

# WINTER WHEAT

**2009 Missouri Crop Performance**

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# 2009 MISSOURI WINTER WHEAT PERFORMANCE TESTS

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## 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 soft red winter 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 variety trials conducted throughout Missouri during the 2009 crop season.

## Variety Testing Procedures

**Locations:** All entries were planted at seven Missouri locations 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 (Figure 1).

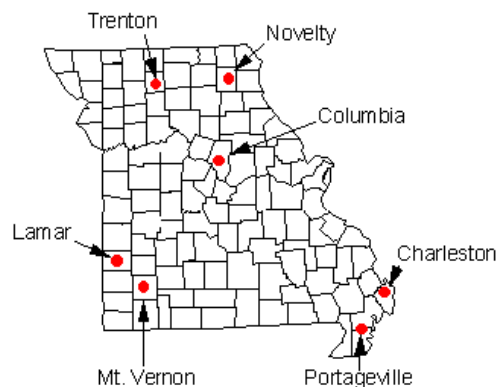


Figure 1. Test locations for Missouri winter wheat performance tests conducted during 2009.

**Entries and Seed Sources:** Names of entries evaluated in 2009 and their seed sources are given in Table 1. Fifty-six soft red winter wheat varieties were tested comprised of 5 public, 3 public experimental, and 48 proprietary varieties. Two new public varieties were tested in 2009 including 'Milton' from the University of Missouri and 'Merl' from Virginia Tech. Public varieties adapted to Missouri's growing conditions or recommended by the state of origin were entered in the 2009 variety tests under the sponsorship of the Missouri Seed Improvement Association or the originating state. 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 (i.e. VA 04W-90; GA 991209-6E33; GA 991336-6E9) were provided by the foundation seed organization or the wheat breeder of the originating state. These are experimental lines not yet available for commercial production. Public experimental lines were tested in order to gain preliminary Missouri data on varieties that may become available for commercial production in Missouri in 2010 or thereafter. 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 8 x 8 lattice design with four replications. All test plots consisted of a 15-foot, 6-row plot with 7-inch row spacing except for the Trenton and Novelty locations where test plots consisted of a 12-foot, 7-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 84 to 157 pounds per acre (Table 2). Seeding rates were not adjusted for germination. Except for the Trenton and Novelty locations, all entries were seeded into conventional seedbeds using a Hege 90™ plot drill equipped with six conventional double-disk openers. At Trenton and Novelty, entries were seeded directly into soybean stubble using a no-till plot drill equipped with Acraplant™ no-till openers.

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Table 1. Names and sources of commercial soft red winter wheat cultivars tested in Missouri in 2009.

Variety	Source/Contact	Variety	Source/Contact
Bess <sup>†</sup> Roane <sup>†</sup> Truman <sup>†</sup>	Missouri Seed Improvement Assoc. 3211 Lemone Industrial Blvd. Columbia, MO 65210-8245 (573) 449-0586	Dixie 427 Dixie 454 Dixie 907 Dixie 940	Cache River Valley Seed 12470 Highway 226 Cash, AR 72421 (870) 477-5427
GA 991209-6E33 <sup>†</sup> GA 991336-6E9 <sup>†</sup>	University of Georgia Georgia Station Griffin, GA 30223 (770) 228-7321	EXCEL 163 EXCEL 180 EXCEL 357 EXCEL 367 EXCEL 400-1	River Bend Custom Seeds, LLC. Box 146 Carrollton, MO 64633 (660) 542-0435
Milton (formerly MO 011126) <sup>†</sup>	University of Missouri Dept. of Agronomy Columbia, MO 65211 (573) 882-7708	EXCEL 410 TW	John Stephens Farms 7480 CR717 Dexter, MO 63841 (573) 624-5999
Meri <sup>†</sup> VA 04W-90 <sup>†</sup>	VPI+SU/VCIA/EVAREC 2229 Menokin Rd. Warsaw, VA 22572 (804) 333-3485	EXCEL 173 EXCEL 209 EXCEL 343	Service and Supply Co-op P.O. Box 176 New Florence, MO 63363 (573) 835-2485
AgriPro COKER Beretta AgriPro COKER Branson AgriPro COKER Cooper AgriPro COKER B030543 AgriPro COKER W1377 COKER 9553	AgriPro COKER P.O. Box 729 Bay, AR 72411 (870) 483-7691	EXCEL 170	Gremaud Ag. & Resources LLC 287 Raccoon Lane Perryville, MO 63775-7328 (573) 547-7214
AGS 2026 AGS 2050	AG South Genetics P.O. Box 72246 Albany, GA 31708-2246 (229) 881-2700	LEWIS 835	Lewis Hybrids Inc. 530 West Maple Ave. P.O. Box 38 Ursa, IL 62376 (217) 964-2131
Armor 360Z Armor ARX 840 Armor ARX 6202 Armor Gold Armor Renegade	Cullum Seed P.O. Box 178 Fisher AR 72429 (870) 579-2286	MFA 2525 MFA 2609	MFA Incorporated 201 Ray Young Dr. Columbia, MO 65201 (573) 876-5363
Delta Grow 1600 Delta Grow 4500 Delta Grow 5200	Delta Grow Seed P.O. Box 219 England, AR 72046 (501) 842-2572	Pioneer® Variety 25R56 Pioneer® Variety 25R62 Pioneer® Variety 25R78	Pioneer Hi-Bred International Inc. 7100 NW 62 <sup>nd</sup> P.O. Box 1150 Johnston, IA 50131 (515) 240-9375
Delta King DK 9108 Delta King DK 9577	Cullum Seed P.O. Box 178 Fisher AR 72429 (870) 579-2286	Progeny 117 Progeny 119 Progeny 130 Progeny 136 Progeny 166 Progeny 185	Erwin Keith 1529 Hwy. 193 Wynne, AR 72396 (888) 535-7333
DG404 DG408 DG9922	Dyna-Gro Seed 6221 Riverside Drive, Suite One Dublin, OH 43017 (937) 644-9467	USG 3209	UniSouth Genetics, Inc. 2460-C Nolensville Rd. Nashville, TN 37211 (800) 505-3133

<sup>†</sup> Public winter wheat cultivars and experimental entries.

Table 2. Seed size of entries, seeds per pound and adjusted seeding rates of seed lots used for establishing soft red winter wheat entries during the fall of 2008.

Variety	1,000-	Seeds	Adjusted	Seed treatment	Variety	1,000-	Seeds	Adjusted	Seed treatment
	kernel weight	per pound	seeding rate <sup>†</sup>			kernel weight	per pound	seeding rate <sup>†</sup>	
	-g-	-no/lb-	-lb/acre-			-g-	-no/lb-	-lb/acre-	
AgriPro COKER Beretta	26.2	17313	87	Dividend Extreme	EXCEL 173	37.8	12000	125	Dividend Extreme/Macho
AgriPro COKER Branson	28.5	15916	94	Dividend Extreme	EXCEL 180	36.7	12360	121	Dividend Extreme/Macho
AgriPro COKER B030543	25.4	17858	84	Dividend Extreme	EXCEL 209	29.1	15588	96	Dividend Extreme/Macho
AgriPro COKER Cooper	25.6	17719	85	Dividend Extreme	EXCEL 343	33.2	13663	110	Dividend Extreme/Macho
AgriPro COKER W1377	28.5	15916	94	Dividend Extreme	EXCEL 357	37.4	12128	124	Dividend Extreme/Macho
AGS 2026	38.0	11937	126	Untreated	EXCEL 367	36.1	12565	119	Dividend Extreme/Macho
AGS 2050	35.2	12886	116	Untreated	EXCEL 400-1	34.1	13302	113	Dividend Extreme/Macho
Armor 360Z	32.2	14087	106	Dividend	EXCEL 410 TW	35.0	12960	116	Dividend Extreme/Macho
Armor ARX 840	33.0	13745	109	Dividend	GA 991209-6E33	47.5	9549	157	Untreated
Armor ARX 6202	26.8	16925	89	Dividend	GA 991336-6E9	45.8	9904	151	Untreated
Armor Gold	41.8	10852	138	Dividend	Lewis 835	36.6	12393	121	Gaucha/Raxil XT
Armor Renegade	26.3	17247	87	Dividend	Merl	39.9	11368	132	Untreated
Bess	31.0	14632	103	Raxil XT/ Nitro	MFA 2525	39.4	11513	130	Dividend Extreme
COKER 9553	36.9	12293	122	Dividend Extreme	MFA 2609	35.3	12850	117	Dividend Extreme
Delta Grow 1600	28.2	16085	93	Dividend Extreme	Milton (MO 011126)	37.9	11968	125	Dividend Extreme/Cruiser
Delta Grow 4500	31.8	14264	105	Dividend Extreme	Pioneer @ Variety 25R56	34.1	13302	113	Dividend Extreme/Cruiser
Delta Grow 5200	26.8	16925	89	Dividend Extreme	Pioneer @ Variety 25R62	30.3	14970	100	Dividend Extreme/Cruiser
Delta King DK 9108	36.9	12293	122	Dividend	Pioneer @ Variety 25R78	37.4	12128	124	Dividend Extreme/Cruiser
Delta King DK 9577	30.8	14727	102	Dividend	Progeny 117	36.8	12326	122	Dividend Extreme
Dixie 427	36.0	12600	119	Dividend Extreme	Progeny 119	33.5	13540	111	Dividend Extreme
Dixie 454	36.5	12427	121	Dividend Extreme	Progeny 130	35.7	12706	118	Dividend Extreme
Dixie 907	34.9	12997	115	Dividend Extreme	Progeny 136	31.8	14264	105	Dividend Extreme
Dixie 940	37.3	12161	123	Dividend Extreme	Progeny 166	35.6	12742	118	Dividend Extreme
Dyna-Gro DG404	33.2	13663	110	Dividend Extreme	Progeny 185	36.5	12427	121	Dividend Extreme
Dyna-Gro DG408	33.6	13682	111	Dividend Extreme	Roane	28.7	15805	95	Raxil XT/Cruiser
Dyna-Gro DG9922	33.4	13581	110	Dividend Extreme	Truman	28.8	15750	95	Dividend Extreme/Cruiser
EXCEL 163	35.2	12886	116	Dividend Extreme/Macho	USG 3209	40.1	11312	133	Dividend Extreme/Cruiser
EXCEL 170	35.8	12670	118	Dividend Extreme/Macho	VA 04W-90	37.7	12032	125	Untreated

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

Table 3. Summary of agronomic practices used on wheat performance trials in Missouri during 2008-2009. Fall nitrogen (N), phosphorus (P<sub>2</sub>O<sub>5</sub>), and potassium (K<sub>2</sub>O) were pre-plant applied and incorporated.

Location	Predominant soil type(s)	Previous crop	2008 Planting date	Fertility management					2009 Harvest date
				N			P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
				Fall	Spring	Total			-----lb/acre-----
<b>Northern</b>									
Columbia	Mexico silt loam	soybean	October 6	40	80	120	40	60	June 29
Novelty <sup>†</sup>	Putnam silt loam	soybean	November 2	100	0	100	61	20	July 16
Trenton <sup>†</sup>	Grundy silt loam	soybean	November 3	36	90 (split)	126	30	60	July 9
<b>Southwest</b>									
Lamar	Parsons silt loam	corn	October 29	18	87	105	46	60	June 23
Mt. Vernon	Gerald silt loam	fallow	October 30	40	80	120	-	-	June 24
<b>Southeast</b>									
Charleston <sup>‡</sup>	Sharkey silty clay	corn	October 22	35	100 (split)	135	100	100	June 20
Portageville	Tiptonville silt loam	soybean	October 27	40	80	120	-	-	June 18

<sup>†</sup> Entries were seeded directly into soybean stubble using a no-till plot drill equipped with Acraplant™ no-till openers. At Trenton, a spring application of 2,4,D was made and spring nitrogen was split 40/50 lb/acre.

<sup>‡</sup> Mid-winter application of Karate followed by spring applications of Harmony and 2,4,D. Spring nitrogen was split 50/50 lb/acre.

### **Agronomic Practices:**

Basic agronomic practices are given in Table 3 by location. Nitrogen was applied in split fall/spring applications. Except where indicated, spring nitrogen applications were generally made at or shortly after initial green-up (Feeke's GS 6). Pre-plant 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. Planting dates were generally determined by the fly-free date for the given location. Management practices at Charleston differed from those at other locations as indicated in Table 3.

### **Description of Data Collected**

**Yield:** All rows of each test plot were measured for length and harvested using a Kincaid™ experimental plot combine. Recorded grain yields were adjusted to 13% grain moisture and reported in bushels per acre based on a 60 pound standard bushel weight. In addition to yields obtained in 2009, two-year averages (2008-09), and three-year averages (2007-09) are provided for those entries tested in the Missouri tests for two or three consecutive years, respectively.

**Test Weight and Grain Moisture Content:** Test weight (pounds per bushel) and percentage grain moisture were determined for grain from each plot using a Dickey-john GAC 2100b™ grain analyzer.

**Plant Height:** Plant height was measured in inches from the soil surface to the top of the head, excluding 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 were 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 dates were recorded 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:** Due to persistent rainfall at heading, significant levels of Fusarium head blight, (FHB, or scab), were present throughout the state and were rated at 5 of the 7 locations as the percentage of florets in the canopy expressing symptoms. Ratings were taken approximately 21 days after the mean flowering date for the location, however, at most locations, symptoms progressed for at least another week, thus losses due to scab in susceptible varieties are probably underestimated based on this single score. At the Lamar location (Table 11) ratings were taken at 21 days and again at 28 days post flowering and indicated that disease had progressed by as much as 56% in the most susceptible variety. For the more resistant varieties, disease progression between 21 and 28 days was minimal. Over all varieties at the Lamar location, the mean level of disease increased during this week interval from 2.3% infected florets to 17.5% infected florets. In an effort to provide information on the FHB resistance level of varieties tested, each variety was entered into a separate FHB nursery at Columbia where it was rated for FHB in the greenhouse, and field under conditions of artificial inoculation and over-head misting. In the field FHB nursery, entries were sprayed with a macroconidial suspension of *Fusarium graminearum* and rated for disease incidence (percentage of heads in the plot showing symptoms of FHB), severity (the percentage of spikelets on the inoculated heads showing symptoms) and the Field Scab Index (Index = incidence x severity). Resistance was also rated in the greenhouse under point inoculation to evaluate disease spread within the head. Reported data for severity were determined as the ratio of diseased spikelets on the inoculated head to the total number of spikelets on the inoculated head expressed as a percentage. These data from our inoculated nurseries indicate the potential for loss in a variety under heavy disease pressure in the field environment. Although it is difficult to predict when FHB will impact the crop, selection of a variety that is more resistant rather than highly susceptible can lessen losses in epidemic years.

Low levels of other foliar diseases were present at many locations, but levels were not considered significant enough to reduce yields, except at the Mt. Vernon location where foliar diseases, predominantly Septoria tritici blotch, was rated as percentage of the canopy showing disease symptoms.

### Statistical Analyses and Interpretation

Data collected on all traits measured during the 2008-2009 crop season are presented in Tables 5 through 14. Data presented for individual locations were analyzed using a lattice design. Regional, state-wide, and multi-year data result from analyses based on a randomized complete block design. 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  $P=0.05$ . 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.

Table 14 ranks soft red winter wheats according to their state-wide average grain yield in 2009. 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 resistance should also be taken into consideration. Where disease data are not reported in a particular production environment, the response of a variety to given disease can be determined from a location or locations in which it was rated.

### 2009 Test Conditions

Wet weather in the fall of 2008 resulted in planting into wet seed beds at most locations. Planting was at the optimal time based on the Hessian fly-free date at Portageville, Charleston and Columbia but was later than optimal at both southwestern locations (approximately 10 days late) and at both Novelty and Trenton where it was approximately 1 month late. In order to get Trenton and Novelty planted, both were no-till drilled into a very wet

seed bed. Stands were negatively affected at most locations although the cool wet spring allowed for some recovery in tiller density in many varieties resulting in yields that were higher than originally predicted based on spring stands at green-up. Persistent rainfall during the heading window resulted in Fusarium head blight (FHB) being present in most varieties at all locations. It was least severe (1-2%) at Mt. Vernon as evidenced by the excellent yield and test weights at that location. Susceptible varieties were impacted to a greater degree with significant losses in both yield and test weight. Varieties that had some level of resistance, in general, maintained better test weights and grain yield. Persistent rainfall during the early growing season resulted in foliar diseases including both Septoria leaf blotch and some glume blotch at most locations. These foliar diseases were rated at Mt. Vernon.

Temperatures remained unusually cool during grain fill and moist conditions persisted. Ergot was present in some varieties at both Lamar and Novelty. The number of ergot bodies present in approximately 4,000 kernels was counted and presented for the Lamar location.

A prolonged dry period around harvest permitted near optimal harvest at most locations. In the southeast, southwest and at Columbia, harvest was optimal and consistent with growers in the surrounding fields, while the Trenton and Novelty locations were both delayed by rain. Yield and test weight at these two northern locations was reduced by Fusarium head blight, persistent rainfall, late planting and the late harvest.

## 2009 Test Results

The average state-wide yield of soft red winter wheats tested in the 2009 was 55.3 bu/acre (Table 5), down 5.1 bu/acre from the average grain yield in the 2008 tests (60.4 bu/acre). In 2009, the state-wide yield was 17.3 bushels lower than the record yield (72.6 bu/acre) achieved in the 2003 Missouri Winter Wheat Performance Tests. Average yields across the seven test locations ranged from a low of 34.3 bu/acre at Trenton (Table 8) to a high of 73.1 bu/acre at Charleston (Table 9). Average regional yields ranged from 50.1 bu/acre in the north to 57.5 bu/acre in the southeast, and 60.6 bu/acre in the southwest (Table 13). In the northern region, Fusarium head blight (scab) was significant at all locations. At Trenton and Novelty, planting was delayed due to late soybean harvest and/or an extremely wet seed bed. Temperatures were cold and conditions were wet which reduced stand establishment and affected fall tillering and winter survival in most varieties. Fusarium head blight further reduced yields and test weights. Yields were lowest at these locations. Across the state (Table 5), 'EXCEL 180' was the highest yielding soft red winter wheat variety tested, averaging 64.3 bu/acre while 'EXCEL 400-1' (64.2 bu/acre) and 'Pioneer @ variety 25R56' (57.3 bu/acre) won the two- and three-year averages, respectively. In 2009, 5 varieties including 'MFA 2525', 'EXCEL 170', 'EXCEL 357', 'EXCEL 173', and 'EXCEL 400-1' were not significantly different from the top yielding variety. Top yielding public varieties were 'Bess' (59.4 bu/acre) and 'Milton' (58.2 bu/acre). Over two- and three-years of testing, Milton, the newly released public variety out of the University of Missouri's wheat breeding program was in the top yield group.

State-wide, the average test weight of entries evaluated was 54.7 lb/bu (Table 5), up 1.0 lb/bu from the state-wide average (53.7 lb/bu) recorded in the 2008 Missouri Winter Wheat Performance Tests. Test weights in the northern region at Trenton and Novelty were significantly affected by Fusarium head blight in susceptible varieties and by excessive rainfall throughout the harvest period. Average test weights ranged from a low of 48.2 lb/bu at Trenton (Table 8) to a high of 57.1 lb/bu at Columbia (Table 6). State-wide, 'Roane' had the heaviest test weight (57.4 lb/bu) of the varieties tested (Table 5). Test weights of 'EXCEL 180' (57.2 lb/bu), 'Lewis 835' (57.1 lb/bu), and 'Progeny 130' (56.9 lb/bu) were not significantly different from that of Roane.

**2009 Missouri Winter Wheat Projected Crop Statistics:** Based on the July 1<sup>st</sup> USDA forecast provided by the Missouri Agricultural Statistics Service, Missouri's wheat crop will be harvested from 720,000 acres reflecting a decline of 440,000 acres over the acres harvested in 2008 (Table 4). Total Missouri production is forecast at 36,720 million bushels, down 34% from the 2008 crop, and 3% over the 2007 crop which was seriously damaged by a late April freeze. Average state-wide yield is projected to be 51 bu/acre, up 3 bu/acre over the state-wide yield reported for 2008, and 10 bu/acre from 2007.



Table 4. Projected 2009 acreage, yield, and production of winter wheat in Missouri by reporting district compared with 2008 actual data. Data were provided by the Missouri Agricultural Statistics Service.

District	Acres planted		Acres harvested		Grain yield		Production	
	2008	2009 <sup>†</sup>	2008	2009 <sup>†</sup>	2008	2009 <sup>†</sup>	2008	2009 <sup>†</sup>
	----- 1,000 acres -----		----- 1,000 acres -----		----- bu/acre -----		----- 1,000 acres -----	
Northwest	63	38	58	36	37.0	49	2,153	1,770
North-central	93	50	83	47	43.5	45	3,610	2,130
Northeast	154	95	149	89	50.5	51	7,515	4,540
West-central	153	85	146	80	42.5	45	6,226	3,600
Central	134	85	123	74	45.5	49	5,620	3,640
East-central	97	70	86	66	50.0	48	4,300	3,180
Southwest	122	95	114	83	42.0	51	4,812	4,240
South-central	16	12	10	10	41.5	45	417	450
Southeast	418	270	391	235	54.0	56	21,027	13,170
State	1,250	800	1,160	720	48.0	51	55,680	36,720

<sup>†</sup> Estimates based on the July 1<sup>st</sup> USDA forecast.

