

WINTER WHEAT

2000 Missouri Crop Performance

McKendry, Sweets, Wright, Tague, Bestgen

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Table of Contents

Introduction	1
Variety Testing Procedures	1
Description of Data Collected	4
Statistical Analysis and Interpretation	5
Test Conditions	5
Test Results	6
New Variety Descriptions	6
2000 Missouri Winter Wheat Crop Statistics	6
Electronic Accessibility of Data	6
Acknowledgments	7
 <u>Soft Red Winter Wheat Results</u>	
State Wide (Table 5)	8
 <u>Northern Locations</u>	
Columbia (Table 6)	10
Novelty (Table 7)	12
Trenton (Table 8)	14
 <u>Southeast Locations</u>	
Charleston (Table 9)	16
Portageville (Table 10)	18
 <u>Southwest Locations</u>	
Lamar (Table 11)	20
 <u>Summary Tables</u>	
Regional Yield Summary (Table 12)	22
Location Yield Summary (Table 13)	24

2000 MISSOURI WINTER WHEAT PERFORMANCE TESTS

A. L. McKendry, L.E. Sweets, R. L. Wright, D. N. Tague, K. S. Bestgen

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 the soft red winter wheat variety trials conducted throughout Missouri during the 1999-00 cropping season. No hard red winter wheat test was grown in 2000.

Variety Testing Procedures

Locations

The soft red winter wheat test was 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.



Figure 1. Test locations for Missouri winter wheat performance tests conducted during 2000.

Entries and Seed Sources

Names of commercially available entries evaluated in 2000 and their seed sources are given in Table 1. Forty-nine soft red winter wheats were tested. As no public or private hard red winter wheats were entered, there was no hard test conducted in 2000. The soft red winter wheats submitted for testing were comprised of 3 public varieties, 12 public experimental entries and 34 proprietary varieties. Public varieties adapted to Missouri growing conditions or recommended by the state of origin were entered in the 2000 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. MO 960903, VA 96W-250) 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 7 x 7 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 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 entry and ranged from 75 to 138 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.

Authors: Anne L. McKendry, Associate Professor, Wheat Breeding and Genetics; Ray Wright, Research Specialist; David N. Tague, Senior Research Laboratory Technician, Kara S. Bestgen, Research Specialist, Dep. of Agronomy; University of Missouri; Laura E. Sweets, Assistant Professor, Extension Plant Pathologist, Commercial Agriculture Program; University of Missouri; **Cover photo:** Wheat yield trials, Delta Center Lee Farm, Portageville, MO.

Table 1. Names and sources of commercial soft red winter wheat cultivars tested in Missouri during 2000.

Variety	Source/Contact	Variety	Source/Contact
Ernie [†] Kaskaskia [†] Roane [†]	Missouri Seed Improvement Assoc. 3211 Lemone Industrial Blvd. Columbia, MO 65210-8245 (573) 449-0586	MPG 7921SRW	Midwest Premium Genetics P.O. Box 688 Concordia, MO 64020 (660) 463-7333
AGRIPRO Elkhart AGRIPRO Gibson AGRIPRO Patton AGRIPRO Shiloh	AGRIPRO Seeds Inc. 6025 West 300 South Lafayette, IN 47905-9278 (765) 572-2001	NK BL930390 NK Coker 9474 NK Coker 9543 NK Coker 9663 NK Coker 9704	Novartis Seeds Inc. P.O. Box 729 Bay, AR 72411 (870) 483-7691
AGS 2000	AgSouth Genetics P.O. Box 88823 Dunwoody, GA 30356 (770) 228-7321	Pioneer Variety 2540 Pioneer Variety 25R26 Pioneer Variety 25R57	Pioneer Hi-Bred International Inc. 2306 Bluff Creek Drive Suite 300 Columbia, MO 65201 (573) 443-1175
Dixie 911 Dixie 2000	Cache River Valley Seed P.O. Box 10 Cash, AR 72421 (870) 477-5427	Stine 455 Stine 488	Stine Seed Co. P.O. Box 231 Sheridan, IN 46069 (317)758-0800
EXCEL 200 EXCEL 400 EXCEL 400-1	EXCEL Brand Seed P.O. Box 320 Camp Point, IL 62320 (800) 593-7708	Terra SR218	Cropland Genetics 2827 8 th Ave S. Fort Dodge, IA 50501 (515) 574-2829
FFR 540 FFR 558	FFR Seed 969 Cloverleaf Dr. Southaven, MS 38671 (800) 366-2667	Terral TVX8910	Terral Seed, Inc. P.O. Box 826 Lake Providence, LA 71254 318-558-2840
Fortune 9890	Mid-State Seed P.O. Box 126 Marshall, MO 65340 (660)886-5578	USG 3209 USG 3709	UniSouth Genetics 2640-C Nolensville, Road Nashville, TN 37211 (615) 242-3397
Lewis 857	Lewis Hybrids, Inc. P.O. Box 38 Ursa, IL 62376 (217) 964-2131	WILLCROSS 723 WILLCROSS 728 WILLCROSS 730 WILLCROSS 738	WILLCROSS Seed Development Association P.O. Box 560 Garden City, MO 64747 (816) 862-6002
MFA Brand 1814 MFA Brand 1828	MFA Incorporated 201 Ray Young Drive Columbia, MO 65201 (573) 876-5285		

[†] Public winter wheat cultivars.

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 1999. 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)
	-g-	-no/lb-	-lb/acre-	
AGRIPRO Elkhart	36.6	12,404	124	Raxil Thiram
AGRIPRO Gibson	31.6	14,367	107	Raxil Allegience
AGRIPRO Patton	36.3	12,507	123	Raxil Allegience
AGRIPRO Shiloh	38.6	11,762	130	Raxil XT
AGS 2000	22.3	20,359	75	Dividend
AR 494B-2-2	34.5	13,159	117	Raxil Thiram
AR 584A-3-1	35.8	12,682	121	Raxil Thiram
AR 656-5-1	34.1	13,314	112	Raxil Thiram
Dixie 911	38.0	11,947	128	Dividend XT
Dixie 2000	28.3	16,042	96	None
Ernie	28.3	16,042	96	None
EXCEL 200	39.0	11,641	132	Raxil Thiram Reldan
EXCEL 400	31.8	14,277	108	Raxil Thiram XL
EXCEL 400-1	31.2	14,551	106	Raxil Thiram XL
FFR 540	35.3	12,861	119	Raxil Thiram XL
FFR 558	38.6	11,762	116	Vitavax 200
Fortune 9890	34.3	13,236	116	Vitavax 200
GA 88622E51	30.5	14,885	103	None
GA 901146E15	26.5	17,132	90	Dividend
Kaskaskia	28.2	16,099	95	Dividend
Lewis 857	33.8	13,432	120	Raxil Thiram Reldan
MFA Brand 1814	35.2	12,898	119	Raxil Allegience Reldan
MFA Brand 1828	32.4	14,012	109	Raxil Apron XT
MO 960903	40.6	11,182	135	Raxil Thiram Reldan
MO 971022	31.8	14,277	108	Raxil Thiram Reldan
MO 980525	38.4	11,823	130	Raxil Thiram Reldan
MPG 7921 SRW	34.3	13,236	116	Raxil Apron XT
NK BL930390	40.8	11,127	138	Raxil Thiram
NK Coker 9474	36.5	12,438	123	Dividend XL
NK Coker 9543	33.9	13,392	115	Dividend XL
NK Coker 9663	40.5	11,210	137	Dividend XL
NK Coker 9704	35.7	12,717	121	Dividend XL
Pioneer Variety 2540	36.2	12,541	122	Dividend Apron XL Reldan
Pioneer Variety 25R26	33.1	13,716	112	Dividend Apron XL Reldan
Pioneer Variety 25R57	38.9	11,671	131	Dividend Apron XL Reldan
Roane	30.2	15,033	102	Raxil Thiram Reldan
Stine 455	38.6	11,762	131	Raxil Thiram Reldan
Stine 488	37.8	12,011	128	Raxil Thiram Reldan
Terra SR 218	35.7	12,717	119	Unknown
Terral TVX 8910	37.2	12,204	126	Raxil Thiram Reldan
USG 3209	38.3	11,854	129	Raxil Thiram Apron XT
USG 3709	39.6	11,465	134	Raxil Thiram Reldan
VA 96W-158	37.9	11,979	128	Raxil Thiram Reldan
VA 96W-247	33.0	13,758	111	Raxil Thiram Reldan
VA 96W-250	34.3	13,236	116	Raxil Thiram Reldan
WILLCROSS 723	31.5	14,413	106	Raxil Thiram Reldan
WILLCROSS 728	33.6	13,512	114	Raxil Thiram Reldan
WILLCROSS 730	39.4	11,523	133	Raxil Thiram Reldan
WILLCROSS 738	34.0	13,353	115	Raxil Thiram Reldan

† 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 2000. Fall nitrogen (N), phosphorus (P₂O₅) and potassium (K₂O) were pre-plant applied and incorporated.

