VirginiaTech Invent the Future
Virginia Cooperative Extension
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VSU VIRGINIA STATE

Small Grains In 2012

2012 Virginia Polytechnic Institute and State University CSES-18NP

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Recommended Small Grain Varieties

The following are the small grain variety recommendations for Virginia in 2012. The recommendations are based on the agronomic performance in wheat and barley variety tests conducted by the Research and Extension Divisions of Virginia Tech in the various agricultural regions of the state.

Recommended Wheat Varieties Arranged in Order of Maturity

All varieties have been extensively tested and proven to be adapted statewide.

Agronomic Characteristics

Cultivar	Grain Yield	Test Weight	Milling Quality	SRW Baking Quality
Early Heading Varieties (119-120 d, Julian)				
SS 520*	2	1	Good	Good
Branson	4	1	Good	Excellent
USG 3120	3	3	Good	Moderate
Jamestown	2	4	Moderate	Poor
Mid-Season Heading Varieties (121-122 d, Julian)				
5187J	4	4	Moderate	Moderate
USG 3555	4	1	Moderate	Poor
12V51	4	2	Moderate	Moderate
USG 3201	3	4	n/a	n/a
Pioneer 25R32	3	3	Good	Poor
Merl	4	4	Good	Moderate
SS 5205	3	3	Good	Excellent
Pioneer 26R15	4	1	Good	Excellent
Full-Season Heading Varieties (123-124 d, Julian)				
USG 3251	4	2	n/a	n/a
USG 3315	3	3	Moderate	Moderate
Pioneer 26R20	4	2	Moderate	Excellent
Featherstone VA-258	4	2	Moderate	Poor
W1566	4	2	Moderate	Moderate
Shirley	4	1	Good	Excellent

* This line is not day length sensitive and should not be planted early in order to avoid potential freeze damage.

4 - Significantly higher than average

3 - Average or higher than average

2 - Average or lower than average

1 - Significantly lower than average

Disease Resistance

Cultivar	FHB† resistance	Powdery Mildew Resistance	Leaf Rust Resistance	Glume Blotch Resistance	Barley Yellow Dwarf Virus Tolerance
Early Heading Varieties (119-120 d, Julian)					
SS 520*	Weak	Good	Good	Moderate	Weak
Branson	Good	Good	Good	Moderate	Excellent
USG 3120	Excellent	Good	Good	Good	Good
Jamestown	Excellent	Good	Good	Moderate	Excellent
Mid-Season Heading Varieties (121-122 d, Julian)					
5187J	Moderate	Moderate	Moderate	Good	Good
USG 3555	Good	Good	Weak	Good	Excellent
12V51	Good	Excellent	Excellent	Excellent	Good
USG 3201	Excellent	Weak	Good	n/a	Good
Pioneer 25R32	Excellent	Excellent	Weak	n/a	Moderate
Merl	Good	Good	Weak	Good	Weak
SS 5205	Good	Good	Excellent	Weak	Moderate
Pioneer 26R15	Good	Good	Excellent	Weak	Weak
Full-Season Heading Varieties (123-124 d, Julian)					
USG 3251	Excellent	Moderate	Moderate	n/a	Good
USG 3315	Good	Good	Moderate	Moderate	Excellent
Pioneer 26R20	Good	Moderate	Good	Moderate	Good
Featherstone VA-258	Weak	Good	Moderate	Excellent	Moderate
W1566	Good	Good	Moderate	n/a	Moderate
Shirley	Moderate	Excellent	Excellent	Good	Excellent

* This line is not daylength sensitive and should not be planted early in order to avoid potential freeze damage.

† FHB - Fusarium head blight

Recommended Barley Varieties

	Hulled Barley					Hulless Barley		
Adapted Regions	Nomini*	Callao	Price	Thoroughbred	Atlantic	Doyce	Eve	Dan
Coastal Plain		X	X	X	X	X	X	X
Piedmont, South of James River		X	X	X	X	X	X	X
Piedmont, North of James River		X	X	X	X	X	X	X
West of Blue Ridge	X	X	X	X	X	X	X	X
Agronomic Characteristics								
Yield	3	3	2	4	3	2	3	2
Test Weight	1	3	3	3	3	2	3	4
Lodging Tolerance	3	1	2	3	2	2	2	3
Relative Height	3	2	2	3	2	2	2	2
Relative Heading	Avg	Early	Avg	Late	Avg	Avg	Early	Avg

4 - Significantly higher than average
3 - Average or higher than average
2 - Average or lower than average
1 - Significantly lower than average

*Nomini barley has low test weight. It is not recommended in eastern Virginia because low test weight grain is unsuitable for export or domestic non-ruminant feed markets.

Barley and Wheat Entries

Commercial Barley Entries

Virginia Tech and Virginia Crop Improvement Association, 9142 Atlee Station Road, Mechanicsville, VA 23116 – Atlantic, Barsoy, Callao, Dan, Doyce, Eve, Nomini, Price, Thoroughbred, and Wysor.

Commercial and Experimental Wheat Entries

AgriMAXX Wheat Company, 7167 Highbanks Road, Mascoutah, IL 62258 – AgriMAXX 413, AgriMAXX 415 and AgriMAXX Exp 1215.

Dyna-Gro Seed, 6221 Riverside Drive, Suite 1, Dublin, OH 43017 –Dyna-Gro 9012, Dyna-Gro 9171, Dyna-Gro 9922, Dyna-Gro 9042, Dyna-Gro 9223, Shirley, and 5187J.

Featherstone Seed Company, 13941 Genito Road, Amelia, VA 23002 - Featherstone VA 258 and 12V51.

University of Georgia, 1109 Experiment Street, Griffin, GA 30223 – GA-021245-9E16 (released as AGS 2038) and GA-001138-8E36.

University of Maryland, CMREC/Beltsville Facility, 12000 Beaver Dam Road, Laurel, MD 20708 – Chesapeake and MD03W665-09-1.

Maryland Crop Improvement Association, PO Box 169, Queenstown, MD 21658 – Mercer Brand 12V51.

Mid-Atlantic Seeds, 204 St. Charles Way #163E, York, PA 17402 – MAS#2, MAS#4, MAS#7, MAS#10, MAS#14, MAS#20, MAS#21, MAS#22, MAS#23, MAS#24 and MAS#25.

NC State University, Box 7629, Raleigh, NC 27695 – NC-Cape Fear and NC-Yadkin.

Progeny Ag Products, 1529 Hwy 193, Wynne, AR 72396 – Progeny 117, Progeny 125, Progeny 185, Progeny 308, Progeny 357, Progeny 870, and Progeny PGX 11-14.

Southern States Cooperative, PO Box 26234, Richmond, VA 23260 - SS 520, SS 560, SS 8302, SS 8404, SS 5205, SS 8340, SS 8500 and SS EXP 8350.

Syngenta Seeds, Inc., 806 N. 2nd St, Berthoud, CO 80513 – Branson, Oakes, SY 9978, W1566, SY 1526 and SY Harrison.

UniSouth Genetics, 3205-C HWY 46S, Dickson, TN 37055 – USG 3120, USG 3201, USG 3251, USG 3315, USG 3438, USG 3555, USG 3592, USG 3612 and USG 3409.

Virginia Tech and Virginia Crop Improvement Association, 9142 Atlee Station Road, Mechanicsville, VA 23111 – Jamestown, Massey, Merl, and all lines prefixed by VA.

Appreciation is expressed to the Virginia Small Grains Check-Off Board, AgriMAXX, Dyna-Gro Seed, Featherstone Seed, Inc., Mid-Atlantic Seeds, Progeny Ag Products, Southern States Cooperative, Syngenta Seeds, Inc., UniSouth Genetics, Inc., and the Virginia Crop Improvement Association for their financial support of the Small Grains Variety Testing Program at Virginia Tech.
Conducted and summarized by the following Virginia Tech employees: Dr. Wade Thomason, Extension Agronomist, Grains; Dr. Carl Griffey, Small Grains Breeder; Mr. Harry Behl, Agricultural Supervisor; Ms. Elizabeth Hokanson, Research Associate. Location Supervisors: Mr. Tom Custis (Painter); Mr. Bobby Ashburn (Holland); Mr. Bob Pitman, Mr. Mark Vaughn, (Warsaw); Mr. Ned Jones (Blackstone); Dr. Carl Griffey, Mr. Wynse Brooks, Mr. Steve Pottorff (Blacksburg); Mr. Bobby Clark (Shenandoah Valley); Mr. Steve Gulick, Mr. Alvin Hood (Orange).

Introduction

The following tables present results from barley and wheat varietal tests conducted in Virginia in 2010-2012. Small-grain cultivar performance tests are conducted each year in Virginia by the Virginia Tech Department of Crop and Soil Environmental Sciences and the Virginia Agricultural Experiment Station. The tests provide information to assist Virginia Cooperative Extension Service agents in formulating cultivar recommendations for small grain producers and to companies developing cultivars and/or marketing seed within the state. Yield data are given for individual locations and across locations and years; yield and other performance characteristics are averaged over the number of locations indicated in parenthesis near the column heading. Performance of a given variety often varies widely over locations and years which makes multiple location-year averages a more reliable indication of expected performance than data from a single year or location. Details about management practices for barley and wheat are listed for each experimental location.

The Season

Late summer 2011 in the Commonwealth brought significant rain to most areas. However by September, weather was favorable and corn harvest was ahead of the normal pace. This influenced wheat seeding in many areas with 26% of intended wheat acres planted by early October, compared to the 5-yr average of 7%. Precipitation in many areas at the end of October meant that planted acreage only rose to about 35% of intended by the end of the third week of October, however. By the first week of November, growers had planted 57% of the acres they indicated they planned which was slightly below the 5-yr average of 61%. Rain in mid to late November meant planting continued at a slightly slower pace, but rain benefitted the early planted wheat and barley. December was warmer and generally wetter than normal. January and February were very mild which left many fields far advanced but growers concerned about apply N that early and encouraging too much winter growth and increasing the likelihood of spring freeze injury. March and April were quite dry in many areas of the Commonwealth and many fields likely experience some yield loss due to inadequate moisture. On April 20, growers indicated that 70 and 57% of the wheat and barley crops, respectively were in good condition. Grain maturity came early in many areas and by May 20, virtually all the wheat in the state was headed compared to the 5-yr average of 77% headed by this date. This trend continued and by June 17, 98% of barley harvest and 58% of wheat harvest was complete. Initial harvest results indicate yield and quality of the 2012 wheat and barley crops are near the long-term trend, or about average. As of July 11, 2012, the USDA NASS Virginia Field Office estimated that Virginia's wheat producers expect to average 65 bushels per acre in 2012. Wheat production in Virginia is expected to total about 17.6 million bushels, down 1 percent from last year's total wheat crop of 17.8 million bushels. Producers expect to harvest 270,000 acres of wheat, 20,000 acres more than in 2011. Barley yields in Virginia are expected to average 83 bushels per acre, down 5 bushel per acre from last year. Barley production is expected to total 3.74 million bushels, down 39 percent from 2011. Harvested acreage is expected to total 45,000 acres, down 25,000 acres from last year.

Figure 1. 2011-12 and 30-yr mean cumulative monthly growing season precipitation for Virginia.

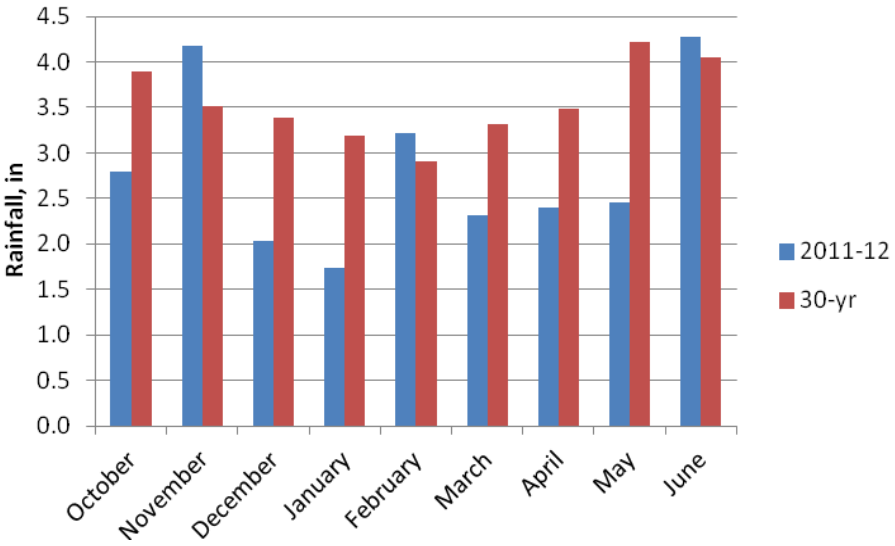
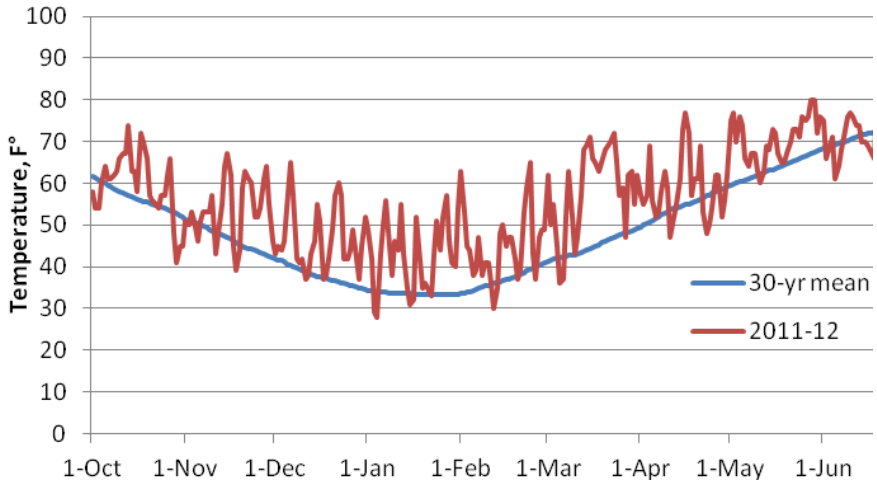


Figure 2. Growing season daily average temperature, 2011-12 and 30-yr mean.



Section 1: Barley Varieties

The Virginia Tech barley breeding program is significantly diverse with breeding efforts focused on development and improvement of yield potential of winter barley cultivars and a major focus on incorporation of value added traits geared towards development of new markets. As a result, two winter hulled (Thoroughbred and Price) and three winter hulless (Doyce, Dan and Eve) barley cultivars were released from the program. Most recently, Atlantic winter barley also was released from the Virginia Tech barley breeding program. Significant progress continues to be made in the development of high value winter barley lines. This season (2011-2012), approximately, 46 advance barley lines were evaluated in replicated yield tests at locations in Maryland, Virginia, North Carolina, Kentucky, and Delaware. Subsequently, yield potential of 25 hulled and 25 hulless sister lines each derived from the same four populations along with parents and check cultivars were evaluated in replicated yield test at Blacksburg and Warsaw to determine genetic yield potential of hulless versus hulled sister lines. In addition, the Virginia Tech barley breeding program is involved in a collaborative winter malt barley breeding research effort targeted at local brewing industries in the mid Atlantic and south Eastern regions. A barley-based ethanol market continues to provide potential as an initial market for winter barley in the Eastern United States. This will not only create an important market for barley throughout the Eastern United States, it will provide valuable byproducts including carbon dioxide, fuel pellets, high protein feed ingredients for domestic animals and eventually enriched food products for human consumption. Owing to the rising cost of feed ingredients, animal producers are considering alternative options; therefore barley specifically aimed at the feed market could provide that low cost option for producers. The Virginia Tech breeding program will continue to work with interested parties in evaluating the potential of barley for these and other diverse purposes. Through these efforts, the quality and value of winter barley has increased greatly during the past two years.

Virginia-grown barley typically yields in excess of 100 bushels per acre and fits well in many crop rotation systems. However, profitable barley production on over 50,000 acres in Virginia will require revival of international market opportunities and/or improve domestic value-added opportunities.

Hulless Barley

Hulless barley tests were planted in seven-inch rows at Blackstone, Orange, Holland, and Painter. They were planted in six-inch rows at Warsaw and Blacksburg. They were planted in seven and one-half-inch rows at the Warsaw No-Till location. The no-till tests at Holland and Warsaw were planted at 28 seeds per row foot. All other locations were planted at 32 seeds per row foot.

Three-year average (2010, 2011 and 2012) grain yield for Eve hulless barley in Virginia was 77 bushels per acre with test weight of 57.9 pounds per bushel. Grain yield of Doyce and Dan each averaged 76 bushels per acre. However, Dan had the highest average test weight (58.7 pounds/bushel)

that was 0.8 pounds per bushel higher than Eve and 4.4 pounds per bushel higher than Doyce (54.3 pounds/bushel). Meanwhile, elite hulless experimental line VA07H-31WS had the highest three-year average grain yield (83 bushels per acre) that were 6 bushels per acre higher than that of Eve (77 bushels/acre), 7 bushels per acre higher than Doyce, 7 bushels per acre higher than Dan, and 4 bushels per acre more than test average.

Hulled Barley

Hulled barley tests were planted in seven-inch rows at Blackstone, Orange, Holland, and Painter. They were planted in six-inch rows at Warsaw and Blacksburg. They were planted in seven and one-half-inch rows at the Warsaw No-Till location. The no-till tests at Holland and Warsaw were planted at 28 seeds per row foot. All other locations were planted at 24 seeds per row foot.

Three-year average (2010, 2011 and 2012) grain yields of Thoroughbred hulled barley were 109 bushels per acre with average test weight of 46.1 pounds per bushel compared to the mean yield of 108 bushel per acre and test weight of 46.0 pounds per bushel for the mean of all cultivars tested. Three-year average grain yield of Atlantic (111 bushels per acre) was 2 bushels per acre higher than Thoroughbred, 7 bushels per acre higher than Callao and Price (104 bushels per acre). Hulled experimental line VA08B-85 had the highest three-year average grain yield (118 bushels per acre) that was 9 bushel per acre higher than Thoroughbred (109 bushels per acre), 7 bushels per acre higher than Atlantic, and significantly higher than Callao and Price (104 bushels per acre.

Summary of barley management practices for the 2012 harvest season (All rates are given on a per acre basis.)

Blacksburg - Planted September 29, 2011. Preplant fertilizer was 30-46-60 and one ton lime in September 2011. Site was sprayed with .75 oz Harmony Extra SG® on December 15, 2011. Site was fertilized with 80 lb N plus 0.6 oz Harmony Extra SG® on March 8, 2012. Harvest occurred on May 31, 2012.

Blackstone - Planted October 24, 2011. Preplant fertilizer was 300 lb 10-10-10 on October 17, 2011. Site was top-dressed with 60 lb N using 14-0-14 on January 30, 2012 and again on March 14, 2012. Site was sprayed with 4 oz Harmony Extra SG® on January 30, 2012 and with 3 oz Proaxis® for cereal leaf beetle on April 4, 2012. Harvest occurred May 29, 2012.

Painter - Planted October 25, 2011. Preplant fertilizer was 30 lb N using 30% UAN on October 18, 2011. Site was fertilized with 60 lb N using 30%UAN and 0.75 oz Harmony Extra SG® March 21, 2012. Site was fertilized with 30 lb N using 30% UAN April 8, 2012. Harvest occurred on June 1, 2012.

Warsaw - Planted October 17, 2011. Preplant fertilizer was 30-80-80-5 applied October 11, 2011. Site was fertilized using 12-0-0-1.5 at 25 lb N on December 14, 2011 and again on February 14, 2012. Site was fertilized with an additional 40 lb N using Nitramin® 30% N on March 23, 2012. Site was treated with 6.5 oz Starane® and .75 oz Harmony Extra SG® on December 14, 2011. The fungicide-treated plots were sprayed with 4 oz Tilt® on March 17, 2012 and with 8 oz Prosaro® on April 3, 2012. Harvest occurred May 28, 2012.

Holland - Planted no-till October 24, 2011. Preplant fertilizer was 300 lb 6-16-36 on October 18, 2011. Site was fertilized with 60 lb N on February 14 and 50 lb N on March 15, 2012 using UAN. Site was treated with .6 oz Harmony Extra SG® and 3 oz Baythroid®. Harvest occurred on June 6, 2012.

Orange - Planted October 26, 2011. Preplant fertilizer was 30-80-60 and site was sprayed with 1 qt Gramoxone on October 5, 2011. Sixty lb N and 4 zo Harmony Extra SG® were applied March 12, 2012. Barley harvest occurred on May 29 and hulless barley harvest occurred June 4, 2012.

Table 1. Summary of performance of hulless entries in the Virginia Tech Barley Test, 2012 harvest.