### Electronic Accessibility of Data

Results of the 2009 Missouri Winter Wheat Performance Tests are available on the University of Missouri's Agricultural Electronic Bulletin Board (AgEBB) web site. Complete soft red winter wheat variety test results can be found under crop performance testing at <http://agebb.missouri.edu/cropperf/>. Call (573) 882-4827 to contact AgEBB's staff concerning questions or problems related to the electronic accessibility of this data.

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Table 5. Performance of soft red winter wheats tested across Missouri locations during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>‡</sup>	Fusarium head blight <sup>§</sup>	Heading date	
	2009	2008-09	2007-09						Julian	Calendar
	-----bu/acre-----			--lb/bu--	%	in	0-9	% of florets		
AgriPro COKER Beretta	50.3	55.3	53.1	52.0	54	33	1.6	5	127	May 07
AgriPro COKER Branson	55.0	57.9	<b>54.3*</b>	53.7	55	33	1.9	11	124	May 04
AgriPro COKER B030543	55.7			56.7	57	33	1.9	6	126	May 06
AgriPro COKER Cooper	49.1	57.0	52.1	54.3	60	36	0.8	11	124	May 04
AgriPro COKER W1377	54.3	57.0	<b>55.3*</b>	56.4	56	35	1.9	4	126	May 06
AGS 2026	43.5	47.4		52.1	57	31	1.2	22	124	May 04
AGS 2050	50.2	56.0	50.1	55.4	59	33	2.1	6	124	May 04
Armor 360Z	50.9			52.9	60	35	1.1	12	126	May 06
Armor ARX 840	51.4			50.6	64	34	1.3	16	124	May 04
Armor ARX 6202	47.8			55.7	58	35	0.8	5	128	May 08
Armor Gold	46.3			54.0	64	35	0.9	11	124	May 04
Armor Renegade	56.5			55.2	56	35	0.8	6	125	May 05
Bess	59.4	<b>59.9*</b>	52.7	55.6	63	35	2.4	3	126	May 06
COKER 9553	51.7	55.3	49.1	54.9	58	34	2.0	13	124	May 04
Delta Grow 1600	56.1	57.7	51.4	54.3	56	36	2.2	4	126	May 06
Delta Grow 4500	54.1			54.5	59	37	2.3	6	126	May 06
Delta Grow 5200	52.5	56.4	50.7	54.7	53	36	2.0	4	127	May 07
Delta King DK 9108	46.9			53.3	57	36	2.0	9	125	May 05
Delta King DK 9577	46.3	53.4	47.4	54.0	56	34	1.1	13	125	May 05
Dixie 427	49.8			51.7	64	33	2.4	17	125	May 05
Dixie 454	58.3	<b>59.9*</b>		56.7	57	34	1.3	4	125	May 05
Dixie 907	55.5			54.4	61	36	2.3	3	126	May 06
Dixie 940	54.8	54.6		53.6	55	36	2.0	8	125	May 05
Dyna-Gro DG404	55.7			53.5	58	36	2.0	8	125	May 05
Dyna-Gro DG408	57.6			54.9	64	36	2.5	5	126	May 06
Dyna-Gro DG9922	57.6			54.8	59	35	0.9	7	125	May 05
EXCEL 163	55.4			56.6	61	33	3.1	4	122	May 02
EXCEL 170	<b>63.3*</b>			56.3	63	34	1.9	3	124	May 04
EXCEL 173	<b>62.1*</b>	<b>63.6*</b>	<b>54.9*</b>	55.8	65	36	3.2	5	124	May 04
EXCEL 180	<b>64.3**</b>			<b>57.2*</b>	64	34	3.7	2	123	May 03
EXCEL 209	55.6			54.3	60	34	2.9	4	124	May 04

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EXCEL 343	61.1			54.1	58	34	1.7	2	126	May 06
EXCEL 357	<b>62.9*</b>	<b>63.0*</b>		56.5	68	36	1.3	3	126	May 06
EXCEL 367	57.9			55.7	61	35	1.4	4	127	May 07
EXCEL 400-1	<b>61.4*</b>	<b>64.2**</b>	<b>55.1*</b>	54.9	61	37	2.3	5	126	May 06
EXCEL 410 TW	59.9	<b>62.9*</b>	<b>57.0*</b>	55.0	65	36	2.5	4	126	May 06
GA 991209-6E33	54.7			54.9	63	35	1.4	15	122	May 02
GA 991336-6E9	50.3			53.2	61	34	1.2	16	124	May 04
Lewis 835	57.8			<b>57.1*</b>	60	34	3.4	3	124	May 04
Merl	47.5			55.0	57	33	0.8	18	125	May 05
MFA 2525	<b>63.4*</b>			55.6	59	38	2.4	4	127	May 07
MFA 2609	60.6	<b>63.6*</b>		54.6	57	37	2.2	3	126	May 06
Milton (MO 011126)	58.2	<b>61.1*</b>	<b>55.7*</b>	55.7	60	35	1.5	8	126	May 06
Pioneer ® Variety 25R56	57.0	59.1	<b>57.3**</b>	52.9	59	33	1.3	4	125	May 05
Pioneer ® Variety 25R62	58.1	<b>62.5*</b>		51.8	57	33	1.2	3	125	May 05
Pioneer ® Variety 25R78	61.1			55.1	58	34	1.0	12	124	May 04
Progeny 117	60.8			55.9	63	35	2.9	5	124	May 04
Progeny 119	57.3			56.1	66	35	1.0	3	126	May 06
Progeny 130	57.6			<b>56.9*</b>	60	35	3.6	3	124	May 04
Progeny 136	51.4			50.5	61	35	1.4	14	124	May 04
Progeny 166	53.5	56.8	50.1	54.7	59	36	2.2	6	125	May 05
Progeny 185	55.3	59.8	<b>53.8*</b>	54.3	57	34	1.6	6	124	May 04
Roane	54.3	56.8	52.6	<b>57.4**</b>	56	32	1.6	2	126	May 06
Truman	54.6	55.9	53.1	55.9	60	38	1.4	0	132	May 12
USG 3209	53.6	57.0	47.2	53.9	57	32	2.3	8	125	May 05
VA 04W-90	55.8			55.4	62	34	1.2	5	125	May 05
Average	55.3	58.2	52.6	54.7	59.6	34.7	1.8	7.1	125.2	May 05
LSD (0.05)	3.1	4.3	4.1	0.6	4.0	0.9	0.3	2.0	0.6	
CV%	10.6	9.9	12.9	2.0	12.9	4.9	34.9	45.3	0.6	
Locations	7	14	21	7	7	7	7	5	3	

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Yields are based on a 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 are completely flat.

§ Fusarium head blight (FHB; scab) rated as percentage of the florets in the plots showing visible symptoms of disease. Data were taken at approximately 21 days post flowering of the average flowering date for the location. Symptoms progressed following this rating and resulted in more losses in some varieties than indicated by these data.

Table 6. Performance of soft red winter wheats tested near Columbia, Missouri during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>‡</sup>	Fusarium head blight <sup>§</sup>			Heading date	
	2009	2008-09	2007-09					Natural	Severity	Index	Julian	Calendar
	-----bu/acre-----			--lb/bu--	%	in	0-9	%	%	%		
AgriPro COKER Beretta	64.5	62.9	56.8	55.1	69	40	2.6	3	31	44	134	May 14
AgriPro COKER Branson	71.0	66.3	61.2	55.2	74	38	2.6	7	47	17	129	May 09
AgriPro COKER B030543	<b>76.1*</b>			58.2	82	38	4.6	3	65	45	134	May 14
AgriPro COKER Cooper	54.1	55.1	49.2	56.0	65	39	0.7	11	29	17	133	May 13
AgriPro COKER W1377	61.9	55.2	52.8	<b>58.9*</b>	76	39	3.0	6	32	24	133	May 13
AGS 2026	56.0	55.5		54.8	82	35	3.5	7	58	79	129	May 09
AGS 2050	66.0	59.9	49.9	57.7	79	38	3.4	5	45	26	131	May 11
Armor 360Z	<b>76.8*</b>			56.2	81	40	3.3	11	34	69	133	May 13
Armor ARX 840	68.6			53.4	81	38	2.0	12	28	57	131	May 11
Armor ARX 6202	67.9			58.3	75	39	2.0	7	61	62	135	May 15
Armor Gold	65.2			56.9	84	41	2.2	6	64	80	132	May 12
Armor Renegade	63.2			56.6	76	41	0.8	6	38	92	131	May 11
Bess	<b>72.9*</b>	62.9	55.3	57.6	80	36	3.8	2	21	28	133	May 13
COKER 9553	71.9	62.1	53.6	58.0	79	40	3.1	7	65	41	131	May 11
Delta Grow 1600	70.8	67.5	54.8	57.2	77	43	2.1	2	25	43	133	May 13
Delta Grow 4500	64.2			56.6	82	42	3.3	4	37	37	133	May 13
Delta Grow 5200	71.6	62.3	54.9	57.1	66	41	2.8	4	15	56	134	May 14
Delta King DK 9108	52.7			55.8	69	40	2.7	7	43	37	133	May 13
Delta King DK 9577	70.0	67.9	54.2	57.0	74	38	2.9	8	44	78	133	May 13
Dixie 427	59.2			54.4	84	37	5.0	9	41	88	133	May 13
Dixie 454	65.7	63.5		58.4	66	38	2.6	4	50	43	132	May 12
Dixie 907	66.2			56.3	76	42	3.7	2	38	39	134	May 14
Dixie 940	70.9	46.5		56.1	77	41	2.6	3	31	27	131	May 11
Dyna-Gro DG404	70.0			55.6	77	40	2.6	2	42	46	131	May 11
Dyna-Gro DG408	72.3			57.2	84	40	3.5	2	41	53	133	May 13
Dyna-Gro DG9922	63.9			56.7	66	39	1.5	5	28	27	132	May 12
EXCEL 163	58.4			<b>58.9*</b>	85	37	4.7	3	31	44	128	May 08
EXCEL 170	<b>78.3*</b>			58.7	73	38	3.5	2	15	50	129	May 09
EXCEL 173	71.1	70.2	58.9	58.2	83	40	5.1	2	45	66	131	May 11
EXCEL 180	70.5			<b>59.9**</b>	85	38	5.2	3	26	12	129	May 09
EXCEL 209	71.6			57.2	81	40	4.9	0	38	9	130	May 10

