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WHEAT AND OAT GRAIN VARIETY TESTS
1984-85

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SUMMARY

Wheat and oat grain variety tests were conducted at the Texas A&M University Agricultural Research and Extension Center at Overton. A late planted (January) wheat variety test was also conducted at Overton. Since climatic conditions often favor one variety more than another in certain years, variety recommendations should not be made from one year's data, however, these results are useful for making at least partial judgement of varieties. It is important to study not only the grain yields, but all variety characteristics such as maturity dates (heading date), especially if double cropping with soybeans is being considered.

OBJECTIVES

These trials were conducted to determine which varieties are best adapted to East Texas for disease resistance and grain yield production. A second objective was to test newly released or experimental lines to determine their potential under East Texas environmental conditions.

PROCEDURE

Wheat and oat variety tests were sown in a well drained, deep loamy sand in mid-October with the exception of one wheat study which was planted January 14, 1985. The seedbed was in good condition with little surface residue. A broadcast, preplant incorporated fertilizer application of 24-96-96 (N-P_2O_5-K_2O) was applied in late August. Both wheat and oats were planted in plots of six rows spaced 8 inches apart and 12 feet in length. Seeding rates were 82 lbs and 78 lbs/ac for wheat and oats, respectively. Good stands were obtained and a high amount of tillering was apparent on both crops. The herbicide, Glean, was applied preemergence at 1/3 oz active ingredient, to all October planted wheat tests.

October planted wheat and oat tests were topdressed with 70 lbs N/ac as urea on Nov. 7 and an additional 65 lbs N/ac on February 18.

The January planted wheat received 65 lbs N/ac on February 18.

Prior to harvest, plots were trimmed to 8 feet in length. The entire plot was combined with a Hege plot combine to determine grain yield. At Overton, four separate wheat tests were conducted. The Uniform Southern Soft Red Winter Wheat Test (USSRWW) had a large number of experimental and newly released varieties (from other states). The Elite wheat test was experimental and newly released soft red winter wheats. The Texas hard red winter Elite test was experimental and newly released hard red winter wheats varieties. The January wheat test had both hard and soft wheat varieties, and experimental lines. The oat variety test also has both experimental and newly released oat lines.

RESULTS

High yields were obtained in the Elite test in 1985 (Table 1). Southern Belle produced a yield of 66.6 bu/ac which topped the test; however, it was not significantly better than several other varieties and hybrids. All the entries beginning with HW were hybrid wheats and several of the hybrids produced yields above average. Test weights were low for almost all varieties. This was thought to be caused by a combination of drought during the head filling period, a severe leaf rust epidemic, and possibly by some stunting of root growth caused by Glean. Above average rainfall after Glean had been applied, in combination with the sandy soil, may have caused the chemical to leach down into the root zone of the wheat plants. During the seedling stage, the wheat appeared to be stunted (whereas the oats looked very vigorous) and for that reason the fall application of N (70 lbs/ac) was applied. Plant heights were also below normal even though we applied above normal N rates. Leaf rust was the only disease that caused significant yield losses in the test. Varieties with rating of 5 or higher probably had significant yield losses and should be considered susceptible. Septoria glume blotch was not severe in 1985 because of the abnormally dry spring.

The Uniform southern soft wheat nursery was made up of some released check varieties such as McNair 1003 and Bradford, but most entries were experimental lines being developed in the Southeastern U.S. Tx-78-7303 is an experimental line developed at Overton and

produced the highest yield of 61 bu/ac. It may be released, however the leaf rust resistance of this line is less than desired. There was some lodging in this experiment which was caused by a storm shortly before harvest.

Table 3 presents yield data for the hard red winter wheats which are generally more adapted to Central and West Texas. The two highest yielding varieties were Siouxland and Mit, two newly released Texas A&M varieties. Overall, the yields of the hard red winter wheats were about 10 bu/ac less than the adapted soft wheats in 1985. Siouxland and Mit demonstrated good leaf rust resistance in 1985, however in 1986, Siouxland apparently is rusting at some locations in Texas.

