



BUG BIZ

Pest Management and Insect Identification Series



Melanaphis sacchari, Sugarcane Aphid (Hemiptera: Aphididae)

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Description

Sugarcane aphid is a significant pest for sorghum in tropical and subtropical regions worldwide. Sugarcane aphids are usually recognized by their lemon-yellow color, but the body color may vary from brown to light yellow. The tubes on the rear of the abdomen (cornicles), tips of the legs (tarsi) and last few segments of the antennae are dark. Adults are 1 to 2 mm in length can be either winged or wingless (apterous). Winged aphids are usually dark yellow to reddish-brown, while apterous aphids are paler. Heavy infestations on the undersurface of leaves produce abundant secretions called honeydew. Black sooty mold can grow on honeydew-stained leaves below aphid aggregations and is an important indication of their presence during field scouting. As with all aphids, feeding is accomplished via a short proboscis that extends from beneath the forebody. Immature stages are similar to adults but smaller. A number of similar aphids may be found on the same host plants. A taxonomist or entomology diagnostician should be consulted prior to making management decisions.

Life Cycle

Sugarcane aphids in the U.S. are exclusively females that reproduce asexually and give birth to live offspring. The entire life cycle, from birth to adulthood, can range from five to 12 days, depending on the temperature. The sugarcane aphid goes through four nymphal stages that take around four to five days to complete. Each aphid can give birth to 30 to 60 offspring during its lifespan, with one to three births per day. Sugarcane aphids aggregate and feed on the undersurface of leaves. Infestations may not be obvious in casual examination. Wingless forms predominate during the early stages of infestation, with winged forms produced as host plants become stressed and food quality diminishes. Winged aphids are poor fliers but may spread rapidly to adjacent fields on the wind.



Melanaphis sacchari infestation (Patrick Porter, Texas Cooperative Extension, Bugwood.org).



Melanaphis sacchari, wingless and winged adults (Patrick Porter, Texas Cooperative Extension, Bugwood.org).

Ecological Significance and Pest Status

Sugarcane aphid is an important pest of sorghum in Asia, Africa, South America and Australia. Infestations in sugarcane have been known in the U.S. since 1970, but the species was not considered an important pest. During 2013, that changed when sugarcane aphid caused significant damage to sorghum for the first time in the U.S. along the Texas Gulf Coast and in Louisiana. By the end of 2015, it had been documented in 17 states.

Young plants are particularly susceptible to initial infestations, but damaging infestations can persist in mature plants. Physical conditions and irrigation play an important role in the progress and severity of infestations, with irrigated fields suffering more damage than nonirrigated. Population levels are cyclical, depending on the physiological state of the plants. Production of winged aphids usually signals a reduction in populations, but the damage may already be severe. Damage is typical of aphid infestations and includes chlorosis, wilting, and reduced yield. Aphids are generally impacted by weather events, and population declines have been known to occur after heavy storms.

Scouting and Control

Monitoring. Scouting protocols include identification of suspected infestations by examining leaves for honeydew in combination with estimating numbers of aphids using established methods (aphid estimation tools) that have been developed through agricultural research programs.

Chemical control. Insecticides belonging to the chemical classes of butenolides and sulfoximines, such as flupyradifurone and sulfoxaflor, have been found to be highly effective against sugarcane aphids. The neonicotinoid imidacloprid is also effective.

Biological control. Many generalist predators feed on aphids and provide a measure of control if not



Melanaphis sacchari, various life stages (Patrick Porter, Texas Cooperative Extension, Bugwood.org).

killed through nontarget effects of insecticides. A variety of lady bug beetles (Coccinellidae), including *Coccinella septempunctata*, *Coleomegilla maculata*, *Cycloneda sanguinea*, *Hippodamia convergens* and the ubiquitous invasive Asian variegated lady beetle (*Harmonia axyridis*) are voracious aphid predators. Brown lacewings (Neuroptera: Hemerobiidae) have also been found to be effective in controlling sugarcane aphids.

Host plant resistance. Resistant sorghum strains have become increasingly important in reducing damage from aphids. Resistant strains include SCI 110, SCI 170, Tx3408, Tx3409, BI 1070 and ABI 1055-WFI-CS1/RTx436. The combination of using resistant strains and conservation of naturally occurring natural enemies is important in mitigating damage from a variety of aphid species.

References

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