

Section VII

Foliage & Seed Insects

POST-EMERGENCE FLEA BEETLE INSECTICIDES ON CANOLA IN SE WASHINGTON

D. E. Bragg
Cooperative Extension
Washington State University
Pomeroy WA 99347-0190
1-509-843-3701

The flea beetle, Phyllotreta cruciferae Goeze, is a pest of emerging spring canola in the intermediate rainfall zone of SE Washington. Flea beetles enter canola fields from adjacent refuges in large numbers, and loss of stand due to damage at the cotyledon stage is common. 5 insecticides were tested in a randomized complete block design experiment with 4 replicates of 3 x 6.6 ft/row for each treatment and an untreated check. Duplicate trials were conducted simultaneously for B. campestris and B. napus canola to determine if differences in flea beetle control exist between canola species. The trials were located on summer fallow land adjacent to a blue grass field and a commercial canola field. Seeding was 5-6-94 with treatment at the cotyledon stage on 5-23-94. At the time of treatment, 50 flea beetles per 6.6 ft/row was the mean count throughout both trials. Chemicals applied were Pennncap MS, Phaser 50 WP, and the Elf Attochem experimental compounds TD2342-1 2FM, TD2345-1 2FM, and TD2348-1 2FM. Applications were made with a CO2 backpack sprayer at 20 GPA and 20 PSI at 4 pm, at 21 C, no wind. Data were collected as follows on 2-DAT, 5-DAT, 7-DAT, and 10-DAT: evaluation of plant damage based on a 0 to 6 scale with 0 = no damage and 6 = total destruction of cotyledons and apical meristem; and counts of plants per 6.6 ft/row to evaluate stand reduction. At 10-DAT plants of both species were in the 4-5 leaf rosette stage. Analysis of data was by ANOVA with separation by LSD test. Values followed by the same letter are not significantly different. Comparisons of plant damage data in tables 1 and 2 show all insecticide treatments provided somewhat better flea beetle control as compared to the check, with TD2345-1 2FM significantly better through 10-DAT in both trials than other treatments. Dead flea beetles and Lygus bugs continued to pile up under the TD2345-1 2FM plants through 7-DAT. Tables 3 and 4 show that all treatments were somewhat different than the check in prevention of stand reduction. Again, TD2345-1 2FM was significantly different through 10-DAT compared to the other insecticide treatments in both trials. Data for the 2 canola species were not significantly different between treatments.

TABLE 1. FLEA BEETLE DAMAGE ON BRASSICA NAPUS CANOLA 0 - 6 SCALE

Treatment	Precount	2-DAT	5-DAT	7-DAT	10-DAT
Check	1 A	3.25 D	4.00 B	4.25 B	3.25 C
Pennncap MS 2FM	1 A	2.00 BC	2.25 AB	2.25 AB	2.00 B
TD2342-1 2FM	1 A	1.75 B	2.25 AB	2.25 AB	2.00 B
TD2348-1 2FM	1 A	2.50 C	2.00 AB	2.00 AB	2.00 B
Phaser 50 WP	1 A	2.00 BC	2.25 AB	2.75 AB	1.75 B
TD2345-1 2FM	1 A	1.00 A	1.00 A	1.00 A	1.00 A
Crop Stage	Cotyledon	Cotyl.+	1-Leaf	2-3 Leaves	Rosette
(p = 0.05; LSD) ANOVA					

TABLE 2. FLEA BEETLE DAMAGE ON BRASSICA CAMPESTRIS CANOLA 0 - 6 SCALE

Treatment	Precount	2-DAT	5-DAT	7-DAT	10-DAT
Check	1 A	4.00 C	4.00 B	4.00 B	4.25 C
Pennncap MS 2FM	1 A	2.50 AB	2.00 AB	2.00 AB	2.00 B
TD2342-1 2FM	1 A	2.50 AB	2.25 AB	2.25 AB	2.00 B
TD2348-1 2FM	1 A	2.75 BC	2.00 AB	3.00 AB	2.00 B
Phaser 50 WP	1 A	2.75 BC	2.25 AB	2.75 AB	2.00 B
TD2345-1 2FM	1 A	2.00 A	1.25 A	1.25 A	1.00 A
Crop Stage	Cotyledon	Cotyl.+	1-Leaf	2-3 Leaves	Rosette
(p = 0.05; LSD) ANOVA					

TABLE 3. FLEA BEETLE STAND REDUCTION ON BRASSICA NAPUS CANOLA - PLANTS 6.6 FT/ROW

Treatment	Precount	2-DAT	5-DAT	7-DAT	10-DAT
Check	24.00 A	15.75 A	10.75 A	10.75 A	10.75 A
Pennncap MS 2FM	23.00 A	21.50 AB	18.25 AB	18.25 AB	18.25 B
TD2342-1 2FM	23.75 A	21.50 AB	18.25 AB	17.50 AB	17.00 B
TD2348-1 2FM	24.25 A	20.00 AB	17.75 AB	17.75 AB	17.75 B
Phaser 50 WP	24.00 A	19.75 AB	17.75 AB	17.50 AB	17.50 B
TD2345-1 2FM	23.75 A	22.75 B	19.50 B	19.50 B	19.50 B
Crop Stage	Cotyledon	Cotyl.+	1-Leaf	2-3 Leaves	Rosette
(p = 0.05; LSD) ANOVA					

TABLE 4. FLEA BEETLE STAND REDUCTION ON BRASSICA CAMPESTRIS - PLANTS 6.6 FT/ROW

Treatment	Precount	2-DAT	5-DAT	7-DAT	10-DAT
Check	23.75 A	17.00 A	15.00 A	15.00 A	14.00 A
Pennncap MS 2FM	24.00 A	21.75 AB	18.25 AB	18.25 AB	18.25 AB
TD2342-1 2FM	23.50 A	19.50 AB	16.50 AB	16.50 AB	16.50 AB
TD2348-1 2FM	23.75 A	18.50 AB	16.50 AB	16.50 AB	16.50 AB
Phaser 50 WP	24.00 A	20.75 AB	17.50 AB	17.50 AB	17.50 AB
TD2345-1 2FM	24.25 A	23.25 B	20.00 B	20.00 B	20.00 B
Crop Stage	Cotyledon	Cotyl.+	1-Leaf	2-3 Leaves	Rosette
(p = 0.05; LSD) ANOVA					

REFERENCES

- Johnson, G. D., and McLendon, M. E. Response of canola to different degrees of flea beetle injury. Proc. 1993 Westrn. Canola Devel. Mtg. pp. 37.
- Johnson, G. D. and McLendon, M. E. Efficacy of selected insecticide treatments for flea beetle control. Proc. 1993 Westrn. Canola Devel. Mtg. pp. 39 - 40.
- Nance, E. L. and Johnson, G. D. Update on flea beetle research in Montana: work in progress on economic threshold levels and new work on mechanical damage. Proc. 1993 Westrn. Canola Devel. Mtg. pp. 25 - 27.