

**Effectiveness of Clinch™ Broadcast Bait for the
Control of Red Imported Fire Ants in Pecan Orchards**
Burleson Co., Texas - 1999-2000

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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 comparison to competitor broadcast baits in reducing fire ant mound numbers in pecan orchards to provide data for future label expansions.

Objective: Determine the effectiveness of Clinch broadcast bait for the control of fire ants in pecan orchards.

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 and treatments were made on October 28, 1999 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 using EarthWay® Ev--Spred hand-held spreaders at a rate of 1.5 lbs./acre. Treatments included: Clinch® (0.011% abamectin); Distance® (0.5% pyriproxyfen); Extinguish™ (0.5% s-methoprene) and an untreated control.

Post-treatment counts were conducted on January 3 and May 26, 2000 (11 weeks and 7 months, respectively). 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

As shown in **Table 1**, none of the bait treatments significantly ($P < 0.05$) reduced active mound numbers compared to the untreated control at 11 weeks post-treatment. At 32 weeks (7 months), however, all the treatments had significantly ($P < 0.05$) fewer active mounds than the untreated plots. Despite the decrease, control was 70%, at best, for Clinch.

There are two possible explanations for this mediocre performance. Treatments were applied late in the season, so ant foraging may have been decreasing. Distance is known to provide good control at considerably less active ingredient per acre than was applied here (Barr

and Best 1999). Therefore, if foraging was reduced, it is likely that entire colonies were not foraging for bait at all. A second explanation is that by the time of the end-of- May evaluation, colonies had migrated into the plots of founded from early spring mating flights.

The upshot of the results are that slow-acting broadcast baits should not be applied in the fall in pecan orchards. They are too slow-acting to provide any benefit during harvest operations and their maximum mound reduction, occurring months later, will probably not be what is usually expected from any of these products.

Table 1. Mean number of active red imported fire ant mounds per 0.046 acre sampling area (4 replications). Burleson Co. TX, treated October 28, 1999.

<u>Treatment</u>	<u>Pre-count</u>	<u>11 weeks</u>	<u>32 weeks</u>
Untreated	16.50 a	18.50 a	18.50 a
Clinch	16.25 a	12.50 a	5.75 b
Distance	16.25 a	17.75 a	6.75 b
Extinguish	16.50 a	18.00 a	9.50 b
F	0.01*	1.61	6.99
P	0.9981	0.2508	0.0054
R ²	0.8870	0.5171	0.8234
MSD	5.8519	13.071	7.1435

Means in the same column followed by different letters are significantly different using Duncan's multiple range test ($P < 0.05$) for mean separations. $df = 9$

* F and P values are for treatment effects only. Replication $P = 0.0001$ due to stratification of mound densities.

Literature Cited

Barr CL and RL Best (1999). Comparison of Two Commercial Bait Formulations of the Active Ingredient Pyriproxyfen for Red Imported Fire Ant Control. Result Demo Handbook. Tx Ag Extension Service 1997-1999, Bryan, TX 77806. Also <http://fireant.tamu.edu>