



## Specialty Small Grains in 2022

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The following tables present results from barley and wheat varietal tests conducted in Virginia in 2020-2022. Small grain cultivar performance tests are conducted each year in Virginia by the Virginia Tech School of Plant and 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 experiment location.

## **The Season – 2022**

Warm and dry conditions prevailed in the first two weeks of October, 2021, for most of the Commonwealth. By October 24, 44% of intended small grain acres were planted, equal to the 5-year average. By mid-November, 94 and 79% of barley and wheat acres, respectively were planted. Some areas of the state were reported to be abnormally dry, but 74% of wheat acres were considered to be in good or excellent condition. Dry conditions persisted into December in many areas resulting in later planted fields showing delayed emergence (Figure 1). January and February were generally cold with rain and snow amounts of three to six inches in most places, yet abnormally dry conditions persisted over much of the state. March brought rain and warmer temperatures, however due to the stressful winter, only 39% of the wheat crop was rated good or excellent. Temperatures and rainfall were near normal in April, with 86% of respondents reporting adequate soil moisture. On April 18, 43% of the wheat crop was good or excellent with 7% headed. Thirty-eight percent of wheat acres had headed by the end of April, compared to 63% the previous year and 51% for the five-year average. Sunny, dry conditions helped the crop mature, however, and by May 15, 89% of wheat had headed, compared with 78% in 2021. By the end of May, 11% of barley was harvested, reflecting the same rate as the previous five years. On June 5, 66% of the wheat crop was good or excellent, with 8% of acres harvested. Forty-five percent of wheat and 25% of barley was harvested by June 12.

The USDA-NASS expects an average of 64.0 bu/ac on 150,000 acres wheat harvested for grain resulting in total production of 10.9 million bu. The 2022 harvest was expected to be 35% larger than 2021. Barley harvest in the commonwealth is up 63% from last year with an expected 11,000 acres of grain to be harvested for a total of 858,000 bushels for 2022.

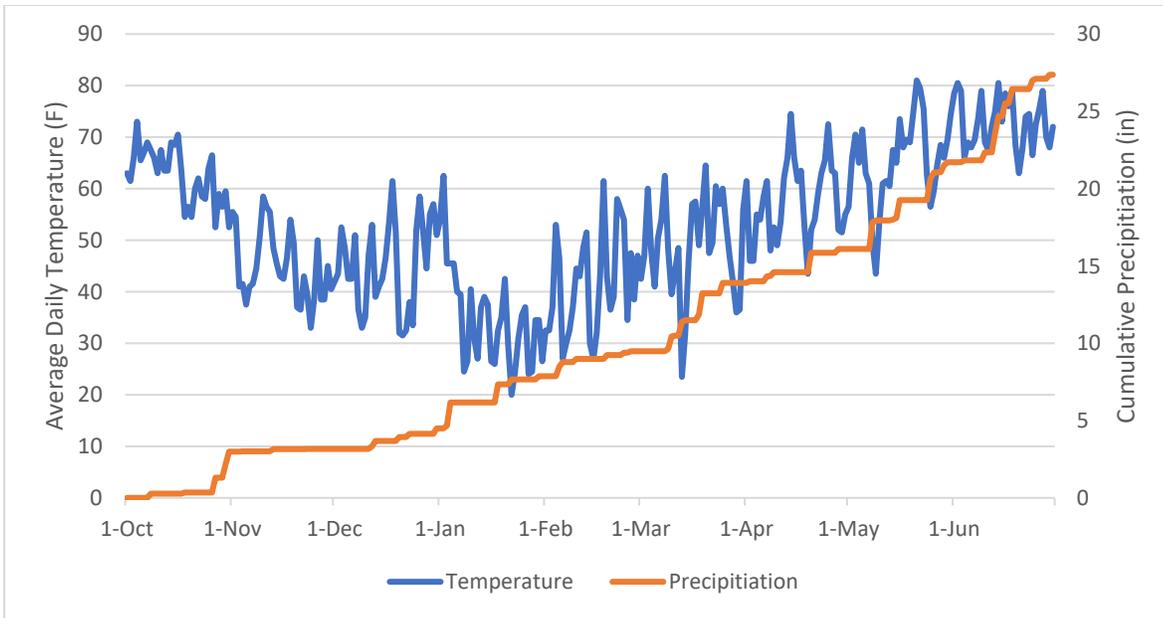


Figure 1. 2021-2022 daily average temperature and cumulative growing season precipitation for Virginia.

## Wheat Management Practices

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

**Blacksburg** - Planted October 14, 2021. Pre-plant fertilizer was 30-55-180-10(S). Site was sprayed with 1 oz. Harmony Extra SG® and fertilized with 25 units N using 30% UAN on March 15, 2022. Fifty units N using 30% UAN was applied on April 14, 2022. Site received 1 qt of Smart KB® on April 15, 2022. Harvest occurred June 27, 2022.

**Blackstone** - Planted October 15, 2021. Pre-plant fertilizer was 500 lb 6-6-28 on October 13, 2021. Site received 60 lb. N using UAN + 0.5 oz. Harmony Extra XP® February 11, 2022. Site received 60 lb. N using UAN + 4 oz. Mustang® Maxx on March 28, 2022. Harvest occurred June 23, 2022.

**Warsaw** - Planted November 7, 2021. Lime was applied at 1.2 ton on October 21, 2021. Pre-plant fertilizer was 30-60-60-12 applied October 20, 2021. The site was fertilized using 12-0-0-1.5 at 25 lb. on December 14, 2021 and again on February 15, 2022. Quelex® at 0.75 oz. + surfactant was applied February 16, 2021. Site was fertilized using 24003 at 60 lb. on March 22, 2021. Site received 1-quart Boron and 1-quart Copper on April 2, 2022. Harvest occurred June 17, 2022.

**Painter** - Planted October 22-23, 2021. Pre-plant fertilizer was 60 lb. N using 30% UAN on October 21, 2021. Application of .75 oz. Harmony + 80 lb. N using 30% UAN April 14, 2022. Harvest occurred June 21, 2022.

## Barley Management Practices

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

**Blacksburg** - Planted October 14, 2021. Pre-plant fertilizer was 30-55-180-10(S). Site was sprayed with 1 oz. Harmony Extra SG® and fertilized with 25 units N using 30% UAN on March 15, 2022. Harvest occurred June 10, 2022.

**Blackstone** - Planted October 15, 2021. Pre-plant fertilizer was 500 lb 6-6-28 on October 13, 2021. Site received 60 lb. N using UAN + 0.5 oz. Harmony Extra XP® February 11, 2022. Site received 60 lb. N using UAN + 4 oz. Mustang® Maxx on March 28, 2022. Harvest occurred June 7, 2022.

**Warsaw** - Planted November 8, 2021. Lime was applied at 1.2 ton on October 21, 2021. Pre-plant fertilizer was 30-60-60-12 applied October 20, 2021. The site was fertilized using 12-0-0-1.5 at 25 lb. on December 14, 2021 and again on February 15, 2022. Quelex® at 0.75 oz. + surfactant was applied February 16, 2021. Site was fertilized using 24003 at 45 lb. on March 21, 2021. Site received 1-quart Boron and 1-quart Copper on April 2, 2022. Harvest occurred June 6, 2022.

# Section 1: Hard Red Winter Wheat Varieties in Virginia

## Agronomic Performance

This study has been conducted in Blacksburg, Warsaw, and Painter, Virginia for several years. An additional test site, Blackstone, Virginia, has been added since 2019. Three replications were planted in Blacksburg, Warsaw, and Blackstone. Two replications were planted in Painter.

The over-location agronomic performance data for the 2022 harvest season is presented in Table 1 and test results from individual locations in 2022 are presented in Tables 4 - 7. The two-year (2021 and 2022) and three-year (2020, 2021, and 2022) average test results are presented in Table 2 and Table 3, respectively. Fusarium head blight (scab) nursery test results in Mt. Holly, VA are presented in Table 8.

Based on the average performance of four locations (Table 1), the grain yields of 7 hard red winter (HRW) wheat experimental lines and 2 soft wheat checks (Shirley, Hilliard, and Liberty 5658) are significantly higher than the test average (70.8 bushels/a) and Vision 45 (73.2 bushels/a). Of the 7 high-yielding HRW wheat experimental lines, 3 lines (DH18HRW-138-56, VA19HRW-26, and VA18HRW-98) have overall quality comparable to Vision 45 basing on 2021 quality test results. According to the 2021 and 2022 two-year summary (Table 2), the grain yield of two soft wheat checks (Shirley, Hilliard, and Liberty 5658) and six HRW wheat experimental lines were significantly higher than the test mean (76.9 bushels/a). Of the six high-yielding HRW lines, three lines (VA18HRW-57, VA18HRW-58, and VA18HRW-98) have the acceptable quality comparable to Vision 45. Based on the three-year average performance (2020, 2021, and 2022), the grain yield of 7 HRW lines (including HR 5210) and three soft wheat checks (Shirley and Hilliard) were significantly higher than the test average (82.1 bushels/a). Of the 6 HRW experimental lines, two lines (VA18HRW-57, and VA18HRW-58) have the acceptable quality comparable to Vision 45. Most of our experimental lines also have good resistance to powdery mildew and scab.

