Table 1. Agronomic trait means of the 2015-2016 Winter Malting Barley Trial (WMBT)[a] at 20 locations.

Trial location	Winter Survival (%)	Yield (Bu/A)	Heading date (Julian day)	Height (cm)	Lodging degree (0-9)	Lodging incidence (%)	Straw breakage (%)	Test Weight (lb/Bu)	Grain Protein-breeder measure (%)	Plump-breeder measure (%)	Thin grain (%)	Deoxynivalenol content (ppm)	BYDV susceptibility (0-9)	Leaf Scald severity (%)	Leaf Rust susceptibility (0-9)	Net blotch (net form) reaction (0-9)	Powdery Mildew susceptibility (0-9)
Plains, GA	.	45.1	102.7	82.6	.	.	.	41.2	.	.	.	.	.	.	.	.	.
Aberdeen, ID	100.0	187.8	131.9	112.4	0.7	.	.	.	.	.	.	.	.	.	.	.	.
Rupert, ID	100.0	159.0	.	109.4	6.6	.	.	53.2	.	86.5	.	.	.	.	.	.	.
South Deerfield, MA	82.1	91.5	139.0	80.8	3.8	.	.	45.7	12.8	84.0	1.9	0.01	.	.	.	.	.
Clarksville, MD	100.0	91.6	123.0	84.2	1.1	.	.	44.5	.	.	.	.	3.5	.	.	.	.
Saint Paul, MN	.	119.4	144.9	87.6	.	.	49.3	.	.	.	.	.	.	.	.	.	.
Laurel Springs, NC	100.0	.	.	.	.	.	.	.	.	.	.	.	4.5	.	.	.	.
Raleigh, NC	100.0	47.8	102.9	69.9	0.5	.	.	43.3	.	.	.	.	5.6	.	.	2.2	1.8
Mead, NE	98.0	57.6	127.4	92.6	1.1	.	.	.	.	.	.	.	.	.	1.4	.	.
Ithaca, NY	98.5	87.8	141.8	74.6	.	.	.	48.4	.	.	.	.	.	6.6	.	.	.
Wooster, OH	100.0	104.0	.	100.5	0.7	.	.	47.9	.	.	.	.	.	.	.	.	.
Corvallis, OR	100.0	157.8	105.2	100.7	.	36.1	61.7	51.0	10.5	79.6	.	.	.	40.7	.	.	.
Landisville, PA	100.0	90.1	130.2	34.5	2.0	.	.	48.3	.	75.2	.	.	.	.	.	.	.
Mount Sterling, UT	96.3	52.9	.	68.9	0.0	.	.	54.1	.	81.0	.	.	.	.	.	.	.
Blacksburg, VA	93.8	69.8	119.9	70.3	2.2	.	.	38.9	.	.	.	.	3.0	.	.	7.5	.
Warsaw, VA	.	60.9	112.1	71.8	1.0	.	.	41.4	.	.	.	.	4.2	.	4.3	1.7	2.6
Alburgh, VT	14.3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pullman, WA	100.0	129.8	.	110.4	0.0	.	.	50.1	.	93.4	.	.	.	.	.	.	.
Alma, WI	63.1	55.8	.	81.6	.	.	.	.	.	.	.	.	.	.	.	.	.
River Falls, WI	96.8	76.1	142.6	83.2	3.3	.	.	37.5	.	.	.	.	.	.	.	.	.
GRAND MEAN	91.5	93.5	124.8	84.2	1.8	36.1	55.2	46.1	11.6	83.2	1.9	0.01	4.2	23.6	2.9	3.8	2.2

