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Measured Crop Performance

Small Grain
1987

**D. T. BOWMAN, Associate Professor
In Charge of Variety Testing**

**DEPARTMENT OF CROP SCIENCE
NORTH CAROLINA STATE UNIVERSITY
RALEIGH, N.C. 27695-8604**

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1987

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

INTRODUCTION

Across the state of North Carolina during the fall of 1986, growers planted 46,000 acres of barley, 90,000 acres of oats, and 490,000 acres of wheat. A wet fall delayed planting of some small grains as late as December. Generally favorable spring weather resulted in excellent yields over most of the state where the grain was planted on time.

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 eight test locations in the state. Also included are multiple-year performance data on a selected number of varieties.

^{1/}

Research technicians, Ray Adams, Howard Penny, and Dwight Parrish assisted in conducting these tests. Carey Parsons prepared the text and tables for this bulletin.

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 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 Tables 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.

HYBRIDS VERSUS VARIETIES

Hybrid wheats are now available for the grower. Entries in the tables have been footnoted to indicate if they are hybrids. Genetically, hybrid wheat is similar to other hybrids (e.g. corn) in that they are the first generation of a cross between two parents. Seeding rate, management practices, etc. may be different for hybrid wheat than for normal wheat varieties; one should contact the sales representative regarding this. The seeding rate, management practices, etc. used in the Official Variety Tests are those recommended by the North Carolina Agricultural Extension Service and not necessarily ideal for maximum yield of hybrid

^{2/}

Special acknowledgment is due Drs. Paul Murphy and Ron Jarrett for their assistance in describing the characteristics of the varieties.

wheat. Hybrid wheat seed must not be saved in the grower's field due to the genetic nature of hybrids just as growers would not save hybrid corn seed from their field; i.e. it is absolutely necessary to purchase new seed each season and not follow the practice of saving seed as some growers do with their wheat varieties. If growers are not willing to put extra inputs into growing hybrid wheat then their varietal/hybrid selection should be based on data published in this report.

Table 1. Characteristics of barley varieties.*

Brand-Variety or 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	Poor	Good	Poor	Good	Good	Medium	Medium	Awnless
Boone	Poor	Good	Fair	Fair	Good	Medium	Medium	Short
Clayton	Good	Excellent	Good	Good	Good	Early	Medium	Awnless
Milton	Poor	Good	Good	Excellent	Good	Early	Low	Short
Redhill	V. Poor	Good	Good	Good	Good	V. Early	Medium	Awnless
Sussex	Excellent	Poor	Excellent	Good	Fair	V. Early	Medium	Short
Wysor	Good	Good	Good	Fair	Good	Early	Medium	Short

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Table 2. Characteristics of oat varieties.*

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

*These characteristics based upon all available observations.

Table 3. Characteristics of wheat varieties.*

Brand-Variety or Hybrid/ Variety	Leaf rust resist- ance	Mildew resist- ance	Mosaic resist- ance	Maturity	Winter Hardi- ness	Lodging resist- ance	Test Weight lb/bu	Soft Wheat Milling Quality
Caldwell	Good	Fair	Good	Medium	Good	Fair	High	Good
Coker 916	Good	Good	Good	Med-Early	Good	Excellent	High	Good
Coker 983	Good	Good	Good	Med-Early	Fair	Excellent	Medium	Good
Coker 9227	Poor	Fair	Good	Early	Good	Excellent	Medium	Good
Coker 9323	Poor	Fair		Medium	Fair	Good	Medium	

Coker 9733	Good	Fair		Medium	Good	Good		
Coker 9766		Fair		Med-Late	Good	Good		
Florida 302	Good	Good		Late	Good	Good	High	Good
†HW 3021	Poor	Poor		Medium	Good	Medium	Good	
Massey	Poor	Good	Good	Medium	Good	Good	Medium	Fair

Pioneer 2550	Good	Fair	Good	Medium	Good	Good	High	Fair
Pioneer 2555	Good	Fair	Good	Early	Good	Good		
Saluda	Poor	Poor	Fair	Medium	Good	Fair	Medium	Good
Tyler	Poor	Poor	Good	Late	Good	Good		Good
Williams	Poor	Fair		Medium			Medium	

*These characteristics based upon all available observations.

†Hybrid.

EXPERIMENTAL PROCEDURE

The state is divided into physiographic regions and tests were located in the Piedmont and Coastal Plain (Figure 1). Tests were located on private farms^{3/} and 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 Official Variety Testing Program, Department of Crop Science, North Carolina State University, Raleigh, NC 27695-8604. A fee is charged on an entry basis for all private entries. Entries of specific interest to North Carolina seedsmen may have been included on a no-fee basis. A total of 9, 8, and 19 commercial varieties and experimental lines of barley, oats, and wheat, respectively, were evaluated in the 1986-87 season.

