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Measured Crop Performance

SMALL GRAIN

1984

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PERFORMANCE OF SMALL GRAIN VARIETIES IN NORTH CAROLINA^{1/}

INTRODUCTION

Across the State of North Carolina during the spring of 1983, growers harvested 56,000 acres of barley, 75,000 acres of oats, and 480,000 acres of wheat. Average yields were 49, 56, and 34 bushels per acre for barley, oats, and wheat, respectively.

With the large number of commercially available and prospective varieties of barley, oats, and wheat, it becomes difficult for growers to select a superior variety suited for their particular area of the state. To make this decision the grower needs up-to-date, unbiased, reliable information. The Official Variety Testing Program, through this report, seeks to provide that type of information.

Information on varietal performance is presented from seven test locations in the state--four in the Piedmont, and three in the Coastal Plain. Also included are multiple-year performance data on a selected number of varieties.

COMPARING VARIETIES

Performance of a variety cannot be determined with absolute precision. Even though the tests are conducted in a uniform manner, as much as possible, uncontrollable variability exists among experimental plots due to soil, fertility, moisture, insects, diseases, and other sources of variation. Because this variability exists, statistics are used as a tool

^{1/}Research technicians, Ray Adams, Saunders Bennett, G. C. Oliver, and Dwight Parrish assisted in conducting these tests. Carey Parsons prepared the text and tables for this bulletin.

to determine differences among varieties. The size of difference among varieties which may have been due to chance variation is listed in each table as the B.L.S.D. (least significant difference). Those varieties which do not differ by more than the B.L.S.D. are not statistically different.

Varietal performance may appear inconsistent among locations within an area or among years at a particular location, thus it is important for the reader to examine results from more than one location within an area or more than one year at a particular location to obtain a more accurate picture of relative varietal performance. An effort has been made to facilitate comparisons among locations and years in this report.

The varieties which do not yield significantly less than the highest yielding variety are denoted by an asterisk (*) next to their yields. The relative performance of a variety across locations within an area can be easily evaluated by going across the table; those varieties which are most frequently marked by an asterisk would be highly desirable. Other agronomic characteristics may be as equally important as yield. All available data regarding pathologic and agronomic characteristics of the varieties are found in Table 1, 2, and 3 for barley, oats, and wheat, respectively.^{2/}

It is suggested that the grower plant a small number of acres in a new variety when first determining if it is adapted to his farm.

^{2/}Special acknowledgment is due Drs. T. T. Hebert, Paul Murphy, and Ron Jarrett for their assistance in describing the characteristics of the varieties.

Table 1. Characteristics of barley varieties*

Variety	Mildew resist- ance	Rust resist- ance	Scald resist- ance	Lodging resist- ance	Winter hardi- ness	Maturity	Test Weight lb/bu	Length of awns
Anson	Fair	Good	Poor	Good	Good	Medium	Medium	Awnless
Boone	Fair	Good	Fair	Fair	Good	Medium	High	Short
Clayton	Good	Excellent	Good	Good	Good	Medium	Medium	Awnless
Keowee	Good	Poor	Fair	Good	Good	Medium	High	Short
Milton	Fair	Good	Good	Excellent	Good	Early	Medium	Short
Redhill	Good	Good	Good	Good	Good	Early	Medium	Awnless
Sussex	Excellent	Poor	Excellent	Good	Fair	Early	Low	Short

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Table 2. Characteristics of oat varieties*

Variety	Rust resist- ance	Smut resist- ance	Mosaic resist- ance	Maturity	Winter hardi- ness	Lodging resist- ance	Test Weight lb/bu
Brooks	Fair	Good	Good	Early	Good	Good	Med. High
Coker 716	Fair	Good	Good	Medium	Good	Excellent	Med. High
Madison	Fair	Good	Good	Med. Early	Fair	Excellent	Medium

*These characteristics based upon all available observations.

Table 3. 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
Caldwell	Good	Good	Good	Medium	Good	Fair	Medium	High	Good
Coker 747	Good	Fair	Good	Medium	Good	Good	Semi-Dwarf	High	Fair
Coker 762	Good	Excellent	Good	Medium	Fair	Fair	Semi-Dwarf	Medium	Fair
Coker 797	Good	Excellent	Fair	Early	Fair	Excellent	Semi-Dwarf	High	Fair
Coker 916	Good	Excellent	Good	Medium	Good	Excellent	Semi-Dwarf	High	Good
Coker 983	Good	Good	Good	Med. Early	Good	Excellent	Semi-Dwarf	Medium	Good
Hunter	Good	Excellent	Good	Early	Fair	Excellent	Semi-Dwarf	High	Good
Magnum	Good	Good	Good	Medium	Good	Excellent	Semi-Dwarf	Excellent	Fair
Massey	Poor	Excellent	Good	Medium	Good	Good	Medium	Medium	Good
McNair 1003	Poor	Good	Good	Medium	Good	Excellent	Medium	Medium	Good
Pioneer Brand 2550	Good	Good	Excellent	Medium	Good	Good	Medium	High	Fair
Potomac	Poor	Good	Good	Medium	Good	Poor	Tall	Excellent	Good
Saluda	Good	Good	Fair	Medium	Excellent	Excellent	Medium	Medium	Good
Scotty	Good	Excellent	Good	Medium	Good	Excellent	Medium	Excellent	Good
Severn	Poor	Poor	Good	V. Early	Excellent	Good	Medium	Medium	Good
Tyler	Poor	Excellent	Good	Late	Good	Good	Medium	High	Good
Wheeler	Poor	Fair	Good	Medium	Good	Good	Medium	High	Excellent

*These characteristics based upon all available observations.

EXPERIMENTAL PROCEDURE

The state is divided into physiographic regions and tests were located in the Piedmont and Coastal Plain (Figure 1). Four tests were located on private farms^{3/} and four were on research stations.

Entries: 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. Entries about which further information was desired may have been included on a no-fee basis. A total of 10, 8, and 27 commercial varieties and experimental lines of barley, oats, and wheat, respectively, were evaluated in the 1983-84 season.

Field Plot Design: A randomized, complete block design with four or six replications was used at each location.^{4/} Each plot consisted of seven rows, seven inches apart, seventeen feet long with two feet between each plot.

Crop Management: 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 4). Prior to planting each test, soil samples were obtained from the test field and fertilizer and lime applications were made accordingly (Table 5).

^{3/}The cooperative spirit and civic-minded service rendered by the farmers who provided the land and the necessary cultural practices for these trials and the cooperation of the county agents are gratefully acknowledged.

^{4/}Statistical analyses were made in the statistical laboratory under the supervision of Dr. J. O. Rawlings, Mrs. Sandra Donaghy, and Mrs. Faye Childers. This assistance is gratefully acknowledged.

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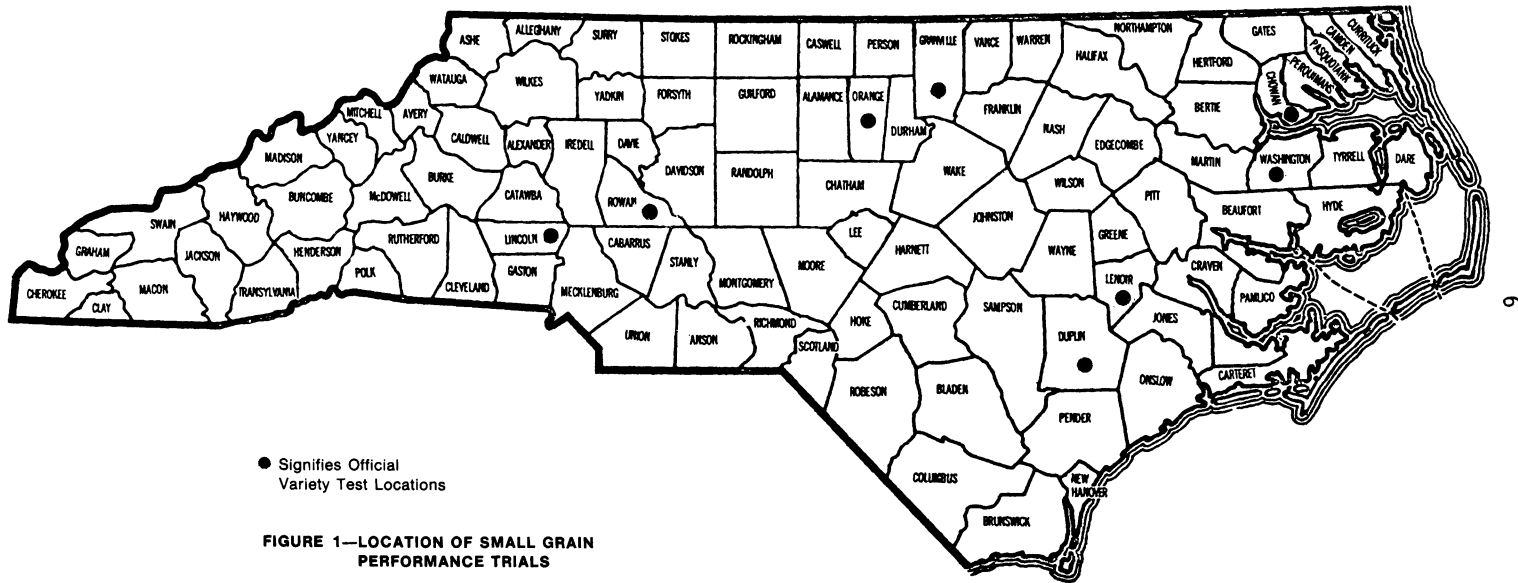


Table 4. Cultural practices for small grain tests, 1983-84.

