

**EFFECT OF TOXICANT CONCENTRATION AND RATE OF APPLICATION OF MIREX BAIT ON CONTROL OF THE IMPORTED FIRE ANT, *SOLENOPSIS SAEVISSIMA RICHTERI* (HYMENOPTERA: FORMICIDAE)**

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**ABSTRACT**

Concentrations of 0.15, 0.225, and 0.3% mirex in corncob grit-soybean oil baits applied at rates of 1-6 lb./acre against natural infestations of the imported fire ant, *Solenopsis saevissima richteri* Forel, all gave 91-100% control in 4-12 weeks. The higher rates were slightly more effective when treatments were applied during cooler weather.

**Key Words:** Fire ant, baits, *Solenopsis*, ants, mirex.

Lofgren *et al.* (1963, 1964) and Stringer *et al.* (1964) found that granular baits containing soybean oil and mirex at 0.075, 0.15 or 0.3% gave 98-100% reductions in number of active colonies of the imported fire ant, *Solenopsis saevissima richteri* Forel, on 1-acre plots when applied at rates of 3, 5, or 10 lb./acre. Their studies also indicated that bait applied during warmer weather gave faster kill and slightly higher ultimate kill than did bait applied during cool weather.

This paper reports the results of 2 series of tests made to evaluate the effectiveness of 0.15, 0.225 and 0.3% mirex in corncob grit-soybean oil baits applied at rates of 1-6 lb./acre against natural infestations of the imported fire ant in permanent pastures: one in April 1964 in Stone County, Mississippi, and the second in June 1964 in Pearl River County, Mississippi. One-acre plots were treated in triplicate with a tractor-mounted granular applicator.

The results of posttreatment counts are shown in Table 1. After 12 weeks, all formulations and rates of application used in the 1st series had caused 91-100% reduction in the number of active colonies. After 4 weeks, all rates of application of all concentrations used in the 2nd series had caused a 95-100% reduction.

The data substantiate the results of the earlier tests applied in cool weather. In this study the bait applied in April, when air temperatures were low and soil temperatures still too low to permit maximum foraging by the ants, kill was slower and degree of kill lower after 12 weeks than that obtained after 4 weeks with the bait applied in June when temperatures were much higher.

In the first series, kill fluctuated with no clear-cut pattern of progression as the toxicant concentration and rate of application increased. The highest rate of application at all concentrations gave slightly higher kill than did the lower rates.

In Series 2, when temperatures were higher and speed of kill accelerated, little difference was noted in degree of kill achieved with any of the concentrations or rates of application.

Reinfestation of the plots by queens making nuptial flights in the

Table 1. Effectiveness of 0.15, 0.225, and 0.3% mirex bait at varying rates of application in controlling imported fire ants (IFA; avg of 3 replications).

Application rate (lb./acre)	Series I - April, 1964			Series II - June, 1964		
	Avg pretreatment count of active IFA colonies	number of active colonies after indicated weeks	Avg pretreatment count of active IFA colonies	Avg pretreatment count of active IFA colonies	% Reduction in number of active colonies after 4 weeks	% Reduction in number of active colonies after 4 weeks
		8	12			
		<b>0.15% Mirex</b>				
1	33	75	91	38		95
2	34	80	93	41		99
3	32	96	98	42		100
4	33	89	92	44		100
5	31	77	95	35		99
6	34	94	99	34		100
		<b>0.225% Mirex</b>				
1	30	81	94	46		100
2	29	94	97	58		100
3	28	73	94	33		100
4	29	86	100	37		100
		<b>0.3% Mirex</b>				
1	30	71	93	44		100
2	35	94 <sup>a</sup>	96 <sup>a</sup>	38		100
3	30	82	93	39		95
4	30	82	98	39		99
Check	28	0	2	31		1

<sup>a</sup> Avg of 2 replications.

surrounding untreated area made posttreatment evaluations impossible after 12 weeks in Series 1 and after 4 weeks in Series 2.

#### LITERATURE CITED

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