## Grain, Milling and Baking Quality

Every year, grain samples from the Warsaw test location were sent to the USDA Hard Winter Wheat Quality Lab in Manhattan, KS for grain, flour, and milling and baking quality analyses. The seeds from the Blacksburg and Warsaw seed test locations were sent for quality testing in 2021. Parts of the milling quality results from 2021 are presented in Table 9. The two quality check varieties are Jagger and Karl 92. The flour yield check variety is Soissons. Generally speaking, the quality of the HRW wheats grown in Virginia is similar to our quality checks, but not comparable to hard red spring wheat grown in the Northern Plains or hard red winter wheat grown in the Great Plains due to rain and other environmental conditions in the Mid-Atlantic region.

Table 1. Summary of performance of entries in the Virginia Tech Hard Red Winter Wheat Test over locations, 2022 harvest.

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)
	(4)	(4)	(1)	(2)	(2)	(2)
DH18HRW-138-56	82.3 +	58.9	115 -	35.5	0.0	0.5 -
VA20HRW-39	80.5 +	58.2	121 +	40.5 +	0.1	1.0
VA18HRW-96	80.3 +	58.6	121 +	38.2 +	0.0	1.0
VA19HRW-26	79.3 +	58.9	119	38.7 +	0.0	1.0
<b>HILLIARD</b>	79.1 +	58.2	116 -	35.5	0.0	2.5
<b>SHIRLEY</b>	78.9 +	57.0 -	118	34.7	0.0	0.0 -
VA18HRW-98	78.3 +	58.2	117 -	37.5	0.6 +	3.0
VA20HRW-38	77.7 +	58.3	120	40.8 +	0.3	2.5
VA20HRW-80	77.6 +	58.9	117 -	36.8	0.1	0.0 -
VA18HRW-57	76.7	58.0	122 +	36.5	0.0	3.5 +
14VDH-HRW02-029	76.6	58.7	117 -	34.0 -	0.1	1.0
DH16HRW-72-134	76.4	59.7 +	116 -	34.0 -	0.0	2.0
17VDH-HRW12-169	76.2	60.0 +	116 -	32.5 -	0.0	0.0 -
VA20HRW-70	75.8	60.1 +	122 +	38.2 +	0.0	1.0
VA18HRW-58	75.7	59.5 +	122 +	37.3	0.0	2.0
VA20HRW-43	75.6	57.7	121 +	39.3 +	0.1	1.0
VA17HRW-43	75.6	58.8	117 -	34.0 -	0.0	1.0
VA20HRW-50	75.6	58.9	119	41.5 +	0.5 +	0.5 -
VA18HRW-51	74.7	59.2 +	122 +	36.7	0.0	2.0
VA19HRW-151	74.7	57.2 -	116 -	34.3 -	0.0	2.0
VA20HRW-46	74.5	57.6	120	39.8 +	0.1	0.5 -
MAS1417-117-5-3-4	74.4	57.5	119	39.5 +	0.3	1.0
VA19HRW-12	74.2	59.8 +	123 +	36.7	0.0	3.0
<b>Hardy 2519</b>	74.0	60.3 +	115 -	36.2	0.0	3.5 +
15VDH-HRW19-018	73.7	59.3 +	122 +	38.3 +	0.0	2.5
14VDH-HRW01-019	73.4	58.7	121 +	39.7 +	0.0	3.0
<b>VISION 45</b>	73.2	58.7	122 +	40.8 +	0.1	0.5 -
VA20HRW-10	73.1	58.3	124 +	40.3 +	0.0	2.0

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)
	(4)	(4)	(1)	(2)	(2)	(2)
VA20HRW-45	73.1	58.6	120	40.2 +	0.1	0.0 -
VA19HRW-17	72.8	58.4	122 +	37.0	0.0	1.0
VA19HRW-64	72.6	59.3 +	117 -	34.2 -	0.0	0.0 -
<b>VISION 30</b>	72.4	58.7	115 -	36.3	0.1	0.5 -
<b>Liberty 5658</b>	72.3	58.9	116 -	36.3	0.0	3.5 +
VA19HRW-59	72.3	59.4 +	117 -	40.3 +	0.5 +	4.0 +
VA19HRW-77	72.3	58.6	119	36.5	0.2	2.5
VA20HRW-4	72.0	59.1 +	122 +	37.5	0.1	2.0
VA19HRW-47	71.7	59.4 +	117 -	38.7 +	0.0	2.0
VA20HRW-54	71.6	59.0 +	120	40.3 +	0.0	2.5
VA20HRW-73	71.3	57.5	118	36.5	0.0	0.0 -
VA16HRW-22	71.3	60.2 +	117 -	35.2	0.0	2.5
VA20HRW-57	71.2	58.2	119	39.0 +	0.1	2.0
NVIR17-1	71.2	59.2 +	117 -	33.8 -	0.1	4.0 +
DH13HRW07-30	71.1	59.1 +	118	36.5	0.0	2.5
VA19HRW-33	71.1	58.1	122 +	38.5 +	0.0	2.0
NVIR17-8	70.8	56.4 -	119	30.8 -	0.0	1.5
VA13MAS14-1992-3-4	70.5	58.2	115 -	33.8 -	0.0	1.5
17VDH-HRW11-189	70.1	57.3	115 -	37.5	0.0	2.0
16VDH-HRW14-008	70.0	57.4	116 -	30.5 -	0.0	1.5
14VDH-HRW02-105	69.9	58.0	117 -	34.0 -	0.1	3.0
VA19HRW-11	69.4	57.6	121 +	37.8	0.0	1.5
VA19HRW-31	69.3	58.0	117 -	39.0 +	0.2	4.0 +
VA19HRW-149	69.1	57.2 -	116 -	31.8 -	0.0	3.0
VA20HRW-88	68.7	57.5	117 -	33.2 -	0.1	3.0
VA19HRW-53	68.5	58.0	122 +	33.2 -	0.0	3.5 +
VA20HRW-16	68.4	58.6	122 +	37.5	0.0	3.0
VA20HRW-89	68.3	56.8 -	120	33.5 -	0.0	2.5
VA19HRW-147	68.3	57.7	118	37.7	0.0	0.5 -
15VDH-HRW15-062	68.2	57.4	121 +	31.0 -	0.0	2.0

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)
	(4)	(4)	(1)	(2)	(2)	(2)
VA20HRW-6	68.1	55.9 -	122 +	36.5	0.0	2.5
VA20HRW-102	68.1	57.4	119	37.3	0.2	1.0
VA09HRW-43	68.1	55.9 -	115 -	35.2	0.2	2.0
VA20HRW-7	68.0	57.1 -	121 +	34.8	0.0	2.0
<b>HR 5210</b>	68.0	55.4 -	120	32.2 -	0.0	2.0
VA20HRW-48	67.7	56.8 -	122 +	39.3 +	0.0	0.5 -
VA20HRW-84	66.9	56.9 -	123 +	36.2	0.0	3.5 +
VA20HRW-3	66.2	59.0 +	122 +	33.8 -	0.0	3.0
VA20HRW-44	66.1	58.4	122 +	37.0	0.0	3.5 +
VA19HRW-35	65.8	57.6	122 +	36.8	0.0	2.5
17VDH-HRW11-211	64.7	56.7 -	122 +	37.7	0.7 +	3.5 +
<b>Vision 50</b>	64.4	58.3	115 -	34.0 -	0.0	4.0 +
VA20HRW-53	63.0 -	57.1 -	122 +	38.0	0.0	2.0
VA20HRW-67	62.7 -	58.2	118	35.0	0.0	3.5 +
VA20HRW-23	59.2 -	55.1 -	117 -	36.0	0.0	2.5
<b>SOISSONS</b>	58.4 -	55.4 -	120	33.3 -	0.0	2.5
VA20HRW-40	57.9 -	58.2	122 +	35.8	0.0	5.0 +
<b>Everest</b>	56.0 -	58.7	112 -	33.5 -	0.2	3.0
<b>KARL 92</b>	53.1 -	57.9	115 -	33.0 -	0.2	5.5 +
<b>JAGGER</b>	52.1 -	57.8	114 -	33.8 -	0.3	6.0 +
Average	70.8	58.1	119	36.4	0.1	2.1
LSD (0.05)	6.7	0.9	1	1.7	0.4	1.3
C.V.	10.9	1.8	1	4.1	---	---

Note: The number in parentheses below column headings indicates the number of locations on which data are based. Released cultivars are shown in bold print.

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

Note: 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 summary of performance of entries in the Virginia Tech Hard Red Winter Wheat Test over location, 2021 and 2022 harvests.

