

2013 Heirloom Winter Wheat Variety Trial



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2013 HEIRLOOM WINTER WHEAT VARIETY TRIAL

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INTRODUCTION

Many consumers are interested in heirloom wheat for flavor, perceived health benefits or its history, while many farmers are interested in heirloom wheat because it may have superior genetics better adapted to the challenging growing conditions in the Northeast. Production of heirloom wheat may also provide a farmer with a value added market with increased returns. This variety trial was established to determine heirloom winter wheat varieties that are suitable for production

Table 2. Heirloom winter wheat varieties, market class, year of release and place of origin.

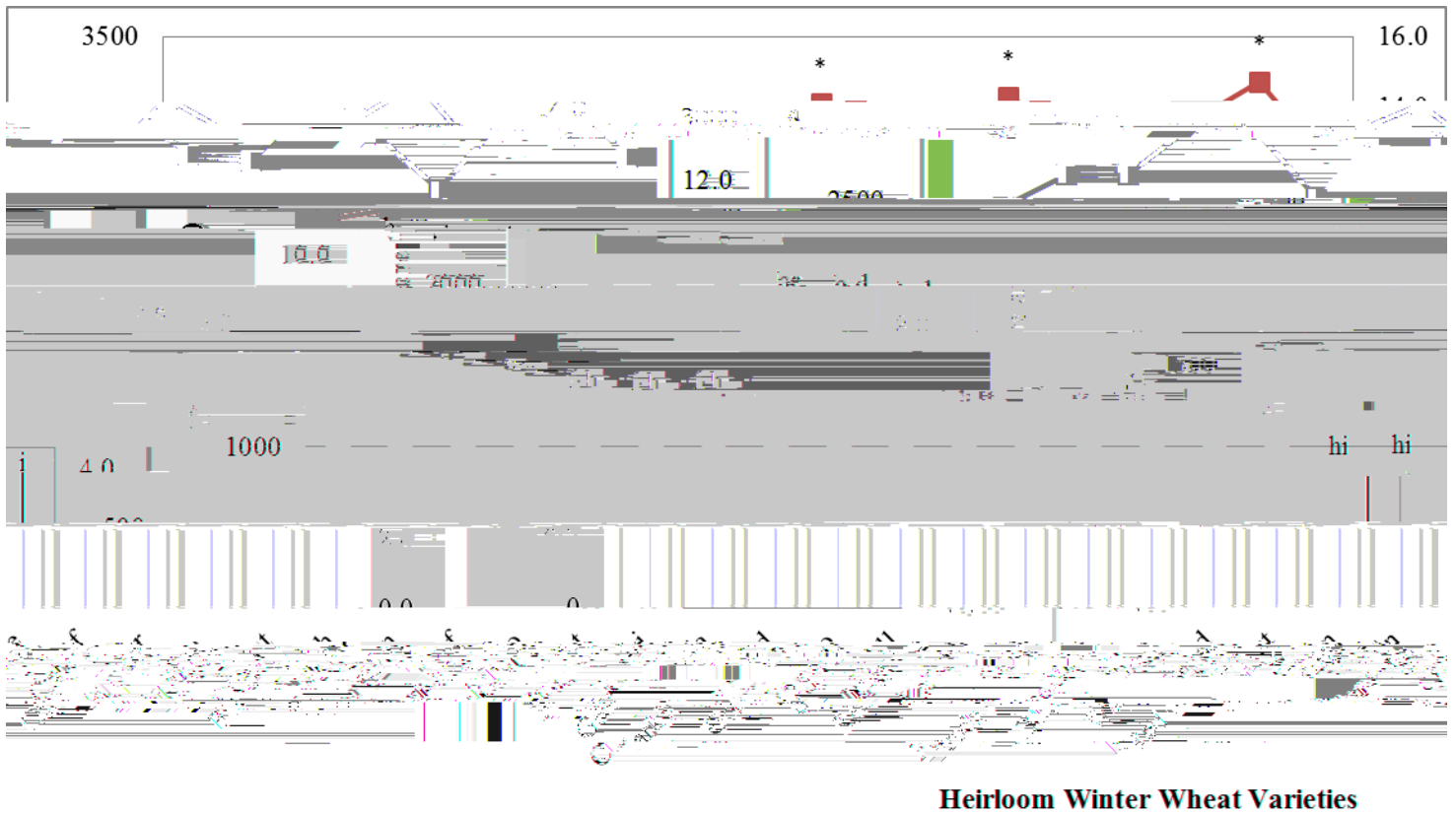
Variety	Market Class	Year	Origin
Blackhull	HRWW	1917	Kansas
Bluejacket	HRWW	1946	Kansas
Clark's Cream	HWWW	1972	Kansas
Columbia	HRWW	1955	Oregon
Coppei	SRWW	1911	Washington
Forward	SRWW	1920	New York
Genesee Giant	SWWW	1893	New York
Goldcoin	SWWW	1890	New York
Honor	SWWW	1920	New York
Kanred	HRWW	1917	Kansas
Oro	HRWW	1927	Oregon

