

Harvestability has been and continues to be a significant challenge for flax growers and, when considered along with subsequent residue management issues, is an important reason that many non-flax growers express resistance to this crop. One of the more obvious things to consider for improving flax harvestability, particularly with straight combining, is the use of pre-harvest herbicides and desiccants. Because of the relatively open canopy of mature flax and the potential for regrowth of both the crop and certain weeds, pre-harvest glyphosate can be an excellent fit for straight-combined flax. Since it does terminate the crop, pre-harvest glyphosate may also assist with straw dry-down and overall harvestability to a certain extent. Diquat (i.e. Reglone Ion) is a crop desiccant in the truest sense in that it is not translocated, relies entirely on contact, and results in rapid dry-down of any plant tissue that it comes into contact with.

This study evaluated the effects of pre-harvest herbicide and desiccant options for flax on seed and straw dry-down. Field trials with flax were initiated at Indian Head, Swift Current, and Yorkton in the spring of 2021. The treatments were a factorial combination of three varieties (CDC Bethune, CDC Glas, and CDC Sorrel) and three pre-harvest herbicide/desiccation options (untreated control, glyphosate, and diquat). The treatments were applied in a minimum solution volume of 185 l/ha when 75% of the balls had turned brown.

The variables of greatest importance were visible stem dry-down along with actual seed and stem moisture at harvest. At Swift Current, the season was dry, and the site was variable with salinity exacerbating the drought effects. While variability made detecting treatment effects difficult, these conditions and that the flax reached maturity in July meant there was little need for pre-harvest applications to accelerate crop dry-down. It was also extremely hot and dry at Yorkton. Despite the drought, benefits to both diquat and glyphosate were observed; however, the diquat did not work as well as

glyphosate nor as well as it did at Indian Head. We attributed this to application timing and the weather following the treatment applications. At Indian Head, it was also hot and dry, but to a lesser extent than the other locations and late-season soil moisture was quite abundant. Under these conditions, the untreated plots stayed green and both glyphosate and diquat worked well. Based on the visible dry-down ratings across all three varieties, diquat took effect in the least amount of time with striking differences already observed four days after application (Figure 1). The plots were combined 21 days after the pre-harvest treatment applications and dramatic, but similar, reductions in seed and straw moisture occurred with both the products evaluated.

In conclusion, both glyphosate and diquat can improve flax harvestability; however, which product is preferable and whether harvest aids are needed at all will vary with both environmental conditions and producer expectations.

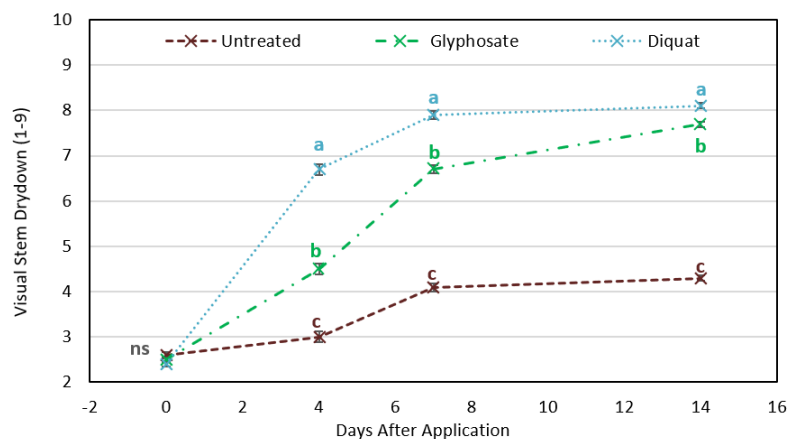


Figure 1. Visual stem dry-down ratings at 0, 4, 7, and 14 days after application for various pre-harvest treatments at Indian Head, Saskatchewan (2021). Values within a date denoted by the same letter do not significantly differ.

Funding for this project was provided by the Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canada-Saskatchewan Growing Forward 2 bi-lateral agreement and Saskatchewan Flax Development Commission.