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Small Grains in 2016

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Recommended Small Grain Varieties

The following are the small grain variety recommendations for Virginia in 2016. 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 8415	3	4	Good	Good
SY Viper	3	4	n/a	n/a
GA-03564-12E6	3	4	Good	Poor
SS 8513	3	4	Good	Poor
Mid-Season Heading Varieties (121-122 d, Julian)				
Hilliard	4	4	Poor	Moderate
Pioneer Brand 26R59	4	4	n/a	n/a
USG 3895	4	3	Good	Good
MAS 32	3	3	Good	Good
MAS 6	4	4	n/a	n/a
SY 547	4	4	n/a	n/a
Full-Season Heading Varieties (123-124 d, Julian)				
Pioneer Brand 26R20	4	4	Moderate	Excellent
MAS 7	4	4	Poor	Poor
MAS 35	4	4	n/a	n/a
MAS 46	4	3	Good	Good
Pioneer Brand 26R10	3	3	Moderate	Good
Shirley	3	3	Good	Good
AgriMAXX 446	3	2	Good	Moderate
USG 3251	3	3	Good	Good

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 8415	Moderate	Good	Moderate	Good	Moderate
SY Viper	Good	Moderate	Moderate	Good	Good
GA-03564-12E6	Good	Good	Very Good	Good	Good
SS 8513	Moderate	Moderate	Moderate	Moderate	Good
Mid-Season Heading Varieties (121-122 d, Julian)					
Hilliard	Very Good	Very Good	Very Good	Moderate	Good
Pioneer Brand 26R59	Moderate	Very Good	Moderate	Good	Good
USG 3895	Moderate	Moderate	Very Good	Good	Good
MAS 32	Very Good	Moderate	Moderate	Good	Good
MAS 6	Good	Good	Good	Good	Good
SY 547	Very Good	Very Good	Very Good	Good	Moderate
Full-Season Heading Varieties (123-124 d, Julian)					
Pioneer 26R20	Moderate	Moderate	Good	Moderate	Good
MAS 7	Very Good	Moderate	Weak	Moderate	Very Good
MAS 35	Very Good	Weak	Good	Good	Good
MAS 46	Moderate	Weak	Good	Good	Good
Pioneer 26R10	Good	Moderate	Weak	Good	Good
Shirley	Moderate	Very Good	Very Good	Good	Very Good
AgriMAXX 446	Moderate	Moderate	Weak	Weak	Good
USG 3251	Good	Moderate	Weak	Moderate	Moderate

* 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
	Nomini*	Callao	Price	Thoroughbred	Atlantic	Secretariat	Amaze 10
Adapted Regions							
Coastal Plain		X	X	X	X	X	X
Piedmont, South of James River		X	X	X	X	X	X
Piedmont, North of James River		X	X	X	X	X	X
West of Blue Ridge	X	X	X	X	X	X	X
Agronomic Characteristics							
Yield	2	2	3	4	4	4	4
Test Weight	1	2	3	3	3	3	2
Lodging Tolerance	Very	Poor	Fair	Good	Good	Good	Fair
Relative Height	3	2	2	3	2	2	3
Relative Heading	Avg	Early	Avg	Late	Early	Avg	Avg

4 - Significantly greater than average
3 - Average or greater than average
2 - Average or less than average
1 - Significantly less 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

Limagrain Cereal Seeds, 7707 Jackson Pond Dr, Charlotte, NC 28273 – Violetta.
Virginia Tech and Virginia Crop Improvement Association, 9142 Atlee Station Road, Mechanicsville, VA 23116 – Amaze 10, Atlantic, Barsoy, Callao, Dan, Doyce, Eve, Nomini, Price, Secretariat, Thoroughbred, and Wysor.

Commercial and Experimental Wheat Entries

AgriMAXX Wheat Company, 7167 Highbanks Road, Mascoutah, IL 62258 – AgriMAXX 415, AgriMAXX 444, AgriMAXX 446, AgriMAXX 454, AgriMAXX 462, AgriMAXX Exp 1558, AgriMAXX Exp 1674, and AgriMAXX Exp 1675.
University of Arkansas, 495 N. Campus Drive, PTSC 115, Fayetteville, AR 72701 – AR01040-4-1, and ARGA04510-11LE24.
Armor Seed, LLC, 183 Pennsylvania Avenue, Waldenburg, AR 72475 – Inferno, ARW1513, and ARW1516.
Crop Production Services, 15277 Richmond-Tappahannock Hwy, St Stephens Church, VA 23148 - Dyna-Gro 9223, Dyna-Gro 9522, Dyna-Gro 9552, Dyna-Gro 9600, Dyna-Gro 9642, Dyna-Gro 9692, Dyna-Gro 9772, and Shirley.
Dupont Pioneer, 59 Greif Parkway Suite 200, Delaware, OH 43015 – Pioneer 25R32, Pioneer 26R10, Pioneer 26R20, Pioneer 26R41, Pioneer 26R53, Pioneer 26R59, and Pioneer XW13W.
Eddie Mercer Agri-Services, Inc, 6900 Linganore Road, Frederick, MD 21702 – MBX 11-V-258, MBX 14-K-297, MBX 14-S-210, MBX 15-E-229, MBX 16-A-206, and MBX 16-B-203.
Erwin-Keith, Inc, 1529 Hwy 193, Wynne, AR 72396 – Progeny 243, Progeny 357, Progeny 870, PGX 15-10, PGX 15-12, PGX 15-14, AND PGX 15-16.
Featherstone Farm Seed, 13941 Genito Road, Amelia, VA 23002 - Featherstone VA 73 and Featherstone 258.
University of Georgia, 1109 Experiment Street, Griffin, GA 30223 – GA03564-12E6, GA04434-12LE28, GA051102-13LE43, GA061349-13LE29, and GA061349-13LE31.
Limagrain Cereal Seeds, 7099 Parkbrook Lane, Cordova, TN 38018 – LCS 3677, L11410, L11420, L11437, and L11541.
University of Maryland, 27664 Nanticoke Rd, Salisbury, MD 21801 – MD272-8-4-14-6 and 15MW315.
Meherrin, 413 Main Street, Severn, NC 27877 – Southern Harvest 4300 and Southern Harvest 4400.
Mid Atlantic Seeds, 204 St. Charles Way, #163E, York, PA 17402 – MAS 6, MAS 7, MAS 23, MAS 32, MAS 35, MAS 42S, MAS 46, MAS 50, MAS 61, MAS 65, MAS 66 and MAS 67.
NC State University, 840 Method Road Unit 3, Raleigh, NC 27695 – NC09-20986, NC11-22289, and NC8170-4-3.
Southern States Cooperative, 6606 West Broad Street, Richmond, VA 23230 - SS 8340, SS 8360, SS 8415, SS 8513, SS 8530 and SS EXP 8550.
Syngenta Seeds, Inc., 806 N. 2nd St, Berthoud, CO 80513 – SY 007, SY 547, SY Harrison, SY Viper, and Oakes.
University of Tennessee, 2431 Joe Johnson Drive, Knoxville, TN 37996 – TN1102.
UniSouth Genetics, 3205-C HWY 46S, Dickson, TN 37055 – USG 3197, USG 3201, USG 3251, USG 3316, USG 3404, USG 3523, USG 3612, and USG 3895.
Virginia Tech and Virginia Crop Improvement Association, 9142 Atlee Station Road, Mechanicsville, VA 23111 –Hilliard, Jamestown, Massey and all lines prefixed by VA.

Appreciation is expressed to the Virginia Small Grains Check-Off Board, AgriMAXX, Armor Seed LLC, Crop Production Services, Dupont Pioneer, Eddie Mercer Agri-Services, Inc., Erwin-Keith, Inc., Featherstone Seed, Inc., Limagrain Cereal Seeds, Meherrin, Mid-Atlantic Seeds, 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.
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Introduction

The following tables present results from barley and wheat varietal tests conducted in Virginia in 2014-2016. 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

Statewide temperatures and rainfall in fall 2015 were generally near the 30-year means and mostly conducive for wheat seeding, though some areas were delayed due to excess moisture. By mid-October barley planted reached 32% of intentions, compared with a 5-yr average of 55%. Areas of wet weather slowed wheat planting in some areas, but by mid-November winter wheat planting was estimated to be 71% complete, compared with 77% by this date over the last 5-yr. Both November and December were warmer than the long-term average and were favorable for small grain growth, especially benefitting late plantings. On December 1, barley was rated 85% good or excellent while 82% of the wheat crop was also estimated to be good or excellent. Temperatures in January and February were near normal while March was again much warmer than the 30-yr average. These warmer temperatures encouraged small grain growth, to excess in some fields and areas. By the end of March, the crop was progressing several weeks ahead of normal. Freezing temperatures in the second week of April severely damaged small grain fields in parts of the state, but damage was confined to the areas that were the coldest and those fields that were most advanced. Still, by April 29, only 49% and 64% of the barley and wheat crops, respectively were rated good or excellent. April was dry in most areas of Virginia while May brought rain showers almost daily through the first three weeks of the month. By May 22, 91% of the wheat crop was estimated to have reached heading, compared with 92% for this date for the previous five years. On this date, 65% of the wheat crop was rated good or excellent while 29% was estimated to be in fair condition. By June 12, 20 and 9% of barley and wheat harvest was complete, compared to 29 and 10% complete in 2015. The Virginia Department of Agriculture and Consumer Services estimates that Virginia farmers will harvest 10.3 million bushels of winter wheat in 2016 which is a 26% decrease from 2015. Average wheat yield was estimated to be 59 bushels per acre, down 7 bushels from 2015 and down 4 bushels from earlier estimates. Barley production was estimated at 1.15 million bushels for the state in 2016, down 4% from last year. Yield was estimated at 64 bushels per acre, down 11 bu/ac from 2015, but harvested acreage increased by 2000 to 18,000 acres.

Figure 1. 2015-16 and 30-yr mean cumulative growing season precipitation for Virginia.

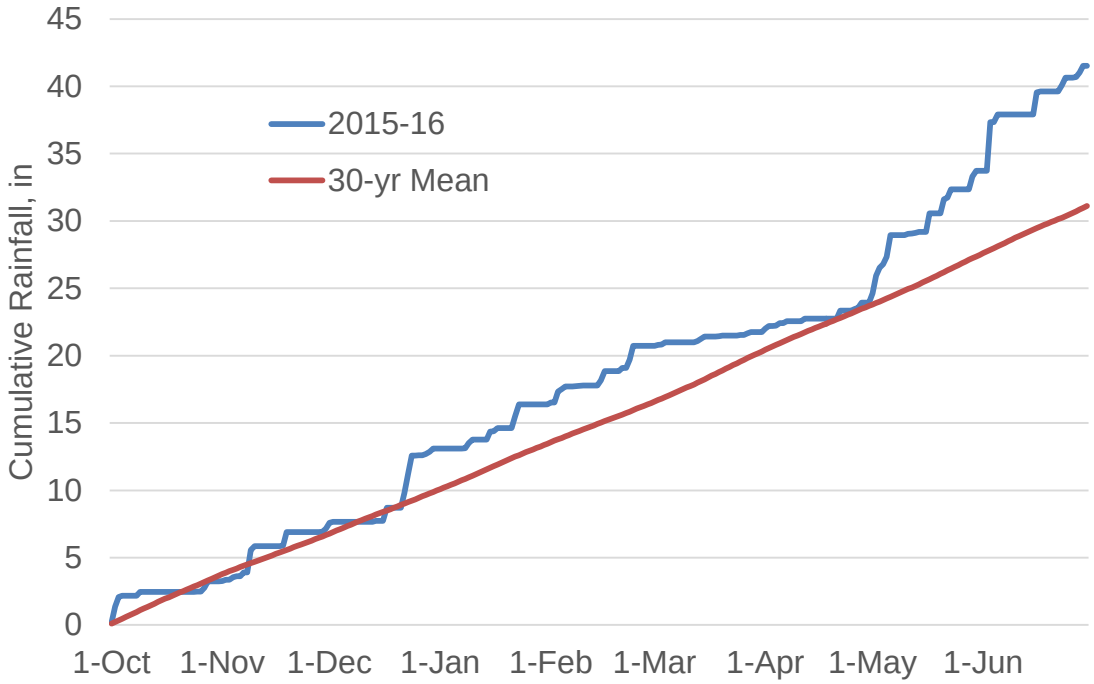
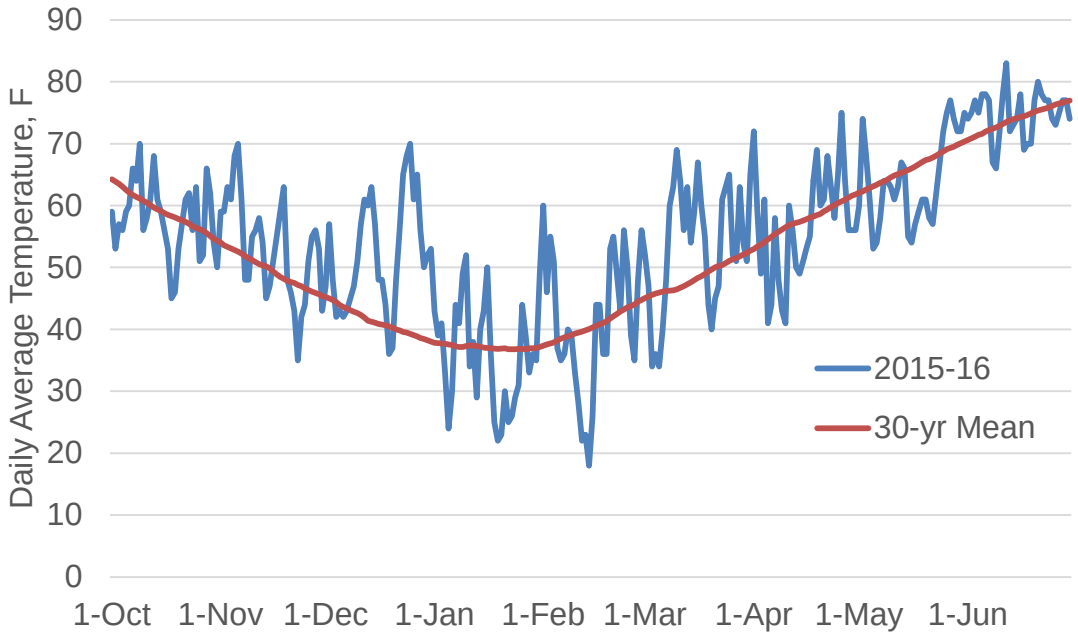


Figure 2. Growing season daily average temperature, 2015-16 and 30-yr mean.



Section 1: Barley Varieties

Note: 2016 results were severely impacted by freeze damage at some locations. These effects should be taken into consideration when examining the over-location yield averages.

The Virginia Tech breeding program will continue to accelerate development of high yielding, improved and higher quality barley cultivars for use as animal feed, malting and domestic fuel ethanol production. In this regard, we will continue to deploy a combination of top and backcross and Marker Assisted Selection breeding methods. Our primary objectives are designed to assess the yield potential of elite barley lines to determine genetic factors contributing to improved yield potential in barley; to assess and improve yield potential and other desirable traits such as resistance to diseases (leaf rust, powdery mildew, net blotch and Fusarium Head Blight-FHB); to develop barley cultivars that are superior to current high yielding cultivars Secretariat, Atlantic and Thoroughbred using both conventional and marker assisted breeding methods; and to develop and deploy DNA markers associated with yield and its components. Breeding populations derived from crosses with barley lines introduced from various sources; including lines from the Winter Malt Barley Trial (WMBT) and the Barley Coordinated Agricultural Project (Barley CAP) are being evaluated and advanced in the program. New barley lines derived from crosses made between superior barley breeding lines from our program with outstanding breeding lines from other programs are being developed and evaluated in the program. Last spring (2015), we made over 300 crosses in the greenhouse comprised of hulled and hulless elite barley parents. Last fall (2015), we planted F_1 progeny (315) from 342 crosses made in 2015, and F_2 progeny (209) from 426 crosses made in 2014. We also evaluate over 700 pure lines in replicated yield tests at multiple locations in Virginia in order to identify potential high yielding varieties. We also evaluated 48 malt barley Double haploid (DH) lines in an observation test at Blacksburg and Warsaw, VA. In addition, approximately 25 advance barley lines were evaluated in replicated yield tests at locations in neighboring states (North Carolina, Kentucky, Ohio, and Pennsylvania).

Recent interest in local and regional production of winter malt barley by producers and the malting industry has encouraged our program to expand efforts to develop malt barley cultivars adapted to the mid-Atlantic and south eastern United States. As a result, we are currently involved in a cooperative national winter malt barley research project that includes collaborative trials grown at 20 locations in 17 states (Washington, Oregon, Idaho, Utah, Nebraska, North Dakota, Minnesota, Wisconsin, Montana, New York, Texas, North Carolina, Kentucky, Ohio, Pennsylvania, Vermont, and Virginia). There is great interest in this nursery and the number of cooperators will likely expand in the next 2-3 years to include additional nurseries in other states. We are also planning on initiating a regional mid-Atlantic Uniform Winter Malt Barley Trial with neighboring states to facilitate collaborations and enhance cultivar development. The Virginia Tech breeding program will continue to work with interested parties in evaluating the

potential of barley for these and other diverse purposes.

The Virginia Tech barley-breeding program is the largest and one of only a few surviving winter barley programs in the eastern United States. The barley program is significantly diverse with breeding efforts focused on development of superior, widely adapted, high yielding winter barley cultivars and a major focus on incorporation of value-added traits geared towards development of new markets.

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 improvement of 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. The no-till site at Holland was planted at 66 seeds per square foot. All other locations were planted at 60 seeds per square foot. Yields from Blackstone in the 2016 harvest year were not included in the over-location or over-year analyses. Additionally, plots at Orange location were not harvested due to severe freeze damage in 2016.

Three-year average (2014, 2015 and 2016) grain yield for Doyce hulless barley in Virginia was 72 bushels per acre with test weight of 54.2 pounds per bushel. Average grain yield of Eve was 68 bushels per acre with test weight of 57.1 pounds per bushel. Grain yield of Dan averaged 79 bushels per acre and test weight was 57.0 pounds per bushel. Dan had the highest average test weight (58.9 pounds/bushel) that was 1.3 pounds per bushel higher than Amaze 10 (57.6 pounds/bushel), 1.9 pounds per bushel higher than Eve and 4.7 pounds per bushel higher than Doyce (54.2 pounds/bushel). Meanwhile, the hulless barley experimental line VA07H-35WS had the highest three-year average grain yield (80 bushels per acre) that was 2 bushels per acre higher than that of Amaze 10 (78 bushels/acre), 6 bushels per acre higher than Dan, 8 bushels per acre higher than Doyce, 12 bushels per acre higher than Eve, and 5 bushels per acre more than the 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. The no-till site at Holland was planted at 48 seeds per square foot. All other locations were planted at 44 seeds per square foot. Yields from Blackstone in the 2016 harvest year were not included in the over-location or over-year analyses. The plots at Orange location were not harvested due to severe freeze damage in 2016.

Three-year average (2014, 2015 and 2016) grain yield of Thoroughbred hulled barley was 101 bushels per acre with average test weight of 47.7 pounds per bushel compared to the mean yield of 91 bushel per acre and test weight of 46.7 pounds per bushel for the mean of all cultivars tested. Three-year average grain

yield of Secretariat (102 bushels per acre) was 1 bushel per acre higher than Thoroughbred, 6 bushels per acre higher than Atlantic (96 bushels per acre), 10 bushels per acre higher than Price, 14 bushels per acre higher than Callao and 25 bushels per acre higher than Nomini. At the same time, the hulled barley experimental line VA12B-8 had the highest three-year average grain yield (102 bushels per acre) that was similar to that of Secretariat 1 bushel per acre higher than Thoroughbred, 6 bushels per acre higher than Atlantic, 10 bushels per acre higher than Price, and significantly higher than Callao and Nomini.

Summary of barley management practices for the 2016 harvest season (All rates are given on a per acre basis.)

Blacksburg - Planted October 15, 2015. Pre-plant fertilizer was 30-60-80-8(S)-1.5(B). Site was sprayed with .6 oz. Harmony Extra SG® on November 16, 2015. Site was fertilized with 30 units UAN 30-0-0 on March 8, 2016 and with 45 units UAN 30-0-0 plus 0.6 oz Harmony Extra SG® plus 1 qt. Manni-Plex® boron on April 6, 2016. Harvest occurred June 10, 2016.

Blackstone - Planted October 20, 2015. Pre-plant fertilizer was 500 lb 6-12-18 (= 30-60-90) on October 15, 2015. Site received 60 lb N + 0.5 oz. Harmony Extra XP® February 10, 2016. Site was fertilized with 60 lb. N using UAN on March 9, 2016. Mustang® Maxx was applied at 4 oz. on April 25, 2016. Harvest occurred June 2, 2016.

Painter - Planted October 26, 2015. Pre-plant fertilizer was 50 lb. N on October 24, 2015. Site was fertilized with 60 lb. N using 30% UAN and 0.75 oz. Harmony Extra SG® March 13, 2016. Harvest occurred June 9-10, 2016.

Warsaw - Planted October 21, 2015. Pre-plant fertilizer was 30-80-80-5 applied October 14, 2015. Site was fertilized using 12-0-0-1.5 at 25 lb. on December 6, 2015 and at 30 lb. on February 19, 2016. Site was also fertilized using 24-0-0-3 at 60 lb. on March 12, 2016. Site was treated with 6.5 oz. Starane® and .75 oz. Harmony Extra SG® plus surfactant on December 6, 2015. Harvest occurred June 15, 2016.

Holland - Planted minimum-till November 24, 2015. Pre-plant fertilizer was 35-50-100 on November 24, 2015. Site was fertilized with 60 units N using 24-0-0-3 plus 0.5 oz. Harmony Extra SG® on February 22, 2015. Site was fertilized with 50 units N using 24-0-0-3 on March 23, 2015. Harvest occurred June 10, 2016.

Orange - Planted October 9, 2015. Pre-plant fertilizer was 30-80-60 October 8, 2015. Sixty lb. N plus .6 oz. Harmony Extra SG® was applied March 1, 2016. Site was abandoned due to freeze damage.

Table 1. Summary of performance of entries in the Virginia Tech Hulless Barley Test, 2016 harvest.
Note: 2016 results were severely impacted by freeze damage at some locations. These effects should be taken into consideration when examining the over-location yield averages.

Hulless 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)	Powdery Mildew (0-9)	Barley Yellow Dwarf Virus (0-9)	Winter Survival (%)
	(4)	(4)	(2)	(2)	(3)	(1)	(3)	(2)	(1)	(1)
VA14H-195WS	68.1 +	56.8	112	33 +	2	3	5 +	2	0	96
VA14H-58	66.4 +	56.7	112	33 +	3	4	4	3 +	1	95
VA14H-110	65.1 +	56.6	111 -	34 +	1	4	3 -	3	1	95
VA14H-33	61.3	56.8	111 -	32	2	2 -	4	1 -	0	91
VA14H-198WS	60.2	57.2 +	113 +	31	2	5	4	2	2	96
VA14H-206WS	59.9	57.8 +	113 +	33 +	2	3	5	3	1	94
VA14-111	59.8	56.3	113	34 +	2	4	3 -	1 -	1	93
Dan	59.4	57.4 +	113	32	3	3	4	2	0	96
VA11H-34	59.0	54.2 -	113 +	28 -	2	1 -	2 -	0 -	0	95
VA14H-194WS	59.0	57.7 +	113 +	33	2	3	5 +	2	1	95
VA07H-35WS	58.7	56.0	114 +	31	3	3	4	6 +	2	94
VA06H-79	58.7	54.6 -	114 +	30 -	2	8 +	2 -	0 -	0	94
Amaze 10	58.5	56.6	114 +	32	3	4	4	5 +	2	95
VA06H-25	58.5	55.6	114 +	32	3	4	5	5 +	2	94
VA13H-25	58.5	54.9 -	109 -	32	1	3	5	1 -	0	91
VA14H-3	57.6	56.4	108 -	33 +	3	2 -	5	1 -	0	93
VA14H-205WS	57.4	56.4	114 +	31	2	2 -	3 -	1 -	2	97
VA14H-201WS	56.3	55.9	114 +	31	2	4	6 +	1 -	1	94
VA08H-79WS	52.2 -	54.6 -	116 +	32	2	8 +	2 -	8 +	0	98 +
Doyce	50.3 -	52.0 -	109 -	30 -	2	5	6 +	1 -	0	95
VA12H-84	49.0 -	53.6 -	109 -	29 -	2	5 +	6 +	1 -	2	94
Eve	45.0 -	55.5	107 -	31	3	4	6 +	1 -	0	90 -
Average	58.1	55.9	112	32	2	4	4	2	1	94
LSD (0.05)	3.6	1.0	1	1	1	1	1	1	2	4
C.V.	8.8	2.5	1	4	73	24	27	43	173	3

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 entries in the Virginia Tech Hulless Barley Tests, 2015 and 2016 harvests.

Hulless 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)		Powdery Mildew (0-9)		Winter Survival (%)	
	(10)		(10)		(4)		(5)		(9)		(2)		(6)		(5)		(2)	
VA06H-25	73.7	+	56.8	+	116	+	35	+	4	+	5		3		4	+	94	
VA13H-25	73.3	+	56.3		111	-	33		2	-	2	-	3		0	-	93	
VA11H-34	72.0		56.2		116	+	31	-	3		2	-	1	-	0	-	96	
VA07H-35WS	71.8		56.7	+	116	+	34	+	4	+	4	-	3		4	+	94	
VA06H-79	71.4		55.8		116	+	33		3		8	+	2	-	0	-	94	
Amaze 10	70.7		57.1	+	116	+	34	+	4	+	5		3		4	+	95	
Dan	70.2		58.3	+	114		33		3		3	-	3		2		95	
VA12H-84	69.4		55.9		111	-	32		2	-	5		4	+	1	-	95	
Doyce	66.3	-	53.4	-	111	-	32	-	4		5		5	+	1	-	96	
VA08H-79WS	63.7	-	54.0	-	117	+	34		3	-	8	+	1	-	8	+	97	+
Eve	63.0	-	56.1		109	-	31	-	3		6	+	4	+	1	-	92	-
Average	69.6		56.1		114		33		3		5		3		2		95	
LSD (0.05)	3.2		0.6		1		1		1		1		1		1		2	
C.V.	10.0		2.4		1		4		42		19		48		42		2	

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 entries in the Virginia Tech Hulless Barley Tests, 2014, 2015, and 2016 harvests.

