

GENETICALLY MODIFIED CORN: AN ANALYSIS OF THE BEHAVIOR OF FALL ARMYWORM

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Abstract. Little is known about effects of genetically modified corn plants on the foraging of *Spodoptera frugiperda* (J.E. Smith). Therefore, this study examines whether singular herbicide-tolerant and insect-resistant plants and their stacked events interfere with food preference and oviposition of *S. frugiperda*. Two non-Bt corn hybrids and three Bt-hybrids, some of them with glyphosate tolerance (GT) were evaluated. Food preference of larvae and biological parameters were assessed. Oviposition preference bioassays involved choice and no choice condition in plants uninfested and previously infested by larvae in a greenhouse and in the field. The results indicate that there is no relationship between preference of larvae and adult moths. Adult females selected preferentially transgenic hybrids, while larvae selected non-Bt hybrid. Fall armyworm larvae avoid Bt-toxin-expressing leaf tissues, survived only on the non-Bt leaf tissues and showed minor differences in other life-history traits reared on GT and non-transgenic corn leaf tissues. Female moths showed preference for transgenic plants to lay eggs, but with variable output between previously infested and uninfested plants with larvae. The fact that moths preferred Ag 3700RR2 and non-Bt hybrids for oviposition supports the refuge's strategy aiming at producing susceptible individuals. The use of this hybrid must be integrated with a program of control. The results showed also the importance of correct hybrid selection as part of insect resistance management to Bt-plants. The implications of these findings for understanding the impacts of plant-mediated cues on pest behavior in transgenic crop systems are discussed.

Keywords: Transgenic crops, reproductive performance, fall armyworm, insect-plant interaction.