Management of Redbanded Stink Bug in MS Soybean Production Systems

FINAL REPORT FOR PROJECT #: 58-2020

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BACKGROUND AND OBJECTIVES

Redbanded stink bugs were the most abundant stink bug species present in 2017 in Mississippi. This species is extremely damaging and often enters the fields much later than our traditional species (Green, Southern Green, and Brown). The redbanded stink bug is capable of causing severe economic damage well after stink bug sprays are recommended to be terminated for our native species (R 6.5). Because this stink bug is cyclic in nature, many producers had terminated scouting during the 2017 season and sustained substantial economic damage from this pest. There were reports of several fields that were complete losses and many others with substantial deductions at the elevator from damage due to this pest. Redbanded stink bugs are extremely damaging and harder to control with commonly used insecticides. This project will

outline objectives to better understand management tactics to manage RBSB in Mississippi to ensure profitability for growers.

Objective 1: Determine insecticidal efficacy of insecticides to control redbanded stink bugs in MS.

Objective 2: Conduct ditch bank and early cover crop surveys in legumes in the early spring to predict RBSB populations

Objective 3: Establish a colony of redbanded stink bug at the MSU Insect Rearing Center

Report of Progress/Activity

Objective 1: Under low to moderate RBSB infestations many products will provide adequate knock down. However, tank mixes of acephate and bifenthrin provided superior control of RBSB (Fig 1-4).

Objective 2: Ditch bank surveys began detecting RBSB as early as March and continued to detect RBSB throughout the month of April. These data were reported weekly on the Mississippi-crops.com blog and used to answer numerous questions from growers on management strategies going into the 2020 cropping season (Fig 5).

Objective 3: Two colonies of RBSB were collected in 2021. For the first time, the insect rearing facility was successful in getting 5 stink bugs complete a life cycle on a diet of mixed fruits, peanuts, and honey water. Although the individuals that made successfully to adult they soon died. However, this is the first successful completion of a generation of RBSB and the results will be used to modify future rearing methods.

RBSB ditch bank survey results from the week of April 27, 2020:

- Yalobusha County 1/100 Sweeps
- Grenada County 1: 6/100 Sweeps
- Grenada County 2: 7/100 Sweeps
- Grenada County 3: 1/100 Sweeps
- Montgomery County 4/100 Sweeps

- **Covington County 5/100 Sweeps**
- **Covington County 4/100 Sweeps**

***Nymphs Present**

RBSB ditch bank survey results from the week of April 20, 2020 :

- Webster County 1/100 Sweeps
- Lowndes County 1: 1/100 Sweeps
- Lowndes County 2: 8/100 Sweeps
- Noxubee County 17/100 Sweeps
- Oktibbeha County 2/100 Sweeps
- Yalobusha County 4/100 Sweeps
- ***Jefferson County 1/00 Sweeps**
- ***Madison County 11/100 Sweeps**
- ***Warren County: 10/100 Sweeps**

***Nymphs Present**

RBSB ditch bank survey results from the week of April 13, 2020 :

- Sunflower County 1: 13/100 Sweeps
- Sunflower County 1: 0/100 Sweeps
- Sunflower County 1: 0/100 Sweeps
- Bolivar County 1: 0/100 Sweeps
- Bolivar County 2: 0/100 Sweeps
- Yazoo County 1: 7/100 Sweeps

*At this time all finds were adults

RBSB ditch bank survey results from the week of April 6, 2020 :

- Leflore County 1: 8/100 Sweeps
- Leflore County 2: 24/100 Sweeps
- Carroll County: 4/100 Sweeps
- Holmes County 1: 4/100 Sweeps
- Holmes County 2: 10/100 Sweeps

- Holmes County 3: 4/100 Sweeps
- Yazoo County 1: 3/100 Sweeps
- Yazoo County 2: 4/100 Sweeps
- Madison County: 8/100 Sweeps

*At this time all finds were adults

RBSB ditch bank survey results from the week of March 30, 2020:

- Noxubee County: 0/100 Sweeps
- Copiah County: 7/100 Sweeps
- Hinds County 1: 13/100 Sweeps
- Hinds County 2: 16/100 Sweeps
- Warren County: 12/100 Sweeps
- Sharkey County 1: 1/100 Sweeps
- Sharkey County 2: 1/100 Sweeps

*At this time all finds were adults

Impacts and Benefits to Mississippi Soybean Producers

With the increasing threat of RBSB, particularly behind mile winters, it is becoming increasingly apparent that ditch bank surveys can be used and accurate predictor of likelihood of encountering RBSB in the current growing season. This information can be used for soybean producers to makes adequate management plans to deal with this destructive pest from potential planting date decisions to insecticide budgeting. Also, as the number of efficacy trials increase, we are becoming more confident in what insecticides may be used to control this pest and which situation each product may used in to maximize results while minimizing input. Additionally, the insect rearing lab made significant progress in successfully getting five individuals to complete their life cycle in the laboratory. This information will be used to refine rearing methods which may lead to successful colonization in the lab resulting in new avenues to conduct research on RBSB.

