Canadian Agronomist

DIGGING INTO RESEARCH

Impact of cabbage seedpod weevil control on Lygus bug

CATEGORY **insects** | ***March 12, 2019***

Research in southern Alberta found that canola fields seeded in April were the most susceptible to cabbage seedpod weevil. A new action threshold of 25 to 40 cabbage seedpod weevils per 10 sweeps at early flowering stage was developed. When cabbage seedpod weevil populations were below threshold at early flowering, there was no benefit from applying an insecticide to prevent *Lygus* outbreaks later in the season.

A nominal economic threshold for cabbage seedpod weevil (*Ceutorhynchus obstrictus*) was previously set at 20 weevils per 10 sweeps at early flowering stage of canola. *Lygus* cause occasional damage to canola by feeding on pods and seeds, and the economic threshold is applied between the end of flowering and early pod ripening stage. In the past, canola growers hoped that spraying for cabbage seedpod weevil at early flowering would reduce *Lygus* infestation and damage. However, unnecessary spraying at early flowering stage can harm the beneficial insects that keep both insect pests under control.

The objectives of this study were to validate an action threshold for cabbage seedpod weevil, determine the impact of spraying insecticide for cabbage seedpod weevil at the early flower stage

on abundance of *Lygus* at the early pod stage, and determine the effect of seeding period on this pest complex.

Fifteen to 20 commercial canola fields (73 in total) were studied over four years, with the fields divided into early (April), intermediate (first one-half of May) and late seeded (last one-half of May). Farmer cooperators were asked to spray the entire field if cabbage seedpod weevils were high (at least two per sweep), or only the field border if cabbage seedpod weevils were under this threshold. Untreated strips in each field were also established.

Early seeded fields susceptible to cabbage seedpod weevil

Fields planted in April had about twice the number of cabbage seedpod weevils at the early flower stage as those planted in the first or second half of May. Only fields planted in April reached the nominal threshold of 20 weevils per 10 sweeps, and spraying these fields with an insecticide provided significant yield protection and economic return.

For *Lygus*, the opposite was true. Early-planted fields were generally below economically damaging levels with about one-third the number of *Lygus* (seven per sample of 10 sweeps) as those found in fields planted in the first half of May. This meant there was no benefit in spraying early seeded fields in an attempt to prevent *Lygus* outbreaks when cabbage seedpod weevils were below threshold.

Validating the action threshold

The study found that only early-planted fields (April) require cabbage seedpod weevil control. Fields with intermediate seeding dates (early May) may still reach threshold densities and require protection if neighbouring fields were not planted early, or under cool spring conditions that delay cabbage seedpod weevil spring activity on early seeded fields. An action threshold was not needed for late seeded fields (after mid-May).

The economic injury level for cabbage seedpod weevil was calculated at 20 cabbage seedpod weevils per 10 sweeps. However, an action threshold of 25 to 40 was recommended because scouting mainly occurs along the field edge where cabbage seedpod weevils are initially concentrated.

Scouting protocols developed

Four samples per field provided a reasonable estimate of cabbage seedpod weevil populations. Scout at 10 to 20% flowering. Conduct one set of 10 walking sweeps of 180 degrees at the field edge and another set 50 meters into the field. Move to another location 500 meters away and conduct another two sets. Count the average number of cabbage seedpod weevils per 10 sweeps and assess against the action threshold.

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Cárcamo, H., Meers, S., & Herle, C. (2019). Managing cabbage seedpod weevils (Coleoptera: Curculionidae) in canola (Brassicaceae) – are Lygus (Hemiptera: Miridae) affected? *The Canadian Entomologist*, 151(1), 85-93. https://doi.org/10.4039/tce.2018.57

Photo by Mike Dolinski.

