

2012 Organic Winter Wheat Planting Date Trial



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In 2012, the University of Vermont Extension conducted a winter wheat planting date trial for the first time. As the demand for local organic wheat has risen over the last few years, UVM Extension has been trying to determine the best agronomic practices for wheat production in the problematic Northeastern climate. Traditionally, producers have planted winter wheat after the Hessian fly free date, 15-Sep. Producers are interested in knowing how late they can plant their wheat in order to plan rotations and maximize yield.

MATERIALS AND METHODS

The trial was conducted in 2012 at Borderview Research Farm in Alburgh, VT. The experimental design was a randomized complete block split design with three replications. Main plots were planting date and subplots were varieties. Planting dates were initiated on 13-Sep 2011 and continued approximately every week for 5 weeks (Table 1). Three hard red winter wheat varieties were selected to represent varieties of varying heights

. The soil type at the project site was a Benson rocky silt loam. The seedbed was prepared by fall plow, disk and spike-toothed harrow. All plots were managed with practices similar to those used by producers in the surrounding areas (Table 1).

Table 1. Winter wheat planting date trial specifics in Alburgh, VT, 2012.

Trial information

Borderview Research Farm

Figure 2. Yield comparison between planting dates across hard red winter wheat varieties in Alburgh, VT, 2012. Treatments that share a letter did not differ significantly by planting date (p=0.10).

Impact of Variety

Variety significantly impacts wheat yield and quality. AC Morley had the highest plant population per acre (1,090,050 plants per acre), though this was not significantly different than the variety Redeemer at 970,504 plants per acre (Table 5). The trial mean for vigor was 2.83, with the highest being Redeemer (3.13), though this was also not significantly different than AC Morley (3.00). AC Morley had the tallest plant height (48.0 inches), while the trial mean was 42.7 inches. Harvard had the highest harvest moisture out of the three varieties (16.2%). The highest-yielding winter wheat variety in this trial was AC Morley (4179 lbs per acre), though this was not significantly different than the second highest yielding wheat variety Redeemer which yielded 3921 lbs per acre (Figure 3). The trial mean for test weight was 60.7 lbs per bushel, with the highest test weight being found in the variety Redeemer (61.8 lbs per bushel).

Table 5. Winter wheat plant measurements and harvest data by variety, 2012.

Variety	Plant population	Vigor	Plant height	Harvest moisture	Yield at 13.5% moisture	Test weight
		1-5	in	%	lbs ac ⁻¹	lbs bu ⁻¹
AC Morley	1090050*	3.00*	48.0*	15.4	4179*	60.6

Redeemer had the highest crude protein concentrations (Table 6). The average falling number for the three varieties was 394 seconds, with Redeemer being the highest (426 seconds). All three of the varieties had DON levels lower than the 1.0 ppm standard for human consumption.

Table 6. Winter wheat quality data by variety, 2012.

Variety	Crude protein @ 12% moisture	Falling number	DON
	%	Sec	ppm
AC Morley	12.3	404	0.28

will produce a crop, but earlier planting would be a more economically viable option. Quality did not seem to be greatly impacted by planting date and was more greatly influenced by variety. Overall, planting winter wheat early allowing for six to eight weeks of growth before the soil freezes, will provide the best chances of high yield and quality winter wheat.

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