Hulless 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)		Powdery Mildew (0-9)		Early Lodging (0-9)		Winter Survival (%)	
	(16)		(16)		(6)		(8)		(14)		(4)		(9)		(7)		(1)		(3)	
VA07H-35WS	79.7	+	57.4	+	118	+	35	+	4	+	4	-	2		4	+	90		65	
VA06H-25	79.7	+	57.5	+	118	+	35	+	4	+	4		3		3		86		65	
Amaze 10	77.8	+	57.6	+	118	+	35	+	3	+	5		2		4	+	91		65	
VA11H-34	76.5		56.9		117	+	31	-	2	-	1	-	2	-	0	-	93		64	
VA06H-79	75.8		56.3		118	+	33		2	-	8	+	1	-	0	-	88		64	
Dan	73.6		58.9	+	116	-	34		3		4	-	2		2	-	91		64	
Doyce	71.6	-	54.2	-	114	-	32	-	3	+	4	-	5	+	1	-	92		66	
VA08H-79WS	68.2	-	54.7	-	119	+	34	+	2	-	8	+	1	-	8	+	90		65	
Eve	68.1	-	57.0		111	-	32	-	2	-	5		5	+	1	-	87		62	-
Average	74.5		56.7		116		34		3		5		3		3		90		65	
LSD (0.05)	2.7		0.4		0		1		0		1		1		1		6		2	
C.V.	10.2		2.1		1		4		42		18		46		39		5		3	

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 entries in the Virginia Tech Hulless Barley Test, Southern Piedmont AREC, Blackstone, VA, 2016 harvest.

Hulless Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)	Freeze Damage (0-9)	
VA08H-79WS	52.1		46.2	2	-
Eve	51.5		47.6	7	+
VA14-111	51.1		49.1	3	
Dan	47.5		51.9	2	-
VA14H-195WS	47.0		52.7	2	-
VA06H-79	46.9		51.4	2	-
Amaze 10	46.6		49.5	2	-
VA11H-34	44.1		44.4	4	
VA06H-25	43.8		44.5	2	-
VA14H-33	43.4		45.3	4	
VA14H-201WS	38.4		47.5	2	
Doyce	37.7		43.5	9	+
VA14H-58	37.5		44.9	2	
VA14H-110	33.7		45.5	5	
VA14H-3	32.6		50.5	5	
VA07H-35WS	32.6		44.0	2	-
VA14H-205WS	30.9		44.8	2	
VA12H-84	29.6		46.9	10	+
VA14H-206WS	28.3		43.1	3	
VA14H-194WS	28.1		46.9	2	-
VA14H-198WS	25.6		43.6	2	
VA13H-25	22.6	-	49.8	9	+
Average	38.7		47.0	4	
LSD (0.05)	15.1		9.0	1	
C.V.	26.1		13.5	28	

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 entries in the Virginia Tech Hulless Barley Test, Tidewater AREC, Holland, VA, 2016 harvest.

Hulless Lines	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)
VA14H-206WS	---	---	57.2	58.4
VA14H-201WS	---	---	55.3	56.7
VA14H-58	---	---	54.9	57.3
VA14H-195WS	---	---	54.4	57.0
VA14H-198WS	---	---	53.6	57.4
VA13H-25	---	58.3 +	53.1	53.2 -
VA06H-25	62.0	55.9	52.9	54.9
VA07H-35WS	56.9	51.0	52.9	56.4
VA14H-205WS	---	---	52.5	55.7
Amaze 10	61.2	56.8	51.8	56.8
VA14H-110	---	---	50.8	58.0
VA12H-84	---	54.2	48.2	55.1
VA06H-79	61.0	55.7	48.1	55.0
VA14-111	---	---	48.0	57.5
Dan	57.5	51.6	47.7	58.1
VA14H-33	---	---	47.1	57.5
VA14H-194WS	---	---	46.6	56.8
VA11H-34	54.9	46.2 -	44.0	53.8
VA08H-79WS	58.1	51.2	44.0	55.0
Doyce	59.5	52.7	43.9	48.9 -
VA14H-3	---	---	40.8 -	56.1
Eve	51.9 -	43.7 -	39.4 -	56.0
Average	58.1	52.5	49.4	56.0
LSD (0.05)	5.0	5.2	8.3	2.4
C.V.	9.9	9.2	11.4	3.0

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 entries in the Virginia Tech Hulless Barley Test, Eastern Virginia AREC, Warsaw, VA, 2016 harvest.

Hulless Lines	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	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)	Powdery Mildew (0-9)	Barley Yellow Dwarf Virus (0-9)
VA14H-58	---	---	78.0 +	57.6	108	35	1	4	3	2	1
VA14H-195WS	---	---	77.7 +	57.6	110	37	2	3	6	0	0
VA14H-110	---	---	75.4 +	58.0 +	108	38 +	1	4	2 -	1	1
VA14H-194WS	---	---	69.7	58.3 +	111 +	37 +	1	3	6 +	1	1
Dan	82.8	77.5	69.6	58.2 +	110	36	1	3	5	1	0
VA07H-35WS	93.8 +	85.1 +	68.6	57.6	111 +	35	3 +	3	4	5 +	2
VA14H-206WS	---	---	67.6	58.3 +	110	38 +	1	3	5	1	1
Amaze 10	92.6 +	82.9	67.1	57.7	111 +	35	2	4	3	4 +	2
VA11H-34	91.1	86.1 +	66.9	55.6 -	111 +	33 -	1	1 -	2 -	0 -	0
VA14H-33	---	---	66.9	57.8 +	106 -	36	1	2 -	4	0 -	0
VA06H-79	92.8 +	83.9	66.5	55.4 -	112 +	33 -	1	8 +	1 -	0 -	0
VA14H-198WS	---	---	65.9	57.5	111 +	35	1	5	3	1	2
VA14-111	---	---	65.7	57.5	109	38 +	1	4	2 -	0 -	1
VA13H-25	---	82.0	65.5	56.6	104 -	35	1	3	6 +	0 -	0
VA06H-25	95.3 +	87.2 +	65.4	57.0	111 +	35	2 +	4	4	4 +	2
VA14H-201WS	---	---	63.0	57.1	110 +	35	1	4	7 +	0 -	1
VA12H-84	---	82.4	61.8	56.5 -	104 -	34	0 -	5 +	6 +	0 -	2
Doyce	82.7	75.2	61.5	53.6 -	104 -	34	2	5	7 +	0 -	0
VA14H-3	---	---	60.8	57.9 +	103 -	36	2	2 -	8 +	0 -	0
VA14H-205WS	---	---	55.0 -	57.4	112 +	34	0 -	2 -	2 -	0 -	2
Eve	72.5 -	64.8 -	51.3 -	57.3	103 -	35	1	4	7 +	0 -	0
VA08H-79WS	74.4 -	62.4 -	44.4 -	56.3 -	114 +	35	1	8 +	0 -	8 +	0
Average	86.4	79.0	65.2	57.1	109	35	1	4	4	1	1
LSD (0.05)	4.9	5.8	7.3	0.7	1	2	1	1	2	1	2
C.V.	6.9	7.2	7.9	0.8	1	4	50	24	34	59	173

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 entries in the Virginia Tech Hulless Barley Test, Eastern Shore AREC, Painter, VA, 2016 harvest.

Hulless Lines	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Lodging (0-9)	Net Blotch (0-9)	Powdery Mildew (0-9)
VA14H-110	---	---	71.0 +	51.8	2	0	4
Dan	71.0	67.6	70.8 +	53.2	3	0	4
VA11H-34	69.9	69.2	67.4	49.3 -	4 +	1	1 -
VA14H-58	---	---	64.7	53.1	2	1	5
VA14H-195WS	---	---	64.5	53.9	2	2	3
VA14H-194WS	---	---	63.8	55.8 +	3	1	4
VA14H-33	---	---	63.5	52.6	2	2	1 -
VA14-111	---	---	62.7	51.5	3	0	2
VA14H-206WS	---	---	62.5	55.0	3	1	5
VA06H-25	72.9	68.2	62.3	53.6	4 +	2	6 +
VA14H-198WS	---	---	62.1	54.9	2	1	3
Amaze 10	70.0	66.1	61.7	54.9	4 +	2	7 +
VA14H-201WS	---	---	61.4	54.5	2	2	2
VA14H-205WS	---	---	61.3	53.2	2	0	3
VA14H-3	---	---	60.0	53.0	3	2	1 -
VA07H-35WS	77.5 +	67.9	60.0	53.0	3	1	7 +
VA06H-79	65.3	60.9	56.5	51.8	3	1	1 -
VA13H-25	---	61.2	55.3	51.5	3	1	1 -
VA08H-79WS	59.6 -	56.4	54.1	49.8	3	1	9 +
Doyce	63.8	58.2	52.0 -	49.1 -	3	3 +	1 -
VA12H-84	---	52.4 -	45.3 -	46.8 -	2	1	2
Eve	62.6	55.0	41.2 -	50.1	2	2	2 -
Average	68.1	62.1	60.2	52.4	3	1	3
LSD (0.05)	6.7	7.5	7.8	2.9	1	2	2
C.V.	11.7	11.6	9.1	4.0	24	106	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.

Table 8. Summary of performance of entries in the Virginia Tech Hulless Barley Test, Kentland Farm, Blacksburg, VA, 2016 harvest.

Hulless Lines	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Lodging (0-9)	Net Blotch (0-9)	Winter Survival (%)
VA14H-195WS	---	---	75.6 +	58.8	115	29	3	9 +	96
VA14H-3	---	---	68.9 +	58.7	113 -	31 +	6	6 -	93
VA14H-58	---	---	67.8 +	58.7	116	31 +	6	9 +	95
VA14H-33	---	---	67.6 +	59.4 +	116	28	5	7	91
VA06H-79	84.9	76.3	65.6 +	56.2 -	117 +	27	2	6 -	94
VA08H-79WS	81.4	78.1 +	64.4 +	57.5	118 +	29	2	4 -	98 +
VA14H-110	---	---	63.4 +	58.5	115 -	30 +	2	6 -	95
VA11H-34	90.1 +	77.4 +	60.1	58.1	116	24 -	2	4 -	95
VA14-111	---	---	59.8	58.6	116	30 +	3	6 -	93
VA14H-205WS	---	---	59.4	59.2 +	117 +	28	3	7	97
VA14H-198WS	---	---	59.3	58.9	115	27	2	7	96
VA13H-25	---	74.9	58.5	58.2	113 -	28	0	7	91
VA14H-194WS	---	---	55.8	60.0 +	116	28	1	9 +	95
VA06H-25	88.4 +	75.2	53.5	56.8 -	117 +	29	1	8	94
VA07H-35WS	88.6 +	75.8	53.2	57.0 -	117 +	28	5	9 +	94
VA14H-206WS	---	---	52.2	59.7 +	116	28	1	9 +	94
Amaze 10	86.3 +	74.2	51.8	56.9 -	117 +	28	2	9 +	95
Dan	77.6 -	67.9 -	49.5 -	60.1 +	116	28	3	7	96
Eve	74.9 -	66.7 -	48.0 -	58.6	111 -	28	5	9 +	90 -
VA14H-201WS	---	---	45.4 -	55.1 -	117	28	4	9 +	94
Doyce	72.2 -	62.9 -	42.2 -	56.4 -	114 -	25 -	3	9 +	95
VA12H-84	---	71.7	37.9 -	56.0 -	114 -	24 -	2	9 +	94
Average	82.7	72.8	57.3	58.0	116	28	3	7	94
LSD (0.05)	3.4	4.2	5.8	1.0	1	2	4	1	4
C.V.	4.9	5.6	7.0	1.2	0	4	95	10	3

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 barley entries in the Virginia Tech Barley Test, 2016 harvest.
Note: 2016 results were severely impacted by freeze damage at some locations. These effects should be taken into consideration when examining the over-location yield averages.

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)		Powdery Mildew (0-9)		Barley Yellow Dwarf Virus (0-9)		Winter Survival (%)		Awns[1]
	(4)		(4)		(2)		(2)		(4)		(1)		(3)		(2)		(1)		(1)		
VA14B-59	97.6	+	43.5		110		31		3		2	-	4	-	0		0		93	-	SA
VA14B-74	97.3	+	44.0		112	+	32		3		1	-	4	-	0		0		95		SA
VA14B-79	95.8	+	43.9		110		31		3		2		5		0		0		95		SA
Secretariat	95.6	+	45.8	+	108	-	30	-	3		1	-	6		0		0		95		SA
VA14B-57	94.7	+	45.0		110		32		3		4		5		0		0		94		SA
VA14B-73	94.3	+	43.7		111		32		2		2	-	3	-	0		0		95		SA
VA14B-63	94.1	+	44.0		111		32		3		3		4	-	0		0		94		SA
VA11B-102	92.9	+	42.5		113	+	35	+	4	+	4		5		0		0		99		LA
VA14B-75	92.7	+	43.5		110		31		3		2		4	-	0		0		96		SA
VA12B-41	92.3	+	43.8		110		31		3		2		5		0		0		96		SA
VA12B-56	90.9	+	43.2		108	-	30	-	3		3		5	-	0		0		96		SA
VA14B-78	90.8	+	44.1		109	-	32		3		3		6		0		0		96		SA
VA14B-71	90.4	+	45.1	+	110		33		3		2	-	4	-	0		0		98		SA
VA14BFHB-83	88.7		44.7		109		32		5	+	2	-	6		0		0		96		SA
VA13B-25	88.7		45.1	+	109	-	32		4	+	4		5	-	0		0		98		LA
VA12B-30	88.5		43.3		113	+	32		3		4		7		0		0		97		SA
VA12B-8	87.6		44.4		111	+	33		3		5	+	8	+	1		0		97		LA
Atlantic	87.5		44.4		107	-	31		4		5	+	8	+	0		0		95		SA
VA11B-141	87.1		45.4	+	112	+	35	+	3		3		5		0		1	+	99		LA
VA08B-95	87.0		42.8		108	-	31		3		2	-	5		8	+	0		96		SA
VA14B-66	86.6		43.1		111	+	32		3		2	-	5		0		0		94		SA
VA12B-129	86.4		43.6		113	+	34	+	3		3		8	+	0		0		99		LA
VA14B-116	86.4		43.8		113	+	31		2	-	5	+	4	-	0		0		96		SA
VA09B-34	84.5		46.0	+	107	-	31		3		2	-	6		2	+	0		98		LA
Thoroughbred	84.4		44.3		113	+	31		2		5	+	9	+	6	+	0		99		LA
Callao	82.7		44.7		107	-	29	-	5	+	5	+	6		0		0		94		SA
VA14B-36	81.1		43.3		109		30	-	2		4		5		0		4	+	98		LA

Table 9. Summary of performance of barley entries in the Virginia Tech Barley Test, 2016 harvest.
Note: 2016 results were severely impacted by freeze damage at some locations. These effects should be taken into consideration when examining the over-location yield averages.

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)	Powdery Mildew (0-9)	Barley Yellow Dwarf Virus (0-9)	Winter Survival (%)	Awns[1]
	(4)	(4)	(2)	(2)	(4)	(1)	(3)	(2)	(1)	(1)	
VA13B-48	80.4	44.8	112 +	33	3	3	3 -	0	1 +	97	LA
VA13B-15	79.3 -	43.4	112 +	35 +	3	2 -	6	0	0	94	LA
Violetta	73.7 -	44.5	114 +	25 -	2 -	2 -	5	0	2 +	99	LA
Price	73.5 -	44.5	108 -	30 -	3	6 +	9 +	1	0	95	SA
Barsoy	71.9 -	43.0	107 -	32	3	7 +	7 +	1	3 +	98	LA
Nomini	70.5 -	38.7 -	108 -	36 +	3	4	7 +	0	0	98	AL
Wysor	54.9 -	37.5 -	110	34 +	3	7 +	8 +	0	0	99	AL
VA92-42-46	52.8 -	41.1 -	108 -	34 +	3	1 -	9 +	0	0	97	AL
Average	85.3	43.7	110	32	3	3	6	1	0	96	
LSD (0.05)	5.2	1.4	1	1	1	1	1	1	1	3	
C.V.	7.9	4.2	1	5	39	26	13	114	156	2	

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.

[1] LA=long awned, SA=short awned, AL=awnletted or awnless.

Table 10. Two-year average summary of performance of hulled entries in the Virginia Tech Barley Tests, 2015 and 2016 harvests.

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)		Powdery Mildew (0-9)		Winter Survival (%)	
	(10)		(10)		(4)		(5)		(10)		(2)		(6)		(3)		(2)	
Secretariat	101.9	+	47.6	+	110	-	31	-	4		1	-	2		0	-	95	
VA12B-30	99.0	+	46.1		116	+	35	+	3		4		2		0	-	97	
VA12B-8	97.6	+	46.5		113	+	35	+	3	-	5	+	3		1		98	
VA11B-102	96.9	+	44.4	-	115	+	35	+	5	+	3		2	-	0	-	99	
VA12B-41	96.8	+	45.5		113	+	33		4		2	-	2	-	0	-	96	
Thoroughbred	96.3	+	46.9		115	+	33		3		7	+	4	+	5	+	99	
VA12B-56	96.2	+	46.3		109	-	30	-	3		4		1	-	0	-	95	
Atlantic	95.0	+	46.6		109	-	30	-	4	+	5	+	3		0	-	96	
VA12B-129	94.4	+	46.7		115	+	36	+	4		3	-	4	+	0	-	99	
VA11B-141	93.2		47.9	+	114	+	35	+	3		2	-	2	-	0	-	98	
VA13B-25	92.3		47.9	+	110	-	33		4		4		2	-	0	-	96	
VA08B-95	91.1		45.5		110	-	32	-	4	+	2	-	2		8	+	96	
VA13B-48	90.9		47.3	+	114	+	34	+	4		2	-	1	-	0	-	96	
VA09B-34	89.6		48.4	+	110	-	31	-	3		1	-	2		1	+	97	
Price	88.4		46.6		110	-	31	-	4		6	+	5	+	1		94	-
Callao	86.0		47.0	+	108	-	29	-	6	+	5	+	2		0	-	94	
VA13B-15	85.8		45.8		116	+	36	+	4		2	-	3		0	-	92	-
Barsoy	82.0	-	46.0		110	-	33		4		7	+	3		1		97	
Violetta	81.7	-	46.6		116	+	28	-	2	-	2	-	2	-	0	-	97	
Nomini	76.3	-	41.7	-	109	-	36	+	3	-	5	+	2	-	0	-	98	
Wysor	68.5	-	41.3	-	111	-	36	+	3	-	8	+	3		0	-	99	
VA92-42-46	65.4	-	43.6	-	111	-	36	+	3	-	1	-	7	+	0	-	97	
Average	89.3		46.0		112		33		4		4		3		1		96	
LSD (0.05)	3.9		0.9		1		1		0		1		1		0		2	
C.V.	9.1		4.1		1		4		29		23		44		73		2	

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 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. Three-year average summary of performance of hulled entries in the Virginia Tech Barley Tests, 2014, 2015, and 2016 harvests.

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)		Powdery Mildew (0-9)		Early Lodging (0-9)		Winter Survival (%)	
	(16)		(16)		(6)		(8)		(15)		(4)		(9)		(5)		(1)		(3)	
VA12B-8	102.2	+	47.4		115	+	35	+	3	-	5	+	3		1		1	-	96	
Secretariat	102.2	+	48.1	+	112	-	31	-	4	+	1	-	2		0	-	5		92	-
VA11B-102	101.0	+	46.0	-	116	+	36	+	4	+	3	-	1	-	0	-	2		97	+
Thoroughbred	100.8	+	47.7	+	118	+	34		3		6	+	4	+	4	+	3		96	
VA11B-141	98.5	+	48.7	+	115	+	36	+	3	-	2	-	2	-	0	-	2		95	
Atlantic	96.4	+	47.5	+	111	-	31	-	4	+	4	+	3		0	-	3		93	
VA08B-95	93.8		46.2		112	-	33	-	4	+	2	-	2	-	6	+	7	+	93	
Price	92.4		47.4		113	-	31	-	4		5	+	5	+	0	-	3		92	-
VA09B-34	92.0		49.3	+	111	-	33	-	3	-	1	-	2	-	1		2	-	96	
Callao	87.9		47.7	+	110	-	29	-	6	+	4		3		0	-	7	+	93	
Barsoy	86.7		47.2		112	-	34		4		7	+	3		1		2		94	
Violetta	85.5	-	47.4		119	+	30	-	2	-	1	-	2	-	0	-	0	-	96	
Nomini	77.0	-	43.5	-	111	-	37	+	3	-	5	+	2	-	0	-	3		96	
Wysor	70.6	-	42.6	-	113		37	+	3		7	+	3	+	0	-	4		98	+
VA92-42-46	70.2	-	44.6	-	113	-	37	+	3	-	1	-	6	+	0	-	4		93	
Average	90.5		46.7		113		34		4		4		3		1		3		95	
LSD (0.05)	4.0		0.7		0		1		0		1		1		0		2		2	
C.V.	11.4		4.0		1		5		32		22		40		73		36		3	

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 12. Summary of performance of barley entries in the Virginia Tech Barley Test, Southern Piedmont AREC, Blackstone, VA, 2016 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Freeze Damage (0-9)	
VA11B-102	64.9	+	41.4		1	-
VA14B-74	57.9	+	42.8		2	-
VA12B-129	57.1	+	40.7		3	-
VA14B-116	56.7	+	42.8		2	-
VA12B-8	56.4	+	42.0		3	-
VA14B-66	53.8	+	42.1		3	-
VA12B-30	53.0	+	41.1		3	-
Thoroughbred	47.3		42.9		2	-
VA08B-95	44.0		42.4		4	
VA12B-41	43.0		43.4		3	
VA13B-48	42.5		40.6		4	
VA14B-73	39.5		42.9		3	
VA14B-63	39.1		42.7		3	
VA11B-141	37.8		40.8		2	-
VA13B-25	37.1		41.6		3	-
Callao	37.0		40.1		7	+
VA14B-79	36.7		42.3		5	
Atlantic	36.7		42.8		7	+
VA14B-78	36.3		42.8		6	+
Nomini	36.2		40.4		7	+
VA14B-71	35.7		42.9		3	
VA14B-57	35.4		42.0		5	
VA14BFHB-83	34.6		41.8		5	
Secretariat	34.5		44.0		4	
VA14B-36	34.4		40.5		3	-
VA14B-75	32.0		40.4		7	+
Wysor	30.9		36.5		6	+
Violetta	30.8		41.1		1	-
VA12B-56	30.7		37.9		7	+
Price	30.3	-	42.6		6	+
Barsoy	30.3	-	38.6		5	
VA14B-59	27.4	-	39.4		8	+
VA09B-34	26.7	-	33.3	-	9	+
VA92-42-46	21.1	-	31.4	-	8	+
VA13B-15	20.0	-	28.1	-	6	
Average	39.1		40.5		4	
LSD (0.05)	8.7		4.3		1	
C.V.	15.6		7.5		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.

Table 13. Summary of performance of barley entries in the Virginia Tech Barley Test, planted no-till at the Tidewater AREC, Holland, VA, 2016 harvest.

Barley Lines	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Lodging (0-9)
VA14B-73	---		---		71.4		44.5		4
VA14B-79	---		---		69.7		45.2		4
VA08B-95	69.6		69.6		69.6		43.3		4
VA14B-36	---		---		69.1		45.4		3
VA14B-57	---		---		67.4		44.7		4
VA12B-8	77.1	+	72.6		67.2		46.1		2
VA11B-102	68.2		63.4		66.1		44.5		3
VA12B-129	---		67.9		64.9		43.9		2
Violetta	67.5		69.7		64.8		46.9		3
VA12B-41	---		68.0		64.3		45.4		3
VA12B-30	---		67.9		64.2		43.0		2
Thoroughbred	80.7	+	74.4	+	64.1		46.0		3
VA14B-74	---		---		63.6		45.0		3
VA09B-34	65.2		62.8		61.9		46.1		3
VA11B-141	67.8		66.2		61.1		48.1	+	3
Secretariat	67.9		61.2		60.5		45.5		2
VA14B-66	---		---		60.1		43.6		3
VA14BFHB-83	---		---		60.0		45.8		4
VA12B-56	---		70.3		59.7		45.6		3
VA13B-25	---		64.8		59.4		47.1		3
VA14B-78	---		---		59.2		44.1		4
Barsoy	64.7		56.0		58.9		45.9		3
VA13B-15	---		58.1		58.7		46.1		3
VA14B-63	---		---		58.1		45.2		3
Price	70.7		61.2		57.5		45.1		3
Nomini	56.0	-	55.7		55.7		43.1		4
Callao	65.5		57.4		55.2		46.8		5
VA14B-116	---		---		54.8		43.3		3
VA14B-75	---		---		54.5		43.4		3
VA14B-59	---		---		54.0		43.4		4
Atlantic	67.0		62.5		53.2		45.5		4
Wysor	47.8	-	49.4	-	49.4		43.3		3
VA14B-71	---		---		48.9		44.8		4
VA13B-48	---		60.8		45.2		46.1		4
VA92-42-46	51.7	-	36.0	-	36.0	-	44.0		3
Average	65.8		62.5		59.7		45.0		3
LSD (0.05)	8.6		11.2		14.6		2.6		2
C.V.	13.3		14.2		14.1		3.8		37

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 14. Summary of performance of barley entries in the Virginia Tech Barley Test, Eastern Virginia AREC, Warsaw, VA, 2016 harvest.

