Sugarcane Aphid: a New Invasive Pest of Sorghum in Georgia

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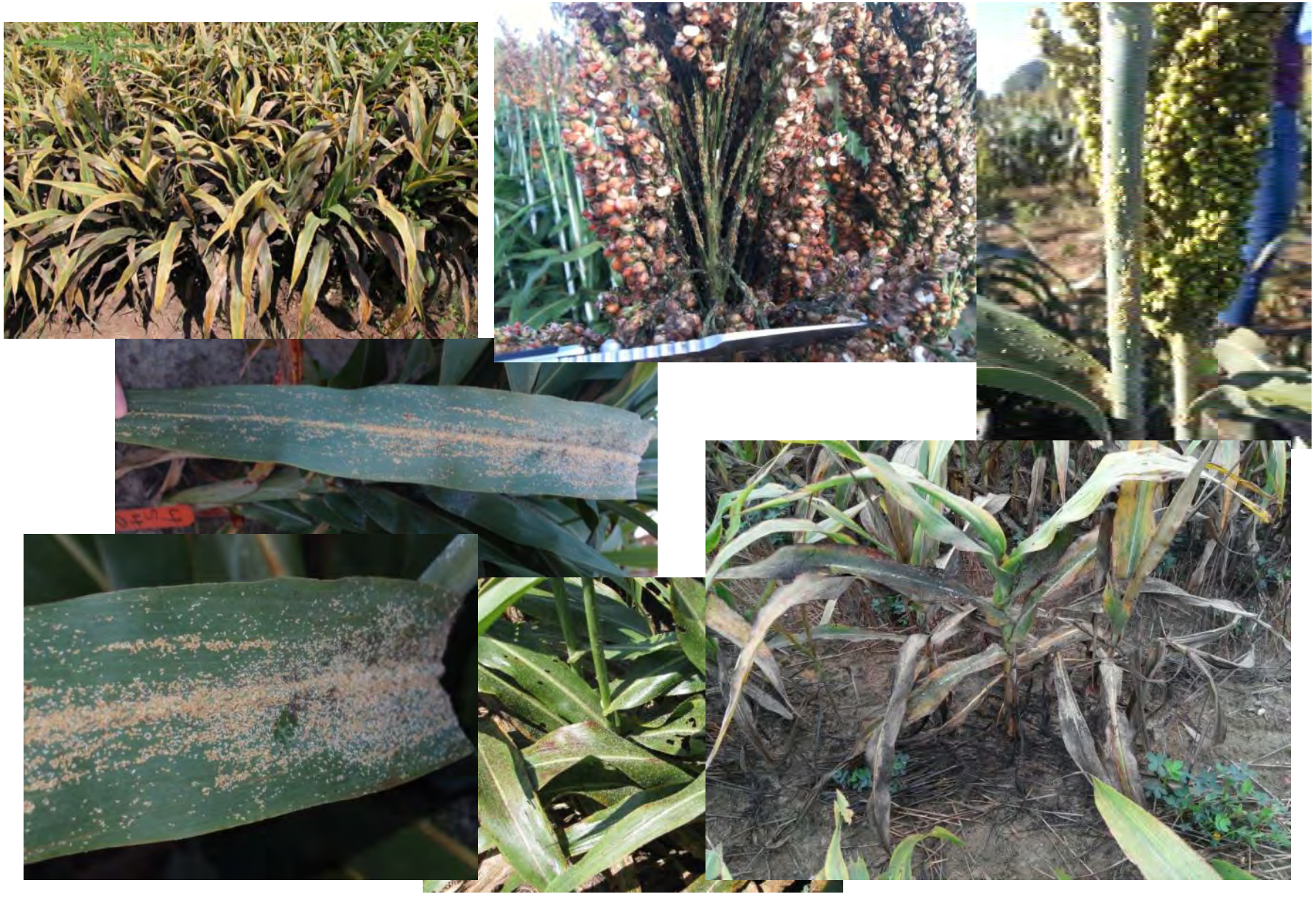
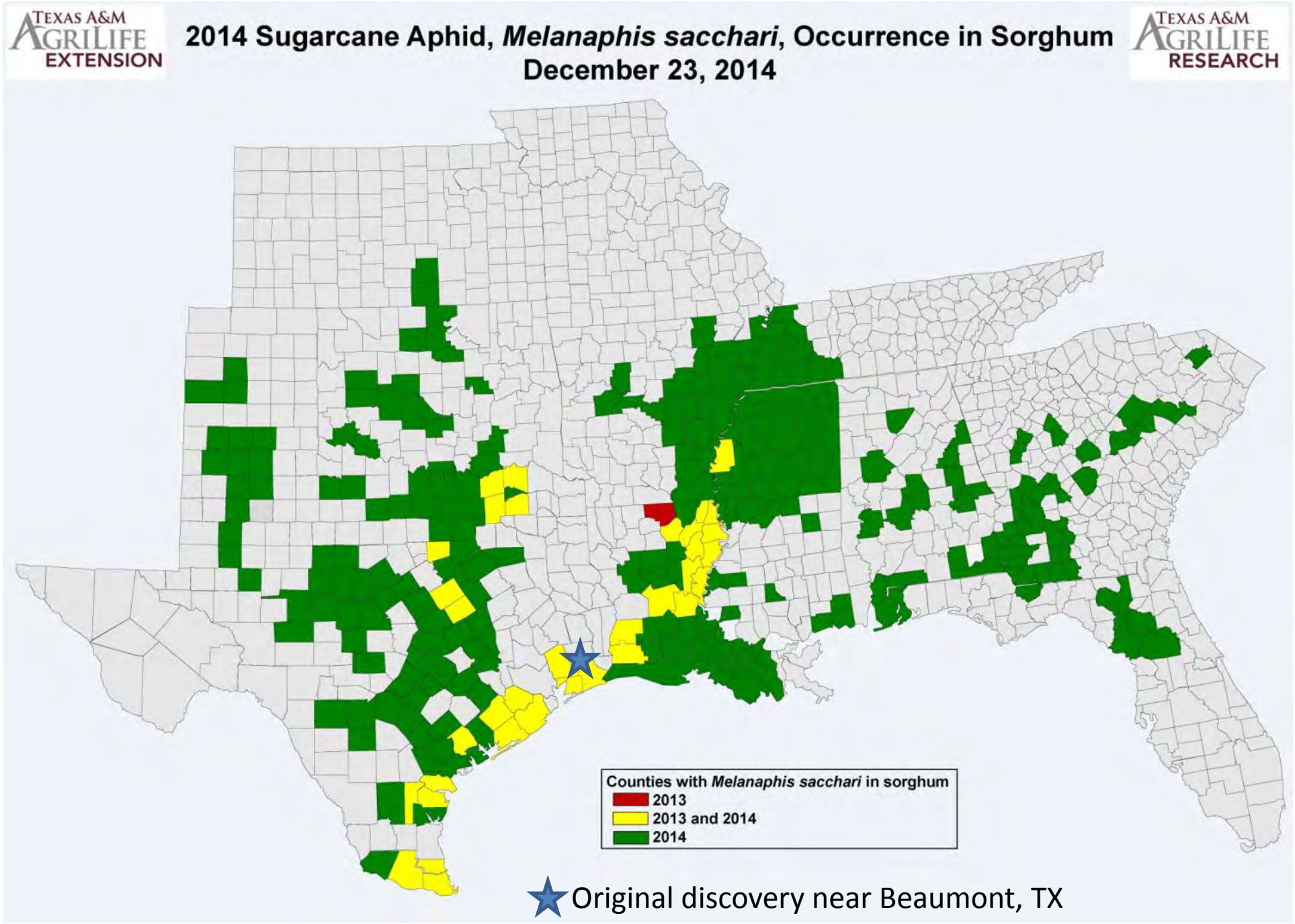
Sugarcane Aphid, *Melanaphis sacchari*, infestations on grain sorghum in Georgia 2014,
Top: Marion County, Center: Tifton GA, Bottom Randolph County, GA.
Leaves with honeydew and sooty mold




