NORTH CAROLINA
Measured Crop Performance
Small Grains 2014

North Carolina State University
College of Agriculture and Life Sciences
North Carolina Agricultural Research Service
Raleigh, NC 27695
Steve Lommel, Director of Research

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North Carolina Measured Crop Performance

Small Grains 2014

Official Variety Testing Program

Department of Crop Science

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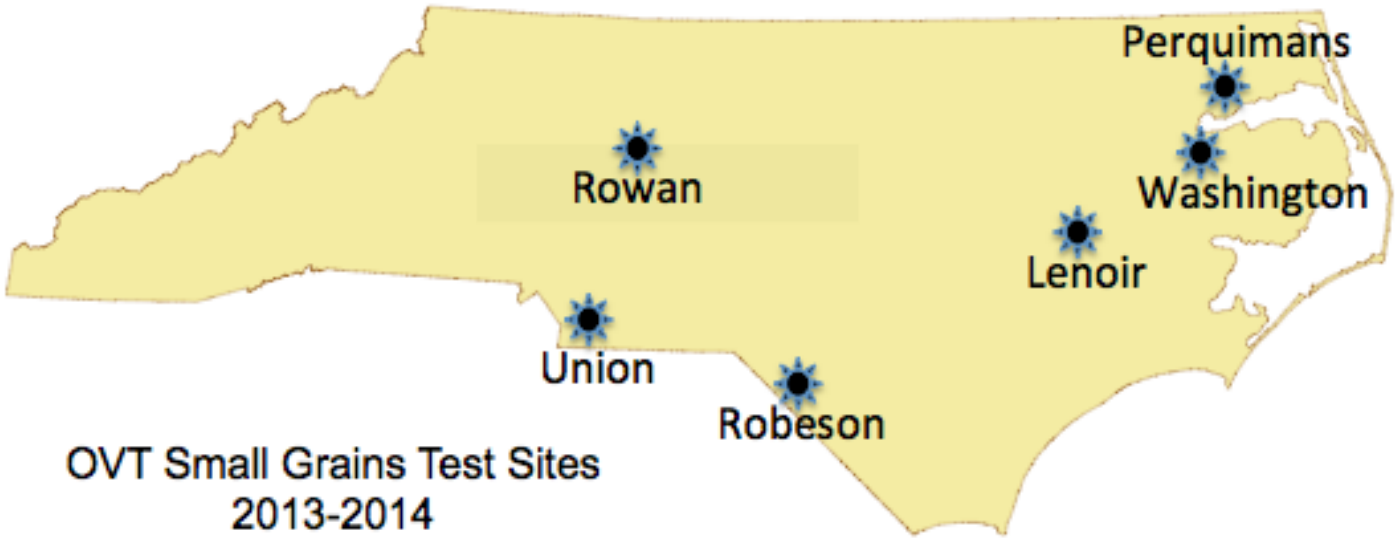

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INTRODUCTION

Across the state, North Carolina growers planted 35,000 acres of oats and 990,000 acres of wheat during the fall of 2013. With the large number of commercially available and prospective varieties of 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, in collaboration with the small grain specialists[1] at North Carolina State University, seeks to provide that information through this report.

During the 2013-14 season, the Official Variety Testing Program conducted small grain trials at six locations across the state. Performance information is presented here. Multiple-year performance data is presented for varieties entered in the previous year or two.

EXPERIMENTAL PROCEDURE

Entries: Commercial varieties and experimental lines developed by private and public agencies are included in these tests. Any individual or firm is welcome to submit entries to the Official Variety Testing Program. An entry fee is charged for all private entries. During the 2013-2014 growing season, 15 oat entries (8 commercial varieties and 7 experimental lines) and 91 wheat entries (54 commercial varieties and 37 experimental lines) were tested in North Carolina.

Applicants provided the seed to conduct the statewide trials. For the 2013-14 season, entries were requested to have a fungicidal seed treatment, but no insecticide. All seed treatments are listed by sponsor in Table 19.

Locations: Oat trials were conducted at three locations across the state, while wheat trials were conducted at six. Trials were located in the Piedmont, Coastal Plain and Tidewater regions of North Carolina, and were conducted on North Carolina Department of Agriculture Research Stations, as well as, private farms. A list of our cooperators, along with their location, is listed in the Acknowledgments.

Field Plot Design: A unique randomized, complete block design, with four or five replications per entry, was used at each location. Each plot consisted of eight rows, 7.5 inches apart, with 2.5 feet between adjoining plots. Plots were planted as 28 feet long, and end trimmed approximately 4 weeks after emergence, to establish a uniform plot length of 22 feet. Given the number of wheat entries, the commercial varieties and experimental lines were split into separate trials. Six commercial varieties were included as checks in the experimental trials. Both trials were planted in the same field at each location.

[1] Drs. Christina Cowger, Paul Murphy and Randy Weisz contributed wheat variety characteristics.

Crop Management: Cultural practices, such as seedbed preparation, date of planting, fertilization and topdressing were in accord with good farming practices and were uniform for all entries at a given location (Table 1). Prior to planting each test, soil samples were obtained from the test field and fertilizer and lime applications were made accordingly (Table 2). Seeding rate was 23 seed per row-foot. In order to provide pest resistance information (Table 6), the wheat trials were only sprayed for cereal leaf beetle, where necessary.

SEASONAL CONDITIONS

The 2013-2014 growing season began with on-time small grain plantings for the OVT program (Table 1). Weather data is provided at the end of the report. Precipitation and temperatures are provided on a weekly basis to provide detail of the 2013-2014 growing season (Figure 1-3a). This data is also presented on a monthly basis to place this season's weather in comparison to the 30-year weather data (Figures 1-3b and c).

The fall was characterized by average temperatures, while the winter months experienced average to below-average temperatures. Average temperatures and above-average rainfall were characteristic of the spring. The crop matured on schedule, and no spring freezes occurred. Hot, dry days permitted harvest to occur without delay.

DATA

Plant height: Average height of fully matured plants was measured from ground level to tip of wheat heads for all varieties at all locations. Values are reported as statewide averages.

Lodging: Ratings were recorded prior to plot harvest. These values are reported as statewide averages. Lodging data does not necessarily correlate to harvest yield, as harvest equipment can capture most of the lodged crop. Lodging ratings are recorded on a 1 – 5 scale, where:

1 = almost all tillers are erect
2 = less than 25% of tillers are lodged, or all plants have a slight lean (>60° from ground)
3 = 25 - 50% of tillers are lodged, or all plants have a moderate lean (45° from ground)
4 = 50 - 80% of tillers are lodged, or all plants have substantial lean (<45° from ground)
5 = almost all tillers are lodged

Heading date: Varieties head out at different times. This data can be useful when selecting varieties, both to extend the planting window and mitigate risk of spring freeze damage. Medium and late heading varieties perform best when planted at the start of season, while early heading varieties produce higher yields when planted later in the fall. Early heading varieties are most susceptible to yield loss if a late-spring freeze occurs, while late heading varieties are most likely to avoid damage. Heading date has minimal impact come harvest. Refer to the NC Small Grain Production Guide: http://www.smallgrains.ncsu.edu/production-guide.html for more information. Heading date, plant height, and lodging data are reported in Tables 3 and 6 for oats and wheat, respectively. Table 6 also lists insect and disease ratings for wheat varieties.

Yield: Commercial and experimental entries are reported in separate tables since they were planted in separate tests. Yields were adjusted to 13.5% moisture, and reported as bushels per acre based on 32 pounds per bushel for oats and 60 pounds per bushel for wheat. Additionally, all yield values reflect a 23.6% yield reduction to account for small plot border effects that have historically been determined in our field trials. Therefore, reported yields indicate relative performance and may differ from on-farm yields.

Yield is reported as a mean value on a statewide basis, averaging all location data, for current year and multiple year data (Tables 4, 7 and 8). In calculating statewide means, location means for each variety were weighted according to trial precision. The statewide means are therefore not simple averages of trial means. As statewide means are weighted, two and three-year means may not appear to equal the average of the yearly means. Mean yield is also reported for individual locations (Tables 9 – 18). Data are reported based on yield rank from highest to lowest. For multi-year data, varieties are ranked based on the two-year mean, which is a better predictor of varietal performance than single year or single location data.

Test Weight: This measures grain density as pounds per bushel, while taking grain moisture into account. This information is reported as statewide averages, as well as for individual locations.

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 environmental differences in soil, fertility, moisture, insects, diseases, and other sources of variation. Because this variability exists, statistics are used as a tool to examine differences among varieties. A statistical method of spatial analysis has been used to allow for similarities between neighboring plots based on their location in the field in order to adjust for the unknown environmental variation (Brownie et al., 1993). The particular spatial model allows for correlations that decrease exponentially as distance between plots increases in both row and column directions.

Coefficient of variation (**CV**) is a relative assessment of trial variability. It measures experimental error caused by variation in management practices and immeasurable factors in the environment as a percent of mean yield for the trial. Lower values generally indicate less variation, hence, a more reliable trial (though high mean yields also tend to produce lower CV).

The average standard error of the mean (**avg SEM**) is listed as a general indicator of trial precision since it measures how well a true variety mean was estimated. Lower values indicate greater trial precision. Avg SEM is calculated as the square root of the average variance of a variety mean. All reported trials meet an established criterion for precision by having an average value of the standard error of a difference between

variety means (avg SEDiff) below a threshold value. Avg SEDiff is calculated as the square root of the average variance of a difference between two variety means. Threshold SEDiff values are based on OVT data from 1990 - 2013, and are calculated as the value twice as large as that predicted from the historical data following Bowman and Rawlings (1995).

In assessing variety performance, the Variety **F-value** reflects the magnitude of variation due to differences between varieties. Specifically, the F value for the variety effect indicates the strength of real yield differences. The size of difference between two varieties, which may have been due to chance variation, is listed at the bottom of each table as the average least significant difference **(avg LSD)**. Varieties whose yields differ by less than the average LSD are not statistically different. Those varieties that are not different from the highest observed yield are denoted in the tables with an asterisk (*). The LSD for comparisons among variety means is applied at the 10% level, which indicates 90% confidence that yield differences are not due to chance variation. The degrees of freedom associated with the LSD (**df LSD**) are also reported in the tables.

Variety performance may appear inconsistent among locations within an area or among years at a particular location. Enough year-to-year variation in weather occurs to make single-year data less predictable than multiple-year data. Research has shown that multiple-year means across locations provide the best prediction of varietal performance. Thus it is important to examine results from more than one location and more than one year to obtain a more accurate picture of relative variety performance. Growers should closely examine 2- and 3-year statewide means (Tables 4, 7 and 8) provided in this report.

New varieties are being introduced each year and these varieties are potentially higher yielding than the current varieties. It is suggested that growers plant new varieties on a small number of acres to determine if it is adapted to their farm. Other agronomic characteristics may be as equally important as yield. All available data regarding agronomic and pathologic characteristics of the varieties are found in Tables 3 and 5 for oats and wheat, respectively. Yield and characteristic information presented in this report should be used in junction with other available information and personal experience when selecting varieties.

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 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 performance.

RESULTS AND DISCUSSION

Oats: Characteristics are reported in Table 3. Late season lodging was evident, however, it did not affect capturing the full harvest. Yield and test weight are presented as statewide and individual performance in Tables 4 and 5, respectively. Yields were average to below average, and test weights were above average.

Wheat: Characteristics are reported in Table 6 for both commercial varieties and experimental lines. Rowan and Union trials did not evidence Hessian fly or disease pressure. However, Lenoir, Robeson and Washington trials had a spring infestation of Hessian fly, which damaged tillers and reduced yield. Varietal resistance characteristics are reported in Table 6. The Lenoir county wheat trials were discarded due to poor precision. Statistical analysis indicated these trials produced a poor estimate of the true mean (see Comparing Varieties section for more detail).