Hulless Lines	Yield (Bu/a @ 48 lb/bu) (6)		Test Weight (Lb/bu) (6)		Date Headed (Julian) (3)		Height (In) (3)		Lodging (0-9) (6)		Leaf Rust (0-9) (3)		Net Blotch (0-9) (2)		Barley Yellow Dwarf Virus (0-9) (1)		Powdery Mildew (0-9) (2)	
VA09H-6WS	98	+	53.7	-	104	+	35		2	-	6	+	4		0		0	
VA09H-4	95	+	55.5		100	+	34	-	2	-	6	+	4		1		0	
VA08H-65	95	+	57.2	+	96	-	34		3		3	-	4		2		0	
VA09H-178WS	94	+	54.5	-	99		35		3		4		4		0		1	
VA09H-174	92		54.5	-	104	+	35		3		5		2	-	1		1	
Dan	92		58.0	+	99		34	-	3		3	-	4		0		1	
VA10H-64	92		54.8	-	94	-	32	-	3		3	-	6		0		1	
Doyce	92		54.0	-	94	-	34	-	5	+	5	+	7	+	0		1	
VA06H-25	91		55.7		99		36	+	3		3		3		5	+	3	+
VA06H-3WS	89		56.0		98		36	+	3		3		4		5	+	2	
Eve	88		57.1	+	93	-	34	-	3		3	-	5		0		0	
VA07H-31WS	88		55.8		99		37	+	3		3		4		4	+	3	+
VA07H-35WS	85		55.7		100	+	37	+	4		3		3		4	+	2	
VA08H-72	85		55.2		100	+	35		3		6	+	6		0		0	
VA06H-79	85		55.1		101	+	36		3		8	+	2	-	0		0	
VA08H-5	85		56.8	+	99		38	+	2	-	3		4		2		1	
MD02B27-08-10	85		52.5	-	94	-	36	+	4	+	3	-	4		0		0	
VA09H-110(2R)	83	-	55.9		100	+	35		3		3		6	+	0		0	
VA08H-61	83	-	56.1		96	-	34		3		5		4		4	+	0	
VA08H-79WS	77	-	54.6	-	105	+	36		2		7	+	3		0		5	+
VA09H-112(2R)	76	-	56.7	+	99		35		2	-	3	-	5		1		1	
Average	88		55.5		99		35		3		4		4		1		1	
LSD (0.05)	5		0.7		1		1		1		1		2		2		2	
C.V.	9		2.1		1		3		37		29		39		98		151	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of locations on which data are based. Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 2. Two year average summary of performance of hulless entries in the Virginia Tech Barley Tests, 2011 and 2012 harvests.

	Yield		Test		Date						Leaf		Powdery		Net		Barley Yellow	
	(Bu/a @		Weight		Headed		Height		Lodging		Rust		Mildew		Blotch		Dwarf Virus	
Hulless Lines	48 lb/bu)		(Lb/bu)		(Julian)		(In)		(0-9)		(0-9)		(0-9)		(0-9)		(0-9)	
	(12)		(12)		(5)		(6)		(12)		(4)		(5)		(5)		(1)	
VA09H-4	95	+	56.1	-	106		34	-	2	-	6	+	3		3		1	
VA09H-174	93	+	55.7	-	110	+	35	-	2	-	5		2	-	2	-	1	
VA09H-178WS	92	+	55.3	-	105	-	36	-	4	+	5		1	-	3		0	
VA07H-31WS	91	+	56.7		106		38	+	4		3	-	5	+	3	-	4	+
VA06H-25	91		56.6		105		37		4	+	4	-	5	+	2	-	5	+
VA06H-3WS	91		56.8		105	-	37		4	+	4	-	5	+	3	-	5	+
VA07H-35WS	89		56.8		106		37		4	+	4	-	4	+	2	-	4	+
VA06H-79	89		56.1		107	+	37		3		8	+	2	-	1	-	0	
Eve	88		57.8	+	100	-	36	-	3		3	-	0	-	6	+	0	
VA08H-5	87		57.8	+	105		39	+	2	-	3	-	4	+	3		2	
Dan	86		58.7	+	105	-	34	-	4		3	-	2		5	+	0	
Doyce	85		53.7	-	102	-	36	-	4	+	6	+	3		6	+	0	
VA09H-110(2R)	84		56.8		107	+	37		3		4	-	1	-	5	+	0	
VA09H-112(2R)	84		57.9	+	105		38	+	2	-	4	-	2	-	5	+	1	
VA08H-72	83	-	56.3		106	+	37		3		6	+	1	-	5	+	0	
VA08H-79WS	73	-	55.7	-	109	+	37		2	-	7	+	7	+	2	-	0	
Average	88		56.5		106		37		3		5		3		4		1	
LSD (0.05)	4		0.5		1		1		1		1		1		1		2	
C.V.	10		1.9		1		3		43		25		55		36		78	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of location-years on which data are based. Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 3. Three year average summary of performance of hulless entries in the Virginia Tech Barley Tests, 2010, 2011, and 2012 harvests.

	Yield		Test		Date				Leaf		Powdery		Net		Barley Yellow	
	(Bu/a @		Weight		Headed		Height		Lodging		Rust		Mildew		Blotch		Dwarf Virus	
Hulless Lines	48 lb/bu)		(Lb/bu)		(Julian)		(In)		(0-9)		(0-9)		(0-9)		(0-9)		(0-9)	
	(18)		(18)		(8)		(9)		(16)		(6)		(6)		(7)		(1)	
VA07H-31WS	83	+	56.9		110	+	36		3		4	-	4	+	3	-	4	+
VA06H-3WS	82		56.9		109	+	36		3		4	-	4	+	3		5	+
VA07H-35WS	82		56.7		110	+	36		4	+	4		4	+	2	-	4	+
VA06H-25	81		56.9		109	+	36		4	+	4	-	4	+	2	-	5	+
VA06H-79	79		55.9	-	110	+	35		3		8	+	2	-	1	-	0	-
VA08H-5	78		57.8	+	109	+	37	+	2	-	3	-	3	+	3		2	
Eve	77		57.9	+	104	-	35		3		3	-	0	-	5	+	0	-
Doyce	76		54.3	-	105	-	34	-	4	+	4		2		5	+	0	-
Dan	76	-	58.7	+	108		34	-	3		3	-	2		4	+	0	-
VA08H-72	75	-	56.8		109	+	35		2	-	6	+	1	-	4	+	0	-
Average	79		56.9		108		35		3		4		3		3		2	
LSD (0.05)	3		0.4		1		1		0		1		1		1		2	
C.V.	11		2.3		1		4		40		28		57		39		59	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of location-years on which data are based. Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 4. Summary of performance of hulless entries in the Virginia Tech Barley Test, Southern Piedmont AREC, Blackstone, VA, 2012 harvest.

Hulless Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Lodging (0-9)		Net Blotch (0-9)	Powdery Mildew (0-9)
VA09H-4	99	+	58.0		2		5	1
VA09H-174	92		57.2		2		3	3
VA06H-3WS	89		57.3		4		4	3
VA09H-6WS	88		55.8		2		4	1
VA08H-65	87		58.7		4		5	0
VA08H-72	86		57.8		2	-	5	1
VA09H-178WS	86		56.4		4		4	1
Doyce	85		54.8		5	+	6	3
VA08H-61	84		56.8		4		4	0
VA06H-25	81		57.0		3		3	4
Dan	81		58.5		5		3	3
VA06H-79	80		57.4		4		2	0
VA09H-110(2R)	80		57.9		3		7	0
Eve	79		58.6		4		4	1
VA08H-5	78		57.9		2	-	3	2
VA07H-31WS	78		57.6		3		3	4
MD02B27-08-10	76		52.6	-	6	+	4	1
VA10H-64	76		53.5	-	7	+	6	1
VA07H-35WS	71		56.8		3		4	3
VA08H-79WS	71		55.0		1	-	4	4
VA09H-112(2R)	63	-	58.0		3		5	3
Average	81		56.8		3		4	2
LSD (0.05)	12		3.1		1		3	3
C.V.	10		3.7		29		47	133

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 5. Summary of performance of hulless entries in the Virginia Tech Barley Test, Tidewater AREC, Holland, VA, 2012 harvest.

	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Lodging (0-9)	
Hulless Lines						
VA09H-174	90	+	53.9	-	2	-
VA09H-6WS	87		52.1	-	1	-
VA08H-72	87		54.0		3	
Dan	87		57.5	+	3	
VA09H-4	85		55.5		2	-
VA06H-79	84		54.5		4	
VA07H-35WS	83		55.1		4	
Doyce	80		53.6	-	4	
VA09H-178WS	80		54.0		4	
VA06H-25	79		54.9		4	
VA08H-65	77		56.3	+	4	
VA08H-61	76		56.0	+	4	
MD02B27-08-10	76		53.3	-	5	+
Eve	75		55.9		4	
VA07H-31WS	75		55.0		4	
VA06H-3WS	74		55.0		4	
VA10H-64	73		55.1		3	
VA09H-110(2R)	73		55.9		3	
VA08H-5	67	-	55.9		3	
VA09H-112(2R)	66	-	56.4	+	3	
VA08H-79WS	63	-	53.5	-	3	
Average	78		54.9		3	
LSD (0.05)	10		1.0		1	
C.V.	9		1.3		23	

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 6. Summary of performance of hulless entries in the Virginia Tech Barley Test, Eastern Virginia AREC, Warsaw, VA, 2012 harvest.

Hulless Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)	
VA06H-25	133	+	58.5		95	+	35		1		3		2	
VA07H-31WS	132	+	58.3		94		36	+	1		5		2	
VA06H-3WS	132	+	58.5		94		35	+	1		3		2	
VA09H-174	128		57.0		101	+	31	-	0		3		0	
VA10H-64	127		57.2		85	-	31	-	1		3		0	
VA08H-65	125		59.5	+	87	-	33		1		2	-	0	
VA07H-35WS	124		58.3		96	+	35	+	0		4		0	
MD02B27-08-10	122		55.2	-	84	-	35		5	+	3		0	
Dan	118		60.5	+	95	+	34		0		3		0	
Doyce	117		55.0	-	86	-	32		3		8	+	0	
VA09H-4	115		57.5		94		31	-	0		5		0	
VA09H-6WS	114		55.5	-	104	+	32		0		7		0	
VA06H-79	111		56.8	-	96	+	35		1		9	+	0	
VA09H-178WS	111		56.6	-	91	-	33		2		7		0	
VA08H-61	111		58.9	+	86	-	33		3		7		1	
VA08H-5	109		58.9	+	95	+	36	+	0		3		0	
VA09H-110(2R)	107		57.9		93		32		0		3		0	
VA09H-112(2R)	102		58.9	+	92		33		0		5		0	
VA08H-72	101	-	58.2		95	+	33		0		5		0	
Eve	96	-	58.2		85	-	30	-	0		5		0	
VA08H-79WS	91	-	56.4	-	104	+	34		0		8	+	7	+
Average	115		57.7		93		33		1		5		1	
LSD (0.05)	15		0.9		2		2		3		3		2	
C.V.	6		0.8		1		3		148		30		170	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 7. Summary of performance of fungicide-treated hulless barley entries in the Virginia Tech Barley Test, Eastern Virginia AREC, Warsaw, VA, 2012 harvest.

Hulless Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)	
VA09H-112(2R)	145		57.4		90	-	32		0	
VA08H-65	142		58.3		85	-	30		0	
MD02B27-08-10	136		57.3		104	+	30		0	
VA10H-64	129		59.2	+	87	-	33		0	
Doyce	129		56.7	-	87	-	31		0	
VA09H-6WS	127		56.8		84	-	34		2	+
VA06H-79	127		58.2		96	+	34		0	
VA09H-4	125		57.3		102	+	29		0	
VA08H-61	123		58.7		85	-	34		3	+
VA07H-31WS	120		57.9		95	+	33		0	
VA07H-35WS	119		57.9		96	+	33		0	
VA06H-25	118		57.2		97	+	32		0	
VA08H-79WS	118		58.2		96	+	33		0	
VA08H-5	117		59.1	+	95	+	37	+	0	
VA09H-174	116		57.8		93		33		0	
Eve	111		58.9	+	85	-	31		1	
VA09H-178WS	111		57.9		95		29		0	
VA06H-3WS	111		56.7	-	103	+	33		0	
VA08H-72	109		58.9		96	+	33		0	
Dan	104		59.7	+	97	+	32		0	
VA09H-110(2R)	100		58.9	+	92		31		0	
Average	121		58.0		93		32		0	
LSD (0.05)	26		1.0		2		3		1	
C.V.	11		0.8		1		6		311	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 8. Summary of performance of hulless entries in the Virginia Tech Barley Test, Eastern Shore AREC, Painter, VA, 2012 harvest.

	Yield		Test				Leaf	
	(Bu/a @		Weight		Lodging		Rust	
Hulless Lines	48 lb/bu)		(Lb/bu)		(0-9)		(0-9)	
VA09H-6WS	120	+	54.9	-	2		7	+
VA09H-178WS	107		56.2		3		3	
VA09H-4	106		56.7		1		6	+
Doyce	106		56.5		3		4	
Dan	105		59.5	+	3		2	-
MD02B27-08-10	99		53.2	-	4		3	
VA08H-65	99		58.1	+	2		2	-
VA07H-35WS	99		56.9		4		3	
Eve	99		57.8	+	2		3	
VA10H-64	97		56.9		1	-	2	-
VA09H-174	95		55.3	-	3		5	
VA08H-72	95		57.0		3		5	+
VA06H-25	94		56.2		4		3	
VA07H-31WS	93		56.5		4	+	2	-
VA08H-5	92		57.1		2		3	
VA09H-110(2R)	92		56.3		2		3	
VA06H-3WS	89		56.4		4		3	
VA09H-112(2R)	87		57.6		2		3	
VA06H-79	85		56.7		3		8	+
VA08H-61	84	-	57.6	+	4		4	
VA08H-79WS	77	-	54.8	-	2		8	+
Average	96		56.6		3		4	
LSD (0.05)	12		1.0		2		1	
C.V.	9		1.2		42		27	

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 9. Summary of performance of hulless entries in the Virginia Tech Barley Test, Northern Piedmont AREC, Orange, VA, 2012 harvest.

Hulless Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)	
VA09H-174	112	+	54.2		102	+	36		0	
VA08H-65	112	+	56.3		100	-	37		0	
VA10H-64	111		55.0		99	-	36	-	0	
VA09H-6WS	111		54.3		102	+	38		0	
VA09H-4	110		55.7		100		36		0	
VA09H-178WS	107		53.9	-	100		36		0	
VA06H-79	106		54.8		101		37		1	
Doyce	105		53.8	-	99	-	37		5	+
VA06H-25	104		56.7	+	102	+	39	+	0	
Dan	102		57.8	+	100	-	36	-	0	
VA08H-79WS	100		56.0		102	+	38		0	
Eve	99		56.4	+	98	-	37		0	
VA08H-72	99		55.2		101		39		1	
VA07H-31WS	99		56.0		101	+	40	+	0	
VA08H-61	98		55.0		99	-	37		1	
VA07H-35WS	96		55.9		102	+	38		1	
VA06H-3WS	93		56.4		101	+	38		0	
VA09H-110(2R)	93		55.1		101		38		1	
VA08H-5	93		56.9	+	101		41	+	0	
VA09H-112(2R)	86	-	55.3		100		36		0	
MD02B27-08-10	69	-	49.2	-	98	-	39		0	
Average	100		55.2		100		37		0	
LSD (0.05)	11		1.1		1		2		1	
C.V.	7		1.4		0		3		247	

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 10. Summary of performance of hulless entries in the Virginia Tech Barley Test, Kentland Farm, Blacksburg, VA, 2012 harvest.

	Yield		Test		Date						Leaf		Net		Barley Yellow	
	(Bu/a @		Weight		Headed		Height		Lodging		Rust		Blotch		Dwarf Virus	
Hulless Lines	48 lb/bu)		(Lb/bu)		(Julian)		(In)		(0-9)		(0-9)		(0-9)		(0-9)	
Eve	88	+	57.0	+	91	-	33		6		3		6		0	
MD02B27-08-10	83	+	52.8		94	-	34		8		3		4		0	
VA09H-178WS	78	+	51.4		101		34		7		4		4		0	
VA08H-65	77		54.7	+	99		33		6		4		4		2	
VA08H-5	76		54.9	+	101		38	+	4	-	4		5		2	
VA10H-64	75		51.8		96	-	30	-	8		4		6		0	
VA08H-79WS	70		52.8		107	+	36	+	8		6		3		0	
VA09H-112(2R)	69		55.1	+	102		34		4	-	3		5		1	
Dan	66		55.1	+	100		32	-	8		4		6		0	
VA09H-110(2R)	66		53.2		104	+	34		6		4		6		0	
Doyce	66		50.4	-	96	-	34		8		5		8	+	0	
VA06H-3WS	65		52.9		99		36	+	7		4		3		5	+
VA09H-4	64		50.1	-	104	+	34		8		7	+	3		1	
VA09H-174	63		51.7		108	+	34		7		5		2	-	1	
VA07H-31WS	63		52.0		100		35		7		4		4		4	+
VA06H-25	62		51.9		99		35		6		4		4		5	+
VA09H-6WS	61		49.1	-	107	+	33		4	-	3		4		0	
VA08H-61	58		53.5		98	-	33		4	-	5		5		4	+
VA07H-35WS	57		52.6		100		36	+	8		4		3		4	+
VA06H-79	56		51.4		104	+	36	+	5		8	+	2	-	0	
VA08H-72	50	-	50.8	-	103	+	33		8		7	+	6		0	
Average	67		52.6		101		34		6		4		4		1	
LSD (0.05)	12		1.4		2		2		2		2		2		2	
C.V.	12		1.9		1		3		22		31		31		98	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 11. Summary of performance of barley entries in the Virginia Tech Barley Test, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu) (6)		Test Weight (Lb/bu) (6)		Date Headed (Julian) (3)		Height (In) (3)		Lodging (0-9) (6)		Leaf Rust (0-9) (3)		Net Blotch (0-9) (2)		Barley Yellow Dwarf Virus (0-9) (1)		Powdery Mildew (0-9) (1)	
VA08B-85	120	+	48.0	+	93		33	-	4		0	-	3	-	0		0	
Atlantic	120	+	46.8		91	-	34		5	+	3	+	3	-	0		0	
VA06B-48	118	+	46.5		93		33	-	3		3	+	2	-	0		0	
VA08B-84	116	+	47.9	+	92	-	34		5		0	-	3		0		0	
VA05B-69	115	+	46.0		92	-	34		5	+	2		3	-	1		0	
VA08B-108	114	+	46.2		92		33	-	4		1	-	3		0		0	
Nomini	113	+	44.5	-	91	-	40	+	2	-	3	+	2	-	0		0	
VA09B-4	113	+	44.6	-	94	+	33	-	4		2		3		2		0	
VA09B-15	113	+	45.0	-	97	+	34		2	-	1	-	5	+	0		0	
VA08B-109	112		45.9		93		33	-	4		1	-	3	-	0		0	
Thoroughbred	111		45.9		99	+	36	+	4		6	+	3		1		3	+
VA08B-96	110		45.8		92	-	36	+	5	+	1	-	4		1		0	
VA08B-89	110		47.2	+	93		34		6	+	1	-	2	-	0		0	
Price	110		46.1		93		33	-	4		3	+	6	+	0		0	
VA09B-35	109		47.0		93		35		3		3	+	2	-	0		0	
Callao	106		45.5		91	-	31	-	6	+	3	+	4		0		0	
VA08B-95	105		45.6		93		35		5	+	1	-	3		0		4	+
VA09B-34	102		47.4	+	92	-	35		3		1	-	2	-	0		0	
MD02B27-08-16	100		45.9		91	-	35		4		1	-	8	+	4	+	0	
Wysor	99		43.7	-	94		39	+	3		4	+	5	+	0		0	
VA92-42-46	98	-	44.7	-	93		40	+	3	-	0	-	8	+	0		0	
VA09B-29	96	-	44.3	-	95	+	35		3	-	1	-	5	+	4	+	0	
Barsoy	87	-	44.0	-	92	-	36	+	3		6	+	5	+	6	+	0	
Novosadski 183	78	-	46.2		95	+	31	-	3		2		6	+	6	+	0	
Novosadski 293	77	-	46.1		93		32	-	3	-	1	-	5		7	+	0	
Average	106		45.9		93		35		4		2		4		1		0	
LSD (0.05)	7		0.6		1		1		1		1		1		2		1	
C.V.	11		2.4		1		4		39		35		22		100		141	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of locations on which data are based. Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 12. Two year average summary of performance of hulled entries in the Virginia Tech Barley Tests, 2011 and 2012 harvests.

Hulled Lines	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Net Blotch (0-9)		Barley Yellow Dwarf Virus (0-9)	
	(12)		(12)		(5)		(6)		(12)		(4)		(3)		(5)		(1)	
VA08B-85	118	+	46.9	+	100		34	-	4		1	-	0	-	3	-	0	
VA06B-48	115	+	46.1		100	-	34	-	4		4	+	0	-	2	-	0	
VA08B-84	115	+	47.8	+	99	-	34	-	5		1	-	0	-	4		0	
VA09B-4	114	+	44.8	-	102	+	33	-	4		2		0	-	3		2	
VA08B-108	114	+	46.2		100		34	-	4		2	-	0	-	4		0	
Nomini	113	+	45.0	-	99	-	41	+	2	-	4	+	0	-	2	-	0	
VA08B-96	112		45.8		99	-	36		5	+	1	-	0	-	3		1	
VA08B-109	111		46.5		101	+	34	-	4		1	-	0	-	2	-	0	
Atlantic	111		46.5		99	-	34	-	5	+	4	+	0	-	4		0	
VA08B-89	111		47.5	+	100		34	-	5	+	1	-	1		3	-	0	
Thoroughbred	109		46.1		105	+	37	+	4		7	+	6	+	3	-	1	
VA09B-34	105		47.9	+	100	-	36		4		1	-	0	-	3	-	0	
Price	104		46.1		101		34	-	4		3	+	0	-	7	+	0	
VA09B-29	104		44.8	-	103	+	35		3	-	2	-	1		4	+	4	+
Callao	104		45.8		99	-	32	-	7	+	4	+	0	-	3	-	0	
VA08B-95	103		45.2		100		35		5	+	1	-	7	+	2	-	0	
Wysor	100	-	44.0	-	101		40	+	4		5	+	0	-	4		0	
VA92-42-46	99	-	44.9	-	100		41	+	3	-	1	-	0	-	7	+	0	
MD02B27-08-16	99	-	46.5		99	-	35		4		1	-	0	-	7	+	4	+
Barsoy	95	-	45.3		98	-	37	+	4		7	+	1		3		6	+
Average	108		46.0		100		35		4		3		1		4		1	
LSD (O.05)	5		0.8		1		1		1		1		0		1		2	
C.V.	11		4.2		1		4		39		27		55		25		145	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of location-years on which data are based. Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 13. Three year average summary of performance of hulled entries in the Virginia Tech Barley Tests, 2010, 2011, and 2012 harvests.

