

Research Report No. 30

July, 1969

*Measured Crop Performance*

**SMALL GRAIN**

**1969**

JOHN C. RICE, Professor

A. R. ADAMS, Research Assistant

E. L. JONES, Agricultural Research Supervisor

G. C. OLIVER, Agricultural Research Assistant

Department of Crop Science  
NORTH CAROLINA STATE UNIVERSITY  
AT RALEIGH

## TABLE OF CONTENTS

INTRODUCTION .....	3
EXPERIMENTAL PROCEDURE .....	5
Agencies Sponsoring Entries .....	5
Test Locations .....	6
Cultural Practices .....	7
Seasonal Conditions .....	8
RESULTS AND DISCUSSION .....	10
Barley .....	10
Oats .....	11
Wheat .....	12
Lodging .....	12
Milling Tests .....	13
TABLE AND FIGURES	
Cultural practices .....	14
Characteristics of varieties .....	15
Barley performance in the Piedmont .....	17
Barley performance in the Coastal Plain .....	18
Oat performance in the Piedmont .....	19
Oat performance in the Coastal Plain .....	20
Wheat performance in the Piedmont .....	21
Wheat performance in the Coastal Plain .....	22
Lodging Data .....	23
Milling Data .....	24

## PERFORMANCE OF SMALL GRAIN VARIETIES IN NORTH CAROLINA

John C. Rice, E. L. Jones, G. C. Oliver, Ray Adams<sup>1/</sup>

## INTRODUCTION

In the major small grain producing areas of the state, tests are conducted annually on varieties and breeding lines of oats, wheat and barley. These Official Variety Tests are conducted to determine the value and suitability of commercially available and prospective varieties of small grain for planting in North Carolina. The results of these tests are intended to aid the growers and agricultural workers throughout the Southeast in the selection of a variety best suited for their particular area of the state or region.

In North Carolina the wheat production for the 1968-69 season is expected to be 9,090,000 bushels. This production will be harvested from 202,000 acres estimated to be ten percent below the previous season's acreage. In spite of lower number of acres, the North Carolina production for the current season is expected to be four percent above the 1967-68 production. For 1969, the state average yield for wheat is estimated to be 45 bushels per acre--six bushels above the record set in 1968.

---

<sup>1/</sup>Professor in Charge of Variety Testing, Agricultural Research Supervisor and Agricultural Research Assistants, Department of Crop Science, North Carolina State University at Raleigh, respectively.

For the harvest year of 1968, the average state oat yield surpassed the previous high by two bushels at 50 bushels per acre and the new barley record of 49 bushels per acre broke the old state record by three bushels.

Information on varietal performance is presented from six test locations in the state, three in the Piedmont and three in the Coastal Plain Area. In comparing the performance of varieties, data from the area which most nearly represents the growers' conditions should be used. Seasonal conditions differ from year to year; therefore a variety which looks superior for one year may not be consistently good, hence, varieties should be evaluated on the basis of performance over several years. Depending upon the release date of the entry, data is presented for performance from one to five years. All available data<sup>2/</sup> were used in determining the pathologic and agronomic characteristics of the varieties.

---

<sup>2/</sup> Special acknowledge is due Drs. T. T. Hebert, C. F. Murphy and J. G. Clapp for assistance in describing the characteristics of varieties.

## EXPERIMENTAL PROCEDURE

Commercial varieties and experimental lines developed by public and private agencies are included in these tests. Any individual or firm may make application for having entries included by writing the Department of Crop Science, North Carolina State University at Raleigh. A fee is charged on an entry basis for all private entries. Personnel of the testing program may include entries about which further information is desired.

## Agencies Sponsoring Entries

Arkansas Agricultural Experiment Sta.	Fayetteville, Ark.
Coker's Pedigreed Seed Company	Hartsville, S. C.
McNair Seed Company, Inc.	Laurinburg, N. C.
North Carolina Agricultural Experiment Sta.	Raleigh, N. C.
South Carolina Agricultural Experiment Sta.	Clemson, S. C.
Virginia Agricultural Experiment Sta.	Blacksburg, Va.

