



Mississippi Corn Promotion Board 2023 Progress Report

Project

Title: Evaluation of Insecticidal Seed Treatments in Field Corn

PI: Whitney Crow

Department: BCH-EPP



Project Summary (Issue/Response)

Neonicotinoid seed treatments have come under tremendous scrutiny in for many years, neonicotinoid seed treatments have been under tremendous scrutiny because of their potential impact on pollinator decline. Mississippi State University understands the importance of insecticide seed treatment options for below-ground and early season insect pest management. Not only has this university been a leader in developing and maintaining yield benefit data, but we have also continued to evaluate new and current insecticides for the best fit in Mississippi corn production systems. Having historically research data is critical not only for the present, but also for the future. These data are vital for the EPA when products come under Federal review for re-registration. The benefits of insecticide seed treatment in corn are apparent, however, these federal organizations often require large university data sets to show the clear benefits of such practices. Funding from the Mississippi Corn Promotion Board will allow MSU entomologies the opportunity to continue generating data that clearly defines the benefit of these technology to corn producers both in the Hill and Delta region of Mississippi. These data will be used in a meta-analysis to provide benefits/risk assessments to the EPA when neonicotinoids come up for reregistration.



Project Results/Outcomes

Soil-borne insect infestations and their impacts on corn production vary greatly depending on the year. In fields that have a history of below ground insect pest, justifies the use of an insecticide seed treatments. Rescue treatments, or foliar applied insecticides, for soil-borne insect pests provide ineffective control, therefore, the use of an insecticide seed treatment is critical for proper control, protection of corn stand, and seedling health.

Damage from year to year tends to vary as shown in Figure 1. The majority of insecticide seed treatments lower the number of damaged plants per plot compared to the untreated control. Avicta and Lumivia treated plots had the highest number of damaged plants per plot. Avicta resulted in a similar amount of damage as the untreated control. When comparing the percent change in yield across seed treatments, all seed treatments resulted in a positive change, except for Avicta and Lumivia (Figure 2). Avicta resulted in a similar or decrease in yield compared to the untreated control. Lumivia also resulted in yields that were comparable or lower than the untreated control. With these results, the best protection was provided by a Poncho, Cruiser, or Lumivia/Lumisure insecticide seed treatments.

Project Results

Figure 1. Damaged Plants Per Plot.

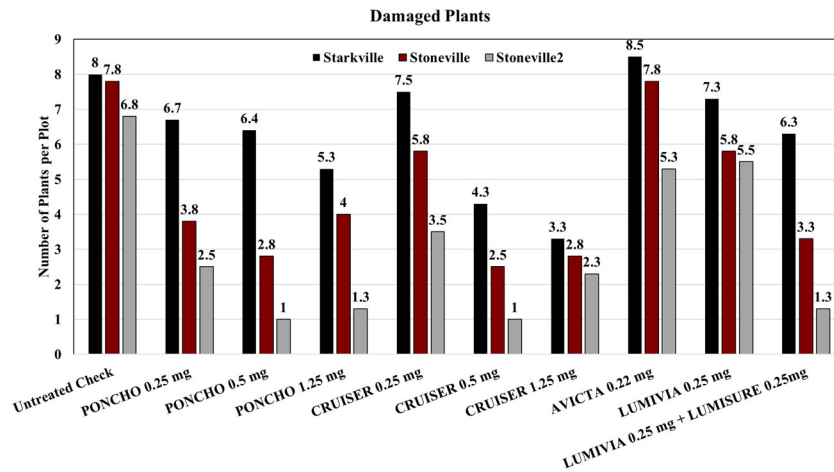
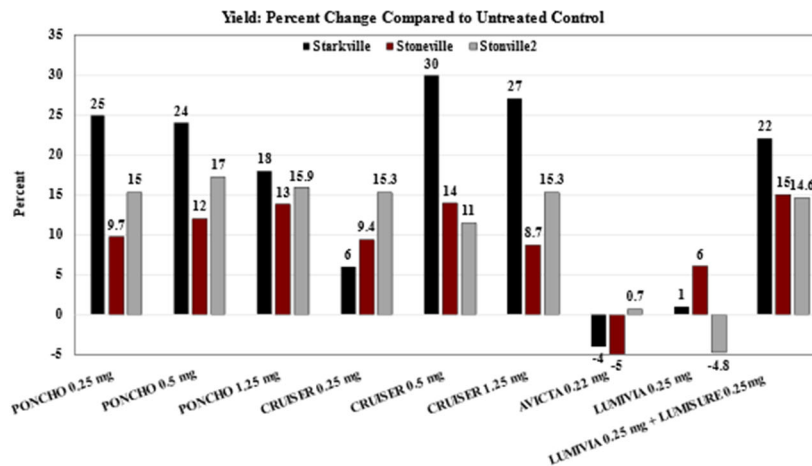


Figure 2. Yield: Percent Change Compared to the Untreated Control.



Project Impacts/Benefits

This data demonstrates on an annual basis the value of insecticide seed treatments with different active ingredients and concentrations rates in Mississippi corn production systems. By having the opportunity to study a diverse portfolio of insecticide seed treatments, the university is able gather data over time in a variety of environments that allows for better decision-making for insect pest management on farm.

Project Deliverables

Data will be presented at various producer meetings, short courses, and conferences across the state, mid-south region, and nation.



MISSISSIPPI STATE
UNIVERSITY™

MS AGRICULTURAL AND
FORESTRY EXPERIMENT STATION



MISSISSIPPI STATE
UNIVERSITY™

EXTENSION