Hulled Lines	Yield (Bu/a) (18)		Test Weight (Lb/bu) (18)		Date Headed (Julian) (8)		Height (In) (9)		Lodging (0-9) (16)		Leaf Rust (0-9) (6)		Powdery Mildew (0-9) (5)		Net Blotch (0-9) (7)		Barley Yellow Dwarf Virus (0-9) (1)	
VA08B-84	106	+	47.7	+	104		32	-	5	+	1	-	0	-	3		0	
Nomini	106	+	45.3	-	103	-	39	+	2	-	3		0	-	1	-	0	
VA06B-48	106	+	46.3		103	-	32	-	4		4		0	-	2	-	0	
VA08B-108	105	+	46.3		105		32	-	4		2	-	0	-	3		0	
Thoroughbred	103	+	45.9		109	+	35		4		6	+	4	+	2	-	1	
Atlantic	103		46.9	+	103	-	32	-	5	+	3		0	-	3		0	
VA08B-95	97		45.3	-	104		33	-	5	+	1	-	5	+	2	-	0	
Callao	97		46.3		103	-	31	-	6	+	4		0	-	2	-	0	
Price	97		46.3		105	+	32	-	4		3		0	-	7	+	0	
Wysor	94	-	44.5	-	106	+	38	+	4		5	+	0	-	4		0	
VA92-42-46	91	-	45.4	-	105	+	39	+	3	-	1	-	0	-	7	+	0	
Barsoy	88	-	45.5		103	-	36	+	4		7	+	1		3	-	6	+
Average	99		46.0		104		34		4		3		1		3		1	
LSD (O.05)	4		0.6		1		1		1		1		0		1		1	
C.V.	11		3.6		1		5		37		30		65		30		109	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of location-years on which data are based. Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 14. Summary of performance of barley entries in the Virginia Tech Barley Test, Southern Piedmont AREC, Blackstone, VA, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Lodging (0-9)		Net Blotch (0-9)	
VA05B-69	118	+	46.0		5		2	-
VA06B-48	117	+	47.0		3	-	2	-
VA08B-85	116	+	47.9	+	5		2	-
Atlantic	114	+	46.9		5		3	
Nomini	110		44.1		3		2	-
VA09B-35	107		46.7		5		1	-
Thoroughbred	105		46.7		3		5	
VA08B-84	104		48.2	+	4		3	
VA08B-108	102		45.3		4		4	
VA09B-34	101		48.2	+	4		2	-
Price	100		45.9		5		7	+
MD02B27-08-16	99		44.4		5		7	+
VA09B-15	98		43.9		3		6	+
VA09B-4	98		44.4		5		4	
Callao	96		44.3		6	+	4	
VA08B-109	96		45.6		5		3	-
Wysor	95		42.9	-	4		5	
VA08B-89	94		48.0	+	5		2	-
VA08B-95	94		45.2		5		3	
VA09B-29	93		45.1		2	-	6	+
VA92-42-46	89		43.9		5		8	+
VA08B-96	87	-	45.4		5		5	
Barsoy	85	-	42.2	-	4		5	
Novosadski 183	78	-	44.8		2	-	7	+
Novosadski 293	76	-	44.1		3	-	5	
Average	99		45.5		4		4	
LSD (0.05)	12		1.7		1		1	
C.V.	8		2.6		25		25	

Released cultivars are shown in bold print.
Varieties are ordered by descending yield averages.
A plus or minus sign indicates a performance significantly above or below the test average.
The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 15. Summary of performance of barley entries in the Virginia Tech Barley Test, planted no-till at the Tidewater AREC, Holland, VA, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Lodging (0-9)	
Wysor	N/A					
Nomini	N/A					
VA92-42-46	N/A					
Thoroughbred	96	+	44.6		3	-
VA06B-48	94	+	44.2		5	
Atlantic	93		44.9		5	
VA09B-4	92		43.6	-	5	+
Price	91		45.3		4	
VA08B-84	91		46.5	+	5	+
VA08B-95	90		44.6		5	
VA09B-15	89		43.3	-	4	
VA08B-108	86		44.9		5	
VA08B-96	85		44.2		5	
VA08B-85	84		46.0	+	5	
MD02B27-08-16	84		44.2		5	
Callao	79		44.7		6	+
VA05B-69	79		45.1		4	
VA08B-89	78		45.8	+	6	+
VA09B-35	78		45.9	+	6	+
VA08B-109	77		44.8		5	
VA09B-29	76		43.2	-	2	-
VA09B-34	74		46.5	+	4	
Novosadski 293	67	-	45.9	+	3	-
Barsoy	66	-	44.0	-	4	
Novosadski 183	63	-	45.5		3	-
Average	82		44.9		4	
LSD (0.05)	12		0.8		1	
C.V.	10		1.2		18	

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

N/A - DATA NOT REPORTED DUE TO DEER FEEDING DAMAGE

Table 16. Summary of performance of barley entries in the Virginia Tech Barley Test, Eastern Virginia AREC, Warsaw, VA, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)	
VA08B-96	173	+	47.1		88	-	35	+	2		1		0	
VA05B-69	163	+	46.4	-	88	-	34	+	2		1		0	
Atlantic	163	+	47.7		88	-	33		1		2		0	
VA09B-4	162	+	45.9	-	90		32		1		1		0	
VA08B-85	162	+	48.5	+	90		31	-	0		0	-	0	
VA08B-95	160	+	46.9		89		34		2		1		4	+
VA08B-84	159	+	48.8	+	88	-	31	-	1		0	-	0	
VA08B-109	158	+	48.3	+	91	+	33		1		1		0	
VA08B-108	158		47.0		89		32		0		1		0	
VA08B-89	154		48.6	+	89		32		1		1		0	
Callao	153		47.1		87	-	29	-	9	+	1		0	
VA09B-29	153		45.8	-	92	+	35	+	0		0	-	0	
VA06B-48	153		47.3		90		31	-	1		1		0	
Price	149		47.3		89		32		1		2		0	
VA09B-15	147		45.7	-	94	+	31	-	0		0	-	0	
VA09B-35	141		47.9	+	89		31	-	0		3	+	0	
Nomini	139		44.2	-	88	-	38	+	0		2		0	
Thoroughbred	139		47.6		96	+	34		0		6	+	3	+
VA09B-34	137		48.9	+	89		31	-	0		1		0	
Wysor	133	-	44.8	-	91	+	38	+	1		3	+	0	
VA92-42-46	132	-	44.7	-	88	-	38	+	1		0	-	0	
MD02B27-08-16	126	-	46.1	-	85	-	32		5	+	1		0	
Barsoy	122	-	45.6	-	87	-	34		2		5	+	0	
Novosadski 293	121	-	49.9	+	85	-	33		0		1		0	
Novosadski 183	114	-	49.4	+	92	+	30	-	0		2		0	
Average	147		47.1		89		33		1		2		0	
LSD (0.05)	11		0.7		1		1		1		1		1	
C.V.	5		0.9		1		3		73		48		141	

Released cultivars are shown in bold print.
Varieties are ordered by descending yield averages.
A plus or minus sign indicates a performance significantly above or below the test average.
The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 17. Summary of performance of fungicide-treated barley entries in the Virginia Tech Barley Test, Eastern Virginia AREC, Warsaw, VA, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)	
VA05B-69	183	+	47.3		89		33		1	
Atlantic	179	+	48.5	+	89		32		0	
VA06B-48	174		48.6	+	90		32		0	
VA08B-84	169		49.2	+	88	-	32		2	
VA08B-108	168		48.0		90		32		1	
VA08B-89	167		49.5	+	90		33		0	
VA08B-109	167		48.8	+	92	+	31		0	
VA08B-96	167		47.6		89	-	34		1	
VA08B-85	166		49.2	+	90		31	-	0	
Thoroughbred	163		48.8	+	97	+	35	+	0	
Callao	162		48.1		87	-	29	-	7	+
VA09B-4	160		46.3	-	91	+	31		0	
VA08B-95	158		47.6		89		33		3	+
VA09B-15	158		46.4	-	94	+	31	-	0	
VA09B-29	157		46.3	-	92	+	33		0	
VA09B-35	157		48.9	+	90		32		0	
MD02B27-08-16	155		47.7		85	-	33		1	
VA09B-34	155		49.8	+	90		32		0	
Price	146		48.6	+	90		31	-	0	
Barsoy	130	-	45.3	-	87	-	34		2	
Nomini	125	-	44.4	-	88	-	37	+	0	
VA92-42-46	123	-	45.9	-	88	-	38	+	0	
Novosadski 183	120	-	49.7	+	92	+	29		0	
Novosadski 293	118	-	49.5	+	86	-	31		0	
Wysor	108	-	45.6	-	91	+	37	+	0	
Average	153		47.8		90		33		1	
LSD (0.05)	21		0.6		1		2		2	
C.V.	1		0.820		1		3		172	

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 18. Summary of performance of barley entries in the Virginia Tech Barley Test, Eastern Shore AREC, Painter, VA, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Lodging (0-9)		Leaf Rust (0-9)	
Atlantic	113	+	46.2		3		1	
Callao	106		46.0		4	+	3	
VA08B-96	104		45.9		2		1	-
VA06B-48	103		45.8		3		2	
Price	102		45.8		2		4	+
MD02B27-08-16	101		43.8		2		1	
VA05B-69	100		46.6		3		2	
Thoroughbred	97		46.2		3		4	+
VA09B-35	95		46.3		2		2	
VA08B-89	94		46.8		4	+	1	
VA08B-109	94		46.1		4	+	1	
VA09B-15	91		44.7		2		1	
VA08B-85	91		46.7		2		1	-
VA08B-108	90		44.8		2		1	
Wysor	89		43.4	-	3		4	+
VA08B-95	88		45.7		3		1	-
VA09B-4	86		44.1		3		2	
Barsoy	85		43.9		2		4	+
VA09B-29	85		44.5		1		2	
Nomini	83		43.9		2		2	
VA92-42-46	83		44.1		1		1	-
VA08B-84	82		46.5		3		1	-
VA09B-34	80		44.3		2		1	-
Novosadski 183	72		46.2		1		2	
Novosadski 293	66	-	46.1		2		1	
Average	91		45.4		2		2	
LSD (0.05)	21		2.0		1		1	
C.V.	14		3.0		42		48	

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 19. Summary of performance of barley entries in the Virginia Tech Barley Test, Northern Piedmont AREC, Orange, VA, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)	
VA09B-15	125		48.0		96	+	34		3	
VA08B-109	125		47.5		94		33		5	
VA09B-35	124		48.7		94		37		5	
VA06B-48	123		49.2		93	-	35		3	
VA08B-84	123		49.7		94		35		6	
VA08B-85	121		49.7		95	+	33		7	
Thoroughbred	120		48.4		97	+	37		5	
Nomini	119		46.4		93	-	41	+	2	
Atlantic	116		50.0	+	94		35		7	
VA08B-89	115		48.4		94		35		9	
Callao	111		48.3		93	-	33	-	7	
VA09B-4	111		47.2		95	+	34		6	
VA08B-108	111		49.5		95		34		5	
VA05B-69	110		47.3		94		34		9	
VA09B-34	106		49.5		94		36		6	
VA08B-96	106		48.0		94		36		9	
VA92-42-46	106		46.4		95	+	41	+	4	
Barsoy	105		47.2		93	-	37		4	
Price	105		48.4		95		35		5	
MD02B27-08-16	100		49.8		94		36		5	
VA08B-95	98		46.4		95		35		9	
Novosadski 183	86	-	48.8		94		32	-	6	
Novosadski 293	84	-	48.5		93	-	34		2	
Wysor	83	-	45.3	-	95	+	40	+	9	
VA09B-29	82	-	45.9	-	96	+	33		4	
Average	109		48.1		94		35		6	
LSD (0.05)	22		1.9		1		2		4	
C.V.	15		2.8		1		5		51	

Released cultivars are shown in bold print.

Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 20. Summary of performance of barley entries in the Virginia Tech Barley Test, Kentland Farm, Blacksburg,VA, 2012 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Net Blotch (0-9)		Barley Yellow Dwarf Virus (0-9)	
VA08B-85	151	+	48.8	+	93	-	35		5		0	-	3	-	0	
VA08B-84	148	+	48.0	+	93	-	35		7		1	-	3		0	
VA08B-108	146	+	45.8		93	-	34		8	+	1	-	3		0	
VA09B-4	142	+	43.0	-	97	+	35		6		2	-	3	-	2	
VA09B-15	135	+	44.4		100	+	35		1	-	1	-	4		0	
VA08B-89	133	+	45.8		94		35		8	+	2	-	2	-	0	
VA08B-109	132		43.8		94		34	-	6		2	-	3		0	
VA05B-69	130		44.7		93	-	35		7		2	-	3		1	
Atlantic	128		45.3		92	-	35		8	+	5	+	3	-	0	
VA06B-48	126		45.6		94		33	-	7		6	+	3	-	0	
VA09B-34	125		48.2	+	93	-	36		3	-	1	-	2	-	0	
VA08B-96	124		44.4		93	-	35		7		3		4		1	
Nomini	121		44.0		92	-	39	+	2	-	5	+	2	-	0	
Price	120		44.4		94		33	-	6		4	+	5	+	0	
VA09B-35	120		46.7	+	94		36		2	-	4	+	3		0	
Thoroughbred	113		42.6	-	102	+	37	+	8	+	8	+	2	-	1	
VA08B-95	112		44.8		93	-	35		7		2	-	4		0	
VA92-42-46	107		44.6		95		40	+	6		1	-	7	+	0	
Wysor	105		42.2	-	94		38	+	4		5	+	5	+	0	
Callao	101		42.9	-	92	-	30	-	8	+	6	+	3		0	
VA09B-29	101		41.9	-	97	+	37	+	7		2		4		4	+
MD02B27-08-16	96	-	46.1	+	93	-	35		4	-	2	-	9	+	4	+
Barsoy	70	-	41.6	-	94		35		4		8	+	5	+	6	+
Novosadski 183	62	-	43.5		99	+	31	-	8	+	3		6	+	6	+
Novosadski 293	56	-	42.9	-	98	+	31	-	6		1	-	5	+	7	+
Average	116		44.6		95		35		6		3		4		1	
LSD (0.05)	17		1.4		1		1		2		1		1		2	
C.V.	10		2.2		1		3		23		22		16		100	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of locations on which data are based. Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Section 2: Barley Scab Research

One of the primary research objectives of the Virginia Tech barley breeding program is to identify and develop cultivars possessing resistance to Fusarium Head Blight (FHB) or scab. Each year all barley and hulless barley entries in Virginia's Official State Variety Trials are evaluated for FHB resistance in an inoculated, irrigated nursery at the Blacksburg test site, except in 2012 when the trials were planted at a Mount Holly test site. Data from this test for the current crop year and two and three year averages for FHB incidence, FHB severity and FHB Index (incidence x severity / 100) are included in this bulletin (Tables 21 – 26) to aid producers in selection of cultivars on the basis of FHB resistance. Cultivars possessing complete resistance or immunity to FHB have not been identified and resistance levels in currently available cultivars vary from moderately resistant to highly susceptible.

A major goal of the breeding program is to identify and incorporate unique and complementary types of FHB resistance into cultivars to enhance the overall level of resistance. Genes controlling FHB resistance have been identified on only a few spring barley lines. Incorporating multiple resistance genes having additive effects on FHB resistance into cultivars will enhance the overall level of resistance. Because the individual resistance genes are located on different barley chromosomes and each gene confers only partial resistance to FHB, identifying lines having multiple resistance genes is difficult using traditional breeding techniques. To overcome this limitation, our program will incorporate the available markers to help select FHB resistant cultivars.

Entries were inoculated by spreading scabby corn seeds in plots at the booting stage. A moderate level of FHB infection was obtained in 2012. Among 21 hulless lines and varieties tested in 2012, the FHB index ranged from 4 to 40.75 with FHB incidence ranging from 30% to 95% and FHB severity from 10% to 45% (Table 21). Six lines had FHB index lower than the resistant variety 'Eve'. Ten lines and two varieties had FHB index values lower that than the test mean (15.16). Based on two year mean data for 2011 and 2012 (Table 22), five lines showed FHB index lower than Eve, though VA07H-31WS had higher FHB index than Eve in 2012. Eight lines and one variety had FHB index values lower than the test mean (<8.34). Four hulless barley lines (VA08H-5, VA08H-72, VA07H-31WS, and VA06H-25) and one variety (Eve) tested across three years (2010-2012) had average FHB index values lower than the test mean of 5.86 (Table 23).

A moderate FHB infection level was obtained for hulled barley in 2012. Among 25 barley lines and varieties tested in 2012, the FHB index varied from 0.45 to 22 with FHB incidence ranging from 10% to 55% and FHB severity ranging from 3% to 40% (Table 24). 'Nomini' was the most FHB resistant variety in 2012. Eight lines and seven varieties had FHB index values lower than the mean (<5.74). Based on two year mean data for 2011 and 2012 (Table 25), eight lines and five varieties had FHB index values lower than the test mean (<4.37). Two hulled barley lines (VA92-42-46 and VA08B-108) and five varieties (Barsoy, Wysor, Nomini, Price, and Thoroughbred) tested across three years (2010-2012) had average FHB index values lower than the test mean of 5.41 (Table 26).

Table 21. Summary of reaction of entries in the Virginia Tech State Hulless Barley Test to Fusarium head blight (scab), 2012 harvest.

LINE	FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)		Rank FHB Index	Date Headed (Julian)		Leaf Rust (0-9)		Powdery Mildew (0-9)	
VA08H-5	35		13		4		1	95	+	2		4	+
VA09H-110(2R)	45		11		4		2	95	+	2		0	
VA09H-112(2R)	50		10		5		3	91	-	0		0	
VA08H-72	35		16		6		4	92		3		1	
VA08H-61	40		18		7		5	87	-	3		2	
VA08H-79WS	80		10		8		6	101	+	0		9	+
Eve	35		25		9		7	85	-	2		0	
VA07H-31WS	60		15		9		8	95	+	2		3	
VA06H-25	50		20		10		9	96	+	2		4	+
VA09H-178WS	30		35		11		10	89	-	0		1	
VA10H-64	30		40		12		11	87	-	3		0	
Doyce	45		23		12		12	88	-	2		0	
VA09H-4	85		20		17		13	95	+	1		0	
VA06H-3WS	55		33		18		14	97	+	0		5	+
MD02B27-08-10	65		28		19		15	86	-	5		0	
VA07H-35WS	80		25		20		16	96	+	0		4	+
VA06H-79	60		38		23		17	97	+	5		1	
VA08H-65	55		45		24		18	90	-	1		0	
Dan	70		35		30		19	95	+	1		0	
VA09H-174	80		40		32		20	100	+	3		0	
VA09H-6WS	95	+	43		41	+	21	103	+	2		0	
Average	56		26		15			93		2		2	
LSD (0.05)	32		24		20			2		3		2	
C.V.	28		44		62			1		102		62	

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 6-row plots, 13 ft in length cut back to 9 ft at Mt. Holly, VA and were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100 (overall indicator of scab resistance/susceptibility level.)

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 22. Two year average summary of reaction of entries in the Virginia Tech State Hulless Barley Tests to Fusarium head blight (scab), 2011 and 2012 harvests.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index
VA08H-5BS	35	9	3	1
VA09H-112(2R)	40	7	3	2
VA09H-110(2R)	48	8	4	3
VA08H-72	45	11	5	4
VA07H-31WS	45	9	5	5
Eve	35	14	5	6
VA08H-79WS	65	8	6	7
VA06H-25	45	13	6	8
VA09H-178WS	48	22	8	9
VA06H-3WS	43	18	9	10
VA09H-4	65	13	10	11
VA07H-35WS	63	15	11	12
VA06H-79	58	22	13	13
Doyce	63	21	14	14
Dan	48	19	15	15
VA09H-174	63	23	18	16
Average	50	14	8	
LSD (0.05)	23	11	10	
C.V.	32	54	81	

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 6-row plots, 9 ft in length at Mt. Holly, VA in 2011 and in 2-row plots, 4 ft in length at Blacksburg, VA in 2010. They were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100 (overall indicator of scab resistance/susceptibility level.)

Table 23. Three year average summary of reaction of entries in the Virginia Tech State Hulless Barley Tests to Fusarium head blight (scab), 2010 - 2012 harvests.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index
VA08H-5	25	9	2	1
VA08H-72	31	9	3	2
VA07H-31WS	32	11	3	3
Eve	26	14	4	4
VA06H-25	33	11	4	5
VA06H-3WS	29	13	6	6
VA07H-35WS	44	12	7	7
VA06H-79	40	16	9	8
Doyce	45	17	9	9
Dan	32	14	10	10
Average	34	12	6	
LSD (0.05)	14	10	8	
C.V.	34	67	113	

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 6-row plots, 9 ft in length at Mt. Holly, VA in 2011 and in 2-row plots, 4 ft in length at Blacksburg, VA in 2010. They were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100 (overall indicator of scab resistance/susceptibility level.)

