

## Watermelon Trap Crop Study, 2008

Joanne Whalen and Bill Cissel  
Extension IPM Specialist and Extension IPM Associate  
University of Delaware  
Department of Entomology and Wildlife Ecology

'Jamboree' watermelons and 'Athena' cantaloupe transplants were planted on May 24<sup>th</sup> at the University of Delaware Research and Education Center located near Georgetown, Delaware. Plots were 5 rows wide planted on 8ft centers and 20ft long with 40ft borders. Each treatment was replicated four times and included: an untreated watermelon plot (all 5 rows), watermelon treated with Admire Pro at a rate of 7 oz/Acre (all 5 rows), untreated watermelon plot with an untreated trap crop plot of cantaloupes (3 center rows of watermelons and 2 outer trap crop rows of cantaloupes and end plants), and a watermelon plot with a treated trap crop plot (3 center rows of untreated watermelons and 2 outer trap crop rows of cantaloupes rows and end plants all treated with Admire Pro at 7 oz/acre).

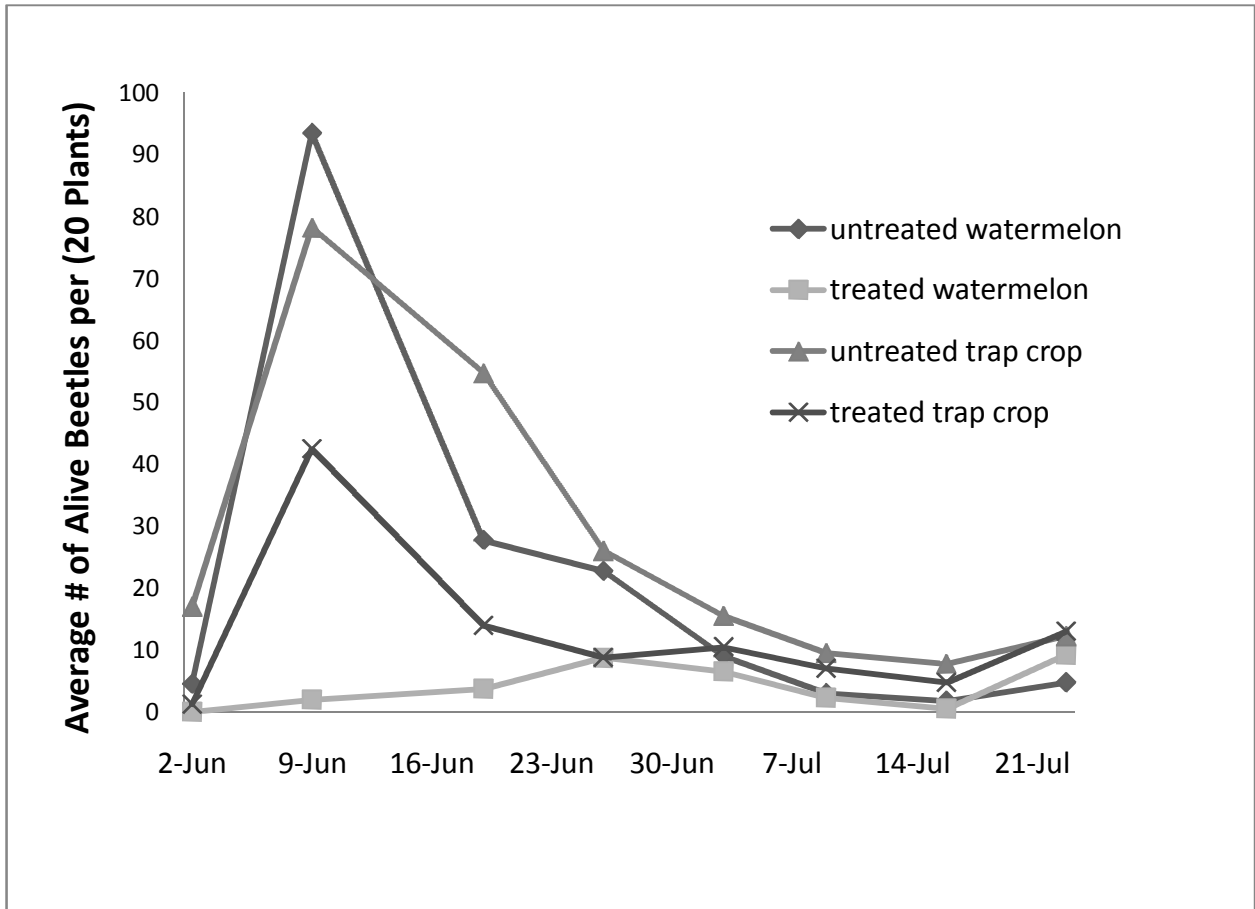
Striped cucumber beetle counts were taken once a week from June 2<sup>nd</sup> to July 23<sup>rd</sup> recording the total number of alive and dead beetles per 20 plants. In the treated and untreated watermelon plots, beetle numbers were recorded on twenty plants in each plot. In the treated and untreated trap crop plots, beetle numbers were recorded on ten cantaloupes and ten watermelons in each plot. As illustrated in Graph 1, striped cucumber beetle populations in each of the treatments peaked on June 9<sup>th</sup> exceeding an economic threshold of 2 beetles per plant, except in the treated watermelon plots which peaked on June 26<sup>th</sup>, with an average of 0.44 beetles per plant. Populations crashed in all treatments by July 16<sup>th</sup>.

