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NEW! [Soybean Production Guidelines](#)

[Field Pea Production Guidelines](#)

[Soybean Fertility Fact Sheet](#)

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Figure 1. Soybeans seeded on May 4 (left) and May 7 (right) near Morris and Lowe Farm on May 11, 2017.

Soybeans

Soybean seeding is underway in Manitoba. The majority of seeded soybean acres are currently in the south central region of Manitoba. In the eastern, western and northern growing areas of the province, soybean planting is just beginning as of the third week in May. Early planting was possible in some areas due to consistently warm soil temperatures. Radicle protrusion, signalling germination, was visible just four days after planting for soybeans seeded on May 7th near Lowe Farm (Figure 1). Soybeans seeded on May 4th near Morris showed signs of radicle elongation just one week after seeding (Figure 1).

Pay attention to the likelihood of spring frost events for your area in Manitoba, particularly for earlier-seeded soybeans. Once emerged, soybean plants are susceptible to frost damage due to epigeal emergence. With epigeal emergence, the growing point is pushed above the soil surface. This leaves soybean plants susceptible to damage or death, depending on the severity and duration of freezing temperatures. Pulse crops exhibiting hypogeal emergence (i.e., field peas, fababeans) can regrow if the shoot is killed by frost because the growing point remains below ground. Click [here](#) to assess your risk of spring and fall frost.

The first two dates of a soybean planting date study, initiated by the Applied Soybean & Pulse Research Lab at the University of Manitoba, have been seeded at Carman, Melita and Arborg. Two more dates will be seeded to assess the optimum soybean planting window in Manitoba.

Dry Beans

Dry bean seeding is not yet underway in Manitoba, despite a few reports of early-seeded acres in the ground. Seeding typically begins just around the May long weekend due to the risk of frost from earlier planting, so there is still time for dry beans in Manitoba. Crop insurance data (MASC 1989-2008) has shown that the greatest navy bean yields were from planting during the third week in May.

Field Peas

Field pea seeding began in late April and it is expected to be wrapped up in Manitoba at this point in time. The greatest pea yields have been recorded from planting during the first week in May, according to crop insurance data (MASC 1989-2008). It is expected that pea acres will be down in Manitoba in 2017.

Faba Beans

Faba bean planting officially wrapped up during the second week in May. Faba beans are usually seeded earlier and at a greater soil depth (2-3") relative to other pulse crops. Early season weed control is important, so pre-emergent weed control is recommended, rather than a pre-seed burn-off.

Projected Pulse & Soybean Acres in Manitoba

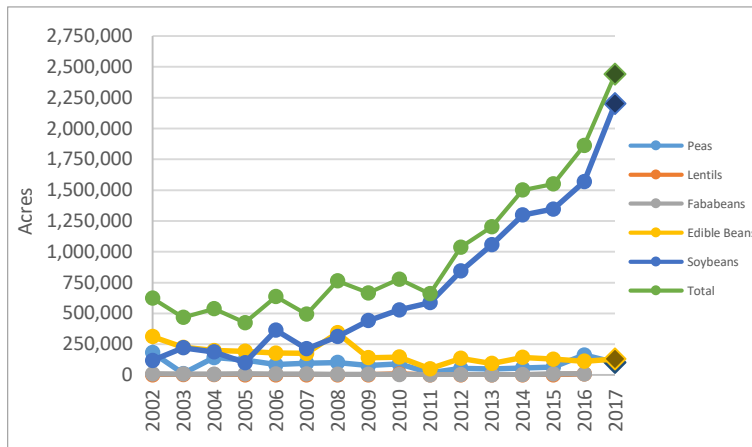


Figure 2. Seeded acres of pulses and soybeans in Manitoba from 2002 to 2017, including projected acres for 2017 (MASC).

Depicted in Figure 2 are seeded soybean acres in Manitoba, including projected acres by MPSG for pulse and soybean crops in 2017.

Continuing this trend, Manitoba is expected to break another record for seeded soybean acreage in 2017 at 2,000,000 acres. Field pea acres are projected to be approximately 100,000 acres in 2017. This is largely due to the wet, unfavourable conditions for peas in 2016. Edible bean acres are projected at about 130,000 acres in 2017, similar to previous years. And all other pulse crops combined are expected to be approximately 10,000 acres in 2017.