## Test Locations

Six locations were used in 1968-69 with three in the Piedmont and three in the Coastal Plain as shown in Figure 1. All tests were located on private farms.<sup>1/</sup> A randomized block design with four replications was used at each location.<sup>2/</sup>

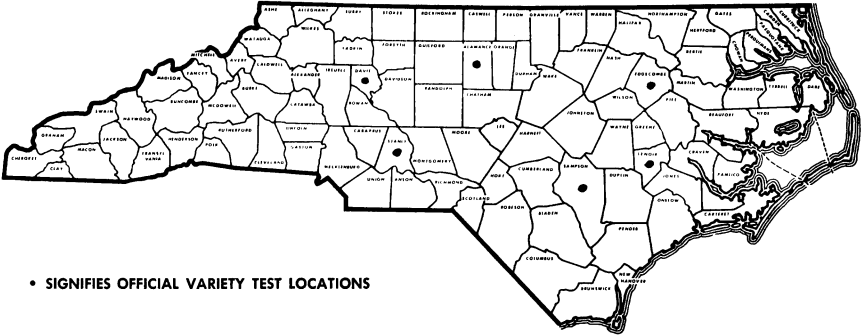
---

<sup>1/</sup>The cooperative spirit and civic-minded service rendered by the farmers who provided land and the necessary cultural practices for these trials and the cooperation of the county agents are gratefully acknowledged.

<sup>2/</sup>Statistical analysis were made in the statistical laboratory under the supervision of Dr. J. O. Rawlings. This assistance is gratefully acknowledged.

1969

## LOCATION OF SMALL GRAIN PERFORMANCE TRIALS



• SIGNIFIES OFFICIAL VARIETY TEST LOCATIONS

## CO-OPERATORS

## PIEDMONT

Alamance County: Mr. Jimmy E. Farrell, Route 1, Mebane, North Carolina  
County Extension Chairman, George R. Coble

Stanly County: Mr. D. G. Harwood, Route 1, New London, North Carolina  
County Extension Chairman, V. A. Huneycutt

Davie County: Mr. Kenneth Hoots, Advance, North Carolina  
County Extension Chairman, Leo F. Williams

## COASTAL PLAIN

Edgecombe County: Mr. Jesse Summerlin, Route 1, Tarboro, North Carolina  
County Extension Chairman, Charles H. Lockhart

Lenoir County: Mr. Parrott Gray, Route 1, Kinston, North Carolina  
County Extension Chairman, F. J. Koonce

Sampson County: Mr. Maxton Bass, Newton Grove, North Carolina  
County Extension Chairman, Worth Gurkin

### Cultural Practices

Cultural practices, such as seed bed preparation, date of planting, fertilization and topdressing were in accord with good farming practices and were uniform for all entries at a given location, Table 1. Several months prior to planting each test location, soil samples were obtained from the test field and fertilizer requirements made in accordance with the soil analysis report. Lime was applied, if needed, to adjust the pH to a desirable level.

Starting in 1966, all tests were mechanized for planting with a tractor-mounted Planter Jr. Planter. Tests were seeded in a small furrow with a Planter Jr. Planter mounted behind a tractor at the rate of one gram of seed per foot of row. The rows were spaced one foot apart. Each plot consisted of seven rows, 15 feet long with the two outside rows used as borders. The border rows were removed prior to harvest and only the five center rows were harvested. The date of planting and fertilization at planting is shown in Table 1 for each test location.

A seven foot combine was modified slightly for harvesting individual plots. Grain from individual plots was collected as it came from the elevator and weighed. The combine was stopped at the end of each plot for a short interval of time in order for the machine to clean out between plots prior to weighing the grain from the plot. A sample of grain was taken from each plot for the determination of test weight. All barley samples were taken from the combine and run through a small thresher to remove the awns prior to taking test weights. The combine

was used to more nearly simulate the conditions under which these varieties would be harvested on farms and it appears to give very satisfactory results.

#### Seasonal Conditions

With six locations for the 1968-69 Small Grain Official Variety Test, the seasonal conditions were conducive for good growth and high yields. October, normally a dry month in North Carolina, started as a typical dry month until the passage of Hurricane Gladys through the offshore waters on October 20. Rains associated with the storm ranged up to eight inches and totals for the month up to eleven inches. Over most of the state, totals were at least a little above normal. Large temperature changes occurred twice in October. After readings ranging up to 90 on the first few days, there was a drop to near freezing on the morning of the 5th for some of the coldest weather on record so early in the fall season.

Some of the earliest snow on record spread through the Piedmont on November 11. Precipitation totals were near or a little above normal with amounts well distributed throughout the month. December was cold and dry with no unusual extremes.

March arrived with the traditional roar of the lion. Snow and sleet spread over much of North Carolina as the month began and by the end of the first day more than half of the state was covered with one to fifteen inches. The total precipitation for March was near or slightly above normal. Average temperatures were colder than for any March since 1960. The entire four month period--December, 1968 through March, 1969,--averaged colder than any similar period of record at some



North Carolina weather stations having records 80 years long.

The weather in April was remarkable, mainly for a temperature pattern which failed to rise with the advancing spring season. The first ten days averaged warmer than normal, the next ten days normal, and the final ten days colder than normal. The most persistent unseasonable cold came in a five day period ending on the 25th when record low temperatures were recorded at a number of weather stations. Rainfall was near normal and well distributed throughout the month.

