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OSU Current Report

Cooperative Extension Service • Division of Agriculture • Oklahoma State University

WHEAT VARIETY GRAIN YIELDS - 1990

Gene Krenzer, D.L. Jones and Richard Austin
Department of Agronomy

The 1989-90 wheat growing season will be remembered as one of extremes. Reasonable planting conditions resulted in good wheat stands except for some later planted wheat in far western Oklahoma. No rain in November, December and early January resulted in much of the wheat attempting to grow under drought stress conditions through late fall and winter. Some of the early planted wheat produced excellent forage early but the drought stress reduced growth in November and December. A severe cold front just before Christmas turned all forage brown, but did not kill near as many plants as originally feared. Rains finally began again about January 15, 1990 and did not quit until May or June. Many areas of the state had more than 20" above normal rainfall from Jan. 1 - June 1, 1990. Wheat grazed during the winter seemed to recover very slowly in March probably because of the cloudy, wet conditions. These conditions also favored soil-borne mosaic virus where the disease was present in the soil and producers had not planted tolerant varieties. The development of dryland root rot was also stimulated by the wet spring conditions but was not manifested until mid-May. Heavy powdery mildew was present in April and early May, followed by leaf rust, leaving much of the wheat trying to fill the grain with no green leaves. Harvest started later than normal, but included hot, dry days resulting in a rapid harvest without deterioration of wheat quality.

HIGH GRAIN YIELDING VARIETIES

(Based on more than two years trials.)

Agripro Abilene	AGSECO 7846
Agripro Mesa	Pioneer 2157
Agripro Stallion	TAM 200

VARIETIES SHOWING POTENTIAL BUT NOT ADEQUATELY TESTED

Agripro Sierra	Karl
Arapahoe	Quantum 574
Cimarron	Pioneer 2180

Many producers found harvest a depressing time because grain yields were much lower than expected based on overall appearance and the quantity of straw present. A common story heard was how "my 60 bushel straw crop only produced 30 bushel of grain."

The dry winter resulted in many producers waiting for rain before being willing to topdress wheat. Once the first rain fell in January, frequent subsequent rains kept the fields wet enough it was difficult or impossible to topdress the wheat. This along with substantial forage removal by cattle on some acreage resulted in nitrogen limiting yields on many acres. In some cases the nitrogen was applied, but too late to provide optimum benefit.

This report contains the results of twelve hard red winter wheat variety trials. Seventeen varieties were evaluated in every location. There was a wider range in yields from location to location than in recent years. Also the performance of varieties relative to each other was more variable than usual. Therefore, it is especially important to look at more than one trial to draw variety recommendations. Production conditions, soil type, planting and harvest dates are given in the first table. Note that several of the trials were either grazed or clipped to simulate grazing.

Three entries were evaluated for the first time in 1989-90. Arapahoe is a late maturing, tall variety released by Nebraska. Sierra is a medium maturing short semidwarf from Agripro and Quantum 574 is a fairly tall, early to medium maturity hybrid from Hybritech.

LSD's (least significant difference) are presented in the tables. LSD is a statistical test of yield differences. If the LSD number listed is greater than the yield difference between two varieties, we cannot be confident there is any difference in yield.

The purpose of this testing program is to provide Oklahoma wheat producers with current and reliable performance data on the varieties which are presently grown or are available for use in Oklahoma. When selecting varieties, it is recommended that specific emphasis be given to data from the region in which the wheat is to be grown and that multiple-year averages be consulted whenever possible. This is especially important this year since variety performance was not consistent even within small regions. See previous years current reports for earlier data. Note that the statewide yield table contains two and three year averages.

These data result from a cooperative effort between several individual wheat growers, the Oklahoma Agricultural Experiment Station, the Cooperative Extension Service and the Oklahoma Wheat Commission.

