

## Objective:

The project objectives were to evaluate the effectiveness of pre-harvest herbicide/desiccant applications for assisting plant and seed dry-down in the two dominant herbicide systems; Liberty Link® (LL) and Roundup Ready® (RR).

## Methodology:

Field trials were completed during each of three growing seasons (2017, 2018, and 2019) at four locations (Indian Head, Melfort, Scott, and Melita). The treatments were two hybrids (LL vs. RR) and four pre-harvest application options plus an untreated control for each hybrid. In 2017, the two hybrids were L233P LL and 45M35 RR. In 2018 and 2019, L233P was replaced with L255PC in hopes that it would be more similar to 45M35 with respect to crop development throughout the season and maturity date. The pre-harvest application options included; glyphosate (for LL only), glufosinate ammonium (for RR only), saflufenacil, glyphosate and saflufenacil, and diquat. Timing of the pre-harvest treatments were targeted for 60-75% seed colour change (glyphosate and saflufenacil) or approximately 90% seed colour change (glufosinate ammonium and diquat).

**Table 1.** Treatment list for Canola Pre-harvest Application Study

Treatment Name	
1) LL – untreated	6) RR – untreated
2) LL – glyphosate (890 g ai/ha) <sup>z</sup>	7) RR – glufosinate ammonium (408 g ai/ha) <sup>y</sup>
3) LL – saflufenacil (50 g ai/ha) <sup>z</sup>	8) RR – saflufenacil (50 g ai/ha) <sup>z</sup>
4) LL – glyphosate (890 g ai/ha) + saflufenacil (50 g ai/ha) <sup>z</sup>	9) RR - glyphosate (890 g ai/ha) + saflufenacil (50 g ai/ha) <sup>z</sup>
5) LL – diquat (40 g ai/ha) <sup>y</sup>	10) RR – diquat (40 g ai/ha) <sup>y</sup>

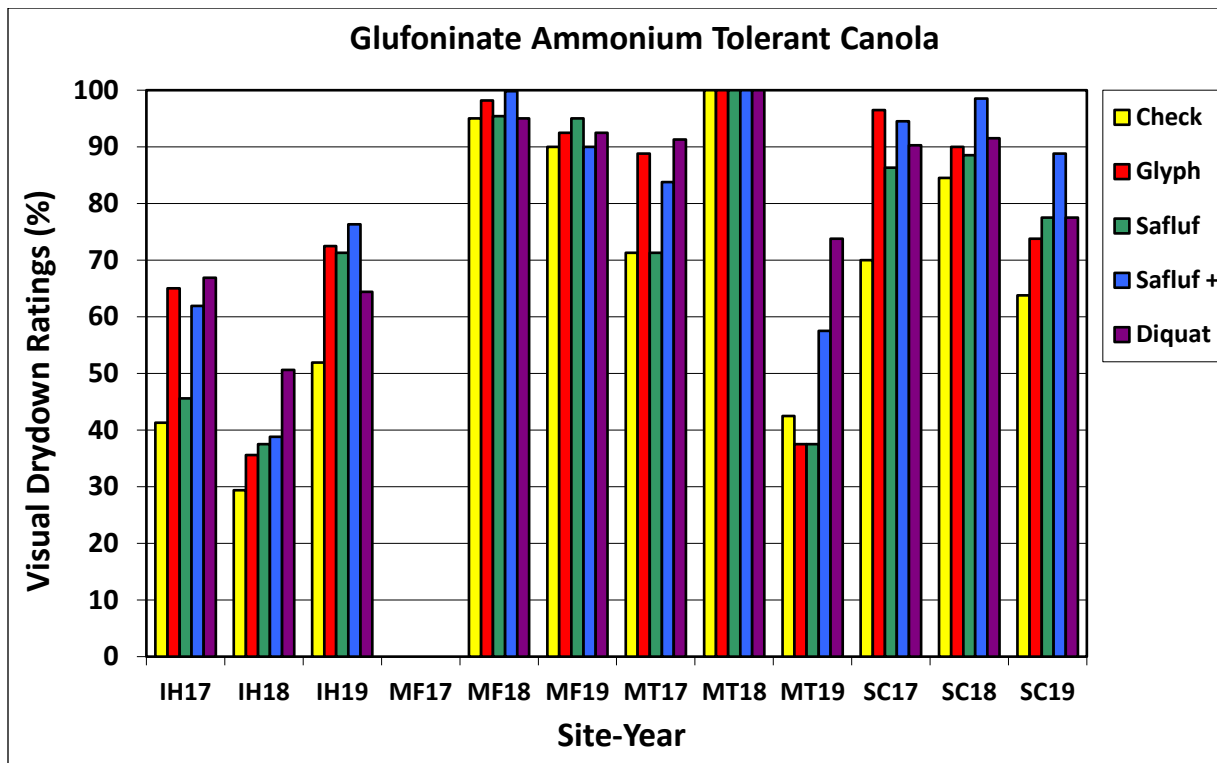
LL – Liberty Link® (glufosinate ammonium tolerant); RR – Roundup Ready® (glyphosate tolerant)

<sup>z</sup> Target 60-75% seed colour change; <sup>y</sup> Target 90% seed colour change

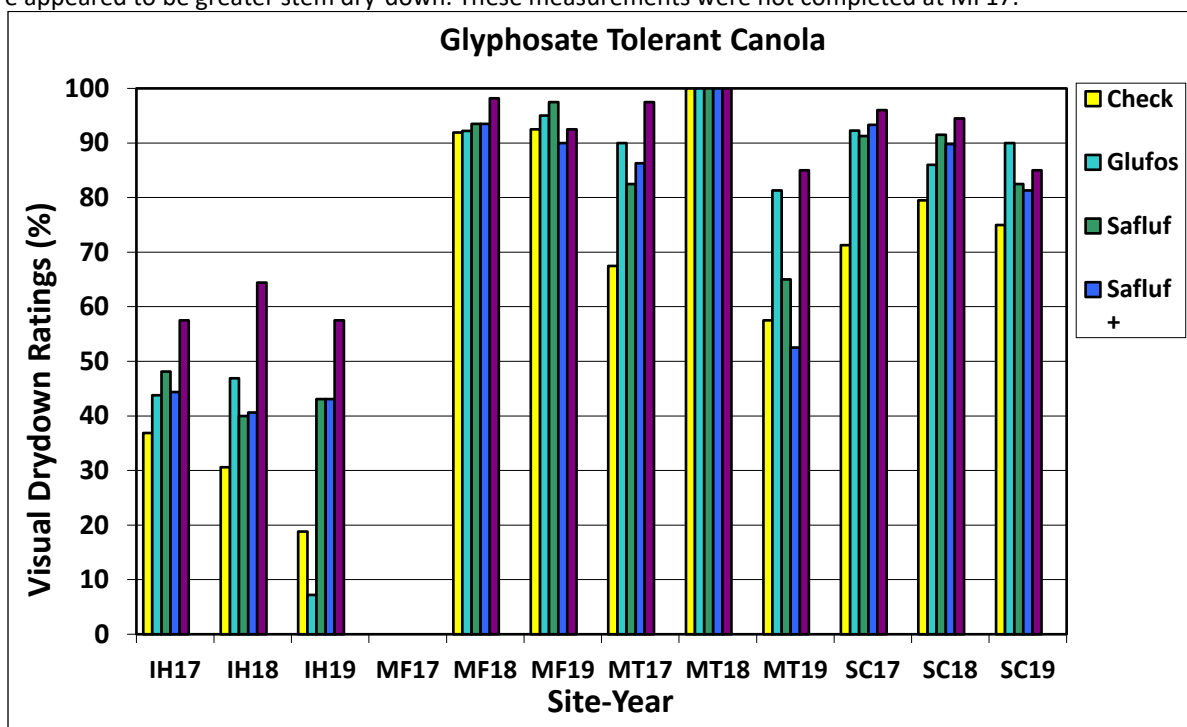
## Key Findings:

- Applications of pre-harvest glyphosate reduced whole plant moisture content in LL canola 67% of the time (8/12 site-years), and reduced seed moisture content 50% of the time (6/12 site-years). Reductions in whole plant moisture went from 29% to 24%, and seed moisture content from 9.9 to 8.7%.
- Glufosinate Ammonium is not a registered pre-harvest option for canola, and to our knowledge, will not become one in the foreseeable future. The performance of this product was quite variable, and observed reductions in whole plant moisture content 45% of the time (5/11 site-years), and seed moisture only 36% of the time (4/11 site-years)
- Saflufenacil applied alone reduced whole plant moisture 33% of the time (4/12 site-years) and seed moisture 25% of the time. Saflufenacil reduced whole plant moisture content from 29% to 27% and seed moisture content from 10% to 9.3%. When tank-mixed with glyphosate, the results were similar to saflufenacil applied alone on RR canola, and to glyphosate applied alone in LL canola. Although not specifically analyzed, it was noted that the effect of saflufenacil and glyphosate on certain broadleaf weeds (ie: Canadian thistle) was very effective.
- Diquat performed the most consistent for both RR and LL canola. On average, diquat reduced whole plant moisture 83% of the time (10/12 site-years) and seed moisture content 67% of the time (8/12 site-years). Whole plant moisture was reduced from 29% to 22% and seed moisture was reduced from 10% to 8.2%.
- Evaluation of seed quality revealed higher green seed levels in the treatments of diquat on RR canola compared to the other treatments. This was attributed to the diquat being applied too early in the later maturing RR variety.

The full report is available at: [www.warc.ca](http://www.warc.ca). This project is part of the Canola Agronomic Research Program (CARP Grant 2017.9) with project funding provided by the Manitoba Canola Growers (MCGA) and the Saskatchewan Canola Development Commission (Sask Canola).



**Figure 1.** Visual dry-down ratings for glufosinate ammonium tolerant (LL) canola where higher values within a site-year indicate that there appeared to be greater stem dry-down. These measurements were not completed at MF17.



**Figure 2.** Visual dry-down ratings for glyphosate tolerant (RR) canola where higher values within a site-year indicate that there appeared to be greater stem dry-down. These measurements were not completed at MF17.

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