AgriARM Applied Research Management

Methods to Control Flea Beetles in a Non-Neonic Environment

Flea beetle damage results in over $300 million annually in crop losses in North America. To reduce flea beetle damage, over 90% of canola grown in Western Canada receives a seed treatment. The majority of these seed treatments belong to the chemical group neonicotinoids. In August 2018, Canada confirmed plans to phase out neonicotinoids over the next three to five years. This would include almost all seed treatment options for Canola in Saskatchewan.

While there are a few non-neonic seed treatment options, the recommendation is to use them in combination with a neonic product, because they are not found to be as successful alone. Other non-neonic treatments include foliar sprays such as pyrethroids, carbamates, or organophosphates. However, there is a greater chance of these foliar sprays killing non-target beneficial insects. To address the phase out of neonics, trials examining alternative options to control flea beetles were conducted at Redvers and Prince Albert in 2019.

Different flea beetle control treatments were examined (Figure 1) in the trial and replicated four times. At Redvers the Malathion treatment was omitted and the insecticides were not applied to the relevant treatments because of the late arrival of flea beetles past the recommended application stage.

Flea beetle damage (%) was determined at 2 stages: the first true leaf stage and the two-leaf stage. Flea beetle damage was only determined for the two-leaf stage at Redvers due to the late arrival of flea beetles. The striped flea beetle was present in Prince Albert and the black crucifer flea beetle was found in Redvers. Prince Albert experienced earlier and greater flea beetle pressure than Redvers (Figure 1). At Prince Albert, the flea beetle damage for the first true leaf stage was greatest for the early seeding date and the intercropped peola with no neonic seed treatment. At the two-leaf stage, flea beetle damage was greatest for the high seeding rate and both peola treatments (Figure 1).

At Redvers, the high seeding rate had approximately 20% more damage than the control treatments and the neonic seed treatment, and the intercrop treatments had the lowest flea beetle damage (Figure 1).

The Helix neonic seed treatment had lower flea beetle damage for both sites but appears to have better control on crucifer flea beetles (Redvers) than striped flea beetles (Prince Albert). Lumiderm has been shown to have better success controlling striped flea beetles but is not available as a stand-alone treatment and thus was not used in this trial. Due to unusually dry spring conditions, the early seeding date did not appear to help control flea beetle damage. The intercropped peola had more success at reducing flea beetle damage in Redvers than Prince Albert.

Funding for this project was provided by the Agricultural Demonstration of Practices and Technologies (ADOPT) Program.

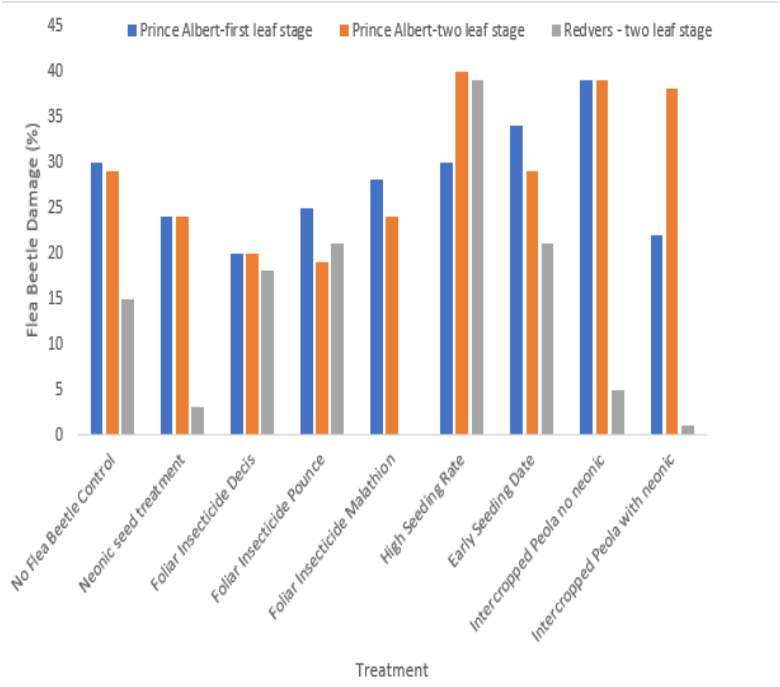

Figure 1. Percent of flea beetle damage for different flea beetle control methods at Prince Albert and Redvers.