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Measured Crop Performance

Small Grain

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PERFORMANCE OF SMALL GRAIN VARIETIES IN NORTH CAROLINA

INTRODUCTION

Across the state of North Carolina during the fall of 1992, growers planted 25,000 acres of barley, 60,000 acres of oats, and 610,000 acres of wheat.

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 four test locations in the state.[1] Also included are multiple-year performance data on a selected number of varieties.

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[1]Research technicians, Ken Barnes, Johnny Denton, Mark Langdon, Dwight Parrish and John Horton 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, uncontrollable variability exists among experimental plots due to differences in 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.

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.

Research conducted at North Carolina State University and several other universities has consistently shown a significant yield advantage where professionally grown/certified seed is used rather than "farmer saved" or "brown bagged" seed. These tests were planted with professionally grown/certified seed provided by the sponsoring agencies. Farmers who use inferior seed sources can expect accompanying decreases in performances.

Table 1. Characteristics of barley varieties.*

Brand-Variety or Variety	Mildew resistance	Rust resistance	Lodging resistance	Winter hardiness	Maturity	Test Wt. lb/bu	Awns Present
Anson	Poor	Good	Fair	Good	Med-Late	Fair	No
Boone	Poor	Poor	Fair	Good	Medium	Good	Yes
Mollybloom	Good	Poor	Fair		Med-Late	Fair	Yes
Mulligan	Good	Fair	Fair		Med-Early	Fair	Yes
Nomini	Fair	Fair	Fair	Good	Early	Fair	No
Pennco	Good	Fair	Fair		Med-Early	Fair	No
Wysor	Good	Poor	Fair	Good	Med-Early	Good	Yes

Table 2. Characteristics of oat varieties.*

Brand-Variety or Variety	Crown Rust resistance	Powdery Mildew resistance	Septoria Leaf Blotch resistance	Mosaic resistance	Maturity	Winter hardiness	Lodging resistance	Test Weight lb/bu
Brooks	Poor	Fair	Fair	Fair	Med-Early	Fair	Fair	Fair
Mitchell	Good				Med-Early	Fair	Good	Good
NK Coker 716	Poor	Good	Fair	Good	Medium	Good	Fair	Good
Ozark	Fair	Poor	Good	Fair	Med-Early	Excellent	Fair	Good
SS 76-30	Poor	Fair	Fair	Excellent	Early	Excellent	Fair	Good
833	Fair	Fair	Good	Good	Medium	Good	Good	Good
Yeats	Good			Fair	Med-Early		Good	Good

*These characteristics based upon all available observations.

Table 3. Characteristics of wheat varieties.*

Brand-Variety or 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
AGRIPRO Hickory	Good	Fair	Fair	Early	Good	Good	Good	Good
AGRIPRO Savannah	Fair	Poor	Fair	Early	Good	Good	Fair	Good
Buckshot DS2368	Good	Poor		Early	Excellent	Good	Good	
Florida 302	Poor	Poor	Poor	Early	Good	Good	Poor	Good
Florida 304	Good	Poor		Medium		Good	Fair	
FFR 511W	Fair	Good		Early	Excellent	Good	Fair	Good
FFR 555W	Poor	Poor		Medium	Good	Good	Fair	Good
FFR 568W	Poor	Poor	Fair	Med-Late	Good	Good	Fair	Good
GA Gore	Fair	Good		Medium	Good	Good	Fair	Good
Madison	Poor	Poor	Good	Early	Good	Good	Fair	Good
NK Coker 9543	Fair	Fair	Good	Med-Late	Good	Good	Good	Good
NK Coker 9803	Fair	Fair	Good	Medium	Good	Good	Good	Good
NK Coker 9904	Good	Good		Med-Early	Good	Good	Fair	
NK Coker 9134	Fair	Poor		Medium	Good	Good	Fair	
NK Coker 9835	Good	Fair	Good	Early	Good	Good	Fair	Good
Pioneer 2566	Good	Fair	Good	Late	Good	Good	Fair	Good
Pioneer 2548	Poor	Poor	Fair	Late	Good	Good	Fair	Good
Pioneer 2580	Good	Good	Good	Medium	Good	Good	Fair	Good
Saluda	Poor	Poor	Poor	Late	Good	Good	Fair	Good
Stoneville 350	Poor	Poor		Med-Early	Good	Good	Fair	Excellent
Wakefield	Fair	Poor	Fair	Med-Late	Good	Good	Fair	Good

*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). Tests were located 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, N.C. 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, 16, and 24 commercial varieties and experimental lines of barley, oats, and wheat, respectively, were evaluated in the 1992-93 season.

Field Plot Design: A randomized, complete block design with five or six replications was used at each location.[2] Each plot consisted of eight rows, 7.5 inches apart, 19 feet long with 2.5 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).

