

Elimination of Red Imported Fire Ants from Square Bales of Hay

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The red imported fire ant, *Solenopsis invicta* Buren (Hymenoptera: Formicidae), is an exotic pest in forage and hay production in Texas and other southeastern infested states. Movement of the pest into non-infested counties is regulated through enforcement of United States Department of Agriculture (USDA) fire ant quarantine by the Texas Department of Agriculture (TDA). Currently, the only approved method of having a TDA inspector certify bales of hay as “fire ant free” and approved for shipping from an infested (quarantined) to and non-infested area is to remove square or round bales from the field immediately after baling and storing them off the ground. No chemical treatment programs have been designed or evaluated to: 1) treat infested bales in the field; 2) treat hay fields or pastures to eliminate the likelihood that bales of hay will become infested; or 3) preventively treat areas on which bales of hay will be stored on the ground.

In addition to the regulatory aspects of fire ant infested bales of hay, other concerns include: 1) square bales are handled by hand and can expose field workers to fire ant stings when they handle infested bales; 2) fire ant infested bales placed in pens with young or weakened livestock can result in a stinging incident or reduced feeding. Although fire ant colonies are not thought to be incorporated into a hay bale during the baling process, colonies readily move into the bales as preferred nesting sites, particularly after heavy rains saturate the soil and cause ants to seek dry nesting sites.

No insecticide is registered specifically for treating bales of hay to eliminate red imported fire ants. However, Amdro® Pro (hydamethylnon) as a bait-formulated product registered for use in hay fields and livestock pastures. It is registered for use as: 1) an individual mound treatment (5 tbs. around each mound) which eliminates treated colonies in about one week; and 2) as a broadcast application (1 to 1.5 lbs./mound) which provides 80 to 90 percent elimination of ant mound numbers 2 to 6 weeks following treatment until re-invasion occurs.

This trial was conducted to document an attempt to eliminate red imported fire ant colonies from square bales using Amdro® as individual mound treatment method applied around, not directly onto bales.

Materials and Methods

Forty square bales were obtained and placed in a native pasture infested with red imported fire ants near Dobbin, Texas in Montgomery County, June 8, 1999. Each bale was placed on top of an ant mound which had been disturbed to assure that the ants were present. On June 16, the area in which the bales had been placed was divided into 8 plots, each containing five ant infested square bales. Alternatively, bales in each plot were either treated using 5 tbs. Amdro® applied around each bale and marked with field tape, or left untreated and unmarked. The approximate size of each plot was estimated and the plots were inspected for additional active fire ant mounds. Periodically following treatment (June 22, 29), ant activity in each bale was evaluated as either active (+) or inactive (-) by rolling the bales over and observing ant activity. At the end of the observation period the plots were again inspected for additional active fire ant mounds. Livestock had been removed from this pasture for the duration of the trial.

Results and Discussion

Six days after treatment, 95 percent control was achieved in removing ant activity from infested square bales (1 versus 19, June 22, 1999). Thereafter, rain events occurred regularly, with a “soaking” rain (4 inches) occurring prior to the 29 June pro-treatment evaluation, at which time the number of infested bales increased dramatically (50 percent). These results indicate that this treatment may be useful to temporarily suppress ants in infested bales. Under different environmental conditions (i.e., no rain), results may have documented ant control for a longer period of time.

Table 1. Impact of treating around square bales with Amdro® (hydramethylnon) to eliminate red imported fire ant infestations, Montgomery Co., Texas, 1999.

<u>Date</u>	<u>Days</u>	Number of fire ant infested bales/5 (other mounds in plots)	
		<u>Treated*</u>	<u>Untreated</u>
June 16	0	5 (1), 5(3), 5 (3) , 5 (2) = 20	5 (1), 5 (2), 5(2), 5 (3) = 20
June 22	6	1, 0, 0, 0 = 1	4, 5, 5, 5 = 19
June 29	13	2, 2, 3, 3 = 10	4, 5, 5, 5 = 19
July 12	27	2 (1), 3 (1), 3 (1), 4 (0) = 12	3(2), 5(0), 5(0), 5(2) = 18

*5 tbsp. Amdro® (hydramethylnon) applied around each bale (803701E, 816902E, applied 9:30 a.m. to 11:00 a.m.)

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