Wheat Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)		Powdery Mildew (0-9)		BYDV (0-9)	
	(8)		(8)		(4)		(4)		(4)		(3)		(1)	
VA18HRW-98	84.8	+	58.6	-	122		37.1	+	0.3		1.6		1.0	
14VDH-HRW02-029	84.2	+	59.5		123		33.9	-	0.0		0.4		1.3	
<b>HILLIARD</b>	84.1	+	59.1		121	-	35.1		0.0		1.0		1.0	
VA18HRW-57	82.4	+	59.1		126	+	36.3		0.3		1.8	+	1.0	
<b>SHIRLEY</b>	81.8	+	57.8	-	122		33.8	-	0.0		0.0		1.0	
VA19HRW-12	81.2	+	60.1	+	126	+	36.2		0.0		1.2		1.0	
VA18HRW-58	81.0	+	60.0	+	126	+	37.8	+	0.0		0.8		1.0	
VA19HRW-151	80.9	+	58.3	-	122		34.0	-	0.0		1.0		1.0	
<b>Liberty 5658</b>	80.8	+	59.8	+	121	-	36.2		0.0		1.4		1.0	
VA18HRW-96	80.7		58.7		125	+	37.3	+	0.0		0.4		1.0	
VA18HRW-51	80.3		59.7	+	126	+	36.8	+	0.3		0.8		1.0	
DH16HRW-72-134	79.9		60.1	+	122		34.1	-	0.0		0.8		1.0	
15VDH-HRW19-018	79.5		60.1	+	126	+	38.3	+	0.0		1.0		1.0	
VA19HRW-26	79.4		59.3		124		38.9	+	0.3		0.4		1.0	
MAS1417-117-5-3-4	79.2		58.7		124		39.8	+	0.4		0.4		1.0	
NVIR17-8	79.0		58.0	-	123		31.2	-	0.0		0.6		1.0	
<b>Hardy 2519</b>	79.0		60.6	+	121	-	36.2		0.2		1.6		1.0	
14VDH-HRW02-105	78.9		59.3		123		33.6	-	0.0		1.2		1.3	
<b>HR 5210</b>	78.6		57.0	-	124		31.6	-	0.0		0.8		1.0	
VA19HRW-33	78.6		59.0		126	+	38.0	+	0.0		0.8		1.3	
VA19HRW-17	78.6		59.0		125	+	35.7		0.0		0.4		1.0	
VA19HRW-59	78.4		60.3	+	123		41.5	+	1.1	+	1.6		1.0	
VA19HRW-11	78.3		58.7		124		37.4	+	0.0		0.6		1.0	
VA19HRW-47	78.1		60.2	+	123		39.0	+	0.0		0.8		2.0	+
17VDH-HRW12-169	78.1		60.5	+	122		31.6	-	0.0		0.0		1.0	
VA19HRW-149	77.4		58.2	-	122		32.3	-	0.0		1.2		1.3	

Wheat Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)	BYDV (0-9)
	(8)	(8)	(4)	(4)	(4)	(3)	(1)
VA19HRW-77	77.2	59.4	124	36.7	0.1	1.0	1.0
VA19HRW-64	76.9	60.1 +	122	33.9 -	0.1	0.0	1.0
14VDH-HRW01-019	76.7	59.6	125 +	38.8 +	0.0	1.2	1.0
VA19HRW-31	76.4	58.9	122	38.6 +	0.1	1.6	1.0
VA17HRW-43	76.4	59.6	123	33.8 -	0.0	0.4	1.0
VA16HRW-22	76.3	60.8 +	122	35.3	0.0	1.0	1.0
<b>VISION 45</b>	76.2	59.4	126 +	41.0 +	0.0	0.2	1.0
NVIR17-1	76.0	59.6	120 -	33.9 -	0.0	1.6	1.0
VA19HRW-53	75.5	59.1	125 +	32.9 -	0.0	1.4	1.0
15VDH-HRW15-062	75.1	58.4 -	125 +	31.0 -	0.0	0.8	1.0
16VDH-HRW14-008	74.0	58.0 -	121 -	30.1 -	0.0	0.6	1.0
<b>VISION 30</b>	74.0	59.4	121 -	35.9	0.1	0.2	1.0
VA09HRW-43	73.9	57.1 -	121 -	35.1	0.4	0.8	1.0
VA13MAS14-1992-3-4	73.4	58.7	121 -	33.9 -	0.0	0.6	1.0
VA19HRW-147	72.9 -	58.5 -	124	37.7 +	0.0	0.2	1.0
DH13HRW07-30	72.8 -	59.2	123	36.7	0.0	1.0	1.3
VA19HRW-35	72.0 -	58.6 -	126 +	36.6	0.0	1.0	1.7 +
<b>SOISSONS</b>	69.0 -	56.7 -	124	33.5 -	0.1	1.0	1.0
<b>Vision 50</b>	68.5 -	58.9	122	34.2 -	0.0	1.6	1.7 +
<b>Everest</b>	66.7 -	59.8 +	118 -	33.4 -	0.3	1.2	1.0
<b>KARL 92</b>	64.6 -	59.2	120 -	33.4 -	0.2	4.4 +	1.0
JAGGER	64.0 -	59.4	119 -	34.2 -	0.3	4.6 +	1.0
Average	76.9	59.1	123	35.5	0.1	1.0	1.1
LSD (0.05)	3.9	0.5	1	1.2	0.4	0.6	0.5
C.V.	8.3	1.3	1	3.9	---	---	---

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

Note: Released cultivars are shown in bold print.

Note: Varieties are ordered by descending yield averages.

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

Note: 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 summary of performance of entries in the Virginia Tech Hard Red Winter Wheat Test over locations, 2020-2022 harvests.

Wheat Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)	BYDV (0-9)
	(12)	(12)	(6)	(6)	(4)	(4)	(2)
<b>HILLIARD</b>	90.9 +	59.2	118 -	36.3	0.1	0.6	1.2 -
<b>SHIRLEY</b>	89.7 +	58.1 -	121	34.1 -	0.1	0.0 -	2.3
VA18HRW-57	89.3 +	59.4	125 +	37.3 +	0.4	2.0 +	1.5
VA18HRW-96	88.7 +	59.1	123 +	37.5 +	0.1	0.3 -	1.7
VA18HRW-98	88.4 +	58.9	121	37.2 +	0.6	1.7 +	2.2
VA18HRW-58	88.2 +	60.4 +	125 +	38.0 +	0.2	0.7	1.8
14VDH-HRW02-029	88.1 +	59.7 +	122	34.7	0.3	0.4 -	2.3
<b>Liberty 5658</b>	87.5 +	59.9 +	119 -	36.8 +	0.1	1.1	2.3
VA18HRW-51	86.8 +	60.0 +	125 +	37.9 +	0.6	0.5 -	1.8
NVIR17-8	86.7 +	58.4 -	122	31.9 -	0.0	0.7	1.7
<b>HR 5210</b>	86.2 +	57.5 -	123 +	32.3 -	0.1	0.4 -	1.7
15VDH-HRW19-018	85.3	60.4 +	124 +	39.1 +	0.9 +	0.9	1.5
DH16HRW-72-134	84.0	59.9 +	120	35.1	0.1	1.0	2.7
14VDH-HRW02-105	83.9	59.7 +	121	34.6	0.6	1.3	1.8
NVIR17-1	83.3	59.6	119 -	35.2	0.3	1.9 +	1.3 -
14VDH-HRW01-019	82.7	59.7 +	123 +	39.2 +	0.7	1.3	1.5
<b>Hardy 2519</b>	81.8	60.1 +	118 -	37.2 +	0.4	1.6	2.8
<b>VISION 45</b>	81.5	59.7 +	125 +	41.3 +	0.1	0.4 -	2.5
15VDH-HRW15-062	81.3	58.7 -	123 +	32.3 -	0.3	0.8	2.0
VA17HRW-43	81.1	59.6	121	35.2	0.1	0.3 -	2.8
VA09HRW-43	80.9	57.2 -	119 -	35.2	0.8	0.5 -	2.0
VA16HRW-22	79.5	60.7 +	120	36.5	0.3	1.0	3.8 +
16VDH-HRW14-008	78.4 -	58.3 -	120	30.1 -	0.0	0.3 -	2.5
VA13MAS14-1992-3-4	78.2 -	58.2 -	118 -	34.6	0.1	0.3 -	2.5
DH13HRW07-30	78.1 -	59.3	122	36.7 +	0.0	0.8	2.0
<b>VISION 30</b>	77.0 -	59.3	118 -	36.0	0.4	0.1 -	3.3 +
<b>Vision 50</b>	75.5 -	59.0	120	34.3 -	0.3	2.1 +	2.5
<b>SOISSONS</b>	75.0 -	57.3 -	123 +	34.1 -	0.1	1.0	2.2

Wheat Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)	BYDV (0-9)
	(12)	(12)	(6)	(6)	(4)	(4)	(2)
<b>Everest</b>	70.8 -	59.8 +	115 -	34.4 -	0.3	1.2	3.2 +
<b>JAGGER</b>	68.8 -	59.5	116 -	35.1	0.6	5.1 +	1.5
<b>KARL 92</b>	67.5 -	59.1	117 -	34.2 -	0.5	3.9 +	2.8
Average	82.1	59.2	121	35.6	0.3	1.1	2.2
LSD (0.05)	3.4	0.4	1	1.0	0.5	0.5	0.8
C.V.	8.4	1.3	1	4.0	---	---	---

Note: The number in parentheses below column headings indicates the number of location-years on which data are based. Released cultivars are shown in bold print.

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

Note: 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 Hard Red Winter Wheat Test at Blacksburg, 2022 harvest.

