

**Bean (Snap):** *Phaseolus vulgaris* L., 'Hystyle'  
European corn borer (ECB); *Ostrinia nubilalis* (Hübner)

E.C. Burkness,  
Suzanne Wold &  
W.D. Hutchison,  
Department of  
Entomology  
University of  
Minnesota  
219 Hodson Hall  
St. Paul, MN  
55108  
(612) 624-3670

### **CONTROL OF EUROPEAN CORN BORER IN MINNESOTA SNAP**

**BEANS, 2000:** 'Hystyle' was planted 5 Jun at the University of Minnesota Agricultural Experiment Station at Rosemount, MN. Plots were 4 rows wide with an untreated skip row between plots and 25 ft (7.6 m) long. Rows were planted on 30 in (0.8 m) centers with 10 ft (3.04 m) alleys separating replicates. Treatments were arranged in a RCB design with 4 replicates. Applications were made with a CO<sub>2</sub> pressurized backpack sprayer using a 10 ft boom with 6 nozzles each fitted with an XR-Teejet 8002 flat fan nozzle with no screen. The sprayer was calibrated to deliver 20 gpa (187.04 l/ha) at 35 psi (242 kPa). On 17 and 24 Jul, at blossom and pin-bean (beans ≤ 1 inch) growth stages respectively, 12 consecutive plants from one of the 2 middle rows of each plot were infested with ≈50 neonate larvae per plant (17 Jul) and 20 neonate larvae per plant (24 Jul) using a bazooka applicator. A total of 3 sprays were applied on 13, 20, and 27 Jul. All treatments were harvested and evaluated 7 Aug by selecting 5 consecutive plants from center of the 12 infested plants. For each plant, data were recorded for total ECB larvae (in the pods or stem), damaged pods, total pods, and yield. The percentage of stems with feeding damage for each set of 5 plants was also recorded.

All treatments provided a significant reduction in total ECB and ECB in the pods compared with the untreated check. The number of damaged pods and percentage of stem damage was also significantly less compared with the untreated check for all treatments except for damaged pods for both rates of RH-2485. No significant differences were found for total pods or yield for any treatment compared with the untreated check. No phytotoxicity was observed among treatments.

Treatment/formulation	Rate (lb AI/acre)	Average / 5 consecutive plants					
		Total ECB larvae <sup>1</sup>	ECB larvae in pods	Damaged pods	Total pods	% Stems damaged	Yield (lbs.)
Spintor 2SC	0.094	0.00 b	0.00 b	0.25 b	92.75	15 b	1.47
Orthene 97	1.0	0.00 b	0.00 b	0.25 b	104.25	0 b	1.74
Capture 2EC	0.040	0.00 b	0.00 b	1.00 b	115.50	35 b	1.75
Capture 2EC	0.080	0.00 b	0.00 b	0.25 b	137.00	0 b	2.04
Mustang 1.5EW	0.0375	0.50 b	0.50 b	0.75 b	97.25	25 b	1.51
RH-2485 2F + Latron CS-7	0.06 + 0.12% v/v	1.25 b	0.50 b	4.50 ab	115.00	25 b	1.64
RH-2485 2F + Latron CS-7	0.12 + 0.12% v/v	0.75 b	0.00 b	2.50 ab	95.00	10 b	1.42
Untreated check	--	6.00 a	3.00 a	11.50 a	102.25	85 a	1.54
					NS		NS

Means within columns followed by the same letter are not significantly different ( $P > 0.05$ ), Ryan-Einot-Gabriel-Welsch multiple range test (REGWQ). NS = not significant ANOVA. ECB larvae in pods and damaged pods were transformed using the square root ( $\sqrt{x + 0.05}$ ) transformation to obtain mean separations using REGWQ ( $P=0.05$ ); back transformed means are presented.

<sup>1</sup> Total ECB larvae includes all larval instars found in both the stem and pods.

## Part II. Materials Tested for Arthropod Management

### CONTROL OF EUROPEAN CORN BORER IN MINNESOTA SNAP BEANS, 2000

Spintor 2SC, (2((6-Deoxy-2,3,4-tri-O-methyl- $\alpha$ -L-mannopyronaosyl)oxy)-13-((5-(dimethylamino)tetrahydro-6-methyl-2H-pyran-2-yl)oxy)-9-ethyl 2,3,2a,5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-14-methyl-1H-as-indaceno(3,2,-d)oxacyclododecin-7,15-dione), spinosad, Dow AgroSciences  
Orthene 97, (O,S-Dimethyl N-acetyl phosphoramidothioate), acephate, Valent Corp.  
Capture 2EC, (2-Methyl-1(1,1'-biphenyl)-3yl)methyl cis-3-(2-chloro-3,3,3-trifluoro propenyl)-2, 2dimethyl cyclopropane carboxylate), bifenthrin, FMC  
Mustang 1.5EW, zetamethrin, FMC  
RH-2485 2F, (N'-Tert-butyl N'-(3,5-dimethylbenzyl)-3-methoxy-2-methyl benzaldehyde), methoxyfenozide, Rohm and Haas  
Latron CS-7, (Blend of alkyl aryl polyethoxylate and sodium salt of alkylsulfonatedalkylate 60%), Rohm and Haas