

WINTER WHEAT

3 Missouri Crop Performance

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1998 MISSOURI WINTER WHEAT PERFORMANCE TESTS

A. L. McKendry, L. E. Sweets, R. L. Wright, D. N. Tague, R. E. Mattas

Introduction

The objective of the Missouri Winter Wheat Performance Tests is to provide wheat growers in Missouri with a reliable, unbiased, up-to-date source of information that will permit valid comparisons among improved wheat varieties. This information should help Missouri wheat growers select varieties best suited to their particular area and growing conditions. This report summarizes soft red winter wheat and hard red winter wheat variety trials conducted throughout Missouri during the 1997-98 cropping season.

Variety Testing Procedures

Locations

The soft red winter wheats were planted at seven Missouri locations (Figure 1) including Portageville and Charleston in the southeastern region, Mt. Vernon and Lamar in the southwestern region and Columbia, Novelty and Trenton in the northern region of the state. Separate studies comparing hard red winter wheat entries were planted at Columbia, Mt. Vernon and Trenton.



Figure 1. Test locations for Missouri winter wheat performance tests conducted during 1998.

Entries and Seed Sources

Names of commercially available entries evaluated in 1998 and their seed sources are given in Table 1. Seventy two soft red and 5 hard red winter wheats were tested. The soft red winter wheats submitted for testing were comprised of 6 public varieties, 13 public experimental entries and 53 proprietary varieties. Public varieties adapted to Missouri growing conditions or recommended by the state of origin were entered in the 1997-98 variety test under the sponsorship of the Missouri Seed Improvement Association. Seed lots of named public varieties were acquired from the foundation seed organization of the originating state or from the University of Missouri Foundation Seed Organization. Numbered entries preceded by a state designation (e.g. MO94-317, OH 546) were provided by the foundation seed organization or the wheat breeder of the originating state, and are experimental lines not yet available for commercial production. Proprietary entries were submitted for testing on a fee basis by the developing company or sponsor. Condition of all seed lots (vigor, viability, seed treatment, etc.) was the responsibility of the company or organization submitting the entry for testing.

Experimental Design and Seeding Methods

Each soft red winter wheat experiment was planted using a 9 x 8 lattice design with four replications. Except for the Trenton location, all test plots consisted of a 15-foot, 6-row plot with 7-inch row spacing. Plots at the Trenton location consisted of 15-foot, 9-row plot with 7-inch row spacing. All entries were seeded at approximately 1.5 million seeds per acre, roughly equivalent to seeding 1.5 to 2 bushels per acre. Actual seeding rates were calculated from the thousand kernel weights determined for each soft red winter wheat entry and ranged from 86 to 144 pounds per acre (Table 2). Seeding rates were not adjusted for germination. Except for the Trenton location, all entries were seeded into conventional seedbeds using a Hege 90™ plot drill equipped with six conventional double-disk openers. At the Trenton location, all entries were no-till seeded directly into soybean stubble using a plot drill equipped with nine Acraplant™ no-till openers.

Hard red winter wheat experiments were conducted in a similar fashion except all hard red winter wheat entries were arranged in a randomized complete block design with four replications. Seeding rates for hard red winter wheats varied from 77 to 134 pounds per acre (Table 3). The soft

Table 1. Names and sources of commercial soft and hard red winter wheat cultivars tested in Missouri during 1997-98.

Variety	Source/Contact	Variety	Source/Contact
Ernie [†] IL90-7514 [†] Jackson [†] Jagger [†] Karl 92 [†] Madison [†] Wakefield [†]	Missouri Seed Improvement Assoc. 3211 Lemone Industrial Blvd. Columbia, MO 65210-8245 (573) 449-0586	Merschman Barbie V Merschman Genie VII Merschman Julie IV Merschman Katie IX	Merschman Seeds 103 Ave. D P.O. Box 67 West Point, IA 52656 (319) 837-6111
		MFA 1800 MFA Enterprise MFA 1828 MFA H2020	MFA Incorporated 201 Ray Young Dr. Columbia, MO 65201 (573) 876-5285
Roane [†]	Virginia Tech CSES Dep. 334-A Smyth Blacksburg, VA 24061-0404 (540) 231-9789	NeCo S80 NeCo S85 NeCo S98	NeCo Seed Farms Inc. P.O. Box 379 Garden City, MO 64747 (816) 862-8203
AGRIPRO Foster AGRIPRO Patton AGRIPRO Elkhart	AgriPro Seeds Inc. 6025 West 300 South Lafayette, IN 47905-9278 (765) 572-2001	NK Coker 9474 NK Coker 9543 NK Coker 9663 NK Coker 9704 NK Coker 9803	Novartis Seeds Inc. P.O. Box 729 Bay AR 72411 (870) 483-7691
Delta King 9027 Delta King 9051	Delta King Seed Company P.O. Box 970 McCrary, AR 72101 (870) 731-5484	Pioneer Variety 2540 Pioneer Variety 2568 Pioneer Variety 25R26 Pioneer Variety 25R57	Pioneer Hi-Bred International Inc. P.O. Box 1536 O'Fallon, IL 62269 (618) 624-8222
EK X78753 EK X78912	Erwin Keith Inc. Rt. 2 Box 275A McCrary, AR 72101 (870) 731-2341	Stine 455 Stine 480 Stine 481 Stine 481 Stine 488	Stine Seed Co. P.O. Box 231 Sheridan, IN 46069 (317) 758-0800
FFR 518W FFR 522W FFR 558W FFR 539W FFR EX6546 FFR EX6753	FFR Cooperative P.O. Box 322 Battle Ground, IN 47920 (765) 567-2115	Terra SR 205 Terra SR 211 Terra EXP 215 Terra EXP 216 Terra EXP 217	Terra Industries Inc. 600 4 th St. P.O. Box 6000 Sioux City, IA 51102-6000 (712) 233-3609
Lewis 840 Lewis 8442 Lewis 8684	Lewis Hybrids, Inc. P.O. Box 38 Ursa, IL 62376 (217) 964-2131	Terral TX8557	Terral Seed Inc. P.O. Box 826 Lake Providence LA 71254 (318) 559-2840
LG X155 LG X388 LG X433	LG Seeds P.O. Box 950 Decatur, IL 62525 (800) 397-5010	Willcross 723 Willcross 788 Willcross 798 Willcross 795 Willcross 733X Willcross 738X	MSDA 400 Dublin Ave. Columbia, MO 65203 (573) 445-3702

[†] Public winter wheat cultivars.

red winter wheat cultivar 'Ernie' was included in the hard wheat test as a yield check.

Agronomic Practices

Basic agronomic practices are given in Table 4 by location. Nitrogen was applied in split fall/spring applications. Spring nitrogen applications were generally made at or shortly after initial green-up (Feeke's GS 6). Preplant phosphorous

and potassium applications were based on soil test recommendations provided by the University of Missouri's Soil Testing Laboratory located at Columbia or by a similar private soil testing facility.

Table 2. Seed size of entries, adjusted seeding rates and seed treatments of seed lots used for establishing soft red winter wheat varieties during the fall of 1997. Use of seed treatment trade names does not imply endorsement or recommended use of such seed treatments by the Missouri Agricultural Experiment Station or University Extension.

Variety	1,000-Kernel weight	Seeds per pound	Adjusted seeding rate [†]	Seed treatment(s)	Variety	1,000-Kernel weight	Seeds per pound	Adjusted seeding rate [†]	Seed treatment(s)
	- g -	- no/lb -	- lb/acre -			- g -	- no/lb -	- lb/acre -	
AGRIPRO Elkhart	36.9	12,304	122	Raxil 2.6F/AP [‡] -FL/LSP/R4E [‡]	NeCo S98	33.3	13,634	110	Unknown
AGRIPRO Foster	30.6	14,837	101	Raxil 2.6F/AP-FL/LSP/R4E	NK Coker 9474	34.9	13,009	115	Dividend/AP
AGRIPRO Patton	40.8	11,127	135	Raxil 2.6F/AP-FL/LSP/R4E	NK Coker 9543	35.7	12,717	118	Dividend/AP
AR 494B-2-2	31.4	14,459	104	Untreated	NK Coker 9663	42.5	10,682	140	Dividend/AP
AR 584A-3-1	32.7	13,884	108	Untreated	NK Coker 9704	37.9	11,979	125	Dividend/AP
Delta King 9027	29.3	15,495	97	Untreated	NK Coker 9803	38.1	11,916	126	Dividend/AP
Delta King 9051	32.2	14,099	106	Untreated	OH 536	29.0	15,655	96	Unknown
EK X78753	34.6	13,121	114	RT [†]	OH 544	26.1	17,397	86	Unknown
EK X78912	33.5	13,552	111	RT	OH 546	28.6	15,874	94	Unknown
Ernie	43.7	10,389	144	LSP/RT/R4E/AP-FL/G480 [‡]	OH 552	32.4	14,012	107	Unknown
FFR 518W	30.1	15,083	99	Untreated	P86958RC4-2-1-10	33.4	13,593	110	Maxim/AP/Nu-gro
FFR 522W	30.1	15,083	99	Harvestguard/G480	P88288A1-15-1-4	35.7	12,717	118	Maxim/AP/Nu-gro
FFR 539W	29.7	15,286	98	Harvestguard/G480	P88288C1-6-1-2	36.7	12,371	121	Maxim/AP/Nu-gro
FFR 558W	37.2	12,204	123	Harvestguard/G480	P89118RC1-9-3-3	37.3	12,172	123	Maxim/AP/Nu-gro
FFR EX6546	34.3	13,236	113	Harvestguard/G480	Pioneer Variety 2540	36.0	12,611	119	Dividend/AP/Reldan
FFR EX6753	35.0	12,971	116	Harvestguard/G480	Pioneer Variety 2568	34.1	13,314	113	Dividend/AP/Reldan
Fleming	27.8	16,331	92	Untreated	Pioneer Variety 25R26	31.2	14,551	103	Dividend/AP/Reldan
IL 90-7514	33.5	13,552	111	LSP/RT/R4E/AP-FL/G480	Pioneer Variety 25R57	33.4	13,593	110	Dividend/AP/Reldan
Jackson	34.5	13,159	114	LSP/RT/R4E/AP-FL/G480	Roane	35.4	12,825	117	Unknown
Lewis 840	36.4	12,473	120	RT/R4E	Stine 455	34.0	13,353	112	Unknown
Lewis 8442	37.1	12,237	123	RT/R4E	Stine 480	31.9	14,232	105	Unknown
Lewis 8684	37.2	12,204	123	RT/R4E	Stine 481	30.0	15,133	99	Unknown
LG X155	37.0	12,270	122	Unknown	Stine 488	33.7	13,472	111	Unknown
LG X388	37.3	12,172	123	Unknown	Terra Exp 215	34.8	13,046	115	Unknown
LG X433	36.2	12,541	120	Unknown	Terra Exp 216	34.6	13,121	114	Unknown
Madison	41.9	10,835	138	LSP/RT/R4E/AP-FL/G480	Terra SR205	33.0	13,758	109	Unknown
Merschman Barbie V	34.0	13,353	112	RT	Terra SR211	29.8	15,235	98	Unknown
Merschman Genie VII	36.6	12,404	121	RT	Terral TV8557	31.9	14,232	105	AP/Dividend/Kodiak
Merschman Julie IV	39.5	11,494	131	Vitavax 200	Va 94-54-479	42.7	10,632	141	Unknown
Merschman Katie IX	34.5	13,159	114	Vitavax 200	Wakefield	43.1	10,534	142	LSP/RT/R4E/AP-FL/G480
MFA 1800	40.4	11,238	133	Raxil/G480	Willcross 723	29.8	15,235	98	Untreated
MFA 1828	29.5	15,390	97	Raxil/G480	Willcross 733X	32.7	13,884	108	Unknown
MFA Enterprise	34.8	13,046	115	Raxil/G480	Willcross 738X	36.5	12,438	121	RT/R4E
MO 94-317	37.8	12,011	125	LSP/RT/R4E/AP-FL/G480	Willcross 788	33.4	13,593	110	Unknown
NeCo S80	31.6	14,367	104	Unknown	Willcross 795	38.6	11,762	128	Unknown
NeCo S85	32.6	13,926	108	Unknown	Willcross 798	33.2	13,675	110	Unknown

[†] Adjusted to 1.5 million seeds per acre according to the number of seeds per pound for each entry.

[‡] AP = Apron; G480 = Gaucho 480; R4E = Reldan 4E; RT = Raxil-Thiram.

Table 3. Seed size of entries, adjusted seeding rates and seed treatments of seed lots used for establishing hard red winter wheat varieties during the fall of 1997. Use of seed treatment trade names does not imply endorsement or recommended use of such seed treatments by the Missouri Agricultural Experiment Station or University Extension.

