Oat-Hairy Vetch Intercropping Demonstration

Project duration May 2018 – September 2019
Objectives To demonstrate the use of intercropping for grain, forage and soil nutrient management
Collaborators Parkland Crop Diversification Foundation

Results
Data presented here are for year one of this two-year demonstration. The outputs for the first year were oat yield and straw feed values (total straw yield was not obtained). Outputs for year two will include biomass at flowering, cereal re-establishment and yield, and hairy vetch seed production.

According to the preliminary results of this trial, hairy vetch improves the feed value of oat straw, and potentially makes is comparable to an alfalfa-grass mix. The following table also shows high values for micronutrients.

Table 1: Feed Value of Oat Straw Combined with Hairy Vetch

Feed type	Crude Protein %	TDN %
Hairy vetch only	27.33	69.74
Hairy vetch plus oat straw	13.33	59.94
Oat straw only (comparison)	5.44	48.21
First-cut alfalfa-grass (comparison)	13.12	57.57
Recommended requirements 1400 lb cow, mid-3rd pregnancy	7.00	55.00

Project findings
Establishment of both the oats and the hairy vetch were successful. The land was in summer fallow (2016) and a pea-oat cover crop (2017). As such the land was extremely fertile. Lodging in the oats was completely absent as the hairy vetch provided a support. Harvest was very smooth, and the vetch passed through the combine without wrapping. Year two of this trial will involve a biomass sample taken at flowering, evaluating re-establishment and yield for a cereal crop sown into the vetch, and harvesting vetch seed at maturity.

Background/References/Additional Resources
Cover cropping as a part soil management is of growing interest to many Manitoba farmers. Cover crops perform a number of significant functions for the soil, including but not limited to: controlling soil erosion after harvest of the cash crop; increasing soil nutrients; and improving water infiltration.

Potential advantages of the system include:

- Grain yield (for own feed or commercial use)
- Straw feed value comparable to first-cut alfalfa
- Hairy vetch remains alive at the end of the season, acting as a catch crop for nutrients

- Hairy vetch can be terminated in the following spring as a green manure, or harvested for seed at maturity
- Harvested hairy vetch seed can be used for future oat-hairy vetch intercropping, reducing otherwise expensive seeding costs
- Year 2 hairy vetch could also be silage or hayed and fed as a high-value supplement

A disadvantage is that hairy vetch has a high amount of hard seed, resulting in sporadic germination in subsequent years. Some reports show problems for ruminants fed hairy vetch seed (although some show that the risk is minimal). The crop is also resistant against glyphosate, which can cause problems for some rotations.

Agronomic info

Previous 2 years crop	Summer fallow (2016); Pea-oat cover crop (2017)
Soil Type	Erickson Loam Clay
Landscape	Rolling with trees to the west
Seedbed preparation	Tilled and sprayed

Materials and Methods

Seeding	Jun 12
Harvest	Sept 20

Table 2: Spring 2018 Soil Test

	Available
N	150 lb/ac
P	23 ppm
K	181 ppm

Added Fertility

10lbs/ac actual P and 2.11lbs/ac actual N