An outstanding characteristic of May weather was the extreme variability of the rainfall. Total amounts for the month ranged from two to eight inches in the Coastal Plain. Temperatures were moderate in May and averaged within a degree or two of normal in all areas of North Carolina. Thunderstorms with locally damaging winds were of perhaps less than average frequency and severity.

The Coastal Plain locations were planted in October at the recommended seeding date for small grain crops. Two locations in the Piedmont were planted in October and one in November depending upon the soil moisture for each test. A good seed bed was present at each location and this resulted in good stands. The specific planting dates, fertilizer, topdressing and harvest dates are shown in Table 1.

Generally speaking, the 1968-69 growing season was satisfactory for good grain yields for oats, wheat and barley. At some locations wind and water damage was evident. Lodging data was obtained on all entries in a specific location. All tests were harvested approximately on schedule. The rainy period in early June delayed harvest for all tests except for some of the barley which was cut prior to the wet weather.

## RESULTS AND DISCUSSION

The performance of the 1969 tests along with the previous four years are presented by crop and area in a tabular form in this report. Since the genetic expression of a variety is influenced greatly by the environment, it is best to have several years' data from which to draw conclusions. For example, if a variety appeared in the two-year average but not in the three-year average, then it must be compared only within the two years and not with the data in the three-year average since it is possible that the third year could have been extremely good or poor and not comparable.

The 1969 data presented in this report have been analyzed statistically and the least significant difference (L.S.D.), in terms of bushels per acre and pounds per bushel is given. Unless the difference between two varieties is greater than the L.S.D., the varieties should not be considered as being any different statistically.

## Barley

Table 5 shows the performance of barley in the Piedmont. The yields varied from a high of 74.8 bushels per acre for the variety Va. 65-42-33 to 54.3 bushels for the variety, Davie, for the 1969 season. A five-year average also showed the variety Keowee to have the highest yield at 75.2 bushels per acre.

The test weight of 46.5 and 46.2 pounds per bushel for the varieties, Harrison and Keowee were the highest for the 1969 season. Harrison also had the highest five-year average with 47.1 pounds per bushel, however,

Keowee was very close with a 46.9 average for five years. All test weights were low for the 1969 season due to extremely wet weather during the harvest period.

In the Coastal Plain area, Table 6, shows the difference in yield between varieties. The varieties, McNair 601 and Keowee, yielded higher than other entries with an average of 65.9 and 64.6 bushels per acre, respectively for the 1969 season. The Harrison variety had the highest test weight with an average of 47.4 pounds per bushel. Most test weight data was lower than for the 1968 season.

Over the five-year average, the variety Keowee had the highest yield at 76.1 bushels per acre and the highest test weight with an average of 46.2 pounds per bushel.

#### Oats

The data from the oat trials in the Piedmont are presented in Table 7. The yields for 1968 were somewhat less with only two varieties yielding in excess of 100 bushels per acre. The Coker lines, 66-22 and Va. 65-32-21, were the highest yielding with an average of 100.5 and 102.4 bushels per acre, respectively. The test weights were generally poor with the Coker lines, Coker 66-22 and Coker 68-23, having a top of 34.3 and 34.2 pounds per bushel. All test weights were somewhat less than in 1968.

Carolee had the highest five-year yield with 101.9 bushels per acre while Coker 242 and Roanoke had the highest test weight of 35.5 pounds per bushel.

In the Coastal Plain area, Table 8, the oat yields varied from a high of 98.2 bushels per acre for Va. 65-32-21 to 63.4 bushels for Roanoke. There was a difference of 34.8 bushels per acre between the high and low yielding entries. Ora and Nora had the highest test weight of 36.8 pounds per bushel. Over a five-year average, Carolee had the highest yield of 97.7 and Coker 242 had the highest test weight of 36.4.

#### Wheat

Table 9 shows the data on the wheat trials in the Piedmont. The Blueboy variety had the highest yield with 63.1 bushels per acre. Arthur, with an average of 57.9 pounds per bushel, had the highest test weight.

Over a five-year period, Blueboy had the highest yield of 63.9 and Knox 62 had the highest test weight of 59.7 pounds per bushel.

The Coastal Plain data are presented in Table 10. Blueboy led the test with an average of 67.4 bushels per acre. Five entries had yields above the mean of the test of 56.3 bushels per acre. Coker 68-19 had the best test weight with 55.9 but all test weight data was below the 1968 season. There was a minimum of bird damage in 1969 on two locations.

Blueboy, Wakeland and Ga. 1123 were the only three varieties tested for five years. Blueboy had an average of 62.7 bushels per acre and Ga. 1123 had an average test weight of 57.0 pounds per bushel.

