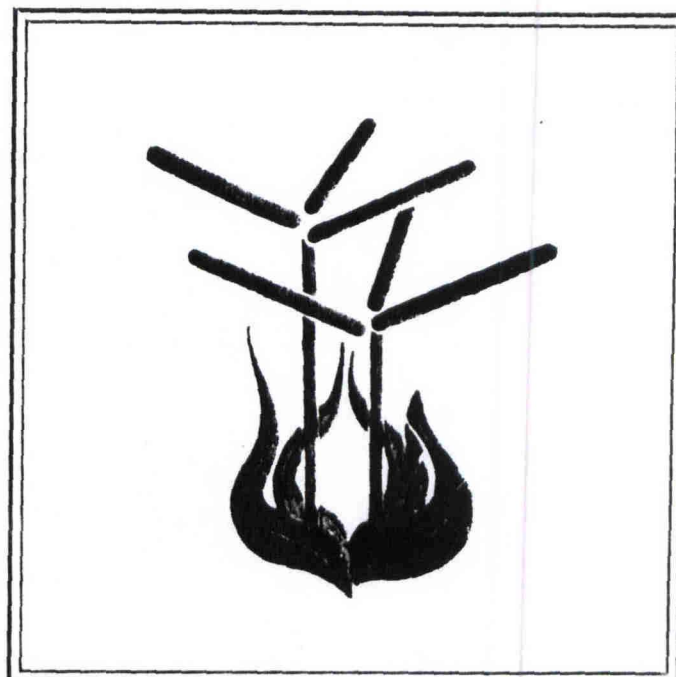
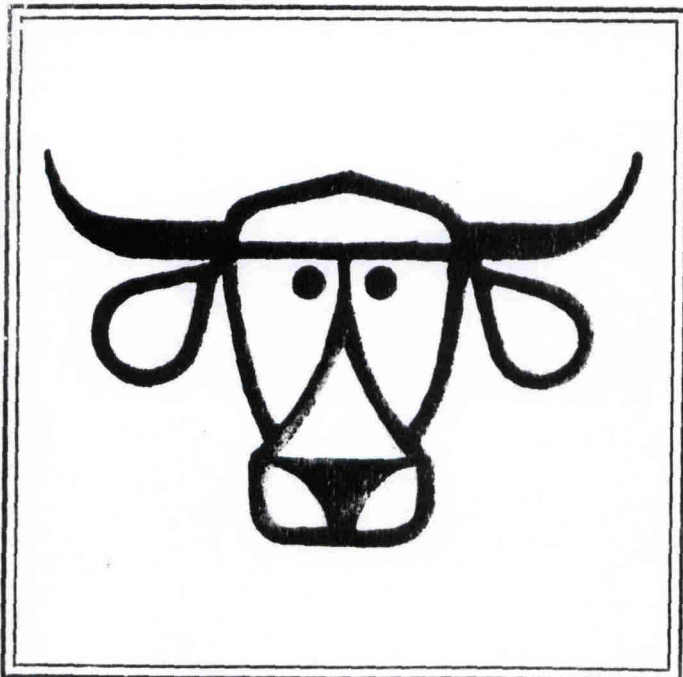
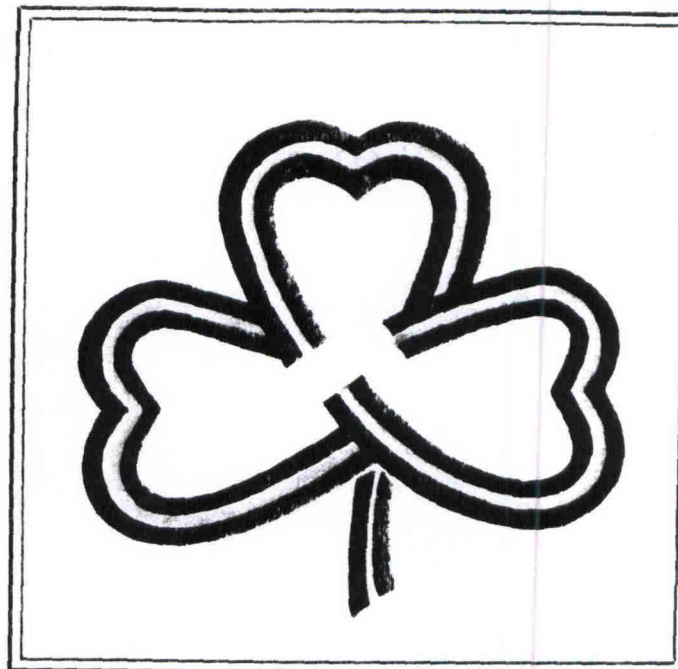