Yield and test weight are presented as average statewide and multiple year performance in Tables 7 and 8, followed by performance at individual locations (Tables 9 – 18). Multi-year data across locations provide the best predictors of performance. Yields were good to below average, and test weights were average.

All information found in this report
is available on the web at:
http://www.ncovt.com

Table 1. Cultural practices for North Carolina small grain variety tests, 2014.

County	Fertilizer *Rate/Ac* *Grade*	Topdress *Rate/Ac* *%N*	Soil Type	Planting Date	Harvest Date
Lenoir	300 lbs 10-0-20	31 gal 30%	Goldsboro loamy sand	24-Oct	16-Jun
Perquimans	265 lbs 25-40-80	44 gal 24%S	Roanoke loam	28-Oct	19-Jun
Robeson	300 lbs 14-10-25	34 gal 24%S	Rains sandy loam	4-Nov	13-Jun
Rowan	300 lbs 10-20-20	200 lbs 34%	Davidson clay loam	23-Oct	17-Jun
Union	4 tons turkey litter	20 gal 28%	Badin silt loam	6-Nov	11-Jun
Washington	10 gal 30%	35 gal% 30%	Portsmouth fine sandy loam	29-Oct	18-Jun

Table 2. Soil test results for small grain variety test sites in North Carolina, 2014.

County	HM %	W-V	CEC	BS %	Ac	pH	P-I	K-I	Ca %	Mg %	Mn-I	Zn-I	Cu-I
Lenoir	2.52	1.19	8.2	80	1.6	5.8	337	79	60	19	64	425	68
Perquimans	0.32	1.04	6.3	81	1.2	5.7	53	50	53	24	198	81	167
Robeson	0.41	1.27	9.5	98	0.2	7.0	165	68	70	25	109	474	160
Rowan	0.32	0.99	7.4	79	1.5	5.8	59	31	52	25	716	63	160
Union	0.36	0.83	18.2	96	0.7	6.6	498	197	69	21	199	1395	1641
Washington	4.56	0.93	10.1	75	2.6	5.4	66	93	51	20	31	47	40

Table 3. Characteristics of oat varieties across North Carolina performance trials, 2012-2014.

Brand/Variety or Variety	Plant Height (in) 3-yr	2-yr	1-yr	Lodging Rating1 1-yr	Heading Date 1-yr
Brooks	–	–	46.3	4.7	20-Apr
Gerard 224	41.8	41.8	40.7	3.1	19-Apr
Gerard 229	39.8	39.8	39.3	3.8	29-Apr
Horizon 201	–	–	48.3	3.0	19-Apr
Horizon 270	–	–	42.0	3.0	19-Apr
Horizon 306	–	–	42.0	3.6	27-Apr
+NC09-4274N	–	–	46.0	2.8	19-Apr
+NC09-4503N	–	46.8	46.7	4.1	18-Apr
+NC10-5051v	–	44.2	42.3	4.2	24-Apr
+NC10-5069y	–	40.8	39.3	3.9	27-Apr
+NC11-1651y	–	–	41.5	1.6	21-Apr
+NC11-1796v	–	–	44.7	1.9	28-Apr
+NC11-1798y	–	–	47.0	3.1	28-Apr
Rodgers	47.4	47.4	46.3	3.9	21-Apr
Southern States SS 76-50	42.6	42.6	42.0	3.6	26-Apr

[1] Rating scale = 1 - 5, see text for descriptions. Data for 2 and 3 year averages are not available due to a change in protocol.

TABLE 4. Statewide performance summary of oat varieties across North Carolina, 2012-2014.

Brand/Variety or Variety	2014 One Year Mean Yield bu/a		Yield Rank	Test Wt. lb/bu	2013-2014 Two Year Mean Yield bu/a		Yield Rank	Test Wt. lb/bu	2012-2014 Three Year Mean Yield bu/a		Yield Rank	Test Wt. lb/bu
Southern States 76-50	122.5	**	1	38.5	122.3	**	1	38.0	116.1	*	2	36.5
Gerard 229	113.2	*	5	37.9	119.4	*	2	37.7	113.0	*	3	35.4
Gerard 224	114.1	*	4	38.8	118.4	*	3	38.3	121.8	**	1	36.8
Rodgers	116.3	*	3	38.5	113.8	*	4	37.5	107.9		4	36.5
+NC10-5069y	109.8	*	7	39.3	103.0		5	39.2	–		–	–
+NC10-5051v	105.0	*	9	40.0	93.9		6	39.4	–		–	–
+NC09-4503N	79.4		14	44.7	80.6		7	39.6	–		–	–
+NC11-1798y	120.1	*	2	40.1	–		–	–	–		–	–
+NC11-1796v	110.2	*	6	38.9	–		–	–	–		–	–
Horizon 201	108.4	*	8	36.3	–		–	–	–		–	–
Horizon 306	101.3		10	39.4	–		–	–	–		–	–
Brooks	96.9		11	39.1	–		–	–	–		–	–
Horizon 270	95.1		12	36.7	–		–	–	–		–	–
+NC09-4274N	86.8		13	44.4	–		–	–	–		–	–
+NC11-1651y	40.9		15	38.3	–		–	–	–		–	–
MEAN	**101.3**			**39.4**	**107.4**			**44.0**	**114.7**			**36.3**
LSD (p=0.10)	18.2			2.0	13.0			0.9	10.5			1.3
df LSD	28			28	24			24	18			18
SEM	7.6			0.8	5.4			0.4	4.4			0.5

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

Table 5. Performance of oat varieties in North Carolina, 2014.

Table 5a. Lenoir County, NC

Brand Variety or Variety	Yield bu/a		Test Wt lb/bu
Gerard 224	111.7	**	39.1
+NC10-5069y	104.1	*	38.8
Southern States 76-50	103.6	*	38.1
Horizon 201	97.7	*	36.9
Rodgers	95.5		38.3
+NC11-1798y	95.1		40.0
+NC10-5051v	91.0		40.1
Gerard 229	87.6		36.7
+NC11-1796v	85.9		38.7
Brooks	85.4		36.5
+NC11-1651y	72.6		38.5
Horizon 306	71.1		39.2
+NC09-4274N	70.2		44.3
Horizon 270	69.9		37.1
+NC09-4503N	68.1		46.0
MEAN	**87.3**		**39.2**
Variety F-value	5.4		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	15.3		
df LSD	43		
avg SEM	7.2		
CV (%)	16.4		

Table 5b. Rowan County, NC

Brand Variety or Variety	Yield bu/a		Test Wt lb/bu
Southern States 76-50	135.8	**	38.9
+NC11-1796v	131.0	*	39.0
+NC11-1798y	128.3	*	39.7
Gerard 224	124.6	*	39.6
+NC10-5069y	121.3		40.1
Gerard 229	114.3		38.8
Horizon 270	112.6		37.2
Rodgers	112.0		39.1
Brooks	111.0		40.7
+NC10-5051v	110.9		40.7
Horizon 306	107.0		39.5
Horizon 201	102.5		36.3
+NC09-4274N	93.3		45.8
+NC09-4503N	81.7		43.4
+NC11-1651y	45.3		34.3
MEAN	**108.8**		**39.5**
Variety F-value	15.9		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	13.4		
df LSD	58		
avg SEM	6.8		
CV (%)	14.0		

Table 5c. Washington County, NC

Brand Variety or Variety	Yield bu/a		Test Wt lb/bu
Rodgers	134.4	**	38.0
+NC11-1798y	132.7	*	40.5
Gerard 229	130.7	*	38.1
Southern States 76-50	128.2	*	38.4
Horizon 201	121.6		35.6
Horizon 306	118.4		39.5
+NC11-1796v	114.1		39.1
+NC10-5051v	112.6		39.2
Gerard 224	112.0		37.6
+NC10-5069y	109.0		39.0
Horizon 270	101.8		35.7
Brooks	97.8		40.1
+NC09-4274N	95.4		43.0
+NC09-4503N	87.7		44.8
+NC11-1651y	22.7		42.0
MEAN	**107.9**		**39.4**
Variety F-value	35.6		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	11.4		
df LSD	57		
avg SEM	5.5		
CV (%)	11.4		

+ Experimental

**Highest yielder

* Not significantly different from highest yielder

Table 6. Characteristics of wheat varieties across North Carolina performance trials, 2012-2014

	Plant Ht –– in ––			Lodging Rating[1]		Pest Resistance To[3]									
Commercial Wheat Variety	3-yr Avg	2-yr Avg	1-yr Avg	1-yr Avg	Heading Date[2]	Powdery Mildew[4]	Leaf Rust	SNB[5]	Tan Spot	Stripe Rust	Head Scab[6]	Soilborne Wheat Mosaic	Wheat Spindle Streak	Barley Yellow Dwarf	Hessian Fly[7] Biotype-L
AgriMAXX 413	34.7	34.9	32.4	1.1	L	MS	MS		MR		MR/MS	MR	MR		P
AgriMAXX 415	35.2	35.3	34.8	1.2	L	MS	MR		MR		MR	MR	MR		F
AgriMAXX 427	36.3	36.6	35.8	1.2	L	MR	S		MS		MR	MR	MS		P
AgriMAXX 434	–	35.2	33.8	1.3	L	S	S		MR		MR/MS	MR	MR		G
AgriMAXX 438	–	37.8	37.0	1.6	L		S		S			MR	MR		F
AgriMAXX 447	–	–	37.4	1.0	L	MS					MS	R			G
AGS 2026	35.3	34.9	35.2	1.2	E	MS	R	S	MS	R	MS	MS	S	MR	E
AGS 2035	39.3	39.0	39.0	1.2	E	MS	R	MS	MS	MR	MS	S	MS	MR	G
AGS 2038	40.3	40.7	39.8	1.0	L	MS	R		MR		S	MR	MS		G
Beck's 113	36.3	36.4	35.4	1.0	L	R	MS		MS		MR/MS	MR	MR		G
Beck's 120	–	34.4	34.0	1.0	M	MR	MR		MR		MR/MS	MR	R		G
Beck's 129	–	–	38.0	1.3	L	S					MS	MR			G
Beck's 135	38.0	38.0	37.2	1.2	L	MS	MR		MR		MS	MR	MR		G
Dyna-Gro 9012	35.2	35.8	34.4	1.2	L	MS	MR	S	MS		MR	MS	MS	MR	G
Dyna-Gro 9223	37.3	37.7	36.6	1.4	L	S	S		S		MR	MR	MR		P
Dyna-Gro Shirley	35.0	35.2	33.6	1.1	L	R	MR	S	MR	S	MS	MR	MR	MR	P
Dyna-Gro Yorktown	35.3	35.3	35.0	1.0	M	MR	R		MS		MR/MS	MR	MS	S	G
Featherstone 73	–	–	35.2	1.1	L	R					MS	MS			G
Featherstone VA-258	–	–	37.6	1.2	M	MR	R	MR	S		MS	MR	MR	S	P
Jamestown	33.5	33.1	33.0	1.0	E	R	R	MS	S	MR	MR	MR	S	MR	F
L-Brand 343	–	–	32.8	1.1	M	R					S	MR			P
Merl	34.6	34.4	32.8	1.2	L	R	MR	MS	MS		S	MR	MR	S	P
NC Cape Fear	35.9	35.6	34.2	1.2	E	R	MS	MR	MS	S	MR/MS	MS	MS	MR	F
NC Yadkin	36.1	36.2	33.6	1.2	L	MR	MR	MS	S	MS	MR	MR	R	MS	P
Oakes	36.8	37.0	35.4	1.2	M	S	MS	MR	MS		MR	S	MS	MS	P
Pioneer 25R32	37.5	37.8	36.6	1.0	L	MS	MS	MR	MR		MR	MR	R	MS	G
Pioneer 26R10	36.2	36.4	35.2	1.0	L	S	MS		MR		MS	R	R	MS	E
Pioneer 26R12	36.8	36.8	35.8	1.0	L	MS	S	MS	S	MS	S	MR	MR	MR	G
Pioneer 26R20	37.7	38.4	37.6	1.0	L	MS	MR	MS	MR		S	MR	MR	S	G
Pioneer 26R41	35.1	35.0	34.4	1.0	L	MR	MR		MR		S	MR	MR	MS	E
Pioneer 26R53	33.3	33.4	32.6	1.0	L	MS	MS		MS		MR/MS[3]	MR	MR	MS	F
Progeny 117	38.4	38.4	38.2	1.5	M	S	S	S	S		MR	S	MS	MS	P
Progeny 125	34.0	33.3	32.6	1.0	E	S	MS	S	S		MR	R	MS	MR	F
Progeny 185	40.7	40.7	39.2	1.2	L	S	MS	MR	MS	S	MS	MR	MR	MS	G
Progeny 357	34.3	34.6	34.0	1.3	L	S	S		MR		MS	R	R	MR	F
Progeny 870	34.1	34.2	34.0	1.2	L	MS	MS		MR		MS	MR	MR	MR	P
Roane	–	–	33.6	1.1	L	MS					MR	R			
SS 8340	35.0	34.8	33.4	1.1	L	MS	MS	MR	MS		MR	MR	MR	MS	P
SS 8404	33.4	33.4	32.6	1.0	M	MS	R	MS	MS	S	S	MS	MS	MR	F
SS 8412	–	–	34.0	1.0	M		R		S			MR	MR		G
SS 8500	39.8	40.4	39.4	1.2	L	MS	MR	MS	S		S	MR	MR	MR	F
SS 8870	–	–	38.0	1.3	L	R					MR	MR			P
SY 9978	40.7	41.3	39.4	1.2	L		MS	S	MS			MR	MR	MR	E
SY Harrison	35.0	35.7	34.4	1.1	L		S		MR			R	MR	MR	P
USG 3013	–	–	36.6	1.5	L	S					MR	MR			F
USG 3120	38.9	38.6	39.0	1.0	E	MR	R	MR	S		MS	MS	S	MR	G
USG 3201	35.8	35.8	34.8	1.2	L	MS	MR	MS	MS		MR/MS	MR	MR	MR	F
USG 3251	–	38.0	36.0	1.2	L	MR	MS		MR		MS	MR	MR		F
USG 3404	–	36.2	35.8	1.2	L	MS	MS		MR		MR	MR	R		E
USG 3438	34.5	34.8	33.4	1.2	L	MS	MR	MR	MR		MS	MR	R	MR	P
USG 3523	–	36.6	35.4	1.1	L	MS	S		MR		MR	R	MR		G
USG 3612	–	38.7	37.4	1.1	L	MS					MS	MR			F
USG 3833	–	–	37.2	1.0	L	MS					MR	R			G
USG 3993	–	40.4	39.8	1.4	L	MS	MR		MR		MR	MR	MR		F

