

## Soybean Harvest Management

Donna Fleury, P.Ag.

Soybeans are a long season crop and considered ready for harvest when all of the leaves fall off, the pods are tan in color, and the seeds are detached from the pods and rattle. Similar to other legumes, soybeans mature from the bottom up. With their indeterminate growth, the best yields are often in the pods lower down on the plant, so plan for harvest when bottom and middle pods are ready. Do not wait for the smaller immature pods near the top.

The market for a large portion of the soybean crop is for oil crush, so quality standards are not as strict as for other crops such as faba beans. However, soybeans will crack and split quite easily and need to be handled carefully. The pods are often close to the ground, so harvesting to minimize the risk of rocks or earth-tag is important.

### Swathing or Direct Combining Soybean

Straight combining is the preferred method for harvesting soybeans. Soybeans have to be cut very low to the ground because the pods usually hang fairly low on the plant. "If the soybean crop makes it past the first frost fully ripe, a desiccant may not be necessary," explains Dale Risula, Provincial Specialist, Special Crops, Saskatchewan Ministry of Agriculture. "However, some growers this year have fairly early soybean crops and in that case may want to consider using a registered harvest aid to try and get a more uniform crop across the entire field for combining."

Soybeans can also be swathed, however the crop cannot be left in the swath long because they are easily damaged by precipitation. If swathing soybeans, growers are recommended to combine the crop right away to avoid the risk of a drop in quality. The straw must be mature, otherwise there can be too many pods in the sample reducing the grade.

### Harvest Aids: Desiccants and Pre-Harvest Perennial Weed Control

Various chemical harvest management tools are available to aid in the preparation for combining. It is important to select the right product for the right crop and the intended outcome, whether that is for crop desiccation and dry down or pre-harvest perennial weed control. Harvest aid products vary in speed of activity, efficacy, and pre-harvest intervals.

"Since soybeans are relatively new to Western Canada outside of the Red River Valley area, not all pesticides registered for soybeans are registered outside of Eastern Canada and the Red River Valley regulatory regions," explains Clark Brenzil, Provincial Specialist Weed Control, Saskatchewan Ministry of Agriculture. "Producers have to keep that limitation in mind when looking at harvest aid products and other pesticide options for soybeans, and make sure the selected products are registered for their area. Several companies are starting to revise their registrations for regulatory approval in Western Canada outside of the Red River Valley region, but not all products are currently available."

## Desiccants

Desiccants are the product to choose if growers are looking for crop dry down. "This allows growers to apply the product and then go in a few days later and harvest," adds Brenzil. "It also allows them to maneuver around weather conditions if less than ideal for harvest. The whole goal of desiccants or harvest aids is to make sure the crops roll through the combine efficiently."

Desiccants should be applied when the crop has lost 80 to 90 per cent of leaves and 80 per cent of pods are yellow. To get proper crop coverage and dry down, be sure to use higher water volumes. Herbicides registered for application prior to harvest of soybean crops for desiccation or crop dry down include: diquat (Reglone®, Reglone® Ion, Desica, Diquash), carfentrazone (Aim®), and saflufenacil (Heat®). Always check labels or talk to your dealer to make sure the products are registered for the intended crop and use, for the correct rates, surfactants, water volumes, and timing.

## Pre-harvest Perennial Weed Control

Pre-harvest perennial weed control products are designed for controlling perennial weeds prior to harvest, they do not speed up maturity or dry down crop seeds faster. "The pre-harvest timing provides a good opportunity to control perennial weeds because it allows the product to go down into the perennial root and control that plant," explains Brenzil. "Similar applications in the spring do not, because it results in burning off the top of the plant but the root reserve is still there. You have to pick your timing for what you are going after."

