

**FIELD EVALUATION ON THE LETHAL EFFECT OF *Beauveria bassiana* STRAINS NI8 AND GHA
AGAINST THE TARNISHED PLANT BUG IN COTTON**

M. Portilla

G. Snodgrass

R. Luttrell

USDA ARS SIMRU, Stoneville, MS

Abstract

Two isolates of *Beauveria bassiana* (Balsamo) Vuillemin including the commercial strain GHA and the Mississippi Delta native NI8 strain were evaluated in the field for pathogenicity and infectivity against tarnished plant bug (TPB), *Lygus lineolaris* (Palisot de Beauvois). Thirty 2-d old TPB adults from a laboratory colony were placed in cages located on top and bottom parts of cotton plants in the field prior to spraying with *B. bassiana*. A total of 240 cage were used in 40 plots (20 plots per strain) (0.068 acre each) sprayed with four concentrations and a control with each *B. bassiana* strain (4 plots / concentration, 6 cages / plot, 2 cages/ cotton plant). Concentrations sprayed (spores / acre) were 4.0×10^{10} , 4.0×10^{11} , 4.0×10^{12} , 4.0×10^{13} of *B. bassiana* strain NI8 and 4.1×10^{10} , 4.1×10^{11} , 4.1×10^{12} , 4.1×10^{13} of *B. bassiana* commercial strain GHA. All sprays included 1.5 ml of Tween-80 per gallon of spray. Sprayed insects were collected from the cages and placed individually on Lygus solid diet and observed for ten days under laboratory conditions. Mortality and sporulation from Lygus collected on top and bottom parts of the plants were recorded daily. Differences of mortality and sporulation on day 3, 5 and 10 were significant among concentrations for both isolates and locations. Based on the LC_{50} (lethal concentration) and LS_{50} (lethal sporulation) estimates determined by probit analysis of the concentration-mortality (top and bottom) and concentration-sporulation (top and bottom) relationships 10 days after spray, *B. bassiana* native strain NI8 with a LC_{50} of 6.5×10^{12} and LS_{50} of 1.7×10^{13} (spores / acre) was more infectious to TPB than the commercial strain GHA with a LC_{50} of 4.74×10^{14} and LS_{50} of 2.27×10^{15} (spores / acre). Overall, these results indicated that *B. bassiana* strain NI8 was superior to the commercially-available isolate suggesting that a 50% reduction of adult populations of *L. lineolaris* may occur 10 days after spray using a spray concentration about 73 – fold lower than that of the commercial GHA strain.