#### Lodging

Lodging data are given in Table 11. A one-year, two-year, three-year and four-year comparison are shown with notations giving the number of

locations where lodging occurred. In 1969 a total of five locations were used for lodging data. If no lodging was recorded at a specific location, data on this location was used for the average along with percent lodging from other locations.

#### Milling Tests

Grain from the wheat entries at all locations was obtained for milling tests. In 1968 samples of seed for each entry from the five Piedmont locations were composited and thoroughly mixed. Subsamples were secured, coded and submitted to individual commercial wheat laboratories for analyses. The same procedure was followed for wheat entries from the three Coastal Plain locations. Results of these milling tests are given in Tables 12 and 13 for wheat analysis for percent protein, test weight, percent flour yield and percent moisture. Flour analysis data includes percent moisture, percent protein and ash for all entries.

The method used in milling the entries was the American Association of Cereal Chemists Method 26-20; and the data was supplied by three commercial flour mills in North Carolina.

Table 1. Cultural Practices for small grain tests - 1969.

Area and cooperator	Fertilizer lbs./A & Grade	Topdress $\frac{1}{2}$ / lbs./A and date	Date of planting	Date of harvesting
<u>Piedmont Area</u>				
Stanly Co. D. G. Harwood	500 lbs. 5-10-10	30 N. Feb. 11	Oct. 11	Barley - June 12 Oats & Wheat - June 18
Davie Co. Kenneth Hoots	1000 lbs. 5-10-10	60 N. Feb. 11	Oct. 25	Barley - June 12 Oats & Wheat - June 19
Alamance Co. Jimmy E. Farrell	500 lbs. 10-10-10	60 N. Feb. 11	Nov. 1	Barley - June 18 Oats & Wheat - June 18
<u>Coastal Plain Area</u>				
Edgecombe Co. Jesse Summerlin	500 lbs. 5-10-10	60 N. Feb. 12	Oct. 28	Barley - June 6 Oats & Wheat - Discarded
Lenoir Co. Parrott Gray	600 lbs. 6-6-12	60 N. Feb. 12	Oct. 28	Barley - June 6 Oats & Wheat - June 20
Sampson Co. Maxton Bass	500 lbs. 5-10-10	60 N. Feb. 13	Oct. 29	Barley - Discarded Oats & Wheat - June 23

$\frac{1}{2}$ / All tests sprayed with 1/3 qt./Acre of 2, 4-D for weed control at the time of topdressing with liquid nitrogen.

Table 2. Characteristics of barley varieties\*

Variety	Loose smut resist- ance	Mildew resist- ance	Leaf rust resist- ance	Scald resist- ance	Lodging resist- ance	Winter hardi- ness	Maturity	Test Weight lb/bus.
McNair 601	Poor	Good	Fair	Fair	Good	Good	Early	Low
Keowee	Poor	Good	Fair	Fair	Good	Good	Early	High
Clayton	Poor	Good	Excellent	Fair	Good	Good	Early	Med.
Colonial 2	Poor	Good	Fair	Poor	Fair	Good	Early	Low
Harrison	Poor	Good	Fair	Fair	Excellent	Excellent	Early	High
Wade	Poor	Poor	Excellent	Fair	Good	Good	Early	High
Davie	Poor	Poor	Excellent	Fair	Good	Good	Early	Low
Jefferson	Poor	Good	Fair	Fair	Excellent	Excellent	Early	Med.

Table 3. Characteristics of oat varieties\*

Variety	Crown rust resist- ance	Smut resist- ance	Blight resist- ance	Mosaic resist- ance	Maturity	Winter Hard- iness	Lodging resist- ance	Height of Straw	Test Weight lb/bu.
Ora	Fair	Good	Good	Poor	Med.	Good	Excellent	Med.	High
Bruce	Fair	Good	Good	Good	Med.	Good	Good	Med.	Med. High
Carolee**	Fair	Good	Good	Fair	Med.	Good	Good	Med.	Med.
Yancey	Fair	Good	Good	Fair	Med.	Good	Excellent	Med.	Med. High
Roanoke	Fair	Poor	Good	Good	Late	Good	Fair	Tall	High
Coker 242	Good	Good	Good	Fair	Med.	Fair	Good	Med.	High
Nora	Good	Good	Good	Poor	Late	Excellent	Excellent	Med.	High

\*These characteristics based upon all available observations.

\*\*Appears to have tolerance to barley yellow dwarf virus.

