

Bug-Wise



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Sugarcane Beetles: It's a rare insect pest that can cause economic damage to row crops and vegetable crops and commercial buildings and private homes and vehicles, but sugarcane beetles did all this and more in 2008. These are common insects. We see them every year, but their populations are usually so low they cause little economic damage and go largely unnoticed. Outbreaks of this pest do not occur at predictable intervals, but records of outbreaks date from before the Civil War. Because their populations are cyclic, sugarcane beetles are considered "occasional pests", but 2008 was definitely an outbreak year for this pest. If you bought gas last fall, you probably noticed hundreds of these little black beetles on the concrete around the gas pumps, or you may have noticed them around the tennis court, soccer field, or patio. Adult sugarcane beetles are attracted to light, and they accumulate anywhere lights are left on at night.

Description: Sugarcane beetles, *Euethola humilis rugiceps*, are scarab beetles, which means they are related to May beetles, green June beetles, masked chafers, and a lot of other scarabs. In the past, this insect was also known as the rough-headed corn stalk beetle. Adults are robust black beetles that are about ½ inch long. Their stout, heavily-spined front legs are well-suited for digging, and they are strong. Try holding a live beetle in your closed fist and you will quickly see just how strong they are.

Biology: Sugarcane beetles have only one generation per year. Unlike many other scarab beetles, they overwinter as adults. Adults emerge in the spring and fly to grassy areas to lay their eggs. The eggs hatch into typical scarab larvae, which are known as white grubs, and have the 'C' shape that is characteristic of white grubs. Larvae develop through the spring and early summer, feeding on organic matter in the grass thatch, and adults begin emerging in late summer and fall. These adults may fly away from the field where they developed to search for feeding and overwintering sites. They fly at night and are strongly attracted to lights.

Damage: With most scarab beetles, it is the larvae, or white grubs, that cause the damage, but with sugarcane beetles it is the adult stage that causes problems. During outbreak years stands of seedling corn are sometimes destroyed by adults, which travel down the row chewing through the base of plants. Similar damage sometimes occurs in cotton, sugarcane, and other row crops. Adult beetles can also cause severe damage to sweet potatoes by congregating in fields and chewing deep gouges into the potatoes just before harvest.

Damage to buildings and vehicles occurs when flying adult beetles that have either just emerged from overwintering quarters, or have emerged from the pupal stage and are searching for overwintering sites, are attracted to the area by lights. When flying sugarcane beetles land in such an area, their instinct is to dig in. If the area is covered with some hard surface, such as concrete, asphalt, or metal, the beetles usually crawl until they encounter some vertical obstacle and accumulate there. On roof tops, vehicles, and similar situations, there is often some type of caulking or sealant at this juncture, applied to prevent leaks. If the caulking is soft enough, and the seam is wide enough, the beetles will naturally attempt to dig into this area. As mentioned previously, they are strong, persistent diggers.

It is possible, though as yet unproven, that the beetles are actually being attracted to some caulking materials by gases that are released as the caulking cures. Many insects are attracted to alcohols, ketones, or other chemicals that are components of pheromones or serve as natural feeding attractants, and caulking and sealants may contain and release similar products. This is an area that merits further investigation. However, some of the newer caulking materials remain soft and pliable after curing, and this trait would also make them more susceptible to damage by sugarcane beetles.

Prevention and Control: One of the more important points to keep in mind about sugarcane beetles is that they are occasional pests that are normally present at low levels but sporadically reach outbreak numbers. This means they are not a problem every year, and numbers usually decline following a heavy outbreak. But what can one do to minimize damage in those years when they are a problem?

Light management is the key to minimizing sugarcane beetle damage around buildings and vehicle lots. The fewer beetles that are attracted to an area, the less likely there will be problems. Unfortunately, simply leaving lights off during the flight period is usually not practical, due to logistical or security concerns. But changing to bulbs that produce wavelengths of light that are less attractive to insects can help. The yellow ‘bug lights’ really do attract fewer insects, and they are useful around homes, but these are less practical around commercial buildings. Sodium vapor lights are more expensive than mercury vapor lights, but they also attract fewer insects. In commercial settings, using sodium vapor lights in fixtures near buildings and mercury vapor lights for fixtures away from buildings can help reduce the number of beetles attracted to sensitive areas. Likewise, shielding light fixtures so that the light is directed down, where it is needed, rather than out into the night, can help reduce sugarcane beetle numbers. These practices also help reduce the number of other flying insects attracted to an area.

