

Early Seeding Considerations



Risks and Rewards of Early Seeding

In an early and dry spring, early seeding will inevitably happen. While seeding in mid-April is not uncommon in some parts of Manitoba, in recent years, dry soil conditions have made it possible for seeding to start even earlier. Before putting seed in the ground, it is important to think about the benefits and risks of early seeding.

Benefits of Early Seeding

The biggest driver for early seeding is the potential for higher yields. Farmer-reported data from Manitoba Agricultural Services Corporation (MASC) shows that earlier seeding dates generally result in higher yields. The figure below shows average relative yield of various crops as seeding date moves from late April to mid June. Average relative yields were highest for spring wheat, oat, flax, soybean, field pea, and sunflower for the late April seeding date. Barley, grain corn, and canola yields were highest on average when seeded the first week of May. It is important to keep in mind that the data presented is for final crop in the ground.

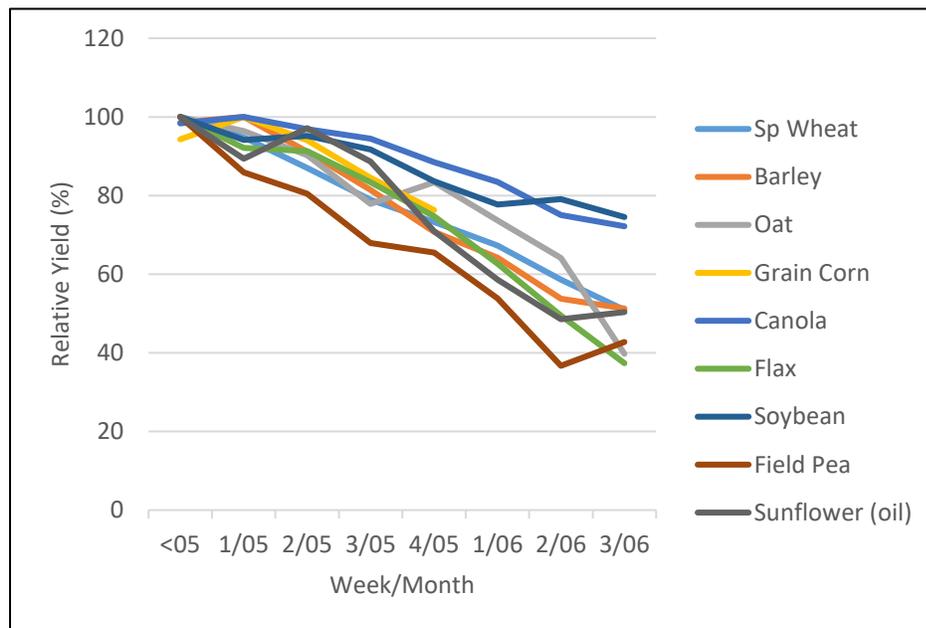


Figure 1: Average relative yields reported to MASC during each sowing week for selected crops grown in Manitoba for the period of 2010-2019. The vertical axis represents the percentage of average yield, and the horizontal axis represents the week each crop is sown. Source: Manitoba Agricultural Services Corporation Seeded Acreage Report.

There are a variety of factors that contribute to increased yield potential with early seeding. Some of these factors include avoidance of insects and diseases, and increased weed competition through faster crop establishment. Earlier planted crops may be better able to use available soil moisture through the growing season, and may increase the likelihood of avoiding of high temperatures and dry conditions during flowering and grain fill. Research conducted in Alberta and Saskatchewan on ultra-early seeding dates for spring wheat has found that optimal seeding time for spring wheat is when the soil temperature is between 2°C and 6°C (Colliers et al. 2020).

Risks of Early Seeding

Cold soil temperatures and frost damage are the main risks of early seeding. If the soil is too cold for germination, emergence may be uneven or inadequate. Table 1 shows the minimum germination temperatures for several crops. As soil temperatures increase, germination and emergence are faster and more uniform. If seeding into cold soils, it may be beneficial to account for greater seedling mortality as percent emergence is usually higher on warm soils.

If conditions are cool and wet after seeding, emergence will be slow, making the seedlings more susceptible to diseases and root rots. Seed treatments are recommended when seeding early, but check to see how long seed treatments are effective.

Once the crop emerges, frost is the main risk. Tolerance to freezing temperatures varies, depending on the crop type and the plants growth stage. Frost injury depends on air temperature, length of time the temperature is below freezing, soil moisture, residue levels, temperatures following the sub-zero temperatures, and the plants' growth stage.

Measuring Soil Temperature

Place your soil thermometer at your target seeding depth. Take a measurement in the morning and evening to determine average soil temperature for the day. It is recommended that you take readings over a few days to determine a multiple day average, and to measure temperature in a number of locations in the field.

References

Collier, G.R.S., Spaner, D.M., Graf, R.J., and Beres, B.L. 2020. The integration of spring and winter wheat genetics with agronomy for ultra-early planting into cold soils. *Front Plant Sci.* 2020; 11: 89.

Contact Us

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Table 1. Minimum germination temperatures for various crops.

Crop	Temperature (°C)
Wheat	4
Barley	4
Oat	4
Corn	10
Canola	5
Flax	9
Sunflower	6
Edible Beans	10
Peas	4
Soybeans	10

Sources: North Dakota State University Extension Service, Alberta Agriculture and Forestry, and Canola Council of Canada