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Mature Height (In)	Plant Lodging (0-9)
VA18HRW-98	110.5 +	59.6	39.3	1.0 +
DH18HRW-138-56	106.3 +	58.3	36.3	0.0
HILLIARD	102.6 +	58.0	37.0	0.0
VA18HRW-51	101.7 +	59.6	38.7	0.0
VA20HRW-39	101.3 +	58.8	42.0 +	0.0
VA20HRW-43	100.5 +	57.8	40.3	0.0
VA20HRW-38	99.7 +	59.0	43.0 +	0.3
VA20HRW-45	99.4 +	59.4	41.3 +	0.0
VA19HRW-12	99.3 +	60.9 +	37.7	0.0
Hardy 2519	98.0 +	60.4 +	38.3	0.0
DH16HRW-72-134	97.9 +	60.7 +	36.0	0.0
VA19HRW-47	97.8 +	60.7 +	39.7	0.0
SHIRLEY	97.6	56.5 -	36.3	0.0
NVIR17-1	97.5	59.7	35.0	0.0
VA19HRW-151	97.2	57.1	35.0	0.0
VA16HRW-22	97.0	60.7 +	37.0	0.0
Liberty 5658	96.4	58.8	38.0	0.0
VA18HRW-96	96.4	59.3	39.0	0.0
VA19HRW-26	96.2	58.9	41.0 +	0.0
DH13HRW07-30	95.4	59.8	37.0	0.0
VA17HRW-43	95.0	59.2	34.0 -	0.0
VA20HRW-89	94.9	58.0	34.7 -	0.0
17VDH-HRW12-169	94.8	60.0	33.7 -	0.0
VA18HRW-58	94.2	60.3 +	38.7	0.0
VA19HRW-31	93.9	58.7	41.0 +	0.0
VA20HRW-50	93.8	59.6	44.3 +	0.0
VA20HRW-10	93.5	58.9	40.3	0.0
VA20HRW-57	93.2	58.4	42.0 +	0.0
VA20HRW-54	92.9	58.0	41.3 +	0.0

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Mature Height (In)	Plant Lodging (0-9)
VA18HRW-57	92.7	58.4	38.3	0.0
VA19HRW-59	92.6	60.3 +	41.7 +	1.0 +
14VDH-HRW01-019	92.5	58.4	42.0 +	0.0
VA19HRW-17	92.5	59.0	38.3	0.0
VISION 45	92.3	59.1	42.3 +	0.0
14VDH-HRW02-029	91.8	58.2	35.3	0.0
VA20HRW-16	91.6	59.2	39.0	0.0
17VDH-HRW11-189	91.6	57.5	38.0	0.0
16VDH-HRW14-008	91.5	57.6	31.3 -	0.0
15VDH-HRW19-018	91.4	59.1	40.3	0.0
VA20HRW-70	91.1	60.4 +	39.3	0.0
VA19HRW-77	91.0	58.4	38.3	0.0
VA20HRW-88	90.6	58.3	35.0	0.0
VA20HRW-84	90.6	57.7	38.0	0.0
VA20HRW-80	90.4	58.4	37.0	0.0
VA20HRW-6	89.9	56.9	38.3	0.0
14VDH-HRW02-105	89.7	58.5	35.0	0.0
VA20HRW-44	89.6	58.6	38.7	0.0
VA19HRW-53	89.0	57.7	33.7 -	0.0
VA13MAS14-1992-3-4	88.8	58.0	34.3 -	0.0
MAS1417-117-5-3-4	88.6	58.0	40.3	0.3
VA19HRW-11	88.4	57.4	40.3	0.0
VA20HRW-4	88.3	58.7	38.7	0.0
VA20HRW-46	88.0	57.6	40.3	0.0
VA20HRW-48	87.9	56.0 -	40.0	0.0
VA09HRW-43	87.6	57.1	36.7	0.0
VA19HRW-149	87.1	57.4	32.0 -	0.0
VA19HRW-147	87.0	57.7	40.0	0.0
VA20HRW-102	86.7	57.0	38.7	0.0
NVIR17-8	86.4	56.3 -	31.3 -	0.0
VA19HRW-33	86.3	58.4	40.3	0.0

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Mature Height (In)	Plant Lodging (0-9)
VA19HRW-64	85.8	59.5	35.7	0.0
<b>Vision 50</b>	85.5	59.0	35.0	0.0
VA20HRW-67	85.1	59.1	36.7	0.0
<b>VISION 30</b>	84.7	58.4	37.3	0.0
17VDH-HRW11-211	84.1	57.4	40.3	1.3 +
VA19HRW-35	83.9 -	58.0	37.3	0.0
Everest	83.8 -	58.5	35.0	0.0
VA20HRW-40	82.7 -	59.0	37.7	0.0
VA20HRW-7	82.3 -	57.7	35.7	0.0
15VDH-HRW15-062	80.1 -	57.1	30.7 -	0.0
VA20HRW-73	79.2 -	57.3	37.3	0.0
VA20HRW-3	79.1 -	58.5	34.0 -	0.0
VA20HRW-23	79.1 -	55.7 -	37.3	0.0
<b>JAGGER</b>	79.1 -	57.6	35.0	0.0
HR 5210	79.0 -	56.4 -	32.7 -	0.0
<b>KARL 92</b>	79.0 -	57.6	35.0	0.0
VA20HRW-53	76.2 -	55.8 -	39.0	0.0
<b>SOISSONS</b>	74.6 -	56.2 -	35.0	0.0
Average	90.8	58.4	37.7	0
LSD (0.05)	6.8	1.7	2.9	1
C.V.	10.0	1.6	4.8	---

Note: Released cultivars are shown in bold print.

Note: Varieties are ordered by descending yield averages.

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

Note: 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 Hard Red Winter Wheat Test at Warsaw, 2022 harvest.

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)
VA20HRW-73	109.9 +	60.6 +	118	35.7	0.0	0.0 -
VA20HRW-80	103.8 +	60.7 +	117 -	36.7 +	0.2	0.0 -
VA18HRW-96	101.4 +	60.4 +	121 +	37.3 +	0.0	1.0
VA20HRW-39	101.4 +	60.4 +	121 +	39.0 +	0.2	1.0
DH18HRW-138-56	100.8 +	60.1	115 -	34.7	0.0	0.5 -
14VDH-HRW02-029	99.5 +	59.8	117 -	32.7 -	0.2	1.0
<b>SHIRLEY</b>	98.5 +	58.6 -	118	33.0 -	0.0	0.0 -
VA09HRW-43	97.4 +	57.5 -	115 -	33.7	0.3	2.0
VA20HRW-46	97.0 +	59.5	120	39.3 +	0.2	0.5 -
VA19HRW-64	95.6 +	60.8 +	117 -	32.7 -	0.0	0.0 -
MAS1417-117-5-3-4	95.0	60.0	119	38.7 +	0.2	1.0
<b>HILLIARD</b>	94.7	59.0	116 -	34.0	0.0	2.5
<b>VISION 30</b>	94.5	59.9	115 -	35.3	0.2	0.5 -
17VDH-HRW12-169	93.9	61.6 +	116 -	31.3 -	0.0	0.0 -
VA20HRW-38	93.9	59.9	120	38.7 +	0.2	2.5
VA13MAS14-1992-3-4	93.5	59.6	115 -	33.3 -	0.0	1.5
VA19HRW-26	93.4	60.5 +	119	36.3	0.0	1.0
VA20HRW-70	92.9	61.8 +	122 +	37.0 +	0.0	1.0
VA18HRW-58	92.5	61.5 +	122 +	36.0	0.0	2.0
VA20HRW-50	92.1	60.1	119	38.7 +	1.0 +	0.5 -
VA20HRW-48	91.2	58.9	122 +	38.7 +	0.0	0.5 -
VA18HRW-98	90.9	59.0	117 -	35.7	0.2	3.0
VA17HRW-43	90.6	60.0	117 -	34.0	0.0	1.0
DH16HRW-72-134	90.4	60.6 +	116 -	32.0 -	0.0	2.0
<b>VISION 45</b>	90.1	60.1	122 +	39.3 +	0.2	0.5 -
<b>Hardy 2519</b>	90.0	61.2 +	115 -	34.0	0.0	3.5 +
VA19HRW-33	89.4	60.6 +	122 +	36.7 +	0.0	2.0
<b>HR 5210</b>	88.5	57.4 -	120	31.7 -	0.0	2.0
VA19HRW-47	88.4	59.8	117 -	37.7 +	0.0	2.0

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)
VA20HRW-102	88.0	59.7	119	36.0	0.3	1.0
17VDH-HRW11-189	88.0	58.8	115 -	37.0 +	0.0	2.0
VA20HRW-45	87.7	59.8	120	39.0 +	0.2	0.0 -
DH13HRW07-30	87.2	60.3	118	36.0	0.0	2.5
16VDH-HRW14-008	86.6	58.3 -	116 -	29.7 -	0.0	1.5
15VDH-HRW19-018	86.3	61.4 +	122 +	36.3	0.0	2.5
VA20HRW-10	86.1	59.9	124 +	40.3 +	0.0	2.0
VA19HRW-147	86.1	59.7	118	35.3	0.0	0.5 -
VA18HRW-57	86.0	59.7	122 +	34.7	0.0	3.5 +
VA20HRW-43	85.6	59.0	121 +	38.3 +	0.2	1.0
14VDH-HRW02-105	85.5	58.7 -	117 -	33.0 -	0.2	3.0
<b>Liberty 5658</b>	85.4	60.5 +	116 -	34.7	0.0	3.5 +
NVIR17-8	84.9	58.1 -	119	30.3 -	0.0	1.5
VA19HRW-31	84.8	58.9	117 -	37.0 +	0.3	4.0 +
VA20HRW-4	84.6	61.1 +	122 +	36.3	0.2	2.0
VA20HRW-57	84.4	59.0	119	36.0	0.2	2.0
VA20HRW-7	84.0	58.7 -	121 +	34.0	0.0	2.0
VA16HRW-22	83.6	60.7 +	117 -	33.3 -	0.0	2.5
VA20HRW-88	83.1	58.5 -	117 -	31.3 -	0.2	3.0
VA19HRW-77	83.1	60.0	119	34.7	0.3	2.5
VA19HRW-59	83.0	60.4 +	117 -	39.0 +	0.0	4.0 +
14VDH-HRW01-019	82.9	60.2	121 +	37.3 +	0.0	3.0
VA18HRW-51	82.6	60.7 +	122 +	34.7	0.0	2.0
VA19HRW-17	82.3	59.1	122 +	35.7	0.0	1.0
15VDH-HRW15-062	82.2	59.2	121 +	31.3 -	0.0	2.0
VA19HRW-35	82.0	59.2	122 +	36.3	0.0	2.5
VA20HRW-54	81.7	60.4 +	120	39.3 +	0.0	2.5
VA19HRW-151	81.6	58.0 -	116 -	33.7	0.0	2.0
VA19HRW-149	81.6	57.8 -	116 -	31.7 -	0.0	3.0
VA20HRW-89	81.5	58.0 -	120	32.3 -	0.0	2.5
<b>Vision 50</b>	81.2	59.4	115 -	33.0 -	0.0	4.0 +