OTHER INFORMATION TO HELP WITH VARIETY SELECTION

CR - 2100 Economic Evaluation of Wheat Varieties Grown for Forage Plus Grain
CR - 2114 Wheat Forage Yields - Fall and Winter
CR - 2116 Full Season Forage Production From Small Grains.
CR - 7185 Foliar Disease Control in Wheat
CR - 7647 Wheat Leaf Rust Control

VARIETY TRIAL SITE INFORMATION

SITE	SOIL SERIES AND TEXTURE[1]	PLANTING DATE	SEEDING RATE	HARVEST DATE[2]
Apache	Hollister SiL	9-28-89	1,000,000	6-11-90
Buffalo	St. Paul SiL	9-11-89	1,500,000	6-20-90
Cherokee	Dale SiL	9-22-89	1,000,000	6-15-90
Custer City	St. Paul SiL	9-29-89	1,000,000	6-14-90
Haskell	Taloka SiL	10-10-89	1,000,000	6-18-90
Kingfisher	Kirkland SL	9-29-89	1,000,000	6-12-90
Marshall	Kirkland SiL	9-08-89	1,500,000	6-13-90
Milburn	Verdigris SiCL	11-06-89	1,000,000	6-19-90
Perkins	Teller L	10-11-89	1,000,000	6-18-90
Purcell	Bethany SiL	9-21-89	1,500,000	6-11-90
Tonkawa	Bethany SiL	10-04-89	1,000,000	6-18-90
Vinita	Dennis SiL	10-04-89	1,000,000	6-20-90

[1]C=clay, L=loam, Si=silt, S=sand. [2]Seeding rate in seeds/acre with a cone planter, 1,000,000 is equivalent to 60 lb/a.

VARIETY TRIAL GROWING CONDITIONS

SITE	COOPERATOR	GROWING CONDITONS[1]
Apache	Paul Jackson	Grazed Dec - Feb 1, heavy leaf rust on May 18.
Buffalo	SCS	Good stand obtained followed by very dry fall, little forage. Clipped 1-11-89 and 3-21-90.
Cherokee	Kenneth Failes	Grazed Dec - March 10.
Custer City	Leland DeBord	Heavily grazed Nov - Dec.
Haskell	Research Station	Heavy powdery mildew, but very small yield increase with Tilt.
Kingfisher	Ernie Helwegge	Flashed grazed for about 2 weeks in Feb. Some soil-borne mosaic virus.
Marshall	Henry Fuxa	Clipped forage on 11-16-89, and 3-10-90. Leaf rust in May.
Milburn	Larry Woods	Planted following peanuts. Flooded for 3 days in May.
Perkins	Research Station	pH between 4.5 and 5.2 reduced early growth of wheat and yields of some varieties.
Purcell	Jack Young	Clipped forage on 11-14-89, 12-20-89 and 3-5-90. Severe leaf diseases eliminated leaves by May 15. Much lodging.
Tonkawa	Dick Detten	Considerable lodging.
Vinita	Jay Franklin	Serious soil-borne mosaic virus problem. Arapahoe, Century, Chisholm, Siouxland, TAM W-101 and TAM 200 were susceptible all other varieties are tolerant.

[1]All locations were continuous wheat, 4 rep tests, planted in 8" rows with enough nitrogen for at least 50 bu yields based on soil test.

NORTHCENTRAL REGION WHEAT PERFORMANCE TRIALS

		CHEROKEE		KINGFISHER		MARSHALL		TONKAWA		REGIONAL AVE.	
BRAND	ENTRY	T.W.[1]	BU/A	T.W.	BU/A	T.W.	BU/A	T.W.	BU/A	T.W.	BU/A
-	KARL	61.0	51.7(1)[2]	59.3	43.1(1)	58.8	27.7(3)	57.8	34.9(2)	59.2	39.3
AGRIPRO	MESA	61.1	48.2(2)	58.8	40.5(3)	57.3	23.5(7)	58.5	38.9(1)	58.9	37.8
AGRIPRO	THUNDERBIRD	60.1	38.0(10)	59.6	38.5(6)	57.8	28.0(1)	58.9	32.7(3)	59.1	34.3
AGRIPRO	ABILENE	60.7	46.6(3)	58.4	33.5(10)	57.2	27.8(2)	58.3	28.1(11)	58.7	34.0
QUANTUM	574	58.7	37.9(12)	56.5	39.5(4)	56.1	24.5(5)	56.3	31.0(5)	56.9	33.2
AGRIPRO	SIERRA	59.2	37.8(14)	58.0	37.9(7)	56.4	22.8(8)	57.2	32.0(4)	57.7	32.6
-	CHISHOLM	59.4	40.5(7)	58.1	40.6(2)	55.9	20.4(11)	58.2	27.8(12)	57.9	32.3
-	ARAPAHOE	59.5	46.1(4)	57.3	30.7(15)	56.7	26.3(4)	55.9	25.5(13)	57.3	32.1
-	CENTURY	59.0	40.2(9)	57.9	33.2(11)	54.3	24.0(6)	56.2	29.0(8)	56.8	31.6
PIONEER	2157	60.2	33.3(16)	58.2	39.2(5)	54.3	16.7(14)	58.7	30.6(6)	57.9	30.0
AGRIPRO	STALLION	59.8	38.0(11)	59.0	35.9(9)	55.2	17.0(13)	57.2	28.8(9)	57.8	29.9
AGSECO	7846	58.5	29.4(17)	57.8	36.4(8)	56.4	20.9(9)	57.0	29.2(7)	57.4	29.0
PIONEER	2180	57.7	37.9(13)	58.0	32.9(12)	56.8	15.5(17)	57.9	28.6(10)	57.6	28.7
-	TAM W-101	60.1	41.5(5)	58.6	30.7(14)	56.7	17.8(12)	57.1	22.3(17)	58.1	28.1
-	TAM 200	60.3	40.8(6)	58.8	30.1(16)	56.0	16.2(15)	56.7	25.2(14)	58.0	28.1
-	SIOUXLAND	59.3	40.4(8)	58.1	26.1(17)	56.6	20.6(10)	56.2	22.6(16)	57.6	27.4
-	ARKAN	58.4	35.3(15)	56.8	32.3(13)	54.7	15.8(16)	55.8	24.3(15)	56.4	26.9
LOCATION AVERAGE		59.5	40.2	58.2	35.4	56.3	21.5	57.3	28.9	57.8	31.5
L.S.D. (.05)		0.9	6.9	1.2	6.6	2.0	4.7	1.2	6.1	0.7	3.0
C.V. (%)		1.1	12.0	1.4	13.2	2.5	15.2	1.5	14.8	1.7	13.7

[1]T.W. = Test Weight in lb/bu. [2]Rank within the location.

