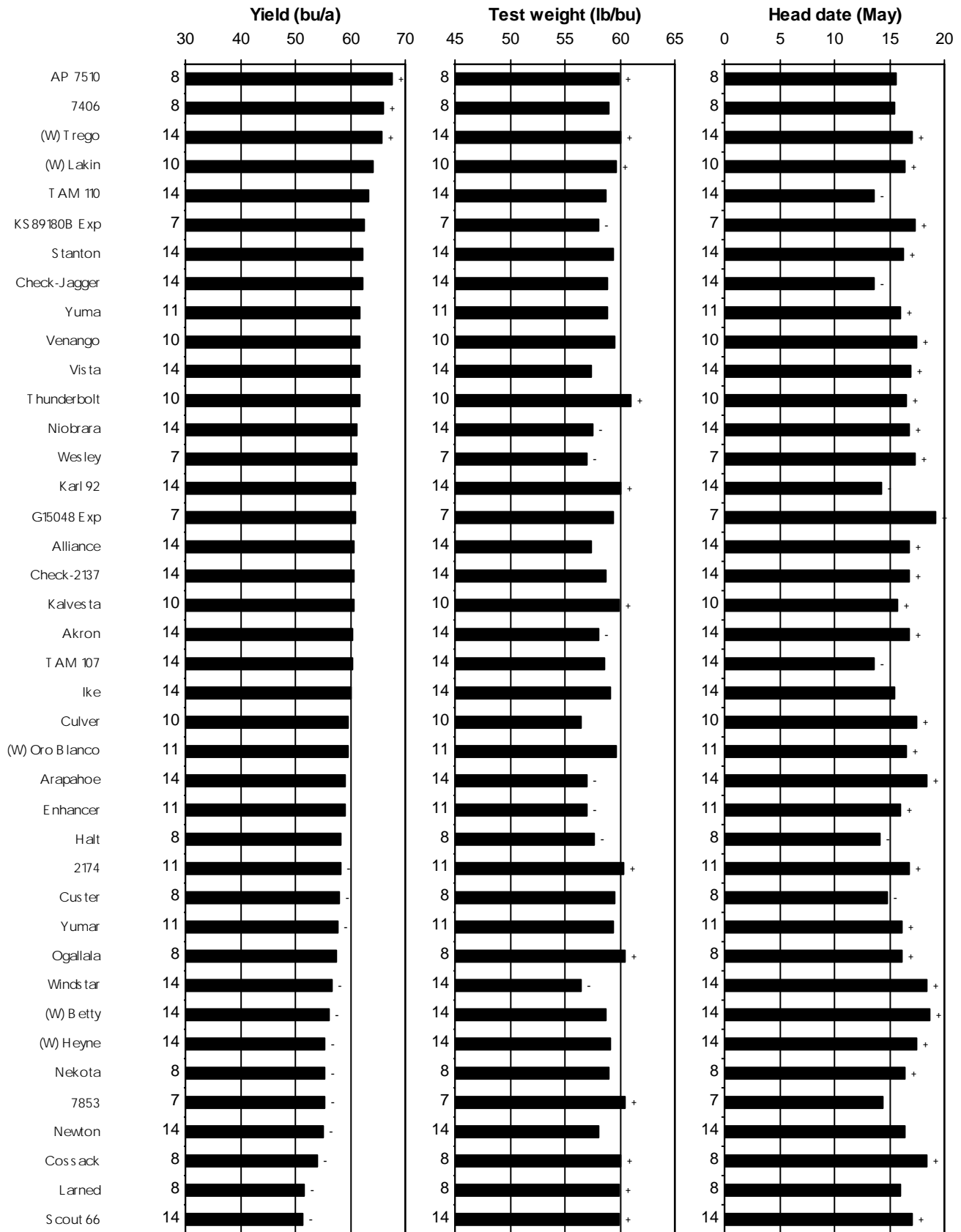


FIGURE 11. WHEAT VARIETY PERFORMANCE SUMMARY, WESTERN REGION, 1998-2001

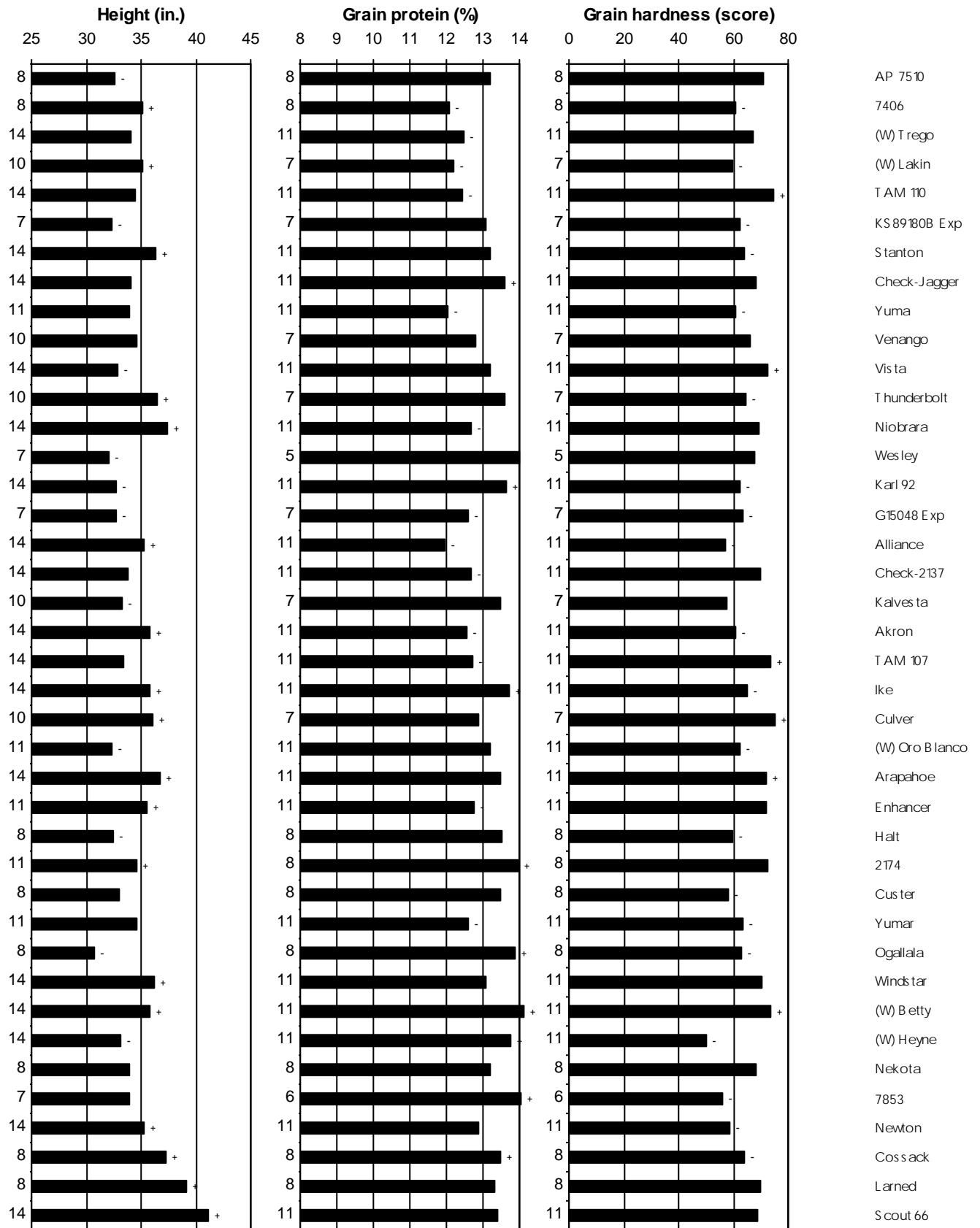


FIGURE 12. WHEAT VARIETY PERFORMANCE SUMMARY, IRRIGATED REGION, 1998-2001

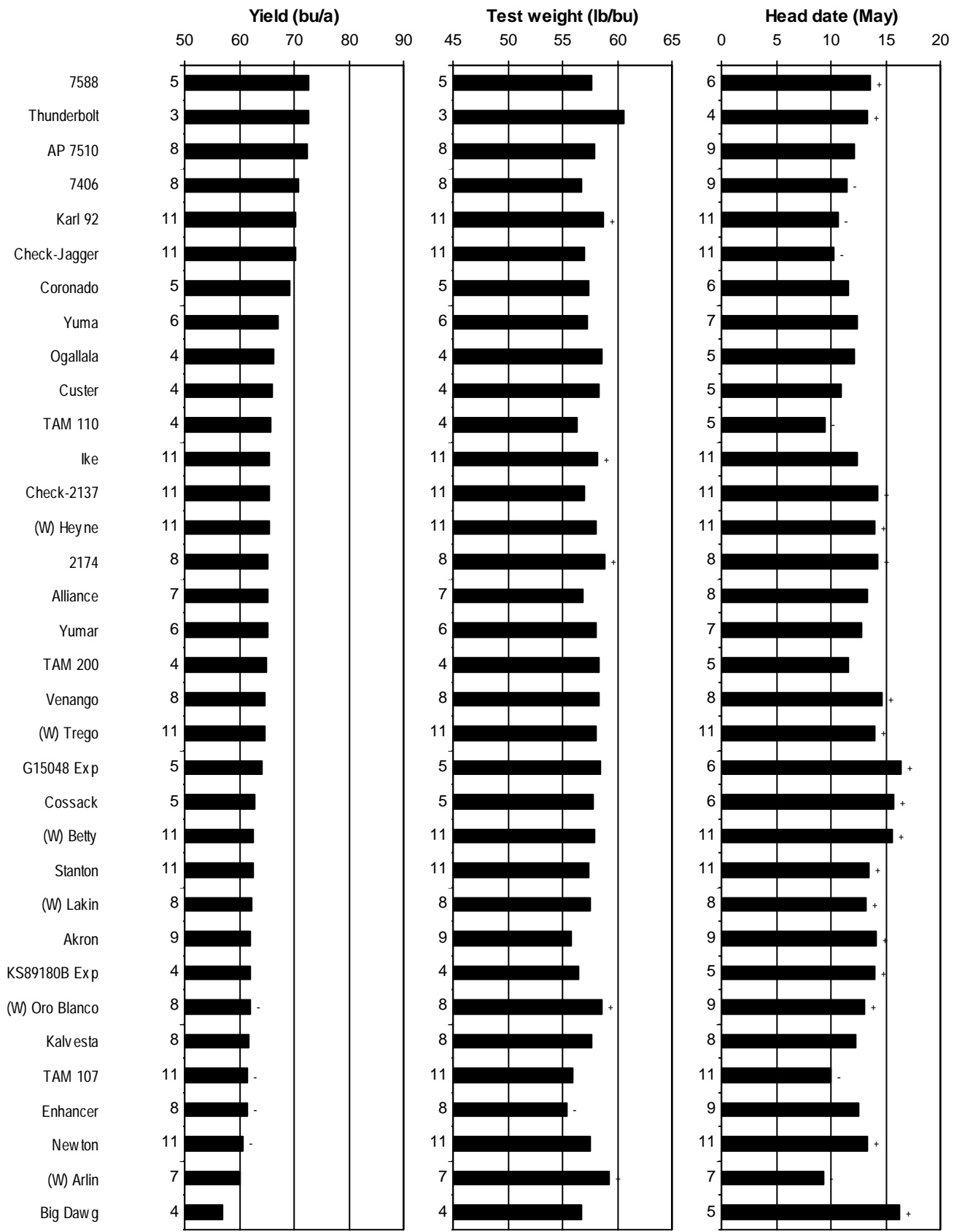


FIGURE 12. WHEAT VARIETY PERFORMANCE SUMMARY, IRRIGATED REGION, 1998-2001

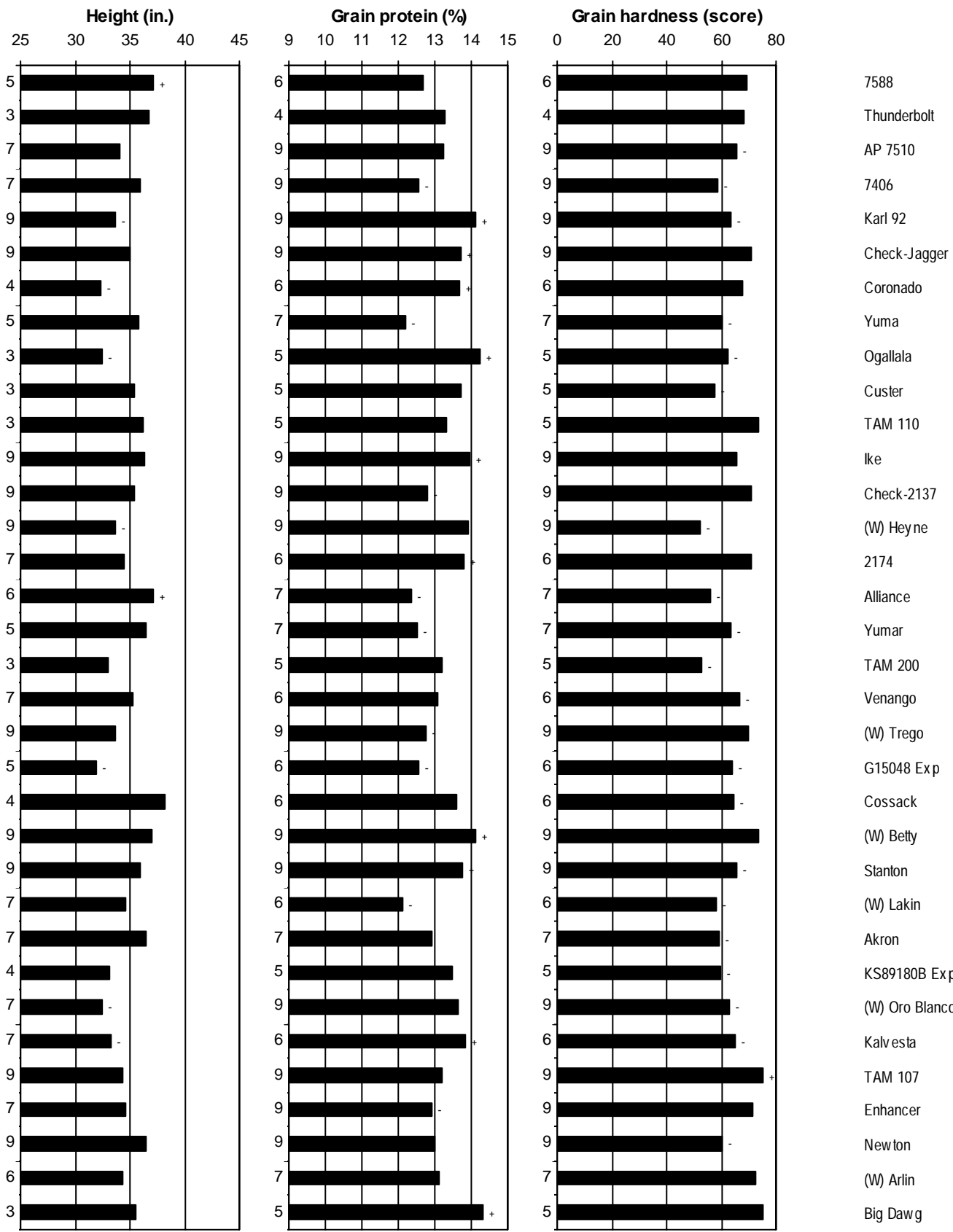
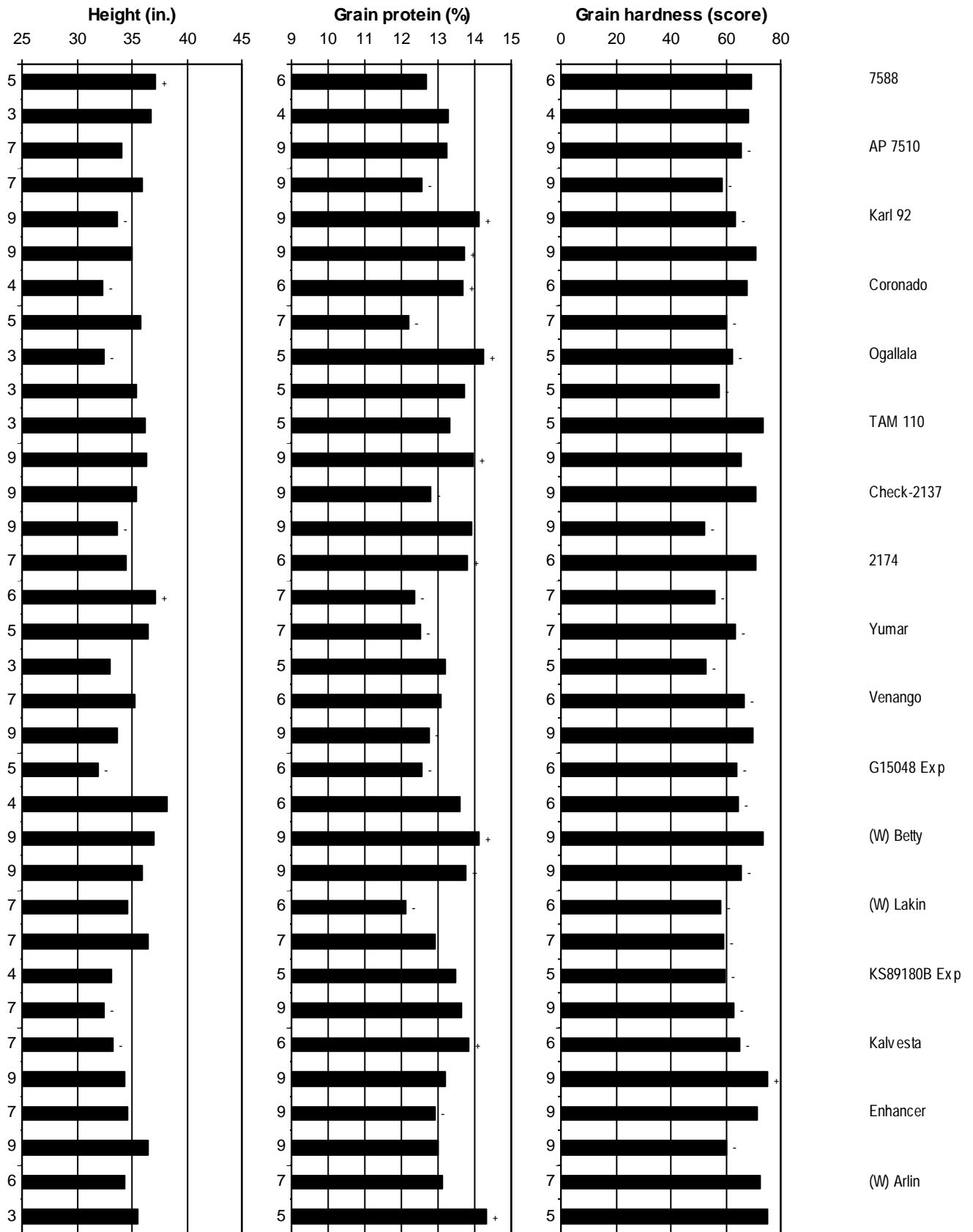


FIGURE 12. WHEAT VARIETY PERFORMANCE SUMMARY, IRRIGATED REGION, 1998-2001



**Table 5a. Yield (bushels per acre)
2001 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.	Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.
AgriPro						Public					
AP 97-075 Exp	36	65	--	--	--	(S) Caldwell	44	58	55	44	50
Cutter	--	--	--	50	--	(S) Kaskaskia	64	65	56	51	59
Hondo	48	59	--	--	--	(W) Betty	53	66	45	46	53