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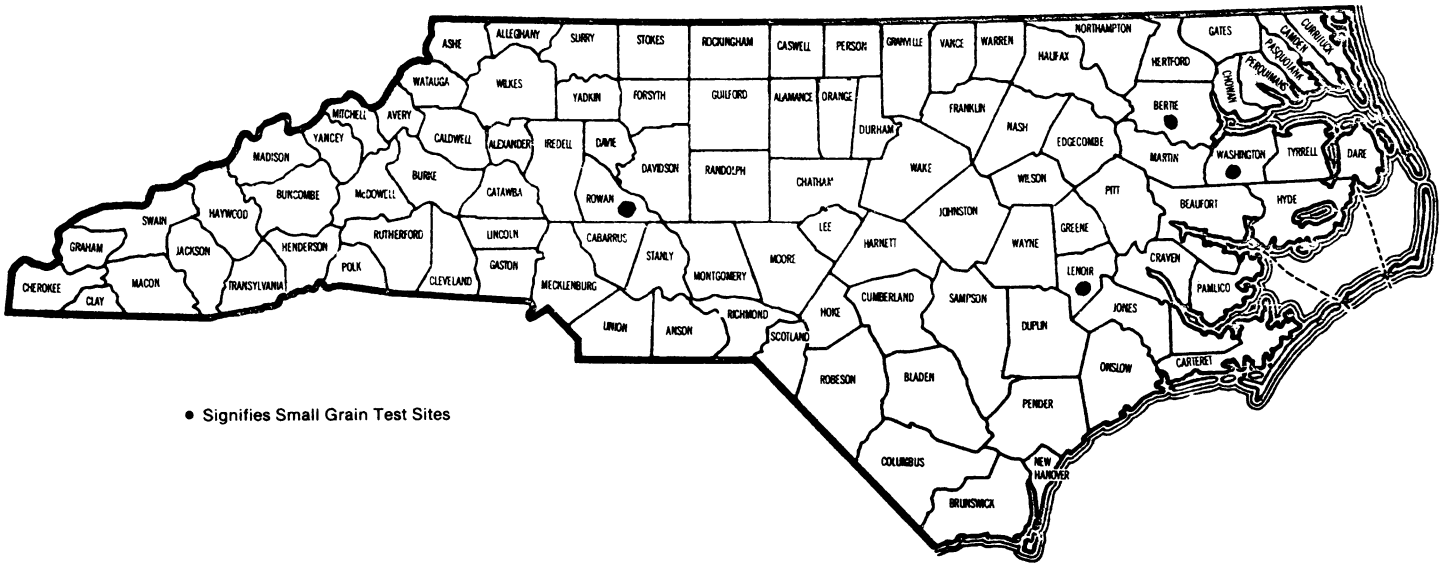
[2]Statistical analyses were made in the statistical laboratory under the supervision of Dr. J. O. Rawlings and Mmes. Joy Smith and Sandra Donaghy. This assistance is gratefully acknowledged.

Cerone was applied at 16 ounces per acre on the barley and wheat at Rowan county location on April 14. This was used to prevent lodging, particularly in the barley. Lodging scores were noticeably lower at harvest in 1993 at that location.

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



• Signifies Small Grain Test Sites

Table 4. Cultural practices for small grain tests, 1992-93.

County	Fertilizer lbs/A and Grade	Topdress* lbs/A 34% N	Soil Type	Planting Date	Harvest Date
Piedmont Area					
Rowan	220 lbs. 18-46-0	120	Hiwassee Clay Loam	October 20	June 1 & 16
Coastal Plain Area					
Lenoir	300 lbs. 10-10-20	250	Lynchburg Sandy Loam	October 13	June 2 & 10
Bertie	300 lbs. 10-20-20	250	Rains & Goldsboro Sandy Loam, Norfolk Loamy Sand	November 11	June 8
Washington	226 lbs. 6-18-36	224	Cape Fear Loam	October 26	June 8 & 15

*Topdressing applied in split application.

Table 5. Soil test results from tests sites, 1992-93

County	HM %	W-V	CEC	BS %	Ac	pH	P-I	K-I	Ca %	Mg %	Mn-I	Zn-I	Cu-I
Piedmont Area													
Rowan	0.2	0.96	7.0	83	1.2	6.1	28	88	49.7	27.0	625	64	204
Coastal Plain Area													
Lenoir	1.3	1.01	5.0	92	0.4	5.4	84	60	63.5	22.6	39	61	46
Bertie		1.28	4.6	83	0.8	5.9	68	36	67.7	10.9	45	52	88
Washington	4.7	1.01	10.2	76	2.4	5.1	54	112	48.1	22.8	30	61	48

Contact Person and Agencies Sponsoring Entries	**Entries**
Arkansas County Seed Company, Inc. John Butler P. O. Box 43 Stuttgart, Arkansas 72160	833 88-11
AgriPro Bio Science Dr. Koy E. Miskin RR #2 Brookston, Indiana 47923 (317) 563-3111	AGRIPRO Savannah Hickory
Delhi Seed Company, Inc Dick Landrum P. O. Box 176 Delhi, LA 71232	Buckshot DS2368
Florida Agricultural Experiment Station Dr. Ron Barnett Route 3, Box 4370 Quincy, Florida 32351 (904) 627-9236	Florida 302 Florida 304
North Carolina Agric. Experiment Station Dr. Paul Murphy Crop Science Department Box 7620 Raleigh, N.C. 27695-7620	Anson, Boone, Brooks, Mulligan, Mollybloom, Yeats N.C. experimentals
Northrup King Company Carroll Oakes Box 249 Grifton, N.C. 28530 (919) 524-5809	NK Coker 716 NK Coker 9134 NK Coker 9543 NK Coker 9803 NK Coker 9835 NK Coker 9904
Pennsylvania State University University Park, Pa. 16802	Pennco
Pioneer Hi-Bred International, Inc. Paul Rodgers 1000 W. Jefferson Street Tipton, Indiana 46072 (317) 675-2101	Pioneer 2548 Pioneer 2566 Pioneer 2580 Pioneer XW514

