# CAN WE RELY ON ANY SINGLE INSECTICIDE FOR SEASON LONG TARNISHED PLANT BUG CONTROL IN LA COTTON?

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## Abstract

Tarnished plant bug (TPB), *Lygus lineolaris* (Palisot de Beauvois), is a primary pest of cotton throughout the world and is a key economic pest of cotton in the southeastern portion of the United States. Over the past fifteen years there has been an increase in overall cost of managing for this pest in Mid-South cotton fields. There has also been an increase in the frequency of insecticide applications which has resulted in the development of populations expressing resistance to many of the insecticides recommended for control. The results of annual insecticide screening trials are necessary to update IPM recommendations and reduce the probability of unsatisfactory control. Therefore, the objective of this project was to determine if a single insecticide treatment (MOA) could be relied on for full season control of tarnished plant bug in Louisiana. This trial was in a field of DP 555 cotton planted May 5, 2009, at the Northeast Research Station near St. Joseph, LA. Eleven insecticides treatments including Acephate 90S (0.75 lb form./acre), Bidrin 8EC (6 oz form./acre), Vydate 3.77L (12oz form/acre), Centric 40WG (2 oz form./acre), Trimax Pro 4.44SC (1.5 oz/acre), Carbine 50WG (2.5oz form./acre), Leverage 2.7SE (4.5 oz form./acre), Intruder 70WSP (1.1 oz form./acre), Endigo 2.06SC (5.0 oz form./acre), Diamond 0.83EC (9 oz form./acre), Brigade 2EC (5.12 oz form./acre) and a non-treated control were evaluated for efficacy against tarnished plant bug. Insecticides were applied with a John Deere 6000 hi-cycle sprayer calibrated to deliver 6 gpa with a compressed $CO_2$ system and TeeJet TX-10 nozzles. Treatments were applied at least weekly and more often when TPB nymphs exceeded action thresholds (three insects / five row ft.) Field plots were eight rows by 50 feet with four rows of mustard bordering each plot. The treatments were arranged in a RCBD with five replications. Rows two-seven (10 row feet total / post-treatment sample) in each plot were randomly sampled for TPB nymphs using the black shake sheet protocol at three-five and four-seven days after treatment (DAT). Treatment effects on seed cotton yield were also recorded on rows four and five. A total of six applications and 12 post-treatment samples were used in this trial. All data was analyzed using ANOVA and treatment means compared using DNMRT (*P=0.05*). Although insecticides frequently demonstrated significant reductions in post-treatment numbers compared to numbers in the non-treated plots, there were only 15% of the individual comparisons during the entire test that actually reduced TPB numbers below the treatment action threshold. None of the treatments provided consistent satisfactory control of TPB. Based upon the seasonal mean after all six insecticide applications, only one treatment (Diamond) reduced TPB below the action threshold. However, the six applications applied in this trial exceeded the allowable seasonal AI per acre for Diamond as well as eight other products. Five treatments (Bidrin, Trimax-Pro, Leverage, Endigo, and Diamond) significantly increased seed cotton yields above (91-347 lb) that harvested from the non-treated plots. Insecticide and application expenses for the six applications of these insecticides ranged from $54-86/acre. These results suggest that relying on a single product for season long control is not the proper approach for managing this pest.