Field Plot Design: A randomized, complete block design with four or five replications was used at each location.^{4/} Each

^{3/}

The cooperative spirit and civic-minded service rendered by the farmers who provide 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 and Mrs. Sandra Donaghy. This assistance is gratefully acknowledged.

plot consisted of eight rows, 7.5 inches apart, 19 feet long with 2 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).

1987
Figure 1. Location of Official Variety Test
North Carolina Agricultural
Research Service

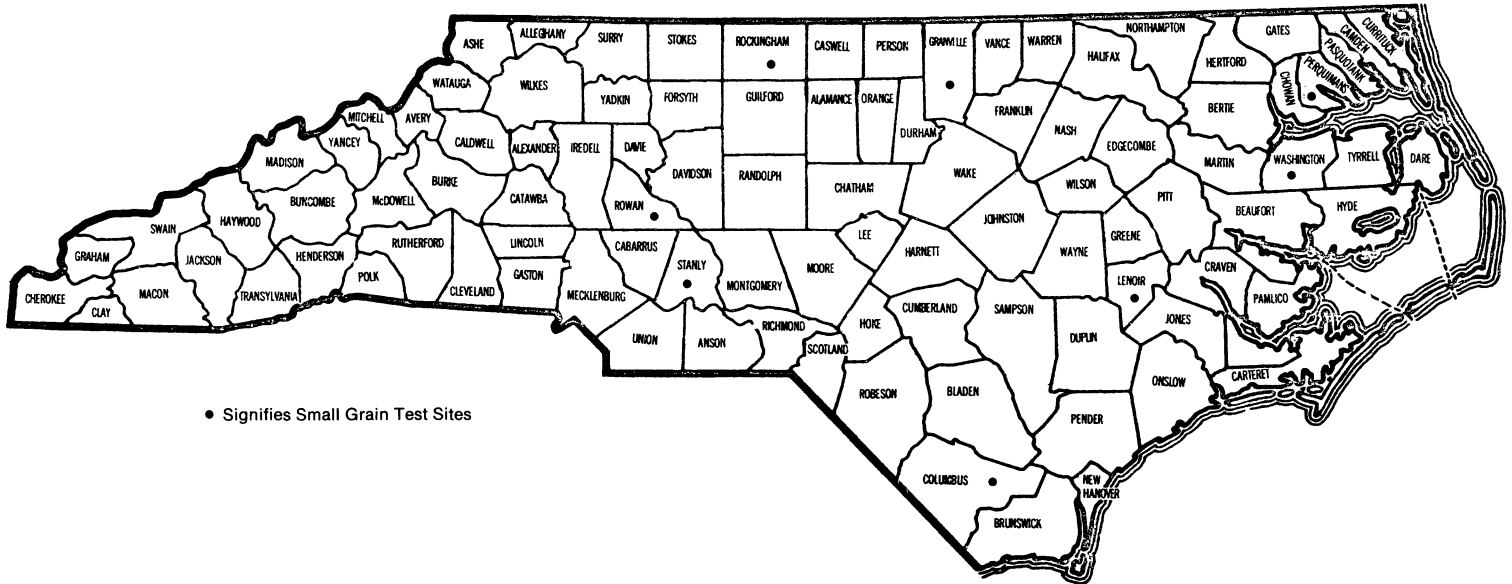


Table 4. Cultural practices for small grain tests, 1986-87.

County	Fertilizer lbs/A & Grade	Topdress lbs/A	Soil Type	Date of Planting	Date of Harvest
<u>Piedmont Area</u>					
Granville	400 lbs. 10-10-20	184 lbs. 33.5% N	Vance Sandy Loam	Oct. 17 - Barley, Oats Dec. 23 - Wheat	June 1 - Barley, June 3 - Oats Wheat Discarded
Rockingham	300 lbs. 10-20-20	66 lbs. 33.5% N		Oct. 21	June 22
Rowan	700 lbs. 10-20-20	50 lbs. 33.5% N	Cecil Sandy Loam	Oct. 20 - Barley, Oats Dec. 17 - Wheat	June 10 - Barley, Oats June 22 - Wheat
Stanly	300 lbs. 10-20-20	150 lbs. 33.5% N		Oct. 20	June 10
<u>Coastal Plain Area</u>					
Columbus	200 lbs. 10-20-20	170 lbs. 33.5% N	Norfolk Fine Sandy Loam	Nov. 19	June 8
Lenoir	300 lbs. 10-10-20	213 lbs. 33.5% N	Raines Sandy Loam	Nov. 10	June 9
Perquimans	500 lbs. 2-6-12	90 lbs. 33.5% N		Oct. 30	June 16
Washington	600 lbs. 5-5-10	213 lbs. 33.5% N	Cape Fear Sandy Loam	Nov. 14	June 16

Table 5. Soil test results from test sites, 1986-87.

