

# 2014 Heirloom Spring Wheat Seeding Rate Trial

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**2014 HEIRLOOM SPRING WHEAT SEEDING RATE TRIAL**

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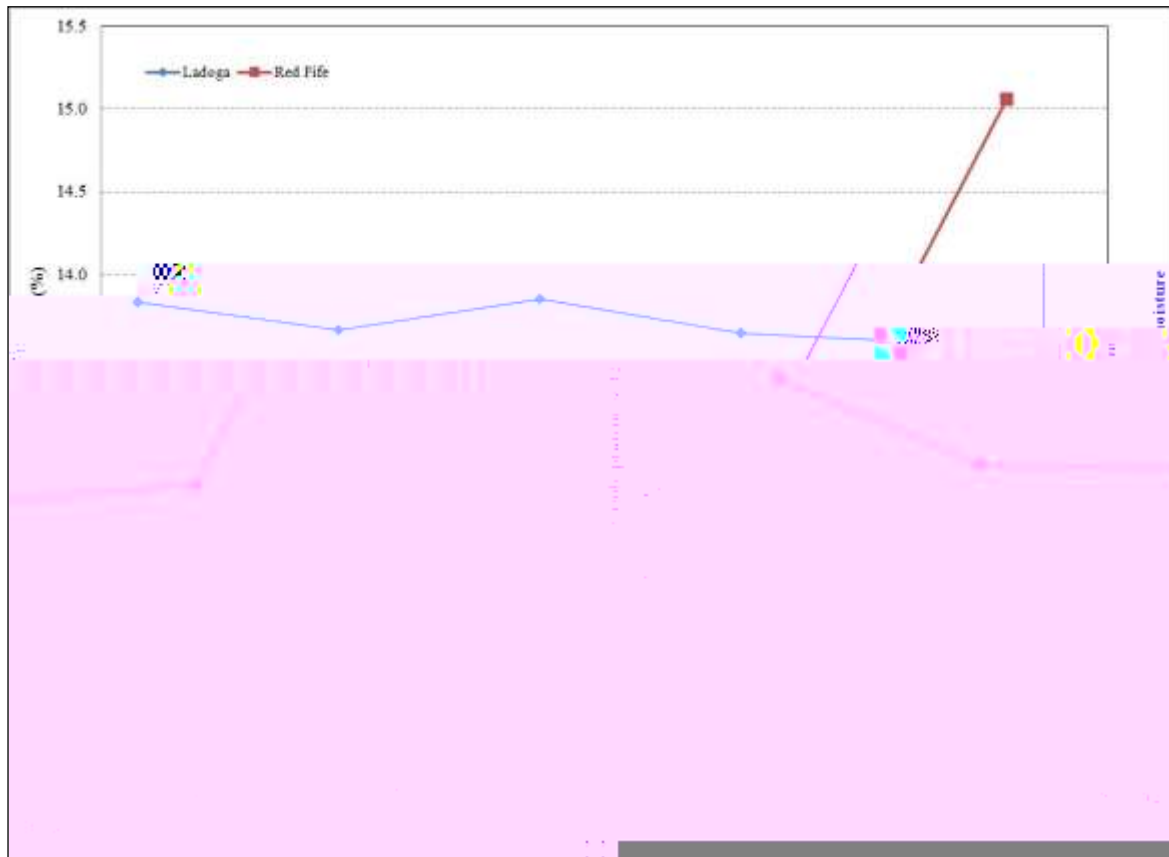
University of Vermont Extension began its heirloom spring wheat project in 2007 to determine whether climate. Many consumers are

Populations were measured on 5-Jun at the Alburgh location by taking two, 1/3 meter plant counts per plot. Prior to harvest, at the Alburgh location, plant heights were measured, excluding the awns, and a visual estimate of the percentage of lodged plants taken. Grain plots were harvested with an Almaco SPC50 plot combine on 8-Aug at the Alburgh location and 20-Aug at the Westfield location, the harvest on, grain moisture, test weight and yield were calculated.

## **RESULTS**

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 experienced lower than normal temperatures in April, July and August with above average temperatures in May and June. Alburgh experienced above average rainfall. From April

### Seeding Rate x Variety Interactions



**Figure 1. Seeding rate by variety interaction for crude protein, Alburgh, VT, 2014.**

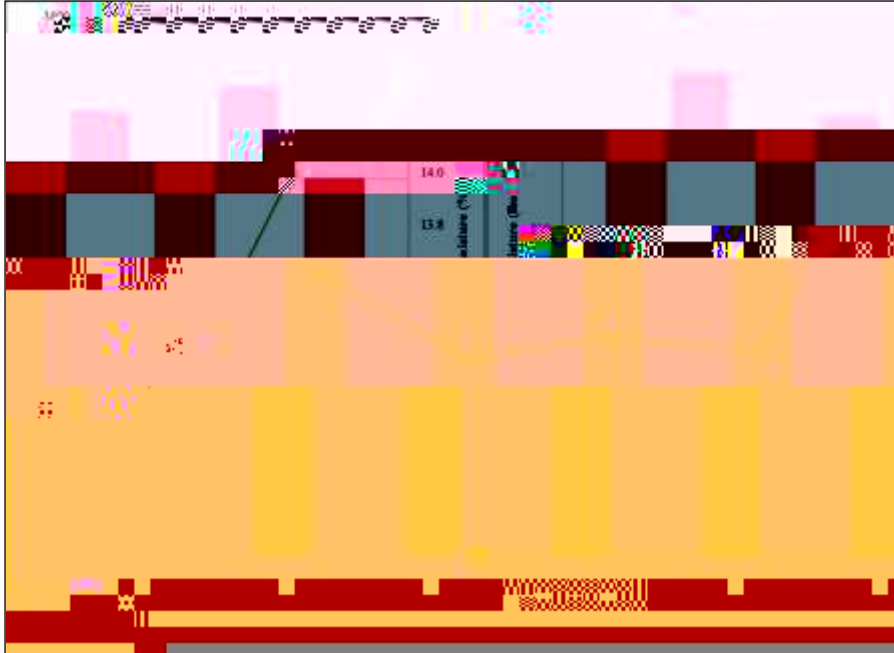
At both the Alburgh and Westfield locations (Figure 1 and Figure 2), there was a seeding rate by variety interaction for crude protein. The varieties performed similarly across seeding rates except for Red Fife when it was seeded at 150 lbs ac<sup>-1</sup>. Generally crude protein levels were similar across seeding rates, however, Red Fife and 13.8% at the Westfield location. For both locations, Red Fife had a lower crude protein level than Ladoga for all seeding rates except the highest seeding rate of 150 lbs ac<sup>-1</sup> where the crude protein levels

