States, especially the southern region. In the early stages of invasion, the aphid caused rapid and severe yield loss in sorghum which required the implementation of rapid sampling and treatment protocols based largely on previous knowledge and subjective observational data. The most commonly-used protocol used aphid counts from an upper-most and lower-most 90% green leaf to estimate aphid intensity. This study evaluated which leaves within the sorghum canopy were most predictive of the total aphid numbers within a whole plant. We examined 1,644 sorghum plants taken from 134 sampling sites across Kansas, Oklahoma, Texas, and Arkansas. Individual leaves were then classified into upper, middle, and lower canopy then analyzed for predictability of total aphids per plant based on location (e.g. state) and growth stage. Results showed that leaves from the middle of the plant canopy provided the strongest relationship ($R^2 = 0.9636$) between aphid numbers/leaf and aphid numbers/plant. This study gives conclusive evidence that sampling protocols for estimating sugarcane aphid intensity in sorghum should include leaves from the middle of the plant canopy in order to improve precision and lead to better treatment decisions.

2-10. Evidence of host plant specialization among the U.S. sugarcane aphid (Hemiptera: Aphididae) genotypes

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The sugarcane aphid (*Melanaphis sacchari* (Zehnter) (Hemiptera: Aphididae)) has become a serious pest of sorghum (*Sorghum bicolor* (L.) Moench) in the U.S. since it was detected in Texas in 2013. The sugarcane aphid was considered only a pest on sugarcane in Florida and Louisiana for over three decades before the 2013 outbreak. Recent studies suggest that the 2013 outbreak in sorghum was due to the introduction of new genotype. Our scope for this study was to quantify the phenotypic behaviors (host suitability as measured through life table statistics) and genetic diversity among sugarcane aphid clones collected from different hosts. We collected a diverse group of sugarcane aphid clones from sorghum (SoSCA), sugarcane (SuSCA), and Columbus grass (CoSCA) and determined host suitability when introduced to five different plants including sugarcane, Columbus grass, Johnsongrass, and a resistant and susceptible grain sorghum. Sugarcane aphid clones from different hosts and geographical regions varied in performance among plant hosts. The survivorship and reproduction of sugarcane collected aphid clone (SuSCA) was significantly higher when offered sugarcane (>85%) as compared to other hosts and in contrast, there was negligible survival and reproduction when SoSCA and CoSCA were offered sugarcane as host. Genotyping of the aphid clones collected from various hosts with microsatellite markers indicated that SuSCA was a different genotype and belonged to multilocus lineage, MLL-D as compared to SoSCA and CoSCA which belonged to MLL-F. Our results suggest that there exist two different biotypes of *M. sacchari* within the U.S., and that they cannot be distinguished by taxonomic or morphometric characteristics.

2-11. A comparison of monarch butterfly egg laying on native vs non-native milkweed

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Monarch butterflies (*Danaus plexippus plexippus*) migrate from overwintering grounds in central Mexico to breeding grounds in the Upper Midwest and southern Canada. Texas is critical to the migratory population because it provides nectar for spring and fall migrants and milkweed, which they rely on as a host plant, for 1st and 5th generation caterpillars. There are approximately 36 native species of milkweed in Texas, as well as 5 species of related non-native host plants. There have been concerns about monarchs disproportionately using non-native milkweeds in garden settings for egg laying and the potential for increases in disease and parasitism rates as a result. We evaluated egg laying activity in Texas in 3 main regions over 4 habitat types (garden, field, roadside, and riparian) to determine the number of eggs laid on different milkweed species. At each site, we counted number of milkweed and recorded the number of eggs per plant. We estimated the average number of eggs per plant at each site by dividing the number of eggs found on each species by the number of plants of that species at a site. We also determined the average number of eggs laid on each individual plant by only including plants that had eggs present in the calculation. Preliminary results suggest that non-native tropical milkweed (*Asclepias currassavica*) has a higher number of eggs per plant on average, and has more eggs laid on each individual plant. These results have important implications for monarch use of non-native milkweeds and associated disease concerns.

PROGRAM & PROCEEDINGS

of the

67th ANNUAL MEETING

of the **SOUTHWESTERN BRANCH** of the

ENTOMOLOGICAL SOCIETY OF AMERICA

and the **ANNUAL MEETING** of the

SOCIETY OF SOUTHWESTERN ENTOMOLOGISTS

April 14–18, 2019

Hyatt Regency Tulsa

Tulsa, Oklahoma

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