

Organic Wheat Participatory Plant Breeding

Project duration: May 2020 – October 2020

Objective: To evaluate oat varieties for organic production.

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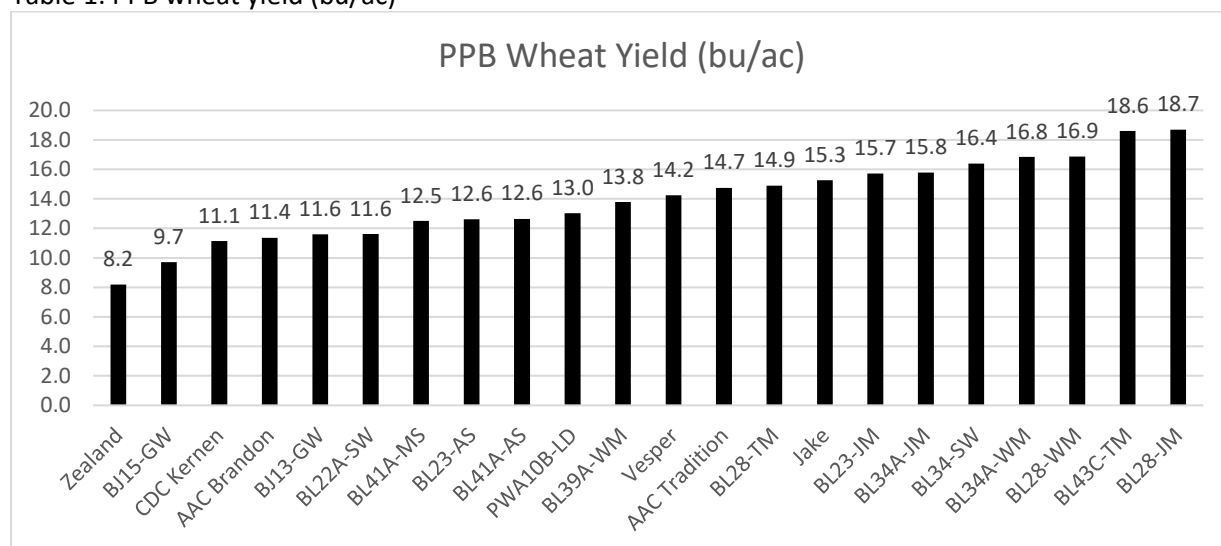
Background

Research suggests that selection of cereal crops specific to organic agriculture should be conducted on organically managed land [1,2]. Conventional management systems may mask or confound certain plant characteristics, resulting in selection of sub-optimal cultivars for organic production systems.

Results

The majority of the entries in this test are unregistered varieties. The yield results are shown in Table 1 for reference and to allow interested producers to track the entries in the future.

Table 1: PPB wheat yield (bu/ac)



The low wheat yields are due to low precipitation and fertility levels, as well as high weed competition. Yields were likely also reduced by disease pressure from preceding wheat crops.

Materials and methods

Experimental Design: Random Complete Block Design

Entries: 22 varieties

Seeding: May 14

Harvest: Sep 2

Table 2: Varieties included at Roblin 2020

BJ13-GW	BL28-JM	BL34-SW	PWA10B-LD	Jake
BJ15-GW	BL28-TM	BL39A-WM	AAC Brandon	CDC Kernen
BL22A-SW	BL28-WM	BL41A-AS	Vesper	
BL23-AS	BL34A-JM	BL41A-MS	AAC Tradition	
BL23-JM	BL34A-WM	BL43C-TM	Zealand	

Data collected	Date collected
Weekly Maturity:	Aug 5-29
Height:	Aug 14
Lodging:	Sep 2
Yield:	Sep 2
Moisture:	Sep 2

Additional plant sample collection, including leaf, root and soil core from the same plant, from a total of 50 plants, was completed at wheat heading and sent to a Toronto PhD Student for analysis. These samples measured both leaf functional traits (leaf area, specific leaf area, and leaf nitrogen), and root traits (root diameter, root mass, and root nitrogen) for three of the wheat varieties.

Agronomic info

Previous year's crop:	Organic wheat
Soil Type:	Erickson Clay Loam
Landscape:	Rolling with trees to the south
Seedbed preparation:	Cultivated and harrowed

Table 3: Spring 2020 Soil Test

	Available
N	73 lb/ac
P	5 ppm
K	168 ppm

(Organic trial: no fertilizer or herbicide applied)