

EVALUATION OF PAGEANT® AND AMDRO® FOR THE SUPPRESSION OF RED IMPORTED FIRE ANTS ON MANAGED TURFGRASS

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The red imported fire ant, *Solenopsis invicta* Buren, is a major pest of managed turfgrass areas. In addition to decreasing the aesthetic value of these areas, fire ants pose the threat of injury, particularly in areas of heavy foot traffic such as around golf course greens and tee boxes. Bait products generally provide 6 to 18 months of fire ant suppression, but take 3 - 5 weeks before results are noticeable. Surface applied, contact insecticides such as chlorpyrifos-based products, provide suppression of ant activity within days, but provide only 1 - 3 months of control. This trial was conducted to test the speed and effectiveness of a bait application followed by a surface toxicant application in order to achieve rapid and long-term ant suppression.

Materials and methods

This trial was established on the Wedgewood Country Club golf course in Conroe, Texas. Due to the spotty nature of the fire ant infestation, plots were widely scattered around the course. One treatment replication and all the control plots were located on a tee-box, another treatment replication around a green and the third on a maintenance area used to grow replacement turf. Treatment plots were all 75 x 75 feet square. Control plots were of variable size so as to contain an appropriate number of active ant mounds. Plot corners were marked with nails and marking tape so that they could be mowed over without damage to either the marks or machinery.

Plots were established, pre-counts taken and a broadcast application of Amdro® made (1.5 lbs per acre), 29 October 1992. That night, the area received approximately an inch of rain which potentially rendered the Amdro application less effective. A decision was made at this point to continue the test without re-application of Amdro to confirm whether the treatment was rendered ineffective by the rain. On 5 November, Pageant® DF Insecticide (active ingredient, 50% chlorpyrifos) was applied by means of a utility cart-mounted hydraulic sprayer. The Pageant was applied at the labeled rate of 2 pounds per acre in 49 gallons of water.

Evaluations were conducted at 1, 2, 5 weeks and 3 months after the application of Pageant. The entire area each plot was surveyed for ant active mounds using the minimal disturbance technique.

Results and discussion

Table 1 indicates that the Amdro provided a 70% reduction in mound numbers at 6 weeks post-treatment. This level of suppression is somewhat less than the 90-95% reduction in 2-3 weeks that is common. Considering that the bait was subjected to a heavy rain within 12 hours of application, it seems likely that the queens were fed preferentially and died as expected. Worker mortality was reduced, however, due to the short time of availability of the toxicant.

The Amdro treatment produced a significant decrease over the untreated plots at 2 weeks post-treatment. This difference disappeared at 5 weeks then reappeared at 3 months. This variation is probably due to the changeable weather at that time of year affecting the evaluation conditions.

Statistical analysis (**Table 1**) shows that Pageant and the combination of Amdro followed by Pageant resulted in significantly faster suppression compared to the Amdro alone. These two treatments did not differ significantly in their levels of suppression over the course of the test. The Pageant treatments resulted in a 70-90% reduction in mound numbers that held constant over the three month course of the test.

Previous tests with chlorpyrifos-based pesticides have shown that a suppression period of 6-10 weeks can be expected followed by a rapid resurgence in mound numbers. At the end of the test, the Pageant-treated plots had not begun to experience a rise in mound numbers, though the Amdro-treated plot counts did show that a slow increase in mound numbers was in progress.

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Table 1. Mean number of fire ant active mounds, Montgomery Co., Texas, 1992.*

<u>Treatment</u>	<u>pre-count</u>	<u>1 week</u>	<u>2 weeks</u>	<u>5 weeks</u>	<u>3 months</u>
Untreated**	23.7a	29.7a	24.7a	24.3a	21.7a
Amdro®	18.7ab	20.0a	15.3b	5.3ab	7.0b
Pageant®	10.7b	3.3b	2.7c	2.7b	2.3b
Pagt.+Amd.	17.7ab	2.7b	5.0c	2.0b	1.3b
MSE	11.25	21.64	7.47	47.81	22.97
<i>F</i>	10.15	15.89	25.27	4.57	7.36
<i>P</i>	0.0021	0.0021	0.0006	0.0458	0.0153
R-square	0.8943	0.9298	0.9546	0.7920	0.8598
Min.Sig.Dif.	9.4804	13.148	7.7263	19.543	13.547

* Means followed by the same letter are not significantly different according to ANOVA and the Tukey's Studentized Range Test ($P \# 0.05$).

** Untreated plot values are converted to a standard 75 by 75 foot plot:
(actual count x 5,625 ft²/plot ft²).