<hr/>						(W) Heyne	47	71	46	37	50
AGSECO						(W) Lakin	47	68	53	50	55
7853	--	--	--	49	--	(W) Trego	35	69	52	54	52
Onaga	44	67	48	51	52	2137	50	69	61	55	59
<hr/>						2163	42	65	63	21	47
General Mills						2174	42	69	54	55	55
(W) NuFrontier	43	63	58	48	53	Culver	34	50	--	--	--
(W) NuHorizon	48	51	55	43	49	Jagger	50	63	63	53	57
(W)Golden Spike	18	31	55	36	35	Karl 92	56	70	56	56	59
<hr/>						KS97-PO630 Exp	47	71	35	47	50
Goertzen						Newton	41	53	57	34	46
Kalvesta	48	71	64	48	58	Scout 66	37	39	39	27	36
Venango	41	70	56	54	55	Stanton	42	50	54	50	49
<hr/>						TAM 302	38	64	57	41	50
NK						<hr/>					
(S) BL930390	--	--	--	39	--	Average	44	62	54	47	52
(S) Coker 9474	--	--	--	50	--	CV (%)	11	8	9	8	--
(S) Coker 9663	--	--	--	53	--	LSD (0.05)**	7	7	7	5	--
<hr/>						<hr/>					
Polansky											
Dominator	46	71	--	--	--						