EASTERN REGION WHEAT PERFORMANCE TRIALS

		HASKELL			MILBURN		PERKINS		VINITA			REGIONAL AVE.	
BRAND	ENTRY	H.D.[1]	T.W.[2]	BU/A	T.W.	BU/A	T.W.	BU/A	LODG[3]	T.W.	BU/A	T.W.	BU/A
QUANTUM	574	27	56.9	28.0(5)[4]	58.1	35.1(7)	58.5	36.5(1)	8	56.4	36.2(1)	57.5	33.9
AGRIPRO	STALLION	23	56.9	28.6(3)	59.8	35.7(5)	58.5	29.5(10)	0	54.7	29.6(2)	57.5	30.8
AGRIPRO	THUNDERBIRD	29	56.8	27.1(7)	59.8	34.9(8)	60.1	32.3(5)	5	56.5	28.6(5)	58.3	30.7
-	KARL	23	56.8	19.6(15)	60.6	37.5(1)	59.3	32.8(3)	60	56.5	28.8(4)	58.3	29.7
AGRIPRO	ABILENE	34	56.6	28.0(4)	59.8	34.6(10)	58.4	25.7(14)	0	57.7	29.5(3)	58.1	29.5
AGRIPRO	SIERRA	29	56.8	24.3(9)	58.1	36.8(3)	58.3	26.6(13)	3	55.6	28.6(6)	57.2	29.1
AGSECO	7846	23	57.3	30.3(1)	58.0	25.5(17)	58.4	31.5(6)	58	55.2	28.5(7)	57.2	28.9
PIONEER	2180	19	57.8	18.2(16)	59.9	35.5(6)	57.4	32.9(2)	5	56.0	26.5(8)	57.8	28.3
-	TAM 200	24	57.4	28.8(2)	60.1	34.9(9)	59.6	27.1(12)	40	54.5	21.5(12)	57.9	28.1
-	ARAPAHOE	37	57.7	21.4(12)	59.3	37.0(2)	58.2	32.3(4)	5	55.8	21.5(13)	57.7	28.0
AGRIPRO	MESA	22	56.2	21.9(11)	59.4	34.3(11)	58.4	31.1(8)	28	54.5	23.0(10)	57.1	27.6
-	CENTURY	27	54.8	27.1(6)	58.0	36.5(4)	57.6	21.4(16)	35	54.2	22.5(11)	56.1	26.9
PIONEER	2157	25	56.3	20.5(13)	59.2	27.6(14)	59.2	31.3(7)	0	55.3	26.5(9)	57.5	26.5
-	TAM W-101	30	55.3	20.5(14)	59.6	32.4(12)	58.6	28.4(11)	0	54.0	19.0(15)	56.9	25.1
-	CHISHOLM	23	57.8	24.4(8)	57.6	27.0(16)	58.7	29.5(9)	20	50.7	13.2(17)	56.2	23.5
-	ARKAN	22	53.9	12.7(17)	58.3	28.9(13)	57.9	25.0(15)	33	53.9	20.8(14)	56.0	21.8
-	SIOUXLAND	27	55.3	22.0(10)	58.1	27.5(15)	58.7	20.3(17)	0	53.3	13.5(16)	56.3	20.8
LOCATION AVERAGE		26	56.5	23.7	59.1	33.0	58.6	29.1	18	55.0	24.6	57.3	27.6
L.S.D. (.05)		0.9	1.4	5.1	0.9	3.9	1.0	6.4	23	1.7	7.1	0.6	2.8
C.V. (%)		2.4	1.4	12.0	1.1	8.2	1.2	15.4	93	2.1	20.5	1.5	14.4

[1]H.D. = Heading date at Haskell, Ok. in days after April 1, 1990. [2]T.W. = Test Weight in lb/bu. [3]LODG = Percent of the plants lodged. [4]Rank within the location.

