



Sugarcane Aphid in Virginia Sorghum

Melanaphis sacchari (Zehntner) (Hemiptera: Aphididae)

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Introduction

The sugarcane aphid (SCA) is a pest of sugarcane, sorghum, and millet. Its origin is thought to be northern Africa and the Middle East and SCA is now widely distributed in the southern US. It was detected in Virginia sorghum in 2015. Sorghum growers must be acutely aware of SCA populations to avoid yield loss and harvest complications.

Pest Description

SCA are small, sap-feeding insects that form clusters or colonies on the undersides of sorghum leaves (Fig. 1). Color ranges from gray in cool weather to creamy yellow in warmer weather. They are never green. SCA can be distinguished from similar-looking aphid species by their light-colored heads, smooth “skin”, and dark-colored feet, antennae, and cornicles, which are the “tailpipe” structures on the rear end of the insect (Fig. 2). SCA nymphs look like smaller versions of adults. Adults can be wingless (typical morphology) or winged (for population distribution) (Fig. 2).

Life Cycle

Populations of SCA in Virginia reproduce asexually and all individuals are female. Females give birth to live young, which molt four times before reaching adulthood, typically in 4-12 days. Adults can live from 10-37 days, depending on the temperature. Groups of females cluster together to form colonies. When conditions are right, females birth offspring that grow wings to spread the colony to new locations. SCA prefer warm, dry weather, and populations can rapidly explode under these conditions. Wind and storm fronts help move winged SCA long distances, after which



Fig. 1: Colony of sugarcane aphids on sorghum.

Photo: Patrick Porter, Texas Cooperative Extension, Bugwood.org



Fig. 2: Winged (top left) and wingless (bottom right) sugarcane aphid adults and nymphs (others)

Photo: Patrick Porter, Texas Cooperative Extension, Bugwood.org

they settle on the underside of leaves towards the top of sorghum plants.

In warm climates, aphids feed on sorghum in the spring and summer and overwinter in sorghum refuse or Johnsongrass for the colder months. In colder regions (and likely, Virginia), SCA colonies die off in the winter and reestablish the next growing season from winged adults traveling on wind currents.



Fig. 3: Sorghum grain head covered in sooty mold from sugarcane aphid honeydew.

Photo: Jeff Gore, Mississippi State University Extension

Damage Caused by SCA

SCA feed on plant sap using their straw-like mouthparts, which are inserted into the plant tissue to draw up liquids. This robs nutrients from the plant and can cause yellowing, wilting, and leaf death. Severe infestations can kill plants.

Aphids secrete sticky, liquid waste called honeydew. This liquid causes lower leaves to appear shiny and creates the perfect conditions for sooty mold to flourish. Mold blocks light from reaching the plant surface, reducing or stopping photosynthesis, reducing vigor and causing leaf or plant death, and contaminating finished products (Figs. 3, 4).

Major consequences of SCA infestations:

- In early sorghum (pre-boot to soft dough) – reduced yield, reduced seed weight, delays in maturity, and even death of young plants
- In later, mature sorghum – honeydew on leaves can clog combine, causing reduced harvest efficiency and overall yield
- In sorghum grown for forage – longer curing times, or a finished product contaminated by mold



Fig. 4: Combine head covered in sugarcane aphids.

Photos: Robert Bowling, Texas A&M AgriLife Extension

Management

Every sorghum field in Virginia should be scouted for SCA beginning in August. In uninfested fields, perform a weekly inspection at each edge of the field. Walk about 25 feet into the field and inspect between 15 and 20 plants in 50 ft of row. At each plant, check the underside of leaves with a hand lens. Check also for shiny honeydew on the top surface of lower leaves. Continue until 60-80 plants have been inspected. If aphids are not found, continue weekly monitoring.

If aphids are found, switch to monitoring twice weekly to catch population spikes, especially in warm, dry weather. Because counting individual aphids is impractical, Texas A&M AgriLife Extension and Research has developed a method for visually estimating aphid numbers (<https://agrilifecdn.tamu.edu/ccag/files/2016/04/NT0043.pdf>). Average the number of aphids counted on the 60-80 inspected plants and compare to the EIL and ET below.

The recommended economic injury level (EIL) for sugarcane aphids in Virginia is 50-125 aphids per leaf when sorghum prices are at \$4/bu. The economic threshold (ET; when control measures need to be taken) is 50 aphids per leaf on 25-30% of plants. (Fig. 5).

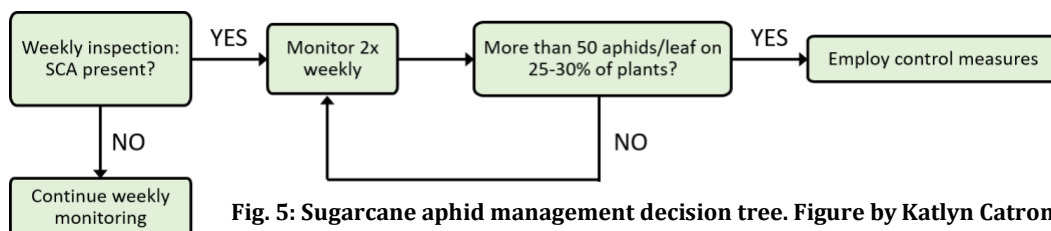


Fig. 5: Sugarcane aphid management decision tree. Figure by Katlyn Catron, 2018.

Control

Biological

Lady beetles, hoverfly larvae, and lacewing larvae are all excellent predators of SCA and tend to closely follow populations as they move into sorghum (**Fig. 5**). Several wasps lay their eggs in SCA, creating aphid "mummies," or easily distinguished parasitized aphids (**Fig. 6**). Aphid mummies are dark blue, black, or light tan and are essentially the dead husks of aphids used by the developing wasp. Unfortunately, aphids reproduce so quickly that their populations can overwhelm natural enemies, and other control methods are usually necessary.



Fig. 5: Hoverfly larva (center) eating sugarcane aphids
Photo: Patrick Porter, Texas Cooperative Extension, Bugwood.org



Fig. 6: Sugarcane aphid mummies (dark blue)
Photo: Patrick Porter, Texas Cooperative Extension, Bugwood.org

Cultural

Plant sorghum early and in high densities to maximize crop growth stage during infestation. Yield loss ranges from 21% (soft-dough) to 100% (pre-boot). Also, consider planting a SCA-tolerant hybrid varieties of sorghum (see list of available varieties at:

<http://www.sorghumcheckoff.com/newsroom/2016/03/28/sugarcane-aphid/>).

Chemical

Currently (Aug 2019), the only chemical control available for sugarcane aphid management in Virginia is Sivanto Prime (17.09% flupyradifurone, Bayer CropScience, Leverkusen, Germany) and Transform WG (50% sulfoxaflor, Dow AgroSciences, Indianapolis, IN). Transform is allowed by a Section 18 Emergence Exemption that must be renewed each growing season. Contact your local ANR Agent of Virginia Cooperative Extension Office for current labels and restrictions. Remember that all label instructions must be explicitly followed.

References

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