Variety	1000-Kernel weight	Seeds per pound	Adjusted seeding rate [†]	Seed Treatment(s)
	- g -	- no/lb -	- lb/bu -	
2137	33.3	13,634	110	RTU-Vitavax-Thiram/Reldan/Gaucht 480
Ernie (soft check)	43.7	10,389	144	LSP/Raxil-Thiram/Reldan 4E/Apron-FL/Gaucht 480
Jagger	32.3	14,056	107	RTU-Vitavax-Thiram/Reldan/Gaucht 480
Karl 92	23.3	19,485	77	RTU-Vitavax-Thiram/Reldan/Gaucht 480
MFA H2020	40.5	11,210	134	Raxil/Gaucht 480
Terra Exp 217	29.5	15,390	97	Unknown

[†] Adjusted to 1.5 million seeds per acre according to the number of seeds per pound for each entry.

Table 4. Summary of agronomic practices used on wheat performance trials in Missouri during 1998. Fall nitrogen (N), phosphorus (P₂O₅) and potassium (K₂O) were preplant applied and incorporated.

Location	Predominant soil type(s)	Previous crop	1997 Planting date	Fertility Management					1998 Harvest date
				N			P ₂ O ₅	K ₂ O	
				----- lb/acre -----					
<u>Northern</u>									
Columbia	Mexico silt loam	soybeans	October 9	43	86	129	43	43	June 25
Novelty	Putnam silt loam	soybeans	October 6	40	85	125	50	100	July 13
Trenton	Grundy silt loam	soybeans	October 3	35	80	115	65	95	July 1
<u>Southwest</u>									
Lamar	Parsons silt loam	soybeans	October 21	27	80	107	69	90	June 23
Mt. Vernon	Gerald silt loam	soybeans	October 22	40	80	120	40	40	June 22
<u>Southeast</u>									
Charleston	Sharkey silty clay loam	soybeans	October 16	27	122	147	40	108	June 15
Portageville	Tiptonville silt loam	soybeans	October 17	40	80	120	-	-	June 16

Description of Data Collected

Yield

All rows of each test plot were trimmed 30 inches, measured for length, and harvested using a Kincaid™ experimental plot combine. Recorded grain yields were adjusted to 13% grain moisture on comparable plot areas and reported in bushels per acre based on a 60 pound standard bushel weight. In addition to yields obtained in 1998, two-year averages (1997-98) are provided for both soft red and hard red winter wheat entries tested during previous cropping season. Three-year averages (1996-98) are also provided for soft red winter wheats.

Test Weight and Grain Moisture Content

Test weight (pounds per bushel) and percent grain moisture content were determined for each plot using a Dickey-john GAC II™ grain analyzer.

Plant Height

Plant height was measured in inches from the soil surface to the top of the head, excluding the awns if present. Reported values have been rounded to the nearest inch.

Lodging

Lodging severity at crop maturity was rated at all test locations. Plots were rated on a severity scale of 0 to 9 where 0=no lodging and 9=plants in the plot completely flat.

Winter Survival

Percent winter survival was estimated for each plot after initial spring green-up (approximately Feeke's GS 6) at all locations. Reported values have been rounded to the nearest percent.

Heading Date

Heading date was recorded at Columbia, Portageville, Mt. Vernon and Novelty when 50% of the heads in a plot had extended above the flag leaf collar. Heading dates were recorded in Julian days (number of days after January 1) for statistical purposes. The corresponding calendar dates are also presented.

Disease Ratings

Unusually wet weather during much of the growing season produced significant levels of Septoria leaf blotch (caused by the fungus *Septoria tritici*) at the Columbia location. Septoria leaf blotch ratings at Columbia reflect percent canopy infection. Late-season leaf rust (caused by the fungus *Puccinia recondita* f. sp. *tritici*) occurred at most locations but was not readily observed until most entries were near physiological maturity. Scab (caused by the fungus *Fusarium graminearum*) reduced yields and test weights in susceptible varieties at the Novelty location. Ratings corresponding to incidence (percent of heads effected) were recorded using a MR (<25%), MS (>25% but <50%), S (>50% but <75%), and VS (>75%) scale. Plots were rated at the hard dough stage (Feeke's GS 11.3).

Sprouting

Heavy rains after physiological maturity resulted in sprouting in both the hard and soft wheat performance tests at the Mt. Vernon location. The amount of sprouting was assessed in two replications of the soft red winter wheat test and four replications of the hard wheat test. Data presented are the number of kernels in a 100-kernel sample (%) with visible signs of germination.

Statistical Analyses and Interpretation

Data collected on all traits measured in the soft red winter wheats tested during the 1997-98 crop season are presented in Tables 6 through 15. Data for the hard red winter wheats are given in Tables 16 through 20. Data for each location of the soft red winter test were analyzed as a four-replication lattice design. Data presented for individual locations are adjusted means based on the lattice design. Regional, state-wide and multi-year data result from analysis based on a randomized complete block design. All data presented for the hard red winter wheat tests result from analysis based on a randomized complete block design. For both soft and hard wheat tests, if an observation was missing in one replication an adjusted average of the remaining observations (least squares mean) was used to approximate the missing observation. Mean comparisons were made using Fisher's protected

least significant difference (LSD) at the 0.05 probability level ($p=0.05$). Coefficients of variation (CV%) were calculated from the analyses of variance of each location and across all locations.

The LSD is used to compare the performance of two specific varieties. If the mean of a variety exceeds that of another variety by more than the LSD, then the difference observed will be a true difference in 19 out of 20 instances under conditions similar to those of the test.

Differences in yield between any two varieties are considered significant or real only if that difference exceeds the LSD value given at the bottom of each column. Tables 15 and 20 rank the soft red and hard red winter wheats, respectively, according to their state-wide average. Overall rank can be very misleading. Growers should be careful to make pair-wise comparisons of results from both the appropriate location or locations and the state-wide averages before selecting one wheat variety over another for production in Missouri. Variety selection should be based on yield stability in a production environment over years and locations. Where a variety has been in the test for two or three years, combined analyses of the yield data over years are presented. In choosing a variety, other characteristics such as test weight, heading date and disease resistances should also be taken into consideration. Where disease data were not reported in a particular production environment, they can be evaluated from locations in which they were rated.

1998 Test Conditions

Field conditions during the fall of 1997 were conducive to excellent stand development at all locations where the performance tests were grown. A relatively mild winter resulted in good winter survival in the northern and southwestern regions where survival exceeded 90%. Freezing temperatures at stem extension significantly reduced the number of live tillers at both the Charleston and Portageville locations in the southeastern region (bootheel). Winter survival at Charleston, which reflected both true winter survival plus additional stand losses associated with the late freeze, averaged 67% (Table 10). Winter survival data for Portageville, which were taken before the freeze, averaged 85% (Table 11) and reflect true winter survival for the region. Additional losses, however, occurred at the Portageville location due to the late freeze.

Excessive rainfall throughout the growing season, coupled with periods of heat during early grainfill characterized the growing season for much of the state. Leaf rust was evident during late grainfill in the southeast and may have contributed to reduced yields and test weights in this region. In the southwestern region, there was very little disease pressure. However, excessive rainfall after physiological maturity resulted in sprouting in some entries in of the soft

wheat test and all but one entry of the hard wheat test. At Columbia, Septoria leaf blotch pressure was significant (Table 7). In addition, hail injury reduced yields in very early awnless varieties up to 20% (estimated). At Novelty the crop had very high yield potential, however, rainfall throughout the heading period resulted in high levels of scab in susceptible cultivars (Table 8). Both yields and test weights were significantly reduced due to this disease pressure.

1998 Test Results

The state-wide yield of soft red winter wheats tested in 1998 was 52.5 bushels per acre (Table 6), down 18.6 bushels per acre from the record high yield (71.1 bu/acre) recorded in 1997. Average yields across the seven test locations ranged from 37.2 bushels per acre at Portageville to 61.9 bushels per acre at Mt. Vernon (Table 15). Average regional yields ranged from 41.6 bushels per acre in the southeastern region to 53.6 bushels per acre in the northern region and 61.7 bushels per acre in the southwestern region of the state (Table 14).

'Pioneer Variety 2568' was the highest yielding soft red winter wheat tested, averaging 61.2 bushels per acre across the state. Five other private varieties including: 'Pioneer Variety 25R26', 'Pioneer Variety 2540', 'Merschman Julie IV', 'Pioneer Variety 25R57' and 'Terra Exp 216', did not differ significantly in yield from Pioneer Variety 2568. Pioneer Variety 2540 had been the top yielding variety in the previous two years. For the second year in a row, the highest yielding public variety was 'Jackson', released by the Virginia Agricultural Experiment Station in 1993.

The five hard wheats (including Ernie as a soft red winter wheat check) averaged 55.9 bushels per acre state-wide (Table 16). There were no significant differences in yield among varieties. At Columbia, 'Terra Exp 217' (56.2 bu/acre) and 'Jagger' (53.3 bu/acre) were the top yielding varieties (Table 17). At Trenton, '2137' (75.5 bu/acre), 'MFA H2020' (71.6 bu/acre) and Ernie (68.7 bu/acre) were in the top yield group while at Mt. Vernon, Ernie (66.0 bu/acre) and Jagger (55.9 bu/acre) were the highest yielding varieties (Table 19).

Regional test weights varied significantly in 1998 due to differential environmental conditions at test locations. The average state-wide test weight was 57.0 pounds per bushel (Table 6), down 1.8 pounds per bushel from the state-wide average (58.8 lb/bu) recorded for 1997. Location averages ranged from a low of 54.4 pounds per bushel at Novelty (Table 8) due to heavy scab pressure to a high of 59.7 pounds per bushel at Columbia (Table 7). Test weights in general were lower at most locations than those recorded in 1997 due to excessive rainfall at most locations prior to harvest and high temperatures that resulted in a shorter

grainfill period. Among soft red winter wheat varieties tested, 'Roane', released in 1998 by the Virginia Agricultural Experiment Station, had the heaviest test weight at 60.1 pounds per bushel (Table 6). Four private varieties including: 'LG X433', 'MFA Enterprise', 'NK Coker 9474', and 'Willcross 798' did not differ significantly from Roane. NK Coker 9474 had been the variety with the heaviest test weight in the previous two years. Across the three locations of the hard wheat test, 'Karl 92' had the heaviest test weight at 60.3 lb/bu (Table 16). Not significantly different from Karl 92 were 2137 and MFA H2020.

New Variety Descriptions

Brief descriptions of newly released varieties are derived from variety release statements from the originators and are included for information purposes only. Descriptions of 'branded varieties' are also provided when the true identity of the variety is provided. The inclusion of this information in this publication does not imply endorsement or exclusion of any commercially available wheat variety by the Missouri Agricultural Experiment Station.

AGRIPRO Patton

'AGRIPRO Patton' (M94-1048) is a soft red winter wheat developed and released by AgriPro Seeds Inc. at Lafayette, IN. It is a white chaffed, awnletted, medium height, mid-season variety with a heading date equal to 'Sawyer'. AGRIPRO Patton has very good winter hardiness but only moderate rhizoctonia resistance which may limit its use on heavy cold soils. AGRIPRO Patton is considered resistant to leaf rust and Septoria leaf blotch, moderately resistant to stem rust, powdery mildew, spindle streak and soil borne mosaic virus and susceptible to Stagonospora glume blotch. It has resistance to Hessian fly biotypes B and E but is susceptible to biotype L. AGRIPRO Patton has very good milling and baking qualities. In its first year of testing in the Missouri Winter Wheat Performance Tests, AGRIPRO Patton was in the top yield group at Novelty under heavy scab pressure. It yielded out of the top yield group across the state but was above average in performance in all locations except Portageville. Average test weight for AGRIPRO Patton was 56.0 pounds per bushel, which was slightly below average.

Roane

'Roane' (VA 93-54-429) is a soft red winter wheat, released by the Virginia Agricultural Experiment Station in 1998. It is a full-season, high yielding, awnletted variety with high test weight. Roane is a moderately short variety with good straw strength and has better winter hardiness than Jackson. Roane is resistant to prevalent field populations of powdery mildew but is moderately susceptible to leaf and stem rusts. It has an intermediate level of resistance to soil borne mosaic virus, wheat spindle streak mosaic virus, Septoria leaf blotch and Stagonospora glume blotch. Roane possesses a moderate level of resistance to scab.

Table 5. Acreage, yield and production of winter wheat in Missouri by reporting district. Data were provided by the Missouri Agricultural Statistics Service.

Reporting	Acres planted		Acres harvested		Yield		Production	
	1997	1998	1997	1998†	1997	1998†	1997	1998†
	----- 1,000 acres -----				----- bu/acre -----		----- 1,000 bushels -----	
North-west	57.5	62	54.3	58	47.1	50	2,558	2,900
North-central	115.5	133	111.7	124	54.2	48	6,058	5,950
North-east	151.7	200	145.8	185	58.7	51	8,556	9,450
West-central	141.8	163	137.4	152	57.2	47	7,861	7,080
Central	136.4	161	129.6	150	57.4	45	7,440	6,750
East-central	96.5	124	90.6	114	52.9	49	4,793	5,600
South-west	90.6	118	84.1	112	56.3	43	4,735	4,800
South-central	11.3	13	8.5	10	44.4	40	377	400
South-east	298.7	376	278.0	325	53.3	42	14,822	13,650
State	1,100.0	1,350	1,040.0	1,230	55.0	46	57,200	56,580

† Estimates based on the July 1 forecast.

