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## Fur-Ag<sup>®</sup>: An Alternate Carrier for Soybean Oil-Mirex Bait for Control of the Imported Fire Ant<sup>1,2,3</sup>

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Results of studies to develop toxic baits for control of the imported fire ant (IFA), *Solenopsis saevissima richteri* Forel, have been reported (Bartlett and Lofgren 1961; Lofgren et al. 1961, 1963, 1964; Stringer et al. 1964). It was found that a bait composed of once-refined soybean oil (the food material), mirex (the toxicant), and corncob grits (the carrier) was effective in reducing or eliminating infestations.

This paper presents the results of studies made to evaluate Fur-Ag<sup>®</sup> as an alternate carrier for the soybean oil and mirex. These studies were initiated after preliminary surveys had indicated that available supplies of corncob grits might not be adequate to fulfill the requirements of a large-scale eradication effort. Fur-Ag is the trade name applied by Quaker Oats Co. to the residue left after the processing of corncobs for fufural. The corncobs are ground and then cooked under pres-

sure with dilute acids while steam is passed through the cooker. Fur-Ag thus consists primarily of modified cellulose, lignin, ash, and a small amount of sulfuric acid and resembles ground coffee in texture and appearance.

**METHODS AND MATERIALS.**—Effectiveness of baits formulated on Fur-Ag and corncob grits was compared in 5 series of field tests. Four of the tests were run against natural infestations of IFA on 1-acre plots in permanent pastures in southern Mississippi and the 5th on 200- or 320-acre plots in Marengo County, Ala. The same type of Fur-Ag granules was used in all series except Series 4, in which we also evaluated granules treated with ammonia to reduce their acidity. All applications to the small plots were made at the rate of 10 lb/acre (1 application/plot) of formulated bait with a jeep-mounted Buffalo<sup>®</sup> turbine blower. Applications to the large plots (Series 5) were made with a Grumman Ag-Cat<sup>®</sup> equipped with a Grumman Spreader<sup>®</sup> at the rate of 2.5 or 5 lb/acre. Each large plot received 2 applications of bait, the 1st in August 1964, the 2nd in October 1964. Each subplot contained an average of 16-23 mounds and sufficient subplots were estab-

<sup>1</sup> Hymenoptera: Formicidae.

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<sup>3</sup> Mention of a pesticide or a proprietary product does not constitute a recommendation or an endorsement by the USDA.

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lished to provide ca. 100 mounds for evaluation of each material.

**RESULTS AND DISCUSSION.**—Table 1 shows posttreatment counts made on the first 4 test series. In all 4, the formulations of Fur-Ag and the formulations of corncob grits were about equal in effectiveness. The decline in degree of control after the maximum was reached resulted from reinfestation of the plots by ants from surrounding areas.

Table 2 shows results obtained in the large plots. By 16 weeks after the 1st application and by ca. 8 weeks after the 2nd, all plots were free of ants except the plot treated with 5 lb/acre of 0.15% mirex bait

**Table 1.—Small-plot tests to compare soybean oil-mirex baits formulated on Fur-Ag granules or corncob grits for control of imported fire ants (IFA) (avg of 3 replications).**

Type of granule	Avg pretreatment count of active IFA colonies	% reduction in number of active colonies after initial treatment				
		2	4	8	16	23
<i>Series 1 (December 1962)</i>						
Fur-Ag	24	1		30	86	
Corn-cob grits	34	5		47	82	
Check	41	1		6	5	
<i>Series 2 (April 1963)</i>						
Fur-Ag	42	61	97	98	92	
Fur-Ag <sup>a</sup>	38	64	100	98	97	
Fur-Ag <sup>a, b</sup>	43	64	98	93	91	
Corn-cob grits	37	81	97	95	80	
Check	19	16	21	0	0	
<i>Series 3 (April 1963)</i>						
Fur-Ag	59	57	62	98	91	
Corn-cob grits	49	89	99	100	97	
Check	52	1	3	15	26	
<i>Series 4 (July 1963)</i>						
Fur-Ag	34		86	96		
Fur-Ag (Ammoniated)	30		89	97		
Corn-cob grits	38		77	95		
Check	19		18	7		

<sup>a</sup> Concentration of soybean oil and mirex was 19.9 and 0.1%, respectively; all other formulations contained 14.925% soybean oil and 0.075% mirex.

<sup>b</sup> 1.0% monoglycerides added to congeal the soybean oil.

**Table 2.—Large-scale tests to compare Fur-Ag and corncob grits as carriers for soybean oil-mirex bait for control of imported fire ants (IFA).**

Type of granule	Rate of application (lb/acre)	Avg pretreatment count of active IFA colonies	% reduction in number of active colonies at indicated weeks after initial treatment <sup>a</sup>		
			4	16	36
Fur-Ag	2.5	23	81	100	100
Fur-Ag	5.0	16	100	100	100
Corn-cob grits	2.5	20	82	100	100
Corn-cob grits	5.0	17	98	100	100
Corn-cob grits <sup>b</sup>	5.0	16	81	99	100

<sup>a</sup> Initial application August 1964; 2nd application October 1964.

<sup>b</sup> Formulaton contained 0.15% mirex and 14.85% soybean oil; all other formulations contained 0.3% mirex and 14.7% soybean oil.

which had a reduction of only 99% in the number of active colonies. By 36 weeks after the 1st application, all plots were free of ants.

In all the tests, baits formulated on Fur-Ag performed as well as those formulated on corncob grits in reducing or eliminating infestations of the imported fire ant. Thus, if an alternate carrier is needed Fur-Ag is acceptable. However, no decided advantage was obtained which would indicate that Fur-Ag should be substituted for corncob grits as the carrier.

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