

Table 1. Agronomic trait means of the 2017-2018 Winter Malting Barley Trial (WMBT)^a at 28 locations.

Trial location	Winter Survival (%)	Yield (Bu/A)	Heading date (Julian day)	Height (cm)	Lodging degree (0-9)	Straw breakage (%)	Test Weight (lb/Bu)	Grain Protein-breeder measure (%)	Plump-breeder measure (%)
Fayetteville, AR	.	94.9	112.3	79.5	.	.	36.7	.	.
Center, CO	65.0	56.9	.	62.1	.	.	.	.	.
Plains, GA	100.0	.	.	.	.	.	.	.	.
Aberdeen, ID	100.0	.	.	.	.	.	.	.	.
West Lafayette, IN	100.0	.	.	.	.	.	.	.	.
Schochoh, KY	100.0	70.2	120.2	89.0	.	.	39.8	.	.
South Deerfield, MA	98.2	96.3	.	84.6	1.4	.	43.9	.	.
Clarksville, MD	81.8	65.0	126.1	.	.	.	34.2	.	.
Wye, MD	93.6	79.8	126.5	83.5	2.1	.	35.5	.	.
Hickory Corners, MI	.	84.2	140.4	92.1	.	.	46.4	.	92.6
Kawkawlin, MI	.	60.1	.	63.5	.	.	45.2	.	80.9
Saint Paul, MN	6.6	.	.	.	.	.	.	.	.
Mills River, NC	100.0	87.9	.	88.0	1.7	.	37.5	9.2	.
Raleigh, NC	100.0	63.9	116.1	.	6.0	.	36.3	.	11.3
Lincoln, NE	.	58.2	.	.	.	.	.	.	.
Ithaca, NY	72.7	43.7	147.3	87.9	3.8	.	46.2	.	.
Custar, OH	100.0	.	.	.	.	.	.	.	.
Wooster, OH	100.0	.	.	.	.	.	.	.	.
Corvallis, OR	100.0	119.9	118.4	105.0	2.7	38.9	52.4	10.2	22.2
Rock Springs, PA	100.0	79.8	140.0	81.5	3.8	.	43.6	.	.
Memphis, TN	100.0	27.7	.	.	0.3	.	.	.	.
Blacksburg, VA	.	91.4	124.6	77.5	1.4	.	41.0	.	.
Mt. Holly, VA	.	.	119.3	.	.	.	.	.	.
Warsaw, VA	.	86.6	118.9	78.8	0.8	.	40.8	.	.
Alburgh, VT	55.8	69.0	149.0	69.5	.	4.1	46.2	.	94.2
Pullman, WA	100.0	121.1	.	84.7	4.0	.	52.1	10.3	96.2
Alma, WI	39.0	40.7	.	.	.	.	.	.	.
River Falls, WI	60.1	.	164.2	60.0	.	.	.	.	.
GRAND MEAN	84.3	74.9	130.3	80.4	2.5	21.5	42.4	9.9	66.2

^a Agronomic data reported for 28 of 33 locations planted

Table 2. Disease trait means of the 2017-2018 Winter Malting Barley Trial (WMBT)^a at eight locations.

Trial location	Fusarium Head Blight severity (%)	Fusarium Head Blight incidence (%)	BYDV susceptibility (0-9)	Leaf Rust susceptibility (0-9)	Leaf Scald reaction (0-9)	Net blotch (net form) reaction (0-9)	Powdery Mildew susceptibility (0-9)	Spot Blotch reaction (0-9)
South Deerfield, MA	.	.	.	.	.	.	1.7	.
Wye, MD	.	.	0.0	0.0	0.0	0.4	0.0	.
Raleigh, NC	.	.	4.2	.	.	3.6	.	3.7
Ithaca, NY	.	.	.	.	1.4	.	2.5	.
Corvallis, OR	.	.	.	.	4.4	.	.	.
Rock Springs, PA	.	.	4.3	0.0	0.3	3.7	1.1	.
Mt. Holly, VA	56.1	99.9	.	.	.	.	2.6	.
Alburgh, VT	.	.	.	1.6	.	.	2.0	.
GRAND MEAN	56.1	99.9	2.9	0.5	1.6	2.6	1.7	3.7

^a Disease data reported for eight of 33 locations planted

Table 3. Malt quality^a trait means of the 2017-2018 Winter Malting Barley Trial (WMBT)^b at three locations.

