RESEARCH CIRCULAR 143 DECEMBER 1965

Control of the CORNFIELD ANT, *Lasius alienus* (Forster)

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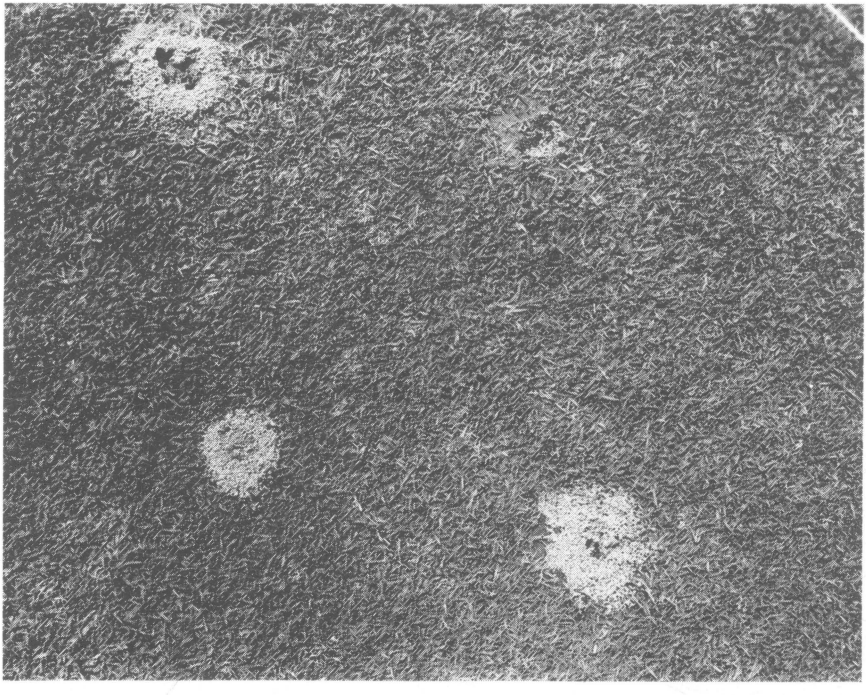

Fig. 1.—Cornfield ant mounds in a bentgrass lawn.

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Control of the Cornfield Ant, *Lasius alienus* (Forster)

J. B. POLIVKA

The cornfield ant, *Lasius alienus* (Forster), is a common ant species throughout Ohio. It may be found in almost any type of habitat but is particularly noticeable in light sandy soil and where the grass is mowed close. Where conditions are favorable for its development, this insect causes much damage in smothering the grass by throwing up mounds of soil over the short turf (Figure 1).

In the past few years, several tests were established at various locations in Ohio to study the effectiveness of different insecticides in controlling this pest.

MATERIALS and PROCEDURE

Insecticides used in the various tests were applied as granules, wettable powders, pellets, and emulsifiable concentrates.

A fertilizer spreader was used to apply the free-flowing granular insecticides after they were mixed with milorganite. Wettable powders and emulsifiable concentrates were mixed with water and applied with a sprinkling can.

The effectiveness of an insecticide was measured by counting the number of ant mounds in a 25-square foot area. In single plot tests, ant mounds were counted in four 25-square-foot areas taken at random. In replicated tests, a 25-square-foot area was examined in each plot. All ant mounds were leveled by spreading the soil when the counts were made.

RESULTS and DISCUSSION

The first experiment was established in a turf area in Gallipolis, Ohio. All chemicals were applied May 28, 1962, to single plots 10 by 100 feet (Table 1).

The data show that all of the insecticides were very effective in controlling the cornfield ant except Bandane at the 10 lb. level. The applications were still as effective in 1963 as they were shortly after application in 1962. When these plots were checked again in May and June 1964, ant mounds in the untreated area were very scarce, averaging about one for each 300 square feet. No further counts were made.

A second test was established in a cemetery in Powhatan, Ohio. The insecticides were applied May 31, 1962, to single plots 10 by 100 feet (Table 2).

