

2005 Insecticide Seed Treatment Efficacy Against Flea Beetles on Canola, Trial A

Janet Knodel, Bryan Hanson, and Bob Henson

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. Hyola 357 Magnum was seeded on 11 May in Minot, 16 May in Carrington, and 17 May in Langdon. 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 injury, assessments were taken at approximately 15-16, 21-22, and 29-31 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 29-31 DAP. Roundup (1 pt./acre) + AMS was applied for weed control early in the season. Plots were harvested on 10 August in Minot, 12 August in Carrington, and 30 August in Langdon. Variables were subjected to ANOVA and means compared using Fisher's PLSD at the 5% significance level.

Results and Discussion

Flea Beetle Injury Ratings and Yield (Table 1-3):

2005 Flea beetle populations ranked in descending order by location include: Minot, Langdon and then Carrington. All insecticide seed treatments had a significantly lower injury rating than the untreated check (fungicide seed treatment only), and there were no significant differences between any of the insecticide seed treatments for all assessment dates of injury ratings, regardless of location. In addition, the two high rates of insecticide seed treatments, Helix xtra and Prosper 400, usually had a lower damage rating than the low rate of insecticide seed treatment, Helix lite. No second injury rating at 21-22 DAP was taken at Langdon due to wet plots. For percent coverage, insecticide seed treatments had significantly higher percent coverage than the untreated check at Minot and Langdon. At Carrington, there were no significant differences in percent coverage. At Minot, all of the insecticide seed treatments had a significantly higher yield than the untreated check. At Carrington and Langdon, there were no significant differences in yield, probably due to the lower flea beetle populations. Overall, insecticide seed treatments averaged 167 lb/acre more than the untreated checks: 190 lb/acre for Helix xtra, 154 lb/acre for Prosper 400, and 156 lb/acre for Helix lite.

Table 1. Minot.

Treatment/ formulation	Rate g AI/100 kg	15 DAP ^a Rating 1 1-6 ^b	21 DAP ^a Rating 2 1-6 ^b	30 DAP ^a Rating 3 1-6 ^b	30 DAP ^a % Coverage	Yield lb/acre
Untreated check		3.4 a	2.8 a	4.0 a	49 a	1493 a
Helix lite	200	1.0 b	1.0 b	2.0 b	70 b	1802 b
Prosper 400	400	1.0 b	1.0 b	1.6 b	74 b	1769 b
Helix xtra	400	1.0 b	1.0 b	1.5 b	75 b	1817 b
LSD(P=.05)		0.6	1.0	0.7	13.7	252
CV		23.5	43.8	20.1	12.8	9.2
Grand Mean		1.6	1.4	2.3	66.9	1720

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 Injury 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. Carrington.

Treatment/ formulation	Rate g AI/100 kg	15 DAP ^a Rating 1 1-6 ^b	22 DAP ^a Rating 2 1-6 ^b	31 DAP ^a Rating 3 1-6 ^b	31 DAP ^a % Coverage	Yield lb/acre
Untreated check		2.1 a	2.8 a	2.1 a	80	2023
Helix lite	200	1.0 b	1.1 b	1.1 b	86	2073
Prosper 400	400	1.0 b	1.0 b	1.1 b	85	2090
Helix xtra	400	1.0 b	1.0 b	1.3 b	85	2012
<i>LSD(P=.05)</i>		<i>0.6</i>	<i>0.7</i>	<i>0.6</i>	<i>NS</i>	<i>NS</i>
<i>CV</i>		<i>29.3</i>	<i>31.2</i>	<i>25.3</i>	<i>7.4</i>	<i>6.3</i>
<i>Grand Mean</i>		<i>1.3</i>	<i>1.5</i>	<i>1.4</i>	<i>84.1</i>	<i>2050</i>

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 Injury 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 3. Langdon.

Treatment/ formulation	Rate g AI/100 kg	16 DAP ^a Rating 1 1-6 ^b	29 DAP ^a Rating 3 1-6 ^b	29 DAP ^a % Coverage	Yield lb/acre
Untreated check		3.4 a	2.5 a	84 a	2514
Helix lite	200	1.8 b	1.6 b	91 b	2623
Prosper 400	400	1.6 b	1.1 b	99 c	2632
Helix xtra	400	1.5 b	1.1 b	99 c	2773
<i>LSD(P=.05)</i>		<i>0.6</i>	<i>0.6</i>	<i>5.5</i>	<i>NS</i>
<i>CV</i>		<i>16.7</i>	<i>24.7</i>	<i>3.7</i>	<i>5.3</i>
<i>Grand Mean</i>		<i>2.1</i>	<i>1.6</i>	<i>93.1</i>	<i>2635</i>

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 Injury 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.