Trial location	Kernel weight (mg)	Plump grains (%)	Malt extract (%)	Grain Protein (%)	Wort Protein (%)	S/T (%)	Diastatic Power °ASBC	Alpha Amylase (20°DU)	Beta Glucan (ppm)	Free Amino Nitrogen (ppm)	Grain color (°ASBC)	Wort color (°ASBC)	Wort clarity (1-3)
Raleigh, NC	26.9	62.8	77.1	14.0	7.0	50.7	137.7	99.4	198.2	315.5	10.7	5.0	1.4
Ithaca, NY	37.0	88.2	81.3	13.0	5.7	47.6	155.9	82.7	238.3	217.2	71.8	2.0	1.1
Corvallis, OR	35.1	85.0	81.6	10.2	5.1	53.2	195.0	76.7	184.2	209.3	81.6	1.6	1.0
GRAND MEAN	33.0	78.7	80.0	12.4	5.9	50.5	162.9	86.3	206.9	247.3	54.7	2.7	1.2

^a Malt quality data courtesy of the USDA-ARS Cereal Crops Research Unit, Madison, WI

^b Malt quality data reported for three of 33 locations planted

Table 4. Winter Survival (%) line means for 2017-2018 Winter Malting Barley Trial (WMBT) entries at 21 locations.

Line	Line Mean	Center, CO	Plains, GA	Aberdeen, ID	West Lafayette, IN	Schochoh, KY	South Deerfield, MA	Clarksville, MD	Wye, MD	Saint Paul, MN	Mills River, NC	Raleigh, NC	Ithaca, NY	Custar, OH	Wooster, OH	Corvallis, OR	Rock Springs, PA	Memphis, TN	Alburgh, VT	Pullman, WA	Alma, WI	River Falls, WI
CHARLES	82.7	35.0	100	100	100	100	95	64.7	92	0.0	100	100	78.3	100	100	100	100	100	62.5	100	70.0	39.6
MCGREGOR	87.1	62.5	100	100	100	100	95	88.0	97	23.3	100	100	75.0	100	100	100	100	100	68.4	100	36.7	84.0
THOROUGHbred	86.1	85.0	100	100	100	100	100	86.0	96	10.0	100	100	81.7	100	100	100	100	100	39.5	100	36.7	73.9
ENDEAVOR	80.1	47.5	100	100	100	100	95	86.7	94	0.0	100	100	63.3	100	100	100	100	100	34.5	100	46.7	34.7
WINTMALT	87.8	75.0	100	100	100	100	100	88.3	30.0	100	100	86.7	100	100	100	100	100	100	51.6	100	46.7	77.5
05ARS561-208	84.0	52.5	100	100	100	100	98	81.0	91	25.0	100	100	80.0	100	100	100	100	100	42.3	100	46.7	47.9
06ARS617-25	82.3	62.5	100	100	100	100	100	79.0	90	1.0	100	100	60.0	100	100	100	100	100	28.0	100	40.0	67.5
07ARS518-13	82.7	67.5	100	100	100	100	100	75.3	88	1.7	100	100	76.7	100	100	100	100	100	34.3	100	53.3	39.4
07ARS515-7	82.1	57.5	100	100	100	100	100	77.3	88	0.0	100	100	81.7	100	100	100	100	100	62.9	100	26.7	30.1