County	HM %	W-V	CEC	BS %	Ac	pH	P-I	K-I	Ca %	Mg %	Mn- I	Zn- I	Cu- I
<u>PIEDMONT AREA</u>													
Granville	0.3	1.48	2.9	72	0.8	5.6	124	74	45.6	13.3	74	84	42
Rockingham	0.3	0.93	4.9	67	1.6	5.5	17	130	36.8	17.2	625	48	60
Rowan	0.0	1.03	8.7	86	1.2	6.5	35	112	59.6	20.2	625	46	124
Stanly	0.3	0.92	6.3	87	0.8	6.1	31	76	55.9	25.2	214	49	50
<u>COASTAL PLAIN AREA</u>													
Columbus	0.4	1.29	2.4	83	0.4	5.8	70	48	57.9	15.7	41	63	50
Lenoir	1.0	1.16	5.3	77	1.2	5.8	153	106	53.1	14.0	14	37	36
Perquimans	4.0	1.01	12.7	84	2.0	5.6	63	88	55.3	25.4	38	35	92
Washington	5.4					5.7	50	84			22	83	74

Contact Person and
Agencies Sponsoring Entries

Entries

AgriPro Seeds Dr. Koy E. Misikin RR #2 Brookston, Indiana 47923 (317) 563-3111	Twain
Florida Agricultural Experiment Station Dr. Ron Barnett Route 3, Box 4370 Quincy, Florida 32351 (904) 627-9236	Florida 301 Florida 302
North Carolina Agric. Experiment Station Dr. Paul Murphy Crop Science Department Box 7620 Raleigh, N.C. 27695-7620	Anson, Boone, Clayton, Milton, Brooks, Madison, NC experimentals
Ohio Agricultural Experiment Station Dr. H. N. LaFever Ohio State University Columbus, Ohio 43210	Becker Cardinal
Pioneer Hi-Bred International, Inc. Paul Rodgers 1000 W. Jefferson Street Tipton, Indiana 46072 (317) 675-2101	Pioneer 2550 Pioneer 2555
Purdue University Agric. Expt. Station Agronomy Department West Lafayette, Indiana 47907 (317) 494-4772	Caldwell
Coker's Pedigreed Seed Company Al Hoggard West Memphis, Arkansas 72301 (501) 735-8000	Coker 716 Coker 916 Coker 983 Coker 9227 Coker 9323 Coker 9733 Coker 9766 HW 3021 EH 8504
South Carolina Agric. Experiment Station Dr. Doyce Graham Agronomy & Soils Department Clemson University Clemson, S.C. 29634 (803) 656-3507	Redhill Simpson Williams Keowee

Contact Person and
Agencies Sponsoring Entries

Entries

Virginia Agricultural Experiment Station	Sussex
Dr. Tom Starling	Tyler
Agronomy Department	Wysor
VPI	Saluda
Blacksburg, Virginia 24061	
(703) 961-6483	

Cooperators and Extension Personnel

Columbus County: George B. Clark, Superintendent,
 Border Belt Tobacco Research Station (NCDA) Whiteville, N.C.
 Agricultural Extension Agent, Robert M. Shaw.

Granville County: William C. Clements, Superintendent
 Oxford Tobacco Research Station, Oxford, N.C.
 Agricultural Extension Agent, Derek Day.

Lenoir County: Sandy Barnes, Superintendent, Lower Coastal
 Plain Tobacco Research Station, Kinston, N.C.
 County Extension Director, Johnny Jones.

Perquimans County: John Morgan, Route 2, Box 121
 Hertford, N.C.
 County Extension Chairman, Stan Winslow.

Rockingham County: Alvin Herbin, 8178 Troxler Mill Road,
 Gibsonville, N.C.
 Agricultural Extension Agent, Scott Shoulars.

Rowan County: Billy Ayscue, Superintendent, Piedmont
 Research Station, Salisbury, N.C.
 Agricultural Extension Agent, Kevin Fisher.

Stanly County: Eugene Smith, Route 1, Box 108, Norwood, N.C.
 Agricultural Extension Agent, Nelson McCaskill.

