

Melon Aphid, Cucumber Beetle and Squash Bug Management in Watermelons, 2009: ‘Jamboree’ watermelon plants were transplanted on May 20 at the University of Delaware’s Research and Education Center located near Georgetown, DE. Plots consisted of two 20 ft-long rows on 8ft centers. Each treatment was replicated four times and arranged in a RCB design. Foliar treatments were applied with a CO₂ pressurized back pack sprayer for : (a) cucumber beetle control on June 2 (single nozzle broadcast application delivering 26 gpa at 40 psi) and June 12 (three nozzle broadcast application delivering 26 gpa at 32 psi); (b) melon aphid control on May 28 (single nozzle broadcast application delivering 26 gpa at 40 psi) and August 3 (four nozzle broadcast application delivering 29.5 gpa at 32 psi) ; and (c) squash bug control on June 30 and July 7 (four nozzle broadcast application delivering 29.5 gpa at 32 psi). Cucumber beetle and squash bug population levels were evaluated by counting the number of live and dead insects per 10 plants. Aphid population levels were assessed on 10 plants per plot to determine the percent infested plants and the number of aphids per 10 plants early season and the number of aphids per 50 leaves late season. Data were analyzed using Proc GLM and means were separated by Tukey’s mean separation test (P=0.05).

The Assail, Clutch and Warrior treatments provided the best control of cucumber beetles 3 days after the second application. All treatments provided significantly better melon aphid control early season compared to the untreated check. Later in the season, all treatments provided significantly better melon aphid control at 4 DAT. The Movento provided a lower level of melon aphid control at 9 DAT. Overall, the Voliam xpress, Baythroid XL, Warrior and high rate of Clutch provided the best squash bug control.

Table 1. Cucumber Beetle Data

Treatment	Rate/ Acre	Trt Dates	Mean Number Live Cucumber Beetles per 10 Plants ¹				
			Pretrt June 1	6 DAT June 8	3 DAT June 15	10 DAT June 22	17 DAT June 29
Untreated Check	---	---	6.5a	19.00ab	15.5a	10.67ab	15.00a
Assail 30 SG	4 oz	6/2, 6/12	1.5a	12.25ab	1.5b	13.33ab	17.33a
Voliam Flexi 40 WG	7 oz	6/2, 6/12	20.0a	25.75a	5.25ab	21.00a	17.67a
Voliam xpress	9 oz	6/2, 6/12	16.75a	7.00ab	4.25ab	7.67ab	9.67a
Baythroid XI	2.8 oz	6/2, 6/12	14.25a	13.00ab	4.0ab	7.33ab	9.00a
Baythroid XI	2.8 oz	6/2, 6/12	7.5a	7.75ab	3.75ab	10.00ab	14.33a
Warrior II	1.92 oz	6/2, 6/12	3.25a	5.75b	2.75ab	11.00ab	18.00a
Clutch	3 oz	6/2, 6/12	5.0a	16.50ab	1.75b	11.00ab	16.67a
Clutch	4 oz	6/2, 6/12	3.75a	16.75ab	2.0b	7.67ab	15.67a
Warrior II	1.92 oz	6/2, 6/12	7.75a	6.75ab	2.0b	4.33b	27.67a

¹ Means in a column followed by the same letter are not significantly different (P= 0.05; Tukey’s Test).

Table 2. . Percent Melon Aphid Infested Plants – Early Season Spray – May 28

Treatment	Rate/A	Mean Percent Aphid Infested Plants ¹			
		Pretrt 5/27	4 DAT 6/1	11 DAT 6/8	18 DAT 6/15
Untreated Check	---	27.50a	37.50a	27.50a	22.50a
Assail 30 SG	4 oz	32.50a	2.50b	0.00b	0.00b
Voliam Flexi 40 WG	7 oz	25.00a	0.00b	0.00b	0.00b
Voliam Flexi 40 WG	6 oz	12.50a	0.00b	0.00b	0.00b
Movento 240 SC + Li-700	3 oz + 0.25 % v/v	25.00a	0.00b	0.00b	0.00b
Movento 240 SC + Li-700	5 oz + 0.25% v/v	20.00a	7.50b	0.00b	0.00b
Assail 30 SG	6 oz	17.50a	2.50b	0.00b	0.00b
Clutch	3 oz	45.00a	0.00b	0.00b	0.00b
Clutch	4 oz	10.00a	0.00b	0.00b	0.00b
Lannate LV	32 oz	37.50a	0.00b	0.00b	0.00b

¹ Means in a column followed by the same letter are not significantly different (P= 0.05; Tukey's Test).