Location	Predominant soil type(s)	Previous crop	1999 Planting date	Fertility Management					2000 Harvest date
				N			P ₂ O ₅	K ₂ O	
				Fall	Spring	Total			lb/acre
<u>Northern</u>									
Columbia	Mexico silt loam	soybeans	October 12	37	85	122	44	47	June 22
Novelty	Putnam silt loam	soybeans	October 7	40	60	100	50	80	June 23
Trenton	Grundy silt loam	soybeans	October 8	36	42/44 [†]	122	180	92	June 29
<u>Southwest</u>									
Lamar	Parsons silt loam	soybeans	October 18	27	80	107	69	90	July 14
Mt. Vernon	Gerald silt loam	soybeans	October 19	40	80	120	40	40	July 15
<u>Southeast</u>									
Charleston	Sharkey silty clay	corn	October 21	12	75/65 [†]	152	30	80	June 8
Portageville	Tiptonville silt loam	soybeans	October 22	40	80	120	-	-	June 9

† Spring N was applied as a split application on 2/28/00 and 4/5/00 for the Trenton location and on 2/7/00 and 2/29/00 for the Charleston locations.

Agronomic Practices

Basic agronomic practices are given in Table 3 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). At Trenton and Charleston, spring nitrogen was applied as a split application. 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. In addition to these agronomic practices, tilt (4 oz/acre) was applied at the Charleston site on April 20, 2000.

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 2000, two-year (1999-00), and three-year averages (1998-00) are also provided.

Test Weight and Grain Moisture Content

Test weight (pounds per bushel) and grain moisture percentage 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 dates were recorded at Columbia, Portageville, 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

At Mt. Vernon in the southwest, viral diseases were severe. Samples taken from the performance test were positive for wheat soil borne, wheat spindle streak as well as two strains (PAV and RPV) of barley yellow dwarf virus. Although ratings of percent canopy infection were taken, it was difficult to differentiate among viruses because of the confounding effects of their symptoms. At Columbia, barley yellow dwarf pressure was severe. Ratings taken reflect the percentage of the canopy with symptoms. At Trenton in the northwest, downy mildew significantly impacted

yields. Plots were rated for percent of the canopy showing symptoms.

Sprouting

Heavy rains after physiological maturity resulted in sprouting at the Columbia location. The amount of sprouting was assessed in harvested grain from each replication as the percentage of kernels with visible signs of germination. Data were expressed as a percent of the sample. Although not quantified, grain for many entries harvested from the Lamar location was significantly sprouted due to excessive rainfall after maturity that delayed harvest by 3-4 weeks.

Statistical Analyses and Interpretation

Data collected on all traits measured in the soft red winter wheat varieties tested during 2000 are presented in Tables 5 through 13. Data presented for individual locations were analyzed using a lattice design. For regional, state-wide and multi-year data analyses were 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 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. Table 13 ranks soft red winter wheat varieties 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 resistance 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.

Test Conditions

Field conditions during the fall of 1999 were dry and planting was completed according to the Hessian fly free date at all locations. A very mild winter led to winter survival in excess of 90% at all locations. The spring was also warm and dry resulting in adequate crop development at all locations. Disease pressure from fungal diseases was lower than normal at most locations. Pressure from viruses was in general, higher than normal. Heading dates across all locations averaged 5-7 days earlier than those reported for 1999.

At Mt. Vernon, in southwest Missouri, there was heavy pressure from viral diseases. Samples taken for testing were positive for wheat soil borne, wheat spindle streak and two strains (PAV and RPV) of barley yellow dwarf virus (Dr. Barbara Corwin, Univ. of Missouri Plant Pathologist) which, in combination, reduced crop biomass severely. Although the grain-fill period was dry, rainfall began at physiological maturity and persisted for several weeks preventing harvest and severely weathering the remaining crop. The data from this location were very poor. Yields ranged from 1 to 16 bushels per acre with a mean yield for the location of 5.3 bushels per acre. Consequently, no data have been presented for Mt. Vernon in this report. Lamar also received 6-7" of rainfall after physiological maturity which delayed harvest by 3-4 weeks and resulted in significantly lower test weights at this location. Although not quantified, harvested grain was also significantly sprouted.

In the southeastern region, viral diseases were also present at Portageville. Samples tested were positive for both wheat streak mosaic virus and wheat spindle streak virus. Although powdery mildew and Septoria leaf blotch were present, levels were low and symptoms were not rated. Yields at this location may have been reduced due to hail. Damage, although not severe, was greatest in varieties that headed earlier than April 25th. Flag leaves were torn and spikelets lost on these early lines. It was dry at both locations during much of the grain-fill period and throughout harvest. Plots were harvested about one week earlier than in 1999. Harvested grain was sound and had excellent test weight.

In the northern region, conditions during the spring and early summer were dry. Barley yellow dwarf pressure was high. Symptoms were rated and data reported in Table 6. At Trenton, yields were reduced by the presence of downy mildew (crazy top) in the plot area. All plots were rated for percent symptoms and data are presented in Table 8. Otherwise, disease pressure at these locations was low. Powdery mildew, Septoria leaf blotch, leaf rust, and Fusarium head blight were not significant. Rainfall delayed harvest beyond the optimal period at all locations in the northern region. Test weights were undoubtedly reduced at all locations and kernel damage due to sprouting was observed and rated at Columbia. Data are presented in Table 6.

Test Results

The state-wide yield of soft red winter wheat varieties tested in 2000 was 63.0 bushels per acre (Table 5) up 6.5 bushels per acre from the 1999 test average of 56.5 bushels per acre. State-wide yields were down 8 bushels per acre, however, from the record high yield (71.0 bu/acre) recorded in 1997. Average yields across the six test locations ranged from 50.8 bushels per acre at Portageville to 80.3 bushels per acre at Novelty (Table 13). Average regional yields ranged from 53.1 bushels per acre in the southwestern region to 64.7 bushels per acre in the southeastern region to a high of and 65.2 bushels per acre in the northern region of the state (Table 12).

'AGS 2000' (formerly GA 89482E7) was the highest yielding soft red winter wheat tested, averaging 72.3 bushels per acre across the state (Table 5). Three proprietary varieties including: 'USG 3209' (70.6 bu/acre), 'MPG 7921 SRW' (70.3 bu/acre), and 'Pioneer Variety 25R26' (70.2 bu/acre), did not differ significantly in yield from AGS 2000. 'Roane' (69.0 bu/acre), released by the Virginia Agricultural Experiment Station was the only released public variety that did not differ significantly from AGS 2000. An experimental line from Virginia, 'VA 96W-250' (70.4 bu/acre), rounded out the top yield group.

Regional test weights varied significantly in 2000 due to differential rainfall at harvest. Test weights were highest in the southeast where conditions were dry and harvest of the crop was completed in a timely fashion. Excessive rainfall thereafter, delayed harvest at all other locations and may have reduced test weights at those locations. State-wide, the average test weight was 57.0 pounds per bushel (Table 5), not significantly different from the state-wide average (56.9 lb/bu) recorded for 1999. Location averages ranged from a low of 52.5 pounds per bushel at Lamar (Table 11) where rain delayed harvest three to four weeks, to a high of 61.7 pounds per bushel at Portageville (Table 10). Among soft red winter wheat varieties tested, the proprietary variety, 'AGRIPRO Elkhart' and 'Kaskaskia' released from the University of Illinois, Agricultural Experiment Station, had the heaviest test weights, at 59.3 lb/bu (Table 5). The public variety, Roane (59.2 lb/bu) and two varieties from Northrup King, 'NK Coker 9474' (58.6 lb/bu), and 'NK Coker 9704' (58.6 lb/bu) did not differ from AGRIPRO Elkhart and Kaskaskia.

