

SUMMARY

Distribution of Life stages of Helicoverpa on Conventional versus INGARD cotton varieties.

The within-plant distribution of life stages of *Helicoverpa* spp. was compared in field crops of two conventional and two INGARD cotton varieties over two growing seasons, 1997/8 and 1998/9. The placement of eggs and subsequent distribution of larvae was lower in the canopy on INGARD than conventional cotton varieties over the first two phases of crop growth. Generally, a lower proportion of *Helicoverpa* was found in the terminal region of the canopy than in previous studies (Dillon and Fitt, 1995).

Movements of 1st instar larvae on Conventional versus INGARD cotton.

First instar larvae travelled an average of 8 cm in the first 40 minutes after release on INGARD and conventional cotton varieties in the glasshouse. There was no significant difference in the distance travelled on each type. Approximately 50% of neonates had reached young leaves in 40 minutes, 20% were on terminals, 10% old leaves, 5% squares and the remainder on stems or lost.

Comparison of Whole-plant and Presence-Absence sampling protocols for INGARD versus Conventional Cotton varieties.

A close relationship between presence-absence and whole-plant sampling of *Helicoverpa* life stages was confirmed. This further supports the validity of presence-absence sampling as an efficient technique for cotton scouting. The relationship of whole-plant counts to whole-plant presence-absence sampling was very similar for conventional and INGARD varieties. With terminal presence-absence sampling there was a difference in the relationship to whole plant counts between INGARD and conventional cotton. The relationship derived from conventional cotton underestimated the density of very small and small larvae on INGARD cotton. The relationships obtained here differed from those established in previous sampling studies. We note however, that our analysis depends largely on one season when *Helicoverpa* was abundant. Overall, we conclude that INGARD varieties do not require a sampling strategy markedly different from that used on conventional varieties, although further recalibration of sampling relationships will be valuable in the future.