

Research Report No. 10  
July 1958

*Measured crop performance*

# SMALL GRAIN

# 1958

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North Carolina State  
College

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## INTRODUCTION

Variety evaluation trials are conducted each year on farmer fields by the North Carolina Agricultural Experiment Station, and this report presents records of performance of commercially available and prospective varieties of oats, wheat and barley. Seasonal conditions differ from year to year, and a variety that appears to be excellent for a single year may not prove to be consistently superior. Records of three or more years duration present a basis for choosing varieties that are more likely to consistently excel. Therefore, a summary of yield data is given by crops for entries that have been tested for the past three years.

The annual performance (yield) records (1958) are presented in tables by areas and by crops.

Since small grain occupies a relatively small acreage in the mountain counties, official variety tests are not conducted in this area.

The small grain breeding program utilizes the Mountain Research Station near Waynesville to evaluate its prospective new varieties for winter hardiness and cold tolerance. In conjunction with this, a small variety test is conducted and used as a basis for evaluating small grain varieties for the mountain counties. This test was abandoned in 1958 because the oats winter-killed and the barley and wheat lodged.

### Agencies Sponsoring Entries

Coker Pedigreed Seed Company, Hartsville, South Carolina

North Carolina Agricultural Experiment Station, Raleigh, North Carolina

T. W. Woods & Sons, Richmond, Virginia



## Management of Test Fields

Cultural practices such as seedbed preparation, date of seeding, fertilization, amount and time of topdressing were in accord with good farm practices and recommendations of the North Carolina Agricultural Experiment Station and Extension Service.

## Seasonal Conditions

Plantings were made during the week of October 21. Good stands of all entries were obtained except a wheat experimental, 5664 x Hardired-3855. The stand for this entry was thin in all plots.

The oat data should be used with caution. Differential soil heaving caused severe reduction in stands in the Piedmont Area. The variation in winter-killing between replicates contributed to the high degree of variability within the test. The Forsyth County test was abandoned because a major portion of the plots were winter-killed. The Pitt County test was damaged by cold and excessive moisture during the winter and spring. The soil was almost completely saturated with water from November through March which caused a reduction in the yield of oats, wheat and barley.

## Winter Hardiness

The less winter hardy oat and wheat varieties that are not injured by prevailing temperatures of the Coastal Plain are often damaged and stands reduced when grown in the northwestern Piedmont and only the most winter hardy will survive in the Mountains.

Low temperatures (18 to 28 degrees) that occur in the spring (March 15

to April 15) cause greater damage and reduction in yield to early maturing varieties than to those that mature later. Since spring freezes are likely to occur in about one out of each five years, this factor should be kept clearly in mind when choosing extremely early maturing varieties.

### Differences in Yield

Little significance should be attributed to very small differences in yield between varieties since it is not possible to determine the absolute performing ability. The size of difference that may have been due to chance has been computed and listed at the end of each table of the 1958 data as "Least Significant Difference (L. S. D.)". A similar value is not listed for the average of two or more years data, but the level of significance in such instances will be somewhat smaller than for the individual years. These measures of chance difference should be used to remind the reader not to misinterpret small yield differences.

### Choice of Variety

In choosing or deciding on a variety, yield usually receives first consideration. The characteristics that contribute to yield and quality may be as important as yield itself. Such characteristics as disease resistance, winter hardiness, lodging resistance, height of straw, ease of harvesting, maturity and market quality are all essential and should be considered.