South Carolina Agric. Experiment Station — S.C. experimental
Dr. Doyce Graham
Agronomy & Soils Department
Clemson University
Clemson, S.C. 29634
(803) 656-3507

Southern States Coop. — SS 76-30, FFR 511W, FFR 555W, FFR 568W
Howard Tabor
P. O. Box 26234
Richmond, VA 23260

Stoneville Pedigreed Seed Company — ST 350
Don Threet
Box 167
Stoneville, Mississippi 38776
(601) 686-2334

Virginia Agricultural Experiment Station — Madison, Nomini, Saluda, Wakefield, Wysor, Virginia experimentals
Dr. Carl A. Griffey
Agronomy Department
VPI
Blacksburg, Virginia 24061
(703) 961-6483

University of Arkansas — Ozark
Dr. Robert Bacon
Dept. of Agronomy
115 Plant Science Building
Fayetteville, Arkansas 72701
(501) 575-2354

University of Georgia — GA Gore, Mitchell
Dr. Jerry Johnson
Griffin, Georgia 30212
(404) 228-7321

COOPERATORS

Bertie County: J. S. Barnes, Superintendent, Peanut Belt Research Station, Lewiston, N.C.

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

Rowan County: Raymond Coltrain, Superintendent, Piedmont Research Station, Salisbury, N.C.

Washington County: John Smith, Superintendent, Tidewater Research Station, Plymouth, N.C.

SEASONAL CONDITIONS

The 1992-93 small grain growing season was characterized by normal rainfall in the fall which allowed planting to be on time (Table 4). Above-normal temperatures through much of the season were experienced at all locations. Dry, warm weather hastened dry down and allowed harvest to be completed on time. Rainfall data at four locations are shown below:

Monthly Rainfall Totals (Inches)

Location	November	December	January	February	March	April	May
Bertie	4.91	2.63	5.23	2.49	6.60	3.97	2.93
Lenoir	6.04	3.52	6.29	2.70	5.59	4.84	2.75
Rowan	4.55	3.41	6.03	3.43	8.34	3.73	1.92
Washington	5.46	3.14	8.21	2.36	5.84	4.15	3.47

Conditions were ideal for some diseases. Powdery mildew, barley yellow dwarf virus, and crown rust were evident to the point where valid ratings could be made. Barley yellow dwarf virus and soil borne mosaic were seen at several locations. Cereal leaf beetle was also evident at several locations although most locations did not require an application of insecticide. Glume blotch occurred at several locations in the Coastal Plain and in the Piedmont.

DATA

Yield is reported in bushels per acre by location and area as well as across years by location and area. Test weight in pounds per bushel was reported by region and by location. One thousand kernel weight for wheat was 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. All plots were adjusted to 13% moisture. Heading data were taken at the Lenoir county location.

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

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.

In calculating averages, equal weight was given to each location, therefore, two and three-year averages may not appear to equal the average between years when the number of locations varies from year to year.

RESULTS AND DISCUSSION

Barley

Statewide averages are shown in Tables 6 and 7. These tables only show lodging, plant height, date 50% headed, and disease data for entries common across all locations.

Individual location data, area data, and multiple year data are shown in Tables 8, 9, and 10.

OATS

Statewide average data are shown in Tables 11 and 12. The varieties 833, 88-11 and Mitchell were not included in the statewide average because they were only tested in the Coastal Plain locations; agronomic data of 833 were lodging 63%, plant height 41 inches, and date 50% headed 5-1; agronomic data of 88-11 were lodging 18%, plant height 41 inches and date 50% headed 4-22; agronomic data of Mitchell were lodging 50%, plant height 36 inches, and date 50% headed 4-25. Barley yellow dwarf virus resistance for these three varieties was good, fair, and poor, respectively.

Individual location data, area data, and multiple year data are shown in Tables 13, 14, and 15.

WHEAT

Statewide averages are shown in Tables 16 and 17.

Individual location data, area data, and multiple year averages are shown in Tables 18, 19, and 20. Entries that were not treated with a systemic fungicide seed treatment are labeled in all tables. If the entry is not denoted then it was treated with a systemic fungicide seed treatment. The Lenoir county location included nearly all entries tested with and without the systemic fungicide seed treatment and these data are reported in Table 21 separately.

Table 6. Summary of barley performance trials across the state (1993.)

Brand-Variety or Variety	Lodging %	Plant Height Inches	Date 50% Headed	Powdery Mildew Resistance	Leaf Rust Resistance
Anson	42	41	4-20	Poor	Good
Boone	51	41	4-16	Poor	Poor
Mollybloom	60	36	4-17	Good	Poor
Mulligan	50	38	4-15	Good	Fair
Nomini	43	39	4-14	Fair	Fair
Pennco	40	38	4-16	Good	Fair
+VA 85-44-226	40	37	4-16	Good	Fair
+VA 89-41-2	55	38	4-12	Good	Fair
Wysor	57	37	4-16	Good	Poor

Table 7. Two and three-year average barley performance across the state (1991-93).

