Advances in Pest Management 2007

Turnip sawfly (Athalia rosae) on a crop of indian mustard (Brassica juncea) in Somerset. Reproduced by Dr Bill Parker.

The third annual 'Advances in Pest Management' one day conference was held at Studley Castle on 11 October 2007. The morning session was chaired by Dr Bill Parker (ADAS), with Professor Jeff Bale (Birmingham University) doing the honours for the afternoon session. Delegates were able to enjoy a varied programme of thought-provoking presentations.

The keynote presentation was given by Dr Tariq Butt (University of Swansea) on the topic of 'The use of *Metarhizium anisopliae* and efficacy enhancing agents for the control of black vine weevil larvae and thrips pupae in plant growing media'. Tariq showed that combining sub-lethal doses (1% of the label rate) of conventional insecticides such as imidacloprid and fipronil with appropriate strains of *M. anisopliae* (an entomopathogenic fungus) gave a level of vine weevil control similar to that provided by the full recommended rate of the insecticides. The strategy was effective in a range of horticultural growing media. Similar effects could also be achieved by combining the use of neem seed cake with *M. anisopliae*. This latter approach was so effective that the application rate of *M. anisopliae* could be reduced 100 fold. Tariq argued that this success indicated that combining biocontrol agents with low-dose insecticides was a strategy suitable for adoption by growers as it reduced pesticide inputs and yet at the same time enhanced the efficacy of the biocontrol agent to the extent that rapid control of the target pest was achieved.

The next two speakers covered the general theme of the possible impacts of climate change on UK pest populations. Firstly, Dr Andy Evans (SAC) showed data from Scotland that suggested that populations of several soil migratory nematode species have risen significantly since the mid 1990s. *Trichodorus* and *Pratylenchus* species had shown particular increases. The reasons for these changes could include changes in patterns of nematicide use associated with the recent run of milder winters. Rosemary Collier (Warwick HRI) then presented the results of work aimed at predicting the effects of climate change on a range of horticultural pests including cabbage root fly, carrot fly and cutworms for which phenological or other types of models are available. In general, it was likely that activity of these pests would start earlier, with the possibility in some seasons of more generations being completed and hence a higher risk to crops.

The final two speakers before lunch were John Holland (Game & Wildlife Conservation Trust) and Professor Jeff Bale (University of Birmingham). John Holland covered work on the contribution of flying predators and parasitoids to cereal aphid control. Work in field cages showed that the contribution of aerial predators was generally much greater than that of epigeal guilds, suggesting strongly that 'beetle banks' did not in fact contribute greatly to aphid control in most fields. Professor Bale completed the session with a paper on risk assessment protocols for non-native biocontrol agents. He pointed out that there is no European Union Directive to regulate the import or release of non-native invertebrate biocontrol agents, and described a hierarchical Environmental Risk Assessment (ERA) process that could be used to assess the potential establishment, host range and dispersal of proposed non-indigenous introductions.

The first two speakers after lunch continued the theme of biocontrol. Minshad Ansari (University of Swansea) described work on the use of entomopathogenic nematodes and fungi for the control of the white grub (*Hoplia philanthus*) and also presented data on the biological control of wireworms. Keith Walters (CSL) then described novel work on the use of venom from the wasp *Pimpla hypochondriaca* to enhance the effect of the parasitic nematode *Phasmarhabditis hermaphrodita* for the control of the field slug (*Deroceras reticulatum*). His data showed that doses of venom between 4 and 12 µl per slug in combination with *P. hermaphrodita* resulted in significant increases in slug mortality and reduced total food consumption.

Finally, Bill Parker (ADAS) reminded delegates that climate change could mean the re-emergence of 'old' pests, using as an example the sudden resurgence of turnip sawfly (*Athalia rosea*) in 2006, a pest that had effectively been off the UK 'radar' for over 100 years. Rod Blackshaw (University of Plymouth) then rounded off the day with an impromptu presentation on the spatial and temporal dynamics of two groups of soil pests - wireworms and leatherjackets, drawing on work done in both the UK and Canada.

Delegates generally commented that the programme was varied and stimulating, and was noticeable for its concentration on whole organism biology with virtually no mention of molecular techniques!

Dr Bill Parker, ADAS