Insecticides are not very helpful in preventing sugarcane beetle damage around buildings. You can kill the beetles by spraying them directly with a labeled pyrethroid insecticide, but the residual may not be sufficient to kill the beetles that show up the next night. Still, there are some situations where a residual spray of a pyrethroid insecticide (bifenthrin, cyfluthrin, deltamethrin, etc.) may give some protection—by killing beetles before they have done too much damage. But these treatments may need to be reapplied frequently, especially in areas that are exposed to rain and sun light. During unusually heavy flight periods, such as occurred in 2008, it may be necessary to have someone patrol especially sensitive areas each morning and physically remove any beetles that have accumulated, using either a vacuum or broom and dust pan. It usually takes some time before the beetles dig into caulking and other materials, and physically removing them in this way can prevent a lot of potential damage.

Types of Damage Caused by Sugarcane Beetles in 2008

- Damaged seedling corn in spring. This damage is caused by the overwintered adults, which travel along the seed furrow at or just below the soil surface, chewing through the base of seedling corn plants as they encounter them and eating the growing bud. Plants less than 8 inches tall are usually completely cut off, but they may bore into the stalk of larger plants that are up to two or three feet tall. Often a single beetle will kill all of the plants in four to six or more feet of row, creating skips that are large enough to adversely affect yield. During heavy outbreaks isolated fields can sustain enough damage to require replanting.
- Damaged sweet potatoes just before harvest. This damage is caused by adults emerging in late summer and fall, and feeding heavily before they go into overwintering sites. Damage appears as large gouges in the surface of potatoes. Although the damaged area may heal over, damaged potatoes are unsightly and unmarketable. In fall of 2008, some commercial sweet potato fields had more than 80% of the potatoes that severely damaged, and most fields suffered some loss to this pest.
- Damaged roofs of buildings, resulting in water leaks. When a sugarcane beetle inadvertently lands on a flat-topped roof, its instinct is to attempt to dig into the softest spot it can find. During years when these beetles are especially numerous, it is not uncommon for sugarcane beetles to cause leaks in flat roofs with rubber, or tar and gravel tops. They can also cause leaks on other types of roofs by tunneling into caulked seams as described in the following section. This is especially common on roofs that also have lighting, which will attract large numbers of beetles.
- Damaged caulking around brickwork, sidewalks, parking lots, and windows of commercial buildings. While much of this type damage is only cosmetic, tunneling in caulking around windows, doors, and some brickwork seams can result in structural leaks. Some of the caulking materials used in newer construction are designed to remain soft and pliable. Sugarcane beetles that land on patios, sidewalks, window ledges, etc tend to travel until they encounter a vertical obstacle. If there happens to be a seam of soft caulking at this point, they will begin digging in. Areas that are well lit at night tend to have the highest beetle populations. The newly remodeled Colvard Student Union Building here at Mississippi State sustained quite a bit of this kind of damage last fall, including leaks around windows.
- Damaged seals around windows, etc. of automobiles and recreational vehicles, sometimes resulting in leaks. This did not occur as often as the roof leaks, but was still a problem for some distributors. Large distributors usually have lots of lighting on at night, for display and security reasons, which also attracts a lot of sugarcane beetles.
- Damaged foam insulation in walls of houses and other buildings. Some homeowners reported finding piles of ground up insulation coming from under the siding of their house. This was the result of sugarcane beetles that inadvertently encountered the foam insulation and began burrowing in. Sugarcane beetles are tough, persistent burrowers, and a couple of people complained that the constant scratching sounds were keeping them awake at night. Again, these kinds of problems are usually around areas with outdoor lighting.

Will They Be Back In 2009?: It is really difficult to predict when outbreaks of these kinds of occasional pests will occur, or how long they will last. Populations usually decline following a heavy outbreak, but some past outbreaks of this pest have lasted two or three years. We had huge numbers of sugarcane beetles going into overwintering last fall, so it is reasonable to expect heavy spring populations when these overwintering beetles emerge. And, this could mean more problems with sugarcane beetle damage to buildings and roofs.

This could be especially important to corn farmers, who would be wise to prepare for heavy sugarcane beetle pressure this spring. Although there are no insecticides that can prevent sugarcane beetles from being attracted to a corn field, some soil-applied corn insecticides do control this pest. Protection is not complete, because the beetles usually damage a plant or two before they get a lethal dose of insecticide, but this is much better than having them destroy ten or twelve plants in a row. See Extension Publication 2471, Insect Control for Corn, Cotton, and Soybeans, for specific recommendations. Contact Dr. Chris Daves, Extension Corn Entomology Specialist, at 601-857-2284 for additional information on sugarcane beetles in corn.

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This information is for educational and preliminary planning purposes only. Brand names mentioned in this publication are used as examples only. No endorsement of these products is intended. Other appropriately labeled products containing similar active ingredients should provide similar levels of control. Always read and follow the insecticide label.