Washington County: John Smith, Superintendent, Tidewater
 Research Station, Plymouth, N.C.
 Agricultural Extension Agent, Michael Webb.

SEASONAL CONDITIONS

The 1986-87 small grain growing season was characterized by normal rainfall in the fall during planting and above-normal rainfall for the rest of the growing season at most locations. Temperatures were near or above-normal for the most part. Rainfall data at five locations are shown below:

Monthly Rainfall Totals (Inches)

<u>Location</u>	<u>No-</u> <u>vember</u>	<u>Dec-</u> <u>ember</u>	<u>Jan-</u> <u>uary</u>	<u>Feb-</u> <u>ruary</u>	<u>March</u>	<u>April</u>	<u>May</u>
Columbus	3.66	3.76	6.83	3.85	4.18	2.56	.53
Granville	2.98	3.76	6.15	4.75	5.31	6.25	2.75
Lenoir	2.36	5.77	5.73	4.42	3.65	2.67	.76
Rowan	4.01	3.32	5.12	3.36	5.74	7.53	2.29
Wash- ington	2.14	4.55	8.55	2.79	4.47	3.19	1.53

Dates of planting during the fall of 1986 were near normal for the most part although wheat at two locations was planted late due to rain (Table 4). Ratings of wheat and barley varieties are reported for powdery mildew and leaf rust ratings are reported for oats. Powdery mildew was severe on barley in the Piedmont while it was evident in wheat primarily in the Coastal Plain. Leaf rust was evident in oats only in the Coastal Plain. Cereal leaf beetle was evident at several locations and was severe at the Rowan location.

Small grains tended to be later maturing than usual at most locations. The wheat test at Granville was discarded due to general poor appearance.

Yields, in general, were good to excellent across the state where grain was planted on time.

DATA

Yield is reported in bushels per acre by location, area and across all locations within the state. Test weights in pounds per bushel were reported averaged across the state. Lodging was reported in percentage averaged across all locations within the state; the lodging data are for lodging prior to harvest. Harvest losses were negligible for all crops and, thus, were not reported.

Date 50% headed was taken at the Granville county location for barley and oats and at the Rockingham county location for wheat and reported in the state-wide average.

Disease ratings are reported in the state-wide averages although they may have only been taken at one or two locations.

AgriPro Twain was only tested in the Piedmont locations while Coker 9227 was only tested in the Coastal Plain wheat trials. The experimental NC 81-4 barley was only tested in the Piedmont.

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 statewide average 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.

RESULTS AND DISCUSSION

Barley

Yields were excellent in 1987 with a statewide average of 88 bu/a (Table 6). Anson topped all varieties with 94 bu/a followed closely by four others. Lodging was high due primarily to winds associated with local thunderstorms. Heading dates appear later than normal; this was attributed to the location since barley at other locations headed out earlier although planted later. Powdery mildew was severe in the Piedmont and was evident at some locations in the Coastal Plain.

The ranking of varieties for yield over two years is virtually the same as the 1987 data (Table 7); this is due to the fact that data were only collected from two locations in 1986.

Three year data are shown in Table 8. These data more accurately reflect relative performance among the varieties since eight locations are included. Growers are cautioned against examining only one year's data for yield, test weight, lodging, plant height or date 50% headed.

Sussex topped all varieties with 105 bu/a across the Piedmont in 1987 (Table 9). It performed extremely well at Stanly county where powdery mildew appeared to be the most severe.

In the Coastal Plain, Anson yielded 94 bu/a across all locations (Table 10). The ranking of the varieties with respect to yield stays the same across two and three years.

Oats

Oat yields and test weights were high in 1987 across the state (Table 11). Lodging appears high although after harvest losses were negligible, i.e. the combine picked up nearly all the grain. Like barley, date 50% headed appears later than normal; again this is thought to be a location effect. Growers in the southern part of the state can expect their oats to head as much as one week earlier. Leaf rust was severe in Columbus county and was evident at other Coastal Plain locations. Winterkill was not a factor during the growing season.

Two and three year data are reported in Tables 12 and 13.

Yields at Stanly county were exceptional with Brooks yielding 173 bu/a (Table 14). Simpson led all varieties across the Piedmont followed closely by two experimentals.

Coastal Plain data are shown in Table 15.

Wheat

EH 8504 and Coker 916 averaged 62 bu/a across the state in 1987 (Table 16); they were followed closely by four other varieties. Date 50% headed appears later than normal; again this was thought to be a location effect since later

plantings in other areas had headed one week to 10 days earlier.