County	Fertilizer lbs/A & Grade	Topdress lbs/A	Soil Type	Date of Planting	Date of Harvest
<u>Piedmont Area</u>					
Orange	200 lbs. 10-20-20	150 lbs. 33.5% N	Georgeville Silt Loam	November 8	6-20
Granville	400 lbs. 10-20-20	180 lbs. 33.5% N	Helena Loamy Sand	October 31	6-20
Lincoln	450 lbs. 8-24-24	180 lbs. 33.5% N		November 3	7-10
Rowan	700 lbs. 10-20-20		Hiawassee Clay Loam	November 1	6-21
<u>Coastal Plain Area</u>					
Chowan		300 lbs. 33.5% N		November 2	6-15
Lenoir	300 lbs. 10-10-20	300 lbs. 33.5% N	Goldsboro Loamy Sand	October 26	6-12
Duplin		150 lbs. 33.5% N	Coxville Fine Sandy Loam	October 27	6-13
Washington	500 lbs. 4-6-18	200 lbs. 33.5% N	Portsmouth Sandy Loam	November 2	Discarded

Table 5. Soil test results from test sites, 1983-84.

	HM %	W-V	CEC	BS %	Ac	pH	P-I	K-I	Ca %	Mg %	Mn-I	Zn-I	Cu-I
<u>PIEDMONT AREA</u>													
Granville	0.2	1.18	2.4	83	0.4	5.9	48	40	54.2	20.8	93	24	29
Orange	0.3	1.04	4.8	41	2.8	5.1	10	66	23.2	10.9	166	29	46
Lincoln	0.6	1.24	4.2	81	0.8	5.9	64	72	49.5	23.1	166	35	72
Rowan	0.1	0.98	4.1	71	1.2	5.5	15	66	48.4	14.5	166	27	112
<u>COASTAL PLAIN AREA</u>													
Chowan	0.6	1.00	6.1	87	0.8	6.3	50	56	65.6	16.7	70	41	34
Duplin	1.0	1.23	6.0	80	1.2	6.2	166	92	59.8	12.6	103	92	210
Lenoir	0.8	1.27	3.6	77	0.8	5.6	166	66	50.7	17.2	50	83	55
Washington	2.5	1.14	10.1	88	1.2	6.3	78	60	62.6	22.5	55	50	43

<u>Agencies Sponsoring Entries</u>	<u>Entries</u>
Coker's Pedigreed Seed Company	Coker
Florida Agricultural Experiment Station	Florida
Illinois Agricultural Experiment Station	Scotty
Maryland Agricultural Experiment Station	Potomac, Severn
Northrup King Company	McNair, NK
North American Plant Breeders	Hunter, Magnum
North Carolina Agric. Experiment Station	Anson, Boone, Clayton, Milton Brooks, Madison, NC
Pioneer Hi-Bred International, Inc.	Pioneer brand
Purdue University Agric. Expt. Station	Caldwell, Compton, Fillmore
South Carolina Agric. Experiment Station	Keowee, Redhill
Virginia Agricultural Experiment Station	Sussex, Massey, Tyler, VA Wheeler, Saluda

Cooperators

Piedmont

Granville County: Bill Clements, Superintendent, Oxford Tobacco Research Station, Oxford, NC

Agricultural Extension Agent, Derek Day.

Lincoln County: Bess Farms, Inc., Route 1, Lincolnton, NC

Agricultural Extension Agent, Ben Knox.

Orange County: Bill Ray, Route 2, Hillsborough, NC

Agricultural Extension Agent, Dave Warren.

Rowan County: Billy Ayscue, Superintendent, Piedmont Research Station, Salisbury, NC

Agricultural Extension Agent, Steven Gatton.

Coastal Plain

Chowan County: Richard Saunders, Route 2, Edenton, NC

County Extension Chairman, J. Michael Williams.

Duplin County: Jack Williams, Route 2, Faison, NC

Agricultural Extension Agent, J. Michael Moore.

Lenoir County: Sandy Barnes, Superintendent, Lower Coastal Plain Tobacco Research Station, Kinston, NC.

Agricultural Extension Agent, Johnnie Jones.

