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## 2019 Organic Winter Malting Barley Variety Trial



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## 2019 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 of 2018, a winter malting barley trial was conducted to evaluate yield and quality of 17 varieties.

### MATERIALS AND METHODS

In the fall of 2018, 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 17 winter malting barley varieties, listed in Table 1.

**Table 1. Varietal information for the 17 winter malting barley varieties, 2018-2019.**

Winter barley variety	Type	Seed source
08ARS509-1	2-row	USDA-ARS
08ARS632-5	2-row	USDA-ARS
13ARS537-13	2-row	USDA-ARS
13ARS537-19	2-row	USDA-ARS
AC10/028/53	2-row	Ackermann Saatzeit
Charles	2-row	Saved seed
DH120304	2-row	Oregon State University
DH130910	2-row	Oregon State University
DH140088	2-row	Oregon State University
DH140963	2-row	Oregon State University
Endeavor	2-row	Saved seed
Flavia	2-row	Ackermann Saatzeit
Hirondella	6-row	Ackermann Saatzeit
Lyberac	2-row	Ackermann Saatzeit
Rossignola	2-row	Ackermann Saatzeit
Thoroughbred	6-row	Saved seed
Wintmalt	2-row	Saved seed

All plots were managed with practices similar to those used by producers in the surrounding area (Table 2). The previous crop planted on this site was spring barley. The trial area was plowed, disked, and spike toothed harrowed before planting. The plots were seeded with a Great Plains NT60 Cone Seeder on 20-Sep 2018 with a seeding rate of 160 lbs ac<sup>-1</sup> into Benson rocky silt loam. Plot size was 5' x 20'. The trial was terminated in July 2019 due to extensive bird damage.

**Table 2. General plot management, 2018-2019.**

<b>Trial information</b>	<b>Alburgh, VT Borderview Research Farm</b>
<b>Soil type</b>	Benson rocky silt loam
<b>Previous crop</b>	Spring barley
<b>Tillage operations</b>	Fall plow, disk & spike tooth harrow
<b>Seeding Rates (lbs ac<sup>-1</sup>)</b>	160
<b>Row spacing (in)</b>	6
<b>Replicates</b>	3
<b>Planting date</b>	20-Sep 2018
<b>Plot size (ft)</b>	5 x 20

Fall and spring populations, winter survival, and flowering dates were recorded. Flowering dates were recorded when at least 50% of the plot was in bloom. Populations were measured in fall 2018 and spring 2019 by counting the number of plants in three twelve inch sections of a row. Winter survival was assessed by the ratio of spring to fall populations.

## RESULTS

The target seeding rate for the trial was 350 seeds m<sup>-2</sup>. The average fall population for the trial was 259 plants m<sup>-2</sup> (Table 3). The variety with the highest fall population was Thoroughbred with 388 plants m<sup>-2</sup>. Although it did not have the highest winter survival rate, Thoroughbred still had the highest spring population with 179 plants m<sup>-2</sup>. DH140963 had the highest winter survival rate at 42.9%. Three other varieties (DH130910, Rossignola, and Thoroughbred) also had winter survival rates over 33%. The average flowering date was 5-Jun. There was only a five day range between 3-Jun and 7-Jun for flowering date for winter barley.

**Table 3. 2019 winter barley agronomic characteristics in Alburgh, VT.**

<b>Variety</b>	<b>Fall population</b>	<b>Spring population</b>	<b>Winter survival</b>	<b>Flowering date</b>
	plants m <sup>-2</sup>	plants m <sup>-2</sup>	%	date
08ARS509-1	251	32	15.4%	6-Jun
08ARS632-5	226	7	3.5%	6-Jun
13ARS537-13	233	0	0.0%	6-Jun
13ARS537-19	176	43	32.2%	5-Jun
AC10/028/53	276	83	27.0%	4-Jun
Charles	291	90	29.8%	4-Jun
DH120304	269	43	16.3%	6-Jun
DH130910	233	93	38.7%	5-Jun
DH140088	258	36	15.3%	6-Jun
DH140963	233	97	42.9%	7-Jun
Endeavor	258	68	26.5%	6-Jun

Flavia	334	93	29.6%	4-Jun
Hirondella	273	83	30.6%	6-Jun
Lyberac	262	32	13.1%	6-Jun
Rossignola	194	83	41.1%	3-Jun
Thoroughbred	<b>388</b>	<b>179</b>	36.2%	3-Jun
Wintmalt	244	29	12.4%	7-Jun
<i>Trial Mean</i>	259	64	24.2%	5-Jun

## DISCUSSION

Winter barley trials at Borderview are terminated due to low winter survival. Many of the varieties had adequate winter survival and were growing well. It was a great disappointment this season when birds decimated the barley crop in the weeks before harvest despite deploying multiple deterrents including bird netting. There was nearly 100% bird damage across the trial, and the trial was terminated.

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