

# ATAENIUS OUTLOOK - S

## SCIENTIFIC

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Ataenius spretulus is a potential pest of Minnesota golf courses. By way of review, A. spretulus or the black turfgrass ataenius, as it is now called, is a scarab beetle (white grub) with a one year life cycle. The larval stage produces typical white grub damage by feeding on grass roots. Greatest damage is on fairways where annual bluegrass, Poa annua, is prevalent. However, it will also damage bent grass and other bluegrasses.

The adult beetle spends the winter in protected locations away from the fairway. In spring, the adults move from wintering sites to sunny locations and occasionally can be seen in large numbers on the greens. This is not the egg-laying time; the adults begin to lay eggs a few weeks later. The eggs hatch soon after being deposited, and the larvae feed on grass roots until late July when they move deeper into the soil to pupate. Adults begin to emerge a few weeks later and seek egg-laying sites or places to pass the winter depending on time of emergence. Two generations a year are common in eastern and southern United States but appear to be linked in Minnesota to extended summer conditions.

Larval control can be obtained by applying diazinon or ethoprop. However, this method is not totally satisfactory since the occurrence of damage is often the stimulus for control. Another approach has recently been tested with encouraging results.

Dr. Harry Niemczyk, Ohio State University, initiated cooperative testing programs in Colorado, Missouri and Minnesota related to controlling the adult black turfgrass ataenius just prior to egg-laying. This approach has the decided advantage of eliminating the beetle prior to the onset of damage. Harry and I agreed to the project and established the test in cooperation with Dean Sime at Interlachen Country Club, Edina, in 1978.

In addition to determining the efficacy of Ataenius spretulus adult control, we were also interested in usable indicators of just when the adults were laying eggs and hence, the time to apply pesticide. The experiment involved observation of several phenological events and correlations to adult egg-laying. Previous work by Dr. Niemczyk and his team suggested that bloom of black locust and Spirea were probable indicators of adult egg-laying. Other events were also observed.

Diazinon AG500<sup>R</sup> was applied to selected fairways in response to these phenological events. The tee end of each fairway was left untreated to serve as a control. Minnesota results showed that beetle larvae were absent in both the check and treated areas. The lack of larvae in the untreated areas made it difficult to draw conclusions concerning the Minnesota test. I suspect that Ataenius population levels were too low at Interlachen in 1978 to show any differences between treatments. However, based on results from other states and conversations with Harry, I think adult control would be an effective method of black turfgrass ataenius control when needed in Minnesota. To this

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# SCIENTIFIC & PRACTICAL

## PRACTICAL

Dean Sime  
Golf Course Superintendent  
Interlachen Country Club

On July 13, 1932 Dr. A. A. Granovsky inspected a grub infestation on a Minneapolis golf course. This grub had caused considerable damage by killing the grass here and there on greens and fairways. Diggings in one six inch square yielded 29 grubs, 8 pupae and one freshly emerged adult. The name of the beetle, *Ataenius spretulus*.

Thus begins our story about a little monster who has been lying in the weeds for forty some years and not gaining much recognition until he became known as the Cincinnati flash. In 1975 he ravaged a number of golf courses in Ohio and had we recognized the symptoms, the same could be said for Minnesota. And what's his favorite meal? Why, of course, a nice succulent *Poa annua* fairway.

Generally, you will first become aware that you have a problem when turf begins to wilt in rather general areas. It will become noticeable in July when weather problems are generally at their worst. Eventually, the turf dies and you continue to be disgruntled with that "failure" grass.

Having attended various conferences, you begin to think of the possibility of *Ataenius* and desperately go about tearing at the dead turf. It lifts easily as if there were no roots, but upon digging further you do not discover anything really pertinent as to the cause. So again, the obvious, "failure" grass under stress. The real irony about this is that when this state is reached, the *Ataenius* has developed into the pupae stage and has buried itself deep in the soil. You may look all day and find only a few beetles in the Larvae stage but had you looked three weeks earlier, the cause of death could have easily been determined.

The beetle will remain in the pupae stage until mid August when it will emerge as an adult. In more southern areas it is possible to have two life cycles per year. However, in Minnesota the second cycle is not evident. It over winters only as an adult in leaves and underbrush adjacent to the fairways. In Spring it begins flying again and may be attracted to lights. In mid May it begins to deposit eggs in your favorite turf and again, its life cycle proceeds.

