RESEARCH CIRCULAR 122 AUGUST 1963

Control of HAIRY CHINCH BUG, *Blissus Leucopterus Hirtus*, Mont., IN OHIO

J. B. POLIVKA

OHIO AGRICULTURAL EXPERIMENT STATION
Wooster, Ohio

8-63-3.5M

CONTROL OF HAIRY CHINCH BUG, *Blissus Leucopterus Hirtus*, MONT., IN OHIO

J. B. POLIVKA

Chinch bugs are responsible for considerable damage to turfgrass in Florida, Connecticut, eastern New York, and parts of Ohio. In Florida (3), the insect causing damage to St. Augustine grass is known as *Blissus insularis* Barber; whereas, in Ohio, New York (5), and Connecticut (4), it is the hairy chinch bug, *Blissus leucopterus hirtus* Mont., that causes damage to lawns containing bentgrass.

The hairy chinch bug has two generations a year in Ohio. Nymphs of the first generation are present during the last half of June and nymphs of the second generation are present in turf during the last half of August.

In 1934, the hairy chinch bug destroyed many bentgrass lawns in the Wade Park area in Cleveland. After a period of a few years, it became an insect of minor importance and remained so until 1959 when it was found to be the insect causing damage to lawns in Akron. Since 1959, it has been found in considerable numbers throughout the Akron, Canton, and Barberton areas. In 1962, it was very destructive to many lawns in the western part of greater Cleveland.

During the period from 1960 to 1962, chinch bug control experiments were conducted on turfgrass areas in and adjacent to the city of Akron. In 1960, all tests were conducted on private lawns (1) (2). In 1961, test plots were established in three private lawns and in a cemetery at Stow; and in 1962, two tests were established at this cemetery.

The size of experimental plots varied from 100 to 300 square feet. Each treatment was replicated twice when the large plot sizes were used and three or four times when the smaller plots were used.

1961 Experiments

In 1961, a single insecticide treatment was made in each of the five test plots between the period from June 13 to July 10.

The wettable powder or emulsifiable concentrate formulations of insecticides were mixed with water and applied with a sprinkling can. Granular formulations were mixed with activated sludge and applied with a fertilizer spreader. All of the insecticides were washed into the mass of plant growth on the soil surface with an amount of

TABLE 1.—Effect of Insecticide Applications on Populations of the Hairy Chinch Bug. Stow, Ohio, 1961.

Toxicant	Formulation	Rate in Pounds Actual Per Acre	Average Population Per Sq. Ft.		
			July 5	July 14	August 28
DDT	EC	10.0	.0	.0	1.2
Phorate	Gran.	10.0	.0	.0	1.2
Carbophenothion	EC	7.5	.0	.0	8.0
Ronnel	EC	10.0	.0	.0	4.0
Sevin	EC	8.0	.0	.0	9.2
Zytron	Gran.	20.0	.0	.0	1.2
V-C 13	EC	22.5	1.2	1.2	.0
Diazinon	EC	6.0	.0	1.2	1.2
Lindane	EC	10.0	1.2	5.2	.0
Guthion	EC	5.0	2.1	17.2	12.0
Bayer 29493	Gran.	5.0	5.2	1.2	21.2
Bayer 29493	EC	5.0	1.2	2.1	25.2
Kepone	WP	5.0	40.0	164.0	20.0
Ethion	EC	8.0	1.2	1.2	.0
Zectran	EC	6.0	24.0	85.2	9.2
Untreated	—	—	18.8	48.0	16.0

water equal to that used to apply the insecticide. The granular toxicants were washed in with water applied at the rate of 3 gallons per each 100 square feet of surface area.

Population counts were made by counting the insects flooded to the surface in three 1/12 square foot samples in each plot of 100 square feet. In the 300 square foot plots, two sets of three such samples were taken.

The insecticides, formulations, rates of application and results of the five tests are shown in the following five tables.

The insecticides referred to in Table 1 were applied on June 13 to plots of 10 by 10 feet; each treatment was replicated 3 times.