End Products–Completed or Forthcoming

Data were presented at 16 producer meetings in 2020 and used in 2 Mississippi Crop Situation Podcast as well as preparing Extension and Research Entomologist the ability to provide growers throughout the season current information to address producer questions through phone calls, text, and social media outlets.

Figure 1.

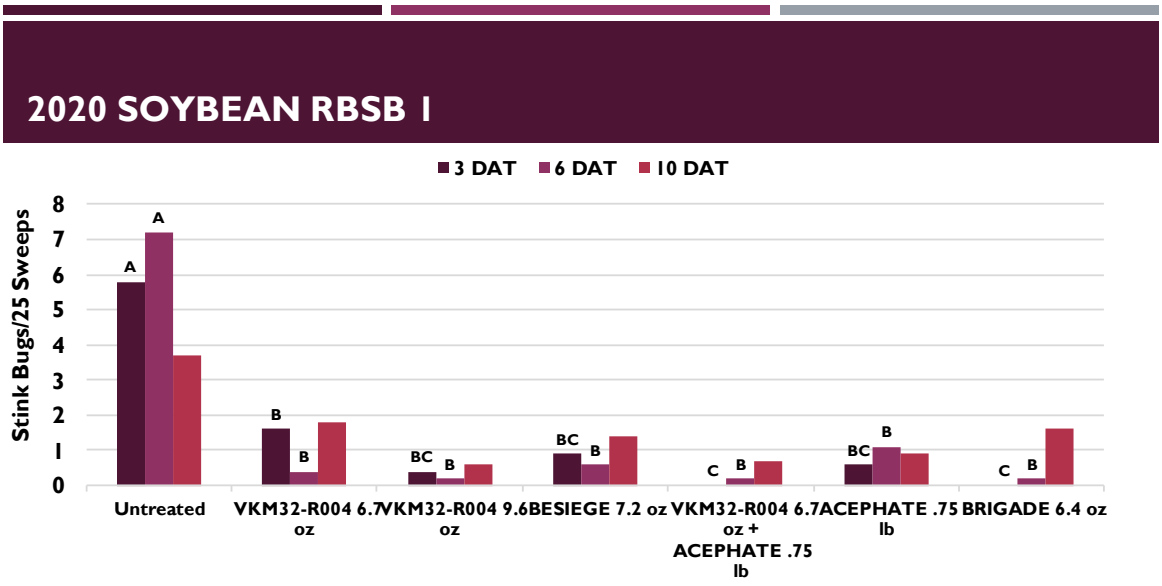

Figure 2.

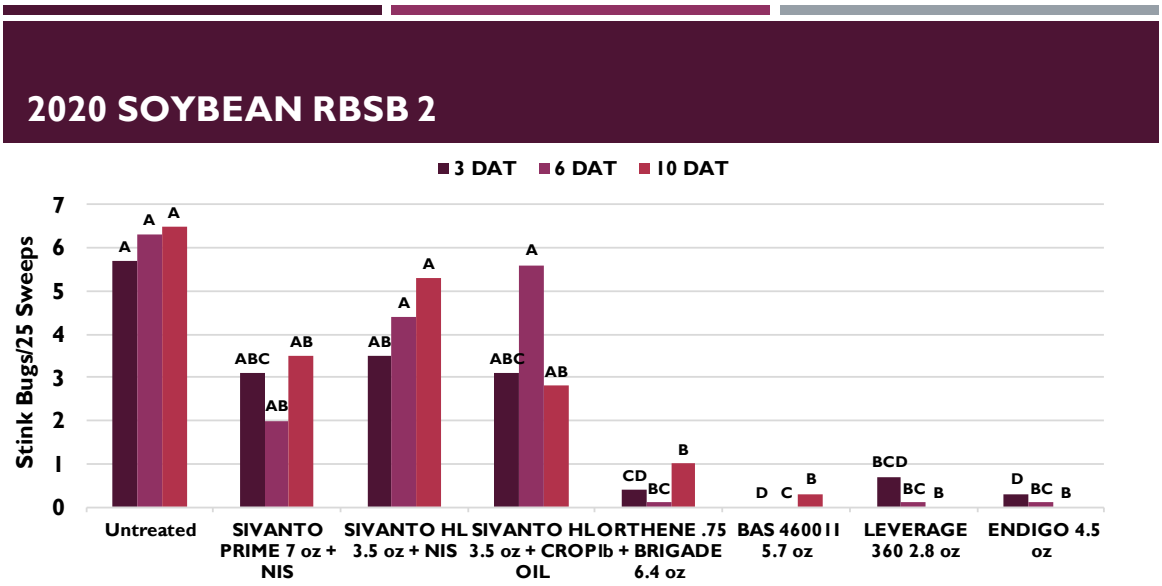

Figure 3.