Averaged over all locations over two years, Florida 302 and Coker 916 are the yield leaders (Table 17). Florida 302 significantly outyields all other varieties after three years (Table 18).

Pioneer 2555 topped all varieties across the Piedmont with 58 bu/a (Table 19). Yields averaged 73 bu/a at Stanly county with Pioneer 2555 producing 89 bu/a. Test weights were low in the Piedmont.

An experimental hybrid, 8504, led the wheat varieties across the Coastal Plain with 70 bu/a (Table 20). Florida 302 is the two and three-year yield leader for this area. Test weights were higher than those in the Piedmont.

Table 6. Summary of barley performance trials across the state (1987).

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed †	Powdery Mildew Ratings ‡
Anson	94**	44.1	36	46	4-25	S
Sussex	93*	44.2	38	45	4-14	R
Milton	92*	42.6	40	41	4-23	S
Wysor	89*	45.6	20	43	4-20	R
Boone	87*	45.3	47	44	4-24	S
Keowee	86	44.3	42	45	4-24	MR
Clayton	82	43.9	52	44	4-24	R
Redhill	81	43.9	40	40	4-13	VS
<u>Mean</u>	<u>88</u>					
C.V. (%)	9.9					
B.L.S.D. (K-50)	8					
s.e.	3.0					
Error d.f.	35					

†Data collected at Granville County.

‡R = Resistant, MR = Moderately Resistant, S = Susceptible,
VS = Very Susceptible.

**Highest yielder.

*Not significantly different from highest yielder.

Table 7. Two-year average barley performance across the state (1986-87). †

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed
Anson	90**	44.1	31	41	4-24
Sussex	90**	44.0	31	37	4-14
Milton	89*	42.8	31	37	4-22
Wysor	88*	45.2	18	41	4-25
Boone	85*	44.5	36	37	4-23
Clayton	77	43.3	42	39	4-23
Redhill	73	44.2	31	34	4-14
<u>Mean</u>	<u>84</u>				
C.V. (%)	9.1				
B.L.S.D. (K-50)	7				
s.e.	3.0				
Error df	42				

†Eight locations. *Experimental. **Highest yielder.
*Not significantly different from highest yielder.

Table 8. Three-year average barley performance across the state (1985-87). †

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed
Anson	82**	42.2	33	35	4-21
Milton	82**	40.4	28	32	4-19
Wysor	77*	43.0	21	34	4-21
Sussex	75	41.4	29	34	4-13
Boone	74	41.4	34	32	4-20
Clayton	68	41.4	42	33	4-19
Redhill	59	41.6	28	33	4-12
<u>Mean</u>	<u>74</u>				
C.V. (%)	9.2				
B.L.S.D. (K-50)	6				
s.e.	2.5				
Error d.f.	66				

†Eight locations. *Experimental. **Highest yielder.
*Not significantly different from highest yielder.

Table 9. Summary of barley performance trials in the Piedmont.

Brand-Variety or Variety	Rowan County bu/A	Granville County bu/A	Stanly County bu/A	1987		1986-87 Average		1985-87 Average	
				Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu
Sussex	113*	67*	117**	105**	44.0	103**	44.0	86*	42.0
Milton	118**	68*	96	97*	45.1	96*	45.1	91**	42.3
‡NC 81-4	110*	59*	100	94*	44.9	96*	44.9	85*	42.4
Anson	106*	64*	99	93*	43.9	95*	43.9	91**	42.1
Wysor	113*	45*	103	93*	45.5	97*	45.5	90*	43.6
Keowee	111*	54*	97	92*	43.9				
Boone	116*	42*	90	88	45.9	90	45.9	83*	43.2
Clayton	100	45*	85	81	43.5	80	43.5	76	41.1
Redhill	90	69**	76	79	41.7	70	41.7	59	41.1
<u>Mean</u>	<u>110</u>	<u>57</u>	<u>95</u>	<u>92</u>		<u>91</u>		<u>83</u>	
C.V. (%)	8.1	17.0	11.3	10.9		9.5		8.9	
B.L.S.D. (K-50)	14	NS	14	15		13		10	
s.e.	5.1	6.8	5.4	4.9		5.1		4.0	
Error d.f.	18	9	27	18		21		35	

*Experimental.

**Highest yielder.

*Not significantly different from highest yielder.

Table 10. Summary of barley performance trials in the Coastal Plain.

Brand-Variety or Variety	Lenoir County bu/A	Wash- ington County bu/A	Columbus County bu/A	1987		1986-87 Average		1985-87 Average	
				Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu
Anson	96**	84**	105*	94**	44.4	87**	44.3	76**	42.2
Milton	83	89**	98*	89*	40.2	83*	41.2	75*	38.9
Wysor	78	78	110**	87	45.6	82*	44.9	68	42.5
Boone	83	81	100*	87*	44.7	82*	43.5	68	39.9
Sussex	78	80	103*	86*	44.5	81	44.1	67	40.8
Redhill	75	77	99*	83	46.0	76	46.0	60	42.0
Clayton	76	73	102*	82	44.3	75	43.2	62	41.0
Keowee	80	68	101*	81	44.7				
<u>Mean</u>	<u>81</u>	<u>78</u>	<u>102</u>	<u>86</u>		<u>81</u>		<u>68</u>	
C.V. (%)	8.5	8.6	8.8	8.7		8.6		9.2	
B.L.S.D. (K-50)	8	8	NS	9		6		6	
s.e.	3.1	3.0	4.5	2.9		2.2		2.8	
Error d.f.	28	28	21	14		18		30	

**Highest yielder.

*Not significantly different from highest yielder.

Table 11. Summary of oat performance trials across the state' (1987).

Brand-Variety or Variety	Yield bu/A	Test Weight lbs/bu	Lodging %	Plant Height Inches	Date 50% Headed†	Leaf Rust Ratings †
Simpson	133**	34.3	52	44	5-1	MR
Coker 716	129*	35.0	42	43	4-29	R
‡NC 82-172	123*	32.4	62	47	4-29	S
Madison	122*	33.3	21	35	4-29	S

Brooks	121*	29.9	54	44	4-29	S
‡NC 82-264	116*	32.7	17	38	5-3	R
‡NC 82-195	113*	34.2	61	45	4-29	R
‡NC 80-28	112*	32.0	57	47	4-29	MR

<u>Mean</u>	<u>121</u>					
C.V. (%)	13.6					
B.L.S.D. (K-50) NS						
s.e.	6.3					
Error d.f.	35					

†Data collected at Granville County.

‡R = Resistant, MR = Moderately Resistant, S = Susceptible.

‡Experimental.

Table 12. Two-year average oat performance across the state (1986-87). †

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed
Coker 716	122**	34.3	25	42	4-29
Simpson	120*	33.7	27	38	4-30
Brooks	116*	33.2	40	41	4-30
‡NC 82-172	116*	31.0	30	44	4-30
Madison	112*	31.3	39	34	5-1
‡NC 80-28	108*	32.3	11	44	4-29
‡NC 82-264	106*	33.0	10	38	5-4
<u>Mean</u>	<u>114</u>				
C.V. (%)	13.0				
B.L.S.D. (K-50)	NS				
s.e.	5.1				
Error d.f.	48				

†Nine locations. ‡Experimental. **Highest yielder.
*Not significantly different from highest yielder.

Table 13. Three-year average oat performance across the state (1985-87). †

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed
Coker 716	111**	32.8	25	37	4-27
Simpson	108*	33.0	27	37	4-28
Brooks	105*	30.2	26	37	4-28
‡NC 82-172	104*	32.2	36	38	4-28
Madison	102*	31.4	11	34	4-28
‡NC 82-264	97	32.3	10	38	4-30
<u>Mean</u>	<u>104</u>				
C.V. (%)	12.8				
B.L.S.D. (K-50)	10				
s.e.	3.4				
Error d.f.	60				

†Thirteen locations. ‡Experimental. **Highest yielder.
*Not significantly different from highest yielder.

Table 14. Summary of oat performance trials in the Piedmont.

Brand-Variety or Variety	Rowan County bu/A	Stanly County bu/A	Granville County bu/A	1987		1986-87 Average		1985-87 Average	
				Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu
Simpson	140**	152	84*	134**	34.4	117*	32.7	104*	32.7
#NC 82-172	118	166*	104**	133*	31.5	119**	31.8	106**	31.8
#NC 80-28	139*	144	92*	132*	34.0	113*	30.6		
Coker 716	138*	138	88*	129*	35.4	115*	33.4	102*	32.1
Brooks	109	173**	89*	129*	29.3	114*	29.7	101*	29.2
Madison	87	171*	87*	117*	33.7	95*	30.0	81	29.6
#NC 82-195	116	128	89*	116*	33.8				
#NC 82-264	96	131	98*	109*	31.0	94*	31.0	82	31.3
<u>Mean</u>	<u>118</u>	<u>150</u>	<u>91</u>	<u>125</u>		<u>110</u>		<u>96</u>	
C.V. (%)	15.1	10.2	12.2	13.0		12.6		12.6	
B.L.S.D. (K-50)	19	20	NS	NS		NS		18	
s.e.	7.9	7.7	7.8	10.5		8.3		5.2	
Error d.f.	28	21	7	14		18		20	

#Experimental.