All of the insecticides except Guthion, Kepone, and Zectran were very effective in reducing the bug population of the first generation. According to the count on July 5, Guthion was effective but 9 days later the population had built up to a damaging level. The second generation was controlled by these insecticides, except Bayer 29493 and possibly carbophenothion and Sevin. A second application of these insecticides in August would eliminate the build up of the second generation.

The insecticides referred to in Table 2 were applied on June 26 to plots 10 by 10 feet; all treatments were replicated 3 times.

TABLE 2.—Effect of Insecticide Applications on Populations of the Hairy Chinch Bug. Stow, Ohio, 1961.

Toxicant	Formulation	Rate in Pounds Actual Per Acre	Average Population Per Sq. Ft.			
			July 7	July 18	Aug. 14	Aug. 31
Chinch Bug Killer	EC	6.0	1.2	.0	.0	8.0
Dylox	WP	5.0	5.2	5.2	2.1	1.2
Endosulfan	EC	2.0	12.0	8.0	5.2	1.2
Untreated	—	—	9.2	9.2	1.2	1.2

Dylox, which gave fair control of both generations of the hairy chinch bug, was not washed in with the extra gallons of water as were the other two insecticides. Chinch Bug Killer toxicant gave good control of the first generation of bugs but not of the second generation. Endosulfan failed to effect a control of either generation.

The insecticides in Table 3 were applied on June 30 to plots 10 by 10 feet; each treatment was replicated four times.

All of the emulsifiable concentrate and wettable powder insecticides were applied after being mixed in three gallons of water and all, except Dylox, were washed into the turf with an additional three gallons of water. None of the toxicants gave complete control of the insect. However, Chinch Bug Killer and Dylox were fairly effective against the immature stages of the first generation of the insect, but ineffective against the second generation. The chlorinated hydrocarbon insecticides failed to control the insect.

TABLE 3.—Effect of Insecticide Application on Populations of the Hairy Chinch Bug. Stow, Ohio, 1961.

Toxicant	Formulation	Rate in Pounds Actual Per Acre	Average Population Per Sq. Ft.		
			July 7	July 21	August 28
Bandane	Gran	10.0	130.0	44.0	122.0
Heptachlor epoxide	Gran.	4.0	32.0	26.0	44.0
Chinch Bug Killer	EC	6.0	4.0	2.0	11.0
Chlordane	EC	10.0	45.0	46.0	52.0
Dieldrin	EC	4.0	50.0	46.0	73.0
Endosulfan	EC	4.0	41.0	10.0	27.0
Dylox	WP	10.0	7.0	3.0	23.0
Kepone	WP	7.5	74.0	56.0	129.0
Untreated	—	—	59.0	66.0	29.0

TABLE 4.—Effect of Insecticide Applications on Populations of the Hairy Chinch Bug. Akron, Ohio, 1961.

Toxicant	Formulation	Rate in Pounds Actual Per Acre	Average Population Per Sq. Ft.	
			July 20	August 29
V-C 13	Gran.	21.0	.0	.0
Phorate	Gran.	10.0	.0	.0
Untreated	——	——	8.0	36.0

The insecticides in Table 4 were applied on July 10 to plots 10 by 30 feet; each treatment was replicated two times.

These results indicate that the single application of the two insecticides controlled the chinch bug throughout the summer.

The insecticides shown in Table 5 were applied on July 10 to plots 15 by 20 feet; each treatment was replicated two times.

The three insecticides were very effective against both generations of the insect. When the toxicants were applied on July 10 the turf, especially the bentgrass, was completely dead.

TABLE 5.—Effect of Insecticide Applications on Populations of the Hairy Chinch Bug. Akron, Ohio, 1961.

Toxicant	Formulation	Rate in Pounds Actual Per Acre	Average Population Per Sq. Ft.	
			July 18	August 30
V-C 13	Gran.	14.0	.0	.0
Phorate	Gran.	10.0	.0	.0
Carbophenothion	WP	7.5	.0	.0
Untreated	——	——	16.0	8.0

1962 Experiments

In 1962, two different insecticide tests were established in the Stow Cemetery. The insecticides referred to in Table 6 and 7 were applied to plots 10 by 10 feet; each treatment was replicated three times. All plots were sprinkled with three gallons of water before and after the insecticides were applied. The methods of insecticide application and sampling are described under the 1961 tests.

Toxicants in Table 6 were applied on June 13 and repeated a second time on August 8.

Sevin, ethion, Chinch Bug Killer, ronnel, phorate, and DDT emulsifiable concentrate gave good control of both generations of the hairy chinch bug. Although DDT wettable powder gave fair control of the

TABLE 6.—Effect of Insecticide Applications on Populations of the Hairy Chinch Bug. Akron, Ohio, 1961.

Toxicant	Formulation	Rate in Pounds Actual Per Acre	Average Population Per Sq. Ft.	
			July 17	August 28
Sevin	Gran.	8	6	0
DDT	WP	10	4	10
Carbophenothion	EC	7.5	28	10
Ethion	EC	10	12	0
Chinch Bug Killer	EC	7.5 com.	2	6
Ronnel	EC	10	0	2
Phorate	Gran.	10	4	0
Bayer 29493	EC	5	26	16
Bandane	EC	10	50	56
Ciodrin	EC	.2	38	10
Mirex	WP	8	26	66
DDT	EC	10	0	0
Naled	EC	1	30	38
Phosphamidon	EC	1	80	8
CL 43064	Gran.	1	28	20
Untreated	——	—-	46	32

first generation, it was ineffective in controlling the second generation. The other insecticides were ineffective in controlling the hairy chinch bug throughout the summer.

The insecticides shown in Table 7 were applied on June 14 and again on August 8. The type of formulation and rate of application are shown in the table.

TABLE 7.—Effect of Insecticide Applications on Populations of the Hairy Chinch Bug. Stow, Ohio, 1961.

Toxicant	Formulation	Rate in Pounds Actual Per Acre	Average Population Per Sq. Ft.	
			July 17	August 29
Di-Syston	Gran.	2	26	38
Guthion	EC	5	14	16
Malathion	EC	10	26	50
Dimethoate	EC	15	8	2
Zectran-ronnel	EC	6	10	24
Dylox	EC	8	36	106
Bandane	EC	15	82	24
Bayer 39007	WP	.5	2	4
Mirex	WP	1	16	16
Phorate	Gran.	10	10	0
Untreated	——	—	32	46

Dimethoate and Bayer 39007 gave good control of both generations of the insect. Phorate was somewhat ineffective in reducing the first generation of the insect but was the most effective insecticide in controlling the second generation. The other toxicants were ineffective in the control of the hairy chinch bug.

SUMMARY

The results of the 1961 tests indicate that a single application of several different insecticides, such as DDT, phorate, carbophenothion, ronnel, Sevin, Zytron, V-C 13, diazinon, lindane, and ethion, is effective in controlling the hairy chinch bug during the summer. Bayer 29493, Chinch Bug Killer, and Dylox were fairly effective against the first generation but failed to prevent the build-up of the second generation of the hairy chinch bug, except that carbophenothion and Bayer 29493 were not as effective as they were in 1961 despite the fact that they were applied twice during the summer. Dimethoate and Bayer 39007 were sufficiently effective in controlling the hairy chinch bug to deserve a place in future control tests.

REFERENCES

1. Polivka, J. B. 1961. Chinch bugs need two treatments. Ohio Farm and Home Research, May-June, 46:42.
2. Polivka, J. B. 1961. Hairy chinch bug control in Ohio. Proc. North Central Branch E.S.A. 16:79.
3. Kelsheimer, E. G. 1953. Granular insecticides. Fla. State Hort. Soc. Proc. 1953:311-3.
4. Walden, B. H. Notes on the hairy chinch bug; A pest of lawns. Conn. Agric. Expt. Sta. Bul. 383:328.
5. MacLeod, G. F. and Kenneth E. Maxwell. Experiments to control hairy chinch bug infesting turf on Long Island. Jour. Econ. Ent. 30:432.