Sugarcane Aphid: A New Invasive Pest of Sorghum

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Sugarcane aphid (SCA), *Melanaphis sacchari*, has been found in sorghum fields as far north as mid North Carolina. This is farther north than previously reported, and early compared to last year. This means that the Virginia crop may be at higher risk. SCA spreads as winged adults on wind and storm fronts so infestations can spread rapidly. As fast as this pest can spread, to be on the safe side, fields should be scouted from seedling stage to full grain. See the information below for details on biology and management.

SCA has been a historic pest of sugarcane in China, Japan, India, Southern Africa, South America, and Mexico. It was first recorded in the US in Hawaii in the late 1800s, Florida in 1977, and Louisiana in 1999. In 2013 the species underwent a host shift to sorghum, first detected near Beaumont in east Texas. This new 'biotype' has a host range that includes sorghum spp. (grain, sweet and forage) and Johnsongrass. It does not feed on sugarcane, corn, millet, barley, or rye. Since its first detection in 2013 in east Texas, the new SCA biotype has rapidly spread through the south and by the end of the 2014 season was documented in much of Louisiana, Mississippi, Alabama, Georgia, western North Carolina—and as close to us as northeast South Carolina (Figure 1).

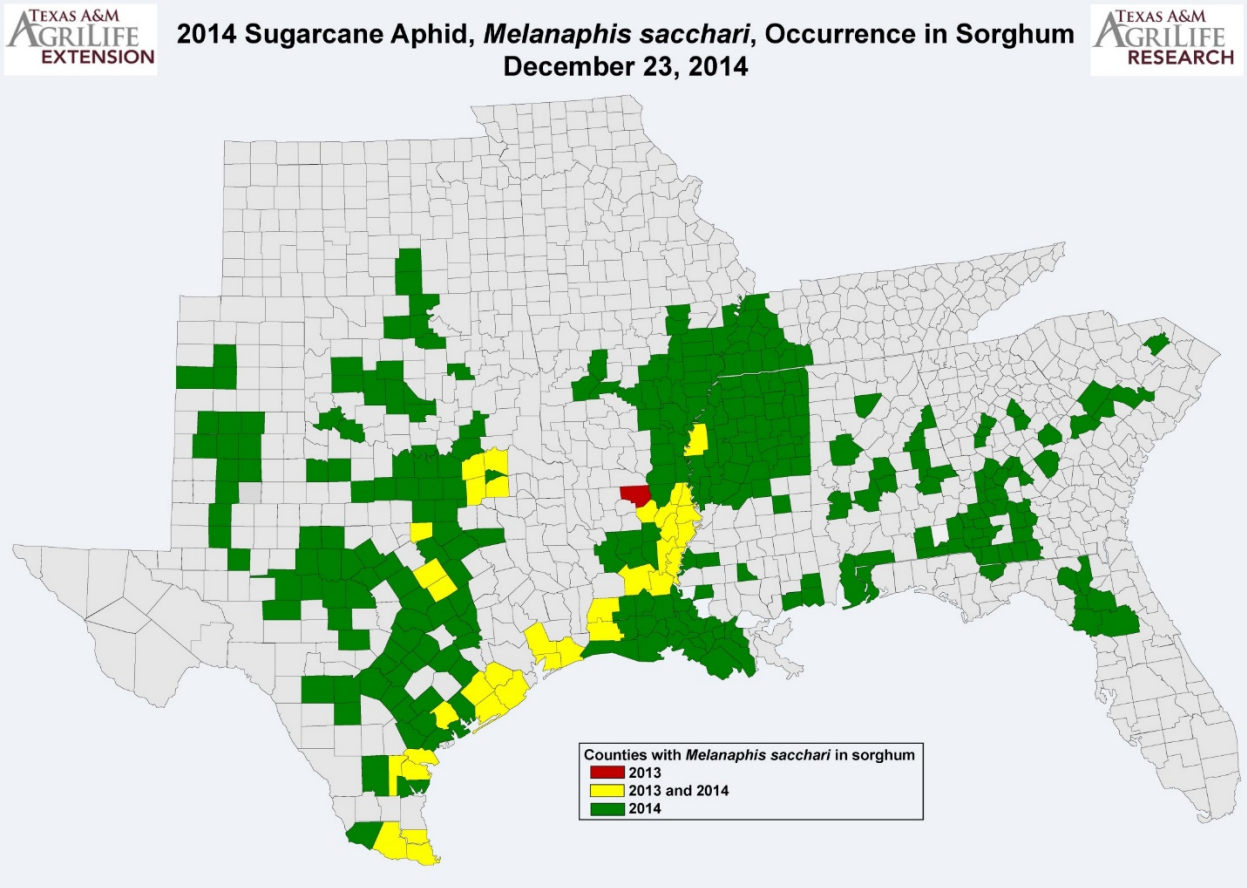

Figure 1. Sugarcane aphid occurrence in sorghum.

SCA is described as an anholocyclic, parthenogenic, viviparous species, which basically means that it feeds only in the summer and the females do not need males for fertilization and give live birth to more females. Females develop through 4 instars, can be adults in about 2-12 days, and live for 28 days. This results in the 'perfect storm' for rapid population build-up. It is not known to overwinter in freezing areas and appears to prefer dry areas or periods. There are several other aphid species that can infest sorghum but SCA can be differentiated from the others being smooth, cream yellow, with two, short dark cornicles ("tailpipes") on the hind end (Figure 2).

