NORTHWEST CROPS & SOILS PROGRAM

2016 Organic Winter Malting Barley Variety Trial

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UNIVERSITY OF VERMONT EXTENSION
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2016 ORGANIC WINTER MALTING BARLEY VARIETY TRIAL

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The revival of the small grains industry in the Northeast and the strength of the locavore movement, craft breweries and distilleries have expressed an interest in sourcing local barley for malting. Malting barley must meet specific quality characteristics such as low protein content and high germination. Depending on the variety, barley can be planted in either the spring or fall, and both two- and six-row barley can be used for malting. In the fall 2015, UVM Extension in collaboration with the Winter Malting Barley Trial (WMBT) testing network, conducted a winter malting barley trial to evaluate yield and quality of 24 varieties.

MATERIALS AND METHODS

In the fall of 2015, a winter malting barley variety trial was established at Borderview Research Farm in Alburgh, VT. The experimental plot design was a randomized complete block with three replications. The treatments were twenty-four winter malting barley varieties, listed in Table 1.

Table 1. Varietal information for the 24 winter malting barley varieties, 2016.

Winter barley variety	Type	Seed source
10.0777	2-row	Oregon State University
10.086	2-row	Oregon State University
04ARS640-1	2-row	USDA
05ARS561-208	2-row	USDA
06ARS633-10	2-row	USDA
10/069/1	6-row	Kilian Hundsrucker
6W11-0064	6-row	Busch Agricultural Resources, LLC
6W13-7041	6-row	Busch Agricultural Resources, LLC
6W13-7145	6-row	Busch Agricultural Resources, LLC
Charles	2-row	Oregon State University
DH130004	2-row	Oregon State University
DH130718	2-row	Oregon State University
Endeavor	2-row	Oregon State University
Hirondella (08/258/17)	6-row	Kilian Hundsrucker
McGregor	6-row	Oregon State University
MW11S4024-004	6-row	University of Minnesota
MW11S4029-002	6-row	University of Minnesota
MW12_4007-008	6-row	University of Minnesota
MW12_4042-002	6-row	University of Minnesota
Puffin	2-row	Limagrain Cereal Seeds
Strider	6-row	Oregon State University
SU-Mateo	2-row	Kilian Hundsrucker
Thoroughbred	6-row	Virginia Tech
Vincenta	2-row	Kilian Hundsrucker

All plots were managed with practices similar to those used by producers in the surrounding areas (Table 2). The previous crop planted at the site was corn. In September 2015, the trial area was plowed, disked and spike tooth harrowed to prepare for planting. The plots were seeded with a Great Plains NT60 Cone Seeder on 25-Sep at a seeding rate of 350 live seeds per m2 into a Benson rocky silt loam. Plot size was 5'x 20'. A visual assessment of winter survival was conducted on 21-Apr.

Table 2. General plot management, 2016.

Trial information	Alburgh, VT Borderview Research Farm
Soil type	Benson rocky silt loam
Previous crop	Corn
Seeding Rates (live seed m^2)	350
Row spacing (in)	6
Replicates	3
Planting date	25-Sep 2015
Harvest date	N/A
Harvest area (ft)	5 x 20
Tillage operations	Fall plow, disk & spike tooth harrow

RESULTS AND DISCUSSION

Seasonal precipitation and temperature recorded at a weather station in Alburgh, VT are shown in Table 3. Temperatures were average or above for most of the growing season, with the exception of a colder than normal October and April. The 2015-2016 growing season could be characterized as being drier than normal with 3.5 inches of precipitation less than normal. All of the winter months were warmer than the 30-year average, overall temperatures were very mild. However, in February the temperature dropped below zero for several days, and at the time, there was little to no protective snow cover at the trial location in Alburgh, VT.

Table 1. Seasonal weather data collected in Alburgh, VT, 2015 and 2016.

Alburgh, VT	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016
Average temperature (°F)	65.2	46.5	42.2	37.6	22.7	23.2	33.9	39.8
Departure from normal	4.70	-1.60	4.00	11.7	4.00	1.60	2.90	-4.90
Precipitation (inches)	0.30	2.50	1.80	3.50	1.30	3.60	2.50	2.60
Departure from normal	-3.30	-1.09	-1.30	1.13	-0.74	1.81	0.29	-0.26
Growing Degree Days (32-95°F)	1010	464	329	220	50.1	63.9	209	291
Departure from normal	154	-37.0	117	189	50.0	60.0	85.0	-98.0

Based on weather data from a Davis Instruments Vantage Pro2 with WeatherLink data logger. Historical averages are for 30 years of NOAA data (1981-2010) from Burlington, VT.

Many of the varieties in the trial were developed in environments much different from New England. Hence, it is important to evaluate the varieties for tolerance to our climate. The winter survival of the malting barley plots were assessed on April 21, 2016. There was severe winterkill in all of the plots and therefore, the trial was terminated.

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