¹ BR = Brown County test at Bunck Seed Farm near Everest, 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)
2001 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							2174	42	71	56	39	55	--	--	47
AP 97-075 Exp	56	75	66	33	45	--	Alliance	58	77	68	--	--	--	--	--
Cutter	--	--	--	48	58	--	Arapahoe	67	71	69	--	--	--	--	--
Hondo	59	52	56	28	34	--	Culver	54	67	61	--	--	--	--	--
AGSECO							Custer	27	62	44	--	53	--	--	--
7853	--	--	--	40	51	--	Ike	52	73	63	--	--	--	--	--
Onaga	44	68	56	32	51	--	Jagger	65	87	76	46	61	--	--	54
General Mills							Karl 92	52	82	67	50	61	--	--	56
(W) NuFrontier	56	71	64	33	52	--	KS97-PO630 Exp	46	75	61	30	51	--	--	40
(W) NuHorizon	60	68	64	26	53	--	Millennium	61	77	69	--	--	--	--	--
(W)Golden Spike	56	63	59	19	47	--	Newton	48	65	56	32	40	--	--	36
Goertzen							Niobrara	59	65	62	--	--	--	--	--
Kalvesta	42	72	57	--	--	--	OK95571Exp	--	--	--	32	44	--	--	38
Venango	51	70	61	35	48	--	Prairie Red	--	66	--	--	--	--	--	--
Polansky							Scout 66	48	55	51	34	41	--	--	37
Dominator	60	82	71	52	58	--	Stanton	53	69	61	23	50	--	--	36
Public							TAM 107	52	62	57	--	--	--	--	--
(W) Betty	58	80	69	52	62	--	TAM 302	45	57	51	34	43	--	--	39
(W) Heyne	44	77	60	53	61	--	Vista	56	73	64	--	--	--	--	--
(W) Intrada	45	72	58	--	--	--	Wesley	64	87	76	--	--	--	--	--
(W) Lakin	47	70	59	36	47	--									
(W) Nuplains	56	67	61	--	--	--	Average	52	70	61	37	50	--	--	43
(W) Trego	63	74	69	42	45	--	CV (%)	9	6	--	7	7	--	--	--
2137	50	73	61	39	47	--	LSD (0.05)**	7	6	--	4	5	--	--	--
2163	36	64	50	25	44	--									

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)
2001 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.	Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.
AgriPro						Akron	--	73	53	29	52
Thunderbolt	--	77	47	35	53	Alliance	--	70	48	22	46
AGSECO						Arapahoe	--	74	55	31	53
7853	--	--	--	27	--	Culver	--	70	48	23	47
TAM 110	--	72	52	26	50	Ike	--	72	50	22	48
Drussel						Jagger	--	82	47	32	54
T81	--	--	59	34	--	Karl 92	--	77	48	37	54
General Mills						KS97-PO630 Exp	--	70	46	26	47
(W) NuFrontier	--	76	51	31	52	Millennium	--	76	--	--	--
(W) NuHorizon	--	68	45	31	48	Newton	--	70	44	18	44
(W)Golden Spike	--	70	58	24	51	Niobrara	--	70	49	27	49
Goertzen						Prairie Red	--	72	52	26	50
Kalvesta	--	71	49	23	48	Scout 66	--	66	50	33	50
Venango	--	72	46	34	51	Stanton	--	75	54	33	54
Public						TAM 107	--	69	51	24	48
(W) Betty	--	71	49	20	47	TAM 302	--	67	48	22	45
(W) Heyne	--	71	49	21	47	Vista	--	72	43	26	47
(W) Intrada	--	73	46	30	49	Wesley	--	73	51	--	--
(W) Lakin	--	71	51	26	49	Windstar	--	70	47	25	47
(W) Nuplains	--	67	50	22	46						
(W) Trego	--	76	48	35	53	Average	--	72	49	27	50
2137	--	71	47	26	48	CV (%)	--	3	11	8	--
2174	--	70	48	30	49	LSD (0.05)**	--	3	7	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)
2001 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.	Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.
Drussel						Public					
T81	--	--	43	--	--	(W) Betty	--	64	33	77	58
<hr/>						(W) Heyne	--	57	38	87	60
General Mills						(W) Intrada	--	--	42	45	--
(W) NuFrontier	--	72	45	64	61	(W) Lakin	--	58	42	25	42
(W) NuHorizon	--	67	46	62	59	(W) Trego	--	70	48	24	47
(W)Golden Spike	--	65	44	39	49	2137	--	61	38	45	48
<hr/>						2174	--	65	42	68	58
Goertzen						Akron	--	65	42	32	46
Kalvesta	--	59	41	30	43	Alliance	--	69	--	--	--
Venango	--	68	41	39	50	Ike	--	69	39	58	55
<hr/>						Jagger	--	65	37	72	58
						Karl 92	--	69	39	79	63
						KS97-PO630 Exp	--	62	37	58	53
						Newton	--	62	40	48	50
						Stanton	--	73	45	44	54
						TAM 107	--	60	40	37	46
						TAM 302	--	65	45	28	46
<hr/>						Average	--	65	41	51	52
						CV (%)	--	4	6	11	--
						LSD (0.05)**	--	3	3	8	--

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 SV = Stevens County test at Kramer Seed Farms 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 6a. Yield (% of test average)
2001 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.	Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.
AgriPro						Public					
AP 97-075 Exp	82	105	--	--	--	(S) Caldwell	100	93	103	94	98
Cutter	--	--	--	106	--	(S) Kaskaskia	147	106	103	110	116
Hondo	109	95	--	--	--	(W) Betty	121	106	84	99	102
<hr/>						<hr/>					
AGSECO						(W) Heyne					
7853	--	--	--	105	--	(W) Lakin	106	111	99	107	106
Onaga	100	108	89	108	101	(W) Trego	79	111	97	114	101
<hr/>						2137					
General Mills						2163					
(W) NuFrontier	99	102	108	103	103	2174	95	112	101	118	106
(W) NuHorizon	109	83	102	91	96	Culver	78	80	--	--	--
(W)Golden Spike	41	50	102	77	67	Jagger	115	102	117	114	112
<hr/>						Karl 92					
Goertzen						KS97-PO630 Exp					
Kalvesta	110	114	119	102	111	Newton	94	86	106	72	90
Venango	94	114	105	114	107	Scout 66	85	63	73	57	70
<hr/>						Stanton					
NK						TAM 302					
(S) BL930390	--	--	--	83	--	<hr/>					
(S) Coker 9474	--	--	--	106	--	Average	44	62	54	47	52
(S) Coker 9663	--	--	--	113	--	CV (%)	11	8	9	8	--
<hr/>						LSD (0.05)**					
Polansky						<hr/>					
Dominator	104	115	--	--	--						

¹ BR = Brown County test at Bunck Seed Farm near Everest, 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)
2001 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							Alliance	111	109	110	--	--	--	--	--		
AP 97-075 Exp	107	107	107	90	91	--	--	90	Arapahoe	128	100	114	--	--	--	--	--
Cutter	--	--	--	130	115	--	--	123	Culver	104	96	100	--	--	--	--	--
Hondo	113	74	94	76	69	--	--	72	Custer	52	87	70	--	106	--	--	--
AGSECO							Ike	100	104	102	--	--	--	--	--		
7853	--	--	--	110	102	--	--	106	Jagger	124	123	124	125	123	--	--	124
Onaga	85	97	91	88	101	--	--	94	Karl 92	99	116	108	138	122	--	--	130
General Mills							KS97-PO630 Exp	88	106	97	83	101	--	--	92		
(W) NuFrontier	108	101	104	90	104	--	--	97	Millennium	117	109	113	--	--	--	--	--
(W) NuHorizon	114	96	105	71	106	--	--	89	Newton	91	92	91	87	81	--	--	84
(W)Golden Spike	107	89	98	53	93	--	--	73	Niobrara	112	92	102	--	--	--	--	--
Goertzen							OK95571Exp	--	--	--	88	88	--	--	88		
Kalvesta	80	102	91	--	--	--	--	--	Prairie Red	--	93	--	--	--	--	--	--
Venango	97	100	98	97	95	--	--	96	Scout 66	91	78	84	93	82	--	--	87
Polansky							Stanton	101	97	99	63	100	--	--	81		
Dominator	114	116	115	141	116	--	--	129	TAM 107	100	88	94	--	--	--	--	--
Public							TAM 302	87	81	84	94	86	--	--	90		
(W) Betty	110	113	112	143	123	--	--	133	Vista	107	103	105	--	--	--	--	--
(W) Heyne	83	110	97	145	121	--	--	133	Wesley	123	124	124	--	--	--	--	--
(W) Intrada	85	102	93	--	--	--	--	--									
(W) Lakin	90	100	95	99	95	--	--	97	Average	52	70	61	37	50	--	--	43
(W) Nuplains	107	95	101	--	--	--	--	--	CV (%)	9	6	--	7	7	--	--	--
(W) Trego	121	105	113	115	90	--	--	102	LSD (0.05)**	13	8	--	10	10	--	--	--
2137	95	104	99	107	94	--	--	101									
2163	70	91	80	68	87	--	--	77									
2174	79	100	90	107	110	--	--	109									

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)
2001 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.	Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.
AgriPro						Akron	--	102	106	105	105
Thunderbolt	--	107	94	127	109	Alliance	--	97	97	79	91
AGSECO						Arapahoe	--	104	110	115	110
7853	--	--	--	99	--	Culver	--	98	97	84	93
TAM 110	--	101	105	96	101	Ike	--	100	102	82	95
Drussel						Jagger	--	114	95	116	108
T81	--	--	120	124	--	Karl 92	--	107	97	135	113
General Mills						KS97-PO630 Exp	--	98	93	94	95
(W) NuFrontier	--	105	102	112	107	Millennium	--	106	--	--	--
(W) NuHorizon	--	94	91	113	99	Newton	--	98	89	67	84
(W)Golden Spike	--	98	118	89	102	Niobrara	--	98	100	100	99
Goertzen						Prairie Red	--	100	106	95	100
Kalvesta	--	99	99	86	95	Scout 66	--	92	102	119	105
Venango	--	101	93	123	105	Stanton	--	105	109	120	111
Public						TAM 107	--	96	104	86	95
(W) Betty	--	98	100	74	91	TAM 302	--	93	97	80	90
(W) Heyne	--	98	98	77	91	Vista	--	100	87	95	94
(W) Intrada	--	101	92	110	101	Wesley	--	102	103	--	--
(W) Lakin	--	98	104	93	98	Windstar	--	97	95	91	95
(W) Nuplains	--	93	102	82	92						
(W) Trego	--	106	98	128	111	Average	--	72	49	27	50
2137	--	99	96	95	97	CV (%)	--	3	11	8	--
2174	--	97	98	109	101	LSD (0.05)**	--	4	15	12	--

