

Report

REBECA Meeting Invertebrate Biological Control Agents (Macrobials) Wageningen, April 4-6 2006 International Conference Centre

Participants:

Regulation (6): Richard Baker and Sharon Cheek (DEFRA Central Science Laboratory, UK), Anja Bartels (Austrian Agency for Health and Food Safety, Austria), Anita Fjelsted (Danish Environmental Protection Agency, Denmark), Katerina Kyriazi (Ministry of Rural Development and Food, Greece), Anton Loomans (Plant Protection Service, The Netherlands)

Academia (11): Dirk Babendreier and Franz Bigler (Agroscope, Switzerland), Jeff Bale, Ian Hatherly (University Birmingham, UK), Horst Bathon (Biologische Bundesanstalt Darmstadt, Germany), Patrick De Clercq (University Gent, Belgium), E. Hunt, Ulrich Kuhlmann and Urs Schaffer (CABI Bioscience, Delemont, Switzerland), Dionysios Perdikis (University Athens, Greece), Joop van Lenteren (Wageningen University, The Netherlands),

Industry (8): Karel Bolckmans and Willem Ravensberg (Koppert, The Netherlands), Richard GreatRex (Syngenta Bioline, UK and representative of IBMA), Firouz Kabiri (Biotop, France), Gino Manzaroli (Bioplanet, Italy), Guido Sterk and Jan Vermeulen (Biobest, Belgium), Bernd Wührer (AMW Nützlinge GmbH, Germany)

REBECA (2): Miriam Doering and Ralf-Udo Ehlers (University Kiel, Germany)

(For details on the presentations, please enter the webpage at “RESULTS” and “RISK ASSESSMENT MACROBIALS”)

At the outset of the meeting the REBECA project was presented (see [REBECA: Objectives and Tasks](#), *Ralf-Udo Ehlers*). It was emphasized that the tremendous progress in the use of macrobials in biological control in Europe (annual turnover of approximately 200 million €) had been possible due, in part, to the low level of regulation existing in Europe during the last decade.

Biological control with invertebrate biological control agents (IBCA) was described as the most successful, cost effective and environmentally-friendly method of pest management. Over the past 100 years there have been many successes in biological control with remarkably few environmental problems. In comparison with pesticides, IBCAs are much cheaper to develop and have much higher cost-benefit ratios (see [Benefits of macrobial BCAs in classical and inundative control](#), *Joop van Lenteren* and [The nematode perspective: risks and benefits](#), *Willem*



Ravensberg). And yet, there are now 20 countries with regulation in place for the import and release of non-native species, with the likelihood of more countries adopting the same or similar regulatory controls (see [Current regulatory situation in Europe](#). *Antoon Loomans*). The history of developments of regulatory guidelines was summarized (see [Recent developments in regulatory guidelines](#). *Franz Bigler*).

At the present time there is no coordinated system of regulation for IBCAs across Europe. Some countries have regulation, others none. In those countries with regulation, the 'legal' basis may be related to legislation on pesticides, plant health or the environment. The format of applications for licences (permits) is also very variable. This situation has both advantages and disadvantages. On the one hand, it is easier for companies to release control agents in countries that have no regulation. On the other hand, those countries with regulation differ in their information requirements, and hence companies had to prepare separate dossiers for each country. Overall, if regulation is likely to increase (i.e. be introduced into countries that have no current system), it would be desirable for a consistent Europe-wide agreement to be developed. Given the heterogeneous backdrop to the current regulatory position in Europe, it was recognised that those countries with regulation would not accept a 'no regulation' recommendation from REBECA, and that some form of environmental risk assessment (ERA) was important, not least to reassure those countries that would be encouraged to devolve the 'decision making' powers on non-native species to an EU 'Expert Group'. It was therefore more realistic to undertake a strategic review of the 'risks' of biological control, with the aim of minimising the costs of an ERA, to industry or other funding agencies.

