

Increasing seeding rates in barley (Ponoka)

This trial was conducted with the agronomic support of Dan Orchard Ag Services Ltd.

Closest Town: Crestomere, Alberta

Soil type: Dark Gray Luvisol on medium textured till

Seeding Date: May 9, 2022

Harvest Date: August 30, 2022

Row Spacing: 31.75 cm (12.5")

Variety(s): Sirish

Reps: Four

Previous Crop: Barley

Tillage: Harrow pack prior to seeding

Herbicides: **Pre:** None

In-Crop: Outshine®, Brazen™ II

Seed Treatment: Raxil® Pro

Foliar Insecticides: None

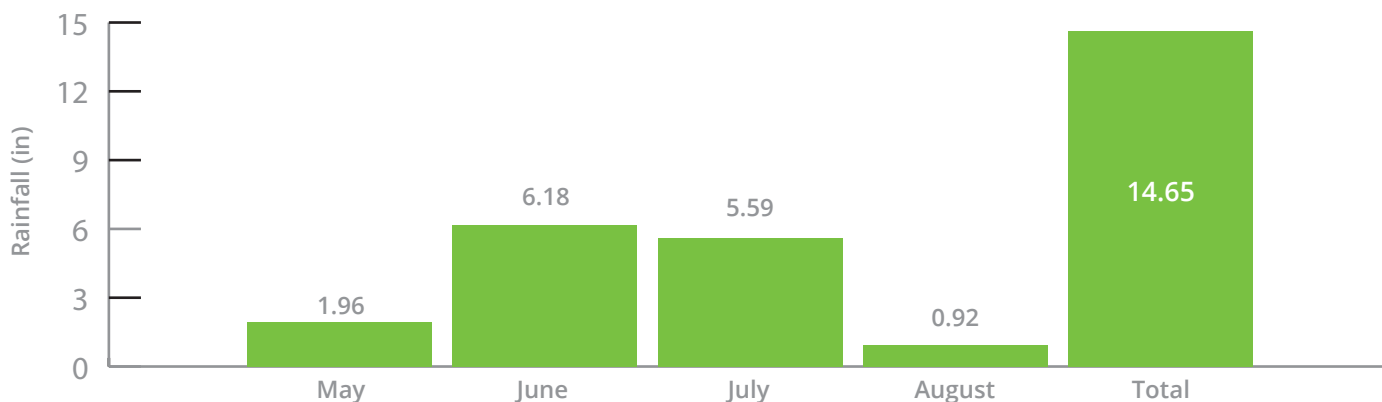
Foliar Fungicides: Soratel™

Fertilizer: 80N-31P-36K-5S-0.6Cu total lbs/ac

Irrigation: None

Rainfall:

Rainfall (in) at trial location from May through August, 2022



Introduction

Partnering with Sperber Land & Cattle in Crestomere, Alberta, this trial compared three different seeding rates on the barley variety, Sirish. The trial was seeded using a 20-ft wide Pottinger Terrasem Classic double disk. The crop was seeded in 12.5" row spacings. Seeding rates to target plant stand treatments were determined using thousand kernel weight, germination percentage and farm-specific emergence mortality estimates. The thousand kernel weight of the seed lot was 53g. Seeding rates to attain the treatment target plant stands of 22 (treatment 1), 27.5 (treatment 2) and 33 plants/ft² (treatment 3) were 121, 151, and 181lbs of seed ac⁻¹, respectively. Treatments were replicated and randomized.

Treatments

Trial design goal:

To determine the yield and grain quality impacts of seeding rates on barley.

Treatment 1: Target 22 plants/ft²

Treatment 2: Target 27.5 plants/ft²

Treatment 3: Target 33 plants/ft²

Results

In-crop assessment results

Significant differences in plant stand counts collected 21 days after seeding were seen between all treatments. (Table 1).

Yield results

Due to logistical challenges at harvest, replicate treatments were not harvested separately. Therefore, statistical significance cannot be determined. However, results indicate a trend of decreasing yield with increasing seeding rates (Table 1).

Table 1: Plant stand counts, yield, and quality results comparing three target plant stands (22 plants/ft², 27.5 plants/ft², and 33 plants/ft²) on the barley variety Sirish, in Crestomere, Alberta, 2022

Target plant stand	Plant stand count at 21 days after seeding (plants/ft ²)	Yield at 13.5% seed moisture content (bu ac ⁻¹)**	Protein (%)	Thins (%)	Test weight (lb/bu)	Plump (%)
Target 22 plants/ft ²	24.7 a	110.3	10.2 a	0.8 a	51.0 a	94.2 a
Target 27.5 plants/ft ²	29.7 b	109.3	10.2 a	0.8 a	51.0 a	94.3 a
Target 33 plants/ft ²	33.6 c	106.2	10.4 a	0.8 a	50.6 a	94.5 a
p-value	0.0007	N/A	0.3638	0.6981	0.1814	0.7412
CV%	14.27%	N/A	3.95%	14.71%	0.66%	0.48%

** Due to logistical challenges at harvest, replicate treatments were not harvested separately. Therefore, statistical significance cannot be determined.

Values with the same letter within a column are not significantly different. Significant difference if $p \leq 0.05$.

Grain quality results

No significant differences were observed in grain quality parameters (Table 1).

Economics

Table 2: Economic comparison of different seeding rates (22 plants/ft², 27.5 plants/ft², and 33 plants/ft²) on the barley variety, Sirish, in Crestomere, Alberta, 2022.

Target Plant Stand	lbs of seed sown ac ⁻¹	Cost of treatment (\$ ac ⁻¹)*	Cost above lowest seeding rate treatment (\$ ac ⁻¹)*
Target 22 plants/ft ²	121	\$32.67	-
Target 27.5 plants/ft ²	151	\$40.77	\$ 8.10
Target 33 plants/ft ²	181	\$48.87	\$ 16.20

*Assuming \$0.27/lb of certified barley seed

Summary

Statistical significance could not be determined for yield results between treatments. However, non-statistically significant trends indicate a decreasing yield with increasing seeding rates. No significant differences in quality parameters were seen between treatments.