

## **Evaluation of Certain Fire Ant Insecticide Products and Tactics in a Nursery Situation**

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The imported fire ant, *Solenopsis invicta* Buren, has established itself as an important economic pest in Texas. The ant affects nursery operations by causing handling and shipping problems. In addition, the ant can disrupt drip irrigation lines and cause mechanical problems in electrical switches. This preliminary report discusses the impact of two different insecticides on fire ant populations. Both Amdro® (hydamethylon) and Logic® (fenoxycarb) give good fire ant control six weeks after treatment. The Amdro® and Logic® mixture was comparable to either product by itself. The check plot also had few existing mounds which indicates that fire ants have difficulty maintaining large populations even under limited water conditions.

### **Problem**

The imported fire ant, *Solenopsis invicta* Buren, has established itself as an important economic pest in Texas. The ant is not only a people problem but has economic impacts on nursery enterprises. The ant affects nursery operations by reducing efficiency of labor and thus increasing labor costs. Plant material cannot be shipped to non-quarantined counties if fire ant infested and thus increases costs of plant materials if fire ants are a problem.

### **Objectives**

This trial was established to evaluate two insecticides labeled for fire ant control in a nursery operation. The trial is designed to measure the effectiveness of the materials as well as the length of control.

### **Materials and Methods**

This trial was established in a nursery situation in the Abilene in Taylor County. The nursery site served as a tree farm for a local nursery. The site had both container plants and trees planted in rows. Water was provided by drip irrigation as well as supplemental irrigation in individual pots. The materials evaluated were Amdro® and Logic®. Amdro® contains 0.73% by weight hydamethylon. The insecticide acts on the metabolism of the ant making it difficult for the ant to produce energy. Amdro® usually provides control within six weeks of application. Logic® contains 1.0% by weight fenoxycarb, a carbamate which acts as an insect growth regulator that mimics the juvenile hormones in insects. Insect growth regulators are usually slower to act but provide a longer period of control in other fire ant trials.

In addition to these two products, an additional tactic was also tried. The field was divided into four sections and four treatments were applied. Amdro® was applied in a solid pattern in the first section at a rate of 1.5 lbs per acre. The next section was left untreated. The third section was treated with Logic® in a solid pattern at a rate of 1.5 lbs per acre. The fourth section was treated with a combination of Amdro® and Logic® in a solid pattern. The combination rate was 1.5 lbs per acre or 0.75 lbs per acre each product. The plots were treated on September 22, 1998 to coincide with Fire Ant Awareness Week.

## **Results**

The results show the effectiveness of the materials at six weeks and 8 months after treatment. The data also shows the impact of dry weather on imported fire ants in the West Texas region. Even though this site had some supplemental irrigation to keep the trees alive, the winter of 1998-1999 was characterized by dry conditions. Moisture conditions improved later in the spring of 1999 but plots were not evaluated after 8 months.

The test shows a couple of interesting aspects of fire ant control in West Texas. First, the dry conditions can have a devastating impact on fire ant populations. This site had some supplemental irrigation and so the ants were not totally deprived of water. However, the untreated check plot still suffered 90 percent mortality during the 8 months of the trial. Second, the baits are highly efficacious when used properly. The baits are best used as a broadcast treatment and not on an individual mound treatment. The cost of the baits and the slow results with the baits do not make them the ideal choice for individual mound treatments. The baits should also be used when the ants are actively foraging. This can be determined by placing a small amount of bait next to an active mound. If ants are actively foraging, the ants will find the bait in a short amount of time (less than 10 minutes).

This trial also shows the advantage of fall applications of insecticides for fire ant control. The weather can limit populations as evidenced by the 90 percent decline in the untreated plots. When an insecticide is used in the fall, the homeowner benefits from both the weather and chemical control. The combination treatments are not currently labeled. This treatment was evaluated because many homeowners are dissatisfied with the slower acting growth regulators and want the faster knockdown that Amdro® can provide. The advantage of the growth regulators is that they usually provide longer control (less rebuilding of mounds). When conducted properly, fire ant control is possible for the homeowner. Many baits are now available that effectively control fire ants in an urban setting.

## **Acknowledgments**

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**Table 1.** Results of control at six weeks and 8 months after treatment of different insecticide control. Taylor Co., TX. 1999.

Treatment	Rate (lbs product per acre)	Number of Active Mounds (Percent Control)		
		Pretreatment <sup>1</sup>	6 Weeks after Treatment	8 Months after Treatment
Amdro®	1.5	25	8 (68%)	0 (100%)
untreated	0	20	15 (25%)	2 (90%)
Logic®	1.5	24	1 (96%)	0 (100%)
Amdro® + Logic®	0.75 + 0.75	25	6 (76%)	0 (100%)

1. Plots treated on September 22, 1998. Final evaluation on May 13, 1999.