On average, there were more live cucumber beetles in the untreated watermelon and untreated trap crop plots compared to the treated watermelon and treated trap crop plots. There were also more dead beetles in the treated watermelon and treated trap crop plots compared to the untreated plots suggesting that the Admire Pro at 7 oz/Acre provided some level of control as illustrated in Graph 2. Comparing only the untreated watermelon plots with the center rows of watermelons in the treated and untreated trap crop plots in Table 3, it becomes evident that the watermelon plants in each of the trap crop plots as well as the untreated watermelon plots had very similar beetle populations throughout each of the scouting dates. Although the number of dead beetles in the treated cantaloupe trap crop were higher (Table 4), the data suggests that beetles were still able to move into the untreated watermelon portion of the plot. When comparing the beetle counts in the untreated trap crop of cantaloupes to the untreated watermelon plot and the watermelon rows within the untreated trap crop, there were on average more beetles found on the cantaloupes than on the watermelon plants. This suggests that the cantaloupes may be more attractive to the striped cucumber beetles. As shown in Table 4, the average number of dead striped cucumber beetles found per plant in the treated cantaloupe trap crop and the treated watermelon plots were very similar.

In conclusion, cantaloupes appear to be more attractive than watermelons to striped cucumber beetles. However, in this study, the 2 rows of treated cantaloupe trap crop were not effective in reducing striped cucumber beetle population on the watermelons. The level of control in the treated watermelons and

treated cantaloupe trap were similar suggesting a wider trap crop border may be needed to protect the untreated watermelons. Further studies will need to be conducted to evaluate the use of cantaloupes as a trap crop for striped cucumber beetles including increasing the number of border rows of the trap crop.

**Graph 1. Average # of Live Striped Cucumber Beetles per Plot**



**Table 1. Average Number of Live Striped Cucumber Beetles per Plot (20 Plants)**

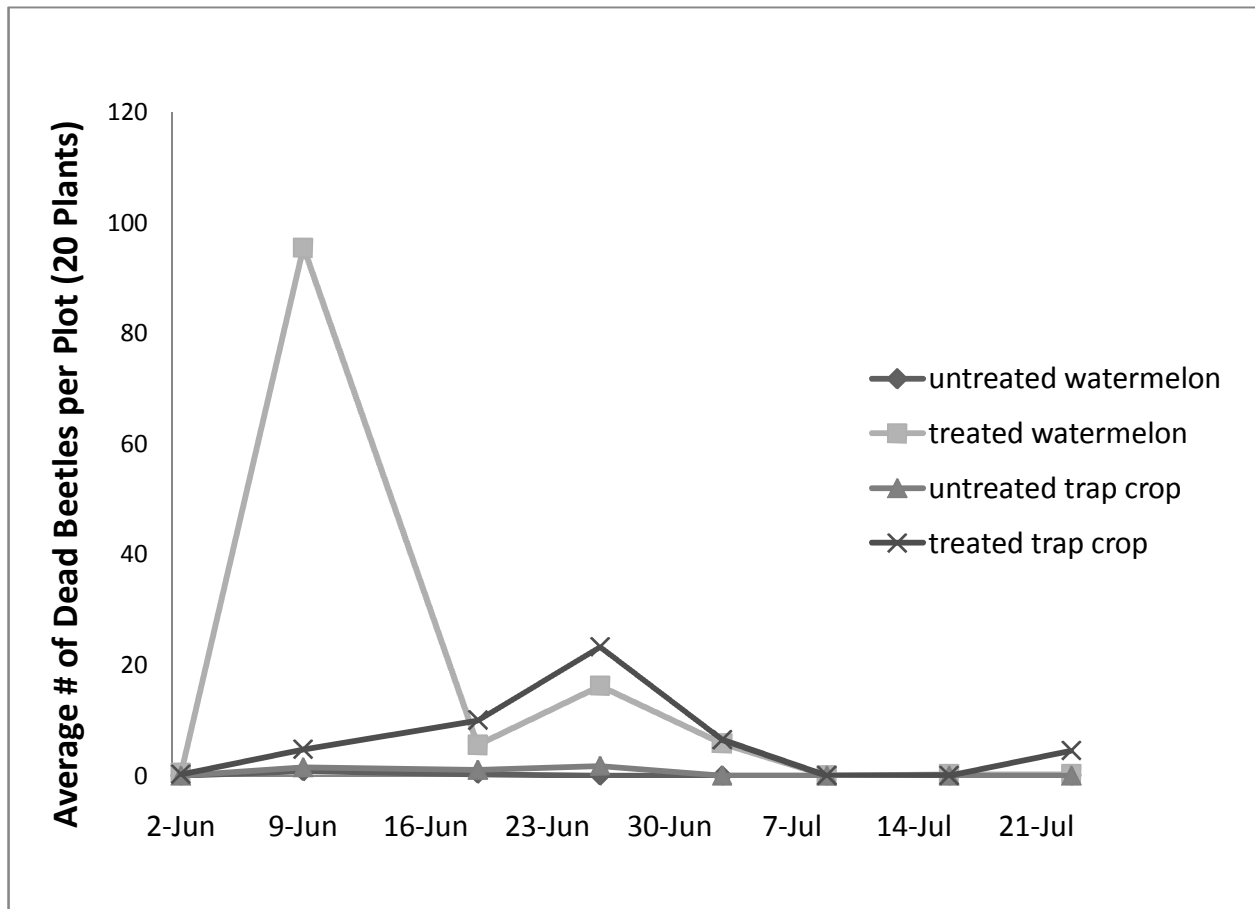
	2-Jun	9-Jun	19-Jun	26-Jun	3-Jul	9-Jul	16-Jul	23-Jul
untreated watermelon	4.5	93.5	27.75	22.75	9	3	1.75	4.75
treated watermelon*	0	2	3.75	8.75	6.5	2.25	0.5	9.25
untreated trap crop	17	78.25	54.75	26	15.5	9.5	7.75	12.25
treated trap crop*	1.25	42.5	14	8.75	10.5	7	4.75	13