Texas A&M AgriLife Extension
2014 Sugarcane Aphid, Melanaphis sacchari, Occurrence in Sorghum
December 23, 2014
Texas A&M AgriLife Research
Counties with Melanaphis sacchari in sorghum
2013
2013 and 2014
2014
Original discovery near Beaumont, TX

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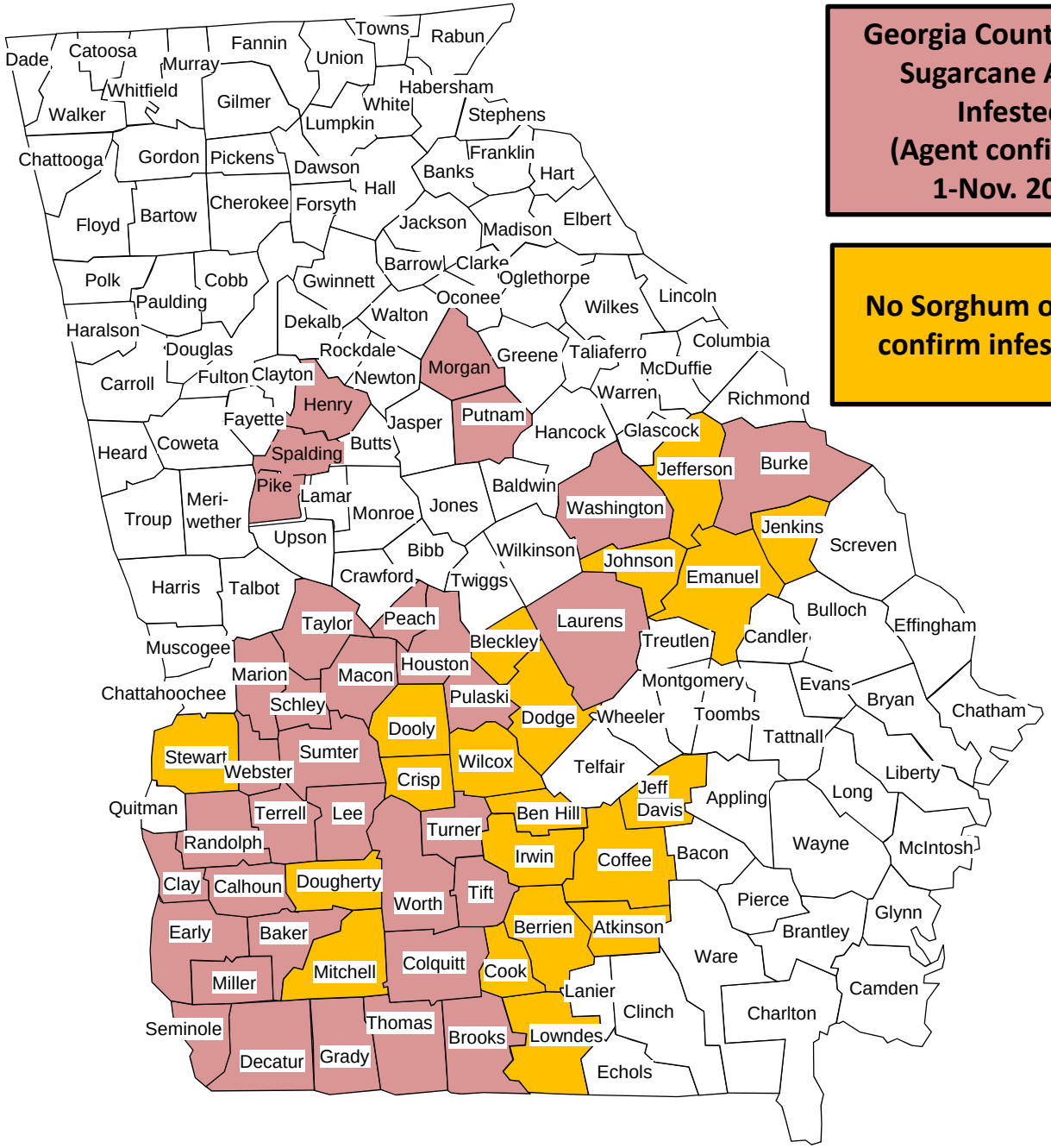


Georgia Counties with Sugarcane Aphid Infested (Agent confirmed) 1-Nov. 2014

No Sorghum or cannot confirm infestations.

