RESIDUE REDUCTION THROUGH BIOCONTROL

3 December 2008

A one day conference on 'Residue Reduction through Biocontrol' was held at Holmewood Hall, Peterborough on 3 December 2008. The conference room was convivial and appropriately packed as delegates gathered to hear an interesting and varied programme. The morning session was chaired by Bill Parker (ADAS), with Pat Haydock (Harper Adams University College) doing the honours for the afternoon session.

The keynote presentation was given Rob Jacobson (RJC Ltd), a well-recognised authority on developing and implementing integrated pest management (IPM) programmes on protected salads, particularly in the UK. Rob highlighted the considerable progress that has been made over the last 20 years in managing complexes of pests on tomatoes, cucumbers, peppers and aubergines. He highlighted that IPM programmes are knowledge-based, and depend on a thorough grasp of the interactions between plants, herbivores and natural enemies and environmental conditions. Although largely based on biological control agents IPM includes the use of canny cultural approaches and timely used of selective pesticides - all helping to maintain the delicate balance between successful pest management and runaway crop infestation by unforgiving pests.

Effective proof of how important biocontrols can be in reducing residues was supplied by a number of speakers who covered the impact of serious pesticide residues being found in produce grown around Almeria in southern Spain, an area with a highly concentrated protected vegetables production industry. In 2006 and early 2007, high pesticide residue levels exceeding MRL (maximum residue levels) were found in sweet peppers. These findings impacted severely on produce sales from the Almeria area, particularly with German supermarket clients. Markus Knapp (Koppert Biological Systems), Richard Greatrex (Syngenta Bioline) and Richard Glass (FERA) all covered different aspects of this situation, which resulted in a massive uptake of biocontrol agents in a range of crops in the Almeria area, with a concomitant significant fall in MRL exceedances. This demonstrated that economic drivers are essential for the uptake of IPM programmes.

A range of novel control methods with the potential to substitute for conventional pesticide use were also highlighted by a number of speakers. Andrew Brown (Becker Underwood) discussed the role that insect and slug parasitic nematodes can play in a range of high value horticultural crops, such as vine weevil control in strawberries (controlled by *Steinernema kraussei*), slugs in vegetable crops (controlled by *Phasmarhabditis hermaphrodita*) and codling moth in apple (controlled by *Steinernema carpocapsae*). Rob Strang (University of Glasgow) explained the chemical background to the insecticidal effects of azadirachtin, derived from extracts of the neem tree, and Toby Bruce (Rothamsted Research) described how the use of *cis*-jasmone, a semiochemical that switches on plant defence mechanisms, can be used to enhance control of cereal aphids, partly through the response of natural enemies to plant emission of *cis*-jasmone. Pat Haydock described work on the fungus *Pochonia chlamydosporia* for the control of potato cyst nematodes. The latter paper in particular highlighted the problems of moving from a research phase to product development and registration, which has proved a difficult hurdle to overcome for many promising biocontrol agents. Showing how it could be done, Manuele Ricci (AgraQuest) described the use of a new bio-fungicide product ('Serenade', based on *Bacillus subtilis*) which is now approved for use in the UK for the control of grey mould (*Botrytis*) on strawberry crops.

The final strand of the conference was down-to -earth examples of practical implementation of residue reduction through biocontrol and IPM more generally. Jonathan Marcar (KG Growers Ltd) summarised the evolving approaches that growers of soft fruit needed to take to respond both to changing legislation and customer demands. A similar perspective was provided by Collins Wanyama (The Real IPM Company, Kenya) in describing how rose growing in Kenya is now moving strongly towards the development of IPM programmes for pest management, even to the extent that pesticide residue testing in roses is now a performance indicator for the implementation of IPM.

Delegates generally commented that the programme was varied and stimulating. With a large contingent of students in the audience, the next generation of IPM researchers and practitioners were hopefully suitably inspired.

Dr Bill Parker, January 2009