Barley Lines	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	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)	Powdery Mildew (0-9)	Barley Yellow Dwarf Virus (0-9)
VA14B-79	---	---	110.8 +	43.7	106	32	2	2	2	0	0
VA14B-74	---	---	107.6 +	43.6	108 +	33	2	1 -	1 -	0	0
VA12B-30	---	120.9 +	107.3 +	43.7	109 +	34	1 -	4	3	0	0
VA14B-78	---	---	106.3 +	43.4	103 -	34	2	3	2	0	0
VA14B-63	---	---	105.4 +	44.0	106	34	2	3	1 -	0	0
VA14B-59	---	---	104.3 +	43.1	105	33	3	2 -	1 -	0	0
VA14B-73	---	---	104.1 +	43.7	106	34	2	2	1 -	0	0
VA14B-57	---	---	104.1 +	44.6 +	104 -	34	2	4	1 -	0	0
Atlantic	116.7 +	114.8 +	102.7 +	43.6	103 -	32 -	3	5 +	3	0	0
VA12B-41	---	113.1 +	101.8 +	43.9	106	32	2	2	3	0	0
VA14B-71	---	---	101.6	44.2	105	34	2	2 -	1 -	0	0
VA11B-102	115.3 +	114.0 +	100.3	42.1 -	109 +	36 +	3	4	2	0	0
Secretariat	117.4 +	114.8 +	99.7	45.2 +	104 -	31 -	3	1 -	2	0	0
VA14B-75	---	---	99.4	43.1	104 -	32	2	2	1 -	0	0
VA08B-95	112.2	105.1	97.9	42.5	103 -	33	3	2	2	8 +	0
VA12B-8	111.5	109.8	97.8	43.8	107 +	35 +	2	5 +	4 +	1	0
VA12B-129	---	109.9	97.4	43.4	109 +	35 +	2	3	5 +	0	0
VA14BFHB-83	---	---	96.8	44.6 +	105 -	34	3 +	2 -	2	0	0
VA13B-25	---	113.2 +	96.3	43.9	105	32	3	4	2	0	0
VA14B-66	---	---	96.3	43.1	107 +	33	2	2 -	1 -	0	0
VA14B-116	---	---	95.7	43.4	109 +	32	1 -	5 +	2	0	0
Thoroughbred	113.8 +	108.7	95.7	43.7	109 +	33	1 -	5 +	4 +	4 +	0
VA12B-56	---	110.7	93.9	44.2	103 -	31 -	2	3	1 -	0	0
VA11B-141	113.1 +	106.3	93.3	44.1	108 +	36 +	2	3	3	0	1 +
VA13B-15	---	108.3	91.7	42.4	108 +	36 +	2	2	4 +	0	0
Callao	107.7	104.2	91.2	43.2	102 -	30 -	4 +	5 +	2	0	0
VA09B-34	110.2	107.0	89.6	45.2 +	103 -	32 -	2	2 -	4 +	0	0
Price	106.3	104.8	86.4 -	43.7	102 -	32 -	2	6 +	6 +	1	0
Nomini	101.2 -	97.1 -	85.6 -	40.4 -	103 -	38 +	2	4	2	0	0

Table 14. Summary of performance of barley entries in the Virginia Tech Barley Test, Eastern Virginia AREC, Warsaw, VA, 2016 harvest.

Barley Lines	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		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)		Powdery Mildew (0-9)	Barley Yellow Dwarf Virus (0-9)	
VA13B-48	---		107.5		83.9	-	43.8		108	+	34		2		3		1	-	0	1	+
Wysor	97.1	-	95.6	-	77.9	-	39.4	-	106		38	+	2		7	+	2		0	0	
Violetta	102.0	-	97.3	-	76.2	-	46.1	+	111	+	27	-	1	-	2		2		0	2	+
Barsoy	103.3		97.4	-	72.3	-	42.1	-	103	-	34		3	+	7	+	2		0	3	+
VA14B-36	---		---		72.0	-	42.4		106		31	-	1	-	4		1	-	0	4	+
VA92-42-46	86.2	-	82.4	-	64.6	-	40.9	-	103	-	37	+	2		1	-	8	+	0	0	
Average	107.6		106.5		94.5		43.4		106		33		2		3		2		0	0	
LSD (0.05)	5.5		6.4		7.1		1.2		1		1		1		1		1		0	1	
C.V.	6.2		6.0		5.3		1.9		1		3		23		26		30		85	156	

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, Eastern Shore AREC, Painter, VA, 2016 harvest.

Barley Lines	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Lodging (0-9)		Net Blotch (0-9)		Powdery Mildew (0-9)	
VA14B-59	---		---		91.2	+	43.5		5		2		0	
VA14B-75	---		---		91.1	+	42.7		4		0		0	
VA14B-63	---		---		90.6	+	42.1		4		1		0	
VA14B-57	---		---		90.0		45.2		5		1		0	
VA12B-30	---		86.4	+	88.3		43.4		4		1		0	
VA11B-102	81.3	+	78.3		88.1		41.4		5		0		0	
VA14B-73	---		---		87.7		43.3		4		0		0	
Secretariat	80.1	+	82.7	+	87.3		45.5		3		1		1	
VA14B-74	---		---		86.5		43.4		4		0		0	
VA12B-129	---		82.8	+	86.2		44.0		4		3		1	
Atlantic	82.8	+	82.0	+	85.5		43.0		3		2		0	
VA14B-78	---		---		85.5		43.6		4		3		0	
VA14B-71	---		---		83.7		44.2		5		1		0	
VA14B-79	---		---		83.3		42.1		4		2		0	
VA12B-41	---		80.5	+	82.6		42.5		4		1		0	
VA09B-34	81.3	+	81.1	+	82.1		44.7		2		3		3	+
VA14B-66	---		---		81.5		42.3		6		1		0	
VA14B-36	---		---		81.4		41.0		5		0		0	
VA12B-56	---		83.3	+	81.4		37.8		4		2		0	
VA11B-141	77.5		75.0		80.0		44.2		4		1		0	
VA12B-8	91.7	+	88.0	+	79.7		43.1		4		3		2	
VA14BFHB-83	---		---		79.0		41.6		6	+	0		0	
VA14B-116	---		---		78.1		42.7		4		2		0	
VA13B-48	---		72.3		77.8		43.2		3		1		1	
Price	73.2		74.6		75.2		44.4		2		5	+	1	
Nomini	56.4	-	63.8		70.0		34.0	-	3		2		0	
Thoroughbred	77.1		71.9		68.3		42.7		2		5	+	7	+
Barsoy	73.8		71.0		67.5		40.1		3		2		2	
VA13B-25	---		61.7	-	67.0		43.3		7	+	1		0	
VA08B-95	70.5		64.9		65.6		40.6		5		1		8	+
Callao	63.5		63.2		62.0	-	42.8		5		1		0	
Violetta	58.9	-	59.3	-	61.0	-	39.4		2	-	0		0	
VA13B-15	---		59.1	-	60.1	-	42.8		4		2		0	
VA92-42-46	51.5	-	51.5	-	56.1	-	38.3		3		8	+	0	
Wysor	34.4	-	34.4	-	28.0	-	32.6	-	3		2		0	
Average	70.3		71.3		77.4		42.0		4		2		1	
LSD (0.05)	8.5		9.0		13.0		4.3		2		2		1	
C.V.	12.1		11.1		10.6		7.1		33		85		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 16. Summary of performance of barley entries in the Virginia Tech Barley Test, Kentland Farm, Blacksburg,VA, 2016 harvest.

Barley Lines	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Height (In)		Lodging (0-9)		Net Blotch (0-9)		Winter Survival (%)	
Wysor	57.4	-	57.4	-	*		40.2	-	114	-	31		3		8	+	99	
Nomini	68.6	-	62.7	-	*		45.2		112	-	34		3		7	+	98	
VA92-42-46	74.1	-	63.2	-	*		---		114	-	31		3		9	+	97	
VA14B-74	---		---		123.2	+	44.5		116	+	31		3		4	-	95	
VA13B-25	---		120.0	+	119.2	+	47.0	+	113	-	32		4		5	-	98	
VA14B-59	---		---		117.5	+	43.9	-	115		30		2		4	-	93	-
VA14B-71	---		---		117.3	+	47.1	+	115		33		3		4	-	98	
VA14B-75	---		---		115.7	+	44.9		115		30		3		4	-	96	
Secretariat	137.1	+	127.9	+	115.4	+	47.1	+	113	-	29		3		6		95	
VA14B-79	---		---		113.0	+	44.5		115		29		2	-	5		95	
VA12B-56	---		119.3	+	112.9	+	46.2	+	112	-	29		2	-	5	-	96	
VA14B-63	---		---		112.4		45.6		116	+	31		3		4	-	94	
VA08B-95	127.3	+	121.9	+	110.5		45.0		113	-	30		2	-	5		96	
VA11B-102	133.4	+	122.9	+	110.5		42.7	-	116	+	34	+	7	+	5		99	
VA14B-57	---		---		110.4		45.5		116	+	30		1	-	5		94	
VA14BFHB-83	---		---		109.6		47.4	+	114		31		5	+	6		96	
VA14B-116	---		---		109.0		45.9		117	+	29		1	-	4	-	96	
VA14B-73	---		---		108.2		44.2		116	+	31		1	-	3	-	95	
VA11B-141	130.6	+	116.6	+	107.6		45.9		116	+	33		4		5		99	
VA12B-41	---		116.6	+	106.3		44.2		115		30		3		5		96	
VA13B-48	---		111.2		106.0		46.2	+	116	+	32		4		3	-	97	
VA14B-78	---		---		104.1		45.9		114		31		4		6		96	
Callao	115.7		109.9		103.6		46.6	+	111	-	28		7	+	6		94	
VA14B-66	---		---		101.7		43.8	-	116	+	31		3		5		94	
VA12B-8	125.2	+	112.8	+	100.4		45.0		115		31		5	+	8	+	97	
Thoroughbred	127.1	+	117.6	+	100.2		45.0		116	+	29		3		9	+	99	
Atlantic	120.0	+	114.8	+	100.1		46.4	+	112	-	29		5	+	8	+	95	
VA09B-34	118.4	+	108.8		99.4		48.3	+	112	-	31		4		6		98	
VA13B-15	---		112.0	+	96.4	-	43.7	-	116	+	34	+	4		6		94	

Table 16. Summary of performance of barley entries in the Virginia Tech Barley Test, Kentland Farm, Blacksburg,VA, 2016 harvest.

Barley Lines	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Lodging (0-9)	Net Blotch (0-9)	Winter Survival (%)
VA14B-36	---	---	96.0 -	44.5	113 -	29	1 -	5	98
VA12B-129	---	113.0 +	91.8 -	44.1 -	116 +	32	5 +	8 +	99
Violetta	113.8	98.2 -	90.7 -	46.5 +	116 +	24 -	2	5	99
VA12B-30	---	114.6 +	88.0 -	43.1 -	117 +	31	5	7	97
Barsoy	106.2	92.0 -	82.4 -	45.3	112 -	31	4	7 +	98
Price	110.2	93.5 -	71.5 -	44.8	114	28 -	6 +	9 +	95
Average	111.4	106.7	104.7	45.3	114	30	3	5	96
LSD (0.05)	7.1	5.8	7.9	1.0	1	2	1	1	3
C.V.	7.4	5.4	5.8	1.5	1	6	27	13	2

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.

* Deer damaged.

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 a Mount Holly test site. This year, due to irrigation difficulties, the nursery was not irrigated. Insignificant scab data was collected, so data from last year and 2014 are being presented instead to aid producers in the 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. 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 high level of FHB infection was obtained in 2015. Among 21 hulless lines and varieties tested in 2015, the FHB index ranged from 35 to 75 with FHB incidence ranging from 95% to 100% and FHB severity from 35% to 75% (Table 17). One two-row hulless line (VA12HFHB-89(2R)) had a similar FHB Index to the resistant variety 'Eve'. Two two-row hulless lines (VA09H-110(2R) and VA10H-79WS(2R)) showed FHB index lower than moderately resistant variety 'Dan'. However, VA10H-79WS(2R) had a DON content of 14.7 ppm higher than Eve (4.3 ppm) and Dan (6.2 ppm) averaged over 2013 and 2014. Based on two year mean data for 2014 and 2015 (Table 18), four lines and two varieties had FHB index values lower than the test mean (<30.6). Eve had the lowest DON content (4.6 ppm) followed by VA12FHB-89(2R) (4.6 ppm), Dan (8.6 ppm) and VA09H-110(2R) (6.8 ppm).

A high FHB infection level was obtained for hulled barley in 2015. Among 34 barley lines and varieties tested in 2015, the FHB index varied from 37.5 to 72.5. Thirteen lines and five varieties had FHB index values lower than the mean (<52.5) in 2015 (Table 19). Based on two year mean data for 2014 and 2015 (Table 20), seven lines and four varieties had FHB index values lower than the test mean (<27.8) and DON content values lower than the test mean (15.3 ppm) averaged over 2013 and 2014 (except for VA12B-8 and Violetta which had DON content values only from 2014).

Table 17. Summary of reaction of entries in the Virginia Tech State Hulless Barley Test to Fusarium head blight (scab), 2015 harvest.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index	Date Headed (Julian)
VA12HFHB-89(2R)	100.0	35.0 -	35.0 -	1	118.0
Eve	100.0	35.0 -	35.0 -	2	117.0
VA09H-110(2R)	95.0 -	37.5 -	35.8 -	3	120.0
VA10H-79WS(2R)	100.0	40.0 -	40.0 -	4	119.0
Dan	100.0	45.0	45.0	5	119.5
VA08H-79WS	100.0	47.5	47.5	6	121.5
VA13H-49	100.0	47.5	47.5	7	117.5
VA12H-84	100.0	52.5	52.5	8	116.5
VA08H-65	100.0	55.0	55.0	9	119.0
VA13H-38	100.0	55.0	55.0	10	117.5
VA13H-34	100.0	57.5	57.5	11	118.5
VA13H-39	100.0	57.5	57.5	12	115.5
VA13H-25	100.0	60.0	60.0	13	120.0
Amaze 10	100.0	60.0	60.0	14	119.5
VA06H-25	100.0	62.5	62.5	15	120.5
VA06H-79	100.0	62.5	62.5	16	119.5
VA10H-33	100.0	62.5	62.5	17	117.5
VA10H-57	100.0	65.0	65.0	18	118.5
VA11H-34	100.0	67.5 +	67.5 +	19	116.0
VA07H-35WS	100.0	72.5 +	72.5 +	20	119.0
Doyce	100.0	75.0 +	75.0 +	21	117.0
Average	99.8	54.9	54.8		118.4
LSD (0.05)	3.2	11.1	11.1		4.6
C.V.	1.5	9.7	9.7		1.9

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.)

Table 18. Two-year average summary of reaction of entries in the Virginia Tech State Hulless Barley Tests to Fusarium head blight (scab), 2014 and 2015 harvests.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index	Date Headed (Julian)	DON[4] (ppm)
VA12HFHB-89(2R)	62.5 -	20.0 -	18.1 -	1	116.5	4.6‡
Eve	71.3 -	20.0 -	18.6 -	2	114.0 -	4.3
VA09H-110(2R)	80.0	22.5 -	20.3 -	3	118.0	6.8
VA10H-79WS(2R)	66.3 -	22.5 -	20.8 -	4	118.5	14.7
Dan	81.3	25.0 -	24.1 -	5	117.8	6.2
VA08H-79WS	75.0	26.3	25.0	6	120.3 +	17.1
VA08H-65	90.0	31.8	30.9	7	116.5	13.9
VA06H-25	80.0	34.3	33.1	8	119.0	37.7
Amaze 10	85.0	36.3	34.4	9	118.3	19.9
VA11H-34	83.8	38.8 +	37.1 +	10	115.5	11.6‡
VA06H-79	90.0	38.8 +	37.3 +	11	118.0	30.1
VA07H-35WS	88.8	38.8 +	38.2 +	12	119.3	36.8
VA10H-57	92.5 +	42.5 +	41.0 +	13	117.3	21.3
Doyce	96.3 +	50.0 +	49.1 +	14	115.3	18.6
Average	81.6	31.9	30.6		117.4	17.4
LSD (0.05)	8.7	5.8	5.6		2.2	
C.V.	7.3	12.5	12.6		1.3	

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.)

[4]DON values were measured (pooled over replications) from the 2013 and 2014 harvest year.

‡DON values were measured (pooled over replications) from the 2014 harvest year.

Table 19. Summary of reaction of entries in the Virginia Tech State Barley Test to Fusarium head blight (scab), 2015 harvest.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index	Date Headed (Julian)
VA11B-141	100.0	37.5	37.5	1	116.0
VA11B-143	100.0	37.5	37.5	2	114.5
Nomini	100.0	40.0	40.0	3	115.0
VA13B-35	100.0	40.0	40.0	4	112.0
VA12B-8	100.0	42.5	42.5	5	115.5
Wysor	100.0	45.0	45.0	6	116.0
VA08B-95	100.0	45.0	45.0	7	113.0
VA13B-25	100.0	45.0	45.0	8	112.0
VA11B-126	100.0	45.0	45.0	9	111.5
Barsoy	100.0	45.0	45.0	10	111.0 -
VA11B-130	100.0	45.0	45.0	11	111.0 -
VA92-42-46	100.0	47.5	47.5	12	119.5
VA11B-102	100.0	47.5	47.5	13	117.5
VA13B-48	100.0	47.5	47.5	14	117.0
VA13B-37	100.0	47.5	47.5	15	113.5
Violetta	100.0	50.0	50.0	16	120.0
VA12B-129	100.0	50.0	50.0	17	117.5
Callao	100.0	50.0	50.0	18	110.5 -
VA13B-15	100.0	52.5	52.5	19	122.0 +
VA08B-84	100.0	52.5	52.5	20	117.5
VA08B-108	100.0	52.5	52.5	21	113.5
VA13BFHB-23	100.0	55.0	55.0	22	119.0
VA09B-34	100.0	55.0	55.0	23	114.0
VA13B-30	100.0	57.5	57.5	24	117.0
Thoroughbred	100.0	60.0	60.0	25	121.0 +
Secretariat	100.0	60.0	60.0	26	115.5
VA12B-56	100.0	60.0	60.0	27	110.5 -
VA12B-30	100.0	62.5	62.5	28	120.0
VA11B-4	100.0	65.0	65.0	29	119.0
Atlantic	100.0	65.0	65.0	30	110.0 -
Price	100.0	67.5	67.5	31	113.5
VA11B-41	100.0	70.0 +	70.0 +	32	121.0 +
VA12B-41	100.0	70.0 +	70.0 +	33	118.5
VA10B-43	100.0	72.5 +	72.5 +	34	118.5
Average	100.0	52.5	52.5		115.7
LSD (0.05)	0.0	17.1	17.1		4.5
C.V.	0.0	16.1	16.1		1.9

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.)

Table 20. Two-year average summary of reaction of entries in the Virginia Tech State Barley Tests to Fusarium head blight (scab), 2014 and 2015 harvests.

LINE	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)	Rank FHB Index	Date Headed (Julian)	DON[4] (ppm)
VA11B-143	82.5	20.5	19.9	1	114.5	12.4
VA11B-141	91.3	21.0	20.5	2	116.5	10.6
Nomini	78.8	21.0	20.6	3	113.5	9.2
VA12B-8	85.0	23.8	23.0	4	115.3	3.8‡
VA11B-130	85.0	25.0	24.3	5	111.3 -	6.0
Barsoy	86.3	25.0	24.3	6	110.8 -	11.8
VA11B-126	87.5	25.0	24.4	7	110.8 -	5.5
Wysor	90.0	25.0	24.5	8	115.8	13.7
VA11B-102	80.0	25.5	24.9	9	116.5	24.2
VA08B-95	95.0 +	25.5	25.2	10	113.0	9.3
VA92-42-46	82.5	26.3	25.4	11	117.3	9.5
Violetta	65.0	27.5	25.8	12	116.5	14.4‡
Callao	90.0	26.8	26.5	13	110.8 -	16.0
VA09B-34	78.8	28.5	28.1	14	113.3	18.4
VA08B-108	88.8	28.8	28.2	15	113.5	14.7
VA08B-84	96.3 +	29.3	29.0	16	115.8	16.6
Thoroughbred	87.5	31.3	30.9	17	119.3 +	21.5
Secretariat	85.0	32.5	31.8	18	114.3	17.5
Atlantic	87.5	35.0	34.4	19	111.5 -	18.7
VA11B-4	95.0 +	35.8	35.4	20	118.3 +	29.0
Price	87.5	36.8 +	36.0 +	21	114.0	21.6
VA11B-41	87.5	37.5 +	36.9 +	22	118.3 +	14.8‡
VA10B-43	92.5	39.3 +	38.8 +	23	117.5 +	31.5
Average	86.3	28.4	27.8		114.7	15.3
LSD (0.05)	8.1	8.0	8.0		2.7	
C.V.	6.6	19.8	20.1		1.7	

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.)

[4]DON values were measured (pooled over replications) from the 2013 and 2014 harvest year.

‡DON values were measured (pooled over replications) from the 2014 harvest year.

Section 4: Wheat Varieties

Note: 2016 results were severely impacted by freeze damage at some locations. These effects should be taken into consideration when examining the over-location yield averages.

Wheat trials were planted in seven-inch rows at Blackstone, Orange, Holland, Painter, and Shenandoah Valley. They were planted in six-inch rows at Blacksburg and Warsaw. The no-till locations (Holland and Shenandoah Valley) were planted at 48 seeds per square foot. All other locations were planted at 44 seeds per square foot. Yields from Blackstone in the 2016 harvest year were not included in the over-location or over-year analyses.

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 2016 were Hilliard, MAS 61, MAS 65, Pioneer Brand 26R59, MAS 67, Pioneer Brand 26R20, MAS 35, MAS 6, MAS 7, SY 547, and USG 3197. Hilliard also had test weight that was significantly higher than the mean of all lines tested. Average yield of all lines tested in 2015-16 was 56 bushels per acre.

Pioneer Brand 26R59 had the highest two-year average yield. Hilliard, USG 3895, Pioneer Brand 26R20, Pioneer Brand 26R10, MAS 32, and MAS 7 all had grain yield significantly above the mean of the 2015 and 2016 harvests. Hilliard, Pioneer Brand 26R20, and Pioneer Brand 26R10 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 locations and varieties was 63 bushels per acre.

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 2016 harvest season (All rates are given on a per acre basis.)

Blacksburg - Planted October 15, 2015. Pre-plant fertilizer was 30-60-80-8(S)-1.5(B). Site was sprayed with .6 oz. Harmony Extra SG® on November 16, 2015. Site was fertilized with 30 units UAN 30-0-0 on March 8, 2016 and with 50 units UAN 30-0-0 plus 0.6 oz. Harmony Extra SG® plus 1 qt. Manni-Plex® boron on April 6, 2016. Harvest occurred June 26, 2016.

Blackstone - Planted October 20, 2015. Pre-plant fertilizer was 500 lb. 6-12-18 (= 30-60-90) on October 15, 2015. Site received 60 lb. N + 0.5 oz. Harmony Extra XP® February 10, 2016. Site was fertilized with 60 lb. N using UAN on March 9, 2016. Mustang® Maxx was applied at 4 oz. on April 25, 2016. Harvest occurred June 15, 2016.

Warsaw - Planted October 20, 2015. Pre-plant fertilizer was 30-80-80-5 applied October 14, 2015. Site was fertilized using 12-0-0-1.5 at 25 lb. on December 6, 2015 and at 30 lb. on February 19, 2016. Site was also fertilized using 24-0-0-3 at 60 lb. on March 12, 2016. Site was treated with 6.5 oz. Starane® and .75 oz Harmony Extra SG® plus surfactant on December 6, 2015. Harvest occurred June 15, 2016.

Painter - Planted October 27, 2015. Pre-plant fertilizer was 50 lb. N on October 24, 2015. Site was fertilized with 60 lb. N using 30% UAN and 0.75 oz. Harmony Extra SG® March 13, 2016. Harvest occurred June 20-21, 2016.

Holland - Planted minimum-till November 17-18, 2015. Pre-plant fertilizer was 30-40-80 on October 25, 2015. Site was fertilized with 60 units N using 24-0-0-3 plus 0.6 oz. Harmony Extra SG® on February 20, 2015. Site was fertilized with 60 units N using 24-0-0-3 plus 0.6 oz. Harmony Extra SG® on March 14, 2015. Site was sprayed with 4.75 oz. Osprey™ on March 10, 2016. Harvest occurred June 14, 2016.

Orange - Planted October 9, 2015. Pre-plant fertilizer was 30-80-60 October 8, 2015. Sixty lb. N plus 0.6 oz. Harmony Extra SG® was applied March 1, 2016. Site was abandoned due to freeze damage.

Shenandoah Valley - Planted on October 23, 2015. Pre-plant fertilizer was 25 lb. N plus Gramoxone®. Forty lb. N plus 0.7 oz. Harmony Extra SG® was applied on March 3, 2016. Harvest occurred July 1, 2016.

Entries in 2015-16 Virginia Wheat Test, arranged by company.