The late planted (January) wheat demonstrates that yields can be expected to be significantly reduced when planting winter wheat as late as mid-January in East Texas (Table 4). There were several reasons for this which included late head filling during hot weather, lack of vernalization by some of the more winterhardy (cold requiring) varieties, and perhaps more damage caused by diseases and weed problems.

Oat yields in 1985 were very good (Table 5) as the mean of the test was 95 bu/ac. Coker 84-19 (experimental) produced a yield of 134 bu/ac which topped the test, however several other lines produced nearly equal yields. Winterkilling was recorded for several oat lines and resulted in lower yields in this study. Lodging was severe in many oat lines and made harvest difficult. Stem rust was observed in most oat lines, however, we do not believe yields were significantly reduced by this disease.

TABLE 1. ELITE WHEAT VARIETY GRAIN TEST AT OVERTON, TX., 1984-85

Variety or Hybrid	grain (bu/a)	Test wt (lbs)	Heading date	Plant height (in)	Lodging (%)	Powdery mildew 0-9 2/	Leaf rust 0-9 2/	Septoria nodorum 0-9 2/
Southern Belle	66.6a 1/	59	4-1	32	0	1	3	2
HW-3015	66.0a	53	4-1	37	0	0	3	4
Coker 983	64.2ab	57	3-29	28	0	0	2	2
Va 79-54-254	64.2ab	55	4-6	32	3	0	8	2
Fla 302	63.4abc	51	4-2	35	5	0	0	4
Coker 81-12	63.3abc	55	4-1	29	0	0	3	4
Terral 817	63.1abc	52	3-29	31	3	0	4	4
Harpool 78DW14	62.1abc	53	3-29	34	0	0	6	4
Coker 83-20	61.7abcd	52	4-2	28	0	1	5	3
Coker 762	61.4abcd	50	4-1	29	0	0	0	2
Terral 812	60.8abcd	53	3-29	33	3	0	4	3
HW-3021	60.0abcde	50	4-2	36	0	0	7	3
HW-3022	59.7abcde	52	4-5	35	0	6	5	3
McNair 1003	59.6abcde	50	3-29	34	0	0	7	4
Tx-79-19-1	58.9abcde	51	3-28	34	3	1	1	4
Coker 916	58.6 bcdef	57	3-29	28	0	0	2	2
Hunter	57.2 bcdef	57	3-25	28	0	0	3	5
Tx-76-40-2	55.6 bcdefg	48	4-2	31	3	0	3	4
Coker 82-28	55.4 bcdefg	53	4-2	30	0	0	5	1
Tx-82-118	55.2 bcdefg	55	4-11	33	0	0	2	2
Tx-82-185	55.0 bcdefg	50	3-29	34	10	0	1	2
NK 81W701	54.5 cdefg	52	3-20	31	3	0	4	4
Delta Queen	54.3 cdefg	51	4-5	30	0	0	3	3
Bradford	53.4 cdefg	53	4-1	38	5	0	1	3
Tx-78-7303	52.6 defgh	52	3-27	36	5	0	4	4
Tx-73025	51.0 efgh	51	4-1	29	5	0	5	3
Coker 68-15	50.4 fgh	55	4-5	32	0	6	5	4
Tx-79-30	49.3 fgh	53	4-17	34	0	0	4	1
Tx-75-213	48.0 gh	48	4-16	35	0	0	5	2
Tx-74-61	43.1 h	48	3-27	26	0	1	4	5
Mean	57.6							
CV	9.4							

Planted on Oct. 15, 1984. Harvest on May 24, 1985.
Fertilizer application rate: Preplant 400 lbs 6-24-24/a
Topdressed with 70 lbs N/a (urea) on Nov. 7, 1984
Topdressed with 65 lbs N/a (urea) on Feb. 18, 1985
Applied 1/3 oz Glean/a preemergence

1/ Means followed by the same letter are not significantly different at the .05 level as judged by Duncans New Multiple Range Test.

