

MANAGEMENT OF SUGARCANE APHID ON GEORGIA SORGHUM IN 2017

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In late August 2014 a new aphid was found attacking grain sorghum in Georgia. This aphid is the sugarcane aphid (*Melanaphis sacchari*). Sugarcane aphid will be a serious pest of sorghum in 2015 with most fields being treated one or more times. Infestations are developing throughout the state mostly in the coastal plain region now. I expect the aphid to be throughout the state very soon in 2016.

Background: The sugarcane aphid (SCA) has occurred in Florida since 1977 and Louisiana since 1989 feeding on sugarcane. First found in eastern Texas near Beaumont, a new strain with a preference for sorghum has rapidly spread eastward across the southern United States in 2014. It is now widespread across the southern U.S. and occurs from Texas, Oklahoma and southern Kansas to central Florida, most of Georgia and as far east as southeastern Virginia. The aphid infests all types of sorghum including grain, silage, forage sorghum and sorghum –sudangrass and sudangrass types. It also attacks Johnsongrass, *Sorghum halepense*. Indeed Johnsongrass supports populations in areas where grain sorghum is absent. The aphid must overwinter on green sorghum plants in areas where volunteer sorghum and Johnsongrass do not go completely dormant.



Photos: Xinzhi Ni, USDA-ARS, Tifton, GA and Pat Porter, Texas A&M AgriLife Extension

Identification: It is important to scout sorghum fields in your area for its presence. It is fairly easy to identify. Wingless forms are a uniform pale cream to yellow with black feet and black cornicles (the small tubes present on the end of the abdomen).

Damage: Where it has been found in Georgia, it is present at very high numbers of several thousand aphids per plant across entire fields. Large populations of fluid sucking aphids cause serious injury to the plants including death of leaves and sometimes plants. Feeding injury causes reddish lesions on the stems and leaves. Studies have showed that the greatest yield losses occurred during pre-boot, boot and early panicle emergence stages with yield losses of 52 – 100%. Pre-boot infestations at this time can prevent heading and infestations during boot and early panicle emergence can cause sterile heads. Infestations during soft dough also reduced yield by about 20%. The aphid can remain present in large numbers in the field until harvest. It produces large quantities of honeydew, a sticky sugary substance

that adheres to the plants, which may interfere with harvest and could damage combine harvest equipment.

Management Practices for SCA Aphid

1) Plant early – Because the aphid migrates northward in the spring, early plantings may avoid may avoid very large infestations. Late planted double-crop plantings are at greater risk of severe infestations.

2) Plant a tolerant hybrid/variety - Some hybrids have been shown to have some partial tolerance to the aphid. This table from the Sorghum checkoff program lists grain sorghum hybrids with some degree of tolerance to SCA.

<http://www.sorghumcheckoff.com/farmer-resources/grain-production/hybrid-selection>

3) Use an insecticide seed treatment. My trials last year found that insecticide seed treatment would limit seedling infestations for 30 – 40 days after planting. All registered neonicotinoid insecticides are effective including thiamethoxam (Cruiser), clothianidin (Poncho, NipsIt Inside) and imidacloprid (Gaucho, others). Most grain sorghum seed was treated with one of these seed treatments in 2017.

4) Scout early and often. Fields can quickly be inspected for the presence of aphids by looking are on the underside of leaves. Once aphids are detected, scout at least once, preferably 2 times per week, because aphid numbers build very quickly. Shiny lower leaves with honeydew are a clear sign of infestation.

5) Beneficial insects usually do not control infestations. SCA and their honeydew attract large number of beneficial insect predators such as lady beetles, syrphid fly larvae and lacewings. A parasitic wasp is present in and caused infested aphids to turn a dark blue-gray color. No aphid fungal disease has been observed either. Generally the rapid rate of increase in aphid populations overwhelms the beneficial insects and severe plant damage usually occurs.

6) Treat when aphids reach threshold levels. The current threshold is **50 or more aphids per leaf on 25% of plants** preboot stage through dough stage. Once threshold is reach do not delay application because infestations can very quickly go from the threshold level to 100% infested plants and hundreds of aphids per leaf.