RESULTS AND DISCUSSION

Seasonal precipitation and temperature recorded at a weather station in Alburgh, VT are shown in Table 3. Spring and early summer, May and June, had almost 7 inches more rain than the 30 year average. From March to July, there was an accumulation of 3487 Growing Degree Days (GDDs) which is 134 GDDs higher than the 30-year average. Many of the heirlooms in the trial were developed in environments much different than New England. Hence, it is important to evaluate the varieties for tolerance to our climate. Most varieties were able to survive the winter although the 2012/2013 winter was mild. The variety Coppei suffered significant plant loss to the winter months while most other varieties had acceptable survival rates (Table 4). Wet conditions during flowering likely resulted in high levels of disease in the wheat trial (Table 4). Powdery mildew (*Blumeria graminis* DC) was prevalent in the heirloom wheat and there were differences in susceptibility among the varieties. Leaf diseases such as stripe rust (*Puccinia striiformis* Westend) and aschocyta leaf spot (*Ascochyta spp.*) plagued the wheat. Significant differences were not detected among varieties likely due to the fact that leaf disease was assessed as a whole and not by individual disease.

Table 4. Characteristics of heirloom winter wheat varieties, Alburgh, VT, 2013.

Variety	Winter survival (%)	Vigor (0-5)	Lodging 13-Jun (%)	Powdery mildew (0-10)	Leaf disease (0-10)	Plant infected (%)	Lodging 11-Jul (%)
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Yield — Crude Protein

Figure 1. Yield and protein of heirloom winter wheat varieties, Alburgh, VT, 2013. For protein, varieties with an asterisk are the top performer and not significantly different from one another. For yield, varieties with the same letter are not significantly different from one another.

The three varieties with the highest protein content were among the lower yielding varieties (Figure 1). There is often an inverse relationship seen between yield and protein. Oro, Triplet, and Red Russian had crude protein levels over 14%, significantly higher than the other varieties. Falling numbers for all varieties were over 350 seconds, indicating low enzymatic activity and sound quality wheat (Table 5). Additionally, DON levels for all varieties were well above the FDA threshold of 1 ppm and considered un-safe for human consumption (Figure 2). All of the wheat grown at Borderview Research Farm in 2013 has tested well over the FDA threshold of 1 ppm in 2013. The wet conditions during growth and flowering were conducive for *Fusarium* Head Blight (FHB) infections. In 2013, with such strong *Fusarium* pressure, it is informative to look at varieties with the lowest DON levels because they may show some *Fusarium* resistance, while varieties with the hiBT1 8(e) TJET -4(s) TJ(e)l-5(s be)-3(c)9(auso3(hu l)-4(e)9(v)1111(i)-4(e)5()1t)-4(hsw)-13 s-4()6()-4(ep)9

