

IGR Bait Individual Fire Ant Mound Treatments for Small-Area Fire Ant Control

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In 1992, Drees et al. published a study on the effects of the insect growth regulator (IGR) fenoxycarb on red imported fire ant (*Solenopsis invicta* Buren) colonies away from colonies that were actually treated. Colonies up to 20 feet away from bait placement were found to be affected. Similarly, studies of skip-swath application of several broadcast baits (see A Field Comparison of Five Broadcast Baits Applied at Full Rate, as Hopper Blends and as Skip-Swaths, p.42) showed that they can be nearly as effective as fire ant control as full rate, full coverage applications using half the material and half the coverage. As part of a test on a numbered compound, the IGR bait Extinguish (0.5% s-methoprene) was applied as an individual mound treatments (IMT). The fast-acting bait Amdro (0.73% hydramethylnon) was also applied as an IMT, as well as broadcast. To see if either product might have the same effect as a broadcast application, these data were analyzed separately.

Objective: Test the effectiveness of the application of an IGR bait to individual mounds for the control of fire ants across an entire area.

Materials and methods

The test was located in an ungrazed pasture near the town of Mumford, Robertson County, in central Texas. Vegetation at the site was somewhat tall, but fire ant mounds were well developed and visible thanks to plentiful rainfall early in the season. Soils were a patchy mix of heavy clay and sandy loam over claypan.

Plots were established during the week of June 25, 2002. Plots were 75 feet square (0.13 acres, roughly 1/8th acre) and were separated by a minimum of 20 feet from the nearest treated plot. Pre-counts were conducted on June 28. Mounds were evaluated using the minimal disturbance technique for all evaluations. Treatments were assigned using the method described in Barr and Best (2002) to reduce variability. Four replications were established for each treatment. Treatments included: Extinguish (0.5% s-methoprene), 5 Tablespoons per mound; Amdro (0.74% hydramethylnon) broadcast at 1.5 lbs/acre and applied at 5 Tablespoons per mound and an untreated control.

Treatments were applied on July 8, with bait treatments completed by noon. Broadcast treatments were applied using an Earth-Way[®] Ev-N-Spred hand-held seeder. Individual mound treatments (IMTs) were applied using a plastic measuring tablespoon. Evaluations were conducted at 1, 3 and 11 days and 1, 2 and 5 months post-treatment. The entire plot was evaluated for active fire ant mounds. This test was combined with the two previous reports (p.81 and p.84) to fully utilize the entire site during a period when suitable sites were very hard to find. Data were extracted and analyzed separately using SAS, PROC ANOVA with means separated using Tukey's studentized range (HSD) test, $P < 0.05$.

Results and Discussion

The most interesting finding of this test is that Extinguish™, applied as individual mound treatments, resulted in significantly fewer active mounds at 5 months (**Table 1**), as well as a substantial numerical drop at one month. Amdro caused its characteristic rapid decline, followed by slow re-infestation to near pre-count levels. These two factors suggest that Extinguish as a mound treatment controlled colonies across the entire plot and/or the affected colonies “protected” the plot from reinvasion and performed similarly to Logic®, another insect growth regulator (Drees et al., 1992). Had Extinguish only affected the treated colonies or provided no re-invasion resistance, these plots should have had active mound numbers at a level similar to that of Amdro IMT. This finding supports the idea that Extinguish is more “forgiving” in application than Amdro and provides suppression more slowly, but for a longer period..

Table 1. Results of imported fire ant mound count evaluations - 0.125-acre plots, 4 replications. Mumford, TX. Treated July 8, 2002.

Treatment	Mean number of active mounds						
	Pre	1 day	3 days	11 days	1 month	2 months	5 months
untreated	21.00 a	13.50 a	13.50 a	17.25 ab	16.50 a	15.50 a	25.75 a
Exting.	21.00 a	15.50 a	19.50 a	15.25 a	9.25 ab	4.75 a	7.25 b
Amd Brd	20.75 a	13.50 a	11.00 a	4.25 b	3.75 b	4.25 a	18.00 ab
Amd IMT	21.00 a	15.00 a	15.00 a	7.75 ab	5.75 b	7.00 a	16.00 ab
F	0.00	0.13	1.32	6.40	4.98	2.21	3.16
P	0.9999	0.9401	0.3138	0.0078	0.0180	0.1397	0.0642
R ²	0.00036	0.0316	0.2480	0.6154	0.5543	0.3558	0.4414
MSD	13.882	11.983	13.054	10.195	10.553	14.751	17.951

Means in the same column with the same letter are not significantly different. Means separated by Tukey’s studentized range (HSD) test, $P < 0.05$. $df = 6$.

Literature Cited

- Barr, CL and RL Best. 2002. Product evaluations, field research and new products resulting from applied research. SW Ento. Supplement 25:47-52
- Drees, BM, CL Barr and SB Vinson. 1992. Effects of spot treatments of Logic (fenoxycarb) on polygynous red imported fire ants: an indication of resource sharing? SW Ento. 17(4):313:319.