CHARACTERISTICS OF OAT VARIETIES\*

	Rust Resist- ance	Smut Resist- ance	Blight Resist- ance	Mosaic Resist- ance	Maturity	Winter Hardiness	Lodging Resist- ance	Amount of Straw	Test Weight per Bushel
1 Arlington	Good	Good	Poor	Good	Medium	Good	Fair	Heavy	Good
2 Victorgrain 48-93	Good	Good	Poor	Good	Early	Fair	Good	Medium	Good
3 Fulgrain	Good	Good	Poor	Good	Early	Fair	Good	Light	Good
4 Fulwood	Good	Good	Poor	Good	Early	Good	Good	Light	Good
5 Forkedeer	Poor	Poor	Good	Good	Late	Excellent	Fair	Medium	Good
6 Woodgrain	Good	Good	Poor	Good	Early	Fair	Good	Light	Good
7 Atlantic	Good	Good	Poor	Good	Medium	Excellent	Fair	Heavy	Good
8 Bronco	Good	Good	Poor	Fair	Late	Excellent	Fair	Heavy	Good
9 Suregrain	Good	Good	--	Poor	Early	Poor	Good	Light	Good

CHARACTERISTICS OF BARLEY VARIETIES \*

Variety	Loose Smut Resist-	Mildew Resist- ance	Rust Resist- ance	Scald Resist- ance	Lodging Resist- ance	Winter Hardiness	Maturity	Amount of Straw	Test Weight per Bushel
1 Colonial 2	Poor	Poor	Poor	Poor	Good	Fair	Medium	Light	Good
2 Davie	Poor	Good	Good	Fair	Fair	Fair	Early	Light	Fair

\* These characterizations based upon all available observations.

CHARACTERISTICS OF WHEAT VARIETIES \*

Variety	Leaf Rust Resist- ance	Mil- dew Resist- ance	Mosaic Resist- ance	Maturity	Winter Hardi- ness	Late Spring Freeze Toler- ance	Lodging Resist- ance	Height of Straw	Test Weight per Bushel
1 Atlas 50	Fair	Good	Poor	Medium	Fair	Fair	Good	Medium	Fair
2 Atlas 66	Good	Fair	Poor	Medium	Fair	Fair	Good	Medium	Fair
3 Coker 47-27	Good	Poor	Poor	Medium	Fair	Fair	Good	Tall	Good
4 Anderson	Good	Fair	Fair	Medium	Good	Good	Good	Tall	Good
5 Thorne	Poor	Poor	Good	Late	Excellent	Good	Fair	Tall	Good
6 Seneca	Poor	Poor	Good	Late	Excellent	Good	Fair	Tall	Good
7 Knox	Excellent	Good	Good	Early	Good	Poor	Good	Short	Good
8 Taylor 49	Fair	Poor	Good	Medium	Good	Fair	Fair	Medium	Good
9 Ponca**	Fair	Fair	Good	Medium	Excellent	--	Fair	Short	Good
10 Cheyenne**	Poor	Fair	Good	Medium	Excellent	--	Fair	Short	Good
11 Comanche**	Poor	Poor	Good	Medium	Excellent	--	Fair	Short	Good
12 Tenmarq**	Poor	Fair	Fair	Medium	Excellent	--	Fair	Short	Good

\* These characterizations based upon all available observations.

\*\* Hard Red Winter wheat.

Performance of Barley Entries

3-Year Average (1956-58) 9 Locations - Piedmont

Entries	1956 Yield	1957 Yield	1958 Yield	Average
	3 Tests	3 Tests	3 Tests	Yield
	Bu/Acre	Bu/Acre	Bu/Acre	Bu/Acre
Colonial x Bolivia-1341	51.1	33.8	40.3	41.7
Colonial 2	42.7	25.1	40.8	36.2
Davie	35.9	29.7	39.4	35.0
Mean of Standards	39.3	27.4	40.7*	35.8

Standards were (1956-57) Colonial 2 and Davie

\*1958 mean of test

Performance of Barley Entries

Piedmont - 1958

Entries	Forsyth	Lincoln	Randolph	Average
	County	County	County	Yield
	Bu/Acre	Bu/Acre	Bu/Acre	Bu/Acre
Calhoun x Bolivia-954	49.0	37.4	49.2	45.2
Calhoun x Bolivia-933	41.3	32.4	51.1	41.6
Colonial 2	50.8	26.5	45.2	40.8
Colonial x Bolivia-1341	41.0	31.9	48.1	40.3
Calhoun x Bolivia-938	43.8	34.9	41.2	40.0
Davie	46.7	31.3	40.3	39.4
Calhoun x Bolivia-925	42.6	28.7	46.1	39.1
Sunrise x Bolivia 1952-5	38.4	33.3	44.3	38.7
Mean of test	44.2	32.1	45.7	40.7
L. S. D. (.05)	N. S.	N. S.	N. S.	