It is resistant to Hessian fly biotypes GP, B, C and E but is susceptible to biotypes D and L. Roane appears to inhibit either aphid feeding or infection by barley yellow dwarf virus. The milling and baking quality of Roane is within the quality range of soft red winter wheat. In the first year of testing, Roane had the highest test weight (60.1 lb/bu) of any variety tested. It ranked 25th state-wide in yield. Roane yielded at or above the location mean at all test locations with the exception of the Trenton location where it was slightly below average.

University of Missouri College of Agriculture, Food and Natural Resources. The telephone number for the AgEBB is (573) 882-8289. Baud rates up to 14,400 bps are presently supported. Select the "Crop Performance Testing" option from the main AgEBB menu. Call (573) 882-4827 to contact the AgEBB staff concerning questions or problems.

The 1998 Missouri Winter Wheat Performance Test results are also available on the world wide web. Internet users may access the results of these tests at: <http://www.ext.missouri.edu/agebb/cropperf/wheat>.

1998 Missouri Winter Wheat Crop Statistics

Projected Crop Statistics

Based on July 1st USDA forecast provided by the Missouri Agricultural Statistics Service, Missouri's wheat crop was harvested from 1.23 million acres, an 18 percent increase over acres harvested in 1997 (Table 5). Despite an increase in the acreage harvested, total Missouri production is projected to be lower by 620,000 bushels due to above average rainfall, a shorter growing season, and more disease pressure in some regions of the state than occurred in the 1997 crop year. State-wide, yields are projected to average 46 bushels per acre, down 9 bushels per acre from the record high level of 1997. District yields are projected to range from 40 bushels per acre in south-central Missouri to 51 bushels per acre in the north-east.

Electronic Accessibility of Data

Results of the 1998 Missouri Winter Wheat Performance Tests are now available in two electronic forms. The winter wheat variety test data can be accessed on the Missouri Agricultural Bulletin Board (AgEBB) supported by the

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Table 6. Performance of soft red winter wheats tested across seven locations in Missouri during 1998.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival	Plant height	Lodging [‡]	Heading date	
	1998	1997-98	1996-98						Julian	Calendar
	----- bu/acre -----			- lb/bu -	%	%	in	0-9		
AGRIPRO Elkhart	56.1	65.9*	61.8	58.6	11.8	89	37	3	126	May 07
AGRIPRO Foster	54.6	64.2	59.7	56.6	12.3	88	35	3	127	May 08
AGRIPRO Patton	55.8			56.0	12.1	90	36	3	126	May 07
AR 494B-2-2	56.7			58.4	12.1	93	38	3	128	May 09
AR 584A-3-1	51.7			56.3	11.7	85	38	5	127	May 08
Delta King 9027	52.7	64.1		57.2	12.1	89	36	4	127	May 08
Delta King 9051	48.4			58.0	12.1	87	34	5	126	May 07
EK X78753	50.7			55.1	11.6	88	37	5	127	May 08
EK X78912	50.7			56.7	12.0	87	37	3	127	May 08
Ernie	53.3	61.4	56.2	56.4	11.6	88	34	5	125	May 06
FFR 518W	51.5			55.7	11.8	84	33	6	126	May 07
FFR 522W	52.4	61.9	55.1	58.2	12.5	86	35	4	127	May 08
FFR 539W	56.5	66.9*		57.0	12.0	88	37	4	127	May 08
FFR 558W	56.0	64.9	62.2	57.3	12.3	91	37	3	126	May 07
FFR EX6546	52.7			58.2	12.3	89	36	5	126	May 07
FFR EX6753	51.3			55.0	11.7	89	37	4	126	May 07
Fleming	45.9			57.2	12.2	84	34	4	125	May 06
IL 90-7514	54.5			58.9	12.2	89	39	4	129	May 10
Jackson	55.0	62.7	51.9	56.7	12.0	87	35	5	128	May 09
Lewis 840 (formerly 8404)	55.6	66.9*		57.1	12.0	89	38	4	126	May 07
Lewis 8442	55.5			56.5	12.2	90	38	4	126	May 07
Lewis 8684	55.9			57.1	12.1	91	38	4	127	May 08
LG X155	45.5			55.9	11.4	90	35	4	125	May 06
LG X388	52.5			57.2	12.3	89	39	3	129	May 10
LG X433	51.3			59.4*	12.4	89	38	3	127	May 08
Madison	54.5	62.0	56.9	56.1	11.9	91	37	4	126	May 07
Merschman Barbie V	50.8			57.1	12.3	88	38	3	129	May 10
Merschman Genie VII	48.6			54.8	11.7	89	37	4	127	May 08
Merschman Julie IV	58.2*	67.4*	60.6	58.6	12.4	90	38	4	126	May 07
Merschman Katie IX	51.1	63.2		56.7	12.2	88	36	3	127	May 08
MFA 1800	49.3	60.3		55.8	11.8	91	34	4	127	May 08
MFA 1828	55.5			56.9	12.1	90	38	4	126	May 07
MFA Enterprise	51.7	59.7	57.5	59.4*	12.8	89	37	3	128	May 09
MO 94-317	55.8	63.4		55.6	12.0	88	39	3	126	May 07
NeCo S80	52.2	64.9		56.7	11.9	88	35	4	127	May 08
NeCo S85	55.1			56.8	11.6	89	37	4	127	May 08
NeCo S98	51.4	58.2	58.0	59.0	12.6	89	37	4	127	May 08
NK Coker 9474	51.7	61.3	60.0	59.6*	12.2	89	34	3	126	May 07

NK Coker 9543	50.2	58.3	53.6	56.6	12.0	87	33	5	126	May 07
NK Coker 9663	53.3	63.6		58.3	12.7	89	38	4	128	May 09
NK Coker 9704	53.5	61.3	57.8	58.3	12.0	85	34	5	125	May 06
NK Coker 9803	51.7	59.0	48.0	57.6	12.0	84	33	5	125	May 06
OH 536	42.1			55.0	11.9	92	34	3	134	May 15
OH 544	39.2			56.4	12.0	90	40	3	133	May 14
OH 546	47.9			57.4	12.2	92	38	3	129	May 10
OH 552	49.8			57.6	11.8	91	36	3	127	May 08
P86958RC4-2-1-10	56.7			57.8	11.7	93	35	3	136	May 17
P88288A1-15-1-4	49.4			57.7	12.1	92	37	3	126	May 07
P88288C1-6-1-2	52.3			57.1	11.8	94	37	2	130	May 11
P89118RC1-9-3-3	49.0			57.5	11.9	93	39	3	130	May 11
Pioneer Variety 2540	58.7*	68.5*	66.9**	56.8	12.1	91	36	2	129	May 10
Pioneer Variety 2568	61.2**	68.7**	63.8	56.3	11.7	89	35	3	126	May 07
Pioneer Variety 25R26	58.9*	68.5*		56.0	11.9	90	34	3	129	May 10
Pioneer Variety 25R57	57.9*	66.4*		56.3	11.8	89	36	4	126	May 07
Roane	53.9			60.1**	12.5	89	34	3	128	May 09
Stine 455	50.0			54.9	11.6	89	37	5	127	May 08
Stine 480	50.5	61.6	58.3	56.8	12.0	87	37	3	127	May 08
Stine 481	50.9	60.2		56.0	11.9	88	36	3	129	May 10
Stine 488	52.6			57.3	12.3	88	38	3	130	May 11
Terra Exp 215	48.5			59.1	12.4	89	36	3	128	May 09
Terra Exp 216	57.5*			57.1	11.9	87	37	4	127	May 08
Terra SR205	52.1	61.5	57.6	56.1	11.6	88	37	3	128	May 09
Terra SR211	53.2	64.0	59.5	56.5	12.0	88	36	4	127	May 08
Terral TV8557	49.7	60.2		57.0	11.9	90	38	5	126	May 07
Va 94-54-479	51.1			56.9	12.3	87	32	4	127	May 08
Wakefield	50.6	58.3		56.1	12.2	90	38	4	127	May 08
Willcross 723	50.6	63.2	51.2	56.8	11.9	87	35	4	127	May 08
Willcross 733X	56.1			57.1	11.9	88	37	4	128	May 09
Willcross 738X	55.3			57.0	12.1	90	38	4	127	May 08
Willcross 788	51.1	61.4	58.0	55.5	11.7	87	37	4	129	May 10
Willcross 795	53.0	64.9	59.4	53.7	12.0	90	38	3	130	May 11
Willcross 798	51.0	59.4	59.0	59.4*	12.8	89	37	3	128	May 09
Average	52.5	63.0	57.9	57.0	12.0	89.0	36.4	4.0	127	May 08
LSD (0.05)	3.9	3.0	2.8	0.8	0.2	3.4	1.2	0.6	1.2	
CV%	14.1	12.7	15.9	2.5	3.8	7.3	6.1	29.7	1.4	
Location years	7	14	21	7	7	7	7	7	4	

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

Table 7. Performance of soft red winter wheats tested near Columbia, Missouri during 1998.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival	Plant height	Lodging [‡]	Heading date		Septoria leaf blotch [§]
	1998	1997-98	1996-98						Julian	Calendar	
	----- bu/acre -----			- lb/bu -	%	%	in	0-9			%
AGRIPRO Elkhart	56.6	67.3*	58.1	60.7	11.6	98	37	1	131	May 12	45.8
AGRIPRO Foster	53.5	65.9	57.7	60.0	12.2	98	35	2	131	May 12	40.8
AGRIPRO Patton	55.8			59.3	11.7	97	37	2	130	May 11	35.0
AR 494B-2-2	52.5			60.6	11.9	97	37	3	132	May 13	35.5
AR 584A-3-1	51.5			59.1	11.6	95	38	4	131	May 12	40.3
Delta King 9027	46.7	62.1		59.8	11.6	96	34	3	132	May 13	43.0
Delta King 9051	52.9			61.5*	11.9	95	34	3	130	May 11	39.5
EK X78753	53.0			57.4	11.5	97	37	3	130	May 11	48.3
EK X78912	48.3			60.1	11.8	96	36	2	131	May 12	41.0
Ernie	50.9	59.5	49.9	58.3	11.3	98	34	2	129	May 10	36.8
FFR 518W	54.7			56.6	11.6	96	33	4	129	May 10	49.0
FFR 522W	52.9	60.9	48.8	61.0	12.3	96	36	2	129	May 10	38.5
FFR 539W	50.8	66.7		59.9	11.8	95	36	3	131	May 12	40.3
FFR 558W	54.2	65.4	58.4	59.8	12.1	97	35	2	131	May 12	39.3
FFR EX6546	46.4			60.7	11.9	97	35	3	130	May 11	44.0
FFR EX6753	54.5			57.6	11.6	96	36	3	131	May 12	46.5
Fleming	54.7			60.0	12.3	98	34	2	128	May 09	44.5
IL 90-7514	43.7			61.5*	12.0	97	38	2	131	May 12	50.5
Jackson	54.4	65.5	48.2	60.1	11.6	97	34	3	131	May 12	48.8
Lewis 840 (formerly 8404)	48.7	65.4		60.3	11.7	98	37	3	130	May 11	39.8
Lewis 8442	46.5			56.3	12.6	98	37	3	129	May 10	45.5
Lewis 8684	51.7			60.2	11.7	98	35	2	131	May 12	35.0
LG X155	43.8			58.1	11.5	98	35	2	129	May 10	67.8
LG X388	61.3*			60.3	12.1	97	39	2	132	May 13	33.8
LG X433	47.8			61.4*	11.9	97	38	3	132	May 13	35.5
Madison	49.3	62.1	51.4	59.1	11.4	97	34	3	131	May 12	39.3
Merschman Barbie V	51.8			59.8	12.1	96	37	2	133	May 14	34.5
Merschman Genie VII	55.6			57.6	11.5	98	37	3	130	May 11	55.0
Merschman Julie IV	55.4	69.5*	58.8	60.7	12.0	97	38	2	130	May 11	43.8
Merschman Katie IX	43.1	59.1		59.8	11.9	95	35	2	130	May 11	52.3
MFA 1800	51.2	60.6		59.6	11.8	96	36	3	132	May 13	39.5
MFA 1828	49.4			60.0	11.7	97	36	3	130	May 11	46.0
MFA Enterprise	53.3	60.4	57.0	62.4**	12.4	97	36	2	131	May 12	44.5
MO 94-317	61.3*	65.7		58.8	11.9	98	37	3	130	May 11	39.8
NeCo S80	51.8	67.8*		59.9	11.6	96	34	2	131	May 12	42.0
NeCo S85	48.7			60.2	9.4	97	36	3	131	May 12	39.0
NeCo S98	51.1	53.8	56.7	61.9*	12.2	96	36	2	131	May 12	42.8
NK Coker 9474	42.9	59.1	60.5	61.0	11.7	96	33	2	130	May 11	42.0

