

**Efficacy Testing of Clinch™ Broadcast Bait for the
Control of Red Imported Fire Ants in Pecan Orchards
Burleson Co., Texas - 1998**

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Red imported fire ants (*Solenopsis invicta* Buren) have been reported as a pest in pecan orchards damaging irrigation equipment, consuming certain varieties of fallen pecans, interfering with harvesting equipment, endangering workers (particularly when shaking trees for harvest) and possibly reducing the number of beneficial insects. Clinch™ (0.011% abamectin), produced by Novartis Crop Protection, is a conventionally formulated broadcast bait product currently labeled for use on non-crop and a few agricultural sites. This test was conducted to demonstrate the efficacy of Clinch in reducing fire ant mound numbers in pecan orchards to provide data for future label expansions.

Materials and Methods

The test site was located in Burleson Co., Texas in a non-bearing section of a large pecan orchard. Trees were spaced at 45 feet, so they were used as convenient plot boundary markers. Treatments were made on plots consisting of a square of three inter-tree spaces on a side (135 feet, 0.42 acres). The sampling area was the central 45 x 45 foot square delineated by a tree at each corner. An untreated buffer of one inter-tree space (45 feet) was left around all sides of every plot.

Pre-counts were made on 26 October 1998 using the minimal disturbance technique. Mound numbers were arrayed from highest to lowest and divided into four equal groups (replications). Treatments were assigned within groups so that the total number of mounds for each treatment (sum of four replications) was as equal as possible. Baits were applied in the afternoon and evening of 26 October using a Herd GT-77 seeder mounted on a John Deere ‘Gator utility vehicle. The weather was mild and dry and the ants were actively foraging. Chlorpyrifos was applied using a 12V boom sprayer towed behind a pick-up truck.

Treatments included:

<u>Treatment</u>	<u>Rate</u>	<u>Application</u>
untreated control	—	—
Clinch® (0.011% abamectin)	1.5 lbs/acre	broadcast bait
Logic® (1.0% fenoxycarb)	1.5 lbs/acre	broadcast bait
Lorsban® 4E (44.9% chlorpyrifos)	4 pts/acre	orchard floor spray, 20 gal./ac. solution

Post-treatment counts were conducted on 3 and 16 November and 1 December 1998. Data were analyzed using PC SAS analysis of variance procedures with means separated by Duncan’s multiple range test ($P < 0.05$).

Results and Discussion

Mean number of active mounds per 0.046 acre sampling area (4 replications)

<u>Treatment</u>	<u>Pre-count</u>	<u>1 week</u>	<u>3 weeks</u>	<u>5 weeks</u>
Untreated	16.00 a	12.50 a	7.75 a	4.75 a
Clinch® (0.011% abamectin)	16.50 a	6.25 ab	4.25 a	1.25 b
Logic® (1.0% fenoxycarb)	17.00 a	14.75 a	7.25 a	3.75 ab
Lorsban® 4E (44.9% chlorpyrifos)	17.25 a	3.00 b	3.00 a	1.75 ab
<i>F</i>	9.90	4.28	2.72	2.21
Probability	0.0015	0.0257	0.0860	0.1372
<i>R</i> ²	0.8684	0.7405	0.6446	0.5956

Means in the same column followed by different letters are significantly different using Duncan's multiple range test ($P < 0.05$) for mean separations.

Considerable rain and cooler temperatures were experienced after treatment which caused colonies to relocate and overall mound numbers to drop. Weather conditions also resulted in increased variability within treatments as shown by dropping R^2 values over the course of the test and lack of significant differences between treatments at three weeks. As expected, the Lorsban 4E treatment significantly ($P < 0.05$) reduced active mound numbers versus untreated and Logic-treated plots within a week. Clinch showed 50% control at this time, though the reduction was not significantly different. By five weeks post-treatment, Clinch showed a significant ($P < 0.05$) reduction in mound numbers versus untreated controls with about a 75% reduction in active mounds. Results provide support that Clinch, applied as a broadcast bait at 1.5 lbs./acre, significantly reduces active fire ant mound numbers within five weeks of application. The test was not monitored long enough to record maximum control from Logic treatments.