[a] Agronomic data reported for 20 of 24 locations planted

Table 2. Malt quality[a] trait means of the 2015-2016 Winter Malting Barley Trial (WMBT)[b] at four 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)
Saint Paul, MN	36.5	92.8	80.7	12.6	5.2	43.8	166.0	75.1	234.8	234.9	45.9	2.0	1.4
Raleigh, NC	28.4	71.4	77.8	12.8	5.1	42.7	147.6	110.4	132.7	305.3	16.8	5.8	1.2
Blacksburg, VA	27.7	61.7	75.9	13.5	5.1	38.8	207.2	86.0	236.0	238.5	22.8	2.9	1.1
Warsaw, VA	29.6	73.3	81.1	11.6	5.0	44.1	147.3	85.2	214.5	236.4	15.6	3.0	1.6
GRAND MEAN	30.5	74.7	78.8	12.6	5.1	42.4	166.8	89.5	202.8	254.8	25.0	3.5	1.3

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

[b] Malt quality data reported for four of 24 locations planted

Table 3. Winter Survival (%) line means for 2015-2016 Winter Malting Barley Trial (WMBT) entries at 17 locations.

Line	Line Mean	Aberdeen, ID	Rupert, ID	South Deerfield, MA	Clarksville, MD	Laurel Springs, NC	Raleigh, NC	Mead, NE	Ithaca, NY	Wooster, OH	Corvallis, OR	Landisville, PA	Mount Sterling, UT	Blacksburg, VA	Alburgh, VT	Pullman, WA	Alma, WI	River Falls, WI
CHARLES	89.4	100	100	86.7	100	100	100	100	98.3	100	100	100	89.5	96.3	1.3	100	47.2	100
STRIDER	93.1	100	100	90.0	100	100	100	100	100.0	100	100	100	98.0	96.0	18.3	100	91.1	90
MCGREGOR	92.6	100	100	89.2	100	100	100	100	100.0	100	100	100	98.0	97.7	16.7	100	71.9	100
THOROUGHBRED	94.0	100	100	90.0	100	100	100	100	100.0	100	100	100	96.8	97.7	19.0	100	94.4	100
ENDEAVOR	90.2	100	100	85.8	100	100	100	100	95.0	100	100	100	94.5	96.3	0.7	100	60.7	100
WINTMALT	96.9	100	100	85.8	100	100	100	100	98.3	100	100	100	95.8	97.7	.	100	72.6	100
05ARS561-208	94.3	100	100	84.2	100	100	100	100	100.0	100	100	100	99.5	99.0	23.3	100	97.6	100
06ARS633-10	92.2	100	100	84.2	100	100	100	100	100.0	100	100	100	92.5	99.0	0.0	100	91.7	100
02AB669	95.1	100	100	87.5	100	100	100	100	96.7	100	100	100	96.5	91.7	.	100	50.0	100
04ARS640-1	89.4	100	100	90.0	100	100	100	100	96.7	100	100	100	96.0	86.7	0.3	100	50.0	100
SU_MATEO	92.0	100	100	88.3	100	100	100	100	100.0	100	100	100	97.0	96.3	29.0	100	53.3	100
HIRONDELLA	90.5	100	100	88.3	100	100	100	100	98.3	100	100	100	95.5	94.7	3.7	100	68.8	90
VINCENTA	90.6	100	100	85.0	100	100	100	100	98.3	100	100	100	94.0	91.7	15.0	100	76.7	80
10x069x1	91.7	100	100	89.2	100	100	100	100	100.0	100	100	100	93.5	96.3	28.3	100	52.4	100
LCS_PUFFIN	89.3	100	100	88.3	100	100	100	100	100.0	100	100	100	90.0	93.3	16.7	100	29.8	100
THUNDER	93.8	100	100	90.0	100	100	100	100	100.0	100	100	100	98.3	93.3	28.3	100	84.4	100
10.086	92.1	100	100	87.5	100	100	100	100	100.0	100	100	100	99.0	99.0	18.3	100	61.9	100
DH130004	83.2	100	100	20.0	100	100	100	90	93.3	100	100	100	97.0	81.7	0.0	100	52.2	80
DH130718	76.5	100	100	3.3	100	100	100	55	86.7	100	100	100	92.5	80.0	0.0	100	12.2	70
MW11S4024-004	93.2	100	100	88.3	100	100	100	100	98.3	100	100	100	97.0	93.3	38.3	100	69.0	100
MW11S4029-002	90.2	100	100	88.3	100	100	100	100	100.0	100	100	100	98.3	95.0	4.7	100	47.8	100
MW12_4007-008	95.4	100	100	89.2	100	100	100	100	100.0	100	100	100	98.0	96.3	38.3	100	99.2	100
MW12_4042-002	92.6	100	100	87.5	100	100	100	100	100.0	100	100	100	98.5	93.0	20.7	100	75.0	100
6W11-0003	94.1	100	100	86.7	100	100	100	100	100.0	100	100	100	93.3	91.7	.	100	34.3	100
6W11-0064	91.3	100	100	87.5	100	100	100	100	100.0	100	100	100	98.5	94.7	14.0	100	57.9	100
6W13-7041	90.6	100	100	88.3	100	100	100	100	96.7	100	100	100	98.8	93.3	3.3	100	59.0	100
6W13-7145	90.5	100	100	.	100	100	100	100	100.0	100	100	100	99.3	90.0	5.0	100	53.2	100
LCS_CALYPSO	96.1	100	100	88.3	100	100	100	100	100.0	100	100	100	99.8	.	.	100	53.2	100
GRAND MEAN	91.5	100	100	82.1	100	100	100	98.0	98.5	100	100	100	96.3	93.8	14.3	100	63.1	96.8

