1 **Dispersal and avoidance behavior of western bean cutworm when exposed to *Bt* maize**

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Abstract: Characterization of avoidance behavior to *Bt* maize, which has been observed in several pest species, is important because it can influence the design of resistance management strategies. *Striacosta albicosta* is an important pest in Canada and the United States, and recently identified in Mexico. This research examines whether *S. albicosta* presents increased dispersal or avoidance of Cry1F and Vip3A *Bt* maize compared to non-*Bt* maize using the following experiments: 1) on-plant dispersal: location of neonates assessed after 24h on *Bt* and non-*Bt* maize plants; 2) silking behavior: neonates observed for 15 min on *Bt* and non-*Bt* maize plants; and 3) feeding behavior: neonates offered *Bt* and non-*Bt* maize tissues (leaf and tassel) in choice/no-choice assays. Results indicate that larvae abandoned Vip3A plants 2.1 and 1.7 times more often than non-*Bt* and Cry1F plants, respectively. Silking behavior was observed 11% of the time on Vip3A, 4.4% on Cry1F, and 0% on non-*Bt* plants. Choice feeding behavior indicated a strong preference for tassel tissue. When exposed only to Vip3A, off-tissue behavior represented 38% of the observations; off-tissue behavior accounted for 24% for Cry1F and 28% for non-*Bt.* Choice experiments indicated preference for non-*Bt* tassel, and off-plant behavior was more frequent when choice was between Vip3A and non-*Bt*. Preliminary results suggest that *S. albicosta* might present avoidance to *Bt* toxins. Further studies in the field are needed to fully understand the potential for larval movement, which can improve resistance management and help delay the development of resistance and/or behavioral adaptation.