LIGHTNING	85.7	67.5	100	100	100	100	100	73.7	99	16.7	100	100	66.7	100	100	100	100	100	47.1	100	43.3	86.2
DH120304	82.5	47.5	100	100	100	100	100	73.7	95	13.3	100	100	73.3	100	100	100	100	100	49.2	100	43.3	53.7
DH130939	82.3	57.5	100	100	100	100	98	86.7	94	0.0	100	100	66.7	100	100	100	100	100	71.1	100	10.0	44.9
DH140088	86.3	60.0	100	100	100	100	100	87.3	91	0.0	100	100	81.7	100	100	100	100	100	71.0	100	46.7	74.0
2WI15-8674	80.0	37.5	100	100	100	100	95	84.3	89	0.0	100	100	53.3	100	100	100	100	100	55.6	100	26.7	59.2
2WI15-8688	81.2	65.0	100	100	100	100	98	79.3	87	1.7	100	100	70.0	100	100	100	100	100	60.1	100	36.7	7.3
2WI15-8775	82.6	63.0	100	100	100	100	100	65.0	93	0.0	100	100	60.0	100	100	100	100	100	51.6	100	56.7	45.1
HIRONDELLA	81.9	57.5	100	100	100	100	98	81.3	97	0.0	100	100	83.3	100	100	100	100	100	65.6	100	26.7	11.5
FLAVIA	85.0	69.0	100	100	100	100	100	88.7	92	0.0	100	100	75.0	100	100	100	100	100	78.8	100	23.3	57.4
SU_MATEO	88.5	82.5	100	100	100	100	100	88.3	98	0.0	100	100	85.0	100	100	100	100	100	60.3	100	43.3	100.0
LGBB13-W102	86.6	62.5	100	100	100	100	100	92.0	95	0.0	100	100	66.7	100	100	100	100	100	74.1	100	60.0	67.8
MW12_4028-007	85.6	77.5	100	100	100	100	95	85.7	98	31.7	100	100	78.3	100	100	100	100	100	33.7	100	16.7	80.7
MN-EQUINOX	86.7	95.0	100	100	100	100	100	68.3	95	0.0	100	100	81.7	100	100	100	100	100	56.3	100	36.7	87.6
MW13_4122-012	87.2	96.5	100	100	100	100	98	79.7	98	23.3	100	100	81.7	100	100	100	100	100	60.2	100	26.7	66.3
MW13_4159-012	86.8	70.0	100	100	100	100	100	87.7	93	0.0	100	100	80.0	100	100	100	100	100	65.9	100	43.3	83.0
LYBERAC	85.0	60.0	100	100	100	100	92	86.7	94	0.0	100	100	78.3	100	100	100	100	100	51.9	100	53.3	68.7
AC11x341x28	83.4	72.5	100	100	100	100	95	82.3	94	0.0	100	100	50.0	100	100	100	100	100	73.6	100	20.0	64.8
AC11x367x2	84.3	70.0	100	100	100	100	100	92.3	95	0.0	100	100	48.3	100	100	100	100	100	56.3	100	36.7	70.6
GRAND MEAN	84.3	65.0	100	100	100	100	98.2	81.8	93.6	6.6	100	100	72.7	100	100	100	100	100	55.8	100	39.0	60.1

