

Tamarack Farms Quinoa Cover Crop

Project duration: May 2018 – August 2019
Objectives: To demonstrate the use of cover cropping strategies
Collaborators: Ryan Pengelly, Tamarack Farms

Background

Cover cropping 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 the harvest of the cash crop, increasing soil nutrients, and improving water infiltration.

Observations from this trial suggest that planting quinoa with a cover crop may be a beneficial practice. Establishing a cover crop with the quinoa crop would provide a living ground cover during the fall and into the next season (depending on the overwintering habit of the cover crop species). The cover crop could be used for fall or spring grazing, or for use as a green manure before planting the next crop. Alternatively, the cover crop could be harvested for seed. PCDF has plans to try this test again in 2020.

Materials & Methods

Experimental Design: Random Complete Block Design
Entries: 11
Seeding: June 13, 2018
Harvest: 2018: no quinoa harvest; 2019: understory crops harvested Oct 22

Table 1: Understory Crops

Persian Clover	Subterranean Clover	Italian Ryegrass	Alfalfa
White Clover	Alsike Clover	Fall Rye	Quinoa only
Red Clover	Yellow Sweet Clover	Cicer Milk Vetch	

Data collected **Date Collected**
Vigor: June 25, 2018
Understory Harvest: Oct 23
Understory Yield: Oct 28

Agronomic info

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

Table 2: Spring 2018 Soil Test

	Available
N	54 lb/ac
P	13 ppm
K	228 ppm
S	118 lb/ac

Added Fertility

10 lbs/ac seed placed actual P; 2.11 lbs/ac side banded actual N

Results

In 2018, quinoa was planted with cover crops (see Table 1). Insect damage (especially from stem borer) resulted in no quinoa yield in 2018. The cover crops, however, established well. It is uncertain how the cover crops would have performed if the quinoa crop had performed well, increasing competition for water and sunlight. Additional research is needed to determine the performance of annual and perennial cover crops planted with quinoa.