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[Official Soybean Grain Grading Guide](#)

[Pulse School: Faba Bean Harvest Strategies](#)



Soybeans at R7.5 to R8 near Warren on September 5, 2018.

Crop Update

Soybean harvest is well underway in Manitoba in the south-central region. Harvest is just beginning in the eastern and western areas of the province. Many soybean fields may be mature enough for harvest, but recent rains have kept farmers waiting. Early soybean yield reports are at approximately 30 bu/ac, on average. Remaining soybean crops currently range from R7 to R8. Patchy maturity has posed harvest timing problem for some farmers. If you are experiencing this issue, consider combining areas of the field that are ready for harvest now (seed moisture of <14%) and return to harvest the rest, once it is ready. Maturity differences across a field stem from uneven emergence in the spring and variable soil moisture throughout the growing season (i.e., low areas with better soil moisture may be slower to mature).

Reports of green seed issues in soybeans have trickled in over the past week in regions that experienced hot, dry conditions throughout July and August. For more information on green seed, refer to page 2 of this report.

A frost event occurred in Manitoba on September 5 in areas of the southwest, northwest, central and Interlake. See page 3 and the [Manitoba Agriculture Special Crop Report](#) on early fall frost, for more details on the impact of this frost. Frost damage to soybeans can also contribute to green seed issues. Passing thunderstorms have also brought hail damage to soybeans near Beausejour. Be sure to pay your fields a visit to assess any potential hail damage.

Dry bean harvest has progressed steadily in Manitoba over the past few weeks with mainly pinto, navy and black beans crops yet to be harvested. Areas of fields that are normally wet may have contributed to better-than-expected dry bean yields under these dry conditions. Faba beans are also on the edge of harvest, with many crops still standing in the field.



An open pod and green, shriveled soybean seed that will not likely change colour, on September 6, 2018 near Gladstone.

MPSG Activities

The On-Farm Network and Tone Ag Consulting have been busy with harvest since mid-August and continue to work through trials across Manitoba. All field pea, dry bean and faba bean trials have been harvested successfully and soybean harvest is still underway. This fall/winter, you can expect to see results from soybean potassium, inoculant, fungicide, seeding rate and seed treatment trials, and dry bean, field pea and faba bean fungicide trials. Stay tuned!

This year, the MPSG-funded soybean variety evaluation trials are testing more varieties than ever. This work is conducted at multiple sites across Manitoba to provide third-party data on available soybean varieties. Many varieties have now reached maturity at sites in the south-central region. However, maturity ratings are still ongoing.

Watch for the brand new *Field Pea Growth Staging Guide* coming this fall with your Pulse Beat mailout!

Upcoming Event! Intercropping Workshop • November 2018 (Date TBA) • Brandon, MB

Stay tuned for more details on this dynamic event, focusing on intercropping agronomy, post-harvest management and soil health.

Green Soybean Seed and Stems

Green Seed

Green soybean seed can become an issue when dry conditions occur from July to August. These conditions prevent the enzyme, chlorophyllase, from degrading chlorophyll in the seed (i.e., the process that allows normal colour change). Chlorophyll in the seed impacts oil quality—a major issue for canola. However, this may be less critical for soybeans, which are grown primarily for meal. To determine if you have a green seed problem, seeds must be cut open crosswise to assess the cotyledon colour (Figure 1). There are two types of green soybean seeds to watch for:

- 1) **Slightly green hull and yellow cotyledons** – Dry soybeans that are yellow on the inside and only have a green tinge to the seed coat. These soybeans are designated as mature, graded No. 2 Canada and are not discounted (Figure 1).
- 2) **Green hull and green cotyledons** – Dry soybeans that have green colouration throughout the entire seed, which may be locked in (Figure 1). These soybeans are subject to downgrading, depending on the percentage present in the sample (Table 1). Only cleaned samples are graded, meaning shrunken green seeds could potentially fall through sieve openings prior to grading.

What to do about this green seed problem?

