

Winter Malting Barley Performance in Centre County, 2020

Source	Entry	Rows	*Yield, bu/A	Test weight (lbs/bu)	Height (in.)	Lodging (0-5, 5=worst)	Freezing Damage (0-9, 9=worst)	Heading Date	Head Type	Grain Type	2 Year Average Yield	3 Year Average Yield	Q	% Protein, DB	% Plump >=64	% Thin <=64	% Germination Energy (Mg)	% Germination Energy (BmL)	RVA	DON (ppm)	% Fine Extract (DB)	Beta-Glucan (ppm)	% Soluble Protein	% S/T	FAN (mg/L)	Diastatic Power (°L)	Alpha Amylase (DU)	Clarity	
KWS Cereals	KWS Faro	6	145.9	47.5	33	0.0	2.0	18-May	Awned	Hulled	125.5	125.5	Q	8.9	90.6	1.3	98.0	78.0	138	<0.1	80.7	176.0	4.2	46.6	175.0	104	57.2	clear	
KWS Cereals	KWS Donau	2	138.1	48.7	33	3.5	0.0	18-May	Awned	Hulled	126.7	125.5	U	9.8	96.8	0.5	100.0	95.0	153	<0.1	81.0	86.0	4.0	40.9	160.0	133	58.8	clear	
KWS Cereals	KWS Somerset	2	136.9	45.7	33	1.0	0.0	18-May	Awned	Hulled	121.2	119.4	A	9.6	95.5	0.6	100.0	97.0	114	<0.1	80.8	44.0	4.2	43.9	150.0	137	61.0	clear	
VA Tech	Hirondella	6	135.6	43.4	33	3.5	0.0	19-May	Awned	Hulled	123.3		L	9.4	79.5	1.3	99.0	97.0	126	0.3	78.2	129.0	3.9	41.5	129.0	146	68.8	clear	
KWS Cereals	KWS Scala	2	128.7	44.1	30	2.5	0.0	17-May	Awned	Hulled	118.6	123.3	I	9.4	92.7	1.5	100.0	95.0	155	<0.1	81.8	42.0	4.4	46.7	168.0	146	73.5	clear	
VA Tech	Flavia	2	128.4	48.2	27	0.5	1.0	19-May	Awned	Hulled	118.2	115.6	T	9.0	94.6	0.5	97.0	70.0	150	<0.1	81.0	74.0	4.0	44.0	152.0	112	55.3	clear	
Oregon State University	Buck	2	93.0	48.7	36	4.5	0.0	22-May	Awned	Hulless			Y	8.9	7.1	50.4	92.0	91.0	146	0.1	85.6	339.0	4.0	45.2	151.0	95	57.4	hazy	
Oregon State University	DH140490	2	91.8	47.0	35	5.0	1.0	23-May	Awned	Hulless			Y	9.8	38.2	8.9	94.0	83.0	51	<0.1	86.7	532.0	5.9	60.0	272.0	141	89.2	slightly hazy	
Mean			124.8	46.7	33	2.6	0.5	19-May			122.2	120.9		9.4	74.4	8.1	97.5	88.3	129	0.2	82.0	177.8	4.3	46.1	169.6	127	65.2		
LSD(0.05)			10.7	1.6																									
LSD(0.2)			6.8	1.0																									
CV%			5.8	2.4																									

\*All yields calculated on a 48 lb/bu basis at 13.5% moisture.

Prepared by Mark Antle and Greg Roth (Professor Emeritus) Department of Plant Science.

Winter Mating Barley Performance in Lancaster County, 2020

Source	Entry	Rows	*Yield, bu/A	Test weight (lbs/bu)	Height (in.)	Lodging (0-5, 5=worst)	Head Type	Grain Type	2 Year Average Yield	3 Year Average Yield	Q	% Protein DB	% Plump >6/64	% Thin <5/64	% Germination Energy (4mL)	% Germination Energy (8mL)	RVA	DON (ppm)	% Fine Extract (DB)	Beta-Glucan (ppm)	% Soluble Protein	% S/T	FAN (mg/L)	Diastatic Power (*L)	Alpha Amylase (D.U.)	Clarity	
KWS Cereals	KWS Faro	6	115.6	48.2	30	2.0	Awmed	Hulled	98.3		Q	8.3	94.1	0.6	99.0	71.0	153	1.7	81.1	113.0	4.3	51.2	186.0	94	48.8	clear	
VA Tech	Hirondella	6	112.6	46.3	32	1.0	Awmed	Hulled	89.1		U	8.7	95.1	0.2	100.0	87.0	166	2.0	80.8	174.0	4.0	46.1	167.0	127	53.9	clear	
KWS Cereals	KWS Somerset	2	104.7	47.1	34	1.0	Awmed	Hulled	104.3	98.3	A	8.1	96.3	0.1	100.0	91.0	127	<0.1	81.3	29.0	3.9	48.6	159.0	110	53.4	clear	
VA Tech	Flavia	2	104.1	48.5	29	2.5	Awmed	Hulled	99.4	89.1	L	7.5	95.2	0.4	98.0	56.0	165	0.3	81.5	68.0	3.9	51.5	159.0	85	42.0	hazy	
KWS Cereals	KWS Scala	2	102.0	46.2	32	1.8	Awmed	Hulled	98.4	95.6	I	8.3	97.7	0.7	99.0	79.0	143	0.4	81.7	31.0	4.2	51.1	183.0	111	55.2	clear	
KWS Cereals	KWS Donau	2	98.4	47.6	29	2.5	Awmed	Hulled	100.6	89.2	T	8.5	99.9	0.0	98.0	86.0	154	0.3	82.3	47.0	4.0	47.1	170.0	102	49.3	hazy	
Oregon State University	Buck	2	81.9	52.4	29	1.8	Awmed	Hulless			Y	7.8	13.3	31.0	92.0	80.0	171	0.2	88.8	485.0	3.9	49.4	147.0	68	42.8	hazy	
Oregon State University	DH140490	2	79.8	53.4	34	0.5	Awmed	Hulless			Y	8.2	61.8	2.3	98.0	95.0	142	<0.1	88.1	578.0	5.2	62.9	216.0	117	87.9	hazy	
<b>Mean</b>			<b>99.9</b>	<b>48.7</b>	<b>31</b>	<b>2.0</b>			<b>98.3</b>	<b>93.0</b>																	
LSD(0.05)			10.4	2.0																							
LSD(0.2)			6.6	1.3																							
CV%			7.1	2.7																							