7) Use an effective insecticide. PYRETHROID INSECTICIDES ARE NOT EFFECTIVE and may flare infestations by killing all the aphid predators. Regardless of the insecticide, rapidly expanding populations are difficult to control. Foliar insecticide options for SCA in Georgia are:

- **Sivanto Prime** (Bayer Crop Protection). Sivanto prime has a full section 3 label and a supplemental 2ee label for lower rates on sorghum and other grain crops. The 2ee rates are 4 – 7 fl. oz per acre. Sivanto was very effective in my trials at rates of 4 to 7 fl. oz. per acre with Control usually lasting 21 days or more. At the 4 oz rate it can be applied up to 7 times during the season but has a 21 day PHI.

- **Transform WG** (Dow AgroSciences). Transform WG federal label was re-instated last year but sorghum is not on the full federal label. But Transform WG has an approved Section 18 emergency exception for use on sorghum in Georgia in 2017 but the label has not been issued yet. The label will allow for 2 applications per season and not more than 3 oz per acre per crop and has a 14 day PHI. Transform cannot be used during bloom to protect pollinators. In my insecticide trials last season, rates of 1.0 and 1.5 oz per acre were effective. Use the 1.5 oz rate if aphid populations are increasing rapidly.
- **Chlorpyrifos** (Lorsban Advanced, Nufos, other). Chlorpyrifos is labeled at 1 to 2 pints per acre. The 2 pint rate has a 60 day harvest interval. The 1 pint has a 30 day harvest interval, but is usually not effective. The 2 pint rate was 60-90% control for about 10-14 days. At the 2 pint rate it cannot be used after the boot stage due the 60 day PHI. **DO NOT USE CHLORPYRIFOS ON SWEET SORGHUM.**
- Dimethoate (Dimethoate, Cygon). Not recommended. In my trials dimethoate is variable in control and control if it occurs is only for a week or so.

8) Good coverage is key to effective control. Use tips and GPA for maximum coverage especially lower in the canopy. A minimum of 10 gpa by ground and 5 gpa by air is highly recommended.

9) Avoid pyrethroid insecticides for other sorghum pests. For sorghum midge try to avoid routine pyrethroid sprays for sorghum midge. Instead scout and treat at 1 adult per panicle. Chlorpyrifos (1 pint per are) for low to moderate infestations. If pyrethroids are used they can be tank mixed with Sivanto (Do not use Transform during bloom). Early plantings often avoid serious midge infestations. For fall armyworm in the whorl, the threshold is 50% infested whorls. Use Belt, Prevathon or Lannate which are specific to caterpillars. For headworms, corn earworms fall armyworm, sorghum webworm, the threshold is 1 worm per head and use Belt, Prevathon, Beseige or Lannate.

10) Check fields 2-3 weeks before harvest for infestations. A treatment may be needed if large numbers are in the head to prevent damage to combines. Hybrids with taller stalks and more space between the grain and upper leaves may make harvest easier by reducing the amount of leaf material going through the combine. Large infestation producing large amounts of honeydew and sooty mold may interfere with harvest desiccants. Transform WG can be applied up to 14 days before harvest.

11) Silage/forage sorghum control. No work was done specifically on SCA control in silage/forage sorghum. So the same recommendations for grain sorghum also apply to silage and forage sorghum. Both Sivanto prime and Transform can be used on silage and forage type sorghums. Grazing / hay interval is 7 days for both products. Chlorpyrifos at 2 pints per acre has a 60 day grazing forage, hay interval so is usually not an option for forage and hay sorghum. In forage/hay types, the later cutting were damaged last year. Spray coverage is difficult when plants get tall. If aphids are present but below threshold consider a spray application as late as possible before the crop gets too tall.

12) Sweet sorghum. Sivanto prime, Transform and chlorpyrifos **cannot** be used on sweet sorghum. There currently are no effective treatment options for sweet sorghum. A section 18 request for use of Sivanto prime on sweet sorghum has been submitted to Us-EPA but the request is still pending.

For additional information and photos see:

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

<http://www.lsuagcenter.com/NR/rdonlyres/C6BA2774-31C5-41AF-8A30-9AC50CD1135A/101354/pub3369SugarcaneAphids2NDPROOF.pdf>

<http://news.utcrops.com/2015/03/sorghum-thinking-sugarcane-aphid-control-2015/>

<https://sites.aces.edu/group/crops/blog/Lists/Posts/Post.aspx?ID=73>

Please contact me (gbuntin@uga.edu) if you have questions or may have an infestation of this aphid in sorghum.