

Fast Growing Canola Outperforms Flea Beetle

Meghan Moran, OMAFRA Canola & Edible Bean Specialist

Insects love canola. The key insects plaguing our canola crop are, of course, flea beetle and swede midge. Flea beetle were more of a problem in 2020 than other recent years, possibly because temperatures were warm early on allowing flea beetle to emerge early. Striped flea beetle will emerge



Figure 1. One striped and one crucifer flea beetle on a canola seedling.

first from overwintering sites in shelter belts and ditches. By the time soil temperatures reach 15°C both striped and crucifer flea beetle will be out in full force. They are capable of long-range migration and are not bothered much by predators or parasites, so cultural management factors like crop rotation are not very effective tools.

Warm temperatures early in the spring were followed by cooler and wet conditions. This does not deter flea beetle but slows their movement and drives them down to feed on plant stems. Canola at the cotyledon to 4-leaf stages can tolerate up to 50% defoliation, but when small plant stems are chewed, we might as well call that 100% defoliation. Because flea beetle can quickly chow through a canola crop the action threshold for insecticide application is set at 25% defoliation. Scout your crop

early and often. Check for feeding daily during warm, sunny conditions. When it's cool or windy continue to check frequently and watch those plant stems. Note whether feeding levels are increasing on new growth as the canola moves through to the 4-leaf stage. Beyond 4-leaf, canola usually grows ahead of yield-robbing damage.

Early planting seems to be a go-to recommendation for avoiding damage by flea beetle and swede midge, but that certainly isn't the whole story. FAST growth may be more important than getting seed in the ground as early as possible. Growth rate in the first weeks is dependant on soil temperatures, seeding depth and fertility. We know that heavy flea beetle feeding can stall growth, which increases risk of swede midge damage. Similarly, any plant stress that slows early growth will increase the risk of flea beetle damage.



Figure 2. Stem feeding by flea beetle.

Soil temperatures at planting should be 5°C at minimum, with 8-10°C being preferred for faster emergence. This gets plants growing ahead of flea beetle emergence and feeding, but also supports improved crop protection by the insecticide seed treatment. Studies show there is between 14 and 35 days of protection with insecticide seed treatments but the clock starts when the seed begins taking up moisture, not the day it emerges. Maximize the length of protection for seedlings by placing seed 0.5- 1" deep into warm soils for fast emergence. Striped flea beetle has shown some tolerance to neonicotinoid seed treatments, so there may be advantages to adding the Group 28 insecticide (e.g. Lumiderm).

Fertility can play a major role in risk of flea beetle feeding, as it can with swede midge. The photo in Figure 3 was taken in a sulphur fertility trial that had heavy flea beetle pressure. Insecticide was sprayed once across all plots but did not adequately protect the zero sulphur plots. Without sulphur, the canola grew slowly allowing flea beetle to kill most plants. Other plots with adequate fertility reached the 4-leaf stage faster and grew through the feeding. Of course, it's not just a sulphur thing. Any nutrient deficiencies can have a similar effect. If soil levels are below 15 ppm for phosphorous - especially if the pH is low, clay content is high, or soils are cool - starter P in the seed row may support faster growth early in the season, and you might consider working towards building soil P levels overall.

Low plant populations, frost and wet soils are other factors that may increase the opportunity for flea beetle to cause economic damage. Focus on good agronomy at seeding so your canola outperforms the flea beetles.



Figure 3. Zero sulphur plots with significant flea beetle damage, while surrounding plots with adequate fertility did not sustain economic damage.