Company	Line	Seed Treatment reported by company
AgriMAXX Wheat Company	**AgriMAXX 415**	Vibrance™ Extreme + Maxim + Cruiser®
7167 Highbanks Road	**AgriMAXX 444**	Vibrance™ Extreme + Maxim + Cruiser®
Mascoutah, IL 62258	**AgriMAXX 446**	Vibrance™ Extreme + Maxim + Cruiser®
	AgriMAXX 454	Vibrance™ Extreme + Maxim + Cruiser®
	AgriMAXX 462	Vibrance™ Extreme + Maxim + Cruiser®
	AgriMAXX Exp 1558	Vibrance™ Extreme + Maxim + Cruiser®
	AgriMAXX Exp 1674	Vibrance™ Extreme + Maxim + Cruiser®
	AgriMAXX Exp 1675	Vibrance™ Extreme + Maxim + Cruiser®
Armor Seed, LLC	AR21513	Vibrance™ Extreme
183 Pennsylvania Ave.	ARW1516	Vibrance™ Extreme
Waldenburg, AR 72475	**Inferno**	Vibrance™ Extreme
Crop Production Services	**Dyna-Gro 9223**	Foothold™ eXtra w/Awaken ST
15277 Richmond-Tappahannock Hwy	**Dyna-Gro 9522**	Foothold™ eXtra w/Awaken ST
St Stephens Church, VA 23148	**Dyna-Gro 9552**	Foothold™ eXtra w/Awaken ST
	Dyna-Gro 9600	Foothold™ eXtra w/Awaken ST
	Dyna-Gro 9642	Foothold™ eXtra w/Awaken ST
	Dyna-Gro 9692	Foothold™ eXtra w/Awaken ST
	Dyna-Gro 9772	Foothold™ eXtra w/Awaken ST
	Shirley	Foothold™ eXtra w/Awaken ST
Dupont Pioneer	**Pioneer Brand 25R32**	Vibrance™ Extreme
59 Greif Parkway Suite 200	**Pioneer Brand 26R10**	Vibrance™ Extreme
Delaware, OH 43015	**Pioneer Brand 26R20**	Vibrance™ Extreme
	Pioneer Brand 26R41	Vibrance™ Extreme
	Pioneer Brand 26R53	Vibrance™ Extreme
	Pioneer Brand 26R59	Vibrance™ Extreme
	Pioneer XW13W	Vibrance™ Extreme
Eddie Mercer Agri-Services, Inc.	**MBX 11-V-258**	CruiserMaxx® + Vibrance™ Extreme
6900 Linganore Road	**MBX 14-K-297**	CruiserMaxx® + Vibrance™ Extreme
Frederick, MD 21702	**MBX 14-S-210**	CruiserMaxx® + Vibrance™ Extreme
	MBX 15-E-229	CruiserMaxx® + Vibrance™ Extreme
	MBX 16-A-206	CruiserMaxx® + Vibrance™ Extreme
	MBX 16-B-203	CruiserMaxx® + Vibrance™ Extreme
Erwin-Keith, Inc.	PGX 15-10	Evergol Energy + Gaucho
1529 Hwy 193	PGX 15-12	Evergol Energy + Gaucho
Wynne, AR 72396	PGX 15-14	Evergol Energy + Gaucho
	PGX 15-16	Evergol Energy + Gaucho
	Progeny 243	Evergol Energy + Gaucho
	Progeny 357	Evergol Energy + Gaucho
	Progeny 870	Evergol Energy + Gaucho
Featherstone Farm Seed	**Featherstone 73**	Vibrance™ Extreme
13941 Genito Road	**Featherstone VA258**	Vibrance™ Extreme
Amelia, VA 23002		

Entries in 2015-16 Virginia Wheat Test, arranged by company.

Company	Line	Seed Treatment reported by company
Limagrain Cereal Seeds	L11410	Albaugh Cereals F&I Custom Blend
7707 Jackson Pond Dr	L11420	Albaugh Cereals F&I Custom Blend
Charlotte, NC 28273	L11437	Albaugh Cereals F&I Custom Blend
	L11541	Albaugh Cereals F&I Custom Blend
	LCS 3677	Albaugh Cereals F&I Custom Blend
Meherrin	**Southern Harvest 4300**	Vibrance™ Extreme
4020 Wake Forest Rd, Suite 110	**Southern Harvest 4400**	Vibrance™ Extreme
Raleigh, NC 27609		
Mid-Atlantic Seeds	**MAS 23**	MAS Proshield
204 St. Charles Way, #163E	**MAS 32**	MAS Proshield
York, PA 17402	**MAS 35**	MAS Proshield
	MAS 42S	MAS Proshield
	MAS 46	MAS Proshield
	MAS 50	MAS Proshield
	MAS 6	MAS Proshield
	MAS 61	MAS Proshield
	MAS 65	MAS Proshield
	MAS 66	MAS Proshield
	MAS 67	MAS Proshield
	MAS 7	MAS Proshield
North Carolina State University	NC09-20986	Vibrance™ Extreme + Cruiser®
840 Method Road Unit 3	NC11-22289	Vibrance™ Extreme + Cruiser®
Raleigh, NC 27695	NC8170-4-3	Vibrance™ Extreme + Cruiser®
Southern States	**SS 8340**	Evergol Energy
6606 West Broad Street	**SS 8360**	Evergol Energy
Richmond, VA 23230	**SS 8415**	Evergol Energy
	SS 8513	Evergol Energy
	SS 8530	Evergol Energy
	SS EXP 8550	Evergol Energy
Syngenta Seeds, Inc.	**Oakes**	Vibrance™ Extreme
806 N. 2nd St	**SY 007**	Vibrance™ Extreme
Berthoud, CO 80513	**SY 547**	Vibrance™ Extreme
	SY Harrison	Vibrance™ Extreme
	SY Viper	Vibrance™ Extreme
University of Arkansas	AR01040-4-1	Vibrance™ Extreme + Gaucho 600
495 N. Campus Dr. PTSC 115	ARGA04510-11LE24	Vibrance™ Extreme + Gaucho 600
Fayetteville, AR 72701		
University of Georgia	GA-03564-12E6	Vibrance™ Extreme
1109 Experiment Street	GA-04434-12LE28	Vibrance™ Extreme
Griffin, GA 30223	GA051102-13LE43	Vibrance™ Extreme
	GA061349-13LE29	Vibrance™ Extreme
	GA061349-13LE31	Vibrance™ Extreme

Entries in 2015-16 Virginia Wheat Test, arranged by company.

Company	Line	Seed Treatment reported by company
University of Maryland	15MW315	Vibrance™ Extreme + storicide
27664 Nanticoke Rd	MD272-8-4-14-6	Vibrance™ Extreme + storicide
Salisbury, MD 21801		
University of Tennessee	TN1102	Vibrance™ Extreme
252 Ellington Hall, 2431 Joe Johnson Dr		
Knoxville, TN 37996		
UniSouth Genetics, Inc.	**USG 3197**	Ipconazole/Metalaxyl/Imidacloprid
3205-C HWY 46S	**USG 3201**	Ipconazole/Metalaxyl/Imidacloprid
Dickson, TN 37055	**USG 3251**	Ipconazole/Metalaxyl/Imidacloprid
	USG 3316	Ipconazole/Metalaxyl/Imidacloprid
	USG 3404	Ipconazole/Metalaxyl/Imidacloprid
	USG 3523	Ipconazole/Metalaxyl/Imidacloprid
	USG 3612	Ipconazole/Metalaxyl/Imidacloprid
	USG 3895	Ipconazole/Metalaxyl/Imidacloprid
Virginia Tech and the Virginia	DH11SRW070-14	Raxil®MD Pro + Gaucho
Crop Improvement Association	DH11SRW070-28	Raxil®MD Pro + Gaucho
9142 Atlee Station Road	**Hilliard**	Raxil®MD Pro + Gaucho
Mechanicsville, VA 23111	**Jamestown**	Raxil®MD Pro + Gaucho
	Massey	Raxil®MD Pro + Gaucho
	VA07MAS14-9260-8-2-2	Raxil®MD Pro + Gaucho
	VA07MAS3-7304-3-1-2-3	Raxil®MD Pro + Gaucho
	VA07MAS3-7304-3-2-4-3	Raxil®MD Pro + Gaucho
	VA07MAS4-7416-5-4-2	Raxil®MD Pro + Gaucho
	VA07MAS4-7417-1-3-3	Raxil®MD Pro + Gaucho
	VA07MAS4-7463-6-2-2-2	Raxil®MD Pro + Gaucho
	VA07MAS4-7463-6-2-2-4	Raxil®MD Pro + Gaucho
	VA08MAS1-188-6-4-1	Raxil®MD Pro + Gaucho
	VA09MAS1-12-8-4	Raxil®MD Pro + Gaucho
	VA09MAS6-122-7-1	Raxil®MD Pro + Gaucho
	VA09MAS7-61-2-1	Raxil®MD Pro + Gaucho
	VA10W-119	Raxil®MD Pro + Gaucho
	VA10W-21BSR124	Raxil®MD Pro + Gaucho
	VA10W-96	Raxil®MD Pro + Gaucho
	VA11W-106	Raxil®MD Pro + Gaucho
	VA11W-108PA	Raxil®MD Pro + Gaucho
	VA11W-279	Raxil®MD Pro + Gaucho
	VA11W-313	Raxil®MD Pro + Gaucho
	VA12FHB-8	Raxil®MD Pro + Gaucho
	VA12W-101	Raxil®MD Pro + Gaucho
	VA12W-22	Raxil®MD Pro + Gaucho
	VA12W-248	Raxil®MD Pro + Gaucho
	VA12W-31	Raxil®MD Pro + Gaucho
	VA12W-68	Raxil®MD Pro + Gaucho
	VA12W-72	Raxil®MD Pro + Gaucho

Entries in 2015-16 Virginia Wheat Test, arranged by company.

Company	Line	Seed Treatment reported by company
Virginia Tech and the Virginia	VA13FHB-26	Raxil®MD Pro + Gaucho
Crop Improvement Association	VA13FHB-5	Raxil®MD Pro + Gaucho
9142 Atlee Station Road	VA13W-124	Raxil®MD Pro + Gaucho
Mechanicsville, VA 23111	VA13W-174	Raxil®MD Pro + Gaucho
	VA13W-177	Raxil®MD Pro + Gaucho
	VA13W-38	Raxil®MD Pro + Gaucho
	VA14FHB-14	Raxil®MD Pro + Gaucho
	VA14FHB-28	Raxil®MD Pro + Gaucho
	VA14W-29	Raxil®MD Pro + Gaucho
	VA14W-59	Raxil®MD Pro + Gaucho
	VA14W-6	Raxil®MD Pro + Gaucho

Table 21. Summary of performance of entries in the Virginia Tech Wheat Test over location, 2016 harvest. Note: 2016 results were severely impacted by freeze damage at some locations. These effects should be taken into consideration when examining the over-location yield averages.

Line	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	BYD Virus[1] (0-9)	Leaf Blotch (0-9)	FHB Index (0-100)	Early Height (In)	Hessian Fly Res.[2]	Awns[3]
	(5)	(5)	(2)	(2)	(3)	(4)	(4)	(3)	(1)	(1)	(1)	(2)		
Hilliard	66.4 +	58.0 +	117	31 +	1	1 -	2 -	0 -	1	1	17	14 +	BC	A
VA11W-108PA	66.1 +	57.7 +	117	30	1	1 -	1 -	0 -	1	1	17	13	BC	A
MAS 61	65.3 +	56.5	119 +	29	2 +	3 +	1 -	1	0	1	10 -	11 -	BCO	A
PGX 15-14	64.7 +	56.1	120 +	28	1	1 -	5 +	1	1	2	40 +	10 -	---	TA
MAS 65	64.3 +	55.8	120 +	28	1	2 -	5 +	0 -	1	2	35 +	11 -	BO	TA
Pioneer Brand 26R59	63.9 +	56.7	119 +	26 -	1	1 -	4 +	0 -	1	2	24	10 -	O	TA
VA11W-106	63.2 +	57.5 +	120 +	29	1	2	1 -	0 -	1	1	21	11 -		A
VA14W-29	62.9 +	58.6 +	118 +	29	1	2	1 -	1 -	0 -	2	46 +	13		TA
MAS 67	62.8 +	55.4 -	118	28	1	3 +	3	1	1	2	9 -	11	BCOL	TA
Pioneer Brand 26R20	62.8 +	56.7	120 +	32 +	1 -	2	3	1 -	1	2	27	10 -	CO	A
VA12FHB-8	62.8 +	55.9	116 -	29	2	1 -	1 -	4 +	1	1	23	15 +	BC	AL
AgriMAXX Exp 1674	62.7 +	56.1	120 +	28	1	2	5 +	0 -	1	2	29	10 -	BCOL	TA
AR01040-4-1	62.5 +	57.0	117 -	34 +	2	2	1 -	2	2 +	1	26	15 +	---	AL
VA09MAS6-122-7-1	62.4 +	58.5 +	117 -	25 -	1 -	1 -	1 -	0 -	1	1	22	12		A
VA12W-72	62.4 +	58.0 +	114 -	28 -	1	1 -	2 -	0 -	1	1	14	14 +	BCOL	A
VA14W-59	62.2 +	56.8	118	30	2 +	1 -	1 -	6 +	0 -	1	39 +	12	C	TA
VA12W-31	62.1 +	56.8	120 +	29	2	1 -	1 -	3 +	1	1	21	10 -		A
L11541	61.2 +	58.4 +	120 +	29	2	1 -	0 -	2	1	1	11	10 -	---	TA
SS EXP 8550	61.2 +	55.7	121 +	32 +	1	1 -	2 -	0 -	1	2	12	10 -	BCOL	A
DH11SRW070-14	61.1 +	56.6	114 -	25 -	1 -	1 -	1 -	1 -	1	1	32 +	15 +	C	A
VA12W-68	61.1 +	57.8 +	115 -	28	1	1 -	2 -	0 -	1	1	22	14 +	BCOL	A
MAS 35	60.8 +	56.0	120 +	30	1	3 +	2 -	3 +	1	1	10 -	10 -		A
VA12W-248	60.8 +	57.4 +	116 -	32 +	2	2	1 -	6 +	0 -	2	23	16 +		TA
VA11W-279	60.6 +	58.5 +	113 -	27 -	2	0 -	0 -	1 -	1	1	23	14 +	BCOL	AL
GA-04434-12LE28	60.3 +	58.8 +	113 -	30	1	0 -	2 -	3	1	1	62 +	15 +	BCOL	A
MAS 6	60.0 +	54.5 -	119 +	28 -	1	2	3	1	1	2	16	12	BCOL	A
MAS 7	59.8 +	55.7	121 +	30	2	2	5 +	1 -	0 -	2	11	10 -		TA

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Line	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	BYD Virus[1] (0-9)	Leaf Blotch (0-9)	FHB Index (0-100)	Early Height (In)	Hessian Fly Res.[2]	Awns[3]
	(5)	(5)	(2)	(2)	(3)	(4)	(4)	(3)	(1)	(1)	(1)	(2)		
VA08MAS1-188-6-4-1	59.8 +	57.3 +	117	28	1	0 -	1 -	1	1	1	20	12	C	AL
VA12W-101	59.7 +	55.9	120 +	26 -	2	1 -	1 -	0 -	1	1	14	11 -	B	AL
SY 547	59.7 +	56.7	118	31 +	2	1 -	2 -	3 +	3 +	1	11	14 +		TA
USG 3197	59.4 +	54.3 -	119 +	31	1	2	2	2	0	1	5 -	12	BCO	A
SS 8415	59.3	57.6 +	116 -	30	2	0 -	4 +	1 -	2 +	1	42 +	14 +	BCOL	TA
MAS 46	59.2	55.0 -	120 +	30	1	4 +	5 +	1	1	1	24	12		A
VA10W-21BSR124	59.1	57.4 +	114 -	30	2 +	3 +	3	1 -	1	2	43 +	14 +	B	TA
PGX 15-12	59.1	57.0	115 -	27 -	1 -	1 -	1 -	1	0 -	1	15	14 +	---	TA
ARGA04510-11LE24	59.1	56.3	118 +	31 +	1	3 +	1 -	1 -	1	1	54 +	14	---	A
USG 3895	59.0	54.8 -	119 +	28	1	4 +	1 -	1 -	1	1	29	11 -	O	A
VA12W-22	59.0	57.3 +	117	28 -	1	1 -	1 -	2	1	1	22	13		AL
SS 8530	58.8	54.9 -	117	29	1	2	1 -	3 +	1	2	13	13		A
PGX 15-10	58.7	55.7	121 +	33 +	1	1 -	2 -	0 -	1	1	12	10 -	---	A
Featherstone 73	58.7	58.6 +	118	29	1	2	1 -	0 -	0	1	12	13		TA
SY Viper	58.7	57.9 +	116 -	33 +	2 +	2	5 +	0 -	1	1	18	14		AL
VA09MAS1-12-8-4	58.7	59.1 +	118	30	1 -	4 +	1 -	0 -	0	1	36 +	12		TA
MD272-8-4-14-6	58.6	57.7 +	117 -	28 -	1	1 -	1 -	1 -	0	1	12	14	C	A
VA13W-174	58.4	57.7 +	114 -	30	1	1 -	2 -	2	0	1	11 -	16 +	B	A
VA07MAS4-7417-1-3-3	58.2	56.8	113 -	27 -	1	1 -	1 -	3 +	1	1	25	16 +	C	A
VA07MAS14-9260-8-2-2	58.1	59.0 +	119 +	29	1	1 -	1 -	3 +	0 -	2	27	13		A
AgriMAXX 415	58.0	57.8 +	120 +	30	1	3 +	3	1	1	2	18	11 -		A
MAS 32	57.9	56.9	119 +	29	1	3 +	5 +	3	0	1	10 -	11 -		A
USG 3201	57.9	57.8 +	120 +	29	1	3 +	3	0 -	1	3 +	18	10 -		A
Pioneer Brand 26R41	57.8	55.2 -	120 +	27 -	1	2	3	0 -	1	3	27	12	BCOL	A
GA-03564-12E6	57.8	59.6 +	113 -	28 -	2	2	1 -	1	1	1	29	16 +	BCO	A
MBX 14-S-210	57.7	55.5 -	121 +	32 +	1	2	1 -	2	1	1	15	10 -	C	A
SS 8340	57.7	57.7 +	120 +	29	1	3 +	3	1 -	0	2	12	10 -		A

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	(5)	(5)	(2)	(2)	(3)	(4)	(4)	(3)	(1)	(1)	(1)	(2)		
NC8170-4-3	57.7	59.2 +	118 +	33 +	3 +	0 -	1 -	3 +	2 +	1	18	12	CO	AL
VA11W-313	57.5	56.0	113 -	27 -	2 +	2	1 -	1 -	1	1	19	16 +	BCOL	A
VA13W-38	57.4	58.4 +	112 -	29	1	1 -	1 -	2	1	1	8 -	16 +	B	A
Featherstone VA258	57.3	55.7	119 +	32 +	2 +	2	2 -	8 +	1	1	25	13	O	TA
USG 3251	57.3	55.9	121 +	32 +	1	2	5 +	1	2 +	2	16	10 -		A
Dyna-Gro 9772	56.9	54.1 -	118	30	1	2	2	3 +	0	1	8 -	13	---	A
MBX 11-V-258	56.9	55.8	118	33 +	2 +	1 -	1 -	8 +	1	1	25	14 +	CO	TA
MAS 50	56.8	57.1	118	31 +	1 -	4 +	2	2	1	2	21	13	---	A
VA07MAS4-7416-5-4-2	56.8	57.5 +	117 -	27 -	1	1 -	1 -	1 -	1	1	26	16 +	BCOL	AL
Shirley	56.8	53.2 -	121 +	29	1 -	0 -	0 -	7 +	0	1	29	11 -	C	AL
AgriMAXX Exp 1558	56.7	54.2 -	118	30	1	3 +	2 -	3	1	1	13	12		A
Pioneer Brand 26R53	56.4	57.3 +	119 +	27 -	1	3 +	5 +	1 -	1	2	24	11 -	B	A
MBX 16-A-206	56.4	54.6 -	120 +	29	1	4 +	5 +	1	1	1	24	12	---	A
VA07MAS4-7463-6-2-2-2	56.4	56.6	118	27 -	3 +	1 -	1 -	4 +	0	1	23	11 -		TA
AgriMAXX 444	56.2	54.6 -	121 +	30	1	3	4 +	1 -	1	2	22	10 -		A
VA07MAS4-7463-6-2-2-4	56.2	55.9	117	28 -	2 +	1 -	1 -	6 +	1	1	34 +	12		TA
DH11SRW070-28	56.1	56.6	112 -	27 -	2	1 -	1 -	0 -	1	1	24	17 +	C	A
Pioneer Brand 26R10	55.9	55.5 -	120 +	29	1 -	3	6 +	0 -	0	2	21	11 -	BCOL	A
MAS 66	55.9	58.0 +	116 -	30	1	3 +	2	2	0 -	2	15	12	---	TA
VA07MAS3-7304-3-1-2-3	55.8	57.4 +	110 -	25 -	3 +	2 -	1 -	2	4 +	1	23	18 +	BCOL	TA
GA061349-13LE31	55.7	58.0 +	116 -	28 -	1	2	0 -	2	2	1	57 +	16 +	BC	TA
AgriMAXX 446	55.4	55.7	121 +	30	1	3	5 +	0 -	1	4 +	24	11	BCOL	A
Dyna-Gro 9600	55.4	54.9 -	117	29	1	1 -	1 -	4 +	1	2	6 -	14 +	---	A
VA10W-96	55.3	59.5 +	115 -	30	2	1 -	1 -	2	1	1	24	15 +		A
MBX 15-E-229	55.2	54.8 -	117	30	2	2	1 -	4 +	1	2	8 -	13		A
MAS 23	55.1	53.7 -	119 +	28 -	2	3	7 +	2	0	4 +	16	11 -	BO	A
VA10W-119	54.9	58.5 +	113 -	30	2	2	1 -	3	2	1	33 +	16 +	BCOL	A

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	(5)	(5)	(2)	(2)	(3)	(4)	(4)	(3)	(1)	(1)	(1)	(2)		
Southern Harvest 4300	54.8	53.0 -	120 +	30	1	4 +	5 +	5 +	2	2	19	10 -	C	A
USG 3404	54.6	54.8 -	121 +	30	1	3	4 +	0 -	1	2	12	10 -		A
15MW315	54.6	58.5 +	115 -	28 -	1	2	1 -	1 -	1	1	11 -	15 +	BC	A
L11420	54.5	58.6 +	117	35 +	3 +	3 +	2 -	4 +	1	3	14	12	BO	TA
Dyna-Gro 9522	54.5	54.8 -	121 +	29	1	3	4 +	0 -	1	3 +	20	11		A
SS 8513	54.5	58.0 +	114 -	31 +	3 +	1 -	4 +	1 -	1	2	34 +	15 +	C	TA
PGX 15-16	54.5	59.0 +	119 +	27 -	1	1 -	5 +	1 -	0 -	1	18	10 -	BCOL	TA
VA13FHB-26	54.4	56.6	118	32 +	3 +	1 -	1 -	5 +	1	1	18	12		A
VA14FHB-28	54.4	58.3 +	111 -	28	1	2	1 -	1	1	2	19	17 +		A
AgriMAXX 462	54.2	58.1 +	118	29	1	4 +	3	6 +	1	1	20	12		TA
USG 3612	54.2	53.9 -	118	30	2 +	2	6 +	1	1	2	22	12		TA
VA09MAS7-61-2-1	54.0	57.0	110 -	26 -	2 +	2	1 -	3 +	3 +	2	30 +	17 +	C	TA
VA07MAS3-7304-3-2-4-3	53.5	55.6 -	111 -	25 -	2	3 +	1 -	2	4 +	1	39 +	16 +	BCOL	TA
Pioneer Brand 25R32	53.2	54.6 -	121 +	32 +	2	1 -	5 +	0 -	2 +	1	6 -	8 -	BCOL	A
MAS 42S	53.0	54.4 -	120 +	31 +	1	5 +	6 +	3 +	0	2	12	11		A
Progeny 870	53.0	52.7 -	119 +	27 -	1	2	3	0 -	1	3 +	17	11 -	B	A
VA13W-124	53.0	56.5	112 -	29	2 +	4 +	1 -	2	1	1	20	17 +	BCOL	TA
Inferno	52.6	55.3 -	121 +	29	1	3 +	6 +	1 -	1	4 +	21	11	BCOL	A
GA051102-13LE43	52.5	58.2 +	116 -	29	1	1 -	0 -	1 -	1	1 -	51 +	14 +	BC	TA
L11410	52.5	57.1	117 -	32 +	2 +	2	8 +	3 +	1	2	16	12	BCOL	TA
SY 007	52.3 -	56.0	116 -	28	2	1 -	6 +	1	1	2	17	14 +		A
LCS 3677	52.2 -	52.9 -	120 +	30	1	3 +	5 +	6 +	1	4 +	27	11 -		TA
NC11-22289	52.2 -	59.0 +	115 -	28	2 +	0 -	1 -	1	1	1	30 +	13	BCOL	AL
Dyna-Gro 9223	51.6 -	53.5 -	120 +	31 +	1	4 +	7 +	1 -	1	4 +	27	11 -		TA
MBX 14-K-297	51.3 -	54.7 -	120 +	32 +	1	4 +	6 +	1 -	1	3 +	27	11 -		TA
Dyna-Gro 9642	51.3 -	52.3 -	121 +	30	1	2	4 +	0 -	1	2	11	9 -	---	A
TN1102	51.2 -	54.7 -	116 -	31 +	3 +	1 -	2 -	3 +	1	1	38 +	15 +		A

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	(5)	(5)	(2)	(2)	(3)	(4)	(4)	(3)	(1)	(1)	(1)	(2)		
VA14FHB-14	50.9 -	57.7 +	115 -	28	2	4 +	1 -	3 +	0 -	2	20	13		A
AR21513	50.8 -	54.3 -	120 +	31	1	5 +	6 +	4 +	2 +	3 +	12	11 -	---	A
Oakes	50.4 -	59.3 +	118 +	30	2 +	4 +	4 +	2	1	2	19	14 +		TA
Dyna-Gro 9552	50.3 -	55.4 -	121 +	29	1	3 +	6 +	1	1	4 +	22	11 -	BCOL	A
GA061349-13LE29	50.0 -	57.6 +	118	28	1 -	2 -	1 -	0 -	1	1	49 +	13		TA
SS 8360	49.9 -	54.6 -	121 +	29	1	3	6 +	1 -	1	5 +	24	11 -	BOL	A
Pioneer XW13W	49.7 -	56.1	121 +	30	1	5 +	2	1 -	1	3	19	10 -	BOL	A
NC09-20986	49.2 -	59.9 +	115 -	30	2	1 -	3	2	2 +	1	12	15 +	BCOL	A
SY Harrison	49.1 -	54.2 -	120 +	29	1 -	4 +	5 +	1 -	1	3 +	22	11 -		A
VA13W-177	49.1 -	58.3 +	110 -	31 +	1 -	1 -	2 -	1 -	1	1	6 -	18 +	BC	A
VA13FHB-5	49.0 -	58.5 +	112 -	27 -	1	1 -	1 -	3 +	2 +	1	18	17 +	B	A
Progeny 243	48.5 -	56.3	118 +	30	1	4 +	3	1	1	3 +	10 -	13	BO	A
Southern Harvest 4400	48.4 -	54.8 -	122 +	32 +	1	4 +	4 +	0 -	1	2	18	10 -	BCOL	TA
MBX 16-B-203	48.1 -	53.7 -	121 +	30	1	5 +	6 +	4 +	2 +	3 +	11 -	10 -	---	A
AgriMAXX Exp 1675	47.3 -	56.0	119 +	27 -	1	5 +	3	0 -	1	2	10 -	11 -	BCOL	A
VA14W-6	47.0 -	56.7	117 -	27 -	1	1 -	1 -	5 +	1	2	23	13		A
Jamestown	46.8 -	59.0 +	110 -	26 -	2	2	2	1 -	1	1	15	16 +	BC	A
USG 3316	46.5 -	53.9 -	120 +	30	1	5 +	6 +	4 +	2 +	3	8 -	10 -		A
Massey	46.3 -	57.5 +	114 -	31 +	4 +	2	7 +	3	3 +	1	11 -	18 +	B	AL
USG 3523	46.0 -	54.1 -	121 +	29	2 +	4 +	6 +	1 -	1	4 +	16	12		A
AgriMAXX 454	45.4 -	53.8 -	120 +	31	1 -	5 +	7 +	3 +	2 +	2	10 -	10 -		A
ARW1516	44.8 -	51.7 -	119 +	28	1 -	5 +	4 +	1 -	1	2	10 -	12	---	A
Progeny 357	44.7 -	52.0 -	120 +	29	1	3	7 +	1	2	3 +	23	11 -		A
Dyna-Gro 9692	44.3 -	53.6 -	120 +	30	1	5 +	7 +	2	2 +	4 +	13	10 -	---	A
L11437	44.1 -	57.3 +	111 -	30	3 +	3 +	7 +	2	3 +	2	20	17 +	---	TA
Average	55.8	56.4	118	29	1	2	3	2	1	2	21	13		
LSD (0.05)	3.4	0.7	1	1	1	1	1	1	1	1	10	1		

Table 21. Summary of performance of entries in the Virginia Tech Wheat Test over location, 2016 harvest. Note: 2016 results were severely impacted by freeze damage at some locations. These effects should be taken into consideration when examining the over-location yield averages.

