

Study Shows Long Range Beneficial Effects Of Repeated Ethion Treatment On Turfgrass

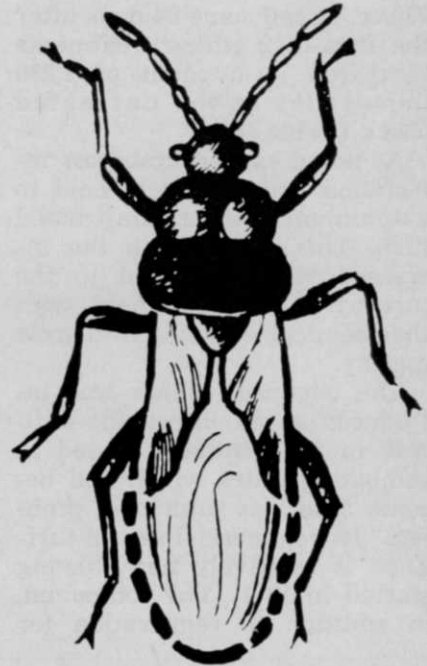
By
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Much information has been accumulated on the effectiveness of individual pesticides in controlling specific turfgrass pests, but little or none has been available concerning the overall, accumulative effects of regularly repeated applications of the same compound to the same turf area. Unexplained summer injury to high maintenance lawns has long posed the question of possible adverse effects from steady and frequent pesticide treatment.

A study conducted by Dr. H. T. Streu of Rutgers University on steady treatment of turfgrass with pesticide compounds has produced interesting findings in regard to the chemical ethion. Results indicate that re-

peated use of this material over a period of time not only has no apparent adverse effects but, rather, provides several important side benefits over and above control of the insects for which it has registration.

In this comparative study, ethion was applied 2 times annually for 4 years to the same red fescue-Kentucky bluegrass turf. The grass was in generally poor condition with heavy chinch bug and sod webworm infestations at the start of the experiment in 1962. By the end of the fourth year, grass in the ethion-treated plots had excellent color, vigor and density and was markedly superior in overall quality to the untreated check plots. The per-



Chinch bug, among the most troublesome of turf pests.

Table 1. Mean growth indices, percent crabgrass, and clipping yield from turfgrass plots treated with annual applications of ethion over 4 years.

Treatment	Mean Growth Index ¹	Percent Crabgrass	Mean Clipping Yield in Grams
Ethion	1.64	1.9	339.7
Check	3.23	27.8	183.5

¹Calculated from 13 observations. Index 1.0 = best growth, color, density; 5.0 = poorest growth, color, density.

Table 2. Mean numbers of chinch bugs counted per square foot of turf treated with ethion.

Treatment	Rate Lb./Acre	July 19	August 24
Ethion	16*	6.11	1.4
Check	...	18.7	25.1

*One-half rate applied on June 22; one-half on July 21.

Table 3. Numbers of *Tylenchorhynchus* sp. nematodes per 250 cc. of soil counted before and 16, 49 and 84 days following first treatment.

Treatment	Pretreatment	Days After First Treatment		
		16	49	84
Ethion*	616	480	408	88
Check	810	557	1265	1280

*First treatment applied on June 22; second on July 21.

cent of crabgrass was only 1.9 for treated turf and 27.8 for untreated. Mean clipping yields, in grams, were 339.7 for ethion plots to only 183.5 for check plots, a good indication of the greater vigor and vitality of the treated turf (Table 1).

Control of chinch bugs was excellent. Counts, for example, showed only 1.4 bugs per square foot in treated areas one month after application of the second half of a two-part dosage. This compared with 25.1 bugs in the untreated plots (Table 2). The study indicated that ethion continues reduction of chinch bugs while most other compounds in the test lose effectiveness. This among other things reduces overwintering populations, hence there are fewer chinch bugs to start damage and breeding the following summer.

The effectiveness of ethion against chinch bugs and sod webworm has been known for some time and been substantiated by numerous other trials—par-

ticularly in Florida where at one time the chinch bug problem was pretty much confined. But a not quite so well known fact borne out by Dr. Streu's study was the chemical's ability to curb nematodes when applied on a regular basis over a long period of time. One particular genus, *Tylenchorhynchus* numbered only 88 per 250 cc. of soil some 84 days after the first of 2 ethion treatments compared to a count of 1,280 nematodes in the untreated check (Table 3).

As noted earlier, crabgrass infestation was definitely held to a minimum in the ethion-treated turf. This was due to the increased vigor imparted to the turf by steady treatment with the chemical, enabling it to grow rapidly.

The chemical ethion was introduced as an insecticide-miticide in 1951, initially aimed at combating mites which had become a serious multicrop problem. Its commercial use on turfgrass is relatively new, having started in 1961. The compound, in addition to registration for

control of chinch bugs and sod webworm, is registered for use in halting Eriophyid mites on bermudagrass. It also shows considerable promise as a weapon against army worm on turf.

Generally, applications at the rate of 7¼ pounds actual ethion per acre are recommended to obtain effective control of chinch bugs and sod webworm. Many tests have shown several months of control at this rate. Where insect populations are unusually severe, higher dosage rates are suggested for best results. Current label registration accepted by the U. S. Department of Agriculture allows the application of as much as 10 pounds of actual ethion per acre when high dosage rates are considered necessary.

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