2004 Insecticide Seed Treatment Efficacy against Flea Beetles on Canola Trial B

Janet Knodel, Area Extension Specialist - Crop Protection
Lorilie Atkinson, Research Specialist
North Central Research Extension Center, Minot

Bryan Hanson, Research Agronomist, Langdon Research Extension Center

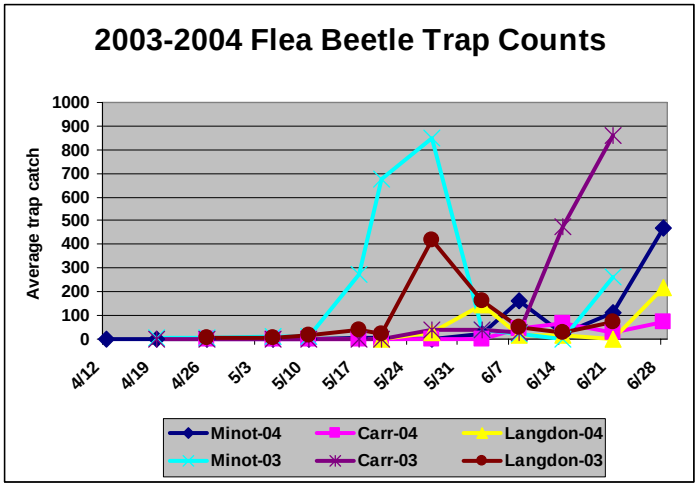
Materials and Methods

Trials assessing the different insecticide seed treatments were conducted in research plots located at the North Central Research Extension Center (REC) in Minot and the Langdon REC in Langdon. *Brassica napus* cv. RaideRR (Integra Seed Ltd., open pollinated) was seeded on 7 May in Landgon and 17 May in Minot. The seeding rate was approximately 14-17 pure live seeds per sq. foot. A RCB experimental design with four replicates was used. Experimental plots were 3.5-4.1 ft. (7 rows) x 20-22 ft. To evaluate flea beetle damage, assessments were taken at approximately 19, 29, and 35 Days After Planting (DAP) using the following rating scheme: 1 = 0-3 pits per seedling; 2 = 4-9 pits per seedling; 3 = 10-15 pits per seedling; 4= 16-25 pits per seedling; 5 = >25 pits per seedling; and 6 = dead. Percent coverage (% of land area in plot that was covered with canola seedlings) was estimated on 35 DAP. Roundup (1 pt./acre) + AMS was applied for weed control early in the season. Plots were harvested on 20 Aug in Minot and 17 Sept in Langdon. Variables were subjected to ANOVA and means compared using Fisher's PLSD at the 5% significance level.

Results and Discussion

Flea Beetle Populations:

During 2003 and 2004, the spring emergence of flea beetle was delayed due to the cool, wet early May (Fig. 1). In 2004, flea beetles were ready to emerge as the canola seedlings were emerging in late May and first week of June. This was the major peak of activity, and spring emergence continued until late June. However, flea beetle populations were much lower in 2004 than 2003. There was no strong peak of spring trap catches in 2004 compared to 2003. The average trap catch for 2003 and 2004, respectively, was 13 and 181 beetles per trap day in Minot, 4 and 181 beetles per trap day in Carrington, and 7 and 85 beetles per trap day in Langdon. Overall, flea beetle population decreased at trap sites. The cool and wet weather caused a prolonged delay in flea beetle emergence and feeding, and this may have demised their energy reserves. As a result, the overwintering mortality was probably higher than normal in 2004.



Flea Beetle Damage Ratings and Yield (Table 1-2):

There were no significant differences in flea beetle damage ratings on 19 DAP, regardless of the location. Flea beetles had not moved into plots to feed yet, due to the cool spring temperatures delaying emergence. Insecticide seed treatments had a significantly lower damage rating than the untreated check, and there were no significant differences between any of the insecticide seed treatments for 29 and 35 DAP ratings at Minot, and 35 DAP rating at Langdon. Flea beetle pressures were heavier at Langdon. At 29 DAP, Helix xtra had a significantly lower damage rating than the other insecticides treatments and the untreated check. However, the other insecticides seed treatments also had a significantly lower damage rating than the untreated check. There were no significant differences in yield at Minot. At Langdon, all of the insecticide seed treatments had a significantly higher yield than the untreated check. Overall, the insecticide seed treatment averaged 293 lb/acre more than the untreated check: 299 lb/acre more for Helix xtra, 252 lb/acre more for Prosper 400, 358 lb/acre more for Experimental A and 259 lb/acre more for Experimental B.

2004 Insecticide Seed Treatment Efficacy against Flea Beetles on Canola Trial B

Table 1. Minot.

Treatment/ formulation	Rate g AI/100 kg	19 DAP[a] Rating 1 1-6[b]	29 DAP[a] Rating 2 1-6[b]	35 DAP[a] Rating 3 1-6[b]	35 DAP[a] % Coverage	Yield lb/acre
Untreated check		1.0 a	4.8 a	5.4 a	7.5 a	585 a
Prosper 400	400	1.0 a	1.8 b	2.1 b	50.0 b	808 a
Helix xtra	400	1.0 a	1.0 b	2.0 b	55.0 b	750 a
Exp. A		1.0 a	1.3 b	2.3 b	55.0 b	894 a
Exp. B		1.0 a	1.0 b	2.3 b	52.5 b	882 a
LSD(P=.05)		***NS***	***0.7***	***0.7***	***7.6***	***NS***
CV		***0.0***	***21.5***	***16.2***	***11.2***	***21.9***
Grand Mean		***1.0***	***2.0***	***2.8***	***44.0***	***784***

Means within a column followed by the same letter are not significantly different (ANOVA, Fisher's PLSD, P<0.05).
[a] DAP = Days After Planting
[b] Damage Rating: 1= 0-3 pits per seedling, 2= 4-9 pits per seedlings; 3= 10-15 pits per seedling; 4= 16-25 pits per seedling; 5= >25 pits per seedling; and 6= dead seedling.

Table 2. Langdon

Treatment/ formulation	Rate g AI/100 kg	19 DAP[a] Rating 1 1-6[b]	29 DAP[a] Rating 2 1-6[b]	35 DAP[a] Rating 3 1-6[b]	35 DAP[a] % Coverage	Yield lb/acre
Untreated check		1.0 a	5.3 a	4.3 a	25.0 a	2231 a
Prosper 400	400	1.0 a	4.4 b	2.3 b	52.5 b	2512 b
Helix xtra	400	1.0 a	3.8 c	2.1 b	53.8 b	2663 b
Exp. A		1.0 a	4.0 bc	2.3 b	52.5 b	2638 b
Exp. B		1.0 a	4.1 bc	2.5 b	48.8 b	2451 b
LSD(P=.05)		***NS***	***0.4***	***0.5***	***8.5***	***221***
CV		***0.0***	***5.6***	***12.7***	***11.8***	***5.7***
Grand Mean		***1.0***	***4.3***	***2.7***	***46.5***	***2499***

Means within a column followed by the same letter are not significantly different (ANOVA, Fisher's PLSD, P<0.05).
[a] DAP = Days After Planting
[b] Damage Rating: 1= 0-3 pits per seedling, 2= 4-9 pits per seedlings; 3= 10-15 pits per seedling; 4= 16-25 pits per seedling; 5= >25 pits per seedling; and 6= dead seedling.