

# ENTOMOLOGY

## REFINEMENT/VALIDATION OF FALL ARMYWORM THRESHOLDS IN WHORL STAGE CORN

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**"DAMAGE TO WHORL TISSUE, INCLUDING FALL ARMYWORM FEEDING, DURING THE VEGETATIVE STAGES HAS THE POTENTIAL TO IMPACT CORN YIELD."**

*Don Cook*

As much as 80% of the corn acres in Mississippi are planted to Bt hybrids (based on refuge requirements for multi-trait Bt corn technologies), with the remainder planted to non-Bt hybrids which are susceptible to infestations of caterpillar pests such as fall armyworm and corn earworm. Also, there is increased interest among growers in planting non-Bt corn in addition to that required for refuge. The current threshold in Mississippi for whorl feeding caterpillars is 100% infestation. This threshold was established many years ago. However, corn production in Mississippi has changed substantially over the last 20-30 years. One major change is the dramatic increase in yield potential, and these thresholds were established when yield potential was much lower than current levels. Studies were conducted during 2016 to determine the impact of fall armyworm infesting whorl stage corn. Studies using artificial infestations and manual plant tissue

removal were conducted.

In the manual tissue removal studies, plant tissue removal at the V5 growth stage did not significantly impact yield (Figure 1A), but there was a trend for lower yields as the percentage of damaged plants

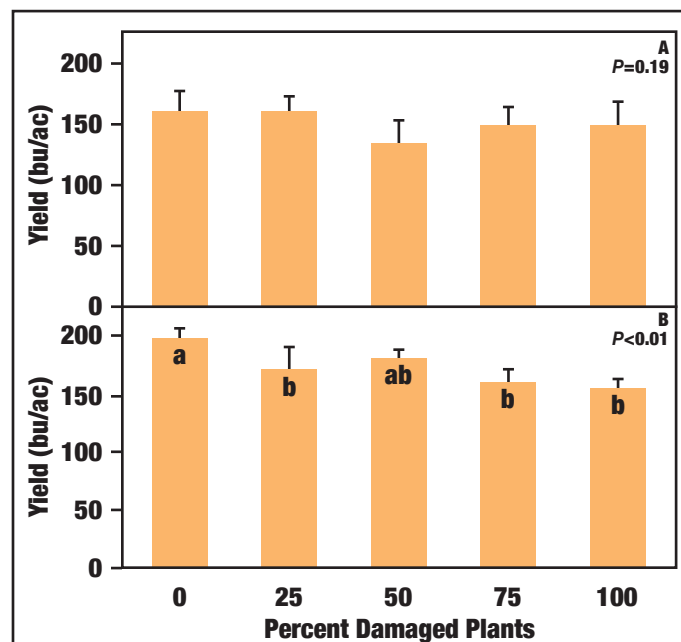
increased. When plant tissue was removed at V10, plots with 25, 75, or 100% damaged plants produced significantly lower yields compared to the non-damaged control plots (Figure 1B). In the larval infestation studies, plots were rated for fall armyworm damage at 14 days after infestation. At the V5 growth stage, plots with  $\geq 50\%$  of plants infested had significantly higher damage ratings than plots with 0 or 25% of plants infested (data not shown). However, the highest mean damage rating was only four which is less than the midpoint of the rating scale. No significant differences in yield were observed when plants were infested at V5 (Figure



*Fall armyworm*

2A). At the V10 growth stage, all of the infested plots had significantly higher damage ratings than the non-infested plots, with the plots that received the 100% infestation treatment having significantly higher damage ratings compared to the plots that received the 25 and 50% infestation treatments (data

**Figure 1.** Impact of plant tissue removal at the V5 (A) and V10 (B) growth stage of corn yield.



not shown). However, the highest mean damage rating was only four which is less than the mid-point of the rating scale. Although differences in damage were observed, no significant differences in yield were observed (Figure 2). These studies will be repeated in 2017.

**Figure 2.** Impact of fall armyworm infestations at the V5 (A) and V10 (B) growth stages on corn yield.