Soybean Planting Tips

Are you still deciding when to plant soybeans? If you only have some, or don't have any of your soybean acres planted, don't fret. The window for soybean planting remains open in Manitoba with good yield potential. Consider all "time of seeding compromise" factors to determine when to plant soybeans on your farm.

What is a good calendar date for soybeans?

According to MASC data, soybeans are most commonly seeded from May 11th to 31st. If the weather is allowing you to seed this week, you would be on target in terms of calendar date. Soybean yield potential can drop off with June planting. So it is a good rule of thumb for the latter part of the planting period to seed before the end of May. If planting is delayed until June, there is still potential for good yields early in June. But you may want to increase your seeding rate by 20% and plant in narrower rows for more rapid canopy closure and increased competitive ability of your soybean crop.

What about soil temperature?

Soybeans planted into cold soils will germinate and emerge more slowly. As a rule of thumb, soil temperature should be at least 10°C at seed depth for soybean planting. A recent study from the U of M indicated that calendar date may have a greater influence on soybean yields than soil temperature (Tkachuk, 2017). However, more work is needed to validate this finding. In the meantime, this soil temperature rule also generally indicates good calendar dates for soybean seeding in Manitoba.

What to watch for in the weather forecast?

Soybeans are at risk of chilling injury during the 24-hour period following seeding. This is when imbibition (initial water uptake by the seed) is taking place. Seeds that imbibe cold water are at risk of slowed growth and mortality. If cold air temperatures (lows at or near freezing) are forecasted at the intended time of seeding, and forecasted temperatures are higher over the next few days, it may be best to wait for the warmer weather to plant.

How to manage "personal risk"?

Personal risk includes the number of acres on your farm slated for soybeans relative to other crops, your risk of frost (depending on your location in the province), and your timeline to complete seeding and harvest. Rule of thumb: Target soybean planting within two weeks of your last predicted spring frost date, assuming soybeans will take two weeks to emerge. This will ensure that emerged soybeans are in the clear of any potential killing frost (-2.2°C). Soybeans are susceptible to both spring and fall frost, so it is best not to plant too early, but also not too late. Catch up on seeding other crops, such as wheat and canola, then get to the soybeans. You can also mitigate risk by spreading out planting dates, if possible. Also ensure enough time for soybeans to reach maturity prior to fall frost events.

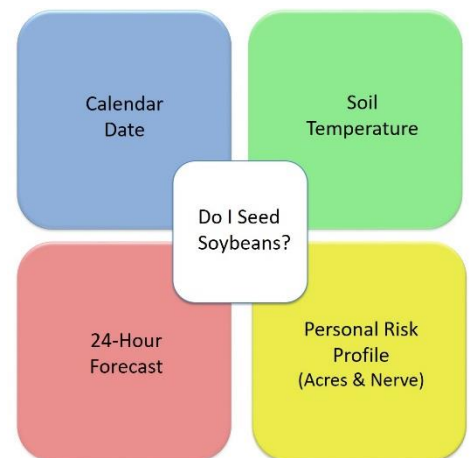


Figure 3. The time of seeding compromise for soybeans (Terry Buss, Manitoba Agriculture).

Phosphorus Management of Pulse & Soybean Crops

Phosphorus is an important nutrient for pulse and soybean crops. It plays a role in processes such as development of new root and shoot tissues and nitrogen fixation.

Pulse and soybean crops are generally heavy phosphorus-users. Medium to high soil test P levels (10-20 ppm) are optimal for soybeans. However, research from the University of Manitoba has determined that soybeans generally do not respond to phosphorus fertilizer, regardless of rate or placement (Bardella, 2016). This lack of response was evident even at very low soil test levels.

Low soil test P levels have become a concern in Manitoba. According to 2016 soil test results from Agvise, large percentages of fields in Manitoba have reached low levels of Olsen P (<10 ppm). Frequent soybean production in a rotation can worsen this issue, affecting crops that are more sensitive to P deficiency. Low soil test P levels in the northeast corner of Manitoba may be attributed to frequent soybean production over several years.