Table 6 (cont'd). Characteristics of wheat varieties across North Carolina performance trials, 2012-2014

	Plant Ht –– in ––		Lodging rating[1]		Pest Resistance To[3]									
Experimental Wheat Variety	2-yr Avg	1-yr Avg	1-yr Avg	Heading Date[2]	Powdery Mildew[4]	Leaf Rust	SNB[5]	Tan Spot	Stripe Rust	Head Scab[6]	Soilborne Wheat Mosaic	Wheat Spindle Streak	Barley Yellow Dwarf	Hessian Fly[7] Biotype-L
AgriMAXX 444	–	36.8	1.1	L	MS	R		MR		MR		R		P
AgriMAXX Exp1450	–	36.8	1.0	L	MR					MS				F
AgriMAXX 446	–	37.0	1.0	L	MS					MS				E
AGS 2027	33.0	32.6	1.0	M	S	R		MS		S				G
ARS07-1214	–	34.6	1.0	L	R					S				P
ARS09-155	–	31.8	1.2	L	MR					MR				P
ARS09-367	–	33.2	1.1	L	R					S				P
ARS09-750	–	34.8	1.0	E	MS					MR				P
ARS10-211	–	35.6	1.0	L	MR					MR				G
ARS10-389	–	36.8	1.3	E	R					MR				P
Dyna-Gro WX13622	–	35.8	1.1	L	MS					MR				P
Dyna-Gro WX13652	–	35.2	1.0	L	MS					MS				E
GA-041052-11E51	–	34.2	1.4	E	R					MS				G
GA-041293-11E54	–	36.2	1.0	M	MR					S				F
GA-041293-11LE37	–	34.2	1.2	E	R					S				F
GA-04434-11E44	–	33.4	1.0	L	R					S				P
MD04W 249-11-7	–	38.2	1.3	L	R					MR				E
NC08-140(Bdv2)	37.1	36.0	1.4	M		R		S						P
NC08-21273	–	32.8	1.2	M		MR		MS				MR	MS	P
NC09-20765	33.4	33.2	1.1	L	R	MR		MR		S				F
NC09-20768	34.3	33.4	1.2	L		R		MR						P
NC09-20986	–	37.4	1.2	M	MR					MR				E
NC09-22402	34.1	33.0	1.1	L	MR	R		MR		MS				P
NC10-23663	–	37.0	1.5											P
NC10-23720	–	36.2	1.3	M	MR					MR/MS				G
NC8170-4-3	–	37.8	1.5	L	MR					MR				F
NC8932-12	–	36.0	1.3	L	MR									F
Progeny PGX 13-1	–	38.2	1.0	L	S					MS				F
Progeny PGX 13-2	–	31.0	1.0	L	S					MS				P
SS 8360	–	35.0	1.0	L	S									E
SS 8415	36.6	37.2	1.0											E
SX 101	–	33.6	1.1	E	R					MR				F
SX 102	–	38.4	1.2	M	MS					MR				P
SX 103	–	34.0	1.0	M	MR					MR				F
VA08MAS-369	–	34.2	1.1	L	MS					MS				P
VA10W-119	38.3	38.6	1.3	M	MS	MR		MS		MS				E
VA10W-21	–	34.6	1.0	L	MS					MR				P

[1] Rating scale = 1 - 5, see text for descriptions. Data for 2 and 3 year averages are not available due to a change in protocol.

[2] E, M and L stand for Early, Medium and Late, respectively.

[3] Based on all available information. Contributors include: Drs. Christina Cowger, Paul Murphy, and Randy Weisz

[4] S, MS, MR, and R stand for Susceptible, Moderately Susceptible, Moderately Resistant and Resistant, respectively

[5] SNB stands for Stagonospora nodorum blotch

[6] MR/MS indicates this variety is intermediate in resistance between these two ratings.

[7] P, F, G and E stand for Poor, Fair, Good and Excellent, respectively.

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TABLE 7. Statewide performance summary of winter wheat varieties across North Carolina, 2012-2014.

Brand/Variety or Variety	2014 One Year Mean			2013-2014 Two Year Mean			2012-2014 Three Year Mean		
	Yield	**Yield**	**Test Wt.**	**Yield**	**Yield**	**Test Wt.**	**Yield**	**Yield**	**Test Wt.**
	bu/a	*Rank*	*lb/bu*	*bu/a*	*Rank*	*lb/bu*	*bu/a*	*Rank*	*lb/bu*
Pioneer 26R41	67.6 *	1	57.4	75.0 **	1	56.5	74.9 **	1	55.0
Pioneer 26R10	67.6 **	1	57.2	74.1 *	2	57.0	72.7 *	3	56.3
UniSouth Genetics USG 3404	64.4 *	4	56.5	72.6 *	3	56.1	–	–	–
Pioneer 26R20	66.0 *	2	58.3	71.8 *	4	57.8	71.6 *	5	56.6
Dyna-Gro Shirley	62.0 *	7	56.0	71.3 *	5	56.1	73.4 *	2	55.6
AgriMAXX 415	60.0	14	58.3	70.3	6	57.8	70.5	9	56.8
Beck's 113	60.4	13	57.2	69.7	7	57.5	70.6	8	56.2
Beck's 135	62.0 *	7	57.3	69.7	7	57.3	70.8	7	56.4
UniSouth Genetics USG 3523	60.0	14	56.9	69.5	8	56.6	–	–	–
Pioneer 26R53	60.6	12	56.7	69.2	9	56.4	70.2	10	56.0
AgriMAXX 434	60.4	13	55.7	68.3	10	55.7	–	–	–
UniSouth Genetics USG 3120	62.1 *	6	57.7	68.2	11	57.1	71.5 *	6	57.2
UniSouth Genetics USG 3201	59.3	17	57.7	68.2	11	57.8	68.9	11	56.2
Featherstone VA258	61.3	11	56.7	68.1	12	56.3	71.7 *	4	56.1
UniSouth Genetics USG 3251	58.5	18	57.0	68.1	12	56.3	–	–	–
UniSouth Genetics USG 3993	59.4	16	57.7	67.7	13	57.5	–	–	–
Southern States SS 8500	57.8	22	57.2	67.7	13	57.0	68.3	13	56.6
Southern States SS 8340	55.7	29	56.9	67.5	14	57.0	68.8	12	56.2
Southern States SS 8404	58.3	19	58.3	67.2	15	57.4	68.9	11	56.8
SY 9978	61.8 *	9	55.8	67.2	15	55.9	66.1	24	55.1
AgriMAXX 413	59.6	15	56.0	67.0	16	56.1	67.2	17	55.2
UniSouth Genetics USG 3438	57.9	21	56.4	67.0	16	56.4	67.4	15	55.6
AGSouth Genetics AGS 2035	61.8 *	9	58.0	66.5	17	57.4	68.9	11	57.1
Dyna-Gro 9012	56.4	27	57.4	66.5	17	57.3	67.3	16	56.1
Pioneer 26R12	61.6	10	58.0	66.5	17	57.1	66.5	21	56.0
Beck's 120	57.9	21	56.1	66.2	18	55.6	–	–	–
Progeny 185	55.6	30	57.1	65.7	19	56.9	66.7	19	55.3
AgriMAXX 438	57.5	23	56.2	65.7	19	56.2	–	–	–
Progeny 870	57.0	25	56.3	65.4	20	56.1	65.7	25	55.2
SY Harrison	55.2	31	56.4	65.2	21	55.9	66.1	24	54.6
Oakes	54.0	36	58.2	64.9	22	58.1	68.0	14	58.1
AgriMAXX 427	54.7	33	55.7	64.9	22	55.3	67.1	18	54.7
Dyna-Gro 9223	54.4	34	56.5	64.8	23	55.7	66.4	22	55.2
AGSouth Genetics AGS 2038	60.0	14	58.2	64.4	24	57.8	66.6	20	56.6
UniSouth Genetics USG 3612	53.7	37	55.8	63.5	25	54.9	–	–	–
Pioneer 25R32	58.0	20	57.6	63.3	26	56.8	61.8	31	56.4
NC Yadkin	51.4	41	57.0	62.3	27	57.1	66.2	23	56.0
Dyna-Gro Yorktown	55.9	28	56.9	61.6	28	56.6	64.6	26	56.0
Progeny 125	55.0	32	55.6	61.2	29	55.6	63.8	28	54.7
Progeny 357	51.5	40	54.8	60.4	30	54.5	61.1	33	53.8
AGSouth Genetics AGS 2026	54.3	35	56.4	60.2	31	55.3	64.2	27	54.5
Progeny 117	51.8	39	56.2	60.1	32	56.1	63.2	30	55.3
NC Cape Fear	49.1	44	57.1	59.1	33	56.5	63.3	29	56.3
Merl	49.5	43	57.7	59.0	34	57.0	61.3	32	56.6
Jamestown	50.5	42	57.0	58.7	35	56.8	60.7	34	56.8
UniSouth Genetics USG 3833	65.9 *	3	56.8	–	–	–	–	–	–
AgriMAXX 447	62.6 *	5	56.0	–	–	–	–	–	–
Beck's 129	61.9 *	8	56.8	–	–	–	–	–	–
UniSouth Genetics USG 3013	57.2	24	56.6	–	–	–	–	–	–
Southern States SS 8412	57.2	24	57.8	–	–	–	–	–	–
Featherstone 73	56.8	26	56.8	–	–	–	–	–	–
Southern States SS 8870	53.6	38	56.4	–	–	–	–	–	–
L-Brand 343	51.4	41	57.4	–	–	–	–	–	–
Roane	45.5	45	58.0	–	–	–	–	–	–
MEAN	**57.8**		**56.9**	**66.3**		**56.6**	**67.4**		**55.9**
LSD (p=0.10)	5.9		1.1	4.3		0.9	3.8		1.3
df LSD	212		211	352		352	396		396
SEM	2.5		0.5	1.8		0.4	1.6		0.5

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

One year = 5 environments Two year = 9 environments Three year = 12 environments

TABLE 8. Statewide performance summary of winter wheat experimental lines across North Carolina, 2013-2014.