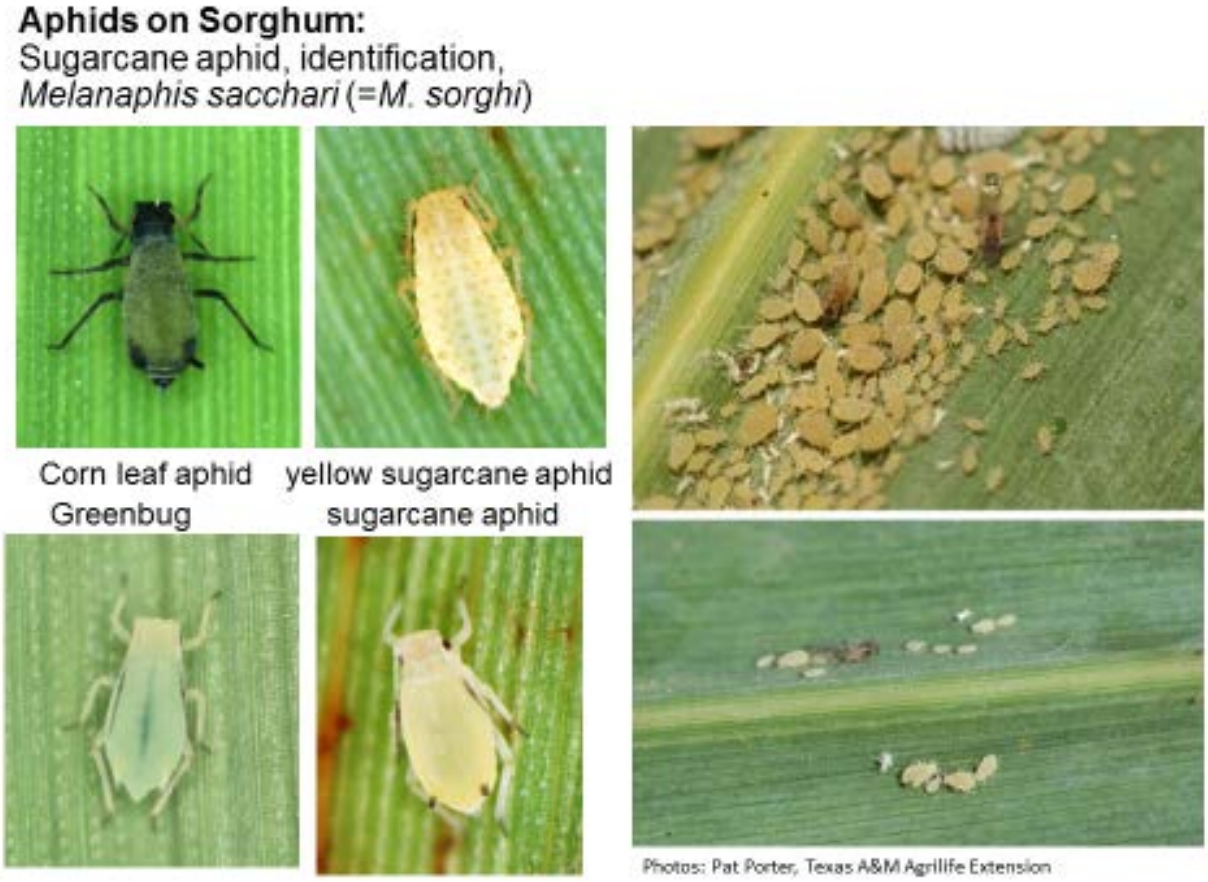

Figure 2. Aphid species occurring on sorghum.

SCA feeds mostly on the undersides of leaves and stems on phloem and xylem tissue. Feeding causes a general desiccation of plant tissue which is expressed as a reddening, purpling and necrosis of plant tissue. Typical of other aphid species, they excrete 'honey dew' as they feed, which supports the growth of sooty mold. If populations build up early in the season, they can cause heavy damage, stunting, and can even kill seedlings (Figure 3). Feeding at boot stage may prevent heading or may result in sterile grain heads. Later season infestations that occur after the grain is filled do not result in direct yield loss, although extremely high populations at harvest can clog combine heads. Severe infestations have been documented to cause 20-80% grain losses, and sometimes a complete loss.

Top: Marion County, Center: Tifton GA, Bottom Randolph County, GA.
Leaves with honeydew and sooty mold

Figure 3. Sugarcane aphid infestations on grain sorghum in Georgia, 2014.

Research by Mike Brewer, Texes AgriLife, and David Kerns, LSU, has provided the most up-to-date Econominc Injury Level (EIL) of 50 to 125 aphids per leaf at sorghum prices of $4/bu; and the currently recommended Economic Threshold (when the insecticide needs to be applied to prevent the population from reaching the EIL) of 25 – 30% infested plants with 50 aphids per leaf.

There are data from several sources in different states on the effectiveness of insecticides for controlling SCA. All are consistent in saying that pyrethoids are NOT effective, and may even flare populations. Following is a brief summary from various sources of some of the insecticides, rates and degrees of effectiveness. Note that although labeled, pyrethroids, Lannate and Malathion are not known to be effective. Other products are effective but have restrictions in terms of when they can be applied. After heading, according to work in other states, the most effective products will be Sivanto (Bayer CropScience) or Transform (Dow AgroSciences). Sivanto is labeled at 7.5-10 oz/acre. Several states have a 2ee label that allows lower rates (4-7 oz) but Virginia does not, as yet. Transform at 0.75-1.5 oz/acres does not have a federal label but several states have obtained Section 18 emergence use labels. Virginia does not have this exemption, yet.