	Two Years (1992-93)†			Three Years (1991-93)††		
Brand/Variety or Variety	Lodging %	Plant Height Inches	Date 50% Headed	Lodging %	Plant Height Inches	Date 50% Headed
Anson	55	42	4-18	69	42	4-19
Boone	66	39	4-16	75	39	4-17
Mollybloom	70	37	4-17	76	37	4-18
Mulligan	48	39	4-14	61	39	4-14
Nomini	55	39	4-12			
Pennco	46	39	4-14			
Wysor	68	39	4-14	75	38	4-14

†Eight Locations. ††Eleven locations. +Experimental.

Table 8. Summary of barley performance trials in the Piedmont-Rowan County (1993).

Brand-Variety or Variety	1993 Yield bu/A	1993 Test Wt. lb/bu	1992-93 Average† Yield bu/A	1992-93 Average† Test Wt. lb/bu	1991-93 Average†† Yield bu/a	1991-93 Average†† Test Wt. lb/bu
+VA 89-41-2	111**	51.3				
Anson	109*	49.9	89*	46.1	75*	44.3
Wysor	108*	51.2	85*	47.7	74*	45.8
Boone	104*	50.8	88*	48.4	71*	45.6
Pennco	103*	49.9	83*	45.4		
+VA 85-44-226	101*	49.5				
Mollybloom	99*	51.1	93**	47.8	77**	44.6
Nomini	91	48.1	82*	45.9		
Mulligan	85	48.1	81*	44.8	73*	43.6
Mean	**101**		**86**		**74**	
C.V. (%)	11.9		10.4		11.1	
B.L.S.D. (K-50)	16		NS		NS	
s.e.	4.9		2.7		2.1	
Error d.f.	39		12		20	

+Experimental
**Highest yielder.
*Not significantly different from highest yielder.
†Two locations.
††Three locations.

Table 9. Summary of barley performance trials in the Coastal Plain (1993).

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1993 Yield bu/A	1993 Test Wt. lb/bu	1992-93 Average† Yield bu/A	1992-93 Average† Test Wt. lb/bu	1991-93 Average†† Yield bu/A	1991-93 Average†† Test Wt. lb/bu
Nomini	68**	111*	83**	87**	45.2	84*	45.5		
+VA 85-44-226	62	107	82*	84*	44.1				
Anson	66*	112*	70	83*	44.7	86*	44.5	75**	42.6
Pennco	63*	110*	71	82*	43.8	83*	44.8		
Boone	55	114**	74*	81*	45.3	87**	45.8	75**	44.0
+VA 89-41-2	60	103	80*	81*	44.1				
Wysor	61	105	74*	80	45.6	79*	46.0	71*	44.5
Mollybloom	58	102	68	76	45.4	83*	45.6	73*	43.0
Mulligan	53	105	67	75	45.2	80*	45.6	70*	43.2
Mean	**61**	**108**	**74**	**81**		**83**		**73**	
C.V. (%)	7.6	4.5	9.3	5.2		9.5		9.6	
B.L.S.D. (K-50)	6	7	10	7		NS		NS	
s.e.	2.1	1.0	3.1	1.1		1.4		1.0	
Error d.f.	28	26	28	16		36		40	

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

Table 10. Average barley performance across years at three locations in the Coastal Plain.

Brand-Variety or Variety	1993 Yield bu/A	1993 Test Wt. lb/bu	2 Years (1992-93) Yield bu/A	2 Years (1992-93) Test Wt. lb/bu	3 Years (1991-93) Yield bu/A	3 Years (1991-93) Test Wt. lb/bu
			Bertie County			
Anson	66	44.1	81	43.8	82	44.5
Boone	55	45.2	82	47.2	83	46.8
Mollybloom	58	45.1	82	45.8	84	44.9
Mulligan	53	44.1	75	44.9	78	45.1
Nomini	68	45.8	89	45.1		
Pennco	63	44.3	88	44.5		
Wysor	61	45.4	79	45.9	81	45.5
			Lenoir County			
Anson	112	43.6	108	44.0	98	42.9
Boone	114	45.0	116	45.2	101	44.9
Mollybloom	102	44.3	107	43.8	95	43.9
Mulligan	105	44.9	108	44.7	94	43.6
Nomini	111	43.9	101	43.5		
Pennco	110	43.6	105	44.0		
Wysor	105	45.2	96	44.9	89	44.0
			Washington County			
Anson	70	46.3	77	44.5	68	41.7
Boone	74	45.8	63	44.7	56	41.7
Mollybloom	68	46.9	62	45.4	54	41.7
Mulligan	67	46.6	58	45.1	56	41.3
Nomini	83	45.9	70	45.6		
Pennco	71	43.2	67	43.9		
Wysor	74	46.3	68	45.3	61	44.7

Table 11. Summary of oat performance trials across the state (1993).