Table 24. Summary of reaction of entries in the Virginia Tech State Barley Test to Fusarium head blight (scab), 2012 harvest.

LINE	FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)		Rank FHB Index	Date Headed (Julian)		Leaf Rust (0-9)		Powdery Mildew (0-9)	
Nomini	10		5		0		1	87	-	3	+	0	
VA92-42-46	10		7		1		2	90		0		0	
VA08B-108	25		3		1		3	86	-	0		0	
VA05B-69	15		9		2		4	89		0		4	+
Barsoy	15		12		2		5	87	-	3	+	0	
VA08B-96	20		15		3		6	90		0		1	
Wysor	15		14		3		7	91		3	+	0	
Novosadski 293	45		6		3		8	91		0		0	
Novosadski 183	25		15		3		9	89		0		1	
VA08B-85	35		10		4		10	91		0		0	
MD02B27-08-16	25		18		4		11	87	-	1		0	
VA06B-48	25		12		4		12	92		0		1	
Price	30		15		5		13	91		0		0	
VA08B-89	33		13		5		14	92		0		1	
Callao	30		13		5		15	87	-	0		0	
Thoroughbred	35		18		6		16	95	+	0		8	+
VA08B-84	30		20		6		17	90		1		0	
VA08B-95	45		9		6		18	91		0		8	+
VA08B-109	40		15		7		19	90		0		1	
VA09B-4	50		20		10		20	92		1		0	
VA09B-35	25		27		10		21	90		0		1	
VA09B-29	45		23		11		22	92		0		0	
Atlantic (VA06B-19)	35		23		11		23	91		1		1	
VA09B-34	40		33		13		24	92		0		1	
VA09B-15	55		40	+	22	+	25	94	+	1		0	
Average	30		16		6			90		0		1	
LSD (0.05)	34		21		10			2		1		1	
C.V.	54		66		81			1		68		68	

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 6-row plots, 13 ft in length cut back to 9 ft at Mt. Holly, VA and were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100 (overall indicator of scab resistance/susceptibility level.)

The 0-9 ratings indicate a genotype's response to disease or lodging where 0 = highly resistant and 9 = highly susceptible.

Table 25. Two year average summary of reaction of entries in the Virginia Tech State Barley Tests to Fusarium head blight (scab), 2011 and 2012 harvests.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index
VA92-42-46	20	6	1	1
Nomini	30	6	2	2
VA09B-34	33	10	2	3
Barsoy	25	9	2	4
MD02B27-08-16	28	11	2	5
VA08B-108	38	7	3	6
VA08B-89	38	11	3	7
Wysor	35	10	3	8
VA06B-48	40	9	4	9
Thoroughbred	38	11	4	10
VA08B-85	46	9	4	11
VA08B-84	40	13	4	12
Price	40	11	4	13
Callao	48	10	5	14
VA08B-95	55	8	5	15
VA09B-4	38	13	6	16
VA08B-109	58	14	7	17
VA08B-96	58	13	7	18
VA09B-29	45	19	8	19
Atlantic	53	15	9	20
Average	40	11	4	
LSD (0.05)	26	10	5	
C.V.	46	64	85	

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 6-row plots, 9 ft in length at Mt. Holly, VA in 2011 and in 2-row plots, 4 ft in length at Blacksburg, VA in 2010. They were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100 (overall indicator of scab resistance/susceptibility level.)

Table 26. Three year average summary of reaction of entries in the Virginia Tech State Barley Tests to Fusarium head blight (scab), 2010 - 2012 harvests.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index
Barsoy	18	9	2	1
VA92-42-46	23	8	2	2
VA08B-108	31	9	3	3
Wysor	29	10	3	4
Nomini	30	10	3	5
Price	32	12	3	6
Thoroughbred	31	14	4	7
Callao	52	13	7	8
VA08B-95	55	12	7	9
VA08B-84	38	20	9	10
VA06B-48	47	18	10	11
Atlantic	50	23	12	12
Average	36	13	5	
LSD (0.05)	23	11	7	
C.V.	53	70	107	

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 6-row plots, 9 ft in length at Mt. Holly, VA in 2011 and in 2-row plots, 4 ft in length at Blacksburg, VA in 2010. They were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100 (overall indicator of scab resistance/susceptibility level.)

Section 3: Wheat Varieties

Wheat trials were planted in seven-inch rows at Blackstone, Orange, Holland, Painter, and Shenandoah Valley. They were planted in six-inch rows at Warsaw and Blacksburg. They were planted in seven and one-half-inch rows at the Warsaw No-Till location. All no-till locations (Holland and Warsaw No-Till) and Shenandoah Valley were planted at 28 seeds per row foot. All other locations were planted at 22 seeds per row foot.

Selecting the best wheat varieties is challenging but becomes easier with adequate information on performance over multiple environments. Past seasons across Virginia have provided the opportunity to evaluate day length sensitivity, spring freeze damage, glume blotch, scab (Fusarium head blight), and general plant health. Many newer wheat varieties and lines performed well in all environments tested.

The future for wheat varieties adapted to Virginia conditions is very positive. Dr. Carl Griffey, Virginia Tech's small grains breeder, has many lines starting with "VA" shown in the by- and over-location tables that are in the top-yielding group and that display good disease resistance.

The released varieties that yielded significantly higher than the statewide mean in 2012 were SS 5205, USG 3555, USG 3120, Pioneer 26R15, Shirley, USG 3612, and USG 3251. SS 5205 and USG 3251 also had test weight that was significantly higher than the mean of all lines tested. Average yield of all lines tested in 2011-12 was 78 bu/ac.

Featherstone VA-258 had the highest two-year average yield. Shirley, W1566, SS 520, USG 3555, Progeny 870, VA06W-412, USG 3120, and Merl all had grain yield significantly above the mean over the 2011 and 2012 harvests. VA06W-412, Merl, and USG 3120 also had test weight that was significantly higher than the two-year mean of all lines tested. The two-year average grain yield over all location and varieties was 86 bu/ac.

Producers who grow large acreages of wheat should plant two or more varieties having significantly different maturity dates in order to ensure harvest of high quality grain having high test weight and no sprouting. In Virginia it is typical for sporadic or consistent rain showers to interrupt harvest. These wetting and drying cycles and subsequent delays and significantly reduce grain test weight and quality. Growers can circumvent this problem by planting varieties that differ significantly in maturity. Early maturing varieties often can be harvested first and prior to significant rain showers, and later maturing varieties harvested subsequently will suffer less damage and losses in test weight and quality due to exposure to such a rain event.

Summary of wheat management practices for the 2012 harvest season (All rates are given on a per acre basis.)

Blacksburg - Planted September 30, 2011. Preplant fertilizer was 30-46-60 plus one time lime in September 2011. Site was sprayed with .75 oz Harmony Extra SG® on December 15, 2011. Site was fertilized with 80 lb N plus 0.6 oz Harmony Extra SG® on March 8, 2012. Harvest occurred on June 17, 2012.

Blackstone - Planted October 24, 2011. Preplant fertilizer was 300 lb 10-10-10 on October 17, 2011. Site was top-dressed with 60 lb N using 14-0-14 on January 30, 2012 and again on March 14, 2012. Site was sprayed with 4 oz Harmony Extra SG® on January 30, 2012 and with 3 oz Proaxis® for cereal leaf beetle on April 4, 2012. Harvest occurred June 13, 2012.

Warsaw - Planted no-till October 18, 2011. Preplant fertilizer was 30-80-80-5 applied October 11, 2011. Site was fertilized using 12-0-0-1.5 at 25 lb N on December 20, 2011 and at 50 lb N on January 30, 2012. Site was additionally fertilized using Nitramin® 30% N at 40 lb N on March 24, 2012 and at 20 lb N on March 30. 2012. Site was treated with 1.5 qt Brandt EDTA Zinc (9% chelated zinc) on March 15, 2012. Site was sprayed with 2 qt Makaze glyphosate and .5 pt 2,4-D on October 5, 2011 and with 2.5 pt Gramoxone Inteon October 10, 2011. Site was treated with 6.5 oz Starane® and .75 oz Harmony Extra SG® on December 20, 2011. The fungicide-treated plots were sprayed with 4 oz Tilt® on March 17, 2012 and with 8 oz Prosaro® on April 19, 2012. Harvest occurred June 8, 2012.

Painter - Planted October 25, 2011. Preplant fertilizer was 30 lb N using 30% UAN on October 18, 2011. Site was fertilized with 60 lb N using 30%UAN and 0.75 oz Harmony Extra SG® March 21, 2012. Site was fertilized with 40 lb N using 30% UAN April 8, 2012. Harvest occurred on June 7, 2012.

Holland - Planted no-till October 24, 2011. Preplant fertilizer was 300 lb 6-16-36 on October 18, 2011. Site was fertilized with 60 lb N on February 14 and 70 lb N on March 15, 2012 using UAN. Site was treated with .6 oz Harmony Extra SG® and 3 oz Baythroid®. Harvest occurred on June 6, 2012.

Orange - Planted October 28, 2011. Preplant fertilizer was 30-80-60 and site was sprayed with 1 qt Gramoxone on October 5, 2011. Sixty lb N and Harmony Extra® at 0.4 oz were applied March 12, 2012. Harvest occurred on June 14, 2012.

Shenandoah Valley - Planted on November 9, 2011. Preplant fertilizer was 2 tons poultry litter. Fifty lb N and .7 oz Harmony Extra® were applied February 23, 2012. Harvest occurred June 30, 2011.

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height[1] (In)		Lodging (0-9)		Early Lodging[2] (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)		Hessian Fly Resistance (Biotype)[3]	Awns[4]
	(6)		(6)		(2)		(3)		(2)		(3)		(1)		(2)		(4)		(3)			
VA10W-21	86	+	60.5	+	110		35		7		2		0		4	+	0	-	3			TA/AL
MAS #23	85	+	57.8	-	112	+	33	-	4	-	2		0		4	+	2	+	2	-	BC	A
VA10W-123	85	+	59.0		106	-	36	+	8	+	4		3	+	2		0	-	3			TA/AL
SS 5205	85	+	59.6	+	109	-	31	-	6		4		0		2	-	1	-	2	-		AL
USG 3555	84	+	58.4	-	105	-	32	-	9	+	4		6	+	3		1	-	2	-		AL
USG 3120	84	+	59.4		103	-	35		9	+	4		7	+	2	-	0	-	2	-		A
VA09W-188WS	84	+	57.2	-	104	-	37	+	7		4		3		3		1	-	2	-	O	A
Pioneer 26R15	83	+	58.8		110		37	+	6		1	-	0		3		1		2	-	BCDOL	A
Shirley	83	+	58.0	-	113	+	34		5	-	2	-	0		0	-	0	-	3			AL
VA09W-110	83	+	58.4	-	107	-	31	-	8	+	4		3		0	-	1	-	3			TA
USG 3612	83	+	58.0	-	111		35		5	-	4		0		5	+	1		2			TA/AL
USG 3251	82	+	59.5	+	115	+	36	+	4	-	3		0		3		1	-	2			A
Merl	82		60.1	+	110		34		7		3		0		3		0	-	3			AL
MAS #25	82		59.7	+	110		35		5	-	4	+	3	+	3	+	1		2		BCDO	TA/AL
VA10W-140	82		60.9	+	112	+	35		7		4		4	+	0	-	2		3			TA/AL
AgriMAXX Exp 1215	81		58.2	-	111		34		4	-	3		0		5	+	2		3			TA
Featherstone VA258	81		58.5	-	111		36	+	9	+	5	+	2		1	-	1	-	3			TA/AL
Pioneer 26R20	81		59.3		115	+	35		5	-	4		0		1	-	1		3		BCDO	A
5187J	81		60.9	+	107	-	33	-	9	+	5	+	6	+	3		3	+	3			TA
PGX 11-14	81		58.5		115	+	36	+	5	-	3		0		4	+	4	+	3			TA
VA09W-73	81		59.8	+	112	+	33	-	8	+	4		1		1	-	1	-	2			TA/AL
Progeny 117	81		58.4	-	103	-	37	+	9	+	5	+	0		5	+	3	+	3			AL
AgriMAXX 413	81		56.7	-	112	+	33	-	5	-	1	-	0		2		1		5	+		A
VA06W-412*	80		60.2	+	109	-	33	-	9	+	2		0		0	-	1		3			TA/AL
VA08W-294*	80		59.6	+	107	-	34		9	+	4		1		0	-	0	-	2			TA/AL
USG 3172	80		59.2		110		37	+	8	+	4	+	3		0	-	2		3			TA/AL
Pioneer XW10T	80		58.7		113	+	32	-	5	-	1	-	0		2	-	1	-	3		BCDOL	A
Progeny 308	80		59.6	+	112	+	34		5	-	2		0		4	+	1	-	3			A
Progeny 185	80		58.9		110		36	+	5	-	2		0		6	+	2	+	3		D	AL
USG 3409	80		59.6	+	109	-	36		7		3		3		5	+	2		2	-	O	TA

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, 2012 harvest, continued.

Line	Yield (Bu/a) (6)		Test Weight (Lb/bu) (6)		Date Headed (Julian) (2)		Height (In) (3)		Early Height[1] (In) (2)		Lodging (0-9) (3)		Early Lodging[2] (0-9) (1)		Leaf Rust (0-9) (2)		Powdery Mildew (0-9) (4)		Barley Yellow Dwarf Virus (0-9) (3)		Hessian Fly Resistance (Biotype)[3]	Awns[4]
12V51	80		58.3	-	107	-	32	-	9	+	4	+	3		0	-	1	-	2	-		TA/AL
MAS #21	80		59.7	+	111		35		5	-	3		0		4	+	1	-	4			TA/AL
USG 3438	80		56.8	-	112	+	32	-	5	-	1	-	0		2		2		4	+		A
VA07W-415	80		59.0		110		36	+	9	+	4		1		1	-	0	-	4	+	BCDOL	AL
SS 520	80		58.3	-	104	-	34		10	+	4	+	2		3		0	-	4	+		TA/AL
Jamestown	79		60.0	+	103	-	33	-	10	+	5	+	4	+	3		0	-	2		BCD	A
Chesapeake	79		59.8	+	109		34		8	+	4		1		6	+	0	-	3			TA
VA09W-75	79		59.1		107	-	34		8	+	3		2		0	-	0	-	2	-		TA/AL
Dyna-Gro 9042	79		58.7		113	+	34		5	-	2		0		4	+	1		3			TA
MAS #7	79		58.8		113	+	34		5	-	3		0		4	+	1	-	3			TA
SY Harrison	79		57.4	-	114	+	34		5	-	2		0		3		4	+	4			A
SS 8404	79		60.2	+	108	-	32	-	9	+	3		3		2		1		2	-		A
Pioneer 25R32	79		59.6	+	115	+	35		3	-	3		0		4	+	1	-	3		BCDOL	A
SY 9978	78		58.6		112	+	37	+	6		4		1		3		1	-	3		BDOL	A
USG 3201	78		59.8	+	112	+	35		6	-	2		0		2		3	+	2	-		A
Progeny 870	78		56.6	-	112	+	32	-	4	-	1	-	0		2		2		5	+		A
VA10W-125	78		58.6		104	-	34		9	+	2	-	0		0	-	1		4	+		A
VA10W-119	78		59.3		105	-	36		9	+	5	+	6	+	2		1		2	-	BCDOL	A
VA09W-52	78		59.1		105	-	35		9	+	4		1		2		2		2		O	AL
VA10W-28	78		58.3	-	114	+	38	+	5	-	2		0		2	-	2		3			A
NC-Cape Fear	78		59.8	+	104	-	33	-	8	+	5	+	4	+	2		0	-	2			TA/AL
Pioneer 26R10	78		58.5		114	+	34		4	-	1	-	0		4	+	2		3		BCDOL	A
SS 8340	78		59.6	+	113	+	34		5	-	2	-	0		2		3	+	3			A
Pioneer XW10V	78		59.7	+	113	+	33	-	5	-	2	-	0		3		2	+	2		B	A
W1566	78		57.8	-	113	+	40	+	7		3		0		6	+	0	-	4	+		AL
Oakes	78		60.6	+	113	+	36		6		3		0		2		3	+	2	-		TA/AL
Progeny 357	78		56.7	-	115	+	35		5	-	2		0		6	+	3	+	3			A

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, 2012 harvest, continued.

Line	Yield (Bu/a) (6)		Test Weight (Lb/bu) (6)		Date Headed (Julian) (2)		Height (In) (3)		Early Height[1] (In) (2)		Lodging (0-9) (3)		Early Lodging[2] (0-9) (1)		Leaf Rust (0-9) (2)		Powdery Mildew (0-9) (4)		Barley Yellow Dwarf Virus (0-9) (3)		Hessian Fly Resistance (Biotype)[3]	Awns[4]
NC-Yadkin	77		58.9		111		35		7		2		0		0	-	0	-	2	-	B	AL
USG 3315	77		59.6	+	111		36	+	7		3		0		3		0	-	3			AL
MAS #4	77		59.8	+	114	+	34		5	-	2		0		2	-	2	+	3			A
VA09W-69	77		59.6	+	105	-	33	-	10	+	4	+	0		0	-	0	-	3			TA
AGS 2038	77		59.5	+	109	-	37	+	11	+	4		0		0	-	1	-	3			A
VA08MAS-369	77		60.4	+	109		33	-	9	+	3		1		3		1		3			AL
SS 560	77		58.3	-	112	+	33	-	7		3		0		4	+	1		4			TA
MAS #14	77		60.2	+	114	+	36	+	5	-	4	+	0		2		2	+	3			TA/AL
VA09W-112	77		60.8	+	106	-	33	-	10	+	4		0		2		0	-	4	+		TA/AL
MAS #24	76		59.1		112	+	33	-	4	-	1	-	0		3		4	+	2	-	CO	A
USG 3244	76		58.1	-	110		38	+	7		4		4	+	5	+	5	+	2	-	CO	TA/AL
Dyna-Gro 9171	76		56.6	-	111		33	-	5	-	2		0		2		1		5	+		A
AgriMAXX 415	76		59.7	+	114	+	34		5	-	2		0		2		3	+	3			A
Dyna-Gro 9922	76		59.1		114	+	37	+	5	-	1	-	0		3		0	-	4	+		A
SS 8500	76		58.4	-	111		39	+	5	-	2	-	0		3		2		3		B	A
VA09W-46	76		58.5		107	-	34		6		5	+	3		2		2	+	3		O	AL
Branson	76		58.2	-	109		34		5	-	2	-	0		4	+	0	-	3		B	AL
SY 1526	76		58.5	-	112	+	36	+	5	-	4		2		2		3	+	4	+	BCD	TA
SS EXP 8350	76		57.8	-	115	+	33	-	5	-	0	-	0		2	-	5	+	3		B	A
Dyna-Gro 9012	76		58.6		113	+	34		5	-	2		0		2		3	+	3			A
Dyna-Gro 9223	75		58.4	-	114	+	36	+	5	-	3		0		4	+	4	+	4	+		TA
VA08W-613	75		59.0		103	-	34		9	+	2		2		0	-	1	-	4			TA
VA09W-114	75		59.0		108	-	34		9	+	3		2		3		1		4	+		TA
VA10W-663	73	-	59.8	+	102	-	32	-	8	+	2		0		0	-	1		3			AL
Progeny 125	73	-	57.5	-	103	-	33	-	9	+	1	-	0		4	+	2		3			AL
VA08W-176	73	-	61.1	+	113	+	35		7		3		0		1	-	2		4			TA/AL
MAS #22	72	-	58.9		114	+	36	+	4	-	4		0		5	+	3	+	3		C	TA/AL

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, 2012 harvest, continued.

Line	Yield (Bu/a) (6)		Test Weight (Lb/bu) (6)		Date Headed (Julian) (2)		Height (In) (3)		Early Height[1] (In) (2)		Lodging (0-9) (3)		Early Lodging[2] (0-9) (1)		Leaf Rust (0-9) (2)		Powdery Mildew (0-9) (4)		Barley Yellow Dwarf Virus (0-9) (3)		Hessian Fly Resistance (Biotype)[3]	Awns[4]
VA07HRW-45*	71	-	56.3	-	115	+	37	+	6		4		0		3		1	-	4	+		A
MAS #10	71	-	58.3	-	115	+	31	-	4	-	1	-	0		0	-	4	+	4		O	A
MAS #2	70	-	59.5	+	115	+	39	+	5	-	5	+	0		1	-	2		3		B	TA
MAS #20	69	-	58.7		116	+	39	+	4	-	3		0		1	-	5	+	3		B	A
GA-021245-9E16	69	-	59.8	+	105	-	35		12	+	3		1		0	-	0	-	3			A
Pioneer 26R12	67	-	60.0	+	112	+	36		5	-	1	-	0		2		1		3			A
SS 8302	67	-	59.9	+	112	+	36	+	7		2		0		5	+	3	+	4	+	C	A
Pioneer 26R22	67	-	59.9	+	112	+	35		6		1	-	1		3		2		3		O	A
MD03W665-09-1	67	-	60.7	+	111		34		7		2		1		2		0	-	4	+		TA/AL
Massey	61	-	58.6		106	-	38	+	9	+	5	+	5	+	8	+	1	-	4	+	B	AL
Average	78		59.0		110		35		7		3		1		3		2		3			
LSD (O.05)	4		0.5		1		1		1		1		2		1		1		1			
C.V.	9		1.4		1		4		13		45		148		28		55		28			

Released cultivars are shown in bold print.

