

Evaluation of red imported mound treatment: Kajun Kane[®] applicator tool and aerosol formulation

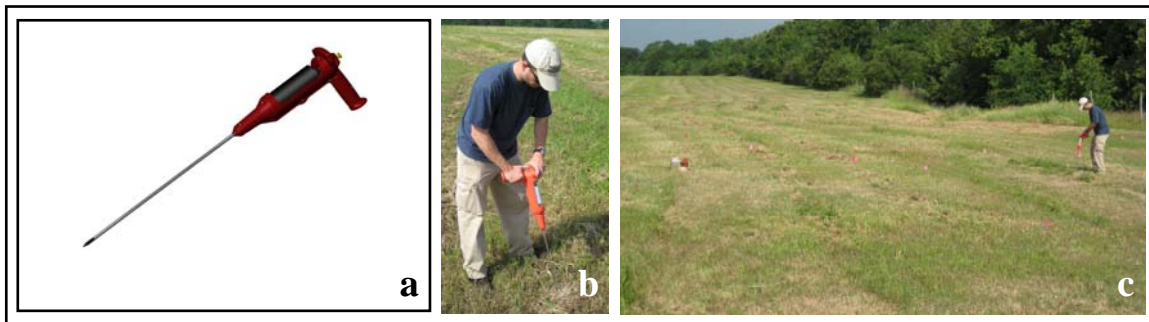
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The red imported fire ant, *Solenopsis invicta* Buren (Hymenoptera: Formicidae) is a significant introduced ant pest of the eastern half of Texas and other southeastern states in the U.S. Individual ant mound treatments are an important component of many control programs, including being ‘Step 2’ of the ‘Two-Step Method of Imported Fire Ant Control’ (see http://agriflifebookstore.org/publications_search.cfm). This trial was performed to assess the efficacy of Kajun Kane[®] injectible mound treatment in a field trial conducted in Brazos, Co., Texas.

Kajun Kane Inc. (1335 Springwood Ln. Shreveport, LA 71107; 318/210-6902; hoppeme@libbey.com) has developed an application tool and proprietary aerosol formulation containing entofenprox which, when used in concert, is intended to provide a method for injecting mound treatments for red imported fire ants (**Fig. 1a & 1b**). The Kajun Kane[®] product was evaluated in these trials as a direct mound treatment and was compared to Once & Done[®] (lambda-cyhalothrin granular fire ant mound treatment) and untreated control ant mounds.

Materials and Methods

On April 23, 2008, 12 plots, equal in width but varying in length were established containing 10 red imported fire ant mounds each. Field flags were used to mark 120 red imported fire ant mounds along 2 plot transects in an abandoned sheep pasture along the northwestern edge of the Texas A&M University in College Station, TX (N 30°37.426', W 096°21.959) (**Fig. 1c**). Plots were arrayed from longest to shortest and divided into four replicates (or blocks). Treatments were randomly assigned within each replicate and adjusted to minimize pre-treatment plot length means or averages (see plot listing below). Weather conditions were sunny with high winds and treatments were applied from 10:00 AM until 1:00 PM.



Treatments:

1. Kajun Kane[®] aerosol formulation (entofenprox) – Three 15 sec. ‘blasts’ per mound at a maximum depth of approximately 18 inches. The application tool was

inserted and then ‘worked’ up and down from 4 to 18 inches for the duration of the ‘blasts’.

2. Once & Done[®] (the pyrethroid, lambda-cyhalothrin, 0.1 % granules) – 1 tsp. of granules sprinkled on mound and drenched into mound using 1 gal. water.
3. Untreated Controls – Mounds flagged and left untreated.

Block or Replicate and Plot Number:

<u>Number</u>	<u>Length in Feet</u>	<u>Treatment</u>
Block/replicate 1:		
1	56'	Control
2	45'	Control
3	29'	Kajun Kane [®]
Block 2:		
4	21'	Once & Done [®]
5	19'	Kajun Kane [®]
6	21'	Control
Block 3:		
7	35'	Once & Done [®]
8	63'	Kajun Kane [®]
9	65'	Once & Done [®]
Block 4:		
10	21'	Once & Done [®]
11	28'	Kajun Kane [®]
12	22'	Control

Ant activity in marked mounds was monitored 2, 7, 16, and 30 days after treatment (April 25, April 30, May 9, and May 23, 2008, respectively) using the minimal disturbance method in which mounds were gently disturbed and determined to be active if dozens of workers surfaced within a short period of time. On the final evaluation date (May 23) all mounds within plots were counted to determine the rate of ‘new’ or ‘satellite’ mounds within the plots that had appeared since plots were treated. These data were analyzed using Analysis of Variance (ANOVA) at $P \leq 0.05$, and means were separated using Tukey’s Honest Significant Differences (HSD), at $P \leq 0.05$ (SPSS for Windows, V. 14.0).

Results and Discussion

Mortality of red imported fire ants in treated ant mounds increased significantly in plots treated with both Kajun Kane[®] injectible mound treatment and the Once & Done[®] standard (relative to mortality in control plots) (**Fig. 2, Table 1**). There was no significant difference between mortality of mounds in the Kajun Kane[®] injectible mound treatment and Once & Done[®] standard plots at any post-treatment sampling period. Neither the Kajun Kane[®] injectible mound treatment or Once & Done[®]

standard treatment resulted in total mortality of colonies within plots. However, each performed very well relative to control plots, with mound numbers significantly lower throughout the monitoring period. These data support the assertion that the Kajun Kane[®] injectible mound treatment is an effective method for destroying fire ant colonies in treated ant mounds.

