

CRY2AB RESISTANCE AND FLIGHT CAPACITY OF *H. ARMIGERA*

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Outline/Question

The effectiveness of the Bt refuge strategy relies not only on the production of susceptible moths in refuge crops, but also the movement of these moths within the Bt cotton landscape. However, as this is not a closed system, there is the potential for refuge crops to be contaminated with resistant alleles through the movement of resistant moths from Bollgard crops back into these areas. We investigated whether *Cry2Ab* resistance affects flight capacity of female Cotton Bollworm moths?

Results/Findings

Flight mill experiments were conducted to test flight capacity of susceptible and *Cry2Ab* resistant *H. armigera* female moths. Susceptible moths were heavier and flew slower than resistant moths. There was no difference in weight or flight speed between resistant moths reared as larvae on diet containing *Cry2Ab* toxin and those reared on a toxin free diet. Susceptible moths flew on average 40% longer, and 35% further than resistant moths, reared as larvae on diet containing *Cry2Ab* toxin.

Impact/Benefit to Industry

The results indicate that *Cry2Ab* resistant female moths emerging from under Bt cotton would have reduced flight capacity and this may help to limit the movement of resistance alleles into refuge areas. Results also confirm that susceptible female moths have a very high flight capacity. This could have implications for the design or refinement of the refuge strategy in Australia.

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Further Information

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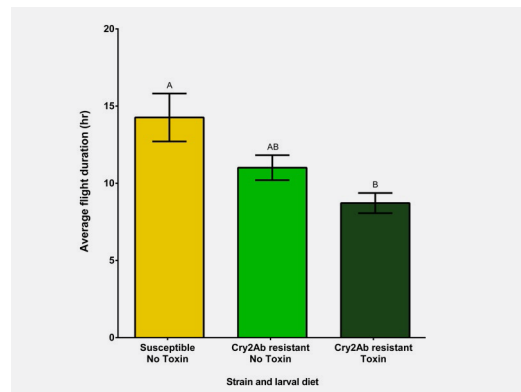


FIGURE 1 Effects of strain and larval exposure to *Cry2AB* on flight duration over five nights

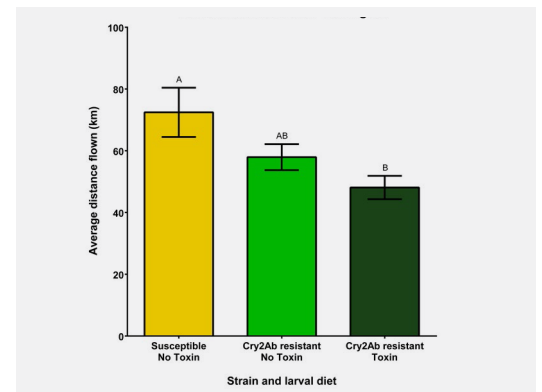


FIGURE 2 Effects of strain and larval exposure to *Cry2AB* on distance flown over five nights

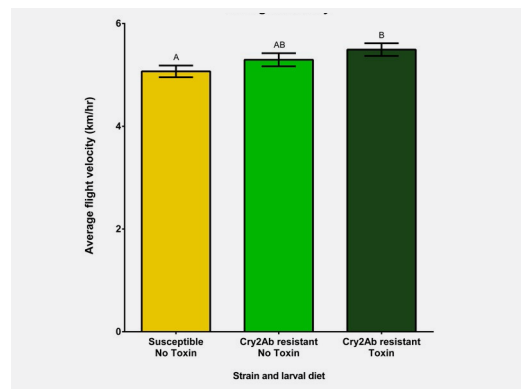


FIGURE 3 Effects of strain and larval exposure to *Cry2AB* on flight velocity



FEMALE *H. armigera* moth attached to Flight mill.