Performance of Barley Entries

3-Year Average (1956-58) 6 Locations - Coastal Plain

Entries	1956 Yield	1957 Yield	1958 Yield	Average
	2 Tests Bu/Acre	2 Tests Bu/Acre	2 Tests Bu/Acre	Yield Bu/Acre
Colonial x Bolivia-1341	47.0	37.2	31.0	38.4
Colonial 2	47.8	29.2	35.6	37.5
Davie	43.7	31.6	21.2	32.2
Mean of Standards	45.8	30.4	30.2*	35.5

Standards were (1956-57) Colonial 2 and Davie.

\*1958 mean of test

Performance of Barley Entries

Coastal Plain - 1958

Entries	Robeson	Pitt	Average
	County Bu/Acre	County Bu/Acre	Yield Bu/Acre
Colonial 2	43.0	28.1	35.6
Calhoun x Bolivia-954	40.4	25.8	33.1
Colonial x Bolivia-1341	43.7	18.3	31.0
Calhoun x Bolivia-933	37.5	24.3	30.9
Calhoun x Bolivia-938	41.4	20.1	30.8
Calhoun x Bolivia-925	42.9	17.8	30.4
Sunrise x Bolivia 1952-5	33.4	24.3	28.9
Davie	26.0	16.4	21.2
Mean of test	38.5	21.9	30.2
L. S. D. (.05)	7.6	N. S.	

Performance of Oat Entries

3-Year Average (1956-58) 8 Locations - Piedmont

Entries	1956 Yield	1957 Yield	1958 Yield	Average
	3 Tests	3 Tests	2 Tests	Yield
	Bu/Acre	Bu/Acre	Bu/Acre	Bu/Acre
Arlington	77.2	57.1	66.4	66.9
Bronco	76.4	51.9	65.5	64.6
Fulwood	71.7	58.8	58.6	63.0
Woodgrain	65.5	49.0	62.0	58.8
Victorgrain 48-93	63.0	43.2	60.0	55.4
Fulgrain	62.6	45.8	48.4	52.3
Mean of Standards	68.0	50.6	62.3*	60.3

Standards were (1956-57) Victorgrain 48-93, Fulgrain, Fulwood, Woodgrain and Arlington.

\*1958 mean of test

Performance of Oat Entries

Piedmont - 1958

Entries	Lincoln	Randolph	Average
	County	County	Yield
	Bu/Acre	Bu/Acre	Bu/Acre
Letoria x (C1-SF) -64	66.5	72.0	69.3
Moregrain (Coker 56-38)	57.8	80.1	69.0
C. I. 6994	61.0	76.1	68.6
Coker 57-11	60.3	76.3	68.3
Arlington	48.5	84.2	66.4
Bronco	56.5	74.5	65.5
Woodgrain	52.2	71.7	62.0
5106 x [H-J x (Atl x (C1-SF))]2455	50.9	70.5	60.7
Victorgrain 48-93	51.5	68.5	60.0
Wintok x (C1 <sup>2</sup> -SF):Ga 1617x2	55.5	63.4	59.5
5106x[H-Jx(Atlx(C1-SF))]2774	52.7	66.1	59.4
Fulwood	49.3	67.9	58.6
(Fla. 167 x Landhafer)x Arlington			56.1
	1336	52.6	59.5
Fulgrain	42.9	53.8	48.4
Mean of test	54.2	70.3	62.3
L. S. D. (.05)	10.5	12.5	