Washington County: John Smith, Superintendent, Tidewater Research Station, Plymouth, NC

Agricultural Extension Agent, Cole Knotts.

SEASONAL CONDITIONS

The 1983-84 small grain growing season was characterized by above normal rainfall and below normal temperatures for the most part. Below normal temperatures during the latter part of December and early part of January resulted in winter kill of four of the eight oat tests and the barley test at the Orange County location. Rainfall at four locations is shown below:

<u>Location</u>	<u>Monthly Rainfall Totals (Inches)</u>							
	<u>October</u>	<u>No- vember</u>	<u>De- cember</u>	<u>Jan- uary</u>	<u>Feb- ruary</u>	<u>March</u>	<u>April</u>	<u>May</u>
Granville County	4.50	4.01	7.00	3.94	5.15	7.11	5.23	5.34
Lenoir County	1.30	3.07	7.02	3.06	5.99	7.30	2.87	5.93
Rowan County	3.76	4.24	6.41	3.84	6.69	5.46	5.75	6.48
Washington County	3.94	3.74	4.56	4.18	3.88	5.47	5.40	6.82

Dates of planting during the fall of 1983 were near normal. Environmental conditions were conducive for several diseases although powdery mildew was not evident to the point where viable ratings could be made. Leaf rust ratings and scald ratings were made and reported. Glume blotch was evident at the Granville County location and several plots were severely damaged with nearly 100% of the heads infected. Cereal leaf beetle was evident at Rowan, Orange and Granville County locations with the Orange County location receiving the heaviest damage although the extent of the damage was not assessed.

Topdressing occurred near normal. Rains prevented the harvest of the Lincoln County Test site until the 10th of July. By then the barley had completely lodged and could not be harvested.

The unfavorable weather delayed heading of the barley, oats and wheat nearly ten days later than normal. For this reason, growers are cautioned when examining heading data reported in this bulletin.

All yields were above normal at most locations. Barley test weights were below normal although this may be attributed to the late harvest of the test plots.

DATA

Yield is reported in bushels per acre by location, across locations within areas and across all locations within the state. Test weights in pounds per bushel were reported averaged by area and averaged across the state. Lodging was reported in percentage averaged across all locations within the state.

Date 50% headed and date of physiological maturity were taken at the Granville County location and reported in the state-wide average. Date of physiological maturity is considered when the grain is dried down to 18% moisture.

Disease ratings are reported in the state-wide averages although they may have only been taken at one or two locations. One thousand kernel weight is an indicator of quality and may not be correlated with test weight. For milling purposes, the 1000 kernel weight is a better indicator of quality. These data were obtained for wheat and averaged across all locations for a state-wide average. It should be noted that although 1000 kernel weight is a better indicator of quality, growers are penalized for low test weight although 1000 kernel weight may be high

Certain varieties were tested only in the Coastal Plain while other varieties were tested in the Piedmont only. Tables reflect these differences.

Yield data were analyzed. The average yield of each test was indicated on the bottom of the tables. The B.L.S.D. K-50 is equivalent to the Fisher's L.S.D. at the 10% level. The standard error of the mean (s.e.) is an indicator of the precision of that test; the smaller the s.e., the more precise the estimate of yield is for any particular variety. The s.e. of the mean is equal to the standard deviation divided by the square root of N; N is normally the number of replications in the trials. The averages across locations within an area such as Piedmont or Coastal Plain may not appear to equal that of the average between the locations; this is due to the fact that different number of replications was used at each location, and the total number of replications was used in calculating the average across locations within an area and across all locations for the state-wide average.

RESULTS AND DISCUSSION

Barley

Barley performance is summarized across the state in Table 6. The highest yielder across locations was Milton, followed closely by Sussex. Test weights were extremely low due to late harvest and environmental conditions in the spring. Lodging was extremely high due again to late harvest. Although Sussex performed well in 1984, the date 50% headed indicates it is an early variety and in 1983 it performed poorly due to late spring freezes. This should be kept in mind by the grower. The severity of scald on Anson drastically reduced yields of that particular variety which has performed well in the past. Although Boone is susceptible to scald, it still performed well under severe infestations of this disease.

Across the Piedmont, Milton was the highest yielder with 86 bushels per acre (Table 7); although Boone was the highest yielder over two and three years. Yields at Rowan County were excellent with an average yield of 85 bushels per acre.

Across the Coastal Plain, again, Milton was the highest yielder with an average of 88 bushels per acre (Table 8). Boone and NC 80-1 were the two-year yield leaders while Boone is the three-year yield leader. Test weights in the Coastal Plain were somewhat higher than those in the Piedmont and excellent yields were obtained at all three locations in the Coastal Plain.

Oats

Oat yields appeared to be above average across the state (Table 9). Coker 716 was the highest yielder with an average of 146 bushels per acre. Test weights were excellent: Lodging ranged from a low of 4%

for Madison to a high of 67% for NC 81-378. The data on plant height will help explain the differences in lodging with Madison being the shortest variety in the test.

Highly significant location by variety interaction prevents any one variety from significantly outyielding all others across locations in the Piedmont in 1984 (Table 10). At the Granville County location, Coker 716 and Madison were the highest yielders while Brooks was the highest yielder of the Lincoln County location with an average of 145 bushels per acre. Test weights were excellent in 1984 in the Piedmont. Coker 716 is the highest two and three-year yield leader in the Piedmont.

Madison and Coker 716 were the highest oat yielders in the Coastal Plain in 1984 (Table 11). Madison is also the two and three-year yield leader with an average of 135 bushels per acre.

Wheat

Wheat yields across the state averaged from a high of 76 bushels per acre for Coker 983 and Saluda to a low of 54 bushels for NC 81-3. For an example of differences between the two quality measurements, 1000 kernel weight and test weight, examine Coker 983 and Compton. Both have nearly the same test weight in pounds per bushel but Coker 983 has a 1000 kernel weight of 31.9 while Compton has 1000 kernel weight of 35.2 indicating that Compton is actually higher quality wheat. Test weights for all varieties were below normal. Lodging ranged from a low of 0% for NC 81-69 to a high of 35% for Severn. Date 50% headed ranged from early varieties such as Coker 916, Florida 301 and Hunter which headed April 30 to as late as May 15 for Fillmore. Fillmore and NC 81-69 were late in terms of physiological maturity, maturing June 16 at the Granville

County location. The earliest maturing variety at this location was Coker 916. Leaf rust ratings were taken in the Coastal Plain.

Wheat yields were excellent across the Piedmont (Table 13) with wheat yields at the Lincoln County location averaging 88 bushels per acre. At this particular location, Coker 983 yielded an astonishing 109 bushels per acre. Across locations in the Piedmont, Coker 916 was the highest yielder with 79 bushels per acre followed closely by Coker 983, McNair 1003, Saluda and Tyler. Tyler is the highest yielder over the last two and three years. Test weights were somewhat low in the Piedmont and high in the Coastal Plain (Table 14).

In the Coastal Plain, Saluda was the highest yielder with an average of 75 bushels per acre. It also is the two-year yield leader with an average of 62 bushels per acre. Across three years, Pioneer 2550 is the highest yielder with an average of 56 bushels per acre.

Wheat and Flour Analyses

Coded samples of wheat were submitted for wheat and flour analyses to the Bartlett Milling Company, Statesville, NC. Such analyses are helpful in determining whether released varieties or potential varieties are suitable for the mills in terms of quality. Test weight of 60 pounds per bushel or greater are desired. Moisture should not be over 15% because of keeping quality. A general protein content of 8 to 11% is desirable for soft red winter wheat. Flour yield is a general indicator of milling quality and a value of 72 is considered good with higher values desirable. One thousand kernel weight is a general indicator of milling quality. Ash is a measure of the mineral content of flour and lower values are desired. Table 15 lists the results of these tests.

Special acknowledgment is due Bartlett Milling Company and Terry Selleck, Quality Control Manager, for their assistance in making available these data.

Table 6. Summary of barley performance across the state.

Variety or Line	Yield bu/A	Test Wt. lbs/bu	Lodging %	Plant Ht. in.	Date ^{1/} 50% Headed	Date ^{1/} Mature
Anson	65	36.3	61	41	5-1	6-5
Boone	83	36.2	74	38	4-27	6-4
Clayton	72	36.5	67	42	4-28	6-1

Keowee	75	32.0	63	41	4-29	6-2
Milton	87	29.9	68	41	4-28	6-1
Redhill	82	36.7	57	40	4-26	5-31

Sussex	86	37.8	58	38	4-16	6-2
+NC 79-65	55	29.8	73	38	4-25	6-1
+NC 80-1	80	37.8	67	41	4-28	6-1
+NC 81-4	75	35.9	75	41	4-26	6-1

^{1/}Data taken from Granville County test.

Table 7. Summary of barley performance trials in the Piedmont.

Variety or Line	Rowan County bu/A	Granville County bu/A	1984 Average		Two Year Average		Three Year Average	
			Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu
Anson	76	52	64	34.7	69	38.7	66	36.9
Boone	88	76**	82*	33.9	78	39.6	73	37.8
Clayton	78	66*	72	35.7	75	39.8	70	37.7
Keowee	83	65	74	30.5	72	38.0	64	35.7
Milton	100**	73*	86**	26.8	74	35.0	64	35.0
Redhill	92*	73*	82*	34.1	51	36.2	54	35.2
Sussex	96*	75*	86*	38.4	63	39.8	57	37.3
+NC 79-65	63	54	58	29.6	67	36.8		
+NC 80-1	86	68	77	35.0	75	40.5		
+NC 81-4	84	63	73	35.5				
<u>Mean of Test</u>	<u>85</u>	<u>66</u>	<u>76</u>					
B.L.S.D. K-50	10	10	7					
s.e.	3.5	3.9	2.6					

**Highest yielder in test.

*Not significantly different from highest yielder.

+Experimental.

Table 8. Summary of barley performance trials in the Coastal Plain.

Variety or Line	Duplin County bu/A	Lenoir County bu/A	Chowan County bu/A	1984 Average		Two Year Average		Three Year Average	
				Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu
Anson	49	67	82	66	37.4	58	38.2	69	39.8
Boone	91*	82*	78	83*	37.7	67	39.0	75	40.1
Clayton	73	73	70	72	37.0	59	38.0	68	39.0
Keowee	80	69	81	76	33.1	60	34.6	66	36.5
Milton	88*	74	108**	88**	32.0	63	33.1	65	35.3
Redhill	93**	80*	76	83*	38.4	54	39.2	63	40.4
Sussex	89*	86**	85	87*	37.4	60	38.8	63	39.5
+NC 79-65	54	50	54	52	30.0	52	33.0		
+NC 80-1	90*	73	87	82*	39.7	67	40.2		
+NC 81-4	89*	67	79	77	36.1				
<u>Mean of Test</u>	<u>80</u>	<u>72</u>	<u>80</u>	<u>77</u>					
B.L.S.D. K-50	11	10	14	6					
s.e.	4.8	4.2	5.5	2.8					

**Highest yielder in test.

*Not significantly different from highest yielder.

+Experimental.

Table 9. Summary of oat performance across the state.

Variety or Line	Yield bu/A	Test Wt. lbs/bu	Lodging %	Plant Ht. in.	Date ^{1/} 50% Headed	Date ^{1/} Mature
Brooks	130	32.4	39	46	5-9	6-9
Coker 716	146	34.3	66	44	5-8	6-10
Madison	143	32.7	4	37	5-10	6-11
+NC 77-3	133	34.7	31	44	5-12	6-11

+NC 79-5	128	35.0	58	45	5-9	6-12
+NC 80-39	115	31.5	65	48	5-10	6-13
+NC 81-374	105	33.1	48	47	5-9	6-10
+NC 81-378	106	32.6	67	47	5-9	6-13

^{1/}Data taken from Granville County location.

+Experimental.

Table 10. Summary of oat performance in the Piedmont.

Variety or Line	Granville County bu/A	Lincoln County bu/A	1984 Average		Two Year Average		Three Year Average	
			Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu
Brooks	105	145**	121*	33.2	103	32.5	99	31.7
Coker 716	125**	137*	130**	35.2	116	35.1	114	33.0
Madison	117*	113	115*	32.9	99	32.3	99	32.3
+NC 77-3	107	138*	119*	35.6	108	35.2	106	32.9

+NC 79-5	114	112	113*	35.9	98	36.1		
+NC 80-39	94	110	100*	32.9				
+NC 81-374	92	115	101*	34.8				
+NC 81-378	88	115	99*	34.5				

<u>Mean of Test</u>	<u>105</u>	<u>123</u>	<u>112</u>					
B.L.S.D. K-50	10	20	NS					
s.e.	4.4	7.3	3.9					

**Highest yielder in the test.

*Not significantly different from the highest yielder.

+Experimental.

Table 11. Summary of oat performance in the Coastal Plain.

Variety or Line	Duplin County bu/A	Lenoir County bu/A	1984 Average		Two Year Average		Three Year Average	
			Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu
Brooks	137	140	139	31.6	100	31.8	103	32.3
Coker 716	159*	166*	163*	33.3	125	33.9	125	33.4
Madison	169**	173**	171**	32.4	135	33.3	135	33.3
+NC 77-3	136	155	148	33.7	114	33.5	113	33.0

+NC 79-5	140	145	143	34.0	113	34.5		
+NC 80-39	137	126	131	30.0				
+NC 81-374	91	121	109	31.4				
+NC 81-378	109	117	114	30.6				

<u>Mean of Test</u>	<u>135</u>	<u>143</u>	<u>140</u>					
B.L.S.D. K-50	16	11	9					
s.e.	6.8	5.0	4.1					

**Highest yielder in the test.

*Not significantly different from the highest yielder.

+Experimental.

Table 12. Summary of wheat performance trials across the state.

Variety or Line	Yield bu/A	(1000) Kernel Wt.	Test Wt. lbs/bu	Lodging %	Plant Height in.	Date ^{1/} 50% Headed	Date ^{1/} Mature	Leaf ^{2/} Rust Rating
Caldwell	66	28.7	55.1	32	38	5-5	6-10	R
Coker 747	69	32.4	56.2	20	37	5-2	6-11	R
Coker 916	--	--	--	--	39	4-30	6-8	--
Coker 983	76	31.9	57.2	2	37	5-2	6-11	R
Compton	71	35.2	57.5	6	37	5-3	6-10	R
Fillmore	61	32.1	54.6	28	42	5-15	6-16	R
Florida 301	60	33.6	56.9	25	47	4-30	6-9	R
Hunter	66	33.4	54.1	5	37	4-30	6-10	MR
Magnum	68	31.5	57.0	6	37	5-1	6-11	R
Massey	69	35.2	54.6	9	41	5-2	6-11	VS
McNair 1003	70	37.9	53.1	6	41	5-2	6-10	S
Pioneer 2550	70	32.6	55.5	8	40	5-6	6-11	R
Potomac	68	34.4	55.8	12	44	5-8	6-15	S
Saluda	76	33.3	56.4	14	38	5-3	6-10	R
Scotty	71	33.0	56.0	4	40	5-5	6-13	R
Severn	55	34.5	55.3	35	43	5-2	6-9	S
Tyler	73	32.4	54.2	12	43	5-6	6-14	S
Wheeler	66	37.4	55.4	17	43	5-3	6-10	MR
+NC 79-20	64	37.5	56.7	28	45	5-2	6-13	R
+NC 80-36	63	30.7	50.6	4	37	5-4	6-9	MR
+NC 81-3	54	33.2	57.5	27	48	5-12	6-14	R
+NC 81-58	66	34.4	53.3	4	39	5-12	6-15	R
+NC 81-69	60	34.5	53.3	0	41	5-12	6-16	R
+NK 79-W810	66	35.4	57.2	10	41	5-1	6-10	R

^{1/}Data taken from Granville County test.

^{2/}R - Resistant, S - Susceptible, MR - Moderately Resistant, VS - Very Susceptible.
+Experimental.

Table 13. Summary of wheat performance across the Piedmont.

Variety or Line	Granville County bu/A	Lincoln County bu/A	Orange County bu/A	Rowan County bu/A	1984 Average		Two Year Average		Three Year Average	
					Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu
Caldwell	52	87	50	81*	67	52.9				
Coker 747	61	86	71**	74*	72	53.7	64	56.9	55	54.6
Coker 916	76**	105*	62*	76*	79**	53.1	60	55.4	55	53.2
Coker 983	72*	109**	67*	72*	78*	55.8				
Compton	64	89	59*	80*	73	55.8				
Fillmore	63	79	56*	74*	68	54.6				
Florida 301	59	54	51	70*	60	53.9				
Hunter	60	103*	56*	59	68	53.8				
Magnum	57	89	62*	83**	72	55.1				
Massey	58	96	62*	75*	72	53.4	55	56.2	52	53.5
McNair 1003	63	101*	59*	82*	76*	51.6	60	53.9	56	51.9
Pioneer 2550	65	99*	54	65	70	53.7	66	55.8	58	54.3
Potomac	64	80	55*	82*	71	53.6	61	53.5		
Saluda	63	98	69*	78*	76*	53.5	67	56.7		
Scotty	62	94	61*	75*	72	55.7	65	56.7		
Severn	47	57	64*	66	58	54.3	45	51.9		
Tyler	68*	98	58*	79*	75*	52.8	71	52.2	62	51.6
Wheeler	58	74	57*	78*	67	52.9	62	55.4	57	54.4
+NC 79-20	62	68	55*	74*	65	56.9				
+NC 80-36	58	95	43	68	66	50.4	60	52.4		
+NC 81-3	54	56	46	70*	58	56.2				
+NC 81-58	58	100*	57*	72*	70	52.6				
+NC 81-69	54	99*	46	57	62	53.4				
+NK 79-W810	62	89	59*	70*	69	56.1				
Mean of Test	61	88	57	73	69					
B.L.S.D. K-50	8	10	16	14	5					
s.e.	3.2	4.4	5.0	4.8	2.2					

**Highest yielder in test.

*Not significantly different from highest yielder.

+Experimental.

Table 14. Summary of wheat performance across the Coastal Plain.