EXCEL 343	<b>76.9*</b>			57.2	75	39	1.6	4	32	8	134	May 14
EXCEL 357	<b>80.0*</b>	68.2		58.4	87	41	2.6	3	25	8	134	May 14
EXCEL 367	<b>77.3*</b>			57.4	79	38	2.9	5	19	12	134	May 14
EXCEL 400-1	<b>78.2*</b>	72.2	57.6	57.6	81	40	4.8	4	48	71	133	May 13
EXCEL 410 TW	<b>80.1*</b>	69.8	61.1	58.3	88	39	4.4	3	46	75	133	May 13
GA 991209-6E33	68.9			57.5	81	39	2.6	12	62	79	129	May 09
GA 991336-6E9	68.3			56.2	75	37	2.9	12	52	35	132	May 12
Lewis 835	68.8			<b>59.6*</b>	81	37	5.5	2	21	47	130	May 10
Merl	58.3			58.0	76	38	0.9	6	38	78	132	May 12
MFA 2525	<b>77.4*</b>			56.0	82	41	4.4	6	31	9	134	May 14
MFA 2609	<b>80.2**</b>	72.0		57.5	78	41	2.9	2	52	7	133	May 13
Milton (MO 011126)	71.7	66.8	58.6	57.5	72	39	2.0	7	39	40	135	May 15
Pioneer ® Variety 25R56	<b>77.1*</b>	65.7	63.0	56.4	71	39	1.7	3	23	66	132	May 12
Pioneer ® Variety 25R62	<b>76.0*</b>	70.8		53.8	69	37	2.5	2	16	74	133	May 13
Pioneer ® Variety 25R78	<b>74.6*</b>			57.2	69	40	1.1	7	37	77	131	May 11
Progeny 117	68.0			57.7	80	40	5.0	4	27	51	131	May 11
Progeny 119	67.0			57.9	77	39	0.8	3	16	48	134	May 14
Progeny 130	63.7			58.7	78	39	5.2	2	27	24	129	May 09
Progeny 136	67.1			53.8	80	40	3.1	9	48	82	131	May 11
Progeny 166	65.1	61.0	50.9	56.6	82	38	2.7	4	37	28	131	May 11
Progeny 185	71.8	66.7	57.4	56.7	73	39	2.2	4	58	73	132	May 12
Roane	<b>73.0*</b>	61.4	54.1	<b>59.2*</b>	71	36	3.8	2	17	30	133	May 13
Truman	65.3	58.9	55.8	56.9	80	40	3.2	0	9	7	137	May 17
USG 3209	<b>75.2*</b>	67.2	53.2	58.2	74	36	5.2	5	44	76	132	May 12
VA 04W-90	65.4			57.7	80	38	1.5	2	26	64	134	May 14
Average	69.3	63.8	55.7	57.1	77.2	39.0	3.1	4.8	37	46	132.1	May 12
LSD (0.05)	7.5	NS <sup>††</sup>	NS <sup>††</sup>	1.1	10.8	2.8	1.1	3.4	-	-	1.0	
CV%	8.0	10.9	13.1	1.3	10.7	5.5	28.4	53.6	-	-	1.0	

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Yields are based on a 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 are completely flat.

§ Fusarium head blight ratings from natural infection (% florets in the plot); greenhouse inoculated infection (severity=percentage of the head expressing symptoms); and field inoculated infection (scab index = incidence x severity; where incidence=number of heads in the plot expressing symptoms and severity= percentage of the head expressing symptoms). Data on severity and index for a given variety reflect potential losses had disease pressure been higher. Although no complete resistance is known, more resistant varieties have lower values for both of these traits.

¶ Means were not significantly different at  $P=0.05$ .

Table 7. Performance of soft red winter wheats tested at Novelty, Missouri during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>‡</sup>	Ergot <sup>§</sup>
	2009	2008-09	2007-09					
	-----bu/acre-----			--lb/bu--	%	in	0-9	No. / 4000 kernels
AgriPro COKER Beretta	46.4	49.5	59.5	51.0	18	30	1.3	0
AgriPro COKER Branson	50.4	47.1	56.5	52.1	11	31	0.5	0
AgriPro COKER B030543	45.1			<b>56.2**</b>	14	32	0.5	2
AgriPro COKER Cooper	38.2	46.1	57.8	51.9	10	34	0.0	0
AgriPro COKER W1377	48.3	49.4	60.3	54.1	14	34	1.0	0
AGS 2026	37.5	29.4		50.1	13	32	0.0	1
AGS 2050	45.7	50.4	57.1	53.4	16	33	1.3	0
Armor 360Z	37.1			53.4	25	33	0.0	7
Armor ARX 840	41.6			46.8	16	33	0.0	0
Armor ARX 6202	32.2			<b>56.0*</b>	20	34	0.0	16
Armor Gold	40.6			51.2	23	33	0.0	0
Armor Renegade	50.1			<b>54.4*</b>	14	34	0.0	1
Bess	46.0	45.0	52.0	53.2	20	33	1.0	0
COKER 9553	42.2	45.9	51.5	52.3	17	31	0.8	0
Delta Grow 1600	43.6	47.4	55.6	52.3	13	35	1.3	3
Delta Grow 4500	47.6			53.7	10	36	1.3	1
Delta Grow 5200	44.0	47.8	54.2	<b>54.9*</b>	13	34	1.0	4
Delta King DK 9108	37.8			51.1	11	34	1.0	0
Delta King DK 9577	26.0	36.2	47.9	54.0	16	33	0.0	23
Dixie 427	49.7			50.6	23	32	0.8	0
Dixie 454	<b>53.3*</b>	50.8		<b>55.4*</b>	14	33	0.0	2
Dixie 907	46.9			<b>54.5*</b>	10	34	1.3	6
Dixie 940	52.2	50.8		52.1	23	34	0.8	0
Dyna-Gro DG404	45.1			52.1	14	34	0.5	1
Dyna-Gro DG408	49.8			<b>55.0*</b>	19	35	1.8	2
Dyna-Gro DG9922	51.8			53.7	14	33	0.0	0
EXCEL 163	51.6			<b>54.6*</b>	25	32	1.8	0
EXCEL 170	<b>53.1*</b>			<b>54.9*</b>	23	33	0.3	1
EXCEL 173	<b>54.4*</b>	54.7	57.5	53.7	21	34	2.8	1
EXCEL 180	<b>55.6*</b>			<b>55.6*</b>	22	34	3.0	0
EXCEL 209	39.8			52.3	15	32	1.8	1

EXCEL 343	51.2			52.5	18	33	0.8	2
EXCEL 357	<b>52.7*</b>	52.2		<b>55.3*</b>	25	34	0.3	0
EXCEL 367	49.7			<b>54.9*</b>	24	34	1.0	1
EXCEL 400-1	49.4	52.0	57.1	53.8	15	34	1.0	1
EXCEL 410 TW	45.5	49.5	57.6	<b>55.1*</b>	17	34	1.0	3
GA 991209-6E33	51.6			51.6	19	35	0.0	0
GA 991336-6E9	46.0			52.4	20	34	0.3	1
Lewis 835	51.0			<b>55.2*</b>	18	33	2.3	0
Merl	49.0			<b>54.4*</b>	16	32	0.0	0
MFA 2525	<b>60.6**</b>			<b>55.0*</b>	16	36	0.8	0
MFA 2609	<b>53.9*</b>	54.2		53.7	15	35	1.5	5
Milton (MO 011126)	<b>56.0*</b>	50.3	57.6	53.1	17	33	1.3	0
Pioneer ® Variety 25R56	50.5	46.9	61.1	50.7	15	33	0.8	0
Pioneer ® Variety 25R62	35.1	45.8		47.6	7	32	0.0	0
Pioneer ® Variety 25R78	<b>54.9*</b>			52.9	18	32	0.3	0
Progeny 117	50.5			53.3	22	33	2.0	2
Progeny 119	47.4			<b>55.0*</b>	24	33	0.5	1
Progeny 130	49.7			<b>55.4*</b>	20	33	2.8	0
Progeny 136	41.5			48.2	14	32	0.0	0
Progeny 166	41.6	46.2	54.7	54.2	11	34	1.0	0
Progeny 185	49.0	53.3	59.5	<b>54.3*</b>	12	34	0.8	1
Roane	46.2	45.1	53.1	<b>56.1*</b>	13	31	0.3	2
Truman	45.6	46.7	53.6	52.7	24	36	1.0	0
USG 3209	47.8	44.5	44.5	53.2	20	31	0.8	0
VA 04W-90	42.6			53.7	12	32	1.0	0
Average	46.8	47.6	55.4	53.2	16.9	33.3	0.8	1.6
LSD (0.05)	8.0	NS <sup>††</sup>	NS <sup>††</sup>	1.9	8.8	1.7	0.6	4.8
CV%	12.9	13.5	12.4	2.7	37.2	3.8	55.6	213.4

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Yields are based on a 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 are completely flat.

§ Because of persistent cool, wet weather significant levels of ergot were detected in the harvested grain. Presence of ergot was assessed as the number of ergot bodies in a 4,000 kernel sample from each plot. Analysis indicated differences among varieties were significant.

¶ Means were not significantly different at  $P=0.05$ .

Table 8. Performance of soft red winter wheats tested at Trenton, Missouri during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>‡</sup>	Fusarium head blight natural infection <sup>§</sup>
	2009	2008-09	2007-09					
	-----bu/acre-----			--lb/bu--	%	in	0-9	% florets
AgriPro COKER Beretta	28.3	46.6	44.0	44.8	44	26	1.1	1
AgriPro COKER Branson	33.5	51.8	41.2	47.3	46	27	0.8	4
AgriPro COKER B030543	38.6			<b>51.9*</b>	39	27	0.8	1
AgriPro COKER Cooper	23.7	47.9	39.2	47.8	50	30	0.7	4
AgriPro COKER W1377	<b>39.2*</b>	53.3	50.4	48.6	41	29	1.7	2
AGS 2026	25.0	38.7		46.5	43	23	0.3	8
AGS 2050	18.2	44.5	37.9	47.0	36	25	1.1	1
Armor 360Z	28.2			45.5	46	28	0.9	7
Armor ARX 840	19.5			43.9	54	27	0.3	4
Armor ARX 6202	34.8			47.9	51	28	0.2	1
Armor Gold	24.0			46.4	45	28	0.3	4
Armor Renegade	34.4			49.3	48	29	1.5	3
Bess	35.2	53.7	38.9	48.7	45	30	1.3	1
COKER 9553	25.6	45.5	31.9	47.5	44	26	0.3	8
Delta Grow 1600	<b>48.3*</b>	53.9	47.8	48.9	40	32	1.9	2
Delta Grow 4500	<b>39.7*</b>			48.3	38	30	2.4	1
Delta Grow 5200	30.6	51.1	37.1	<b>50.0*</b>	51	29	1.8	2
Delta King DK 9108	27.2			47.0	39	31	2.0	2
Delta King DK 9577	25.1	37.6	33.7	45.9	49	28	0.3	9
Dixie 427	29.3			44.4	54	27	1.6	5
Dixie 454	32.9	52.3		<b>49.8*</b>	39	27	1.0	2
Dixie 907	32.1			47.6	45	29	1.8	1
Dixie 940	31.7	49.6		48.7	48	28	1.1	3
Dyna-Gro DG404	39.0			48.0	48	30	1.1	3
Dyna-Gro DG408	<b>45.2*</b>			49.4	44	31	1.6	2
Dyna-Gro DG9922	<b>42.4*</b>			49.7	54	31	0.6	4
EXCEL 163	<b>42.2*</b>			48.5	48	27	1.9	2
EXCEL 170	<b>41.4*</b>			<b>50.1*</b>	55	28	1.1	1
EXCEL 173	<b>43.3*</b>	57.4	42.4	48.5	58	29	1.9	1
EXCEL 180	<b>46.3*</b>			<b>50.6*</b>	55	27	2.8	1
EXCEL 209	32.4			45.7	51	26	2.2	3



