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North Carolina Measured Crop Performance

Small Grains 1996

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1996

PERFORMANCE OF SMALL GRAIN VARIETIES

IN NORTH CAROLINA

INTRODUCTION

Across the state of North Carolina during the fall of 1995, growers planted 25,000 acres of barley, 55,000 acres of oats, and 640,000 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, Phil Johnson and Dwight Parrish assisted in conducting these tests. Jane Dove Corl prepared the text and tables for this bulletin. John Crow prepared the cover.

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. The B.L.S.D. K-50 is equivalent to the Fisher's L.S.D. at the 10% level.

The coefficient of variability (C.V.) is listed as a general indicator of population variability; it does not, however, always indicate level of precision. The coefficient of determination (R^2) is a better measure of the level of precision because it indicates the amount of variation accounted for in the trial. The higher the R^2 value the more precise the trial. Thus, relative precision among various trials can be compared. The standard error of the mean (s.e.) is also listed as a general indicator of precision since it reveals how well the true mean was estimated. The formula for the s.e. is the square root of the error variance divided by the square root of the number of replicates. The error degrees of freedom (Error d.f.) used to test varieties is listed along with the mean of the test.

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 resist-ance	Rust resist-ance	Lodging resist-ance	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
Callao	Good	Fair	Poor	Fair	Early	Good	Yes
Mollybloom	Good	Poor	Fair	Fair	Med-Late	Fair	Yes
Nomini	Fair	Fair	Fair	Good	Med-Early	Fair	No
Pamunkey	Good	Fair	Fair	Fair	Early	Good	Yes
Pennco	Good	Fair	Fair	Good	Med-Early	Fair	No
Starling	Good	Fair	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 resist-ance	Powdery Mildew resist-ance	Septoria Leaf Blotch resist-ance	Mosaic resist-ance	Maturity	Winter hardi-ness	Lodging resist-ance	Test Weight lb/bu
Brooks	Poor	Fair	Fair	Fair	Med-Early	Fair	Fair	Fair
NK Coker 716	Poor	Good	Fair	Good	Medium	Good	Good	Good
Rodgers	Good			Good	Med-Early		Good	Good
SS 76-30	Poor	Fair	Fair	Excellent	Early	Excellent	Fair	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 Clemens	Fair	Good	Fair	Med-Late	Good	Good	Fair	Good
AgriPro Elkhart		Good		Med-Early		Good	Fair	
AgriPro Hickory	Poor	Fair	Fair	Med-Early	Good	Good	Fair	Good
AgriPro Mason		Good		Med-Early		Good	Fair	
AgriPro Savannah	Poor	Poor	Fair	Med-Early	Fair	Good	Fair	Fair
FFR 502	Good	Good	Good	Early	Good	Good		Good
FFR 523	Poor	Good	Good	Med-Early	Good	Good	Fair	Good
FFR 525	Poor	Good		Medium		Good	Good	
FFR 555	Poor	Poor		Med-Late	Good	Good	Fair	Good
FFR 568	Poor	Poor	Fair	Med-Late	Good	Good	Good	Good
GA Stuckey	Good	Good		Early		Fair	Good	
Jackson	Poor	Good		Medium	Fair	Fair	Fair	
Madison	Poor	Poor	Good	Med-Early	Good	Good	Fair	Good
NK Coker 9134	Poor	Poor		Medium	Good	Good	Good	
NK Coker 9474	Fair	Fair		Medium	Good	Good		Good
NK Coker 9543	Fair	Poor	Good	Medium	Good	Good	Good	Good
NK Coker 9663	Good	Good		Medium	Good	Good		Good
NK Coker 9803	Fair	Fair	Good	Med-Early		Good	Good	Good
NK Coker 9835	Fair	Fair	Good	Med-Early	Good	Good	Good	Good
NK Coker 9904	Poor	Good		Med-Early	Good	Good	Fair	Good
Pioneer 2580	Poor	Good	Good	Medium	Good	Good	Fair	Good
Pioneer 2643	Fair	Good	Good	Medium	Good	Good	Fair	Good
Pioneer 2684	Good	Good	Good	Early	Fair	Good	Good	Fair
Pioneer 2691	Good	Good	Good	Early	Good	Good	Good	Good

*These characteristics based upon all available observations.

EXPERIMENTAL PROCEDURE

The tests were located in the Piedmont and Coastal Plain on research stations (Figure 1).

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 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. A total of 5, 8, and 46 commercial varieties and experimental lines of barley, oats, and wheat, respectively, were evaluated in the 1995-96 season.

Field Plot Design: A randomized, complete block design with five or six replicates 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). Seeding rate was 18 seed per foot.