The number in parentheses below column headings indicates the number of locations on which data are based.

Varieties are ordered by descending yield averages. A plus or minus sign indicates a performance significantly above or below the test average.

[1]Early plant height, assessed in early spring when wheat begins to elongate, provides information related to photoperiod sensitivity.

[2]Entries noted as lodging very early when assessed at the end of April were injured by spring freeze.

The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

[3] Seedlings of all lines were tested for resistance to biotypes B, C, D, O, and L of Hessian Fly. Letter in column indicates varietal resistance.

Lines lacking letter were susceptible.

[4] A=awned, AL=awnletted, TA=tip awned

[*] Released line yet to be named.

Table 28. Two year average summary of performance of entries in the Virginia Tech Wheat Tests, 2011 and 2012 harvests.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
	(14)		(14)		(6)		(7)		(10)		(6)		(8)		(5)	
Featherstone VA258	92	+	58.7	-	118	+	38	+	3	+	1	-	1		3	
VA07W-415	91	+	58.9		117		37	+	3		2	-	0	-	4	+
Shirley	91	+	57.9	-	119	+	34	-	1	-	0	-	0	-	3	
W1566	90	+	58.0	-	119	+	41	+	3		6	+	1	-	4	+
SS 520	90	+	58.4	-	115	-	36		4	+	3		1	-	4	+
USG 3555	90	+	58.3	-	115	-	33	-	3		3	+	1	-	2	-
Progeny 870	89	+	57.2	-	117		34	-	1	-	2		2	+	5	+
VA06W-412*	89	+	60.3	+	118		35	-	1	-	1	-	1	-	3	
USG 3120	89	+	59.8	+	113	-	36		3		1	-	1	-	2	-
VA09W-110	89	+	58.4	-	118		33	-	2		0	-	1		3	
Merl	89	+	60.2	+	117		36		2	-	3	+	0	-	3	
Pioneer 26R10	89		58.6	-	120	+	36		1	-	3	+	2	+	3	
12V51	89		58.7	-	117	-	34	-	3	+	0	-	1	-	2	-
Vigoro 9171	89		57.3	-	117		34	-	2	-	2		2	+	5	+
USG 3438	89		57.2	-	118		34	-	1	-	2		2	+	4	+
5187J	89		60.8	+	116	-	34	-	4	+	2		3	+	3	
VA09W-188WS	88		57.5	-	115	-	38	+	3	+	2		1	-	2	-
Pioneer 26R15	88		58.7	-	117		37	+	1	-	3		1		2	-
USG 3251	88		59.0		120	+	37	+	2		3		2		2	
SS 8340	88		59.9	+	119	+	36		1	-	2		3	+	3	
VA08W-294*	88		59.9	+	117		36		2		0	-	0	-	2	
VA08MAS-369	88		60.6	+	118		35	-	2		3		1	-	3	
SS 5205	88		59.6	+	117		32	-	3	+	1	-	1	-	2	-
Jamestown	87		60.7	+	114	-	34	-	3		2		1	-	2	
Pioneer 26R20	87		59.3		120	+	37		3		2		1		3	
VA10W-119	87		59.7	+	115	-	37	+	4	+	2	-	2		2	-
Branson	87		58.6	-	117	-	35		2	-	3	+	1	-	3	
USG 3201	86		60.0	+	118	+	36		2	-	2		3	+	2	-
Pioneer 25R32	86		59.6	+	120	+	36		2		4	+	1	-	3	
VA09W-73	86		59.7	+	119	+	35	-	2		2	-	1	-	2	

Table 28. Two year average summary of performance of entries in the Virginia Tech Wheat Tests, 2011 and 2012 harvests, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
	(14)		(14)		(6)		(7)		(10)		(6)		(8)		(5)	
USG 3315	86		59.6	+	118	+	37	+	3		3		0	-	3	
VA09W-75	86		59.6	+	117	-	35	-	2		0	-	0	-	2	-
Progeny 357	86		56.5	-	120	+	37		2		4	+	4	+	3	
Chesapeake	86		60.0	+	117		35	-	3	+	5	+	0	-	3	
Progeny 117	86		58.9		114	-	38	+	4	+	4	+	4	+	3	
NC-Cape Fear	85		60.0	+	115	-	35	-	4	+	2	-	0	-	2	
SY 9978	85		58.5	-	118	+	38	+	3	+	2		1	-	3	
VA09W-52	85		59.1		116	-	36		3		1	-	2		2	
Progeny 185	85		58.8	-	117		38	+	1	-	4	+	3	+	3	
VA09W-112	85		61.3	+	117		35	-	3		1	-	0	-	4	+
SS 8500	85		58.9		118		39	+	1	-	4	+	1		3	
Progeny 125	85		58.7	-	113	-	35	-	1	-	4	+	3	+	3	
Dyna-Gro 9922	85		59.3		118	+	38	+	1	-	4	+	1	-	4	+
Dyna-Gro 9012	85		59.4		118	+	35		2		2		3	+	3	
OAKES	84		60.4	+	120	+	37		2		3		3	+	2	-
VA09W-46	83		58.5	-	116	-	35	-	4	+	1	-	2	+	3	
SS 560	83	-	58.4	-	119	+	35	-	2	-	4	+	2		4	
SS 8404	83	-	60.8	+	118		33	-	1	-	2	-	3	+	2	-
NC-Yadkin	83	-	58.8	-	118		36		3		1	-	0	-	2	-
AGS 2038	82	-	59.6	+	118	+	39	+	3		0	-	1		3	
VA08W-176	82	-	60.8	+	119	+	36		2		1	-	1		4	
Pioneer 26R12	80	-	60.4	+	119	+	37	+	2	-	2	-	2	+	3	
Pioneer 26R22	79	-	59.0		118	+	37	+	2		3	+	3	+	3	
SS 8302	78	-	59.7	+	119	+	38	+	1	-	5	+	5	+	4	+
Massey	69	-	58.7	-	117		40	+	4	+	8	+	1	-	4	+
Average	86		59.2		117		36		2		2		2		3	
LSD (O.05)	3		0.4		1		1		1		1		0		1	
C.V.	9		1.6		1		4		56		40		52		28	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of location-years on which data are based. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

Table 29. Three year average summary of performance of entries in the Virginia Tech Wheat Tests, 2010, 2011, and 2012 harvests.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
	(21)		(21)		(10)		(11)		(14)		(8)		(10)		(8)	
Shirley	89	+	58.1	-	120	+	33	-	1	-	0	-	0	-	3	
Featherstone VA258	89	+	59.3	-	120	+	37	+	3	+	1	-	1		3	
5187J	88	+	61.3	+	118	-	34	-	3	+	3		3	+	3	
VA07W-415	88	+	59.5	-	119		36	+	2		1	-	0	-	4	+
USG 3120	87	+	60.5	+	115	-	36	+	2		1	-	1	-	2	-
12V51	87	+	59.3	-	119		33	-	3	+	0	-	1	-	2	-
USG 3555	87	+	58.8	-	118	-	32	-	2		4	+	1	-	2	-
USG 3251	87	+	59.2	-	121	+	36	+	1	-	2		1		2	
W1566	87	+	58.5	-	120	+	39	+	2		5	+	1	-	4	+
SS 520	86	+	59.0	-	116	-	36	+	3	+	3		1		4	+
Pioneer 26R20	86	+	59.8		121	+	36	+	2		2	-	1		3	
Pioneer 26R15	86		59.0	-	119		37	+	1	-	3		1		2	-
Merl	86		60.7	+	119		35	-	1	-	3	+	0	-	3	
VA06W-412*	86		60.6	+	119	+	34	-	1	-	1	-	1	-	3	
VA08W-294*	85		60.3	+	119		35	-	2		0	-	0	-	2	
USG 3201	85		60.5	+	119		34	-	1	-	2	-	3	+	2	-
Branson	85		59.0	-	118	-	34	-	2		3		1	-	3	
Jamestown	85		60.9	+	116	-	34	-	2		2		1	-	2	
SS 5205	85		60.1		119		31	-	2		1	-	1	-	2	-
USG 3315	84		59.9		120	+	35		2		3		0	-	3	
Dyna-Gro 9012	84		60.1		119	+	34	-	1	-	2		3	+	3	
Chesapeake	84		60.4	+	118	-	34	-	2	+	4	+	0	-	3	
Progeny 117	84		59.5	-	116	-	38	+	3	+	4	+	4	+	3	
Pioneer 25R32	84		59.9		121	+	35		2		4	+	1	-	3	
SY 9978	84		58.8	-	119		37	+	3	+	2		1		3	
Dyna-Gro 9922	83		59.8		119		37	+	1	-	3	+	1	-	4	+
NC-Cape Fear	83		60.6	+	116	-	34	-	4	+	2	-	0	-	2	
Progeny 185	83		59.3	-	118	-	37	+	1	-	4	+	3	+	3	
Oakes	82		60.9	+	121	+	35		2		3		4	+	2	

Table 29. Three year average summary of performance of entries in the Virginia Tech Wheat Tests, 2010, 2011, and 2012 harvests, continued.

Line	Yield (Bu/a) (21)		Test Weight (Lb/bu) (21)		Date Headed (Julian) (10)		Height (In) (11)		Lodging (0-9) (14)		Leaf Rust (0-9) (8)		Powdery Mildew (0-9) (10)		Barley Yellow Dwarf Virus (0-9) (8)	
SS 560	82	-	59.0	-	121	+	34	-	1	-	4	+	2		4	
SS 8404	81	-	60.9	+	119	+	33	-	1	-	2	-	3	+	2	-
NC-Yadkin	81	-	59.2	-	119		35		2		1	-	0	-	2	-
VA08W-176	81	-	61.3	+	121	+	35		2		1	-	1		4	+
Pioneer 26R22	81	-	59.2	-	119		36	+	1	-	4	+	3	+	3	
Pioneer 26R12	80	-	61.0	+	120	+	36		1	-	2	-	2	+	3	
SS 8302	77	-	60.2		120	+	36	+	1	-	5	+	4	+	4	+
Massey	68	-	59.3	-	119		39	+	3	+	8	+	1		4	+
Average	84		59.8		119		35		2		3		1		3	
LSD (O.05)	2		0.4		0		1		0		0		0		1	
C.V.	8		2.0		1		4		58		41		59		27	

Released cultivars are shown in bold print. The number in parentheses below column headings indicates the number of location-years on which data are based. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

Table 30. Summary of performance of entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
VA09W-110	93	+	60.9		99	-	28	-	7		1		0		0		2	
USG 3120	93	+	62.1	+	95	-	32		7	+	2		1		0		1	
VA07W-415	91	+	61.4		100	-	34	+	8	+	1		0		0		4	
VA08W-294*	89	+	61.3		98	-	31		8	+	1		0		0		2	
VA10W-123	88		61.1		98	-	33	+	7	+	1		1		0		3	
VA08MAS-369	87		62.9	+	101	-	30		8	+	1		0		0		3	
VA10W-125	87		61.0		96	-	31		7	+	2		0		1		3	
Pioneer 26R20	87		62.3	+	107	+	32		4	-	1		0		0		3	
USG 3438	87		60.1	-	105	+	29	-	5		2		0		0		4	+
VA09W-188WS	86		59.8	-	98	-	34	+	6		2		1		0		1	
VA06W-412*	86		62.6	+	99	-	31		7	+	1		0		0		3	
SY 9978	86		61.6		104		36	+	5		2	+	1		0		2	
AgriMAXX 413	86		59.9	-	104		29	-	4		2		0		0		4	+
VA10W-119	85		61.5		97	-	34	+	8	+	1		0		0		2	
AGS 2038	85		62.7	+	103		36	+	8	+	0		0		0		2	
Shirley	85		60.3	-	106	+	28	-	5		1		0		0		1	
USG 3612	85		60.7		103		31		5		2		3	+	0		2	
5187J	84		62.6	+	100	-	30		7	+	1		1		0		2	
SS 8404	84		62.5	+	100	-	28	-	8	+	1		0		0		1	-
USG 3172	84		62.3	+	102		34	+	5		2		0		0		3	
Pioneer XW10T	84		61.3		106	+	28	-	5		1		0		0		2	
Featherstone VA258	84		60.5	-	104		33	+	6		2		0		0		2	
MAS #7	83		61.6		107	+	30		5		1		1		0		3	
Jamestown	83		62.4	+	95	-	31		8	+	1		1		0		1	
USG 3251	83		62.1	+	107	+	30		4	-	0		0		0		3	
MAS #21	83		61.9		104		32		5		1		2	+	0		4	+
Pioneer 26R15	83		61.4		105	+	32		5		1		1		0		2	
Progeny 185	83		61.1		102		33	+	5		2	+	4	+	3	+	2	
Merl	82		62.5	+	102		30		6		0		1		0		3	
SS 520	82		60.4	-	96	-	33		7	+	2		1		0		4	+

Table 30. Summary of performance of entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
VA09W-52	82		61.1		97	-	31		7	+	1		0		0		1	-
PGX 11-14	82		61.1		107	+	33		4		1		2		4	+	3	
Pioneer 26R10	82		61.0		107	+	30		4	-	1		3	+	0		3	
NC-Cape Fear	82		62.4	+	97	-	29	-	7		2	+	0		0		2	
SS 8340	81		62.0		106	+	29		5		1		0		2	+	2	
Dyna-Gro 9223	81		60.7		107	+	33	+	5		1		2		6	+	3	
VA09W-114	81		61.8		100	-	32		7	+	1		2		0		2	
VA09W-46	81		60.9		99	-	30		5		1		0		0		2	
Dyna-Gro 9012	81		62.6	+	106	+	29		4		1		0		3	+	3	
Dyna-Gro 9171	80		59.1	-	104		29		4		2		0		0		4	+
Pioneer XW10V	80		62.0		107	+	27	-	4	-	1		1		2		2	
SS 560	80		60.1	-	104		30		6		1		2		0		2	
VA09W-69	80		61.2		97	-	31		7	+	1		0		0		2	
Progeny 117	80		59.9	-	96	-	34	+	7	+	2		4	+	2	+	1	
USG 3409	80		62.2	+	103		32		5		0		3	+	1		1	
SS 5205	79		61.9		102		26	-	5		2		1		0		2	
Pioneer 25R32	79		62.1	+	108	+	31		3	-	1		1		0		4	
VA10W-28	79		59.8	-	106	+	34	+	5		1		0		0		2	
USG 3201	79		62.2	+	102		29	-	6		1		0		2	+	1	
MAS #25	79		61.6		105		30		4	-	1		1		0		2	
VA09W-112	79		62.5	+	98	-	30		7	+	1		1		0		3	
VA09W-75	78		61.1		98	-	30		5		1		0		0		1	
VA10W-140	78		62.6	+	105	+	32		5		1		0		1		3	
VA10W-21	78		61.3		103		32		5		0		1		0		1	
AgriMAXX Exp 1215	78		60.4	-	104		30		4	-	1		4	+	0		2	
Oakes	78		62.6	+	105	+	33		5		1		1		1		1	
MAS #24	78		61.1		106	+	31		4		1		1		5	+	2	

Table 30. Summary of performance of entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
USG 3315	78		61.4		102		31		7		1		1		0		1	
MAS #4	78		62.3	+	106	+	29	-	4		1		0		1		2	
SY Harrison	78		59.9	-	106	+	29		4	-	1		1		4	+	3	
Dyna-Gro 9042	77		61.2		107	+	29		4		0		2		0		3	
AgriMAXX 415	77		62.2	+	106	+	29	-	4		1		0		2		2	
SS EXP 8350	77		60.8		106	+	29		5		1		0		5	+	2	
VA10W-663	77		61.3		94	-	29		7		2		0		0		3	
MAS #23	76		59.5	-	106	+	27	-	4	-	1		4	+	1		2	
VA09W-73	76		61.7		104		30		5		0		1		0		1	
SY 1526	76		61.2		104		33	+	5		1		1		2	+	2	
MAS #2	76		62.5	+	107	+	36	+	5		2		0		1		2	
Dyna-Gro 9922	75		62.4	+	106	+	31		4		1		0		0		3	
VA08W-613	75		60.7		95	-	31		7	+	1		1		0		1	
Pioneer 26R12	75		62.6	+	107	+	31		5		0		0		0		2	
MAS #14	75		62.2	+	107	+	33		4		2		1		1		2	
Branson	75		60.5	-	102		30		4		1		0		0		3	
SS 8302	74		62.6	+	106	+	32		6		0		4	+	3	+	3	
NC-Yadkin	74		61.7		102		30		6		1		0		0		2	
Progeny 870	74		59.4	-	105	+	28	-	4	-	1		0		0		5	+
VA08W-176	74		63.5	+	105	+	33		5		1		0		0		4	
W1566	74		60.7		107	+	35	+	5		1		4	+	0		3	
SS 8500	74		60.8		103		34	+	6		1		0		0		2	
Progeny 125	74		59.1	-	94	-	30		8	+	2		2		0		2	
Pioneer 26R22	74		62.7	+	107	+	31		5		0	-	1		1		2	
USG 3244	74		60.4	-	103		34	+	6		2		3	+	5	+	2	
Chesapeake	73		61.3		102		30		6		1		5	+	0		2	

Table 30. Summary of performance of entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Leaf Rust (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
USG 3555	73		61.1		99	-	29	-	5		1		1		0		2	
Progeny 308	73		61.9		105		29	-	4	-	1		2		0		3	
MAS #10	72		60.9		107	+	27	-	4	-	1		0		5	+	4	
GA-021245-9E16	72		61.8		98	-	32		8	+	0	-	0		0		2	
12V51	71		60.7		100	-	29		6		1		0		0		3	
Progeny 357	69	-	58.5	-	107	+	30		4		1		7	+	1		2	
MAS #20	69	-	61.3		108	+	35	+	4	-	3	+	1		5	+	1	
VA07HRW-45*	69	-	58.4	-	107	+	32		6		0		0		0		3	
MAS #22	68	-	60.6	-	107	+	31		3	-	1		3	+	2		2	
MD03W665-09-1	66	-	62.6	+	105	+	28	-	5		1		1		0		3	
Massey	62	-	61.0		100	-	34	+	6		2	+	8	+	0		4	+
Average	79		61.3		103		31		5		1		1		1		2	
LSD (O.05)	9		0.7		2		2		1		1		1		1		1	
C.V.	7		0.7		1		4		15		49		68		99		36	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

* Released line yet to be named.