Brand-Variety or Variety	Lodging %	Plant Height Inches	Date 50% Headed	Barley Yellow Dwarf Virus Resistance
Brooks	60	41	4-30	Fair
+NC 87-80	48	35	4-26	Fair
+NC 88-1736	58	43	4-26	Fair
+NC 88-1781	60	41	4-24	Fair
+NC 88-1809	57	42	4-26	Fair
+NC 88-1818	47	43	4-27	Good
+NC 88-1834	54	40	4-28	Good
+NC 88-1838	61	45	4-26	Good
+NC 89-5706	45	43	4-28	Poor
NK Coker 716	40	41	4-28	Poor
Ozark	32	40	4-27	Poor
SS 76-30	53	45	4-24	Good
Yeats	42	42	4-27	Fair

+Experimental.

Table 12. Two and three-year average oat performance across the state (1991-93).

	Two Years (1992-93)†			Three Years (1991-93)††		
Brand/Variety or Variety	Lodging %	Plant Height Inches	Date 50% Headed	Lodging %	Plant Height Inches	Date 50% Headed
Brooks	58	42	4-26	66	43	4-27
+NC 87-80	46	37	4-26	57	39	4-26
+NC 88-1736	62	43	4-26			
+NC 88-1781	58	41	4-24			
+NC 88-1809	52	42	4-24			
+NC 88-1818	42	42	4-25			
+NC 88-1834	57	41	4-26			
NK Coker 716	43	42	4-28	55	43	4-28
Ozark	41	40	4-26	55	42	4-26
SS 76-30	48	45	4-20	54	47	4-23
Yeats	37	43	4-27	48	44	4-26

+Experimental. †Eight Locations. ††Eleven locations.

Table 13. Summary of oat performance trials in the Piedmont-Rowan County (1993).

Brand-Variety or Variety	1993 Yield bu/A	1993 Test Wt. lb/bu	1992-93 Average† Yield bu/A	1992-93 Average† Test Wt. lb/bu	1991-93 Average†† Yield bu/a	1991-93 Average†† Test Wt. lb/bu
+NC 88-1818	126**	37.3	121**	37.2		
Yeats	120*	37.0	115*	36.3	113**	35.2
+NC 89-5706	118*	38.0				
+NC 87-80	116*	38.1	106	37.7	107*	36.1
+NC 88-1736	115*	37.1	115*	36.5		
SS 76-30	115*	37.5	106	38.4	108*	37.5
NK Coker 716	110	37.4	100	38.1	105*	36.2
+NC 88-1781	110	37.1	113*	36.6		
+NC 88-1838	109	37.7	112*	38.3		
+NC 88-1809	107	35.7	103	35.6		
Brooks	106	36.6	100	36.9	107*	35.4
+NC 88-1834	104	37.2	103	37.5		
Ozark	100	37.8	97	37.4	97	35.9
Mean	**112**		**108**		**106**	
C.V. (%)	8.9		6.8		7.3	
B.L.S.D. (K-50)	14		12		10	
s.e.	4.4		2.3		2.0	
Error d.f.	60		22		20	

+Experimental. **Highest yielder. †Two locations. ††Three locations.
*Not significantly different from highest yielder.

Table 14. Summary of oat performance trials in the Coastal Plain (1993).

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1993 Yield bu/A	1993 Test Wt. lb/bu	1992-93 Average† Yield bu/A	1992-93 Average† Test Wt. lb/bu	1991-93 Average†† Yield bu/A	1991-93 Average†† Test Wt. lb/bu
+NC 88-1818	86*	135**	139**	120**	35.1	133**	36.3		
+NC 88-1809	78*	119	129*	109*	32.0	120	33.6		
+NC 88-1781	87*	113	126	109*	35.2	126*	36.6		
+NC 87-80	89**	114	118	107*	35.0	127*	36.8	115**	35.5
833	84*	114	123	107*	34.9	112	36.4	105	35.0
+88-11	80*	118	117	105	37.5				
+NC 88-1736	72*	113	121	102	33.2	119	35.3		
SS 76-30	85*	95	126	102	35.4	110	36.5	102	34.8
+NC 88-1838	79*	112	113	101	35.1				
+NC 88-1834	82*	106	112	100	34.0	114	35.6		
+NC 89-5706	74*	99	119	98	34.7				
Yeats	78*	97	115	97	33.8	105	36.0	99	33.6
Ozark	85*	93	100	93	34.5	108	36.9	99	35.0
Mitchell	76*	88	107	90	35.3	113	36.9		
NK Coker 716	65	87	114	89	34.5	107	36.2	99	34.8
Brooks	75*	61	116	84	31.2	102	33.4	97	31.4
Mean	**80**	**104**	**118**	**101**		**115**		**102**	
C.V. (%)	13.8	8.9	7.5	9.3		9.3		10.5	
B.L.S.D. (K-50)	20	11	11	15		10		8	
s.e.	4.9	4.1	3.9	2.4		2.0		1.6	
Error d.f.	56	59	56	30		72		60	

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

Table 15. Average oat performance across years at three locations in the Coastal Plain.