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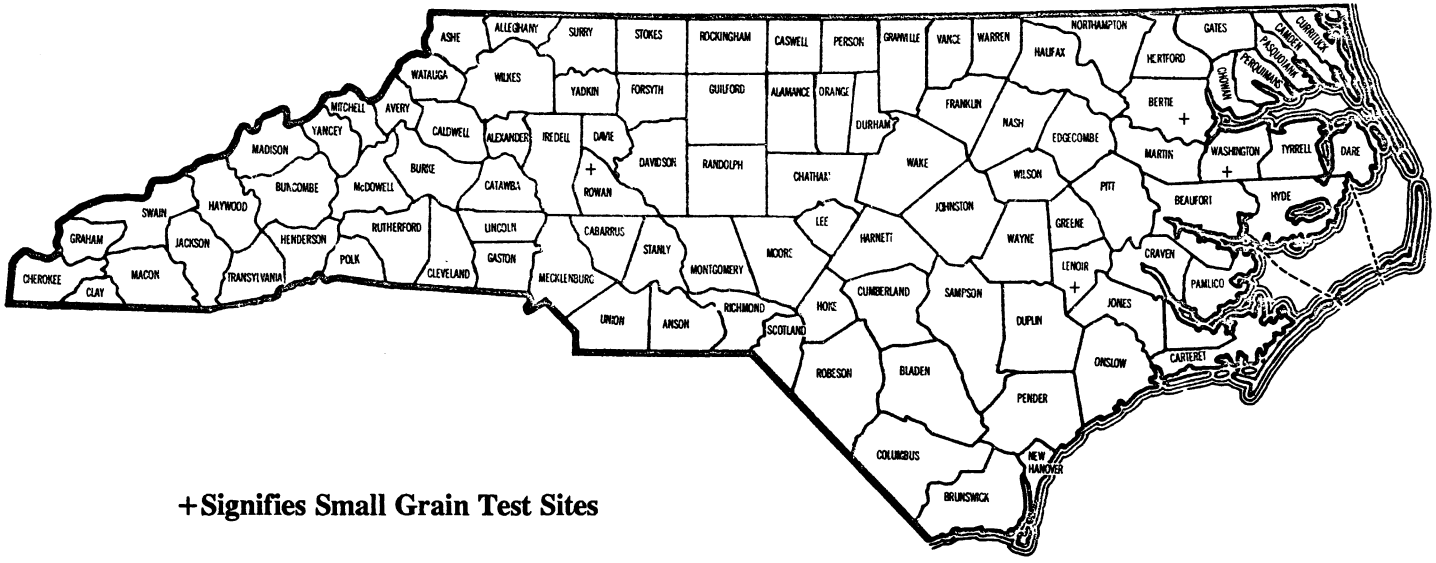
[2]Statistical analyses were made in the statistical laboratory by Mrs. Joy Smith and Mrs. Sandra Donaghy. This assistance is gratefully acknowledged.

LOCATION OF OFFICIAL VARIETY TESTS



+Signifies Small Grain Test Sites

Table 4. Cultural practices for small grain tests, 1996.

County	Fertilizer lbs/A and Grade	Topdress* lbs/A 34% N	Soil Type	Planting Date	Harvest Date
Piedmont Area					
Rowan	100 lbs. 0-0-60 200 lbs. 18-46-0	114	Hiwassee clay loam	November 22	June 24
Coastal Plain Area					
Lenoir	300 lbs. 10-20-20	250	Norfolk loamy sand	November 17	June 17
Bertie	250 lbs. 10-20-20	212	Norfolk loamy sand, Goldsboro sandy loam	October 31	June 18
Washington	103 lbs. 30-0-0	212	Portsmouth loam fine sandy	November 21	June 19 & 21

*Topdressing applied in split application.

Table 5. Soil test results from test sites, 1996.

County	HM %	W-V	CEC	BS %	Ac	pH	P-I	K-I	Ca %	Mg %	Mn-I	Zn-I	Cu-I
Piedmont Area													
Rowan	0.18	0.91	6.8	91	0.6	5.9	35	55	60.0	27.0	1149	37	176
Coastal Plain Area													
Lenoir	1.37	1.25	5.0	80	1.0	5.7	122	76	55.0	17.0	43	59	53
Washington	3.1	1.26	8.5	91	0.8	6.2	89	88	68.1	17.4	53	39	74
Bertie	0.71	1.32	4.5	87	0.6	6.2	65	58	65.0	15	38	53	102

Contact Person and Agencies Sponsoring Entries	Entries
AgriPro Bio Science Barton Fogleman Box 2365 Jonesboro, AR 72402 (501) 935-3941	AgriPro Clemens AgriPro Elkhart AgriPro Hickory AgriPro Mason AgriPro Savannah AgriPro 92D-4413
Featherstone Farm Seed Juan W. Whittington 13941 Genito Road Amelia, VA 23002 (804) 561-3754	Featherstone 520
Florida Agricultural Experiment Station Dr. Ron Barnett Route 3, Box 4370 Quincy, FL 32351 (904) 875-7100	Florida experimentals
Great Plains Research Thad Busbice 3624 Kildaire Farm Road Apex, NC 27502 (919) 362-1583	GP 417-2 GP 512-2 GP 610
North Carolina Agric. Experiment Station Dr. Paul Murphy Crop Science Department Box 7629 Raleigh, NC 27695-7629 (919) 515-3281	Boone, Brooks, Rodgers, N.C. experimentals
Northrup King Company Carroll Oakes Box 249 Grifton, NC 28530 (800) 248-4767	NK Coker 9134 NK Coker 9474 NK Coker 9543 NK Coker 9663 NK Coker 9803 NK Coker 9835 NK Coker 9904
Pennsylvania State University University Park, PA 16802	Pennco
Pioneer Hi-Bred International, Inc. Dennis McCoy 800 Tiffany Blvd., Suite 200 Rocky Mount, NC 27804 (919) 385-2017	Pioneer 2580 Pioneer 2643 Pioneer 2684 Pioneer 2691

Resource Seeds, Inc. William Smith 2355 Rice Pike Union, KY 41091 (606) 384-3962	Trical 498
Southern States Coop. Phil McCarty P. O. Box 746 Farmville, NC 27828 (919) 753-4049	SS 76-30 FFR 502 FFR 523 FFR 525 FFR 555 FFR 568
Virginia Agricultural Experiment Station Dr. Carl A. Griffey Agronomy Department VPI Blacksburg, VA 24061 (540) 231-9789	Callao Jackson Madison Nomini Pamunkey Starling Virginia experimentals
University of Arkansas Dr. Robert Bacon 115 Plant Science Fayetteville, AR 72701 (501) 575-5725	Arkansas experimentals
University of Georgia Dr. Jerry Johnson Griffin, GA 30212 (770) 228-7321	Luttrell Venus

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 1995-96 small grain growing season began with rain during October (see Figures) which delayed planting (Table 4). Cold weather was experienced in February causing winter kill of all barley and oats and most wheat varieties treated with Baytan at the Rowan location. Small grain was shorter than average due to the weather. Harvest was delayed due to late May and early June rains (Table 4); test weights consequently were below average.

Although some leaf rust and powdery mildew on wheat were evident valid ratings could not be made. All tests were sprayed for cereal leaf beetle.

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 in the multiyear tables. Individual location data tables only include entries common over two years. 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.