Table 4. Yield (Bu/A) line means for 2015-2016 Winter Malting Barley Trial (WMBT) entries at 18 locations.

Line	Line Mean	Plains, GA	Aberdeen, ID	Rupert, ID	South Deerfield, MA	Clarksville, MD	Saint Paul, MN	Raleigh, NC	Mead, NE	Ithaca, NY	Wooster, OH	Corvallis, OR	Landisville, PA	Mount Sterling, UT	Blacksburg, VA	Warsaw, VA	Pullman, WA	Alma, WI	River Falls, WI
CHARLES	74.5	35.4	188.9	129.9	64.9	74.6	79.6	53.0	48.4	61.2	81.2	74.7	61.2	45.6	60.1	69.6	120.3	34.5	57.2
STRIDER	100.8	38.7	205.1	191.6	95.9	94.2	137.4	47.0	58.9	100.5	110.6	163.5	95.2	57.9	72.4	58.6	135.1	95.4	57.3
MCGREGOR	118.2	42.7	187.7	187.1	126.5	105.4	168.0	68.1	101.7	98.6	124.1	219.2	134.5	44.4	106.9	84.2	135.2	84.6	108.6
THOROUGHBRED	98.3	71.0	181.5	107.6	91.7	110.2	156.1	68.9	44.0	88.4	116.1	185.7	97.8	40.4	107.4	92.4	110.0	10.9	89.4
ENDEAVOR	94.7	61.9	213.5	147.6	75.8	86.4	138.3	80.0	36.2	79.7	96.1	120.1	90.9	47.0	71.2	77.9	125.1	70.2	87.4
WINTMALT	89.3	11.6	176.1	168.8	101.6	110.7	89.6	37.8	56.4	73.5	105.4	152.9	78.9	53.0	82.1	49.2	146.6	43.9	70.1
05ARS561-208	76.3	6.2	180.5	148.3	77.9	62.6	68.6	28.3	34.9	79.4	96.0	114.0	78.7	60.4	44.2	36.9	148.7	46.4	61.6
06ARS633-10	84.8	32.3	197.7	148.5	74.7	83.3	98.8	36.3	58.1	77.9	104.8	112.4	102.8	59.0	41.6	50.7	97.8	87.2	62.0
02AB669	84.7	34.4	187.0	148.3	88.0	73.1	96.7	40.4	31.7	83.8	96.0	134.9	90.7	52.8	41.2	55.3	138.2	59.1	73.8
04ARS640-1	93.9	81.5	203.2	174.6	85.2	86.8	104.3	73.3	59.7	82.6	91.0	114.1	80.4	52.8	59.5	60.6	135.4	64.8	79.6
SU_MATEO	105.0	37.1	193.4	171.6	108.3	124.4	98.7	43.7	50.8	98.4	105.7	217.4	109.8	53.3	92.0	78.9	125.9	72.4	108.9
HIRONDELLA	122.7	59.4	188.5	189.8	115.4	127.0	180.6	90.5	68.3	95.6	119.6	230.2	115.0	52.4	117.7	95.5	152.1	106.8	103.5
VINCENTA	98.5	24.6	174.7	192.9	110.9	86.5	122.0	25.5	84.8	100.8	109.3	182.6	104.0	44.3	53.0	57.4	122.7	80.0	96.5
