2023 Spelt Variety Trial

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disease symptoms. Data was recorded as a percent of the leaf surface that was affected by each foliar symptom.

Table 2. General plot management of the winter spelt variety trial, 2023.

Location:	Borderview Research Farm Alburgh VT
Soil type	Benson rocky silt loam
Previous crop	Corn
Row spacing (in)	6
Seeding rate (live seeds per m^2**)**	350 live seeds per m^2
Replicates	4
Planting date	17-Sep 2022
Harvest date	31-Jul 2023
Harvest area (ft)	5 x 20
Tillage operations	Pottinger TerraDisc

Grain plots were harvested with an Almaco SPC50 plot combine on 31-Jul 2023. The harvest area was

On 26-Jul 2023, five days prior to harvest, plant heights and lodging were recorded. The height

Table 4. Pre-Harvest results of the eleven spelt varieties, Alburgh, VT, 2023.

Variety	**Height** cm	**Lodging** %	**Disease severity** % foliar surface affected	**Arthropod Damage** % foliar surface affected	**Total Foliar Damage** % foliar surface affected
Altgold	117	43.8	2.31*	2.13*	2.41*
Comet	106	**0.00**	2.97	2.93*	2.92
Elwha River	108	1.25*	3.25	2.20*	3.15
Guggisberg	119	50.0	1.60*	**1.67**	**1.63**
Maverick	118	90.0	5.19	5.87	4.81
Muri Rutkorn	126*	7.50*	2.31*	4.73	3.11
Oberkulmer	122*	33.8	1.59*	3.27	

Three replicates per variety were tested for deoxynivalenol (DON) vomitoxin. Eight of the eleven varieties tested in this variety trial tested over the 1 ppm DON threshold that renders it to be unsuitable for human consumption. Those suitable for human consumption included Comet, Muri Rotkorn and Rothenburger Rotkorn. While not falling within the range for human consumption, Elwha River, Pfaeltzer Dinkel, Guggisburg, Oberkulmer, Sungold, and Altgold were all statistically similar to those varieties with less than 1ppm DON. The variety with the highest amounts of DON present was Sonic at 7.8 ppm, which was significantly more than any of the other varieties tested. This shows that there may be some varietal resistance to fusarium infection and subsequent DON production.

DISCUSSION

In July of 2023, Vermont experienced significant precipitation causing considerable flooding which affected the yield and quality of crops statewide, including the research field trials at Borderview Research Farm in Alburgh, VT. This season was considerably wetter than the 30-year average and had fewer growing degree days. In both 2022 and 2023, Sungold was the top yielding spelt variety. In 2023, Sungold yielded 3900 lbs ac^{-1}, which was approximately 2000 lbs ac^{-1} less than what was produced in the 2022 growing season. As a whole, the spelt trial averaged 2223 lbs ac^{-1} yields less than the 2022 growing season, with yields and quality impacted by growing conditions. Similarly, weather conditions contributed to a growing environment conducive to *Fusarium graminearium,* a fungus that infects cereal grains and produces the mycotoxin deoxynivalenol (DON) vomitoxin. This was reflected in the data with abnormally high levels of DON present in the 2023 spelt varieties, wherein only

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