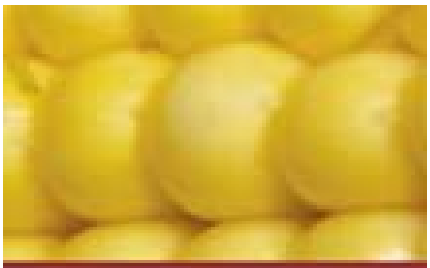
Mississippi Corn Promotion Board
2012 Progress Report



Project Title: Evaluation of Management Strategies for Sugarcane beetle in Mississippi Field Corn

PI: Angus Catchot, Fred Musser, Don Cook, Jeff Gore

Department: BCH-EPP

Project Summary (Issue/Response)

Sugarcane beetle, Euetheola humilis rugiceps (LeConte), has become a major problem in seedling field corn in the southern U.S. This pest is very destructive and has been difficult to control. Producers in the hill region of MS have commonly experienced 10-40% stand reduction from sugarcane beetles with no available rescue treatments. Currently, the only option producers have to control this pest is to choose one of the commercially available seed treatments. However, these have not been fully tested against sugarcane beetles, so the rates required for effective control are not known.

While seed treatments are currently the only known option for control, we believe there may be cultural control methods that may be implemented to minimize loss from SCB, such as manipulation of planting date. It is critical that we begin to investigate all available options to minimize loss from this insect pest in field corn since entomologists from across the Southern Corn Belt recently ranked this pest as one of the top emerging insect pests of field corn in the southeastern United States.

Over the last several years, producers in the hill region of Mississippi have desperately sought solutions to control or minimize yield loss from this pest. The research on this pest has been minimal, but Mississippi State University has done the most SCB research in the Southern Corn Belt. We feel that we have recently refined techniques and gained an understanding of the proper direction for this research to answer the producers' questions. We intend to use these funds to support a graduate student who will conduct this research.

Project Results/Outcomes

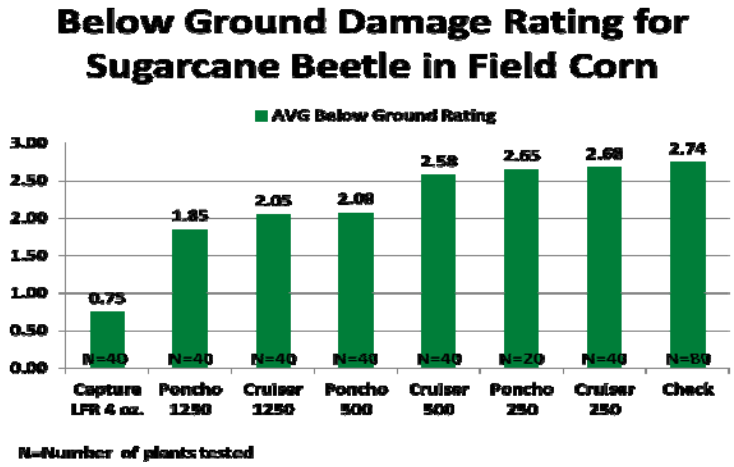
Having completed one year of data we feel that we are well on the way to developing reduced risk strategies for producers wanting to further manage sugarcane beetles in field corn. After one year of data it appears that spring emergence is continuous for several weeks with a couple of peaks and may be temperature dependent. Also, male and female beetles appear to emerge in equal numbers daily. Preliminary data also suggest that male and females are equaling damaging to field corn.

We are currently working on assay methods in the laboratory using sweet potato as a medium to determine LC50 values for seed treatments. This will be important for companies to understand when developing rates and products for soil insect pests in the future.

We are also getting close to correlating above ground injury scales to yield loss. This will be important for growers to help determine whether or not replants are necessary after a sugarcane beetle infestation has occurred.

Project Results

We conducted numerous in-field “pipe test” (pictured right) testing new and experimental seed treatments against artificially infestations. One immediate finding is that Capture LFR when applied in-furrow with starter fertilizer provides excellent control out to at least V4 if not further. We plan to expand in-furrow insecticide testing in 2013 with and without seed treatments. All results are one year only but very encouraging for each of the objectives.



Example of Pipe Test for artificial infestations of SCB

Project Impacts/Benefits

Data generated from this project is providing relative efficacy of seed treatments and other at planting insecticides for producer’s to choose from when targeting sugarcane beetles in field corn. Also, important biological information is being generated that will hopefully lead to cultural control methods to avoid risk such as planting date. Above ground damage scales are being developed and correlated to yield loss so that producers will be able to determine if replants are necessary as soon as 7 days after infestation or symptomology starts occurring. Impact of infestation levels on yield are also being evaluated to further aid in replant decisions.

Project Deliverables

3/6/2012- Impact of Sugarcane Beetle on Mid-South Corn Production. K. Lanford, A.L. Catchot, F. Musser, D. Cook Scott Stewart. Entomological Society of America-Southeastern Branch, Little Rock, AR 2012.

8/7/2012– Seed Treatments for Control of Sugarcane Beetles in Field Corn, A.L. Catchot, Union City Field Day, Union City, TN

8/9/2012- Impact of Sugarcane Beetle on Mid-South Corn Production. K. Lanford, A.L. Catchot, F. Musser, D. Cook Scott Stewart. North MS Research and Extension Center Field Day.

10/24/2012– Influence of Sugarcane Beetle on Yield of Field Corn K. Lanford, A.L. Catchot, F. Musser, D. Cook, Mississippi Entomological Association, Starkville, MS

11/10/2012- Impact of Sugarcane Beetle on Mid-South Corn Production. K. Lanford, A.L. Catchot, F. Musser, D. Cook Scott Stewart. Entomological Society of America, Knoxville, TN.

MISSISSIPPI MAFES AGRICULTURAL & FORESTRY EXPERIMENT STATION

MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE