



Growing a Crop of Insight on Weed Management: Five-year study reaches the half-way mark

November, 2019

By Jane Caulfield

The increasing reliance on herbicide use in pulse crops means there is also a growing number of resistant weed species. With this in mind, Dr. Christian Willenborg, an associate professor of plant sciences at the University of Saskatchewan, launched a five-year study in 2016 that will ultimately support the future of pulse crop production through enhanced weed management.

“Our focus is on improving weed management for Saskatchewan pulse growers both in the short-and-long-term,” says Willenborg. “One objective is the development of management guidelines for problematic weeds, including those with resistant biotypes.”

The study started with a list of objectives and consisted of 19 comprehensive field trials in various locations across the province. The three main areas of focus are: a more judicious use of herbicides, managing the weed seed bank, and integrating new herbicide options for Western Canadian pulse growers and improve the benefits of current products.

“We seek to improve the ability of herbicides to control weeds by coupling them with good agronomy, thus reducing the selection pressure imparted by the herbicide but still attaining the level of weed control growers desire,” says Willenborg of the first new focus area.

Willenborg says that a deeper understanding of the role of seed predators can also help support seed bank management (focus area two) and help reduce the number of weeds year-over-year.

“Seed predators are organisms in the environment that consume weed seeds, which fall to the ground,” says Willenborg. “More seed predators generally mean more weed seed consumption and reduced weed populations for growers, but there are still a lot of questions unanswered about this type of work, especially in Canada.”

Learning Curves and Roadblocks

As the research team meets the half-way mark, Willenborg is happy to report that the 2019 growing season was relatively successful.

“As you might imagine the early season drought did have an impact on us, but surprisingly it was smaller than one might have expected. We lost one trial due to poor emergence, but most of the others were saved by timely rains and went on to produce acceptable data,” says Willenborg.

While he and his team are just starting to sift through this year’s data, Willenborg does mention some roadblocks that may require a little bit of creative thinking to solve.

“We continue to lack herbicide options in pulse crops, namely new products, though we are still testing a few,” he says. “Our trials have produced some nice combinations of agronomic factors to improve herbicide performance and reduce the reliance on herbicides alone.”

The team was also able to confirm that seed predators, specifically carabids, do indeed consume weed seeds such as volunteer canola and kochia. However, they have yet to determine specific impacts on pulse crops.

“The level of their consumption is a function of multiple factors including crop, carabid species, and weed species, and available insect prey” says Willenborg.



Figure 1. Dr. Chris Willenborg has been working to find solutions to pulse weed problems for the last five years.



Published November 25, 2019