SOUTHWEST REGION WHEAT PERFORMANCE TRIALS

		APACHE		PURCELL		REGIONAL AVE.	
BRAND	ENTRY	T.W.[1]	BU/A	T.W.	BU/A	T.W.	BU/A
QUANTUM	574	58.4	54.9(1)[2]	52.9	29.1(4)	55.6	42.0
AGSECO	7846	59.2	53.0(2)	54.1	27.4(8)	56.7	40.2
-	ARAPAHOE	57.9	48.6(8)	54.5	30.5(1)	56.2	39.6
AGRIPRO	SIERRA	58.4	50.7(3)	53.7	27.8(7)	56.1	39.2
PIONEER	2180	60.7	49.3(6)	57.1	29.1(3)	58.9	39.2
-	KARL	60.6	49.3(7)	57.2	28.7(5)	58.9	39.0
-	ARKAN	59.0	47.0(11)	53.8	29.6(2)	56.4	38.3
AGRIPRO	THUNDERBIRD	60.0	46.9(12)	56.0	28.6(6)	58.0	37.7
AGRIPRO	MESA	60.1	49.4(5)	53.1	24.4(10)	56.6	36.9
AGRIPRO	STALLION	59.4	47.1(10)	52.9	26.1(9)	56.2	36.6
PIONEER	2157	59.9	48.0(9)	55.0	24.2(11)	57.5	36.1
-	TAM 200	59.8	50.0(4)	53.9	21.2(14)	56.9	35.6
-	TAM W-101	59.2	46.5(13)	52.1	23.5(12)	55.7	35.0
-	SIOUXLAND	58.6	44.9(15)	52.8	21.2(15)	55.7	33.0
-	CHISHOLM	59.2	45.1(14)	53.0	19.4(16)	56.1	32.3
AGRIPRO	ABILENE	58.4	40.5(16)	52.7	22.4(13)	55.5	31.5
-	CENTURY	57.1	38.8(17)	49.9	15.8(17)	53.5	27.3
LOCATION AVERAGE		59.2	47.6	53.8	25.2	56.5	36.4
L.S.D. (.05)		0.8	6.9	1.5	4.8	0.8	4.1
C.V. (%)		1.0	10.1	2.0	13.5	1.5	11.4

[1]T.W. = Test Weight in lb/bu. [2]Rank within the location.

NORTHWEST REGION WHEAT PERFORMANCE TRIALS

		BUFFALO		CUSTER CITY		REGIONAL AVE.	
BRAND	ENTRY	T.W.[1]	BU/A	T.W.	BU/A	T.W.	BU/A
-	KARL	55.2	24.2(6)[2]	61.0	33.7(1)	58.1	29.0
AGRIPRO	ABILENE	53.8	28.3(3)	58.9	27.3(2)	56.3	27.8
-	ARAPAHOE	51.8	28.9(2)	56.4	20.7(11)	54.1	24.8
-	TAM 200	57.0	27.5(4)	59.7	21.3(10)	58.4	24.4
-	SIOUXLAND	52.7	25.6(5)	58.3	22.0(9)	55.5	23.8
-	CENTURY	52.7	28.9(1)	57.5	18.4(15)	55.1	23.7
AGRIPRO	MESA	55.9	22.1(8)	59.2	24.7(3)	57.5	23.4
QUANTUM	574	49.7	21.0(11)	57.9	24.4(5)	53.8	22.7
-	CHISHOLM	54.8	23.4(7)	58.6	20.7(12)	56.7	22.0
AGSECO	7846	52.6	21.2(10)	59.0	22.1(8)	55.8	21.7
AGRIPRO	SIERRA	50.6	21.0(12)	57.4	22.2(7)	54.0	21.6
-	ARKAN	50.3	18.2(14)	58.4	24.5(4)	54.3	21.3
AGRIPRO	STALLION	53.8	22.0(9)	59.3	19.4(14)	56.5	20.7
AGRIPRO	THUNDERBIRD	52.8	20.9(13)	59.8	20.3(13)	56.3	20.6
PIONEER	2180	50.0	16.9(16)	57.8	23.8(6)	53.9	20.3
-	TAM W-101	49.9	17.1(15)	57.5	15.9(17)	53.7	16.5
PIONEER	2157	52.8	16.2(17)	57.8	16.2(16)	55.3	16.2
LOCATION AVERAGE		52.9	22.7	58.5	22.2	55.6	22.4
L.S.D. (.05)		1.5	5.1	1.3	5.5	1.0	2.7
C.V. (%)		2.0	16.0	1.6	17.4	1.8	16.7

[1]T.W. = Test Weight in lb/bu. [2]Rank within the location.

