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SAVE THE DATE

- **Soil Compaction Workshop**
September 27 at Portage AAFC Site
Free event, pre-registration required

QUICK LINKS

- **Soybean Maturity Guide**
- **Map of Average First Fall Frost Date**



Figure 1. Brown pods + brown stem = crop is very close to harvest, brown pods + yellow stem = 5-10 drying days, yellow pods = 1-2 weeks.

Harvest Update

SOYBEAN harvest began last week and is progressing slowly as conditions dry. The majority of soybeans are in the R7 (pods yellow) to R8 (mature—pods brown) stage and are 1-2 weeks from harvest. In western Manitoba, there are some green soybean fields still at R-6.5 (halfway through seed fill) that are susceptible to frost. For information on soybean maturity and frost risk, [click here](#). Some areas received a light frost (-1°C) Sept 14 which may kill some green top growth but should not affect pods or seeds.

Soybean harvest can begin once seed moisture is <15%. Ideally, most should get harvested at 13%. Seed moisture can increase following overnight dews and decrease in hot, windy

conditions. Lodging is prevalent in many fields and will make pick-up during harvest more difficult.

Desiccation has been considered by some to manage weeds prior to harvest—these fields missed a second herbicide application due to wet field conditions. Desiccation is not common in soybeans due to nature of frost late in the season, however if weed material is green and there is concern for harvest-ability, soybeans can be desiccated once all the pods have turned color.

DRY BEAN harvest continues, yields are variable with the majority being reported as average to below average. Less than ideal conditions due to excess moisture are making harvest

Table 1. Manitoba soybean and pulse crop seeded acres in 2016, % change from 2015 and % variety market share in 2016

Soybeans ↑ 16%	1,567,921	Field Peas ↑ 254%	162,078	Navy Beans ↓ 35%	24,226
DK 23-60RY	7.0	CDC Meadow	43.1	T9905	62.2
S007-Y4	6.4	Agassiz	28.9	Indi	16.1
Akras R2	6.1	CDC Amarillo	7.1	Envoy	10.5
NSC Richer RR2Y	4.7	Abarth	4.2	Bolt	4.2
24-10RY	4.6	AAC Ardill	2.1	T9903	4.1
25-10RY	4.4	Pinto Beans ↑ 35%	48,292	Black Beans ↓ 14%	17,512
P008T70R	3.6	Windbreaker	76.3	Eclipse	90.6
TH 32004R2Y	3.4	Monterrey	14.7	CDC Superjet	6.0
LS003R24N	3.0	White Mountain	2.4	CDC Jet	2.6
PS0027 RR	2.9	AC Pintoba	1.5	CDC Blackstrap	0.8

Soybean Harvest Tips

Scout fields regularly and harvest on time. Soybeans are ready to harvest when seed moisture is <14%. Monitor fields every other day and try combining 5-10 days after the crop reaches R-8 full maturity (95% brown pod on main stem). Leaf drop isn't always a good indicator—beans may be dry even though a few leaves remain. Starting at 15% moisture is a good idea if you have many acres to cover. Soybeans are sold at 13% moisture, so harvesting close to 13% is most profitable. If seed moisture falls below 11%, shattering losses increase. Dry seed is also not desirable for fields intended for seed use due to increased risk of cracking during handling and reduced germination.

Inspect combine and become familiar with settings.

- Cutter bar – cutting as low to the ground as possible is very important for soybeans because they pod so low to the ground and in many cases, the majority of yield is in the lower third of the plant. The cutter bar should be checked for wear, flex and height adjustments to ensure you are cutting within 2 inches of the ground. A flex header that follows the contour of the land is important.
- Reel – the reel axle should be positioned 6-12" ahead of the cutter bar and should run 25-50% faster than ground speed. A reel that is moving too slow may result in loose stalk being left behind. Excessive batting from a reel that is moving too quickly may result in loose pods or seeds on the ground. Lodged crops may require faster reel speed.
- For combine settings (rotor, cylinder, concave etc.), refer to the combine user manual. The large size of soybean seed and appropriate combine settings should result in very few losses out the back of the combine. The majority of harvest losses occur at the header during gathering.

