Result Demonstration Report

Sugarcane Aphid Insecticide Efficacy Trial

Texas A&M AgriLife Extension Service – Fort Bend County
Cooperator: Mark Wleczyk
John Gordy – County Extension Agent, Fort Bend County
Robert Bowling, Ph.D. – Assistant Professor and Extension Entomologist

Summary

Grain sorghum, because of its drought tolerance and low potential for insect pressure, has historically been used (along with corn) to rotate with cotton. According to USDA Farm Service Agency data, in 2015, grain sorghum replaced cotton as the most planted crop in Fort Bend County with just over 37,000 acres, accounting for slightly less than fifty percent of annual field crop acreage. With this increase in acreage, it is important to evaluate best management practices to provide producers with up-to-date information to make important production decisions. One recent management issue for grain sorghum is the sugarcane aphid. Since first being detected in 2013, this pest has contributed to yield loss and harvest issues in Fort Bend County and throughout sorghum producing areas in Texas and the southern United States. Because of the sugarcane aphid's potential to damage a crop, evaluation of available insecticides is necessary.

Objective

The objective of this result demonstration plot was to evaluate insecticides for efficacy and residual control of sugarcane aphid on susceptible grain sorghum in Fort Bend County.

Materials and Methods

The performance of four insecticides or insecticide combinations (See Table 1) in selected formulations and rates were evaluated for efficacy against sugarcane aphid in a commercial grain sorghum field near Rosenberg. Plots measured 20 feet by 4 rows with 40" spacing arranged in a randomized complete block design with 3 replications. The trial was performed on re-growth of Dekalb DKS 53-67 that was initially harvested in July; the primary crop was never sprayed for sugarcane aphid. Plots were sprayed on September 6 with pre-treatment sugarcane aphid counts made three days prior to insecticide applications. Sorghum was pre-boot to boot stage. Insecticide applications were made with a hand-held CO_2 assisted boom sprayer with total spray volume of 13.5 gallons per acre. 20 random leaves (10 each from upper and lower canopy) were sampled from the inner two rows of each plot at 3, 8, 15, 19, and 23 days after treatment. Additionally, a 1-9 rating

considering leaf chlorosis (similar to what was described by Webster, et al.), honeydew/sooty mold, and leaf death was used to rate plots at 15 and 23 days after treatment. Data were analyzed using analysis of variance and mean separation was performed using LSD.

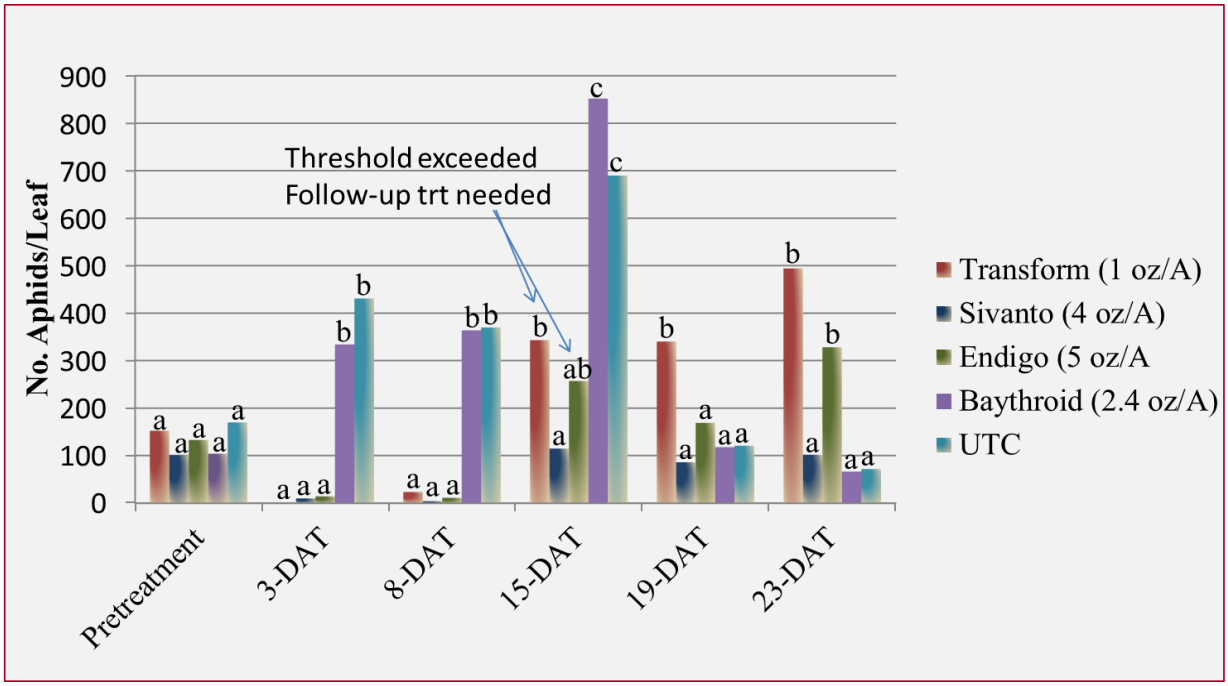
Table 1: Insecticides evaluated against sugarcane aphid in 2015