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)
2001 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.	Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.
Drussel						Public					
T81	--	--	104	--	--	(W) Betty	--	99	80	153	111
<hr/>						<hr/>					
General Mills											
(W) NuFrontier	--	111	109	127	116	(W) Heyne	--	87	92	171	117
(W) NuHorizon	--	104	112	123	113	(W) Intrada	--	--	101	89	--
(W)Golden Spike	--	100	107	77	94	(W) Lakin	--	90	102	50	81
<hr/>						<hr/>					
Goertzen											
Kalvesta	--	90	99	60	83	(W) Trego	--	107	117	47	90
Venango	--	105	100	77	94	2137	--	94	93	88	91
<hr/>						<hr/>					
						2174					
						Akron					
						Alliance					
						Ike					
						Jagger					
						Karl 92					
						KS97-PO630 Exp					
						Newton					
						Stanton					
						TAM 107					
						TAM 302					
						<hr/>					
						Average					
						CV (%)					
						LSD (0.05)**					
						<hr/>					

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 SV = Stevens County test at Kramer Seed Farms 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 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	42	42	46	58	51	52	--	--	--	--	--	--
AGSECO												
7853	--	--	--	--	--	--	--	--	--	--	--	--
Onaga	43	47	48	60	57	59	49	53	56	49	41	46
General Mills												
(W) NuFrontier	--	--	--	--	--	--	--	--	--	--	--	--
(W) NuHorizon	--	--	--	--	--	--	--	--	--	--	--	--
Goertzen												
Enhancer	--	--	--	--	--	--	--	--	--	--	--	--
Kalvesta	46	--	--	63	--	--	59	--	--	--	--	--
Venango	40	39	--	66	60	--	57	--	--	--	--	--
NK												
(S) BL930390	--	--	--	--	--	--	--	--	--	46	--	--
(S) Coker 9474	--	--	--	--	--	--	--	--	--	52	43	48
(S) Coker 9663	--	--	--	--	--	--	--	--	--	61	52	54
Polansky												
Dominator	44	--	--	59	51	51	--	--	--	--	--	--
Public												
(S) Caldwell	43	45	45	53	48	47	55	53	55	49	41	45
(S) Kaskaskia	54	55	54	64	60	58	55	56	--	54	45	49
(W) Betty	49	45	45	56	50	50	47	52	59	48	44	47
(W) Heyne	44	46	48	62	52	54	46	49	--	44	36	41
(W) Lakin	48	48	--	58	51	--	55	--	--	48	39	--
(W) Trego	38	39	44	58	48	49	52	54	--	48	40	44
2137	44	41	46	62	53	55	59	61	66	54	46	50
2163	38	40	45	59	52	53	59	60	64	37	33	39
2174	41	42	--	60	52	--	54	--	--	51	42	--
Culver	36	39	--	52	47	--	--	--	--	--	--	--
Jagger	47	47	50	59	51	51	53	55	52	54	46	50
Karl 92	49	51	53	63	54	53	50	51	55	52	42	43
KS97-PO630 Exp	43	--	--	68	--	--	45	--	--	49	--	--
Newton	40	36	41	47	42	41	56	54	53	42	36	37
Scout 66	36	37	40	34	30	30	43	41	42	26	22	28
Stanton	41	41	43	48	45	46	54	56	--	43	35	39
TAM 302	39	--	--	54	--	--	58	--	--	50	--	--
Average	42	43	46	56	50	50	53	54	57	48	41	45

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 (95-00)			Sumner-Caldwell (96-00)		
	2YR	3YR	4YR	2YR	3YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
AgriPro																	
Hondo	58	68	69	56	64	34	42	45	28	39	40	--	--	--	--	--	--
AGSECO																	
7853	--	--	--	--	--	40	45	48	44	52	52	58	57	47	38	38	32
Onaga	55	64	68	71	74	38	42	47	48	55	56	--	--	--	48	--	--
General Mills																	
(W) NuFrontier	60	--	--	69	--	--	--	--	--	--	--	--	--	--	--	--	--
(W) NuHorizon	62	--	--	73	--	--	--	--	--	--	--	--	--	--	--	--	--
Goertzen																	
Enhancer	--	--	--	--	--	--	--	--	--	--	--	55	53	--	41	--	--
Kalvesta	57	65	--	72	76	--	--	--	--	--	--	--	--	--	--	--	--
Venango	62	71	--	76	78	40	46	--	43	54	--	63	--	--	--	--	--
Polansky																	
Dominator	66	74	75	80	81	47	53	54	45	50	50	56	57	--	40	39	--
Public																	
(W) Betty	62	68	70	78	78	48	52	53	46	48	48	55	57	--	34	36	--
(W) Heyne	56	62	67	72	74	45	48	51	47	55	55	44	52	--	49	--	--
(W) Intrada	61	--	--	79	--	--	--	--	--	--	--	--	--	--	--	--	--
(W) Lakin	59	71	--	74	76	40	45	--	38	45	--	54	--	--	--	--	--
(W) Nuplains	66	--	--	75	--	--	--	--	--	--	--	--	--	--	--	--	--
(W) Trego	67	76	76	76	81	44	48	52	41	49	50	57	56	--	35	--	--
2137	62	70	73	75	80	40	44	49	41	47	50	55	59	48	52	50	44
2163	46	57	60	70	71	33	40	44	41	48	49	54	56	47	41	40	34
2174	56	67	--	71	76	40	44	47	49	52	53	53	58	--	43	44	--
Alliance	60	67	69	79	80	--	--	--	--	--	--	--	--	--	--	--	--
Arapahoe	64	72	72	73	77	--	--	--	--	--	--	--	--	--	--	--	--
Culver	62	71	--	73	78	--	--	--	--	--	--	50	--	--	--	--	--
Custer	53	66	69	70	76	--	--	--	46	55	58	46	51	40	42	49	40
Ike	61	70	70	76	78	--	--	--	--	--	--	51	50	42	31	33	28
Jagger	69	71	74	79	78	46	52	55	47	55	56	58	64	52	49	48	40
Karl 92	63	70	74	81	81	46	50	53	51	54	54	45	48	39	38	37	34
KS97-PO630 Exp	61	--	--	80	--	37	--	--	51	--	--	--	--	--	--	--	--
Millennium	63	--	--	74	--	--	--	--	--	--	--	--	--	--	--	--	--
Newton	54	60	61	67	70	36	42	45	32	39	39	52	53	42	30	28	24
Niobrara	61	69	72	72	78	--	--	--	--	--	--	58	58	48	--	--	--
Prairie Red	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Scout 66	46	51	52	50	55	33	30	34	30	34	35	41	44	35	27	27	23
Stanton	60	70	70	67	73	33	32	39	42	48	50	41	44	--	40	--	--
TAM 107	60	64	67	67	72	--	--	--	--	--	--	--	--	--	--	--	--
TAM 302	56	--	--	68	--	38	--	--	36	--	--	--	--	--	--	--	--
Vista	59	67	67	70	74	--	--	--	--	--	--	--	--	--	--	--	--
Wesley	66	75	--	81	86	--	--	--	--	--	--	--	--	--	--	--	--
Average	60	68	69	72	76	40	44	47	42	49	49	53	54	44	40	40	33

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

Brand / Name	Ellis-Hays (97-00)			Thomas-Colby			Greeley-Tribune			Finney-Garden City		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
AgriPro												
Thunderbolt	72	--	--	62	59	--	62	--	--	36	44	--
AGSECO												
7853	--	--	--	--	--	--	--	--	--	31	40	43
TAM 110	76	78	77	61	63	66	67	69	65	32	44	45
Drussel												
T81	--	--	--	--	--	--	73	74	--	36	44	--
General Mills												
(W) NuFrontier	--	--	--	58	--	--	--	--	--	31	--	--
(W) NuHorizon	--	--	--	53	--	--	--	--	--	33	--	--
Goertzen												
Enhancer	68	71	--	--	--	--	--	--	--	--	--	--
Kalvesta	68	--	--	58	59	--	66	--	--	29	40	--
Venango	72	--	--	60	59	--	65	--	--	34	42	--
Polansky												
Dominator	71	76	74	--	--	--	--	--	--	--	--	--
Public												
(W) Betty	64	67	66	56	58	61	59	61	56	27	37	40
(W) Heyne	64	68	--	50	51	57	62	64	--	24	35	38
(W) Intrada	--	--	--	56	--	--	--	--	--	34	--	--
(W) Lakin	70	--	--	57	62	--	70	--	--	31	44	--
(W) Nuplains	--	--	--	55	--	--	--	--	--	--	--	--
(W) Trego	79	79	--	63	68	70	69	73	--	34	47	46
2137	66	72	71	57	59	63	64	66	63	32	43	45
2174	65	72	70	52	54	--	61	--	--	32	41	--
Akron	69	72	73	58	59	64	69	72	68	29	39	40
Alliance	72	73	72	54	59	64	69	72	65	28	40	40
Arapahoe	66	68	69	54	56	61	68	71	65	30	39	41
Culver	68	--	--	55	57	--	68	--	--	26	38	--
Ike	72	72	71	58	59	62	64	67	62	30	42	44
Jagger	72	75	75	61	61	66	64	67	64	31	43	46
Karl 92	68	74	70	57	61	64	63	64	59	35	45	46
KS97-PO630 Exp	--	--	--	56	--	--	--	--	--	31	--	--
Millennium	--	--	--	60	--	--	--	--	--	--	--	--
Newton	65	65	61	56	57	60	61	64	58	23	34	36
Niobrara	71	73	71	57	61	65	67	68	63	32	44	43
Prairie Red	--	--	--	60	--	--	--	--	--	31	--	--
Scout 66	56	61	61	53	53	56	54	56	54	29	36	36
Stanton	70	73	--	59	61	64	67	72	--	34	45	46
TAM 107	74	75	72	58	60	63	66	68	64	29	41	42
TAM 302	--	--	--	55	--	--	--	--	--	27	--	--
Vista	68	72	72	62	66	67	66	70	64	31	42	42
Wesley	66	--	--	57	59	--	67	--	--	--	--	--
Windstar	64	67	68	52	54	59	63	68	63	26	37	38
Average	69	71	70	57	59	63	66	67	63	30	40	42

