

SNAP BEAN: *Phaseolus vulgaris* (L.), ‘Caprice’**Evaluation of Foliar Insecticides for the Control of Mexican Bean Beetle on Snap Beans, 2015***Louis B. Nottingham^{1,2} and Thomas P. Kuhar³

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The objective of this experiment was to assess the efficacy of conventional and organic insecticides for the control of MBB. Seven synthetic insecticides, four organic insecticides and one untreated check were tested in field plots. The experiment was conducted at Virginia Tech’s Kentland Research Farm in Whitethorne, VA (37.2013° N, –80.5656° W), and consisted of 12 treatments arranged in an RCB design with four replicates. “Caprice” snap beans were planted on 21 May 2015. Plots were 1-row wide and 6.1 m long. Eight rows were planted by hand, at a rate of 40 seeds per meter, with treatments only occurring in the center six rows, creating eight tiers (two tiers per block). Each row was separated by 45 cm of bare soil, and tiers were separated 2 m of bare soil. Foliar treatments were applied on 6, and 14 Jul, with a three-nozzle boom equipped with 8003VS spray tips spaced 20” apart and powered by a CO₂ backpack sprayer at 40 psi delivering 30 gpa. All plots were maintained according to standard commercial practices. On 8 (2 DAT1) and 16 (2 DAT2) Jul, five random plants were visually inspected, counting all MBB 3rd and 4th instar larvae. Insect count data did not fit a normal distribution, and therefore, were analyzed using Wilcoxon Test, followed by means separation using Wilcoxon each pair test; significance was accepted at $P < 0.05$. On 20 Jul (6 DAT2), 50 pods were harvested from each treatment plot and

examined for MBB feeding damage. Each pod was rated as either damaged or undamaged, based on the presence of at least 1 cm² of scared area from feeding. The proportion of damaged pods was calculated per row. Proportion data were normalized using an arcsine square root transformation. Transformed data were analyzed using ANOVA, followed by means separation using Fisher’s LSD; significance was accepted at $P < 0.05$.

MBB pressure was moderately high in this experiment with the untreated plots averaging 42.5 larvae per 5 plants on the first sample date. At 2 DAT1, Closer SC, Havanta 50SL and Sivanto 200SL treatments had significantly fewer MBB larvae than the untreated check. At 2 DAT2, Radiant SC, Exirel, Havanta 50SL, Sivanto 200SL, Assail 30G and Hero EC treatments had significantly fewer MBB larvae than the untreated check. Exirel, Havanta 50SL, Sivanto 200SL, Assail 30G and Hero EC treatments had significantly fewer MBB larvae than Grandevo and Entrust SC treatments as well. Closer SC, Sivanto 200SL, Assail 30G and Hero EC treatments had significantly fewer MBB damaged pods than the untreated check. Hero EC, Assail 30G, and Sivanto 200SL treatments had fewer MBB damaged pods than Pyganic 1.4EC, Grandevo and Azera treatments as well. Assail 30G, alone, had significantly fewer MBB damaged pods than Exirel, Havanta 50SL and Entrust SC treatments.

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Table 1

Treatment/ formulation	Rate amt product/acre	Mean no. MBB larvae/five plants, 2 DAT1	Mean no. MBB larvae/five plants, 2 DAT2	Mean proportion pods damaged by MBB, 6 DAT2*
Untreated Check	–	42.5±17.7 a	20.0±2.1 a	0.53±0.03 a
Closer SC	2 fl oz	3.3±2.0 b	12.8±7.4 abc	0.38±0.05 bcd
Radiant SC	8 fl oz	12.0±3.1 ab	7.0±3.9 bc	0.39±0.02 abcd
Exirel	13.5 oz	15.0±4.9 a	2.8±2.4 c	0.44±0.05 abc
Havanta 50SL	22 fl oz	1.3±0.9 b	0.5±0.5 c	0.44±0.05 abc
Sivanto 200SL	10 fl oz	5.5±2.5 b	0.3±0.3 c	0.34±0.08 cd
Assail 30G	5.3 oz	7.5 ±3.1 ab	0.3±0.3 c	0.26±0.02 d
Hero EC	10.3 fl oz	4.0±4.0 ab	0.0±0.0 c	0.31±0.04 cd
Grandevo	48 oz	13.5±2.9 ab	20.0±7.8 ab	0.49±0.04 ab
Pyganic 1.4 EC	17 fl oz	9.3±6.0 ab	19.3±10.1 abc	0.50±0.05 ab
Azera	56 fl oz	17.5±6.1 ab	9.0±5.2 abc	0.45±0.06 ab
Entrust SC	8 oz	13±5.3 ab	14.3±2.6 ab	0.43±0.07 abc
<i>P</i> value		0.037	0.0018	0.016

Insect count data were analyzed using a Wilcoxon test. Means were separated using Wilcoxon each pair test at the 0.05 level of significance. Means followed by the same letter within a column are not significantly different.

*Damaged pod data were analyzed using ANOVA. Means were separated using Fisher's LSD at the 0.05 level of significance. Means followed by the same letter within a column are not significantly different ($P > 0.05$).