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EFFECT OF BT COTTON CRY1AC AND RR ON THE NATURAL BIOLOGICAL CONTROL OF COTTON APHID (*APHIS GOSSYPII* GLOVER)



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 1

Introdução




- ❖ A major concern with the adoption of Bt crops is their potential impact on nontarget organisms.
- ❖ The direct and indirect interactions between arthropod natural enemies and Bt cotton may result in negative, positive, or neutral effects on natural biological control.
- ❖ Natural enemies keep many potential pests from being economic problems and can contribute to control of key pests, including *A. gossypii*.

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Introdução


- ❖ Hypothesis
 - ✓ Bt cotton does not affect the natural biological control of mortality of *A. gossypii*.
- ❖ Objective
 - ✓ Evaluate the impact of Bt cotton Cry1Ac and RR on the natural biological control of *A. gossypii*.



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Material & methods


- ❖ Field experiment
 - ✓ Growing season 2013-2014.
- ❖ Experimental design
 - ✓ RCBD, 12 replications.
 - ✓ Treatments: NUOPAL (Bt) and FM910 (non-Bt).



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Material & methods

- ❖ Evaluation
 - ✓ Natural control of *A. gossypii* throughout the day.
 - ✓ Main natural enemies
- ❖ Data analysis
 - ✓ Anova




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Results

Table 1: Main natural enemies of *A. gossypii* observed on Bt and non Bt cotton varieties.

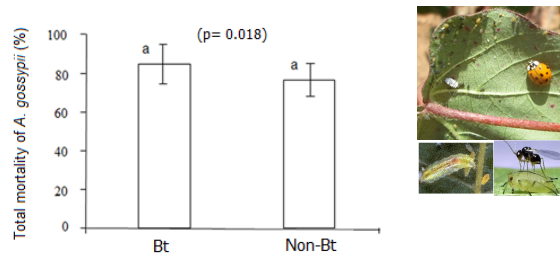
Main natural enemies of <i>A. gossypii</i>	$F_{1;22}$	$P < 0,05$
Parasitoids ➤ <i>Aphelinus</i> sp (Hymenoptera: Aphelinidae)	0,21	0,649
Predators ➤ <i>Harmonia axyridis</i> (Coleoptera: Coccinellidae)	2,06	0,166
➤ Larvae of syrphids flies (Diptera: Syrphidae)	0,43	0,521
➤ Spiders	0,47	0,502



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Results

Figure 1: Total mortality of *A. gossypii* caused by natural control.



7

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Conclusions

- ❖ The Bt cotton Cry1Ac and RR did not have a significant effect on the natural biological control of *A. gossypii*.
- ❖ The main natural enemies observed were parasitoid *Aphelinus* sp. and predators *Harmonia axyridis*, larvae of Syrphidae and spiders.



8

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Conclusions

- ❖ Total mortality of *A. gossypii* caused by natural control was high (87.51 ± 2.18%) and it was similar between Bt and non-Bt varieties.
- ❖ Therefore, the adoption of conservation practices for natural biological control is promising and should be a priority in both Bt and non-Bt cotton genotypes.

9

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10

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