Variety or Line	Chowan County bu/A	Duplin County bu/A	Lenoir County bu/A	1984 Average		Two Year Average		Three Year Average	
				Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu
Caldwell	58*	58	69	63	58.1				
Coker 747	69*	54	70	65	59.6				
Coker 762	67*	61	79*	70*	55.3	54	55.1	51	54.6
Coker 797	52*	42	58	52	57.2	36	56.7	39	55.6
Coker 983	73**	61	82*	73	59.0				
Compton	70*	60	72	68	59.7				
Fillmore	62*	32	55	50	54.5				
Florida 301	63*	54	64	61	60.8				
Florida 302	62*	58	80*	69*	57.5				
Hunter	54*	62	74	65	54.4				
Magnum	45	78**	62	62	59.4				
Massey	51*	65	73	65	56.1	52	56.8	53	56.0
McNair 1003	57*	59	68	63	54.9	49	55.3	51	55.1
Pioneer 2550	69*	59	77	70*	57.9	58	57.9	56	57.3
Potomac	66*	45	72	63	58.8	50	57.7		
Saluda	62*	76*	84**	75**	60.3	62	60.0		
Scotty	69*	60	76	69*	56.4	55	57.3		
Severn	37	48	62	51	56.6	36	56.3		
Tyler	68*	58	78*	70*	56.0	55	55.7	55	54.7
Wheeler	57*	69*	67	65	58.8	51	59.1	52	58.6
+NC 79-20	57*	57	67	61	56.4				
+NC 80-36	54*	49	71	60	50.8	50	52.4		
+NC 81-3	59*	34	51	49	59.2				
+NC 81-58	62*	39	73	60	54.1				
+NC 81-69	56*	48	62	56	53.1				
+NK 79-W810	40	69*	69	61	58.6				
Mean of Test	59	56	70	63					
B.L.S.D. K-50	24	10	6	6					
s.e.	7.1	4.2	2.7	2.6					

**Highest yielder in test.

*Not significantly different from highest yielder.

+Experimental.

Table 15. Comparison of wheat entries for wheat and flour qualities (1984 data).

Variety or Line	Wheat Analysis						Flour Analysis	
	% Moisture	% Protein	Flour Yield	Test Weight	1000 Kernel Wt.	Wheat Appearance ^{1/}	Ash	% Protein
Caldwell	12.2	9.5	70	63.4	30.0	VG	.40	7.8
Coker 747	11.7	10.5	75	63.0	33.0	F	.44	8.8
Coker 762	12.2	9.8	68	58.9	28.0	F	.41	8.7
Coker 797	12.3	9.7	65	58.8	35.0	G	.36	9.0
Coker 983	12.2	10.2	73	61.4	31.0	G	.50	8.9
Compton	12.3	10.0	67	62.1	35.0	VG	.57	8.7
Fillmore	12.8	11.1	76	60.6	33.0	G	.41	9.9
Florida 301	12.2	10.5	65	60.6	34.0	F	.38	9.1
Florida 302	11.7	10.5	71	60.5	40.0	VG	.38	9.3
Hunter	11.7	10.2	70	61.6	34.0	G	.43	8.6
Magnum	11.9	10.0	69	60.3	33.0	F	.37	8.3
Massey	12.1	11.4	70	60.8	38.0	P	.53	9.3
McNair 1003	12.6	10.0	70	61.2	38.0	G	.45	8.0
Pioneer 2550	11.6	10.0	68	61.0	34.0	F	.39	8.9
Potomac	12.7	11.8	71	62.5	38.0	G	.40	10.2
Saluda	12.0	10.8	68	62.8	34.0	G	.39	8.2
Scotty	11.7	11.0	73	62.1	33.0	P	.43	9.6
Severn	12.0	10.4	71	60.2	32.0	G	.36	9.7
Tyler	12.2	9.8	67	61.0	35.0	G	.42	8.2
Wheeler	12.2	11.2	70	64.3	39.0	F	.37	10.0
+NC 79-20	12.8	11.2	70	60.0	40.0	G	.39	10.3
+NC 80-36	11.9	12.0	69	55.0	31.0	F	.40	10.1
+NC 81-3	12.2	12.3	66	62.6	33.0	F	.44	11.0
+NC 81-58	12.1	11.5	66	61.4	38.0	G	.37	9.9
+NC 81-69	12.5	12.0	63	60.1	38.0	P	.45	10.4
+NK 79-W810	12.4	10.0	70	60.0	34.0	VG	.39	8.9

^{1/}Wheat Appearance: G = Good, VG = Very Good, F = Fair, P = Poor.
+Experimental.