New Variety Descriptions

Brief descriptions of newly released varieties are derived from variety release statements provided by 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.

AGS 2000

'AGS 2000' (GA 89482-E7) is a soft red winter wheat developed and released by the University of Georgia - University of Florida Small Grains Breeding Program. AGS 2000 originated from a cross made at Griffin Georgia in 1989. It has the following pedigree: Pioneer 2555/PF84301//Florida 302. AGS 2000 is medium maturing, awned, white chaffed, medium tall, and has good straw strength. It is resistant to currently predominant races of powdery mildew, moderately resistant to leaf rust and resistant to the predominant biotypes of Hessian Fly in the Southeast. AGS 2000 is broadly adapted and is high yielding with a high test weight. State-wide, AGS 2000 was the top yielding variety in the 2000 Missouri Wheat Performance Tests. It was either the top yielding, or in the top yield group, at every Missouri location in the test. Over 2 years of testing in Missouri, AGS 2000 was the top yielding variety in the southwest region of the state and in the top yield group in both the southeastern and northern regions of the state (Table 12). AGS 2000 will be marketed by AgSouth Genetics, a new marketing company created to market selected new varieties developed by the University of Georgia and the University of Florida.

2000 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 1,000,000 acres, up from the 920,000 acres harvested in 1999 (Table 4). State-wide, yields are projected to average 52 bushels per acre, up 4 bushels per acre from the 1998 yield. If realized, this would be the second highest yield on record. Total Missouri production is projected to be 52,020, 000 bushels. District yields are projected to range from 44 bushels per acre in south-central Missouri to 56 bushels per acre in the south-east.

Electronic Accessibility of Data

Results of the 2000 Missouri Winter Wheat Performance Tests are now available in two electronic forms. Winter wheat variety test data can be accessed on the Missouri Agricultural Electronic Bulletin Board (AgEBB) supported by the 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 2000 Missouri Winter Wheat Performance Test results are also available on the world wide web. Internet users may access the results of these tests under Crop Performance Testing at: <http://www.agebb.missouri.edu>.

Table 4. 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	
	1999	2000 [†]	1999	2000 [†]	1999	2000 [†]	1999	2000 [†]
	----- 1,000 acres -----		----- 1,000 acres -----		----- bu/acre -----		----- 1,000 bushels -----	
North-west	28.4	19	26.6	18	39.7	45	1,055	810
North-central	71.1	73	68.3	70	45.7	49	3,118	3,450
North-east	116.6	121	111.7	115	52.5	52	5,869	6,000
West-central	97.0	93	93.0	91	39.6	54	3,680	4,900
Central	107.8	116	97.4	110	44.0	48	4,289	5,300
East-central	92.1	88	87.4	84	48.9	50	4,278	4,200
South-west	89.7	114	79.6	108	36.0	45	2,868	4,850
South-central	11.8	11	8.3	7	41.7	44	346	310
South-east	365.5	415	347.7	397	53.7	56	18,657	22,200
State	980.0	1,050	920.0	1,000	48.0	52	44,160	52,020

† Estimates based on the July 1 forecast.

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Lamar, Missouri

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Table 5. Performance of soft red winter wheats tested across six locations in Missouri during 2000.

Variety	Grain yield [†]			Test weight - lb/bu -	Grain moisture %	Winter survival %	Plant height in	Lodging [‡] 0-9	Heading Date	
	2000	1999-00	1998-00						Julian	Calendar
	----- bu/acre -----									
AGRIPRO Elkhart	61.8	59.0	58.0	59.3**	12.3	95	40	1	122	May 03
AGRIPRO Gibson	61.9	57.3		57.9	11.9	96	37	1	122	May 03
AGRIPRO Patton	66.0	63.0	60.5	56.4	13.3	94	38	1	122	May 03
AGRIPRO Shiloh	57.8	55.7		57.0	12.1	94	36	0	123	May 04
AGS 2000 (formerly GA 89482E7) [§]	72.3**	66.2*		58.1	13.7	95	37	1	121	May 02
AR 494B-2-2	63.4			58.1	13.8	95	39	1	122	May 03
AR 584A-3-1	59.0			57.4	12.3	94	40	1	122	May 03
AR 656-5-1	55.9			55.9	12.8	93	37	0	125	May 06
Dixie 911	59.1			56.7	13.0	95	38	1	123	May 04
Dixie 2000	62.0			57.1	12.6	95	38	1	123	May 04
Ernie	54.1	54.7	54.2	56.5	11.3	96	34	1	121	May 02
EXCEL 200	60.0	58.2	57.3	57.9	12.6	95	39	1	121	May 02
EXCEL 400	63.2	62.1	59.9	57.0	12.9	95	39	1	122	May 03
EXCEL 400-1	65.3			57.2	13.2	96	39	1	123	May 04
FFR 540	59.9			55.7	12.0	94	39	1	123	May 04
FFR 558	60.6	58.2	57.4	58.0	15.0	95	38	0	124	May 05
Fortune 9890	65.7	60.9		57.2	12.5	96	38	1	123	May 04
GA 88622E51	61.4			54.8	12.0	93	35	1	123	May 04
GA 901146E15	65.1			55.5	12.3	93	35	1	120	May 01
Kaskaskia	61.7	57.2	56.3	59.3**	13.7	94	41	1	125	May 06
Lewis 857	63.8			57.4	13.1	95	39	1	122	May 03
MFA Brand 1814	61.3			56.1	12.1	94	36	0	122	May 03
MFA Brand 1828	62.7	60.4	58.7	57.3	13.0	95	40	1	122	May 03
MO 960903	67.4			57.6	13.1	94	41	1	122	May 03
MO 971022	57.3			55.6	11.7	95	36	1	121	May 02
MO 980525	62.1			57.6	16.1	93	39	1	126	May 07
MPG 7921 SRW	70.3*			55.8	13.2	95	39	0	122	May 03
NK BL930390	64.4			56.8	15.9	93	36	1	124	May 05

NK Coker 9474	53.7	53.0	52.5	58.6*	11.9	93	35	1	122	May 03
NK Coker 9543	60.2	57.0	54.6	56.3	12.3	95	35	2	121	May 02
NK Coker 9663	62.0	62.2	59.1	57.5	13.3	95	39	2	121	May 02
NK Coker 9704	63.2	59.6	57.4	58.6*	12.5	96	36	1	122	May 03
Pioneer Variety 2540	65.1	59.6	59.3	56.3	14.7	94	36	0	126	May 07
Pioneer Variety 25R26	70.2*	66.8**	64.1**	56.1	14.0	95	36	0	125	May 06
Pioneer Variety 25R57	62.7	61.4	60.2	56.8	12.3	96	37	0	123	May 04
Roane	69.0*	64.3*	60.7	59.2*	13.5	95	36	1	124	May 05
Stine 455	59.4	58.1	55.3	56.1	11.6	95	38	1	123	May 04
Stine 488	62.0	57.6	55.9	56.9	14.0	93	39	1	125	May 06
Terra SR 218	61.8	56.9		56.9	14.3	94	39	1	125	May 06
Terral TVX 8910	61.7			56.1	12.8	93	39	1	122	May 03
USG 3209	70.6*	65.8*	60.7	57.4	13.2	94	34	1	121	May 02
USG 3709	65.7			55.8	13.2	95	39	1	122	May 03
VA 96W-158	66.3			56.9	12.0	96	38	1	120	May 01
VA 96W-247	66.8			56.9	13.0	94	35	2	123	May 04
VA 96W-250	70.4*			57.6	12.3	95	34	2	121	May 02
WILLCROSS 723	60.9	58.8	56.0	57.0	12.8	94	40	1	123	May 04
WILLCROSS 728	61.2	58.7		57.1	12.7	94	38	2	123	May 04
WILLCROSS 730	67.9			56.0	13.0	95	39	1	122	May 03
WILLCROSS 738	62.8	60.8	58.8	57.4	12.8	95	39	1	122	May 03
Average	63.0	59.8	57.9	57.0	13.0	94.5	37.6	0.9	122.5	May 04
LSD (0.05)	4.1	2.8	2.3	0.7	1.1	1.7	1.1	0.4	1.2	
CV%	11.5	12.0	13.0	2.2	15.3	3.3	5.0	72.6	1.2	
Location years	6	13	20	6	6	6	6	6	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.

§ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 6. Performance of soft red winter wheats tested near Columbia, Missouri during 2000.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival	Plant height	Lodging [‡]	Heading date		Barley yellow dwarf [§]	Sprouted [§]
	2000	1999-00	1998-00						Julian	Calendar		
	-----	bu/acre	-----	lb/bu	%	%	in	0-9			%	%
AGRIPRO Elkhart	61.1	62.3	59.8	57.7*	15.8	96	40	1	123	May 04	7	0
AGRIPRO Gibson	58.3	61.5		56.1	14.4	97	37	0	123	May 04	11	3
AGRIPRO Patton	57.6	65.0	62.1	55.4	15.9	95	38	1	124	May 05	12	3
AGRIPRO Shiloh	53.2	55.2		56.1	14.8	95	34	0	126	May 07	15	0
AGS 2000 (formerly GA 89482E7) [¶]	69.7*	74.3**		57.0	15.7	95	35	0	124	May 05	11	2
AR 494B-2-2	62.6			57.1	15.5	97	38	1	125	May 06	6	0
AR 584A-3-1	58.2			56.5	14.7	95	39	1	124	May 05	12	0
AR 656-5-1	49.1			55.2	15.6	93	36	0	126	May 07	18	2
Dixie 911	60.2			56.3	15.2	96	36	1	123	May 04	13	0
Dixie 2000	66.2			56.0	15.1	96	38	1	124	May 05	7	0
Ernie	52.0	54.3	52.9	55.1	13.9	95	34	1	123	May 04	13	3
EXCEL 200	63.3	66.1	60.2	56.6	15.4	97	39	1	123	May 04	18	4
EXCEL 400	61.0	64.7	59.6	55.9	15.2	96	37	0	123	May 04	20	3
EXCEL 400-1	65.9			57.1	15.6	95	39	1	124	May 05	12	0
FFR 540	54.3			54.5	14.1	97	38	1	124	May 05	9	1
FFR 558	56.6	58.7	57.8	56.0	15.4	97	37	0	126	May 07	12	2
Fortune 9890	67.4*	68.8		56.0	14.8	97	38	1	123	May 04	14	1
GA 88622E51	51.2			54.5	14.4	95	33	0	125	May 06	14	2
GA 901146E15	66.9*			55.1	15.7	97	33	1	122	May 03	11	3
Kaskaskia	62.0	65.2	57.8	58.2*	15.9	96	41	1	126	May 07	7	0
Lewis 857	66.0			56.5	15.1	96	40	2	124	May 05	12	0
MFA Brand 1814	53.4			54.7	14.5	96	35	1	123	May 04	7	0
MFA Brand 1828	65.5	66.2	60.2	56.7	15.1	95	39	1	124	May 05	19	2
MO 960903	67.8*			56.8	15.7	95	40	1	124	May 05	6	2
MO 971022	55.6			53.9	14.2	99	35	1	123	May 04	9	11
MO 980525	57.6			55.5	16.1	95	38	1	127	May 08	17	0
MPG 7921 SRW	67.4*			55.3	16.1	98	37	0	125	May 06	15	2
NK BL930390	61.9			55.5	16.4	94	33	1	126	May 07	5	2

NK Coker 9474	48.6	54.2	50.4	57.0	14.5	93	33	1	123	May 04	9	0
NK Coker 9543	51.4	55.4	55.0	54.9	15.5	96	33	2	123	May 04	20	0
NK Coker 9663	60.3	67.8	60.7	56.9	15.7	95	40	2	124	May 05	1	2
NK Coker 9704	58.9	63.5	61.7	56.8	15.3	95	35	0	124	May 05	13	0
Pioneer Variety 2540	64.8	63.8	64.0*	55.5	16.0	94	34	0	127	May 08	11	1
Pioneer Variety 25R26	66.3	72.0*	67.2**	55.6	14.1	96	34	0	126	May 07	22	1
Pioneer Variety 25R57	59.1	62.7	61.4	54.5	15.9	98	35	0	124	May 05	8	1
Roane	65.4	70.1*	66.0*	58.3**	16.0	96	34	0	125	May 06	9	0
Stine 455	56.6	61.0	59.1	54.6	13.8	96	37	1	125	May 06	7	1
Stine 488	59.6	62.6	61.1	55.8	15.7	95	38	0	126	May 07	17	1
Terra SR 218	59.8	57.3		56.2	15.7	95	40	0	126	May 07	13	1
Terral TVX 8910	59.1			54.8	15.2	96	38	0	124	May 05	11	9
USG 3209	65.9	68.7	62.4	57.1	16.1	99	32	1	124	May 05	7	2
USG 3709	67.9*			55.5	16.3	96	36	0	125	May 06	14	1
VA 96W-158	62.9			55.1	15.7	98	36	1	123	May 04	16	1
VA 96W-247	63.9			55.1	15.8	94	33	1	124	May 05	11	0
VA 96W-250	71.9**			56.6	15.4	98	34	2	123	May 04	12	0
WILLCROSS 723	64.2	66.1	60.2	55.7	15.2	96	38	0	124	May 05	14	1
WILLCROSS 728	55.8	60.6		56.0	15.1	95	37	2	124	May 05	25	0
WILLCROSS 730	61.3			55.1	16.0	97	37	0	125	May 06	17	1
WILLCROSS 738	63.6	67.8	61.3	56.7	15.4	97	38	1	124	May 05	19	1
Average	60.8	63.5	60.0	55.9	15.3	95.9	36.5	0.7	124.2	May 05	12.4	1.5
LSD (0.05)	5.4	5.1	4.6	1.1	0.7	3.0	1.7	0.7	1.1		5.5	3.5
CV%	6.0	8.2	9.6	1.4	3.1	2.1	3.2	66.0	0.6		30.1	162.5

** 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.

§ Percent of canopy showing symptoms of barley yellow dwarf virus and percent of seed with visible signs of germination, respectively.

¶ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 7. Performance of soft red winter wheats tested at Novelty, Missouri during 2000.

Variety	Grain yield [†]			Test weight - lb/bu -	Grain moisture %	Winter survival %	Plant height in	Lodging [‡] 0-9	Heading date	
	2000	1999-00	1998-00						Julian	Calendar
	----- bu/acre -----									
AGRIPRO Elkhart	76.0	70.1	62.5	58.4**	14.5	96	42	0	127	May 08
AGRIPRO Gibson	83.2*	75.3*		56.3	14.1	93	39	1	127	May 08
AGRIPRO Patton	90.9**	81.8*	76.2**	56.2	14.9	89	40	1	128	May 09
AGRIPRO Shiloh	77.3	73.2		54.3	14.2	92	37	1	129	May 10
AGS 2000 (formerly GA 89482E7) [§]	80.1*	70.7		57.9*	15.1	96	39	0	127	May 08
AR 494B-2-2	80.4*			56.6	14.8	91	40	1	128	May 09
AR 584A-3-1	77.8			55.7	14.6	91	43	1	128	May 09
AR 656-5-1	86.4*			54.3	14.9	89	39	0	130	May 11
Dixie 911	77.1			56.0	14.6	91	40	1	127	May 08
Dixie 2000	78.1			56.7	14.7	91	41	1	128	May 09
Ernie	74.2	71.9	69.3	56.8	14.3	96	38	1	126	May 07
EXCEL 200	75.2	76.6*	70.9*	57.2	15.0	95	41	1	126	May 07
EXCEL 400	85.2*	82.2**	74.1*	56.2	14.9	93	40	1	127	May 08
EXCEL 400-1	89.3*			56.4	14.8	92	41	1	128	May 09
FFR 540	83.6*			53.5	13.9	91	42	1	128	May 09
FFR 558	75.1	69.9	60.7	57.1	15.1	92	40	1	128	May 09
Fortune 9890	83.1*	73.9		56.0	14.6	93	39	1	127	May 08
GA 88622E51	86.3*			53.3	14.5	88	37	1	127	May 08
GA 901146E15	79.4*			55.3	15.0	90	38	0	127	May 08
Kaskaskia	78.0	73.4	66.5	58.3*	15.0	88	43	1	129	May 10
Lewis 857	74.8			56.1	14.9	93	41	1	127	May 08
MFA Brand 1814	80.0*			53.7	14.0	88	37	1	127	May 08
MFA Brand 1828	76.7	76.7*	70.1	56.4	14.9	94	42	1	128	May 09
MO 960903	82.1*			57.4	14.8	93	43	1	128	May 09
MO 971022	77.4			55.3	14.4	93	38	1	128	May 09
MO 980525	78.1			55.5	15.2	86	40	0	130	May 11
MPG 7921 SRW	80.5*			55.8	15.1	91	41	0	128	May 09
NK BL930390	77.9			53.4	15.4	87	37	1	130	May 11