Table 5. Yield (Bu/A) line means for 2017-2018 Winter Malting Barley Trial (WMBT) entries at 20 locations.

Line	Line Mean	Fayetteville, AR	Center, CO	Schochoh, KY	South Deerfield, MA	Clarksville, MD	Wye, MD	Hickory Corners, MI	Kawkawlin, MI	Mills River, NC	Raleigh, NC	Lincoln, NE	Ithaca, NY	Corvallis, OR	Rock Springs, PA	Memphis, TN	Blacksburg, VA	Warsaw, VA	Alburgh, VT	Pullman, WA
CHARLES	63.6	80.8	26.1	35.4	96.5	48.6	78.5	103.5	58.2	71.6	40.1	57.5	36.8	78.2	63.5	28.1	69.2	69.2	53.6	132.5
MCGREGOR	87.1	94.8	58.4	73.4	107.8	77.3	95.4	102.3	64.1	107.8	66.0	73.6	65.4	148.0	83.9	46.2	111.1	96.2	98.5	128.8
THOROUGHbred	84.8	122.2	86.2	69.0	111.0	86.4	91.9	107.0	43.7	108.9	54.1	69.9	47.0	116.1	79.9	44.5	100.1	102.7	84.8	121.8
ENDEAVOR	71.6	98.1	29.4	60.4	102.5	75.0	79.5	82.4	54.4	100.5	41.6	45.9	43.9	108.7	97.9	35.1	85.3	82.5	53.2	113.3
WINTMALT	77.9	90.5	35.0	78.3	91.8	69.4		105.0	50.1	89.0	72.7	75.3	41.9	128.0	87.9	34.6	109.9	102.4	64.0	135.8
05ARS561-208	63.0	83.9	34.3	59.2	65.6	62.6	66.7	67.9	54.4	82.9	40.8	65.4	37.6	69.9	74.9	24.6	71.8	87.5	43.1	125.0
06ARS617-25	74.2	110.4	58.9	74.0	111.1	81.2	88.4	82.0	55.8	89.5	44.0	63.4	48.5	107.6	86.8	23.6	82.8	77.5	42.5	134.4
07ARS518-13	66.2	95.2	50.5	61.6	82.1	60.5	84.9	88.1	56.8	79.3	61.7	56.4	33.0	78.2	81.4	12.5	62.1	83.1	25.1	134.5
07ARS515-7	67.3	79.4	38.8	77.7	67.8	54.0	71.1	81.5	55.8	94.5	43.7	68.1	37.1	70.5	83.3	31.7	76.1	72.6	91.4	114.7
LIGHTNING	79.6	96.0	63.9	76.6	115.2	53.3	76.9	89.8	64.6	102.4	59.4	65.2	48.5	133.0	90.5	25.5	117.4	86.4	68.3	122.9
DH120304	77.9	98.9	47.4	72.1	108.6	52.5	91.0	87.4	79.1	104.4	54.4	65.4	44.3	136.0	91.1	36.6	86.9	85.3	40.4	129.5
DH130939	76.4	96.1	46.6	74.3	118.6	71.6	94.1	49.3	65.0	84.6	124.1	49.6	39.2	129.0	64.5	23.5	101.3	76.7	55.2	126.2
DH140088	74.9	88.3	25.5	80.6	89.9	79.6	83.8	89.0	79.0	83.7	80.9	50.6	31.8	124.9	75.6	37.1	100.6	81.4	56.1	113.3