Dr. Harry Niemczyk, at Ohio State University, began studying this creature in 1975. Little was known prior to that time, primarily, I believe, because the cause of death had simply been attributed to failure grass. Dr. Niemczyk has determined that the most feasible means of control is to go after the adult beetle in the egg laying stages. This, in Minnesota, is early May, especially the week that *Spiraea* and the Black Locust are in full bloom. Using Diazinon at a rate of 6 lbs. active ingredient per acre has shown very promising results. This was done at Interlachen in 1977 with the supervision of Dr. Niemczyk and our local Extension Entomologist, Mark Ascerno. I was encouraged as essentially no Larvae were found on treated fairways and a less significant number were found on two check fairways. Damage was evident on the check fairways but not nearly as severe as the preceding season. I should also report that some tip burn did occur using the liquid formulation. When using this product, water should be applied to wash it from the leaf surface.

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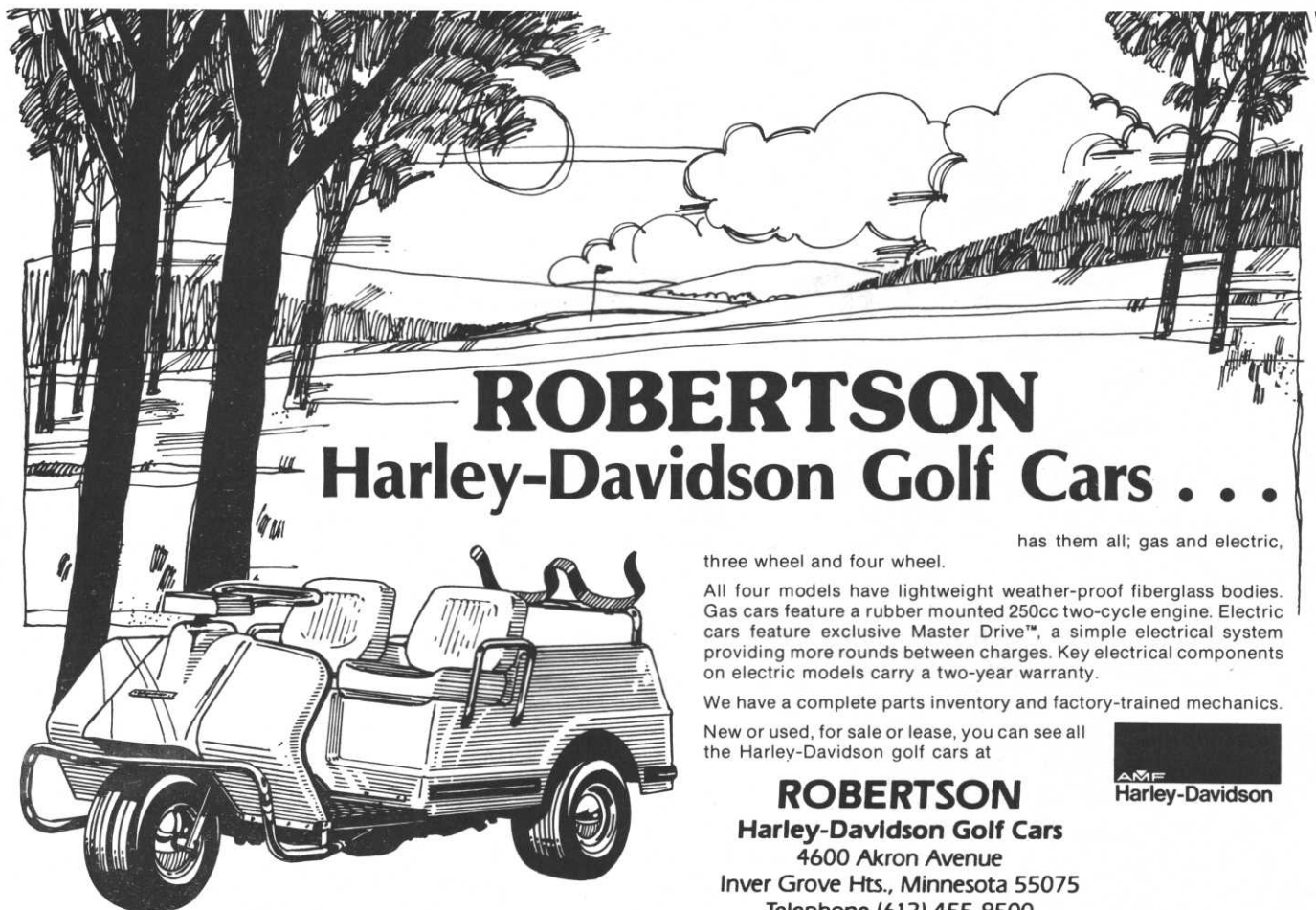
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end, I have requested that Ciba-Giegy seek a 24c registration in Minnesota for adult control with Diazinon AG500<sup>R</sup>. I hope to hear soon concerning the status of this request.

Based on our observations at Interlachen and at other sites, the following sequence should be helpful in determining when to spray. Establishing the need to spray, however, is at best an educated guess. Superintendents should look for adults on greens in mid-May particularly around mid-day. Remember this is an "on your mark" indication, not an indication to spray. Poa annua seed head formation and "cotton" release from cottonwood tell you to "get set", and full bloom of Apirea variety vanhouttei and bloom of black locust tell you to "go". The tested approach involved application of Diazinon AG500<sup>R</sup> at 6 lbs. AI per acre (4.4 oz./1000 sq. ft. in 10 gallons of water). The material was watered in for five minutes immediately after application. Phytotoxicity (brown streaks) in the fairway was noted at Interlachen but this mowed off within one week of application.

Remember, at present Diazinon AG500<sup>R</sup> does not yet have a label for this use. Hopefully, Minnesota registration will come quickly.

Several questions remain - the most important in my opinion being year to year need. Minnesota could experience economic population levels in some years but not in others. Unfortunately, there currently is no way to relate adult numbers to the level of damage. This should be the next step in developing a sound approach for A. spretulus adult control. As of now, I can only say that Ataenius spretulus can cause economic damage to Minnesota golf courses and that adult control appears to be effective and preferred over larval control attempts.



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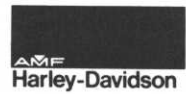
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To those of you who are not sure if you have this problem, ask yourself what happened on your course last season. If you had problems with *Poa annua* wilting and dying, purchase a lighted insect trap such as those used for flies and other insects. Place it somewhere out on the course where it is feasible and monitor the results every morning. This should begin in the first week of May and continue for about three weeks. If you have a significant number of *Aetenius*, call Mark Ascerno at 373-1059 for further information. Remember timing is extremely important when attempting to control the adult stage.

Some work has been done in controlling the beetle in the Larvae stage. A product called Mocap has proven to be most effective. This is an extremely volatile product and protective gear must be used in its application. Also your course must be closed to play the day of application. I would suggest its use only in what is deemed an extreme emergency. Other products used for control in the Larvae stage become bound in the thatch layer and the results are mediocre.

In summary, first determine if you have a problem. I tend to believe that since this creature has been around for many years that its population tends to cycle with the extreme winter conditions. I also feel that courses surrounded by heavily wooded and natural areas may have more problems due to the winter protection these areas offer. If you determine you have a problem, call Mark Ascerno for positive identification and up to date control recommendations.

#### TRACTOR UNIT

##### ENGINE.

Briggs & Stratton, twin cylinder, air cooled, 16 HP, 40 cu. inch displacement, splash oil system, 4 pt. oil capacity, silicon copper aluminum alloy cylinder block, super lo-tone muffler.

##### FUEL CAPACITY.

7.0 gallons.

##### TRACTION DRIVE.

Sundstrand hydrostat Model 15 directly mounted on Dana axle GT 20 with 20.9:1 gear ratio. Foot pedal control for variable speed and forward/reverse. Oil filter cartridge, 5 qt. oil capacity.

##### GROUND SPEED.

0 to 10 MPH Forward, 0 to 2.5 MPH Reverse.

##### TIRES.

Front traction drive tires 23 x 8.50 x 12 on 36 inch wheel base. Rear steering tires 16 x 6.50 x 8 on 34 inch wheel base. Timken rear wheel bearings.

##### BRAKES.

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# JAGUAR



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