Line	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	BYD Virus[1] (0-9)	Leaf Blotch (0-9)	FHB Index (0-100)	Early Height (In)	Hessian Fly Res.[2]	Awns[3]
	(5)	(5)	(2)	(2)	(3)	(4)	(4)	(3)	(1)	(1)	(1)	(2)		
C.V.	8.9	1.8	1	4	44	36	31	57	68	33	24	10		

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.

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

[1] BYD = Barley Yellow Dwarf Virus.

[2] Seedlings were tested for resistance to biotypes B, C, O, and L of Hessian Fly. Letter in column indicates varietal resistance. "---" indicates seed had been treated with insecticide and results are not valid.

[3] A=awned, AL=awnletted, TA=tip awned.

Table 22. Two-year average summary of performance of entries in the Virginia Tech Wheat Tests, 2015 and 2016 harvests.

Line	Grain Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)	
	(12)		(12)		(4)		(5)		(6)		(7)		(6)		(3)	
Pioneer Brand 26R59	70.1	+	56.0		123		28	-	1		1	-	4	+	2	+
Hilliard	68.7	+	56.9	+	122		33	+	1		0	-	2	-	1	
VA12FHB-8	68.3	+	55.6		121	-	32		2	+	1	-	1	-	1	
VA11W-106	68.1	+	56.9	+	124	+	31		1		1	-	1	-	1	
USG 3895	66.9	+	55.2	-	123	+	30	-	1	-	3	+	1	-	1	-
Pioneer Brand 26R20	66.8	+	56.7	+	124	+	33	+	1		1		3		1	
VA11W-279	66.5	+	57.6	+	119	-	29	-	2		0	-	0	-	1	-
Pioneer Brand 26R10	66.5	+	55.5	-	124	+	31		1	-	3	+	6	+	1	
MAS 32	66.4	+	55.8		123	+	31		1		2		5	+	1	
MAS 7	66.0	+	55.1	-	124	+	32		2		1	-	5	+	1	
VA12W-248	66.0	+	56.4	+	121	-	33	+	2	+	2		1	-	1	
VA12W-31	65.8		56.8	+	124	+	30		2		1	-	1	-	1	
MAS 46	65.7		55.1	-	124	+	31		1		3	+	5	+	1	
VA12W-72	65.7		56.2		120	-	30	-	1		0	-	2	-	0	-
VA10W-119	65.3		57.6	+	119	-	32	+	2	+	1		1	-	1	
Shirley	65.1		54.1	-	124	+	30	-	1	-	0	-	0	-	1	
SS 8530	65.1		54.5	-	122		31		1		1	-	1	-	1	
VA12W-22	65.0		56.8	+	122	-	30	-	1		1	-	1	-	1	
VA12W-68	64.8		56.4	+	120	-	31		1		1	-	1	-	0	-
USG 3612	64.7		54.5	-	122		32		2	+	2		6	+	1	-
VA07MAS4-7417-1-3-3	64.7		56.2		119	-	29	-	1		0	-	1	-	1	
SS 8513	64.7		57.1	+	119	-	32		3	+	1	-	4	+	1	
AgriMAXX 446	64.6		55.7		125	+	31		1	-	3	+	5	+	1	
SY 547	64.5		56.0		122		33	+	2		0	-	1	-	2	+
VA11W-313	64.4		54.9	-	118	-	29	-	2	+	2		1	-	1	
AgriMAXX 415	64.4		57.3	+	124	+	31		1		3	+	3		1	
Featherstone VA258	64.3		55.9		123	+	34	+	2	+	2		1	-	1	
USG 3251	64.1		55.8		125	+	33	+	1		2		5	+	2	+

Table 22. Two-year average summary of performance of entries in the Virginia Tech Wheat Tests, 2015 and 2016 harvests.

Line	Grain Yield (Bu/a)	Test Weight (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)	
	(12)	(12)		(4)		(5)		(6)		(7)		(6)		(3)	
GA-04434-12LE28	63.8	57.1	+	121	-	30		2		0	-	1	-	1	
MBX 14-S-210	63.8	55.3	-	124	+	33	+	1	-	1	-	1	-	1	
GA-03564-12E6	63.7	58.3	+	120	-	30	-	2		1	-	1	-	1	
Dyna-Gro 9522	63.6	55.3	-	124	+	31		1		2	+	4	+	1	
AgriMAXX 444	63.6	55.2	-	125	+	31		1		2	+	4	+	1	
MAS 35	63.6	55.4	-	124	+	30	-	1	-	3	+	2	-	1	
VA10W-96	63.5	58.4	+	120	-	32	+	2		0	-	0	-	1	
Southern Harvest 4300	63.4	53.8	-	123	+	31		1		3	+	5	+	2	+
SS 8415	63.4	56.5	+	121	-	32		2	+	0	-	4	+	1	
USG 3201	63.4	57.4	+	123	+	31		1		3	+	3		1	
MBX 11-V-258	63.3	55.7		123		35	+	2	+	1	-	1	-	1	
MAS 6	63.3	53.9	-	123		29	-	1		2		3		2	+
AgriMAXX Exp 1558	63.3	53.8	-	123		32		2		2		2	-	1	
USG 3404	63.2	55.3	-	125	+	31		1		2	+	4	+	1	
MBX 15-E-229	63.2	54.5	-	122		32		2		1	-	1	-	1	
SS 8340	63.0	57.3	+	124	+	31		1		3	+	3		1	
MAS 42S	62.8	55.2	-	124	+	32	+	1	-	5	+	7	+	1	
Featherstone 73	62.7	57.1	+	123	+	31		2		1		0	-	1	
Dyna-Gro 9223	62.2	54.3	-	124	+	33	+	1		4	+	7	+	1	
VA07MAS14-9260-8-2-2	62.1	57.9	+	123		31		1		1	-	0	-	1	-
Dyna-Gro 9552	62.0	55.6		125	+	31		1	-	3	+	6	+	1	
MBX 14-K-297	62.0	55.0	-	124	+	33	+	1		4	+	6	+	1	
VA13W-38	61.9	57.5	+	118	-	30	-	1		1	-	1	-	1	
MAS 23	61.8	54.4	-	123	+	29	-	1		2	+	7	+	1	
VA13W-124	61.7	55.5		119	-	31		2	+	3	+	0	-	1	
AgriMAXX 462	61.5	57.0	+	123		31		1		3	+	3		1	
SY 007	61.3	56.0		121	-	31		2		1	-	5	+	1	
Southern Harvest 4400	61.2	55.3	-	125	+	32	+	1	-	4	+	4	+	2	+

Table 22. Two-year average summary of performance of entries in the Virginia Tech Wheat Tests, 2015 and 2016 harvests.

Line	Grain Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)	
	(12)		(12)		(4)		(5)		(6)		(7)		(6)		(3)	
USG 3523	60.6		54.9	-	124	+	32		2	+	3	+	6	+	1	
Pioneer Brand 26R53	60.5	-	57.1	+	124	+	29	-	1	-	3	+	4	+	1	
SS 8360	60.4	-	55.3	-	125	+	31		1	-	3	+	6	+	1	
Pioneer Brand 25R32	59.9	-	55.4	-	125	+	33	+	2		1	-	6	+	2	+
Dyna-Gro 9642	59.9	-	53.2	-	124	+	31		2		2		4	+	1	
Progeny 870	59.8	-	53.5	-	123		29	-	1		2	+	3		2	+
VA13FHB-5	59.7	-	57.7	+	119	-	29	-	1	-	1	-	1	-	1	
VA13W-177	58.3	-	58.1	+	116	-	33	+	1		1	-	1	-	1	
Pioneer XW13W	57.7	-	55.6		124	+	31		1		5	+	2	-	1	
Progeny 357	56.5	-	52.8	-	124	+	31		1		3	+	7	+	1	
Jamestown	55.6	-	58.4	+	117	-	29	-	2		2		2	-	1	
Massey	55.1	-	57.1	+	120	-	34	+	3	+	2		7	+	2	+
NC09-20986	54.6	-	58.7	+	120	-	31		2		1	-	2		2	+
Average	63.2		55.9		122		31		1		2		3		1	
LSD (0.05)	2.7		0.4		1		1		0		0		1		0	
C.V.	9.8		1.7		1		4		46		48		35		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.

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

Table 23. Three-year average summary of performance of entries in the Virginia Tech Wheat Tests, 2014, 2015, and 2016 harvests.

Line	Grain Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)		Leaf Blotch (0-9)	
	(19)		(19)		(6)		(8)		(11)		(10)		(7)		(4)		(2)	
Pioneer Brand 26R10	72.9	+	56.5	-	127	+	31		1	-	2	+	6	+	1		2	
Hilliard	72.7	+	57.7	+	125	-	34	+	1	-	0	-	1	-	1		1	-
Pioneer Brand 26R20	71.5	+	57.6	+	127	+	33	+	2		1		3		1		1	
Shirley	71.3	+	55.6	-	127	+	31	-	1	-	0	-	0	-	1		1	-
VA11W-106	71.1	+	57.7	+	126	+	31		1		1	-	1	-	1		1	
USG 3404	70.4	+	56.4	-	127	+	32		1	-	2	+	4	+	1		2	
AgriMAXX 446	70.4	+	56.8		127	+	31		1	-	2	+	5	+	1	+	3	+
USG 3251	69.9		56.7		127	+	33	+	1		2		5	+	1		1	
USG 3612	69.8		55.6	-	125		33		2	+	1		6	+	0	-	2	
MAS 35	69.2		56.3	-	126	+	31	-	1	-	3	+	2	-	1		1	-
AgriMAXX 444	69.2		56.2	-	127	+	32		1		2	+	4		1		2	
SS 8360	68.8		56.5	-	127	+	31	-	1	-	2	+	5	+	1		3	+
VA11W-279	68.7		58.7	+	122	-	30	-	2		0	-	0	-	0	-	1	-
VA12W-72	68.6		57.1		123	-	31	-	1		0	-	2	-	0	-	1	-
MAS 32	68.6		56.7		126	+	31	-	1		2	+	5	+	1		1	
MAS 7	68.6		56.2	-	126	+	32		1		1	-	5	+	1		1	
SS 8513	68.4		58.0	+	122	-	33	+	3	+	1	-	4	+	1		1	
Featherstone 73	68.2		58.0	+	126	+	32		2		1	-	0	-	0		1	-
USG 3523	68.2		56.1	-	127	+	32		2		3	+	5	+	1		2	+
MBX 14-S-210	68.2		56.4	-	127	+	33	+	1	-	1	-	1	-	1		1	
Featherstone VA258	68.2		57.0		126	+	34	+	2		1		1	-	1		1	
MAS 6	68.1		55.0	-	125		30	-	1		2		3		2	+	2	
SS 8340	68.0		58.3	+	126	+	31		1	-	3	+	3	-	0		2	
SS 8415	68.0		57.5	+	124	-	33	+	2	+	0	-	4		1		1	
VA10W-119	67.9		58.5	+	123	-	33	+	2	+	1	-	1	-	1		1	-
MBX 11-V-258	67.8		56.8		126		35	+	2		1	-	1	-	0		1	-
MAS 23	67.8		55.4	-	126		30	-	1		2	+	7	+	1		3	+
USG 3201	67.4		58.3	+	126	+	32		1	-	3	+	3		1		2	+

Table 23. Three-year average summary of performance of entries in the Virginia Tech Wheat Tests, 2014, 2015, and 2016 harvests.

Line	Grain Yield (Bu/a)		Test Weight (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)		Leaf Blotch (0-9)	
	(19)		(19)		(6)		(8)		(11)		(10)		(7)		(4)		(2)	
MBX 14-K-297	67.1		55.9	-	127	+	34	+	1		4	+	6	+	1		2	+
AgriMAXX 415	67.0		58.2	+	126	+	32		1		2	+	3		1		2	
VA10W-96	66.7		59.3	+	122	-	33	+	2		0	-	1	-	1		1	
Dyna-Gro 9223	66.6		55.6	-	127	+	34	+	2		3	+	6	+	1		3	+
VA11W-313	66.5		55.9	-	121	-	29	-	2		2		1	-	1		1	
Pioneer Brand 25R32	66.4		56.6	-	127	+	33	+	2		1	-	5	+	2	+	1	-
Progeny 870	66.2		54.7	-	125		30	-	1		2	+	3		2	+	2	+
Pioneer Brand 26R53	65.9		57.9	+	126	+	30	-	1	-	2	+	3		1		2	
SY 007	65.7		56.8		123	-	32		2		1	-	4	+	1		2	
AgriMAXX 462	65.3	-	58.2	+	125		31		1		2	+	3		1		1	-
Progeny 357	63.7	-	54.2	-	127	+	32		1		3	+	7	+	1		2	
Jamestown	59.5	-	59.2	+	121	-	30	-	1		1		2	-	1		2	
Massey	57.8	-	58.0	+	124	-	35	+	3	+	1		7	+	2	+	1	
Average	67.9		56.9		125		32		1		2		3		1		2	
LSD (O.05)	2.5		0.3		0		1		0		0		1		0		0	
C.V.	10.7		1.6		1		4		56		51		34		66		29	

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.

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

Table 24. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern VA AREC in Warsaw, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	Early Height (In)
DH11SRW070-14			75.6 +	60.0	106 -	26 -	0	1 -	2 -	2	20 +
SS EXP 8550			74.7 +	59.6	116 +	33 +	0	1 -	2 -	1 -	15 -
Hilliard	77.0 +	78.4 +	74.4 +	62.2 +	111	31	0	1 -	2	1 -	19 +
VA12W-248		78.5 +	74.1 +	61.8 +	111 -	33 +	0	2	2	7 +	21 +
VA11W-106	76.3 +	77.2 +	73.8 +	62.2 +	115 +	30	0	1	2 -	1 -	15 -
VA14W-29			73.5 +	62.4 +	113	30	0	1 -	2 -	1	17
VA11W-108PA			72.8 +	62.0 +	111 -	31	0	1	2 -	0 -	18
MAS 67			72.7 +	59.9	112	29	0	2	2	2	16
VA09MAS6-122-7-1			71.8 +	61.7 +	111 -	26 -	0	1 -	1 -	1 -	16
MAS 61			71.1 +	60.4	114 +	29	1 +	2	2 -	2	14 -
VA11W-279	75.6 +	76.2 +	71.0 +	61.3 +	106 -	29	0	1 -	1 -	2	20 +
VA12W-72	73.6	73.9 +	70.9 +	62.0 +	108 -	30	0	1 -	4	1 -	19 +
VA12FHB-8		77.1 +	70.8 +	59.4	111 -	29	0	1 -	3	5 +	19 +
MAS 65			70.7 +	59.7	116 +	28	0	1	4 +	1	14 -
VA12W-101			70.7 +	59.9	114 +	27 -	0	1	1 -	1	15 -
MAS 7	77.0 +	77.0 +	70.6 +	59.5	117 +	31	0	3	4	1	13 -
ARGA04510-11LE24			70.6 +	61.2 +	113	31	0	3	2 -	1	19 +
SY Viper			69.8 +	60.8	111 -	33 +	1 +	2	5 +	1 -	18
VA12W-68		72.7	69.5 +	61.8 +	109 -	29	0	2	2	0 -	18
SS 8415	74.1	75.1 +	69.1 +	61.5 +	111 -	32 +	1 +	1 -	4	1	18
MAS 6	73.2	72.8	69.1 +	59.4	114 +	28	0	2	3	2	16
USG 3895		76.5 +	69.0 +	59.3	115 +	28	0	3 +	2 -	1 -	14 -
AR01040-4-1			69.0 +	58.7 -	110 -	34 +	0	2	2	3	21 +
VA11W-313	73.5	75.5 +	68.2 +	60.3	107 -	29	0	2	3	1	20 +
MBX 11-V-258	72.4	73.6 +	68.2 +	59.2	112	33 +	1	1	2	7 +	19 +
Pioneer Brand 26R59		79.2 +	67.9 +	60.7	114 +	27 -	0	1 -	3	1	14 -
VA14W-59			67.8 +	60.6	112	30	1	1	1 -	6 +	16
MAS 46		73.3	67.6 +	59.8	116 +	30	1	4 +	4 +	2	15
SS 8530		74.2 +	67.3 +	58.6 -	112	29	0	2	2 -	4 +	18

Table 24. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern VA AREC in Warsaw, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	Early Height (In)
VA13W-174			67.3 +	61.3 +	107 -	31	0	1 -	3	3	22 +
VA14FHB-28			67.0 +	61.8 +	104 -	30	0	2	3	2	22 +
VA12W-31		76.1 +	67.0 +	61.4 +	115 +	28	0	1 -	1 -	3	14 -
VA13W-124		71.0	66.9	59.9	105 -	30	1	4 +	1 -	3	23 +
GA-03564-12E6		71.6	66.6	62.8 +	106 -	29	0	3	1 -	3	22 +
GA-04434-12LE28		68.9	66.3	62.2 +	107 -	30	1	0 -	3	4	21 +
VA07MAS14-9260-8-2-2		71.9	66.3	62.7 +	115 +	30	0	1	1 -	3	16
AgriMAXX Exp 1558		68.8	66.3	57.0 -	114 +	32 +	0	2	2	2	16
PGX 15-14			66.2	59.7	115 +	29	0	2	4	1	14 -
PGX 15-10			65.5	58.8 -	116 +	33 +	0	1	2 -	0 -	14 -
AgriMAXX Exp 1674			65.4	60.0	116 +	29	0	1	4 +	1	14 -
L11541			65.4	60.2	115 +	31	0	1 -	1 -	2	13 -
VA07MAS4-7463-6-2-2-2			65.3	60.8	112	27 -	0	2	1 -	4 +	15 -
VA09MAS1-12-8-4			65.0	62.1 +	113	30	0	5 +	1 -	0 -	16
Pioneer Brand 26R20	76.7 +	74.8 +	64.9	60.5	115 +	32 +	0	2	2	1	14 -
USG 3197			64.9	57.3 -	115 +	31	0	2	2	3	15 -
USG 3201	74.0	71.8	64.9	61.8 +	116 +	30	0	3	3	1 -	14 -
SS 8513	72.9	72.8	64.8	61.4 +	109 -	32 +	1	2	4	0 -	20 +
VA12W-22		71.8	64.8	60.8	113	28	0	1 -	2 -	2	17
Featherstone VA258	73.2	72.3	64.8	59.1 -	114 +	32 +	1 +	2	2 -	8 +	18
VA09MAS7-61-2-1			64.6	61.0	101 -	26 -	1	3	1 -	5 +	23 +
PGX 15-12			64.4	60.3	109 -	28 -	0	2	2 -	2	19 +
MAS 35	73.3	70.4	64.3	59.7	116 +	30	0	3	2 -	4 +	14 -
VA07MAS3-7304-3-1-2-3			64.2	61.6 +	102 -	26 -	0	2	1 -	4 +	24 +
AgriMAXX 415	73.5	72.1	64.0	61.5 +	115 +	30	0	2	3	1	14 -
VA10W-21BSR124			63.9	61.3 +	109 -	29	1	4 +	4	1	19
Pioneer Brand 26R41			63.7	60.2	115 +	27 -	0	2	3	0 -	16
VA10W-119	71.4	71.2	63.7	61.8 +	107 -	31	0	2	1 -	4	21 +
Featherstone 73	71.3	70.0	63.3	61.1	112	29	0	3	1 -	0 -	18

Table 24. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern VA AREC in Warsaw, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	Early Height (In)
VA07MAS3-7304-3-2-4-3			63.3	60.2	104 -	26 -	0	3	1 -	4 +	21 +
GA061349-13LE31			62.8	61.9 +	110 -	29	0	3	1 -	3	20 +
TN1102			62.7	59.6	111 -	30	1	2	2	5 +	21 +
VA07MAS4-7416-5-4-2			62.5	60.4	112	28	0	2	1 -	1	20 +
SS 8340	71.0	69.4	62.1	61.5 +	116 +	28	0	3	2 -	1 -	14 -
MBX 14-S-210	74.3 +	72.4	62.1	59.0 -	117 +	32 +	1	1	2 -	2	14 -
VA07MAS4-7417-1-3-3		70.0	61.5	59.0 -	107 -	29	0	1 -	1 -	3	22 +
MAS 32	70.2	68.9	61.5	61.9 +	115 +	29	0	3	7 +	3	14 -
AgriMAXX 444	71.6	69.0	61.4	58.7 -	117 +	31	0	3	4	1 -	14 -
VA13W-38		65.4 -	61.2	60.5	105 -	30	0	1	2	3	22 +
MBX 15-E-229		74.0 +	61.1	58.5 -	112	30	1	1 -	1 -	5 +	18
MBX 16-A-206			61.1	58.9 -	115 +	30	0	4 +	5 +	2	16
MAS 23	68.5	66.6	60.4	59.3	114 +	28	1	3	6 +	3	15 -
GA051102-13LE43			60.3	61.6 +	111 -	30	0	1	1 -	2	19 +
SY 547		71.2	60.2	59.4	112	31	1	1 -	2 -	4 +	19 +
Dyna-Gro 9642		67.8	60.1	58.3 -	117 +	31	1	2	3	0 -	12 -
Dyna-Gro 9522		70.0	60.1	59.4	116 +	30	1	4 +	4	0 -	15 -
L11420			60.0	62.4 +	113	35 +	1 +	3 +	2 -	5 +	15
Dyna-Gro 9600			59.8	58.2 -	112	29	1	1 -	1 -	5 +	18
Dyna-Gro 9772			59.5	56.4 -	114 +	30	0	2	3	3	17
Shirley	73.8	74.5 +	59.4	57.2 -	116 +	30	0	1 -	0 -	7 +	15 -
VA07MAS4-7463-6-2-2-4			59.3	59.2	112	28	0	1 -	2 -	6 +	15
GA061349-13LE29			59.1	61.3 +	113	29	0	2	1 -	1	17
MAS 50			59.0	60.3	113	31	0	4 +	4	3	18
VA13FHB-5		67.3	58.6	61.9 +	104 -	28 -	1	3	2 -	4 +	23 +
USG 3612	72.4	69.5	58.2	59.2	113	30	1	3	6 +	2	16
USG 3251	71.3	68.9	58.0	59.3	117 +	32 +	0	1	4 +	1	13 -
USG 3404	70.5	67.2	57.9	59.5	116 +	30	0	3	4 +	0 -	14 -
NC8170-4-3			57.8	61.9 +	113	33 +	1 +	0 -	2 -	4 +	16

Table 24. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern VA AREC in Warsaw, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	Early Height (In)
VA08MAS1-188-6-4-1			57.7	60.1	112	29	0	0 -	1 -	3	16
AgriMAXX 446	73.9	70.8	57.7	60.5	116 +	31	0	3	4	0 -	15 -
MD272-8-4-14-6			57.4	60.0	110 -	28	0	2	1 -	1 -	19
LCS 3677			57.3	60.4	115 +	31	1	3	6 +	6 +	15 -
PGX 15-16			57.1	62.0 +	115 +	27 -	0	1 -	6 +	1 -	13 -
L11410			56.9	60.8	112	33 +	1 +	3	8 +	2	16
DH11SRW070-28			56.9	59.5	103 -	27 -	0	1 -	3	0 -	23 +
Southern Harvest 4300		69.9	56.6	57.6 -	116 +	31	0	3	5 +	5 +	13 -
VA13FHB-26			56.5	59.3	112	31	1 +	1 -	2	6 +	16
Inferno			56.3	60.3	117 +	29	0	3	6 +	1	15 -
Progeny 870	71.3	69.7	56.1	57.4 -	114 +	27 -	1	2	3	0 -	15 -
MAS 42S		66.2	56.0	59.5	116 +	31	0	5 +	6 +	5 +	15 -
SS 8360	69.7	65.6 -	55.9	59.6	117 +	31	0	4 +	5 +	1 -	14 -
NC11-22289			55.6	61.3 +	110 -	30	1	1 -	3	1	17
15MW315			55.2	60.6	109 -	29	0	3	1 -	1	21 +
L11437			55.1	61.3 +	105 -	30	1 +	3	9 +	1	22 +
Pioneer Brand 26R53	66.8 -	64.6 -	54.9 -	60.8	115 +	27 -	0	2	4	1 -	15 -
Pioneer Brand 26R10	71.2	68.2	54.5 -	60.2	116 +	29	0	3	5 +	1 -	15 -
MAS 66			54.4 -	60.7	110 -	29	0	4 +	3	3	16
VA14FHB-14			53.9 -	61.8 +	110 -	28	1	3 +	2 -	5 +	16
MBX 14-K-297	69.1	66.4	53.7 -	59.3	116 +	32 +	0	4 +	6 +	0 -	15
SY Harrison			53.5 -	58.7 -	115 +	29	0	4 +	5 +	0 -	15 -
AR21513			52.9 -	58.3 -	116 +	30	0	5 +	6 +	4 +	15 -
AgriMAXX Exp 1675			52.9 -	59.9	114 +	27 -	0	5 +	3	0 -	14 -
AgriMAXX 462	67.0 -	64.6 -	52.7 -	63.0 +	112	28	0	4 +	4	6 +	16
Massey	60.7 -	60.1 -	52.7 -	60.5	107 -	31	1 +	3	7 +	2	25 +
Pioneer Brand 25R32	67.0 -	64.4 -	52.6 -	58.0 -	118 +	32 +	1 +	2	5 +	1 -	11 -
Dyna-Gro 9552		65.0 -	52.3 -	60.3	117 +	29	0	3	6 +	2	15 -
Dyna-Gro 9223	68.4	65.1 -	51.6 -	59.4	116 +	31	0	4 +	6 +	1	15 -

