

# Brown marmorated stink bug (BMSB): *Halyomorpha halys* (Stål)

## Evaluation of Insecticides to Control Brown Marmorated Stink Bug on Hemp in Virginia, 2019

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Brown marmorated stink bug (BMSB) | *Halyomorpha halys* (Stål)

Hempseed (marijuana) | *Cannabis sativa*

Hemp production in the U.S. increased dramatically in 2019, and still very little information is published with regards to pest management on the crop. The objective of our experiment was to assess the efficacy of several natural insecticide products for control of BMSB, which is a common pest of grain hemp in Virginia. A small plot field experiment was conducted on a planting of ‘Felina 32’ hemp direct seeded with a grain drill at 30 lb seed per acre on 31 May 2019 at the Virginia Tech Kentland Farm. The experiment had six treatments (BoteGHA (*Beauveria bassiana* strain GHA); Trilogy (clarified hydrophobic extract of neem oil); Entrust (spinosad); Azera (azadirachtin and pyrethrins); Requiem (terpene constituents of the extract of *Chenopodium ambrosioides*)); and an untreated check arranged in an RCBD with four replicates. Individual plots were 6 ft × 10 ft surrounded by 5 ft alleys with no plants. Hemp plants were sprayed with products in the field using a single-nozzle boom with D3 spray tip powered by a CO<sub>2</sub> backpack sprayer set at 40 psi, and delivering 30 gal per acre. Treatments were applied on 13, 20, and 27 Aug. On 16, 23, and 30 Aug, five plants per plot were visually

inspected for stink bugs. On 20 Aug., after allowing plants to dry for 4 hr in the field after application, one leaf and one seed head from each plot were excised, placed in a 1 qt plastic deli container, and brought back to the lab for a bioassay with live field-collected BMSB. Approximately 120 late-instar BMSB nymphs were collected from red bud and catalpa trees around Blacksburg, VA within 1 to 3 d prior to the bioassay and were held in a mesh cage with a water wick prior to testing. BMSB were placed 5 bugs per container and mortality was recorded at 1, 2, and 3 DAT. Data were analyzed using analysis of variance (ANOVA) procedures and means were separated using Fisher’s LSD at the 0.05 level of significance.

BMSB densities were low on field plots and there was no significant effect of treatment. In the BMSB laboratory bioassay, a significant treatment effect occurred at 3 DAT, at which time, Azera had the highest percentage mortality at 60.0%, which was higher than all other treatments except Requiem (40.0%). BMSB mortality on plants treated with BoteGHA, Trilogy, and Entrust was not significantly different from the untreated check.<sup>1</sup>

**Table 1.**

Treatment	fl oz/acre	BMSB adults or nymphs per five plants			BMSB mortality (%) on treated hemp leaves and seeds		
		Aug 16	Aug 23	Aug 30	1 DAT	2 DAT	3 DAT
Untreated check	—	0.0	0.3	0.3	5.0	12.5	17.5 c
BoteGHA	37.2	0.3	0.3	0.3	5.0	17.5	30.0 bc
Trilogy	44.1	0.3	1.0	0.5	0.0	73.5	17.5 bc
Entrust	5.0	0.3	0.3	0.3	0.0	30.0	32.5 bc
Azera	32.0	0.3	0.8	0.3	10.0	22.5	60.0 a
Requiem	128.0	0.0	1.0	0.3	5.0	10.0	45.0 ab
P		ns	ns	ns	ns	ns	<0.005

Means within columns followed by the same letter are not significantly different;  $P > 0.05$ .

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