



What do Lygus like to eat?

CATEGORY [insects](#) | February 5, 2025

Safflower and sunflower demonstrated potential as trap crops to reduce *Lygus* damage to faba beans.

The *Lygus* pest complex in the Canadian Prairies is dominated by *L. lineolaris*, *L. keltoni*, *L. elisus*, and to a lesser extent, *L. borealis*. While *Lygus* have a broad host range, faba bean becomes an attractive host when *Lygus* move from earlier maturing canola and mustard to faba bean fields. At this stage, faba bean are susceptible to feeding damage during the flowering and pod stages.

Lygus feeding damage on faba bean includes hull perforations, seed coat discoloration, pitting, and tissue wilting. This can result in quality downgrade as the Canada Grain Commission quality standards for Grade No. 1 faba bean for human consumption is less than 1% damaged seed.

Insecticide application is an option, but application at the flowering stage of faba bean is not recommended because it interferes with the pollination process. An alternative to broad acre spraying of faba bean is to use trap crops to lure *Lygus* for targeted insecticide application.

The primary objective of this study was to evaluate *Lygus* preferences between faba bean and alternative crops. Laboratory experiments assessed the impact of four potential crops on *Lygus* behavior, and field trials assessed seven potential trap crops for *Lygus* control.

Faba bean, along with canola, pea, alfalfa and flax were grown for four months in growth chambers at the University of Saskatchewan in two gallon pots. Seeding times were adjusted so that all plants reached the pod stage at the same time. Once faba bean reached the pod stage, the pots were caged along with one of the trap crops. The plants were positioned on opposite corners of the cage.

One adult *Lygus* was released at the centre of the cage and was removed after 24 hours. This was replicated 10 times for each cage with male and female *Lygus* bugs for a total of 20 replications per crop. Faba bean were grown to maturity and assessed for feeding damage that shows up as black dots on seed. The percentage of perforated seed damage and the weight of the perforated seed was calculated.

In the field study in 2022, canola, flax, safflower, and pea were grown as trap crops. In 2023, mustard, hemp, and sunflower were added to the original four crops. The plots were established near Lethbridge, AB. Plot sizes were 30 feet by 33 feet (9 m x 10 m) for both faba bean and the trap crop. Half of each trap and faba plots were sprayed with flonicamid (Beleaf) in 2022 and lambda-cyhalothrin (Matador) in 2023 at the early pod stage. Harvested seed was assessed for incidence of damage and severity of damage.

Differences in preference between sexes

In the choice bioassay greenhouse study with the control of faba beans vs. faba beans, for females the percentage of perforated seeds was 0.98% seed damage and 0.98% seed weight damage for females. For males, seed damage was lower at 0.62% and seed weight damage at 1.53%. This indicates that males tend to feed on fully developed seeds, while females prefer feeding on pods with immature seeds.

The only choice bioassay crop that presented less than 1% seed damage and seed weight damage was alfalfa.

Safflower and Sunflower are potential trap crops

In 2022, *Lygus* populations in faba bean next to canola had a median of 30 per sample, which was significantly higher than flax, peas and sunflowers with a median of around 12 per sample. Application of Beleaf did not reduce *Lygus* abundance.

The incidence of necrotic seed damage in faba bean seed in 2022 only differed significantly with faba bean next to canola having higher damage than faba bean next to safflower. Yields ranged from 3 to 4 t/ha and were not affected by trap crop or insecticide application.

In 2023, none of the 7 crops tested affected *Lygus* abundance in adjacent faba bean plots, ranging in abundance from around 8 to 12/sample. Application of the pyrethroid insecticide Matador reduced *Lygus* abundance to very low numbers.

Necrotic damage in faba bean seed in 2023 was similar for all trap crops. Insecticide application resulted in much lower necrotic damage than in the unsprayed plots. Yield averaged around 3.5 t/ha, and was not affected by trap crop or insecticide application.

Overall, the field studies showed that faba beans adjacent to canola had higher *Lygus* abundance and damage compared to those next to peas, flax, and safflower. The researchers didn't rule out that the canola actually caused more damage rather than the other crops reducing it because it is possible that there were more *Lygus* in the canola that then moved to the faba. Safflower and sunflower demonstrated potential as trap crops to reduce *Lygus* damage to faba beans.

The research did not include a treatment where only the trap crop was sprayed. Further research would be required to see if a sprayed trap crop would be sufficient to avoid *Lygus* necrotic damage. In years when *Lygus* are only around 1 per sweep, spraying just the trap crop might be sufficient.

Future studies should focus on optimizing trap crop configurations, planting dates and crop combinations; investigating the role of biological control agents; and conducting large-scale field trials to validate the efficacy of these approaches in commercial settings.

This study was supported by grants from the Saskatchewan Agriculture Development Fund, Saskatchewan Pulse Growers, and Western Grains Research Foundation

Aguiar-Cordero, T., Cárcamo, H. & Prager, S. What do *Lygus* like? Looking for potential trap crops to reduce faba bean damage. *Arthropod-Plant Interactions* **18**, 1189–1199 (2024). OPEN ACCESS: <https://doi.org/10.1007/s11829-024-10095-0>

PHOTO: Ventral perspective of an adult *Lygus keltoni*.
Photo by Dan Johnson (U of Lethbridge).