A New Invasive Aphid of Grain Sorghum

Discovery

This past summer grain sorghum producers along the gulf coast from the Texas Rio Grande Valley up through Louisiana, into Mississippi and scattered across a few counties in Northeastern Texas and one Southeast county inside Oklahoma dealt with a late-season outbreak of a new aphid infesting sorghum (see chart on page 3). The aphid was identified as the Melanaphis saccharin or commonly called the ‘sugarcane aphid’. This pest was first reported on sugarcane in Florida in 1977 and in Louisiana in 1999. But this year, it was first detected near Beaumont, TX and was quickly found in the above mentioned locations on grain sorghum, forage sorghums, sorghum X sudan crosses, and/or Johnsongrass. This represents a significant shift in host selection, but worldwide it is known as a key pest of both sorghum and sugarcane. Fortunately, it does not appear to be well adapted to survive on corn. I have not found in the literature of wheat or other small grains being a host for the sugarcane aphid.

Description and Biology

The sugarcane aphids is described as being grey to tan or light yellow in color (Figure 1). Unlike other common aphid species that feed on sorghum, the cornicles (paired tailpipe-like structures at the rear of the aphid) are dark in color and the tarsi (feet) are also dark as seen at high magnifications (see figure on last page for comparisons of different aphid species). These dark cornicles and tarsi contrast distinctively with the lighter body color of the sugarcane aphid. Sugarcane aphid can be distinguished from greenbug
because it does not have the distinctive darker green stripe down the back of the greenbug. It is NOT the yellow sugarcane aphid and can be distinguished from the yellow sugarcane aphid by the absence of numerous hairs on the body, as can be seen with magnification. Also, the sugarcane aphid legs and head are not as dark as they are on the corn leaf aphid.

Early in the infestation cycle, sugarcane aphids colonize the underside of the more mature, lower sorghum leaves. Then progressively move upward infesting all leaves and may eventually colonize even the seed heads (panicles) (Figure 2). Small colonies quickly grow to large colonies which produce large amounts of sticky honeydew on the leaf surfaces.

**Damage**

The aphid injects a toxin while feeding which causes leaves to turn yellow to red or brown (Figures 3 and 4). Large infestations can kill young seedling plants and can prevent the formation of grain. Additionally, the high amount of honeydew produced will support growth of the black, sooty mold fungus (which interferes with photosynthesis). Since the infestations this past year were late in the season, the extensive amount of honeydew caused problems with harvesting. The honeydew coated leaves and stalks were sticking to the inner parts of the combine and prevented grain for being threshed off the sorghum head, causing the heads to “ride over” and fall to the ground. Producers reported up to 50% losses in yield in 2013.

**Management and Control**

The natural beneficial insects that are associated with other sorghum aphids where also found feeding within the sugarcane colonies. These natural aphid enemies were lady beetles, syrphid fly larvae, green lacewings and parasitic wasps. Unfortunately, the aphid populations increased so quickly that the beneficial insects could not prevent damage and yield losses.

Research and Extension entomologists were able to conduct a few field trials to see if any currently labeled insecticides could control the aphid. Initial trials and field observations indicated Dimethoate 4EC at 1 pt/acre was able to reduce aphid populations. Another insecticide evaluated was Transform WG, but it is NOT currently labeled for
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use on grain sorghum. Data showed that it was effective when used at a rate of 0.75 oz/acre. On Monday, January 21, 2014, we received word that TDA has submitted a Section 18 Emergency Exemption Label for Transform to EPA. However, the e-mail stated that EPA’s review process could be 52 days or possibly longer. We would expect EPA to approve the Sections 18 as quickly as possible.

Potential for Infestations in the Texas High Plains

This aphid spread rapidly across a wide geographic range in 2013. Further range expansion into western Texas, Arkansas, and the Mississippi Delta is a possibility depending on the weather and host plants. **We are unable to predict if the sugarcane aphid will show up on the Texas High Plains this coming 2014 growing season.** But, due to the damaging nature of this new invasive aphid, we request any suspicious aphids be reported to your County Extension Agent, Extension Agent - IPM, or to those of us that serve as an Extension Entomology Specialist.

The sorghum aphid *Melanaphis* sp. was detected in 38 counties and parishes of Texas, Louisiana, Oklahoma, and Mississippi in 2013.

The information for this newsletter was taken from a draft of a factsheet written by those individuals dealing with this new pest in 2013. I am grateful to R.T. Villanueva, M. Brewer, M. Way, S. Biles, D. Sekula, J. Swart, C. Crumley, A. Knutson, R. Parker, G. Odvody, C. Allen, D. Ragsdale, W. Rooney, G. Peterson, David Kerns, Tom Royer, and S. Armstrong for making this information available for distribution.
All aphids reared by Dr. Scott Armstrong, USDA-ARS Lab Stillwater, and photographed by Dr. Rick Grantham. Oklahoma State University Insect Diagnostic Lab, Dept. of Entomology and Plant Pathology. Stillwater, OK.

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