For pre-harvest perennial weed control various glyphosate products are registered for use on soybeans. As well, Heat® (saflufenacil) and Aim® (carfentrazone) may be tank mixed with glyphosate when used prior to harvest for a combined contact and systemic activity. Pre-harvest glyphosate should be applied when the crop has 30 per cent or less grain moisture. At this stage, the soybean stems will be green or brown, 80 to 90 per cent of the leaves will have dropped, and the pods will be brown. This treatment will provide some crop dry down, but this benefit is inconsistent and is unlikely to occur under cool, wet conditions. Do not apply glyphosate to soybean crops destined for planting seed because irregular germination and seedling development can occur.

**Table 1:** Harvest Aids for Desiccation or Pre-Harvest Perennial Weed Control in Soybean.

Herbicides	Active (group)	Company	Rate
Aim® <sup>1,3,4</sup>	carfentrazone (14)	FMC /NuFarm Agriculture	29 to 47 millilitres per acre (mL/ac)
Cleanstart® <sup>1,4</sup>	carfentrazone (14) + glyphosate (9)	NuFarm Agriculture	30 mL/acre + 360 grams of acid equivalent per acre (gae/ac)
Reglone®, Reglone® Ion, Desica, Diquash <sup>1</sup>	diquat (22)	Syngenta Canada, Engage Agro, Great Northern Growers	0.5 to 0.7 litres per acre (L/ac)
Glyphosate various products <sup>2,4,5</sup>	glyphosate (9)	various	360 gae/ac
Heat® <sup>1,3</sup>	saflufenacil (14)	BASF	14.4 to 28.4 grams per acre (g/ac)

Source: Saskatchewan Ministry of Agriculture

- <sup>1</sup> for rapid plant tissue dry down to facilitate harvest (desiccant)
- <sup>2</sup> for pre-harvest perennial weed control and may provide harvest management benefit
- <sup>3</sup> may be tank mixed with glyphosate when used prior to harvest
- <sup>4</sup> not for crops grown for seed
- <sup>5</sup> check individual product labels for registration on each pulse crop

The Saskatchewan Ministry of Agriculture's [2016 Guide to Crop Protection](#), lists all harvest aid or desiccant herbicides registered for pulse crops in Western Canada. An update is provided on May 1 of each year to accommodate late entries or changes to these products.

### Maximum Residue Limits (MRLs)

Maximum residue limits (MRLs) for crop protection products in harvested crop are established in Canada, but are not standardized across all jurisdictions. To avoid problems marketing their crop, growers who are using a desiccant or harvest aid must take appropriate steps to apply these products properly to prevent residues from exceeding MRLs set by regulatory agencies in Canada and importing countries. Always check with your buyer or marketer well ahead of a pre-harvest chemical application, especially with newer products or products you have not used before, to ensure there will not be any issues.

### [2016 MRL Information for Growers](#)

#### When To Start Combining

Combining can begin when soybeans are at 20 per cent moisture content but are considered dry below 14 per cent. Harvesting below 12 per cent moisture can increase seed damage and harvest losses due to pod shattering, so combining during the morning and evenings can help reduce losses. Harvest losses can also be high under dry conditions. Losses of only four beans per square foot equate to one bushel per acre.

To minimize harvest losses a floating cutterbar and flex-head header are ideal. Adding an air assist reel will help to keep the knife clean and get more beans into the combine. Carefully adjust the combine settings to minimize seed cracking and splitting and harvest losses. Soybeans should be stored at 14 per cent moisture or less. If harvested in hot, dry conditions, soybeans should be cooled in an aeration bin first before putting into bin storage.



**Figure 1:** John Deere soybean harvest  
*Source: Dennis Lange, Manitoba  
Agriculture, Food and Rural Development*



**Figure 2:** Mature soybean pods  
*Source: Dennis Lange, Manitoba  
Agriculture, Food and Rural  
Development*



**Figure 3:** Mature soybeans in the field  
*Source: Kevin Elmy, Friendly Acres  
Farm*



**Figure 4:** Mature soybeans  
*Source: Kevin Elmy, Friendly  
Acres Farm*