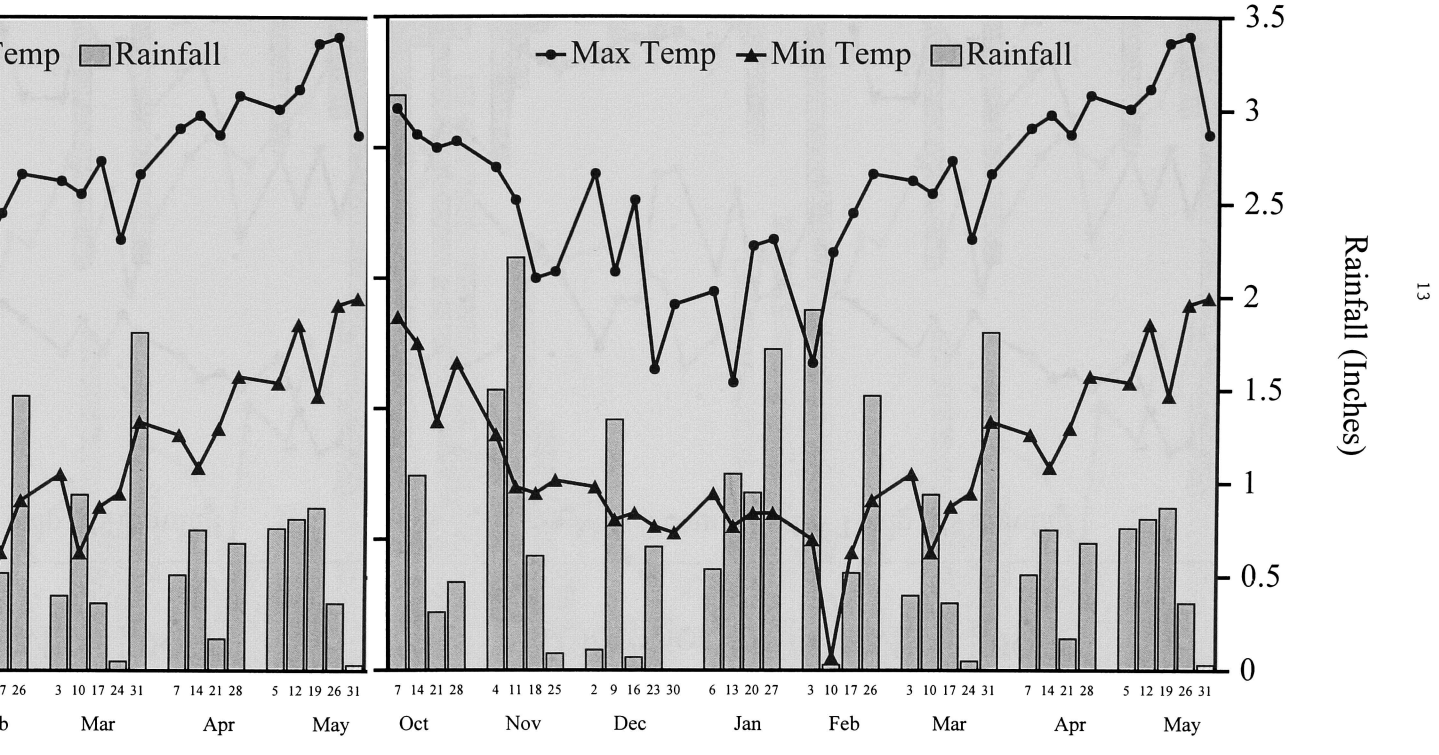
Disease ratings are reported in the state-wide averages although they may have only been taken at one or more locations.

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.

y Weather tie Co. Weekly Weather Data

May 1996

October 1995 - May 1996



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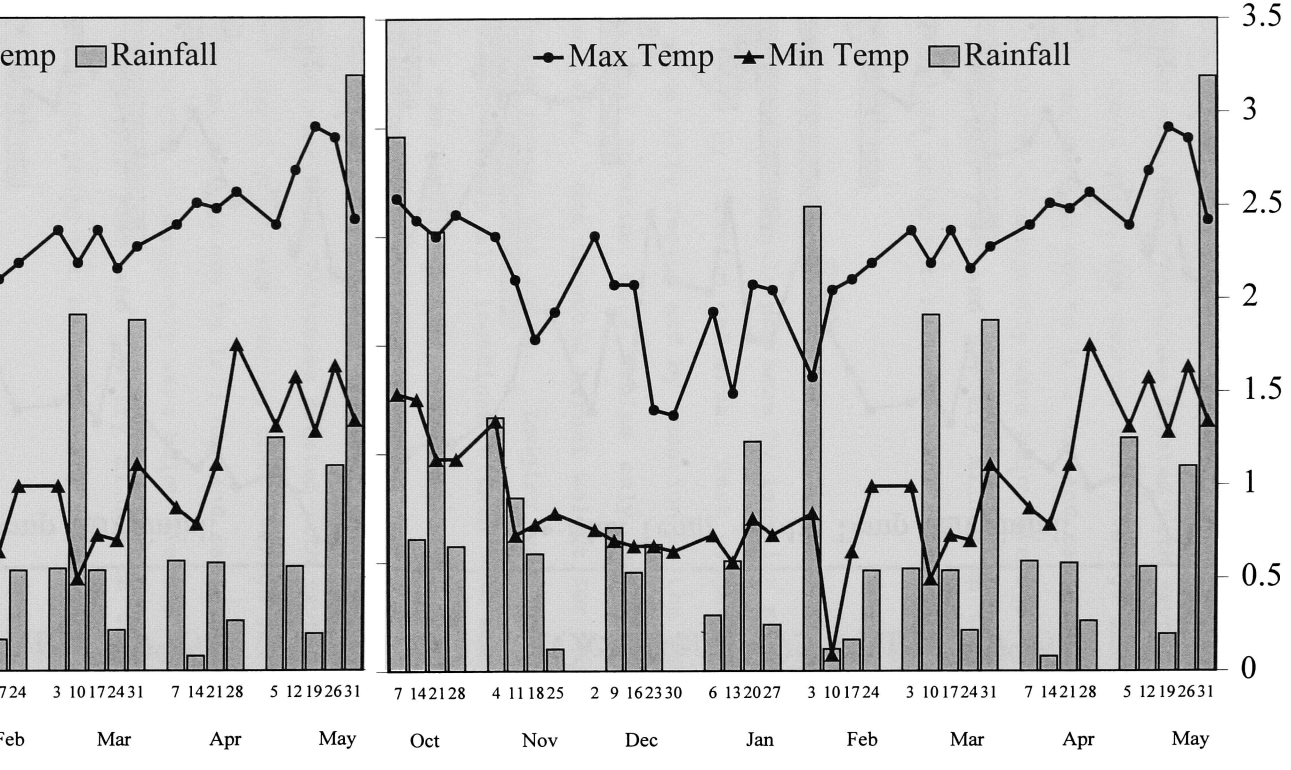