Table 24. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern VA AREC in Warsaw, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Date Headed (Julian)	Height (In)	Lodging (0-9)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)	Early Height (In)
Pioneer XW13W		61.4 -	51.1 -	59.3	117 +	31	0	4 +	3	0 -	13 -
VA10W-96	66.7 -	65.2 -	50.8 -	61.4 +	109 -	30	0	1	1 -	2	20 +
Oakes			50.7 -	62.2 +	113	31	0	4 +	4	4 +	18
VA14W-6			50.7 -	59.0 -	111 -	28 -	0	2	2 -	5 +	18
SY 007	68.8	64.9 -	50.6 -	60.0	110 -	29	1 +	1 -	8 +	2	20 +
USG 3523	68.8	64.9 -	50.5 -	57.6 -	117 +	29	1 +	4 +	5 +	1	16
ARW1516			50.0 -	56.8 -	115 +	29	0	5 +	4	0 -	16
Southern Harvest 4400		63.0 -	48.8 -	57.8 -	117 +	31	0	3	3	0 -	13 -
VA13W-177		62.6 -	48.4 -	60.5	101 -	31	0	2	3	0 -	25 +
MBX 16-B-203			47.4 -	58.1 -	116 +	31	0	5 +	6 +	5 +	14 -
AgriMAXX 454			47.4 -	58.0 -	116 +	31	0	5 +	7 +	4 +	14 -
Progeny 357	60.5 -	55.4 -	46.0 -	58.1 -	115 +	28	0	3	7 +	1	15 -
Progeny 243			45.4 -	58.9 -	113	30	0	3 +	4	2	18
Jamestown	61.3 -	57.5 -	45.2 -	62.1 +	102 -	27 -	0	3	3	1	22 +
USG 3316			44.5 -	58.2 -	116 +	31	1	6 +	6 +	4 +	14 -
Dyna-Gro 9692			42.4 -	57.4 -	116 +	31	0	5 +	7 +	3	14 -
NC09-20986		53.2 -	41.3 -	61.0	110 -	31	0	1 -	4	4	20 +
Average	71.1	69.7	60.9	60.1	112	30	0	2	3	2	17
LSD (0.05)	3.2	3.9	6.0	1.0	1	2	1	1	1	1	2
C.V.	5.4	5.6	7.0	1.2	1	4	145	33	29	49	8

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 25. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern Shore AREC, Painter, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Stripe Rust (0-9)	
Pioneer Brand 26R59			61.4	+	49.7	+	54.8		1		2		1	
ARGA04510-11LE24					49.4	+	57.4	+	3		0	-	1	
VA11W-279	63.4	+	56.9	+	48.3	+	58.5	+	0	-	0	-	0	-
VA09MAS6-122-7-1					47.5	+	57.9	+	1		0	-	0	-
VA11W-108PA					47.4	+	57.0	+	0	-	2		0	-
VA08MAS1-188-6-4-1					47.1	+	56.0	+	0	-	0	-	1	
MAS 65					47.0	+	53.8		1		2		1	
L11541					46.8	+	57.7	+	2		0	-	1	
VA07MAS3-7304-3-1-2-3					46.7	+	56.9	+	1		0	-	1	
VA12W-72	61.0	+	56.5	+	46.7	+	57.7	+	0		1		0	-
VA14W-29					46.5	+	58.2	+	2		1		1	
MAS 67					46.5	+	53.3		2		1		0	-
GA-04434-12LE28			49.6		46.4	+	58.7	+	0	-	1	-	2	
VA12W-68			56.2	+	46.4	+	57.6	+	0	-	1	-	0	-
AgriMAXX Exp 1674					46.1	+	54.4		2		2		0	-
SS 8415	57.0		54.0		45.7	+	58.1	+	0	-	1		2	
Hilliard	60.0		51.7		45.5	+	56.9	+	0		2		0	-
VA12W-22			54.3		45.4	+	57.0	+	1		1		2	
MAS 61					45.0	+	54.2		3		0	-	1	
VA11W-106	60.1	+	54.1		44.8	+	55.8	+	1		1	-	0	-
VA12W-101					44.5	+	53.2		0	-	0	-	0	-
GA051102-13LE43					44.5	+	58.6	+	0	-	0	-	1	
Pioneer Brand 26R20	59.2		53.0		44.4	+	53.1		2		0	-	1	
PGX 15-14					43.8	+	54.3		1		2		1	
NC8170-4-3					43.8	+	59.0	+	0		3	+	3	
VA07MAS4-7417-1-3-3			54.0		43.3		55.2		1		0	-	3	+
15MW315					43.3		58.2	+	2		0	-	1	
GA061349-13LE31					43.1		59.2	+	1		0	-	1	
MAS 7	60.4	+	55.4	+	43.1		53.5		1		2		1	
VA11W-313	57.5		54.1		43.0		54.2		2		1	-	1	
AR01040-4-1					42.6		56.6	+	4	+	0	-	1	
VA07MAS4-7416-5-4-2					42.6		57.6	+	1		0	-	1	
USG 3895			56.8	+	41.0		52.9		3		0	-	1	
MD272-8-4-14-6					41.0		56.7	+	2		0	-	1	
GA061349-13LE29					40.9		58.7	+	1		0	-	0	-
VA12FHB-8			56.1	+	40.9		54.4		0	-	0	-	4	+
SS 8340	55.8		50.4		40.8		54.9		4	+	1		1	
NC11-22289					40.7		58.9	+	0		0	-	2	
SY Viper					40.7		57.5	+	1		2		1	
VA13W-174					40.6		56.5	+	0	-	2		2	
GA-03564-12E6			52.9		40.6		59.6	+	2		0	-	1	

Table 25. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern Shore AREC, Painter, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield (Bu/a)	Test Weight (Lb/bu)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Stripe Rust (0-9)	
PGX 15-12					40.4	55.9	+	0		0	-	1	
SS EXP 8550					40.2	52.9		1		1		1	
DH11SRW070-14					40.2	55.3		1		0	-	1	
VA10W-119	57.9		54.8		40.1	57.9	+	2		3		3	
MAS 66					39.5	57.0	+	4	+	1		2	
MBX 15-E-229			51.6		39.5	51.8	-	1		1	-	4	+
PGX 15-10					39.2	53.5		1		1		0	-
AgriMAXX 415	55.6		50.0		39.1	54.8		3		1	-	1	
Featherstone 73	57.0		47.1		39.0	59.1	+	2		0	-	1	
SY 547			51.1		38.9	53.6		0		2		3	
USG 3197					38.9	52.2	-	2		2		4	+
SS 8513	55.8		51.8		38.8	57.8	+	1		2		1	
VA09MAS1-12-8-4					38.7	58.5	+	4	+	0	-	1	
MAS 50					38.4	54.5		5	+	1		1	
USG 3251	60.4	+	53.7		38.2	53.5		2		3	+	1	
MAS 46			51.6		38.1	51.6	-	4	+	3	+	1	
Pioneer Brand 26R53	55.2		45.8		37.8	55.1		3		4	+	1	
MBX 14-S-210	54.2		49.8		37.8	52.3	-	2		1	-	1	
VA12W-31			48.7		37.6	53.5		2		2		2	
L11420					37.5	56.7	+	3		0	-	4	+
Pioneer Brand 26R10	59.1		51.2		37.4	51.2	-	3		4	+	1	
VA07MAS4-7463-6-2-2-4					37.2	53.3		1		0	-	6	+
VA10W-96	57.3		52.7		37.2	59.5	+	0		0	-	2	
USG 3201	54.2		47.4		37.2	55.0		4	+	1		0	-
VA07MAS3-7304-3-2-4-3					37.0	54.4		3		0	-	1	
Dyna-Gro 9600					36.8	51.2	-	1		1		3	
SS 8530			50.1		36.5	51.8	-	1		0	-	4	+
VA10W-21BSR124					36.4	55.8	+	2		5	+	1	
VA07MAS4-7463-6-2-2-2					36.4	55.4		1		0	-	4	+
Dyna-Gro 9642			49.1		36.2	47.9	-	2		3		1	
MAS 6	54.9		47.5		36.2	50.8	-	2		2		0	-
VA13W-38			49.4		36.1	57.4	+	0		0	-	3	
USG 3404	57.3		46.1		36.0	50.8	-	2		2		1	
NC09-20986			46.1		36.0	59.3	+	3		1		1	
MBX 16-A-206					35.9	51.5	-	4	+	4	+	1	
AgriMAXX 446	55.2		49.8		35.8	51.7	-	2		3		1	
VA07MAS14-9260-8-2-2			45.2		35.7	56.7	+	1		0	-	3	
VA14FHB-28					35.7	56.4	+	2		0	-	2	
VA09MAS7-61-2-1					35.7	56.7	+	3		0	-	3	
Oakes					35.6	59.3	+	4	+	3		1	
VA14W-59					35.5	54.0		0		0	-	8	+

Table 25. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern Shore AREC, Painter, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Powdery Mildew (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)
MAS 35	55.9	46.3	35.3	52.8	2	0 -	4 +
Dyna-Gro 9772			34.7	52.1 -	2	2	4 +
Pioneer Brand 26R41			34.7	51.1 -	1	3 +	1
Dyna-Gro 9522		48.9	34.7	51.1 -	2	3 +	1
DH11SRW070-28			34.5	56.1 +	0	0 -	1
MAS 32	55.7	48.1	34.5	52.4 -	1	6 +	3
VA13W-124		49.9	34.3	54.8	2	0 -	1
Featherstone VA258	56.2	48.7	34.2	52.3 -	2	0 -	8 +
VA12W-248		50.6	34.0	55.9 +	2	0 -	5 +
Pioneer XW13W		44.5	33.9	52.7	6 +	1	1
SY Harrison			33.9	51.3 -	5 +	3 +	1
AgriMAXX 444	53.2	47.5	33.8	50.5 -	3	2	2
Pioneer Brand 25R32	53.1	45.8	33.8	49.2 -	1	4 +	1
TN1102			33.5	54.2	0	1 -	4 +
Inferno			33.4	50.6 -	2	3	1
AgriMAXX Exp 1558		46.6	33.2	51.6 -	3	2	4 +
L11410			33.2	55.7 +	0 -	8 +	3 +
MBX 14-K-297	54.4	49.8	32.2	50.7 -	5 +	4 +	1
MBX 11-V-258	54.8	45.6	32.1	52.2 -	1	0 -	8 +
Dyna-Gro 9552		47.9	32.0	50.5 -	2	3 +	1
USG 3612	56.3	51.2	31.8	49.7 -	1	4 +	1
L11437			31.4	55.0	0	7 +	2
Massey	46.9 -	43.5	30.9	55.6	1	7 +	4 +
Dyna-Gro 9223	56.5	45.3	30.8	49.0 -	3	5 +	1
Progeny 243			30.7	54.1	4 +	1	2
Progeny 870	54.5	45.5	30.7	48.8 -	2	2	1
VA13FHB-26			30.3	52.6	1	0 -	5 +
VA14W-6			30.1	55.5	2	0 -	4 +
SS 8360	51.9	44.4	30.0	50.7 -	1	3 +	1
Shirley	55.5	44.6	30.0	49.1 -	0 -	0 -	7 +
LCS 3677			29.6 -	49.0 -	2	5 +	5 +
Southern Harvest 4300		42.2 -	29.4 -	48.0 -	3	2	5 +
USG 3523	55.7	45.7	29.4 -	51.2 -	3	4 +	1
MAS 23	53.0	46.4	29.3 -	48.9 -	2	5 +	3
AR21513			28.8 -	49.2 -	5 +	5 +	4 +
MAS 42S		44.2	28.7 -	49.3 -	5 +	5 +	2
Southern Harvest 4400		44.5	28.4 -	50.9 -	4 +	1	0 -
MBX 16-B-203			28.2 -	48.5 -	5 +	5 +	4 +
SY 007	51.1	44.6	27.8 -	52.5 -	0	8 +	2
AgriMAXX Exp 1675			27.4 -	52.6	5 +	1	1
PGX 15-16			25.9 -	56.1 +	0	9 +	1

Table 25. Summary of performance of entries in the Virginia Tech Wheat Test, Eastern Shore AREC, Painter, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)		Leaf Rust (0-9)		Stripe Rust (0-9)	
VA14FHB-14					25.6	-	54.7		3		0	-	3	+
Dyna-Gro 9692					25.3	-	49.7	-	5	+	5	+	2	
VA13W-177			39.0	-	24.9	-	55.9	+	2		2		1	
USG 3316					24.4	-	48.4	-	5	+	5	+	4	+
AgriMAXX 462	49.3	-	39.8	-	23.6	-	53.8		4	+	4	+	8	+
AgriMAXX 454					22.8	-	50.0	-	6	+	5	+	3	
ARW1516					22.7	-	45.8	-	5	+	4	+	1	
Jamestown	43.4	-	38.8	-	22.6	-	56.8	+	1		4	+	1	
Progeny 357	47.2	-	38.2	-	22.6	-	46.2	-	1		5	+	1	
VA13FHB-5			42.5	-	22.4	-	56.1	+	1		0	-	3	+
Average	55.4		49.0		36.8		54.1		2		2		2	
LSD (O.05)	4.7		5.9		6.8		1.5		2		1		1	
C.V.	10.3		12.2		13.3		2.0		52		38		46	

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 26. Summary of performance of entries in the Virginia Tech Wheat Test, Southern Piedmont AREC, Blackstone, VA, 2016 harvest.

Line	Grain Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)	
Hilliard	46.8	+	56.5	+	1	-
VA11W-108PA	46.1	+	55.8		1	-
VA11W-106	44.7	+	58.0	+	2	
MBX 11-V-258	42.5	+	53.6		1	
ARGA04510-11LE24	41.9	+	49.2	-	4	+
MAS 35	41.8	+	56.5	+	3	
AR01040-4-1	41.3	+	51.4		1	
USG 3251	41.0	+	54.9		2	
VA12W-31	40.8	+	56.9	+	1	-
VA14W-29	40.1	+	55.2		2	
MAS 46	39.7	+	54.7		4	+
AgriMAXX Exp 1674	39.4	+	55.3		2	
MAS 6	39.2	+	54.1		3	
USG 3895	39.1	+	54.0		5	+
MAS 65	38.8	+	54.1		2	
AgriMAXX 454	38.6	+	53.4		5	+
SY Viper	38.5		54.1		2	
MBX 14-S-210	38.3		56.3	+	2	
VA13W-174	38.2		52.5		1	-
L11541	38.1		52.5		0	-
MAS 61	38.0		53.5		3	
VA12W-248	37.9		49.1	-	2	
MAS 7	37.6		53.2		1	
Pioneer Brand 26R20	37.2		53.9		3	
VA09MAS1-12-8-4	37.0		53.0		5	+
PGX 15-10	37.0		52.9		1	-
Featherstone 73	37.0		51.3		1	
MAS 67	36.6		51.9		3	
VA13FHB-26	36.6		53.2		1	-
SS EXP 8550	36.3		52.8		1	-
MAS 42S	36.3		54.1		5	+
Pioneer Brand 25R32	36.3		56.2	+	1	-
Featherstone VA258	36.2		51.5		2	
VA07MAS4-7463-6-2-2-4	36.0		52.2		1	
VA13W-38	35.6		53.6		1	-
Southern Harvest 4300	35.4		55.4		4	+
MBX 14-K-297	35.4		52.7		4	+
Pioneer Brand 26R53	35.3		56.7	+	3	
VA07MAS4-7416-5-4-2	35.2		47.3	-	1	-
USG 3404	35.0		56.0		4	+
VA12W-72	35.0		52.8		0	-

Table 26. Summary of performance of entries in the Virginia Tech Wheat Test, Southern Piedmont AREC, Blackstone, VA, 2016 harvest.

Line	Grain Yield (Bu/a)	Test Weight (Lb/bu)		Powdery Mildew (0-9)	
AgriMAXX 462	34.9	54.2		2	
VA07MAS4-7463-6-2-2-2	34.9	52.4		2	
VA14W-59	34.6	56.7	+	1	-
PGX 15-14	34.5	55.9		2	
AgriMAXX 444	34.4	55.3		4	+
ARW1516	34.4	51.8		5	+
SY 547	34.4	51.3		1	-
Pioneer Brand 26R59	34.4	52.2		2	
SY Harrison	34.3	55.3		4	+
NC8170-4-3	33.8	52.5		0	-
Inferno	33.6	55.4		4	+
Oakes	33.5	54.2		4	+
USG 3197	33.5	52.8		3	
Dyna-Gro 9772	33.5	53.0		3	
VA12W-68	33.4	53.6		1	-
AgriMAXX 446	33.4	54.7		3	
SS 8340	33.2	58.0	+	3	
DH11SRW070-14	33.1	47.0	-	1	-
MBX 16-B-203	33.1	53.0		5	+
VA11W-313	33.0	51.9		3	
Pioneer Brand 26R10	32.9	55.6		3	
Shirley	32.7	50.0	-	0	-
Dyna-Gro 9692	32.6	53.9		4	+
VA07MAS4-7417-1-3-3	32.5	52.1		0	-
MAS 50	32.4	52.5		4	+
GA061349-13LE31	32.2	50.5		2	
AgriMAXX Exp 1675	32.1	51.3		5	+
MAS 32	32.1	55.5		5	+
Progeny 870	31.6	52.4		3	
USG 3201	31.5	55.4		3	
VA10W-119	31.4	49.2	-	1	
Dyna-Gro 9223	31.3	52.6		5	+
GA061349-13LE29	31.3	47.8	-	1	
MBX 16-A-206	31.2	52.2		4	+
VA07MAS14-9260-8-2-2	31.0	53.6		1	-
Dyna-Gro 9522	31.0	55.5		3	
USG 3523	31.0	52.4		5	+
AgriMAXX Exp 1558	30.9	52.9		3	
MD272-8-4-14-6	30.7	49.3	-	1	-
VA12W-101	30.5	51.3		1	-
AgriMAXX 415	30.5	56.5	+	3	

Table 26. Summary of performance of entries in the Virginia Tech Wheat Test, Southern Piedmont AREC, Blackstone, VA, 2016 harvest.

Line	Grain Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)	
VA14FHB-14	30.4		54.4		4	+
VA11W-279	30.2		52.7		0	-
VA12FHB-8	30.2		48.5	-	2	
PGX 15-16	30.1		55.4		2	
Pioneer XW13W	30.1		57.0	+	6	+
NC11-22289	30.0		51.5		1	-
VA08MAS1-188-6-4-1	29.8		54.0		0	-
AR21513	29.5		52.3		5	+
Dyna-Gro 9552	29.5		55.6		3	
USG 3316	29.1		54.2		6	+
Pioneer Brand 26R41	29.0		52.2		1	
VA09MAS6-122-7-1	28.9		53.8		1	-
Dyna-Gro 9600	28.7		50.2		2	
15MW315	28.6		50.8		1	
MAS 23	28.6		55.5		3	
L11420	28.3		54.0		2	
VA13FHB-5	28.1		53.7		1	
VA13W-177	28.0		50.4		1	-
Southern Harvest 4400	28.0		52.7		6	+
SS 8530	27.8		51.4		2	
VA13W-124	27.7		48.0	-	5	+
SS 8360	27.7		55.9		3	
VA14W-6	27.6		49.4	-	1	
VA10W-21BSR124	27.5		56.2	+	3	
TN1102	27.5		53.6		1	-
MBX 15-E-229	27.4		50.2		2	
L11410	27.2		52.9		1	
GA051102-13LE43	27.1		49.7	-	1	-
Progeny 357	26.7		54.5		3	
SY 007	26.7		53.3		1	
SS 8415	26.7		53.7		0	-
Jamestown	26.6		55.6		2	
Progeny 243	26.3		48.2	-	5	+
VA10W-96	26.1		54.6		1	-
VA14FHB-28	25.9		47.6	-	2	
Dyna-Gro 9642	25.9		52.2		3	
LCS 3677	25.7		54.2		4	+
VA12W-22	25.6	-	51.9		1	-
MAS 66	25.6	-	55.7		3	
GA-03564-12E6	25.5	-	50.2		2	
SS 8513	24.6	-	52.0		1	-

Table 26. Summary of performance of entries in the Virginia Tech Wheat Test, Southern Piedmont AREC, Blackstone, VA, 2016 harvest.

Line	Grain Yield (Bu/a)		Test Weight (Lb/bu)		Powdery Mildew (0-9)	
DH11SRW070-28	24.0	-	45.0	-	0	-
GA-04434-12LE28	23.6	-	56.1	+	1	-
VA07MAS3-7304-3-2-4-3	22.6	-	52.5		6	+
USG 3612	21.9	-	52.0		2	
VA07MAS3-7304-3-1-2-3	21.8	-	51.3		3	
VA09MAS7-61-2-1	21.0	-	51.6		1	
PGX 15-12	20.7	-	54.0		1	
Massey	19.3	-	51.4		2	
NC09-20986	18.3	-	52.3		1	-
L11437	15.8	-	50.8		5	+
Average	32.1		53.0		2	
LSD (O.05)	6.4		3.0		1	
C.V.	14.3		4.0		31	

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 27. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield[1] (Bu/a)	Test Weight[1] (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Leaf Rust (0-9)	Barley Yellow Dwarf Virus (0-9)	Early Height (In)
Hilliard	100.2 +	94.5 +	98.2 +	56.8	123	32 +	2	1 -	1	9
MAS 35	96.2	91.4	96.1 +	55.2	125 +	30	2	3	1	7
MAS 61			95.9 +	55.7	123	29	3	1 -	0	8
MAS 50			95.9 +	56.7	123	31 +	1	2	1	8
Pioneer Brand 26R20	106.5 +	97.3 +	93.4 +	57.2	125 +	32 +	0 -	5	1	7
Shirley	100.3 +	93.3 +	93.0 +	54.1	126 +	28	1	0 -	0	7
MBX 14-S-210	99.6 +	93.0 +	92.8 +	56.4	126 +	32 +	1	1 -	1	7
VA11W-108PA			92.7 +	57.1	123	30	1	1 -	1	9
VA11W-106	96.1	94.8 +	92.6 +	56.5	125 +	29	1	1 -	1	7
USG 3201	96.9	90.3	91.7 +	58.0 +	124	29	1	5	1	7
VA12W-248		92.1 +	90.7 +	55.8	121 -	31 +	2	1 -	0 -	10 +
VA09MAS6-122-7-1			90.6 +	56.8	122	25 -	0 -	0 -	1	8
VA09MAS1-12-8-4			90.0 +	58.6 +	123	30	1	0 -	0	8
VA14W-29			89.5 +	59.1 +	124	29	1	1 -	0 -	9
VA12W-68		89.9	89.1 +	56.4	121 -	28	1	3	1	10
MAS 67			88.7	55.0	124	28	1	4	1	7
VA10W-96	94.6	91.4	88.7	59.8 +	120 -	30	2	0 -	1	9
VA14W-59			88.5	56.7	124	30	3	1 -	0 -	7
VA08MAS1-188-6-4-1			88.4	56.8	123	27	1	0 -	1	8
MAS 32	96.9	93.6 +	88.0	55.9	124	28	1	5 +	0	8
VA12W-31		93.3 +	88.0	56.8	124 +	29	3 +	0 -	1	6 -
VA10W-21BSR124			88.0	56.6	120 -	31	3 +	1 -	1	10
SS EXP 8550			87.9	55.5	126 +	32 +	1	2 -	1	6 -
VA12W-72	96.1	92.5 +	87.9	56.5	121 -	26 -	1	3	1	9
AgriMAXX 462	90.1	87.8	87.6	58.4 +	124 +	30	2	3	1	7
SS 8530		88.0	87.1	54.1	123	30	1	1 -	1	9
Featherstone 73*	90.1	89.2	86.5	57.3	123	29	1	0 -	0	9
SS 8340	93.6	87.9	86.4	57.3	124 +	29	1	5 +	0	7
MAS 65			86.4	53.4 -	124 +	29	1	7 +	1	7
MAS 6	93.9	83.9	86.4	52.8 -	123	28	1	5 +	1	8
USG 3895		90.6	86.0	54.0	123	28	1	3	1	7

