With any new pest, and particularly when the insect populations build to astronomical levels, there are many kinds of stories floating around. Many will be factual, some ridiculous, and some are alarming. Recently, one of the stories that was alarming said that the sugarcane aphid in Mexico has developed resistance to insecticides and was eating up corn.

With the help of Texas A&M AgriLife Extension Service Entomologists, Dr. Robert Bowling (Corpus Christi), Dr. Raul Villanueva (Rio Grande Valley) and Pioneer sorghum breeders we were able to learn more about the situation in Mexico.

Dr. Villanueva wrote “SCA have been found in great number in many areas of Mexico including: Sinaloa (pacific coast) Veracruz (Gulf of Mexico approx. 600 miles south of the border) and even Guanajuato the central area is approx.1600 meters above sea level, this area is the second largest region where Sorghum is planted in Mexico. In Guanajuato as well as in Sinaloa, the Mexican INIFAP (something like USDA-APHIS), the regional agricultural authorities, or the universities were not prepared in spite of the presence of this pest last year. This year there are extremely heavy populations of SCA in all those areas, just FYI you can see >1000s winged SCA on the flag leaf, during the evening you can see SCA clouds invading urban areas and clouds of aphids invading other crops. Broccoli is planted to be exported into the US and Europe; and farmers were worried about this contamination and even there was miscommunication that SCA has been feeding in these plants.

In corn, SCA was observed in the border rows in Guanajuato, where the winged arrived and laid nymphs. However, these nymphs so far have not developed to the adult stage, something that Scott Armstrong had studied and Danielle and I observed in 2014. I hope this switch of host does not occur. Additionally in Guanajuato, where they plant wheat, growers were worried about this crop, but again Scott Armstrong showed that this change of host is not occurring, … again so far.

In most of these areas OP, carbamates, several phase out products have been used, farmers are spraying with dusts and hand held sprayers, without the
adequate water volumes and pressure, because there small patches of land. I am aware that in Guanajuato there had been intoxications due to the misuse of insecticides.”

Dr. Bowling, a former Pioneer employee, contacted a Pioneer sorghum breeder that has plots all across Mexico. Robert reported the following from his conversation with the breeder and he added some of his own comments;

• “Sugarcane aphid populations are extremely heavy in parts of Mexico.
• It is possible that some sorghum field will fail (Mexico) because of SCA damage even where insecticides have been sprayed because of the unusually heavy SCA pressure and NOT because of insecticide resistance.
• Insecticide applications have been effective for about 7-days and the fields are re-infested with SCA. This is not too unusual with exceedingly heavy SCA pressure (Danielle and Raul saw this in the RGV last year)...some sorghum fields in Corpus Christi were treated two or three times through the season. Without knowing insecticide rates, application methods, final volumes, hybrids, seeding rates, etc...it is very hard to say what is going on but resistance has never been mentioned among Pioneer Sorghum Breeders (in the U.S. or Mexico).
• SCA has been found on corn in Mexico but they are not causing damage to corn. Again, we found SCA on corn, sugarcane, and cotton growing in the Coastal Bend area. However, the aphid was not colonizing those fields nor were they causing damage.”

Can the sugarcane aphid develop resistance to the insecticides being used to provide control and could the sugarcane aphid become a pest of corn? Yes to both. Insecticide resistance is a possibility because Transform (4C) and Sivanto (4D) belong to the neonicotinoid insecticide classification. The multiple applications of the products first along the Gulf Coast and Rio Grande Valley, secondly in Central Texas, and lastly in the Texas High Plains places a great amount of pressure for selecting resistance. Also, since both of these products are neonic insecticides there could be cross-resistance. As to the question of whether we have resistance in the population now, I would say NO. The issues with poor control now has more to do with poor chemical coverage within the canopy and making applications when populations have already become high.

An article by Singh et al. in 2004 reviewed the literature about the sugarcane aphid host range, damage and crop losses, cultural practices, natural enemies, chemical control among other areas. In this article the list of publications from 1922 to 2001 shows the predominate hosts are *Sorghum bicolor* (L.) Moench, sorghum; *Saccharum officinarum*, sugarcane; *Sorghum halepense* (L.) Per, johnsongrass and related grasses; and *Setaria italica* (L.) Beauv., different millet varieties. In the United States (USA) the primary hosts are sugarcane, sorghum, and johnsongrass. A few grasses, such as barnyard grass and hairy crabgrass, have been reported as hosts in the USA. It was noted in the article that SCA winged and non-winged adults had a strong preference for sorghum and johnsongrass. There was on paper from Bhutan in 1985 that reported *Zea mays* (L.), corn, as a SCA host. I would expect the SCA biotype we have is not the one that will survive on corn. I hope the SCA we find in corn is only from winged aphids landing on corn and giving birth to a nymphs (immature aphids).

Cool Temperatures may affect control

Extension Entomologists, Drs. Angus Cachot and Jeff Gore, at Mississippi State University had an article in Mississippi Crops (http://
www.mississippi-crops.com/2015/08/24/sugarcane-aphid-control-with-falling-temperatures/), which suggest Transform and Sivanto performance is effected under cooler conditions. They and also Dr. David Kerns, LSU, had noticed problems in 2014. A graduate student of Cachet and Gore conducted a study comparing efficacy of Transform @ 1 oz and Sivanto @ 4 oz in growth chambers showed reduced aphid mortality at 60°F compared to 85°F. There is still a question of whether reduced control is directly related to chemical activity, reduced absorption of the plant, or reduced metabolism and feeding of the aphid. Keep in mind this is only preliminary data, but we may want to keep this in mind when temperatures this September begin to cool. When temperatures do cool to ≤60°F the SCA reproduction will also slow down. Applications could then be delayed until temperatures do rise again.