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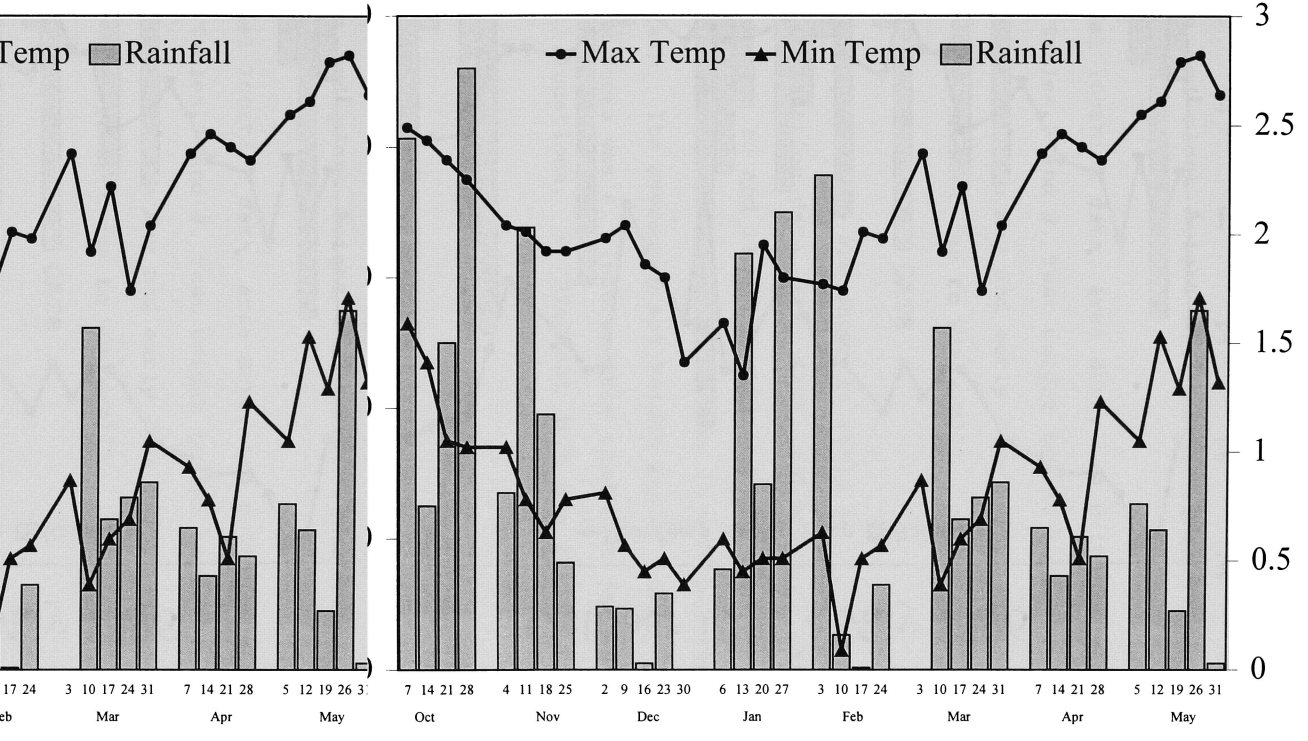

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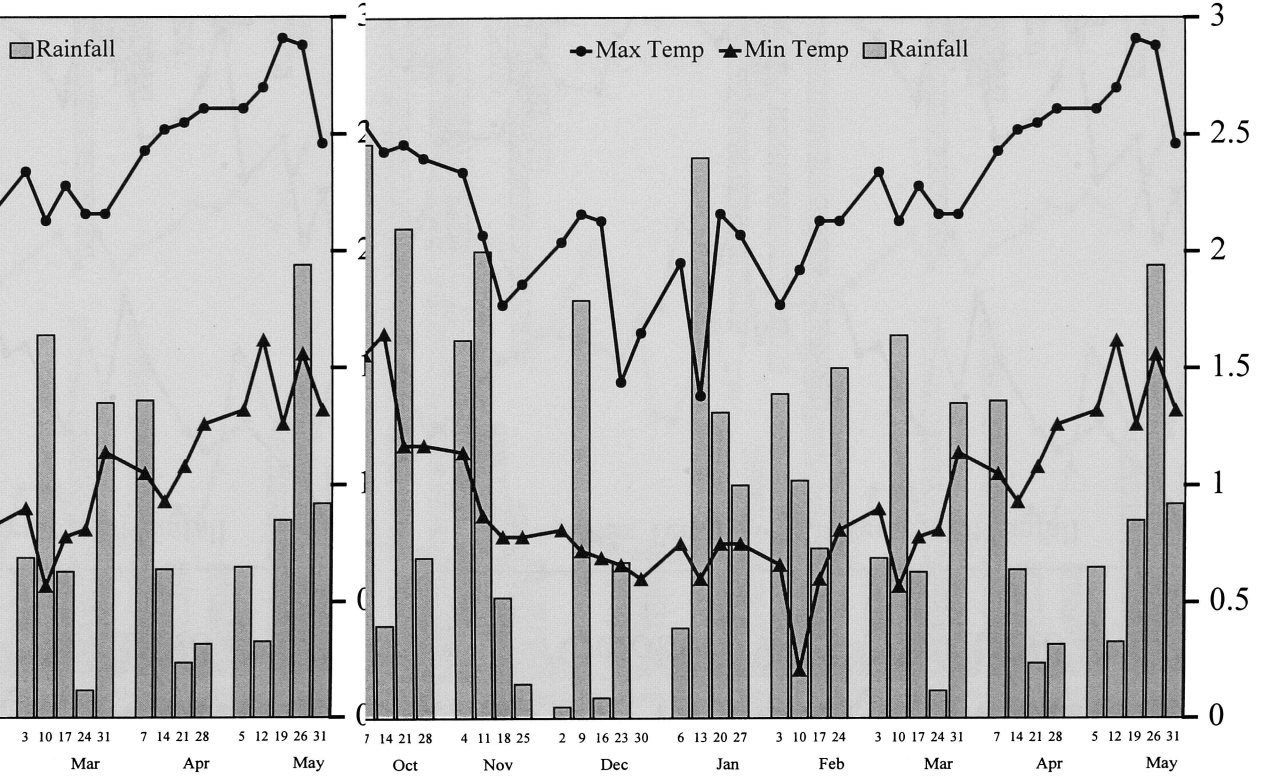
May 1996