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield[1] (Bu/a)	Test Weight[1] (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)		Early Height (In)	
Featherstone VA258*	95.4		95.4	+	85.7	55.6		124	+	31	+	2		3		1		8	
ARGA04510-11LE24					85.6	56.0		124	+	31	+	1		0	-	1		9	
VA07MAS14-9260-8-2-2			87.3		85.5	58.2	+	123		29		1		1	-	0	-	9	
PGX 15-16					85.4	57.6	+	123		27	-	2		3		0	-	7	-
Dyna-Gro 9600					85.3	58.0	+	123		30		1		1	-	1		11	+
VA13FHB-26					85.0	57.6	+	123		32	+	4	+	1	-	1		8	
MAS 66					84.9	57.0		121	-	30		2		4		0	-	7	
USG 3197					84.7	52.2	-	124		30		2		4		0		8	
Pioneer Brand 26R41					83.7	55.0		126	+	27	-	1		3		1		8	
AgriMAXX 415	92.9		84.7		83.7	57.3		124	+	30		1		5	+	1		8	
GA-03564-12E6			88.1		83.6	58.8	+	120	-	27	-	3		1	-	1		10	+
L11420					83.1	58.4	+	121	-	35	+	3		3		1		8	
VA12FHB-8			85.3		82.9	54.9		121	-	29		3	+	1	-	1		11	+
VA07MAS4-7463-6-2-2-4					82.7	55.7		123		28		3		0	-	1		8	
DH11SRW070-14					82.4	55.2		121	-	24	-	1		1	-	1		9	
MAS 46			87.8		82.3	53.5	-	125	+	30		1		7	+	1		8	
VA12W-22			88.0		82.3	56.0		122	-	28		1		1	-	1		9	
MBX 11-V-258	95.7		91.9		82.2	56.0		123		34	+	2		2	-	1		10	
VA11W-313	93.0		88.5		82.1	55.0		119	-	26	-	3		1	-	1		11	+
SY 547			84.5		82.0	56.9		124		32	+	2		1	-	3	+	8	
PGX 15-12					81.9	55.8		121	-	27		0	-	0	-	0	-	10	
VA13W-38			91.3		81.9	58.8	+	119	-	27		1		2	-	1		10	+
AgriMAXX Exp 1558			88.1		81.6	53.2	-	122		29		2		3		1		8	
MD272-8-4-14-6					81.5	57.9	+	123		27	-	2		1	-	0		9	
Pioneer Brand 26R10	99.4	+	93.6	+	81.2	54.4		125	+	29		1		7	+	0		7	-
VA10W-119	98.1		92.2	+	81.1	57.4	+	119	-	29		3	+	1	-	2		11	+
Pioneer Brand 26R53	92.9		79.6	-	81.1	56.2		124		27	-	1		6	+	1		7	
USG 3404	96.9		89.3		80.6	54.4		126	+	29		1		5	+	1		7	
USG 3251	97.3		86.4		80.6	55.8		126	+	31	+	1		7	+	2	+	7	
VA13W-124			92.5	+	80.6	56.1		119	-	28		3		1	-	1		11	+
VA14FHB-14					80.5	58.0	+	120	-	28		2		2	-	0	-	10	+

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield[1] (Bu/a)	Test Weight[1] (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)		Early Height (In)	
Dyna-Gro 9772					80.5	52.8	-	123		30		2		3		0		9	
MAS 7	90.3		86.3		80.5	55.3		125	+	30		2		7	+	0	-	7	
AgriMAXX Exp 1674					80.3	53.6	-	124	+	27		1		7	+	1		6	-
VA14FHB-28					79.7	58.3	+	118	-	27		1		1	-	1		12	+
SY Viper					79.6	57.3		121	-	34	+	3		7	+	1		9	
AR01040-4-1					79.5	57.0		124		34	+	3	+	1	-	2	+	9	
VA07MAS4-7463-6-2-2-2					79.5	55.8		123		26	-	4	+	0	-	0		8	
VA11W-279	90.0		89.3		79.4	57.6	+	120	-	25	-	2		0	-	1		8	
L11541					79.3	58.1	+	124	+	27		2		0	-	1		6	-
AgriMAXX 444	94.8		85.5		78.8	54.7		126	+	30		0	-	5	+	1		6	-
Southern Harvest 4300			84.8		78.6	53.0	-	124	+	29		1		6	+	2		6	-
AgriMAXX 446	98.3		86.4		78.5	54.7		125	+	30		1		6	+	1		8	
DH11SRW070-28					78.5	55.4		120	-	27		4	+	1	-	1		10	+
VA13W-177			79.9	-	78.4	58.3	+	118	-	31		1		1	-	1		11	+
VA07MAS4-7416-5-4-2					77.7	55.2		122	-	25	-	2		0	-	1		11	+
Pioneer XW13W			84.9		77.7	57.2		126	+	29		1		3		1		6	-
Southern Harvest 4400			86.9		77.6	55.6		126	+	32	+	1		6	+	1		6	-
GA061349-13LE31					77.2	57.0		123		27	-	2		0	-	2		11	+
PGX 15-10					77.2	55.2		126	+	32	+	1		3		1		6	-
VA07MAS4-7417-1-3-3			84.1		77.0	56.1		120	-	25	-	2		0	-	1		11	+
MBX 15-E-229			80.4	-	76.9	54.4		123		30		2		1	-	1		8	
Progeny 243					76.8	56.5		124		30		1		3		1		7	
VA12W-101					76.4	55.7		125	+	26	-	2		0	-	1		7	
Jamestown	85.6	-	79.1	-	76.4	58.4	+	118	-	26	-	2		2	-	1		10	+
MAS 42S			85.4		76.3	53.4	-	125	+	32	+	1		8	+	0		8	
Dyna-Gro 9642			88.0		76.1	50.7	-	125	+	29		1		6	+	1		7	-
PGX 15-14					75.8	53.6	-	124	+	28		1		8	+	1		6	-
15MW315					75.6	56.8		122	-	27	-	1		1	-	1		9	
MBX 16-A-206					75.4	53.3	-	125	+	29		2		6	+	1		8	
TN1102					75.3	54.5		121	-	31	+	2		2		1		10	
Pioneer Brand 25R32	96.5		85.2		75.3	54.3		125	+	31	+	2		7	+	2	+	5	-

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield[1] (Bu/a)	Test Weight[1] (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Leaf Rust (0-9)	Barley Yellow Dwarf Virus (0-9)	Early Height (In)
Pioneer Brand 26R59		83.5	75.1	56.4	124	26 -	1	5 +	1	7
USG 3523	94.3	85.4	73.5	53.3 -	125 +	29	2	8 +	1	8
VA13FHB-5		84.4	73.3	57.4	120 -	26 -	1	1 -	2 +	11 +
Oakes			73.3	57.6 +	124	30	3	6 +	1	10
VA09MAS7-61-2-1			73.0	55.5	119 -	25 -	3	0 -	3 +	11 +
Progeny 870	91.0	78.6 -	72.9	51.4 -	124 +	27	1	5	1	8
GA-04434-12LE28		78.7 -	72.6	58.0 +	119 -	29	2	3	1	10 +
AgriMAXX Exp 1675			72.3	55.0	124	28	1	5	1	7
Dyna-Gro 9522		87.5	71.9	53.6 -	126 +	29	1	6 +	1	8
VA07MAS3-7304-3-2-4-3			71.0	54.7	119 -	24 -	3	1 -	4 +	10 +
VA14W-6			70.5	55.8	122	26 -	2	0 -	1	8
NC11-22289			70.1	58.2 +	120 -	27	2	1 -	1	9
VA13W-174			70.0	56.5	120 -	30	1	1 -	0	9
MAS 23	91.8	81.8	70.0	51.3 -	124 +	28	2	8 +	0	8
SS 8415	93.6	81.2	69.4	56.2	121 -	29	3	6 +	2 +	11 +
Inferno			69.2	53.7 -	126 +	29	1	7 +	1	8
ARW1516			69.1	51.3 -	124	28	1	4	1	7
VA07MAS3-7304-3-1-2-3			68.6 -	55.4	118 -	24 -	3 +	0 -	4 +	12 +
USG 3612	94.2	85.0	68.5 -	52.0 -	123	30	3	8 +	1	8
MBX 14-K-297	93.9	88.2	68.1 -	53.7 -	125 +	32 +	2	7 +	1	7
GA061349-13LE29			68.0 -	56.9	123	28	1	1 -	1	9
LCS 3677			67.3 -	54.2	124 +	30	2	8 +	1	7
SS 8360	92.7	81.2	66.9 -	53.7 -	126 +	28	1	7 +	1	7
AR21513			66.6 -	53.6 -	125 +	31 +	2	8 +	2 +	8
Dyna-Gro 9223	87.9 -	81.5	66.4 -	52.6 -	125 +	32 +	2	8 +	1	8
SY 007	87.1 -	80.0 -	66.2 -	56.5	122	28	1	4	1	8
SS 8513	90.1	82.9	66.2 -	56.2	119 -	29	4 +	7 +	1	10 +
L11410			65.6 -	55.2	121 -	32 +	3	8 +	1	9
GA051102-13LE43			65.5 -	57.8 +	121 -	29	2	0 -	1	10
SY Harrison			64.3 -	51.4 -	125 +	28	2	7 +	1	7
USG 3316			64.2 -	54.1	125 +	29	1	8 +	2 +	7

Table 27. Summary of performance of entries in the Virginia Tech Wheat Test, Kentland farm, Blacksburg, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield[1] (Bu/a)		Test Weight[1] (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Leaf Rust (0-9)		Barley Yellow Dwarf Virus (0-9)		Early Height (In)	
MBX 16-B-203					64.1	-	54.1		125	+	30		1		8	+	2	+	7	-
AgriMAXX 454					63.1	-	53.0	-	125	+	30		1		8	+	2	+	7	-
Dyna-Gro 9692					62.9	-	53.4	-	125	+	29		1		8	+	2	+	7	
Progeny 357	86.1	-	76.3	-	62.8	-	50.4	-	125	+	30		2		8	+	2		8	
Dyna-Gro 9552			82.0		62.8	-	54.6		126	+	29		1		8	+	1		7	
NC09-20986			65.6	-	61.8	-	59.0	+	120	-	29		3		4		2	+	10	+
NC8170-4-3					61.4	-	57.5	+	124		33	+	4	+	0	-	2	+	7	
Massey	72.3	-	67.1	-	56.1	-	55.6		120	-	32	+	5	+	9	+	3	+	11	+
L11437					52.6	-	54.9		118	-	29		3	+	9	+	3	+	11	+
Average	93.7		86.5		78.7		55.6		123		29		2		3		1		8	
LSD (O.05)	5.4		5.6		10.1		1.7		1		2		1		1		1		2	
C.V.	6.0		5.2		6.4		1.6		1		5		54		29		68		13	

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] Yield and test weight were based on two replications.

* Yield and test weight of these two varieties were based on one replication.

Table 28. Summary of performance of entries in the Virginia Tech Wheat Test, planted No-Till at Tidewater AREC, Holland, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Powdery Mildew (0-9)	Leaf Blotch (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)
PGX 15-14			64.8 +	54.5 -	1 -	2	6 +	2
MAS 61			63.4 +	56.2	4 +	1	1 -	1
VA07MAS4-7417-1-3-3		56.1	63.0 +	58.2 +	0 -	1	1 -	3
SY 547		55.0	61.5 +	56.8	1 -	1	2	2
NC8170-4-3			61.3 +	58.6 +	0 -	1	1 -	3 +
VA11W-108PA			61.1 +	56.8	1 -	1	1 -	1
GA-04434-12LE28		57.4	60.6	59.2 +	0 -	1	1 -	2
PGX 15-12			60.5	57.5 +	2	1	1 -	1
VA12FHB-8		61.2	60.5	55.8	1 -	1	1 -	3
VA12W-31		57.2	60.1	56.5	1	1	1 -	4 +
VA13W-38		55.0	59.5	59.4 +	1 -	1	1 -	1
Featherstone 73	57.1	58.1	59.4	58.1 +	2	1	1 -	0
VA14W-59			59.2	57.0	1 -	1	1 -	7 +
VA07MAS3-7304-3-2-4-3			59.0	55.8	2	1	1 -	1
VA13W-174			59.0	58.6 +	1 -	1	1 -	1
Pioneer Brand 26R59		63.8 +	58.8	55.8	2	2	6 +	0
Dyna-Gro 9772			58.4	54.3 -	3	1	2 -	3 +
VA12W-72	51.0	52.4	58.0	57.3 +	1 -	1	1 -	0
SS 8415	53.5	53.6	58.0	57.2 +	1 -	1	5 +	0
VA12W-248		56.0	57.2	57.6 +	3	2	1 -	5 +
MD272-8-4-14-6			57.2	58.2 +	1 -	1	1 -	0
GA-03564-12E6		56.7	57.1	59.7 +	1 -	1	1 -	1
VA11W-106	57.7	57.5	56.7	57.0	3	1	1 -	0
AR01040-4-1			56.6	56.5	2	1	2	1
Pioneer Brand 26R41			56.5	54.6 -	2	3	1 -	0
VA12W-68		52.7	56.4	57.8 +	1 -	1	2	0
MAS 67			56.2	53.6 -	5 +	2	3	1
VA07MAS4-7416-5-4-2			56.1	58.0 +	1 -	1	1 -	1
SY 007	55.8	57.7	55.8	56.2	1	2	3	0
Hilliard	53.6	56.5	55.7	57.3 +	0 -	1	1 -	0
VA07MAS4-7463-6-2-2-2			55.7	56.5	2	1	1 -	5 +
AgriMAXX Exp 1674			55.5	54.4 -	2	2	6 +	0
VA07MAS4-7463-6-2-2-4			55.1	57.2	0 -	1	2 -	6 +
VA07MAS14-9260-8-2-2		52.5	55.0	58.6 +	1	2	1 -	3
VA13W-177		53.7	55.0	58.9 +	1 -	1	1 -	1
DH11SRW070-28			54.8	57.3 +	0 -	1	1 -	0
NC09-20986		47.7	54.7	60.6 +	0 -	1	2	1
MAS 65			54.6	54.4 -	2	2	5 +	0
USG 3895		55.8	54.6	53.8 -	4 +	1	1 -	0
VA09MAS1-12-8-4			54.5	57.6 +	4 +	1	1 -	1
VA11W-279	59.7 +	57.9	54.4	58.4 +	0 -	1	1 -	1

Table 28. Summary of performance of entries in the Virginia Tech Wheat Test, planted No-Till at Tidewater AREC, Holland, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Powdery Mildew (0-9)	Leaf Blotch (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)
VA12W-101			54.2	55.4	1 -	1	1 -	0
DH11SRW070-14			54.0	56.3	1 -	1	1 -	0
Featherstone VA258	54.6	56.8	53.8	56.2	2	1	1 -	8 +
SS EXP 8550			53.8	54.3 -	1 -	2	2	0
VA09MAS6-122-7-1			53.7	58.7 +	1 -	1	1 -	0
AgriMAXX Exp 1558		57.4	53.7	54.1 -	3	1	1 -	2
VA13FHB-26			53.7	57.3 +	1	1	1 -	4 +
Shirley	57.1	54.3	53.4	53.1 -	0 -	1	1 -	7 +
MBX 16-A-206			53.3	54.8	4 +	1	5 +	1
MAS 50			53.2	57.0	4 +	2	3	1
Dyna-Gro 9600			52.6	54.5 -	2	2	2 -	3
PGX 15-10			52.6	54.4 -	1 -	1	1 -	0
Jamestown	47.4 -	50.8	52.6	59.9 +	2	1	1 -	0
MBX 11-V-258	54.4	54.5	52.5	56.4	2	1	1 -	8 +
Southern Harvest 4300		54.5	52.5	53.5 -	5 +	2	5 +	5 +
SS 8513	57.3	60.2	52.4	58.3 +	1 -	2	4	2
VA14FHB-28			52.3	59.2 +	2	2	1 -	1
SS 8530		55.2	52.2	55.0	3	2	2 -	2
MAS 6	50.9	52.6	52.2	53.2 -	2	2	3	1
VA13FHB-5		53.3	52.2	59.4 +	1 -	1	2 -	3
MAS 46		56.0	51.9	54.3 -	3	1	5 +	1
MAS 35	57.2	55.3	51.8	55.8	4 +	1	3	3
VA10W-119	54.6	59.7	51.6	59.2 +	2	1	2 -	2
AgriMAXX 415	52.2	54.6	51.4	57.3 +	3	2	3	1
ARGA04510-11LE24			51.3	55.3	3	1	2	0
VA09MAS7-61-2-1			51.1	57.3 +	1 -	2	2 -	2
Progeny 870	52.1	52.6	50.9	52.0 -	2	3 +	3	0
TN1102			50.9	55.0	1 -	1	2	2
VA07MAS3-7304-3-1-2-3			50.6	57.8 +	1 -	1	1 -	2
USG 3197			50.6	54.1 -	2	1	2 -	1
MAS 42S		61.6 +	50.5	52.4 -	5 +	2	7 +	4 +
Pioneer Brand 25R32	54.2	53.0	50.4	54.3 -	1 -	1	6 +	0
LCS 3677			50.3	53.3 -	4 +	4 +	4	7 +
MAS 23	58.4	57.8	50.3	52.6 -	3	4 +	7 +	1
Pioneer Brand 26R20	51.8	49.8	50.3	56.3	2	2	3	1
MBX 14-S-210	48.6	49.2	49.8	54.2 -	2	1	2	2
VA10W-96	52.4	52.0	49.8	60.2 +	0 -	1	1 -	1
VA08MAS1-188-6-4-1			49.8	57.4 +	0 -	1	2 -	0
Pioneer Brand 26R53	50.6	49.3	49.7	56.6	4 +	2	5 +	1
GA061349-13LE31			49.6	56.9	3	1	1 -	3
AgriMAXX 462	52.5	55.1	49.5	57.8 +	4 +	1	3	6 +

Table 28. Summary of performance of entries in the Virginia Tech Wheat Test, planted No-Till at Tidewater AREC, Holland, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Powdery Mildew (0-9)	Leaf Blotch (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)
L11410			49.4	55.5	2	2	7 +	4 +
VA12W-22		52.7	49.3	56.1	1 -	1	1 -	2
Progeny 243			48.8	56.9	4 +	3 +	3	1
PGX 15-16			48.8	58.7 +	2	1	2	0
VA11W-313	55.6	56.1	48.6	56.0	2	1	2 -	0
USG 3251	53.3	50.3	48.3	53.9 -	2	2	6 +	2
15MW315			48.2	58.9 +	2	1	1 -	1
MBX 16-B-203			48.2	52.6 -	6 +	3 +	7 +	3
MAS 66			47.8	57.4 +	3	2	2	1
MBX 15-E-229		50.3	47.7	53.9 -	3	2	1 -	2
L11420			47.6	57.7 +	3	3	2	2
AgriMAXX Exp 1675			47.5	55.2	4 +	2	3	0
VA10W-21BSR124			47.3	56.1	4 +	2	2	0
AgriMAXX 446	55.1	55.4	47.3	54.7	3	4 +	6 +	0
VA14W-29			47.2	57.4 +	2	2	1 -	0
VA14FHB-14			47.2	57.6 +	3	2	1 -	1
SS 8340	54.7	52.7	47.1	56.8	4 +	2	3	1
L11541			46.8	58.7 +	1 -	1	1 -	2
Inferno			46.8	54.9	4 +	4 +	7 +	1
AgriMAXX 444	59.7 +	55.4	46.7	53.0 -	2	2	5 +	0
USG 3612	55.0	51.4	46.3	52.8 -	2	2	6 +	1
SY Harrison			45.9	53.6 -	5 +	3 +	5 +	1
NC11-22289			45.9	59.5 +	0 -	1	2 -	1
Oakes			45.7	58.6 +	3	2	4	2
VA14W-6			45.7	56.8	1 -	2	1 -	6 +
SS 8360	54.6	48.4	45.5	54.4 -	3	5 +	7 +	1
MAS 32	51.8	53.3	45.3	57.4 +	4 +	1	3	2
USG 3201	51.4	51.7	45.0	56.7	3	3 +	3	0
AgriMAXX 454			44.7	52.5 -	6 +	2	8 +	2
Pioneer XW13W		51.2	44.7	54.5 -	5 +	3	2	1
Dyna-Gro 9522		53.3	44.6	53.2 -	2	3 +	5 +	0
Dyna-Gro 9552		51.4	43.7	55.1	3	4 +	8 +	1
Dyna-Gro 9223	54.4	54.9	43.5	52.1 -	5 +	4 +	8 +	1
USG 3404	56.9	52.8	43.3	52.8 -	2	2	5 +	0
Dyna-Gro 9642		46.0 -	42.9	51.0 -	1	2	5 +	1
MBX 14-K-297	50.0	48.3	42.7	53.2 -	5 +	3 +	6 +	1
Massey	48.9	50.4	42.4	57.6 +	1	1	6 +	2
USG 3316			42.2	52.8 -	6 +	3	7 +	5 +
GA061349-13LE29			41.7	57.3 +	1	1	1 -	0
AR21513			41.6	53.3 -	5 +	3 +	7 +	4 +
Pioneer Brand 26R10	57.1	56.6	40.7 -	53.1 -	2	2	6 +	0

Table 28. Summary of performance of entries in the Virginia Tech Wheat Test, planted No-Till at Tidewater AREC, Holland, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Powdery Mildew (0-9)	Leaf Blotch (0-9)	Leaf Rust (0-9)	Stripe Rust (0-9)
ARW1516			40.1 -	52.6 -	4 +	2	4	1
Progeny 357	53.5	54.2	39.6 -	50.9 -	3	3 +	7 +	1
SY Viper			39.4 -	55.0	2	1	5 +	0
L11437			39.1 -	56.8	4 +	2	5 +	3
VA13W-124		45.0 -	39.1 -	56.7	4 +	1	1 -	2
Southern Harvest 4400		52.7	38.8 -	52.9 -	4 +	2	5 +	0
USG 3523	55.3	52.5	38.7 -	52.3 -	4 +	4 +	6 +	1
GA051102-13LE43			38.4 -	58.7 +	0 -	1 -	1 -	0
MAS 7	50.2	46.7 -	37.6 -	53.2 -	1 -	2	5 +	1
Dyna-Gro 9692			37.4 -	51.8 -	6 +	4 +	8 +	2
Average	54.0	54.0	50.9	55.9	2	2	3	2
LSD (O.05)	5.7	7.3	9.9	1.2	1	1	1	2
C.V.	12.1	12.3	10.7	1.2	33	33	30	78

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 29. Summary of performance of entries in the Virginia Tech Wheat Test, Shenandoah Valley in Shenandoah County, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield (Bu/a)		Test Weight (Lb/bu)		Lodging (0-9)	
PGX 15-14					78.5	+	56.0		2	
Pioneer Brand 26R59			71.6	+	75.0	+	55.1		2	
MAS 65					73.9	+	56.3		2	
AgriMAXX Exp 1674					73.2	+	56.4		2	
MAS 35	71.6		66.9		72.1	+	55.9		2	
MAS 7	70.1		72.8	+	72.0	+	56.3		3	
AR01040-4-1					72.0	+	56.3		2	
AgriMAXX 462	71.9		69.2		71.9	+	57.5		2	
USG 3197					71.5	+	54.9		2	
SY 547			69.4		70.9	+	56.9		2	
Pioneer Brand 26R10	75.3		68.6		70.8	+	56.4		2	
USG 3251	70.9		67.7		70.7	+	56.6		2	
MAS 23	70.3		63.6		70.5	+	54.5		3	
VA12W-31			66.8		70.1	+	56.0		2	
VA11W-108PA					69.7		55.5		2	
L11541					69.6		57.4		3	
USG 3612	71.5		70.7	+	69.2		54.4		3	+
Southern Harvest 4300			67.4		69.1		54.3		2	
MAS 32	71.7		72.6	+	68.9		56.7		2	
Hilliard	73.8		69.5		68.6		56.0		2	
SY 007	69.0		65.3		67.9		55.3		3	
PGX 15-16					67.9		59.7	+	1	-
VA12FHB-8			70.5	+	67.8		54.7		3	
Pioneer Brand 26R53	73.0		66.7		67.7		57.0		2	
Featherstone VA258	75.3		66.6		67.6		55.6		3	+
AgriMAXX 446	69.4		65.2		67.4		56.3		2	
Pioneer Brand 26R20	67.0		63.9		67.1		56.5		2	
MD272-8-4-14-6					67.0		56.1		2	
NC8170-4-3					66.9		58.0	+	4	+
AgriMAXX 444	68.7		63.7		66.9		55.5		3	
Shirley	78.8	+	66.9		66.8		53.9		2	
MAS 42S			64.2		66.7		56.0		2	
Featherstone 73	74.7		68.2		66.6		56.2		3	+
VA14W-59					66.5		55.7		4	+
MAS 61					66.2		54.9		3	
DH11SRW070-28					66.1		54.7		2	
MAS 46			65.0		65.8		54.9		2	
Dyna-Gro 9223	68.8		67.0		65.8		55.5		2	
MBX 14-S-210	73.9		63.5		65.7		56.2		2	
Inferno					65.6		56.2		2	
USG 3404	74.7		65.4		65.5		55.7		2	

Table 29. Summary of performance of entries in the Virginia Tech Wheat Test, Shenandoah Valley in Shenandoah County, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)		Lodging (0-9)	
Dyna-Gro 9552		64.0	65.4	56.3		2	
PGX 15-10			65.4	56.0		2	
Pioneer Brand 26R41			65.3	54.8		2	
Dyna-Gro 9522		65.3	65.2	55.0		2	
VA10W-96	70.6	62.9	65.2	57.0		3	
SS 8530		62.0	65.1	54.6		2	
MAS 66			65.1	57.2		3	
USG 3316			65.1	55.9		2	
AR21513			64.9	55.9		2	
SY Viper			64.7	57.2		4	+
AgriMAXX 415	70.1	66.1	64.6	57.7	+	3	
MBX 16-A-206			64.4	53.9		2	
Progeny 870	66.7	57.0	64.4	53.4	-	2	
USG 3201	69.1	64.3	64.3	57.5		2	
VA10W-21BSR124			64.2	55.6		3	
Pioneer Brand 25R32	64.3	56.6	64.1	57.0		2	
Progeny 357	72.3	65.8	63.9	53.6		2	
SS 8340	69.9	63.7	63.7	57.6		2	
MBX 14-K-297	68.9	62.5	63.6	56.3		2	
MAS 6	69.5	61.8	63.5	54.5		2	
Dyna-Gro 9772			63.4	54.5		2	
LCS 3677			63.1	48.4	-	3	
MAS 67			63.1	54.8		3	
L11410			63.0	56.8		4	+
Dyna-Gro 9692			63.0	55.6		2	
VA11W-106	67.9	64.5	62.8	55.3		2	
VA08MAS1-188-6-4-1			62.8	55.5		2	
AgriMAXX Exp 1558		61.8	62.6	54.6		2	
GA-04434-12LE28		60.6	62.4	55.0		2	
AgriMAXX 454			62.0	55.8		2	
VA13FHB-26			61.7	56.7		4	+
VA07MAS14-9260-8-2-2		64.1	61.7	58.0	+	2	
Southern Harvest 4400		64.2	61.5	57.0		2	
15MW315			61.2	57.2		2	
VA13W-38		64.3	61.1	56.5		2	
MBX 11-V-258	73.4	64.4	61.0	55.5		3	
VA13W-174			61.0	55.0		2	
VA09MAS1-12-8-4			60.9	57.0		2	-
VA12W-248		61.1	60.9	55.3		3	
SS EXP 8550			60.8	55.9		2	
VA07MAS4-7463-6-2-2-4			60.7	54.6		4	+

Table 29. Summary of performance of entries in the Virginia Tech Wheat Test, Shenandoah Valley in Shenandoah County, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)		2-year Av. Yield (Bu/a)		Grain Yield (Bu/a)		Test Weight (Lb/bu)		Lodging (0-9)	
MBX 16-B-203					60.7		55.7		2	
SY Harrison					60.6		54.3		2	
VA12W-22			68.2		60.1		55.1		2	
VA12W-68			65.1		60.1		55.5		3	
VA12W-72	77.2		65.9		60.0		55.6		2	
PGX 15-12					59.9		54.9		1	-
DH11SRW070-14					59.8		54.5		2	
NC09-20986			61.9		59.8		59.6	+	2	
VA12W-101					59.7		54.8		3	+
SS 8360	72.0		62.4		59.6		54.3		2	
VA09MAS6-122-7-1					59.5		55.9		2	
VA14W-29					59.4		55.4		2	-
VA14FHB-14					59.3		56.4		3	
VA11W-279	67.7		59.5		59.0		56.3		3	
SS 8415	68.4		59.5		58.8		54.1		2	
MBX 15-E-229			60.7		58.0		54.6		2	
L11420					56.9		57.7		4	+
VA07MAS4-7463-6-2-2-2					56.8		54.0		4	+
USG 3895			60.0		56.8		53.5		2	
GA051102-13LE43					56.7		54.4		2	
VA07MAS4-7417-1-3-3			60.7		56.6		55.4		2	
MAS 50					56.2		56.6		3	
Oakes					55.8		57.9	+	4	+
Dyna-Gro 9600					55.8		54.0		2	
VA11W-313	69.8		57.8		55.7		54.1		4	+
ARW1516					55.6		52.1	-	2	
VA07MAS4-7416-5-4-2					55.3		55.3		2	
SS 8513	68.9		56.5	-	55.2		54.7		6	+
Pioneer XW13W			51.1	-	55.2		57.1		3	
Progeny 243					54.9		55.3		3	
VA13W-124			61.4		54.8		54.2		4	+
VA13W-177			59.2		54.8		57.6		2	
VA09MAS7-61-2-1					54.6		53.6		3	
NC11-22289					54.4		57.1		3	+
Massey	65.8		58.7		54.3		57.5		5	+
Dyna-Gro 9642			58.4		54.2		53.0	-	2	
VA07MAS3-7304-3-1-2-3					53.8	-	54.5		4	+
Jamestown	64.2		56.6	-	53.8	-	56.9		2	
GA061349-13LE31					53.4	-	54.4		1	-
VA13FHB-5			58.1		53.2	-	57.9	+	2	
VA14W-6					52.6	-	55.3		3	+

Table 29. Summary of performance of entries in the Virginia Tech Wheat Test, Shenandoah Valley in Shenandoah County, VA, 2016 harvest.

