

# **PUBLICATIONS**

## **1978**

Texas A&M University Agricultural Research and Extension Center at Overton – 1978

# Forage

# Beef Cattle

# Soil

## Research 1978 Overton

## Research Center, Technical Report No. 78-1

## WHEAT AND OAT GRAIN VARIETY TESTS

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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 during the 1976-77 growing season. Nearly perfect growing conditions resulted in extremely high grain yields for both wheat and oat crops. Due to a cold winter and dry weather during the grain filling period, there was little disease buildup in these experiments.

### OBJECTIVE

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 on 9 November of 1976 at Overton. The seedbed was in good condition with little residue of the previous lovegrass sod remaining. Moisture conditions were good and remained excellent until May when only 1 inch of precipitation fell. A broadcast preplant fertilizer application of 60-60-60 (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O) was applied on August 12. Both wheat and oats were planted in plots with 6 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. Fall and winter growth was very poor due to cold temperatures. A high amount of tillering was apparent on both wheat and oats.

Wheat and oat tests were topdressed with 75 lbs N on February 9, 1977. All wheat plots were inoculated for Septoria on February 14, by spreading ground up wheat straw from the previous year over plots. We applied 2,4-D for weed control to wheat and oat tests on February 17, 1977. 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.

## RESULTS

Low temperatures of 16° F November 30 and 7° F in January caused some leaf damage on oats but only slight leaf tip burn on wheat. All varieties seemed to recover. We observed light amounts of powdery mildew and Septoria nodorum on wheat. The extremely dry May produced conditions whereby these diseases apparently did not reduce yields. No leaf rust was observed on wheat or oats and only trace amounts of stem rust were observed on oats. The very high yields were the result of a large amount of heads due to good tillering. The heads were filled out very well with large plump seed. We had almost no lodging in wheat, but did experience some lodging in oats. If we had any heavy rainfall we would have likely had significantly more lodging since the yields were high. Test weights were high and grain quality was very good.

The oat yields (Table 1) were high with 'Coker 76-19' producing the highest yield. All of the higher yielding varieties (yielding more than 177 lb/ac) are experimental lines and seed may not be available at this time.

The wheat yields (Table 2) were also exceptionally high for East Texas. Many of these lines are experimental and the yields produced indicate they have excellent grain producing potential. All of these lines are soft red winter wheat with the exception of 'Sturdy' which is a hard winter type. Since all of the wheats included in this study have good yield potential, other characters such as disease resistance should be considered when selecting a variety. During the 1976-77 growing season diseases were not a problem, therefore these experimental varieties do need to be grown in future years to determine disease resistance before they can be recommended. In East Texas we are also interested in forage yield and some forage yield results are reported elsewhere in this publication.

Table 1. Oat variety grain test, Overton, Texas. 1977

Variety	Yield bu/ac	Test		Plant Ht inches	% Lodging	% Winter Injury	Heading Date
		Wt lbs/bu					
Coker 76-19*	210	37		50	5	7	4-12
Tx 72C 1941*	200	28		45	0	15	4-12
Coker 76-20*	190	37		47	5	15	4-13
Coker 76-14*	185	35		47	0	5	4-14
Coker 76-16*	177	35		46	70	0	4-12
Appler	177	33		55	80	15	4-14
Tx 72C 3035*	177	32		47	0	7	4-14
Elan	175	35		43	5	10	4-11
Fla 501	167	39		42	50	15	4-04
Coker 227	163	37		46	40	0	4-13
Coker 76-18*	158	33		42	0	7	4-13
Tx 71C 3090*	156	34		43	50	30	4-04
Mean	178						
LSD (.05)	26.8						
CV (%)	10.4						

\* Experimental line, seed may not be available.

The odds are 19 to 1 that two varieties actually yielded differently if their yields differ as much as the LSD. Smaller differences may be due to chance sampling. No leaf or stem rust occurred in this test in 1977. These data were compiled by L. R. Nelson and J. W. Kitchings, Texas A&M University Agricultural Research and Extension Center at Overton, Texas.

Table 2. Soft winter wheat variety grain test, Overton, Texas. 1977

Variety	Yield bu/ac	Test Wt lb/bu	Plant Ht inches	Heading Date	Winter Injury 1/2/77	Septoria <sup>1/</sup> Rating	Powdery Mildew %
N. Carolina 74-31*	99.4	59	40	4-6	2	2	0
N. Carolina 74-36*	96.5	58	43	4-6	0	2	1
Louisiana 724*	94.5	60	49	4-3	0	2	0
Coker 76-35*	89.3	61	33	4-7	5	2	0
Louisiana 754*	86.1	58	39	4-4	20	4	0
Coker 76-22*	85.8	59	35	4-6	5	5	0
McNair 3003*	85.5	59	39	3-31	5	4	0
Va. 72-54-14*	85.2	60	37	4-4	5	4	0
Coker 75-24*	82.0	61	35	4-2	25	3	0
Arkansas 38-1*	81.2	60	37	4-3	3	2	5
Oasis	80.3	62	41	4-7	3	1	10
Coker 75-27	80.1	61	31	3-31	15	7	0
Holley	78.3	62	47	4-6	5	3	0
McNair 3001	78.2	59	37	4-2	5	4	0
Coker 68-15	75.3	63	38	4-7	5	2	10
N. Carolina 74-6*	75.1	57	39	4-7	5	2	0
Coker 75-26*	73.6	62	36	4-2	5	4	0
McNair 3069	71.7	59	33	3-30	60	6	0
Arthur 71	69.9	62	40	4-7	5	2	2
Tifton-76-864*	69.8	61	37	4-1	10	3	0
Ga 69-56A1-4-1*	69.2	62	40	4-7	5	4	0
Coker 74-27*	68.8	62	34	4-4	10	3	0
Va 68-22-7*	64.8	60	40	4-7	3	3	0
Sturdy (Hard Wheat)	46.7	59	33	4-8	10	5	5
Mean	78.6						
LSD (.05)	17.4 <sup>2/</sup>						
CV (%)	15.7						

<sup>1/</sup>Experimental time, seed may not be available.

<sup>2/</sup>Septoria nodorum or glume blotch rating is a rating from 1 to 9 where 1 equals healthy plants.

The odds are 19 to 1 that two varieties actually yielded differently if their yields differ as much as the LSD.