October 1995 - May 1996



Rainfall (Inches)

RESULTS AND DISCUSSION

BARLEY

Statewide averages are shown in Table 6. This table only shows lodging and plant height for entries common across all locations.

Individual location data, area data, and multiple year data are shown in Tables 7 and 8. Test weight tended to be low at all locations due to the late May and early June rains. No data are reported from the Piedmont due to winterkill.

OATS

Statewide average data are shown in Table 9.

Individual location data, area data, and multiple year data are shown in Tables 10 and 11. The experimental, FL 874-E55 was not included in the statewide average because it was only tested in the Coastal Plain. Its average plant height was 27 inches and its average lodging score was 4. Test weights tended to be lower than average at all locations. No Piedmont data are reported due to winterkill.

WHEAT

Statewide averages are shown in Tables 12 and 13.

Individual location data, area data, and multiple year averages are shown in Tables 14, 15, and 16. 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. Most Commercial (private) varieties treated with a systemic fungicide seed treatment suffered severe winterkill at the Rowan location and thus their data were not reported (Table 14). The effect of the systemic seed treatment can be seen with Jackson which was included both with the systemic seed treatment (19bu/a), and without (38 bu/a) (Table 14). Madison which has excellent winterhardiness was also tested in the same manner but was not affected (56 vs. 49 bu/a) (Table 14).

The Lenoir county location included entries tested with and without a systemic fungicide seed treatment and these data are reported in Table 17 separately. Differences were not evident for varieties in 1996; disease pressure was not substantial in 1996. NK Coker 9835 was the only variety to show a significant treatment effect after two and three years.

NK Coker 9474 was not included in the statewide average because it was only tested in the Piedmont. Its plant height averaged 29 inches, and its lodging score was 0. NC 91-1085 and Trical 498 are triticales.

Table 6. Summary of barley performance trials across the state.

Brand-Variety or Variety	1996 Lodging %	1996 Plant Height Inches	1996 Date 50% Headed	1995-1996 Average† Lodging %	1995-1996 Average† Plant Height Inches	1994-1996 Average †† Lodging %	1994-1996 Average †† Plant Height Inches
Boone	39	27	4-26	40	28	49	30
Callao	20	24	4-22	32	26	52	28
Ga. Luttrell	7	28	4-18	18	30		
Nomini	7	30	4-20	16	32	26	34
Pamunkey	17	27	4-20				
Starling	8	30	4-22	15	31	26	33

†Seven locations.
††Eleven locations

Table 7. Summary of barley performance trials in the Coastal Plain.

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1996 Yield bu/A	1996 Test Wt. lb/bu	1995-96 Average† Yield bu/A	1995-96 Average† Test Wt. lb/bu	1994-96 Average†† Yield bu/A	1994-96 Average†† Test Wt. lb/bu
Callao	76**	70	57**	68**	45.5	68**	47.8	68*	47.3
Ga Luttrell	74*	68	51	65*	39.9	67*	40.9		
Boone	71	62	48	61*	43.5	59	46.3	61	46.4
Starling	74*	74**	32	60*	43.8	67*	45.5	70**	45.6
Nomini	68	66	33	56*	44.1	60	45.5	62	45.4
Pamunkey	58	61	48	56*	44.1				
Mean	**70**	**67**	**45**	**61**		**64**		**65**	
C.V. (%)	5.3	5.8	9.7	11.6		10.4		11.6	
B.L.S.D. (K-50)		4	4	4		8		7	
s.e.	1.7	1.6	1.9	1.8		1.2		1.1	
Error d.f.	22	26	17	10		20		24	
R^2 (%)	86.8	72.2	90.1	84.1		77.2		77.6	

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

Table 8. Average barley performance across years at three locations in the Coastal Plain.

Brand-Variety or Variety	1996 Yield bu/A	1996 Test Wt. lb/bu	2 Years (1995-96) Yield bu/A	2 Years (1995-96) Test Wt. lb/bu	3 Years (1994-96) Yield bu/A	3 Years (1994-96) Test Wt. lb/bu
Bertie County						
Starling	74	43.1	75	45.8	73	45.4
Callao	76	45.5	75	48.5	68	47.2
Ga. Luttrell	74	40.9	74	43.0		
Nomini	68	43.9	67	45.6	64	44.7
Boone	71	46.0	66	48.6	68	48.2
Lenoir County						
Starling	74	44.3	76	44.5	72	45.0
Ga. Luttrell	68	41.2	67	37.8		
Nomini	66	43.5	66	44.2	61	44.3
Callao	70	43.8	63	45.8	62	46.5
Boone	62	44.8	61	45.1	60	45.6
Washington County						
Callao	57	47.3	65	49.1	73	48.3
Ga. Luttrell	51	37.5	59	42.0		
Starling	32	44.0	51	46.4	66	46.5
Boone	48	39.8	50	45.2	57	45.4
Nomini	33	45.0	46	46.7	60	47.1

Table 9. Summary of oat performance trials across the state.