Brand-Variety or Variety	1993 Yield bu/A	1993 Test Wt. lb/bu	2 Years (1992-93) Yield bu/A	2 Years (1992-93) Test Wt. lb/bu	3 Years (1991-93) Yield bu/A	3 Years (1991-93) Test Wt. lb/bu
Bertie County						
Brooks	75	32.9	97	34.1	100	33.7
Mitchell	76	34.7	97	36.0		
+NC 87-80	89	31.3	116	34.2	112	34.4
+NC 88-1736	72	31.8	103	33.7		
+NC 88-1781	87	33.3	114	34.9		
+NC 88-1809	78	30.8	104	32.5		
+NC 88-1818	86	35.9	114	36.0		
+NC 88-1834	82	32.8	106	34.2		
NK Coker 716	65	34.4	101	35.8	100	34.3
Ozark	85	34.1	111	35.9	103	34.8
SS 76-30	85	34.0	104	35.4	103	35.8
Yeats	78	32.6	95	35.3	97	33.7
883	84	33.7	101	35.5	104	34.5
Lenoir County						
Brooks	61	26.7	101	30.8	103	30.7
Mitchell	88	32.6	119	36.0		
+NC 87-80	114	36.4	136	37.0	129	37.6
+NC 88-1736	113	33.4	127	35.9		
+NC 88-1781	113	35.8	136	37.0		
+NC 88-1809	119	31.2	124	33.6		

Table 15. (Continued.) Average oat performance across years at three locations in the Coastal Plain.

Brand-Variety or Variety	1993 Yield bu/A	1993 Test Wt. lb/bu	2 Years (1992-93) Yield bu/A	2 Years (1992-93) Test Wt. lb/bu	3 Years (1991-93) Yield bu/A	3 Years (1991-93) Test Wt. lb/bu
Lenoir County (Continued)						
+NC 88-1818	135	33.1	137	34.5		
+NC 88-1834	106	33.7	117	34.9		
NK Coker 716	87	32.8	107	35.6	104	35.4
Ozark	93	34.5	110	36.5	106	35.3
SS 76-30	95	34.7	120	35.9	118	35.8
Yeats	97	32.7	104	34.8	105	33.9
833	114	34.0	117	35.7	118	35.6
Washington County						
Brooks	116	34.0	120	34.0	107	32.2
Mitchell	107	38.7	125	38.2		
+NC 87-80	118	37.3	142	38.5	124	36.5
+NC 88-1736	121	34.4	134	35.6		
+NC 88-1781	126	36.4	132	37.3		
+NC 88-1809	129	34.0	134	34.4		
+NC 88-1818	139	36.4	150	37.0		
+NC 88-1834	112	35.4	126	37.1		
NK Coker 716	114	36.2	121	37.5	105	36.0
Ozark	100	35.0	108	37.5	97	36.0
SS 76-30	126	37.6	130	38.0	113	36.0
Yeats	115	36.2	122	36.9	110	35.9
833	123	37.0	123	37.9	113	36.9

+Experimental.

Table 16. Summary of wheat performance trials across the state (1993).

Brand-Variety Variety	Lodging %	Plant Height Inches	1000 Kernel Weight gm	Date 50% Headed	Powdery Mildew Resistance	Leaf Rust Resistance
AgriPro Hickory++	2	40	25.6	4-21	Fair	Good
AgriPro Savannah++	0	35	28.0	4-21	Poor	Fair
Buckshot DS2368++	1	37	30.0	4-20	Fair	Good
Florida 302	10	39	27.5	4-22	Poor	Poor
Florida 304++	0	41	24.4	4-26	Poor	Good
FFR 511W	1	38	25.4	4-22	Good	Fair
FFR 555W	0	35	27.1	4-30	Poor	Poor
FFR 568W	0	38	29.8	4-26	Poor	Poor
GA Gore	4	36	26.8	4-22	Good	Fair
Madison	0	39	29.6	4-21	Poor	Poor
NK Coker 9134++	3	37	27.2	4-27	Poor	Fair
NK Coker 9543	0	35	25.3	4-24	Fair	Fair
NK Coker 9803	1	36	27.3	4-24	Poor	Fair
NK Coker 9835	0	33	26.8	4-22	Fair	Good
NK Coker 9904++	0	38	27.3	4-24	Good	Good
+Pioneer XW514++	2	36	27.1	4-18	Good	Good
Pioneer 2548++	3	35	25.6	4-29	Poor	Poor
Pioneer 2566++	2	36	26.8	4-27	Fair	Good
Pioneer 2580++	2	37	26.7	4-26	Good	Good
Saluda	1	37	28.9	4-27	Poor	Poor
Stoneville 350	0	42	29.0	4-23	Poor	Poor
+SC 850559	1	38	23.5	4-22	Poor	
+VA 88-54-479++	1	38	27.2	4-28	Fair	Fair
Wakefield	0	38	31.1	4-25	Poor	Fair

+Experimental.
++Not treated with systemic fungicide seed treatment.

Table 17. Two and three-year average wheat performance across the state (1991-93).

