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WHEAT AND OAT GRAIN VARIETY TESTS

1980-81

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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 wheat variety test was also conducted at Clarksville, in Northeast Texas. 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 deep sand in late September or mid-October at Overton and Clarksville. The seedbed was in good condition with little residue since the soil had been tilled several times after early August. A broadcast, preplant fertilizer application of 60-60-60 (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. Seedling 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 wheat and oats.

Wheat and oat tests were topdressed with 60 lbs N in February. We also applied 2,4-D for weed control to wheat and oat tests in February. Prior to harvest, plots were trimmed to 8 feet in length. Three of the center rows were cut, dried and later threshed to determine grain yield. At Overton, two 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) and was planted on a deep fertile sandy loam soil. The Elite wheat test had some experimentals in it, but was primarily made up of varieties with the best yield potential for East Texas. The Elite test was planted on rocky soil with less yield potential than the deep sand. The oat test was planted on the deep fertile sandy loam soil at Overton. The wheat test at Clarksville was planted on fertile blackland soil.

RESULTS

The yield and agronomic data from the USSRWW test is presented in Table 1. Yields were very high because of the fertile growing conditions and very low disease severity. The diseases that were present developed very late in the spring and probably did not affect yields. Plant height was quite tall (high fertility) and this along with heavy rains in May caused some lodging.

Yields in the Elite test at Overton (Table 2) were considerably below the previous test, primarily because of soil fertility differences. Never-the-less, good yields were obtained from adapted varieties which had disease resistance. Winterkilling on some varieties did reduce yields. Disease buildup was more severe, and both powdery mildew and leaf rust likely reduced yields to some extent.

Oat grain yields were average, however, extreme lodging occurred as a result of heavy rains in late May. This in turn resulted in much seed shattering during harvest of the lodged plants. Yields would have been much higher if lodging had not occurred. Those lines with the best lodging resistance were affected less by seed shattering and produced higher yields. Thus, lodging resistance was very important in 1981 and affected yield of oats.

Good growing conditions and no disease problems resulted in high wheat yields at Clarksville (Table 4). Some winter injury resulted and indicated two of the varieties were not adapted to North Texas. A hail storm 3 weeks prior to harvest affected seed shattering and reduced yield in some varieties, however, this is not a normal occurrance.

The yield data from these tests should not be used by itself in making variety recommendations. One years data may be misleading due to unusual growing conditions or disease levels. Never-the-less, this information is useful in providing information on the yield potential of these varieties.

Table 1. Uniform Southern Soft Red Winter Wheat Nursery at Overton, Tx 1980-81.

Variety	Yield bu/acre	Test wt lbs	Date headed	Height in	Lodging %
Va-79-54-254	85.5	60	4-7	94	20
NK-78W-708	81.1	57	4-5	102	5
Coker 79-34	78.0	61	4-6	109	5
Coker 79-14	74.6	60	3-31	89	5
S. Carolina 770-164	73.7	57	4-4	109	10
NK-79-W-810	73.3	57	4-2	99	0
Va-76-52-12	72.8	58	4-6	104	10
Coker 79-16	72.7	59	4-4	94	10
Ar-155-19-4	72.4	60	4-6	102	5
Pioneer-X6890	69.9	56	4-11	99	20
NAPB-1273-29	68.4	57	4-2	107	10
Omega-78	68.4	57	4-2	107	10
Fla 721-85A-101-5	68.2	58	4-3	89	10
Tx-0-73-93	68.1	58	4-6	112	15
Coker 80-12	68.0	60	4-3	104	10
Tx-0-72-9	67.7	60	4-6	112	10
Fla 72115A-30-7-6	66.2	59	4-6	104	15
Pioneer-W-403-L	66.2	56	4-11	104	5
Coker 80-33	65.9	56	4-10	107	10
Coker 68-15	65.9	60	4-6	107	10
MD-55-286-1	65.6	54	4-9	124	0
AR-200-2	65.3	59	3-30	104	5
Holley	65.2	58	4-4	122	20
SC-75-3701	64.9	60	4-9	114	0
MD-55-114-03	64.6	59	4-2	109	10
Ga-73-1-1-2	63.1	59	4-1	102	0
Stacy	60.1	59	4-7	112	20
McNair 3271	58.0	56	4-8	104	10
Ga-73-1-1-1	56.4	58	3-30	99	0
Fla 71100A-29-3-109	55.7	57	4-6	10	10
Asosant*8-Chancellor	48.6	56	4-9	13	50
NAPB-1283-73	44.7	57	4-10	10	70
Mean	66.8				
CV (%)	10.3				
LSD (.05 level)	9.6				

Planted on Oct. 15, 1980, harvested on May 26, 1981. Applied 1 pt 2-4D for broadleaf weed control on Feb. 18, 1981.