Brand-Variety or Variety	1996 Lodging %	1996 Plant Height Inches	1996 Date 50% Headed	1995-96 Average† Lodging %	1995-96 Average† Plant Height Inches	1994-96 Average†† Lodging %	1994-96 Average†† Plant Height Inches
Brooks	47	28	4-22	44	30	44	32
+NC 90-6590	10	28	4-23	9	30		
Rodgers	27	29	4-21	21	29	18	31
SS 76-30	65	30	4-20	52	32	47	33

+Experimental.
†Seven locations.
††Eleven locations.

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

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1996 Yield bu/A	1996 Test Wt. lb/bu	1995-96 Avg† Yield bu/A	1995-96 Avg† Test Wt. lb/bu	1994-96 Avg†† Yield bu/A	1994-96 Avg†† Test Wt. lb/bu
+FL 874-E55	96*	104**	79**	93**	30.9	100*	34.8		
Rodgers	100**	96	75*	90*	33.1	103**	33.4	103**	35.5
SS 76-30	94*	92	69	85	34.6	94	36.1	97*	36.8
+NC 90-6590	87	84	71	81	31.1	85	32.9		
Brooks	87	84	69	80	32.9	88	34.5	90	35.1
Mean	**93**	**92**	**73**	**86**		**94**		**97**	
C.V. (%)	7.9	6.8	6.6	4.1		8.6		6.6	
B.L.S.D. (K-50)	8	6	5	6		8		5	
s.e.	3.0	2.6	2.0	0.8		0.2		0.9	
Error d.f.	22	24	17	8		20		16	
R^2 (%)	64.6	74.8	80.4	94.6		83.1		96.1	

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

Table 11. Average oat performance across years at three locations in the Coastal Plain.

Brand-Variety or Variety	1996 Yield bu/A	1996 Test Wt. lb/bu	2 Years (1995-96) Yield bu/A	2 Years (1995-96) Test Wt. lb/bu	3 Years (1994-96) Yield bu/A	3 Years (1994-96) Test Wt. lb/bu
			Bertie County			
Rodgers	100	33.9	100	34.9	92	35.1
SS 76-30	94	34.7	97	36.2	92	36.5
†FL 874-E55	96	30.6	93	33.3		
Brooks	87	32.5	92	33.7	84	34.3
†NC 90-6590	87	31.1	74	32.4		
			Lenoir County			
†FL 874-E55	104	31.7	115	32.7		
Rodgers	96	33.1	114	33.9	101	35.4
SS 76-30	92	35.3	98	35.0	88	36.4
†NC 90-6590	84	32.8	97	33.1		
Brooks	84	33.6	91	33.4	85	34.8
			Washington County			
Rodgers	75	32.4	95	35.7	116	35.9
†FL 874-E55	79	30.3	93	34.2		
SS 76-30	69	33.8	86	37.0	110	37.6
†NC 90-6590	71	29.4	84	33.3		
Brooks	69	32.7	81	36.4	103	36.3

†Experimental

Table 12. Summary of wheat performance across the state (1996).

Brand-Variety or Variety	Lodging %	Plant Height Inches	1000 Kernel Weight	Date 50% Headed
AgriPro Elkhart	0	30	33.2	4-25
AgriPro Mason	0	31	31.8	4-23
+AgriPro 92-4413	2	29	29.4	4-27
AgriPro Clemens	0	32	29.9	4-28
AgriPro Hickory	0	31	27.2	4-24
AgriPro Savannah	0	27	27.5	4-25
+AR 26158-4++	1	29	26.1	4-21
Featherstone 520++	0	29	31.8	4-26
FFR 502 ++	0	29	25.5	4-21
FFR 523	0	26	27.6	4-24
FFR 525	0	30	31.0	4-25
FFR 555	0	25	28.6	4-27
FFR 568	0	24	29.0	4-30
+FL 85238-G585 ++	0	30	29.9	4-27
+GP 417-2	0	27	28.1	4-28
+GP 512-2	0	26	25.9	4-27
+GP 610	0	27	27.0	4-29
Jackson	0	29	27.1	4-27
Jackson++	0	31	26.7	4-27
Madison	0	29	30.0	4-25
Madison ++	0	31	29.0	4-24
+NC 91-1085 ++	2	40	30.6	4-21
+NCV 93-1007 ++	0	29	26.4	4-28
+NCV 93-1312 ++	0	30	28.5	4-28
+NCV 93-600 ++	0	29	30.4	4-24
+NCV 93-612 ++	0	29	30.2	4-22
NK Coker 9134	0	30	27.1	4-26
NK Coker 9543	0	26	24.8	4-25
NK Coker 9803	0	26	28.3	4-23
NK Coker 9835	0	25	27.0	4-28
NK Coker 9904	0	30	30.9	4-25
NK Coker 9663	0	31	30.7	4-27
Pioneer 2580	0	29	26.8	4-25
Pioneer 2643	0	25	26.2	4-23
Pioneer 2684	0	28	29.9	4-23
Pioneer 2691	0	27	27.3	4-20
Trical 498 ++	0	35	30.3	4-21
+VA 93-52-60 ++	0	29	29.2	4-24

+Experimental. ++Not treated with systemic fungicide seed treatment.
+NC 91-1085 and Trical 498 are triticales.

Table 13. Two and three-year average wheat performance across the state (1994-96).

