

Intercropping: Oat-Cover Crop (Year 1)

Project duration: May 2020 – September 2020

Objectives: To evaluate intercropping potential for oat 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 oats (Table 1).

Results

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

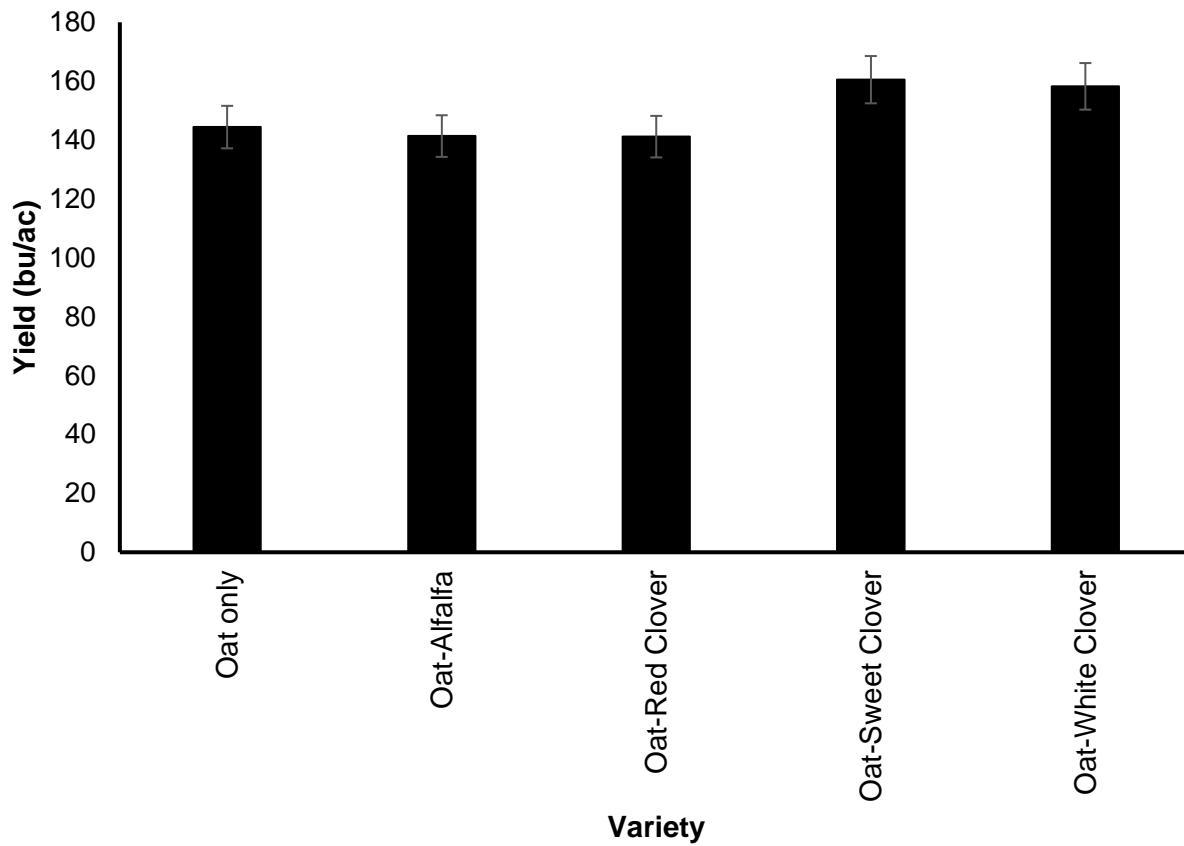


Figure 1: Oat yield (bu/ac) by treatment.

Table 1: Summary of statistical information for barley yield

Treatment	Yield (bu/ac)	Statistical significance
Oat only	144.4	A
Oat-Alfalfa	141.4	A
Oat-Red Clover	141.2	A
Oat-Sweet Clover	160.5	A
Oat-White Clover	158.2	A
CV (%)	10.7	
LSD (0.05)	28.61	

* Treatments not marked with the same letter are statistically different from other treatments.

Observations

Cover crop biomass was not collected, but qualitative assessments of the cover crops after harvest suggest that the treatments all established well. The oats were 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 oat-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
Oat Variety: AC Summit
Treatments: 5
Replications: 3
Seeding: May 22
Harvest: Sep 11

Table 2: Treatments by seeding rate (lb/ac)

	Oat	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:	Oat: May 24-25, Clover: May 27-30
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	59 lb/ac	46-0-0
P	47 ppm	10 lb/ac	11-52-0-0
K	393ppm		
Cover crops inoculated; no herbicide applied (hand weeded)			