NK Coker 9543	52.7	57.4	48.1	60.7	11.9	98	35	3	129	May 10	44.0
NK Coker 9663	47.3	60.9		60.3	12.2	96	36	2	131	May 12	37.8
NK Coker 9704	56.6	64.5	53.9	61.3*	11.8	98	34	3	129	May 10	43.8
NK Coker 9803	54.8	60.7	41.5	60.9	11.5	97	35	4	129	May 10	45.3
OH 536	57.7			56.7	11.5	96	32	2	134	May 15	28.0
OH 544	47.2			58.2	11.9	94	39	2	134	May 15	39.5
OH 546	42.5			60.2	12.1	97	36	2	132	May 13	50.5
OH 552	47.5			59.1	11.5	96	34	2	131	May 12	51.0
P86958RC4-2-1-10	55.7			59.9	11.2	98	33	2	131	May 12	35.5
P88288A1-15-1-4	43.1			59.2	11.7	98	35	2	131	May 12	31.8
P88288C1-6-1-2	53.0			60.2	11.8	98	36	2	131	May 12	29.3
P89118RC1-9-3-3	45.2			59.8	11.7	97	36	2	133	May 14	33.8
Pioneer Variety 2540	63.6**	73.4**	70.0**	58.7	12.1	96	34	2	132	May 13	38.3
Pioneer Variety 2568	60.3*	71.5*	63.5*	58.4	11.8	97	34	2	129	May 10	36.8
Pioneer Variety 25R26	58.2*	69.9*		58.0	12.0	96	33	2	133	May 14	41.0
Pioneer Variety 25R57	57.2	68.6*		59.1	11.8	98	35	3	130	May 11	38.5
Roane	58.1*			62.1*	12.0	97	32	2	132	May 13	31.3
Stine 455	53.0			57.5	11.5	98	36	3	131	May 12	41.5
Stine 480	47.3	62.8	58.3	59.8	11.7	95	34	2	130	May 11	47.3
Stine 481	51.3	64.6		60.0	11.6	97	35	3	131	May 12	42.8
Stine 488	59.5*			59.8	12.1	95	37	2	133	May 14	32.3
Terra Exp 215	42.9			61.2*	11.9	96	35	2	132	May 13	38.5
Terra Exp 216	49.7			59.8	11.7	96	35	2	131	May 12	38.3
Terra SR205	50.3	63.0	59.2	60.0	11.6	97	36	2	132	May 13	42.3
Terra SR211	46.3	61.4	53.7	59.9	11.7	96	34	2	131	May 12	41.0
Terral TV8557	45.6	55.4		60.4	11.6	98	37	3	129	May 10	50.8
Va 94-54-479	53.4			60.8	11.9	97	31	3	129	May 10	37.5
Wakefield	40.4	54.4	40.6	59.6	12.0	96	35	3	130	May 11	50.5
Willcross 723	46.7	64.1		60.0	11.6	97	35	3	131	May 12	33.8
Willcross 733X	52.0			59.8	11.7	96	38	3	130	May 11	38.3
Willcross 738X	48.0			60.1	11.6	98	36	3	131	May 12	45.3
Willcross 788	50.2	62.5	55.9	59.5	11.6	96	35	2	132	May 13	48.8
Willcross 795	60.7*	70.2*	59.8	57.0	12.2	96	35	3	133	May 14	48.3
Willcross 798	51.2	56.3	57.6	61.9*	12.4	95	36	2	132	May 13	45.0
Average	51.4	63.3	55.1	59.7	11.8	96.8	35.4	2.4	131	May 12	41.7
LSD (0.05)	5.5	6.5	8.9	1.3	0.9	2.0	2.3	0.7	1.6		10.3
CV%	7.3	10.4	20.0	1.5	5.6	1.4	4.4	21.2	0.8		17.6

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

§ Percent of canopy showing symptoms of *Septoria tritici* infection.

Table 8. Performance of soft red winter wheats tested at Novelty, Missouri during 1998.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival	Plant height	Lodging [‡]	Heading date		Scab [§]
	1998	1997-98	1996-98						Julian	Calendar	
	----- bu/acre -----			- lb/bu -	%	%	in	0-9			
AGRIPRO Elkhart	47.0	53.9	45.7*	54.7	11.8	92	35	3	134	May 15	S
AGRIPRO Foster	52.7	57.3*	46.6*	51.6	13.3	89	32	6	134	May 15	S
AGRIPRO Patton	66.0*			55.3	12.0	94	35	6	134	May 15	MR
AR 494B-2-2	51.7			55.6	12.0	95	37	6	134	May 15	MS
AR 584A-3-1	49.7			55.0	11.8	91	36	7	135	May 16	MS
Delta King 9027	37.9	55.1*		54.0	11.5	88	32	7	134	May 15	S
Delta King 9051	44.3			55.9	12.0	89	31	8	134	May 15	S
EK X78753	36.3			51.4	11.3	93	34	7	134	May 15	S
EK X78912	45.6			53.0	11.5	92	34	6	134	May 15	S
Ernie	64.7*	62.1*	50.0**	56.2	11.8	93	31	8	134	May 15	MR
FFR 518W	49.8			54.0	11.3	88	31	8	134	May 15	MS
FFR 522W	48.3	48.2	34.7	56.8	12.5	84	32	6	136	May 17	MS
FFR 539W	58.9	60.1*		54.7	11.8	92	35	6	134	May 15	MS
FFR 558W	44.3	48.0	39.5	53.9	12.0	92	35	5	134	May 15	S
FFR EX6546	59.1			57.1	12.3	91	35	7	135	May 16	MS
FFR EX6753	42.0			52.3	11.5	92	33	5	134	May 15	MS
Fleming	51.7			57.8*	12.3	86	33	7	134	May 15	S
IL 90-7514	49.9			54.0	11.5	89	36	5	134	May 15	S
Jackson	51.8	54.2	39.2	54.5	11.8	91	33	7	136	May 17	MS
Lewis 840 (formerly 8404)	51.4	62.9**		54.4	11.8	94	33	6	134	May 15	MS
Lewis 8442	64.1*			55.3	12.3	93	37	6	133	May 14	MS
Lewis 8684	58.3			54.6	12.3	93	36	6	134	May 15	MS
LG X155	42.5			54.6	11.0	92	33	8	134	May 15	MS
LG X388	42.2			53.9	12.3	91	37	3	134	May 15	S
LG X433	49.5			57.7*	12.3	92	36	5	134	May 15	MS
Madison	48.4	52.1	41.1	53.4	11.8	92	35	5	133	May 14	S
Merschman Barbie V	43.8			54.1	12.0	93	37	3	135	May 16	VS
Merschman Genie VII	39.3			51.7	11.8	92	35	7	136	May 17	MS
Merschman Julie IV	56.8	58.7*	45.2*	56.2	12.5	91	33	5	134	May 15	MS
Merschman Katie IX	42.6	53.0		53.3	12.3	90	33	5	134	May 15	S
MFA 1800	40.0	52.0		50.9	11.3	92	33	4	135	May 16	VS
MFA 1828	49.3			54.5	11.5	93	36	7	133	May 14	MS
MFA Enterprise	46.6	48.4	38.5	55.5	12.5	93	35	5	134	May 15	MS
MO 94-317	52.7	56.9*		53.3	11.8	87	35	4	135	May 16	S
NeCo S80	39.8	51.4		51.6	11.5	88	33	7	134	May 15	VS
NeCo S85	58.3			53.7	11.8	93	33	7	134	May 15	MS
NeCo S98	47.9	47.6	42.6	55.0	12.3	90	36	5	134	May 15	S
NK Coker 9474	56.4	57.5*	48.3*	59.5**	12.3	88	33	5	133	May 14	MR

NK Coker 9543	55.4	57.7*	44.1*	56.5	12.0	93	32	8	136	May 17	S
NK Coker 9663	50.8	56.6*		54.3	12.5	91	37	5	135	May 16	S
NK Coker 9704	55.1	53.7	44.2*	57.7*	12.0	90	31	8	134	May 15	MS
NK Coker 9803	53.7	54.2	37.8	57.7*	12.3	89	32	8	134	May 15	MS
OH 536	32.8			55.0	11.5	92	32	1	141	May 22	S
OH 544	35.1			54.4	11.5	91	38	2	141	May 22	S
OH 546	43.5			53.4	12.5	92	35	5	136	May 17	S
OH 552	52.2			56.3	11.3	90	35	5	136	May 17	MS
P86958RC4-2-1-10	52.8			56.0	11.8	92	32	4	134	May 15	MS
P88288A1-15-1-4	49.5			56.9	12.8	92	34	5	134	May 15	MR
P88288C1-6-1-2	44.6			54.8	11.5	93	33	1	135	May 16	S
P89118RC1-9-3-3	52.9			57.2	11.5	92	37	5	135	May 16	MS
Pioneer Variety 2540	40.3	53.6	46.7*	50.2	11.3	89	34	3	138	May 19	VS
Pioneer Variety 2568	66.9**	59.9*	47.4*	54.9	11.5	92	33	4	134	May 15	MS
Pioneer Variety 25R26	48.3	58.5*		52.8	11.3	87	31	4	136	May 17	S
Pioneer Variety 25R57	50.4	56.5*		52.7	11.8	93	34	5	134	May 15	S
Roane	48.0			57.4	12.3	91	32	6	136	May 17	MS
Stine 455	45.0			51.5	11.5	95	34	7	135	May 16	MS
Stine 480	46.6	55.2*	43.6*	53.5	11.8	92	33	6	135	May 16	S
Stine 481	44.6	49.6		51.4	11.5	91	34	6	134	May 15	VS
Stine 488	40.9			53.1	12.3	91	38	3	136	May 17	S
Terra Exp 215	47.1			57.3	12.3	92	35	5	134	May 15	MS
Terra Exp 216	60.6			55.1	11.8	94	34	7	134	May 15	MS
Terra SR205	43.6	52.8	44.2*	51.9	10.8	92	33	5	133	May 14	VS
Terra SR211	38.8	53.4	43.3*	52.6	11.8	90	33	7	134	May 15	S
Terral TV8557	55.0	59.5*		55.9	12.0	91	34	7	133	May 14	MS
Va 94-54-479	47.7			54.0	11.5	91	30	6	134	May 15	S
Wakefield	46.4	40.8	32.3	52.2	11.8	89	36	5	135	May 16	VS
Willcross 723	39.0	52.1		52.0	11.5	81	33	7	134	May 15	VS
Willcross 733X	56.6			54.2	11.5	91	34	7	134	May 15	MS
Willcross 738X	55.1			54.4	12.0	93	36	6	134	May 15	MS
Willcross 788	42.4	55.0*	46.3*	50.1	11.5	91	34	5	135	May 16	VS
Willcross 795	37.4	51.2	40.3	50.9	11.3	91	36	4	134	May 15	VS
Willcross 798	45.9	50.1	44.0*	56.8	12.5	93	36	5	134	May 15	S
Average	48.7	54.2	42.9	54.4	11.8	91.0	34.1	5.5	135	May 16	
LSD (0.05)	6.1	8.4	7.3	1.8	0.8	4.2	2.3	1.3	1.6		
CV%	8.4	15.7	21.2	2.3	5.0	3.2	4.5	15.8	0.8		

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

§ Scab incidence (percent of heads per plot) where MR=<25%; MS=>25% but <50%; S=>50% but <75%; VS=>75%.