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

Brand / Name	<u>Stafford-St.John (95-00)</u>			<u>Thomas-Colby</u>			<u>Finney-Garden City</u>			<u>Stevens-Hugoton</u>		
	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR	2YR	3YR	4YR
Drussel												
T81	--	--	--	--	--	--	49	57	--	--	--	--
General Mills												
(W) NuFrontier	--	--	--	67	--	--	49	--	--	--	--	--
(W) NuHorizon	--	--	--	64	--	--	48	--	--	--	--	--
Goertzen												
Kalvesta	71	--	--	58	--	--	50	--	--	50	--	--
Venango	66	--	--	67	--	--	49	--	--	60	--	--
Public												
(W) Betty	68	71	--	60	63	65	42	49	--	68	72	72
(W) Heyne	72	--	--	54	61	--	39	47	--	80	83	--
(W) Intrada	--	--	--	--	--	--	--	--	--	--	--	--
(W) Lakin	63	--	--	61	--	--	49	--	--	59	--	--
(W) Trego	62	--	--	71	76	--	51	57	--	51	63	--
2137	70	76	63	63	69	73	51	59	51	61	66	68
2174	63	67	--	62	--	--	52	--	--	67	--	--
Akron	--	--	--	61	69	73	43	51	--	51	62	65
Alliance	--	--	--	67	73	76	--	--	--	--	--	--
Ike	61	68	57	66	73	75	46	55	46	69	72	71
Jagger	80	73	59	64	70	76	46	56	47	75	79	77
Karl 92	74	69	56	65	69	70	50	59	48	74	82	78
KS97-PO630 Exp	--	--	--	61	--	--	47	--	--	--	--	--
Newton	72	72	57	59	64	66	43	48	38	58	62	61
Stanton	46	--	--	70	74	--	50	57	--	59	68	--
TAM 107	58	48	38	64	68	73	46	55	45	51	63	64
TAM 302	--	--	--	66	--	--	50	--	--	--	--	--
Average	67	66	53	63	69	72	47	54	45	64	71	70

**Table 8a. Test weight (pounds per bushel)
2001 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.	Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.
AgriPro						Public					
AP 97-075 Exp	58	53	--	--	--	(S) Caldwell	57	54	58	57	56
Cutter	--	--	--	59	--	(S) Kaskaskia	60	56	59	57	58
Hondo	53	56	--	--	--	(W) Betty	60	57	61	60	59
<hr/>						(W) Heyne	61	56	59	59	59
AGSECO						(W) Lakin	58	57	60	59	58
7853	--	--	--	59	--	(W) Trego	58	56	58	59	58
Onaga	62	57	60	61	60	2137	60	55	59	58	58
<hr/>						2163	56	51	58	54	54
General Mills						2174	60	58	60	60	60
(W) NuFrontier	57	56	59	57	57	Culver	52	49	--	--	--
(W) NuHorizon	60	58	61	58	59	Jagger	59	54	60	58	57
(W)Golden Spike	54	45	55	54	52	Karl 92	61	57	60	59	59
<hr/>						KS97-PO630 Exp	58	56	57	57	57
Goertzen						Newton	57	53	59	56	56
Kalvesta	59	56	60	58	58	Scout 66	59	55	59	58	58
Venango	58	58	60	60	59	Stanton	56	53	58	59	56
<hr/>						TAM 302	52	53	57	55	54
NK						<hr/>					
(S) BL930390	--	--	--	52	--	Average	58	55	59	58	57
(S) Coker 9474	--	--	--	60	--	CV (%)	3	--	1	2	--
(S) Coker 9663	--	--	--	59	--	LSD (0.05)**	2	--	1	1	--
<hr/>						<hr/>					
Polansky											
Dominator	61	57	--	--	--						

¹ BR = Brown County test at Bunck Seed Farm near Everest, 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)
2001 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							Alliance	59	58	59	--	--	--	--	--
AP 97-075 Exp	59	59	59	56	53	--	Arapahoe	59	59	59	--	--	--	--	--
Cutter	--	--	--	59	58	--	Culver	59	59	59	--	--	--	--	--
Hondo	59	59	59	56	55	--	Custer	58	58	58	--	58	--	--	--
AGSECO							Ike	59	59	59	--	--	--	--	--
7853	--	--	--	57	57	--	Jagger	59	59	59	57	57	--	--	57
Onaga	59	59	59	60	58	--	Karl 92	59	60	60	60	59	--	--	60
General Mills							KS97-PO630 Exp	58	59	58	55	56	--	--	56
(W) NuFrontier	59	59	59	56	57	--	Millennium	59	59	59	--	--	--	--	--
(W) NuHorizon	59	59	59	57	59	--	Newton	58	58	58	56	55	--	--	56
(W)Golden Spike	59	59	59	54	55	--	Niobrara	59	59	59	--	--	--	--	--
Goertzen							OK95571Exp	--	--	--	55	53	--	--	54
Kalvesta	59	59	59	--	--	--	Prairie Red	--	59	--	--	--	--	--	--
Venango	59	59	59	57	57	--	Scout 66	58	59	58	58	58	--	--	58
Polansky							Stanton	59	59	59	55	56	--	--	56
Dominator	59	60	60	59	58	--	TAM 107	59	59	59	--	--	--	--	--
Public							TAM 302	58	58	58	54	53	--	--	54
(W) Betty	59	59	59	59	60	--	Vista	59	59	59	--	--	--	--	--
(W) Heyne	59	59	59	60	59	--	Wesley	59	59	59	--	--	--	--	--
(W) Intrada	59	59	59	--	--	--									
(W) Lakin	59	59	59	56	56	--	Average	59	59	59	57	57	--	--	57
(W) Nuplains	59	59	59	--	--	--	CV (%)	1	1	--	1	2	--	--	--
(W) Trego	59	59	59	58	57	--	LSD (0.05)**	1	1	--	1	2	--	--	--
2137	59	59	59	57	55	--									
2163	56	56	56	54	53	--									
2174	59	59	59	59	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)
2001 WESTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.	Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.
AgriPro						Akron	--	60	61	54	59
Thunderbolt	--	62	62	58	61	Alliance	--	57	59	47	54
AGSECO						Arapahoe	--	59	58	47	55
7853	--	--	--	58	--	Culver	--	55	61	44	53
TAM 110	--	59	60	55	58	Ike	--	61	62	51	58
Drussel						Jagger	--	62	62	57	60
T81	--	--	63	57	--	Karl 92	--	61	63	59	61
General Mills						KS97-PO630 Exp	--	60	59	54	58
(W) NuFrontier	--	61	60	55	59	Millennium	--	61	--	--	--
(W) NuHorizon	--	60	62	52	58	Newton	--	59	61	47	56
(W)Golden Spike	--	57	58	45	53	Niobrara	--	57	60	50	56
Goertzen						Prairie Red	--	59	60	56	58
Kalvesta	--	61	62	56	60	Scout 66	--	61	61	57	60
Venango	--	60	60	57	59	Stanton	--	59	61	57	59
Public						TAM 107	--	59	60	56	58
(W) Betty	--	59	62	52	58	TAM 302	--	53	57	48	53
(W) Heyne	--	61	62	52	58	Vista	--	59	59	48	55
(W) Intrada	--	62	63	59	61	Wesley	--	58	61	--	--
(W) Lakin	--	61	62	57	60	Windstar	--	56	59	45	54
(W) Nuplains	--	61	63	48	57						
(W) Trego	--	60	61	59	60	Average	--	59	61	53	58
2137	--	58	62	57	59	CV (%)	--	2	3	3	--
2174	--	62	62	58	61	LSD (0.05)**	--	1	2	2	--

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)
2001 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.	Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.
Drussel						Public					
T81	--	--	60	--	--	(W) Betty	--	56	59	60	58
<hr/>						(W) Heyne	--	57	60	60	59
General Mills						(W) Intrada	--	--	62	55	--
(W) NuFrontier	--	57	60	59	59	(W) Lakin	--	58	60	49	56
(W) NuHorizon	--	58	61	57	59	(W) Trego	--	55	59	52	55
(W)Golden Spike	--	51	49	49	50	2137	--	55	60	53	56
<hr/>						2174	--	57	61	58	58
Goertzen						Akron	--	54	59	51	55
Kalvesta	--	55	60	52	56	Alliance	--	55	--	--	--
Venango	--	55	61	53	57	Ike	--	59	59	56	58
<hr/>						Jagger	--	53	59	58	57
						Karl 92	--	58	60	60	59
						KS97-PO630 Exp	--	54	61	54	56
						Newton	--	57	60	54	57
						Stanton	--	56	60	51	56
						TAM 107	--	51	59	48	53
						TAM 302	--	53	58	45	52
<hr/>						Average	--	55	59	54	56
						CV (%)	--	4	3	3	--
						LSD (0.05)**	--	3	2	2	--

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 SV = Stevens County test at Kramer Seed Farms 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)
2001 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						Public					
AP 97-075 Exp	--	-4.0	--	--	--	(S) Caldwell	--	-5.0	-3.0	-8.8	-5.6
Cutter	--	--	--	-7.3	--	(S) Kaskaskia	--	-5.0	-3.3	-8.8	-5.7
Hondo	--	-3.0	--	--	--	(W) Betty	--	-4.0	-2.3	-5.3	-3.8
<hr/>						<hr/>					
AGSECO						(W) Heyne					
7853	--	--	--	-5.5	--	(W) Lakin	--	-7.0	-4.3	-11.0	-7.4
Onaga	--	-7.0	-3.8	-11.3	-7.3	(W) Trego	--	-4.5	-2.8	-8.5	-5.3
<hr/>						2137					
General Mills						2163					
(W) NuFrontier	--	-2.5	-1.3	-5.0	-2.9	2174	--	-5.5	-3.5	-9.8	-6.3
(W) NuHorizon	--	-0.5	1.0	-2.3	-0.6	Culver	--	-2.0	--	--	--
(W)Golden Spike	--	2.0	4.0	1.0	2.3	Jagger	--	-5.5	-5.0	-10.5	-7.0
<hr/>						Karl 92					
Goertzen						KS97-PO630 Exp					
Kalvesta	--	-8.0	-4.8	-10.3	-7.7	Newton	--	-2.5	-1.0	-3.0	-2.2
Venango	--	-2.5	0.0	-5.3	-2.6	Scout 66	--	13.0	7.0	13.0	11.0
<hr/>						Stanton					
NK						TAM 302					
(S) BL930390	--	--	--	-5.5	--	<hr/>					
(S) Coker 9474	--	--	--	-9.3	--	Average	--	-4.0	-2.5	-7.3	-4.6
(S) Coker 9663	--	--	--	-6.8	--	CV (%)	--	0.5	0.3	0.7	--
<hr/>						LSD (0.05)**					
Polansky						<hr/>					
Dominator	--	-5.0	--	--	--						

¹ BR = Brown County test at Bunck Seed Farm near Everest, 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 9b. Heading (days +/- Scout 66, Scout 66 heading listed as date in May)
2001 CENTRAL Kansas Winter Wheat Performance Tests.**

