Product Performance Data Evaluation Review

by
Kevin J. Sweeney, Entomologist
Insecticides Branch

Kevin J Sweeney 12/13/02

Date: December 13, 2002

Product: Rainbow DM Fire Ant Killer II

EPA File Symbol: 13283-27

Reviewer: Bill Sproat

PM: George LaRocca, PM 13

DP: D286744

Submission: S624755

Active ingredient/application methods: 0.125% deltamethrin RTU granules.

Site: Utility boxes and equipment.

Pests: fire ants - imported and endemic. A variety of other crawling and/or stinging insects are also listed. See the label for a complete pest list.

The registrant is requesting to add the claim: "Repels Fire Ants [from in and around Telecommunications, Power, Utilities and Railroad Systems Equipment].

Submitted Study:

MRID 45791901 Repellency of Various Granular Insecticide Formulations to the Red Imported Fire Ant, *Solenopsis invicta*, by Michael Merchant and Margie Barton, Texas A & M University.

This laboratory study tested the repellency of three fire ant killers supplied by Rainbow Technology against recently collected RIFAs. There were two untreated control treatments, one with untreated granules and one with no treatment at all. The insecticide products tested were:

PRODUCT	EPA REG. NO.	FORMULATION	ACTIVE INGREDIENT %
Rainbow Fire Ant Killer	13283-14	RTU granules	chlorpyrifos 5%
Rain Fire Ant Killer II	13283-13	RTU granules	deltamethrin 0.125%
NA	NA	RTU granules	propoxur 5%

Methods: The experimental design consisted of three cardboard shoe boxes, connected by construction paper "foraging bridges", that were arranged in a straight line. The first box in the sequence was the RIFA colony; the second box was the treatment; and the third box contained food for the ants. The study directors tested the following hypothesis: "Will foraging RIFA workers cross over the treated zone to get food?" In more elaborate terms, "Will the insecticide treated boxes prevent RIFA access to food through repellency or lethal effects of the insecticide? The food consisted of dead honey dipped crickets. A source of water was not described.

There were three replications of each treatment. The data were transformed and analyzed for differences using an ANOVA.

Results: The control treatments had more live ants in the treatment and food boxes when compared to the insecticide treatments. [However, more ants were killed in control B (untreated granules) than in any other treatment.] All of the insecticide treatments had very few live ants in the insecticide treated boxes or the food boxes. The authors state that this result may be due to the repellency of the tested formulations, however, these data do not support this conclusion. Clearly, the ants were killed, not repelled. If the treatments had repellent action, few ants would have entered the treated boxes, and the number of dead RIFA reported in the treated boxes would have been much lower. The timed observations on bridge 1 and bridge 2 (table 1) show that many ants attempted to cross bridge 1 to the treated box yet few made the trip over bridge 2. However, these results contributed little to the repellency evaluation.

EPA Conclusion: deltamethrin has not been demonstrated to be a repellent against RIFA. This insecticide is generally not recognized as a repellent against other insect species either. Deltamethrin is extremely toxic at very low doses. When insects come into contact with deltamethrin treatments they can absorb a lethal dose because it is not repellent like many other pyrethroid insecticides.

In this experiment, the variability of RIFA colony level behavior may not have been accounted for because it appears that only one colony of RIFA was evaluated for each treatment. Each treatment should have been tested against three different colonies.