10x069x1	120.0	57.6	222.6	179.9	115.9	131.2	183.4	50.7	105.1	107.9	117.9	185.5	113.8	53.6	98.6	86.8	167.7	90.1	92.0
LCS_PUFFIN	95.5	23.5	176.7	164.4	104.9	107.7	99.5	22.1	84.2	82.3	117.0	185.5	105.1	54.5	50.9	50.1	142.7	67.1	81.4
THUNDER	92.9	49.5	193.3	176.8	92.7	95.0	105.8	63.9	78.0	80.9	89.6	134.2	82.7	48.6	66.6	67.9	120.8	52.4	72.9
10.086	89.5	52.1	193.7	164.0	72.4	85.3	86.7	49.0	66.6	82.8	80.2	94.9	91.9	55.8	75.4	69.1	144.9	55.2	90.4
DH130004	72.7	52.4	151.9	154.9	53.9	68.7	41.4	33.1	60.9	79.0	105.6	172.0	67.3	43.5	45.5	42.7	80.6	13.1	43.1
DH130718	71.8	49.9	157.7	167.3	17.4	70.1	.	42.9	31.2	64.6	100.1	178.0	70.8	42.0	45.3	33.3	98.7	9.2	42.7
MW11S4024-004	84.4	63.2	162.0	134.3	91.3	78.9	127.3	41.5	55.8	89.7	112.7	127.1	64.8	55.2	53.5	47.6	128.1	39.0	47.3
MW11S4029-002	92.6	95.3	179.9	138.6	77.4	81.6	118.3	76.5	77.8	88.3	109.4	106.6	75.4	52.3	85.2	65.7	105.0	36.1	96.7
MW12_4007-008	88.9	69.7	184.5	123.2	98.0	74.8	133.3	40.4	31.2	92.6	96.9	144.5	75.1	53.0	92.6	77.0	123.5	39.2	49.8
MW12_4042-002	84.8	51.6	165.3	142.5	101.4	81.9	105.4	56.0	49.5	96.1	95.2	167.5	70.1	53.9	52.9	32.8	94.0	43.9	66.9
6W11-0003	98.7	17.1	196.4	176.1	106.9	88.4	121.3	62.7	55.3	97.7	114.9	173.6	96.1	55.2	64.0	50.1	167.2	48.5	84.2
6W11-0064	92.2	22.8	202.5	169.3	96.5	80.7	130.8	7.1	33.4	97.2	105.9	156.3	88.3	65.9	55.0	33.0	162.7	69.9	82.2
6W13-7041	91.1	15.9	197.4	129.4	87.9	94.3	142.6	8.3	55.6	98.1	84.6	180.7	93.7	66.0	57.1	45.4	158.2	53.9	71.2
6W13-7145	90.3	64.4	205.9	133.1	.	71.9	141.2	36.9	27.5	89.7	104.7	169.0	70.4	60.9	67.8	42.4	116.3	67.9	64.7
LCS_CALYPSO	111.1	39.6	192.3	192.7	136.5	128.2	149.2	54.9	67.4	92.0	120.4	222.5	117.9	56.9	94.1	93.7	130.1	21.3	90.3
GRAND MEAN	93.5	45.1	187.8	159.0	91.5	91.6	119.4	47.8	57.6	87.8	104.0	157.8	90.1	52.9	69.8	60.9	129.8	55.8	76.1

Table 5. Agronomic trait line means for 2015-2016 Winter Malting Barley Trial (WMBT) entries.