Performance of Oat Entries

3-Year Average (1956-58) 6 Locations - Coastal Plain

Entries	1956 Yield	1957 Yield	1958 Yield	Average
	2 Tests	2 Tests	2 Tests	Yield
	Bu/Acre	Bu/Acre	Bu/Acre	Bu/Acre
Fulwood	87.0	59.0	61.5	69.2
Arlington	84.3	49.9	63.0	65.7
Woodgrain	80.9	51.2	61.8	64.6
Suregrain	67.8	57.7	63.7	63.1
Victorgrain 48-93	78.6	44.5	59.5	60.9
Bronco	80.3	42.1	57.6	60.0
Fulgrain	64.4	44.7	52.1	53.7
Mean of Standards	79.0	49.9	61.0*	63.3

Standards were (1956-57) Victorgrain 48-93, Fulgrain, Fulwood, Woodgrain and Arlington.

\*1958 mean of test.

Performance of Oat Entries

Coastal Plain - 1958

Entries	Robeson	Pitt	Average
	County	County	Yield
	Bu/Acre	Bu/Acre	Bu/Acre
Coker 57-11	86.0	52.8	69.4
Letoria x (Cl-SF)-64	84.3	49.6	67.0
Atlantic x (Cl <sup>2</sup> -SF)-505	75.3	58.6	67.0
Coker 57-25	79.8	52.2	66.0
Moregrain (Coker 56-38)	75.3	54.4	64.9
Suregrain	76.4	51.0	63.7
Arlington	72.8	53.1	63.0
Woodgrain	74.5	49.1	61.8
Fulwood	76.5	46.5	61.5
C. I. 6994	74.8	48.0	61.4
Victorgrain 48-93	76.5	42.4	59.5
Wintok x (Cl <sup>2</sup> -SF):Ga 1617x2	74.3	44.5	59.4
Fla 167 x Landhafer x Arlington 1336	70.2	47.2	58.7
Bronco	58.0	57.1	57.6
5106 x [H-J x (Atl x (Cl-SF))] 2455	58.1	46.7	52.4
5106 x [H-J x (Atl x (Cl-SF))] 2386	59.0	45.7	52.4
Fulgrain	66.1	38.1	52.1
Mean of test	72.8	49.2	61.0
L. S. D. (.05)	12.7	N. S.	

Performance of Wheat Entries

3-Year Average (1956-58) 8 Locations - Piedmont

Entries	1956 Yield 3 Tests Bu/Acre	1957 Yield 3 Tests Bu/Acre	1958 Yield 2 Tests Bu/Acre	Average Yield Bu/Acre
Seneca	43.5	30.7	40.6	38.3
Taylor 49	38.4	34.1	38.9	37.1
Anderson	41.7	30.3	37.9	36.6
Thorne	43.1	26.2	37.1	35.5
Knox	35.5	34.6	35.4	35.2
Coker 47-27	39.1	22.9	40.6	34.2
Coker 55-3	42.6	23.6	33.6	33.3
5464 x Hardired 3855	36.9	27.4	33.3	32.5
Atlas 50	36.9	24.8	33.4	31.7
Ponca	38.6	24.7	29.8	31.0
Atlas 66	35.0	24.6	32.8	30.8
Cheyenne	33.7	22.0	27.0	27.6
Comanche	34.6	20.4	22.6	25.9
Redhart	25.9	12.3	36.4	24.9
Tenmarq	27.3	19.5	26.1	24.3
Mean of Standard	38.0	28.4	34.0*	33.5

Standards were (1956-57) Atlas 50, Atlas 66, Anderson, Taylor 49, Taylor, Knox and Coker 47-27.

\*1958 mean of test.