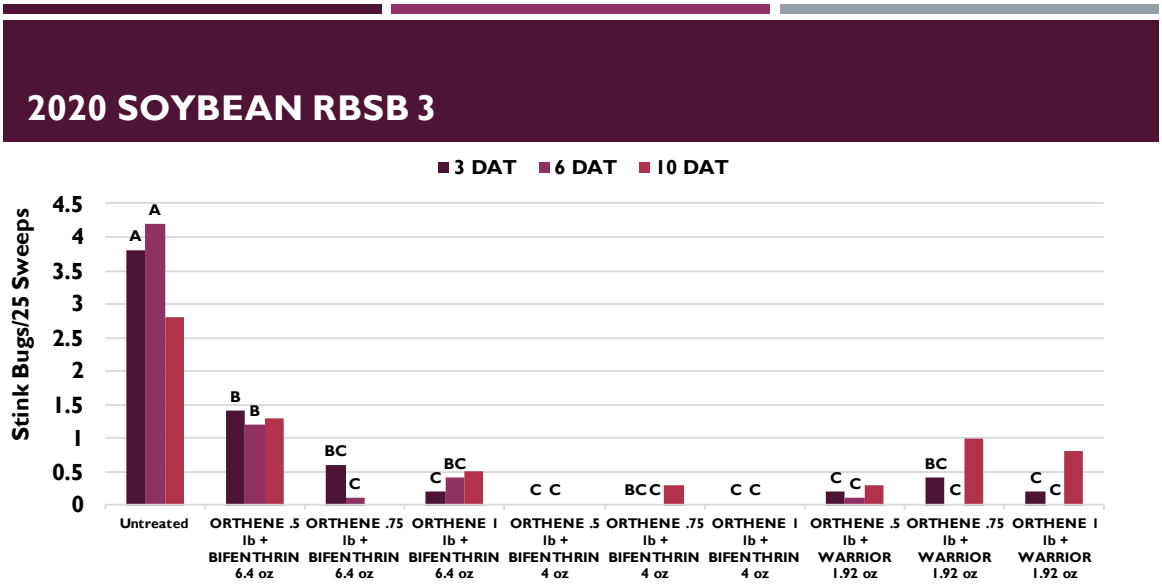

Figure 4.

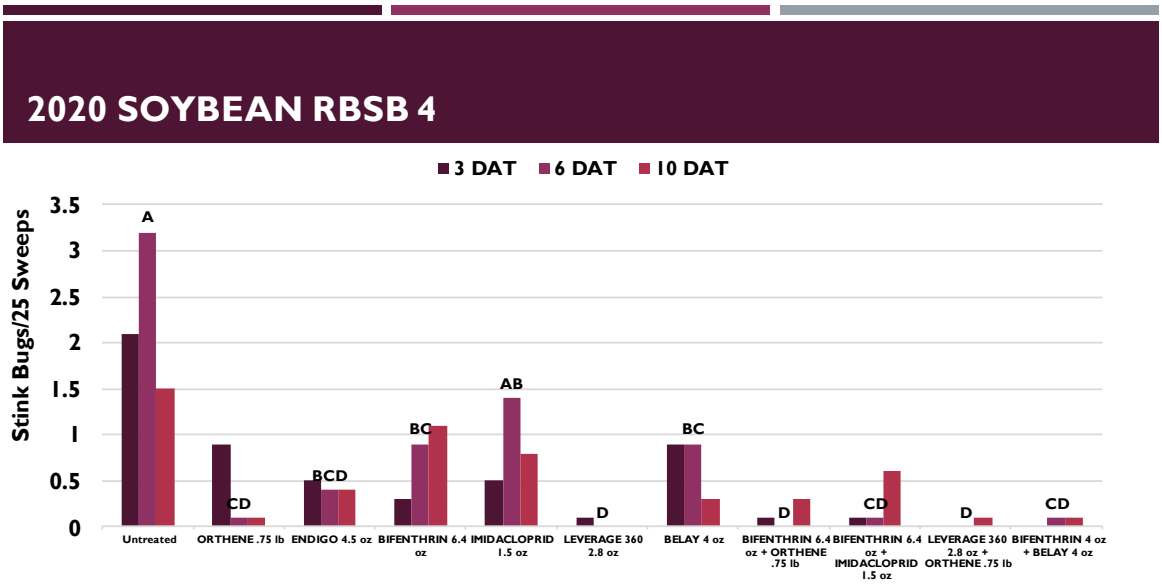

Figure 5.