

1990 Entomology Research

One of the greatest needs at this time is better threshold information for use in turf IPM. In 1990, we initiated a project designed to define thresholds for grub injury to turf and how these thresholds are effected by irrigation practices. Part of the confusion for turf managers is that root-pruning injury may not be expressed as visible symptoms. The blades may remain green and apparently healthy even when the root system has been seriously injured by grubs. In our experiment we placed 0, 10, 20, 30, 40 or 50 grubs per square foot into bluegrass sod grown in rooting boxes at the Hancock Turf Research Center. The turf was allowed to establish for 6 weeks before grubs were added in September. The rooting boxes were pulled up in early November and the damage to turf roots quantified by measuring root strength.

In initial tests this year the rooting boxes worked well as a method of evaluating root damaged caused by grubs. A strong negative correlation was found between the number of grubs per square foot and root strength. (Figure 1B). Preliminary results suggest that grub damage to irrigated turf is not visible unless the grub infestation exceeds 30 per square foot (Figure 1B). However, injury could be expressed as patches of brown or dead turf if the turf is water stressed. No correlation was found between percent brown or dead turf and the number of grubs per square foot (Figure 1A). This is expected for irrigated turf and supports the initial hypothesis that some kind of root strength parameter is needed to evaluate grub injury.

ANT CONTROL IN TURFGRASS: 12' x 12' plots (144 ft²) with 3' buffer strips were established in a heavily infested fairway at the Ionia Country Club in Ionia. Treatments were applied on 15 Aug. Each treatment was replicated 6 times. Plots were sprayed with a R&D hand-held boom sprayer with four 8003 nozzles at 50 psi for 66.4 s (to give 4 gal/1000 ft²). Granular products were applied with custom-made hand shakers designed to require 3-4 trips over the entire plot area to evenly apply the amount of pre-weighed product. Ant mounds were counted just prior to insecticide treatment and once per wk for 5 wks afterwards. Ant mounds were counted if they could be seen while standing upright.

At 3 and 4 wks after treatment, only Triumph 4E significantly reduced ant mounding in comparison with the control. At 1 and 2 wks after treatment all insecticide products reduced mounding except for Pageant DF. None of the products tested were effective 5 wks after application. (Table 3)

Table 3.

FAIRWAY ANT TEST - 1990
Ionia Country Club

Treatment	Rate (lb AI/acre)	Mean number of ant mounds per 144 ft ² plot*					
		15 Aug	23 Aug	30 Aug	6 Sep	13 Sep	26 Sep
019537	2.5 lb/1000 ft ²	20.7 a	18.0 ab	6.8 bc	8.0 bc	8.5 ab	7.5 ab
Pageant DF	1.0	24.3 a	21.3 a	10.0 ab	19.7 a	18.0 a	13.2 a
XRM-5184	1.0	24.3 a	10.2 bc	4.7 bc	4.2 bc	8.5 ab	7.0 ab
Dursban ME 20	1.0	26.7 a	11.8 b	7.7 bc	6.8 bc	8.8 ab	6.2 ab
Triumph 4E	1.5 oz/1000 ft ²	24.2 a	4.7 c	3.3 c	1.7 c	2.7 b	3.7 b
Control	----	21.8 a	27.3 a	15.2 a	14.5 ab	19.5 a	8.7 ab

*Means within a column followed by the same letter are not significantly different (P= 0.05; DMRT)

Table 4.

HAIRY CHINCH BUG TEST - 1990

Treatment	Rate (lb AI/acre)	Chinch bugs per plot	
		24 Jul	1 Aug
Sevimol 4SC	6.0	65.0	3.0
Sevimol 4SC	8.0	63.0	0.8
Mocap 5G	5.0	78.6	6.8
Pageant DF	1.0	45.0	3.8
XRM-5184	1.0	35.6	0.8
Dursban 4E	1.0	83.8	1.4
Tempo 2	0.14	38.4	1.2
Triumph 4E	1.0	39.0	3.4
Control	--	62.6	25.8

Table 5.

JAPANESE BEETLE TEST
Rochester Golf Club

Treatment	Rate (lb AI/acre)	Larvae per plot
		28 Sep*
Sevimol 4SC	8.0	2.2 b
Mocap 5G	5.0	5.2 ab
Crusade 5G	4.0	4.2 b
019299	4.0	4.3 ab
019312	4.0	5.7 ab
Fonophos MS	4.0	0.7 b
ICI 08882	1.0	10.3 a
ICI 08882	2.0	6.3 ab
Triumph	0.5	2.8 b
Nematodes	1.0 billion/acre	10.8 a
Control		14.2 a

*Means followed by the same letter are not significantly different (P = 0.05; DMRT).