Virginia Cooperative Extension
Virginia Tech • Virginia State University
www.ext.vt.edu

Sugarcane Beetle, *Euetheola humilis*

Authored by Benjamin Aigner, Katlyn Catron, Sudan Gyawaly, Curt Laub, and Roger Youngman, Department of Entomology, Virginia Tech

Introduction

The sugarcane beetle, *Euetheola humilis* Burmeister, also known as the rough-headed corn stalk beetle, is native to the United States. It is a sporadic nuisance and agricultural pest affecting several crops across the southeastern U.S., from west Texas to Florida, and extending north to southern Ohio and Maryland (Billeisen and Brandenburg 2014). This beetle belongs to the rhinoceros beetle subfamily (Dynastinae) within the family Scarabaeidae.

Although the sugarcane beetle is typically an occasional pest due to generally low population levels, outbreaks can cause significant damage to crops and personal property. Occasionally, populations reach high enough densities to become a nuisance pest in human population centers, where beetles are drawn to artificial lights at night (Layton 2009). In the South, when populations reach extremes, it has been reported to damage buildings, vehicles, and other property by burrowing into materials such as caulk or rubber used to seal cracks (Smith et al. 2015).

Description

Sugarcane beetle is a stout dome-shaped beetle about ½ in. (13 mm) long (Figure 1). The beetle is dull black with dots on its thorax and finely dotted lines on its wing covers that run lengthwise. The forelegs of the beetle are mole-like (fossorial) and are used for digging through the soil. The eggs are oval, white, smooth and about .078 in. (2 mm) in diameter when fully developed. The larvae are called white grubs, like other scarabs. The grubs have a white body, red head capsule and six yellowish legs. The mature grubs are about 1¼ in. (32 mm) long and curl to a C-shape when disturbed. The pupa is about ¾ in. (19 mm) in length and is white initially, but becomes pale brown as it matures (Billeisen and Brandenburg 2014).

Figure 1. Fig 1. Sugarcane beetle (*Euetheola rugiceps*) adult. Photo: Sam Kieschnick, http://www.inaturalist.org/photos/97745967).

Life Cycle

Sugarcane beetle completes one generation per year and overwinter as adults. Most plant damage is caused by adults, which become active in late April or early May as temperatures rise in Virginia. Adults may remain in the same field or fly to other areas depending upon the availability of food. They mate and lay eggs singly or in clusters of 3-4 in the soil. Eggs are typically laid in early June, and hatch in about 2 weeks. The grubs are commonly found in midsummer and take about 2 months to fully mature. The pupal stage lasts for about 2 weeks with adult emergence in mid-September (Billeisen and Brandenburg 2014).

Host plants

Sugarcane beetle is an economically important pest of corn, sugarcane, rice, sweetpotato, and turfgrass. It has also been reported to cause damage in strawberry, cotton, rose, and wild grasses (Smith et al. 2015). Sugarcane beetles have population cycles that are not fully understood. Most years, they are not significant pests, but occasionally, their populations surge, causing substantial agricultural losses.

Distribution

Sugarcane beetle is widely distributed throughout the southeast U.S., including Louisiana, Mississippi, Texas, Florida, Alabama, Arkansas, Tennessee, Kentucky, Georgia, South Carolina, and North Carolina (Smith et al. 2015). Damage to turfgrass has been reported as far north as Maryland and Ohio (Brandenburg and Freeman 2012). In Virginia, it mainly occurs in the eastern part of the state (Phillips and Fox 1924).

Damage

Sugarcane beetle larvae (grubs) feed on decaying plant material and the roots of grasses or weeds and will occasionally consume turfgrass roots when populations are high enough (Layton 2009, Billeisen and Brandenburg 2014).

In corn, adult sugarcane beetles feed primarily on roots and in the crowns of developing corn plants in the spring (Figure 2). They move along the planting furrow and will bore in the stalk at or just below ground level, giving the stalk a ragged appearance (Layton 2009). Injured plants may show striping, deadheart, stunting, suckering, or even complete plant death. The beetles generally stop feeding when corn reaches V3 to V5 stage (Smith et al. 2015).

Figure 2. Sugarcane beetle adult and feeding damage on the lower stalk of a corn seedling (Scott Stewart, West TN Research & Education Center UT).

Pest management

Corn

Corn planted in old sod fields is at higher risk of sugarcane beetle damage, so corn should not directly follow sod in crop rotation (Philips and Fox 1924). Planting corn early (late April) allows for more stand growth before the peak of adult emergence in the spring (Phillips and Fox 1924, Smith et al. 2015). For chemical control, combining seed treatments with in-furrow insecticide applications at planting provides control, but rescue treatments of insecticides to actively infested corn are generally ineffective (Smith et al. 2015).

Sweetpotato

Because of the sporadic nature of sugarcane beetle outbreaks in sweetpotato, damage is hard to predict and control is mostly chemical-based. More research on the beetle's ecology is needed to form integrated pest management plans that include cultural or biological control methods. Preventative insecticide treatments are applied to the soil prior to planting and have been effective in reducing sugarcane beetle damage to sweetpotato (Smith et al. 2015).

Turfgrass

Cultural practices to encourage healthy stand growth can help turf withstand damage from sugarcane beetles, including deep, infrequent watering and appropriate fertilization. Additionally, keeping nighttime lighting above the turf to a minimum reduces the number of adult beetles attracted to those lights (Billeisen and Brandenburg 2014). Sugarcane beetle grubs are also vulnerable to attacks by several types of ants, mites, and parasitic flies (Billeisen and Brandenburg 2014). Chemical control diverges from that of other white grub pests by targeting the adult stage rather than the early larval instars. Insecticide applications should be made as soon as adults are seen in the spring to remove reproductive individuals from the population; specifically targeting the spring flight of beetles seems to positively impact pesticide efficacy more than active ingredient or application rate (Billeisen and Brandenburg 2016).

References

Brandenburg, R.L. and Freeman, C.P. eds., 2012. *Handbook of turfgrass insects* (p. 144). Lanham, MD: Entomological Society of America.

Billeisen, T.L. and Brandenburg, R.L., 2014. Biology and management of the sugarcane beetle (Coleoptera: Scarabaeidae) in turfgrass. *Journal of Integrated Pest Management* 5(4): B1-B5. http://dx.doi.org/10.1603/IPM14008

Billeisen, T. and Brandenburg, R., 2016. Efficacy of five insecticides targeting spring and fall populations of sugarcane beetle adults. *Florida entomologist*, *99*(3), pp.563-565. https://doi.org/10.1653/024.099.0338

Phillips, W.J. and H. Fox. 1924. “The Rough-Headed Corn Stalk-Beetle.” United States Department of Agriculture, Department Bulletin No. 1267.

Smith, T.P., Beuzelin, J.M., Catchot, A.L., Murillo, A.C. and Kerns, D.L., 2015. Biology, ecology, and management of the sugarcane beetle (Coleoptera: Scarabaeidae) in sweetpotato and corn. *Journal of Integrated Pest Management*, *6*(1): 13.

Visit Virginia Cooperative Extension: ext.vt.edu

2024 ENTO-13NP (ENTO-595NP)