Table 4. Characteristics of wheat varieties\*

Variety	Leaf rust resist- ance	Mildew resist- ance	Mosaic resist- ance	Maturity	Winter Hardi- ness	Lodging resist- ance	Height of Straw	Test Weight lb/bu.	Soft Wheat Milling Quality
Ga. 1123	Fair	Poor	Good	Med.	Fair	Good	Med.	Med.	Good
Hadden	Good	Good	Poor	Early	Fair	Fair	Short	High	Fair
Wakeland	Good	Fair	Poor	Early	Fair	Poor	Short	Med.	Fair
Arthur	Good	Good	Good	Med.	Good	Good	Short	High	Good
Blueboy	Fair	Good	Good	Med.	Good	Excellent	Semi-dwarf	Low	Good
Coker 65-20	Fair	Good	Fair	Med.	Fair	Good	Med.	Med.	Good
Knox 62**	Good	Fair	Good	Early	Good	Poor	Med.	High	Good

\*These characterizations based upon all available observations.

\*\*Resistant to Hessian Fly.



Table 5. Summary of BARLEY performance trials in the PIEDMONT

Variety or Line	1 yr. Avg. <sup>1/</sup> 1969		2 yr. Avg. <sup>2/</sup> 1968-1969		3 yr. Avg. <sup>3/</sup> 1967-1969		4 yr. Avg. <sup>4/</sup> 1966-1969		5 yr. Avg. <sup>5/</sup> 1965-1969	
	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu
Wade	62.0	45.0	67.6	46.6	65.0	46.9	65.7	46.9	64.9	46.1
Harrison	65.6	46.5	75.1	47.4	75.6	47.6	73.6	47.6	73.5	47.1
Colonial 2	59.7	41.0	64.6	43.0	64.3	43.5	65.8	43.6	64.4	42.8
Clayton(NC 2116)	62.7	43.2	71.6	44.7	69.7	45.5	71.0	45.6	68.9	45.0
Keowee(SC59-1018)	71.8	46.2	83.9	47.1	81.9	47.8	78.4	47.6	75.2	46.9
Davie	54.3	41.5	59.8	43.4	58.2	44.0	60.8	44.0	58.9	43.1
McNair 601	62.0	42.2	72.2	43.8	70.1	44.9	71.6	45.0		
N.C. 35 <sup>6/</sup>	61.7	42.9	67.6	44.8	65.0	45.1				
Jefferson	64.0	43.2	76.1	44.7						
Hanover	67.1	40.9								
Va. 65-42-33 <sup>6/</sup>	74.8	41.4								
N.C. 42 <sup>6/</sup>	60.2	42.6								
<u>Mean of Test</u>	<u>63.8</u>	<u>43.0</u>								
L.S.D. (.05)	N.S.	1.4								
(.01)	N.S.	1.8								
C.V. (%)	14	2								

<sup>1/</sup> Average of Alamance, Stanly and Davie County locations.

<sup>2/</sup> Average of eight locations.

<sup>3/</sup> Average of twelve locations.

<sup>4/</sup> Average of sixteen locations.

<sup>5/</sup> Average of twenty locations.

<sup>6/</sup> Experimental lines.

Table 6. Summary of BARLEY performance in the COASTAL PLAIN

Variety or Line	1 yr. Avg. <sup>1/</sup> 1969		2 yr. Avg. <sup>2/</sup> 1968-1969		3 yr. Avg. <sup>3/</sup> 1967-1969		4 yr. Avg. <sup>4/</sup> 1966-1969		5 yr. Avg. <sup>5/</sup> 1965-1969	
	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu
Wade	54.4	45.6	76.6	46.2	77.4	47.2	76.8	46.8	71.7	45.9
Keowee(SC59-1018)	64.6	45.9	83.6	46.4	81.5	47.1	80.5	46.9	76.1	46.2
Colonial 2	58.1	42.1	74.4	42.6	73.7	43.4	72.8	43.7	69.0	43.0
Clayton(NC 2116)	53.5	43.0	74.6	44.0	75.4	45.0	76.5	45.0	71.7	44.1
McNair 601	65.9	44.7	81.4	45.0	76.6	45.8	78.4	45.6		
N.C. 35 <sup>6/</sup>	46.4	42.7	70.8	44.2	69.5	44.9				
Harrison	46.7	47.4	63.2	47.0	68.2	47.6				
N.C. 42 <sup>6/</sup>	54.8	43.8								
Va. 65-42-33 <sup>6/</sup>	58.5	43.8								
Hanover	58.2	43.8								
<u>Mean of Test</u>	<u>56.1</u>	<u>44.3</u>								
L.S.D. (.05)	5.8	.8								
(.01)	7.8	1.1								
C.V. (%)	10	2								

<sup>1/</sup> Average of Lenoir and Edgecombe County locations.

<sup>2/</sup> Average of four locations.

<sup>3/</sup> Average of six locations.

<sup>4/</sup> Average of nine locations.

<sup>5/</sup> Average of eleven locations.

<sup>6/</sup> Experimental lines.

Table 7. Summary of OAT performance trials in the PIEDMONT

Variety or Line	1 yr. Avg.- <sup>1/</sup> 1969		2 yr. Avg.- <sup>2/</sup> 1968-1969		3 yr. Avg.- <sup>3/</sup> 1967-1969		4 yr. Avg.- <sup>4/</sup> 1966-1969		5 yr. Avg.- <sup>5/</sup> 1965-1969	
	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu
Carolee	86.5	32.9	103.4	33.4	104.7	33.4	101.6	33.3	101.9	33.0
Roanoke	70.2	33.7	84.9	34.8	90.2	35.8	89.1	35.6	87.9	35.5
Bruce	85.8	33.9	99.6	35.0	99.3	35.3	96.0	35.1	94.2	34.8
Coker 242	91.0	33.8	103.4	35.0	104.3	35.7	102.7	35.6	99.2	35.5
Yancey (NC 2534)	88.5	33.5	101.2	34.2	104.0	34.2	100.9	34.2	99.9	34.0
Ora	84.0	32.8	100.6	34.6	102.8	35.5				
Nora	83.5	34.1	103.6	35.6	106.0	36.5				
Coker 66-22 <sup>6/</sup>	100.5	34.3	108.2	35.0	110.1	35.8				
N.C. 85 <sup>6/</sup>	74.5	31.7	95.0	32.8						
Va. 65-32-21 <sup>6/</sup>	102.4	33.6	109.4	34.4						
N.C. 8 <sup>6/</sup>	80.8	31.4	97.6	32.3						
SC 60-C16 <sup>6/</sup>	89.2	33.0	94.2	33.4						
Coker 68-23 <sup>6/</sup>	84.7	34.2								
N.C. 2469-2 <sup>6/</sup>	83.0	31.8								
<u>Mean of Test</u>	<u>86.0</u>	<u>33.2</u>								
L.S.D. (.05)	N.S.	1.5								
	(.01)	N.S.	2.0							
C.V. ( % )	17	3								

<sup>1/</sup> Average of Alamance, Stanly and Davie County locations.

<sup>2/</sup> Average of eight locations.

<sup>3/</sup> Average of eleven locations.

<sup>4/</sup> Average of fifteen locations.

<sup>5/</sup> Average of nineteen locations.

<sup>6/</sup> Experimental lines.

Table 8. Summary of OAT performance trials in the COASTAL PLAIN

Variety or Line	1 yr. Avg. <sup>1/</sup>		2 yr. Avg. <sup>2/</sup>		3 yr. Avg. <sup>3/</sup>		4 yr. Avg. <sup>4/</sup>		5 yr. Avg. <sup>5/</sup>	
	1969		1968-1969		1967-1969		1966-1969		1965-1969	
	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu
Carolee	83.1	34.1	101.0	35.2	102.0	35.0	100.3	34.4	97.7	34.1
Roanoke	63.4	34.9	76.0	36.4	76.3	36.0	75.5	35.5	73.3	35.2
Bruce	81.7	34.6	95.0	35.8	94.4	35.7	90.4	34.9	87.3	34.9
Coker 242	81.3	35.2	96.4	36.6	97.7	36.6	99.0	36.5	96.1	36.4
Yancey (NC 2534)	86.2	34.7	101.2	35.9	102.2	35.6	96.8	35.2	94.5	35.1
Ora	89.8	36.8	107.8	37.6	109.0	37.6				
Nora	82.6	36.8	104.6	37.8	105.8	37.7				
N.C. 85 <sup>6/</sup>	81.2	33.6	97.8	34.6						
Va. 65-32-21 <sup>6/</sup>	98.2	34.8	112.6	35.8						
N.C. 8 <sup>6/</sup>	74.1	32.5	88.4	34.0						
Coker 66-22 <sup>6/</sup>	79.1	34.9	97.4	35.9						
SC 60-C16 <sup>6/</sup>	68.0	34.1	80.4	35.4						
Coker 68-23 <sup>6/</sup>	85.6	35.7								
N.C. 2469-2 <sup>6/</sup>	75.8	33.8								
<u>Mean of Test</u>	<u>80.7</u>	<u>34.7</u>								
L.S.D. (.05)	N.S.	1.5								
(.01)	N.S.	2.0								
C.V. (%)	14	3								

<sup>1/</sup> Average of Sampson and Lenoir County locations.

<sup>2/</sup> Average of four locations.

<sup>3/</sup> Average of six locations.

<sup>4/</sup> Average of nine locations.

<sup>5/</sup> Average of twelve locations.

<sup>6/</sup> Experimental lines.