Table 31. Summary of performance of fungicide-treated entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
VA07W-415	97	+	61.8		101	-	35	+	8	+	1		0		4	
AGS 2038	93	+	62.3	+	101	-	37	+	9	+	1		0		2	
Progeny 117	93	+	60.6		96	-	34	+	8	+	2	+	0		2	
5187J	93	+	63.1	+	100	-	32		7	+	1		0		3	
MAS #21	92	+	61.9		106	+	34	+	5		1		0		2	
USG 3172	91	+	62.0		101	-	36	+	7	+	1		0		3	
VA10W-119	90		61.9		97	-	35	+	8	+	1		0		2	
Pioneer XW10T	90		61.9		107	+	29	-	4		0	-	0		3	
Dyna-Gro 9171	90		60.2		105	+	30		5		1		0		4	
VA09W-112	89		62.9	+	99	-	30		7	+	1		0		4	
VA09W-46	87		61.3		98	-	32		6		1		0		2	
SY 9978	87		61.6		106	+	36	+	4		2	+	0		2	
12V51	87		61.1		99	-	32		6		1		0		2	
USG 3555	87		60.6		100	-	28	-	5		2		0		2	
SS 560	86		60.4		103		31		6		0		0		5	+
SS 520	85		59.1	-	96	-	34	+	8	+	2	+	0		4	
USG 3120	85		61.1		95	-	33		7	+	1		0		2	
Jamestown	85		61.8		95	-	30		8	+	1		0		2	
Pioneer 26R20	85		61.8		107	+	33		5		0	-	0		4	
MAS #23	84		60.4		106	+	28	-	4	-	0		0		2	
VA09W-188WS	84		60.1	-	98	-	34	+	6		1		0		2	
Dyna-Gro 9223	84		61.1		107	+	34	+	4	-	1		4	+	3	
Pioneer 26R10	84		60.9		107	+	30		4	-	0		0		3	
VA09W-52	84		61.2		98	-	30		6		1		0		2	
USG 3438	83		59.5	-	105		28	-	4		1		0		5	+
SS 8404	83		61.9		102		28	-	5		1		0		1	-
VA08W-294*	83		60.5		99	-	31		7	+	1		0		2	
VA10W-123	83		60.7		99	-	34	+	6		1		0		2	
VA08W-176	83		63.4	+	105		33		6		1		0		4	
SS EXP 8350	83		61.3		107	+	29		5		1		1	+	3	

Table 31. Summary of performance of fungicide-treated entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
NC-Cape Fear	82		62.6	+	97	-	31		7	+	3	+	0		2	
VA09W-75	82		60.3		97	-	30		7	+	1		0		1	
MAS #25	82		61.2		104		31		4		2	+	0		4	
VA09W-73	82		61.6		106	+	31		5		1		0		2	
USG 3409	81		62.7	+	104		32		6		1		0		1	
VA10W-125	81		61.1		97	-	31		7	+	1		0		4	
MAS #2	81		62.4	+	107	+	38	+	5		2	+	1		3	
Shirley	81		59.3	-	105	+	27	-	4		0		0		2	
AgriMAXX Exp 1215	81		60.6		103		30		5		1		0		2	
VA08MAS-369	81		62.0		101	-	30		7	+	1		0		2	
VA06W-412*	81		62.0		99	-	30		7		1		0		3	
Chesapeake	80		61.4		103		30		5		2		0		3	
MAS #7	80		61.4		106	+	29	-	5		0	-	0		4	
VA09W-114	80		61.9		101	-	32		8	+	1		0		3	
MD03W665-09-1	80		62.5	+	105		31		6		1		0		5	+
VA09W-110	79		60.7		101	-	26	-	7		1		0		4	
Merl	79		62.4	+	103		30		5		0	-	0		4	
MAS #22	79		60.5		107	+	34	+	4		2		0		2	
VA09W-69	79		60.5		97	-	31		7	+	1		0		3	
Pioneer 25R32	79		61.8		108	+	32		3	-	1		0		4	
USG 3251	79		62.0		107	+	30		4	-	1		0		3	
SS 5205	79		61.6		102		28	-	5		1		0		3	
Progeny 308	79		61.8		106	+	31		4	-	1		0		3	
Progeny 870	78		59.4	-	106	+	28	-	4	-	1		0		5	+
NC-Yadkin	78		61.1		102		31		4		1		0		2	
USG 3612	78		60.2		104		31		4	-	1		1		2	
AgriMAXX 415	78		62.4	+	107	+	29		4		1		1		2	

Table 31. Summary of performance of fungicide-treated entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
PGX 11-14	78		60.3		107	+	33		4		0		1		4	
USG 3244	78		60.1	-	102		36	+	6		2	+	0		3	
Dyna-Gro 9012	77		62.0		107	+	29	-	4		0	-	0		3	
Featherstone VA258	77		59.8	-	104		34	+	6		1		0		3	
W1566	77		59.7	-	107	+	36	+	5		1		0		2	
Progeny 125	77		58.9	-	95	-	29		7	+	1		0		2	
Pioneer XW10V	77		61.8		106	+	28	-	5		1		0		2	
Progeny 357	76		59.6	-	107	+	29		4	-	0		1	+	3	
MAS #14	76		62.5	+	107	+	31		3	-	2		0		3	
USG 3201	76		62.2	+	106	+	28	-	5		0	-	0		2	
MAS #4	76		61.9		107	+	30		5		1		0		3	
VA10W-21	76		61.2		102		31		6		1		0		3	
Pioneer 26R15	76		60.9		106	+	31		5		0		0		2	
VA10W-663	76		60.6		93	-	29		7	+	2	+	0		3	
MAS #20	75		61.8		109	+	37	+	4	-	4	+	1	+	3	
SY Harrison	75		60.0	-	106	+	29		4		1		1	+	3	
VA10W-140	75		61.6		105	+	33		5		1		0		3	
Massey	75		61.1		100	-	36	+	6		3	+	0		4	
Dyna-Gro 9042	75		61.1		107	+	30		4	-	0	-	0		4	
USG 3315	74		60.6		103		30		7	+	1		0		2	
VA10W-28	74		58.8	-	106	+	32		4	-	0		0		3	
AgriMAXX 413	73		59.1	-	106	+	29	-	4	-	2		0		5	+
Pioneer 26R12	73		62.0		106	+	31		5		0	-	0		2	
Pioneer 26R22	73		61.7		107	+	32		5		0	-	0		1	
MAS #10	73		60.5		107	+	27	-	4	-	1		1		3	
MAS #24	72		60.3		106	+	30		4		1		0		3	

Table 31. Summary of performance of fungicide-treated entries in the Virginia Tech Wheat Test planted No-Till at Warsaw, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height (In)		Lodging (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
SS 8302	71		62.1	+	106	+	32		5		0		1	+	4	
VA07HRW-45*	71		57.9	-	108	+	34	+	5		0		0		4	
Dyna-Gro 9922	70		61.8		107	+	32		4	-	1		0		3	
SY 1526	70		60.7		105	+	33		5		1		0		3	
Progeny 185	70		60.3		103		33		5		1		0		3	
VA08W-613	70		59.9	-	97	-	30		6		1		0		3	
Branson	69		59.0	-	103		30		4	-	1		0		3	
GA-021245-9E16	69		61.9		98	-	32		10	+	0	-	0		3	
SS 8340	68		61.6		107	+	28	-	4		0	-	0		2	
Oakes	68	-	61.6		106	+	31		5		1		0		2	
SS 8500	68	-	59.7	-	107	+	33		4	-	0	-	0		3	
Average	80		61.1		103		31		5		1		0		3	
LSD (O.05)	12		1.0		2		2		1		1		1		2	
C.V.	9		1.0		1		4		16		47		280		34	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

* Released line yet to be named.

Table 32. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern Shore AREC, Painter, VA, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Leaf Rust (0-9)		Powdery Mildew (0-9)	
Jamestown	97	+	61.0		4		1	
12V51	96	+	59.6		0	-	2	
AGS 2038	90	+	61.3		0	-	1	
VA09W-188WS	88	+	58.9		4		1	
VA08W-294*	87	+	60.5		0	-	1	
Featherstone VA258	86	+	60.4		1	-	1	
Pioneer XW10T	86	+	60.4		3		1	
VA07W-415	85		60.6		1	-	1	
VA09W-52	83		60.5		3		2	
VA09W-112	82		62.0	+	3		1	
USG 3120	82		60.5		3	-	0	
VA09W-75	81		60.2		0	-	0	
VA09W-69	81		60.5		0	-	1	
MAS #25	81		60.6		5		2	
NC-Cape Fear	81		59.2		4		0	
VA10W-119	80		60.7		3		1	
USG 3555	80		60.3		5		0	-
VA09W-110	80		60.8		0	-	2	
VA08W-613	78		59.7		0	-	2	
VA08MAS-369	77		61.5		4		1	
USG 3409	77		61.2		7		1	
SS 8404	76		61.1		4		1	
VA09W-114	76		61.0		4		2	
Merl	75		61.6		5		1	
VA10W-123	75		60.3		3		1	
Shirley	75		59.5		0	-	0	-
VA10W-125	74		60.0		0	-	2	
Pioneer 26R10	73		60.3		4		3	+
VA06W-412*	73		61.1		0	-	3	
SS 5205	73		61.2		2	-	1	
MAS #21	73		60.7		6		1	
VA10W-21	73		60.5		6		1	
AgriMAXX Exp 1215	72		59.8		7		2	
USG 3172	71		61.7		0	-	2	
Pioneer 25R32	71		61.1		6		1	
MD03W665-09-1	70		61.8		4		1	
VA10W-663	70		60.5		0	-	2	
Oakes	69		61.0		4		3	
GA-021245-9E16	69		61.7		0	-	1	
USG 3315	69		60.3		5		1	
USG 3251	69		61.1		5		1	
Pioneer 26R15	68		60.8		4		1	
VA09W-46	68		60.1		4		2	
Branson	68		59.7		7		0	-

Table 32. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern Shore AREC, Painter, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Leaf Rust (0-9)		Powdery Mildew (0-9)	
VA09W-73	67		60.9		2	-	1	
SS 8500	67		60.3		5		2	
Progeny 308	67		61.2		6		1	
VA10W-28	66		60.0		3		2	
NC-Yadkin	66		60.5		1	-	1	
USG 3244	66		57.9	-	6		4	+
Pioneer 26R20	66		60.1		1	-	2	
Progeny 117	66		59.2		6		3	
USG 3201	65		61.1		4		3	
MAS #24	65		60.9		5		4	+
AgriMAXX 413	65		59.5		3		2	
MAS #20	64		60.2		2	-	4	+
SS 8302	64		60.9		7		2	
Chesapeake	64		60.3		7		0	
MAS #14	64		62.4	+	3		3	+
SS 520	63		58.7	-	4		1	
VA08W-176	63		62.7	+	2	-	2	
Dyna-Gro 9922	63		60.8		5		0	
Dyna-Gro 9042	62		58.7	-	6		1	
SY Harrison	62		59.2		4		3	+
SY 9978	62		60.9		4		0	
5187J	61		61.7		5		3	
VA10W-140	61		62.9	+	0	-	1	
Progeny 870	60		59.5		3		2	
Pioneer 26R22	60		61.2		4		3	
Progeny 185	60		59.1		7		2	
SS EXP 8350	60		60.2		3		5	+
MAS #2	60		61.7		3	-	2	
Pioneer 26R12	59		61.0		4		2	
AgriMAXX 415	59		59.3		4		3	
Progeny 357	59		58.3	-	6		4	+
Progeny 125	58		58.1	-	6		2	
VA07HRW-45*	58		58.3	-	5		0	
MAS #10	58		60.2		1	-	4	+
Dyna-Gro 9223	58		59.7		6		3	
USG 3438	58		58.7	-	4		3	
PGX 11-14	57		59.9		6		3	+
W1566	57		58.8		8		1	
MAS #23	56		59.5		5		2	
SS 8340	56		61.4		4		2	
Massey	56		60.0		9	+	1	

Table 32. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern Shore AREC, Painter, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Leaf Rust (0-9)		Powdery Mildew (0-9)	
Dyna-Gro 9012	55		61.8		4		2	
Dyna-Gro 9171	55		57.4	-	3		2	
MAS #4	54		60.9		3		3	
SS 560	54		59.9		6		1	
Pioneer XW10V	53		61.2		4		2	
SY 1526	53		60.2		3		3	+
MAS #7	52		60.2		6		0	-
USG 3612	52		59.5		6		1	
MAS #22	51	-	60.6		7		2	
Average	68		60.4		4		2	
LSD (O.05)	16		1.6		1		1	
C.V.	17		1.8		19		65	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average. The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

* Released line yet to be named.

Table 33. Summary of performance of entries in the Virginia Tech Wheat Test, Southern Piedmont AREC, Blackstone, VA, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
VA10W-123	93	+	60.8		0	-	2	
USG 3120	89	+	61.3	+	1		1	-
VA09W-188WS	87	+	59.3	-	2		2	
SS 5205	86	+	60.8		2		2	
VA09W-110	86		60.1		1	-	3	
USG 3612	85		60.1		2		2	
MAS #25	84		60.9		2		2	
VA10W-119	84		61.5	+	2		2	
Progeny 125	84		59.5	-	3		2	
MAS #21	84		60.8		1		3	
MAS #23	83		59.7	-	3		2	
NC-Cape Fear	83		61.6	+	1	-	3	
USG 3555	83		59.7	-	2		1	-
AgriMAXX 413	82		59.1	-	2		4	
VA09W-112	81		62.3	+	0	-	3	
Chesapeake	81		61.1	+	1	-	2	
Dyna-Gro 9922	81		60.7		1	-	2	
Featherstone VA258	81		60.2		2		1	-
Progeny 117	81		60.1		5	+	2	
VA09W-52	81		61.0	+	3		2	
Shirley	80		59.9	-	0	-	3	
5187J	80		62.3	+	3		2	
SY Harrison	79		59.5	-	4	+	3	
Progeny 185	79		60.4		2		3	
VA10W-21	79		61.5	+	0	-	2	
Merl	79		61.0		1	-	2	
PGX 11-14	79		60.2		4	+	3	
Progeny 308	78		61.1	+	2		2	
USG 3438	78		59.1	-	2		4	+
MAS #14	78		60.9		2		3	
AgriMAXX Exp 1215	78		60.5		2		2	
USG 3251	78		61.1	+	1		2	
USG 3172	78		60.6		3		3	
Jamestown	78		61.1	+	1	-	3	
USG 3409	77		61.4	+	2		2	
VA10W-28	77		60.0		2		3	
Pioneer XW10T	77		59.9	-	2		2	
Pioneer XW10V	77		61.5	+	3		2	
NC-Yadkin	77		60.6		0	-	2	
12V51	77		60.7		1		2	
W1566	77		59.1	-	1		3	
VA10W-663	77		60.9		1		3	
SS 520	77		60.5		1	-	4	+
Pioneer 26R15	76		60.2		2		1	-

Table 33. Summary of performance of entries in the Virginia Tech Wheat Test, Southern Piedmont AREC, Blackstone, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
MAS #7	76		59.9	-	2		2	
VA06W-412*	76		61.6	+	1	-	2	
VA10W-125	76		60.5		1		4	
VA09W-75	76		60.3		0	-	3	
MAS #4	76		60.7		3		3	
Dyna-Gro 9042	75		60.1		2		3	
VA09W-69	75		61.0	+	0	-	3	
VA09W-114	75		60.6		2		4	+
MAS #24	75		60.8		4	+	1	-
AGS 2038	75		61.5	+	1		2	
SS EXP 8350	75		59.3	-	6	+	4	
Oakes	75		62.2	+	4	+	1	-
SY 9978	75		60.7		2		3	
Dyna-Gro 9171	74		59.2	-	2		5	+
AgriMAXX 415	74		60.7		3		3	
USG 3201	74		60.8		3		2	
USG 3244	73		59.9	-	6	+	3	
VA10W-140	73		62.4	+	2		4	+
USG 3315	73		61.0		1	-	3	
SS 8340	73		60.4		3	+	3	
MAS #10	72		60.0		5	+	2	
Pioneer 26R22	72		61.4	+	2		3	
SS 8404	72		61.7	+	1		1	-
Pioneer 26R10	72		60.0	-	2		2	
VA08W-613	72		60.6		1	-	4	+
Progeny 870	72		58.8	-	3		5	+
VA08W-176	71		62.3	+	1		3	
SS 8500	71		60.0	-	3		3	
GA-021245-9E16	71		61.0	+	0	-	3	
Dyna-Gro 9223	71		60.4		5	+	3	
VA08MAS-369	71		61.7	+	1	-	2	
Progeny 357	71		58.4	-	3		3	
VA08W-294*	70		60.9		0	-	3	
Dyna-Gro 9012	70		60.7		4	+	2	
Pioneer 26R12	69		61.3	+	3		3	
MAS #20	69		60.1		5	+	2	
VA07HRW-45*	69		57.5	-	2		4	
SS 8302	68		60.7		4	+	3	
Branson	68		59.4	-	1		3	
Pioneer 26R20	68		60.7		3		3	
Pioneer 25R32	67		60.2		1		2	

Table 33. Summary of performance of entries in the Virginia Tech Wheat Test, Southern Piedmont AREC, Blackstone, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
VA09W-46	67		60.5		5	+	1	-
MAS #2	67		60.7		3	+	2	
MAS #22	66		60.1		4	+	3	
SY 1526	64	-	59.1	-	3		4	+
Massey	64	-	59.7	-	1		3	
VA09W-73	62	-	61.5	+	1		3	
VA07W-415	61	-	60.0	-	0	-	3	
MD03W665-09-1	59	-	61.3	+	1	-	4	+
SS 560	48	-	59.8	-	2		3	
Average	75		60.5		2		2	
LSD (O.05)	11		0.5		1		1	
C.V.	10		0.6		43		35	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average. The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

* Released line yet to be named.

Table 34. Summary of performance of entries in the Virginia Tech Wheat Test, Northern Piedmont AREC, Orange, VA, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Height (In)	
SS 8404	89	+	58.7	+	34	-
USG 3555	87		57.7		34	-
Pioneer 26R20	86		57.0		39	
PGX 11-14	86		56.9		39	
MAS #25	85		57.5		37	
MAS #23	85		55.7	-	35	
Featherstone VA258	85		56.8		38	
VA09W-188WS	85		55.5	-	39	
AGS 2038	85		59.8	+	42	+
Progeny 308	84		57.7		36	
Progeny 117	84		57.1		39	
SY Harrison	84		56.6		37	
MAS #4	84		58.0	+	37	
VA09W-75	84		57.0		37	
Progeny 185	84		57.5		37	
SS 5205	84		57.7		33	-
MAS #22	83		57.2		38	
Jamestown	83		58.8	+	36	
5187J	83		59.9	+	36	
Progeny 357	83		54.9	-	37	
Merl	83		58.7	+	37	
Dyna-Gro 9012	83		57.8		37	
VA10W-123	83		57.6		38	
Pioneer 26R15	82		56.7		38	
VA10W-21	82		58.4	+	37	
VA07HRW-45*	82		54.1	-	40	+
MAS #20	82		56.9		44	+
USG 3409	82		58.0	+	38	
Pioneer XW10T	82		57.0		34	-
Oakes	82		58.7	+	37	
USG 3612	82		55.9	-	38	
USG 3120	82		58.1	+	39	
Dyna-Gro 9223	81		57.1		39	
Pioneer XW10V	81		57.3		36	
SS EXP 8350	81		55.6	-	34	-
AgriMAXX Exp 1215	81		56.4	-	38	
USG 3438	81		54.7	-	33	-
MAS #2	81		58.0	+	43	+
USG 3251	81		58.7	+	39	
SY 9978	81		57.0		40	+
SY 1526	81		56.2	-	40	+
Shirley	80		56.0	-	38	
VA09W-73	80		57.7		37	
SS 8340	80		57.5		37	

Table 34. Summary of performance of entries in the Virginia Tech Wheat Test, Northern Piedmont AREC, Orange, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Height (In)	
Dyna-Gro 9922	80		57.6		41	+
USG 3172	80		57.6		40	+
VA10W-125	80		57.1		38	
USG 3244	79		56.2	-	39	
SS 560	79		56.6		36	
USG 3315	79		57.5		39	
VA09W-110	79		57.9		33	-
Dyna-Gro 9171	79		54.7	-	35	-
Branson	79		56.3	-	35	-
Pioneer 26R10	78		56.5	-	37	
MAS #24	78		57.1		34	-
Progeny 870	78		54.1	-	34	-
NC-Yadkin	78		56.8		38	
AgriMAXX 415	77		57.6		36	
Chesapeake	77		57.7		37	
VA10W-140	77		58.5	+	38	
AgriMAXX 413	77		54.2	-	35	
VA10W-28	77		56.1	-	39	
12V51	77		56.3	-	34	-
Pioneer 25R32	77		57.1		37	
VA07W-415	76		57.1		38	
VA08MAS-369	76		59.0	+	37	
SS 520	75		56.6	-	36	
W1566	75		56.1	-	42	+
MAS #21	75		57.0		36	
VA09W-46	75		57.4		38	
VA08W-294*	75		57.0		36	
MAS #14	74		57.9	+	39	
MAS #10	74		56.7		33	-
NC-Cape Fear	74		58.2	+	35	
VA09W-52	74		57.3		38	
VA09W-69	73		57.7		36	
USG 3201	73		57.8		38	
SS 8500	73		56.2	-	42	+
VA09W-114	73		57.2		36	
VA08W-613	73		57.6		36	
VA06W-412*	73		58.7	+	35	
Dyna-Gro 9042	72		56.6		36	
MD03W665-09-1	71		60.6	+	37	
VA09W-112	71		59.4	+	35	
VA10W-119	69		57.5		39	

Table 34. Summary of performance of entries in the Virginia Tech Wheat Test, Northern Piedmont AREC, Orange, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Height (In)	
VA10W-663	69		58.1	+	33	-
VA08W-176	69		59.4	+	37	
MAS #7	68		57.1		37	
GA-021245-9E16	68		59.2	+	40	+
SS 8302	65	-	58.6	+	38	
Pioneer 26R22	64	-	57.1		36	
Pioneer 26R12	63	-	57.2		36	
Massey	63	-	57.6		42	+
Progeny 125	51	-	55.9	-	33	-
Average	78		57.2		37	
LSD (O.05)	10		0.7		2	
C.V.	9		0.8		4	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

* Released line yet to be named.

Table 35. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height[1] (In)		Lodging (0-9)		Early Lodging[2] (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
Pioneer 26R15	88	+	59.4		114	-	39	+	7		2	-	0		1		2	-
VA10W-123	86	+	58.4		112	-	37	+	9	+	7		3	+	0	-	4	
Shirley	85	+	58.4		118		34		6	-	3		0		0	-	4	
VA08W-294*	84	+	60.4		114	-	33	-	10	+	8	+	1		0	-	3	-
USG 3555	83	+	56.6		110	-	32	-	12	+	8	+	6	+	1		3	-
VA09W-73	83	+	59.6		118		33	-	9	+	9	+	1		0	-	3	-
VA10W-21	82	+	61.8	+	116		36		9		4		0		0	-	4	
MAS #23	82	+	58.1		116		35		4	-	4		0		4	+	2	-
VA06W-412*	82	+	60.9		116		34		10	+	5		0		1		4	
SS 560	77	+	58.4		119	+	35		8		5		0		3	+	6	+
VA10W-28	77	+	59.5		119	+	39	+	6	-	2	-	0		2		5	
SS 8500	77	+	58.3		118	+	40	+	5	-	2	-	0		3	+	4	
SS 520	77	+	58.4		111	-	34		12	+	7		2		0	-	5	
Featherstone VA258	77	+	57.7		116		37		11	+	7		2		1	-	5	
USG 3251	77	+	58.5		121	+	38	+	4	-	6		0		1		3	-
VA09W-69	76	+	59.7		112	-	33	-	12	+	9	+	0		0	-	5	
VA09W-75	76		59.9		113	-	34		10	+	8	+	2		0	-	2	-
MAS #7	75		59.1		118	+	35		5	-	5		0		1		4	
VA07W-415	75		59.5		117		36		10	+	7		1		0	-	5	
Pioneer 26R20	75		58.5		121	+	35		5	-	7		0		1		5	
Pioneer 25R32	75		60.1		121	+	37		3	-	6		0		0	-	4	
12V51	75		57.1		113	-	32	-	11	+	7		3		0	-	3	-
VA09W-188WS	74		58.6		110	-	37	+	7		4		3		0	-	3	
Pioneer XW10T	74		58.6		119	+	34		5	-	2	-	0		1		4	
USG 3438	73		55.6	-	117		34		5	-	1	-	0		2		5	
Progeny 125	73		58.4		109	-	35		9	+	1	-	0		1		5	
Progeny 117	73		57.9		109	-	37	+	10	+	7		0		3	+	4	
SS 5205	73		59.8		114	-	32	-	8		6		0		1		3	-
Merl	73		59.2		116		35		9		6		0		0	-	5	
USG 3409	73		60.1		114	-	37		8		7		3		2		2	-
Dyna-Gro 9042	72		58.8		119	+	35		5	-	4		0		1		4	

Table 35. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2012 harvest, continued.