Cooperative Extension Service

STATEWIDE SUMMARY FOR WHEAT PERFORMANCE TRIALS

		EASTERN			NORTHWEST		NORTH CENTRAL		SOUTHWEST		STATE AVERAGE		2-YR[3] AVE.	3-YR AVE.
BRAND	ENTRY	H.D.[1]	T.W.[2]	BU/A	T.W.	BU/A	T.W.	BU/A	T.W.	BU/A	T.W.	BU/A	BU/A	BU/A
-	KARL	23	58.3	29.7(4)[4]	58.1	29.0(1)	59.2	39.3(1)	58.9	39.0(6)	58.6	33.8	39.3	
QUANTUM	574	27	57.5	33.9(1)	53.8	22.7(8)	56.9	33.2(5)	55.6	42.0(1)	56.2	31.8		
AGRIPRO	MESA	22	57.1	27.6(11)	57.5	23.4(7)	58.9	37.8(2)	56.6	36.9(9)	57.6	30.8	34.4	41.0
AGRIPRO	THUNDERBIRD	29	58.3	30.7(3)	56.3	20.6(14)	59.1	34.3(3)	58.0	37.7(8)	58.1	30.4	32.8	38.3
AGRIPRO	ABILENE	34	58.1	29.5(5)	56.3	27.8(2)	58.7	34.0(4)	55.5	31.5(16)	57.5	30.4	34.9	39.9
-	ARAPAHOE	37	57.7	28.0(10)	54.1	24.8(3)	57.3	32.1(8)	56.2	39.6(3)	56.7	30.2		
AGRIPRO	SIERRA	29	57.2	29.1(6)	54.0	21.6(11)	57.7	32.6(6)	56.1	39.2(4)	56.6	30.0		
AGRIPRO	STALLION	23	57.5	30.8(2)	56.5	20.7(13)	57.8	29.9(11)	56.2	36.6(10)	57.1	29.2	35.0	40.0
AGSECO	7846	23	57.2	28.9(7)	55.8	21.7(10)	57.4	29.0(12)	56.7	40.2(2)	56.8	29.1	34.6	38.9
PIONEER	2180	19	57.8	28.3(8)	53.9	20.3(15)	57.6	28.7(13)	58.9	39.2(5)	57.1	28.2	35.4	
-	TAM 200	24	57.9	28.1(9)	58.4	24.4(4)	58.0	28.1(15)	56.9	35.6(12)	57.8	28.0	32.8	38.9
-	CENTURY	27	56.1	26.9(12)	55.1	23.7(6)	56.8	31.6(9)	53.5	27.3(17)	55.9	27.7	32.9	36.3
-	CHISHOLM	23	56.2	23.5(15)	56.7	22.0(9)	57.9	32.3(7)	56.1	32.3(15)	56.8	27.0	32.0	36.9
PIONEER	2157	25	57.5	26.5(13)	55.3	16.2(17)	57.9	30.0(10)	57.5	36.1(11)	57.2	26.9	33.6	38.7
-	TAM W-101	30	56.9	25.1(14)	53.7	16.5(16)	58.1	28.1(14)	55.7	35.0(13)	56.6	25.9	30.6	36.1
-	ARKAN	23	56.0	21.8(16)	54.3	21.3(12)	56.4	26.9(17)	56.4	38.3(7)	55.9	25.7	30.9	35.1
-	SIOUXLAND	27	56.3	20.8(17)	55.5	23.8(5)	57.6	27.4(16)	55.7	33.0(14)	56.5	25.0	31.6	34.2
REGIONAL AVERAGE		26	57.3	27.6	55.6	22.4	57.8	31.5	56.5	36.4	57.0	28.8		
L.S.D. (.05)		0.9	0.6	2.8	1.0	2.7	0.7	3.0	0.8	4.1	0.4	1.6		
C.V. (%)		2.4	1.5	14.4	1.8	16.7	1.7	13.7	1.5	11.4	1.6	14.7		

[1]H.D. = Heading date at Haskell, Ok. in days after April 1, 1990. [2]T.W. = Test Weight in lb/bu. [3]2-YR AVE. = Average yield across 12 locations in 1989-90, 8 locations in 1988-89. 3-YR AVE. = includes 13 locations in 1987-88 as well as 88-90. [4]Rank within the region.