EXCEL 343	36.2			47.9	42	29	0.6	0
EXCEL 357	35.6	53.8		<b>51.0*</b>	48	30	1.8	3
EXCEL 367	36.7			49.2	43	28	0.8	1
EXCEL 400-1	<b>43.4*</b>	59.9	45.7	49.3	45	30	1.3	1
EXCEL 410 TW	<b>39.9*</b>	58.5	46.5	49.6	50	28	1.7	2
GA 991209-6E33	35.3			49.1	48	29	0.5	9
GA 991336-6E9	30.1			48.7	55	29	0.3	11
Lewis 835	37.4			<b>50.9*</b>	57	27	2.1	1
Merl	25.1			47.9	37	27	0.0	8
MFA 2525	<b>45.4*</b>			<b>52.0**</b>	49	34	2.3	3
MFA 2609	38.3	54.1		48.6	35	30	1.2	1
Milton (MO 011126)	23.9	47.3	41.9	49.1	31	28	0.4	4
Pioneer ® Variety 25R56	28.3	48.7	47.7	45.7	46	27	0.5	1
Pioneer ® Variety 25R62	28.3	49.3		44.9	48	27	0.3	1
Pioneer ® Variety 25R78	36.0			49.1	57	26	0.5	7
Progeny 117	<b>49.7**</b>			<b>51.1*</b>	61	29	2.2	1
Progeny 119	35.3			<b>49.9*</b>	59	28	0.9	1
Progeny 130	<b>40.9*</b>			<b>51.4*</b>	46	29	2.8	1
Progeny 136	23.8			42.6	47	27	0.7	4
Progeny 166	<b>41.3*</b>	55.2	38.8	48.6	50	29	1.9	2
Progeny 185	35.2	50.4	40.7	46.5	40	26	0.6	2
Roane	<b>43.9*</b>	55.6	48.5	<b>52.0*</b>	48	25	0.7	1
Truman	23.6	48.0	39.6	48.3	44	32	0.7	0
USG 3209	<b>44.5*</b>	56.5	37.7	47.8	43	28	0.6	2
VA 04W-90	27.8			45.9	42	26	0.2	1
Average	34.3	50.8	41.6	48.2	46.7	28.2	1.1	2.9
LSD (0.05)	10.5	NS <sup>†</sup>	NS <sup>†</sup>	2.2	NS	2.6	0.8	3.0
CV%	23.1	12.9	24.7	3.5	27	7	53.5	75.3

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Yields are based on a 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 are completely flat.

§ Fusarium head blight (FHB; scab) rated as percentage of the florets in the plots showing visible symptoms of disease. Data were taken at approximately 21 days post flowering of the average flowering date for the location. Symptoms progressed following this rating and resulted in more losses in some varieties than indicated by these data.

¶ Means were not significantly different at  $P=0.05$ .

Table 9. Performance of soft red winter wheats tested at Charleston<sup>†</sup>, Missouri during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>§</sup>	Fusarium head blight natural infection <sup>¶</sup>	Heading Date	
	2009	2008-09	2007-09						Julian	Calendar
	-----bu/acre-----			--lb/bu--	%	in	0-9	% of florets		
AgriPro COKER Beretta	68.8	<b>77.3*</b>	<b>75.9*</b>	53.3	76	33	2.1	2	124	May 04
AgriPro COKER Branson	73.0	<b>79.9*</b>	<b>80.1*</b>	55.5	80	33	2.2	7	122	May 02
AgriPro COKER B030543	74.0			57.1	80	35	2.2	3	123	May 03
AgriPro COKER Cooper	73.8	<b>79.8*</b>	<b>76.2*</b>	56.4	92	40	1.3	8	120	April 30
AgriPro COKER W1377	76.1	<b>80.4*</b>	<b>76.9*</b>	57.5	81	36	2.9	2	125	May 05
AGS 2026	61.3	66.6		53.1	79	34	0.8	22	121	May 01
AGS 2050	73.5	<b>80.4*</b>	<b>75.6*</b>	57.6	82	34	2.6	3	121	May 01
Armor 360Z	73.6			52.7	76	36	0.9	8	123	May 03
Armor ARX 840	76.2			54.3	84	36	1.8	13	122	May 02
Armor ARX 6202	72.8			55.1	77	35	0.9	2	126	May 06
Armor Gold	54.9			55.0	83	35	0.4	13	122	May 02
Armor Renegade	73.1			55.0	77	37	0.4	6	123	May 03
Bess	72.9	75.8	70.8	57.0	82	36	2.6	1	124	May 04
COKER 9553	59.1	68.0	66.2	57.1	83	34	2.6	17	121	May 01
Delta Grow 1600	72.0	76.1	69.9	55.3	82	37	3.5	2	123	May 03
Delta Grow 4500	73.3			55.9	85	38	2.7	5	123	May 03
Delta Grow 5200	68.7	74.2	<b>73.3*</b>	54.9	74	35	3.2	4	124	May 04
Delta King DK 9108	68.5			55.6	80	39	1.8	7	122	May 02
Delta King DK 9577	65.1	73.4	70.4	54.1	74	35	0.9	9	123	May 03
Dixie 427	66.0			51.2	86	36	2.7	22	123	May 03
Dixie 454	81.1	<b>84.9*</b>		<b>58.1*</b>	81	38	1.5	3	122	May 02
Dixie 907	75.3			55.9	82	37	3.2	4	123	May 03
Dixie 940	73.0	<b>77.9*</b>		54.4	72	37	2.7	8	122	May 02
Dyna-Gro DG404	72.6			55.4	80	39	2.8	6	122	May 02
Dyna-Gro DG408	72.2			55.0	84	37	3.4	4	123	May 03
Dyna-Gro DG9922	72.0			53.7	79	37	0.4	9	122	May 03
EXCEL 163	67.1			<b>58.1*</b>	77	34	2.9	5	120	April 30
EXCEL 170	<b>85.3*</b>			57.5	86	37	1.7	1	122	May 02
EXCEL 173	78.7	<b>80.3*</b>	<b>77.2*</b>	<b>58.0*</b>	84	37	4.0	2	120	April 30
EXCEL 180	81.4			<b>59.3**</b>	85	37	4.2	1	121	May 01

EXCEL 209	74.4			56.6	81	35	3.3	2	121	May 01
EXCEL 343	76.4			54.6	81	35	3.4	2	123	May 03
EXCEL 357	<b>83.6*</b>	<b>84.9*</b>		57.8	89	38	0.9	1	122	May 02
EXCEL 367	76.6			56.5	85	36	1.3	2	124	May 04
EXCEL 400-1	80.2	<b>82.0*</b>	<b>75.6*</b>	56.3	82	39	2.5	4	123	May 03
EXCEL 410 TW	70.5	<b>78.7*</b>	<b>77.3*</b>	54.6	81	37	3.5	3	123	May 03
GA 991209-6E33	68.4			56.2	87	36	2.2	17	120	April 30
GA 991336-6E9	52.0			51.2	79	36	0.8	15	122	May 02
Lewis 835	78.4			<b>59.0*</b>	78	34	4.5	1	121	May 01
Merl	59.9			56.2	83	33	0.0	17	122	May 02
MFA 2525	79.3			54.3	80	40	2.6	1	125	May 05
MFA 2609	78.7	<b>80.9*</b>		55.6	80	38	3.0	3	123	May 03
Milton (MO 011126)	77.9	<b>81.4*</b>	<b>73.6*</b>	56.8	91	37	1.5	6	123	May 03
Pioneer ® Variety 25R56	75.9	<b>80.4*</b>	<b>80.0*</b>	52.8	83	34	1.9	3	123	May 03
Pioneer ® Variety 25R62	<b>83.0*</b>	<b>85.2**</b>		52.4	86	35	1.4	3	122	May 02
Pioneer ® Variety 25R78	76.7			55.3	81	35	1.1	14	122	May 02
Progeny 117	<b>83.0*</b>			57.1	80	37	3.6	1	121	May 01
Progeny 119	<b>88.4**</b>			57.4	89	38	0.8	1	123	May 03
Progeny 130	76.8			<b>58.6*</b>	84	37	4.1	1	121	May 01
Progeny 136	74.5			52.2	78	37	1.4	11	122	May 02
Progeny 166	69.7	75.1	70.8	55.6	86	38	3.5	5	123	May 03
Progeny 185	67.9	<b>78.5*</b>	<b>77.9*</b>	56.8	81	35	2.2	4	122	May 02
Roane	62.3	71.7	68.9	57.6	74	34	3.1	1	124	May 04
Truman	81.3	<b>80.7*</b>	<b>80.7**</b>	<b>59.1*</b>	81	41	0.5	0	130	May 10
USG 3209	59.7	70.2	70.8	52.1	77	34	2.3	13	123	May 03
VA 04W-90	<b>82.8*</b>			<b>58.2*</b>	88	35	1.8	2	121	May 01
Average	73.1	77.9	74.4	55.7	81.6	36.2	2.2	6	122.5	May 02
LSD (0.05)	6.3	8.8	8.6	1.4	6.2	1.8	0.8	3	1.0	
CV%	6.4	5.5	7.0	1.8	5.9	3.8	27.0	36.4	0.6	

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Management practices included: Midwinter treatment with Karate followed by Harmony and 2,4,D in the spring

‡ Yields are based on a 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 are completely flat.

¶ Fusarium head blight (FHB; scab) rated as percentage of the florets in the plots showing visible symptoms of disease. Data were taken at approximately 21 days post flowering of the average flowering date for the location. Symptoms progressed following this rating and resulted in more losses in some varieties than indicated by these data.