Performance of Wheat Entries

Piedmont - 1958

Entries	Forsyth County Bu/Acre	Lincoln County Bu/Acre	Randolph County Bu/Acre	Average Yield Bu/Acre
Coker 47-27	39.0	40.4	42.3	40.6
Seneca	42.2	43.6	36.0	40.6
Taylor 49	39.8	39.0	38.0	38.9
Anderson	37.5	37.3	39.0	37.9
Dual	40.3	35.3	38.1	37.9
Coker 57-6	41.3	36.1	34.1	37.2
Thorne	41.7	33.7	36.0	37.1
Redhart	36.8	35.8	36.7	36.4
Knox	37.9	33.9	34.4	35.4
Coker 57-21	35.3	36.2	30.6	34.0
C. I. 12651 x Atlas 66-4016	41.2	33.6	26.5	33.8
Coker 55-3	38.2	30.0	32.7	33.6
Atlas 50	31.6	35.9	32.6	33.4
(Ky 37x Chanc) x (MHPxAtlas 66) -4086	33.5	33.5	33.3	33.4
5464 x Hardired-3855	33.9	31.2	34.7	33.3
Atlas 66	35.7	28.1	34.5	32.8
T. W. H. H. x Atlas 66-840	36.7	32.2	29.1	32.7
(Taylor 12651) x (Prog x Chanc) -6102	36.8	32.6	28.3	32.6
Ponca	30.9	33.7	24.9	29.8
Cheyenne	32.2	31.4	17.3	27.0
Tenmarq	26.6	28.9	22.9	26.1
Comanche	27.0	25.9	15.0	22.6
Mean of test	36.2	34.0	31.7	34.0
L. S. D. (.05)	5.1	6.2	4.3	

Performance of Wheat Entries

3-Year Average (1956-58) 6 Locations - Coastal Plain

Entries	1956 Yield	1957 Yield	1958 Yield	Average
	2 Tests	2 Tests	2 Tests	Yield
	Bu/Acre	Bu/Acre	Bu/Acre	Bu/Acre
5464 x Hardired-3855	46.3	33.0	31.2	36.8
Coker 55-3	45.4	31.8	32.8	36.7
Taylor 49	41.8	29.7	35.2	35.6
Atlas 50	40.6	30.1	32.9	34.5
Atlas 66	42.4	29.1	31.1	34.2
Anderson	43.9	27.2	31.2	34.1
Coker 47-27	43.5	24.1	33.7	33.8
Redhart	43.3	22.2	33.8	33.1
Cheyenne	26.4	19.2	18.3	21.3
Ponca	23.0	20.2	16.2	19.8
Tenmarq	24.3	14.1	15.6	18.0
Comanche	23.8	13.3	10.8	16.0
Mean of Standards	42.6	27.6	27.9*	32.7

Standards were (1956-57) Atlas 50, Atlas 66, Anderson and Coker 47-27.

\*1958 mean of test.

Performance of Wheat Entries

Coastal Plain - 1958

Entries	Robeson	Pitt	Average
	County	County	Yield
	Bu/Acre	Bu/Acre	Bu/Acre
Taylor 49	42.2	28.1	35.2
Redhart	38.5	29.1	33.8
Coker 47-27	41.7	25.6	33.7
Atlas 50	39.6	26.2	32.9
Coker 55-3	41.7	23.6	32.7
T. W. H. H. x Atlas 66-840	38.3	26.0	32.2
(Taylor x 12651) x (Prog x Chanc)-6102	39.8	23.5	31.7
5464 x Hardired-3855	39.0	23.3	31.2
Anderson	40.8	21.3	31.1
Atlas 66	38.9	23.3	31.1
Coker 57-21	36.8	24.6	30.7
(Leap x Atlas 66) x Atlas 66-18167	36.7	24.7	30.7
(Ky37xChanc) x (MHPxAtlas 66)-4086	36.5	23.3	29.9
Knox	37.9	15.9	26.9
C. I. 12651 x Atlas 66-4016	33.5	19.6	26.6
Cheyenne	27.1	9.5	18.3
Ponca	32.4	0.0	16.2
Tenmarq	31.1	0.0	15.6
Comanche	21.6	0.0	10.8
Mean of test	36.5	19.3	27.9
L. S. D. (.05)	5.5	5.0	