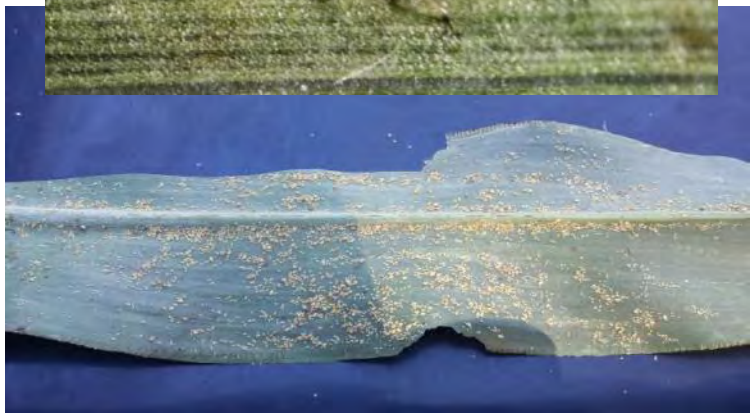
Aphids on Sorghum

Corn leaf aphid

yellow sugarcane aphid

Greenbug

sugarcane aphid



Photos: Pat Porter, Texas A&M Agrilife Extension

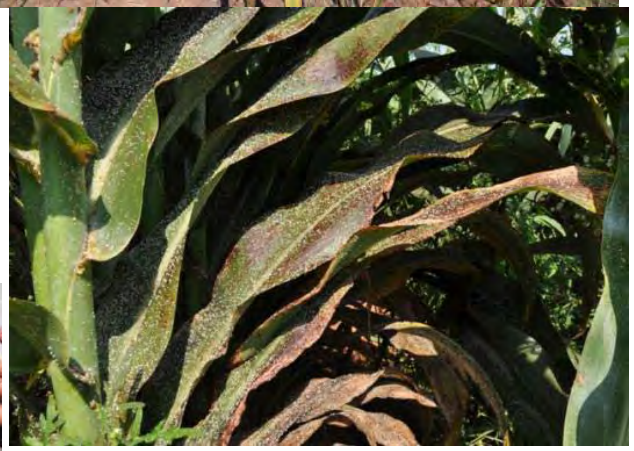
SCA Biology

- Pest in China, Japan, India, Southern Africa, South America, Mexico
- Infest sugarcane Hawaii: late 1800s, 1977 in FL; 1999 in LA.
- 2013 host shift to Sorghum east TX.
- Sugarcane aphid, *Melanaphis sacchari* = Sorghum aphid, *M. sorghi* (Nibouche et al. 2014 PlosOne e106067)
- Host: *Sorghum* spp., grain, forage, sweet sorghum, **Johnsongrass**
- Poor / Non-hosts: Corn, millet, wheat, barley, rye, sugarcane, energycane. (Armstrong et al. 2015. JEE).
- Anholocyclic in US.;
- Does not overwinter in freezing areas.
- Very high reproductive rate.
- Sampling?

G. Odvody/M. Brewer, AgriLife Research

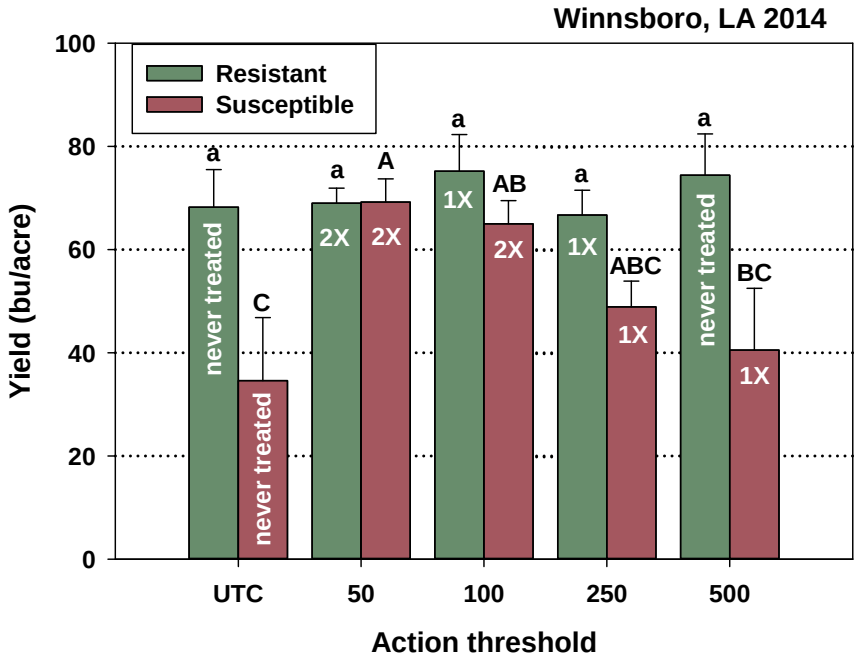
Injury to Sorghum

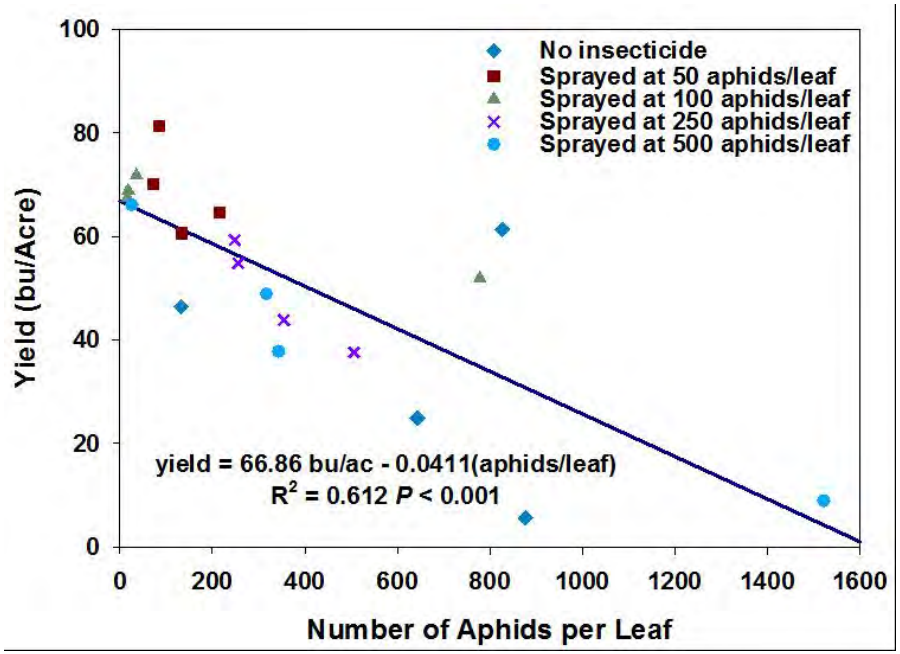
- Feed mostly on underside of leaves and stems.
- Phloem feeder but reported to feed in xylem some places.
- General desiccation of plant tissue.
- If a toxin is involved, but not acute.
- Associated reddening, purpling and necrosis of plant tissue.
- Kill / stunt seedlings.
- Feeding at boot stage may prevent heading or cause sterile grain heads.
- Grain Yield losses: 20-80%, sometimes complete loss; 20% med dough stage
- Honeydew and sooty mold,
- Interfere with harvest aids.