PUBLICATIONS

1980



Forage Research in Texas

Departmental Technical Report No. 80-6
Department of Soil and Crop Sciences

SG-0011

Project: H 6046
Date: 1976-1979
Worker: L. R. Nelson

WHEAT AND OAT GRAIN VARIETY TESTS

SUMMARY

Wheat and oat grain variety tests were conducted during the past three growing seasons at the Texas A&M University Agricultural Research and Extension Center at Overton. Since climatic conditions often favor one variety more than another in certain years, variety recommendations are normally made on the basis of at least 3 year's data. Results from this publication should be quite useful for making at least partial judgement for recommending 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 October or early November at Overton. 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-P₂O₅-K₂O) 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. A high amount of tillering was apparent on both wheat and oats.

Wheat and oat tests were topdressed with 75 lbs N in February each year. We also applied 2,4-D for weed control to wheat and oat tests in February of each year. 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

Oats

Yield data for the 3-year means (Table 1) indicate that two experimental lines from Coker's Seed Company (Cokers 76-19, and 76-14) have produced the highest yields in this study. The agronomic data in Table 1 are for only 1 year (1978-79) but should be useful for comparing varieties. Plant height was abnormally high in 1978-79 and this contributed to the high lodging percentages. Varieties showing 20% lodging during 1978-79 are normally quite resistant to lodging. Severe winter injury occurred on only Appler oats.

Wheat

The wheat varieties in this study are all soft red winter wheat types. Soft wheats are normally recommended for East Texas since they produce higher forage yields and also higher grain yields than the hard red winter wheats recommended for Central and West Texas. Many of the selections (Table 2) are experimental lines and are noted as such on the tables. Yields were quite high with a range from 56 to 77 bu/ac which demonstrates the yield potential of wheat in East Texas. Since wheat can be grazed until about Feb 15 to March 1, without any significant reduction in grain yield, it does have an important role in East Texas Agriculture.

Septoria or glume blotch was quite severe in 1978-79 and definitely reduced yields on many varieties. A Septoria rating of 3 or higher generally indicates an expected reduction in grain yield. The major reason for the low test weights (test wt should equal 60 lbs), was the high disease severity of Septoria. Heading date is of importance in wheat as earlier maturing wheats may escape some disease buildup and hot weather during the grain filling period. Earlier wheats would also be beneficial if soybeans

are to be planted as a second crop. Powdery mildew was not extremely severe in 1978-79. The data (Table 2) indicates Coker 68-15 is quite susceptible to powdery mildew whereas all other varieties were moderately to highly resistant to this disease. Leaf rust can be a very devastating disease on wheat. Those lines which have more than 10% severity on leaf rust should not be recommended in Texas.

Wheat Variety	Yield (bu/acre)	Grain Yield (bu/acre)	Straw Yield (bu/acre)	Planting Date	Harvest Date	Days to Maturity	Days to Anthesis	Days to Flowering	Days to Grain Filling	Days to Harvest	Days to Maturity	Days to Anthesis	Days to Flowering	Days to Grain Filling	Days to Harvest	Days to Maturity	Days to Anthesis	Days to Flowering	Days to Grain Filling	Days to Harvest
Coker 68-15	31	27	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105
Wheat 68-15	33	29	4	4-17	8-10	100	85	95	100	105	100	85	95	100	105	100	85	95	100	105

Table 2. Yield and maturity characteristics of wheat varieties in Texas, 1978-79. The data shows that Coker 68-15 is the most susceptible to powdery mildew and leaf rust, while the other varieties are moderately to highly resistant. The table also indicates that Coker 68-15 has the longest days to maturity and anthesis, while the other varieties have shorter days to maturity and anthesis.