The views of industry on regulation and risk assessment were explained in terms of the 'value of the business' in Europe and elsewhere in relation to the possible costs of ERAs (see [Industrial experience of EU regulation](#). *Richard GreatRex*). This further highlighted the need for risk assessment to be justified and economic. As a further consideration, it was apparent that only a small number of the larger companies are undertaking 'R&D' on new species, but there was no system to protect the IPR for such investment once a licence had been granted (see [Industry investment in R&D and IPR](#). *Karel Bolckmans*). By the same token, small companies were considered vital to the maintenance of biological control in Europe. In general, a uniform regulation system was desirable so that industry would be aware of the information requirements, and that this would be consistent across the EU.

Possible risks of IBCAs were reviewed by Cheek (see [Macrobial BCAs: what are the risks?](#) *Sharon Cheek*).

A discussion on the risks of IBCAs highlighted the need to separate 'true risks' from 'perceived risks', and then identify those risks that needed to be 'regulated'. The group split into 3 subgroups to discuss risks related with the use of IBCAs in biological control and to categorize the risks. Risks could be described under three headings: 1. Human health; 2. Plant and crop damage; 3. Environment.

1. Human and animal health

There have been very few reports of allergies among production personnel, and any agent that caused problems would be rapidly withdrawn. The probability of risks to humans was therefore considered to be remote and limited to allergic reactions and bites and stings. Personnel in production of IBCAs is most likely to be exposed and can introduce protection measures to minimize the risks. It was prioritized as highest risk by two groups because of the possible severity of the impact should it occur.

2. Plant and crop damage and development to nuisance

There are only a few reports of crop damage (e.g. *Macrolophus caliginosus* on tomato), or related problems such as the contamination of crop products (e.g. *Harmonia axyridis* in grapes). The latter can also be a nuisance when entering into houses (see [Harmonia: a problem or a distraction?](#) Firouz Kabiri).

3. Environment

It was recognised that the most important risk of biological control with invertebrates, real or perceived, was to the environment. A range of possible outcomes were identified including, establishment in a new country, parasitism or predation of non-target species, competition or displacement of native species, perturbation of ecosystem functions (e.g. pollination), introduction of contaminating agents (pathogens, hyperparasites), and interbreeding with native species. It was recognised that the occurrence of such events, or extensive crop damage, would undermine the reputation of biological control.

The key requirement of an ERA was that it should be hierarchical (use step-wise decisions), thus allowing inherently safe species, or those that posed obvious risks, to be identified early in the process, minimising costs. A recently developed hierarchical system is available that covers native and non-native species for use in both classical and inundative (augmentative) control (see [Hierarchical systems of screening](#), Joop van Lenteren). This protocol assesses in turn, as appropriate (i) establishment (see [Establishment](#), Jeff Bale) (ii) host range (see [Host range testing](#), Joop van Lenteren) and (iii) dispersal (see [Dispersal](#), Dirk Babendreier). These three factors are then further evaluated in terms of their direct and indirect effects. Evidence is available that the methodologies for both establishment and host range have been adopted successfully, and that where experimental data have predicted that outdoor establishment of a candidate species was 'impossible' (when used in inundative control in glasshouses), this advice had been accepted by regulatory bodies and licences granted with a minimum of delay. Dispersal is more difficult to assess accurately, though the need for such an assessment would be rare. Overall, the species that would be likely to 'fail' this risk assessment are those that could establish and are polyphagous, in particular, those that are moderately polyphagous and have a preference for one or more non-target species.

As commercial activities in the market of IBCAs are concentrated in SMEs (small and medium-sized enterprises), it is important to keep costs related with the investigations low in order to minimize trade-off effects for growers and biocontrol industry. It would be preferable to ensure that protocols for ERA are sufficiently cheap and simple for any competent company to perform



for themselves. High costs related with the ERA will automatically result in restraints of trade for smaller enterprises.

