

The production of minor crops in Saskatchewan is increasing. Incorporating more minor crops into rotations could lengthen crop rotations and may help producers control weeds and disease. In order to demonstrate alternative crop options for local producers and assess their suitability for the north-central region, a trial was conducted in Prince Albert SK in 2020.

13 alternative crops and 3 intercrops were seeded at the Conservation Learning Centre in 2020: sunflower, fababean, soybeans, canola/pea, flax, chickpea/flax, kabuli chickpeas, blackstrap dry beans, small red lentils, buckwheat, small coriander seed, large coriander seed, canary seed, oat/pea, corn and quinoa.

The main challenges faced with the production of these alternative crops were weed management, deer trampling and grazing, and an early fall frost (-3.6°C on September 8).

Some of the alternative crops grown were more successful than others under this season’s growing conditions (Table 1). Fababeans, dry beans and lentils performed well in a north-central growing environment. Sunflower, flax, chickpea/flax, chickpea, and quinoa crops never fully matured before harvest. Weed pressure was especially significant in the quinoa plots, due to the lack of registered herbicides. The pulse crops were also heavily grazed and trampled by deer resulting in very low yields and significant lodging, though this effect would not be as important on a field scale.

Corn plants were tall and produced lots of biomass (Table 2). The corn averaged at around 6 cobs per plant and cobs were fairly large, averaging at 24 cm in length. The majority of harvested cobs were fully ripe.

Table 1. Yields of alternative crops seeded at the CLC in 2020.

| Crop | Mean Yield | Mean Yield (pea/flax) | Mean Yield | Mean Yield (pea/flax) |
|-----------------------|------------|-----------------------|------------|-----------------------|
| | bu/ac | | lb/ac | |
| Sunflower | 37.9 | | 996.0 | |
| Fababean | 75.9 | | 4732.2 | |
| Soybeans | 19.7 | | 989.3 | |
| Canola/pea | 2.7 | 6.4 | 133.8 | 334.5 |
| Flax | 2.4 | | 148.4 | |
| Chickpea/flax | 5.1 | 4.2 | 267.6 | 401.4 |
| Kabuli Chickpeas | 2.0 | | 243.9 | |
| Dry bean (blackstrap) | 27.2 | | 1300.8 | |
| Lentils (small red) | 49.3 | | 3495.8 | |
| Buckwheat | 15.6 | | 627.8 | |
| Coriander (sm) | 63.2 | | 1889.8 | |
| Coriander (lg) | 80.8 | | 2274.5 | |
| Canary Seed | 18.8 | | 689.0 | |
| Pea/oat | 111.0 | 11.6 | 3365.7 | 1048.7 |
| Quinoa | 28.8 | | 2181.0 | |

Table 2. Corn harvest data from the CLC in 2020.

| Corn Harvest Data | |
|-----------------------------------|-------|
| Mean Plant Height (m) | 2.10 |
| Mean Biomass (kg/m ²) | 3.84 |
| Mean Number of Cobs (cobs/plant) | 6.25 |
| Mean Cob Length (cm) | 23.99 |

Further research should be conducted in the future to determine how these crops perform under different weather conditions.

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