TABLE 1.—Evaluation of Insecticides in Controlling the Cornfield Ant in Gallipolis, Ohio

Toxicant	Formulation	Rate in Lb./A.	Date Examined and Av. No. of Ant Mounds				
			6-6-62	6-18-62	7-2-62	5-15-63	6-12-63
Bandane	7.5% gran.	10	7.8	5.0	2.0	4.3	6.5
Bandane	7.5% gran.	20	3.0	.8	0	.0	.0
Aldrin	5% gran.	2	2.5	1.3	0	1.3	1.5
Aldrin	5% gran.	10	.3	.0	3	.0	.0
Heptachlor	5% gran.	2	.0	0	0	0	.0
Heptachlor	5% gran.	10	.0	.0	.0	.0	.0
Telodrin	2% gran.	2	.0	.0	.0	.0	.0
Telodrin	2% gran.	10	0	.0	.0	.0	.0
Untreated	—	—	7.3	5.8	3.0	16.3	12.0

TABLE 2.—Evaluation of Insecticides in Controlling the Cornfield Ant in Powhatan, Ohio.

Toxicant	Formulation	Rate in Lb./A.	Date Examined and Av. No. Ant Mounds in 25 Sq. Ft.		
			6-6-62	6-20-62	7-2-62
Dieldrin	4% gran.	2	9.5	.0*	.5
Dieldrin	4% gran.	20	5.5	1.0*	.5*
Dieldrin	5% gran.	20	11.0	.0*	.5*
Bandane	7.5% gran.	10	13.8	2.0*	1.5*
Bandane	7.5% gran.	20	5.5	1.5*	1.3*
Bandane	7.5% gran.	20	1.5*	.3*	2.8*
Endrin	2% gran.	2	3.5*	1.3*	.8*
Endrin	4% gran.	20	4.5*	.3*	.5*
Heptachlor	5% gran.	2	.5*	.8*	.0*
Heptachlor	5% gran.	10	.0*	.0*	1.3*
Heptachlor	5% gran.	20	.5*	.0*	.0*
Untreated	—	—	13.3	11.5	7.8

*Significantly different from untreated.

The data show that within a week the different levels of heptachlor and endrin and one of the 20 lb. rates of Bandane had a significantly lower number of ant mounds than the untreated area. In 3 weeks and again in 5 weeks after application of the insecticides, the number of ant mounds in all treated areas was significantly lower than the number found in the untreated blocks.

In 1963, a series of test plots was established in a cemetery in Clyde, Ohio. On June 21, insecticides were applied to 200-square-foot plots and each treatment was replicated twice (Table 3).

TABLE 3.—Evaluation of Insecticides in Controlling the Cornfield Ant in Clyde, Ohio.

Toxicant	Formulation	Rate in Lb./A.	Date Examined and Av. No. Ant Mounds in 25 Sq. Ft.	
			5-9-64	6-8-64
Aldrin	5% gran.	2	33.5	47.0
Bandane	10% gran.	35	2.0	13.0
Chlordane	5% gran.	5	48.5	60.5
Ciodrin	4 lb./gal.	8	26.0	19.0
Dieldrin	10% gran.	2	30.5	42.0
Endrin	4% gran.	2	51.0	48.0
GC 4072	4 lb./gal.	8	25.0	44.5
Heptachlor	5% gran.	2	14.0	25.0
Mirex pellets	pellets	1 lb./200 sq. ft.	.0	.0
Telodrin	5% gran.	2	.0	.0

