

2006 Insecticide Seed Treatment Efficacy against Flea Beetles on Canola Trial B

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Materials and Methods

Trials assessing three 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 8 May in Minot and 12 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. Treatments included: untreated check, Helix Xtra / thiamethoxam (insecticide-fungicide seed treatment), Prosper 400 / clothianidin (insecticide-fungicide seed treatment), and an experimental seed treatment A. To evaluate flea beetle injury, assessments were taken at approximately 14, 21-22, and 28 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 28 DAP. Roundup (1 pt./acre) + AMS was applied for weed control early in the season. Plots were harvested on 4 August in Minot and 23 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 (Tables 1-2):

Flea beetle populations were generally low and slightly higher at Langdon than Minot during 2006. Insecticide seed treatments had a significantly lower injury rating than the untreated check, and there were no significant differences between any of the insecticide seed treatments for 14, 21 and 28 DAP ratings at Minot and Langdon. For row coverage, insecticide seed treatments had a significantly higher percent coverage than the untreated check, regardless of location. This indicates that the insecticide seed treatment increased early plant vigor over the untreated seed. There were no significant differences in yield at Minot or Langdon, probably due to the overall low populations of flea beetles. Regardless, the insecticide seed treatment averaged 316 lb/acre more than the untreated check across both locations: 260 lb/acre more for Helix XTra, 396 lb/acre more for Prosper 400, and 293 lb/acre more for experimental insecticide treatment A. These results demonstrate the importance of using an insecticide-fungicide seed treatment for protection against flea beetles and soil-borne diseases in canola production.

Table 1. Minot.

Treatment/ formulation	Rate g AI/100 kg	14 DAP ^a Rating 1 1-6 ^b	22 DAP ^a Rating 2 1-6 ^b	28 DAP ^a Rating 3 1-6 ^b	28 DAP ^a % Coverage	Yield lb/acre
Untreated check		4.3 a	4.1 a	3.9 a	43 a	1673
Prosper 400	400	1.0 b	1.1 b	1.3 b	86 b	2156
Helix XTra	400	1.0 b	1.0 b	1.0 b	93 b	1754
Exp. A		1.0 b	1.0 b	1.0 b	90 b	1950
LSD(P=.05)		0.5	0.4	0.6	12.2	NS
CV		17.8	13.8	19.9	9.8	20.2
Grand Mean		1.8	1.8	1.8	77.8	1883

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.

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Table 2. Langdon

Treatment/ formulation	Rate g AI/100 kg	14 DAP ^a Rating 1 1-6 ^b	21 DAP ^a Rating 2 1-6 ^b	28 DAP ^a Rating 3 1-6 ^b	28 DAP ^a % Coverage	Yield lb/acre
Untreated check		3.3 a	4.1 a	3.3 a	73 a	1558
Prosper 400	400	1.1 b	1.6 b	1.3 b	90 b	1867
Helix XTra	400	1.1 b	1.8 b	1.0 b	94 b	1996
Exp. A		1.1 b	1.8 b	1.5 b	89 b	1867
LSD(P=0.05)		0.4	0.6	0.7	9.6	NS
CV		14.5	15.7	23.3	6.9	10.6
Grand Mean		1.7	2.3	1.8	86.3	1822

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.