Courtesy of D. Kerns, LSU AgCenter, R. Villanueva, Texas A&M AgriLife Extension

SCA yield loss and Economic Thresholds
(M. Brewer, Texas AgLife and D. Kerns, LSU)





Loss per 100 aphids/leaf: TX: 2.54 bu/ac; LA: 4.11 bu/ac; Ave: 3.325 bu/ac

Estimated Thresholds:

TX, LA, AR: 50 – 125 aphids per leaf.

MS: up to boot: 20% infested plants & local heavy honeydew;
Bloom to dough: 30% infested plants & honeydew.

Plant Resistance / Tolerance?

Natural Enemies: predatory lady beetles and syphid flies and 1 parasitoid

Honeydew attracts bees, wasps, and flies

Syrphus sp. hover fly

Aphelinus sp. Parasitoid

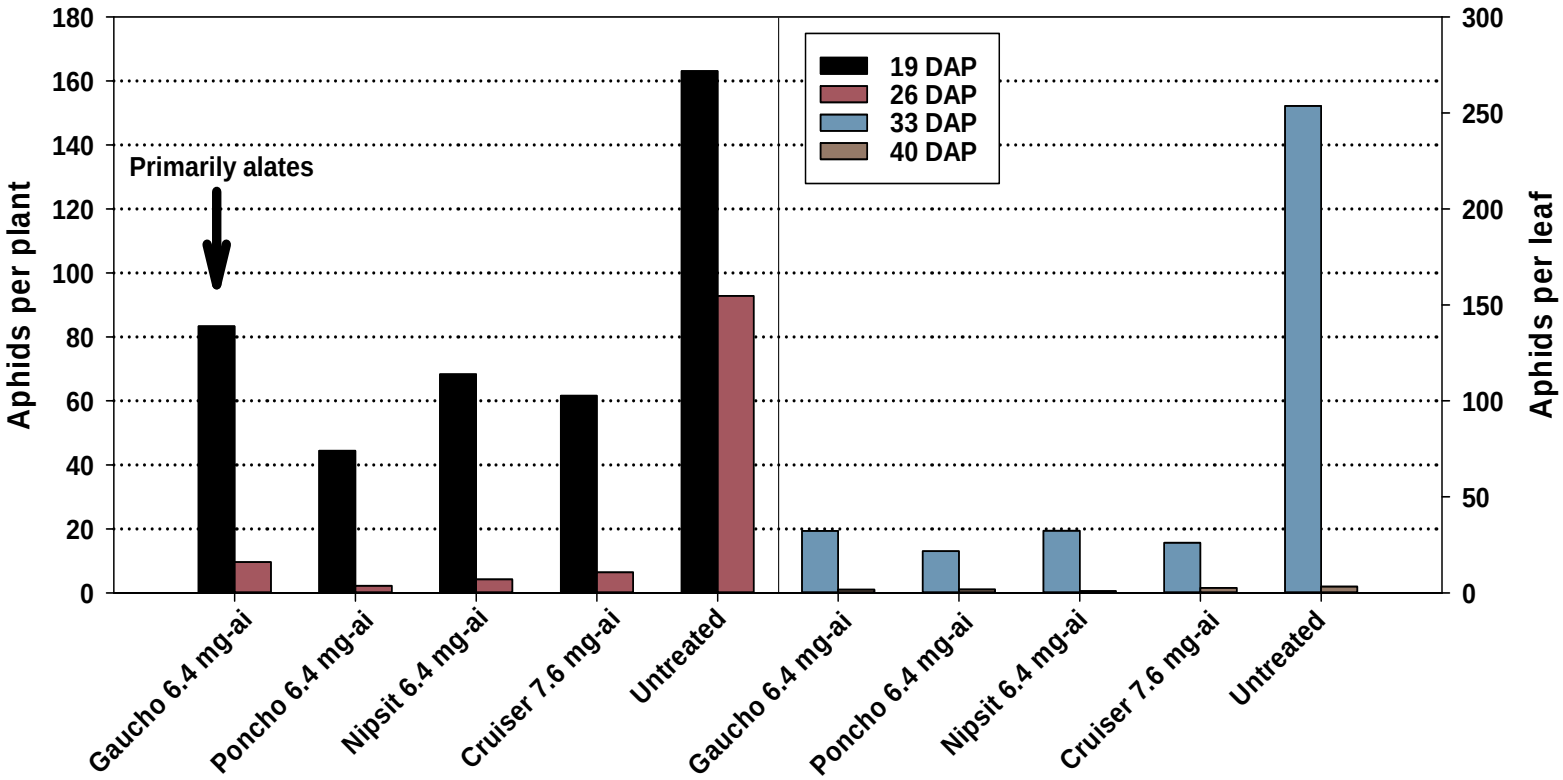
Photos, J. P. Michaud, TX A&M

Impact on Forage Sorghum?