\*All yields calculated on a 48 lb/bu basis at 13.5% moisture.

Prepared by Mark Antle Department of Plant Science and Alyssa Collins(Director SEAREC)

**Combined Winter Malting Barley Performance in Centre County and Lancaster County, 2020**

Source	Entry	Yield, bu/A	Bu Wt (lbs)	Height (in.)	Lodging (0-5, 0=best)
KWS Cereals	KWS Faro	130.8	47.9	32	1.0
VA Tech	Hirondella	124.1	44.9	32	2.3
KWS Cereals	KWS Somerset	120.8	46.4	33	1.0
KWS Cereals	KWS Donau	118.3	48.2	31	3.0
VA Tech	Flavia	116.3	48.4	28	1.5
KWS Cereals	KWS Scala	115.4	45.2	31	2.1
Oregon State University	Buck	87.5	50.6	32	3.1
Oregon State University	DH140490	85.8	50.2	34	2.8
<b>Mean</b>		<b>112.3</b>	<b>47.7</b>	<b>32</b>	<b>2.1</b>

All yields calculated on a 48 lb/bu basis at 13.5% moisture.



Department of Plant Science  
Agricultural Sciences

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**Production Details: Penn State 2020 Winter Malting Barley Performance Trials**

Site:	Lancaster County (Landisville)	Centre County (Rock Springs)
Previous Crop	Soybeans	Oats
Planting Date	26-Sep	19-Sep
Seeding Rate	1.6 million/ac	1.6 million/ac
Fall Fertilizer	none	200 lb/a 10-20-20
Herbicides	0.75 oz Harmony Extra	0.75 oz Harmony Extra
Application Date	5-Mar	12-Mar
<u>Spring N fertilizer</u>		
N material	UAN	UAN
N rate	60 lb/a	60 lb/a
N application date	5-Mar	12-Mar
Harvest Date:	18-Jun	26-Jun

**Company Contact Information****2020 Barley Entries**

KWS Cereals <a href="https://www.kws.com/corp/en/products/cereals/">https://www.kws.com/corp/en/products/cereals/</a>	Faro, Somerset, Scala, Donau
VA Crop Improvement Association/VA Tech <a href="http://www.virginiacrop.org/">http://www.virginiacrop.org/</a>	Hirondella, Flavia,
Oregon State University	Buck, DH140490

<b>Kernel Size Assortment</b>	The kernel size assortment is determined using the Puffer Sortimat with a 100g sample size and 3 min shaking time. (ASBC Barley-2C)
<b>Germination Energy</b>	Germination energy is determined by placing 100 kernels of barley on filter paper in a petri dish and adding 4 mL of distilled water. Samples are kept in a germination chamber under controlled conditions of 20°C and 90% relative humidity. Germination is expressed as the total number of kernels which germinate after 72 hours. (ASBC Barley-3C)
<b>RVA</b>	Pre-germination (sprout damage) is determined using the Rapid Visco Analyzer 3 min stirring profile (ASBC Barley-12B)
<b>DON</b>	Deoxynivalenol (DON) is determined by Charm ROSA DON Q2 Lateral Flow Assay.
<b>Extract (Fine Grind Dry Basis)</b>	Fine-grind malt is prepared with a Buhler-Miag disc mill set to fine-grind. Extract is prepared using an Industrial Equipment Corporation (IEC) mash bath and the Congress mashing procedure from 45°C to 70°C. Specific gravity is determined at 20°C with an Anton Paar DMA 5000 digital density meter (ASBC Malt-4).
<b>β-glucan</b>	β-Glucan content is determined in malt extract by Skalar segmented flow analysis using Calcofluor staining of soluble, high molecular weight β-glucan (ASBC Wort-18).
<b>Free Amino Nitrogen (FAN)</b>	Free amino nitrogen is determined on the fine extract according to the official ASBC method Wort-12, automated to run on a Skalar segmented flow analyzer.
<b>Soluble Protein</b>	Soluble protein is determined on congress wort by uv spectroscopy (ASBC Wort-17)
<b>Diastatic Power</b>	Diastatic power is determined on a Skalar segmented flow analyzer, using an automated neocuproin assay for reducing sugars, which is calibrated using malt standards analysed using the official ferricyanide reducing sugar method, (ASBC Malt 6A).
<b>α-amylase</b>	α-Amylase activity is determined using ASBC method MALT 7B automated to run on a Skalar segmented flow analyser, using ASBC dextrinized starch as the substrate, and calibrated with standards that have been determined by method ASBC Malt 7A