Table 9. Performance of soft red winter wheats tested near Trenton, Missouri during 1998.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival	Plant height	Lodging [‡]
	1998	1997-98	1996-98					
	----- bu/acre -----			- lb/bu -	%	%	in	0-9
AGRIPRO Elkhart	61.7	70.5	64.9*	58.5	11.8	90	39	3
AGRIPRO Foster	60.4	65.2	54.8	58.0	13.3	93	35	3
AGRIPRO Patton	64.2			57.8	13.3	91	37	3
AR 494B-2-2	60.8			58.0	12.8	92	39	4
AR 584A-3-1	54.6			58.0	12.5	88	37	5
Delta King 9027	54.4	66.8		58.3	12.8	87	36	4
Delta King 9051	62.9			59.5*	13.3	87	37	5
EK X78753	57.5			56.0	12.0	90	35	5
EK X78912	64.5			58.0	12.8	90	39	4
Ernie	56.9	61.3	56.6	56.3	12.8	90	34	4
FFR 518W	65.4			56.8	12.5	92	35	5
FFR 522W	63.6	71.6	57.8	59.3*	13.3	90	36	4
FFR 539W	66.0*	70.5		57.5	12.8	90	36	4
FFR 558W	65.2	70.3	66.1*	58.3	13.0	93	39	3
FFR EX6546	57.7			58.8	13.0	91	41	5
FFR EX6753	47.4			55.3	12.5	90	35	3
Fleming	53.1			58.5	13.0	89	33	5
IL 90-7514	65.6			59.0*	13.3	87	39	4
Jackson	66.7*	70.1	53.7	57.3	13.3	92	36	3
Lewis 840 (formerly 8404)	65.0	69.7		57.8	13.0	92	38	4
Lewis 8442	68.5*			58.0	12.5	94	40	5
Lewis 8684	60.1			57.5	13.3	90	39	3
LG X155	58.9			56.3	12.8	89	34	4
LG X388	56.8			58.0	13.3	88	38	3
LG X433	51.2			59.8*	13.0	90	38	4
Madison	59.4	65.7	53.3	56.5	13.0	93	36	4
Merschman Barbie V	59.5			57.8	13.3	86	39	3
Merschman Genie VII	55.3			56.0	12.3	92	38	4
Merschman Julie IV	64.5	71.0	60.8*	58.0	13.3	90	38	4
Merschman Katie IX	61.1	68.9		57.5	13.0	89	37	4
MFA 1800	52.1	61.9		57.0	13.0	90	34	3
MFA 1828	59.0			57.0	13.3	90	38	3
MFA Enterprise	56.8	61.5	55.6	60.3**	13.8	91	38	3
MO 94-317	66.4*	70.1		56.0	12.8	93	37	4
NeCo S80	58.9	69.3		57.8	12.5	92	36	3
NeCo S85	67.9*			57.8	12.8	91	38	4
NeCo S98	61.0	65.1	58.0	60.0*	13.0	88	39	5
NK Coker 9474	57.8	63.8	59.7*	60.3**	13.0	86	34	3

NK Coker 9543	63.0	64.8	53.6	58.8	12.8	90	34	5
NK Coker 9663	61.3	67.3		57.8	13.8	91	41	4
NK Coker 9704	69.9*	70.8	62.5*	59.5*	12.5	92	35	5
NK Coker 9803	65.6	68.3	48.5	59.5*	12.5	91	35	6
OH 536	54.2			55.8	12.8	85	33	2
OH 544	52.5			57.3	12.8	90	40	3
OH 546	57.4			57.3	12.8	90	37	4
OH 552	54.7			56.8	12.8	87	36	3
P86958RC4-2-1-10	62.3			58.8	12.5	88	38	3
P88288A1-15-1-4	52.6			58.0	12.8	88	34	3
P88288C1-6-1-2	66.4*			58.5	12.5	91	36	3
P89118RC1-9-3-3	55.4			58.8	12.5	91	38	3
Pioneer Variety 2540	66.4*	71.7	66.9**	57.0	13.0	87	36	3
Pioneer Variety 2568	74.6**	78.7**	65.2*	56.8	12.5	92	36	3
Pioneer Variety 25R26	68.2*	72.8*		57.3	12.8	89	34	4
Pioneer Variety 25R57	66.4*	72.9*		56.3	12.8	92	36	3
Roane	55.0			59.8*	13.3	88	33	2
Stine 455	52.9			55.8	12.3	91	38	4
Stine 480	59.0	67.4	59.2	57.0	12.8	90	37	3
Stine 481	58.2	65.5		54.8	13.8	89	36	3
Stine 488	62.4			58.0	13.0	88	39	3
Terra Exp 215	50.3			59.3*	13.8	91	35	3
Terra Exp 216	69.0*			57.5	13.0	90	39	4
Terra SR205	59.2	64.0	55.2	56.0	12.3	91	36	4
Terra SR211	52.0	63.1	60.5*	58.0	13.0	89	36	3
Terral TV8557	66.0*	71.1		57.8	13.0	92	40	6
Va 94-54-479	65.8*			58.8	13.8	92	35	4
Wakefield	60.2	62.3	50.9	57.8	13.5	90	39	4
Willcross 723	54.5	67.9		58.0	12.5	89	35	3
Willcross 733X	60.5			57.3	13.0	88	37	4
Willcross 738X	73.5*			57.5	12.8	93	40	5
Willcross 788	62.7	67.4	56.9	56.8	12.3	89	38	5
Willcross 795	56.8	66.0	57.2	54.5	13.3	89	37	3
Willcross 798	60.4	65.4	61.4*	60.3**	13.5	92	38	4
Average	60.5	67.8	58.2	57.7	12.9	90.0	36.8	3.7
LSD (0.05)	8.8	6.2	7.3	1.4	0.7	3.9	2.9	1.5
CV%	10.4	9.2	15.5	1.7	4.3	3.1	5.5	28.9

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD (p=0.05).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

Table 10. Performance of soft red winter wheats tested at Charleston, Missouri during 1998.

Variety	Grain yield [†]			Test	Grain	Winter	Plant	Lodging [§]
	1998	1997-98	1996-98	weight	moisture	survival [†]	height	
	----- bu/acre -----			- lb/bu -	%	%	in	0-9
AGRIPRO Elkhart	47.8	68.0*	69.0*	56.5*	13.0	67	36	2
AGRIPRO Foster	41.9	59.4	63.9	53.9	13.2	58	34	2
AGRIPRO Patton	46.7			52.2	13.5	62	34	3
AR 494B-2-2	58.5*			57.0*	13.0	88	39	2
AR 584A-3-1	32.3			51.6	13.0	47	37	4
Delta King 9027	51.0	66.6*		54.3	13.3	78	35	4
Delta King 9051	35.7			54.6	13.5	65	34	4
EK X78753	44.8			53.1	12.8	59	36	5
EK X78912	36.5			55.1	13.3	51	36	3
Ernie	41.0	62.7	64.6	54.2	13.4	55	34	6
FFR 518W	45.7			55.1	13.3	54	37	3
FFR 522W	45.6	61.7	63.6	54.2	13.3	66	38	4
FFR 539W	49.8	66.2*		55.5	13.5	75	37	3
FFR 558W	45.0	65.3*	67.0	56.2	13.3	69	34	3
FFR EX6546	49.9			53.2	12.7	61	36	1
FFR EX6753	38.9			54.5	13.7	38	34	5
Fleming	30.8			52.8	13.5	36	31	2
IL 90-7514	53.6*			58.6*	13.5	71	39	3
Jackson	44.8	63.4	62.7	53.8	13.2	46	34	6
Lewis 840 (formerly 8404)	50.3	69.2*		55.7	13.0	64	39	3
Lewis 8442	42.5			53.9	13.2	70	36	5
Lewis 8684	52.5*			55.6	13.2	72	37	4
LG X155	31.8			55.0	12.0	72	36	4
LG X388	49.0			54.8	13.3	69	40	2
LG X433	55.6*			58.5*	13.7	66	39	1
Madison	49.4	63.5	63.2	53.1	13.2	79	37	3
Merschman Barbie V	44.6			57.1*	13.5	72	39	2
Merschman Genie VII	45.4			52.9	12.5	64	36	3
Merschman Julie IV	51.6	65.6*	64.8	58.1*	13.9	74	38	4
Merschman Katie IX	45.2	66.7*		55.4	13.5	61	36	2
MFA 1800	53.3*	63.5		54.9	13.3	77	34	3
MFA 1828	51.8			53.3	13.2	64	38	3
MFA Enterprise	45.2	64.9*	68.0*	57.3*	14.5	66	37	2
MO 94-317	43.3	59.0		53.4	13.0	60	38	3
NeCo S80	45.8	65.8*		55.0	13.5	71	32	3
NeCo S85	47.6			55.2	12.8	70	36	4
NeCo S98	46.4	60.3	63.5	58.0*	14.5	73	38	3
NK Coker 9474	53.0*	65.6*	66.7	58.5*	13.8	74	34	2

NK Coker 9543	39.0	57.3	61.0	52.5	13.5	51	30	2
NK Coker 9663	54.0*	72.1**		58.9**	14.3	64	38	3
NK Coker 9704	39.2	57.8	62.3	55.6	13.7	35	33	4
NK Coker 9803	27.7	53.5	55.3	51.4	13.7	29	29	4
OH 536	37.6			52.8	13.3	87	35	3
OH 544	29.0			56.3	13.5	77	40	3
OH 546	42.0			55.7	13.0	83	40	2
OH 552	49.7			57.8*	12.8	89	37	2
P86958RC4-2-1-10	58.9*			56.4*	13.5	94	38	3
P88288A1-15-1-4	45.5			55.9	13.3	82	38	3
P88288C1-6-1-2	43.5			54.9	13.0	90	40	2
P89118RC1-9-3-3	50.7			54.5	13.5	92	42	2
Pioneer Variety 2540	61.0**	71.9*	73.4**	57.1*	13.0	87	37	2
Pioneer Variety 2568	50.4	63.8	70.2*	54.2	12.5	62	36	3
Pioneer Variety 25R26	54.8*	67.2*		53.1	12.5	79	35	2
Pioneer Variety 25R57	49.9	68.1*		56.4*	13.0	63	36	3
Roane	52.2			58.1*	14.0	66	34	5
Stine 455	47.9			53.2	12.7	63	36	4
Stine 480	41.2	61.0	65.0	55.2	13.0	51	37	3
Stine 481	46.9	63.9		54.5	12.8	68	38	3
Stine 488	43.5			55.5	13.3	72	39	2
Terra Exp 215	45.5			56.3	13.5	66	36	2
Terra Exp 216	52.1			54.5	12.5	59	37	4
Terra SR205	45.5	62.7	64.2	52.8	12.5	64	38	3
Terra SR211	53.2*	66.4*	65.5	53.9	13.1	67	36	3
Terral TV8557	44.1	64.5		54.5	13.0	69	38	3
Va 94-54-479	37.6			53.6	14.2	46	30	5
Wakefield	48.1	64.1	62.9	53.2	13.2	72	39	3
Willcross 723	50.1	68.3*		54.7	13.2	73	34	5
Willcross 733X	45.6			55.5	12.8	62	36	3
Willcross 738X	52.7*			55.8	13.2	65	35	3
Willcross 788	42.4	60.7	65.2	53.6	12.5	64	37	3
Willcross 795	48.5	63.7	66.5	51.0	13.3	78	37	2
Willcross 798	40.6	58.8	61.6	55.9	14.3	66	37	3
Average	46.0	64.0	64.8	55.0	13.3	67.0	35.7	3.2
LSD (0.05)	8.5	7.4	6.0	2.5	0.6	15.1	2.3	1.4
CV%	12.6	11.7	11.6	3.1	3.6	15.6	6.5	31.1

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD (p=0.05).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Data reflect both true winter survival and losses that occurred as a result of freezing temperatures during stem extension.

§ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

Table 11. Performance of soft red winter wheats tested at Portageville, Missouri during 1998.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival [‡]	Plant height	Lodging [§]	Heading date	
	1998	1997-98	1996-98						Julian	Calendar
	----- bu/acre -----			- lb/bu -	%	%	in	0-9		
AGRIPRO Elkhart	41.9	63.1*	63.7	58.4*	11.5	84	33	3	114	April 25
AGRIPRO Foster	36.1	48.9	54.8	55.0	11.7	86	34	4	115	April 26
AGRIPRO Patton	36.0			53.6	11.5	89	35	3	113	April 24
AR 494B-2-2	49.1*			57.7	12.0	89	38	3	114	April 25
AR 584A-3-1	34.1			55.4	11.1	86	35	6	115	April 26
Delta King 9027	44.4	52.0		57.1	11.8	82	35	4	115	April 26
Delta King 9051	33.1			57.0	11.9	83	32	4	114	April 25
EK X78753	31.4			53.3	10.9	86	35	6	115	April 26
EK X78912	32.6			54.6	11.4	85	36	4	115	April 26
Ernie	32.6	47.2	50.6	54.3	10.8	81	32	7	113	April 24
FFR 518W	31.1			54.8	11.4	84	30	6	113	April 24
FFR 522W	35.7	56.2	57.7	57.9	12.2	84	34	3	113	April 24
FFR 539W	42.9	65.3*		55.7	11.7	84	37	4	115	April 26
FFR 558W	34.5	59.1*	62.7	56.6	11.8	84	34	3	115	April 26
FFR EX6546	30.2			57.2	11.7	82	33	5	113	April 24
FFR EX6753	37.1			53.8	11.0	85	35	5	113	April 24
Fleming	24.6			55.2	11.3	86	33	6	113	April 24
IL 90-7514	43.1			58.8*	11.9	83	38	3	121	May 02
Jackson	37.3	49.7	51.1	55.6	11.9	87	35	6	115	April 26
Lewis 840 (formerly 8404)	41.5	55.1		56.3	11.6	84	38	4	114	April 25
Lewis 8442	36.5			56.4	11.9	84	36	4	113	April 24
Lewis 8684	35.2			55.2	11.5	85	36	4	114	April 25
LG X155	32.5			55.6	10.9	85	33	5	113	April 24
LG X388	38.3			56.0	11.9	83	38	3	120	May 01
LG X433	35.4			58.7*	12.1	83	37	3	115	April 26
Madison	32.2	50.0	57.4	54.6	11.1	86	34	6	112	April 23
Merschman Barbie V	36.1			55.0	11.9	82	38	3	118	April 29
Merschman Genie VII	31.8			54.7	11.6	85	35	5	115	April 26
Merschman Julie IV	37.9	57.3	60.8	57.3	11.7	83	37	5	114	April 25
Merschman Katie IX	31.8	54.5		55.3	11.8	86	35	3	115	April 26
MFA 1800	31.0	49.2		55.7	11.7	89	32	5	112	April 23
MFA 1828	39.1			56.1	11.8	84	37	3	114	April 25
MFA Enterprise	42.6	54.3	58.3	59.1*	12.8	83	35	3	116	April 27
MO 94-317	36.3	56.9		53.5	11.7	87	35	4	114	April 25
NeCo S80	41.7	58.1		57.2	11.9	83	36	5	115	April 26
NeCo S85	36.2			56.0	11.6	84	36	4	115	April 26
NeCo S98	37.2	53.2	60.1	58.8*	12.8	85	36	3	116	April 27
NK Coker 9474	40.6	59.7*	62.8	59.6*	12.1	83	31	2	113	April 24