Brand / Name	NORTH		SOUTH			Brand / Name	NORTH		SOUTH		
	RP ¹	HV ²	RN ³	SD ⁴	Avg.		RP ¹	HV ²	RN ³	SD ⁴	Avg.
AgriPro						Alliance	-0.8	--	--	--	--
AP 97-075 Exp	-3.3	-7.5	-4.0	--	-5.8	Arapahoe	-2.0	--	--	--	--
Cutter	--	-7.0	-3.5	--	-5.3	Culver	-2.5	--	--	--	--
Hondo	-0.3	-3.8	-2.5	--	-3.1	Custer	-4.3	--	-6.0	--	--
AGSECO						Ike	-3.0	--	--	--	--
7853	--	-8.3	-4.5	--	-6.4	Jagger	-3.8	-9.8	-7.8	--	-8.8
Onaga	-3.8	-8.8	-7.0	--	-7.9	Karl 92	-5.3	-12.0	-9.0	--	-10.5
General Mills						KS97-PO630 Exp	-3.5	-7.5	-4.3	--	-5.9
(W) NuFrontier	-2.3	-5.0	-0.5	--	-2.8	Millennium	-0.3	--	--	--	--
(W) NuHorizon	-0.8	-0.3	-0.8	--	-0.5	Newton	-1.3	-3.5	-2.5	--	-3.0
(W)Golden Spike	-1.8	4.5	-1.3	--	1.6	Niobrara	-0.8	--	--	--	--
Goertzen						OK95571Exp	--	-8.8	-7.0	--	-7.9
Kalvesta	-3.3	--	--	--	--	Prairie Red	--	--	--	--	--
Venango	-2.8	-4.0	-3.5	--	-3.8	Scout 66	18.0	16.0	12.0	--	14.0
Polansky						Stanton	-3.5	-3.0	-3.3	--	-3.1
Dominator	-3.5	-9.5	-5.0	--	-7.3	TAM 107	-5.3	--	--	--	--
Public						TAM 302	-3.8	-6.3	-2.8	--	-4.5
(W) Betty	-2.3	-6.8	-2.3	--	-4.5	Vista	-0.8	--	--	--	--
(W) Heyne	-1.8	-7.3	-2.3	--	-4.8	Wesley	-1.5	--	--	--	--
(W) Intrada	-3.5	--	--	--	--						
(W) Lakin	-2.0	-9.5	-6.0	--	-7.8	Average	-2.5	-6.3	-4.0	--	-5.1
(W) Nuplains	-1.0	--	--	--	--	CV (%)	0.3	0.8	0.6	--	--
(W) Trego	-3.0	-7.3	-3.3	--	-5.3	LSD (0.05)**	0.6	1.5	1.0	--	--
2137	-3.8	-9.5	-5.3	--	-7.4						
2163	-3.8	-8.3	-5.3	--	-6.8						
2174	-3.8	-8.8	-4.5	--	-6.6						

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)
2001 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						Akron	--	-2.0	-0.8	-1.3	-1.3
Thunderbolt	--	-1.8	-0.3	-3.0	-1.7	Alliance	--	-0.8	1.0	2.8	1.0
AGSECO						Arapahoe	--	0.0	0.5	2.8	1.1
7853	--	--	--	-3.3	--	Culver	--	-1.5	0.0	2.0	0.2
TAM 110	--	-3.5	-3.0	-4.5	-3.7	Ike	--	-2.0	-2.5	1.3	-1.1
Drussel						Jagger	--	-4.3	-4.3	-4.8	-4.4
T81	--	--	-2.3	-3.0	--	Karl 92	--	-4.0	-3.3	-4.5	-3.9
General Mills						KS97-PO630 Exp	--	-2.0	-0.3	-1.5	-1.3
(W) NuFrontier	--	0.0	-0.5	-0.3	-0.3	Millennium	--	0.8	--	--	--
(W) NuHorizon	--	0.5	1.8	1.8	1.3	Newton	--	-1.3	0.5	2.3	0.5
(W)Golden Spike	--	7.5	7.5	3.5	6.2	Niobrara	--	-1.0	-1.3	1.0	-0.4
Goertzen						Prairie Red	--	-4.0	-3.8	-3.8	-3.8
Kalvesta	--	-3.3	-1.8	-3.3	-2.8	Scout 66	--	20.0	18.0	28.0	22.0
Venango	--	-1.0	1.5	-1.0	-0.2	Stanton	--	-1.8	-1.0	-3.8	-2.2
Public						TAM 107	--	-4.0	-3.8	-4.0	-3.9
(W) Betty	--	-0.8	1.0	0.5	0.3	TAM 302	--	-1.0	1.5	0.3	0.3
(W) Heyne	--	-1.5	0.3	1.8	0.2	Vista	--	-1.5	0.3	2.5	0.4
(W) Intrada	--	-3.3	-0.8	-2.8	-2.3	Wesley	--	0.0	-0.3	--	--
(W) Lakin	--	-3.0	-1.5	-3.3	-2.6	Windstar	--	1.0	1.0	2.8	1.6
(W) Nuplains	--	2.5	3.5	2.5	2.8						
(W) Trego	--	-1.0	-1.0	-2.8	-1.6	Average	--	-1.2	-0.4	-0.9	-0.8
2137	--	-2.0	0.3	-3.5	-1.8	CV (%)	--	0.4	0.6	0.7	--
2174	--	-2.5	-1.0	-3.3	-2.3	LSD (0.05)**	--	0.7	1.1	1.4	--

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 listed as date in May)
2001 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.	Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.
Drussel						Public					
T81	--	--	-2.3	--	--	(W) Betty	--	1.0	0.5	--	0.8
<hr/>						(W) Heyne	--	0.8	0.0	--	0.4
General Mills						(W) Intrada	--	--	-0.8	--	--
(W) NuFrontier	--	1.8	0.0	--	0.9	(W) Lakin	--	-2.5	-1.5	--	-2.0
(W) NuHorizon	--	1.8	0.3	--	1.0	(W) Trego	--	-0.5	0.0	--	-0.3
(W)Golden Spike	--	9.3	3.8	--	6.5	2137	--	-1.8	-0.5	--	-1.1
<hr/>						2174	--	-1.0	-0.5	--	-0.8
Goertzen						Akron	--	-1.3	0.0	--	-0.6
Kalvesta	--	-2.3	-2.0	--	-2.1	Alliance	--	-0.5	--	--	--
Venango	--	1.8	0.3	--	1.0	Ike	--	-1.5	-0.8	--	-1.1
<hr/>						Jagger	--	-4.0	-3.3	--	-3.6
						Karl 92	--	-3.8	-3.8	--	-3.8
						KS97-PO630 Exp	--	0.0	0.0	--	0.0
						Newton	--	20.0	12.0	--	16.0
						Stanton	--	0.0	-0.5	--	-0.3
						TAM 107	--	-3.0	-3.8	--	-3.4
						TAM 302	--	1.8	0.5	--	1.1
<hr/>						Average	--	-0.2	-0.7	--	-0.4
						CV (%)	--	0.6	0.6	--	--
						LSD (0.05)**	--	1.2	1.2	--	--
<hr/>											

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 SV = Stevens County test at Kramer Seed Farms 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 10a. Plant height (inches)
2001 EASTERN Kansas Winter Wheat Performance Tests.**

Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.	Brand / Name	BR¹	RL²	FR³	LB⁴	Avg.
AgriPro						Public					
AP 97-075 Exp	--	35	--	--	--	(S) Caldwell	--	35	29	32	32
Cutter	--	--	--	31	--	(S) Kaskaskia	--	38	33	33	34
Hondo	--	36	--	--	--	(W) Betty	--	38	29	30	32
<hr/>						<hr/>					
AGSECO						(W) Heyne					
7853	--	--	--	30	--	(W) Lakin	--	35	28	30	31
Onaga	--	30	26	29	28	(W) Trego	--	35	27	28	30
<hr/>						2137					
General Mills						2163					
(W) NuFrontier	--	37	30	32	33	2174	--	36	28	30	31
(W) NuHorizon	--	30	27	28	28	Culver	--	36	--	--	--
(W)Golden Spike	--	37	33	36	35	Jagger	--	38	30	29	32
<hr/>						Karl 92					
Goertzen						KS97-PO630 Exp					
Kalvesta	--	33	27	29	29	Newton	--	35	29	30	31
Venango	--	35	28	29	31	Scout 66	--	40	36	36	37
<hr/>						Stanton					
NK						TAM 302					
(S) BL930390	--	--	--	27	--	<hr/>					
(S) Coker 9474	--	--	--	28	--	Average	--	35	29	30	31
(S) Coker 9663	--	--	--	33	--	CV (%)	--	--	4	6	--
<hr/>						LSD (0.05)**					
Polansky						<hr/>					
Dominator	--	32	--	--	--						

¹ BR = Brown County test at Bunck Seed Farm near Everest, 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)
2001 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							Alliance	26	26	26	--	--	--	--	--		
AP 97-075 Exp	24	28	26	28	33	--	--	30	Arapahoe	26	29	28	--	--	--	--	--
Cutter	--	--	--	29	36	--	--	32	Culver	24	28	26	--	--	--	--	--
Hondo	24	28	26	25	30	--	--	28	Custer	23	29	26	--	31	--	--	--
AGSECO							Ike	26	27	26	--	--	--	--	--		
7853	--	--	--	27	34	--	--	31	Jagger	25	29	27	27	34	--	--	30
Onaga	24	29	26	24	31	--	--	27	Karl 92	23	27	25	26	31	--	--	28
General Mills							KS97-PO630 Exp	24	25	25	25	31	--	--	--	--	28
(W) NuFrontier	28	31	29	28	33	--	--	30	Millennium	29	32	31	--	--	--	--	--
(W) NuHorizon	26	28	27	23	29	--	--	26	Newton	27	31	29	28	33	--	--	30
(W)Golden Spike	30	34	32	31	35	--	--	33	Niobrara	29	28	28	--	--	--	--	--
Goertzen							OK95571Exp	--	--	--	26	33	--	--	--	--	29
Kalvesta	23	25	24	--	--	--	--	--	Prairie Red	--	29	--	--	--	--	--	--
Venango	24	28	26	26	30	--	--	28	Scout 66	31	26	28	32	39	--	--	36
Polansky							Stanton	24	29	27	25	35	--	--	--	--	30
Dominator	23	27	25	26	32	--	--	29	TAM 107	22	30	26	--	--	--	--	--
Public							TAM 302	25	26	25	27	32	--	--	--	--	29
(W) Betty	26	33	29	30	34	--	--	32	Vista	24	24	24	--	--	--	--	--
(W) Heyne	24	29	26	29	33	--	--	31	Wesley	25	28	26	--	--	--	--	--
(W) Intrada	24	24	24	--	--	--	--	--									
(W) Lakin	24	28	26	26	33	--	--	30	Average	25	28	26	27	33	--	--	30
(W) Nuplains	27	28	27	--	--	--	--	--	CV (%)	3	7	--	6	5	--	--	--
(W) Trego	25	26	25	26	33	--	--	29	LSD (0.05)**	1	3	--	2	2	--	--	--
2137	24	28	26	28	33	--	--	30									
2163	23	26	25	23	31	--	--	27									
2174	24	29	26	26	33	--	--	30									

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)
2001 WESTERN Kansas Winter Wheat Performance Tests.

Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.	Brand / Name	EL¹	TD²	GD³	FD⁴	Avg.
AgriPro						Akron	--	39	33	29	34
Thunderbolt	--	38	33	30	34	Alliance	--	37	31	29	32
AGSECO						Arapahoe	--	41	34	31	35
7853	--	--	--	30	--	Culver	--	39	34	28	33
TAM 110	--	35	31	26	31	Ike	--	36	32	29	32
Drussel						Jagger	--	35	32	26	31
T81	--	--	30	29	--	Karl 92	--	34	30	26	30
General Mills						KS97-PO630 Exp	--	34	30	25	29
(W) NuFrontier	--	40	32	29	34	Millennium	--	40	--	--	--
(W) NuHorizon	--	33	28	28	30	Newton	--	40	30	26	32
(W)Golden Spike	--	42	35	31	36	Niobrara	--	41	34	32	35
Goertzen						Prairie Red	--	34	31	26	30
Kalvesta	--	33	30	26	30	Scout 66	--	47	37	36	40
Venango	--	35	31	28	31	Stanton	--	38	33	31	34
Public						TAM 107	--	34	31	25	30
(W) Betty	--	37	33	26	32	TAM 302	--	36	32	25	31
(W) Heyne	--	33	31	25	30	Vista	--	35	30	26	30
(W) Intrada	--	34	29	27	30	Wesley	--	35	29	--	--
(W) Lakin	--	36	31	28	32	Windstar	--	40	33	29	34
(W) Nuplains	--	36	30	26	31						
(W) Trego	--	35	29	28	31	Average	--	37	31	28	32
2137	--	35	30	25	30	CV (%)	--	3	5	6	--
2174	--	36	31	26	31	LSD (0.05)**	--	2	2	2	--

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)
2001 IRRIGATED Kansas Winter Wheat Performance Tests.**

Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.	Brand / Name	SI ¹	TI ²	FI ³	SV ⁴	Avg.
Drussel						Public					
T81	--	--	34	--	--	(W) Betty	--	34	35	--	35
<hr/>						<hr/>					
General Mills											
(W) NuFrontier	--	36	36	--	36	(W) Heyne	--	32	32	--	32
(W) NuHorizon	--	32	33	--	32	(W) Intrada	--	--	33	--	--
(W)Golden Spike	--	39	39	--	39	(W) Lakin	--	32	34	--	33
<hr/>						<hr/>					
Goertzen											
Kalvesta	--	29	32	--	30	(W) Trego	--	31	34	--	33
Venango	--	33	34	--	33	2137	--	32	34	--	33
<hr/>						<hr/>					
						2174					
						Akron					
						Alliance					
						Ike					
						Jagger					
						Karl 92					
						KS97-PO630 Exp					
						Newton					
						Stanton					
						TAM 107					
						TAM 302					
<hr/>						<hr/>					
						Average					
						CV (%)					
						LSD (0.05)**					

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 SV = Stevens County test at Kramer Seed Farms 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 11. Disease and lodging notes from 2001 Kansas Wheat Performance Tests.

Brand / Name	Stripe Rust		SB ³	BB ⁴	Lodging (%)					Brand / Name	Stripe Rust		SB ³	BB ⁴	Lodging (%)					
	RN ¹	GR ²			RL	RN	RL	FR	LB		HV	RN			RN ¹	GR ²	RL	RN	RL	FR
AgriPro										(W) Nuplains	--	6	--	--	--	--	--	--	--	
AP 97-075 Exp	5	--	1	1	20	--	--	2	26	(W) Trego	7	3	1	1	40	13	6	8	48	
Cutter	1	--	--	1	--	--	5	25	63	2137	8	5	1	1	20	3	0	1	4	
Hondo	9	--	1	1	0	--	--	2	26	2163	7	--	1	1	0	5	0	0	2	
Thunderbolt	--	2	--	--	--	--	--	--	--	2174	5	1	1	1	10	11	0	0	9	
AGSECO										Akron	--	3	--	--	--	--	--	--	--	--
7853	7	--	--	1	--	--	0	2	21	Alliance	--	2	--	--	--	--	--	--	--	
Onaga	6	--	1	1	5	18	1	2	2	Arapahoe	--	2	--	--	--	--	--	--	--	
TAM 110	--	5	--	--	--	--	--	--	--	Culver	--	4	7	--	5	--	--	--	--	
Drussel										Custer	8	--	--	1	--	--	--	--	--	5
T81	--	0	--	--	--	--	--	--	--	Ike	--	1	--	--	--	--	--	--	--	
General Mills										Jagger	1	0	1	1	90	3	3	6	13	
(W) NuFrontier	2	0	4	2	50	0	1	0	16	Karl 92	3	1	1	1	0	11	3	15	8	
(W) NuHorizon	1	0	7	9	0	1	0	0	2	KS97-PO630 Exp	4	1	1	1	5	54	0	1	4	
(W)Golden Spike	1	1	7	1	0	0	0	1	4	Millennium	--	--	--	--	--	--	--	--	--	
Goertzen										Newton	5	3	1	8	0	1	0	0	4	
Kalvesta	--	7	4	--	0	1	0	--	--	Niobrara	--	7	--	--	--	--	--	--	--	
Venango	8	4	1	1	0	2	0	0	33	OK95571Exp	7	--	--	1	--	--	--	5	9	
NK										Prairie Red	--	6	--	--	--	--	--	--	--	--
(S) BL930390	--	--	--	--	--	--	0	--	--	Scout 66	1	3	8	8	30	14	0	1	56	
(S) Coker 9474	--	--	--	--	--	--	0	--	--	Stanton	5	1	7	1	0	3	1	2	30	
(S) Coker 9663	--	--	--	--	--	--	0	--	--	TAM 107	--	7	--	--	--	--	--	--	--	
Polansky										TAM 302	8	3	1	1	0	5	0	2	9	
Dominator	4	--	1	1	0	--	--	0	8	Vista	--	0	--	--	--	--	--	--	--	
Public										Wesley	--	0	--	--	--	--	--	--	--	--
(S) Caldwell	--	--	1	--	30	3	2	--	--	Windstar	--	1	--	--	--	--	--	--	--	
(S) Kaskaskia	--	--	1	--	0	2	9	--	--	Average	5	3	2	2	15	10	1	3	16	
(W) Betty	1	0	1	1	50	20	0	3	14	CV (%)	19	41	38	24	--	105	167	52	74	
(W) Heyne	1	0	1	1	35	41	0	0	3	LSD (0.05)**	1	2	1	1	--	15	3	2	17	
(W) Intrada	--	1	--	--	--	--	--	--	--											
(W) Lakin	8	8	1	1	5	10	6	3	9											

Most 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.

¹Bob Bowden - 5/9/01 and 5/18/01, rated on 1-9 scale.

³SB = Soilborne mosaic virus - 3/21/01

²Curtis Thompson - 6/6/01, rating based on % of flag leaf infected.

⁴BB = Bacterial blight - 5/18/01

Table 12. Planted seed characteristics, coleoptile lengths, and Hessian fly ratings.

Brand / Name	1000 Seed weight (grams)	Test weight (lb/bu)	Seeds per lb. (1000)	Col. length (1-9) ¹	Hess. fly ²	Brand / Name	1000 Seed weight (grams)	Test weight (lb/bu)	Seeds per lb. (1000)	Col. length (1-9) ¹	Hess. fly ²
AgriPro						(W) Nuplains	24.8	63.0	18.3	7	S
AP 97-075 Exp	40.3	61.3	11.3	8	S	(W) Trego	29.5	62.7	15.4	6	H
Cutter	39.8	64.4	11.4	5	S	2137	30.5	62.7	14.9	7	H
Hondo	31.3	62.5	14.5	6	H	2163	29.0	57.2	15.6	7	H
Thunderbolt	33.0	63.7	13.7	6	S	2174	28.8	62.1	15.8	5	H
AGSECO						Akron	43.5	62.0	10.4	6	S
7853	32.5	63.7	14.0	7	S	Alliance	29.8	61.2	15.2	8	H
Onaga	29.8	60.9	15.2	6	R	Arapahoe	30.3	57.9	15.0	7	H
TAM 110	34.0	62.7	13.3	5	S	Culver	32.0	56.8	14.2	6	S
Drussel						Custer	32.8	59.4	13.9	8	S
T81	31.5	62.7	14.4	7	S	Ike	35.5	62.3	12.8	7	H
General Mills						Jagger	34.5	63.2	13.1	6	S
(W) NuFrontier	34.0	--	13.3	5	S	Karl 92	35.8	61.8	12.7	7	S
(W) NuHorizon	41.3	65.1	11.0	5	S	KS97-PO630 Exp	25.8	55.7	17.6	6	H
(W)Golden Spike	39.8	63.5	11.4	5	S	Millennium	31.3	57.3	14.5	7	H
Goertzen						Newton	37.3	58.0	12.2	6	S
Enhancer	33.0	58.1	13.7	5	H	Niobrara	28.8	57.9	15.8	6	S
Kalvesta	35.5	58.5	12.8	7	S	OK95571Exp	29.0	57.9	15.6	8	S
Venango	29.5	63.6	15.4	7	H	Prairie Red	41.0	60.4	11.1	5	S
NK						Scout 66	27.8	62.1	16.3	3	S
(S) BL930390	35.8	60.7	12.7	5	S	Stanton	29.3	59.0	15.5	6	H
(S) Coker 9474	35.0	61.4	13.0	4	H	TAM 107	32.0	59.0	14.2	5	S
(S) Coker 9663	39.5	60.3	11.5	3	H	TAM 302	32.3	54.9	14.1	5	H
Polansky						Vista	33.5	62.1	13.5	8	R
Dominator	27.8	63.1	16.3	8	H	Wesley	31.0	53.4	14.6	7	S
Public						Windstar	29.5	60.8	15.4	7	S
(S) Caldwell	27.5	56.8	16.5	8	H	Maximum	43.5	65.1	18.7	8	
(S) Kaskaskia	32.0	59.6	14.2	6	H	Minimum	24.3	53.4	10.4	3	
(W) Betty	28.8	56.3	15.8	7	S	Average	32.4	60.3	14.3	6	
(W) Heyne	27.0	59.8	16.8	6	S						
(W) Intrada	24.3	59.8	18.7	6	S						
(W) Lakin	30.0	56.8	15.1	7	S						

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 13. Ratings provided by T. Joe Martin, Kansas State University Agricultural Research Center - Hays.