Table 1. Oat grain variety tests for 1976-77 through 1978-79 at Overton, Texas.

Variety	3-year mean yield bu/ac	Test wt. lbs.	Heading date	Plant ht. inches	% lodging	% winter injury
Coker 76-14 ^{1/}	138.6*	33	4-20	47	20	5
Coker 76-19 ^{1/}	122.0	33	4-16	53	50	5
Coker 76-16 ^{1/}	112.2	34	4-16	49	50	10
Coker 227	111.2	33	4-15	48	20	5
Fla 501	108.4	35	4-15	46	60	10
Appler	94.5	31	4-24	49	80	60
Coker 77-19 (Big Mac)	93.6*	36	4-18	51	60	5
Coker 234	90.2*	34	4-15	48	50	10
Tam-0-312	76.3*	33	4-15	51	50	35
Noble Foundation 105 ^{1/}	75.7*	35	4-18	54	80	5
Noble Foundation 188 ^{1/}	75.5*	35	4-16	56	85	5
Noble Foundation 85 ^{1/}	71.2*	33	4-15	51	60	10
Coker 422	64.9*	34	4-14	47	70	15

*Variety has been tested for 2 years only.

^{1/} Experimental line, seed not available at this time.

Table 2. Wheat grain variety test for 1976-77 through 1978-79 at Overton, Texas.

Variety	3-year mean yield bu/ac	Test wt. lbs.	Plant ht. inches	Heading date	% lodging	% winter injury	Powdery mildew %	Leaf rust %	Septoria rating
Coker 76-22 ^{1/}	77.1	57 ^{2/}	35 ^{2/}	4-12 ^{2/}	0 ^{2/}	10 ^{2/}	0 ^{2/}	0 ^{2/}	4 ^{3/}
McNair 3003	74.6	54	34	4-10	0	10	0	10	4
Delta Queen	72.4	58	36	4-11	0	10	0	0	3
NC-74-36 ^{1/}	70.6	54	38	4-14	0	5	0	0	3
Tx-0-78-7303 ^{1/}	69.0*	54	38	4-11	0	5	0	20	4
Va 72-54-14 ^{1/}	68.7	57	38	4-13	0	5	0	10	3
Va 75-57 ^{1/} 53 ^{1/}	68.3*	59	36	4-11	0	5	0	0	2
NC-74-31 ^{1/}	68.0	51	36	4-12	0	5	0	90	3
Tx-0-73093 ^{1/}	65.2*	59	38	4-12	0	5	0	0	3
Coker 77-13	64.8*	60	35	4-11	0	5	3	0	3
Coker 68-15	63.7	60	39	4-10	0	5	50	0	2
Southern Belle	63.6*	61	31	4-10	0	10	0	10	6
Tx-0-74039 ^{1/}	62.8*	59	39	4-10	0	5	0	0	2
Oasis	62.6	57	36	4-11	0	5	5	2	4
Va 75-24-95 ^{1/}	61.2*	57	36	4-9	0	5	0	80	2
Tx-0-72-9 ^{1/}	60.7*	61	39	4-11	0	2	0	0	3
Tx-0-73133 ^{1/}	60.3*	52	31	4-11	0	0	0	0	6
Holley	59.8	60	41	4-12	0	10	0	3	3
Arthur 71	57.4	61	35	4-12	0	5	10	0	2
McNair 3069 ^{1/}	56.6	53	32	4-12	0	50	0	0	7

*Variety has been tested for 2 years only.

^{1/}Experimental line, seed may not be available at this time.^{2/}Agronomic and disease data are from the 1978-79 growing season.^{3/}Septoria or glume blotch disease ratings were taken on a scale of 1 to 9 where 1 was disease free plants.