NK Coker 9543	33.7	47.3	55.3	54.9	11.4	86	31	4	113	April 24
NK Coker 9663	41.5	52.0		57.7	12.3	85	37	5	115	April 26
NK Coker 9704	29.4	50.7	56.7	56.7	12.0	85	31	6	113	April 24
NK Coker 9803	31.3	47.3	48.1	55.7	11.3	85	31	6	113	April 24
OH 536	33.5			52.9	11.0	87	35	5	125	May 06
OH 544	26.2			54.3	11.3	89	38	4	126	May 07
OH 546	40.7			56.5	11.3	88	39	3	116	April 27
OH 552	39.2			56.9	11.5	89	35	2	114	April 25
P86958RC4-2-1-10	49.8*			57.3	11.2	87	34	2	113	April 24
P88288A1-15-1-4	40.5			57.4	11.8	90	37	3	111	April 22
P88288C1-6-1-2	39.6			55.0	11.1	89	35	2	121	May 02
P89118RC1-9-3-3	39.3			56.3	11.7	88	38	2	124	May 05
Pioneer Variety 2540	54.7**	68.2**	75.8**	56.1	12.3	86	36	3	116	April 27
Pioneer Variety 2568	41.6	60.9*	67.4	54.6	11.2	89	33	4	113	April 24
Pioneer Variety 25R26	52.9*	65.0*		56.1	11.7	86	34	3	114	April 25
Pioneer Variety 25R57	35.8	52.3		56.5	11.4	83	34	4	112	April 23
Roane	37.8			59.9**	12.4	84	34	3	114	April 25
Stine 455	32.0			54.0	11.1	85	35	6	114	April 25
Stine 480	31.1	51.2	57.3	54.5	11.7	86	35	4	116	April 27
Stine 481	39.1	50.8		55.9	11.2	81	35	4	119	April 30
Stine 488	37.7			57.3	12.3	82	37	3	119	April 30
Terra Exp 215	40.2			58.5*	11.9	82	36	4	117	April 28
Terra Exp 216	40.8			55.8	11.6	84	36	3	116	April 27
Terra SR205	38.2	54.2	56.3	56.1	11.6	84	36	3	117	April 28
Terra SR211	48.2*	61.4*	63.0	56.3	11.6	83	35	3	114	April 25
Terral TV8557	21.7	42.9		54.6	11.1	86	37	6	114	April 25
Va 94-54-479	21.0			53.4	11.7	86	28	4	119	April 30
Wakefield	37.5	53.8	56.4	54.1	11.7	87	37	5	117	April 28
Willcross 723	43.5	54.0		57.3	11.9	83	36	3	115	April 26
Willcross 733X	41.4			55.9	11.4	84	37	4	115	April 26
Willcross 738X	34.3			55.2	11.7	84	37	4	114	April 25
Willcross 788	40.9	53.6	59.8	56.2	11.7	81	36	3	120	May 01
Willcross 795	41.5	67.7*	66.0	53.4	11.9	84	36	3	122	May 03
Willcross 798	40.5	61.4*	64.9	59.1*	12.8	83	38	4	116	April 27
Average	37.2	55.1	59.4	56.0	11.7	84.9	35.0	4.0	115	April 26
LSD (0.05)	7.1	9.5	7.0	1.6	0.6	3.2	2.1	1.5	1.6	
CV%	13.2	17.5	14.7	2.0	3.3	2.5	4.1	24.9	1.0	

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Data were taken prior to freezing temperatures during stem extension and therefore reflect true winter survival for the region.

§ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

Table 12. Performance of soft red winter wheats tested at Lamar, Missouri during 1998.

Variety	Grain yield [†]			Test weight - lb/bu -	Grain moisture %	Winter survival %	Plant height in	Lodging [‡] 0-9
	1998	1997-98	1996-98					
	----- bu/acre -----							
AGRIPRO Elkhart	67.9*	69.7	65.2*	60.9	10.7	95	40	3
AGRIPRO Foster	69.5*	80.1*	70.3*	59.3	10.7	93	39	3
AGRIPRO Patton	62.5			58.5	10.2	96	41	2
AR 494B-2-2	58.5			60.3	10.5	96	40	4
AR 584A-3-1	59.6			58.3	10.0	91	41	5
Delta King 9027	60.2	74.7*		59.1	10.8	94	38	3
Delta King 9051	53.7			60.3	10.3	94	37	5
EK X78753	63.4			57.0	10.5	98	41	4
EK X78912	63.8*			58.9	10.3	97	41	2
Ernie	64.0*	69.6	61.4	57.9	10.0	97	39	3
FFR 518W	59.3			56.9	10.0	96	36	6
FFR 522W	59.3	68.9	61.9	59.9	11.2	95	36	3
FFR 539W	64.8*	72.1		59.0	10.5	95	39	3
FFR 558W	69.5*	73.7	71.2*	59.4	11.0	95	41	3
FFR EX6546	65.6*			60.1	11.0	97	38	5
FFR EX6753	56.3			56.7	10.3	95	42	4
Fleming	55.5			59.2	10.7	96	39	3
IL 90-7514	57.6			60.7	11.0	95	40	3
Jackson	63.6	74.4	61.2	58.7	10.5	96	38	5
Lewis 840 (formerly 8404)	65.8*	76.6*		57.9	10.5	96	40	4
Lewis 8442	65.9*			58.7	10.7	97	40	5
Lewis 8684	70.5*			59.3	10.5	98	41	3
LG X155	56.7			56.8	10.0	94	36	3
LG X388	65.1*			59.5	11.0	94	41	2
LG X433	57.7			61.0	11.0	97	40	4
Madison	63.0	74.5	65.9*	58.9	10.2	95	39	3
Merschman Barbie V	65.7*			59.9	11.0	92	38	3
Merschman Genie VII	54.8			56.0	10.0	91	37	3
Merschman Julie IV	71.1*	77.1*	68.5*	60.5	11.0	93	38	4
Merschman Katie IX	65.0*	74.5		59.0	11.0	95	39	3
MFA 1800	56.1	68.0		57.5	10.0	96	31	3
MFA 1828	67.2*			58.6	10.5	97	42	4
MFA Enterprise	51.8	64.1	61.9	61.9*	11.0	96	40	3
MO 94-317	62.7	75.2*		57.2	10.5	94	40	2
NeCo S80	61.8	74.3		58.8	10.3	94	38	3
NeCo S85	65.2*			58.7	10.8	96	38	3
NeCo S98	59.3	68.0	64.3	61.4*	11.0	94	41	3
NK Coker 9474	56.0	64.2	61.9	61.3*	10.8	97	39	3

NK Coker 9543	56.2	68.6	61.5	58.8	10.5	92	36	5
NK Coker 9663	59.2	70.6		61.3*	11.0	97	41	4
NK Coker 9704	59.1	69.4	62.9	59.2	10.3	97	37	5
NK Coker 9803	60.5	67.9	56.5	59.0	10.5	95	38	4
OH 536	39.3			59.0	10.5	95	36	2
OH 544	45.3			58.8	10.8	95	42	3
OH 546	58.0			60.0	11.0	95	39	3
OH 552	57.4			59.7	10.0	94	39	2
P86958RC4-2-1-10	59.0			59.6	10.0	97	37	3
P88288A1-15-1-4	53.7			58.6	10.5	96	40	2
P88288C1-6-1-2	61.2			59.8	10.0	96	39	3
P89118RC1-9-3-3	53.3			59.6	10.5	96	39	3
Pioneer Variety 2540	65.6*	78.5*	71.2*	59.9	10.8	94	37	2
Pioneer Variety 2568	70.5*	81.2**	71.7**	57.2	10.2	98	39	3
Pioneer Variety 25R26	59.8	72.2		58.5	10.2	93	36	2
Pioneer Variety 25R57	71.6**	75.5*		57.5	10.0	98	39	3
Roane	60.5			62.3**	11.0	95	37	2
Stine 455	57.3			57.0	10.0	97	40	3
Stine 480	64.3*	70.9	63.8	59.0	10.5	95	39	4
Stine 481	60.8	70.6		58.3	10.0	95	40	3
Stine 488	65.5*			59.8	10.7	93	39	2
Terra Exp 215	58.3			61.3*	11.0	96	38	3
Terra Exp 216	68.4*			59.6	10.8	94	38	3
Terra SR205	67.1*	73.7	65.4*	58.8	10.0	95	40	3
Terra SR211	63.6	74.6*	67.8*	59.0	10.5	92	38	3
Terral TV8557	61.6	73.8		59.2	10.5	95	42	3
Va 94-54-479	65.7*			59.4	11.0	97	35	4
Wakefield	63.7*	71.7	64.6	58.1	10.8	94	40	3
Willcross 723	58.1	71.2		59.1	10.3	93	38	3
Willcross 733X	70.0*			59.4	10.8	95	39	4
Willcross 738X	66.6*			58.7	10.8	96	39	3
Willcross 788	60.4	69.0	62.5	57.4	10.0	92	38	3
Willcross 795	67.2*	76.4*	67.4*	55.8	10.0	97	41	2
Willcross 798	61.2	66.0	64.2	61.9*	11.0	95	39	3
Average	61.5	72.3	64.9	59.1	10.5	95.2	38.9	3.3
LSD (0.05)	7.9	6.6	6.5	1.1	0.5	4.1	4.1	1.3
CV (%)	9.2	9.2	12.5	1.3	3.7	3.0	7.5	27.9

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

Table 13. Performance of soft red winter wheats tested at Mt. Vernon, Missouri during 1998.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival	Plant height	Lodging [‡]	Heading date		Sprouting [§]
	1998	1997-98	1996-98						Julian	Calendar	
	----- bu/acre -----			- lb/bu -	%	%	in	0-9			
AGRIPRO Elkhart	66.3*	68.6*	65.6*	59.8*	12.3	99	40	3	126	May 07	0
AGRIPRO Foster	73.6**	72.8*	69.8*	58.3	12.3	98	38	2	127	May 08	0
AGRIPRO Patton	63.6			55.8	12.3	98	37	3	126	May 07	1
AR 494B-2-2	64.3			58.8*	12.5	99	40	4	131	May 12	0
AR 584A-3-1	70.1*			56.3	12.0	96	39	6	127	May 08	1
Delta King 9027	68.2*	71.2*		57.0	12.5	98	38	4	129	May 10	0
Delta King 9051	55.2			56.0	11.8	97	36	4	126	May 07	0
EK X78753	64.3			57.0	12.5	98	39	5	127	May 08	0
EK X78912	64.3			57.3	12.8	97	40	3	129	May 10	0
Ernie	65.0*	67.2*	59.9	56.5	11.5	98	36	4	125	May 06	2
FFR 518W	61.8			56.3	12.0	96	34	7	128	May 09	0
FFR 522W	56.0	65.9	61.2	57.5	12.5	97	36	5	127	May 08	0
FFR 539W	65.6*	67.5*		57.5	12.5	97	39	3	128	May 09	0
FFR 558W	72.1*	72.2*	70.2**	58.0	12.8	98	39	3	129	May 10	0
FFR EX6546	62.5			58.3	12.8	97	36	5	126	May 07	0
FFR EX6753	71.4*			56.3	12.5	98	39	5	128	May 09	0
Fleming	52.2			57.8	12.3	98	35	4	125	May 06	1
IL 90-7514	64.7			60.5**	12.5	98	39	5	129	May 10	0
Jackson	62.7	61.7	48.4	56.8	11.8	99	37	7	129	May 10	0
Lewis 840 (formerly 8404)	66.3*	69.2*		57.0	12.3	97	40	3	127	May 08	0
Lewis 8442	62.7			57.0	12.3	98	41	3	127	May 08	0
Lewis 8684	70.4*			58.3	12.5	99	41	3	130	May 11	0
LG X155	60.9			55.8	11.8	97	36	4	126	May 07	1
LG X388	55.9			58.5	12.8	97	40	3	131	May 12	0
LG X433	63.0			58.3	12.8	98	40	3	128	May 09	0
Madison	73.3*	66.2	62.5	57.0	12.3	97	39	5	127	May 08	1
Merschman Barbie V	54.6			56.8	12.5	97	40	3	130	May 11	0
Merschman Genie VII	65.6*			55.8	12.3	98	39	5	127	May 08	0
Merschman Julie IV	70.5*	72.6*	65.3*	59.0*	12.5	97	41	4	126	May 07	0
Merschman Katie IX	62.0	65.4		56.8	12.3	97	38	3	128	May 09	0
MFA 1800	65.9*	67.1*		56.3	12.0	98	38	5	130	May 11	0
MFA 1828	70.0*			57.8	12.3	97	39	3	128	May 09	0
MFA Enterprise	65.7*	64.1	63.3*	59.8*	13.0	97	38	3	131	May 12	0
MO 94-317	67.8*	59.8		56.8	12.3	98	41	3	126	May 07	0
NeCo S80	66.8*	67.8*		57.0	12.3	97	37	4	129	May 10	0
NeCo S85	62.8			56.5	12.5	96	39	3	128	May 09	0
NeCo S98	60.7	59.5	61.0	59.3*	12.8	96	39	3	129	May 10	1
NK Coker 9474	53.9	59.1	60.1	57.5	11.8	98	35	3	126	May 07	0

