

## Sugarcane Beetle: An emerging Insect Pest in Georgia Turfgrass

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### Introduction

The sugarcane beetle (*Euetheola humilis*) is a native species that has been a common insect in turfgrass but is not generally regarded as a pest. In the past couple of years, the adult beetle has been increasing in numbers and causing damage to turfgrass stands throughout the Southeastern U.S. The sugarcane beetle has been an important pest for over 100 years in many crops, including sugarcane, corn, sweet potato, and rice.

### Description

The sugarcane beetle is in the Scarabaeidae family. The adult is black with small punctures along the elytra (wing covers) which make up vertical stripes and is about  $\frac{1}{2}$ -inch long. The first pair of legs have four serrations, enabling the beetle to be a strong digger. As a result, adults have been known to damage asphalt roofs, door gaskets, and other soft structural elements if security lights attract them to buildings. The larvae of this beetle are C-shaped grubs, similar in appearance to other white grub species. Third instar larva can reach up to  $1\frac{1}{4}$  inches long and be identified by a creamy white body with a reddish-brown head capsule.

### Life Cycle and Biology

The sugarcane beetle has four stages: egg, larva, pupa, and adult. The beetle overwinters as an adult and emerges in early April. Adult activity can be observed from April until early June. During this time, the adults mate, and the females lay eggs in the soil. It is not known where the female deposits her eggs. After the eggs are laid, the spring adults die-off. The eggs hatch into white grubs, and about 75 days after hatching, larvae pupate. It takes from 15 to 20 days for an adult to emerge from the pupa. Grubs have been found up to a foot underground, although their exact diet and the permanent location are not fully understood. Adult activity can be observed again beginning in August, and they feed through October and then overwinter until spring.

Sugarcane beetles are primarily found on warm-season turfgrasses, especially bermudagrass and zoysiagrass. Adult activity is usually during the early nighttime hours. Once daylight comes, they will attempt to dig away from the sunlight. However, it is known that adult beetles are attracted to lights at night. This characteristic has been used to sample and monitor the beetle. Lighting control or switching to less attractive “bug light” type bulbs may reduce problems in many situations. They can be found within the turfgrass canopy and at the soil surface, or just under the surface, feeding on turf roots and crowns. The larvae can be found in similar locations infesting bermudagrass and zoysiagrass. The organic matter in the thatch and roots are the main component of their diet.

Damage to turfgrass is believed to be caused by the adults, including mechanical damage, such as tunneling and digging, and feeding on the roots. Birds may also cause some damage when they prey on these beetles during the day. Beetle concentrations can exceed 50 per square foot, a density that will destroy turfgrass quickly. These aggregations are not always closely associated with lights but usually occur in grassy areas with plentiful organic matter in the soil.

### **Management**

An understanding of pest biology is required for the effective management of any insect pests. Unfortunately, the sugarcane beetle life cycle and biology is not well understood. However, it is known that adults are active during April and May and August through October. Cultural practices such as reduced irrigation and the use of sodium vapor lights instead of mercury vapor bulbs may reduce the attractiveness to turf during adult flights.

The use of pyrethroid insecticides, such as bifenthrin (Talstar, Menace, etc), lambda-cyhalothrin (Scimitar or Battle), deltamethrin (Deltagard), cyfluthrin (Tempo) and other pyrethroids are effective against adults. Application late in the day should be more effective given the beetle's nighttime feeding habits. A high spray volume (e.g., 75 to 100 gpa) can improve the efficacy of the insecticides. Because the adults are often concentrated in a relatively small area, application of insecticide on a large area is usually not necessary. Thorough drenching of the affected area may improve insecticidal control, reducing turfgrass damage with minimal cost and insecticide use. In affected areas of bermudagrass and zoysiagrass, if the adults are effectively controlled, the soil can be cored aerified to stimulate turfgrass growth from belowground rhizomes. If infestation is severe, re-sodding may be necessary.

### **Images**

Adult sugarcane beetle.





Bermudagrass damage from sugarcane beetle (photo courtesy J. Steinhofer).