PLAIN ENGLISH SUMMARY

The overall aim of the project was to carry out research to aid the safe and rapid adoption and implementation of genetically engineered viral insecticides into the Australian Cotton Industry. The project formed part of a larger program that aims to commercialise recombinant *Helicoverpa* NPVs (recHaNPV) with increased insecticidal potential for field control of *Helicoverpa/Heliothis* pests. The project had strong links with the CRC through the projects "Environmental Impact Assessment for Genetically Engineered Viruses" and "Identification and Predictive Classification of the Australian Heliothine Moths" and we carried out a number of field trials and collecting trips in collaboration with these projects.

The current project was focussed on two aspects of the overall program. One, to continue the development of effective recHaNPV insecticides and two, to ensure that commercial products arising from the program are well suited to Australian cotton cropping systems at to develop technologies that would allow for the rapid implementation of recHaNPV insecticides in these systems. Research in the first of the activities improved on our existing technology for developing recHaNPVs in a format suitable for delivery into cotton cropping systems. However, we were unable to isolate a gene suitable for insertion into the viral genome. Nevertheless, recent negotiations with another of our commercial collaborators indicate that a suitable recHaNPV, with improved insecticidal activity, will become available for commercialisation in Australia in the near future. Work on the second activity was centred around generating data that would allow for the first ever release of a recHaNPV into the Australian environment. This forms a critical part of the pathway towards regulatory approval for the general release of such viruses and for the eventual commercial release of a recHaNPV expressing an insecticidal-insert gene. This aim was achieved in the first quarter of 1998 when we carried out the release of a genetically "marked virus at the ACRI at Myall Vale. This trial was designed to test the field performance of containment structures and tio assess the effectiveness of various contingency measures for future releases. In addition to the above studies we have also identified a number of novel u/v protectants that can offer significant improvements to the field performance of recHaNPVs and thus improve their overall effectiveness in *Helicoverpa* control strategies in cotton.

The completion of the current project sees Australia well placed for the rapid integration of recHaNPV insecticides into the cotton industry. Effective recombinant viruses are becoming available and a regulatory pathway through to registration hads been identified and the first trials along this pathway have been successfully completed. It is anticipated that recHaNPV insecticides could become available in the early part of the next century.