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Powdery Mildew (0-9)
VA20HRW-6	80.8	57.5 -	122 +	34.7	0.0	2.5
<b>17VDH-HRW11-211</b>	80.8	59.1	122 +	35.0	0.0	3.5 +
VA20HRW-3	80.8	61.1 +	122 +	33.7	0.0	3.0
<b>VA19HRW-53</b>	80.7	59.8	122 +	32.7 -	0.0	3.5 +
VA19HRW-12	80.1	60.6 +	123 +	35.7	0.0	3.0
<b>VA20HRW-84</b>	80.0	59.0	123 +	34.3	0.0	3.5 +
VA19HRW-11	79.8	58.7 -	121 +	35.3	0.0	1.5
<b>VA20HRW-16</b>	78.5	59.5	122 +	36.0	0.0	3.0
NVIR17-1	78.3	59.5	117 -	32.7 -	0.2	4.0 +
<b>Everest</b>	77.9	59.4	112 -	32.0 -	0.3	3.0
VA20HRW-53	77.6	58.7 -	122 +	37.0 +	0.0	2.0
<b>SOISSONS</b>	76.9 -	57.5 -	120	31.7 -	0.0	2.5
VA20HRW-67	75.4 -	59.5	118	33.3 -	0.0	3.5 +
<b>VA20HRW-23</b>	73.3 -	55.8 -	117 -	34.7	0.0	2.5
VA20HRW-44	73.0 -	60.3	122 +	35.3	0.0	3.5 +
<b>VA20HRW-40</b>	64.1 -	59.4	122 +	34.0	0.0	5.0 +
<b>KARL 92</b>	60.1 -	58.2 -	115 -	31.0 -	0.5 +	5.5 +
<b>JAGGER</b>	59.2 -	58.1 -	114 -	32.7 -	0.7 +	6.0 +
Average	86.2	59.5	119	35	0.1	2.1
LSD (0.05)	9.2	0.7	1	2	0.3	1.3
C.V.	6.6	0.7	1	3	---	---

Note: Released cultivars are shown in bold print.

Note: Varieties are ordered by descending yield averages.

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

Note: 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 Hard Red Winter Wheat Test at Blackstone, 2022 harvest.

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)
VA18HRW-57	71.6 +	57.6
14VDH-HRW01-019	70.3 +	58.4 +
<b>SHIRLEY</b>	65.0 +	56.8
VA19HRW-12	64.9 +	58.9 +
VA18HRW-51	64.6	59.1 +
DH16HRW-72-134	63.5	58.9 +
<b>HILLIARD</b>	63.1	57.5
VA19HRW-11	63.0	57.0
VA20HRW-43	62.8	57.7
VA20HRW-70	62.1	59.3 +
VA19HRW-26	61.6	57.6
VA18HRW-96	61.2	57.1
VA20HRW-39	60.3	56.4
VA19HRW-17	60.3	57.6
VA18HRW-58	60.1	57.8
14VDH-HRW02-029	60.0	57.3
15VDH-HRW19-018	59.9	57.7
VA20HRW-46	59.7	56.8
<b>VISION 45</b>	59.5	58.3 +
VA20HRW-7	59.1	55.9
VA20HRW-48	59.0	56.4
VA16HRW-22	58.1	59.6 +
DH18HRW-138-56	57.8	57.2
17VDH-HRW12-169	57.7	58.1 +
VA19HRW-151	57.6	55.8
VA17HRW-43	57.2	56.5
VA19HRW-77	57.2	57.6
NVIR17-1	57.0	58.3 +
VA20HRW-10	56.9	57.5
VA20HRW-38	56.8	56.9
VA20HRW-57	56.4	57.9
VA20HRW-54	56.1	58.7 +
VA20HRW-50	55.7	57.6
VA18HRW-98	55.7	55.8
VA20HRW-6	55.2	54.6 -
VA19HRW-53	55.0	57.1
<b>Hardy 2519</b>	55.0	59.3 +
VA19HRW-59	54.4	57.6
VISION 30	54.3	57.2

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)
VA19HRW-149	54.3	55.5
VA20HRW-3	53.9	58.0 +
NVIR17-8	53.6	53.9 -
VA20HRW-80	53.5	57.7
VA20HRW-45	53.2	57.1
VA20HRW-4	51.9	57.9
16VDH-HRW14-008	51.2	55.6
15VDH-HRW15-062	51.1	55.0 -
VA19HRW-33	50.6	56.3
VA20HRW-16	50.5	57.3
VA19HRW-47	50.5	57.8
VA19HRW-64	50.3	57.2
VA20HRW-102	50.1	56.5
DH13HRW07-30	49.0	57.5
VA20HRW-44	48.9	55.5
<b>HR 5210</b>	48.8	51.5 -
<b>Liberty 5658</b>	48.5	56.1
VA20HRW-53	48.3	57.3
14VDH-HRW02-105	47.9	55.4
MAS1417-117-5-3-4	47.2	54.1 -
VA19HRW-147	46.5	55.7
17VDH-HRW11-189	46.4	55.0 -
VA19HRW-31	46.3	55.9
17VDH-HRW11-211	46.0	54.8 -
VA13MAS14-1992-3-4	44.3	56.0
VA19HRW-35	43.0	56.3
<b>Vision 50</b>	42.9	56.1
VA20HRW-40	42.8	57.1
VA20HRW-84	42.6	54.1 -
VA20HRW-89	42.4	54.5 -
VA20HRW-23	42.0	51.8 -
VA20HRW-73	41.8	53.9 -
VA20HRW-88	41.2	53.5 -
VA20HRW-67	39.1 -	55.0 -
VA09HRW-43	38.1 -	50.7 -
<b>SOISSONS</b>	37.4 -	51.8 -
<b>KARL 92</b>	35.3 -	56.5
<b>JAGGER</b>	32.4 -	54.5 -
<b>Everest</b>	20.9 -	57.6

Note: Released cultivars are shown in bold print.

Note: Varieties are ordered by descending yield averages.

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

Note: 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 Hard Red Winter Wheat Test at Painter, 2022 harvest.

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	
VA19HRW-26	73.7	59.3	
MAS1417-117-5-3-4	72.1	57.9	
VA20HRW-4	71.7	58.6	
VA19HRW-151	70.4	58.5	
15VDH-HRW15-062	69.5	59.0	
VA18HRW-57	66.9	57.4	-
VA18HRW-96	66.6	57.9	
VA19HRW-59	66.6	59.9	
VA20HRW-80	66.3	59.6	
VA20HRW-50	66.2	59.0	
NVIR17-8	66.1	58.0	
VA19HRW-77	66.0	59.1	
DH18HRW-138-56	65.8	61.0	+
VA17HRW-43	65.2	60.2	+
15VDH-HRW19-018	65.1	59.8	
VA20HRW-88	64.6	60.2	+
VA19HRW-17	64.6	58.7	
VA19HRW-33	64.5	57.3	-
VA20HRW-38	64.0	58.0	
VA20HRW-70	64.0	59.2	
VA19HRW-64	63.5	60.5	+
17VDH-HRW12-169	63.4	61.1	+
Liberty 5658	63.4	60.9	+
HR 5210	62.9	56.1	-
VA20HRW-54	62.8	60.1	+
VA20HRW-10	62.0	57.2	-
14VDH-HRW02-105	61.9	60.3	+
VISION 30	61.6	60.5	+
VA20HRW-39	61.3	57.0	-
VA19HRW-149	61.1	59.4	
VA18HRW-58	61.1	58.6	
VA20HRW-44	60.7	59.6	
VA20HRW-3	60.3	58.8	
VA19HRW-35	60.2	57.6	
VA19HRW-12	60.1	59.5	
VA20HRW-16	59.4	59.3	
HILLIARD	59.4	59.5	
VA20HRW-43	59.0	57.2	-
DH16HRW-72-134	58.9	59.4	