Line	Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Early Height[1] (In)	Lodging (0-9)	Early Lodging[2] (0-9)	Powdery Mildew (0-9)	Barley Yellow Dwarf Virus (0-9)
Progeny 185	72	58.9	115	38 +	5 -	2 -	0	3 +	5
Branson	72	59.1	115	36	6 -	1 -	0	0 -	5
MAS #24	72	59.2	117	35	4 -	2 -	0	4 +	3 -
NC-Yadkin	71	58.8	118 +	37	8	5	0	0 -	3
W1566	71	57.2	118 +	41 +	8	6	0	0 -	6 +
VA10W-125	71	58.7	109 -	34	10 +	1 -	0	2	5
Progeny 870	71	55.7 -	117	33 -	5 -	1 -	0	1	6 +
VA09W-46	70	58.2	114 -	34	8	7	3	2	4
USG 3201	70	59.9	119 +	36	6 -	4	0	2	3 -
Pioneer XW10V	70	60.0	118 +	34	6 -	3	0	3 +	4
MAS #25	70	60.2	115	38 +	6 -	7	3 +	1	3 -
USG 3244	70	58.1	115	39 +	8	7	4 +	5 +	2 -
VA08W-613	70	59.3	109 -	34	11 +	4	2	0 -	5
NC-Cape Fear	69	59.2	110 -	35	9 +	8 +	4 +	0 -	3 -
AgriMAXX 413	69	55.8 -	118	33 -	5 -	1 -	0	1	6 +
Dyna-Gro 9171	68	55.7 -	117	33 -	6 -	2 -	0	1	6 +
VA07HRW-45*	68	57.7	121 +	37	7	7	0	0 -	5
SS 8340	68	60.2	119 +	36	6 -	2 -	0	2	4
USG 3315	68	59.9	117	38 +	8	6	0	0 -	3
Progeny 357	67	56.1 -	121 +	36	6 -	4	0	3 +	4
Progeny 308	67	58.8	118 +	36	5 -	3	0	1	4
Dyna-Gro 9012	67	52.6 -	119 +	36	5 -	3	0	3 +	4
USG 3612	67	57.6	117	36	5 -	7	0	2	4
VA08MAS-369	67	60.7	116	33 -	11 +	7	1	3 +	4
Jamestown	67	60.0	109 -	32 -	11 +	8 +	4 +	0 -	3 -

Table 35. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height[1] (In)		Lodging (0-9)		Early Lodging[2] (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
VA10W-140	67		61.8	+	117		34		9	+	7		4	+	3	+	3	-
SY 9978	66		57.9		118	+	36		6	-	7		1		1		5	
MAS #21	66		60.9		116		37		5	-	3	-	0		0	-	4	
USG 3172	66		58.6		116		37		10	+	7		3		2		4	
Chesapeake	65		60.4		115		34		10	+	7		1		0	-	5	
AgriMAXX 415	65		59.9		119	+	35		5	-	3		0		3	+	4	
MAS #22	65		58.8		119	+	37		5	-	7		0		4	+	5	
5187J	64		59.8		113	-	33	-	10	+	9	+	6	+	5	+	5	
SS EXP 8350	64		56.8		121	+	34		5	-	0	-	0		5	+	4	
MAS #14	64		60.5		120	+	37		5	-	8	+	0		4	+	4	
USG 3120	64		57.8		109	-	34		10	+	8	+	7	+	0	-	4	
Pioneer 26R10	64		58.1		119	+	35		4	-	1	-	0		2		5	
AgriMAXX Exp 1215	63		57.7		116		35		5	-	7		0		2		4	
MAS #4	62		59.8		119	+	35		6	-	4		0		3	+	5	
SS 8404	61		60.9		113	-	33	-	10	+	6		3		3	+	4	
SY Harrison	60		55.9	-	120	+	34		6	-	3		0		4	+	6	+
VA09W-110	60		57.7		114	-	32	-	10	+	7		3		1		5	
VA10W-119	59		58.7		111	-	34		10	+	9	+	6	+	1		3	-
Dyna-Gro 9922	59		58.0		120	+	38	+	5	-	1	-	0		0	-	7	+
VA09W-52	59		58.7		112	-	35		10	+	7		1		2		4	
VA10W-663	59	-	59.2		108	-	32	-	9	+	4		0		2		5	
SY 1526	58	-	57.9		118		37		6	-	7		2		2		5	
VA09W-112	58	-	60.2		112	-	34		12	+	8	+	0		0	-	6	+
Oakes	57	-	60.1		119	+	37		8		5		0		3	+	4	
VA08W-176	57	-	60.7		119	+	35		8		8	+	0		2		5	
PGX 11-14	56	-	57.5		120	+	35		6	-	6		0		3	+	5	
VA09W-114	56	-	59.1		114		35		11	+	5		2		1		5	

Table 35. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Early Height[1] (In)		Lodging (0-9)		Early Lodging[2] (0-9)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)	
GA-021245-9E16	55	-	58.5		111	-	33	-	14	+	7		1		0	-	5	
MD03W665-09-1	54	-	60.0		116		35		9	+	4		1		0	-	5	
MAS #2	53	-	58.5		121	+	39	+	5	-	8	+	0		2		4	
Dyna-Gro 9223	53	-	57.1		120	+	35		5	-	6		0		4	+	6	+
AGS 2038	50	-	58.3		113	-	33	-	12	+	9	+	0		1	-	5	
MAS #10	49	-	58.2		121	+	32	-	4	-	1	-	0		4	+	5	
MAS #20	48	-	57.6		122	+	38	+	4	-	5		0		4	+	7	+
SS 8302	46	-	59.5		116		37		8		5		0		4	+	6	+
Pioneer 26R12	45	-	60.9		117		39	+	6	-	2	-	0		1		3	-
Pioneer 26R22	42	-	60.9		116		38	+	7		2	-	1		1		4	
Massey	38	-	57.3		111	-	37		11	+	8	+	5	+	1		6	+
Average	67		58.7		116		35		7		5		1		2		4	
LSD (O.05)	9		2.3		2		2		1		2		2		1		1	
C.V.	9		2.8		1		4		11		35		148		38		21	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

[1]Early plant height, assessed in early spring when wheat begins to elongate, provides information related to photoperiod sensitivity.

[2]Entries noted as lodging very early when assessed at the end of April were injured by spring freeze.

* Released line yet to be named.

Table 36. Summary of performance of entries in the Virginia Tech Wheat Test at Shenandoah Valley in Shenandoah County, VA, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Lodging (0-9)	
VA10W-21	119	+	60.6	+	2	
VA10W-140	118	+	60.2	+	2	
Progeny 870	114	+	55.3	-	2	
MAS #23	113	+	56.9	-	1	
SS 5205	112	+	58.9	+	4	
Progeny 308	111		59.5	+	2	
VA07W-415	109		58.5		3	
SS 8340	108		59.6	+	2	
USG 3120	108		59.6	+	2	
USG 3201	108		59.7	+	1	
AgriMAXX Exp 1215	107		57.0	-	3	
PGX 11-14	107		57.8		2	
Pioneer 25R32	107		58.6		2	
Pioneer 26R20	106		58.3		2	
Chesapeake	106		59.9	+	3	
VA09W-73	106		59.1	+	1	
Pioneer 26R10	105		57.5		1	
MAS #4	105		59.3	+	1	
SY 1526	105		58.7		3	
USG 3555	105		57.7		2	
Progeny 357	105		55.5	-	2	
Pioneer 26R15	104		57.4	-	1	
USG 3612	104		56.8	-	2	
MAS #7	104		57.6		2	
Pioneer XW10T	103		57.5		1	
Dyna-Gro 9042	103		57.6		2	
VA09W-52	103		58.7		3	
W1566	103		57.5		3	
USG 3251	103		58.0		2	
VA10W-663	102		60.6	+	2	
SS 560	102		57.2	-	3	
Oakes	102		60.4	+	4	
AgriMAXX 413	101		55.2	-	1	
VA08W-294*	101		59.7	+	2	
Featherstone VA258	101		57.3	-	5	+
Progeny 117	100		59.0	+	6	+
SS 8404	100		59.0	+	2	
USG 3438	100		55.0	-	1	-
AgriMAXX 415	100		59.4	+	2	
12V51	100		57.1	-	4	+
VA09W-110	100		57.4	-	2	
USG 3409	99		57.4	-	2	
VA09W-188WS	99		55.6	-	5	+
Merl	99		59.5	+	2	

Table 36. Summary of performance of entries in the Virginia Tech Wheat Test at Shenandoah Valley in Shenandoah County, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Lodging (0-9)	
VA10W-119	98		58.6		3	
5187J	98		61.2	+	3	
VA10W-28	98		57.4	-	4	+
USG 3244	98		57.7		2	
Shirley	98		56.2	-	1	
VA09W-112	98		60.9	+	2	
SY 9978	98		56.9	-	2	
USG 3315	98		59.6	+	3	
SY Harrison	98		56.3	-	1	
MAS #14	98		59.5	+	3	
SS 8500	97		57.4	-	3	
NC-Yadkin	97		57.6		2	
MAS #25	97		59.5	+	5	+
USG 3172	97		57.5		3	
Progeny 185	97		57.7		3	
VA10W-123	97		58.7		2	
Dyna-Gro 9012	96		59.6	+	2	
VA06W-412*	96		59.0	+	1	
Dyna-Gro 9171	96		55.0	-	2	
VA10W-125	96		57.7		2	
MAS #21	96		59.2	+	5	+
MAS #24	95		57.6		2	
Dyna-Gro 9223	95		57.6		1	
VA08MAS-369	95		60.0	+	1	
VA09W-75	95		58.9	+	1	
Branson	95		56.4	-	3	
SS 520	95		57.6		4	+
VA08W-613	95		58.8		1	
VA09W-69	95		59.5	+	2	
MAS #10	94		57.0	-	1	
Jamestown	94		59.2	+	4	
VA08W-176	94		60.4	+	1	
VA09W-46	93		57.0	-	6	+
VA09W-114	93		57.6		2	
Pioneer XW10V	93		58.5		1	
SS EXP 8350	93		57.0	-	1	
AGS 2038	92		56.6	-	2	
MD03W665-09-1	92		60.1	+	1	
NC-Cape Fear	92		59.2	+	5	+
VA07HRW-45*	92		55.4	-	3	
MAS #22	91		58.0		4	

Table 36. Summary of performance of entries in the Virginia Tech Wheat Test at Shenandoah Valley in Shenandoah County, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)		Lodging (0-9)	
Progeny 125	91		56.7	-	2	
Dyna-Gro 9922	91		57.6		1	-
Pioneer 26R12	90		59.2	+	1	-
Pioneer 26R22	89		58.3		0	-
GA-021245-9E16	85	-	58.7		0	-
SS 8302	85	-	59.3	+	1	
MAS #20	85	-	57.0	-	2	
MAS #2	82	-	58.9		5	+
Massey	78	-	58.2		4	
Average	99		58.2		2	
LSD (O.05)	12		0.8		2	
C.V.	9		0.9		53	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average. The 0-9 ratings indicate a genotype's response to disease or lodging, where 0 = highly resistant and 9 = highly susceptible.

* Released line yet to be named.

Table 37. Summary of performance of entries in the Virginia Tech Wheat Test, planted No-Till at Tidewater AREC, Holland, VA, 2012 harvest.

Line	Yield (Bu/a)		Test Weight (Lb/bu)	
VA09W-110	83	+	56.8	-
AgriMAXX Exp 1215	80	+	57.9	
USG 3172	79	+	59.3	+
5187J	78		60.2	+
12V51	77		57.8	-
MAS #21	77		58.9	
PGX 11-14	77		58.4	
VA10W-140	76		60.4	+
AGS 2038	76		59.0	
USG 3612	76		57.8	-
SS 520	76		56.8	-
VA09W-73	76		59.3	+
MAS #25	75		59.0	+
SS 5205	75		58.8	
VA10W-119	74		58.3	
Merl	74		59.9	+
SY Harrison	74		57.2	-
SS 560	74		57.6	-
Dyna-Gro 9042	73		58.5	
VA09W-112	73		59.8	+
VA09W-114	73		58.4	
VA10W-21	73		59.6	+
Jamestown	72		59.0	+
USG 3251	72		59.1	+
VA09W-188WS	72		55.7	-
Dyna-Gro 9223	72		58.1	
USG 3555	72		58.2	
Chesapeake	72		58.5	
VA06W-412*	72		59.2	+
USG 3120	72		58.4	
Shirley	72		57.8	-
Oakes	72		60.1	+
VA09W-46	71		57.8	-
SY 1526	71		58.1	
Dyna-Gro 9922	71		59.4	+
MAS #23	71		57.0	-
VA09W-52	71		58.1	
VA08W-176	70		60.6	+
MAS #14	70		60.6	+
AgriMAXX 413	70		57.1	-
NC-Cape Fear	70		58.8	
USG 3409	69		58.6	
MAS #7	68		58.1	
SS 8404	68		59.2	+

Table 37. Summary of performance of entries in the Virginia Tech Wheat Test, planted No-Till at Tidewater AREC, Holland, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)	
SY 9978	68		58.1	
USG 3315	68		58.9	
Pioneer XW10T	68		58.1	
SS 8302	68		59.5	+
Pioneer 25R32	68		59.9	+
Progeny 357	68		57.1	-
VA07W-415	68		57.7	-
Pioneer 26R20	68		59.7	+
Progeny 185	67		58.3	
VA10W-123	67		58.0	
Pioneer 26R10	67		58.8	
VA08MAS-369	67		59.1	+
USG 3201	66		59.0	
Pioneer XW10V	66		59.1	+
Progeny 117	66		56.9	-
VA08W-613	66		57.6	-
Pioneer 26R15	66		58.5	
VA09W-75	66		57.9	
Progeny 308	66		59.2	+
VA08W-294*	66		58.5	
NC-Yadkin	65		58.9	
Branson	65		57.8	-
AgriMAXX 415	65		59.0	+
W1566	64		57.5	-
SS EXP 8350	64		57.9	
USG 3244	64		57.2	-
SS 8500	64		58.0	
Pioneer 26R12	64		59.3	+
Progeny 125	64		55.5	-
Massey	63		58.6	
GA-021245-9E16	63		59.9	+
MAS #2	63		59.2	+
VA09W-69	63		58.7	
VA10W-125	63		57.2	-
Pioneer 26R22	63		60.0	+
MAS #20	63		59.9	+
Featherstone VA258	62		58.8	
MAS #24	61		59.2	+
USG 3438	61		57.0	-
Dyna-Gro 9171	61		56.6	-
MAS #10	61		57.9	-

Table 37. Summary of performance of entries in the Virginia Tech Wheat Test, planted No-Till at Tidewater AREC, Holland, VA, 2012 harvest, continued.

Line	Yield (Bu/a)		Test Weight (Lb/bu)	
Progeny 870	60		56.8	-
VA10W-28	60		57.2	-
MAS #22	59		59.3	+
Dyna-Gro 9012	58	-	59.3	+
MD03W665-09-1	58	-	60.0	+
MAS #4	58	-	59.3	+
SS 8340	57	-	58.7	
VA07HRW-45*	56	-	54.8	-
VA10W-663	54	-	59.2	+
Average	68		58.5	
LSD (O.05)	10		0.6	
C.V.	10		0.7	

Released cultivars are shown in bold print. Varieties are ordered by descending yield averages.

A plus or minus sign indicates a performance significantly above or below the test average.

* Released line yet to be named.

Section 4: Milling and Baking Quality

Grain samples for 45 entries in Virginia's 2011 State Wheat Test grown at Warsaw, VA were submitted to the USDA-ARS Soft Wheat Quality Lab in Wooster, OH for advanced milling and baking quality evaluations. The standard quality data were compared to the average for the cultivar checks given for this nursery, and quality scores for all entries were adjusted to the check average. A table of observed and historical quality scores is given below.

When compared to the historical data of the given checks, flour analyses confirmed that milling yield, flour protein, water solvent retention capacity (SRC) and sodium carbonate SRC were within the expected target range for soft wheat characteristics. The softness equivalent and lactic acid SRC values were above average, whereas sucrose SRC absorption was below average.

The adjusted average values of the provided checks are predicted to have increased milling, baking, and softness equivalent scores when compared to the historical average. The observed scores for the checks correlated to the historical scores for milling, baking, and softness equivalence at a level of r>0.8, r>0.9, and r>0.8, respectively. The relative scores are consistent and results of the quality scores are likely predictive of future results.

2011 Advanced Quality Test Data versus Historical Database Values for Checks

	From Advanced Milling Database Scoring						Predicted from Measured Data					
ENTRY	Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Milling Quality Score		Baking Quality Score		Softness Equivalent Score	
Jamestown	60.57	C	50.59	D	68.00	C	61.12	C	54.73	D	56.96	D
Merl	68.12	C	70.42	B	75.65	B	69.88	C	57.47	D	62.81	C
USG 3555	59.54	D	36.53	F	57.60	D	55.66	D	42.68	E	56.09	D
Shirley	67.21	C	68.72	C	64.46	C	62.24	C	72.05	B	63.48	C
Branson	68.43	C	75.15	B	82.59	A	64.23	C	65.44	C	67.58	C
Average	64.77		60.28		69.66		62.62		58.47		61.38	
Adjustment Bias for Trial	2.15		1.81		8.28							
Diagnostics - Correlations	0.8		0.9		0.8							

Additional Information on Analysis

Of the characteristics of quality measured at the Soft Wheat Quality Laboratory, milling yield is the most reproducible and perhaps most important because it is genetically and environmentally associated with good soft wheat flour quality. The average milling yield of this nursery was 69.7%. Of all the test lines, the soft white line VA09W-188WS had the largest flour yield with a value of 72.2%, while 12V51 had the smallest flour yield at 67.3%. Fourteen cultivars (Massey, Merl, 5187J, SS 520, USG Brands 3120, 3201, 3665 and 3770, Progeny 117, Dyna-Gro V9723, W1566, SY9978, and Pioneer Brands 25R32 and 26R22 had flour yields (70.43 – 72.28%) that were significantly higher than average. Wheat lines in Table 38 having flour yields (denoted with "q") that are more than 2 standard errors (~2% points) below the average are likely significantly below average for milling yield.

The next most heritable trait in the quality evaluations is softness equivalent. The average softness equivalence of the 5 checks (56.6%) was nearly the same as that of the nursery's average, 56.4%. Wheat line VA06W-412 had the greatest softness equivalence with 59.7%, while VA09W-657 had a softness equivalence that was 4 points below the check average. Eight cultivars (USG 3315, Branson, Dyna-Gro Brands 9922 and V9723, W1566, USG 3251, SS 8700, and Pioneer Brand 26R22) had softness equivalent values (58.7 – 62.6%) that were significantly higher than average.

Gluten strength is measured by the lactic acid SRC. The lactic acid SRC is also correlated to flour protein concentration, but the effect is dependent on genotypes and growing conditions. As a whole, the nursery's average, 108.6%, was 8 points higher than that of the check sample average and is considered "strong" for gluten strength (lactic acid greater than 105%). Test lines that are greater than 105% may be of interest for the manufacturing of crackers or other products requiring gluten strength. The strongest lactic acid SRC belonged to 12V51 with a value of 137.7%. There were six strong gluten genotypes with good milling yield. These genotypes include Massey, Pioneer Brand 26R15, 5187J, VA06W-412, VA08MAS-369, and VA10W-119.

Seven cultivars (Shirley, USG Brands 3201, 3251, 3665 and 3770, and Pioneer Brands 26R20 and 26R22) produced cookies whose diameters (19.07 – 19.40 cm) were significantly larger than average.

Table 38. Milling and baking quality of entries in the Virginia Tech Wheat Test based on evaluation of the 2011 harvest.