Table 3. Melon Aphid Counts – Early Season Spray – May 28

Treatment	Rate/A	Mean Number Aphids per 10 Plants ¹			
		Pretrt 5/27	4 DAT 6/1	11 DAT 6/8	18 DAT 6/15
Untreated Check	---	63.00a	72.50a	147.25a	40.75a
Assail 30 SG	4 oz	30.50a	0.500b	0.00b	0.00b
Voliam Flexi 40 WG	7 oz	28.75a	0.00b	0.00b	0.00b
Voliam Flexi 40 WG	6 oz	8.50a	0.00b	0.00b	0.00b
Movento 240 SC + Li-700	3 oz	27.25a	0.00b	0.00b	0.00b
Movento 240 SC + Li-700	5 oz	13.75a	1.25b	0.00b	0.00b
Assail 30 SG	6 oz	21.00a	0.250b	0.00b	0.00b
Clutch	3 oz	48.75a	0.00b	0.00b	0.00b
Clutch	4 oz	23.25a	0.00b	0.00b	0.00b
Lannate LV	32 oz	107.50a	0.00b	0.00b	0.00b

¹ Means in a column followed by the same letter are not significantly different (P= 0.05; Tukey's Test).

Table 4. Melon Aphid Counts – Late Season Spray – Aug 3

Treatment	Rate/A	Mean Number Aphids per 50 Leaves ¹		
		Pretrt 7/28	4 DAT 8/7	9 DAT 8/12
Untreated Check	---	11.00a	10.00a	12.25ab
Assail 30 SG	4 oz	0.00a	0.75b	1.25b
Voliam Flexi 40 WG	7 oz	0.00a	0.00b	0.25b
Movento 240 SC + Li-700	3 oz	12.33a	2.50b	22.25a
Movento 240 SC + Li-700	5 oz	1.33a	0.00b	10.25ab
Assail 30 SG	6 oz	72.67a	0.00b	0.00b
Clutch	3 oz	3.00a	0.00b	1.75b
Clutch	4 oz	13.00a	0.00b	0.50b
Lannate LV	32 oz	2.67a	0.00b	0.75b

¹Means in a column followed by the same letter are not significantly different (P= 0.05; Tukey's Test).

Table 5. Squash Bug Counts

Treatment	Rate/A	Treatment Dates	Mean Number Live Squash Bugs per 10 Plants ¹			
			Pretrt 6/29	6 DAT 7/6	6 DAT 7/13	15 DAT 7/22
Untreated Check	---	---	32.33a	45.67a	31.67a	14.67a
Assail 30 SG	4 oz	6/30, 7/7	23.33a	24.33ab	9.33b	4.67a
Voliam Flexi 40 WG	7 oz	6/30, 7/7	50.00a	25.33ab	6.33b	3.33a
Voliam xpress	9 oz	6/30, 7/7	8.67a	0.33b	0.33b	1.67a
Baythroid XI	2.4 oz	6/30, 7/7	12.67a	7.00b	2.33b	8.33a
Baythroid XI	2.8 oz	6/30, 7/7	9.33a	2.33b	3.33b	9.67a
Warrior II	1.92 oz	6/30, 7/7	9.00a	0.67b	0.67b	2.33a
Clutch	3 oz	6/30, 7/7	26.67a	22.67ab	12.00ab	4.67a
Clutch	4 oz	6/30, 7/7	13.33a	12.00b	9.67b	3.67a
Warrior II	1.5 oz	6/30, 7/7	7.67a	3.67b	1.33b	2.00a

¹Means in a column followed by the same letter are not significantly different (P= 0.05; Tukey's Test).