

**EVALUATION OF BIFENTHRIN FORMULATIONS FOR RED IMPORTED FIRE
ANT SUPPRESSION ON A COMMERCIAL TURF FARM
WARREN TURF FARM - MILAM COUNTY, TX**

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This trial was conducted on Warren's Turf Farm in Milam County on commercial Saint Augustine grass production areas that had not been treated for red imported fire ants for over a year (pers. comm. Andy Tremble, Production Manager). Plots, 0.5 acre square (150 by 150 ft.) were established, 12 October, 1993. Thirteen plots were established contiguously in an area with black gumbo soil. Most of this areas had not recently been harvested and had a solid stand of turfgrass. The area adjacent to these plots had recently been treated for ants and harvested. Another six plots were established in another area with sandier soil. This area had been harvested within the past year and soil was evident between strips of turfgrass growing back into harvested areas.

Fire ants were monitored within each plot using circular subplots created using a 72 ft. surveyors string attached to a center poles. The area of the area circumscribed by the string around the center stake was 0.3738 acres. Ant mounds (considered active if 25 or more ants emerged en mass from the mound within 5 seconds after minimal disturbance with a stick) were counted in each subplot. Pre-count ant mound counts were arrayed from highest to lowers density and divided into 3 blocks (replications) of six plots each. Treatments, listed below, were randomly assigned to each block.

Product	Rate (lb. a.i./acre)	Amount used to treat 0.5 acres
bifenthrin		
sand formulation:		
Talstar® 0.2G	0.25	62.5 lbs.
Talstar® 0.2G	0.50	125.0 lbs.
ground peanut hull formulation:		
Pennington® 0.2G	0.25	62.5 lbs.
Pennington® 0.2G	0.50	125.0 lbs.
Standard: chlorpyrifos		
Dursban® 50WP	8.00	8.0 lbs.
untreated control	----	-----

Bifenthrin treatments were applied, 25 October 1993, using a Gandy® Model 1006A drop spreader (6 ft. long with 4 inch spacing between holes) pulled behind a riding mower. The chlorpyrifos treatments were applied, 26 October 1993, by Witiker's Fertichem under contract. This is the "standard" treatment mandated by the U.S.D.A. Imported Fire Ant Quarantine regulations. Periodically following treatments, fire ant mounds were monitored as described

above. Results are to be statistically analyzed (ANOVA and Tukey's Studentized Range Test at $P \leq 0.05$).

Results and Discussion

Pre-count data was obtained at the end of a persistent period of dry weather (it had not rained since late June). Ant activity was suppressed as evident by the increase in ant mound numbers in untreated control plots in post-treatment evaluations. Timely rains, 29-30 October 1993, eliminated the need to irrigate treatment plots. However, early freezing conditions and cold weather may have reduced ant activity, resulting in a slower effect of treatments.

All treatment provided significantly fewer fire ant mound numbers than those in the untreated control plots (**Table 1**) for the first 6 weeks following application. Dursban® 50WP, applied in accordance with the fire ant quarantine program rate (8.0 lb. a.i./acre) did not totally eliminate ant mounding activity in treated plots. By 19 weeks after application, Dursban treated plots contained a number of ant mounds similar to those found in untreated plots. By 10 months after treatments, no significant treatment differences remained. Talstar® 0.2G and Pennington® 0.2G, applied at the 0.5 lb. a.i. per acre rate performed statistically similar throughout the trial.

Table 1. Mean number of red imported fire ant mounds following 25 October 1993 treatments using bifenthrin (Talstar® 0.2G and Pennington® 0.2G) formulations as compared to untreated control and the imported fire ant quarantine program treatment using chlorpyrifos (Dursban® 50WP), Warren Turf Farm, Milam Co., Texas, 1993.

Treatment	Mean no. mounds/0.37 acres*					
	Pre-count	1-week	3-week	6-week	19 weeks	10 months
Dursban	10.0 a	3.3 .b	2.7 .b	5.0 .b	12.3 ab.	2.7 a
Talstar 0.5%	10.0 a	4.0 .b	3.7 .b	3.0 .b	1.0 ..c	3.0 a
Talstar 0.25%	10.3 a	8.3 .b	6.7 .b	10.0 .b	4.0 .bc	8.3 a
Pennington 0.5%	10.3 a	7.7 .b	3.7 .b	7.7 .b	2.0 ..c	2.0 a
Pennington 0.25%	10.0 a	9.3 .b	5.7 .b	10.3 .b	4.3 .bc	4.0 a
Untreated	10.7 a	21.7 a.	21.0 a.	28.3 a.	15.0 a..	9.7 a
<i>F</i>	8.32	5.29	5.00	9.24	8.24	2.64
<i>P</i>	0.0017	0.0094	0.0115	.0011	.0015	0.0797
MSE	1.9222	21.1222	21.9889	20.4556	8.7222	11.0556
R-square	0.8534	0.7873	0.7777	0.8667	0.8580	0.64897
Min. Sig. Diff.	3.9318	13.039	13.298	12.826	8.3754	9.4294
Critical value = 4.912						
d.f.	= 10					

* Means followed by the same letter are not significantly different using analysis of variance (ANOVA) and the Tukey's Studentized Range Test ($P \leq 0.05$).