

Williamson County Result Demonstration Report



EVALUATION OF OBERON FOR CONTROL OF RED SPIDER MITE IN COTTON

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SUMMARY:

The spider mite is an occasional pest in the Southern Blacklands of Texas. However, boll weevil eradication has moved this pest to secondary pest status over the past several years. Two trials were initiated to evaluate the efficacy of Oberon, a new miticide from Bayer CropScience on red spider mites in cotton.

In the Schernik trial, populations of spider mites persisted for over three weeks in the untreated control compared to the Oberon treatment which held mites at very low levels throughout the monitoring period. In the Roznovak trial, levels of mites decreased 10 fold following the 2 DAT evaluation, which coincided with a rainfall event that occurred during that period.

No major differences in yield or fiber quality were observed among the treatments from the two trials.

OBJECTIVE:

The red spider mite, *Tetranychus spp.* is normally an occasional pest of cotton in the Southern Blacklands. However, boll weevil eradication has moved this pest to secondary pest status over the past several years. This is because the malathion is being sprayed on some fields during consecutive weeks during the season. This spraying can disrupt natural enemy numbers and thus resulting in mite outbreaks.

Two trials were initiated to evaluate the efficacy of Oberon, a new miticide from Bayer CropScience on red spider mites in cotton. The objective of these two experiments were to evaluate the effectiveness of the product at the labeled rate of 16 oz/ac (Schernik trial) and at reduced rates of 8 and 4 oz/ac (Roznovak trial). Oberon is expected to receive full EPA registration status for control of red spider mites in cotton. Also, one objective was to measure the impact of these treatments on yield.

MATERIALS AND METHODS:

This experiment was conducted in the eastern part of the state in Williamson County, Texas south of Taylor.

Shernik Trial:

The cotton was divided into 2 row X 30 ft plots with six replications in a randomized complete block design. Treatments were made on June 3. The treatments were Oberon @ 16 oz/ac and an untreated control. Applications were made with a self-propelled CO₂ sprayer equipped with two TX-6 hollow cone nozzles per row calibrated to deliver 10 gpa total volume at 40 psi.

Pre-treatment counts were made prior to the making the first applications on June 3. On June 7 and June 23, 10 leaves (4th unfolded leaf from top of plant) were randomly collected from the each plot, placed in a quart plastic bag and taking back to the office to be evaluated. A 1.5 cm² section on the left, underside of the leaf near the petiole was inspected for the presences of mites and the number per 10 leaves was recorded. A 1/1000th area of each plot was hand picked on August 26 and seed cotton yields are reported for the trial.

Roznovak Trial:

The cotton was divided into 2 row X 25 ft plots with four replications in a randomized complete block design. Treatments were made on July 21. The treatments are listed in Table 1. Applications were made with a self-propelled CO₂ sprayer equipped with two TX-6 hollow cone nozzles per row calibrated to deliver 10 gpa total volume at 40 psi.

Pre-treatment counts were made prior to the making the first applications on July 21. On July 23, 26 and 30, 10 leaves (4th unfolded leaf from top of plant) were randomly collected from the each plot, placed in a quart plastic bag and taking back to the office to be evaluated. The second of the 4 sections on the underside of the leaf between the main veins (one-fourth of the leaf) was inspected for the presence of mites and the number per 10 leaves was recorded. A 1/1000th area of each plot was hand picked on August 26 and seed cotton yields are reported for the trial.

Table 1. List of insecticides used for control of red spider mite. Roznovak Farm, Williamson Co., TX. 2004.

Treatment	Rate (lb ai/ac)	Rate (oz. formulation/ac)
Oberon [®]	0.03	8.0
Oberon [®]	0.01	4.0
Untreated		

RESULTS AND DISCUSSION:

Schernik Trial:

At 4DAT, the Oberon treatment had already significantly fewer mites per sample than the untreated control (Table 2). This trend continued on through June 21 evaluation period. The Oberon treatment averaged 7.3 and 16 mites/ leaf sample compared to 39.3 and 57.8 for the control on June 7 and 22, respectively. Excessive rainfall causing flooding conditions caused the delay between the two evaluation periods.

Table 2. Mean number of red spider mites per 10 leaf samples. Schernik Farm, Williamson Co., TX. 2004.

Treatment	Rate (lb ai/ac)	Average number/10 leave samples		
		6/3 (Precounts)*	6/7**	6/21
Untreated		88	39.3 a	57.8 a
Oberon		88	7.3 b	16.0 b
LSD (P=0.05)			29.10	27.16
P>F	0.06		0.03	0.01

* Number of spider mites present on 1.5cm² area of each leaf was inspected.

** Means followed by the same letter do not significantly differ. Plots treated on June 3, 2004.

No differences were observed in fiber grades and yield between the untreated control and the Oberon treatment (Table3).

Table 3. Cotton Fiber Grades and Yield. Schernik Farm, Williamson Co., TX. 2004.

Treatment	Rate (lb ai/ac)	Mic	Length	Unif	Strength	Yield
Untreated		3.8	1.20	85.2	31.5	1054
Oberon	0.06	3.6	1.21	85.5	32.4	1184
LSD (P=0.05)		NS	NS	NS	NS	NS
P>F		0.41	0.35	0.64	0.009	0.16

Roznovak Trial:

Red spider mites quickly declined in all plots soon after the 2 DAT evaluation which coincided with a rainfall event that occurred (Table 4). The only difference in control observed among the treatments was on the July 26 counts when the Oberon @ 8 oz/ac had a higher mean number of mites/leaf sample than the untreated or Oberon @ 4 oz/ac. By 10 DAT, all treatments averaged

no greater than 1 spider mite per 10 leaf samples.

Table 4. Mean number of red spider mites per 10 leaf samples. Roznovak Farm, Williamson Co., TX. 2004.

Treatment	Rate (lb ai/ac)	Average number/10 leaf samples			
		7/21* (Precounts)	7/23**	7/26	7/30
Untreated		15	11.1	1.1 b	0.3
Oberon	0.03	15	13.4	2.8 a	0.6
Oberon	0.01	15	10.3	1.3 b	1.0
LSD (P=0.05)			NS	1.21	NS
P>F			0.59	0.03	0.31

* One-fourth of each leaf was inspected for number of spider mites present.

** Means followed by the same letter do not significantly differ.

No differences were observed in cotton micronaire, length, strength and yield among the treatments (Table 5). However, both treatments did have a higher mean uniformity value compared to the untreated control.

Table 5. Cotton Fiber Grades and Yield. Roznovak Farm, Williamson Co., TX. 2004.

Treatment	Rate (lb ai/ac)	Mic	Length	Unif**	Strength	Yield
Untreated		4.92	1.0	82.1 c	27.9	1189
Oberon	0.03	4.73	1.1	83.2 b	28.1	1216
Oberon	0.01	4.80	1.1	84.2 a	27.6	1144
LSD (P=0.05)		NS	NS	0.96	NS	NS
P>F		0.18	0.28	0.004	0.56	0.46

** Means followed by the same letter do not significantly differ.

CONCLUSION:

Rainfall following treatment applications help suppress spider mite levels in both the Schernik and Roznovak trials. There were no differences in yields among the treatments in either trial. There was a decrease in spider mite levels in the Oberon @ 16oz/ac treatment in the Schernik trial at 4 DAT which continued through 21 DAT.

Unfortunately, the Roznovak trial does provide much evidence if Oberon will have much impact on spider mites at rates below the recommended use rate of 16 oz/ac.

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