ENTRY	Modified Milling Quality Score		Modified Baking Quality Score		Modified Softness Equivalent Score		Test Weight (LB/BU)		Flour Yield (%)		Softness Equivalent (%)		Flour Protein (at 14%)		As Is Lactic Acid SRC (%)		Cookie Diameter (cm)	
Branson	66.37	C	67.25	C	75.86	B	62.60		69.67		58.80	+	8.39		109.31	s	18.72	
Chesapeake	68.68	C	56.56	D	56.21	D	62.86		70.13		51.85	q	9.16	q	90.63	w	18.64	
COKER 9553	56.04	D	46.69	E	70.75	B	64.58		67.59	q	57.00		9.24	q	115.50	s	18.20	q
Dyna-Gro 9922	63.38	C	66.07	C	75.63	B	63.32		69.06		58.72	+	8.20		100.98		19.01	
Dyna-Gro V9723	75.63	B	67.21	C	78.56	B	61.84		71.53	+	59.76	+	7.67	+	104.38		18.68	
Featherstone VA258	56.73	D	25.63	F	59.14	D	62.60		67.72	q	52.89	q	8.94	q	123.23	s	17.68	q
JAMESTOWN	63.26	C	56.54	D	65.23	C	65.58		69.04		55.05		8.70		97.36		18.69	
MASSEY	71.91	B	54.41	D	72.36	B	62.09		70.78	+	57.57		8.99	q	116.06	s	18.47	
MERL	72.03	B	59.28	D	71.09	B	63.98		70.80	+	57.12		8.71		102.51		18.48	
NC-Cape Fear	54.94	D	35.54	F	58.06	D	64.19		67.36	q	52.51	q	9.01	q	117.29	s	18.06	q
Pioneer 25R32	76.13	B	11.29	F	23.45	F	62.77		71.63	+	40.27	q	9.08	q	113.21	s	16.45	q
Pioneer 26R15	68.90	C	56.12	D	73.34	B	62.40		70.17		57.91		9.56	q	137.42	s	18.66	
Pioneer 26R20	62.11	C	71.03	B	73.68	B	63.00		68.81		58.04		7.64	+	108.98	s	19.10	+
Pioneer 26R22	79.38	B	83.79	A	83.16	A	61.78		72.28	+	61.39	+	7.09	+	91.09	w	19.14	+
Progeny 117	71.34	B	64.35	C	67.63	C	62.99		70.67	+	55.89		8.32		112.46	s	18.90	
Shirley	64.39	C	73.86	B	71.76	B	60.61		69.27		57.35		7.68	+	84.48	w	19.15	+
SS 520	70.15	B	64.92	C	61.65	C	62.54		70.43	+	53.78	q	8.31		109.22	s	18.76	
SS 8700	45.65	E	39.18	F	78.74	B	62.10		65.50	q	59.82	+	8.06		134.66	s	17.95	q
SS-MPV 57	59.66	D	56.29	D	67.09	C	63.72		68.32	q	55.70		8.35		89.37	w	18.64	
SY 9978	75.22	B	71.82	B	71.13	B	62.41		71.44	+	57.13		9.01	q	109.66	s	19.03	
USG 3120	73.81	B	66.38	C	70.42	B	63.65		71.16	+	56.88		7.69	+	96.72		18.84	
USG 3201	76.02	B	77.19	B	68.49	C	63.62		71.61	+	56.20		8.29		104.28		19.30	+
USG 3251	64.13	C	81.05	A	86.62	A	62.27		69.21		62.61	+	7.95		90.83	w	19.40	+
USG 3555	57.80	D	44.49	E	64.37	C	61.78		67.94	q	54.74		8.32		109.26	s	18.38	
USG 3665	72.08	B	77.35	B	74.52	B	62.75		70.81	+	58.33		8.26		94.03		19.19	+
USG 3770	75.59	B	75.17	B	67.50	C	63.78		71.52	+	55.85		8.27		104.47		19.07	+

Table 38. Milling and baking quality of entries in the Virginia Tech Wheat Test based on evaluation of the 2011 harvest, continued.

ENTRY	Modified Milling Quality Score		Modified Baking Quality Score		Modified Softness Equivalent Score		Test Weight (LB/BU)		Flour Yield (%)		Softness Equivalent (%)		Flour Protein (at 14%)		As Is Lactic Acid SRC (%)		Cookie Diameter (cm)	
USG Brand 3315	61.24	C	56.28	D	78.70	B	62.38		68.63		59.81	+	8.36		108.70	s	18.45	
VA05W-139	57.58	D	48.06	E	60.42	C	62.71		67.90	q	53.34	q	8.32		121.45	s	18.44	
VA05W-151	70.52	B	51.77	D	63.87	C	64.65		70.50	+	54.56		8.40		116.02	s	18.48	
VA05W-251	54.42	D	34.57	F	60.46	C	63.05		67.26	q	53.36	q	9.06	q	137.66	s	18.03	q
VA06W-412	62.44	C	68.25	C	78.43	B	62.95		68.87		59.72	+	7.83	+	114.14	s	18.82	
VA07W-415	74.24	B	58.64	D	63.26	C	63.12		71.25	+	54.35	q	8.37		108.29	s	18.61	
VA08MAS-369	69.54	C	54.00	D	60.94	C	64.97		70.30		53.53	q	8.81		127.41	s	18.43	
VA08W-176	65.48	C	71.55	B	77.08	B	63.37		69.49		59.24	+	7.84	+	96.92		18.76	
VA08W-294	58.16	D	48.63	E	71.60	B	63.08		68.01	q	57.30		7.99		117.54	s	18.26	q
VA09W-110	68.07	C	79.37	B	73.83	B	61.72		70.01		58.09		7.70	+	109.30	s	19.20	+
VA09W-112	64.54	C	67.34	C	66.29	C	65.08		69.30		55.42		8.05		111.18	s	18.85	
VA09W-188WS	79.05	B	70.48	B	69.59	C	61.07		72.21	+	56.59		7.49	+	87.62	w	18.70	
VA09W-46	68.58	C	69.27	C	71.98	B	61.98		70.11		57.43		7.88	+	112.58	s	18.98	
VA09W-52	60.32	C	64.54	C	74.01	B	62.88		68.45		58.15		8.05		111.10	s	18.79	
VA09W-657	69.15	C	55.77	D	57.15	D	62.94		70.22		52.19	q	8.48		106.06		18.49	
VA09W-73	62.62	C	70.12	B	75.77	B	63.33		68.91		58.77	+	8.37		112.06	s	18.73	
VA09W-75	61.53	C	59.56	D	77.44	B	62.85		68.69		59.36	+	7.60	+	107.56		18.41	
VA10W-119	71.74	B	53.38	D	62.81	C	64.10		70.75	+	54.19	q	8.74		118.48	s	18.42	
W1566	73.93	B	67.61	C	77.39	B	62.42		71.19	+	59.35	+	8.30		94.92		18.41	
Average	66.54		59.97		69.05		62.99		69.70		56.40		8.32		108.59		18.62	

'q' - questionable or undesirable quality. Marked on lines greater than a standard deviation from the mean of the checks in a unpreferred level.

'+' - Above average quality marked on lines with greater than a standard deviation away from mean of the checks in a preferred level

's' - strong gluten. Greater than one standard deviation more than the mean of checks.

'w' - weak gluten. Greater than one standard deviation less than the mean of the check.

Section 5: Wheat Scab Research

One of the primary research objectives of the Virginia Tech wheat breeding program is to identify and develop cultivars possessing resistance to Fusarium Head Blight (FHB) or scab. Each year all wheat entries in Virginia's Official State Variety Trials are evaluated for FHB resistance in an inoculated, irrigated nursery at the Blacksburg test site. Data from this test for the current crop year and two- and three-year averages for FHB incidence, FHB severity and FHB Index (incidence x severity / 100) are included in this bulletin (Tables 39 – 41) to aid producers in selection of cultivars on the basis of FHB resistance. Cultivars possessing complete resistance or immunity to FHB have not been identified and resistance levels in currently available cultivars vary from moderately resistant to highly susceptible.

A major goal of the breeding program is to identify and incorporate unique and complementary types of FHB resistance into cultivars to enhance the overall level of resistance. Genes controlling FHB resistance have been identified on more than six chromosomes in wheat and some of these genes are complementary in nature and effect different disease resistance components such as FHB incidence, severity, and DON toxin content. Incorporating such multiple resistance genes having additive effects on FHB resistance into cultivars will enhance the overall level of resistance. Because the individual resistance genes are located on different wheat chromosomes and each gene confers only partial resistance to FHB, identifying wheat lines having multiple resistance genes is difficult using traditional breeding techniques. To overcome this limitation, our program is currently identifying and using DNA markers located close to these resistance genes on the same chromosome as "tags" for selecting wheat lines possessing different combinations of these complementary resistance genes.

Entries were inoculated by spreading scabby corn seeds in plots at the booting stage and by spraying a *Fusarium graminearum* spore suspension directly onto spikes two times, first spray at the 50% flowering stage and second spray a week from the first spray. A moderate to high FHB incidence and a low FHB severity were obtained in 2012. Among 94 lines and varieties tested in 2012, the FHB index varied from 0.1 to 12.8 with FHB incidence ranging from 7.5% to 87.5% and FHB severity ranging from 0.6% to 18.4% (Table 39). Twenty-seven lines and 35 varieties had FHB index values lower than the mean (<2.2) and expressed moderate resistant to FHB in 2012. Based on two year mean data for 2011 and 2012 (Table 40), nine lines and 27 varieties had FHB index values lower than the test mean (<3.89). Twenty-four varieties tested across three years (2010-20112) had average FHB index values lower than the test mean of 4.48 (Table 41). Varieties expressing resistance to FHB based on three-year mean data are: SS520, Pioneer 25R32, USG 2301, 12V51, Dyna-Gro 9012, W1566, Branson, USG 3251, Progeny 117, Jamestown, USG 3315, NC-Cape Fear, SS 8404, Pioneer 26R15, Dyna-Gro 9922, Oakes, SS8302, Massey, Pioneer 26R20, Pioneer 26R22, and Shirley.

Table 39. Summary of reaction of entries in the Virginia Tech State Wheat Test to Fusarium head blight (scab) and glume blotch resistance, 2012 harvest.

LINE	Heading date (Julian)		FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)		Rank FHB Index	
MAS #21	115		8	-	1		0		1	
VA09W-46	113	-	8	-	1		0		2	
SS 8500	118	+	8	-	1		0		3	
Jamestown	110	-	8	-	1		0		4	
USG 3201	119	+	15		1		0		5	
MAS #25	113	-	15		1		0		6	
USG 3612	117		13		1		0		7	
VA10W-21	116		13		1		0		8	
Massey	111	-	13		1		0		9	
VA10W-125	110	-	13		1		0		10	
VA06W-412*	116		8	-	1		0		11	
VA09W-188WS	111	-	13		2		0		12	
VA09W-52	112	-	18		2		0		13	
MAS #2	121	+	20		2		0		14	
MAS #22	118	+	23		2		0		15	
Oakes	119	+	20		2		0		16	
SS 8340	118	+	20		2		0		17	
AgriMAXX 415	119	+	20		3		1		18	
VA10W-119	111	-	20		2		1		19	
USG 3172	115		25		2		1		20	
VA10W-123	113	-	25		2		1		21	
VA08W-294*	113	-	23		2		1		22	
AgriMAXX Exp 1215	116		25		2		1		23	
Progeny 117	109	-	23		2		1		24	
VA09W-73	118		18		2		1		25	
SY Harrison	119	+	25		2		1		26	
VA09W-75	113	-	28		2		1		27	
Progeny 125	110	-	28		2		1		28	
VA10W-663	108	-	23		3		1		29	
SS 8302	116		28		3		1		30	
SS 5205	113	-	30		2		1		31	
NC-Yadkin	118		20		2		1		32	
SS 520	111	-	20		3		1		33	
VA08W-176	119	+	28		3		1		34	
W1566	118		30		3		1		35	
Pioneer 26R15	113	-	30		3		1		36	
VA08W-613	109	-	30		3		1		37	
USG 3315	117		28		2		1		38	
MAS #20	122	+	30		3		1		39	
VA10W-140	117		30		3		1		40	
Progeny 185	114		30		3		1		41	
VA09W-69	111	-	23		3		1		42	
VA09W-114	116		33		3		1		43	
USG 3244	114	-	33		3		1		44	

Table 39. Summary of reaction of entries in the Virginia Tech State Wheat Test to Fusarium head blight (scab) and glume blotch resistance, 2012 harvest, cont'd.

LINE	Heading date (Julian)		FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index
USG 3120	109	-	38	3	1	45
MAS #7	118		38	3	1	46
VA08MAS-369	114		38	3	1	47
Pioneer 26R12	116		33	3	1	48
SS 8404	113	-	30	4	1	49
GA-021245-9E16	112	-	38	4	1	50
Pioneer 25R32	121	+	38	3	1	51
Dyna-Gro 9012	118		35	4	2	52
SY 1526	117		30	3	2	53
12V51	112	-	30	5	2	54
VA09W-110	114		40	4	2	55
Progeny 308	117		43	4	2	56
Dyna-Gro 9922	119	+	43	4	2	57
MAS #24	116		45	4	2	58
Branson	114		43	4	2	59
MAS #4	120	+	40	4	2	60
AgriMAXX 413	117		45	4	2	61
Pioneer 26R22	115		40	4	2	62
Pioneer XW10V	118	+	43	5	2	63
USG 3409	114		45	5	2	64
NC-Cape Fear	110	-	35	4	2	65
USG 3555	109	-	48	4	2	66
MAS #23	118	+	50	5	2	67
MAS #14	120	+	50	4	3	68
SS EXP 8350	121	+	55	5	3	69
5187J	113	-	53	5	3	70
MD03W665-09-1	115		50	6	3	71
Dyna-Gro 9042	119	+	50	7	4	72
VA07W-415	116		45	8	4	73
VA09W-112	112	-	58	6	4	74
Dyna-Gro 9223	120	+	55	7	4	75
USG 3251	121	+	60	7	4	76
Progeny 870	116		58	6	4	77
Merl	116		50	7	4	78
USG 3438	116		55	7	4	79
Dyna-Gro 9171	117		63	7	5	80
Pioneer 26R10	119	+	58	7	5	81
Shirley	118		50	8	5	82
VA07HRW-45*	121	+	60	8	5	83

Table 39. Summary of reaction of entries in the Virginia Tech State Wheat Test to Fusarium head blight (scab) and glume blotch resistance, 2012 harvest, cont'd.

LINE	Heading date (Julian)		FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)		Rank FHB Index
Chesapeake	114		65	+	8		5		84
Pioneer 26R20	121	+	63		8		5		85
Featherstone VA258	114		58		8		6		86
SY 9978	118	+	53		10	+	6		87
VA10W-28	119	+	70	+	9		6		88
MAS #10	121	+	68	+	10		7		89
Progeny 357	120	+	65	+	11	+	7	+	90
PGX 11-14	120	+	60		9		7	+	91
Pioneer XW10T	118	+	75	+	10		7	+	92
AGS 2038	113	-	88	+	10		9	+	93
SS 560	118	+	60		18	+	13	+	94
Average	115		36		4		2		
LSD (O.05)	2		26		6		5		
C.V.	1		36		73		117		

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

* Released line yet to be named.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 2-row plots, 4 ft in length at Blacksburg, VA and were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100; it is an overall indicator of scab resistance/susceptibility level.

Table 40. Two year average summary of reaction of entries in the Virginia Tech State Wheat Tests to Fusarium head blight (scab) and glume blotch resistance, 2011 and 2012 harvests.

LINE	Heading date (Julian)		FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)		Rank FHB Index
VA09W-46	124		14	-	2		0		1
USG 3201	126	+	20		2		0		2
VA09W-75	123	-	24		2		1		3
SS 520	122	-	20		3		1		4
Jamestown	121	-	21		3		1		5
Pioneer 25R32	128	+	29		3		1		6
VA09W-188WS	122	-	26		3		1		7
W1566	126	+	30		3		1		8
Progeny 125	121	-	29		4		1		9
Pioneer 26R12	125		31		4		1		10
Branson	123		36		4		1		11
OAKES	127	+	30		4		2		12
Dyna-Gro 9012	125		33		5		2		13
NC-Cape Fear	121	-	33		4		2		14
12V51	123	-	38		5		2		15
USG 3315	125		41		5		2		16
VA08MAS-369	124		39		5		2		17
Progeny 117	121	-	31		6		2		18
VA09W-73	126	+	31		6		2		19
SS 8340	126	+	33		6		2		20
VA08W-176	126	+	36		6		3		21
Pioneer 26R15	123		35		5		3		22
USG 3251	128	+	48		6		3		23
Dyna-Gro 9922	126	+	46		5		3		24
VA10W-119	122	-	35		6		3		25
Pioneer 26R10	127	+	44		6		3		26
Pioneer 26R22	124		45		6		3		27
5187J	123	-	49		6		3		28
Progeny 870	125		49		6		3		29
SS 8404	123		43		7		3		30
VA09W-52	122	-	29		7		4		31
Pioneer 26R20	128	+	49		6		4		32
Shirley	126	+	45		7		4		33
Progeny 185	123		40		7		4		34
VA07W-415	125		43		8		4		35
Chesapeake	124		53		7		4		36
VA08W-294*	123		44		6		4		37
USG 3438	125		45		7		4		38
Vigoro 9171	125		51		8		4		39
Massey	123	-	31		9		5		40
SS 8302	125		39		8		5		41
NC-Yadkin	125		40		8		5		42
SS 8500	126	+	31		7		5		43

Table 40. Two year average summary of reaction of entries in the Virginia Tech State Wheat Tests to Fusarium head blight (scab) and glume blotch resistance, 2011 and 2012 harvests, continued.

LINE	Heading date (Julian)		FHB Incidence[1]		FHB Severity[2]		FHB Index[3] (0-100)		Rank FHB Index
SS 5205	123	-	48		11		7		44
VA09W-110	124		53		10		7		45
USG 3120	121	-	56		10		7		46
Progeny 357	127	+	60		11		7		47
VA06W-412*	125		36		11		8		48
VA09W-112	123	-	61		13		8		49
SS 560	126	+	50		13		8		50
USG 3555	121	-	54		13		8		51
SY 9978	126	+	56		14		9		52
Merl	125		63		14		10		53
Featherstone VA258	124		61		14		11	+	54
AGS 2038	124		76	+	15		11	+	55
Average	124		41		7		4		
LSD (O.05)	1		22		8		7		
C.V.	1		39		83		121		

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

* Released line yet to be named.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 2-row plots, 4 ft in length at Blacksburg, VA and were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100; it is an overall indicator of scab resistance/susceptibility level.

Table 41. Three year average summary of reaction of entries in the Virginia Tech State Wheat Tests to Fusarium head blight (scab) and glume blotch resistance, 2010 - 2012 harvests.

LINE	Heading date (Julian)		FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)		Rank FHB Index	Don Value 2010[4]	
SS 520	122	-	17	-	6		1		1	0.15	
Pioneer 25R32	127	+	22		5		1		2	0.12	
USG 3201	126	+	18	-	8		1		3	1.03	
12V51	123	-	30		7		2		4	0.04	
Dyna-Gro 9012	125		27		7		2		5	0.48	
W1566	126	+	24		10		2		6	0.75	
Branson	123	-	28		13		2		7	0.15	
USG 3251	127	+	36		6		2		8	0.30	
VA08W-176	126	+	29		7		2		9	0.10	
Progeny 117	121	-	26		8		2		10	0.42	
Jamestown	122	-	22		9		2		11	0.31	
USG 3315	125	+	36		7		3		12	0.10	
NC-Cape Fear	122	-	28		9		3		13	0.50	
SS 8404	124		33		10		3		14	0.20	
Pioneer 26R15	124		32		10		3		15	0.66	
Dyna-Gro 9922	126	+	37		10		4		16	0.61	
Oakes	127	+	32		11		4		17	0.20	
SS 8302	125		29		11		4		18	0.40	
Massey	123	-	26		10		4		19	0.23	
Pioneer 26R20	127	+	41		9		4		20	0.55	
Pioneer 26R22	125		40		11		4		21	0.44	
Shirley	126	+	37		13		4		22	0.43	
VA07W-415	125		35		15		4		23	0.52	
Progeny 185	124	-	33		16		5		24	0.79	
USG 3120	121	-	42		10		5		25	0.20	
VA08W-294*	124		39		12		5		26	0.32	
Pioneer 26R12	125		36		13		6		27	1.68	+
5187J	123	-	41		21		7		28	0.41	
SY 9978	126	+	43		15		7		29	0.26	
NC-Yadkin	125		38		15		7		30	0.77	
Chesapeake	124		48		15		7		31	0.83	
VA06W-412*	125		28		24	+	8		32	0.70	
SS 560	126	+	40		19		8		33	0.40	
USG 3555	122	-	48		15		8		34	0.55	

Table 41. Three year average summary of reaction of entries in the Virginia Tech State Wheat Tests to Fusarium head blight (scab) and glume blotch resistance, 2010 - 2012 harvests, continued.

LINE	Heading date (Julian)		FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)		Rank FHB Index	Don Value 2010[4]	
SS 5205	124	-	48		17		9		35	0.99	
Featherstone VA258	125		51	+	17		10		36	0.65	
Merl	125		55	+	23	+	13	+	37	1.51	+
Average	124		34		12		4			0.51	
LSD (O.05)	1		16		9		6			0.91	
C.V.	1		42		65		112			88.99	

Released cultivars are shown in bold print. Varieties are ordered by ascending index averages.

* Released line yet to be named.

A plus or minus sign indicates a performance significantly above or below the average.

Entries were planted in 2-row plots, 4 ft in length at Blacksburg, VA and were inoculated at 50% and 100% heading stages with Fusarium graminearum spore suspension (50,000 spores/ml).

[1]Scab Incidence (%): Percentage of infected spikes among 10 randomly selected spikes.

[2]Scab Severity (%): Percentage of infected spikelets among 10 infected spikes.

[3]Scab Index = Incidence X Severity/100; it is an overall indicator of scab resistance/susceptibility level.

[4] Don Values were measured from the 2010 harvest year.