Table 9. Summary of WHEAT performance trials in the PIEDMONT

Variety or Line	1 yr. Avg. <sup>1/</sup> 1969		2 yr. Avg. <sup>2/</sup> 1968-1969		3 yr. Avg. <sup>3/</sup> 1967-1969		4 yr. Avg. <sup>4/</sup> 1966-1969		5 yr. Avg. <sup>5/</sup> 1965-1969	
	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu
Wakeland	53.6	56.5	56.2	58.0	52.8	58.5	51.5	58.2	49.2	58.2
Ga. 1123	52.7	55.5	57.4	57.4	53.0	58.1	53.6	58.2	52.2	58.4
Knox 62	48.1	57.6	52.2	59.2	51.2	60.0	50.3	59.6	49.9	59.7
Blueboy	63.1	55.3	69.6	56.4	66.5	57.2	66.1	56.7	63.9	56.7
Coker 65-20	60.6	56.6	64.1	58.2	61.1	58.6	59.5	58.6		
Arthur	57.7	57.9	62.4	58.8						
Va. 66-54-15 <sup>6/</sup>	62.9	52.2								
N.C. 7 <sup>6/</sup>	62.3	55.0								
Coker 68-8 <sup>6/</sup>	58.4	56.2								
Coker 68-19 <sup>6/</sup>	54.7	57.4								
<u>Mean of Test</u>	<u>57.4</u>	<u>56.0</u>								
L.S.D. (.05)	9.4	2.3								
(.01)	N.S.	3.2								
C.V. (%)	8	2								

<sup>1/</sup> Average of Alamance, Stanly and Davie County locations.

<sup>2/</sup> Average of eight locations.

<sup>3/</sup> Average of twelve locations.

<sup>4/</sup> Average of fourteen locations.

<sup>5/</sup> Average of seventeen locations.

<sup>6/</sup> Experimental lines.

Table 10. Summary of WHEAT performance trials in the COASTAL PLAIN

Variety or Line	1 yr. Avg. <sup>1/</sup> 1969		2 yr. Avg. <sup>2/</sup> 1968-1969		3 yr. Avg. <sup>3/</sup> 1967-1969		4 yr. Avg. <sup>4/</sup> 1966-1969		5 yr. Avg. <sup>5/</sup> 1965-1969	
	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu	bu/A	lbs/bu
Wakeland	51.0	53.6	56.2	55.4	50.7	56.5	47.2	56.0	47.3	56.5
Ga. 1123	58.6	54.9	61.4	56.4	52.0	57.4	50.8	56.9	49.9	57.0
Blueboy	67.4	53.8	72.4	55.0	69.1	56.2	64.8	55.6	62.7	55.7
Coker 65-20	55.0	54.5	59.3	56.2	53.2	57.1	50.8	56.5		
Hadden	49.6	53.4	58.2	55.6						
Va. 66-54-15 <sup>6/</sup>	48.0	53.6								
N. C. 7 <sup>6/</sup>	64.1	54.0								
Arthur	49.4	55.3								
Coker 68-8 <sup>6/</sup>	56.5	54.2								
Coker 68-19 <sup>6/</sup>	63.5	55.9								
<u>Mean of Test</u>	<u>56.3</u>	<u>54.3</u>								
L.S.D. (.05)	5.3	1.0								
(.01)	7.1	1.3								
C.V. (%)	9	2								

<sup>1/</sup> Average of Lenoir and Sampson County locations.

<sup>2/</sup> Average of four locations.

<sup>3/</sup> Average of six locations.

<sup>4/</sup> Average of nine locations.

<sup>5/</sup> Average of twelve locations.

<sup>6/</sup> Experimental lines.

