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.