Sugarcane Aphid infestations on grain sorghum on equipment, slow delay harvest.
Left: Silage chopper, East Texas; Right: Aphids and sticky leaves clogging combine

Courtesy of D. Kerns, LSU AgCenter, R. Villanueva, Texas A&M AgriLife Extension

Impact of seed treatments on SCA population development. Source: David Kerns, Louisiana State University AgCenter, 2014.



Poncho 600 and Cruiser 5FS seed treatments have 2(ee) supplemental labels for SCA on sorghum.

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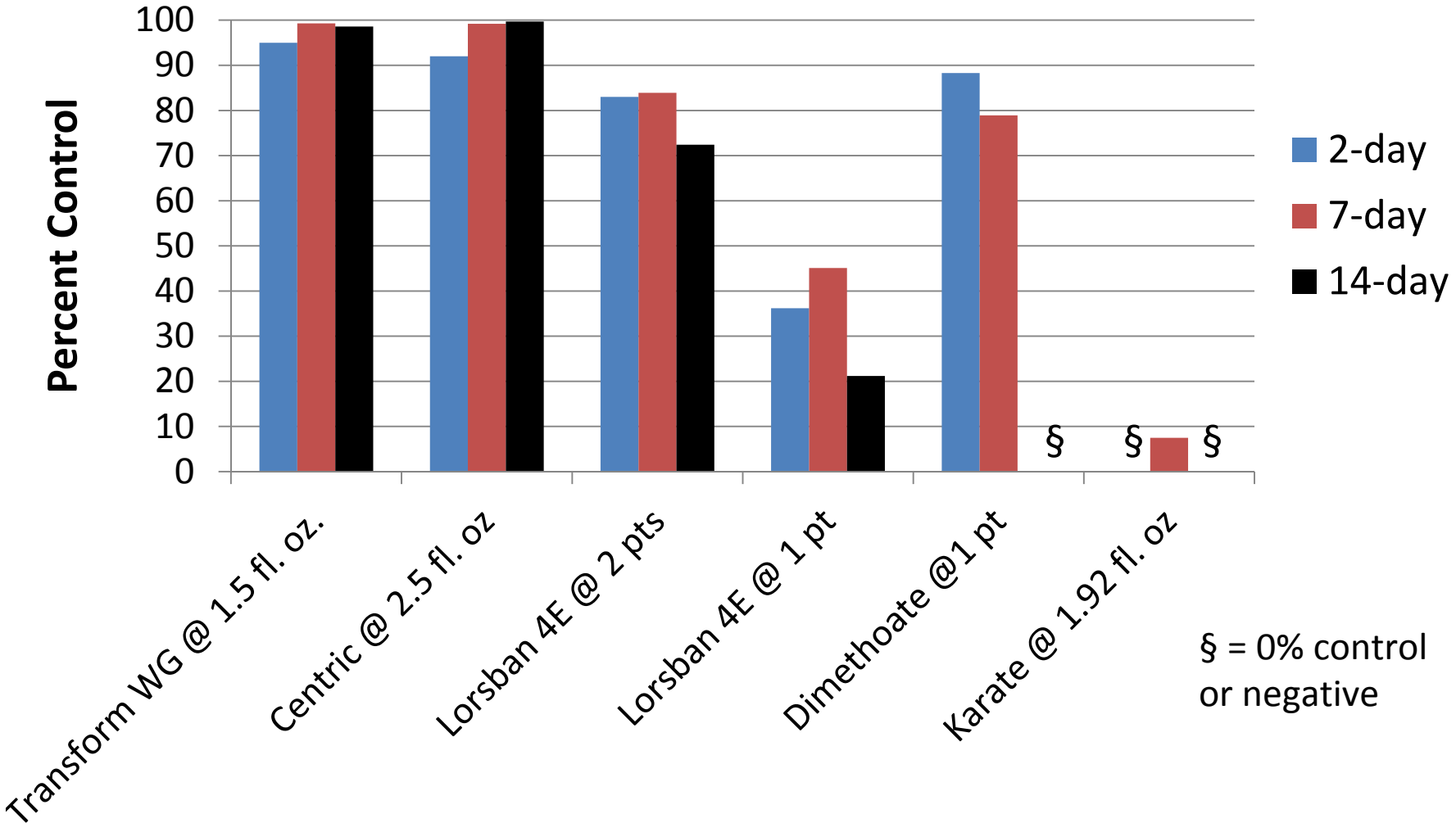
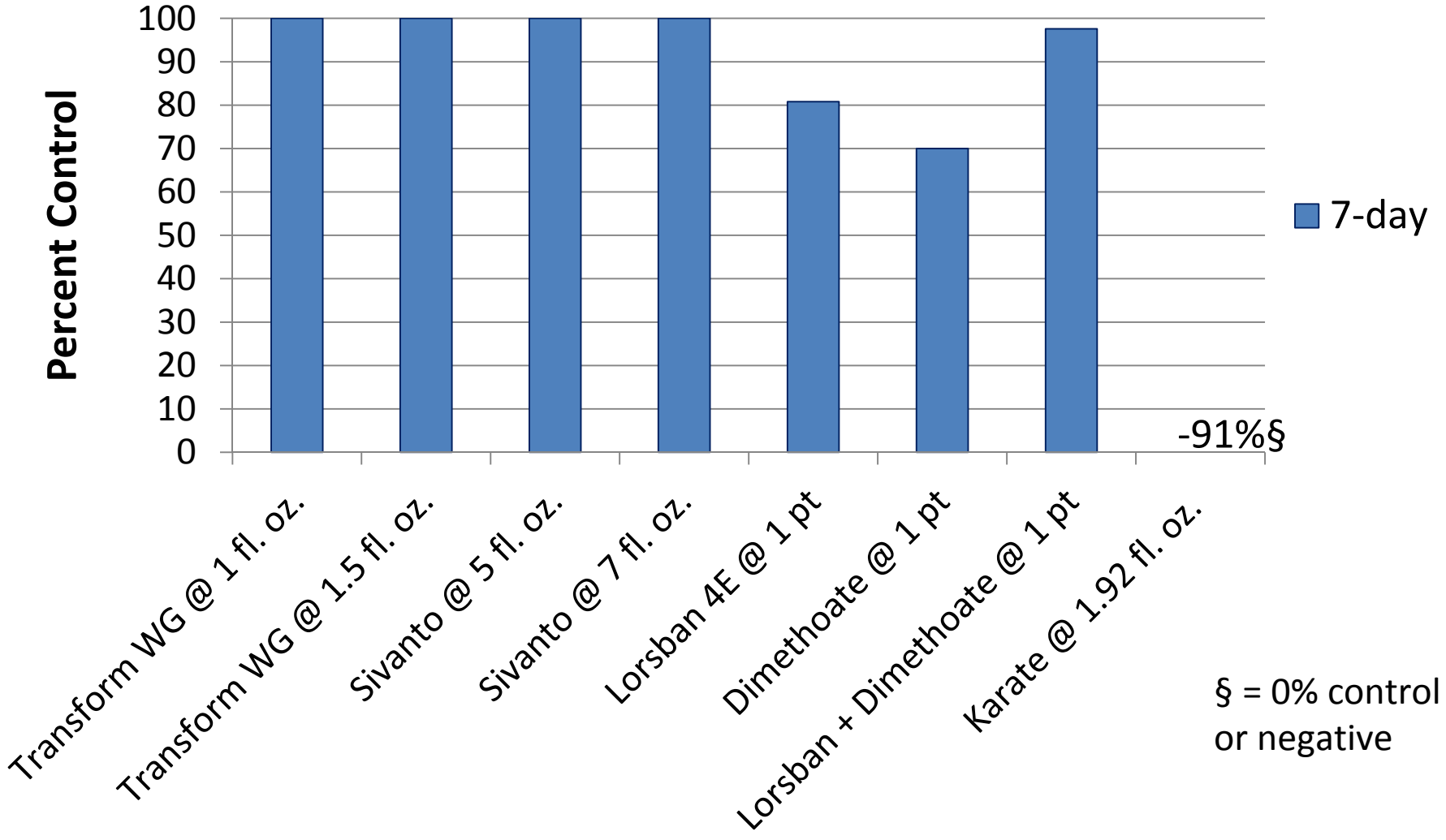
Insecticide Control of Sugarcane Aphid Control on Grain Sorghum, Marion County, GA 2014