- Let the soybeans stand longer in the field. The green colour may not disappear due to minimal enzymatic activity in the dry seed, but can improve somewhat if plants are left standing (Horst Bohner, OMAFRA). Rain can also increase activity of enzymes.
- Harvest areas of the field that are ready and come back for the rest. If pods and puffy yellow or green seeds are making their way into the combine, you may be harvesting too early.
- Take a sample to your buyer before hauling. Consider sending a sample to the Canadian Grain Commission (CGC) for a second opinion, as colour is subjective and there is a fine line between mature and immature seed. [Click here](#) to apply for the Harvest Sample Program.
- Do not rely on storage to improve seed colour. A study conducted by OMAFRA and the CGC found little colour improvement after two and five months of storage.



Photo: Shaun Casteel, Purdue University
Normal soybean maturity (left) vs. green stem syndrome (right).

Green Stems

Another issue farmers may be facing this year is green stem syndrome, where soybean pods and seeds are mature, but stems remain green. This makes combining difficult and green material can get mixed with the seed. It is especially concerning when seed moisture is dropping much lower than 14%, which can increase the risk of shattering and losses during harvest. Both genetics and environment play a role in this condition. Soybean varieties differ in their expression and fluctuating soil moisture after flowering, presence of viruses and ALS inhibitor herbicides can all cause of this condition. Harvesting seed at the correct moisture is the most profitable option, even if stems are green. Slow travel speeds and sharp cutting knives are also recommended.

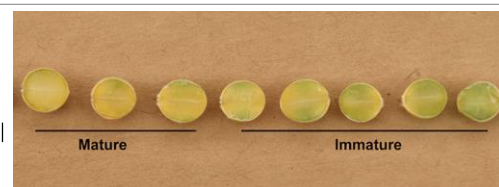


Figure 1. Canadian Grain Commission grading scale for “total damage” caused by immature or green soybean seed. Source: [Canadian Grain Commission](#).

Table 1. Canadian Grain Commission primary and export grade determinants for percentage green seed. Source: [Canadian Grain Commission](#).

| Grade Name | Total % Damage (Immature/Green Coloured Seed) |
|--------------|---|
| No. 1 Canada | 2.0 |
| No. 2 Canada | 3.0 |
| No. 3 Canada | 5.0 |
| No. 4 Canada | 8.0 |
| No. 5 Canada | 15.0 |

Variety Market Share Summary

Table 2. Manitoba soybean and pulse crop seeded acres in 2018, percentage change from 2017 and percentage of variety market share in 2018. Source: [MASC Variety Market Share Report](#).

