

# Beauveria bassiana Project Summer 2014

## Residual activity of Novaluron and Pyriproxyfen in combination with *Beauveria bassiana* and insecticide as surface treatment to manage the TPB in Cotton.

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### INTRODUCTION:

Insect growth regulators (IGRs) are effective against stored product insects (Oberlander et al. 1997; Oberlander and Silhacek 2000). Various methods have been used in research studies to evaluate effectiveness of IGRs, including incorporating the IGR into the diet of the insects, with the usual result being almost complete inhibition of adult emergence, depending on the target species, specific IGR, and dosage rate (Oberlander et al. 1997). Evaluation of an IGR through exposure in treated diet may not accurately reflect exposure in field conditions, where immature and adult insects encounter food sources that may be deposited on treated surfaces.



### MATERIALS AND METHODS:

A juvenile hormone Pyriproxyfen and an inhibitor Novaluron were evaluated in the lab and in the field against tarnished plant bug (TPB), *Lygus lineolaris* (Palisot de Beauvois). Branches of cotton plants were cut after spray and placed in cages with 30 young TPB adults (0-1 day old) from a laboratory colony and fifth instar. A total of 16 cages were used in 16 plots per each day (0 day, 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, and 7 days after spray). Plots were sprayed with four treatments: *B. bassiana*, *B. b* + Rimon, *B. b* + Knack, *B. b* + Belay + Knack and a control (4 plots / treatment, 3 branches / plot / day). The sprayed concentrations of *B. bassiana* (spores / acre) was  $4.0 \times 10^{12}$  for all treatments. Released insects were collected from the cages and placed individually on *Lygus* solid diet and observed for ten days under laboratory conditions. Mortality and molting percentage were recorded daily.



### RESULTS:

Differences of mortality were found among treatments for all treatments

### REFERENCES:

Arthur FH, Fontenot EA. 2012. Residual activity of methoprene and novaluron as surface treatments to manage the flour beetles, *Tribolium castaneum* and *Tribolium confusum*. *Journal of Insect Science* 12:95.

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