ATAENIUS OUTLOOK - S

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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^{R} 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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end, I have requested that Ciba-Giegy seek a 24c registration in Minnesota for adult control with Diazinon AG500^{R}. 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^{R} 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^{R} 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.