

A technique for no-till weed management under an organic farming system is to seed a cover crop in late summer, then seed a cash crop directly into the cover crop ‘mulch’ the following spring. In order to demonstrate various cover crop options and examine the impact of seeding date on mulch biomass, a trial was conducted on certified organic land in Prince Albert SK in 2020.

6 different treatments of cover crops were seeded near the Conservation Learning Centre in 2020: spring forage oats, spring forage oats 2x seeding rate, silage peas, spring forage oats and silage peas, sudan grass, and sudan grass and silage peas.

Low soil moisture at the time of seeding and minimal precipitation after seeding resulted in poor crop density, especially for the peas and sudan grass ($p < 0.0005$) (Figure 1). Crop biomass did differ significantly between treatments, but in all treatments was insufficient to produce a weed-suppressive mulch for a spring crop ($p = 0.001$) (Figure 3). Crops planted on August 4 had a higher plant density than the July 20 seeded crops, but this did not result in more biomass.

Weed plant density was higher in the plots seeded on August 4 than in the plots seeded on July 20 ($p = 0.003$) (Figure 2). Weed biomass was highest in plots seeded on July 20 ($p = 0.013$) (Figure 4). Weed biomass was especially high in the pea, sudan grass, and pea and sudan grass treatments.

The cover crops will be re-seeded next year earlier in the season, at higher rates, and we will make sure the trial area has been worked up several times and at least a month before seeding to help control weeds. We will apply for additional funding in order to seed a cash crop into the mulch in the third year of the trial.

Funding for this project was provided by the Agricultural Demonstration of Practices and Technologies (ADOPT) Program.

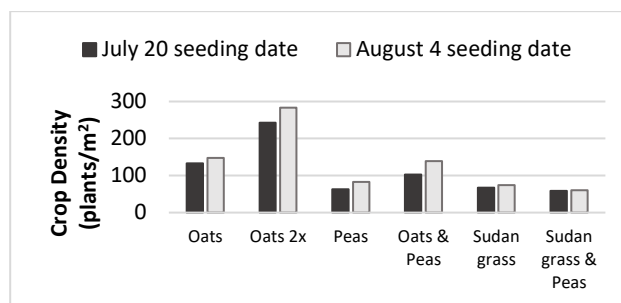


Figure 1. Crop plant density of cover crops at the CLC in 2020.

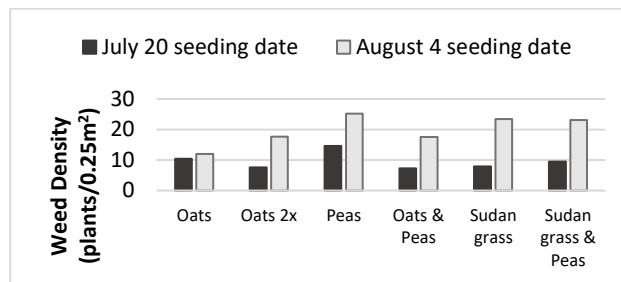


Figure 2. Weed plant density by cover crop treatment at the CLC in 2020.

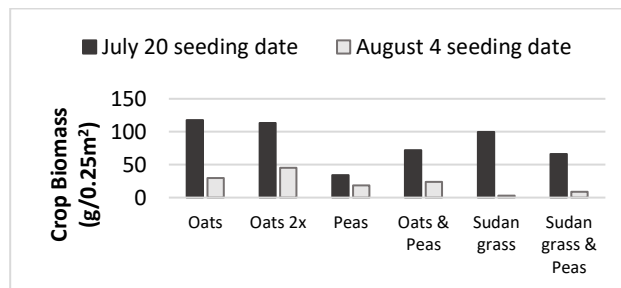


Figure 3. Crop biomass of cover crops at the CLC in 2020.

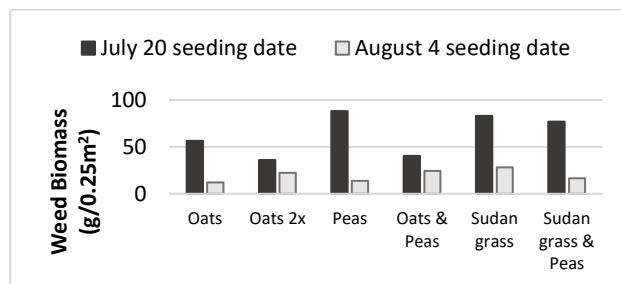


Figure 4. Weed biomass by cover crop treatment at the CLC in 2020.