Brand-Variety or Variety	Two Years (1992-93)† Lodging %	Plant Height Inches	1000 Kernel Weight grams	Date 50% Headed	Three Years (1991-93)†† Lodging %	Plant Height Inches	1000 Kernel Weight grams	Date 50% Headed
AgriPro Savannah++	10	35	30.6	4-16	14	35	27.2	4-16
Buckshot DS2368++	9	35	30.5	4-16				
Florida 302	14	39	31.9	4-19	19	39	27.9	4-19
Florida 304++	11	39	32.2	4-22				
FFR 511W	8	36	29.6	4-20	9	36	27.4	4-19
FFR 555W	5	35	29.6	4-26	9	35	26.4	4-26
FFR 568W	8	37	31.0	4-22	10	37	26.3	4-22
GA Gore	10	35	29.1	4-20	20	35	26.3	4-18
Madison	8	37	31.6	4-18	10	37	28.6	4-18
NK Coker 9543	9	34	28.1	4-22				
NK Coker 9803	8	35	30.1	4-22	12	35	28.0	4-20
NK Coker 9835	10	32	29.6	4-18				
NK Coker 9904++	11	38	30.3	4-21				
Pioneer 2548++	8	34	28.1	4-26	10	35	24.8	4-24
Saluda	10	36	30.9	4-24	12	36	26.9	4-24
Stoneville 350	11	39	31.8	4-21	11	39	27.3	4-21
Wakefield	11	39	33.3	4-23	12	39	29.0	4-22

†Eight locations. ††Twelve locations.
++Not treated with systemic fungicide seed treatment.

Table 18. Summary of wheat performance trials in the Coastal Plain (1993).

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1993 Yield bu/A	1993 Test Wt. lb/bu	1992-93 Average† Yield bu/A	1992-93 Average† Test Wt. lb/bu	1991-93 Average†† Yield bu/A	1991-93 Average†† Test Wt. lb/bu
NK Coker 9904++	56**	73*	68**	66**	54.7	73**	55.0		
AgriPro Hickory++	51*	75**	65*	63*	55.7				
+VA 88-54-479++	51*	74*	61	62*	56.0				
NK Coker 9134++	45	73*	64*	61*	55.2				
NK Coker 9803	48	69	64*	61*	57.1	68	58.0	64**	58.3
AgriPro Savannah++	54*	62	64*	60*	55.4	66	57.2	62*	57.0
NK Coker 9543	51*	70	55	59*	55.6	65	57.4		
FFR 555W	53*	64	58	58*	53.8	70*	55.8	63*	55.2
Pioneer 2580++	44	73*	56	58*	55.6				
NK Coker 9835	52*	57	64*	58*	54.3	69*	56.2		
Pioneer 2566++	43	66	59	56	54.1				
Madison	46	63	57	55	54.2	61	55.5	59	55.7
Wakefield	50*	59	57	55	52.9	66	55.7	61*	55.4
+Pioneer XW514++	45	62	58	55	56.3				
GA Gore	46	62	56	55	54.2	58	56.0	57	56.0
Saluda	44	62	57	55	55.8	64	57.4	56	57.1

Table 18. (Continued). Summary of wheat performance trials in the Coastal Plain (1993).

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1993 Yield bu/A	1993 Test Wt. lb/bu	1992-93 Average† Yield bu/A	1992-93 Average† Test Wt. lb/bu	1991-93 Average†† Yield bu/A	1991-93 Average†† Test Wt. lb/bu
Pioneer 2548++	39	68	54	53	54.9	64	56.2	60	55.7
FFR 568W	47	54	57	53	53.0	59	55.5	56	55.2
Stoneville 350	46	60	52	52	54.3	59	55.7	55	55.6
FFR 511W	44	60	51	52	54.9	57	56.2	53	56.1
Florida 302	47	50	57	52	51.2	65	54.0	59	54.1
Buckshot DS2368++	47	49	58	52	55.5	57	57.0		
+SC 850559	50*	44	58	51	54.4				
Florida 304++	43	40	53	45	54.4	51	56.0		
Mean	**47**	**59**	**58**	**56**		**63**		**59**	
C.V. (%)	10.4	8.0	7.9	9.8		9.2		9.7	
B.L.S.D. (K-50)	7	5	6	10		5		4	
s.e.	2.2	2.1	2.0	1.4		1.1		0.8	
Error d..f.	88	145	88	46		96		110	

+Experimental. **Highest yielder. *Not significantly different from highest yielder.
†Six locations. ††Nine locations. ++Not treated with systemic fungicide seed treatment.

Table 19. Summary of wheat performance trials in the Piedmont-Rowan county (1993).

Brand-Variety or Variety	1993 Yield bu/A	1993 Test Wt. lb/bu	1992-93 Average† Yield bu/A	1992-93 Average† Test Wt. lb/bu	1991-93 Average†† Yield bu/A	1991-93 Average†† Test Wt. lb/bu
+VA 88-54-479++	70**	58.4				
AgriPro Hickory++	68*	59.1				
NK Coker 9134++	67*	58.2				
Pioneer 2580++	67*	59.2				
Saluda	67*	60.7	73	59.1	64	58.6
Florida 302	65*	58.3	70	56.6	59	55.9
Pioneer 2548++	64	58.8	82*	56.3	70*	56.4
NK Coker 9803	63	59.5	72	58.3	64	58.7
FFR 555W	62	58.5	85**	56.6	72**	56.7
NK Coker 9543	59	59.7	69	57.6		
NK Coker 9904++	59	58.8	68	56.3		
+Pioneer XW514++	58	59.0				
NK Coker 9835	57	58.1	69	55.6		
Buckshot DS2368++	55	57.3	64	56.7		
Pioneer 2566++	55	58.0				
Madison	53	56.0	65	55.9	58	56.3
Wakefield	52	57.8	68	56.1	62	56.0
AgriPro Savannah++	51	58.7	65	56.2	60	56.9
FFR 511W	51	56.9	73	55.5	61	55.6
GA Gore	51	57.7	65	56.5	60	56.8
+SC 850559	49	56.6				
Florida 304++	46	57.8	54	56.3		
FFR 568W	45	58.2	69	56.9	61	56.9
Stoneville 350	44	56.3	65	56.4	59	56.1
Mean	**57**		**69**		**62**	
C.V. (%)	10.5		9.3		10.5	
B.L.S.D. (K-50)	6		8		6	
s.e.	2.4		2.0		1.7	
Error d.f.	112		48		66	

+Experimental. **Highest yielder. *Not significantly different from highest yielder.
†Two locations. ††Three locations. ++Not treated with systemic fungicide seed treatment.