Table 2. Elite wheat grain test at Overton, TX 1980-81.

Variety	Yield bu/acre	Test wt lbs	Date headed	Height inches	Winter survival %	Powdery mildew (0-9)	Leaf rust (0-9)
Southern Belle	60.5	59	3-31	32	100	2[1]	4[1]
Tx-73-93	59.2	57	4-2	35	100	0	1
Coker 762	57.5	55	3-30	29	100	0	1
Oasis	55.0	56	3-31	33	100	2	5
Coker 68-15	54.9	60	4-2	32	100	6	1
Va-75-24-95	54.0	56	4-8	39	100	0	7
McNair 10-03	52.0	56	3-30	32	95	0	4
Ga-H-73-3-3-3-2	45.1	57	4-4	37	100	0	4
Delta Queen	43.4	55	4-4	28	80	2	3
Tx-72-9	39.7	58	4-4	29	100	3	4
Fla 301	39.3	56	4-4	32	20	0	0
Arthur-71	30.5	57	4-2	30	100	3	4
Tex Red	27.7	56	4-2	26	100	7	0
74-H-196	26.7	55	4-2	26	100	7	7
Maverick	26.2	55	4-2	28	100	8	0
74-H-137	24.1	55	4-1	24	100	7	6
Coker 797	21.1	55	4-2	24	10	0	0
74-H-114	17.3	55	4-3	23	100	9	5
Mean	40.8						
CV (%)	18.6						
LSD (.05 level)	10.8						

[1]Disease reactions are given on a 0-9 scale where 0 = no disease, 1 = trace, 2-3 = moderately diseased, 4-5 = moderately susceptible, 6-9 = susceptible to very susceptible.

Planted on Sept. 22, 1980, harvested on June 2, 1981. Applied 60 lbs/acre N, P_2O_5, K_2O as 17-17-17 as a preplant application. Applied 60 lbs N/acre on 2/17/81. Applied 1 pt 2-4D/acre for broadcast weed control on 2/18/81.

Table 3. Oat grain variety test at Overton, TX 1980-81.

Variety	Yield bu/acre	Test wt lb/bu	Date headed	Height (in)	Lodging %
Coker 80-33	97.7	33	4/10	41	60
Mesquite	85.4	33	4/10	37	40
NF-188	85.1	32	4/10	48	95
Coker 80-20	80.2	34	4/1	38	80
Coker 79-23	78.1	34	4/13	34	80
Coker 80-29	77.8	34	4/10	42	75
Big Mac	71.7	36	4/10	41	90
TAM-0-312	68.5	31	4/8	38	70
New Nortex	63.5	28	4/11	48	85
Ora	62.6	33	4/10	36	95
NF-121	62.0	33	4/10	50	95
8226-FL-63-378-Fl-50	59.5	34	4/2	36	85
Bob	58.2	36	4/3	39	80
NF-95	57.4	33	4/11	53	40
Elan	57.4	31	4/7	35	90
Coker-234	57.3	32	4/4	36	85
Coker-227	56.6	33	4/9	42	90
Nora	54.8	33	4/10	45	85
Coker 76-16	54.6	30	4/11	40	95
Fl-7118A-13-7-3-6	47.7	34	4/2	43	80
Coker-422	47.2	33	4/4	40	90
Ark 148-15	38.2	36	4/4	42	90
Mean	64.6				
CV (%)	16.8				
LSD (bu)	15.4				

Planted on Oct. 20, 1980. Harvested on June 4, 1981.

Preplant application of 500 lbs 12-12-12/acre, topdressed with 60 lbs/N acre on Feb. 17, 1981. Applied 1 pt 2-4D/acre for broadleaf weed control on Feb. 18, 1981.

Table 4. Wheat variety grain test at Clarksville (Northeast Texas) in 1980-81.

Variety	Yield bu/acre	Test wt lb/bu	Winter injury %	% Lodging	% Shattered seed
McNair 10-03	93.2	55	0	0	5[1]
Coker 68-15	75.3	59	0	0	0
Southern Belle	72.7	58	5	0	0
Oasis	68.7	55	0	5	10
Coker-762	66.4	53	10	0	0
Tx-73-93	57.6	56	0	5	30
Tx-72-9	54.2	56	0	10	30
Arthur-71	51.2	55	0	5	20
Fla-301	41.6	55	80	50	10
Coker 797	38.0	56	90	0	0
Mean	61.9				
CV (%)	17.0				
LSD (.05 level) = bu	16.3				

[1] Shattering resulted in part from a hail storm about 3 weeks prior to harvest.

Planted on Oct. 10, 1981. Harvested June 1, 1981.
Preplant fertilization = 60-80-60 lbs/acre N, P_2O_5 and K_2O, respectively.
Topdressed with 62 lbs N/acre on Feb. 23, 1981.