

CONTROL OF THE SOUTHERN CHINCH BUG, *BLISSUS INSULARIS*, IN SOUTH FLORIDA¹

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ABSTRACT

Insecticide tests for the control of *Blissus insularis* Barber on St. Augustinegrass were conducted in 1971. Akton®, 0-(2-chloro-1-(2,5-dichlorophenyl)vinyl) 0,0-diethyl phosphorothioate; propyl thiopyrophosphate; diazinon; chlorpyrifos; Dyfonate®, 0-ethyl S-phenyl ethylphosphonodithioate; ethion; and Nemacide®, 0-(2,4-dichlorophenyl) 0,0-diethyl phosphorothioate, gave the best control.

The southern chinch bug, *Blissus insularis* Barber, is the most serious pest of St. Augustinegrass in Florida (Kerr 1966). *B. insularis* has continued to be the target of extensive chemical control programs since St. Augustinegrass is so widely used in private and industrial landscapes in the Southeast. Stringfellow (1967, 1968, 1969) evaluated several insecticides against *B. insularis*. With the possibility of resistance to some of the established insecticides, new materials should be found which are effective against this pest.

MATERIALS AND METHODS

For uniformity, test conditions were standardized as much as possible in the 3 tests. Treatments were applied to 9.27 m² (100 ft²) plots of St. Augustinegrass heavily infested with *B. insularis*.

Chinch bug populations were sampled before insecticides were applied, and 5 weekly post treatment counts were taken. Samples were made by forcing a metal cylinder of 34.69 cm (equivalent to 1 ft²) into the turf, filling it with water, and counting the bugs that surfaced in 8 min.

The plots were divided into 4 blocks, based on differing levels of infestations, and treatments within each block were randomized. A total of 19 insecticides was applied at 29 rates. Formulations and rates are presented in Tables 1-3. Granular materials were dispersed with a hand shaker and washed into the thatch with 6 gal of water per plot. Wettable powders and emulsifiable materials were mixed with 2 gal of water and applied with a sprinkler can. They were then washed in with 4 gal of water per plot.

Chemical definitions of the proprietary compounds used in the tests are as follows:

Actellic®, 2-Diethylamino-6-methylpyrimidin-4-yl dimethyl phosphorothionate

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TABLE 1. NUMBER* OF CHINCH BUGS PER FT² BEFORE AND AT 5 WEEKLY INCREMENTS FOLLOWING INSECTICIDAL TREATMENTS ON 29 MAY 1971.

Insecticide	AI/A (lbs.)	Pre- treatmt. count	Means** at weeks posttreatment				
			1	2	3	4	5
Propyl							
Thiopyrophos- phate 1.1EC	7.33	86.8	8.8	1.3	0.3	0.8a	1.3a
Ethion 4EC	10	91.3	13.8	2.0	0.8	4.5a	1.3a
Bromophos 10G	10	86.5	42.0	27.8	16.0	5.3a	5.3a
Bux® 10G	15	95.0	61.5	29.0	10.0	12.3a	29.5ab
Dyfonate® 10G	3	82.5	24.3	25.8	44.8	49.3 b	50.0ab
Dyfonate® 10G	2	84.8	77.3	56.3	69.5	67.8 b	56.0ab
Orthene® 75 WP	10	89.8	65.3	49.8	58.8	81.3 b	100.0 b
Orthene® 75 WP	5	85.3	64.3	90.3	68.0	100.0 b	100.0 b
Untreated Check	0	90.8	86.3	95.5	95.3	100.0 b	100.0 b

*Populations in excess of 100 chinch bugs were recorded as 100.

**Any 2 means in a column not followed by the same letter are significantly different (P=.05) by Duncan's multiple range test.

Akton®, 0-(2-chloro-1-(2,5-dichlorophenyl)vinyl) 0,0-diethyl phosphorothioate

Bux®, m-(1-methylbutyl) phenyl methylcarbamate and m-(1-ethylpropyl) phenyl methylcarbamate

Mocap®, 0-Ethyl S,S-dipropyl phosphorodithioate

Nemacide®, 0-(2,4-dichlorophenyl) 0,0-diethyl phosphorothioate

Orthene®, 0-S-Dimethyl acetylphoramidothioate

Primidid®, 2-Diethylamino-6-ethylprimidin-4-yl diethyl phosphorothionate

Tirpate®, 2,4-Dimethyl-1, 3-dithiolane-2-carboxaldehyde 0-(methylcarbamoyl)-oxime

Upjohn U-17004. 60%, 6-Chloro-3,4-xylyl methylcarbamate+40%, 2-Chloro-3,4-xylyl methylcarbamate

RESULTS AND DISCUSSION

An abnormally dry season resulted in very high *Blissus* populations throughout the summer. Kerr² (personal communication) has estimated that a population of 25-30 chinch bugs per ft² are necessary to cause damage to St. Augustinegrass under average conditions.

