The Control of Sod Webworms (*Crambus spp.*) in Indiana[1]

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Three species of sod webworms caused serious damage to turf in Indiana during the summers of 1962 and 1963. The three species were: *Crambus trisectus* (Walker), *C. mutabilis* Clemens (1) and *C. alboclavellus* Zell. (4). *C. trisectus* was the most abundant species caught in both black light and emergence traps. *C. mutabilis* was taken only in the larval stage from samples of sod. *C. alboclavellus* Zell. was taken in small numbers only in black light traps adjacent to the Purdue campus.

The larger sod webworm, *C. trisectus*, was present from early spring until fall. This information is similar to that reported by Ainslie and Crawford (2, 3). Swarms of adult moths flew, in zig zag fashion, across lawns whenever they were disturbed. Large numbers of these snout moths could be seen congregated around porch lights during the evening hours. The insect has been of periodic importance since 1915 (2). Food plants of the webworm include blue grass, crabgrass, the various crop grasses such as corn, wheat, oats and timothy and it can subsist on clover (2).

Both *C. trisectus* and *C. mutabilis* are reported to overwinter as larvae (1, 2). Both regularly have two generations per year, but may have a partial third generation depending upon the season (2, 5, 6).

During the past two growing seasons chlordane, the normally recommended turf insecticide, failed to give lawns the necessary pro-

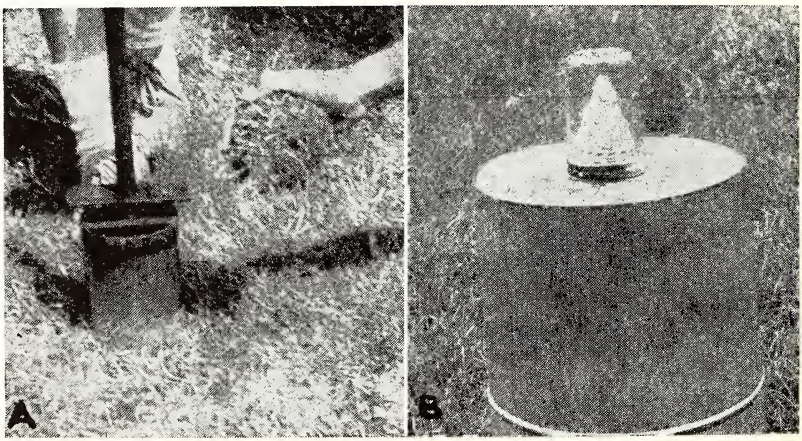

Figure 1.

A. A sod plug used in evaluating the effectiveness of the sod webworm experiment, and the tool for the procurement of the sample.

B. Lard can traps used to capture the adult sod webworms as they emerged from treated sod.

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TABLE 1

A comparison of insecticide treatments against the sod webworm, Lafayette, Indiana, 1963

Insecticide and Concentration of Granular Formulation	Amount of Material Applied (ozs.) per 1000 sq. ft.	Amount of Actual Toxicant (ozs.) per 1000 sq. ft.	Avg. No. of larvae or pupae[1]	Avg. No. Moths captured from 7/18 to 10/14
Exp. Compd. Bayer 29493 5%[2]	16.3	.8	.8	.2
Dylox 5 %	47.2	2.4	1.6	.8
G. C. 4072 10%[3]	8.2	.8	1.8	.6
Dieldrin 5%	26.6	1.4	2.0	.4
Sevin 10%	39.0	3.9	2.4	1.8
Diazinon 10%	32.8	3.3	2.8	.8
Kepone 2%	16.7	.33	3.4	2.0
Heptachlor 2½%	38.9	.97	3.6	1.4
Disyston 2%	24.6	.48	4.0	1.8
Aldrin 10%	38.9	3.9	5.6	0
Check—untreated	——	——	4.4	1.4
L.S.D. 5%			3.0	1.4
L.S.D. 1%			4.0	1.7

1. Average number of larvae found in 4 soil plug samples containing 25.1 cu. in. each. Samples taken July 12 and August 9.
2. 2.0,0-dimethyl 0-[4-methylthio)-m-toly] phosphoro-thioate.
3. Diethyl-1-(2,4-dichlorophenyl)-2-chloroylnyl phosphate.

tection and many lawns were badly damaged. Therefore during the summer of 1963 an experiment was conducted to check the possible effectiveness of several other insecticides, in granular form, against sod webworm infestations in two lawns in West Lafayette, Indiana. The plots 7′ by 14′ containing 98 sq. ft., were treated with 10 different granular insecticide formulations on June 27th, at the approximate end of the first adult emergence. A Gandy granular applicator, 7′ wide, mounted on bicycle wheels with a throw-out clutch, was used to make the applications. The experiment was replicated five times.

Effectiveness of the treatments was ascertained by taking two sod plug samples containing 25 cubic inches from each plot on July 12th and August 9th. Each sample of grass was then shredded and the number of larvae and pupae counted. See figure I. A second method of evaluation consisted of trapping the adults as they emerged from the treated turf of each plot. For this purpose a trap was constructed from a 5 gallon lard can, a wide mouthed pint Ball mason jar and a cone shaped Dixie cup. The area covered by each trap was 103.9 sq. in. and the trap was located in the approximate center of each plot. The traps were installed on July 18th and the numbers of moths captured were tabulated until October 14th.

The results of this experiment are shown in table 1.

The results of this experiment indicate that the most effective insecticides tested were two experimental compounds, Bayer 29493 and G. C. 4072, followed closely by Dylox and dieldrin. It is interesting to note that several insecticides commercially recommended for sod webworm control, sevin, kepone, diazinon and disyston, were less effective, and not significantly different from the untreated check. At the time the experiment was applied no chlordane granules were available, but Heptachlor, which contains some of the active ingredients in chlordane was included and failed to give adequate control of the sod webworm larvae and adults.

The enigma of why the aldrin plots contained so many webworm larvae and did not yield any adults might be explained by the fact that aldrin is converted to dieldrin, thus the larvae may have been killed before they became mature.

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