2013 ORGANIC SPRING WHEAT SEEDING RATE TRIAL REPORT

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Throughout Vermont and the Northeast, the demand for local organically grown wheat continues to rise. Due to this demand, there has been a renewed interest by producers to add wheat into their crop rotations. Several producers have asked questions about the best agronomic practices for cultivating organic spring wheat. As a result, University of Vermont Extension has been developing best agronomic practices for wheat production in the Northeast. Seeding rates can influence weed populations as well as overall yield and quality. The purpose of this trial was to determine optimum seeding rates for organic spring wheat in Vermont.

MATERIALS AND METHODS

In April 2013, an organic spring wheat seeding rate trial was established at the Borderview Research Farm in Alburgh, Vermont. The experimental plot design was a randomized complete block with four replications. The seedbed at the Alburgh location was prepared by conventional tillage methods. All plots were managed with practices similar to those used by producers in the surrounding areas (Table 1). The .94 46511(by) sete

acceptable test weight for bread wheat is 56-60 lbs per bushel. Once test weight was determined, the samples were then ground into flour using the Perten LM3100 Laboratory Mill. At this time, flour was evaluated for its protein content and falling number. Grains were analyzed for protein content using the Perten Inframatic 8600 Flour Analyzer. Grain protein affects gl

RESULTS AND DISCUSSION

Seasonal precipitation and temperatures were recorded with a Davis Instruments Vantage pro2 with Weatherlink data logger on site in Alburgh, VT (Table 2). The spring wheat growing season this year

Seeding rate did not significantly impact grain yields, grain moisture, and test weights (Table 4). The highest yielding seeding rate was 150 lbs ac^{-1} (1777 lbs ac^{-1}). Not surprisingly, the lowest yielding seeding rate was 50 lbs ac^{-1} (1244 lbs ac^{-1}); however, the second lowest yeilding seeding rate was 175 lbs ac^{-1} (1341 lbs^{-1}) (Figure 1). The seeding rates did not significantly impact CP or falling number. All of the seeding rates had protein levels slightly higher then industry standards of 12-14% . All of the falling numbers were above 250 seconds. All seeding rates had DON numbers higher then the cut off for human consumption of 1 part per million (ppm), but lower then the cut off for feed of 10 ppm.

Early planting of wheat allowed all seeding rates to establish prior to significant weed growth. This may have led to all seeding rates having similar yields and quality.

Table 4. The impact of seeding rate on wheat harvest and quality, Alburgh, VT.

Seeding rate	Yield @13.5% moisture	Moisture	Test weight	Crude protein @12% moisture	Falling number	DON
lbs ac^{-1}	lbs ac^{-1}	%	lbs bu^{-1}	%	seconds	ppm
50	1244	16.3	55.5	14.5	**347**	5.0
75	1614	**17.7**	54.8	15.4	308	4.2*
100	1371	16.2	53.3	14.8	340	4.2*
125	1542	15.9	57.3	15.0	325	4.8
150	**1777**	17.4	**57.5**	15.4	327	**3.6***

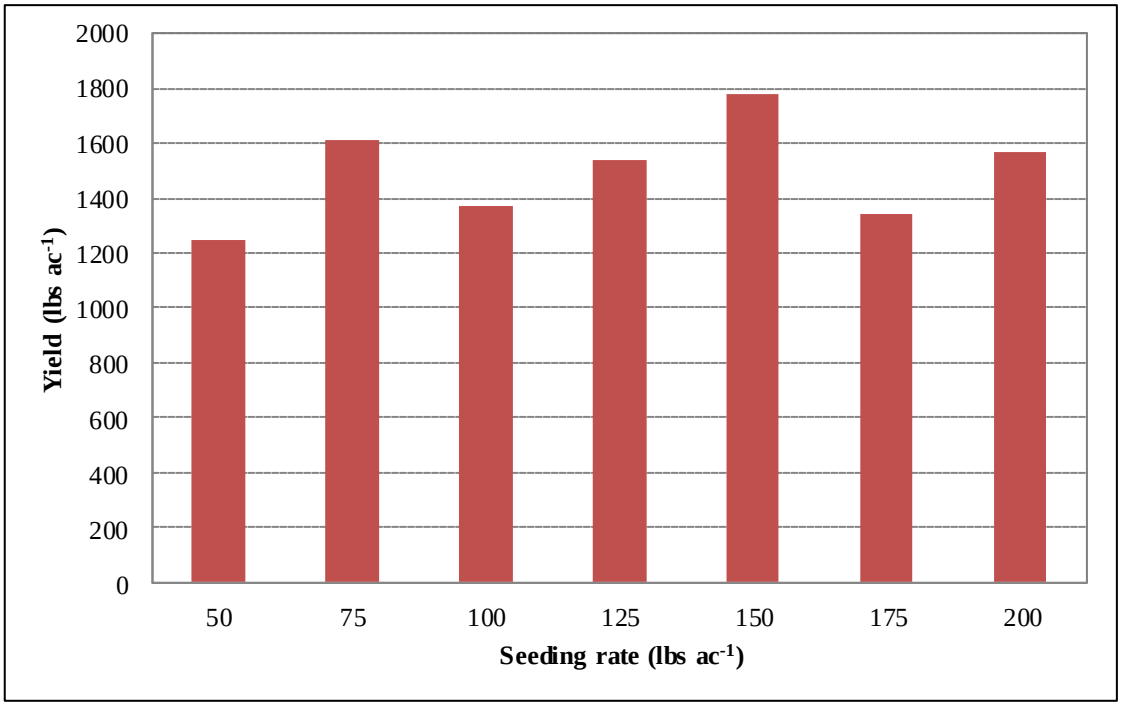

Figure 1. Impact of seeding rate on wheat yields Alburgh, VT, 2013.

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