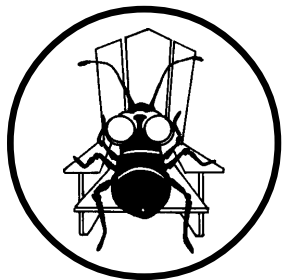


Fall Insect Control



Pest Watch

Insect growth regulators typically require ingestion for optimum activity so it is important that the target insect is actively feeding when they are applied.

Early fall is the most hectic time of the year for the turfgrass entomology group at the New York State Agricultural Experiment Station. This is the season to monitor for scarab grubs on home lawns and golf course turfgrass, and to evaluate experimental chemical and biological insecticides that were applied in the spring and summer for Japanese beetle, European chafer and oriental beetle grub control.

Each fall our research crew of 10-15 hard working individuals monitor some 100 home lawns and golf course fairways, using a standard golf course cup cutter to sample the turf soil for grubs. We also determine the soil properties (pH, organic content, texture, bulk density, compaction), vegetation properties (turfgrass species, ornamental plants that might serve as food and cover for scarab adults), environmental properties (topography, shade, irrigation), and history (pesticide and fertilizer history, age of stand) of each site. In this way we hope to determine those factors that are most highly correlated to damaging grub populations; our ultimate goal is to develop site specific risk ratings to help turfgrass managers pinpoint those turfgrass sites that have the greatest risk of having high numbers of grubs in most years.

Use of Insect Growth Regulators

Our lab group has focused a great deal of time and effort on the possible use of insect growth regulators (IGRs) for controlling grubs in turf. Several chemical companies are developing novel classes of compounds with unique modes of action that interfere with the normal

insect molting process by mimicking the action of the natural insect molting hormone ecdysone. One such product, MACH 2, developed by RohMid (a joint venture of American Cyanamid and Rohm & Hass companies), has recently been labeled by the U.S. Environmental Protection Agency. High doses of these IGR products typically cause rapid insect mortality, while sublethal effects include rapid maturation to the adult stage, larvae showing deformities, and larvae undergoing additional larval molts instead of changing to pupa. Specific IGR products have shown activity against scarab grubs, cutworms and sod webworms.

Insect growth regulators typically require ingestion for optimum activity so it is important that the target insect is actively feeding when they are applied. The use of an IGR on scarab grub populations late in the fall as they prepare to move down into the soil for winter, as well as the application to grubs in late spring as they prepare to pupate is ill advised for this reason. Laboratory and field studies indicate that early larval stages are susceptible to insect growth regulators and also suggests that there is a fairly wide range of activity among closely related insects such as different species of scarab grubs. Our studies have shown that one IGR shows truly impressive activity against Japanese beetle grubs but much less dramatic activity against either European chafer or Oriental beetle grubs. This specificity of these products demand that turfgrass managers determine which insect species is present to avoid disappointing results.

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