**Figure 2. Seeding rate by variety interaction for crude protein, Westfield, VT, 2014.**

### ***Seeding Rate***

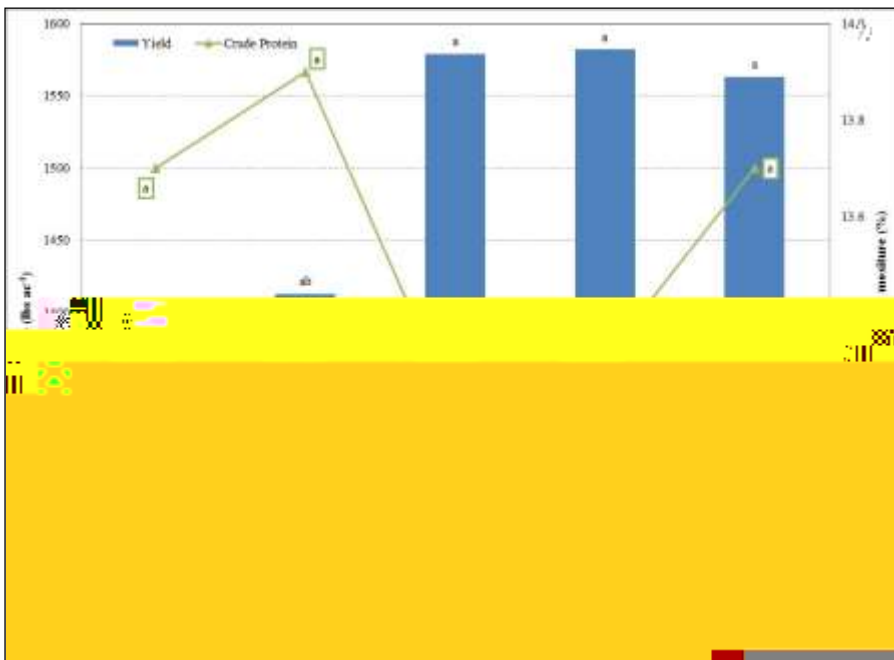
At the Alburgh location, seeding rate had a significant impact on moisture, crude protein, and falling number (Table 4, Figure 3). However, seeding rate did not significantly impact average plant height, lodging, yield, test weight, or deoxynivalenol (DON) level. The average yield across seeding rates was 1133 lbs ac<sup>-1</sup>. None of the seeding rates met industry standards of 55-60 lbs bu<sup>-1</sup>. The lowest moisture at harvest was the seeding rate of 150 lbs ac<sup>-1</sup> (19.5%). All of the seeding rates had moisture levels above 14% and therefore had to be dried down for optimal grain storability. The seeding rate with the highest crude protein was 150 lbs ac<sup>-1</sup> (14.3%). All of the seeding rates met or exceeded industry standards of 12-14% protein. All of the falling numbers were above 200 seconds and less than 350 seconds, indicating some sprouting damage. The seeding rate with the highest falling number (303 seconds) was 100 lbs ac<sup>-1</sup> and the lowest falling number (271 seconds) was the seeding rate of 50 lbs ac<sup>-1</sup>. All of the seeding rate treatments had DON levels of 1 ppm or less and therefore were suitable





**Figure 3. Yield and protein of heirloom spring wheat varieties based on seeding rate, Alburgh, VT, 2014.**

Varieties with the same letter are not significantly different from one another.



**Figure 4. Yield and protein of heirloom spring wheat varieties based on seeding rate, Westfield, VT, 2014.**

Varieties with the same letter are not significantly different from one another.





At the Westfield location, variety had a significant impact on yield, moisture, test weight, crude protein, and falling number (Table 7, Figure 6). The DON level did not differ by variety. Similar to the Alburgh trial site, the heirloom variety Ladoga outperformed Red Fife in test weight, crude protein, and falling number. It also had slightly lower moisture compared to Red Fife.

**Table 7. The impact of variety on wheat harvest and quality, Westfield, VT, 2014.**

Variety	Yield	Moisture	Test weight	Crude protein	Falling number	DON
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## DISCUSSION

It is important to remember that the results only represent one year of data. 2014 was another challenging growing season. The prolonged cool and wet spring delayed wheat planting and impacted stand establishment and plant tillering. The below average temperatures, and above average rainfall, persisted throughout the growing season at both trial locations, which resulted in delayed wheat development and dry down which might help explain the high moistures at harvest. The Westfield location had both a higher yield and a higher test weight than the Alburgh location. This is interesting considering the lower number of growing degree days experienced at the Westfield location this year compared to the 30-year