2/ Disease ratings are on a scale from 0-9./0 = no disease symptoms and 9 = severely diseased.

TABLE 2. UNIFORM SOUTHERN SOFT RED WINTER WHEAT NURSERY, OVERTON, TX., 1984-85

Variety	Yield (bu/a)	Test wt (lbs)	Heading date	Plant height (in)	Lodging %	Winter Survival %	Powdery mildew 0-9	Septoria rating 0-9	Leaf Rust 0-9
TX-78-7303	61.1a 1/	52	3-28	36	5	100	0 2/	5 2/	3 2/
Coker 84-26	59.2ab	53	4-2	34	3	100	0	3	0
FL74265-10A2B1	59.1ab	53	3-28	37	0	100	0	2	0
Saluda	57.9abc	56	4-6	35	3	100	0	2	6
Coker 83-20	57.9abc	51	4-5	30	0	100	0	4	5
McNair 1003	56.8abcd	49	3-31	32	10	100	0	4	7
NC 81-58	55.9abcd	56	4-19	30	0	100	0	1	0
NA-SW76-59	55.8abcd	50	4-10	33	3	100	0	2	3
SC 770096	55.4abcd	57	3-28	43	20	100	0	4	4
FL 7927-G14	54.6abcd	57	3-26	32	10	100	0	4	1
SC 790576	54.6abcd	54	3-29	37	0	100	0	5	6
NC 80-36	54.1abcde	45	4-10	32	15	100	0	4	8
Coker 916	53.6abcde	54	4-4	33	10	100	0	3	4
Bradford	52.4abcdef	54	4-2	37	10	100	0	4	1
NA-SW87-171	52.1abcdef	54	4-6	34	5	100	0	3	1
FL791-G161	51.1abcdef	55	3-28	29	20	99	0	6	0
Ark 48-7-4	50.7abcdef	53	3-29	36	15	100	6	5	3
Ark 155-18-5	48.8 bcdef	57	4-4	35	3	100	3	5	3
MD 72001	48.5 bcdef	54	4-16	33	0	100	0	3	2
FL7223A-3-3-A2	46.0 cdefg	52	3-29	30	0	99	0	6	6
NA-SW76-216	45.5 cdefg	50	4-6	37	10	100	2	2	4
FL 302	45.0 defg	50	4-4	33	0	100	0	4	4
Tyler	41.7 efgh	51	4-17	37	3	100	0	3	7
Pion. Exp W9021L	40.8 efgh	51	4-13	32	5	100	1	3	1
Ga 781014-3	40.6 efgh	51	4-1	29	5	75	0	6	0
Ga 73016-2	40.1 fgh	52	4-2	35	5	100	0	4	0
Md 72004	36.1 ghi	50	4-10	33	3	100	0	3	2
Md 55-217-63	29.8 hij	49	4-2	34	10	100	0	4	9
T 70-302	28.9 ij	49	4-17	41	10	100	0	3	9
Md 55-220-76	23.4 j	48	4-6	33	20	100	0	5	9
Mean	48.6								
CV									

Planted on Oct. 15, 1984. Harvest on May 29, 1985.
Fertilizer application rate: Preplant 400 lbs 6-24-24/a
Topdressed with 70 lbs N/a (urea) on Nov. 7, 1984
Topdressed with 65 lbs N/a (urea) on Feb. 18, 1985
Applied 1/3 oz Glean/a preemergence

1/ Means followed by the same letter are not significantly different at the .05 level as judged by Duncan's New Multiple Range Test.

2/ Disease rating are on a scale from 0-9 0 = no disease symptoms and 9 = severely diseased.