2WI15-8674	62.9	74.4	33.0	50.7	65.0	66.3	57.0	76.7	73.5	71.2	39.3	63.2	35.1	99.2	67.9	28.6	82.4	73.4	53.0	117.3
2WI15-8688	67.7	90.5	34.9	73.5	63.6	60.7	71.1	80.6	43.5	67.0	54.3	49.2	50.6	123.9	80.0	21.6	69.8	84.5	57.0	142.6
2WI15-8775	68.5	81.6	72.1	76.3	95.2	35.6	59.8	88.4	55.2	64.5	63.5	47.8	43.0	94.2	91.2	28.6	66.0	73.8	65.8	117.8
HIRONDELLA	81.6	105.4	47.3	88.6	106.4	50.5	87.0	95.7	48.1	99.3	79.7	45.9	53.0	163.5	57.2	26.5	109.3	87.7	108.0	130.3
FLAVIA	79.5	105.7	55.3	72.0	132.4	73.1	82.9	89.6	67.4	101.2	51.1	52.2	40.3	120.5	90.4	25.0	111.7	96.2	78.8	114.4
SU_MATEO	83.3	111.2	68.0	76.9	97.3	67.2	89.8	106.3	52.3	120.5	101.4	39.4	39.9	138.9	93.6	31.0	104.6	90.2	76.1	115.4
LGBB13-W102	84.8	94.6	66.2	70.1	109.3	76.2	71.2	90.4	62.6	98.3	76.3	57.8	45.9	163.9	88.1	19.6	101.6	92.9	107.7	137.6
MW12_4028-007	65.5	87.4	78.8	65.4	88.6	65.4	47.4	61.5	47.5	61.3	76.8	53.5	40.9	131.9	55.5	17.6	66.1	65.1	59.8	124.3
MN-EQUINOX	72.2	96.1	105.6	71.9	108.6	46.6	77.1	58.4	61.7	50.2	76.9	62.3	41.9	106.1	73.9	27.6	83.1	82.4	62.7	102.1
MW13_4122-012	70.2	91.7	118.7	64.6	101.4	45.0	62.1	71.8	58.0	77.7	59.4	62.9	43.0	93.6	52.9	19.1	83.8	94.3	105.0	77.4
MW13_4159-012	74.8	94.7	59.1	78.2	71.7	77.9	82.8	83.6	77.2	75.8	64.1	64.7	41.2	134.9	76.1	17.5	80.6	95.0	62.9	108.8
LYBERAC	79.1	95.0	58.9	57.4	102.9	61.4	82.9	84.2	65.8	89.4	65.0	56.6	35.5	150.7	84.5	27.6	109.0	94.5	77.7	136.2
AC11x341x28	78.6	98.9	62.5	78.4	104.1	58.5	88.6	52.6	50.3	75.2	74.6	49.7	52.9	135.0	89.1	28.1	104.1	96.4	104.7	101.8
AC11x367x2	88.0	101.4	73.5	79.4	84.3	98.9	113.1	97.2	77.6	122.3	59.4	60.3	60.9	152.1	93.8	26.6	119.7	109.0	68.3	110.5
GRAND MEAN	74.9	94.9	56.9	70.2	96.3	65.0	79.8	84.2	60.1	87.9	63.9	58.2	43.7	119.9	79.8	27.7	91.4	86.6	69.0	121.1

Table 6. Agronomic trait line means for 2017-2018 Winter Malting Barley Trial (WMBT) entries.