Brand/Variety or Variety	2014 One Year Mean Yield bu/a		2014 One Year Mean Yield Rank	2014 One Year Mean Test Wt. lb/bu	2013-2014 Two Year Mean Yield bu/a		2013-2014 Two Year Mean Yield Rank	2013-2014 Two Year Mean Test Wt. lb/bu
Southern States SS 8360	73.9	**	1	57.6	–		–	–
AgriMAXX 446	68.3	*	2	57.7	–		–	–
Dyna-Gro WX13652	67.3		3	57.7	–		–	–
AgriMAXX 444	67.1		4	57.3	–		–	–
‡UniSouth Genetics USG 3120	64.9		5	58.0	66.7	*	3	57.5
MD04W 249-11-7	64.8		6	57.5	–		–	–
GA-041052-11E51	64.7		7	56.4	–		–	–
Dyna-Gro WX13622	64.1		8	57.2	–		–	–
Progeny PGX 13-1	63.8		9	57.6	–		–	–
‡Pioneer 26R53	63.5		10	57.9	68.9	*	2	57.3
‡Dyna-Gro Shirley	63.0		11	57.3	69.8	**	1	56.7
NC8932-12	62.9		12	58.0	–		–	–
SX 102	62.9		12	58.4	–		–	–
NC10-23720	62.5		13	59.4	–		–	–
VA08MAS-369	62.3		14	58.4	–		–	–
VA 10W-119	62.2		15	57.1	66.0		4	56.7
AgriMAXX Exp1450	61.9		16	56.6	–		–	–
Southern States SS 8415	61.8		17	57.1	65.2		6	56.4
NC08-140	61.5		18	57.8	66.0	*	4	56.9
GA-041293-11E54	61.4		19	58.4	–		–	–
‡Oakes	61.3		20	59.0	65.9	*	5	58.1
NC09-20765	61.0		21	57.3	65.0		7	57
GA-041293-11LE37	60.7		22	58.0	–		–	–
GA-04434011E44	59.9		23	58.5	–		–	–
AGSouth Genetics AGS 2027	59.6		24	55.8	62.5		8	54.6
NC10-23663	59.1		25	58.0	–		–	–
VA10W-21	58.9		26	58.0	–		–	–
NC8170-4-3	58.3		27	58.9	–		–	–
ARS09-155	57.6		28	57.8	–		–	–
‡Southern States SS 8404	57.5		29	58.5	62.3		9	57.9
NC09-20768	56.9		30	57.0	61.3		10	56.2
Progeny PGX 13-2	56.7		31	57.3	–		–	–
‡NC Cape Fear	56.5		32	57.5	59.2		12	56.9
SX 103	56.3		33	56.3	–		–	–
NC08-21273	56.1		34	58.6	–		–	–
SX 101	55.9		35	58.0	–		–	–
NC09-22402	55.5		36	58.1	61.2		11	57.3
ARS10-211	54.9		37	58.0	–		–	–
NC09-20986	53.6		38	58.3	–		–	–
ARS09-750	51.5		39	59.5	–		–	–
ARS09-367	50.1		40	58.3	–		–	–
ARS07-1214	49.0		41	59.6	–		–	–
ARS10-389	48.6		42	57.8	–		–	–
MEAN	**60.0**			**57.8**	**64.7**			**56.9**
LSD (p=0.10)	5.7			1.2	4.3			1.2
df LSD	168			168	72			72
SEM	2.4			0.5	1.8			0.5

‡ Check variety

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

One year = 5 environments Two year = 7 environments

Table 9. Performance of winter wheat varieties - Perquimans County, 2014.

Brand Variety or Variety	Yield *bu/a*		Test Wt *lb/bu*
Pioneer 26R41	62.9	**	57.2
Beck's 129	59.0	*	56.6
Pioneer 26R20	58.8	*	56.5
UniSouth Genetics USG 3523	58.0	*	56.4
AgriMAXX 438	57.9	*	57.0
UniSouth Genetics USG 3251	57.5		56.4
UniSouth Genetics USG 3013	57.4		55.7
SY Harrison	57.3		55.8
Pioneer 26R10	57.1		56.6
AgriMAXX 413	56.9		55.4
UniSouth Genetics USG 3438	56.8		55.2
Beck's 135	56.4		56.4
UniSouth Genetics USG 3404	56.1		56.9
AgriMAXX 415	56.0		57.6
Dyna-Gro Shirley	55.3		56.2
UniSouth Genetics USG 3993	55.2		58.7
AgriMAXX 447	55.2		57.3
UniSouth Genetics USG 3201	55.1		56.7
Dyna-Gro 9012	54.9		57.2
Featherstone VA258	54.7		56.7
Progeny 870	54.6		55.6
Dyna-Gro 9223	53.9		56.1
Beck's 120	53.9		55.7
Southern States SS 8340	52.8		57.1
Southern States SS 8404	52.2		56.1
Pioneer 26R53	51.8		57.3
AgriMAXX 434	51.8		55.7
UniSouth Genetics USG 3120	51.7		55.8
UniSouth Genetics USG 3612	51.4		55.7
Southern States SS8870	51.4		57.5
UniSouth Genetics USG 3833	51.3		56.2
Pioneer 26R12	51.0		57.1
SY 9978	50.4		56.3
Beck's 113	50.3		56.6
Pioneer 25R32	50.3		57.0
AGSouth Genetics AGS 2038	50.2		56.5
AgriMAXX 427	50.0		56.4
NC Yadkin	49.9		56.7
Progeny 185	49.4		56.8
Progeny 357	48.8		55.3
Oakes	48.8		58.2
AGSouth Genetics AGS 2035	48.5		56.5
Southern States SS 8500	48.3		57.3
L-Brand 343	48.2		55.6
Progeny 117	47.5		55.5
Featherstone 73	47.5		56.5
Southern States SS 8412	47.1		56.4
NC Cape Fear	46.5		56.3
Roane	46.3		58.7
Progeny 125	44.8		53.9
Merl	42.7		56.7
AGSouth Genetics AGS 2026	41.6		55.1
Dyna-Gro Yorktown	41.0		55.7
Jamestown	36.5		57.6
MEAN	**51.9**		**56.5**
CV (%)	12.4		
avg SEM	2.9		
Variety F-value	5.6		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	5.4		
df LSD	214		

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

Table 10. Performance of winter wheat experimental lines - Perquimans County, 2014.

Brand Variety or Variety	Yield *bu/a*		Test Wt *lb/bu*
Southern States SS 8360	74.2	**	57.7
AgriMAXX 446	74.0	*	57.9
Progeny PGX 13-1	73.9	*	58.9
SX 102	73.3	*	58.4
VA08MAS-369	71.6	*	58.9
Dyna-Gro WX13622	70.2	*	58.2
AgriMAXX 444	69.6	*	57.5
‡Pioneer 26R53	69.4	*	58.8
Dyna-Gro WX13652	67.7		58.1
AgriMAXX Exp1450	66.9		57.8
Southern States SS 8415	66.3		56.8
‡Oakes	65.0		58.7
NC8932-12	64.9		57.7
‡Dyna-Gro Shirley	64.4		57.5
Progeny PGX 13-2	64.1		56.9
NC09-22402	63.6		58.1
NC8170-4-3	63.4		58.4
‡Southern States SS 8404	62.4		57.9
SX 101	61.6		57.4
GA-041293-11E54	61.4		57.1
MD04W 249-11-7	61.1		58.4
GA-04434011E44	60.8		58.0
NC09-20765	60.6		57.1
ARS09-155	59.3		57.3
VA10W-21	59.2		58.0
NC10-23663	59.2		58.1
NC08-21273	59.1		59.0
AGSouth Genetics AGS 2027	58.4		55.7
SX 103	57.5		55.6
‡NC Cape Fear	57.5		57.6
ARS10-389	57.1		56.6
‡UniSouth Genetics USG 3120	57.0		57.1
NC09-20768	56.8		57.9
NC08-140	55.9		57.5
VA 10W-119	55.8		56.4
ARS07-1214	55.7		58.8
GA-041052-11E51	55.4		56.6
ARS10-211	54.3		57.8
ARS09-750	53.5		57.9
ARS09-367	53.0		58.1
NC10-23720	52.8		57.6
NC09-20986	52.2		57.7
GA-041293-11LE37	49.8		56.8
MEAN	**61.6**		**57.7**
CV (%)	12.4		
avg SEM	3.4		
Variety F-value	7.1		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	6.3		
df LSD	170		

‡Check variety

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

Table 11. Performance of winter wheat varieties - Robeson County, 2014.

Brand Variety or Variety	Yield *bu/a*		Test Wt *lb/bu*
Pioneer 26R41	53.1	**	56.0
Pioneer 26R20	51.3	*	58.1
SY 9978	51.1	*	55.9
UniSouth Genetics USG 3120	50.6	*	58.0
Pioneer 26R10	49.9	*	56.3
AGSouth Genetics AGS 2026	49.2	*	56.9
UniSouth Genetics USG 3523	48.3	*	57.1
Pioneer 26R12	48.1	*	57.7
Dyna-Gro Shirley	47.5	*	55.8
Featherstone VA258	47.4	*	55.6
UniSouth Genetics USG 3833	46.7		55.1
Beck's 113	46.3		55.9
AgriMAXX 434	46.2		55.4
Progeny 125	45.8		56.0
UniSouth Genetics USG 3404	45.8		55.9
UniSouth Genetics USG 3201	45.6		57.4
Southern States SS 8500	45.6		57.0
L-Brand 343	45.3		57.9
AGSouth Genetics AGS 2035	45.1		57.6
Beck's 129	45.0		55.3
Southern States SS 8412	45.0		57.8
AgriMAXX 413	44.8		54.9
UniSouth Genetics USG 3993	44.7		54.4
Pioneer 26R53	44.6		57.4
Oakes	44.3		57.6
Progeny 870	43.6		56.0
AGSouth Genetics AGS 2038	43.5		57.3
Dyna-Gro Yorktown	43.2		56.6
UniSouth Genetics USG 3251	43.1		56.0
SY Harrison	42.9		55.3
AgriMAXX 415	42.7		57.0
Southern States SS 8404	42.6		58.5
AgriMAXX 447	41.9		54.4
Dyna-Gro 9012	41.4		57.1
UniSouth Genetics USG 3438	41.3		55.3
Jamestown	41.3		57.0
Southern States SS 8340	40.9		57.3
Beck's 135	40.6		55.7
Progeny 185	40.5		56.1
Pioneer 25R32	40.3		55.7
Featherstone 73	40.0		57.0
Dyna-Gro 9223	39.7		55.7
NC Cape Fear	39.6		57.3
Progeny 357	39.3		53.8
Merl	38.8		57.3
AgriMAXX 438	38.2		55.2
UniSouth Genetics USG 3013	37.8		55.0
Beck's 120	37.3		55.9
AgriMAXX 427	36.8		55.6
UniSouth Genetics USG 3612	36.7		54.8
Roane	35.9		57.3
Southern States SS 8870	35.5		57.2
NC Yadkin	34.9		56.5
Progeny 117	32.4		55.7
MEAN	**43.2**		**56.3**
CV (%)	15.1		
avg SEM	2.9		
Variety F-value	3.6		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	5.8		
df LSD	213		

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

Table 12. Performance of winter wheat experimental lines - Robeson County, 2014.