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

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) 2000 Kansas Winter Wheat Performance Tests.

Brand / Name	East					Central						West				Irrigated			
	BR	RL	FR	LB	Avg.	RP	HV	RN	SD	SU	Avg.	EL	TD	FD	Avg.	ST	TI	FI	Avg.
AgriPro																			
Hondo	14.1	14.3	--	--	--	14.6	10.6	15.2	--	--	--	14.9	15.4	15.2	15.2	--	--	--	--
Thunderbolt	--	--	--	--	--	14.3	--	--	--	--	--	14.8	15.5	15.6	15.3	--	14.7	15.4	--
AGSECO																			
7853	--	--	--	--	--	--	10.5	14.9	13.5	10.3	--	--	--	16.4	--	--	--	--	--
Onaga	13.4	13.9	10.5	11.4	12.3	14.4	10.5	14.8	14.6	10.9	13.0	--	--	--	--	--	--	--	--
TAM 110	--	--	--	--	--	--	--	--	--	--	--	12.7	13.5	15.1	13.8	--	--	--	--
AWWPA																			
(W) Arlin	--	--	--	--	--	--	--	--	--	--	--	--	--	15.1	--	14.2	14.0	15.2	14.5
(W) Oro Blanco	--	--	--	--	--	13.9	9.6	14.2	12.8	10.2	12.1	12.8	14.7	15.3	14.3	15.4	14.4	15.4	15.1
Drussel																			
T81	--	--	--	--	--	--	--	--	--	--	--	--	--	14.3	--	--	--	14.9	--
General Mills																			
(W) GM10003	--	--	--	--	--	14.0	--	--	--	--	--	13.5	14.5	15.3	14.4	14.4	13.6	14.9	14.3
(W) NuFrontier	--	--	--	--	--	13.7	--	--	--	--	--	12.9	14.2	15.2	14.1	15.5	14.0	14.1	14.5
(W) NuHorizon	--	--	--	--	--	13.1	--	--	--	--	--	14.1	14.8	14.9	14.6	15.3	14.1	15.0	14.8
(W) NuWest	--	--	--	--	--	14.0	--	--	--	--	--	15.2	15.7	16.6	15.8	16.2	14.7	16.1	15.7
Goertzen																			
Enhancer	12.5	11.7	9.0	--	--	14.4	9.1	14.9	12.3	9.6	12.1	13.7	15.2	14.8	14.6	14.9	14.3	15.3	14.8
G15048 Exp	--	--	--	--	--	--	--	--	--	--	--	13.9	14.8	15.5	14.7	15.0	14.5	15.0	14.8
Kalvesta	12.6	14.0	9.5	--	--	15.1	--	--	--	--	--	14.2	15.5	15.7	15.1	15.5	15.6	15.7	15.6
Venango	13.4	13.9	9.1	--	--	13.3	9.5	14.1	11.8	9.6	11.7	13.7	15.2	15.0	14.6	14.9	14.5	14.2	14.5
NK																			
(S) BL930390	--	--	--	10.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Coker 9474	--	--	--	12.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Coker 9663	--	--	--	10.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polansky																			
Dominator	12.7	13.9	--	--	--	13.8	10.1	14.8	13.0	10.5	12.4	13.7	--	--	--	--	--	--	--
Quantum																			
7406	--	--	--	--	--	--	--	--	--	--	--	12.9	14.5	14.5	14.0	15.0	13.6	14.4	14.3
7588	--	--	--	--	--	14.3	9.4	14.5	12.4	--	--	12.9	15.2	15.0	14.4	15.1	12.5	15.3	14.3
AP 7510	--	--	--	--	--	13.9	9.8	15.0	12.8	--	--	12.7	15.0	15.4	14.4	15.3	14.2	15.6	15.0
XH1711	--	--	--	--	--	--	--	--	--	--	--	--	13.9	--	--	--	13.4	--	--
XH3207	--	--	--	--	--	--	--	--	--	--	--	11.8	14.4	15.4	13.9	16.3	14.8	14.9	15.3

(continued)

Table 13. Protein (% at 14% moisture) 2000 Kansas Winter Wheat Performance Tests.

Brand / Name	East					Central					West				Irrigated				
	BR	RL	FR	LB	Avg.	RP	HV	RN	SD	SU	Avg.	EL	TD	FD	Avg.	ST	TI	FI	Avg.
XH7463	--	--	--	--	--	13.9	9.1	14.4	10.3	--	--	13.0	15.1	14.8	14.3	13.9	13.3	14.9	14.0
XH9801	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.7	14.5	15.8	15.3
XH9806	--	--	--	--	--	--	--	--	--	--	--	14.0	15.4	15.6	15.0	16.1	14.8	15.1	15.3
XH9815	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.9	14.7	15.4	15.3
Terra																			
HR 217	--	--	--	10.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Public																			
(S) Caldwell	12.4	12.7	8.7	10.8	11.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(S) Kaskaskia	13.4	13.2	8.8	10.7	11.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(W) Betty	14.1	13.3	10.7	11.8	12.5	14.4	10.2	14.6	14.1	9.7	12.6	15.2	15.4	15.7	15.4	15.4	14.9	15.8	15.4
(W) Heyne	13.8	13.0	9.6	11.5	12.0	14.0	10.1	15.5	14.3	10.6	12.9	14.9	16.7	15.7	15.8	16.1	14.1	15.9	15.4
(W) Intrada	--	--	--	--	--	13.6	--	--	--	--	--	13.6	15.6	14.7	14.6	--	--	--	--
(W) Lakin	12.5	11.5	9.0	11.4	11.1	13.8	8.7	13.9	10.9	9.0	11.3	12.4	14.5	14.2	13.7	15.1	13.4	14.5	14.3
(W) Nuplains	--	--	--	--	--	13.7	--	--	--	--	--	14.5	15.2	--	--	--	--	--	--
(W) Trego	12.8	12.4	8.9	11.3	11.4	13.3	9.2	14.0	10.9	9.7	11.4	13.8	13.9	14.8	14.2	15.0	13.5	14.7	14.4
2137	13.4	13.2	9.2	11.0	11.7	13.3	9.5	13.7	12.2	8.8	11.5	12.8	14.9	14.3	14.0	14.7	14.4	15.0	14.7
2163	13.6	12.5	9.0	10.9	11.5	14.6	9.0	14.0	11.7	9.1	11.7	--	--	--	--	--	--	--	--
2174	12.7	14.8	9.6	12.1	12.3	14.8	10.4	15.4	13.7	10.7	13.0	15.5	16.2	15.5	15.7	15.2	15.2	15.6	15.3
Akron	--	--	--	--	--	--	--	--	--	--	--	14.5	14.2	14.6	14.4	--	13.6	15.7	--
Alliance	--	--	--	--	--	14.9	--	--	11.1	--	--	12.7	13.3	14.5	13.5	--	13.5	14.3	--
Arapahoe	--	--	--	--	--	14.4	--	--	13.4	--	--	15.3	16.2	15.4	15.6	--	--	--	--
Culver	12.0	12.7	--	--	--	14.0	--	--	13.1	--	--	14.3	15.2	15.2	14.9	--	--	--	--
Custer	--	--	--	--	--	14.0	9.9	14.7	14.4	9.3	12.5	--	--	--	--	--	--	--	--
Ike	--	--	--	--	--	13.7	10.6	15.3	12.5	9.5	12.3	15.1	15.7	15.4	15.4	15.7	15.1	15.6	15.5
Jagger	12.6	13.7	10.7	11.5	12.1	14.6	9.6	15.1	14.0	9.9	12.6	14.5	15.9	17.1	15.8	15.6	14.9	16.4	15.6
Karl 92	13.9	13.3	9.6	12.6	12.4	14.1	10.1	14.5	13.6	10.5	12.6	14.6	15.9	15.4	15.3	15.9	14.5	15.4	15.3
KS89180B Exp	12.9	13.4	9.4	11.1	11.7	15.2	10.0	14.4	13.8	10.3	12.7	14.8	15.5	15.5	15.3	15.6	14.2	14.8	14.9
KS97-PO630 Exp	13.3	13.0	10.2	12.1	12.2	15.0	9.8	15.2	11.7	9.6	12.3	14.6	15.5	15.4	15.2	16.7	16.1	15.8	16.2
Millennium	--	--	--	--	--	14.1	--	--	--	--	--	15.7	15.5	--	--	--	--	--	--
Newton	11.9	12.5	10.2	10.6	11.3	13.3	9.4	14.4	12.3	10.3	11.9	14.9	14.6	14.7	14.7	14.9	13.7	15.8	14.8
Niobrara	13.2	12.6	--	--	--	14.2	--	--	11.5	--	--	13.8	14.3	14.8	14.3	--	--	--	--
Prairie Red	--	--	--	--	--	--	--	--	--	--	--	13.3	14.4	14.9	14.2	--	--	--	--
Prowers 99	--	--	--	--	--	--	--	--	--	--	--	14.6	15.1	15.2	15.0	--	--	--	--
Scout 66	13.0	14.1	10.1	13.0	12.6	14.3	9.9	15.7	14.2	11.1	13.0	14.8	14.7	14.9	14.8	--	--	--	--
Stanton	12.6	13.0	9.6	12.4	11.9	13.9	9.9	14.3	13.8	10.1	12.4	13.5	14.0	14.9	14.1	16.6	14.8	15.1	15.5
TAM 107	13.1	12.6	9.4	11.8	11.7	13.7	9.0	13.6	13.8	10.1	12.0	13.4	14.6	14.9	14.3	15.6	13.3	14.6	14.5
TAM 301	--	--	--	--	--	--	9.8	14.6	14.3	9.3	--	--	--	--	--	--	--	--	--
TAM 302	14.5	13.1	9.4	10.4	11.9	14.0	9.5	15.1	12.2	9.7	12.1	15.3	14.8	15.2	15.1	13.7	13.6	15.1	14.1
Vista	13.2	12.5	--	--	--	15.0	--	--	13.2	--	--	14.5	14.0	15.3	14.6	--	--	--	--
Wesley	--	--	--	--	--	14.7	--	--	--	--	--	15.4	16.1	--	--	--	--	--	--
Windstar	--	--	--	--	--	14.1	--	--	12.1	--	--	14.2	14.5	15.0	14.6	--	--	--	--
Yuma	--	--	--	--	--	13.1	--	--	--	--	--	13.4	13.4	13.8	13.5	--	12.2	14.8	--
Yumar	--	--	--	--	--	14.1	--	--	--	--	--	13.5	14.4	14.5	14.1	--	13.3	14.5	--
Test Average	13.1	13.1	9.6	11.4		14.1	9.8	14.6	12.8	9.9		14.0	14.9	15.1		15.3	14.2	15.2	

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