

Intercropping: Barley-Cover Crop (Year 1)

Project duration: May 2020 – September 2020

Objectives: To evaluate intercropping potential for barley and cover crops

Collaborators: PCDF

Background

The Manitoba Agriculture and Resource Development (ARD) [website](#) states that producers may plant cover crops to minimize wind and water erosion. Cover crops can play an important role after low-residue crops, such as potatoes, or in spring as a new crop is establishing. Another important function is to immobilize excess nutrients, especially nitrogen, and prevent losses. Additionally, cover crops can help to trap snow, enhancing moisture conditions in spring.

Despite these benefits, the limited growing season before or after another crop can make establishing cover crops a challenge. A common practice is to establish a cover crop in-season, with a cash crop. This trial examined the effect of establishing four cover crops with barley (Table 1).

Results

The data presented here are for Year 1 of a two-year study. Figure 1 shows barley yield (bu/ac) by treatment. The yields do not differ significantly by treatment (Table 1), indicating that seeding a cover crop with barley did not affect barley yield.

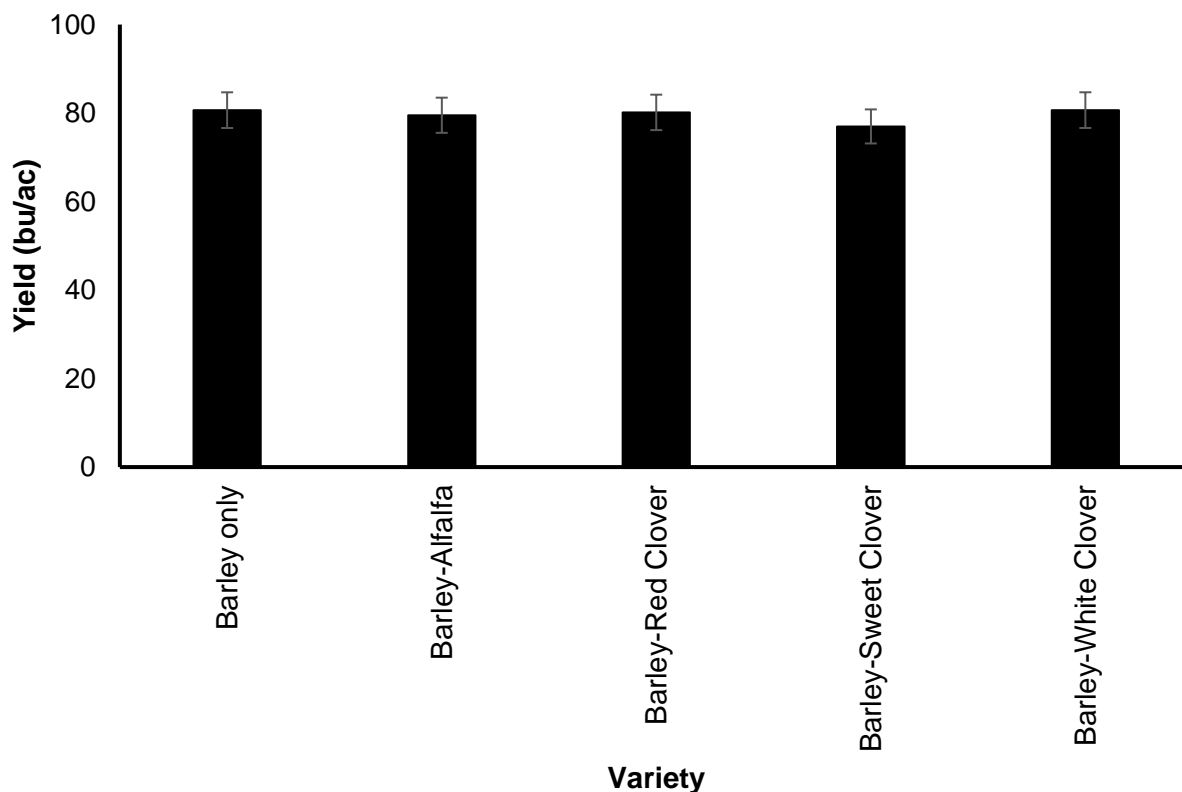


Figure 1: Barley yield (bu/ac) by treatment.

Table 1: Summary of statistical information for barley yield

Treatment	Yield (bu/ac)	Statistical significance*
Barley only	80.7	A
Barley-Alfalfa	79.5	A
Barley-Red Clover	80.2	A
Barley-Sweet Clover	77.0	A
Barley-White Clover	80.7	A
CV (%)	5.6	
LSD (0.05)	9.17	

Observations

Cover crop biomass was not collected, but qualitative assessments of the cover crops after harvest suggest that the treatments all established well. The barley was cut about 18-20” above the ground, and the loose straw was removed from the field so that the undamaged cover crop could continue to grow for the remainder of the season. Additionally, the longer stubble will trap more snow during the winter, providing better protection for the crop. Year 2 of the study will look at the winter survival and spring growth of the cover crop.

No herbicides were applied to the crop. Limited herbicide options are available for barley-cover crop intercrops, and the close proximity of the plots (and danger of spray drift) made it more feasible to hand-weed the plots. On a field-scale, careful field selection and pre-emergence herbicide application would be crucial to the establishment of a successful intercrop. Consult a herbicide guide or dealer to determine the best herbicide option for each intercrop.

Materials and methods

Experimental Design: Random Complete Block Design
 Barley variety: CDC Austenson
 Treatments: 5
 Replications: 3
 Seeding: May 22
 Harvest: Sep 11

Table 2: Treatments (crops by lb/ac)

	Barley	Red Clover	White Clover	Sweet Clover	Alfalfa
Treatment 1	105 lb/ac	-	-	-	-
Treatment 2	105 lb/ac	10lb/ac	-	-	-
Treatment 3	105 lb/ac	-	5lb/ac	-	-
Treatment 4	105 lb/ac	-	-	5lb/ac	-
Treatment 5	105 lb/ac	-	-	-	18lb/ac

Data collected Date Collected
 Emergence: Barley: May 24, Cover crop: May 27-30
 Barley Heading: Jul 12-13
 Stand rating: Jul
 Vigor Rating: Jul

Yield: Sep 11
Moisture: Sep 11

Agronomic info

Previous year's crop: Barley Silage
Soil Type: Erickson Loam Clay
Landscape: Rolling with trees to the east
Seedbed preparation: Heavy harrowed

Table 3: Fertility Information

	Available	Added	Type
N	61 lb/ac	63 lb/ac	46-0-0
P	47 ppm	15 lb/ac	11-52-0-0
K	393ppm	-	
Cover crops inoculated; no herbicide applied (hand weeded)			