Table 11. Lodging Data

Variety or Line	1 yr. Avg.	2 yr. Avg.	3 yr. Avg.	4 yr. Avg.
<u>BARLEY</u>	<u>1969<sup>1/</sup></u>	<u>1968-1969<sup>2/</sup></u>	<u>1967-1969<sup>3/</sup></u>	<u>1966-1969<sup>4/</sup></u>
McNair 601	34.0	37.9	29.9	34.8
Clayton	41.5	38.4	26.4	31.2
Colonial 2	45.7	58.6	61.6	69.7
Harrison	15.3	12.0	8.0	8.3
Wade	39.3	36.8	27.8	33.8
Davie	39.2	43.8	41.7	53.7
N. C. 35	34.2	37.4	39.5	
Va. 65-42-33	26.7	28.2		
Jefferson	8.2	8.7		
Keowee	33.2	33.4		
Hanover	33.8			
N. C. 42	34.0			
<u>OATS</u>	<u>1969<sup>5/</sup></u>	<u>1968-1969<sup>6/</sup></u>	<u>1967-1969<sup>7/</sup></u>	<u>1966-1969<sup>8/</sup></u>
Bruce	48.9	43.0	50.4	51.2
Carolee	41.1	36.4	36.4	41.0
Yancey	40.5	31.1	25.7	26.6
Roanoke	34.3	41.2	47.8	48.3
Coker 242	31.2	26.2	26.7	32.0
Nora	40.0	27.8	23.4	
Coker 66-22	46.2	48.4	52.3	
Ora	34.2	25.8	24.1	
Va. 65-32-21	26.0	21.4		
N.C. 85	37.2	25.3		
N. C. 8	47.1	46.9		
S. C. 60-C16	17.2	18.3		
Coker 68-23	28.2			
N. C. 2469-2	18.5			
<u>WHEAT</u>	<u>1969<sup>9/</sup></u>	<u>1968-1969<sup>10/</sup></u>	<u>1967-1969<sup>11/</sup></u>	<u>1966-1969<sup>12/</sup></u>
Ga. 1123	23.5	16.5	16.0	15.3
Wakeland	54.5	41.9	35.9	41.6
Blueboy	.8	3.9	3.0	2.7
Coker 65-20	31.0 <sup>13/</sup>	23.2 <sup>15/</sup>	21.8	18.5
Hadden	57.5 <sup>13/</sup>	36.5 <sup>15/</sup>		
Arthur	16.3	14.8 <sup>16/</sup>		
Knox 62	31.7 <sup>14/</sup>	29.4 <sup>16/</sup>		
Va. 66-54-15	1.2			
N. C. 7	3.0			
Coker 68-8	32.0			
Coker 68-19	6.7			

<sup>1/</sup> Average of five locations.<sup>2/</sup> Average of eleven locations.<sup>3/</sup> Average of twelve locations.<sup>4/</sup> Average of fourteen locations.<sup>5/</sup> Average of five locations.<sup>6/</sup> Average of fourteen locations.<sup>7/</sup> Average of seventeen locations.<sup>8/</sup> Average of twenty-two locations.<sup>9/</sup> Average of five locations.<sup>10/</sup> Average of twelve locations.<sup>11/</sup> Average of thirteen locations.<sup>12/</sup> Average of eighteen locations.<sup>13/</sup> Average of two locations.<sup>14/</sup> Average of three locations.<sup>15/</sup> Average of nine locations.<sup>16/</sup> Average of eight locations.

Table 12. Comparisons of Wheat Entries for Wheat and Flour Qualities for 1968.  
Average of Three Laboratories for Piedmont Entries

Variety or Line	Wheat Analysis				Flour Analysis		Ash
	%	Test Weight	% Moisture	% Protein	% Moisture	% Protein	
	Flour* Yield						
N. C. 4719	66.4	57.7	12.55	11.75	13.04	9.84	.442*
Blueboy	70.6	57.7	12.47	11.05	13.03	9.54	.434*
Ga. 1123	69.6	58.9	12.34	11.75	12.93	10.33	.443*
McNair 2203	67.4	58.4	12.39	11.46	12.76	9.75	.496*
Andnox	67.8	60.5	12.42	12.10	12.83	10.37	.450*
Wakeland	65.3	59.5	12.06	12.64	12.84	11.39	.482*
Va. 66-54-10+12+15	72.7	57.3	12.47	11.85	12.29	10.37	.445
McNair 312	69.4	58.2	12.36	12.96	12.68	11.81	.469
Coker 65-20	71.6	59.7	12.48	11.36	12.35	10.16	.416
Hadden	66.3	59.8	12.71	12.74	12.06	11.62	.498
Knox 62	70.0	60.7	12.57	11.62	12.11	10.47	.463
Arthur	67.4	59.9	12.45	11.95	12.21	10.58	.426*

\*Average of two laboratories.

Table 13. Comparison of Wheat Entries for Wheat and Flour Qualities for 1968.  
Average of Two Laboratories for Coastal Plain Entries

Variety or Line	Wheat Analysis				Flour Analysis		Ash
	%	Test Weight	% Moisture	% Protein	% Moisture	% Protein	
	Flour* Yield						
N. C. 4719	66.5	57.7*	13.22	11.02	13.26	9.25	.451*
Blueboy	71.2	56.4	13.55	9.99	13.12	9.12	.437*
Ga. 1123	68.4	58.6	13.56	10.78	13.14	9.72	.408*
McNair 2203	68.7	55.6	13.50	10.35	12.96	9.02	.431*
Andnox	68.1	59.1	13.46	10.94	13.47	9.26	.357
Wakeland	65.6	57.9	13.40	11.54	13.38	10.23	.362
Va. 66-54-10+12+15	69.6	57.0	13.04	10.76	13.06	9.71	.398*
McNair 312	71.1	57.1	13.78	11.26	13.05	9.76	.393*
Coker 65-20	71.9	58.4	13.35	10.66	13.00	9.26	.421*
Hadden	67.5	58.1	13.22	11.72	13.09	9.96	.397*

\*Average of one laboratory.