Line	Winter Survival (%)	Yield (Bu/A)	Heading date (Julian day)	Height (cm)	Lodging degree (0-9)	Lodging incidence (%)	Straw breakage (%)	Test weight (lb/Bu)	Grain Protein-breeder measure (%)	Plump-breeder measure (%)	Thin grain (%)	Deoxynivalenol content (ppm)	BYDV susceptibility (0-9)	Leaf Scald severity (%)	Leaf Rust susceptibility (0-9)	Net blotch (net form) reaction (0-9)	Powdery Mildew susceptibility (0-9)
CHARLES	89.4	74.5	122.9	71.9	3.2	63.3	70.8	42.6	12.1	86.3	1.4	0.00	3.3	78.3	4.3	4.0	0.0
STRIDER	93.1	100.8	125.7	87.1	2.4	10.0	63.3	43.1	11.7	73.3	5.9	0.05	3.5	9.3	4.1	3.9	0.3
MCGREGOR	92.6	118.2	126.0	89.0	2.2	20.0	50.8	46.1	12.4	86.1	1.7	0.02	1.0	0.0	2.6	2.9	2.7
THOROUGHBRED	94.0	98.3	122.5	88.3	1.4	16.7	49.2	48.7	11.6	84.0	1.3	0.07	0.8	30.8	3.2	5.4	3.6
ENDEAVOR	90.2	94.7	121.4	83.9	2.2	33.3	65.8	48.4	12.5	75.7	1.7	0.00	1.6	49.2	3.8	4.1	1.0
WINTMALT	96.9	89.3	129.8	80.3	1.4	13.3	28.3	47.5	10.5	91.3	0.6	0.00	4.5	45.0	2.3	2.8	1.0
05ARS561-208	94.3	76.3	129.3	75.1	2.3	88.3	87.5	42.2	10.2	76.1	4.0	0.00	5.9	48.3	3.7	2.0	3.8
06ARS633-10	92.2	84.8	127.7	83.6	2.0	83.3	81.7	43.2	11.2	66.1	2.2	0.00	6.0	58.3	3.4	4.4	0.0
02AB669	95.1	84.7	126.5	87.7	2.1	66.7	77.5	46.7	10.4	87.1	1.9	0.01	5.5	48.3	3.7	3.4	6.0
04ARS640-1	89.4	93.9	120.8	79.9	1.7	63.3	49.2	49.2	12.4	84.0	1.9	0.04	5.6	48.3	2.5	3.7	2.5
SU_MATEO	92.0	105.0	127.1	88.5	1.4	13.3	21.7	48.6	10.3	94.7	0.3	0.00	2.6	1.7	1.8	4.0	0.0
HIRONDELLA	90.5	122.7	126.3	86.6	2.1	6.7	38.3	46.6	11.5	90.5	1.0	0.00	0.3	5.0	1.0	3.4	0.0
VINCENTA	90.6	98.5	126.4	77.7	1.3	3.3	29.2	44.7	10.8	92.7	0.6	0.00	5.9	13.7	1.2	5.4	0.0
10x069x1	91.7	120.0	123.9	84.8	1.3	23.3	45.8	46.4	10.9	90.5	1.0	0.00	3.2	15.2	2.3	5.2	1.0
LCS_PUFFIN	89.3	95.5	128.5	83.8	1.3	6.7	14.2	49.0	11.6	92.9	1.1	0.00	5.9	15.0	1.0	4.3	0.0
THUNDER	93.8	92.9	121.4	76.4	1.9	63.3	63.3	46.5	11.8	90.5	1.0	0.02	4.9	55.8	3.3	3.7	2.4
10.086	92.1	89.5	122.3	71.4	2.0	61.7	85.8	46.1	11.7	88.0	1.4	0.00	4.2	54.3	3.2	3.8	0.0
DH130004	83.2	72.7	120.8	72.3	0.9	6.7	21.7	47.1	13.3	95.1	1.3	0.00	6.7	0.0	3.2	4.3	5.4
DH130718	76.5	71.8	119.1	66.0	0.8	36.7	33.3	47.1	12.4	94.6	1.5	0.00	6.8	0.0	3.4	4.5	4.5
MW11S4024-004	93.2	84.4	121.8	91.6	2.3	38.3	71.7	45.8	11.8	86.0	1.2	0.00	5.1	28.5	3.5	3.7	3.3
MW11S4029-002	90.2	92.6	119.7	92.4	2.6	89.7	86.7	47.2	13.5	71.2	3.2	0.01	2.5	29.2	4.2	2.8	7.1
MW12_4007-008	95.4	88.9	123.8	92.8	1.6	30.0	78.3	47.5	11.6	82.0	1.5	0.02	4.8	1.7	1.0	2.6	1.5
MW12_4042-002	92.6	84.8	126.3	96.9	1.9	83.3	75.0	45.6	11.7	79.1	1.0	0.00	4.9	9.3	3.7	3.8	3.5
6W11-0003	94.1	98.7	126.9	89.5	1.3	50.0	88.3	44.9	11.5	53.8	6.7	0.07	2.8	4.2	4.0	3.6	2.5
6W11-0064	91.3	92.2	127.5	86.9	1.6	20.0	49.2	44.2	11.9	70.6	2.1	0.01	5.0	1.7	2.7	4.0	4.9
6W13-7041	90.6	91.1	131.0	92.4	1.5	5.0	35.8	44.4	11.0	83.0	2.8	0.00	5.5	0.8	3.3	4.0	0.3
6W13-7145	90.5	90.3	121.4	91.4	1.3	11.7	59.2	45.2	11.0	70.5	.	.	5.3	4.2	3.2	3.5	4.8
LCS_CALYPSO	96.1	111.1	126.8	89.5	1.6	3.3	23.3	47.2	11.6	93.7	0.6	0.01	2.3	5.0	1.5	2.6	0.0
GRAND MEAN	91.5	93.5	124.8	84.2	1.8	36.1	55.2	46.1	11.6	83.2	1.9	0.01	4.2	23.6	2.9	3.8	2.2
# of Env.	17	18	13	18	13	1	2	14	2	6	1	1	5	2	2	3	2

