



Evaluation of Miticides for Spider Mite Control in Pre-Bloom Cotton, 2011

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Summary:

Low use rates of Epi-Mek (4 fl-oz), Oberon (3 fl-oz) and Onager (8 fl-oz) were evaluated for control of spider mites in pre-bloom cotton. Note: Onager is not labeled for use in cotton in Texas. None of these rates provided acceptable control. Higher rates should be utilized. Athena at 8 fl-oz and Brigade at the high use rate of 6.4 fl-oz provided good control. The experimental miticide GWN-1708 appears promising for mite control in cotton.

Objective:

The objective of this study was to investigate the efficacy of miticides at mitigating spider mite outbreaks in pre-bloom cotton.

Materials and Methods:

This test was conducted in a commercial cotton field grown near Welch, TX. The field was on 40-inch rows, and was irrigated using a pivot irrigation system. The test was a RCB design with four replications. Plots were 4-rows wide × 50 ft in length. Miticides were applied with a CO₂ pressurized hand-boom sprayer calibrated to deliver 10 gpa through TX-6 hollow cone nozzles (2 per row) at 40 psi.

Insecticides were applied to all four rows of each plot on 24 Jun. A pre-treatment count was made on 23 Jun. Post treatment evaluations were made at 3, 6 and 13 days after treatment (DAT).

Treatments were evaluated by collecting 20, 3-4 node leaves per plot and returning these to the laboratory where the mites were removed onto a liquid detergent coated glass plate with a mite brush. Mite eggs, larvae and adults were counted from the entire glass plate. Data were analyzed using ANOVA and means were separated using an F-protected LSD ($P \leq 0.05$).

Results and Discussion:

On 23 Jun, prior to miticide application, the mite population was moderate averaging 4.86 motiles per leaf across all treatments, and there were no significant differences among treatments for any mite stage (Table 1).

At 3 DAT, None of the miticides differed from the untreated in eggs, larvae, or adults, but there were differences for motiles (larvae + adults). Brigade, GWN-1708, GWN-1708 + Onager and Athena all have fewer motiles than the untreated and Epi-Mek.

Results were similar at 6 DAT but these same treatments also had fewer motiles than Onager (Table 2). Additionally, Onager had significantly more adults and motiles than the untreated, and Epi-Mek had more adults than the untreated. The rates used for Onager and Epi-Mek are considered low. Oberon, GWN-1708 and GWN-1708 + Onager had fewer larvae than the untreated.

By 13 DAT the mite population had declined across the entire study area and no significant differences were detected.

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Disclaimer Clause:

Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M University System is implied. Readers should realize that results from one experiment do not represent conclusive evidence that the same response would occur where conditions vary.

Table 1.

Treatment/ formulation ^a	Rate amt product/acre	Mites per 20 leaves							
		23 Jun (pre-treatment)				27 Jun (3 DAT)			
		eggs	larvae	adults	motiles	eggs	larvae	adults	motiles
Untreated	--	145.50a	40.75a	31.25a	72.00a	37.50a	71.50a	30.00ab	101.50ab
Brigade 2EC	6.4 fl-oz	89.50a	44.50a	22.75a	67.25a	7.75a	14.50a	9.25b	23.75c
Oberon 4SC	3 fl-oz	70.25a	78.50a	27.75a	106.25a	6.75a	54.75a	26.50ab	81.25abc
Epi-Mek 0.15EC	4 fl-oz	59.00a	45.00a	23.50a	68.50a	33.50a	110.00a	42.25a	152.25a
GWN-1708 20SC	24 fl-oz	72.25a	63.75a	39.25a	103.00a	30.75a	37.75a	13.00b	50.75bc
GWN-1708 20SC + Onager 1EC	10 fl-oz + 4 fl-oz	120.00a	92.75a	48.50a	141.25a	11.25a	19.00a	12.75b	31.75bc
Onager 1EC	8 fl-oz	107.25a	80.75a	39.25a	120.00a	11.68a	47.73a	45.82a	93.69abc
Athena	8 fl-oz	48.50a	61.25a	37.5a	98.75a	8.25a	24.50a	9.75b	34.25bc

Values in a column followed by the same letter are not significantly different based on an F-protected LSD ($P \leq 0.05$).

^aAll treatments included Dyne-Amic non-ionic surfactant at 0.375% v/v.

Table 2.

Treatment/ formulation ^a	Rate amt product/acre	Mites per 20 leaves							
		30 Jun (6 DAT) ^a				7 Jul (13 DAT) ^a			
		eggs	larvae	adults	motiles	eggs	larvae	adults	motiles
Untreated	--	1.00a	21.50ab	12.00bc	33.50b	0.25a	1.50a	9.25a	10.75a
Brigade 2EC	6.4 fl-oz	0.25a	9.50bc	6.00c	15.50c	1.25a	0.75a	2.25a	3.00a
Oberon 4SC	3 fl-oz	1.75a	6.75c	7.00c	13.75c	2.00a	1.00a	3.25a	4.25a
Epi-Mek 0.15EC	4 fl-oz	0.25a	26.50a	20.25b	46.75b	0.00a	0.25a	0.75a	1.00a
GWN-1708 20SC	24 fl-oz	0.25a	5.25c	4.50c	9.75c	0.50a	1.00a	2.50a	3.50a
GWN-1708 20SC + Onager 1EC	10 fl-oz + 4 fl-oz	0.75a	3.00c	4.50c	7.50c	0.00a	0.00a	2.00a	2.00a
Onager 1EC	8 fl-oz	0.57a	31.43a	37.89a	69.32a	1.04a	0.36a	3.02a	3.37a
Athena	8 fl-oz	0.75a	10.50bc	5.00c	15.50c	0.25a	1.00a	1.75a	2.75a

Values in a column followed by the same letter are not significantly different based on an F-protected LSD ($P \leq 0.05$).

^aAll treatments included Dyne-Amic non-ionic surfactant at 0.375% v/v.