-\*Treated plots - at planting application of Admire Pro 7 oz/A.

-The watermelon beetle counts were taken on 20 plants in each of the treatments.

-The trap crop counts represent the number of beetles on 10 watermelon plants and 10 cantaloupe plants.

**Graph 2. Average # of Dead Striped Cucumber Beetles per Plot**



**Table 2. Average Number of Dead Striped Cucumber Beetles per Plot (20 Plants)**

Treatment	2-Jun	9-Jun	19-Jun	26-Jun	3-Jul	9-Jul	16-Jul	23-Jul
untreated watermelon	0	0.75	0.25	0	0	0	0	0
treated watermelon*	0.5	95.5	5.5	16.25	5.75	0	0.25	0.25
untreated trap crop	0	1.5	1	1.75	0	0	0	0
treated trap crop*	0.25	4.75	10	23.25	6.5	0	0	4.5

-\*Treated plots - at planting application of Admire Pro 7 oz/A.

-The watermelon beetle counts were taken on 20 plants in each of the treatments.

-The trap crop counts represent the number of beetles on 10 watermelon plants and 10 cantaloupe plants.

**Table 3. Average # of Live Striped Cucumber Beetles per Plant**

		2-Jun	9-Jun	19-Jun	26-Jun	3-Jul	9-Jul	16-Jul	23-Jul
untreated watermelon		0.23	4.68	1.39	1.14	0.45	0.15	0.09	0.24
treated watermelon*		0.00	0.10	0.19	0.44	0.33	0.11	0.03	0.46
untreated trap crop	watermelon	0.63	4.25	1.40	0.50	0.53	0.08	0.10	0.15
	cantaloupe	1.08	3.58	4.08	2.10	1.03	0.88	0.68	1.08
treated trap crop	watermelon	0.13	3.98	1.10	0.48	0.45	0.18	0.18	0.48
	cantaloupe*	0.00	0.28	0.30	0.40	0.60	0.53	0.30	0.83

-\*Treated plots - at planting application of Admire Pro 7 oz/A.

-The beetle counts were taken on 10 watermelon and 10 cantaloupe in the trap crop plots and 20 watermelon plants in each of the untreated and treated watermelon plots.