Richard Baker ([Risk analysis for non-natives: opportunities for a generic approach](#), Richard Baker) pointed out that the risk assessment procedures suggested for bio-control agents are so similar to the procedures in the pest risk analysis (PRA) scheme developed by EPPO that there is much to be gained by adopting the EPPO PRA scheme for use with biological control agents. This will bring Europe in line with International Standard for Phytosanitary Measures (ISPM) 3 para 2. The EPPO PRA Scheme follows ISPM 11.

In line with the dual aims of achieving consistency in regulatory requirements between countries and a hierarchical ERA, the wider use of biological control would be aided by an updating of the EPPO 'Positive List' and the creation of an 'IOBC Expert Group' (see [Positive List](#), Ulli Kuhlmann). The EPPO list provides information on species that had been used in a number of different countries for several years without any problems, and thus could be considered as 'generally safe' for a certain area, and placed on the 'Positive List' that would be subject to a minimum of further regulation for that area. However, the EPPO Panel on Safe Use of Biological Control is no longer active and thus further input into this system had declined, and would need to be updated. Additional input from other organisations (e.g. IOBC) by agreement with EPPO, would provide a cost-effective and valuable mechanism for additional data provision and verification. Given that the EPPO panel consisted of experts representing different specialisms and regulatory backgrounds, it would be helpful if EPPO would utilise an IOBC Expert Group for maintenance of the Positive List to. Likewise, in a further development of this approach, this group could also consider risk assessment dossiers on behalf of EU/EPPO countries and grant or advice on licenses across a number of countries with a similar climate (an eco-region). The simultaneous transmission of information from the IOBC Expert Group to both EPPO and national authorities should expedite decision-making for both organisms on the Positive list and new control agents

It was agreed that the coordinator of REBECA together with the current IOBC Presidents (global and WPRS) would approach the new Director General of EPPO to discuss these proposals. Importantly, it needed to be ensured that the development of the proposed EPPO-IOBC link for maintenance of the Positive List and in turn, evaluation of ERA dossiers, should be stream-lined to ensure maximum transparency and cost-effectiveness.

In summary, the following proposal to EPPO is now suggested:

1. EPPO would provide co-ordination of the methodologies used and produce standards, similar to those already produced as guidance for testing crop protection agents, and in the same spirit as the positive list and Guidelines for Import and Release[EPPO Standards PM 6/1(1) and 6/2(1)].
2. EPPO, through the existing, but dormant, panel on biocontrol, would provide access to evaluations carried out by a panel of experts which can then be used to inform national authorities considering applications for release of IBCAs. This would be an advisory role only as



EPPO is not a decision making body. The decision to issue permits for release would remain with national authorities in all cases. This service would be particularly valuable to countries with limited available expertise, but it would not be mandatory for them to use it.

3. Evaluations made by EPPO and national authorities would be placed on a section of the 'Positive List' website, which was accessible to regulators only, and would assist them in their own assessment of submitted dossiers. Access to the information used for these assessments would be restricted for a defined period (probably 2-5 years), and would only become more widely available at the end of this period. This is a safeguard required by industry to protect its investment in dossier preparation.

5. REBECA will approach EPPO (Nico van Opstal) to see if such a scheme was acceptable, before then approaching national authorities, who would recommend this course of action to EPPO and decide the composition of the panel. If EPPO agreed to this task, then IBMA and IOBC would write to National Authorities in parallel, with the same recommendation.

It was considered that a positive list must be supported by data on the safety of the potential IBCA, which should be public and aid decisions of national authorities. REBECA will produce examples of safety data including relevant published information to be provided on the REBECA webpage. Karel Bolckmans and Jeff Bale agreed to provide information for *Ambyseiulus californicus*, Antoon Loomans and Dionysios Perdikis for *Macrolophus caliginosus* and *Encarsia formosa* and Ralf-Udo Ehlers for *Steinernema feltiae*. The structure should follow the scheme presented by Joop van Lenteren

(Report by Jeff Bale, Ralf-Udo Ehlers and Richard Greatrex)