Watch your speed. An optimum ground speed of up to 3-4 mph is suggested for direct harvesting soybeans in order to reduce harvesting losses. Slower speeds may be required depending on the capacity of the combine. Faster speeds may result in higher losses due to knife stripping resulting in long stubble, uneven cutting height and shatter losses.

Harvest direction. Soybeans are harvested with the rows, or more commonly, at a 45° angle. Harvesting at an angle provides a more even distribution of cutting load on the knives, which can result in better feeding and fewer losses and more even wear. When harvesting with the rows, there is heavy feeding to knife sections in-line with the rows. Cutting at an angle seems to be the preferred method, however, if there are ruts left behind by the sprayer that are in line with the rows, you may consider cutting with the rows (and sprayer tracks). Combining across deep sprayer ruts can lead to uneven cutting and potentially higher losses.

Measure losses regularly and make adjustments. The majority of harvest losses in soybeans occur during *gathering* i.e. feeding into the header (80% of total losses). Other types of losses are *pre-harvest* and *combine* losses, but these are generally minimal (20% or less). The focus should be on gathering losses – measuring and minimizing them with adjustments to cutting height, speed, reel position etc. *Gathering* losses can further be categorized in order to determine the source of the problem. When measuring harvest losses, separate the losses into these four categories to help troubleshoot and make adjustments.

- 1 Shatter:** loose pods and seeds that were shattered by the header and not delivered into the combine
- 2 Loose:** stalks that were cut but not delivered into the combine
- 3 Stubble:** pods that remain attached to cut stubble
- Lodged:** stalks that were lodged and not cut by the header



4 seeds per square foot = 1 bu/ac

Typical Harvest Losses in Manitoba

In a detailed harvest loss study conducted by Prairie Agricultural Machinery Institute (PAMI) in fall 2015, “shatter” and “loose” each represented 40% of gathering losses, and gathering losses accounted for at least 80% of total losses (remainder were negligible combine losses). Harvest direction and speed were two variables that were studied in this on-farm test. Conclusions from this study suggest that air reels may reduce “loose” losses and that optimum speeds may differ depending on harvest direction. More work is being planned.

In 60 Manitoba On-Farm studies from 2013-2015, harvest loss data has from 1-16%, with an average of 3% or 1.2 bu/ac. Aiming for harvest losses of <5% is a good realistic target.

Soybean Harvest Loss Worksheet

Gathering losses occur at the header and comprise at least 80% of total harvest losses. Typical harvest losses in soybeans range from 2-5% (1-2 bu/ac). Use this worksheet to measure harvest losses, troubleshoot to make adjustments and reduce harvest losses where possible.

To measure gathering losses:

1. Stop the combine and back up 15-20 feet.
2. Lay out a quadrat (suggested area = 1 ft²) or hula hoop (suggested diameter = 28.4" to represent 1/1000th acre).
3. Separate losses into 4 categories listed below and record number of beans. Repeat this in 4 areas (columns 2-5).
5. Calculate the average number of beans across all sample areas (column 6).
6. Determine the area measured in square feet. Area= ft².
 For quadrat: Area = L x W
 For hula hoop: Area = 3.14 x [(diameter in inches ÷ 2) ²] ÷ 144
7. Divide the average from column 6 by the measured area to determine average seeds per ft² (column 7).
8. Divide the value in column 7 by 4 to determine harvest losses in bushels per acre (column 9).

1	2	3	4	5	6	7	8	9
Gathering loss category	Area 1	Area 2	Area 3	Area 4	Average	Average ÷ Area (ft ²)		Losses (bu/ac)
Shatter <i>(loose pods and seeds)</i>							÷ 4	
Loose <i>(loose, cut stalks)</i>							÷ 4	
Stubble <i>(beans left on cut stubble)</i>							÷ 4	
Lodged <i>(uncut stubble)</i>							÷ 4	
Total Gathering Losses							÷ 4	

If gathering losses **exceed 5% of total yield**, use the trouble shooting guide below to understand how losses can be prevented depending on the type of gathering loss.

Shatter: loose pods and seeds not delivered into the combine may be the result of:

- Excessive ground speed resulting in improper cutting.
- Reel moving too fast resulting in excessive batting (reel speed should be 25-50% faster than ground speed unless the crop is lodged, in which case a faster speed may be required).
- Cutting height too high (knife shattering pods just below the cutterbar).
- Dull knives or loose guards.