Brand Variety or Variety	Yield *bu/a*		Test Wt *lb/bu*
MD04W 249-11-7	56.9	**	57.9
NC10-23663	56.7	*	57.6
GA-041052-11E51	56.7	*	57.3
Southern States SS 8360	56.1	*	56.9
NC10-23720	55.9	*	59.2
NC08-140	55.7	*	57.4
GA-041293-11LE37	55.4	*	59.4
VA10W-21	52.9	*	57.8
‡Dyna-Gro Shirley	52.1	*	57.0
VA 10W-119	51.5	*	59.0
Dyna-Gro WX13652	51.5	*	57.2
‡UniSouth Genetics USG 3120	51.3	*	58.7
NC09-20765	51.0		58.2
Southern States SS 8415	50.4		56.9
AgriMAXX 444	50.3		57.4
GA-041293-11E54	49.3		58.2
SX 102	49.1		58.1
AgriMAXX 446	48.7		57.6
NC8170-4-3	47.8		58.7
NC09-20768	47.7		57.6
NC8932-12	47.7		58.1
SX 103	47.2		56.4
‡NC Cape Fear	46.9		58.3
‡Oakes	46.8		58.2
AGSouth Genetics AGS 2027	46.6		55.9
Dyna-Gro WX13622	46.6		56.4
GA-04434011E44	46.3		57.5
NC08-21273	45.3		57.1
‡Pioneer 26R53	45.1		57.9
Progeny PGX 13-1	44.8		55.9
Progeny PGX 13-2	44.0		56.8
VA08MAS-369	43.5		57.5
AgriMAXX Exp1450	42.2		55.7
NC09-20986	42.2		58.5
‡Southern States SS 8404	40.5		58.0
ARS09-155	39.3		57.4
SX 101	39.0		57.7
ARS10-211	38.2		57.6
NC09-22402	37.7		57.0
ARS09-750	36.7		60.1
ARS10-389	33.3		58.2
ARS07-1214	30.0		58.5
ARS09-367	29.4		57.1
MEAN	**46.7**		**57.7**
CV (%)	14.6		
avg SEM	3.1		
Variety F-value	8.5		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	5.8		
df LSD	169		

‡Check variety

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

Table 13. Performance of winter wheat varieties - Rowan County, 2014.

Brand Variety or Variety	Yield *bu/a*	Test Wt *lb/bu*
Beck's 129	97.9 **	58.4
UniSouth Genetics USG 3833	93.7 *	56.9
AgriMAXX 438	93.1 *	58.1
Pioneer 26R10	92.2 *	57.2
Beck's 135	92.0	57.8
AgriMAXX 434	91.8	56.3
Dyna-Gro Shirley	91.2	56.5
UniSouth Genetics USG 3013	90.7	56.6
UniSouth Genetics USG 3404	89.9	56.5
Pioneer 26R53	89.3	53.6
Dyna-Gro 9223	88.2	56.1
UniSouth Genetics USG 3120	87.8	57.5
UniSouth Genetics USG 3251	87.7	56.7
Featherstone VA258	86.9	57.1
UniSouth Genetics USG 3523	86.3	56.6
Progeny 125	86.2	56.2
AGSouth Genetics AGS 2038	86.0	58.7
Dyna-Gro 9012	85.6	57.7
Southern States SS 8500	85.6	56.9
Pioneer 26R12	85.4	57.8
Pioneer 26R20	85.4	59.7
Progeny 357	85.3	55.8
AgriMAXX 415	85.2	58.5
Progeny 117	85.0	56.4
Merl	84.9	58.5
AgriMAXX 427	84.8	56.7
Southern States SS 8404	84.2	58.4
AGSouth Genetics AGS 2035	84.1	58.2
UniSouth Genetics USG 3612	83.8	56.5
Southern States SS8870	83.8	57.3
UniSouth Genetics USG 3993	83.7	57.8
Pioneer 26R41	83.6	56.7
AgriMAXX 447	83.5	57.6
Beck's 113	83.4	57.9
AgriMAXX 413	83.0	56.0
SY 9978	83.0	56.2
UniSouth Genetics USG 3201	82.9	58.2
Oakes	82.8	59.6
Featherstone 73	82.7	58.0
Progeny 185	82.6	57.5
Beck's 120	82.3	55.9
SY Harrison	82.1	56.6
Southern States SS 8412	82.1	58.9
AGSouth Genetics AGS 2026	82.1	56.1
Southern States SS 8340	80.5	57.6
NC Cape Fear	80.5	58.4
Progeny 870	79.6	56.3
UniSouth Genetics USG 3438	79.3	56.8
Dyna-Gro Yorktown	79.2	56.7
Pioneer 25R32	78.4	57.3
Jamestown	78.0	58.1
L-Brand 343	75.5	58.0
NC Yadkin	74.1	57.2
Roane	70.2	58.4
MEAN	**84.6**	**57.3**
CV (%)	8.2	
avg SEM	3.1	
Variety F-value	4.0	
Variety Pr>F	<0.001	
avg LSD (p=0.10)	5.9	
df LSD	214	

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

Table 14. Performance of winter wheat experimental lines - Rowan County, 2014.

Brand Variety or Variety	Yield *bu/a*		Test Wt *lb/bu*
‡Oakes	87.6	**	58.0
Southern States SS 8360	84.9	*	57.1
‡UniSouth Genetics USG 3120	84.6	*	56.8
AgriMAXX 444	84.5	*	56.7
Dyna-Gro WX13622	84.3	*	56.5
Dyna-Gro WX13652	83.6	*	57.8
GA-041052-11E51	83.4	*	53.2
‡Dyna-Gro Shirley	83.2	*	56.7
AgriMAXX 446	82.6	*	58.0
NC8932-12	82.2	*	57.2
SX 102	81.4	*	58.6
GA-04434011E44	80.8	*	58.3
NC09-22402	78.8		57.5
‡NC Cape Fear	78.8		57.5
‡Pioneer 26R53	78.7		58.1
VA 10W-119	78.1		58.3
AGSouth Genetics AGS 2027	77.9		56.3
GA-041293-11E54	77.8		56.4
GA-041293-11LE37	77.6		59.1
NC10-23720	76.6		59.5
Progeny PGX 13-1	76.6		57.3
SX 101	76.4		58.0
Southern States SS 8415	76.0		56.8
NC08-140	75.8		57.6
VA08MAS-369	75.8		58.9
VA10W-21	75.6		58.1
NC09-20765	74.9		58.4
ARS09-367	74.5		58.6
MD04W 249-11-7	74.1		57.6
NC8170-4-3	73.1		58.9
AgriMAXX Exp1450	73.1		56.6
NC09-20768	72.2		58.3
ARS07-1214	71.3		58.9
ARS10-211	71.1		57.5
NC08-21273	70.4		57.9
‡Southern States SS 8404	69.1		57.4
SX 103	67.9		56.4
NC10-23663	67.0		57.9
NC09-20986	65.2		58.3
ARS09-750	63.3		59.0
ARS09-155	62.4		57.5
Progeny PGX 13-2	59.1		57.2
ARS10-389	55.7		57.9
MEAN	**75.5**		**57.6**
CV (%)	10.4		
avg SEM	3.5		
Variety F-value	5.6		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	7.3		
df LSD	170		

‡Check variety

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

Table 15. Performance of winter wheat varieties - Union County, 2014.

Brand Variety or Variety	Yield bu/a		Test Wt lb/bu
Beck's 129	76.6	**	59.9
UniSouth Genetics USG 3612	75.1	*	59.7
UniSouth Genetics USG 3993	74.7	*	61.5
Progeny 117	72.7	*	60.1
UniSouth Genetics USG 3120	72.4	*	61.1
AgriMAXX 438	71.3	*	56.9
Dyna-Gro 9223	70.9	*	61.4
Southern States SS 8870	70.9	*	56.0
Progeny 357	70.6	*	59.4
Featherstone VA258	70.6	*	59.4
Pioneer 26R10	69.5	*	61.0
Progeny 870	68.6	*	60.1
AgriMAXX 413	68.5	*	60.1
UniSouth Genetics USG 3013	68.3	*	60.8
Pioneer 26R41	67.7	*	61.6
AgriMAXX 447 [1]	67.1	*	–
SY Harrison	66.8	*	59.4
Progeny 125	66.6	*	59.5
Progeny 185	66.6	*	60.6
Beck's 135	66.1	*	60.5
Dyna-Gro Shirley	66.1	*	56.6
AGSouth Genetics AGS 2035	66.0	*	61.2
UniSouth Genetics USG 3404	65.8		58.9
Southern States SS 8404	65.8		62.1
UniSouth Genetics USG 3833	65.7		60.6
Pioneer 26R20	64.7		60.9
SY 9978	64.6		57.2
Southern States SS 8500	64.5		60.7
AgriMAXX 427	63.2		55.9
AgriMAXX 415	63.0		61.6
Pioneer 26R53	62.8		60.6
AGSouth Genetics AGS 2038	62.7		61.6
Pioneer 25R32	62.5		61.1
Oakes	62.2		61.6
Beck's 113	61.6		60.3
UniSouth Genetics USG 3523	60.8		59.9
Southern States SS 8412	60.5		61.2
AgriMAXX 434	60.1		58.2
Beck's 120	59.9		59.3
Pioneer 26R12	59.9		61.5
Dyna-Gro Yorktown	59.1		59.8
UniSouth Genetics USG 3438	58.9		60.5
NC Yadkin	58.3		58.5
UniSouth Genetics USG 3251	57.7		60.3
L-Brand 343	56.2		61.2
UniSouth Genetics USG 3201	56.1		59.5
AGSouth Genetics AGS 2026	54.9		60.1
Featherstone 73	54.8		56.3
Merl	53.5		60.9
Dyna-Gro 9012	53.5		58.9
Southern States SS 8340	52.3		56.2
Jamestown	52.0		57.1
NC Cape Fear	49.8		61.6
Roane	48.8		61.6
MEAN	**63.5**		**59.9**
CV (%)	16.2		
avg SEM	4.6		
Variety F-value	2.1		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	10.7		
df LSD	213		

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

[1] Test weight data not available.

Table 16. Performance of winter wheat experimental lines - Union County, 2014.

Brand Variety or Variety	Yield *bu/a*		Test Wt *lb/bu*
Southern States SS 8360	89.7	**	60.1
AgriMAXX 444	89.3	*	59.9
NC08-140	86.2	*	61.0
AgriMAXX 446	85.2	*	59.1
Dyna-Gro WX13622	83.6	*	58.6
Progeny PGX 13-1	82.7	*	60.8
Dyna-Gro WX13652	82.3	*	60.6
‡UniSouth Genetics USG 3120	82.0	*	60.9
‡NC Cape Fear	81.6	*	57.9
GA-041052-11E51	80.0		59.3
Progeny PGX 13-2	79.4		60.6
SX 102	79.0		60.8
Southern States SS 8415	78.6		60.0
‡Southern States SS 8404	78.5		61.8
GA-041293-11E54	78.4		62.9
‡Pioneer 26R53	78.3		59.2
MD04W 249-11-7	77.5		56.6
NC8932-12	76.8		59.6
GA-04434011E44	76.5		60.9
‡Dyna-Gro Shirley	76.3		60.2
GA-041293-11LE37	75.7		58.4
NC09-20765	75.4		55.7
ARS09-155	75.1		61.2
VA10W-21	74.6		60.5
VA08MAS-369	73.8		58.0
VA 10W-119	73.6		55.1
ARS09-750	73.5		62.8
AGSouth Genetics AGS 2027	72.9		54.7
NC09-20768	72.6		54.9
‡Oakes	72.5		62.2
NC09-22402	72.4		61.1
NC10-23720	72.4		61.9
AgriMAXX Exp1450	72.3		57.7
NC8170-4-3	72.2		60.6
SX 101	70.3		60.7
NC08-21273	70.2		62.4
ARS10-211	70.2		60.3
NC10-23663	70.1		59.4
ARS09-367	68.9		59.4
ARS07-1214	66.8		63.3
NC09-20986	66.1		59.0
ARS10-389	65.9		60.9
SX 103	63.3		58.4
MEAN	**75.9**		**59.8**
CV (%)	11.3		
avg SEM	3.8		
Variety F-value	2.7		
Variety Pr>F	<0.001		
avg LSD (p=0.10)	8.8		
df LSD	169		

‡Check variety

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

Table 17. Performance of winter wheat varieties - Washington County, 2014.

Brand Variety or Variety	Yield *bu/a*	Test Wt *lb/bu*
UniSouth Genetics USG 3833	65.0 **	55.1
Pioneer 26R10	64.4 *	54.9
Pioneer 26R41	63.5 *	55.7
Pioneer 26R20	61.7 *	56.3
AgriMAXX 447	60.8 *	54.8
AGSouth Genetics AGS 2035	60.4 *	56.5
UniSouth Genetics USG 3404	59.1	54.4
Pioneer 26R12	57.7	55.7
SY 9978	55.4	53.2
Beck's 113	55.0	55.1
AGSouth Genetics AGS 2038	54.1	56.9
Pioneer 25R32	54.1	56.9
Beck's 135	53.1	56.0
Dyna-Gro Yorktown	52.5	55.6
Pioneer 26R53	51.8	54.6
Featherstone 73	51.8	56.3
Beck's 120	51.3	53.8
UniSouth Genetics USG 3120	51.1	56.1
AgriMAXX 415	50.5	56.6
UniSouth Genetics USG 3201	50.2	56.5
Featherstone VA258	49.4	54.8
AgriMAXX 434	49.2	52.8
Dyna-Gro Shirley	49.1	55.0
Southern States SS 8412	48.9	54.9
UniSouth Genetics USG 3438	48.9	54.3
Southern States SS 8404	48.2	56.4
AgriMAXX 413	47.0	53.7
Southern States SS 8500	45.9	54.0
Southern States SS 8340	45.7	56.2
UniSouth Genetics USG 3993	45.1	56.2
UniSouth Genetics USG 3523	45.0	54.5
UniSouth Genetics USG 3251	43.8	55.6
Dyna-Gro 9012	42.9	56.0
Progeny 185	42.8	54.3
Jamestown	42.4	55.4
AgriMAXX 427	41.4	54.0
AGSouth Genetics AGS 2026	41.3	53.8
Progeny 870	41.2	53.5
Beck's 129	40.6	53.7
NC Yadkin	40.1	56.0
UniSouth Genetics USG 3013	38.6	54.7
Progeny 125	37.7	52.4
AgriMAXX 438	35.9	53.7
Oakes	35.4	54.1
Southern States SS 8870	34.4	54.1
UniSouth Genetics USG 3612	33.6	52.2
SY Harrison	33.2	54.7
L-Brand 343	33.0	54.5
Progeny 117	32.4	53.5
Dyna-Gro 9223	31.2	53.0
Merl	30.2	55.2
NC Cape Fear	29.6	52.1
Roane	27.0	53.8
Progeny 357	26.3	49.5
MEAN	**45.9**	**54.7**
CV (%)	12.3	
avg SEM	2.5	
Variety F-value	19.7	
Variety Pr>F	<0.001	
avg LSD (p=0.10)	5.5	
df LSD	214	

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

Table 18. Performance of winter wheat experimental lines - Washington County, 2014.

Brand Variety or Variety	Yield *bu/a*	Test Wt *lb/bu*
Southern States SS 8360	62.8 **	56.3
AgriMAXX 446	51.9	56.1
AgriMAXX Exp1450	51.8	55.0
Dyna-Gro WX13652	50.7	54.8
MD04W 249-11-7	50.5	57.2
NC10-23720	49.8	58.8
ARS09-155	49.2	55.8
‡UniSouth Genetics USG 3120	48.8	56.5
VA 10W-119	48.6	56.8
VA08MAS-369	46.2	58.8
‡Pioneer 26R53	46.2	55.6
GA-041052-11E51	46.2	55.8
AgriMAXX 444	44.9	54.8
Progeny PGX 13-1	43.4	54.9
NC8932-12	43.3	57.4
GA-041293-11LE37	42.4	56.2
NC09-20765	41.6	57.1
AGSouth Genetics AGS 2027	41.3	56.4
SX 103	41.0	54.7
GA-041293-11E54	40.7	57.2
ARS10-211	39.9	56.9
‡Dyna-Gro Shirley	39.6	55.3
Dyna-Gro WX13622	39.5	56.1
NC09-20986	39.1	57.9
‡Southern States SS 8404	38.7	57.6
Southern States SS 8415	38.6	54.9
NC10-23663	38.5	56.8
Progeny PGX 13-2	37.3	54.9
GA-04434011E44	36.6	57.6
‡Oakes	36.2	57.7
NC08-140	35.9	55.7
NC8170-4-3	35.2	57.9
NC09-20768	35.0	56.3
NC08-21273	34.9	56.4
SX 102	34.8	55.9
SX 101	33.7	56.4
VA10W-21	32.4	55.6
ARS09-750	31.8	57.6
ARS10-389	30.7	55.3
NC09-22402	28.8	56.8
ARS09-367	28.6	58.2
ARS07-1214	24.7	58.4
‡NC Cape Fear	23.5	56.0
MEAN	**40.4**	**56.5**
CV (%)	16.4	
avg SEM	3.0	
Variety F-value	8.6	
Variety Pr>F	<0.001	
avg LSD (p=0.10)	6.6	
df LSD	170	

‡Check variety
**Highest yielder. *Not significantly different from highest yielder.

Table 19. Seed sponsors and seed treatments for North Carolina entries.

Brand	Seed Treatment	Sponsoring Agency and Contact Person	Address and Phone
AGS	Vibrance Extreme	AG South Genetics Jimmy Clements	Box 72246, Albany, GA 31708 (229) 881-2700
AgriMAXX	Vibrance Extreme	AgriMAXX Dale Wehmeyer	7167 Highbanks Road, Mascoutah, IL 62258 (855) 629-9432
Dyna-Gro	Awaken ST Foothold	Crop Production Services Mick Schonauer	6221 Riverside Drive, Dublin, OH 43017 (614) 761-4110
Featherstone	Raxil	Featherstone Seed Inc Colin Whittington	13941 Genito Road, Amelia, VA 23002 (804) 370-7210
Gerard	–	Gerard Seed Co Walt Gerard	1041 E. 4th Street, Washington, N.C. (252) 946-8123
Becks	Escalate (no insecticide)	Getsco Ag Service Ken Miller	860 Horseshoe Road, Elizabeth City, NC 27909 (252) 333-3788
L-Brand	Dividend Extreme	Limagrain Cereal Seeds Ken McClintock	257 E Hail Street, Bushnell, IL 61422 (309) 569-0008
NC	Dividend Extreme	North Carolina State University Dr. Paul Murphy	Crop Science Dept, Box 7629, Raleigh, NC 27695 (919) 513-0000
Pioneer	Dividend	Pioneer, A Dupont Company George Stabler	59 Grief Parkway, Suite 200, Delaware, OH 43015 (803) 308-1003
Horizon	–	Plantation Seed Jimmy Clements	1113 Pretoria Road, Newton, Georgia 39870 (229) 881-2700
Progeny	Evergol Energy	Progeny Ag Products Brian Murray	1529 Hwy 193, Wynne, AR 72396 (870) 238-2079
SS	Evergol Energy	Southern States Coop. Jason Hinton	129 Strickland Hinton Road, Zebulon, NC 27597 (804) 291-6785
SY	Dividend	Syngenta Seeds, Inc Ryan Heiniger	8337 Hwy 903N, Ayden, NC 28513 (252) 814-5425
ARS	–	USDA-ARS Dr. David Marshall	Box 7616, Raleigh, NC 27695 (919) 513-7739
USG	Dividend Extreme	UniSouth Genetics Stacy Burwick	2649-C Nolensville Road, Nashville, TN 37211 (800) 505-3133
GA	Dividend	University of Georgia Dr. Jerry Johnson	1109 Experiment St, Griffin, GA 30223 (770) 228-7345
MD	Vibrance	University of Maryland Dr. Aaron Cooper	27664 Nanticoke Road, Salisbury, MD 21801 (410) 742-1178
VA	Raxil MD	Virginia Tech University Robin Markham	2229 Menokin Road, Warsaw, VA 22572 (804) 333-3485

Table 20. North Carolina soft red winter wheat milling quality data[1,2] – 2013.