Insecticide Control of Sugarcane Aphid Control on Grain Sorghum, EXPO-Moultrie, GA 2014

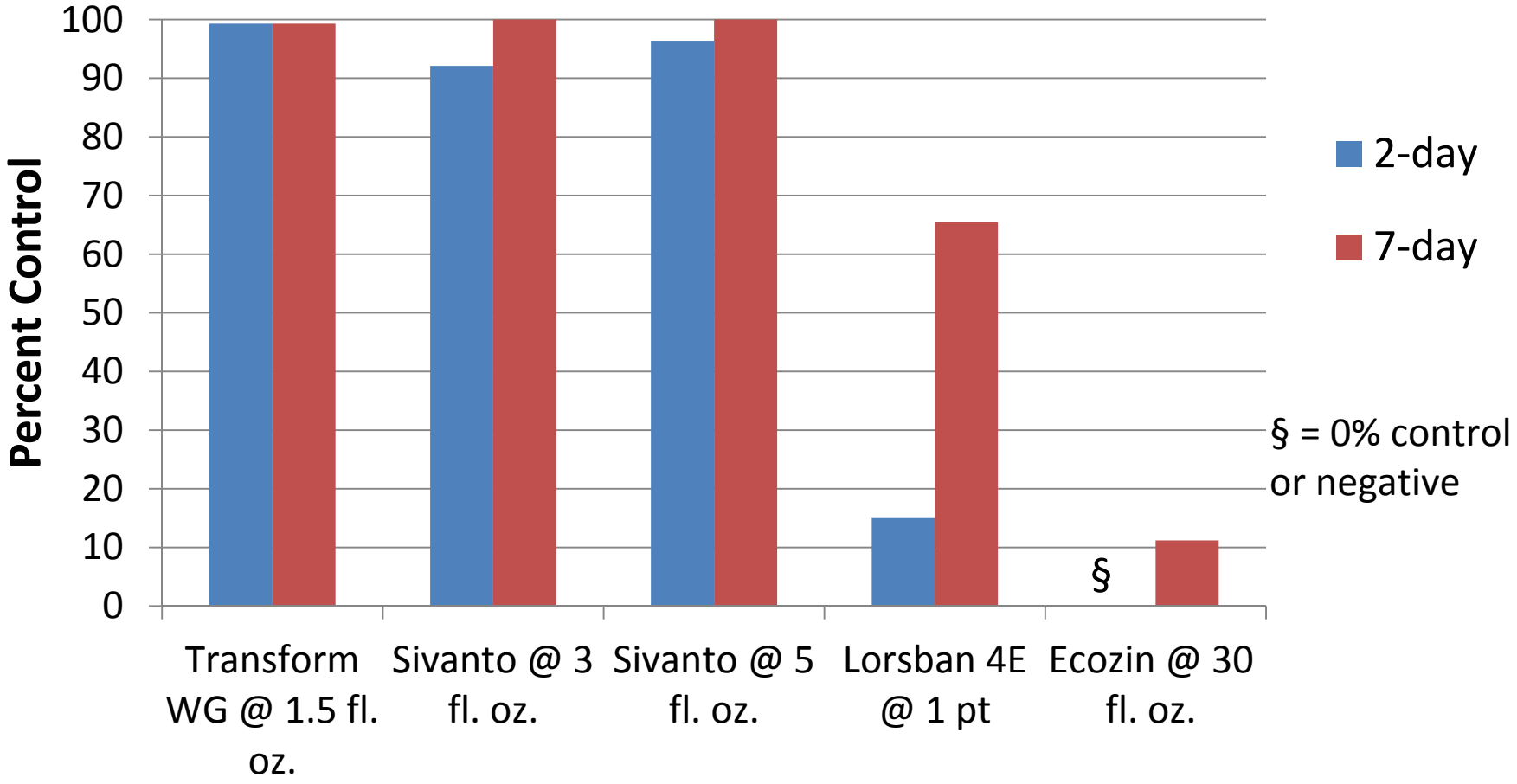
Treatments applied Sept. 5, 2014



§ = 0% control or negative

Insecticide Control of Sugarcane Aphid Control on Grain Sorghum, Henry County, GA 2014,

Treatments applied September 25, 2014



Sugarcane aphid Insecticides for sorghum in 2015

- Neonic seed treatments, Cruiser 5FS, Poncho 600.
- Transform WG (sulfoxaflor); Section 18.
  - Rate: 0.75 – 1.5 oz,
  - Max per crop: 3.0 oz per acre and 2 applications per crop.
  - Application volume: full coverage by ground; 5 GPA by air.
  - PHI: 14 days for grain; 7 days for grazing, forage, and hay.
  - Re-entry: 24 hours
- Sivanto 200SL (flupyradifurone); Full federal label.
  - Rate: 4 – 7 oz per acre (2ee supplemental label),
  - Max per crop: 28 fl. oz per acre.
  - Application volume: 10 GPA by ground; 2 GPA by air.
  - PHI: 21 days for grain; 7 days for grazing, forage, and hay.
  - Re-entry: 4 hours.
- Chlorpyrifos @ 2 pts before heading; PHI: 60 days @ 2 pts.
  DO NOT use on sweet sorghum.
- Chlorpyrifos + Dimethoate @ 1 pt each per acre before heading; PHI: 30 & 28 days.
- Dimethoate alone?; Adjuvants?

Sugarcane aphid management guidelines for sorghum in 2015

- Plant early.
- Few tolerant hybrids?
- Neonic seed treatment.
- Scout early and often.
- Treat at aphid threshold.
- Natural enemies not timely in control.
- Avoid pyrethroid insecticides for other pests.
  - Sorghum midge: Chlorpyrifos, Lannate
  - Fall armyworm in whorl: Belt; Prevathon, Lannate
  - Headworms & stink bugs on heads
- Check fields 2-3 weeks before harvest for infestation