Phosphorus removal rates are generally greater than application rates in Manitoba. This is likely due to limited capacity for application of seed-placed phosphorus fertilizer, particularly with sensitive crops like canola or soybeans (Table 1). The maximum safe rate of seed-placed phosphorus with soybeans is 10 lbs P_2O_5 /ac for wide rows, or up to 20 lbs P_2O_5 /ac for narrow rows with good soil moisture. A 40 bu/ac soybean crop removes approximately 34 lbs P_2O_5 /ac, or 0.84 lbs P_2O_5 /bu. Therefore, it is important to develop a crop rotation strategy that ensures P removal rates are balanced with P inputs.

Since soybeans are relatively unresponsive to P fertilizer at any rate or placement, farmers can utilize soybeans as an opportunity for flexibility of P fertilizer application throughout the crop rotation. Use the [Phosphorus Fertilization Calculator](#) (Table 1) to balance P fertilizer inputs and P removal from harvested grain throughout the entire crop rotation. Removal of P for different yield targets can be adjusted.

To balance P removal, phosphorus fertilizer could be applied with soybeans at the rate of removal if applied away from the seed (i.e., side or mid-row banding). Higher rates of phosphorus fertilizer can be applied during the cereal phase of a crop rotation because cereals are generally more tolerant to seed-placed fertilizer. Broadcasting P fertilizer prior to or after seeding can help increase soil P levels, but there is a risk of P losses from erosion and run-off. Manure can also be utilized to build soil P, but would likely be more beneficial applied prior to more P responsive crops (canola or cereals).

Soil conditions have shifted from wet to dry in many areas across Manitoba, which is generally good news for seeding a lot of acres. However, dry conditions can increase the risk of fertilizer losses. For tips on applying fertilizer under dry soil conditions, click [here](#) to read the article by John Heard (Crop Nutrition Specialist, Manitoba Agriculture) on Crop Chatter.

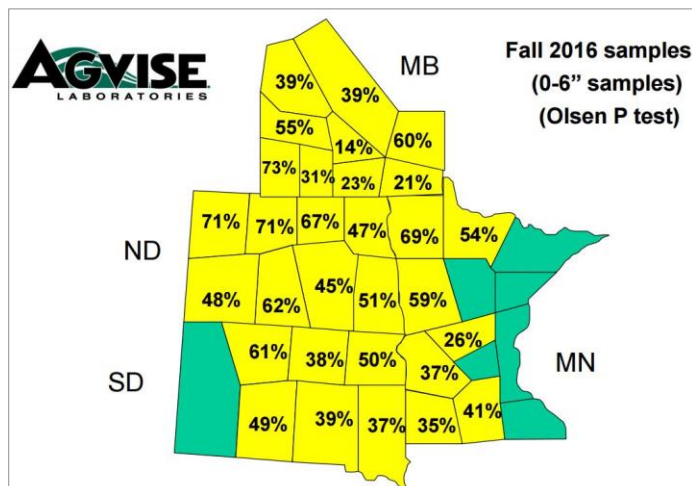


Figure 4. Percentage of soil samples with Olsen phosphorus soil test levels (0-6" depth) less than 10 ppm from MB, ND, MN and SD in 2016.

Source: Agvise Laboratories

Table 1. Phosphorus calculator developed to balance P throughout the crop rotation. Blue cells are filled in by the individual. Note: This simulation with P applied at the maximum safe, seed-placed rate results in a soil P deficit.

Crop	Typical Yield	Yield Units	P Applied	P Removed* per unit	P Removed* per acre	Annual Balance
----- (lb P_2O_5 /ac) -----						
HR Spring wheat	60	bu/ac	30	0.59	35	-5
Winter wheat		bu/ac		0.51	0	0
Barley		bu/ac		0.42	0	0
Oats		bu/ac		0.26	0	0
Canola	40	bu/ac	20	1.04	42	-22
Soybeans	40	bu/ac	10	0.84	34	-24
Peas		bu/ac		0.69	0	0
Flax		bu/ac		0.65	0	0
Corn (grain)		bu/ac		0.44	0	0
Other**				0.00	0	0
Total for Rotation			60		111	-51

This calculator does not account for nutrients lost from removal or burning of straw or chaff.