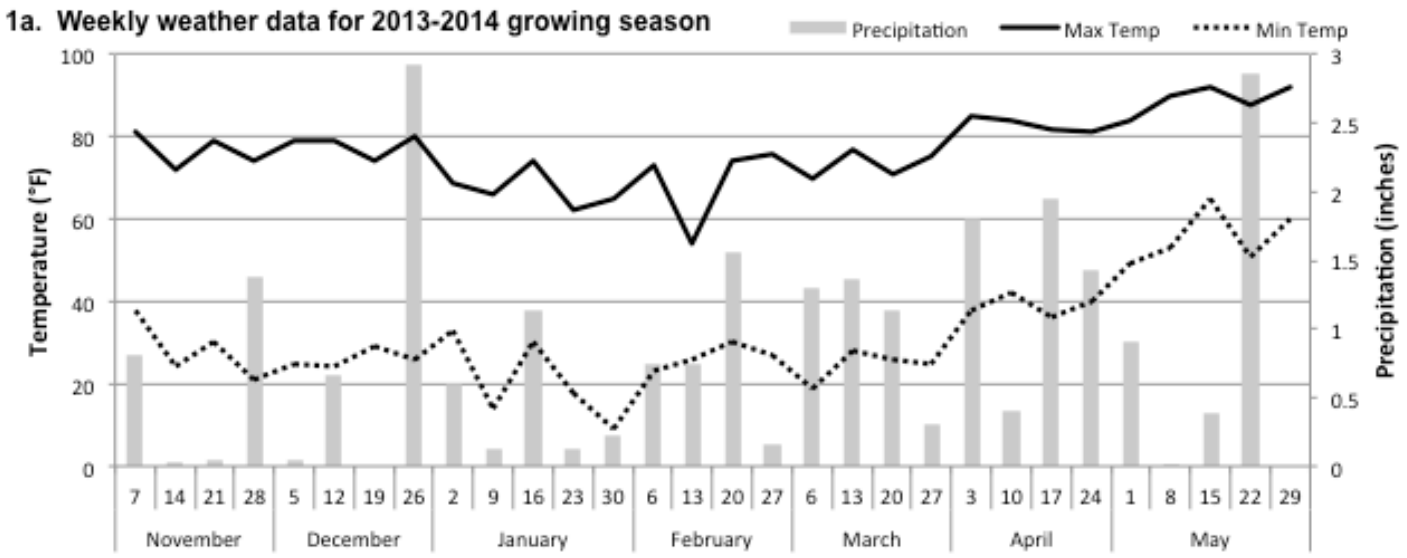
Brand/Variety or Variety	Softness Equivalence[3]	Flour Yield	Brand/Variety or Variety	Softness Equivalence[3]	Flour Yield
	%	%		%	%
AgriMAXX 413	57.7	71.5	Pioneer 26R22	59.8	69.6
AgriMAXX 415	58.4	72.7	Pioneer 26R41	59.1	71.1
AgriMAXX 427	61.3	69.8	Pioneer 26R53	61.1	71.3
AgriMAXX 434	62.3	70.2	Pioneer XW11G	61.8	72.4
AgriMAXX 438	64.0	72.2	Progeny P117	58.3	72.4
AgriMAXX Exp1342	59.0	71.3	Progeny P125	64.5	69.2
AGS 2026	57.0	70.8	Progeny P185	57.5	72.4
AGS 2035	57.4	72.1	Progeny P308	60.0	70.3
AGS 2038	56.9	72.6	Progeny P357	60.8	69.2
AGS 2056	57.7	72.3	Progeny P870	57.0	71.8
ARS07-0525	54.5	72.4	Progeny PGX12-10	63.3	72.2
ARS08-0047	59.0	69.5	Progeny PGX12-12	51.9	70.5
Beck 113	59.6	68.0	Progeny PGX12-3	59.9	68.8
Beck 120	57.1	72.0	Southern Harvest 3200	57.7	69.6
Beck 135	60.9	70.2	SS 520	55.8	72.1
Dyna-Gro 9012	56.7	72.8	SS 5205	62.5	71.4
Dyna-Gro 9223	62.6	72.1	SS 8302	60.5	70.4
Dyna-Gro Baldwin	59.9	72.5	SS 8308	59.1	71.6
Dyna-Gro Shirley	57.6	71.8	SS 8340	56.8	73.0
Dyna-Gro Yorktown	56.7	69.0	SS 8350	60.1	71.3
Featherstone 73	59.0	70.1	SS 8404	57.1	71.9
Featherstone VA258	55.8	69.3	SS 8412	58.9	69.9
GA031086-10E26	61.9	69.5	SS 8500	59.9	73.0
GA031257-10LE34	55.0	71.5	SS 8641	56.8	70.3
GA04570-10E46	54.5	73.6	SS 8700	60.9	67.4
Jamestown	58.2	70.1	SY 474	53.9	70.8
Merl	59.0	72.3	SY 9978	59.0	72.5
NC08-140(Bdv2)	59.8	68.0	SY Harrison	62.7	71.4
NC08-21273	52.8	70.4	USG 3120	56.8	72.7
NC08-23089	58.2	71.1	USG 3201	58.2	72.2
NC08-23324	53.7	70.7	USG 3209	56.3	69.8
NC09-20765	56.9	69.0	USG 3251	60.7	70.2
NC09-20768	56.1	70.1	USG 3409	65.7	71.7
NC09-22206	57.6	69.6	USG 3438	57.8	72.1
NC09-22402	53.4	71.5	USG 3523	60.5	70.4
NC Cape Fear	53.7	69.0	USG 3555	56.8	69.1
NC Yadkin	55.9	71.0	USG 3612	64.5	70.1
Oakes	56.2	71.7	USG 3665	61.0	71.6
Pioneer 25R32	44.9	72.3	USG 3993	60.0	70.7
Pioneer 26R10	64.8	70.3	USG X3404	63.1	71.6
Pioneer 26R12	64.1	72.1	VA07W-415	56.5	72.5
Pioneer 26R20	55.9	69.8	VA10W-119	55.0	71.3

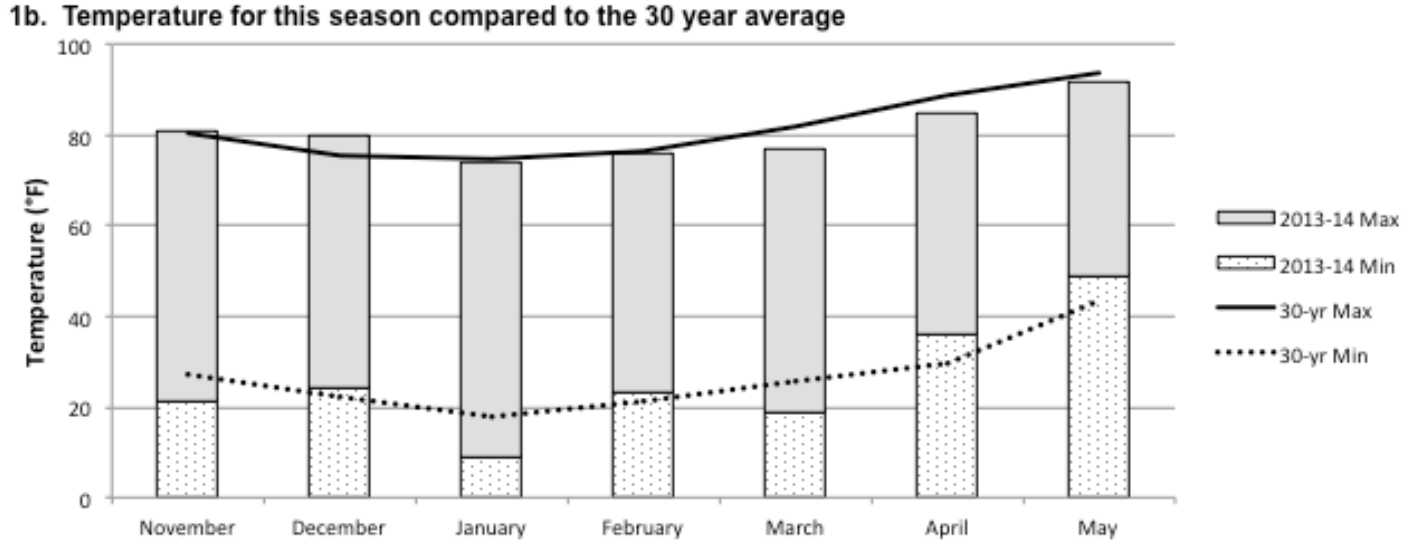
[1]Milling quality data presented on 2013 harvest. Thanks to Lonnie Andrews at Mennel Milling Company in Fostoria, Ohio, for providing this analysis.

[2] Milling data analyzed at 15% moisture.

[3] Softness equivalence indicates the percent of fine flour to total flour.

Figure 1. Lenoir Weather Data





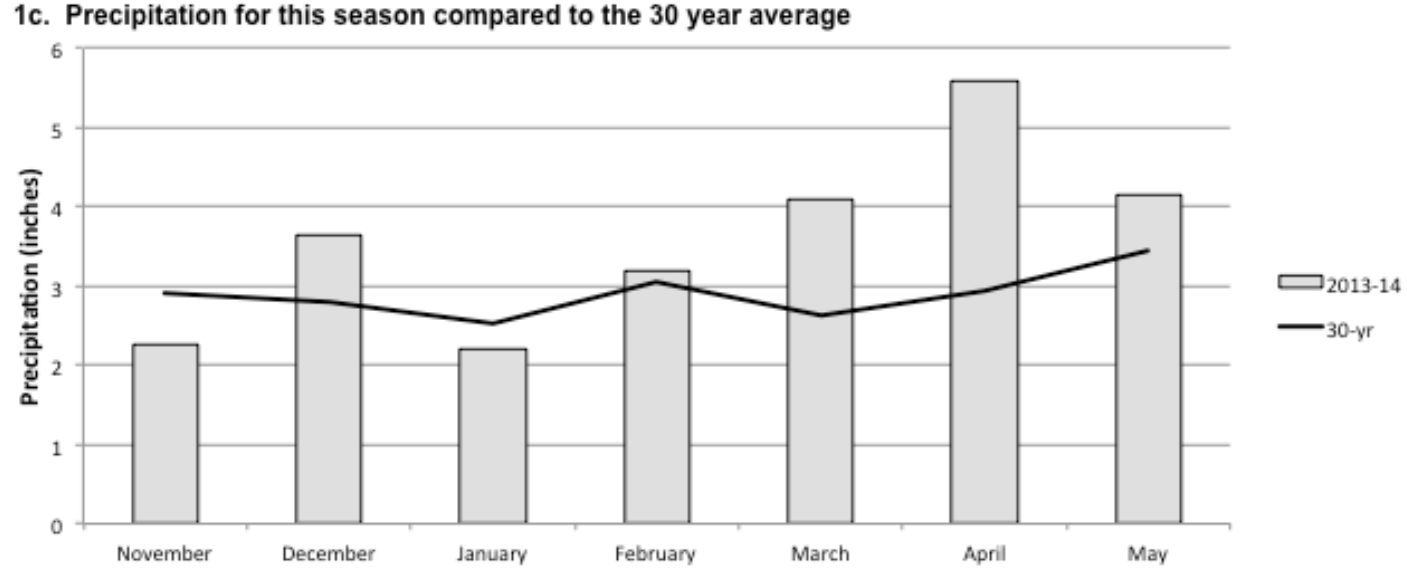
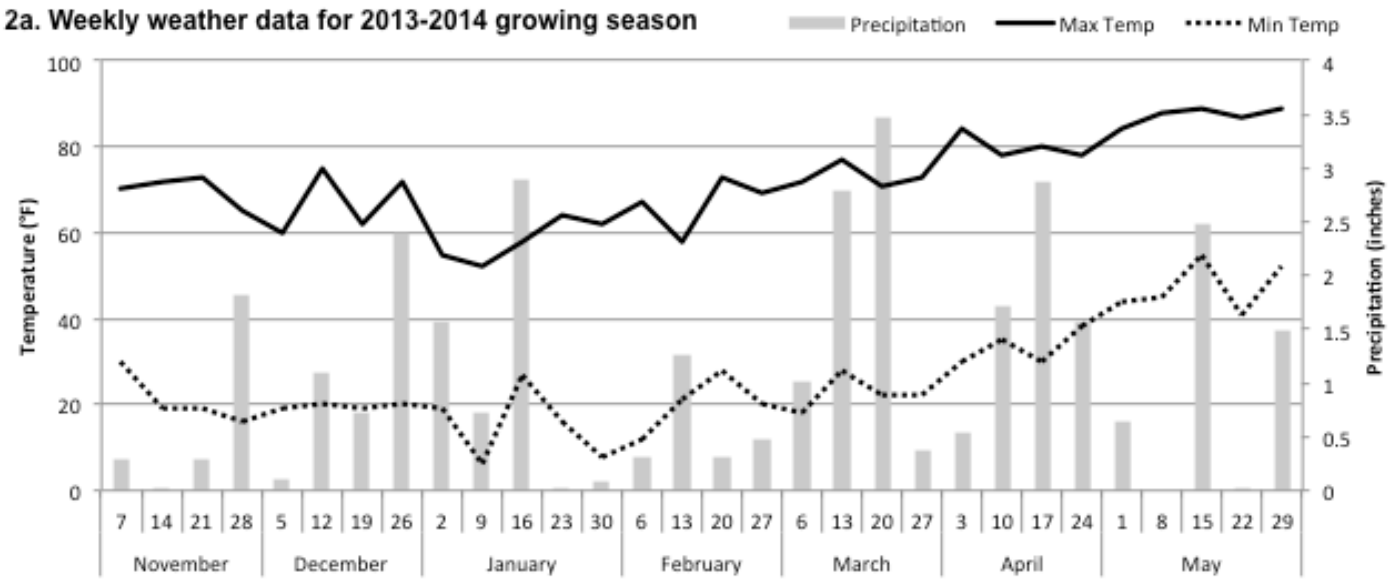
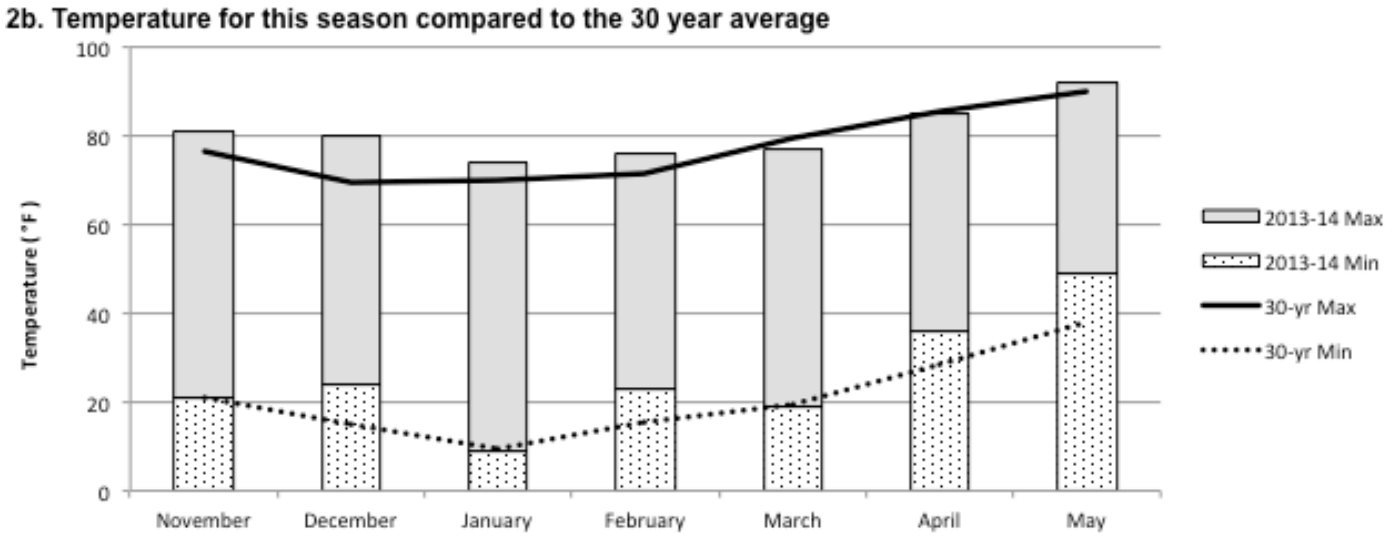


