

**Field Trial of Some Commercially Available and Home Remedy Products
for the Control of Red Imported Fire Ant Colonies
Brazos Co., Texas - 1997**

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The Texas Agricultural Extension Service, Fire Ant Applied Research Program (FAARP) receives many inquiries from companies and individuals touting their products for fire ant control. Due to the associated costs, many of these products are not evaluated with replicated, statistically valid tests. Nevertheless, they appear on store shelves and are the subject of consumer inquiries. Similarly, there are many “home remedy” fire ant control measures. To help answer the questions that arise over some of these products, an abbreviated version of a standard individual mound treatment (IMT) test was conducted. The testing of these products was **non-replicated** and, therefore, *not* statistically analyzable. The test did, however, provide data for screening some of these products for possible future testing in a more formal manner and provided enough information to give some idea of a product’s effectiveness.

Materials and Methods

The test site was located in western Brazos County, Texas in an ungrazed pasture with heavy clay soil. Active fire ant mound density averaged about 150 mounds per acre. Mounds were physically large, but, due to a hot, dry summer, the colonies occupying them were relatively small. The test method used a modified version of the “railroad track” design of individual mound treatment testing used for most FAARP trials.

A strip, 30 feet wide and of indeterminate length was marked near a fence line. Beginning at one end of the strip, the first 10 mounds encountered were marked with wire flags of a single color. The next 10 mounds marked with a different color flag and so on using different or alternating flag colors. Each set of 10 mounds was considered a plot. Because there was no replication of plots, treatments, as listed above, were assigned randomly. A set of untreated control plots were also established as part of another, concurrently run test.

Products were applied during the morning hours of 18 September 1997. Though the soil was dry, ant brood was noted near the tops of mounds throughout the application period. All drench products were applied using two-gallon plastic watering cans with diffusers removed to better penetrate the mound structure.

Evaluations were conducted at 4, 7, 14, 28 and 35 days post-treatment using the minimal disturbance technique. At 14 and 35 days post-treatment, plots were surveyed for new or “satellite” mound formation within their borders. Mounds were disturbed with a pointed tool handle until a sufficient number of ants rose to the surface in a defensive manner. The number of ants required to consider a mound “active” was determined by the evaluator in comparison to untreated mounds under the prevailing moisture, sunlight and temperature conditions.

The test products included:

Synthetic insecticides

Spectracide® Dursban® Indoor and Outdoor Insect Control (chlorpyrifos, 6.0%):

This product was used as a standard at a rate of 1 fluid oz. in 1 gallon of water per mound, applied as a drench.

Enchem's™ Rapid Kill Fire Ant Mound Drench Concentrate [(s)-cyano (3-phenoxyphenyl) methyl-(s)-4-chloro-alpha-(1-methylethyl) benzeneacetate, 0.22%) or s-fenvalerate:

Applied as a drench at 1.5 fluid ounces in 1 gallon water per mound.

“Organic” insecticides

Insecto Formula 7 (pine oils, 20%):

Applied as a drench at 1 fluid ounce in 1 gallon water at 3 gallons solution per mound.

True Stop™ Fire Ant Insecticide (rotenone, 0.21%; cube root extract, 0.41%):

Applied as a drench at 2/3 cup product in 1 gallon water per mound.

Safer's Insecticidal Soap

Applied as a drench at 3 liquid ounces in 1 gallon water per mound.

Garden-ville Fire Ant Liquid Compost Fire Ant Control (70% liquid compost, 30% orange oil):

Applied as a drench at 6 liquid ounces in 1 gallon water per mound.

Garlic Barrier Insect Repellent (100% garlic water):

Applied as a drench at 3 fluid ounces in 1 gallon water per mound.

Hot Pepper Wax™ Animal Repellent (capsaicin and other capsaicinoids, 0.00018%):

Applied as a drench at 3 fluid ounces in 1 gallon water per mound.

UBIX No. 0071/XP0078 Fire Ant Control (ingredients unknown):

Applied as a drench 3 fluid ounces in 1 gallon water per mound.

“Home Remedies”

50 Grain Pure White Distilled Vinegar (acetic acid):

Applied as a drench 6 fluid ounces in 1 gallon water per mound.

Imperial Pure Cane Sugar®:

Applied as a drench ½ teaspoon granules in 1 gallon water per mound.

Results

This test was conducted in association with a fully replicated trial of another experimental product (see Evaluation of Ant Express™ for the Control of Individual Red Imported Fire Ant Colonies).

Consequently four plots each of both untreated control mounds and Spectracide Dursban-treated mounds were available for comparison. Reported results are the *mean* of all four plots for each of these treatments (10 mounds x 4 replications). Other treatment values are for 10 treated mounds.

Results are shown in **Table 1**.

Table 1. Number of active mounds, ranked in order of 4 day level of control.

Number of active mounds of 10 treated or as noted*

Treatment (Trade name)	4 day	7 day	14 day	14 day sats.	14 day total	28 day	35 day	35 day sats.	35 day total
Enchem's™ Rapid Kill	0.00	0.00	0.00	2.00	2.00	2.00	2.00	3.00	5.00
Dursban®	0.25	0.25	0.50	0.50	1.00	0.00	0.00	1.50	1.50
Garden-ville	1.00	1.00	3.00	0.00	3.00	2.00	3.00	0.00	3.00
Insecto Formula 7	2.00	2.00	2.00	1.00	3.00	4.00	4.00	0.00	4.00
Hot Pepper Wax	6.00	4.00	5.00	0.00	5.00	7.00	8.00	5.00	13.00
Safer's Soap	6.00	5.00	5.00	4.00	9.00	3.00	5.00	7.00	12.00
Garlic barrier	8.00	6.00	8.00	0.00	8.00	5.00	2.00	3.00	5.00
True Stop	9.00	7.00	6.00	3.00	9.00	5.00	4.00	4.00	8.00
sugar	9.00	8.00	10.00	1.00	11.00	7.00	6.00	8.00	14.00
UBIX	10.00	5.00	6.00	0.00	6.00	7.00	7.00	5.00	12.00
untreated	10.00	8.25	9.00	0.00	9.00	7.75	8.00	1.25	9.25
vinegar	10.00	9.00	7.00	2.00	9.00	5.00	7.00	4.00	11.00

* Marked = 10/plot; Sat = "new" mounds occurring in plot; Tot = marked + sat.

Discussion

The Rapid Kill and Dursban products gave 80-100% control of treated mounds over the course of the test while Garden-Ville and Insecto Formula 7 products gave 60-90% control over the same period. The exact number of "active" mounds varied somewhat due to weather and evaluator interpretation of activity. The garlic and pepper repellent products, as well as the Safer's, gave some measure of treated mound control, but also showed indications of satellite mound formation, indicating repellence, rather than mortality. True Stop showed very little control until the final evaluation where it reached 60%, but had four satellite mounds in the plot. The sugar and vinegar home remedies and the UBIX product showed little control versus untreated plots.