NK Coker 9543	53.1	54.9	51.6	53.5	12.0	98	35	6	126	May 07	1
NK Coker 9663	58.5	65.6		58.5	12.8	97	39	5	131	May 12	0
NK Coker 9704	62.6	62.3	62.1	57.8	11.8	99	36	6	125	May 06	2
NK Coker 9803	65.4*	60.9	48.3	57.8	12.0	99	35	6	125	May 06	2
OH 536	41.5			54.0	12.5	97	36	2	134	May 15	0
OH 544	44.7			56.5	12.5	98	43	3	132	May 13	0
OH 546	57.3			59.3*	12.8	97	40	3	131	May 12	0
OH 552	55.3			57.0	12.5	98	37	3	127	May 08	1
P86958RC4-2-1-10	54.0			56.0	12.0	98	35	3	126	May 07	0
P88288A1-15-1-4	54.1			57.5	12.3	97	38	3	128	May 09	1
P88288C1-6-1-2	56.3			57.0	12.5	98	38	1	131	May 12	0
P89118RC1-9-3-3	49.9			56.3	12.0	99	39	2	129	May 10	0
Pioneer Variety 2540	60.5	61.9	64.8*	58.8*	12.5	98	38	2	129	May 10	0
Pioneer Variety 2568	61.6	65.2	61.5	57.5	11.8	97	37	3	126	May 07	0
Pioneer Variety 25R26	68.7*	73.9**		56.5	12.5	95	35	2	132	May 13	1
Pioneer Variety 25R57	66.5*	71.0*		56.0	12.0	97	39	3	127	May 08	1
Roane	63.0			60.3*	13.0	97	36	3	129	May 10	0
Stine 455	64.2			55.8	12.5	98	39	5	127	May 08	1
Stine 480	62.4	62.6	61.7	57.5	12.8	98	39	3	127	May 08	0
Stine 481	57.5	56.6		57.3	12.3	97	39	2	130	May 11	0
Stine 488	60.7			57.0	12.5	96	38	2	132	May 13	0
Terra Exp 215	57.0			59.0*	12.3	98	39	4	127	May 08	0
Terra Exp 216	58.4			57.3	12.3	95	39	3	129	May 10	0
Terra SR205	59.1	60.2	58.6	56.5	12.0	97	39	2	129	May 10	1
Terra SR211	68.4*	67.5*	62.5	56.0	12.5	98	40	5	128	May 09	0
Terral TV8557	53.3	54.1		56.5	12.3	97	40	5	126	May 07	0
Va 94-54-479	68.3*			58.0	12.3	98	34	5	126	May 07	0
Wakefield	63.0	61.3	50.9	57.3	12.3	98	38	3	126	May 07	0
Willcross 723	64.7	65.0		56.5	12.5	98	38	4	128	May 09	1
Willcross 733X	63.7			57.5	12.5	97	39	3	131	May 12	0
Willcross 738X	61.7			58.0	12.8	97	40	3	129	May 10	1
Willcross 788	61.3	61.4	59.1	55.3	12.0	94	37	3	131	May 12	0
Willcross 795	62.1	59.0	58.3	53.3	12.0	93	39	2	130	May 11	0
Willcross 798	56.9	57.6	59.3	60.0*	13.0	98	38	2	131	May 12	0
Average	61.9	64.4	60.2	57.2	12.3	97.3	38.2	3.6	128	May 09	0.21
LSD (0.05)	8.7	6.8	7.3	1.8	0.6	2.4	2.1	1.1	2.1		NS
CV%	9.6	10.8	15.2	2.3	3.7	1.7	3.7	20.7	1.2		

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD (p=0.05).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

§ Percent of a 100-kernel sample showing visible signs of germination. Data are from two replications.

Table 14. Grain yields[†] of soft red winter wheats tested across the northern (Columbia, Novelty and Trenton), southeastern (Charleston and Portageville) and southwestern (Lamar and Mt. Vernon) regions of Missouri during 1998.

Variety	Northern region			Southeastern region			Southwestern region			State average
	1998	1997-98	1996-98	1998	1997-98	1996-98	1998	1997-98	1996-98	1998
	----- bushels/acre -----									
AGRIPRO Elkhart	54.6	63.9	56.2	46.6	65.5*	66.4	68.0*	69.2	65.4*	56.1
AGRIPRO Foster	55.4	62.8	53.0	37.0	54.2	59.4	71.2*	76.4**	70.0**	54.6
AGRIPRO Patton	61.9*			39.1			63.3			55.8
AR 494B-2-2	55.3			54.1*			61.3			56.7
AR 584A-3-1	53.9			34.9			65.0			51.7
Delta King 9027	48.3	61.3		48.0	59.3		64.1	73.0*		52.7
Delta King 9051	52.7			35.7			54.6			48.4
EK X78753	49.5			39.0			64.2			50.7
EK X78912	53.2			34.3			63.3			50.7
Ernie	57.1	60.9	52.2	36.5	55.0	57.6	64.4	68.4	60.6	53.3
FFR 518W	57.3			34.7			59.6			51.5
FFR 522W	57.3	60.3	47.1	39.8	58.9	60.6	57.7	67.4	61.6	52.4
FFR 539W	58.0	65.8*	47.1	46.8	65.8*		63.7	69.8		56.5
FFR 558W	54.4	61.2		42.7	62.2	63.2	71.6**	73.0*	70.0**	56.0
FFR EX6546	54.6			38.5			64.2			52.7
FFR EX6753	48.2			42.4			64.9			51.3
Fleming	52.3			28.4			53.9			45.9
IL 90-7514	53.8			48.8			61.3			54.5
Jackson	57.7	63.3	47.0	41.6	56.5	56.9	64.4	68.0	54.3	55.0
Lewis 840 (formerly 8404)	56.5	66.0*		44.9	62.1		65.0	72.9*		55.6
Lewis 8442	58.8			41.7			64.3			55.5
Lewis 8684	55.9			41.4			70.3*			55.9
LG X155	46.5			31.7			57.9			45.5
LG X388	52.6			42.2			62.7			52.5
LG X433	50.0			45.1			59.4			51.3
Madison	53.7	59.9	48.6	42.3	56.8	60.3	67.9*	70.4	64.2	54.5
Merschman Barbie V	52.0			39.8			59.9			50.8
Merschman Genie VII	48.2			38.4			59.4			48.6
Merschman Julie IV	59.3	66.4*	55.0	43.8	61.4	62.8	70.5*	74.9*	66.9*	58.2*
Merschman Katie IX	50.2	60.3		38.6	60.6		64.8	70.0		51.1
MFA 1800	46.8	58.2		41.3	56.3		61.2	67.5		49.3
MFA 1828	54.7			44.9			67.4*			55.5
MFA Enterprise	51.4	56.8	50.4	45.6	59.6	63.2	58.2	64.1	62.6	51.7
MO 94-317	60.1	64.2		40.0	57.9		65.1	67.5		55.8
NeCo S80	50.0	62.9		43.6	61.9		64.0	71.1		52.2
NeCo S85	57.5			42.9			63.5			55.1
NeCo S98	51.6	55.5	52.4	41.7	56.8	61.8	60.7	63.7	62.6	51.4
NK Coker 9474	52.9	60.1	56.2	46.9	62.7	64.7	54.6	61.6	61.0	51.7

NK Coker 9543	57.8	60.0	48.6	34.9	52.3	58.2	54.1	61.8	56.5	50.2
NK Coker 9663	52.4	61.6		47.8	62.1		60.3	68.1		53.3
NK Coker 9704	61.3*	63.0	53.5	33.5	54.2	59.5	61.7	65.8	62.5	53.5
NK Coker 9803	57.8	61.0	42.6	31.4	50.4	51.7	62.9	64.4	52.4	51.7
OH 536	47.3			33.6			42.1			42.1
OH 544	43.9			26.8			45.0			39.2
OH 546	47.0			39.8			57.4			47.9
OH 552	49.5			44.3			55.8			49.8
P86958RC4-2-1-10	57.6			55.7*			56.3			56.7
P88288A1-15-1-4	48.2			45.2			55.2			49.4
P88288C1-6-1-2	53.3			43.3			60.7			52.6
P89118RC1-9-3-3	51.1			44.3			50.4			49.0
Pioneer Variety 2540	57.1	66.2*	61.2**	57.2**	70.0**	74.3**	62.6	70.2	68.0*	58.7*
Pioneer Variety 2568	66.5**	70.0**	58.7*	47.1	62.3	68.8	67.4*	73.2*	66.6*	61.2**
Pioneer Variety 25R26	58.8	67.0*		52.6*	66.1*		65.2	73.0*		58.9*
Pioneer Variety 25R57	59.8	66.0*		43.1	60.2		70.0*	73.2*		57.9*
Roane	54.9			45.3			60.9			53.9
Stine 455	50.3			39.1			60.5			50.0
Stine 480	50.7	61.8	53.7	36.8	56.1	61.2	63.8	66.8	62.2	50.5
Stine 481	50.1	59.9		43.3	57.4		59.6	63.6		50.9
Stine 488	54.1			40.2			62.7			52.6
Terra Exp 215	46.8			42.6			56.8			48.5
Terra Exp 216	60.0			47.3			63.8			57.5*
Terra SR205	51.0	59.9	52.9	42.8	58.5	60.2	63.2	67.0	62.0	52.1
Terra SR211	46.4	59.3	52.5	50.6	63.9*	64.3	65.9*	71.1	65.1*	53.2
Terral TV8557	55.7	62.0		33.1	53.7		57.2	63.9		49.7
Va 94-54-479	55.8			29.3			65.8*			51.1
Wakefield	48.2	52.5	41.3	43.1	58.9	59.7	61.7	66.5	57.8	50.6
Willcross 723	45.7	61.4		47.0	61.1		61.5	68.1		50.6
Willcross 733X	57.8			43.1			66.4*			56.1
Willcross 738X	59.1			41.0			63.8			55.3
Willcross 788	51.4	61.6	53.0	40.6	57.2	62.5	61.1	65.2	60.8	51.1
Willcross 795	51.6	62.5	52.4	44.0	65.7*	66.3	64.0	67.7	62.8	53.0
Willcross 798	52.0	57.3	54.3	41.2	60.1	63.2	59.4	61.8	61.8	51.0
Average	53.6	61.7	52.1	41.6	59.5	62.1	61.7	68.3	62.5	52.5
LSD (0.05)	5.6	4.2	4.6	6.1	6.2	4.7	6.3	5.0	5.0	3.9
CV%	13.0	12.0	19.0	15.0	14.9	13.2	10.5	10.4	14.0	14.1

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain. Data were analyzed as a randomized complete block design.

Table 15. Grain yield[†] for soft red winter wheats tested at seven location in Missouri during 1998. Varieties are listed in descending order of state average yield.