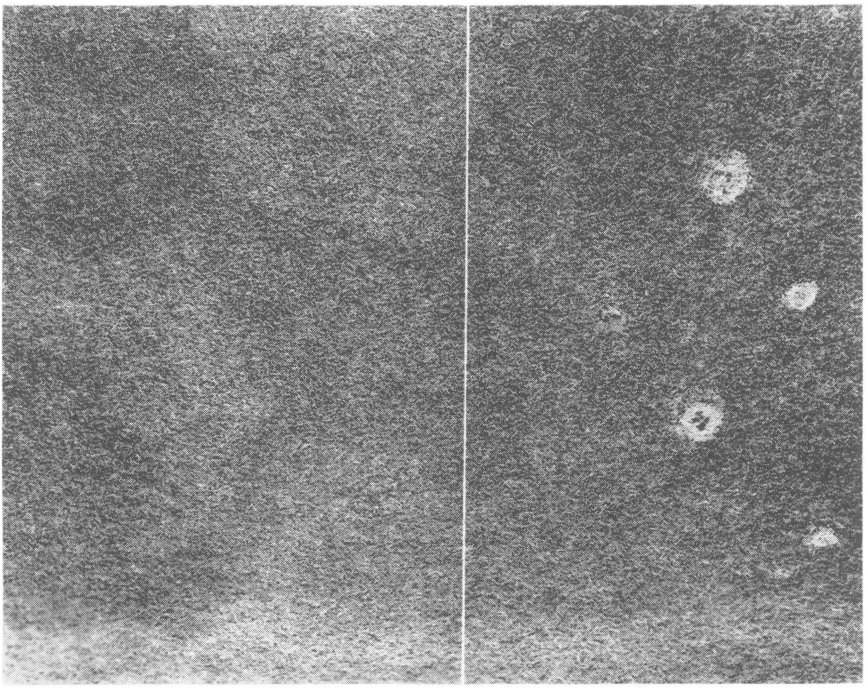

Fig. 2.—Turf free of ant mounds (left) after being treated with chlordane and untreated area (right) in a bentgrass lawn.

When these plots were checked on July 5, 1963, it was found that the ants had ceased activity in the area. The same condition was found when the plots were examined in late July and again in August.

In this test, chlordane was not effective in eliminating the ant population. However, in another experiment that was abandoned, this chemical was effective (Figure 2).

The insecticides were present on the soil surface at each of the survey dates. Since the turf was very thin and the grass was mowed close, this was nearly equivalent to applying the insecticides to bare soil. In checking with a local weather reporting station, it was learned that the area received only a few traces of rainfall from about the middle of June to the latter part of August.

The results of the 1964 examinations indicate that the mirex pellets and Telodrin were the only chemicals that remained effective in areas mowed close and which experienced adverse weather conditions in 1963.

TABLE 4.—Evaluation of Insecticides in Controlling the Cornfield Ant in Clyde, Ohio.

Toxicant	Formulation	Rate in Lb./A.	Av. No. Mounds/Plot 6-22-64
4072	8 lb./gal.	1	22.5
Kepone	50% WP	4.5	15.5
Bayer 29493	4 lb./gal.	2	2.0*
Ronnel	24% EC	10.0	2.5*
Zectran	22% EC	4.0	16.0
Mirex	1.25% gran.	1.25	.5*
DiSyston	10% gran.	3	16.5
Ethion	5% gran.	11	12.5
MC-A 600	50% WP	2	40.5
Diazinon	2% gran.	1.5	1.0*
Bandane	10% gran.	70	2.0*
Carbaryl	10% gran.	8	5.0*
M-2466	90% T	8	34.5
Phorate	10% gran.	10	1.0*
Untreated	—	—	10.0

*Significantly different from untreated.

In 1964, a series of test plots was established in the Clyde cemetery adjacent to the test reported in Table 3. All insecticides were applied on June 10, 1964 (Table 4).

The results indicate that the average number of ant mounds found in plots treated with Bayer 29493, ronnel, mirex, diazinon, Bandane, carbaryl, and phorate was significantly less than found in the check area. Further checks in 1964 were discontinued because the ants became inactive shortly after the first count was made.

SUMMARY

These data indicate that aldrin, heptachlor, Telodrin, dieldrin, and endrin were effective in keeping ant mounds at a low level in two of the first three tests. Bandane applied at 20, 35, and 70 lb. rates was more effective than when it was applied at the 10 lb. rate.

When these same insecticides plus chlordane, Ciodrin, GC 4072, and mirex were applied to very poor turf during a drought condition, mirex and Telodrin were the only materials found effective against the ant. The data in Table 4 indicate that Bayer 29493, ronnel, mirex, diazinon, Bandane (70 lb. rate), carbaryl, and phorate were very effective in controlling the cornfield ant under adverse weather conditions and poor mowing practices.