

publicly advertise that he is using sand and attribute any success to putting green quality. There has been a report of some superintendent being told by his club that he start topdressing with sand. That would make me madder than hell! You know sand topdressing was used 20 years ago by some superintendents on the Q.T. and you can see the layer of sand which was later covered with peat, sand and soil mixes. Surely, sand for topdressing is no panacea.

Wayne Otto, CGCS  
President

\* \* \* \* \*

Ataenius spretulus

Ataenius spretulus has been reported in the area. The first symptoms of injury in Ohio appeared in mid-June when the turf in fairways wilted despite regular irrigation. Wilted areas were especially visible when looking at the turf while facing the sun. Under continued stress from summer heat and larvae eating off the roots, the turf died in irregular patches.

Damage was observed on fairways consisting of annual bluegrass and bentgrass. Larvae were also found feeding on bluegrass in home lawns and golf course fairways, but causing only slight damage to the turf. One case of severe damage to several Penncross bentgrass greens occurred on one course at Hamden, Connecticut.

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Our thanks goes out to Jim Glazer, Superintendent of the Cincinnati Country Club. Jim spent about  $\frac{1}{2}$  hr. on the phone with myself going over the beetle problem as he has experienced it. He also sent out samples which will be available at our next meeting. Jim claims 80 to 120 per sq.ft. is considered a heavy infestation. Jim also pointed out that a positive I.D. should be confirmed by sending a sample to our state entomologist who is Dr. Koval. Jim recommended taking a cup hole setter to a depth of an inch and a half below soil by finding out the area of the cup setter in sq. inches and then dividing that into 144 sq. inches should give you a conversion factor to work with in calculating your population. Eradication is not always easy and it is of the utmost importance that care be taken in the use of pesticides. One of the mentioned pesticides in the Ohio State Report is very dangerous to apply and much professional advise should be found before embarking on its use.

The following report is a report prepared by Dr. Harry Niemczyk and Gerald Wegner of the Dept. of Entomology of the Ohio Agricultural Research and Development

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Center at Wooster, Ohio.

The research program on Ataenius spretulus has two major areas of emphasis: (1) research to establish the annual life cycle, and (2) the evaluation and development of methods and materials for control. The key to developing ways and means of controlling this insect now and in the future, rests with our understanding the details of its life history. This is a task which requires that one literally live with the insect for two or three years. The challenge of this part of the research program has been accepted by Mr. Gerald Wegner, graduate student in Entomology, at the Ohio State University. Gerry comes to Ohio State University from Lake Forest, Illinois. He received his bachelor of Science degree in Biology in 1973, and Master of Science in Biology in 1975 from Loyola University in Chicago. Gerry will write his doctorate dissertation on the biology of Ataenius as partial ful-



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fillment of his requirements for receiving the Ph.D. degree.

## LIFE HISTORY

Observations in Ohio indicate that the insect overwinters as an adult under leaves and other litter found in outlying areas around the golf course. The adults return to the golf course starting in late March (Fig.1) and continuing through April and early May. During this time numerous adults are seen on golf greens. On warm evenings, 4-6 PM, swarms of adults can be seen flying over the turf.

Egg laying begins in early May and continues through mid-June, when clusters of 9-10 can be found in the thatch or the soil immediately beneath the thatch. From June to Mid-July, larval populations are high and wilt symptoms common in heavily infested fairways.

The larvae burrow 1-3 inches in the soil to pupate in late July and early August, forming adults which are first reddish and then black. These reddish and black adults are often very numerous under turf killed by the larvae. Black adults are also commonly seen around incandescent and fluorescent lights on the golf course.

During August these adults lay more eggs that give

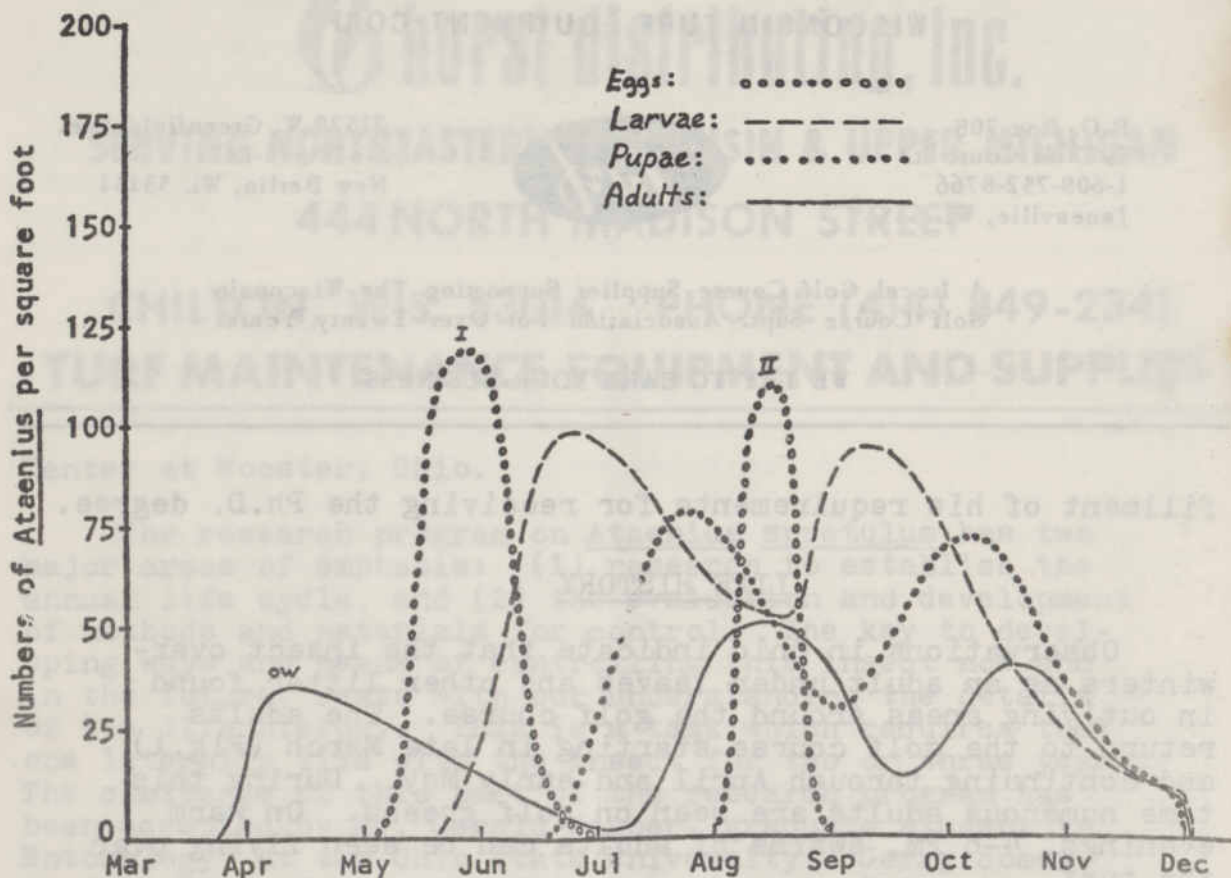


Fig. 1 *Ataenius spretulus* development on golf courses in the southern Ohio counties during 1976.



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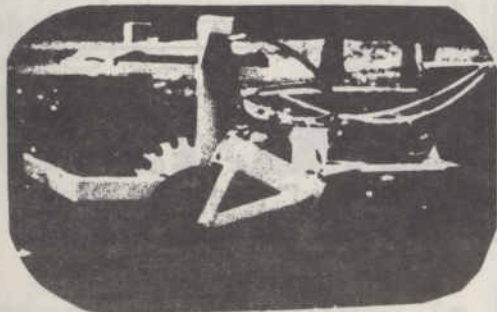
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rise to a second generation of larvae. In 1975, one golf course in Cincinnati, which had first generation larval populations of 200 or more per square foot, sustained further injury to fairways of bentgrass and annual bluegrass from second generation larvae in August. The population of these larvae averaged 300/ft<sup>2</sup>.