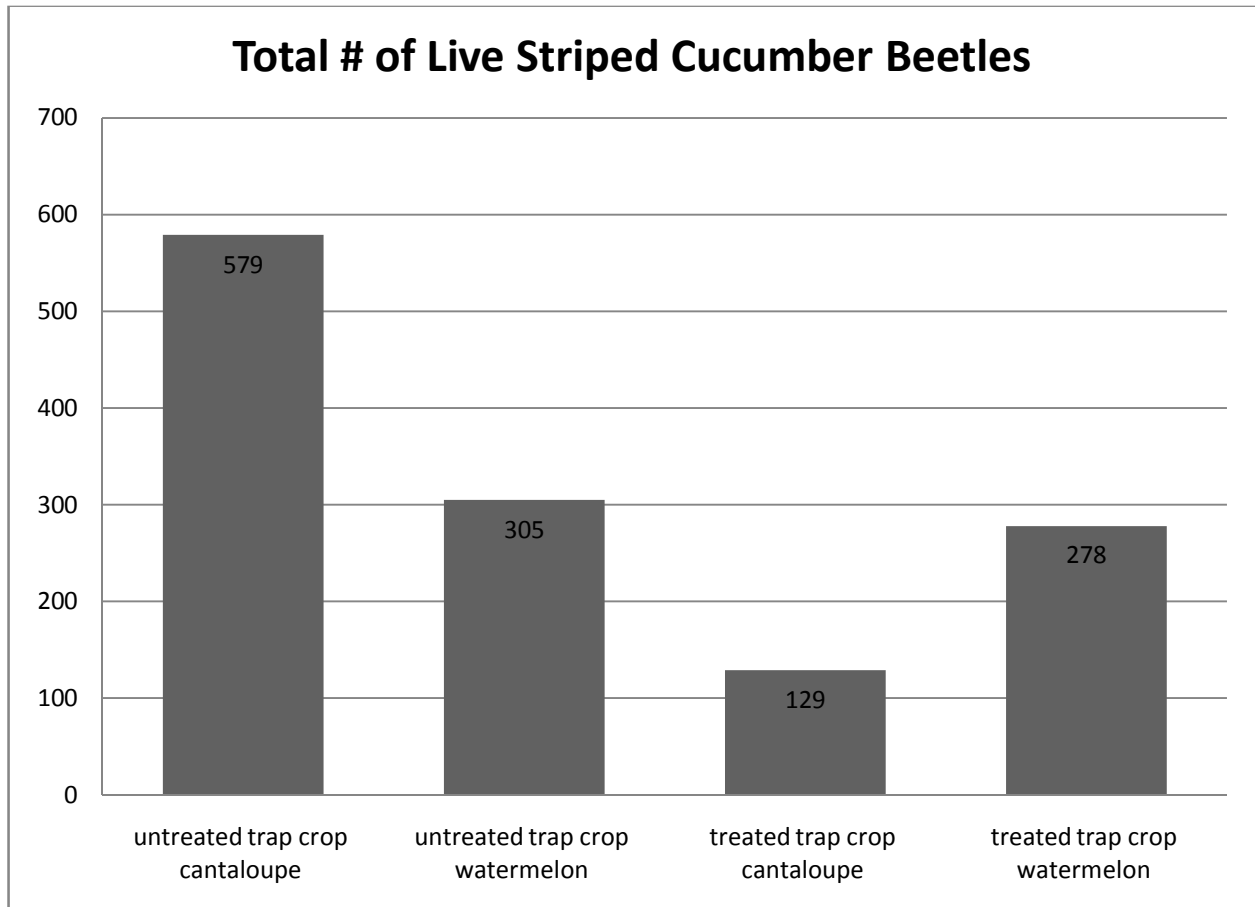
**Table 4. Average # of Dead Striped Cucumber Beetles per Plant**

		2-Jun	9-Jun	19-Jun	26-Jun	3-Jul	9-Jul	16-Jul	23-Jul
untreated watermelon		0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
treated watermelon*		0.03	4.78	0.28	0.81	0.29	0.00	0.01	0.01
untreated	watermelon	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
trap crop	cantaloupe	0.00	0.15	0.00	0.18	0.00	0.00	0.00	0.00
treated	watermelon	0.00	0.10	0.00	0.03	0.01	0.00	0.00	0.06
trap crop	cantaloupe*	0.03	0.28	1.00	2.28	0.63	0.00	0.00	0.33

-\*Treated plots - at planting application of Admire Pro 7 oz/A.

-The beetle counts were taken on 10 watermelon and 10 cantaloupe in the trap crop plots and 20 watermelon plants in each of the untreated and treated watermelon plots.

**Graph 3. Total # of Live Striped Cucumber Beetles Recorded From Each Scouting Date on 10 Plants**



**Table 5. Total Number of Live Striped Cucumber Beetles Found in the Trap Crop Plots**

		2-Jun	9-Jun	19-Jun	26-Jun	3-Jul	9-Jul	16-Jul	23-Jul
untreated	cantaloupe	43	143	163	84	41	35	27	43
trap crop	watermelon	25	170	56	20	21	3	4	6
treated	cantaloupe	0	11	12	16	24	21	12	33
trap crop*	watermelon	5	159	44	19	18	7	7	19

-\*Only the cantaloupe end plants and border rows treated at planting with an application of Admire Pro 7 oz/A.

-Beetle counts were taken on 10 watermelon and 10 cantaloupe plants in each plot. Numbers represents the total number of striped cucumber beetles from 10 plants in each of the 4 reps.