

EVALUATION OF NECTARILESS BREEDING LINES FOR RESISTANCE TO PLANT BUGS**T. P. Wallace****Mississippi State University****Mississippi State, MS****F. A. Harris****Mississippi State University****Mississippi State, MS****Abstract**

The nectariless trait in cotton has been well documented as a host plant resistance trait through a reduction in tarnished plant bug (TPB), *Lygus lineolaris* (Palisot de Beauvois). Changes in insect management technology (boll weevil eradication and transgenic Bt cotton) have allowed TPB to become a key pest. Improved methods of managing TPB in cotton are needed to fully exploit the potential benefits of the new insect management environment in cotton production. Therefore, a field evaluation of TPB resistance in 84 lines of nectariless cotton was established in 2004 on Delta Branch Experiment Station, Stoneville, Mississippi. Nectariless cotton populations came from the nectariless cotton breeding program at Mississippi State. April plantings of mustard (*Brassica sp.*) in strips along borders and between replicates were used to enhance TPB infestation. Thrips and caterpillar pests were controlled over the entire test with timing of application and/or selection of insecticide that avoided impact on TPB. The test was arranged in a split-plot design with two main treatments: (1) Controlled plots that were aggressively treated with insecticide to control TPB (thiamethoxam, Centric® 0.05 lbai/acre, or dicotophos, Bidrin® 0.4 lb ai/acre), and (2) Infested plots (untreated for TPB) that received the thrips insecticide and all spinosad applications but none of the applications to control TPB. The 84 experimental cotton cultivars and 12 standard cotton entries were randomly arranged in one-row by 35 ft plots within each main treatment. The experiment was replicated three times. TPB infestation and damage data (insect counts, square shed, and bloom injury) and crop production data (square and bloom production, and yield) were evaluated by calculating ratios of data for infested/controlled plots and ranking the ratios from those inferring greatest resistance to those inferring least resistance to TPB. The following cultivars occurred in the top twenty-four lists 10, 11, or 12 times, i.e. about twice the random probability of occurrence: 0149-3 ne, 0106-11 ne, 0020-35 ne, 0140-37 ne, and 9756-3-1 ne. These ratings along with data on fiber quality and agronomically desirable traits will be used to determine cultivars that merit further testing for resistance to TPB and further use in a nectariless breeding program.