Product	Active Ingredient(s)	Rate
Transform WG	Sulfoxaflor	1.0 oz./acre
Sivanto	Flupyradifurone	4.0 oz./acre
Endigo ZC	Lamda-cyhalothrin + Thiamethoxam	5.0 oz./acre
Baythroid XL	Beta-cyfluthrin	2.4 oz/acre

Results

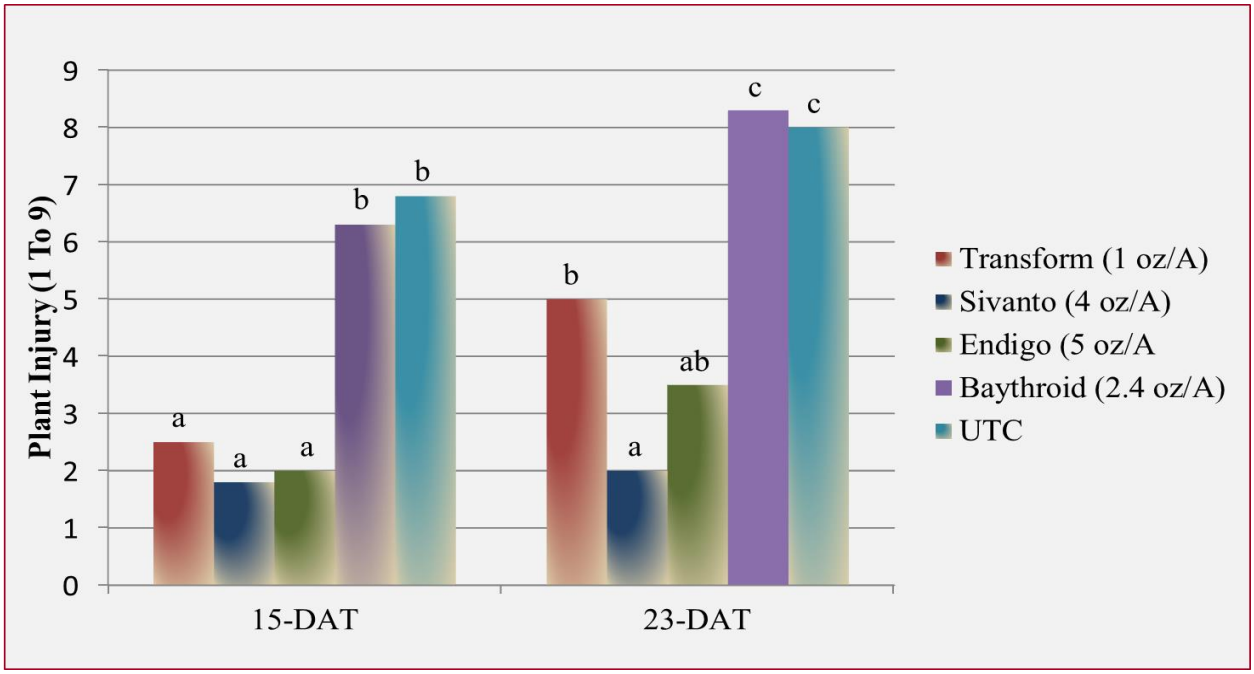
Transform WG and Endigo ZC reduced aphid populations 3 and 8 days after treatment, compared to Baythroid XL and the non-treated plots. Sivanto reduced aphid populations at 3, 8, and 15 days, compared to the Baythroid XL and non-treated plots (Fiture 1). Sivanto, Transform WG, and Endigo ZC resulted in lower plant damage ratings across all sampling dates, compared to Baythroid XL and non-treated plots (Figure 2).

Figure 1: Number of Aphids 3, 8, 15, 19, and 23 Days After Treatment[1]



[1]From left to right, treatments are Transform, Sivanto, Endigo, Baythroid, and Non-Treated for pretreatment, 3, 8, 15, 19, and 23 days after treatment.

Figure 2: Plant Damage at 15 and 23 Days after Treatment[1]



[1]From left to right, treatments are Transform, Sivanto, Endigo, Baythroid, and Non-Treated for 15 and 23 days after treatment.

Summary and Conclusions

Residual activity of Sivanto and Transform WG of approximately 10-14 days is consistent with what was observed in 2014. Note that high spray volume is critical (using 13+ GPA or higher here) to penetrate the dense plant canopy and to obtain high efficacy. As of the date of this publication, Transform WG and Endigo ZC are not labeled for use on sugarcane aphid in grain sorghum. Please consult product label for information regarding target pest and rates. The objective of this result demonstration was met and it will provide grain sorghum producers with insecticide efficacy data for products available for management of sugarcane aphid.

For Additional Information and Data, Please See:

http://ccag.tamu.edu/sorghum-insect-pests

References

Webster, J.A., C.A. Baker, and D.R. Porter. 1991. Detection and Mechanisms of Russian Wheat Aphid (Homoptera: Aphididae) Resistance in Barley. Journal of Economic Entomology. 84: 669-673

Acknowledgements

Special thanks to Mark Wleczyk, producer cooperator in Rosenberg, the Texas Grain Sorghum Board and the United Sorghum Checkoff Program for financial support, and to support from Bayer, Dow, and Syngenta.