Evaluating the Susceptibility of Different Pepper Varieties to Feeding by Brown Marmorated Stink Bug

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The brown marmorated stink bug, *Halyomorpha halys* (Stål), is an exotic stink bug (Heteroptera: Pentatomidae) that was introduced into the United States in the mid 1990's. Since its initial establishment in Allentown, PA, it has spread to over 25 states. In 2009 the brown marmorated stink bug became an agricultural problem for the first time in large portions of WV and VA. In 2010, brown marmorated stink bug populations exploded throughout the eastern US causing severe damage in fruit and vegetables with growers experiencing up to 75% damage in some areas.

Farmers are desperate to find ways to prevent BMSB from causing damage. Current control measures include the use of carbamate, organophosphate and pyrethroid insecticides, which are either not highly effective or disrupt current IPM programs because of their toxicity to natural enemies.

To react to this situation, researchers in the northeast are attempting to develop IPM programs targeting brown marmorated stink bug. However, little data is available to do so for vegetables such as peppers. This project will help answer questions about the damage caused by BMSB in five pepper varieties (bell pepper – Paladin, banana peppers Bounty and Gold Rush, hot peppers – Sparky and Fire Cracker).

During 2011, due to the low to non-existent populations throughout the northern portion of New Jersey, little data was collected in terms of the population levels present in our plot. Despite this, fruit damage was observed in mid August for all varieties of pepper evaluated (Table 1 - 4).

Figure 1. Seasonal mean percent marketable fruit, percent damaged fruit and mean number of stings per fruit in different pepper varieties attacked by the brown marmorated stink bug, 2011.

Variety	Mean (+/- SE) % Marketable Fruit	Mean (+/- SE) % Damaged Fruit	Mean (+/- SE) No. of Stings per Fruit
Paladin (Bell)	85.3 (3.83) b	14.7 (3.83) NS	1.81 (1.07) b
Bounty (Banana)	87.7 (2.51) b	12.3 (2.51)	1.04 (0.35) b
Gold Rush (Banana)	84.4 (2.73) b	15.6 (2.73)	7.94 (3.10) a
Fire Cracker (Jalapena)	87.0 (2.71) b	13.0 (2.71)	2.71 (1.00) b
Sparky (Cherry)	68.5 (4.34) a	31.6 (4.34)	4.25 (1.30) ab

Means followed by the same letter are significant at the P<0.05 level (LSD Multiple Range Test)

Figure 2. Mean percent damaged fruit by date in different pepper varieties attacked by the brown marmorated stink bug, 2011.

	Mean (+/- SE) % BSMB Damaged Fruit		
Variety	Jul 11	Aug 11	Sep 11
Paladin (Bell)	2.2 (2.22) NS	18.0 (4.88) b	21.3 (14.4) NS
Bounty (Banana)	9.7 (3.81)	8.2 (1.63) b	35.1 (11.8)
Gold Rush (Banana)	9.1 (1.68)	19.2 (4.35) b	15.5 (7.70)
Fire Cracker (Jalapena)	4.9 (4.90)	14.6 (3.70) b	13.5 (4.41)
Sparky (Cherry)	1.1 (1.14)	36.0 (5.30) a	37.2 (7.06)

Means followed by the same letter are significant at the P<0.05 level (LSD Multiple Range Test)

Table 3. Mean percent marketable fruit by date for different varieties of peppers attacked by the brown marmorated stink bug, 2011

	Mean (+/- SE) % BSMB Marketable Fruit		
Variety	Jul 11	Aug 11	Sep 11
Paladin (Bell)	97.8 (2.22) NS	82.0 (4.88) a	78.7 (14.4) NS
Bounty (Banana)	90.3 (3.81)	91.8 (1.63) a	64.9 (11.8)
Gold Rush (Banana)	90.9 (1.68)	80.8 (4.35) a	84.5 (7.70)
Fire Cracker (Jalapena)	95.1 (4.90)	85.4 (3.70) a	86.5 (4.41)
Sparky (Cherry)	98.9 (1.14)	64.0 (5.30) b	62.8 (7.06)

Means followed by the same letter are significant at the P<0.05 level (LSD Multiple Range Test)

Figure 4. Mean number of stings per fruit in different pepper varieties attacked by the brown marmorated stink bug, 2011.

	Mean (+/- SE) % BSMB Stings per Fruit		
Variety	Jul 11	Aug 11	Sep 11
Paladin (Bell)	0.0 (0.00) b	3.5 (2.11) ab	0.5 (0.50) NS
Bounty (Banana)	22.2 (3.81) ab	1.5 (0.58) b	1.8 (4.47)
Gold Rush (Banana)	27.8 (0.14) a	10.4 (4.03) a	22.5 (18.52)
Fire Cracker (Jalapena)	0.0 (0.00) b	5.3 (1.86) ab	0.3 (0.33)
Sparky (Cherry)	0.0 (0.00) b	8.0 (2.37) ab	2.0 (0.93)

Means followed by the same letter are significant at the P<0.05 level (LSD Multiple Range Test)