Table 6. Malt quality[a] trait line means for 2015-2016 Winter Malting Barley Trial (WMBT) entries at four 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	29.0	84.3	80.3	11.8	5.3	47.5	148.8	119.3	143.3	283.5	23.8	3.7	1.5
STRIDER	24.0	55.8	76.0	12.5	4.3	37.8	91.8	65.8	436.0	180.8	29.3	4.0	2.3
MCGREGOR	30.0	68.0	77.8	11.3	4.3	39.8	95.5	63.8	365.0	180.3	18.5	3.0	1.0
THOROUGHBRED	29.0	83.0	79.0	10.8	4.3	41.0	131.5	61.5	347.8	186.5	24.0	2.8	1.0
ENDEAVOR	32.0	81.5	81.8	11.3	5.3	50.0	150.0	108.0	117.3	278.8	24.3	4.0	1.5
WINTMALT	33.5	85.5	78.3	13.3	4.8	37.5	186.5	76.0	123.0	220.8	25.3	3.5	1.5
05ARS561-208	25.3	55.8	78.5	12.5	5.5	44.5	174.3	126.8	195.5	266.3	25.5	3.5	1.0
06ARS633-10	26.8	53.3	78.0	13.0	5.5	44.5	163.3	127.8	231.8	314.8	26.8	4.0	1.0
02AB669	28.0	66.8	79.8	12.8	6.0	47.8	173.0	129.5	89.8	299.0	22.0	3.8	1.0
04ARS640-1	32.0	83.5	81.0	12.5	5.5	47.3	174.0	103.5	141.8	281.0	20.8	3.0	1.5
SU_MATEO	34.3	84.0	78.3	12.5	4.5	37.5	181.5	64.0	269.3	185.0	25.5	2.8	2.0
HIRONDELLA	35.5	83.5	79.3	11.5	4.5	40.0	160.8	59.8	354.5	173.5	31.5	2.8	1.0
VINCENTA	34.3	76.5	78.0	13.5	5.3	39.5	171.8	73.0	121.8	225.3	21.8	3.5	1.0
10x069x1	33.3	81.3	78.5	11.8	4.3	39.5	147.5	59.5	256.8	195.3	20.8	4.0	1.8
LCS_PUFFIN	31.8	76.0	78.5	13.3	5.0	39.0	145.8	66.5	235.5	233.8	24.3	3.3	1.3
THUNDER	33.5	87.8	81.0	13.0	5.8	47.5	176.8	125.5	43.3	333.3	23.5	3.7	1.5
10.086	31.8	89.0	81.3	12.3	5.3	43.8	139.8	100.0	95.8	271.0	24.8	3.0	1.5
DH130004	36.5	87.8	79.3	15.5	6.3	41.8	200.3	94.3	78.0	365.8	18.3	4.0	2.0
DH130718	30.7	77.7	79.0	14.0	6.0	43.0	138.0	110.7	40.3	353.7	12.0	6.5	1.7
MW11S4024-004	26.5	65.8	77.0	13.0	5.3	41.5	193.8	87.5	207.0	247.5	24.8	3.3	1.3
MW11S4029-002	27.5	63.0	80.3	11.5	5.0	45.5	174.0	80.3	289.8	235.8	32.8	3.3	1.0
MW12_4007-008	33.3	85.3	80.5	12.5	5.3	43.3	167.3	79.8	150.5	246.0	27.5	3.3	1.3
MW12_4042-002	26.5	66.8	78.8	13.0	5.8	44.8	183.3	105.5	297.8	300.0	26.8	3.7	1.5
6W11-0003	26.8	61.8	78.0	13.3	5.3	43.8	217.3	94.3	246.0	280.0	27.5	3.5	1.0
6W11-0064	26.0	61.5	75.8	13.8	5.3	40.8	268.0	88.5	102.3	282.3	21.8	4.0	1.3
6W13-7041	28.3	66.8	76.5	13.5	4.8	36.0	160.8	82.3	243.0	234.3	33.0	3.8	1.0
6W13-7145	28.8	69.8	77.8	12.3	5.3	44.8	177.0	90.8	262.0	272.8	35.0	3.3	1.0
LCS_CALYPSO	39.5	89.5	80.0	12.3	4.3	36.8	178.3	61.8	193.3	208.5	28.3	2.8	1.0
GRAND MEAN	30.5	74.7	78.8	12.6	5.1	42.4	166.8	89.5	202.8	254.8	25.0	3.5	1.3