NK Coker 9474	85.3*	74.4	69.0	57.0	13.9	91	38	0	127	May 08
NK Coker 9543	80.3*	68.1	64.2	55.4	14.9	92	38	2	127	May 08
NK Coker 9663	82.4*	78.2*	68.6	56.2	14.8	93	44	1	128	May 09
NK Coker 9704	79.4*	71.1	66.0	57.6*	14.9	92	37	1	127	May 08
Pioneer Variety 2540	80.1*	75.5*	63.8	54.0	14.6	91	38	0	132	May 13
Pioneer Variety 25R26	88.0*	79.7*	70.0	54.1	14.5	92	37	0	130	May 11
Pioneer Variety 25R57	79.9*	72.4	66.3	54.9	14.4	92	37	0	128	May 09
Roane	79.2*	74.9	67.2	57.9*	15.1	93	36	0	129	May 10
Stine 455	80.8*	77.2*	65.7	53.3	13.8	94	41	1	128	May 09
Stine 488	86.6*	76.8*	65.1	56.1	15.2	90	42	0	129	May 10
Terra SR 218	81.5*	72.2		55.6	15.1	86	40	0	130	May 11
Terral TVX 8910	78.0			55.4	14.7	88	41	0	127	May 08
USG 3209	78.7	68.9	63.3	56.6	15.2	89	36	1	128	May 09
USG 3709	73.9			55.8	15.2	91	40	0	129	May 10
VA 96W-158	79.1			55.8	15.0	92	42	1	127	May 08
VA 96W-247	81.7*			56.0	14.8	89	38	2	128	May 09
VA 96W-250	83.4*			56.3	14.9	93	36	2	127	May 08
WILLCROSS 723	76.3	72.6	59.8	56.5	14.8	91	42	1	128	May 09
WILLCROSS 728	78.2	71.4		55.6	14.8	90	41	1	128	May 09
WILLCROSS 730	78.4			56.1	15.2	93	41	0	129	May 10
WILLCROSS 738	78.1	77.1*	69.9	56.2	14.8	92	41	1	127	May 08
Average	80.3	74.3	67.1	55.9	14.8	91.3	39.6	0.7	128.0	May 09
LSD (0.05)	11.7	7.1	6.3	0.9	0.4	4.3	2.3	0.7	1.4	
CV%	10.2	9.6	11.6	1.1	1.9	3.2	4.0	68.3	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.

§ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 8. Performance of soft red winter wheats tested near Trenton, Missouri during 2000.

Variety	Grain yield [†]			Test weight - lb/bu -	Grain moistur %	Winter survival %	Plant height in	Lodging 0-9	Downy mildew [§] %
	2000	1999-00	1998-00						
AGRIPRO Elkhart	59.7	62.0	61.9	58.5**	11.5	94	35	1	7
AGRIPRO Gibson	51.5	57.4		56.7	10.9	96	32	2	15
AGRIPRO Patton	57.4	64.7*	64.6*	56.8	11.4	90	33	1	4
AGRIPRO Shiloh	57.4	59.5		55.5	10.9	92	30	0	3
AGS 2000 (formerly GA 89482E7) [¶]	68.8**	66.5*		58.2*	11.6	91	33	1	4
AR 494B-2-2	58.0			57.8*	11.7	93	34	1	24
AR 584A-3-1	45.8			57.0	11.2	93	33	1	2
AR 656-5-1	48.1			54.5	10.6	94	31	0	49
Dixie 911	51.5			55.9	11.0	96	33	2	30
Dixie 2000	51.7			55.9	10.8	94	33	2	47
Ernie	46.5	58.1	57.6	56.8	10.7	96	31	0	12
EXCEL 200	52.1	60.1	62.9	56.5	11.4	94	34	1	27
EXCEL 400	53.7	65.8*	63.9	56.8	11.1	93	32	2	54
EXCEL 400-1	55.7			56.5	11.4	98	33	2	51
FFR 540	43.3			55.4	10.8	94	33	1	6
FFR 558	52.4	58.7	60.9	57.7*	11.5	96	32	1	41
Fortune 9890	53.4	61.0		55.7	11.0	94	33	1	19
GA 88622E51	47.6			52.3	10.1	94	29	2	49
GA 901146E15	55.2			56.1	11.5	88	31	1	11
Kaskaskia	48.4	55.4	58.9	58.0*	12.2	95	35	1	16
Lewis 857	55.1			57.0	11.4	95	32	1	39
MFA Brand 1814	50.0			55.4	10.2	93	30	1	56
MFA Brand 1828	55.7	61.0	60.3	56.7	11.4	95	34	2	39
MO 960903	61.0			57.2*	11.6	92	36	1	8
MO 971022	48.7			55.1	10.9	95	32	1	19
MO 980525	58.4			57.3*	12.1	92	35	1	24
MPG 7921 SRW	62.7*			54.3	11.1	95	31	1	18
NK BL930390	58.8			55.3	11.4	93	31	1	31

NK Coker 9474	39.0	49.9	52.5	56.8	10.6	90	29	1	65
NK Coker 9543	55.7	58.9	60.2	56.0	11.0	93	29	2	34
NK Coker 9663	51.9	53.9	56.4	56.8	11.6	96	35	2	2
NK Coker 9704	58.5	59.5	63.0	57.5*	11.3	96	33	2	19
Pioneer Variety 2540	58.4	62.3	63.7	55.2	10.6	92	30	1	50
Pioneer Variety 25R26	66.4*	70.3**	69.6**	55.4	10.6	92	30	0	18
Pioneer Variety 25R57	60.0	65.2*	65.5*	55.4	10.7	98	32	1	26
Roane	59.3	64.1*	61.1	57.5*	11.5	91	28	1	12
Stine 455	43.9	53.0	52.9	55.9	10.8	95	33	0	7
Stine 488	47.2	56.3	58.3	56.5	11.4	89	31	1	53
Terra SR 218	51.8	55.6		55.4	11.1	95	31	2	65
Terral TVX 8910	51.4			55.9	11.1	91	32	1	17
USG 3209	65.8*	69.8*	68.5*	57.5*	11.5	95	28	2	4
USG 3709	58.9			54.9	11.2	92	32	1	23
VA 96W-158	57.4			55.9	11.4	95	32	1	6
VA 96W-247	56.2			57.3*	11.2	91	28	2	14
VA 96W-250	64.1*			57.6*	11.4	90	29	2	6
WILLCROSS 723	51.9	58.1	56.9	56.1	11.0	92	33	2	44
WILLCROSS 728	52.0	59.1		55.7	11.3	94	31	2	57
WILLCROSS 730	62.7*			54.8	11.1	93	31	1	12
WILLCROSS 738	55.9	64.1*	67.3*	56.3	11.3	94	33	2	44
Average	54.6	60.4	61.3	56.3	11.2	93.4	31.8	1.2	26.2
LSD (0.05)	7.2	7.2	5.6	1.3	0.5	5.2	2.5	0.8	27.7
CV%	9.3	12.0	11.4	1.7	2.9	3.8	5.6	44.8	75.7

** 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.

§ Percent of canopy showing symptoms of downy mildew.

¶ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 9. Performance of soft red winter wheats tested at Charleston, Missouri during 2000.