Table 10. Performance of soft red winter wheats tested at Portageville, Missouri during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>‡</sup>	Fusarium head blight natural infection <sup>§</sup>	Heading date	
	2009	2008-09	2007-09						Julian	Calendar
	-----bu/acre-----			--lb/bu--	%	in	0-9	% of florets		
AgriPro COKER Beretta	34.4	49.6	50.2	50.2	48	32	1.9	3	122	May 02
AgriPro COKER Branson	36.0	50.8	48.7	52.2	53	30	3.1	3	121	May 01
AgriPro COKER B030543	41.8			<b>55.9*</b>	56	31	2.6	3	122	May 02
AgriPro COKER Cooper	<b>49.2*</b>	<b>65.8**</b>	<b>59.6*</b>	54.5	63	34	1.3	9	120	April 30
AgriPro COKER W1377	41.0	53.0	<b>53.3*</b>	<b>55.8*</b>	57	31	2.0	4	122	May 02
AGS 2026	35.3	52.9		52.6	42	30	1.3	6	121	May 01
AGS 2050	39.7	52.0	48.7	53.6	48	32	2.4	2	120	April 30
Armor 360Z	37.8			53.3	51	32	1.8	5	121	May 01
Armor ARX 840	41.6			49.6	61	32	2.5	15	120	April 30
Armor ARX 6202	33.3			55.0	47	32	1.6	6	123	May 03
Armor Gold	38.9			54.3	60	33	2.4	5	120	April 30
Armor Renegade	39.8			<b>55.3*</b>	45	33	1.4	5	121	May 01
Bess	44.0	55.9	<b>52.1*</b>	54.5	66	32	2.7	1	122	May 02
COKER 9553	42.7	57.7	<b>53.2*</b>	<b>56.0*</b>	49	31	2.3	7	119	April 29
Delta Grow 1600	41.7	52.7	51.3	52.7	55	31	2.3	4	122	May 02
Delta Grow 4500	39.3			52.3	49	33	2.3	5	121	May 01
Delta Grow 5200	32.6	49.8	46.6	51.5	43	35	2.0	4	122	May 02
Delta King DK 9108	39.2			52.7	59	33	2.7	5	121	May 01
Delta King DK 9577	39.7	53.2	47.4	53.7	43	33	2.0	6	120	April 30
Dixie 427	43.7			52.3	56	33	2.2	9	120	April 30
Dixie 454	<b>50.3*</b>	<b>58.4*</b>		<b>56.4*</b>	47	32	1.7	1	122	May 02
Dixie 907	38.2			52.7	58	33	2.0	3	122	May 02
Dixie 940	35.6	50.1		52.1	44	33	2.8	7	121	May 01
Dyna-Gro DG404	41.3			52.5	53	34	2.4	6	121	May 01
Dyna-Gro DG408	39.2			52.6	62	33	2.7	6	122	May 02
Dyna-Gro DG9922	43.7			54.7	54	32	2.0	4	121	May 01
EXCEL 163	38.8			<b>56.3*</b>	48	31	3.3	2	118	April 28
EXCEL 170	47.9			54.5	49	31	2.0	2	121	May 01
EXCEL 173	47.7	<b>60.2*</b>	<b>53.7*</b>	<b>56.1*</b>	52	32	2.8	2	120	April 30
EXCEL 180	42.7			<b>56.0*</b>	54	31	4.0	2	120	April 30

EXCEL 209	42.4			54.5	51	32	2.0	2	120	April 30
EXCEL 343	40.6			51.3	45	31	1.8	2	122	May 02
EXCEL 357	<b>50.7*</b>	<b>61.3*</b>		<b>56.1*</b>	65	32	1.3	2	122	May 02
EXCEL 367	44.8			<b>55.2*</b>	51	33	1.6	3	122	May 02
EXCEL 400-1	40.5	54.0	50.2	53.0	53	33	1.7	6	121	May 01
EXCEL 410 TW	47.5	56.9	<b>55.7*</b>	51.9	66	33	2.5	6	121	May 01
GA 991209-6E33	43.6			<b>56.3*</b>	67	32	2.0	9	118	April 28
GA 991336-6E9	44.5			<b>55.7*</b>	65	33	2.0	9	118	April 28
Lewis 835	38.7			<b>56.3*</b>	50	33	2.8	2	122	May 02
Merl	33.5			<b>55.7*</b>	49	30	4.0	4	121	May 01
MFA 2525	<b>50.6*</b>			54.0	54	35	2.2	5	122	May 02
MFA 2609	43.1	<b>58.4*</b>		51.9	50	34	2.1	4	122	May 02
Milton (MO 011126)	<b>56.3**</b>	<b>65.3*</b>	<b>60.6**</b>	<b>55.1*</b>	67	34	1.7	4	120	April 30
Pioneer ® Variety 25R56	43.4	57.7	<b>55.0*</b>	51.6	62	33	2.0	4	121	May 01
Pioneer ® Variety 25R62	48.7	<b>63.9*</b>		51.2	50	31	2.0	2	120	April 30
Pioneer ® Variety 25R78	47.2			<b>55.3*</b>	53	30	1.7	5	120	April 30
Progeny 117	48.8			<b>55.9*</b>	55	32	2.2	1	120	April 30
Progeny 119	47.7			54.9	65	33	2.3	2	122	May 02
Progeny 130	44.6			<b>56.5**</b>	51	32	3.9	1	121	May 01
Progeny 136	37.7			50.4	60	32	2.0	10	120	April 30
Progeny 166	41.1	52.9	48.4	54.4	59	34	2.3	6	122	May 02
Progeny 185	40.9	54.6	50.3	53.4	57	32	2.3	3	120	April 30
Roane	30.6	45.6	48.1	<b>56.5*</b>	48	32	1.2	3	122	May 02
Truman	45.6	52.5	51.8	54.7	50	34	2.1	0	128	May 08
USG 3209	34.3	48.0	40.0	52.3	54	28	3.3	4	121	May 01
VA 04W-90	47.0			<b>56.0*</b>	54	31	1.5	2	121	May 01
Average	42.0	55.1	51.2	54.0	54	32.3	2.2	4.3	121.0	May 01
LSD (0.05)	7.2	8.0	8.7	1.4	9.8	NS <sup>¶</sup>	1.3	2.2	1.1	
CV%	13.2	7.0	10.3	1.9	14.1	7.6	43.4	38.5	0.7	

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Yields are based on a 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 are completely flat.

§ Fusarium head blight (FHB; scab) rated as percentage of the florets in the plots showing visible symptoms of disease. Data were taken at approximately 21 days post flowering of the average flowering date for the location. Symptoms progressed following this rating and resulted in more losses in some varieties than indicated by these data.

¶ Means were not significantly different at  $P=0.05$ .

Table 11. Performance of soft red winter wheats tested at Lamar, Missouri during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>‡</sup>	Fusarium head blight - natural infection <sup>§</sup>	
	2009	2008-09	2007-09					21 days post flowering	28 days post flowering
	-----bu/acre-----			--lb/bu--	%	in	0-9	-----% florets-----	
AgriPro COKER Beretta	47.2	42.8	38.9	55.2	60	31	1.0	1	14
AgriPro COKER Branson	50.8	47.4	44.5	55.3	65	33	2.0	4	34
AgriPro COKER B030543	43.8			57.9	59	31	0.5	3	18
AgriPro COKER Cooper	40.1	41.4	35.8	54.1	64	33	0.1	2	23
AgriPro COKER W1377	48.1	44.3	42.3	<b>58.9*</b>	56	33	0.9	1	8
AGS 2026	36.6	37.6		51.3	63	31	0.5	10	66
AGS 2050	43.9	45.2	36.5	58.5	73	33	1.7	3	20
Armor 360Z	35.8			55.4	72	35	0.3	2	30
Armor ARX 840	33.3			57.4	71	36	0.0	0	11
Armor ARX 6202	51.2			52.4	74	35	0.9	6	35
Armor Gold	45.3			56.1	75	33	0.4	5	29
Armor Renegade	56.7			57.3	60	32	0.5	1	12
Bess	73.0	<b>59.6*</b>	52.1	<b>59.0*</b>	75	37	2.8	1	8
COKER 9553	54.6	45.8	40.4	54.7	63	35	1.6	4	24
Delta Grow 1600	52.3	46.8	35.1	57.3	59	35	1.7	1	12
Delta Grow 4500	55.5			57.9	73	35	2.0	1	14
Delta Grow 5200	53.7	48.3	41.9	57.7	54	35	1.3	1	7
Delta King DK 9108	40.9			54.0	70	34	1.5	3	25
Delta King DK 9577	32.1	38.7	29.6	56.6	71	34	1.2	3	34
Dixie 427	43.1			52.4	76	31	2.0	8	41
Dixie 454	58.1	49.5		<b>58.9*</b>	74	34	1.3	2	10
Dixie 907	60.8			57.3	76	37	2.1	1	5
Dixie 940	49.3	43.6		54.4	51	36	1.7	4	21
Dyna-Gro DG404	52.8			54.4	63	36	1.7	3	23
Dyna-Gro DG408	57.3			57.7	77	36	1.9	1	12
Dyna-Gro DG9922	54.5			57.2	67	33	0.9	2	14
EXCEL 163	66.8			<b>59.1*</b>	71	33	3.8	3	10
EXCEL 170	64.8			<b>59.0*</b>	75	34	1.8	1	10
EXCEL 173	69.0	<b>59.0*</b>	48.2	57.2	74	35	3.3	1	16
EXCEL 180	<b>82.3**</b>			<b>59.6*</b>	69	34	3.4	1	5

EXCEL 209	63.9			57.7	70	33	2.5	1	11
EXCEL 343	67.5			56.9	71	35	1.2	0	4
EXCEL 357	63.0	<b>53.8*</b>		58.3	79	35	0.8	1	7
EXCEL 367	52.4			58.6	74	36	1.1	1	11
EXCEL 400-1	71.4	<b>62.0*</b>	49.0	57.8	73	37	2.3	1	11
EXCEL 410 TW	71.0	<b>63.2**</b>	53.2	58.1	77	36	2.1	1	8
GA 991209-6E33	47.2			54.3	61	32	1.0	7	30
GA 991336-6E9	40.0			50.1	61	32	0.6	5	35
Lewis 835	65.3			<b>58.9*</b>	61	33	3.2	1	9
Merl	47.0			53.4	63	34	0.4	11	56
MFA 2525	64.7			58.7	67	38	2.7	1	3
MFA 2609	62.7	<b>57.7*</b>		57.9	68	36	2.5	0	7
Milton (MO 011126)	53.8	50.2	43.3	58.2	72	35	1.4	2	17
Pioneer ® Variety 25R56	53.7	50.2	48.1	55.5	64	32	0.8	1	11
Pioneer ® Variety 25R62	63.1	<b>56.0*</b>		55.8	72	32	0.8	0	5
Pioneer ® Variety 25R78	58.4			57.0	58	34	0.6	2	25
Progeny 117	57.0			57.2	70	33	2.6	2	17
Progeny 119	54.0			58.6	75	34	0.9	1	7
Progeny 130	60.5			58.7	63	32	2.7	1	9
Progeny 136	51.1			52.0	75	34	0.8	6	35
Progeny 166	52.5	47.6	39.2	56.1	53	36	2.0	1	11
Progeny 185	55.8	<b>50.6*</b>	41.6	54.8	65	32	1.4	2	15
Roane	52.8	<b>51.3*</b>	43.0	<b>60.1**</b>	61	32	0.2	1	5
Truman	55.5	46.8	48.3	<b>59.0*</b>	62	38	1.2	0	2
USG 3209	48.2	48.3	37.0	55.8	57	33	0.9	1	17
VA 04W-90	50.1			57.5	80	33	0.8	2	17
Average	54.2	49.5	42.4	56.6	67.5	34.0	1.5	2.3	17.5
LSD (0.05)	8.6	12.8	NS <sup>†</sup>	1.3	10.6	2.2	0.6	1.8	8.1
CV%	12.1	12.6	18.8	1.7	11.8	4.9	32.9	56.6	34.8

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Yields are based on a 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 are completely flat.