Figure 2. Rowan Weather Data





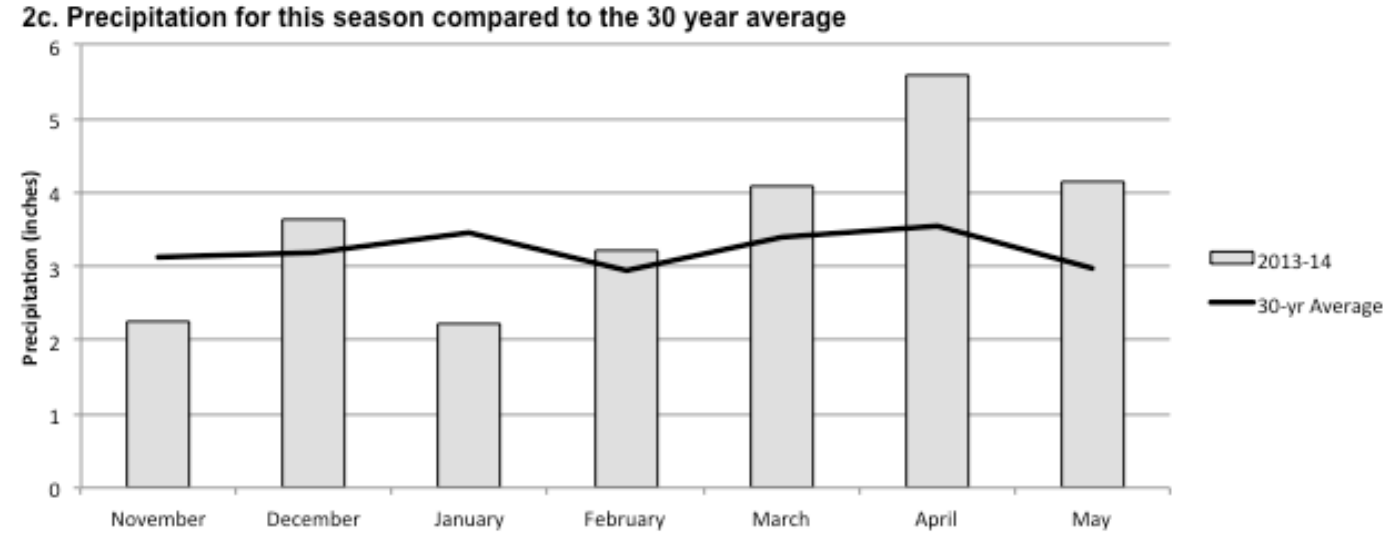
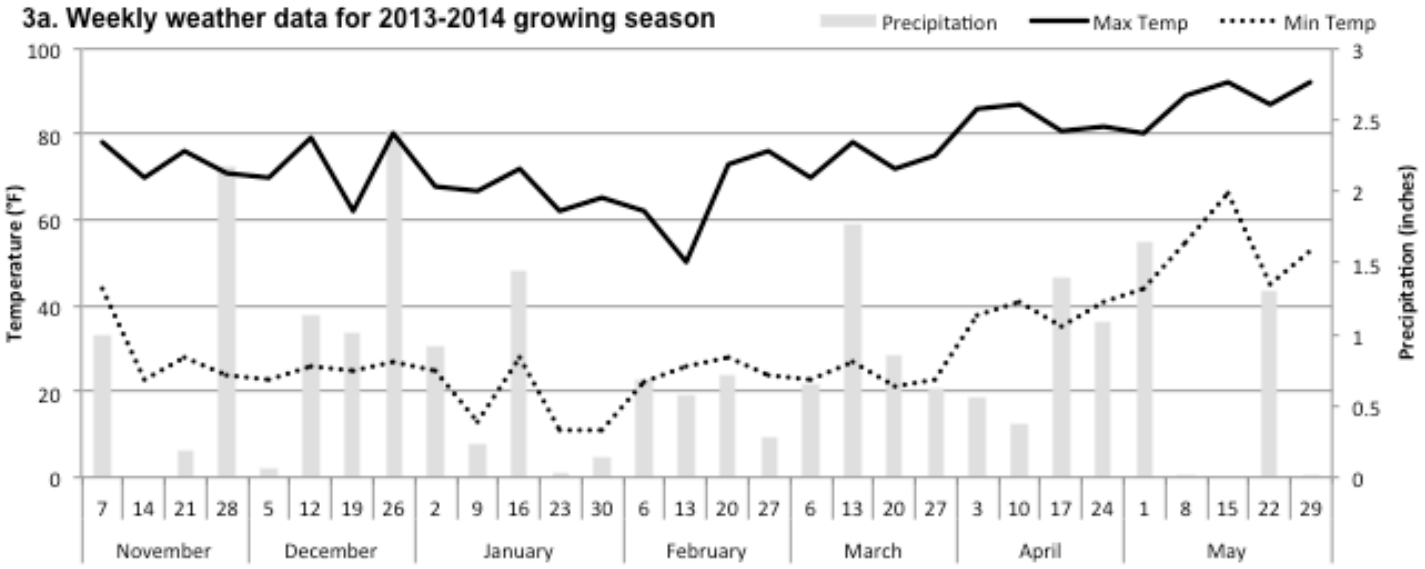
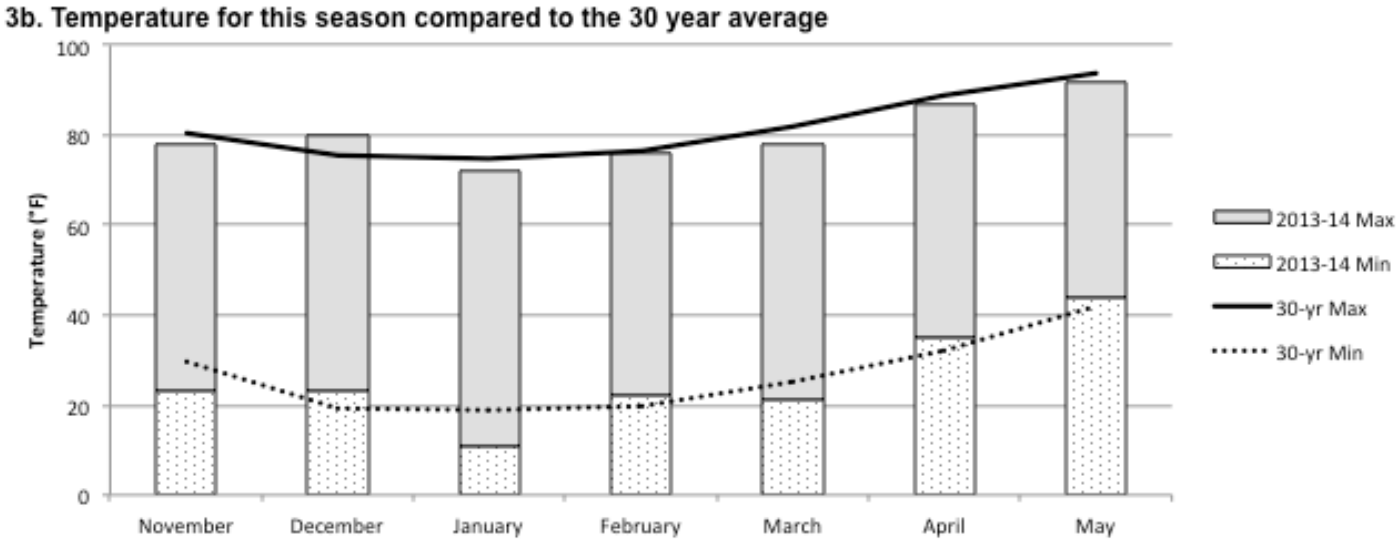
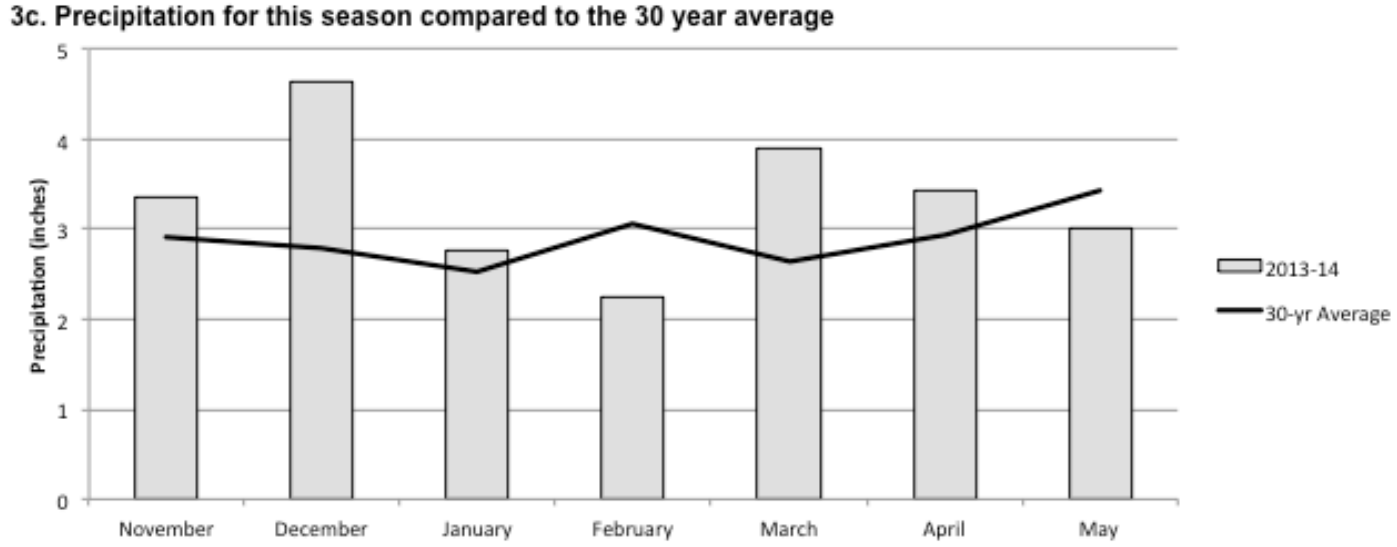


Figure 3. Washington Weather Data







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All information found in this report is available on the web at:
http://www.ncovt.com

NOTES

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