Variety	Northern region			Southeastern region		Southwestern region		State average 1998
	Columbia	Novelty	Trenton	Charleston	Portageville	Lamar	Mt. Vernon	
	----- bushels/acre -----							
Pioneer Variety 2568	60.3*	66.9**	74.6**	50.4	41.6	70.5*	61.6	61.2**
Pioneer Variety 25R26	58.2*	48.3	68.2*	54.8*	52.9*	59.8	68.7*	58.9*
Pioneer Variety 2540	63.6**	40.3	66.4*	61.0**	54.7**	65.6*	60.5	58.7*
Merschman Julie IV	55.4	56.8	64.5	51.6	37.9	71.1*	70.5*	58.2*
Pioneer Variety 25R57	57.2	50.4	66.4*	49.9	35.8	71.6**	66.5*	57.9*
Terra Exp 216	49.7	60.6	69.0*	52.1	40.8	68.4*	58.4	57.5*
P86958RC4-2-1-10	55.7	52.8	62.3	58.9*	49.8*	59.0	54.0	56.7
AR 494B-2-2	52.5	51.7	60.8	58.5*	49.1*	58.5	64.3	56.7
FFR 539	50.8	58.9	66.0*	45.6	42.9	64.8*	65.6*	56.5
AGRIPRO Elkhart	56.6	47.0	61.7	47.8	41.9	67.9*	66.3*	56.1
Willcross 733X	52.0	56.6	60.5	45.6	41.4	70.0*	63.7	56.1
FFR 558W	54.2	44.3	65.2	49.8	34.5	69.5*	72.1*	56.0
Lewis 8684	51.7	58.3	60.1	52.5*	35.2	70.5*	70.4*	55.9
MO 94-317	61.3*	52.7	66.4*	43.3	36.3	62.7	67.8*	55.8
AGRIPRO Patton	55.8	66.0*	64.2	46.7	36.0	62.5	63.6	55.8
Lewis 840 (formerly 8404)	48.7	51.4	65.0	50.3	41.5	65.8*	66.3*	55.6
MFA 1828	49.4	49.3	59.0	51.8	39.1	67.2*	70.0*	55.5
Lewis 8442	46.5	64.1*	68.5*	42.5	36.5	65.9*	62.7	55.5
Willcross 738X	48.0	55.1	73.5*	52.7*	34.3	66.6*	61.7	55.3
NeCo S85	48.7	58.3	67.9*	47.6	36.2	65.2*	62.8	55.1
Jackson	54.4	51.8	66.7*	44.8	37.3	63.6	62.7	55.0
AGRIPRO Foster	53.5	52.7	60.4	41.9	36.1	69.5*	73.6**	54.6
IL 90-7514	43.7	49.9	65.6	53.6*	43.1	57.6	64.7	54.5
Madison	49.3	48.4	59.4	49.4	32.2	63.0	73.3*	54.5
Roane	58.1*	48.0	55.0	52.2	37.8	60.5	63.0	53.9
NK Coker 9704	56.6	55.1	69.9*	39.2	29.4	59.1	62.6	53.5
NK Coker 9663	47.3	50.8	61.3	54.0*	41.5	59.2	58.5	53.3
Ernie	50.9	64.7*	56.9	41.0	32.6	64.0*	65.0*	53.3
Terra SR211	46.3	38.8	52.0	53.2*	48.2*	63.6*	68.4*	53.2
Willcross 795	60.7*	37.4	56.8	48.5	41.5	67.2*	62.1	53.0
FFR EX6546	46.4	59.1	57.7	45.0	30.2	65.6*	62.5	52.7
Delta King 9027	46.7	37.9	54.4	51.0	44.4	60.2	68.2*	52.7
Stine 488	59.5*	40.9	62.4	43.5	37.7	65.5*	60.7	52.6
P88288C1-6-1-2	53.0	44.6	66.4*	43.5	39.6	61.2	58.1	52.6
LG X388	61.3*	42.2	56.8	49.0	38.3	65.1*	55.9	52.5
FFR 522W	52.9	48.3	63.6	45.7	35.7	59.3	56.0	52.4
NeCo S80	51.8	39.8	58.9	45.8	41.7	61.8	66.8*	52.2
Terra SR205	50.3	43.6	59.2	45.5	38.2	67.1*	59.1	52.1

NK Coker 9803	54.8	53.7	65.6	27.7	31.3	60.5	65.4*	51.7
MFA Enterprise	53.3	46.6	56.8	45.2	42.6	51.8	65.7*	51.7
NK Coker 9474	42.9	56.4	57.8	53.0*	40.6	56.0	53.9	51.7
AR 584A-3-1	51.5	49.7	54.6	32.3	34.1	59.6	70.1*	51.7
FFR 518W	54.7	49.8	65.4	38.9	31.1	59.3	61.8	51.5
NeCo S98	51.1	47.9	61.0	46.4	37.2	59.3	60.7	51.4
FFR EX6753	54.5	42.0	47.4	49.9	37.1	56.3	71.4*	51.3
LG X433	47.8	49.5	51.2	55.6*	35.4	57.7	63.0	51.3
VA 94-54-479	53.4	47.7	65.8*	37.6	21.0	65.7*	68.3*	51.1
Merschman Katie IX	43.1	42.6	61.1	45.2	31.8	65.0*	62.0	51.1
Willcross 788	50.2	42.4	62.7	42.4	40.9	60.4	61.3	51.1
Willcross 798	51.2	45.9	60.4	40.6	40.5	61.2	56.9	51.0
Stine 481	51.3	44.6	58.2	46.9	39.1	60.8	57.5	50.9
Merschman Barbie V	51.8	43.8	59.5	44.6	36.1	65.7*	54.6	50.8
EK X78753	53.0	36.3	57.5	44.8	31.4	63.4	64.3	50.7
EK X78912	48.3	45.6	64.5	36.5	32.6	63.8*	64.3	50.7
Willcross 723	46.7	39.0	54.5	50.1	43.5	58.1	64.7	50.6
Wakefield	40.4	46.4	60.2	48.1	37.5	63.7*	63.0	50.6
Stine 480	47.3	46.6	59.0	41.2	31.1	64.3*	62.4	50.5
NK Coker 9543	52.7	55.4	63.0	39.0	33.7	56.2	53.1	50.2
Stine 455	53.0	45.0	52.9	47.9	32.0	57.3	64.2	50.0
OH 552	47.5	52.2	54.7	49.7	39.2	57.4	55.3	49.8
Terral TV8557	45.6	55.0	66.0*	44.1	21.7	61.6	53.3	49.7
P88288A1-15-1-4	43.1	49.5	52.6	45.5	40.5	53.7	54.1	49.4
MFA 1800	51.2	40.0	52.1	53.3*	31.0	56.1	65.9*	49.3
P89118RC1-9-3-3	45.2	52.9	55.4	50.7	39.3	53.3	49.9	49.0
Merschmar. Genie VII	55.6	39.3	55.3	45.4	31.8	54.8	65.6*	48.6
Terra Exp 215	42.9	47.1	50.3	45.5	40.2	58.3	57.0	48.5
Delta King 9051	52.9	44.3	62.9	35.7	33.1	53.7	55.2	48.4
OH 546	42.5	43.5	57.4	42.0	40.7	58.0	57.3	47.9
Fleming	54.7	51.7	53.1	30.8	24.6	55.5	52.2	45.9
LG X155	43.8	42.5	58.9	31.8	32.5	56.7	60.9	45.5
OH 536	57.7	32.8	54.2	37.6	33.5	39.3	41.5	42.1
OH 544	47.2	35.1	52.5	29.0	26.2	45.3	44.7	39.3
Average	51.4	48.7	60.5	46.0	37.2	61.5	61.9	52.5
LSD (0.05)	5.5	6.1	8.8	8.5	7.1	7.9	8.8	3.9
CV%	7.3	8.4	10.4	12.6	13.2	9.2	9.7	14.1

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain. Individual location data are adjusted means based on the analysis of a lattice design. State-wide means are based on the analysis of a 7-location randomized complete block experiment.

Table 16. Performance of hard red winter wheats averaged across three locations in Missouri, (Columbia, Trenton, Mt. Vernon) during 1998.

Variety	Grain yield [†]		Test weight	Grain moisture	Plant height	Lodging [‡]	Winter survival	Heading date	
	1998	1997-98						Julian	Calendar
	---- bu/acre ----		- lb/bu -	%	in	0-9	%		
2137	54.9	58.3	60.1*	11.5	35	5	95	130	May 11
Ernie (soft check)	59.4	60.9	58.3	10.9	35	6	96	127	May 08
Jagger	58.5	59.8	59.4	11.5	36	5	96	126	May 07
Karl 92	52.2	55.7	60.3**	11.2	35	6	93	127	May 08
MFA H2020	54.4		59.6*	11.5	33	4	91	130	May 11
Terra Exp 217	55.7		59.2	11.3	36	5	95	130	May 11
Average	55.9	58.7	59.5	11.3	34.9	4.8	94.3	128	May 09
LSD (0.05)	NS [§]	NS	0.8	0.2	1.2	1.0	2.8	0.9	
CV %	15.0	13.8	1.6	2.3	5.3	24.1	3.7	0.7	

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD (p=0.05).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

§ No significant (NS) differences among varieties.

Table 17. Performance of hard red winter wheats tested near Columbia, Missouri during 1998.

Variety	Grain yield [†]		Test weight	Grain moisture	Plant height	Lodging [‡]	Winter survival	Heading date	
	1998	1997-98						Julian	Calendar
	---- bu/acre ----		- lb/bu -	%	in	0-9	%		
2137	45.4	48.7	62.0**	12.0	33	3	95	132	May 13
Ernie (soft check)	43.6	50.8	58.8	12.0	33	3	95	128	May 09
Jagger	53.3*	52.6	61.0	12.0	35	3	97	127	May 06
Karl 92	42.3	52.7	61.3	12.0	34	4	88	129	May 10
MFA H2020	49.0		61.0	12.0	33	2	83	133	May 14
Terra Exp 217	56.2**		59.5	11.3	35	2	93	132	May 13
Average	48.3	51.2	60.6	11.9	33.9	3.0	91.8	130	May 11
LSD (0.05)	4.8	NS [§]	0.6	0.3	NS	1.1	5.2	1.1	
CV %	6.6	16.4	0.6	1.7	3.8	27.4	3.8	0.5	

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD (p=0.05).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

§ No significant (NS) differences among varieties.

Table 18. Performance of hard red winter wheats tested at Trenton, Missouri during 1998.

Variety	Grain yield [†]		Test weight	Grain moisture	Plant height	Lodging [‡]	Winter survival
	1998	1997-98					
	----- bu/acre -----		- lb/bu -	%	in	0-9	%
2137	75.5**	74.3**	60.0*	11.3	36	6	94
Ernie (soft check)	68.7*	66.7	57.5	11.0	36	6	94
Jagger	66.3	69.7*	60.0*	11.5	35	5	93
Karl 92	64.0	65.4	59.8*	11.3	37	8	94
MFA H2020	71.6*		60.5**	11.3	33	5	93
Terra Exp 217	61.4		59.3	11.0	35	7	94
Average	67.9	69.0	59.5	11.2	35.1	6.1	93.8
LSD (0.05)	8.9	5.4	0.7	NS [§]	NS	NS	NS
CV %	8.7	7.6	0.7	2.8	4.8	25.9	2.3

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD (p=0.05).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the plot completely flat.

§ No significant (NS) differences among varieties.

Table 19. Performance of hard red winter wheats tested at Mt. Vernon, Missouri during 1998.

Variety	Grain yield [†]		Test weight	Grain moisture	Plant height	Lodging [‡]	Sprouting [§]	Heading date	
	1998	1997-98						Julian	Calendar
	---- bu/acre ----		lb/bu	%	in	0-9	%		
2137	43.8	51.2	59.0*	11.0	37	6	0	128	May 09
Ernie (soft check)	66.0**	65.2**	58.5	10.3	35	7	10	125	May 06
Jagger	55.9*	57.2*	57.8	11.0	37	6	4	125	May 06
Karl 92	50.3	49.2	60.3**	10.8	35	6	8	126	May 07
MFA H2020	42.7		57.5	11.0	34	5	6	128	May 09
Terra Exp 217	49.6		58.8*	11.0	37	6	1	128	May 09
Average	51.4	55.7	58.6	10.8	35.6	5.8	4.8	128	May 09
LSD (0.05)	12.3	8.1	1.6	0.5	2.8	0.9	5.6	1.3	
CV %	15.8	14.0	1.8	2.9	5.3	10.4	76.3	0.7	

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD (p=0.05).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ Lodging rated on a 0 to 9 scale where 0 = no lodging and 9 = plants in the completely flat.

§ Percent of a 100-kernel sample showing visible signs of germination.

Table 20. Grain yield[†] of hard red winter wheats tested at three locations in Missouri during 1998. Varieties are listed in descending order of state average yield.

Variety	1998			State average
	Columbia	Trenton	Mt. Vernon	
	----- bu/acre -----			
Ernie (soft check)	43.6	68.7*	66.0**	59.4
Jagger	53.3*	66.3	55.9*	58.5
Terra Exp 217	56.2**	61.4	49.6	55.7
2137	45.4	75.5**	43.8	54.9
MFA H2020	49.0	71.6*	42.7	54.4
Karl 92	42.3	64.0	50.3	52.2
Average	48.3	67.9*	51.4	55.9
LSD (0.05)	4.8	8.9	12.3	NS [‡]
CV %	6.6	8.7	15.8	15.0

** Indicates the highest yielding variety in the column.

* Indicates varieties that do not differ in yield from the highest yielding variety based on Fisher's protected LSD ($p=0.05$).

† Yields are based on 60 pound standard bushel weight adjusted to 13.0 percent moisture content of the grain.

‡ No significant (NS) differences among varieties.

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