Loose: stalk that is cut but not delivered into the combine may be a result of:

- Reel moving too slow (reel speed should be 25-50% faster than ground speed).
- An air reel can help minimize these losses.
- May be reduced by harvesting with the rows.



Stubble: beans left on cut stubble may be a result of

- Cutting height too high— measure the height of the cut stubble - should aim for 2 inches or less. Flex header important to follow the contour of the land.
- Inspect combine for potential adjustments to feeder house or rear axle that will allow bring the header down.
- Excessive ground speed causing knife striping and uneven cutting height
- Pod height—genetics and environmental conditions influence the height of the lowest pod bearing node on soybeans. Some years and some varieties pod very low to the ground, resulting in higher losses.

Lodged: stalks that were missed by the cutterbar is typically a result of crop lodging prior to harvest due to heavy rain, wind, rank growth etc. Slowing down, lowering the cutter bar and adjusting the reel can help pick up lodged crop.

CALL FOR FARMERS TO PARTICIPATE IN ON-FARM RESEARCH

We are looking for farmers to participate in soybean residue management and multiple variety seeding on-farm trials. The trials will compare two practices, replicated 4 times across a field (details below). **If interested, farmers or their agronomists should contact: Greg Bartley at 204-745-6488 (ext. 5) or greg@manitobapulse.ca**



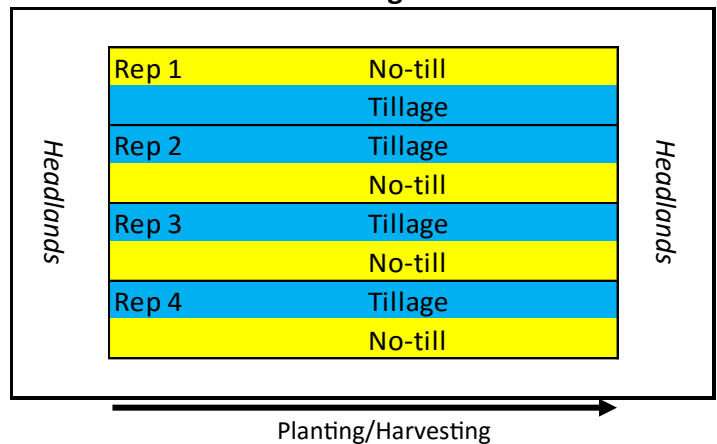
Soybean Residue Management

The purpose of this project is to **quantify the agronomic impacts of fall soybean residue management practices on a subsequent crop** in replicated strips across the field. Farmers will compare their standard soybean residue management tillage practice (cultivation, discing, vertical tillage, etc.) to no-till check strips that are randomized and replicated four times across the field. The farmer will plant corn or wheat (or another crop that follows their rotation) in the same direction as tillage treatments across the field avoiding headlands and waterways.

This trial will be conducted with the University of Manitoba, and help will be available when applying tillage treatments, planting and harvesting to assist with the on-farm research process. Various soil and crop phenology ratings will be taken by the researchers during the entire growing season, and a final report will be provided with analyzed treatment results.

Summary	
Treatment	Tillage vs. No-till
Timing	Fall or Spring
Residue Crop	Soybean
Test Crop	Corn or Wheat

Field Diagram:



Multiple Variety Seeding in Fields with Variable Landscapes

The purpose of this project is to **evaluate the yield response of two different soybean varieties to soil moisture differences** within a production field using precision agriculture. To achieve soil moisture differences, farmers will plant two different soybean varieties in replicated strips across varying landscaping positions within the field. A topography map and electrical conductivity map will be used to create soil zones based on landscape position and soil characteristics within the field. Soil samples will be collected before planting to characterize the soil within each zone to determine any differences that will effect soil moisture and soybean performance. Soil moisture sensors will be placed within each soil zone that vary in landscape position to measure the difference in soil moisture.

An on-farm specialist will be available to assist with field selection, planting and harvesting. Agriculture and Agri-Food Canada will collect soil moisture and crop phenology ratings during the growing season. A final report will be provided at the end of the year with analyzed treatment differences.

Summary	
Treatment	Variety 1 vs. Variety 2
Timing	Planting
Crop	Soybean
Variable	Soil Moisture by Landscape Position

Field Diagram:

