Harvest Management Tools - Desiccants and Pre-Harvest Herbicides for Pulses

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Harvest management tools include chemical options such as desiccants for crop dry down or pre-harvest herbicides for controlling perennial or heavy green annual weeds. These products are not the same, and selecting the right product for the right use and applying at the right time and according to label directions is critical. Products vary in speed of activity, efficacy, and pre-harvest intervals. Growers also need to be aware of market restrictions that may arise from using certain desiccants/harvest management tools because some product Maximum Residue Limits (MRLs) have not been set or are lower than what we can meet for crop export into other countries.

Desiccants

Desiccants or herbicides with harvest aid uses are contact herbicides that rapidly kill and dry above-ground growth of a crop that is already mature. These products only kill the top growth of plants and do not translocate into the roots of perennial weeds, allowing some weeds to begin to re-grow under the right moisture conditions. Some products may be tank mixed with glyphosate (eg. Heat® (saflufenacil) and Aim® (carfentrazone)) when used prior to harvest for a combined contact and systemic activity. Unfortunately the combination of a fast-acting contact herbicide with glyphosate can possibly reduce the amount of glyphosate movement out of the leaves of the target plant (weed), which could reduce its effectiveness on perennial weed control.

Use recommended product rates combined with high water volumes for good coverage of contact type products. If recommended add surfactants. Harvest should occur as soon as the crop is ready (within 4-10 days), as delays can result in significant pod shatter or pod drop. Crop staging and timing of application varies between products, so carefully check labels for recommended crop staging, as well as recommended time of day and weather conditions, which can also impact product efficacy. Most of the yield comes from the lower pods, so growers are recommended to focus on trying to keep them from shattering, rather than worrying about whether the top pods are ready to harvest.

Pre-Harvest Perennial Weed Control

Pre-harvest perennial weed control products, such as glyphosate, are designed for controlling actively growing perennial weeds or heavy green annual weeds prior to harvest. They do not speed up crop maturity or dry down crop seeds faster. These products help with harvest by reducing the amount of green weed material in the crop, but they are not true desiccants and are slower acting, especially under cool, wet conditions. Pre-harvest weed control herbicides are most effective when applied to actively growing plants so that the herbicide is absorbed and translocated into the roots, controlling weeds. Always check product labels. Generally pre-harvest glyphosate should be applied when the crop has 30 per cent or less grain moisture. Glyphosate can decrease seed germination and seedling vigor so don't save seed from crops, or portions of a crop, that were treated with a pre-harvest glyphosate application.

Staging For Harvest Management of Pulse Crops

(targeting 30 per cent moisture)

- **Peas**: bottom pods are ripe and dry with seeds detached from the pods. In yellow peas, desiccation should not occur until most of the seeds have changed from green to yellow because colour change will not occur after the plant starts to dry down
- **Lentils**: bottom 15 per cent of the pods are brown and rattle when shaken
- **Chickpeas**: plants have yellowed, the pods have matured, and seeds have changed colour and detached themselves from the pods (pod rattle stage)
- **Faba Beans**: plants fairly mature with leaves drying down and stems green to brown in colour, pods are filled, and lower 80 per cent of bottom pods are tan or black in color
- **Soybeans**: crop has lost 80-90 per cent of leaves and 80 per cent of pods are yellow
- **Dry Beans**: crop has lost 80-90 per cent of leaves and 80 per cent of pods are yellow

Table1. Desiccant/Harvest Management Tools for Use in Pulses

Active (group)	Herbicides	Company	Crops Registered for Use in Pulses					
			Chick-peas	Dry Beans	Faba Beans	Lentils	Peas	Soy-beans
carfentrazone (14)	Aim® [1,3]	FMC	X	X	X		X	X
carfentrazone (14) + glyphosate (9)	CleanStart® [1,4]	NuFarm Agriculture	X	X	X		X	X
diquat (22)	Reglone®, Reglone® Ion, Desica™, Diquash™ [1]	Syngenta Canada, Engage Agro, Great Northern Growers	X	X	X	X	X	X
flumioxazin (14)	Valtera™ [1]	Valent Canada (NuFarm)		X				
glyphosate (9)	Glyphosate[4, 5] various products	various	X	X	X	X	X	X
glufosinate ammonium (10)	Good Harvest® [4]	Farmers of North America/ Agracity				X		
saflufenacil (14)	Heat® LQ [1,3] (red)	BASF	X	X		Reds only	X	X

[1] for rapid plant tissue dry down to facilitate harvest (desiccant)
[2] for pre-harvest perennial weed control and may provide harvest management benefit
[3] may be tank-mixed with glyphosate when used prior to harvest
[4] not for crops grown for seed
[5] check individual product labels for registration on each pulse crop
[(red)] registered on red lentil only and MRLs not established for all markets. Check with buyer prior to use.

Source: *2016 Guide to Crop Protection, Saskatchewan Ministry of Agriculture*