Variety	Grain yield [†]			Test weight - lb/bu -	Grain moisture %	Winter survival %	Plant height in	Lodging [‡] 0-9
	2000	1999-00	1998-00					
AGRIPRO Elkhart	79.0	67.9	62.2*	63.4*	11.9	96	43	0
AGRIPRO Gibson	78.8	63.5		62.9*	13.0	96	39	0
AGRIPRO Patton	88.0*	79.6**	67.2*	58.0	18.0	98	41	1
AGRIPRO Shiloh	68.6	63.4		60.1	14.5	97	41	0
AGS 2000 (formerly GA 89482E7) [§]	87.7*	73.5*		60.8	20.0	97	41	0
AR 494B-2-2	77.0			60.8	20.9	96	44	2
AR 584A-3-1	74.9			59.9	13.3	97	45	2
AR 656-5-1	69.9			57.7	17.1	95	41	0
Dixie 911	72.2			57.8	17.3	95	42	0
Dixie 2000	81.5			60.2	14.8	97	40	0
Ernie	68.1	57.8	52.3	60.6	10.2	96	36	1
EXCEL 200	71.5	62.3	56.9	61.3	13.9	97	40	1
EXCEL 400	74.2	66.5	59.9	59.1	16.1	96	44	1
EXCEL 400-1	81.9*			59.0	17.6	98	43	1
FFR 540	79.5			59.9	14.0	97	42	1
FFR 558	75.0	67.4	61.5	60.8	26.6	96	42	0
Fortune 9890	85.0*	68.0		60.1	14.7	97	41	1
GA 88622E51	78.1			58.4	13.4	97	39	1
GA 901146E15	80.9			58.7	12.7	96	38	0
Kaskaskia	75.7	64.3	60.7	62.2*	19.0	97	44	0
Lewis 857	78.9			59.3	17.1	96	43	1
MFA Brand 1814	78.2			59.0	16.8	98	38	0
MFA Brand 1828	75.9	66.4	61.2	58.9	16.3	97	44	1
MO 960903	85.3*			59.5	16.4	96	45	1
MO 971022	73.3			60.2	11.6	98	39	0
MO 980525	71.6			60.3	31.6	96	43	1
MPG 7921 SRW	83.6*			57.2	17.1	97	43	0
NK BL930390	71.6			60.8	31.7	97	41	0

NK Coker 9474	65.5	55.6	54.8	63.5**	13.0	96	38	0
NK Coker 9543	69.3	66.2	56.7	59.3	13.5	97	38	1
NK Coker 9663	74.3	70.9	65.6*	59.6	16.9	95	41	2
NK Coker 9704	78.0	65.0	56.0	62.7*	14.2	98	40	2
Pioneer Variety 2540	73.6	63.8	62.5*	59.2	26.7	96	41	0
Pioneer Variety 25R26	74.4	66.9	62.3*	58.6	25.6	97	39	0
Pioneer Variety 25R57	82.8*	73.6*	65.9*	61.9*	13.3	98	43	0
Roane	86.2*	76.0*	68.3**	60.5	18.1	98	39	0
Stine 455	83.3*	69.4	61.9*	61.5*	12.8	97	41	1
Stine 488	78.3	67.5	59.5	56.3	21.0	96	43	0
Terra SR 218	77.4	62.6		60.0	24.0	98	45	1
Terral TVX 8910	79.8			58.1	17.0	97	42	1
USG 3209	85.4*	74.0*	61.8*	58.7	16.4	96	37	2
USG 3709	79.1			57.5	17.4	98	43	0
VA 96W-158	89.1*			62.9*	10.3	97	42	1
VA 96W-247	90.3**			59.1	16.4	97	39	2
VA 96W-250	89.8*			61.9*	12.3	96	38	2
WILLCROSS 723	77.9	60.9	57.5	58.8	16.6	95	43	0
WILLCROSS 728	87.0*	67.5		60.4	14.2	97	42	1
WILLCROSS 730	80.9			57.3	16.6	96	42	0
WILLCROSS 738	77.5	66.9	60.7	59.9	15.9	98	42	1
Average	78.5	66.9	60.7	60.0	16.9	96.8	41.3	0.7
LSD (0.05)	8.4	7.9	6.6	2.0	2.4	2.3	2.1	0.7
CV%	7.2	12.0	13.6	2.3	9.7	1.6	3.4	64.4

** 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.

§ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 10. Performance of soft red winter wheats tested at Portageville, Missouri during 2000.

Variety	Grain yield [†]			Test weight	Grain moisture	Winter survival	Plant height	Lodging [‡]	Heading date	
	2000	1999-00	1998-00						Julian	Calendar
	----- bu/acre -----			- lb/bu -	%	%	in	0-9		
AGRIPRO Elkhart	48.4	51.6	48.5	63.0	10.0	94	35	2	114	April 25
AGRIPRO Gibson	46.7	46.9		63.0	10.2	97	37	0	115	April 26
AGRIPRO Patton	51.5	53.9	47.9	61.3	10.1	96	37	0	113	April 24
AGRIPRO Shiloh	45.2	51.2		62.7	10.2	96	35	0	115	April 26
AGS 2000 (formerly GA 89482E7) [§]	60.1*	59.2*		61.7	10.1	96	35	2	111	April 22
AR 494B-2-2	56.3			61.6	10.2	97	38	1	113	April 24
AR 584A-3-1	51.2			61.6	10.1	94	39	2	113	April 24
AR 656-5-1	40.0			61.2	10.0	92	35	0	119	April 30
Dixie 911	48.8			61.3	10.0	94	36	0	118	April 29
Dixie 2000	48.2			61.2	10.0	96	35	3	117	April 28
Ernie	37.5	48.6	43.0	59.7	9.9	94	30	2	112	April 23
EXCEL 200	37.8	45.8	42.9	62.1	10.4	94	36	1	114	April 25
EXCEL 400	45.0	52.9	47.2	61.9	10.4	95	37	1	116	April 27
EXCEL 400-1	48.6			60.8	10.4	94	38	1	116	April 27
FFR 540	54.6			60.4	10.2	92	35	2	117	April 28
FFR 558	51.8	54.8	48.3	61.9	10.8	95	37	0	117	April 28
Fortune 9890	50.1	52.0		62.3	10.1	96	36	1	118	April 29
GA 88622E51	51.1			61.3	10.2	94	32	1	115	April 26
GA 901146E15	48.7			60.0	10.2	95	32	1	112	April 23
Kaskaskia	48.2	44.2	44.1	63.7*	10.6	95	38	2	121	May 02
Lewis 857	46.2			62.0	10.6	95	38	0	117	April 28
MFA Brand 1814	53.9			61.0	9.6	98	36	0	115	April 26
MFA Brand 1828	45.6	53.6	48.8	62.0	10.5	94	38	1	114	April 25
MO 960903	47.2			61.1	10.2	96	39	0	113	April 24
MO 971022	38.8			60.9	9.9	93	34	1	113	April 24
MO 980525	56.8			61.4	10.9	94	39	0	122	May 03
MPG 7921 SRW	62.6*			60.9	10.2	95	38	0	113	April 24
NK BL930390	60.4*			62.6	10.8	97	36	2	118	April 29

NK Coker 9474	41.7	43.8	42.7	63.4	10.1	93	31	0	115	April 26
NK Coker 9543	49.3	53.5	46.3	60.9	10.0	95	34	1	113	April 24
NK Coker 9663	47.5	56.7	51.3	62.1	10.6	94	33	3	113	April 24
NK Coker 9704	51.1	53.7	45.4	63.2	10.4	97	35	1	114	April 25
Pioneer Variety 2540	64.1*	57.0	56.2*	61.6	10.2	98	37	1	119	April 30
Pioneer Variety 25R26	64.3**	63.7**	59.8**	61.3	10.3	97	36	0	118	April 29
Pioneer Variety 25R57	46.7	54.2	48.0	61.9	10.1	97	35	1	116	April 27
Roane	59.3*	54.4	48.9	64.4**	10.6	97	36	1	119	April 30
Stine 455	55.0	57.3*	48.6	60.7	10.3	94	35	3	118	April 29
Stine 488	50.0	48.1	44.3	62.2	10.5	93	38	1	119	April 30
Terra SR 218	50.0	51.9		62.0	10.4	96	37	0	118	April 29
Terral TVX 8910	50.4			60.8	10.2	94	37	0	114	April 25
USG 3209	62.1*	61.6*	48.1	61.1	10.4	94	34	2	112	April 23
USG 3709	57.9			60.6	10.0	96	40	1	113	April 24
VA 96W-158	47.8			60.6	10.2	97	39	1	109	April 20
VA 96W-247	56.1			62.3	10.2	95	34	1	116	April 27
VA 96W-250	55.4			61.1	10.4	96	33	1	112	April 23
WILLCROSS 723	44.9	50.4	48.1	61.8	10.3	93	38	1	117	April 28
WILLCROSS 728	49.9	51.4		62.2	10.5	96	37	2	118	April 29
WILLCROSS 730	58.9*			60.7	10.2	95	40	0	113	April 24
WILLCROSS 738	47.7	50.7	45.1	61.6	10.5	95	39	1	116	April 27
Average	50.8	52.7	47.8	61.7	10.3	95.1	36.2	1.0	115.3	April 26
LSD (0.05)	5.5	6.5	6.1	0.9	0.3	2.7	2.4	0.8	1.4	
CV%	7.2	12.5	15.9	1.1	1.7	2.0	4.6	58.5	0.9	

** 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.

§ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 11. Performance of soft red winter wheats tested at Lamar, Missouri during 2000.

Variety	Grain yield [†]			Test weight - lb/bu -	Grain moisture %	Winter survival %	Plant height in	Lodging [‡] 0-9
	2000	1999-00	1998-00					
AGRIPRO Elkhart	43.7	42.9	51.3	55.6*	9.9	94	43	0
AGRIPRO Gibson	52.8	41.2		52.5	8.9	94	39	1
AGRIPRO Patton	49.0	41.4	48.4	50.9	9.2	94	41	2
AGRIPRO Shiloh	46.3	36.7		51.9	9.2	95	39	1
AGS 2000 (formerly GA 89482E7) [§]	67.8**	56.8*		52.7	9.3	93	38	1
AR 494B-2-2	54.2			54.7	9.7	93	42	2
AR 584A-3-1	44.1			53.2	9.4	93	42	2
AR 656-5-1	41.3			52.1	8.8	95	40	0
Dixie 911	43.1			52.6	9.0	96	41	1
Dixie 2000	51.1			53.7	9.0	97	42	1
Ernie	46.8	41.3	48.9	50.0	8.8	97	35	1
EXCEL 200	57.8	44.3	51.4	52.7	9.5	93	42	2
EXCEL 400	59.0	47.4	55.1	52.8	9.4	95	42	2
EXCEL 400-1	56.4			53.2	9.8	93	43	2
FFR 540	40.9			50.8	9.0	94	42	2
FFR 558	53.6	45.2	53.4	54.7	10.2	94	41	1
Fortune 9890	53.6	46.7		53.5	9.3	94	42	1
GA 88622E51	58.8			49.2	8.5	94	39	1
GA 901146E15	55.4			47.5	8.7	93	37	1
Kaskaskia	52.4	42.8	47.7	55.5*	9.9	95	44	3
Lewis 857	62.6*			53.3	9.5	96	42	2
MFA Brand 1814	48.1			51.4	8.3	93	37	0
MFA Brand 1828	54.6	43.5	51.4	53.1	9.5	95	42	2
MO 960903	59.4			53.8	9.7	91	43	1
MO 971022	50.2			48.2	9.0	95	38	1
MO 980525	55.0			54.9	10.3	91	41	1
MPG 7921 SRW	61.2			51.1	9.7	95	40	0
NK BL930390	59.9			53.2	9.5	97	40	3

NK Coker 9474	46.3	44.2	48.1	54.1	9.0	92	37	1
NK Coker 9543	52.5	45.1	48.8	51.1	9.2	95	39	2
NK Coker 9663	48.5	45.1	49.7	53.8	9.9	94	42	2
NK Coker 9704	57.4	48.4	52.0	54.0	9.3	94	38	1
Pioneer Variety 2540	46.2	43.3	50.8	52.2	9.1	96	38	1
Pioneer Variety 25R26	59.4	53.8	55.8	51.0	8.5	94	37	1
Pioneer Variety 25R57	51.4	45.3	53.9	51.6	9.2	93	40	0
Roane	59.9	49.1	53.0	56.5**	10.0	95	39	1
Stine 455	39.2	35.3	42.6	50.5	8.7	94	40	1
Stine 488	46.2	41.8	49.6	53.7	10.0	93	42	2
Terra SR 218	52.5	47.6		54.3	9.7	92	43	1
Terral TVX 8910	51.0			50.8	8.8	93	41	1
USG 3209	67.5*	59.0**	61.2**	52.9	9.6	96	36	1
USG 3709	56.7			51.1	9.5	94	41	1
VA 96W-158	61.4			51.5	9.2	95	39	1
VA 96W-247	57.8			52.0	9.1	94	38	2
VA 96W-250	59.5			51.9	9.4	94	36	1
WILLCROSS 723	50.7	47.5	51.0	52.6	9.3	95	43	1
WILLCROSS 728	47.7	45.5		53.0	9.9	94	40	3
WILLCROSS 730	60.5			51.6	9.1	97	41	1
WILLCROSS 738	52.7	44.4	51.8	52.9	9.8	93	42	2
Average	53.1	45.4	51.2	52.5	9.3	94.2	40.2	1.3
LSD (0.05)	5.4	5.1	4.6	1.1	0.6	2.9	1.8	0.9
CV%	6.8	11.4	11.2	1.5	4.0	2.0	3.0	43.4

** 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.

§ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 12. 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 2000. The Mt. Vernon location in 2000 was lost therefore, data presented for the southwestern region in 2000 are only for Lamar. The two- and three-year data for that region include Mt Vernon data from 1999 and 1998, respectively.

Variety	Northern region			Southeastern region			Southwestern region			State 2000
	2000	1999-00	1998-00	2000	1999-00	1998-00	2000	1999-00	1998-00	
	----- bushels/acre -----									
AGRIPRO Elkhart	66.5	64.8	61.4	62.8	59.7	55.3	43.7	46.4	55.0	61.8
AGRIPRO Gibson	64.8	64.7		62.2	55.2		52.8	45.1		61.9
AGRIPRO Patton	68.7*	70.5*	67.6*	70.8*	66.7*	57.5*	49.0	43.2	51.2	66.0
AGRIPRO Shiloh	62.6	62.6		56.8	57.3		46.3	39.9		57.8
AGS 2000 (formerly GA 89482E7) [‡]	72.7*	70.5*		73.0*	66.3*		67.8**	57.5**		72.3**
AR 494B-2-2	67.0			62.1			54.2			63.4
AR 584A-3-1	60.2			64.5			44.1			59.0
AR 656-5-1	60.7			55.4			41.3			55.9
Dixie 911	62.3			62.3			43.1			59.1
Dixie 2000	64.3			64.7			51.1			62.0
Ernie	57.3	61.4	60.0	52.0	53.2	47.7	46.8	43.1	51.6	54.1
EXCEL 200	64.0	67.6	64.7	56.5	54.0	49.9	57.8	45.0	52.7	60.0
EXCEL 400	70.1*	70.9*	65.9*	63.7	59.7	53.6	59.0	47.7	56.8*	63.2
EXCEL 400-1	66.7			59.9			56.4			65.3
FFR 540	60.0			68.7*			40.9			59.9
FFR 558	61.8	62.4	59.8	63.8	61.1	54.9	53.6	46.1	56.3*	60.6
Fortune 9890	68.8*	67.9		66.5	60.0		53.6	48.1		65.7
GA 88622E51	61.3			63.4			58.8			61.4
GA 901146E15	67.6			65.9			55.4			65.1
Kaskaskia	63.3	64.7	61.1	63.7	54.2	52.4	52.4	46.3	52.3	61.7
Lewis 857	65.2			63.3			62.6*			63.8
MFA Brand 1814	60.4			69.1*			48.1			61.3
MFA Brand 1828	67.1	68.0	63.6	60.4	60.0	55.0	54.6	45.9	54.5	62.7
MO 960903	70.5*			66.4			59.4			67.4
MO 971022	59.2			58.5			50.2			57.3
MO 980525	65.4			61.4			55.0			62.1
MPG 7921 SRW	70.8*			74.1**			61.2			70.3*
NK BL930390	65.4			64.5			59.9			64.4

NK Coker 9474	57.4	59.5	57.3	50.9	49.7	48.8	46.3	44.4	48.5	53.7
NK Coker 9543	63.3	60.8	59.8	59.2	59.8	51.5	52.5	45.8	49.1	60.2
NK Coker 9663	65.5	66.6	61.9	63.6	63.8*	58.5*	48.5	51.0	54.7	62.0
NK Coker 9704	66.1	64.7	63.6	62.1	59.3	50.7	57.4	49.5	54.4	63.2
Pioneer Variety 2540	67.6	67.2	63.8	70.1*	60.4	59.3*	46.2	43.2	51.0	65.1
Pioneer Variety 25R26	74.4**	74.0**	68.9**	68.9*	65.3*	61.1**	59.4	47.3	58.9*	70.2*
Pioneer Variety 25R57	65.4	66.7	64.4	65.3	63.9*	56.9*	51.4	54.6*	56.4*	62.7
Roane	68.4	69.7	64.8	74.0*	65.2*	58.6*	59.9	52.5	55.9	69.0*
Stine 455	60.1	63.7	59.3	69.4*	63.3*	55.2	39.2	39.9	48.1	59.4
Stine 488	64.9	65.2	61.5	66.0	57.8	51.9	46.2	42.2	50.4	62.0
Terra SR 218	64.0	61.7		62.7	57.2		52.5	46.8		61.8
Terral TVX 8910	62.4			65.9			51.0			61.7
USG 3209	69.1*	69.2	64.7	74.1**	67.8**	55.0	67.5*	56.6*	60.3**	70.6*
USG 3709	66.9			67.4*			56.7			65.7
VA 96W-158	66.8			67.7*			61.4			66.3
VA 96W-247	67.3			71.3*			57.8			66.8
VA 96W-250	73.4*			71.1*			59.5			70.4*
WILLCROSS 723	63.4	65.6	59.0	60.9	55.6	52.8	50.7	49.6	54.4	60.9
WILLCROSS 728	60.9	63.7		69.2*	59.5		47.7	48.0		61.2
WILLCROSS 730	68.8*			70.3*			60.5			67.9
WILLCROSS 738	66.1	69.7	66.2*	62.5	58.8	52.9	52.7	45.5	52.8	62.8
Average	65.2	66.1	62.8	64.7	59.8	54.3	53.1	47.1	53.6	63.0
LSD (0.05)	5.7	4.0	3.4	7.5	5.2	4.6	5.4	4.7	4.1	4.1
CV%	10.9	10.7	11.6	11.8	12.5	14.8	6.8	12.3	12.4	11.5

** 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.

‡ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

Table 13. Grain yield[†] for soft red winter wheats tested at six locations in Missouri during 2000. Varieties are listed in descending order of state average yield. Yields from the Mt Vernon location ranged from 1-16 bushels per acre due to severe disease, rainfall, and lodging and have not been presented.

Variety	Northern region			Southeastern region		Southwest	State average 2000
	Columbia	Novelty	Trenton	Charleston	Portageville	Lamar	
	----- bushels/acre -----						
AGS 2000 (formerly GA 89482E7) [‡]	69.7*	80.1*	68.8**	87.7*	60.1*	67.8**	72.3**
USG 3209	65.9	78.7	65.8*	85.4*	62.1*	67.5*	70.6*
VA 96W-250	71.9**	83.4*	64.1*	89.8*	55.4	59.5	70.4*
MPG 7921 SRW	67.4*	80.5*	62.7*	83.6*	62.6*	61.2	70.3*
Pioneer Variety 25R26	66.3	88.0*	66.4*	74.4	64.3**	59.4	70.2*
Roane	65.4	79.2*	59.3	86.2*	59.3*	59.9	69.0*
WILLCROSS 730	61.3	78.4	62.7*	80.9	58.9*	60.5	67.9
MO 960903	67.8*	82.1*	61.0	85.3*	47.2	59.4	67.4
VA 96W-247	63.9	81.7*	56.2	90.3**	56.1	57.8	66.8
VA 96W-158	62.9	79.1	57.4	89.1*	47.8	61.4	66.3
AGRIPRO Patton	57.6	90.9**	57.4	88.0*	51.5	49.0	66.0
USG 3709	67.9*	73.9	58.9	79.1	57.9	56.7	65.7
Fortune 9890	67.4*	83.1*	53.4	85.0*	50.1	53.6	65.7
EXCEL 400-1	65.9	89.3*	55.7	81.9*	48.6	56.4	65.3
Pioneer Variety 2540	64.8	80.1*	58.4	73.6	64.1*	46.2	65.1
GA 901146E15	66.9*	79.4*	55.2	80.9	48.7	55.4	65.1
NK BL930390	61.9	77.9	58.8	71.6	60.4*	59.9	64.4
Lewis 857	66.0	74.8	55.1	78.9	46.2	62.6*	63.8
AR 494B-2-2	62.6	80.4*	58.0	77.0	56.3	54.2	63.4
NK Coker 9704	58.9	79.4*	58.5	78.0	51.1	57.4	63.2
EXCEL 400	61.0	85.2*	53.7	74.2	45.0	59.0	63.2
WILLCROSS 738	63.6	78.1	55.9	77.5	47.7	52.7	62.8
Pioneer Variety 25R57	59.1	79.9*	60.0	82.8*	46.7	51.4	62.7
MFA Brand 1828	65.5	76.7	55.7	75.9	45.6	54.6	62.7
MO 980525	57.6	78.1	58.4	71.6	56.8	55.0	62.1
NK Coker 9663	60.3	82.4*	51.9	74.3	47.5	48.5	62.0
Dixie 2000	66.2	78.1	51.7	81.5	48.2	51.1	62.0
Stine 488	59.6	86.6*	47.2	78.3	50.0	46.2	62.0

AGRIPRO Gibson	58.3	83.2*	51.5	78.8	46.7	52.8	61.9
Terra SR 218	59.8	81.5*	51.8	77.4	50.0	52.5	61.8
AGRIPRO Elkhart	61.1	76.0	59.7	79.0	48.4	43.7	61.8
Kaskaskia	62.0	78.0	48.4	75.7	48.2	52.4	61.7
Terral TVX 8910	59.1	78.0	51.4	79.8	50.4	51.0	61.7
GA 88622E51	51.2	86.3*	47.6	78.1	51.1	58.8	61.4
MFA Brand 1814	53.4	80.0*	50.0	78.2	53.9	48.1	61.3
WILLCROSS 728	55.8	78.2	52.0	87.0*	49.9	47.7	61.2
WILLCROSS 723	64.2	76.3	51.9	77.9	44.9	50.7	60.9
FFR 558	56.6	75.1	52.4	75.0	51.8	53.6	60.6
NK Coker 9543	51.4	80.3*	55.7	69.3	49.3	52.5	60.2
EXCEL 200	63.3	75.2	52.1	71.5	37.8	57.8	60.0
FFR 540	54.3	83.6*	43.3	79.5	54.6	40.9	59.9
Stine 455	56.6	80.8*	43.9	83.3*	55.0	39.2	59.4
Dixie 911	60.2	77.1	51.5	72.2	48.8	43.1	59.1
AR 584A-3-1	58.2	77.8	45.8	74.9	51.2	44.1	59.0
AGRIPRO Shiloh	53.2	77.3	57.4	68.6	45.2	46.3	57.8
MO 971022	55.6	77.4	48.7	73.3	38.8	50.2	57.3
AR 656-5-1	49.1	86.4*	48.1	69.9	40.0	41.3	55.9
Ernie	52.0	74.2	46.5	68.1	37.5	46.8	54.1
NK Coker 9474	48.6	85.3*	39.0	65.5	41.7	46.3	53.7
Average	60.8	80.3	54.6	78.5	50.8	53.1	63.0
LSD (0.05)	5.4	11.7	7.2	8.4	5.5	5.4	4.1
CV%	6.0	10.2	9.3	7.2	7.2	6.8	11.5

** 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.

‡ Number in parentheses is the experimental number under which the variety was tested in the 1999 Missouri Winter Wheat Performance Tests.

**Missouri Seed Improvement Assn.
3211 Lemone Industrial Blvd.
Columbia, Missouri 65201-8245**



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