**Highest yielder.

*Not significantly different from highest yielder.

Table 15. Summary of oat performance trials in the Coastal Plain.

Brand-Variety or Variety	Lenoir County bu/A	Wash- ington County bu/A	Columbus County bu/A	1987		1986-87 Average		1985-87 Average	
				Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu
Simpson	118**	149**	127*	132**	34.3	121*	34.7	109*	33.3
Coker 716	108*	147*	131**	129*	34.6	126**	35.2	116**	33.5
Madison	110*	148*	118*	126*	32.9	124*	34.6	113*	33.2
*NC 82-264	118**	128*	116*	121*	34.4	114*	35.0	104	33.2

NC 82-172	114	126*	106*	116*	33.4	113*	34.6	103	32.6
Brooks	90	132*	123*	114*	30.6	118*	32.3	108*	31.3
NC 82-195	88	127	120*	111	34.7				
NC 80-28	60	119	116*	97	30.1	105	31.9		

<u>Mean</u>	<u>101</u>	<u>134</u>	<u>119</u>	<u>118</u>		<u>117</u>		<u>109</u>	
C.V. (%)	11.2	16.0	12.8	14.1		13.1		12.8	
BLSD (K-50)	12	NS	NS	19		NS		9	
s.e.	5.1	9.6	7.6	6.6		5.4		3.2	
Error d.f.	28	28	21	14		24		35	

*Experimental.
 **Highest yielder.
 *Not significantly different from highest yielder.

Table 16. Summary of wheat performance trials across the state.

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed †	Powdery Mildew Ratings §
‡ EH 8504	62**	57.6	1	38	5-8	R
Coker 916	62**	54.2	4	38	5-4	R
Florida 302	61*	53.4	1	41	5-10	R
Coker 9733	59*	55.0	3	41	5-7	MR
Pioneer 2555	58*	54.7	0	40	5-5	MR
Coker 9766	58*	54.4	9	38	5-9	MR

Coker 983	56	56.2	1	34	5-10	R
Florida 301	56	55.5	6	46	5-4	MR
Saluda	55	57.0	1	37	5-7	VS
¶ HW 3021	55	54.0	3	42	5-10	S
Coker 9323	54	54.4	3	37	5-8	MR

Williams	53	54.1	2	41	5-9	MR
Caldwell	52	53.6	5	37	5-7	MR
Cardinal	51	54.4	8	38	5-9	VS
Tyler	50	45.3	4	40	5-10	VS
Pioneer 2550	46	54.8	5	37	5-9	MR
Becker	45	53.8	0	33	5-10	VS
<u>Mean</u>	<u>55</u>					
C.V. (%)	9.1					
B.L.S.D. (K-50)	5					
s.e.	2.1					
Error d.f.	96					

†Collected at Rockingham county. ‡ Experimental. ¶ Hybrid.

**Highest yielder. *Not significantly different from highest yielder.

§R = Resistant, MR = Moderately Resistant, S = Susceptible, VS = Very Susceptible.

Table 17. Two-year average wheat performance across the state (1986-87). †

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed
Florida 302	65**	54.1	1	38	5-3
Coker 916	62*	54.4	3	36	4-27
Coker 983	59	56.4	0	32	5-3
Saluda	58	56.5	1	35	4-30
+ HW 3021	58	54.7	2	40	5-3

Coker 9323	56	54.7	2	35	4-30
Williams	56	54-2	1	38	5-1
Caldwell	54	53.1	4	37	5-1
Tyler	52	53.8	3	39	5-3
Pioneer 2550	51	54.0	4	35	5-3
Becker	49	54.3	0	32	5-3
<u>Mean</u>	<u>56</u>				
C.V. (%)	8.2				
B.L.S.D. (K-50)	4				
s.e.	1.8				
Error d.f.	90				

†Eleven locations. *Hybrid. **Highest yielder.
*Not significantly different from highest yielder.

Table 18. Three-year average wheat performance across the state (1985-87). †

Brand-Variety or Variety	Yield bu/A	Test Weight lb/bu	Lodging %	Plant Height Inches	Date 50% Headed
Florida 302	61**	52.2	3	34	4-28
Coker 916	57	52.8	5	31	4-23
Saluda	56	55.4	1	31	4-25
Coker 983	53	55.0	0	29	4-26

Tyler	53	53.8	3	34	4-28
Caldwell	53	52.5	6	32	4-27
Pioneer 2550	51	53.9	7	31	4-29
<u>Mean</u>	<u>55</u>				
C.V. (%)	9.9				
B.L.S.D. (K-50)	4				
s.e.	1.7				
Error d.f.	84				

†Fifteen locations. *Hybrid. **Highest yielder.
*Not significantly different from highest yielder.

Table 19. Summary of wheat performance trials in the Piedmont.

Brand-Variety or Variety	Rock- ingham County bu/A	Rowan County bu/A	Stanly County bu/A	1987		1986-87 Average		1985-87 Average	
				Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu	Yield bu/A	Test Wt. lb/bu
Pioneer 2555	61	30*	89**	58**	52.7				
Coker 916	67**	32**	75	56*	53.1	53**	54.0	51*	52.8
Saluda	65*	25	77	53*	54.7	51*	54.1	52**	52.5
Coker 9733	65*	20	80	52*	51.3				
#EH 8504	59	21	84*	52*	55.3				
Coker 9766	63*	24	74	51*	51.6				
Florida 302	62	20	79	51*	49.6	49*	52.4	51*	52.1
Cardinal	57	26	71	49*	51.2				
Williams	54	23	73	48	51.6	45*	51.3		
Coker 9323	56	21	73	48	50.8	47*	52.0		
Coker 983	52	15	84*	48	52.8	45*	54.3	44*	53.8
Caldwell	57	23	68	47	51.2	46*	52.2	50*	53.2
Florida 301	59	18	69	46	53.2				
HW 3021	53	22	67	46	51.1	46*	51.1		
AgriPro Twain	54	26	61	45	53.9	44*	53.8		
Becker	53	24	61	44	51.8	45*	53.2		
Tyler	44	25	65	43	51.8	45*	52.7	50*	53.7
Pioneer 2550	41	18	66	40	52.4	41*	52.6	46*	53.9
<u>Mean</u>	<u>57</u>	<u>23</u>	<u>73</u>	<u>49</u>		<u>46</u>		<u>49</u>	
C.V. (%)	8.3	17.7	8.7	10.3		9.8		11.4	
B.L.S.D. (K-50)	5	4	7	10		NS		NS	
s.e.	2.4	1.8	3.2	3.2		2.8		2.9	
Error d.f.	51	68	51	34		33		30	

#Experimental. **Highest yielder. *Not significantly different from highest yielder.

Table 20. Summary of wheat performance trials in the Coastal Plain.

Brand-Variety or Hybrid/Variety	Per- quimans County bu/A	Lenoir County bu/A	Wash- ington County bu/A	Columbus County bu/A	1987		1986-87 Average		1985-87 Average	
					Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu	Yield bu/A	Test Wt. lbs/bu
#EH 8504	70**	80**	60*	69	70**	59.3				
Florida 302	68*	76*	53*	69	69*	56.2	74**	55.3	67**	52.2
Coker 916	69*	69	60*	68	66*	55.0	67	54.6	61	52.8
Coker 9227	64	69	64**	63	65*	59.6	65	59.6		
Coker 9733	61	67	56	73**	64	57.8				
Coker 9766	61	74	52	63	63	56.4				

Florida 301	63	62	56	69	62	57.2				
Coker 983	64	73	45	65	62	58.7	67	57.8	59	55.8
¶HW 3021	60	60	60*	64	61	56.2	65	57.1		
Coker 9323	64	62	55	56	59	57.1	62	56.5		
Pioneer 2555	63	60	55	58	59	56.2				
Williams	54	65	49	58	57	56.0	63	56.2		

Saluda	59	58	53	57	57	58.7	63	58.1	59	57.4
Caldwell	65	45	52	60	55	55.5	59	53.6	55	52.0
Tyler	57	59	48	51	54	56.2	57	54.6	55	53.9
Cardinal	61	54	51	44	52	56.9				
Pioneer 2550	56	52	46	51	51	56.6	57	55.0	53	53.9
Becker	56	46	40	45	46	55.3	52	55.1		

<u>Mean</u>	<u>62</u>	<u>63</u>	<u>54</u>	<u>60</u>	<u>60</u>		<u>63</u>		<u>58</u>	
C.V. (%)	6.5	9.8	9.6	6.5	8.4		7.6		9.1	
BLSD (K-50)	5	6	5	4	6		5		5	
s.e.	2.0	2.8	2.3	2.0	2.5		2.2		2.1	
Error d.f.	51	68	68	51	51		55		48	

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#Experimental. ¶Hybrid.

**Highest yielder. *Not significantly different from highest yielder.