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)	
VA20HRW-84	58.8	56.9	-
VA20HRW-53	58.8	57.9	
14VDH-HRW02-029	58.8	60.7	+
SHIRLEY	58.5	57.2	-
VA19HRW-147	58.5	58.3	
VA20HRW-46	58.1	57.1	-
NVIR17-1	58.0	60.4	+
VA20HRW-89	57.6	56.9	-
VA13MAS14-1992-3-4	57.6	60.0	+
17VDH-HRW11-189	57.6	58.7	
VA18HRW-98	56.7	58.9	
14VDH-HRW01-019	56.6	58.7	
VA20HRW-67	56.5	59.8	
VA19HRW-53	56.1	58.4	
VA20HRW-57	56.1	58.6	
Hardy 2519	56.0	61.1	+
VISION 45	55.9	57.8	
DH13HRW07-30	55.8	59.2	
VA19HRW-31	55.4	59.3	
VA18HRW-51	55.3	58.1	
VA19HRW-11	54.7	58.6	
16VDH-HRW14-008	54.5	58.9	
VA20HRW-7	54.4	56.7	-
VA20HRW-45	54.4	58.8	
VA20HRW-73	54.0	58.0	
17VDH-HRW11-211	53.3	55.3	-
VA20HRW-6	52.2	54.8	-
Vision 50	52.1	59.2	
VA19HRW-47	51.6	59.8	
VA20HRW-102	51.2	56.9	-
VA16HRW-22	50.4	61.0	+
SOISSONS	50.4	56.1	-
VA20HRW-40	49.7	58.0	
VA20HRW-23	48.4	58.0	
VA09HRW-43	47.7	58.4	
KARL 92	44.7	60.5	+
JAGGER	43.8	61.1	+
Everest	39.4	60.8	+
VA20HRW-48	33.6	56.8	-
Average	58.8	58.8	
LSD (0.05)	15.5	1.1	

Wheat Lines	Yield (Bu/a @ 60 lb/bu)	Test Weight (Lb/bu)
C.V.	13.2	1.0

Note: Released cultivars are shown in bold print.

Note: Varieties are ordered by descending yield averages.

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

Table 8. Summary of reaction of entries in the Virginia Hard Red Winter Wheat test to Fusarium head blight (scab), 2022 harvest.

Wheat Lines	Date Headed (Julian)	FHB Plant Response (0-9)
<b>KARL 92</b>	115 -	7.5 +
<b>Everest</b>	112 -	7.5 +
16VDH-HRW14-008	116 -	7.5 +
VA19HRW-149	116 -	7.0 +
VA09HRW-43	115 -	6.5 +
VA19HRW-151	116 -	6.5 +
17VDH-HRW11-189	115 -	6.5 +
<b>HR 5210</b>	120	6.0
<b>Liberty 5658</b>	116 -	6.0
14VDH-HRW02-029	117 -	6.0
VA19HRW-35	122 +	5.5
VA19HRW-47	117 -	5.5
VA20HRW-23	117 -	5.5
VA20HRW-48	122 +	5.5
VA20HRW-57	119	5.5
VA20HRW-67	118	5.5
<b>SOISSONS</b>	120	5.0
<b>Vision 50</b>	115 -	5.0
VA19HRW-31	117 -	5.0
VA20HRW-43	121 +	5.0
VA20HRW-80	117 -	5.0
<b>SHIRLEY</b>	118	4.5
<b>HILLIARD</b>	116 -	4.5
<b>JAGGER</b>	114 -	4.5
VA17HRW-43	117 -	4.5
14VDH-HRW02-105	117 -	4.5
NVIR17-8	119	4.5
VA19HRW-53	122 +	4.5
VA19HRW-59	117 -	4.5
VA19HRW-64	117 -	4.5
VA20HRW-7	121 +	4.5
VA20HRW-50	119	4.5
VA20HRW-88	117 -	4.5
VA20HRW-102	119	4.5
DH18HRW-138-56	115 -	4.5
VA20HRW-39	121 +	4.1
VA16HRW-22	117 -	4.0
DH13HRW07-30	118	4.0

Wheat Lines	Date Headed (Julian)	FHB Plant Response (0-9)
15VDH-HRW15-062	121 +	4.0
NVIR17-1	117 -	4.0
VA19HRW-11	121 +	4.0
MAS1417-117-5-3-4	119	4.0
17VDH-HRW12-169	116 -	4.0
VA20HRW-6	122 +	4.0
VA20HRW-38	120	4.0
VA20HRW-40	122 +	4.0
VA20HRW-46	120	4.0
VA20HRW-84	123 +	4.0
VA20HRW-89	120	4.0
<b>VISION 30</b>	115 -	3.5
<b>VISION 45</b>	122 +	3.5
<b>Hardy 2519</b>	115 -	3.5
14VDH-HRW01-019	121 +	3.5
VA18HRW-57	122 +	3.5
VA18HRW-96	121 +	3.5
VA18HRW-98	117 -	3.5
VA19HRW-26	119	3.5
VA19HRW-77	119	3.5
VA20HRW-3	122 +	3.5
VA20HRW-4	122 +	3.5
VA20HRW-44	122 +	3.5
VA20HRW-73	118	3.5
VA13MAS14-1992-3-4	115 -	3.0
15VDH-HRW19-018	122 +	3.0
VA18HRW-51	122 +	3.0
VA18HRW-58	122 +	3.0
VA19HRW-12	123 +	3.0
VA19HRW-147	118	3.0
VA20HRW-16	122 +	3.0
VA20HRW-53	122 +	3.0
17VDH-HRW11-211	122 +	3.0
VA19HRW-17	122 +	2.5
VA19HRW-33	122 +	2.5
VA20HRW-45	120	2.5
VA20HRW-54	120	2.5
VA20HRW-70	122 +	2.5
DH16HRW-72-134	116 -	2.0 -
VA20HRW-10	124 +	2.0 -
Average	119	4.3

Wheat Lines	Date Headed (Julian)	FHB Plant Response (0-9)
LSD (0.05)	1	2.1
C.V.	1	---

Note: Entries were planted in 2-row plots, 4ft in length at Mt. Holly, VA and were inoculated at booting stage with scabby corn kernels (50g/4-rows).

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

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

Table 9. Flour quality of entries in the Virginia Tech Hard Red Winter Wheat Test, 2021 harvest.

Wheat Lines	Test Weight (Lb/bu)	1000 Kernel Weight (g)	Wheat Protein (%)	Flour Yield (%)	Flour Protein (%)	Flour Water Absorption (%)	Mixing Time (min)	Adj. Mixing Time (min)	Mixing Tolerance (0-6)
15VDH-HRW15-062	59.9	37.8	11.2	69	9.8	59.3	5.8	4.2	4.0
15VDH-HRW19-018	61.4	40.5	11.6	71	10.2	59.9	6.5	5.1	3.0
17VDH-HRW11-211	59.1	34.7	10.3	70	8.8	58.1	4.0	2.5	4.0
DH18HRW-138-56	60.6	38.3	11.0	70	9.7	59.1	3.0	2.2	2.0
<b>Hardy 2519</b>	61	34.2	11.0	67	9.7	59.7	4.8	3.5	4.0
<b>HR 5210</b>	57.4	38.7	10.6	72	9.3	58.5	6.1	4.2	3.0
<b>JAGGER</b>	58.7	35.9	11.4	70	10.0	59.5	3.6	2.7	3.0
<b>Liberty 5658</b>	60.6	37.5	10.8	67	9.2	58.4	5.3	3.5	3.0
NVIR17-8	58	35.6	11.1	70	9.7	59.5	5.0	3.6	3.0
<b>Phoenix 29</b>	59.5	41.8	10.4	71	8.9	57.7	4.5	2.8	3.0
<b>SOISSONS</b>	59.1	39.7	11.0	70	9.5	58.8	3.0	2.1	2.0
VA09HRW-43	57.6	40.9	10.6	69	9.0	58.0	2.9	1.9	2.0
VA18HRW-51	61.4	36.1	11.9	66	10.5	60.4	2.3	1.8	2.0
VA18HRW-57	59.5	36.5	11.4	69	10.0	59.6	4.6	3.5	3.0
VA18HRW-58	61.5	37.5	10.9	70	9.8	59.3	4.0	2.9	3.0
VA18HRW-96	60.2	41.3	10.8	72	9.4	59.1	4.0	2.7	4.0
VA18HRW-98	59	39.4	10.5	69	9.2	58.2	4.0	2.7	3.0
VA19HRW-17	61.1	39.4	12.2	71	10.8	60.9	2.6	2.3	2.0
VA19HRW-26	60.2	38.0	11.5	69	10.2	60.4	5.5	4.3	4.0
VA19HRW-64	61.4	39.1	11.4	67	9.8	59.4	5.5	4.1	4.0
VA20HRW-10	59.8	42.5	10.9	68	9.4	58.6	4.9	3.4	4.0
VA20HRW-16	59.9	38.9	11.1	71	9.7	59.1	4.0	2.9	2.0
VA20HRW-38	60	38.9	10.6	68	9.2	58.8	5.1	3.4	4.0
VA20HRW-39	60.2	39.5	10.7	70	9.3	58.5	4.8	3.2	3.0
VA20HRW-43	59.3	39.6	11.2	68	9.6	59.5	3.8	2.7	3.0
VA20HRW-45	59.9	43.1	12.0	70	10.7	61.2	2.6	2.2	2.0
VA20HRW-46	59.7	42.7	11.0	68	9.6	59.5	3.6	2.6	3.0
VA20HRW-50	59.4	38.5	10.8	71	9.5	59.2	5.0	3.5	3.0
VA20HRW-70	61.6	37.7	11.4	70	9.8	59.8	3.6	2.7	3.0

Wheat Lines	Test Weight (Lb/bu)	1000 Kernel Weight (g)	Wheat Protein (%)	Flour Yield (%)	Flour Protein (%)	Flour Water Absorption (%)	Mixing Time (min)	Adj. Mixing Time (min)	Mixing Tolerance (0-6)
VA20HRW-73	59.6	39.7	10.4	69	9.0	57.8	3.8	2.4	3.0
VA20HRW-88	58.7	37.4	10.8	72	9.3	58.8	5.0	3.4	4.0
<b>VISION 45</b>	60.1	37.6	11.7	69	10.4	60.4	3.5	2.9	3.0

Note: Cultivars are sorted alphabetically; released lines are in bold print; Jagger is the quality standard check variety

## Section 2: Malt Barley Varieties in Virginia

As interest continues to grow in locally produced ingredients from the craft brewing industry in the mid-Atlantic and eastern U.S., finding malted barley is not easy for those located in the region. Therefore, demands for the production of high-quality winter barley for the malt, brewing and distilling industries have generated new interest in barley.