Line	3-year Av. Yield (Bu/a)	2-year Av. Yield (Bu/a)	Grain Yield (Bu/a)	Test Weight (Lb/bu)	Lodging (0-9)
GA-03564-12E6		60.3	52.6 -	55.6	2
VA10W-119	67.8	56.5 -	50.9 -	55.4	3
VA14FHB-28			49.7 -	56.0	2
AgriMAXX Exp 1675			49.2 -	56.4	3
USG 3523	68.2	59.1	48.7 -	55.4	4 +
VA07MAS3-7304-3-2-4-3			48.7 -	52.7 -	3
TN1102			48.4 -	51.7 -	6 +
ARGA04510-11LE24			47.7 -	51.0 -	2
GA061349-13LE29			47.3 -	53.3 -	2 -
L11437			44.2 -	57.0	5 +
Average	70.6	63.7	62.0	55.6	2
LSD (O.05)	7.4	6.7	8.0	2.1	1
C.V.	12.2	9.5	8.8	2.6	20

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.

Section 4: Milling and Baking Quality

Grain samples of 64 entries in Virginia's 2015 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. Wheat cultivars and experimental lines (collectively referred to as "varieties" herein) are listed in Table 30 from highest to lowest T-scores for overall milling and baking quality. The soft red winter cultivar Massey that historically has had acceptable milling and pastry baking quality was used as the quality standard check and has an overall quality T-score of zero. Wheat cultivars or experimental lines with T-scores greater than zero have overall quality that is similar to or exceed that of Massey, while those with T-scores less than zero have overall quality that is similar to or less than that of Massey. Quality grades (A-F) were also assigned (see Tables below) for flour yield (a key indicator of milling quality) and cookie diameter (a key indicator of pastry baking quality) as varieties having good milling quality may or may not have good baking quality and vice versa.

Adjusted Flour Yield% and Grade (Based on Samples Between 2009 and 2014)

Grade	Range	Percent
A	>70.90	15
B	69.79 to 70.90	20
C	68.33 to 69.78	30
D	66.97 to 68.32	20
F	<66.97	15

Cookie Diameter in cm (Based on Samples Between 2009 and 2014)

Grade	Range	Percent
A	>19.29	15
B	18.86 to 19.29	20
C	18.36 to 18.85	30
D	17.95 to 18.35	20
F	<17.95	15

Additional Information on Quality Analysis

Of the quality characteristics measured at the Soft Wheat Quality Laboratory, flour milling yield is the most reproducible and perhaps most important because it is genetically and environmentally associated with good soft wheat flour quality. Flour yields of the 64 varieties ranged from 65.5% to 71.6% and 43 varieties had flour yields and grades (A-D) that were similar to or higher than that of Massey (69.1%) the quality standard check (Table 30).

After flour yield, the second trait that we recommend for use in selection is softness equivalent. It tends to have high heritability and is an important predictor of milling break flour yield. Larger values are preferred for most soft wheat manufactured goods, particularly cakes and other high sugar baked products. Softness equivalence scores varied from 46.7% to 69.8%, and 42 of the varieties had scores that were higher than those of Massey (58.6%).

Flour protein concentration of the 64 varieties ranged from 7.59 to 10.17% with Massey having the highest flour protein. Gluten strength is measured as lactic acid Solvent Retention Capacity (SRC) and is also correlated to flour protein concentration, but the effect is dependent on variety and growing conditions. Weaker gluten strength is desired for most pastry products, such as cookies and cakes, while stronger gluten strength is desired in production of crackers and some bread type products. Lactic acid SRC values ranged from 98.7% (SS 520) to 153.9% (SY474) with 35 varieties having SRC values below 120% and 13 varieties having values above 130%.

Pastry baking quality was assessed via measurement of cookie spread diameter, which ranged from 16.3 to 19.6 cm with a test average of 18.4 cm. Fifty of the 64 varieties had cookie spread diameters that where larger than those of Massey (17.9 cm) and 27 varieties had cookie spread diameters that exceeded those of Shirley (18.4 cm).

Table 30. Milling and baking quality of entries in the Virginia Tech Wheat Test based on evaluation of the 2015 harvest.

Entry	Test Weight (Lb/bu)	Flour Yield (%)	Flour Yield Grade	Softness Equivalent (%)	Flour Protein (at 14%)	Lactic Acid SRC (%)	Cookie Diameter (cm)	Cookie Diameter Grade	Overall Quality T-Score
Dyna-Gro 9522	58.5	71.0	A	65.6	7.59	110.0	19.6	A	1.02
USG 3013	57.8	71.6	A	66.9	7.72	122.8	18.9	C	0.99
Dyna-Gro 9223	58.2	71.3	A	66.4	8.19	132.0	18.5	C	0.94
MAS #51	58.4	71.1	A	66.1	7.92	114.8	19.4	A	0.92
AgriMAXX 444	58.3	70.7	B	65.4	8.06	121.4	19.0	B	0.90
USG 3404	58.4	70.7	B	65.6	7.89	117.5	19.0	B	0.88
AgriMAXX 438	58.1	71.3	A	65.7	7.69	119.2	19.0	B	0.84
MBX14-K-297	58.4	71.0	A	65.0	8.61	135.8	18.8	C	0.83
MAS #46	58.3	70.6	B	66.1	7.91	114.1	18.9	B	0.77
SS 8513	59.6	70.8	B	66.0	7.71	123.9	17.8	F	0.70
MAS #37	59.9	70.5	B	64.3	8.72	130.6	18.2	D	0.61
USG 3895	58.4	70.0	B	64.2	8.43	105.8	18.9	B	0.60
VA12W-22	59.8	69.8	C	60.9	8.69	114.4	18.2	D	0.53
AgriMAXX 446	59.0	69.8	B	64.0	8.54	113.8	18.0	D	0.49
Dyna-Gro 9552	58.7	70.0	B	65.1	8.35	111.9	17.8	F	0.47
SS 8360	58.5	70.0	B	66.0	8.19	114.9	18.6	C	0.43
SS 8340	59.8	69.9	B	57.8	7.93	108.3	18.9	B	0.30
VA07MAS14-9260-8-2-2	60.7	69.4	C	57.3	9.73	136.0	18.6	C	0.26
AgriMAXX 427	59.4	68.8	C	63.8	8.51	111.7	18.9	B	0.24
VA10W-119	60.3	70.0	B	55.0	8.88	116.0	18.4	C	0.19
Pioneer XW13T	60.0	69.6	C	64.0	7.87	106.7	18.9	B	0.16
USG 3612	58.7	68.9	C	63.9	8.25	106.9	18.2	D	0.16
Pioneer Brand 26R10	59.2	69.2	C	67.2	8.37	125.3	18.3	D	0.16
AgriMAXX 415	60.5	69.0	C	56.3	9.36	120.4	17.9	F	0.15
VA12W-248	59.7	69.7	C	61.3	8.59	114.2	19.0	B	0.14
USG 3438	57.4	70.0	B	60.4	7.88	104.7	18.9	B	0.09
VA13W-177	60.4	68.9	C	54.5	9.41	109.8	18.2	D	0.09
MAS #32	58.0	69.4	C	69.8	7.97	117.7	18.4	C	0.09
Shirley	57.6	69.7	C	59.2	8.78	100.5	18.4	C	0.06
Southern Harvest 4400	59.1	69.5	C	63.6	8.72	130.1	18.8	C	0.04
GA-03564-12E6	61.4	68.4	C	57.1	9.54	131.2	17.3	F	0.01
Massey (Quality Check)	**59.6**	**69.1**	**C**	**58.6**	**10.17**	**132.3**	**17.9**	**F**	**0.00**
USG 3251	58.8	68.8	C	64.2	8.22	111.0	19.1	B	-0.03
AgriMAXX 434	58.4	68.2	D	62.1	8.37	116.7	18.9	B	-0.10
USG 3523	58.9	68.3	D	60.7	8.67	122.9	18.7	C	-0.13
SY 474	59.2	68.6	C	59.2	9.59	153.9	18.0	D	-0.15
Southern Harvest 4300	57.5	68.8	C	65.1	7.73	118.7	18.8	C	-0.16
SS 8415	59.9	68.9	C	57.9	8.57	132.6	18.4	C	-0.17
Featherstone 73	60.1	68.5	C	60.6	8.77	118.0	18.4	C	-0.17
VA11W-279	59.6	69.1	C	57.8	9.03	119.0	18.7	C	-0.20
AgriMAXX 413	57.2	69.5	C	57.3	8.45	104.1	18.9	C	-0.26
Pioneer Brand 26R20	59.7	68.3	D	63.6	7.96	113.9	18.7	C	-0.27
VA11W-106	59.7	68.1	D	62.0	8.74	123.3	18.1	D	-0.30
VA13W-38	58.9	67.9	D	53.3	9.33	105.0	17.9	F	-0.31
Hilliard	59.1	68.1	D	64.8	8.99	136.8	18.0	D	-0.34
MBX14-S-210	58.4	68.3	C	62.2	9.28	132.5	18.1	D	-0.35
VA11W-108PA	59.0	67.9	D	64.2	8.83	140.4	17.8	F	-0.36
AgriMaxx Exp 1450	57.7	68.4	C	65.0	8.33	129.1	18.2	D	-0.40
VA13FHB-5	60.3	67.9	D	56.9	9.10	108.0	18.0	D	-0.40

Table 30. Milling and baking quality of entries in the Virginia Tech Wheat Test based on evaluation of the 2015 harvest.

Entry	Test Weight (Lb/bu)	Flour Yield (%)	Flour Yield Grade	Softness Equivalent (%)	Flour Protein (at 14%)	Lactic Acid SRC (%)	Cookie Diameter (cm)	Cookie Diameter Grade	Overall Quality T-Score
VA12W-68	59.1	67.2	D	56.6	9.75	117.8	18.1	D	-0.47
Jamestown	60.0	67.6	D	61.3	8.87	122.0	18.3	D	-0.50
SS 8530	57.8	67.8	D	61.3	8.18	119.0	19.1	B	-0.54
VA12FHB-8	58.1	67.8	D	60.7	8.46	113.5	18.6	C	-0.61
VA12W-72	58.6	66.6	F	56.9	9.88	121.0	18.3	D	-0.76
VA13W-124	58.4	68.4	C	56.5	8.57	115.5	18.2	D	-0.78
VA12W-31	59.7	66.9	F	56.6	8.94	129.9	17.9	F	-0.79
MAS #7	58.1	67.7	D	63.0	8.70	144.4	18.3	D	-0.80
SS 520	57.9	67.9	D	53.8	7.63	98.7	17.7	F	-0.94
VA07MAS4-7417-1-3-3	57.9	66.8	F	55.4	8.91	107.9	17.9	F	-1.11
VA11W-313	55.5	66.9	F	57.6	9.88	146.3	18.1	D	-1.23
VA10W-96	59.9	66.6	F	54.3	9.63	128.3	17.6	F	-1.29
VA10W-21	60.7	68.9	C	46.7	9.11	125.4	16.3	F	-1.53
Featherstone VA258	59.4	66.0	F	51.7	9.74	128.7	17.8	F	-1.67
Yorktown	58.2	65.5	F	59.1	9.07	129.4	17.3	F	-1.69
Mean (n=64)	58.9	68.9		61.0	8.65	120.4	18.4		
Standard Deviation	1.0	1.4		4.6	0.65	11.5	0.6		

**** Total T-Score = Sum of (0.15 x Test Weight), (-0.1 x SKCS Kernel Hardness), (0.4 x Flour Yield), (0.15 x Softness Equivalent) and (-0.2 x Sodium Carbonate SRC)***

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. The data from 2015 was insignificant, so data from 2016 is being combined with data from 2014 to provide a two-year data set of FHB incidence, FHB severity and FHB Index (incidence x severity / 100.) Tables 31 and 32 are included in this bulletin 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 two times by spreading scabby corn seeds in plots at the booting stage and a week later, and by spraying a *Fusarium graminearum* spore suspension directly onto spikes at the 50% flowering stage. Among 133 lines and varieties tested in 2016, the FHB index varied from 5.3 to 62.3 with FHB incidence ranging from 37.5% to 100% and FHB severity ranging from 9.3% to 65.6% (Table 31). Seventy-two lines or varieties had FHB index values lower than the mean (<21.2) and expressed moderate resistant to FHB in 2016. Based on two year mean data for 2014 and 2016 (Table 32), twenty-six lines or varieties had FHB index values lower than the test mean (<17.0).

Table 31. Summary of reaction of entries in the Virginia Tech State Wheat Test to Fusarium head blight (scab) and glume blotch resistance, 2016 harvest.

Line	FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)	
USG 3197	37.5	-	14.6		5.3	-
Pioneer Brand 25R32	62.5	-	9.3	-	5.8	-
Dyna-Gro 9600	55.0	-	10.8	-	5.9	-
VA13W-177	52.5	-	12.3	-	6.4	-
VA13W-38	55.0	-	14.4		7.8	-
USG 3316	70.0		11.3	-	7.9	-
Dyna-Gro 9772	65.0		12.4	-	8.0	-
MBX 15-E-229	67.5		12.0	-	8.2	-
MAS 67	72.5		12.3	-	8.9	-
MAS 35	80.0		11.9	-	9.5	-
AgriMAXX Exp 1675	87.5		10.9	-	9.5	-
MAS 32	80.0		12.1	-	9.6	-
MAS 61	65.0		15.2		9.9	-
Progeny 243	65.0		15.2		10.0	-
ARW1516	70.0		14.5		10.2	-
AgriMAXX 454	77.5		13.2	-	10.3	-
Massey	72.5		14.8		10.8	-
15MW315	85.0		12.6	-	10.8	-
MBX 16-B-203	80.0		13.5	-	10.8	-
VA13W-174	77.5		14.2	-	11.0	-
MAS 7	72.5		15.3		11.2	
SY 547	77.5		14.4		11.2	
Dyna-Gro 9642	77.5		14.3		11.3	
L11541	85.0		13.2	-	11.3	
SS EXP 8550	80.0		14.4		11.5	
MD272-8-4-14-6	85.0		13.8	-	11.7	
MAS 42S	85.0		13.6	-	11.7	
AR21513	82.5		14.3		11.8	
NC09-20986	85.0		13.8	-	11.8	
PGX 15-10	77.5		15.3		11.8	
SS 8340	57.5	-	21.2		12.2	
USG 3404	82.5		15.1		12.4	
Featherstone 73	77.5		15.9		12.4	
Dyna-Gro 9692	85.0		14.9		12.6	
AgriMAXX Exp 1558	65.0		20.5		13.0	
SS 8530	60.0	-	20.4		13.0	
VA12W-72	90.0		15.3		13.7	
VA12W-101	77.5		18.2		13.9	
L11420	67.5		21.7		14.1	
MAS 66	67.5		21.8		14.6	
MBX 14-S-210	72.5		20.7		15.0	

Table 31. Summary of reaction of entries in the Virginia Tech State Wheat Test to Fusarium head blight (scab) and glume blotch resistance, 2016 harvest.

Line	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)
PGX 15-12	67.5	22.2	15.0
Jamestown	75.0	19.8	15.3
USG 3523	80.0	19.0	15.7
L11410	75.0	21.0	16.0
MAS 6	82.5	19.6	16.1
MAS 23	85.0	18.9	16.2
USG 3251	80.0	20.4	16.4
VA11W-108PA	75.0	22.0	16.5
SY 007	70.0	24.5	16.8
Hilliard	77.5	22.0	17.1
Progeny 870	77.5	21.9	17.2
AgriMAXX 415	70.0	25.1	17.6
VA13FHB-26	80.0	22.3	17.6
NC8170-4-3	80.0	22.4	17.7
Southern Harvest 4400	77.5	24.1	18.0
VA13FHB-5	80.0	22.6	18.1
USG 3201	75.0	24.8	18.1
SY Viper	77.5	22.0	18.2
PGX 15-16	77.5	23.6	18.4
VA14FHB-28	77.5	23.4	18.6
Pioneer XW13W	87.5	21.2	18.8
Oakes	77.5	24.4	19.2
Southern Harvest 4300	82.5	23.9	19.2
VA11W-313	80.0	24.5	19.4
VA14FHB-14	77.5	25.3	19.8
VA08MAS1-188-6-4-1	82.5	24.0	20.0
VA13W-124	82.5	25.0	20.0
AgriMAXX 462	85.0	23.6	20.2
L11437	72.5	28.3	20.3
Dyna-Gro 9522	85.0	24.0	20.4
Pioneer Brand 26R10	87.5	23.9	20.7
Inferno	82.5	25.6	21.2
MAS 50	82.5	26.0	21.3
VA12W-31	92.5	23.0	21.3
VA11W-106	85.0	24.6	21.4
Dyna-Gro 9552	92.5	23.4	21.5
USG 3612	92.5	23.4	21.6
VA09MAS6-122-7-1	80.0	27.2	21.9
VA12W-68	87.5	25.1	22.0
SY Harrison	80.0	28.3	22.0
AgriMAXX 444	82.5	27.7	22.1

Table 31. Summary of reaction of entries in the Virginia Tech State Wheat Test to Fusarium head blight (scab) and glume blotch resistance, 2016 harvest.

Line	FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)	
VA12W-22	90.0		24.9		22.5	
Progeny 357	90.0		25.1		22.6	
VA12FHB-8	82.5		27.4		22.6	
VA14W-6	90.0		24.9		22.7	
VA12W-248	80.0		28.5		22.8	
VA11W-279	90.0		25.5		22.9	
VA07MAS4-7463-6-2-2-2	80.0		29.0		23.1	
VA07MAS3-7304-3-1-2-3	87.5		26.1		23.2	
DH11SRW070-28	87.5		26.8		23.5	
SS 8360	90.0		26.6		23.7	
AgriMAXX 446	87.5		27.2		23.8	
Pioneer Brand 26R53	77.5		30.6		23.9	
MBX 16-A-206	87.5		26.9		24.0	
MAS 46	85.0		28.4		24.1	
VA10W-96	77.5		30.9		24.2	
Pioneer Brand 26R59	87.5		27.6		24.2	
Featherstone VA258	95.0		26.0		24.7	
MBX 11-V-258	97.5		25.4		24.9	
VA07MAS4-7417-1-3-3	82.5		30.5		25.4	
AR01040-4-1	90.0		29.0		25.9	
VA07MAS4-7416-5-4-2	82.5		32.1		26.3	
Pioneer Brand 26R20	90.0		30.0		26.9	
LCS 3677	82.5		34.0		26.9	
Pioneer Brand 26R41	95.0		28.6		27.0	
MBX 14-K-297	87.5		30.9		27.0	
VA07MAS14-9260-8-2-2	100.0	+	27.1		27.1	
Dyna-Gro 9223	87.5		31.1		27.2	
Shirley	97.5		29.4		28.6	
USG 3895	92.5		31.0		28.7	
GA-03564-12E6	87.5		33.5		29.3	
AgriMAXX Exp 1674	90.0		32.6		29.5	
VA09MAS7-61-2-1	75.0		39.6	+	30.2	
NC11-22289	70.0		43.0	+	30.3	
DH11SRW070-14	92.5		34.0		31.8	+
VA10W-119	92.5		35.8		33.2	+
SS 8513	90.0		37.2	+	33.8	+
VA07MAS4-7463-6-2-2-4	92.5		36.6	+	33.8	+
MAS 65	95.0		37.4	+	35.3	+
VA09MAS1-12-8-4	90.0		40.2	+	36.2	+
TN1102	92.5		41.4	+	38.2	+
VA14W-59	87.5		44.7	+	39.1	+

Table 31. Summary of reaction of entries in the Virginia Tech State Wheat Test to Fusarium head blight (scab) and glume blotch resistance, 2016 harvest.

Line	FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)	
VA07MAS3-7304-3-2-4-3	100.0	+	39.5	+	39.5	+
PGX 15-14	95.0		42.4	+	40.4	+
SS 8415	97.5		43.3	+	42.2	+
VA10W-21BSR124	80.0		53.8	+	42.8	+
VA14W-29	92.5		49.8	+	46.2	+
GA061349-13LE29	97.5		49.7	+	48.6	+
GA051102-13LE43	95.0		54.1	+	50.9	+
ARGA04510-11LE24	100.0	+	53.7	+	53.7	+
GA061349-13LE31	95.0		60.1	+	57.1	+
GA-04434-12LE28	95.0		65.6	+	62.3	+
Average	81.5		25.2		21.2	
LSD (0.05)	17.1		11.0		10.1	
C.V.	10.6		22.0		24.0	

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 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 32. Two-year average summary of reaction of entries in the Virginia Tech State Wheat Tests to Fusarium head blight (scab) and glume blotch resistance, 2014 and 2016 harvests.

Line	FHB Incidence[1] (%)		FHB Severity[2] (%)		FHB Index[3] (0-100)	
MAS 32	66.3		11.9	-	8.1	
Massey	53.8		15.7		8.3	
MAS 35	61.3		15.1		8.7	
Pioneer Brand 25R32	60.0		15.2		8.9	
MBX 14-S-210	51.3		20.0		9.7	
Jamestown	57.5		15.9		9.8	
SS 8340	42.5	-	28.9		10.4	
USG 3201	50.0		18.4		10.6	
VA11W-313	52.8		16.8		10.9	
VA12W-72	60.0		25.1		11.0	
Progeny 870	58.0		17.4		11.1	
SY 007	50.0		21.9		11.2	
Hilliard	57.5		18.6		11.4	
USG 3523	61.3		17.1		11.8	
AgriMAXX 415	51.3		21.2		12.0	
MAS 6	61.3		22.1		13.0	
USG 3612	63.8		18.1		13.1	
MAS 7	50.0		35.6		13.4	
Featherstone 73	61.3		25.6		14.2	
AgriMAXX 446	62.5		19.5		14.2	
SS 8360	58.8		21.5		14.4	
VA11W-106	61.3		22.1		14.8	
USG 3404	67.5		24.2		14.9	
Pioneer Brand 26R53	50.0		28.7		15.1	
VA10W-96	57.5		24.0		15.4	
MAS 23	71.3		22.7		16.2	
Pioneer Brand 26R10	66.3		28.1		17.8	
AgriMAXX 444	56.3		37.3		17.9	
USG 3251	63.8		31.2		18.0	
VA11W-279	68.8		29.5		18.9	
MBX 14-K-297	70.0		25.8		19.3	
SS 8513	58.8		28.9		19.6	
Dyna-Gro 9223	66.3		30.3		20.5	
AgriMAXX 462	75.0		27.3		21.9	
VA10W-119	68.8		28.2		22.0	
Progeny 357	83.8	+	32.4		26.7	
MBX 11-V-258	87.5	+	35.2		29.8	+
Pioneer Brand 26R20	75.0		45.2	+	31.6	+
Featherstone VA258	87.5	+	41.4	+	36.6	+
Shirley	92.5	+	43.8	+	41.1	+

Table 32. Two-year average summary of reaction of entries in the Virginia Tech State Wheat Tests to Fusarium head blight (scab) and glume blotch resistance, 2014 and 2016 harvests.

Line	FHB Incidence[1] (%)	FHB Severity[2] (%)	FHB Index[3] (0-100)
SS 8415	77.5	60.0 +	43.2 +
Average	63.3	26.0	17.0
LSD (0.05)	17.0	13.9	11.6
C.V.	19.0	37.9	48.6

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 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.