Results listed in Tables 1-3 show that Akton®, propyl thiopyrophosphate, diazinon, chlorpyrifos, Dyfonate®, ethion, and Nemacide® provided at least 5 weeks of excellent control. Other materials which provided good control were Actellic®, bromophos, carbophenothion, Primidid®, and propoxur.

Materials which provided control in these tests would probably provide much longer control under field conditions where the entire area was treated and no reinfesting population remained. These tests were designed, however, to determine the maximum period of time that the in-

TABLE 2. NUMBER* OF CHINCH BUGS PER FT² BEFORE AND AT 5 WEEKLY INCREMENTS FOLLOWING INSECTICIDAL TREATMENT ON 22 JUNE 1971.

Insecticide	AI/A. (lbs.)	Pre- treatmt. count	Means** at weeks posttreatment				
			1	2	3	4	5
Primidol® 50EC	8	82.3	1.8	0.3	1.0	1.0a	35.8a
Actellic® 50EC	8	83.0	1.3	0.5	3.0	5.5a	10.3a
Carbophenothion 4 EC	10	83.0	8.8	5.3	3.5	10.8ab	18.3a
Mocap® 10G	10	84.0	4.0	8.0	3.3	23.5abc	60.0 b
Carbofuran 4F	5	85.5	5.3	16.0	21.5	34.3 bcd	56.5 b
Tirpate® 10G	10	83.0	38.3	62.5	53.0	61.8 bcd	-
U 17004 50 WP	5.5	85.0	42.8	58.5	76.0	76.0 cd	-
Promecarb 10G	3	81.3	67.5	62.0	69.5	80.3 cd	-
Tirpate® 10G	4	100.0	76.8	93.0	99.8	90.7 cd	-
Tirpate® 10G	8	96.0	69.8	74.8	100.0	93.5 cd	-
Tirpate® 10G	6	98.0	94.0	84.0	64.5	95.7 cd	-
Untreated Check	0	96.3	93.5	95.0	100.0	100.0 d	100.0 b

*Populations in excess of 100 chinch bugs were recorded as 100.

**Any 2 means in a column not followed by the same letter are significantly different (P=.05) by Duncan's multiple range test.

TABLE 3. NUMBER* OF CHINCH BUGS PER FT² BEFORE AND AT 5 WEEKLY INCREMENTS FOLLOWING INSECTICIDAL TREATMENT ON 4 AUGUST 1971.

Insecticides	AI/A (lbs.)	Pre- treatmt. count	Means** at weeks posttreatment				
			1	2	3	4	5
Akton® 2EC	2	100	6.5	5.0	1.0	1.5a	1.3a
Chlorpyrifos 2EC	1.5	100	4.0	0.8	1.5	0.8a	1.5a
Diazinon 4EC	6	100	0.5	0.5	1.3	0.8a	2.3a
Dyfonate® 10G	4	100	7.5	0.5	0.8	0.3a	3.0a
Nemacide® 75% EC	20	100	16.3	7.5	0.5	1.8a	2.0a
Propyl thiopyrophosphate 6E	8	100	1.3	0.5	0.8	0.3a	0.0a
Bux® 4.2G	20	100	53.3	32.0	13.0	6.0a	16.8 b
Propoxur 1.5EC	8	100	16.8	5.3	12.8	13.3a	30.0 bc
Tirpate® 10G	20	100	12.8	6.0	9.8	28.8a	40.3 c
Untreated Check	0	100	100.0	100.0	100.0	100.0 b	100.0 d

*Populations in excess of 100 chinch bugs were recorded as 100.

**Any 2 means in a column not followed by the same letter are significantly different ($P = .05$) by Duncan's multiple range test.

secticide was actively killing or repelling *Blissus* which moved in from untreated adjacent plots.

LITERATURE CITED

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