

Evaluation of *Chilo partellus* and *Busseola fusca* susceptibility to d-endotoxins in Bt maize

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Abstract

Susceptibility of *Chilo partellus* (Lepidoptera, Crambidae) and *Busseola fusca* (Lepidoptera, Noctuidae) populations to Cry proteins from the bacterium, *Bacillus thuringiensis* (Bt), the d-endotoxins Cry1Ab and Cry1Ba in Bt-maize, were evaluated under biosafety greenhouse conditions. Larval feeding on Bt-maize was adjusted to deliver sub-lethal doses of d-endotoxins from the two events; survivors were reared on artificial diet to obtain successive generations. Eight generations of three *C. partellus* populations and five generations of a *B. fusca* population were screened for susceptibility on each event. Mean proportion of surviving larvae from Bt-maize plants, and the corresponding pupal weights of survivors for each population, were lower for individuals exposed to d-endotoxins. Both Bt Cry proteins expressed in maize leaves controlled *C. partellus* and showed stability in control, with no indication of a change in susceptibility among generations. Neither toxin, however, provided complete control of *B. fusca*, but no changes in susceptibility were observed after five generations of selection. Implications for development of future transgenic Bt maize events, and research for East Africa are discussed.