Brand-Variety or Variety	Two Years (1995-96)† Lodging %	Plant Height Inches	1000 Kernel Weight Grams	Three years (1994-96)†† Lodging %	Plant Height Inches	1000 Kernel Weight Grams
NK Coker 9134	7	31	32.7	9	33	31.3
Pioneer 2580	1	30	32.0	3	31	29.7
Jackson++	8	32	32.1	15	33	29.9
AgriPro Clemens	4	33	34.6			
NK Coker 9904	6	32	35.8	8	34	33.6
NK Coker 9835	8	27	32.9	6	28	31.3
Madison	3	30	35.2	4	32	31.9
NK Coker 9543	3	28	30.9	6	30	29.3
Pioneer 2691	2	28	32.9			
FFR 555	1	28	32.6	4	30	30.7
NK Coker 9803	6	29	33.0	8	30	31.4
FFR 523	7	27	33.2			
AgriPro Hickory	10	33	32.2	14	35	30.3
FFR 525	5	32	36.3	10	33	34.5
Pioneer 2684	4	29	35.5	6	30	33.1
Pioneer 2643	0	27	30.8	0	28	29.0

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

Table 14. Summary of wheat performance trials in the Piedmont-Rowan County (1996).

Brand-Variety or Variety	1996 Yield bu/A	1996 Test Wt. lb/bu	1995-96 Average† Yield bu/A	1995-96 Average† Test Wt. lb/bu	1994-96 Average†† Yield bu/A	1994-96 Average†† Test Wt. lb/bu
Madison	56**	54.8	61*	56.9	59**	56.2
Trical 498 ++	52*	49.2				
Madison ++	49	54.6				
+NCV 93-1312 ++	48	55.4				
NK Coker 9474 ++	47	56.7				
+NCV 93-1007 ++	46	53.4				
NK Coker 9663	45	54.2				
Featherstone 520 ++	45	55.5				
+VA 93-52-60 ++	44	54.5				
+AR 26158-4 ++	44	55.0				
+FL 85238-G585 ++	42	53.6				
+GP 417-2 ++	42	55.5				
+NCV 93-612 ++	42	54.6				
+GP 512-2 ++	40	55.3				
+NCV 93-600 ++	38	53.9				
Jackson ++	38	55.0	67**	58.6	57*	57.4
+NC 91-1085 ++	35	52.3				
+GP 610++	30	49.0				
Jackson	19	48.0				
Mean	**42**		**64**		**58**	
C.V. (%)	13.9		5.8		13.6	
B.L.S.D. (K-50)	5		7		NS	
s.e.	2.4		1.1		1.8	
Error d.f.	222		15		24	
R^2 (%)	82.1		90.1		89.0	

+Experimental. ++Not treated with systemic fungicide treatment.
**Highest yielder. *Not significantly different from highest yielder.

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

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1996 Yield bu/A	1996 Test Wt. lb/bu	1995-96 Avg† Yield bu/A	1995-96 Avg† Test Wt. lb/bu	1994-96 Avg†† Yield bu/A	1994-96 Avg†† Test Wt. lb/bu
+AgriPro 92-4413	48	49**	42*	46**	55.9				
Featherstone 520 ++	49*	47*	41*	46**	54.9				
Jackson ++	50*	48*	38	45*	54.8	55*	55.3	55	56.0
Jackson	49*	47*	39	45*	54.6				
AgriPro Elkhart	46	45*	43*	45*	55.0				
Trical 498 ++	44	47*	44**	45*	46.3	55*	48.6		
FFR 555	49*	45*	40	45*	53.6	49	54.0	51	54.6
NK Coker 9134	47	47*	40	44*	53.2	57**	54.8	59**	56.0
NK Coker 9663	48	46*	38	44*	54.4				
NK Coker 9904	50*	44	38	44*	53.6	56*	54.7	58*	56.0
AgriPro Clemens	52**	44	36	44*	53.8	52*	54.7		
+FL 85238-G585 ++	45	45*	41*	44*	53.7				
AgriPro Savannah	49*	45*	36	43*	53.6	56*	55.3	58*	56.3
Madison	47	46*	35	43*	53.3	49	54.4	50	54.9
+NCV 93-600 ++	45	44	39	43*	54.0				
NK Coker 9803	46	44	38	43*	55.4	50	55.9	54	57.0
Pioneer 2580	47	44	36	43*	52.6	53*	53.5	54	54.9
NK Coker 9835	46	46*	35	42	53.5	54*	54.9	56*	55.9
AgriPro Mason	47	46*	33	42	52.5				
+GP 417-2	45	43	37	42	55.2				
+AR 26158-4 ++	45	47*	34	42	55.1				
NK Coker 9543	44	45*	36	42	54.1	52*	55.4	54	56.6
Pioneer 2643	42	46*	37	42	53.6	48	54.7	52	55.9
+NCV 93-1312 ++	41	43	38	42	53.6				
Pioneer 2691	45	44	36	42	51.8	51	53.9		
AgriPro Hickory	44	45*	36	41	52.9	49	54.9	52	56.0
FFR 525	47	42	35	41	54.3	48	55.2	50	56.3
Pioneer 2684	44	44	36	41	54.1	47	55.2	50	56.4
+NC91-1085 ++	45	39	40	41	51.1				

Table 15. (Continued). Summary of wheat performance trials in the Coastal Plain.

Brand-Variety or Variety	Bertie County bu/A	Lenoir County bu/A	Washington County bu/A	1996 Yield bu/A	1996 Test Wt. lb/bu	1995-96 Avg† Yield bu/A	1995-96 Avg† Test Wt. lb/bu	1994-96 Avg†† Yield bu/A	1994-96 Avg†† TestWt. lb/bu
Madison ++	44	44	35	41	53.4				
FFR 523	48	45*	27	40	52.0	49	53.4		
FFR 502 ++	40	44	37	40	52.5				
+NCV 93-612 ++	41	41	38	40	53.5				
+NCV 93-1007 ++	47	43	30	40	52.1				
+GP 512-2	43	40	36	40	54.7				
+VA 93-52-60 ++	45	42	31	39	52.4				
+GP 610	42	38	36	39	55.6				
FFR 568 ++	36	34	31	34	53.2				
Mean	**46**	**44**	**37**	**42**		**58**		**54**	
C.V. (%)	7.5	8.8	9.6	6.4		9.9		9.0	
B.L.S.D. (K-50)	4	5	4	4		6		4	
s.e.	1.5	1.7	1.6	0.7		1.1		0.7	
Error d.f.	172	248	172	88		80		104	
R^2 (%)	70.1	47.0	73.9	82.2		58.1		81.1	

+Experimental. **Highest yielder. *Not significantly different from highest yielder.
++Not treated with systemic fungicide seed treatment.
NC 91-1085 and Trical 498 are triticales.
†Average of six locations. ††Average of nine locations.