Malt barley tests were planted in seven-inch rows at Blackstone and in six-inch rows at Warsaw and Blacksburg; at 44 seeds per square foot.

Agronomic performance data for entries in the Eastern Malt Barley Trial conducted at locations in Blacksburg, Blackstone and Warsaw, VA in 2022 are presented in Table 11. Six experimental lines and two released varieties (Thoroughbred and Hironde) yielded significantly higher than the test average (110 bu/ac). Thoroughbred ranked 3<sup>rd</sup> in grain yield (124 Bu/ac), 3 bushel per acre higher than Hironde, and 11 to 21 bushels per acre higher than the two row winter check cultivars Wintmalt (103 bu/ac), Avalon (103 bu/ac), Calypso (113 bu/ac), Flavia (108 bu /ac) and Violetta (106 bu/ac). Results for these new malt barley lines are encouraging and indicate that significant progress is being made by the breeding program in developing barley cultivars with high yield and improved disease resistance.

Summary of malt quality performance of entries is not available at this time.

Table 11. Summary of performance of entries in the Virginia Tech Eastern Malting Barley Test over locations, 2022 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)
	(3)	(3)	(2)	(2)	(1)
VA19M-16DH2222 LX	125.3 +	50.4	114 -	29.0	2.2
VA19M-DH161187 LX	124.2 +	51.4	111 -	31.2	2.2
<b>Thoroughbred</b>	124.2 +	51.1	117	32.3	0.5
VA19M-16DH2261	121.8 +	52.0 +	118	30.7	0.7
<b>Hirondella</b>	121.4 +	47.2 -	119	31.7	2.8 +
VA18M-DH170740 LX	121.4 +	51.8 +	111 -	27.8	1.0
VA19M-17DH0102 LX	120.9 +	48.8 -	114 -	27.7	0.7
ARS20B55	120.8 +	48.6 -	118	31.2	0.7
VA20MFHB-18DH533	119.4	50.5	121 +	30.3	1.7
VA20MFHB-18DH548 LX	118.2	49.2 -	113 -	27.8	1.2
ARS20B48	117.2	51.8 +	117	29.8	0.0
ARS20B50	116.6	51.9 +	113 -	31.2	0.0
VA20MFHB-18DH350	114.5	49.0 -	121 +	27.3	0.0
ARS15B12	113.8	51.3	118	32.7	0.0
<b>Calypso</b>	113.7	48.4 -	120 +	30.0	1.2
VA17M-13DH1720 LX	113.6	46.9 -	119	36.5 +	0.8
VA20MFHB-18DH349	113.4	51.1	119	28.7	0.5
VA19M-DH170615 LX	112.6	50.5	115	29.0	6.3 +
VA20MFHB-18DH535	112.4	50.4	120 +	29.3	3.0 +
VA19M-DH170735 LA	111.6	48.5 -	115	29.5	1.2
VA19M-17DH0091 LX	111.2	48.5 -	118	30.7	4.0 +
VA19M-DH170073 LA	110.7	50.7	110 -	27.3	1.2
VA19M-DH170760 LA	110.7	51.2	109 -	27.0	2.5 +
VA20MFHB-18DH532	110.5	51.5 +	120 +	30.0	0.2
12W587-n-23	109.5	49.4	127 +	31.3	1.5
12W587-n-28	109.4	50.2	127 +	30.3	1.8
VA20MFHB-18DH524 LX	108.7	48.7 -	118	28.8	2.3
<b>Flavia</b>	108.3	48.5 -	121 +	27.5	0.2
<b>Violetta</b>	106.3	50.6	118	29.0	1.5
VA20MFHB-18DH541	106.1	49.0 -	121 +	26.2 -	0.2
ARS20B60	104.3	52.0 +	120 +	32.8	0.0
ARS20B18	104.2	52.0 +	118	29.2	0.2
<b>Wintmalt</b>	103.4	52.8 +	119	32.3	0.3
ARS20B45	103.2	50.9	118	32.3	0.2
<b>Avalon</b>	102.7	52.1 +	118	32.2	0.7
ARS20B09	100.9	47.0 -	120 +	32.2	2.7 +
ARS20B38	100.3	50.5	115	32.3	0.2

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)
	(3)	(3)	(2)	(2)	(1)
VA18M-DH162217	97.0 -	53.1 +	113 -	32.3	1.8
ARS20B34	95.6 -	52.2 +	113 -	30.7	0.2
VA16M-84	92.5 -	53.0 +	119	34.3 +	0.2
ARS18B107	84.9 -	50.5	118	32.5	0.0
ARS20B15	84.4 -	51.8 +	115	34.5 +	0.5
Average	110.0	50.4	117	30.5	1.2
LSD (0.05)	10.2	1.0	2	3.5	1.2
C.V.	10.0	2.1	1	10.1	92.1

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 12. Two-year summary of performance of entries in the Virginia Tech Eastern Malting Barley Test over locations, 2021 and 2022 harvests.

Barley Lines	Yield (Bu/a @ 48 lb/bu)		Test Weight (Lb/bu)		Date Headed (Julian)		Mature Height (In)		Plant Lodging (0-9)	
	5		5		2		2		2	
<b>Thoroughbred</b>	115.1	+	51.7		115	-	30.9		0.5	
<b>Hirondella</b>	113.4	+	48.7	-	118		29.3		1.6	+
VA17M-13DH1720 LX	111.4	+	48.6	-	118		32.3	+	0.6	
VA18M-DH170740 LX	109.3	+	52.8	+	109	-	27.9		0.8	
<b>Calypso</b>	102.8		49.7	-	119	+	28.3		0.8	
ARS15B12	102.3		52.3	+	116		30.6		0.0	
12W587-n-23	101.1		50.1	-	124	+	28.8		0.8	
<b>Flavia</b>	100.8		50.1	-	120	+	24.9	-	0.1	
12W587-n-28	99.9		49.3	-	124	+	27.8		0.9	
<b>Avalon</b>	96.0		52.7	+	116		31.3		0.6	
<b>Wintmalt</b>	93.9		53.9	+	116		31.3		0.3	
<b>Violetta</b>	93.2		51.6		116		26.8	-	1.2	
VA18M-DH162217	88.2	-	53.6	+	111	-	32.4	+	1.6	+
VA16M-84	85.5	-	53.8	+	116		32.8	+	0.2	
ARS18B107	83.9	-	49.9	-	119	+	29.0		0.2	
Average	99.8		51.3		117		29.6		0.7	
LSD (0.05)	7.6		0.7		1		2.2		0.6	
C.V.	11.6		1.8		1		9.3			

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.

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

Table 13. Three-year summary of performance of entries in the Virginia Tech Eastern Malting Barley Test over locations, 2020, 2021, and 2022 harvests.

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)	Net Blotch (0-9)
	9	9	6	6	4	1
VA17M-13DH1720 LX	114.5 +	48.5 -	117	33.2 +	1.3	2.2
<b>Thoroughbred</b>	114.4 +	51.5 +	114 -	33.2 +	0.8	3.5 +
<b>Hirondella</b>	112.9 +	48.3 -	117	30.7	1.7 +	1.7
<b>Flavia</b>	106.3	49.8 -	119 +	26.7 -	0.1	1.7
<b>Calypso</b>	105.8	49.0 -	118	30.7	1.2	2.2
ARS15B12	104.3	51.7 +	114 -	32.2	0.1	1.3
12W587-n-28	104.2	50.1	122 +	29.7	1.1	3.0
<b>Wintmalt</b>	100.9	52.3 +	116	31.7	0.3	2.0
12W587-n-23	100.8	50.0	122 +	30.3	1.1	3.2
<b>Avalon</b>	98.0	52.4 +	115 -	32.9	0.8	2.2
<b>Violetta</b>	94.5 -	50.7	114 -	27.8 -	1.2	2.0
VA16M-84	88.8 -	53.3 +	116	35.1 +	0.3	1.8
Average	103.8	50.6	117	31.2	0.8	2.2
LSD (0.05)	6.8	0.7	1	1.7	0.6	1.1
C.V.	12.2	2.4	1	8.2	---	

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.

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

Table 14. Summary of performance of entries in the Virginia Tech Eastern Malting Barley Test at Blacksburg, VA, 2022 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)
VA19M-DH161187 LX	136.1 +	54.1 +	111 -	35	2.7
<b>Thoroughbred</b>	133.9 +	53.5	115	34	0.0
VA19M-16DH2222 LX	129.0 +	52.9	113	32	2.0
VA19M-16DH2261	127.4 +	54.7 +	115	33	1.0
VA20MFHB-18DH548 LX	126.3 +	52.5	112 -	32	0.7
ARS20B50	123.2	54.7 +	113	33	0.0
VA19M-DH170073 LA	122.9	54.0 +	110 -	30	0.0
ARS20B55	121.7	50.2 -	116	34	1.3
VA18M-DH170740 LX	121.7	55.7 +	109 -	29	0.3
ARS20B48	121.2	53.7	114	31	0.0
<b>Hirondella</b>	120.6	49.9 -	117	35	3.3 +
VA19M-17DH0102 LX	119.0	51.8	113	30	0.3
VA20MFHB-18DH533	118.6	52.3	120 +	33	1.0
VA20MFHB-18DH524 LX	117.5	50.4 -	115	32	0.7
VA20MFHB-18DH535	115.7	52.1	120 +	33	3.3 +
VA19M-DH170615 LX	115.0	52.7	114	32	6.3 +
ARS15B12	114.5	53.9 +	114	35	0.0
ARS20B45	113.5	53.8	115	36	0.0
<b>Avalon</b>	112.9	54.5 +	115	34	0.7
VA19M-DH170735 LA	112.9	51.1 -	114	35	1.0
ARS20B38	110.7	54.0 +	113	36	0.0
VA19M-DH170760 LA	110.1	54.2 +	107 -	30	1.3
VA19M-17DH0091 LX	109.9	50.4 -	114	33	2.7
ARS20B09	108.4	49.2 -	118 +	36	3.3 +
VA17M-13DH1720 LX	108.3	48.4 -	118 +	43 +	0.0
VA20MFHB-18DH349	107.3	54.0 +	115	33	0.7
ARS20B18	107.1	55.0 +	115	32	0.0
VA18M-DH162217	106.1	55.9 +	112 -	35	0.7
<b>Calypso</b>	106.0	50.3 -	119 +	32	1.7
<b>Wintmalt</b>	105.4	55.7 +	115	32	0.0
ARS20B60	104.1	---	115	31	0.0
12W587-n-23	103.3	50.4 -	125 +	35	2.3
12W587-n-28	102.6	---	125 +	33	2.3
VA20MFHB-18DH350	101.6	49.8 -	120 +	30	0.0
VA20MFHB-18DH541	101.4	50.2 -	119 +	28	0.3
<b>Violetta</b>	101.2	52.8	116	33	1.3
ARS20B34	100.8	55.3 +	113	32	0.0
VA20MFHB-18DH532	99.7 -	52.7	118 +	31	0.0
VA16M-84	97.5 -	55.1 +	116	35	0.0

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)
<b>Flavia</b>	97.1 -	48.7 -	120 +	30	0.0
ARS18B107	94.2 -	---	115	36	0.0
ARS20B15	91.5 -	56.1 +	113	37	0.0
Average	111.9	52.7	115	33	1.0
LSD (0.05)	11.8	1.1	2	7	1.7
C.V.	6.5	1.2	1	12	--

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.

Table 15. Summary of performance of entries in the Virginia Tech Eastern Malting Barley Test in Warsaw, VA, 2022 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)
VA17M-13DH1720 LX	148.3 +	47.8 -	115	30.3 +	1.7
VA19M-16DH2222 LX	145.9 +	50.2	109 -	25.7 -	2.3
VA19M-17DH0102 LX	145.2 +	49.3 -	108 -	25.3 -	1.0
VA18M-DH170740 LX	143.3 +	50.9	106 -	27.0	1.7
<b>Hirondella</b>	143.0 +	47.4 -	115	28.3	2.3
12W587-n-28	140.1 +	51.6 +	122 +	27.3	1.3
VA20MFHB-18DH533	138.9 +	50.8	116 +	27.3	2.3
VA19M-DH161187 LX	138.7 +	50.7	105 -	27.7	1.7
ARS20B55	138.5 +	48.9 -	112	28.0	0.0
<b>Calypso</b>	136.7	48.9 -	116 +	28.3	0.7
VA19M-DH170735 LA	136.4	48.1 -	110 -	24.3 -	1.3
ARS20B48	136.3	52.1 +	114	28.3	0.0
<b>Flavia</b>	136.3	49.9	116 +	24.7 -	0.3
VA19M-DH170760 LA	135.2	50.4	104 -	24.0 -	3.7 +
VA19M-17DH0091 LX	134.6	48.7 -	115	28.3	5.3 +
VA20MFHB-18DH350	134.5	50.0	116 +	25.0 -	0.0
ARS20B09	133.5	48.7 -	116 +	28.3	2.0
12W587-n-23	133.2	51.6 +	123 +	28.0	0.7
VA20MFHB-18DH524 LX	132.9	49.0 -	114	25.3 -	4.0 +
<b>Thoroughbred</b>	132.3	50.7	112	30.7 +	1.0
VA20MFHB-18DH349	132.2	51.2	116 +	24.7 -	0.3
VA19M-DH170615 LX	129.6	50.3	109 -	26.0 -	6.3 +
VA20MFHB-18DH548 LX	129.0	49.2 -	109 -	23.3 -	1.7
VA20MFHB-18DH532	128.6	51.4 +	116 +	29.3	0.3
ARS20B50	128.1	51.9 +	109 -	29.3	0.0
<b>Avalon</b>	127.9	51.3 +	115	30.3 +	0.7
VA20MFHB-18DH535	127.9	51.4 +	116 +	25.7 -	2.7
VA20MFHB-18DH541	127.8	49.6	116 +	24.7 -	0.0
ARS15B12	125.0	50.3	115	30.0 +	0.0
VA19M-DH170073 LA	123.9	50.5	105 -	24.3 -	2.3
VA19M-16DH2261	122.0	51.0	116 +	28.3	0.3
ARS20B18	118.6	51.8 +	115	26.3	0.3
<b>Violetta</b>	117.8 -	50.4	115	25.3 -	1.7
<b>Wintmalt</b>	113.8 -	51.3 +	116 +	32.7 +	0.7
ARS20B34	113.0 -	51.8 +	109 -	29.7 +	0.3
ARS20B60	112.6 -	51.2	118 +	34.7 +	0.0
ARS20B45	111.6 -	50.5	115	28.7	0.3
ARS20B38	109.9 -	50.5	111	28.3	0.3
VA16M-84	102.5 -	52.2 +	115	33.3 +	0.3

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)	Date Headed (Julian)	Mature Height (In)	Plant Lodging (0-9)
<b>VA18M-DH162217</b>	101.8 -	51.6 +	108 -	30.0 +	3.0 +
ARS18B107	96.8 -	49.0 -	115	29.3	0.0
<b>ARS20B15</b>	93.1 -	50.8	109 -	32.0 +	1.0
Average	127.6	50.4	113	27.8	1.3
LSD (0.05)	9.2	0.8	2	1.6	1.4
C.V.	4.4	1.0	1	3.5	---

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.

Table 16. Summary of performance of entries in the Virginia Tech Eastern Malting Barley Test at Blackstone, VA, 2022 harvest.

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)
VA19M-16DH2261	116.0 +	50.4 +
VA20MFHB-18DH350	107.3	47.4
<b>Thoroughbred</b>	106.5	49.0
VA20MFHB-18DH532	103.1	50.5 +
ARS20B55	102.2	46.9
ARS15B12	101.9	49.7 +
VA19M-16DH2222 LX	100.9	48.1
VA20MFHB-18DH349	100.8	48.3
VA20MFHB-18DH533	100.8	48.4
<b>Hirondella</b>	100.7	44.3 -
<b>Violetta</b>	99.7	48.7
VA20MFHB-18DH548 LX	99.3	46.0 -
VA18M-DH170740 LX	99.2	48.7
VA19M-17DH0102 LX	98.6	45.1 -
<b>Calypso</b>	98.4	46.1 -
ARS20B50	98.4	49.1
VA19M-DH161187 LX	97.8	49.3
ARS20B60	96.2	50.4 +
ARS20B48	94.2	49.6 +
VA20MFHB-18DH535	93.6	47.9
VA19M-DH170615 LX	93.1	48.6
12W587-n-23	92.1	46.2 -
<b>Flavia</b>	91.6	46.8
<b>Wintmalt</b>	90.9	51.5 +
VA19M-17DH0091 LX	89.2	46.3 -
VA20MFHB-18DH541	89.1	47.1
ARS20B18	86.8	49.3
VA19M-DH170760 LA	86.8	49.0
12W587-n-28	85.5	46.4 -
VA19M-DH170735 LA	85.5	46.2 -
VA19M-DH170073 LA	85.4	47.6
ARS20B45	84.5	48.3
VA17M-13DH1720 LX	84.1	44.3 -
VA18M-DH162217	83.1	51.7 +
ARS20B38	80.5	46.9
VA16M-84	77.4	51.7 +
VA20MFHB-18DH524 LX	75.6	46.6 -
ARS20B34	72.9	49.4
ARS20B15	68.7 -	48.7

Barley Lines	Yield (Bu/a @ 48 lb/bu)	Test Weight (Lb/bu)
<b>Avalon</b>	67.4 -	50.6 +
ARS18B107	63.7 -	49.7 +
ARS20B09	60.9 -	43.0 -
Average	90.7	48.1
LSD (0.05)	20.7	1.4
C.V.	14.1	1.8

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.

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