



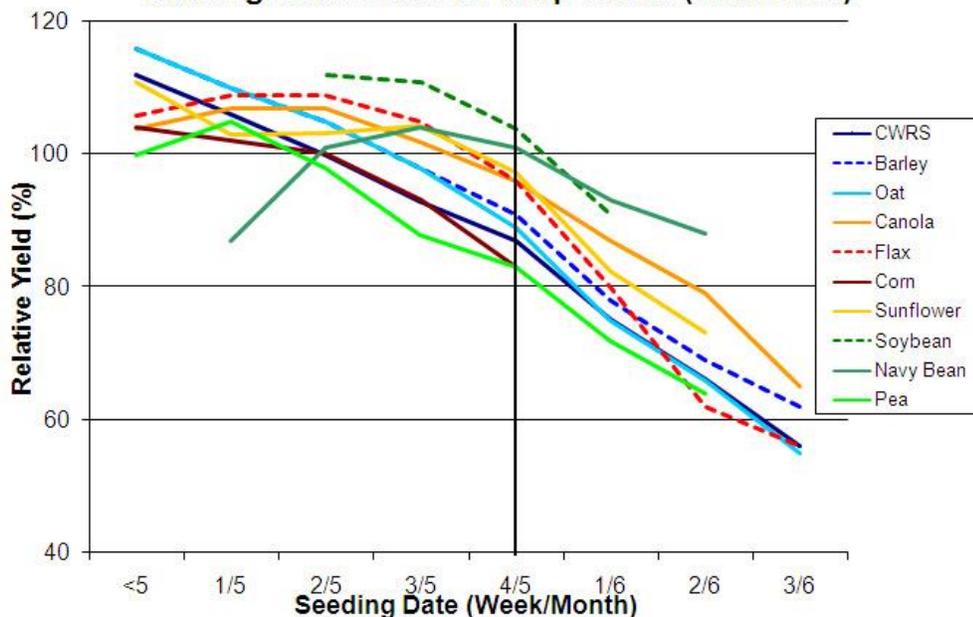
- Seeding date effect on crop yields
- Planting soybeans is a balance of calendar date and soil temperature
- Emergence time
- Herbicide options for volunteer canola ahead of soybeans
- Consider seed size for calculating seeding rates for peas and beans

Soybean seeding getting underway

The optimum planting time for soybeans is a fine balance between soil temperature and calendar date. Ideally, average soil temperature should be 10°C, to optimize emergence and vigor. However, we are in the middle of May with showers in the forecast and exceptions are being made, understandably. While many growers in parts of Western MB and the Southeast are waiting for fields to dry, seeding in the Central, Interlake and RR Valley is progressing well. An important consideration for planting soybeans into cooler soils is to think about increasing seeding rate due to lower survival (reduced vigor, disease etc.). A seed treatment may also improve survival.

As of May 16, daily soil temps do remain below 10°C on average, although warm temperatures are forecasted. Historically, the ideal time to plant soybeans in Manitoba is between May 10 and 25th, so we have time for those unable to get into fields. Long-term yield data from MASC shows us that 100-115% relative yield is maintained up until about June 1st. If planted in 1st week of June, relative yield of soybean falls to about 90% and is at greater risk to early fall frost damage.

Seeding Date Effect on Crop Yields (1989-2008)



Source: MASC

The cumulative 5 year average seeding progress for soybeans is 22% at end of 2nd week in May.



A Soybeans planted in warm soil (21°) and kept at that temp for 17 days.

An example of the effect of cool soil temperature on soybeans

Soybeans are particular about soil temperature at seeding and in the weeks following. Planting into cool soils can put the beans at risk of chilling injury. Chilling injury occurs when the seed takes up cold water. The seed requires 50% of its weight in water for germination. When the water absorbed is cold, it negatively affects respiratory processes and reduces seedling vigor.

Lab demonstrations have shown the potential negative effect of chilling on soybean plants (Source: Northstar Genetics).

A. The most vigorous seedlings were those planted into warm soil (21°C) that stayed warm.

B. If soybeans were planted into warm soil but then chilling occurred after seeding, seedling vigor was reduced.

C. Soybeans planted into cool soil (7°C) and soil remained cool, seedling emergence and vigor was poor.



B Soybeans planted in warm soil (21°) for 8 hours, then kept at 7° for 4 days



C Soybeans planted in cool soil (7°C) and kept at 7°C for 20 hours then warmed up to 21°C for 17 days.

Soybean emergence time based on soil temperature*

Cool (10°C) = 14-17 days

Warm (15°C) = 7-10 days

or

90% emergence at 155 GDD¹ (base 10°C)

¹ Conley and Gaska, U of Wisconsin

*Emergence times can be used to plan pre-emergent herbicide applications.

Herbicide options for volunteer canola management ahead of soybeans



An eyesore or yield robber or both?
Research is being done to figure it out!

In the latest episode of Soybean School West, Dr. Rob Gulden discusses the broader implications of managing glyphosate resistant weeds (volunteer canola and kochia), and Monsanto's Bruce Murray provides comments on herbicide options for managing volunteer RR canola. [Check it out here.](#)

In the meantime, if you know volunteer canola is a problem in your field, here are your options for managing it ahead of the soybean crop.

Read and follow label directions for application timing, rates, water volume and weed staging.

Herbicide options for managing volunteer RR canola ahead of RR soybeans			
Product	Group	Timing	Notes
Heat*	14 - saflufenacil	Pre-emerge	Some varieties may be more sensitive to Heat and injury may occur. DO NOT use rates higher than 10.4 g per acre or injury could result.
Cleanstart	9 + 14 - carfentrazone	Pre-plant	Vol canola 1-3 lf stage
Tribenuron*	2	Pre-plant	i.e. Express SG, vol canola up to 6 inches
*must be mixed with glyphosate			
Valtera	14 - flumioxazin	Pre-seed or 3 up to 3 days after	Soil applied, requires incorporation and rainfall for activation. Does not control emerged weeds
Focus	14 - carfentrazone 15 - pyroxasulfone	Pre-emerge	NEW—see label

Consider seed size when calculating seeding rates

Seed size of some edible bean types are larger than usual this year and this should be considered when planting to avoid low plant populations. Attention to planting equipment may also be necessary.

$$\text{Seeding rate (lbs/ac)} = \frac{\text{desired plant population/ft}^2 \times 1,000 \text{ kernel weight (g)}}{\text{expected seed survival (i.e. 80\% = 0.8)}}$$

Desired plant populations for soybeans and pulses

	plants/ac	plants/ft ²
Soybeans	140-160,000	3.2-3.7
Pintos - row	60-65,000	1.4-1.5
Pintos - solid	90-100,000	2.1-2.3
Navy/blacks - row	90-95,000	2.1-2.2
Navy/blacks - solid	130-140,000	3.0-3.2
Peas	300-350,000	7-8