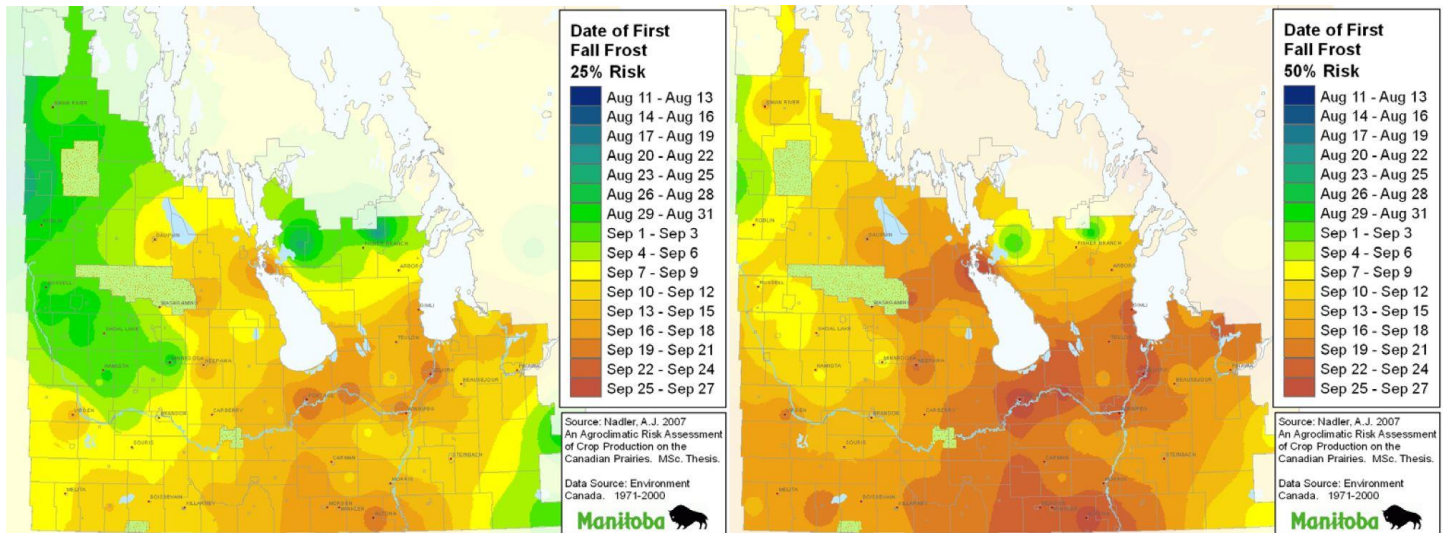
| Soybeans 1,778,556 ac ↓17% | | Field Peas 78,440 ac ↑23% | | Pinto Beans 48,368 ac ↓7% | |
|-------------------------------|-------|------------------------------|-------|-------------------------------|-------|
| S007-Y4 | 13.0% | CDC Amarillo | 25.0% | Windbreaker | 55.4% |
| DKB005-52 | 5.7% | CDC Meadow | 18.5% | Vibrant | 18.4% |
| S0009-M2 | 5.1% | Abarth | 13.5% | Monterrey | 14.5% |
| Akras R2 | 4.7% | AAC Carver | 12.3% | SV6533GR | 5.7% |
| NSC Watson RR2Y | 4.3% | AAC Lacombe | 6.8% | Common seed | 3.3% |
| 24-10RY | 4.0% | Navy Beans 20,243 ac ↓26% | | Black Beans 27,610 ac ↑23% | |
| 23-60RY | 3.7% | T9905 | 74.7% | Eclipse | 84.4% |
| Common seed | 3.4% | Indi | 15.6% | CDC Blackstrap | 7.3% |
| S006-W5 | 3.3% | Envoy | 5.6% | Zenith | 3.6% |
| P007A90R | 3.1% | T9903 | 1.6% | CDC Jet | 2.7% |

Frost Impact on Soybeans

The impact of fall frost on soybean yield and quality is influenced by the level of [soybean maturity](#). This maturity of course depends on the maturity group of the variety you are growing and the planting date in spring. See below for frost risk details based on your region and soybean growth stage.

Factors that influence frost severity:

- Duration of cool temperatures – longer duration of freezing temperatures can cause more damage
- Soil moisture – moisture in the soil will retain heat
- Canopy thickness – narrow rows hold heat better than wide rows
- Wind speed – stronger wind is better
- Cloud cover – more nighttime cloud cover is better



First fall frost dates at a 25% or one in four year risk level (left) and 50% or one in two year risk level (right).

Impact of Fall Frost Based on Soybean Growth Stage

| Stage | R-6 Full Seed | R-6.5 Halfway through seed fill | R-7 Physiological maturity | R-8 Full Maturity |
|--------------|---|--|--|---|
| Description | Field is green. Plant material is green; seed fills pod on one of top four nodes. | Yellow visible in field with some leaf drop. Full seed on top four nodes, starting to drop bottom leaves. Pod color is green/yellow. | Field is yellow. Pods are yellow (membrane around the seed is completely absorbed) and at least one pod on main stem is brown. | Field is tan-brown. 95% of pods are brown, seeds will rattle in pod and all leaves will be dropped. |
| Days to | 25-30 days | 10-15 days | 8-10 days | 5-10 days to harvest |
| % Yield Loss | Up to 50% | Up to 30% | Safe <10% | 0 |