

## In-crop Weed Control in Confectionary Sunflowers

Limited herbicide options exist in confectionary sunflowers for in-crop weed control for broad-spectrum coverage on both grassy and broadleaf weeds. In 2020, product shortages of the imazamethabenz-containing herbicides Assert 300SC (NuFarm) or Avert (Loveland Products) have further reduced confectionary sunflower grower herbicide tool to manage volunteer canola, specifically, with only Muster Toss n'Go herbicide for in-crop broadleaf weeds.

### Integrated Weed Control Strategies

Without access to Assert/Avert, sunflower growers should look to control or suppress weeds in-crop via a combination of row-crop tillage, in addition to herbicide options. Grassy weed herbicide options are still widely available.

#### ✓ **Over-harrowing**

Research done at North Dakota State University (Carrington) showed that two passes using a spring-tooth harrow (not diamond tooth), done at V4 to V6 stages, can successfully reduce broadleaf weed competition by 73 to 80%. Sunflower damage is expected, with losses range from 5 to 8% stand reduction per pass. It was found that harrowing along the rows limits wheel damage, but diagonal passes disturb more emerging weeds in the crop rows.

Harrowing should be done on a warm, clear day to limit sunflower damage by allowing them to bend instead of snap. Younger or older plants can be more severely damaged. Harrows must be kept clear of field residue to limit crop damage. Harrow depth should be set no deeper than 1.9cm or 0.75", and speed kept under six miles per hour.

#### ✓ **Muster Toss n'Go Herbicide**

Muster Toss n'Go broadleaf herbicide is the only other registered product for broadleaf weed control in conventional sunflowers. Muster Toss n'Go, like Assert/Avert is a Group 2 herbicide. It is registered for control of wild mustard, flixweed, hemp-nettle, smartweed (Lady's thumb), stinkweed, and suppression of redroot pigweed. It will not have an effect on volunteer canola.

Sunflowers must be between V2 to V8 stages, or between 15 and 45cm tall (6 to 18"). Check the [sunflower staging guide](#) for assistance. Consult the product label and the [Guide to Field Crop Protection](#) for more details. Late applications of Muster can cause significant injury, flower bud deformation and reduced seed yield. Losses are amplified under drought, or hot and humid conditions.

### ✓ Inter-row Cultivation

Inter-row tillage is a tried and true way to kill weeds between the planted rows. Caution is needed with soil moisture conditions, to reduce soil compaction and 'cultivator blight'. Cultivating between sunflower rows early in the season helps disrupt small and germinating weeds and is recommended before V12, to reduce root pruning and 'cultivator blight'. Ideal stage for cultivation is V6 to V10 (up to approx. 12" in height). Producers may wish to delay an in-crop tillage to take full advantage of any pre-emergent herbicides, if fields are staying relatively clean.



Waiting seven to 10 days between spraying and a tillage pass is necessary for herbicide activity to take effect. S-tine or similar row-crop cultivator are most often set up for 30" row spacing. Rotary hoe tillage may also be used.

Follow up tillage control for additionally emerged weeds may be required. Inter-row tillage should be set to have cultivator shanks running between the rows, and not touching plant leaves, since lateral roots typically extend to the tips of the largest leaves. Sunflower lateral root systems are sensitive, and excessively wide or deep tillage can damage growth ability and yield for the crop.

### ✓ Pre-harvest Desiccant

Since limited herbicide options exist for conventional confectionary sunflowers, expect some weed growth throughout the growing season. If weed material is still green near the sunflower harvest window, consider applying a pre-harvest aid to help dry down the sunflower crop, and kill any remaining weeds. This may help reduce weed pressure in the following year.

### References:

Sunflower Production and Management. <https://www.gov.mb.ca/agriculture/crops/crop-management/sunflowers.html#weed>

The Sunflower Production Guide. National Sunflower Association of Canada, [http://www.canadasunflower.com/pdf/Sunflower\\_Production\\_Guide.pdf](http://www.canadasunflower.com/pdf/Sunflower_Production_Guide.pdf)

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Enders, G., et al. 1999. Mechanical Weed Control with a Harrow or Rotary Hoe. NDSU Publication W-1134. <https://library.ndsu.edu/ir/bitstream/handle/10365/9486/W-1134-1999.pdf?sequence=3&isAllowed=y>

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