A number of issues regarding the use of the Kajun Kane[®] injectible mound treatment system were experienced during applications for this trial. Although minor, they can presumably be addressed easily by the designers/manufacturers if they so choose. First, fire ants are quite capable of climbing the wand/nozzle of the application unit, exposing the user to sting(s). Second, 3 of 14 (21%) of the canisters supplied by Kajun Kane Inc. leaked after being placed into the application unit regardless of the degree of care taken by the user. Finally, it appeared to those involved in this trial that larger mounds required larger 'dosages' of the product to achieve mound mortality and this should be made clear to the user/customer. The cost-effectiveness of treatments applied will be directly related to dose (amount of material injected over time) applied.

Acknowledgements:

We appreciate funding support for conducting these trials from Kajun Kane Inc.

Fig. 2 Mean # of inactive red imported fire ant mounds within plots in response to treatments.

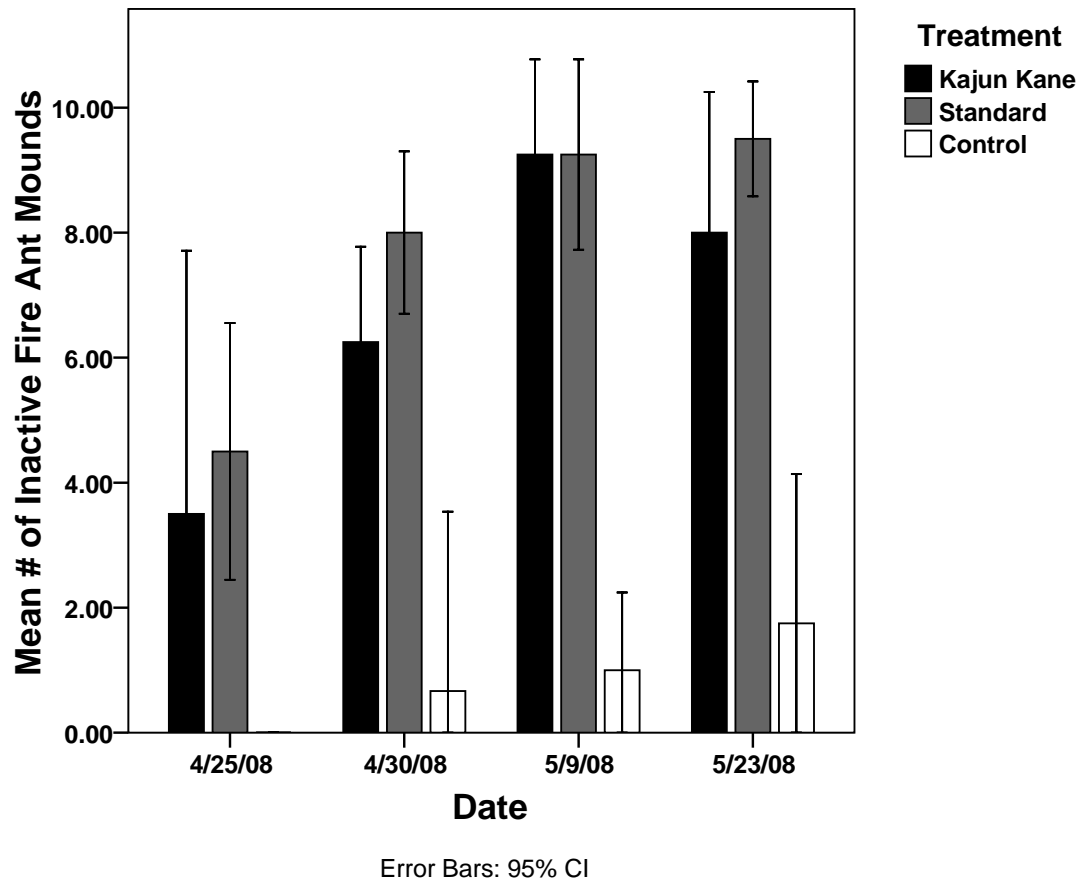


Table 1. Number of mound of 10 with active red imported fire ants following application of individual ant mound treatments , Brazos Co., TX (N 30°37.426', W 096°21.959), treated April 23, 2008.

	No. Active Fire Ant Mounds/10*			
	April 25 2 DAT	April 30 7 DAT	May 9 16 DAT	May 23 30 DAT
Treatments				
Kajun Kane entofenprox	6.75 a	6.25 a	9.25 a	8.00 a
Once & Done Lambda- cyhalothrin	7.81 a	8.00 a	9.25 a	9.50 a
Control	0.87 b	0.75 b	1.00 b	1.75 b
df	2	2	2	2
<i>F value</i>	49.97	68.70	85.97	44.23
<i>P value</i>	< 0.05	< 0.05	< 0.05	< 0.05
Mean sq.	4.47	0.83	1.06	1.53

^aMeans followed by the same letter are not significantly different using Analysis of Variance (ANOVA) at $P < 0.05$ and means separated using Tukey's Honest Significant Differences (HSD) (SPSS for Windows, V. 14.0).