Table 20. Average wheat performance across years at three locations in the Coastal Plain.

Brand-Variety or Variety	1993 Yield bu/A	1993 Test Wt. lb/bu	2 Years (1992-93) Yield bu/A	2 Years (1992-93) Test Wt. lb/bu	3 Years (1991-93) Yield bu/A	3 Years (1991-93) Test Wt. lb/bu
Bertie County						
AgriPro Savannah++	54	54.3	70	56.8	66	57.5
Buckshot DS2368++	47	58.9	60	59.0		
Florida 302	47	47.8	67	52.6	65	54.6
Florida 304++	43	57.6	53	58.1		
FFR 511W	44	57.0	57	57.4	55	57.5
FFR 555W	53	51.9	70	55.1	68	56.3
FFR 568W	47	50.6	62	54.8	60	55.9
GA Gore	46	56.3	60	57.3	60	57.4
Madison	46	56.9	61	57.5	60	58.0
NK Coker 9543	51	56.0	65	57.9		
NK Coker 9803	48	57.4	63	58.2	62	58.8
NK Coker 9835	52	54.7	72	56.4		
NK Coker 9904++	56	54.1	75	54.1		
Pioneer 2548++	39	52.9	61	55.5	61	56.6
Saluda	44	56.9	67	58.0	62	58.5
Stoneville 350	46	55.4	58	56.8	55	57.3
Wakefield	50	50.9	68	54.9	65	56.3
Lenoir County						
AgriPro Savannah++	62	58.3	62	58.0	61	58.1
Buckshot DS2368++	49	55.7	55	56.2		
Florida 302	50	55.3	60	54.0	56	54.7
Florida 304++	40	55.6	44	55.8		
FFR 511W	60	55.1	59	55.7	56	57.2
FFR 555W	64	55.9	72	56.1	65	56.6
FFR 568W	54	56.7	59	56.7	56	56.9
GA Gore	62	56.0	63	56.6	61	57.2
Madison	63	55.0	63	55.3	62	55.8
NK Coker 9543	70	59.1	68	58.7		
NK Coker 9803	69	59.1	66	58.5	65	59.3
NK Coker 9835	57	55.6	68	56.2		
NK Coker 9904++	73	56.7	72	54.5		
Pioneer 2548++	68	57.7	69	57.5	63	57.9
Saluda	62	58.5	66	58.2	56	58.7
Stoneville 350	60	56.1	60	56.2	56	56.5
Wakefield	59	56.0	63	56.3	58	56.7
Washington County						
AgriPro Savannah++	64	53.5	67	56.2	68	57.6
Buckshot DS 2368++	58	51.8	59	55.3		
Florida 302	57	50.6	65	53.7	63	55.5
Florida 304++	53	50.1	56	53.9		
FFR 511W	51	52.5	55	55.0	56	56.6
FFR 555W	58	53.7	70	55.6	68	56.6
FFR 568W	57	51.6	57	54.4	60	55.9
GA Gore	56	50.4	55	54.3	60	55.8
Madison	57	50.6	54	53.9	60	55.9
NK Coker 9543	55	51.6	63	55.3		
NK Coker 9803	64	54.7	69	57.5	69	59.4
NK Coker 9835	64	52.5	73	55.0		
NK Coker 9904++	68	53.3	73	55.6		
Pioneer 2548++	54	54.1	57	55.7	61	57.0
Saluda	57	52.0	60	55.2	62	57.4
Stoneville 350	52	50.9	51	54.2	54	55.9
Wakefield	57	51.9	64	55.3	65	57.0

++Not treated with systemic fungicide seed treatment.

Table 21. Comparison of yields of wheat entries with and without systemic fungicide seed treatment-Lenoir county.

Brand Variety or Variety	1993 Yield (bu/a) Treated	1993 Yield (bu/a) Nontreated	1992-93 Yield (bu/A) Treated	1992-93 Yield (bu/A) Nontreated
NK Coker 9543	70	68	68	62
NK Coker 9803	69	69	66	70
FFR 555W	64	59	72	66
Madison	63	60	63	61
GA Gore	62	61	63	63
Saluda	62	58	66	54
FFR 511W	60	58	59	59
Stoneville 350	60	56	60	57
Wakefield	59	52	63	58
NK Coker 9835	57	54	68	62
FFR 568W	54	56	59	61
Florida 302	50	48	60	56
+SC 850559	44	45		
Florida 304	40	43	44	52
Mean	**58**		**63**	
C.V. (%)	8.0		10.0	
B.L.S.D. (K-50) for comparing varieties and treatment effect	5		NS	
s.e.	2.1		2.0	
Error d.f.	145		25	

+Experimental.