§ Fusarium head blight (FHB; scab) rated as percentage of the florets in the plot showing visible symptoms of disease. Data were taken at approximately 21 days after the average flowering date for the location. Symptoms progressed and plots were rated again a week later, approximately 28 days after the average location flowering date.

¶ Means were not significantly different at  $P=0.05$ .

Table 12. Performance of soft red winter wheats tested at Mt. Vernon, Missouri during 2009.

Variety	Grain yield <sup>†</sup>			Test weight	Winter survival	Plant height	Lodging <sup>‡</sup>	Foliar diseases Septoria leaf blotch <sup>§</sup>
	2009	2008-09	2007-09					
	-----bu/acre-----			--lb/bu--	%	in	0-9	% canopy
AgriPro COKER Beretta	62.5	58.9	46.5	54.5	67	36	1.5	43
AgriPro COKER Branson	70.6	62.2	47.9	58.4	71	37	2.2	12
AgriPro COKER B030543	70.8			59.4	56	38	2.0	11
AgriPro COKER Cooper	64.9	63.0	46.7	59.3	74	41	1.4	12
AgriPro COKER W1377	65.9	63.3	51.3	<b>60.9**</b>	73	40	1.6	21
AGS 2026	53.0	51.6		56.0	80	36	2.0	15
AGS 2050	64.6	60.1	45.1	<b>59.8*</b>	80	39	2.2	18
Armor 360Z	66.9			53.5	77	39	0.6	41
Armor ARX 840	61.4			53.7	79	39	1.6	36
Armor ARX 6202	60.4			<b>60.2*</b>	71	39	0.8	21
Armor Gold	55.5			58.3	65	39	0.5	26
Armor Renegade	<b>78.2*</b>			58.4	72	40	0.9	10
Bess	<b>72.0*</b>	66.1	47.7	58.9	79	40	2.5	18
COKER 9553	66.1	62.4	46.9	58.7	69	38	3.0	17
Delta Grow 1600	63.8	59.9	45.0	56.7	76	41	2.3	34
Delta Grow 4500	58.8			56.6	72	42	2.5	34
Delta Grow 5200	66.7	61.5	46.9	57.1	74	41	1.9	33
Delta King DK 9108	62.1			56.7	76	40	2.2	14
Delta King DK 9577	66.4	66.9	48.9	56.5	75	38	1.2	30
Dixie 427	57.5			56.5	81	38	2.6	30
Dixie 454	66.8	60.0		<b>60.0*</b>	80	37	0.7	8
Dixie 907	68.8			56.9	70	42	2.0	33
Dixie 940	71.0	63.8		57.4	68	42	2.2	18
Dyna-Gro DG404	69.0			56.7	59	41	2.7	27
Dyna-Gro DG408	67.2			57.3	69	42	2.7	29
Dyna-Gro DG9922	<b>74.9*</b>			57.6	74	42	0.6	14
EXCEL 163	63.0			<b>60.9**</b>	75	39	3.1	20
EXCEL 170	<b>72.2*</b>			59.0	67	40	2.7	21
EXCEL 173	70.9	63.8	46.2	59.3	68	42	2.6	23
EXCEL 180	71.0			<b>59.7*</b>	69	40	3.5	37



EXCEL 209	64.4			56.4	74	39	3.7	35
EXCEL 343	<b>78.6*</b>			58.4	73	39	2.3	21
EXCEL 357	<b>74.4*</b>	67.0		58.6	74	39	1.2	19
EXCEL 367	67.6			58.1	76	40	1.5	22
EXCEL 400-1	66.8	67.2	50.3	56.1	69	43	2.3	31
EXCEL 410 TW	64.6	63.6	47.7	57.2	67	42	2.5	31
GA 991209-6E33	68.0			59.5	68	39	1.7	10
GA 991336-6E9	71.0			58.3	69	40	1.8	10
Lewis 835	65.1			59.6	78	40	3.6	30
Merl	59.7			59.4	70	37	0.5	26
MFA 2525	66.0			59.3	76	43	2.1	14
MFA 2609	67.0	67.7		57.0	75	43	2.3	35
Milton (MO 011126)	67.8	66.6	54.2	<b>60.0*</b>	83	40	2.3	11
Pioneer ® Variety 25R56	70.2	64.1	46.1	57.6	84	37	1.7	20
Pioneer ® Variety 25R62	<b>72.5*</b>	66.5		56.6	75	38	1.4	16
Pioneer ® Variety 25R78	<b>80.0**</b>			58.8	69	38	1.9	14
Progeny 117	68.7			58.6	73	41	2.8	23
Progeny 119	61.3			58.8	75	39	0.5	25
Progeny 130	67.2			58.7	79	40	3.7	40
Progeny 136	63.9			54.6	76	41	1.7	30
Progeny 166	63.1	60.6	47.7	57.1	76	42	2.3	31
Progeny 185	66.2	64.7	49.1	57.5	70	38	2.0	20
Roane	<b>71.6*</b>	66.8	52.4	<b>59.9*</b>	72	37	2.0	13
Truman	65.4	57.9	41.8	<b>60.8*</b>	72	44	0.8	17
USG 3209	65.9	64.2	47.2	58.2	76	36	3.0	15
VA 04W-90	<b>74.7*</b>			59.0	66	40	1.9	11
Average	67.0	63.0	47.8	58.0	72.9	39.6	2.0	22.8
LSD (0.05)	8.4	NS <sup>¶</sup>	NS <sup>¶</sup>	1.2	9.2	1.7	0.7	9.7
CV%	9.4	6.1	9.0	1.6	9.4	3.3	24.9	32.4

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

† Yields are based on a 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 are completely flat.

§ Foliar diseases, primarily Septoria leaf blotch, rated as the percentage of the plot canopy showing symptoms of disease.

¶ Means were not significantly different at  $P=0.05$ .

Table 13. Grain yields<sup>†</sup> 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 2009.

Variety	Northern region			Southeastern region			Southwestern region			State average
	2009	2008-09	2007-09	2009	2008-09	2007-09	2009	2008-09	2007-09	2009
	-----bu/acre-----									
AgriPro COKER Beretta	46.4	53.0	<b>53.4*</b>	51.6	63.4	<b>63.1*</b>	54.9	50.8	42.7	50.3
AgriPro COKER Branson	51.6	<b>55.0*</b>	<b>53.0*</b>	54.5	65.3	<b>64.4*</b>	60.7	54.8	46.2	55.0
AgriPro COKER B030543	53.3			57.9			57.3			55.7
AgriPro COKER Cooper	38.7	49.7	48.8	61.5	<b>72.8*</b>	<b>67.9**</b>	52.5	52.2	41.3	49.1
AgriPro COKER W1377	49.8	52.6	<b>54.5*</b>	58.6	66.7	<b>65.1*</b>	57.0	53.8	46.8	54.3
AGS 2026	39.5	41.2		48.3	59.7		44.8	44.6		43.5
AGS 2050	43.3	51.6	48.3	56.6	66.2	<b>62.2*</b>	54.3	52.6	40.8	50.2
Armor 360Z	47.4			55.7			51.4			50.9
Armor ARX 840	43.2			58.9			56.3			51.4
Armor ARX 6202	44.9			53.1			46.9			47.8
Armor Gold	43.3			46.9			50.4			46.3
Armor Renegade	49.2			56.5			67.5			56.5
Bess	51.4	53.9	48.8	58.5	65.9	61.4	<b>72.5*</b>	<b>62.8*</b>	49.9	59.4
COKER 9553	46.6	51.2	45.7	50.9	62.8	59.7	60.3	54.1	43.6	51.7
Delta Grow 1600	54.2	<b>56.3*</b>	<b>52.7*</b>	56.9	64.4	60.6	58.0	53.3	40.1	56.1
Delta Grow 4500	50.5			56.3			57.2			54.1
Delta Grow 5200	48.7	53.7	48.7	50.6	62.0	60.0	60.2	54.9	44.4	52.5
Delta King DK 9108	39.2			53.9			51.5			46.9
Delta King DK 9577	40.4	47.2	45.3	52.4	63.3	58.9	49.3	52.8	39.3	46.3
Dixie 427	46.1			54.9			50.3			49.8
Dixie 454	50.6	<b>55.5*</b>		<b>65.7*</b>	<b>71.7*</b>		62.5	54.7		58.3
Dixie 907	48.4			56.8			64.8			55.5
Dixie 940	51.6	48.9		54.3	64.0		60.2	53.7		54.8
Dyna-Gro DG404	51.3			57.0			60.9			55.7
Dyna-Gro DG408	55.8			55.7			62.3			57.6
Dyna-Gro DG9922	52.7			57.9			64.7			57.6
EXCEL 163	50.7			53.0			64.9			55.4
EXCEL 170	<b>57.6*</b>			<b>66.6*</b>			68.5			<b>63.3*</b>
EXCEL 173	<b>56.3*</b>	<b>60.7*</b>	<b>52.9*</b>	63.2	<b>70.2*</b>	<b>65.5*</b>	69.9	<b>61.4*</b>	47.2	<b>62.1*</b>
EXCEL 180	<b>57.5*</b>			62.1			<b>76.7**</b>			<b>64.3**</b>

EXCEL 209	47.9			58.4			64.2			55.6
EXCEL 343	54.8			58.5			<b>73.1*</b>			61.1
EXCEL 357	<b>56.1*</b>	<b>58.0*</b>		<b>67.2*</b>	<b>73.1*</b>		68.7	<b>60.4*</b>		<b>62.9*</b>
EXCEL 367	54.6			60.7			60.0			57.9
EXCEL 400-1	57.0*	<b>61.4**</b>	<b>53.5*</b>	60.4	68.0	<b>62.9*</b>	69.1	<b>64.6**</b>	49.7	<b>61.4*</b>
EXCEL 410 TW	55.2	<b>59.2*</b>	<b>55.1*</b>	59.0	67.8	<b>66.5*</b>	67.8	<b>63.4*</b>	50.5	59.9
GA 991209-6E33	51.9			56.0			57.6			54.7
GA 991336-6E9	48.1			48.2			55.5			50.3
Lewis 835	52.4			58.6			65.2			57.8
Merl	44.1			46.7			53.4			47.5
MFA 2525	<b>61.1**</b>			<b>65.0*</b>			65.3			<b>63.4*</b>
MFA 2609	<b>57.5*</b>	<b>60.1*</b>		60.9	<b>69.7*</b>		64.9	<b>62.7*</b>		60.6
Milton (MO 011126)	50.5	<b>54.8*</b>	<b>52.7*</b>	<b>67.1*</b>	<b>73.3*</b>	<b>67.1*</b>	60.8	<b>58.4*</b>	48.7	58.2
Pioneer ® Variety 25R56	52.0	53.7	<b>57.3**</b>	59.6	<b>69.0*</b>	<b>67.5*</b>	62.0	<b>57.1*</b>	47.1	57.0
Pioneer ® Variety 25R62	46.5	<b>55.3*</b>		<b>65.9*</b>	<b>74.6**</b>		67.8	<b>61.3*</b>		58.1
Pioneer ® Variety 25R78	55.1			62.0			69.2			61.1
Progeny 117	<b>56.1*</b>			<b>65.9**</b>			62.9			60.8
Progeny 119	49.9			<b>68.1*</b>			57.7			57.3
Progeny 130	51.4			60.7			63.9			57.6
Progeny 136	44.1			56.1			57.5			51.4
Progeny 166	49.3	<b>54.1*</b>	48.1	55.4	64.0	59.6	57.8	53.8	43.5	53.5
Progeny 185	52.0	<b>56.8*</b>	<b>52.5*</b>	54.4	66.5	<b>64.1*</b>	61.0	<b>57.7*</b>	45.3	55.3
Roane	54.4	<b>54.0*</b>	<b>51.9*</b>	46.5	58.6	58.5	62.2	<b>59.0*</b>	47.7	54.3
Truman	44.8	51.2	49.7	63.5	66.6	<b>66.3*</b>	60.5	52.3	45.1	54.6
USG 3209	55.8	<b>56.1*</b>	45.1	47.0	59.1	55.4	57.0	56.2	42.1	53.6
VA 04W-90	45.3			<b>64.9*</b>			62.4			55.8
Average	50.1	54.0	50.9	57.5	66.5	62.8	60.6	56.3	45.1	55.3
LSD (0.05)	5.0	7.4	7.2	4.7	6.2	6.3	6.0	7.5	NS <sup>‡</sup>	3.1
CV%	12.5	11.9	15.1	8.4	6.6	8.7	10.0	9.5	15.1	10.6
Locations	3	6	9	2	4	6	2	4	6	7

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

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

‡ Means were not significantly different at  $P=0.05$ .

Table 14. Grain yield<sup>†</sup> for soft red winter wheats tested at seven locations in Missouri during 2009. Varieties are listed in descending order of state average yield.

Variety	Northern region			Southeastern region		Southwestern region		State average 2009
	Columbia	Novelty	Trenton	Charleston	Portageville	Lamar	Mt. Vernon	
	-----bu/acre-----							
EXCEL 180	70.5	<b>55.6*</b>	<b>46.3*</b>	81.4	42.7	<b>82.3**</b>	71.0	<b>64.3**</b>
MFA 2525	<b>77.4*</b>	<b>60.6**</b>	<b>45.4*</b>	79.3	<b>50.6*</b>	64.7	66.0	<b>63.4*</b>
EXCEL 170	<b>78.3*</b>	<b>53.1*</b>	<b>41.4*</b>	<b>85.3*</b>	47.9	64.8	<b>72.2*</b>	<b>63.3*</b>
EXCEL 357	<b>80.0*</b>	<b>52.7*</b>	35.6	<b>83.6*</b>	<b>50.7*</b>	63.0	<b>74.4*</b>	<b>62.9*</b>
EXCEL 173	71.1	<b>54.4*</b>	<b>43.3*</b>	78.7	47.7	69.0	70.9	<b>62.1*</b>
EXCEL 400-1	<b>78.2*</b>	49.4	<b>43.4*</b>	80.2	40.5	71.4	66.8	<b>61.4*</b>
EXCEL 343	<b>76.9*</b>	51.2	36.2	76.4	40.6	67.5	<b>78.6*</b>	61.1
Pioneer ® Variety 25R78	<b>74.6*</b>	<b>54.9*</b>	36.0	76.7	47.2	58.4	<b>80.0**</b>	61.1
Progeny 117	68.0	50.5	<b>49.7**</b>	<b>83.0*</b>	48.8	57.0	68.7	60.8
MFA 2609	<b>80.2**</b>	<b>53.9*</b>	38.3	78.7	43.1	62.7	67.0	60.6
EXCEL 410 TW	<b>80.1*</b>	45.5	<b>39.9*</b>	70.5	47.5	71.0	64.6	59.9
Bess	<b>72.9*</b>	46.0	35.2	72.9	44.0	73.0	<b>72.0*</b>	59.4
Dixie 454	65.7	<b>53.3*</b>	32.9	81.1	<b>50.3*</b>	58.1	66.8	58.3
Milton (MO 011126)	71.7	<b>56.0*</b>	23.9	77.9	<b>56.3**</b>	53.8	67.8	58.2
Pioneer ® Variety 25R62	<b>76.0*</b>	35.1	28.3	<b>83.0*</b>	48.7	63.1	<b>72.5*</b>	58.1
EXCEL 367	<b>77.3*</b>	49.7	36.7	76.6	44.8	52.4	67.6	57.9
Lewis 835	68.8	51.0	37.4	78.4	38.7	65.3	65.1	57.8
Dyna-Gro DG408	72.3	49.8	<b>45.2*</b>	72.2	39.2	57.3	67.2	57.6
Dyna-Gro DG9922	63.9	51.8	<b>42.4*</b>	72.0	43.7	54.5	<b>74.9*</b>	57.6
Progeny 130	63.7	49.7	<b>40.9*</b>	76.8	44.6	60.5	67.2	57.6
Progeny 119	67.0	47.4	35.3	<b>88.4**</b>	47.7	54.0	61.3	57.3
Pioneer ® Variety 25R56	<b>77.1*</b>	50.5	28.3	75.9	43.4	53.7	70.2	57.0
Armor Renegade	63.2	50.1	34.4	73.1	39.8	56.7	<b>78.2*</b>	56.5
Delta Grow 1600	70.8	43.6	<b>48.3*</b>	72.0	41.7	52.3	63.8	56.1
VA 04W-90	65.4	42.6	27.8	<b>82.8*</b>	47.0	50.1	<b>74.7*</b>	55.8
AgriPro COKER B030543	<b>76.1*</b>	45.1	38.6	74.0	41.8	43.8	70.8	55.7
Dyna-Gro DG404	70.0	45.1	39.0	72.6	41.3	52.8	69.0	55.7
EXCEL 209	71.6	39.8	32.4	74.4	42.4	63.9	64.4	55.6
Dixie 907	66.2	46.9	32.1	75.3	38.2	60.8	68.8	55.5
EXCEL 163	58.4	51.6	<b>42.2*</b>	67.1	38.8	66.8	63.0	55.4

Progeny 185	71.8	49.0	35.2	67.9	40.9	55.8	66.2	55.3
AgriPro COKER Branson	71.0	50.4	33.5	73.0	36.0	50.8	70.6	55.0
Dixie 940	70.9	52.2	31.7	73.0	35.6	49.3	71.0	54.8
GA 991209-6E33	68.9	51.6	35.3	68.4	43.6	47.2	68.0	54.7
Truman	65.3	45.6	23.6	81.3	45.6	55.5	65.4	54.6
AgriPro COKER W1377	61.9	48.3	<b>39.2*</b>	76.1	41.0	48.1	65.9	54.3
Roane	<b>73.0*</b>	46.2	<b>43.9*</b>	62.3	30.6	52.8	<b>71.6*</b>	54.3
Delta Grow 4500	64.2	47.6	<b>39.7*</b>	73.3	39.3	55.5	58.8	54.1
USG 3209	<b>75.2*</b>	47.8	<b>44.5*</b>	59.7	34.3	48.2	65.9	53.6
Progeny 166	65.1	41.6	<b>41.3*</b>	69.7	41.1	52.5	63.1	53.5
Delta Grow 5200	71.6	44.0	30.6	68.7	32.6	53.7	66.7	52.5
COKER 9553	71.9	42.2	25.6	59.1	42.7	54.6	66.1	51.7
Armor ARX 840	68.6	41.6	19.5	76.2	41.6	33.3	61.4	51.4
Progeny 136	67.1	41.5	23.8	74.5	37.7	51.1	63.9	51.4
Armor 360Z	<b>76.8*</b>	37.1	28.2	73.6	37.8	35.8	66.9	50.9
AgriPro COKER Beretta	64.5	46.4	28.3	68.8	34.4	47.2	62.5	50.3
GA 991336-6E9	68.3	46.0	30.1	52.0	44.5	40.0	71.0	50.3
AGS 2050	66.0	45.7	18.2	73.5	39.7	43.9	64.6	50.2
Dixie 427	59.2	49.7	29.3	66.0	43.7	43.1	57.5	49.8
AgriPro COKER Cooper	54.1	38.2	23.7	73.8	<b>49.2*</b>	40.1	64.9	49.1
Armor ARX 6202	67.9	32.2	34.8	72.8	33.3	51.2	60.4	47.8
Merl	58.3	49.0	25.1	59.9	33.5	47.0	59.7	47.5
Delta King DK 9108	52.7	37.8	27.2	68.5	39.2	40.9	62.1	46.9
Armor Gold	65.2	40.6	24.0	54.9	38.9	45.3	55.5	46.3
Delta King DK 9577	70.0	26.0	25.1	65.1	39.7	32.1	66.4	46.3
AGS 2026	56.0	37.5	25.0	61.3	35.3	36.6	53.0	43.5
Average	69.3	46.8	34.3	73.1	42.0	54.2	67.0	55.3
LSD (0.05)	7.5	8.0	10.5	6.3	7.2	8.6	8.4	3.1
CV%	8.0	12.9	23.1	6.4	13.2	12.1	9.4	10.6

\*\* Indicates the variety with the highest yield or test weight in the respective column.

\* Indicates varieties that do not differ significantly in yield or test weight from the best variety based on Fisher's protected LSD ( $P=0.05$ ).

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