TABLE 3. TEXAS HARD RED WINTER WHEAT ELITE TEST AT OVERTON, 1984-85

Variety	Yield (bu/a)	Test wt (lbs)	Plant height (in)	Lodging %	Heading date	Powdery mildew 0-9	Leaf rust 0-9
Siouxland	49.0	56	40	5	4-13	0	0
Mit	44.3	55	31	5	3-25	3	1
Tx 78A3345-V42	42.5	53	27	0	4-11	4	4
TAM W-107	40.8	50	31	0	4-9	0	6
Tx 81V6180	40.5	50	27	5	4-2	0	0
N.K. - Pro Brand 812	39.9	53	29	3	3-29	9	0
Tx 81V6187	38.9	51	30	0	4-2	6	0
OK 80268	37.3	50	30	3	4-8	0	4
Tx 81V6183	37.3	52	30	5	4-9	7	0
Tx 71D4876-V5	37.1	54	29	0	3-29	5	3
TAM W-101	37.0	50	28	0	4-15	9	9
Tx 38948-2	36.3	50	34	0	4-4	0	6
Tx 81V6614	36.2	53	30	10	4-2	0	0
Hawk	35.6	54	32	5	4-13	3	5
Scout 66	35.6	55	41	5	4-16	7	3
Tx 71C8130R	33.7	54	28	0	3-26	7	2
Tx 78V2430-36	33.0	- 2/	-	-	-	-	-
Tx 81V6610	31.7	53	31	0	4-3	0	0
TAM W-108	31.5	47	32	20	4-15	3	6
Centurk 78	31.0	52	36	20	4-20	2	3
Sage	29.7	52	38	0	4-20	6	0
Tx 80A5172-4	28.6	53	33	5	4-11	7	4
Vona	27.6	53	30	5	4-11	0	4
Chisholm	27.4	50	30	5	4-2	7	0
Tx 71A1039-V6	26.9	53	29	0	4-4	4	4
Tx 83A5930	25.4	50	28	0	4-13	9	9
Tx 80A4135-6	25.3	45	28	0	4-16	9	6
TAM 105-W	24.7	49	29	0	4-18	7	1
Sturdy	16.8	48	29	0	4-18	7	1
Payne	16.5	46	32	5	4-15	8	2
Mean	33.3						
CV	14.3						
LSD (.05)	7.8						

Planted on Oct. 17, 1984. Harvested on May 28, 1985.
Fertilizer application rate: Preplant 400 lbs 6-24-24/a
Topdressed with 70 lbs N/a (urea) on Nov. 7, 1984.
Topdressed with 65 lbs N/a (urea) on Feb. 18, 1985.
Applied 1/3 oz Glean/a preemergence.

1/ Disease rating are on a scale from 0-9 where 0 = no disease symptoms and 9 = severely diseased.
2/ Data not recorded on this variety.

TABLE 4. LATE PLANTED (JANUARY) WHEAT VARIETY GRAIN TEST, OVERTON, TX., 1985

Variety or Hybrid	Yield (bu/a)	Test wt (lbs)	Lodging %	Powdery mildew 0-9	Leaf rust 0-9	Septoria glume blotch 0-9
Hunter	34.8a 1/	55	0	0	4	2
TX-79-19-1	32.4ab	37	0	1	2	2
Bounty 100	31.1abc	55	0	4	5	4
Coker 916	30.6abc	26	0	0	3	5
McNair 1003	29.8abcd	46	0	0	5	3
TX-75-213	28.2abcde	43	0	1	0	2
Bradford	28.1abcde	38	40	0	3	4
Bounty 205	27.3abcdef	37	0	4	2	4
Harpool 78DW14	24.4abcdefg	30	40	3	4	5
Bounty 202	22.9abcdefg	54	0	5	4	1
Terral 12	22.8abcdefg	52	50	3	0	2
Bounty 201	22.4abcdefg	53	0	5	7	3
Coker 762	21.6abcdefg	34	10	0	2	2
Terral 817	21.3abcdefg	38	5	0	3	4
Bounty 301	20.8abcdefg	25	0	4	0	1
TX-82-118	18.3 bcdefg	44	0	0	1	1
TX-76-40-2	17.6 bcdefg	36	0	1	1	3
Southern Belle	16.4 cdefg	50	0	3	3	1
TAM W-106	15.2 defg	40	0	6	4	4
TAM W-107	14.1 efg	50	0	0	3	4
Coker 68-15	13.8 efg	-	0	5	1	1
Bounty 310	12.8 fg	-	0	3	3	1
NK-812	12.3 fg	36	0	5	5	4
TAM W-108	8.3 g	32	10	3	4	3
Mean	22.0					
CV	40.5					

