

Spider Mite Management in Watermelons - 2002: 'Jamboree' watermelon transplants were planted on May 28 at the University of Delaware Research and Education Center located near Georgetown, DE. Plots consisted of two 35 ft-long rows on 8 ft centers. Each treatment was replicated four times and arranged in a RCB design. Treatments were applied as a broadcast spray on June 8 (all treatments); June 19 (#1, 5, 7, 8, and 9) and June 26 (#3 and 4). All foliar treatments were applied with a CO₂ pressurized ATV 4-wheeled sprayer delivering 22 gpa at 60 psi. Mite populations were evaluated on a weekly basis from June 4 through July 30 by looking at 5 plants per plot to determine the percent infested plants and by collecting 20 leaves per plot and using a mite brushing machine to determine the number of mites per 20 leaves. On Aug 6, all fruit was harvested, weighed, and rated for mite damage to the rind. A fruit damage rating scale of 1-5 was used with 1 = no damage and 5 = 50-100% fruit with mite damage (pimpling/sunburning). Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Spider mite population pressure was high. After the June 8 treatments, all treatments had significantly fewer mites per 20 leaves compared to the untreated check. All treatments had a significantly lower percentage of infested crowns compared to the untreated check except for the MESA and GWN-159 treatments. Overall, 2 applications of Agri-Mek (8 oz), Agri-Mek followed by Capture; and 2 applications of Acramite provided the best mite control. No phytotoxicity was observed.

Table I. Evaluation After First Application on June 8

	Treatment	Number of Applications	Rate/Acre	% Infested Crowns			Number Mites per 20 leaves		
				June 4 Pre-Trt	June 11 3DAT	June 18 10DAT	June 4 Pre-Trt	June 11 3DAT	June 18 10DAT
1	Agri-Mek 0.15EC	2	8 oz	100a	40bcd	70ab	358.75a	10.50bc	31.50c
2	Agri-Mek 0.15 EC	1	16 oz	100a	15d	50abc	601a	9.00bc	24.00c
3	Capture 2EC	2	6.4 oz	100a	0d	15c	652.2a	0.00c	12.00c
4	Capture 2EC	1	6.4 oz	100a	10d	35bc	390.75a	1.50c	6.00c
	Agri-Mek 0.15EC	1	8 oz						
5	Agri-Mek 0.15EC	1	8 oz	95a	20d	60abc	380.75a	3.00c	24.00c
	Capture 2EC	1	6.4 oz						
6	Mesa 0.077 EC	1	24 oz	100a	70abc	85ab	509.25a	22.50bc	40.50c
7	GWN-1549	2	6 oz	100a	85ab	100a	337.75a	31.50b	321.00b
8	GWN-1549	2	12 oz	100a	85ab	95a	705.25a	13.50bc	243.00bc
9	Acramite 50WP	2	0.75 LB	100a	25cd	50abc	223.25a	11.00bc	36.00c
10	Untreated		-----	100a	95a	100a	434.75a	57.00a	537.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table II. Evaluation after Second Application on June 19 - % Infested Crowns

	Treatment	Number of Applications	Rate/Acre	% Infested Crowns					
				June 25 6 DAT	July 2 13 DAT	July 9 20 DAT	July 16 27 DAT	July 23 34 DAT	July 30 41 DAT
1	Agri-Mek 0.15EC	2	8 oz	40b	20c	15d	40b	55a	X
2	Agri-Mek 0.15EC	1	16 oz	80ab	45abc	75abc	80ab	95a	X
3	Capture 2EC	2	6.4 oz	45b	35c	50bcd	85ab	85a	X
4	Capture 2EC Agrimek 0.15EC	1 1	6.4 oz 8 oz	60ab	40abc	65abc	65ab	90a	X
5	Agrimek 0.15EC Capture 2 EC	1 1	8 oz 6.4 oz	40b	20c	30cd	65ab	70a	X
6	Mesa 0.077 EC	1	24 oz	75ab	80ab	95ab	90ab	85a	X
7	GWN-1549	2	6 oz	95a	80ab	80ab	85ab	85a	X
8	GWN-1549	2	12 oz	80ab	65abc	75abc	80ab	90a	X
9	Acramite 50WP	2	0.75 LB	30b	20c	30cd	65ab	75a	X
10	Untreated	-----	-----	95a	100a	100a	95a	100a	X

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

Table III. Evaluation after Second Application on June 19 - Spider Mite Count

	Treatment	Number of Applications	Rate/Acre	Mean Number of Spider Mites per 20 Leaves					
				June 25 6 DAT	July 2 13 DAT	July 9 20 DAT	July 16 27 DAT	July 23 34 DAT	July 30 41 DAT
1	Agri-Mek 0.15EC	2	8 oz	19.50b	3.00b	7.50b	34.50b	73.50b	33.00a
2	Agri-Mek 0.15EC	1	16 oz	55.50b	156.00b	123.00b	427.50b	318.00b	97.50a
3	Capture 2 EC	2	6.4 oz	40.50b	16.50b	12.00b	97.50b	195.00b	114.00a
4	Capture 2 EC Agrimek 0.15EC	1 1	6.4 oz 8 oz	21.00b	37.50b	64.75b	38.00b	219.00b	111.00a
5	Agrimek 0.15EC Capture 2EC	1 1	8 oz 6.4 oz	10.50b	6.00b	10.50b	19.50b	56.50b	42.00a
6	Mesa 0.077 EC	1	24 oz	73.50b	84.00b	165.00b	472.50b	621.00b	84.00a
7	GWN-1549	2	6 oz	136.50b	94.50b	118.50b	174.00b	203.00b	70.50a
8	GWN-1549	2	12 oz	39.00b	36.00b	63.00b	125.00b	181.50b	37.50a
9	Acramite 50WP	2	0.75 LB	12.00b	9.00b	15.00b	42.00b	67.50b	55.50a
10	Untreated		-----	562.50a	1135.50a	820.50a	1801.50a	1476.00a	63.00a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

IV. Table 4 - Harvest Evaluation -August 6, 2002

	Treatment	Number of Applications	Rate/Acre	Fruit Damage Rating(1-5 scale) *	Mean Number	Yield – Total lbs.
1	Agri-Mek 0.15EC	2	8 oz	2.75bc	16.25a	439.65a
2	Agri-Mek 0.15EC	1	16 oz	2.75bc	18.25a	477.90a
3	Capture 2EC	2	6.4 oz	2.75bc	18.00a	465.13a
4	Capture 2EC Agrimek 0.15EC	1 1	6.4 oz 8 oz	2.75bc	13.50a	342.03a
5	Agrimek 0.15EC Capture 2EC	1 1	8 oz 6.4 oz	1.50c	14.50a	364.85a
6	Mesa 0.077 EC	1	24 oz	3.5b	16.50a	433.50a
7	GWN-1549	2	6 oz	2.75bc	19.50a	477.48a
8	GWN-1549	2	12 oz	3.25b	16.75a	434.80a
	Acramite 50WP	2	0.75 LB	2.50bc	15.75a	398.70a
	Untreated	---	---	5.00a	16.25a	374.35a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05).

- * Fruit Damage Rating – 1 = None
- 2 = 5-10% with pimples/sunburn
- 3 = 11- 20%
- 4 = 21 – 49 %
- 5 = 50 – 100%