Table 16. Average wheat performance across years at three locations in the Coastal Plain.

Brand-Variety or Variety	1996 Yield bu/A	1996 Test Wt. lb/bu	2 Years (1994-95) Yield bu/A	2 Years (1994-95) Test Wt. lb/bu	3 Years (1994-96) Yield bu/A	3 Years (1994-96) Test Wt. lb/bu
Bertie County						
NK Coker 9904	50	53.3	61	55.0	60	56.1
AgriPro Savannah	49	53.1	61	55.1	61	56.4
Jackson++	50	54.8	61	55.7	61	56.5
Trical 498++	44	45.0	60	48.9		
NK Coker 9134	47	53.0	60	55.0	61	56.1
FFR 523	48	51.5	60	53.5		
AgriPro Clemens	52	54.2	60	54.9		
NK Coker 9543	44	52.9	58	55.2	60	56.5
Pioneer 2580	47	53.1	58	54.0	57	55.0
FFR 555	49	53.6	57	54.5	58	55.4
NK Coker 9835	46	52.6	57	54.3	59	55.6
Madison	47	53.4	54	54.5	55	55.2
AgriPro Hickory	44	50.6	54	54.1	54	55.6
Pioneer 2691	45	50.8	53	53.8		
FFR 525	47	54.9	53	55.8	54	56.8
NK Coker 9803	46	54.9	52	55.8	54	56.5
Pioneer 2643	42	53.2	50	55.0	53	55.7
Pioneer 2684	44	53.6	49	55.1	50	56.1
Lenoir County						
NK Coker 9134	47	52.9	55	54.8	59	56.6
AgriPro Savannah	45	53.6	55	55.4	57	56.0
NK Coker 9835	46	51.8	55	55.7	58	56.9
Pioneer 2580	44	52.9	53	53.3	56	55.4
Trical 498++	47	49.2	52	47.9		
Pioneer 2691	44	52.0	51	53.7		
Jackson++	48	54.3	51	55.3	56	56.5
Pioneer 2643	46	52.1	50	54.2	53	56.0
NK Coker 9904	44	50.6	50	55.7	52	56.7
NK Coker 9803	44	53.6	48	56.5	52	57.8
AgriPro Hickory	45	54.3	48	55.5		
Madison	46	52.2	47	53.4	50	54.5
NK Coker 9543	45	53.1	47	55.4	50	56.7
Pioneer 2684	44	55.3	47	55.7	51	57.3
FFR 525	42	54.2	47	55.5	50	57.1
FFR 523	45	52.1	46	53.1		
AgriPro Clemens	44	54.7	46	55.3		
FFR 555	45	55.0	43	54.4	51	55.8
FFR 568++	34	53.8	41	54.9	46	56.7
Washington County						
NK Coker 9904	38	52.2	56	53.6	60	55.2
NK Coker 9134	40	53.0	56	54.7	57	55.2
Trical 498 ++	44	48.8	55	49.1		
Jackson++	38	53.2	52	54.9	49	54.9
NK Coker 9543	36	55.0	51	55.8	53	56.5
NK Coker 9803	38	55.3	51	55.6	57	56.7
AgriPro Savannah	36	54.2	51	55.5	56	56.5
AgriPro Clemens	36	52.4	50	54.0		
NK Coker 9835	35	53.0	50	54.9	52	55.2
Pioneer 2691	36	52.6	49	54.4		
Pioneer 2580	36	52.7	49	53.5	50	54.2
FFR 555	40	52.3	48	53.2	45	52.6
AgriPro Hickory	36	53.9	48	55.3	51	55.7
Pioneer 2684	36	54.2	45	54.8	49	55.7
Madison	35	54.2	44	55.3	44	55.0
FFR 525	35	53.7	44	54.4	44	54.9
Pioneer 2643	37	54.7	43	55.1	49	55.8
FFR 523	27	52.3	42	53.6		

++Not treated with systemic fungicide seed treatment.

Table 17. Comparison of yields of wheat entries with and without systemic fungicide seed treatment-Lenoir county.

Brand Variety or Variety	1996 Yield (bu/a)		1995-96 Yield (bu/A)		1994-1996 Yield (bu/A)	
	Treated	Nontreated	Treated	Nontreated	Treated	Nontreated
+AgriPro 92-4413	49	50				
NK Coker 9134	47	48	56	56	59	57
Jackson	47	48				
AgriPro Hickory	45	48	46	47		
Pioneer 2580	44	47	53	53		
NK Coker 9835	46	47	55	50	57	52
AgriPro Savannah	45	46	54	52		
AgriPro Clemens	45	46	45	44		
FFR 555	45	46	43	42	51	49
NK Coker 9543	45	46	47	51	50	53
FFR 523	46	45	46	45		
Pioneer 2691	44	45	51	50		
NK Coker 9803	44	44	48	47	51	52
Pioneer 2643	46	44	49	48		
AgriPro Mason	46	44				
Madison	45	44	47	47	50	48
AgriPro Elkhart	45	43				
NK Coker 9663	46	43				
Pioneer 2684	44	43	47	49		
NK Coker 9904	44	42	50	49		
FFR 525	42	40				
Mean	**45**	**45**	**49**	**49**	**53**	**52**
C.V. (%)	6.1		9.0		10.6	
B.L.S.D. (K-50) for comparing treatment effect	NS		5		4	
s.e.	1.2		1.4		1.4	
Error d.f.	84		135		84	
R^2 (%)	83.1		87.5		83.5	

+Experimental.