1/ Means followed by the same letter are not significantly different at the .05 level as judged by Duncan's New Multiple Range Test.

2/ Disease ratings are on a scale from 0-9 0 = no disease symptoms and 9 = severely diseased.

Planted on Jan. 14, 1985. Harvested on June 17, 1985.
Fertilized application rate: Preplant 400 lbs 6-24-24/a
Topdressed with 65 lbs N/a (urea) on Feb. 18, 1985.

TABLE 5. OAT GRAIN VARIETY TEST AT OVERTON, TX., 1984-85

Variety	Yield (bu/a)	Test wt (lbs)	Heading Date	Plant height (in)	Winterkill %	Stem Rust rating 0-9	Lodging %
Coker 84-19	134a 1/	30	4-10	32	0	3 2/	95
TX-81C-707	120ab	28	4-12	36	0	3	10
Coker 84-16	117ab	32	4-6	33	0	4	1
TX-82C-6023	117ab	28	4-13	38	0	3	25
Coker 84-15	115abc	27	4-4	38	0	8	90
Citation	113abcd	33	4-10	39	0	3	80
Mesquite	111abcd	32	4-13	31	0	3	5
Big Mac	111abcd	31	4-13	38	0	4	85
Bob	108abcde	33	4-5	37	0	4	95
TX-82C-6317	107abcde	31	4-1	36	1	3	15
Coker 234	106abcde	29	4-8	37	0	10	95
Harpool 833	104abcde	29	4-11	31	0	3	1
Coker 84-18	103abcdef	32	4-16	29	0	0	30
T81-1244	102abcdef	28	4-15	34	0	4	0
Coker 422	100 bcdefg	30	4-9	37	1	0	3
T81-1286	99 bcdefg	30	4-5	41	2	4	80
Coker 80-26	98 bcdefg	30	4-15	33	3	4	1
TX-82C-6035	95 bcdefg	32	4-12	39	1	0	98
TX-81C-705	93 bcdefg	28	4-4	33	1	3	75
TX-81C-3102	89 bcdefg	32	4-12	37	0	3	85
F1 63-378	82 cdefg	33	4-3	36	5	6	95
F1 7611-G8	80 defg	32	4-1	33	3	4	20
TX-82M-4744	79 defgh	26	4-13	32	1	0	70
TX-82C-6014	76 efgh	25	4-18	29	15	0	5
T81-1265	69 fgh	29	4-1	29	20	2	70
TX-82M-5018	67 gh	25	4-15	36	10	0	20
TX-82C-6217	44 hi	23	4-18	31	10	0	0
Coker 227	17 i	25	4-10	33	90	4	0
Mean	95						
CV = 21.1							

Planted on Oct. 16, 1984. Harvested on May 29, 1985.
Fertilizer application rate: Preplant 400 lbs 6-24-24/a
Topdressed with 70 lbs N/a (urea) on Nov. 7, 1984.
Topdressed with 65 lbs N/a (urea) on Feb. 18, 1985.

1/ Means followed by the same letter are not significantly different at the .05 level as judged by Duncan's New Multiple Range Test.

2/ Disease ratings are on a scale from 0-9 where 0 = no disease symptoms and 9 = severely diseased.