The second generation larvae burrow down to pupate in late September and October and change into adults that leave the golf course as soon as they can fly. In 1976 swarms of adults were noted at 5:00 PM October 14. A few larvae can be found as late as November but it is doubtful that any survive the winter.

## CONTROL OF LARVAE

The effectiveness of various insecticides was tested



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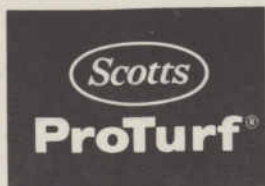
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against *A. spretulus* larvae in 1976 (Table 1). The insecticides were applied when the larvae were actively feeding on the turfgrass roots. In the 1976 tests, control with diazinon, trichlorfon (Proxol®) and chlorpyrifos (Dursban®), insecticides currently labeled for control of certain species of grubs, was 77-89, 64, and 22 percent, respectively. Fensulfothion (Dasanit®) which is labeled for use against European chafer and Japanese beetle grubs and Northern masked chafer (Ohio only), gave 98 percent control. Two experimental insecticides CGA-12223 and bendiocarb gave 82-96 and 75-85 percent control, respectively.

### CONTROL OF ADULTS

A program evaluating the possibility of controlling *Ataenius* by spraying fairways to kill adult beetles in April and May and thus prevent egg laying was tested in 1976 (Table 2). This method shows good promise. The effectiveness of granular formulations for this program will be tested in 1977.

(1) Research supported, in part, from funds provided by: The Ohio Turfgrass Foundation; G.C.S.A.A.; Muser International Turfgrass Fellowship; Cleveland District Golf Assoc.; and Golf Course Supt. Associations of Greater Cincinnati, Central Ohio, Miami Valley, Northern Ohio, Wisconsin and Ontario, Canada.

**TABLE 1—Results of Insecticide Tests for Control of *Ataenius spretulus* Larvae, Cincinnati, Ohio, 1976\*.**

Insecticide	Formulation	Rate lb. AI/A	Grubs/ft <sup>2</sup> 18 days after treatment	Percent Percent Control
Diazinon	2 G	6	6	89
Diazinon	5 G	6	11	77
Diazinon	4 EC	6	9	82
Chlorpyrifos (Dursban)	4 EC	2	39	22
CGA-12223**	1 G	1	9	82
CGA-12223	1 G	2	2	96
CGA-12223	2 EC	2	7	85
Fensulfothion (Dasanit)	15 G	2.5	1	98
Bendiocarb†	76 WP	1	8	85
Bendiocarb	76 WP	2	12	75
Trichlorfon (Proxol)	80 SP	8	18	64
Check			49	

\*4 replications of plots treated June 10, and irrigated (0.5 inch water) after all treatments applied.

\*\*0-[5-Chloro-1-(1-methylethyl)-1H-1,2,4-triazol-3-yl] 0,0-diethyl phosphorothioate

†2,2-dimethyl-1,3-benzodioxol-4-ol methylcarbamate

**TABLE 2—Results of Sprays to Control *Ataenius spretulus* Adults in Golf Course Fairways, Cincinnati, Ohio, 1976\*.**

Date and Days after application	Live adults/square foot	
	Treatment	Check
(4/21) 0	9.1	9.1
(5/5) 12	0	5.4
(5/17) 24	0	5.0
(5/27) 34	0	1.0
	Larvae/square foot	
(5/27) 34	2.0	21
(6/11) 46	8.9	88

\*Three complete fairways treated April 22 with Diazinon 4 EC at the rate of 6 pounds actual ingredient per acre.

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