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MEDICAL AND VETERINARY

NON-AGRICULTURAL LAND

Imported fire ant: Solenopsis invicta Buren

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AIRIAL APPLICATIONS OF AC-217,300 (AMERICAN CYANAMID COMPANY) BAITS FOR CONTROL OF RED IMPORTED FIRE ANTS, 1979: Aerial applications of baits containing AC-217,300 against natural infestations of the red imported fire ant were conducted in GA and FL during Aug. The treatments were made along the shoulders and median strips of 2 highways. The chemical was formulated in soybean oil and applied on 4 carriers; pre-gel defatted corn grits, pre-gel degermed corn grits, puffed (extruded) corn and corncob grits (12/30 mesh). The concentration of AC-217,300 was 0.75% on all the carriers except corncob grits (0.375%). Corncob grits contained 15% soybean oil and all other carriers 30%. The applications were made using a gravity flow hopper and tube system mounted on a Bell 47 helicopter flying at 75 ft altitude and 75 mph with a swath width of 70 ft. The pre-gel defatted and degermed corn grit carriers were applied at 3 rates; 0.75, 1.5, and 2.25 lb/acre. The puffed corn was applied at 0.75 lb/acre while the corncob grits were applied at 2.5 lb/acre.

Eleven 10-acre plots were set up along each road test site; State Road 22 in GA and Interstate 10 in FL. Four 1 acre subplots (count areas) were then set up along the road shoulders within each plot (4 subplots were ca 1 acre). One plot at each site was untreated and used as the check. The population index method of determining control was used in which evaluated the colonies according to the number of worker ants and the presence or absence of worker brood (larvae and pupae) and assigned each colony to a class from 1 through 10. Colonies in classes 1-5 did not contain worker brood while those in classes 6-10 contained worker brood. The differences within class 1-5 and 6-10 were related to the size of the colony. The interaction of population density and colony classes was then used to establish a population index (Harlan et al; 1981. Southwestern Entomol. 6: 150-157).

The results of the tests conducted in GA indicated that the best control after 16 wk (91%) was obtained with pre-gel defatted corn grits at the rate of .76 g ai/acre. The poorest control after 16 wks was with the puffed corn carrier. The results of the tests also indicated that the best control (92%) after 16 was obtained with the pre-gel defatted corn grits at the highest rate (8.88 g ai/acre). Baits formulated with pre-gel degermed corn grits gave the poorest control (33%).

Carrier*	Granular application rate (lb/acre)		Toxicant/acre	Pre-treatment		% reduction in population index after indicated wk	
	Expected	Actual		Total # of active mounds	Population index	8	16
<u>Georgia</u>							
Pre-gel degermed corn grits..	2.25	2.22	7.55	55	480	73	77
Pre-gel degermed corn grits..	1.50	1.48	5.03	54	491	21	47
Pre-gel degermed corn grits..	0.75	0.74	2.52	46	402	70	59
Pre-gel degermed corn grits..	0.75	0.74	2.52	60	531	53	67
Pre-gel degermed corn grits..	2.25	2.28	7.76	53	455	86	91
Pre-gel degermed corn grits..	1.50	1.52	5.17	85	739	85	79
Pre-gel degermed corn grits..	0.75	0.76	2.59	41	367	59	43
Pre-gel degermed corn grits..	0.75	0.76	2.59	67	569	79	65
Corn cob grits.....	2.50	1.95	3.32	68	567	84	75
Puffed corn.....	0.75	0.675	2.30	72	619	70	21
Untreated check.....	2.50	1.95	3.32	68	567	84	75
<u>Florida</u>							
Pre-gel degermed corn grits..	2.25	2.55**	8.67	103	948	32	37
Pre-gel degermed corn grits..	1.50	1.70	5.78	111	947	48	36
Pre-gel degermed corn grits..	0.75	0.85	2.89	112	990	39	67
Pre-gel degermed corn grits..	0.75	0.85	2.89	96	876	36	33
Pre-gel defatted corn grits..	2.25	2.61	8.88	92	811	95	92
Pre-gel defatted corn grits..	1.50	1.74	5.92	86	773	90	72
Pre-gel defatted corn grits..	0.75	0.87	2.96	106	723	48	57
Pre-gel defatted corn grits..	0.75	0.87	2.96	128	1009	53	62
Corn cob grits.....	2.50	2.0	3.40	111	746	33	56
Puffed corn.....	0.75	0.80	2.72	101	807	47	55
Untreated check.....				155	1369	0	0

*Soybean oil concentration on corncob grits was 15%; other carriers contained 30%.

**This treatment had numerous skips in the application because of bridging in the hopper of the aircraft.