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

Table 7. Line entry details available for submissions to the 2015-2016 Winter Malting Barley Trial (WMBT).

Entry	Line	Row type	Submitter
1	CHARLES	2	
2	STRIDER	6	
3	MCGREGOR	6	
4	THOROUGHBRED	6	
5	ENDEAVOR	2	
6	WINTMALT	2	
7	05ARS561-208	2	USDA-ARS Aberdeen
8	06ARS633-10	2	USDA-ARS Aberdeen
9	02AB669	2	USDA-ARS Aberdeen
10	04ARS640-1	2	USDA-ARS Aberdeen
11	SU_MATEO	2	Ackermann Saatzucht GmbH
12	HIRONDELLA	6	Ackermann Saatzucht GmbH
13	VINCENTA	2	Ackermann Saatzucht GmbH
14	10x069x1	6	Ackermann Saatzucht GmbH
15	LCS_PUFFIN	2	Limagrain
16	THUNDER	2	Oregon State U
17	10.086	2	Oregon State U
18	DH130004	2	Oregon State U
19	DH130718	2	Oregon State U
20	MW11S4024-004	6	U of Minnesota
21	MW11S4029-002	6	U of Minnesota
22	MW12_4007-008	6	U of Minnesota
23	MW12_4042-002	6	U of Minnesota
24	6W11-0003	6	BARI
25	6W11-0064	6	BARI
26	6W13-7041	6	BARI
27	6W13-7145	6	BARI
28	LCS_CALYPSO	2	Limagrain