Line	Winter Survival (%)	Yield (Bu/A)	Heading date (Julian day)	Height (cm)	Lodging degree (0-9)	Straw breakage (%)	Test weight (lb/Bu)	Grain Protein-breeder measure (%)	Plump-breeder measure (%)	Fusarium Head Blight severity (%)	Fusarium Head Blight incidence (%)	BYDV susceptibility (0-9)	Leaf Rust susceptibility (0-9)	Leaf Scald reaction (0-9)	Net blotch (net form) reaction (0-9)	Powdery Mildew susceptibility (0-9)	Spot Blotch reaction (0-9)
CHARLES	82.7	63.6	129.8	73.9	3.1	40.0	39.3	10.1	78.4	49.5	100.0	4.4	1.8	3.0	3.6	0.6	6.0
MCGREGOR	87.1	87.1	129.2	85.2	2.3	7.5	40.3	9.9	71.1	66.0	100.0	1.9	0.3	0.3	2.1	3.3	1.5
THOROUGHBRED	86.1	84.8	128.2	83.6	3.2	31.7	43.3	9.7	73.7	69.5	100.0	2.9	1.1	1.7	3.3	3.8	6.0
ENDEAVOR	80.1	71.6	130.4	81.9	2.9	31.7	43.3	9.9	66.1	54.5	100.0	2.4	1.1	2.5	1.9	1.1	4.0
WINTMALT	87.8	77.9	133.3	78.7	1.6	9.2	43.4	9.5	80.8	59.3	100.0	5.2	0.5	4.1	2.8	1.5	2.5
05ARS561-208	84.0	63.0	135.3	72.2	3.1	28.3	39.4	9.3	60.4	70.5	100.0	3.4	0.7	2.8	2.5	2.9	1.0
06ARS617-25	82.3	74.2	130.3	78.0	2.6	12.5	41.5	9.9	60.3	35.3	100.0	2.7	0.8	3.2	4.1	1.3	5.5
07ARS518-13	82.7	66.2	130.1	81.2	1.3	10.8	42.1	10.1	63.7	39.8	100.0	2.7	0.7	3.8	3.9	0.8	5.0
07ARS515-7	82.1	67.3	131.8	78.6	2.7	26.7	42.6	9.8	58.7	51.5	100.0	3.5	0.9	3.2	2.2	1.0	1.5
LIGHTNING	85.7	79.6	133.1	83.4	2.3	11.7	45.4	10.0	66.9	46.8	100.0	3.8	0.2	0.8	2.1	0.1	4.0
DH120304	82.5	77.9	132.0	80.2	1.0	5.0	43.3	10.3	68.8	36.5	100.0	3.3	0.2	0.1	2.5	0.4	3.0
DH130939	82.3	76.4	127.6	79.8	1.9	10.8	46.7	11.0	67.6	47.8	100.0	2.4	0.2	1.0	3.5	1.8	3.0
DH140088	86.3	74.9	131.4	79.3	2.5	11.7	44.6	10.4	67.8	53.5	100.0	1.8	0.1	0.8	2.1	4.9	1.0
2WI15-8674	80.0	62.9	129.7	76.4	3.9	28.3	38.8	9.3	64.0	43.0	100.0	3.8	0.8	2.9	2.8	1.3	3.5
2WI15-8688	81.2	67.7	129.3	78.8	1.4	12.5	41.6	9.8	63.6	43.5	100.0	3.1	1.1	2.2	2.5	0.5	3.0
2WI15-8775	82.6	68.5	130.8	79.0	3.2	21.7	40.7	9.9	59.6	42.0	97.5	3.3	0.2	2.1	3.2	0.5	4.0
HIRONDELLA	81.9	81.6	131.9	79.8	1.6	10.0	42.7	9.8	66.4	70.3	100.0	2.9	0.1	0.5	1.3	0.0	5.5
FLAVIA	85.0	79.5	131.2	73.4	1.3	8.3	43.1	9.7	68.0	50.3	100.0	2.9	0.1	1.3	1.2	0.9	4.5
SU_MATEO	88.5	83.3	132.2	87.5	2.1	9.2	44.1	9.7	66.2	46.5	100.0	2.2	0.2	0.8	1.9	0.2	3.0
LGBB13-W102	86.6	84.8	129.8	78.9	2.9	30.0	40.8	9.4	66.5	82.5	100.0	1.5	0.1	0.2	2.1	0.1	1.5
MW12_4028-007	85.6	65.5	124.4	74.4	6.0	75.8	41.1	10.3	60.7	67.3	100.0	1.9	1.0	0.5	2.8	3.2	3.0
MN-EQUINOX	86.7	72.2	126.9	89.5	3.9	50.8	41.7	10.1	64.9	60.3	100.0	1.8	0.7	0.7	2.6	4.6	6.0
MW13_4122-012	87.2	70.2	129.8	91.5	4.1	28.3	41.9	10.1	63.3	67.5	100.0	3.1	0.9	1.0	3.5	2.6	3.0
MW13_4159-012	86.8	74.8	127.9	87.3	3.2	18.3	42.5	9.9	62.1	79.0	100.0	2.6	0.3	0.6	2.9	4.1	5.5
LYBERAC	85.0	79.1	132.0	79.9	1.6	7.5	43.5	9.8	67.4	58.5	100.0	3.3	0.2	0.4	2.8	3.2	5.0
AC11x341x28	83.4	78.6	131.9	80.2	1.5	8.3	42.9	10.1	64.0	59.0	100.0	3.1	0.1	0.6	2.3	0.4	4.0
AC11x367x2	84.3	88.0	129.1	78.7	1.8	33.3	43.4	9.4	67.4	64.8	100.0	2.8	0.3	1.9	1.6	0.1	4.0
GRAND MEAN	84.3	74.9	130.3	80.4	2.5	21.5	42.4	9.9	66.2	56.1	99.9	2.9	0.5	1.6	2.6	1.7	3.7
# of Env.	21	20	14	16	11	2	16	3	6	1	1	3	3	4	3	6	1

