

Taking the guesswork out of biological control

The art of pest management in cotton is becoming so sophisticated that a DNA diagnostic testing service has been set up to quantify the effectiveness of biological control tools.

The University of Queensland has joined forces with Cotton Growers Services to generate rapid feedback on the levels of infection of viruses and parasites that offer biological control of cotton pests.

In what is believed to be a world first, UQ's Centre for Identification and Diagnostics (CID) within the School of Life Sciences is using DNA techniques to identify the species of grubs in the crop, and whether they have been parasitised by wasps or infected by viruses that will eventually kill them.

CID director Dr Dave Merritt said that within a matter of hours of receiving the insect samples, scientists can determine whether the "goodies" have infected the "baddies" and the pest battle may be won without the assistance of an application of chemical insecticide.

Cotton Growers Services development manager Philip Armytage said the level of insect infestation and effectiveness of biological controls are key variables in the cotton crop, and Australian growers are hungry for information and tools that enable them to fight nature with nature.

Under this joint venture with industry, UQ scientists will fine-tune the techniques and be ready in November to provide a diagnostic service with a 24 hour turnaround.

Timing is crucial in managing insect pests in cotton, but the longer growers are able to hold off "calling in the big guns", (using chemical insecticides) the better it is for the population of beneficial insects which provide biological control of the pests.

These diagnostics may also build confidence in



The DNA diagnostic testing service will determine the effectiveness of biological control of heliothis in a range of crops.

biopesticides produced from naturally-occurring live viruses that cause a slow and steady demise of the pest population rather than the reassuring instant “knockdown” provided by chemical insecticides.

“If growers know that the grubs are, for example, 80 per cent infected, they may be confident they will die before they can do excessive damage to the crop,” Dave said.

During the fine-tuning phase, UQ will provide the scientific services to the partnership on a cost recovery basis and plans the commercial hand over of the service to industry within two years, when testing devices can be operating in the major cotton-growing regions.

The DNA diagnostic tests are also expected to be useful in grain crops, such as sorghum and pulses.

For further information, contact Philip Armytage at Cotton Growers Services, ph: 02 6795 3100 or Dave Merrit at University of Queensland, ph: 07 3365 3478.