Table 7. Malt quality^a trait line means for 2017-2018 Winter Malting Barley Trial (WMBT) entries at three locations.

Line	Kernel weight (mg)	Plump grains (%)	Malt extract (%)	Grain Protein (%)	Wort Protein (%)	S/T (%)	Diastatic Power °ASBC	Alpha Amylase (20°DU)	Beta Glucan (ppm)	Free Amino Nitrogen (ppm)	Grain color (°ASBC)	Wort color (°ASBC)	Wort clarity (1-3)
CHARLES	29.2	84.3	80.3	12.9	6.4	51.6	164.3	118.0	183.0	267.0	73.7	3.8	1.3
MCGREGOR	31.5	68.5	77.3	11.6	5.0	45.3	99.0	65.7	513.7	161.0	55.0	2.3	1.0
THOROUGHBRED	29.5	75.2	79.7	12.5	5.0	43.1	154.7	68.4	392.0	179.0	64.3	2.1	1.3
ENDEAVOR	30.9	66.7	80.1	12.1	6.6	56.5	184.7	109.1	143.7	275.0	60.3	1.9	1.3
WINTMALT	36.2	87.9	79.2	12.1	5.5	47.6	166.3	81.0	66.7	213.0	58.0	2.4	1.0
05ARS561-208	26.0	61.5	80.2	10.8	6.0	57.3	139.0	124.4	147.0	235.0	64.3	3.6	1.3
06ARS617-25	28.0	64.0	80.5	13.5	7.1	55.3	185.7	113.4	91.0	301.3	54.0	2.2	1.3
07ARS518-13	32.5	75.6	80.9	12.7	6.9	56.9	186.7	106.1	43.7	311.3	46.3	2.3	2.0
07ARS515-7	26.5	65.8	80.5	12.5	6.7	55.7	141.7	101.5	115.3	282.3	56.3	1.8	1.7
LIGHTNING	41.2	76.9	79.9	12.8	6.0	47.8	206.3	58.8	108.7	245.0	58.7	2.3	1.0
DH120304	42.1	91.4	80.9	13.5	7.2	54.0	180.0	89.3	72.3	338.7	56.0	4.4	1.0
DH130939	40.7	96.4	81.3	12.7	6.6	53.5	143.7	88.1	107.7	309.3	45.7	2.3	1.7
DH140088	37.0	91.1	79.8	13.2	6.6	52.4	135.0	102.1	96.3	312.0	57.0	1.9	1.7
2WI15-8674	31.5	78.4	81.4	12.7	6.5	54.3	143.3	96.7	77.7	293.3	57.0	4.5	1.3
2WI15-8688	33.9	82.9	81.3	13.4	6.7	51.7	166.7	112.7	131.7	308.7	40.7	4.4	1.0
2WI15-8775	32.0	69.9	80.3	11.3	5.3	48.1	150.7	83.8	215.3	209.0	55.0	2.5	1.0
HIRONDELLA	35.5	89.4	81.4	12.3	5.2	46.8	151.3	65.9	362.3	188.3	45.7	2.3	1.0
FLAVIA	37.8	84.9	79.4	12.8	5.7	45.1	181.0	72.7	118.3	220.3	46.0	2.6	1.0
SU_MATEO	35.9	89.1	79.3	12.7	5.4	45.6	176.3	68.2	313.0	196.3	44.7	2.7	1.3
LGBB13-W102	31.5	88.3	79.3	11.2	5.2	50.5	191.7	61.7	271.3	191.7	60.3	2.2	1.0
MW12_4028-007	24.5	58.6	79.2	12.7	5.8	50.6	193.0	87.2	309.0	270.0	50.7	2.4	1.0
MN-EQUINOX	29.7	81.6	80.4	12.4	5.6	51.2	172.0	82.9	332.0	243.3	57.0	2.1	1.0
MW13_4122-012	29.0	79.9	80.3	12.5	5.9	50.3	173.7	82.4	212.0	262.7	54.7	2.6	1.0
MW13_4159-012	27.2	61.6	79.4	11.6	5.6	50.2	129.7	82.0	232.3	265.0	53.0	2.3	1.0
LYBERAC	39.4	93.8	81.8	12.1	5.7	52.6	180.7	71.0	104.7	232.3	56.7	2.7	1.0
AC11x341x28	35.4	76.2	79.0	12.3	5.1	44.3	151.0	83.4	265.3	198.7	48.7	2.4	1.0
AC11x367x2	35.8	83.8	77.5	11.6	4.8	45.1	149.7	52.9	560.3	168.0	56.3	2.7	1.0
GRAND MEAN	33.0	78.7	80.0	12.4	5.9	50.5	162.9	86.3	206.9	247.3	54.7	2.7	1.2

^a Malt quality data courtesy of the USDA-ARS Cereal Crops Research Unit, Madison, WI

Table 8. Line entry details available for submissions to the 2017-2018 Winter Malting Barley Trial (WMBT).

Entry	Line	Row type	Submitter
1	CHARLES	2	
2	MCGREGOR	6	
3	THOROUGHBRED	6	
4	ENDEAVOR	2	
5	WINTMALT	2	
6	05ARS561-208	2	USDA-ARS Aberdeen
7	06ARS617-25	2	USDA-ARS Aberdeen
8	07ARS518-13	2	USDA-ARS Aberdeen
9	07ARS515-7	2	USDA-ARS Aberdeen
10	LIGHTNING	2	Oregon State U
11	DH120304	2	Oregon State U
12	DH130939	2	Oregon State U
13	DH140088	2	Oregon State U
14	2WI15-8674	2	BARI
15	2WI15-8688	2	BARI
16	2WI15-8775	2	BARI
17	HIRONDELLA	6	Ackermann Saatzucht GmbH
18	FLAVIA	2	Ackermann Saatzucht GmbH
19	SU_MATEO	2	Ackermann Saatzucht GmbH
20	LGBB13-W102	6	Limagrain
21	MW12_4028-007	6	U of Minnesota
22	MN-EQUINOX	6	U of Minnesota
23	MW13_4122-012	6	U of Minnesota
24	MW13_4159-012	6	U of Minnesota
25	LYBERAC	2	Ackermann Saatzucht GmbH
26	AC11x341x28	6	Ackermann Saatzucht GmbH
27	AC11x367x2	2	Ackermann Saatzucht GmbH