



Session X – Panel Discussion II

Linking the Stakeholders II – Policy and regulatory issues, and commercialization

Chair Dr P S Chandurkar ■ Co-chair Dr S K Handa

Speakers

Keynote 1: Dr Pam Marrone, USA

Development and commercialization of biological pesticides from plants and microorganisms – Perspectives from a biopesticide entrepreneur

Keynote 2: Dr S Kulshreshtha, India

Regulation of biopesticides in India

Regional perspective: Dr Thomas Jäkel, Thailand

Commercialization of biopesticides in Southeast Asia: reflections on seven years implementing environmental-friendly technology

Prof. Vasily Dzhuvinov, Bulgaria

Baculovirus product Madex tested for controlling the main pest of apple, *Cydia pomonella* in Bulgaria



Session 10 in progress

At the outset of the session, the chair, Dr P S Chandurkar mentioned that commercialization of biopesticides has taken time since regulatory mechanisms sometimes act as an obstacle.

Dr Pam Marrone in her keynote address mentioned that there is a decline in chemical pesticide usage and the biopesticides market by 2010 may go up to \$1 trillion. She emphasized that biopesticides should be integrated with conventional control to enable its sustenance.

Dr S Kulshreshtha highlighted the registration procedure in India in her keynote. She mentioned that the government has been proactive in the

usage of biopesticides, and hence the registration of a product is taken up on priority. She also mentioned that to date 16 biopesticides have been registered.

Dr Thomas Jäkel described his experience of using protozoan product for rodent control. He mentioned that the common problem experienced in South East Asian countries is with regard to data generation.

Prof. Vasily Dzhuvinov presented data on a baculovirus product for codling moth control, which reduces the fruit damage.



Dr Pam Marrone



Dr (Mrs) S Kulshreshtha



Dr Thomas Jäkel



Prof. Vasily Dzhuvinov

Panelists

Mr Vivek Singhal, India ■ Dr K Narayanan, India ■ Dr Vibha Dhawan, India ■ Dr K R K Reddy, India



Mr Vivek Singhal



Dr K Narayanan



Dr Vibha Dhawan



Dr K R K Reddy

Mr Vivek Singhal, in his opening remark to the discussion, mentioned that since 1994 there have been nine interactions on the preparation of draft guidelines but it hasn't taken a final shape. This has to be hastened. He also emphasized that the government should ensure that quality products reach the farmers. In addition, the procurement policy of the state government should change.

Dr K Narayanan presented data on EPN products terming them as bouncers and soldiers.

Dr Vibha Dhawan mentioned that in any process, the interest of the stakeholders, that is, the consumers and farmers, has to be considered.

She suggested promoting small- and medium-sized biopesticides production industry at the village level. The research result should be made available briefly at the national and international levels.

Dr K R K Reddy, speaking for producers committee, mentioned that most of the registered products are *Trichoderma*, and when the registration has to be renewed, the source institute would have stopped working on the organism. He requested that the new regulations instead be enforced in 2010. He also suggested that in the certificate, the chemical attracts VAT and hence, biopesticides should be used.

In his concluding remarks, the chair, Dr Chandurkar, highlighted four points.

- Most of the biopesticides are for insects whereas diseases and nematodes should also be targeted.
- In India, data sharing is allowed and this is being utilized by the companies.
- The registering agency should specify the ecological zone where the bio-agent is effective.
- Research on delivery systems should be undertaken to improve the shelf life of the biopesticides.



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Session XI

Valedictory Session

Chair Prof. Mir Mulla ■ Co-chair Dr Seema Wahab

Presentations by Session Chairs

Dr M Nagesh ■ Dr Errol Hassan ■ Prof Alan Cork ■ Dr T M Manjunath ■ Prof Mir Mulla
Dr T P Trivedi ■ Dr H S Gaur ■ Dr Gabor Szocsl ■ Dr S K Handa



Session 11 in progress



The valedictory session was addressed by the chair Dr Mir Mulla who summarized the deliberations of the Fifth International Conference on Biopesticides. He expressed his satisfaction on the proceedings and outcome of the conference and described it as the best-organized professional event in

biopesticides. He also expressed his appreciation for the chief organizers Dr Seema Wahab and Dr Nutan Kaushik for their unstinted efforts in bringing national and international workers, policy-makers, and stakeholders onto one platform for their productive mutual interactions. He invited chairpersons of each technical session to present the salient observations and summary of their respective sessions.



Dr T P Trivedi



Dr H S Gaur



Dr Gabor Szocsl



Dr S K Handa

The following recommendations have been summarized from the presentations of chairpersons.

- Microbial biopesticides are sensitive to abiotic factors of the environment. Therefore, their success depends on identifying ideal abiotic factors/performance conditions.
- Since the biopesticides of microbial origin come under registration regulations, simplification of registration protocols, quality control, and regulation need immediate attention.
- Spatial and temporal availability of sufficient quantities of quality bioagents.
- Technologies for commercial-scale production, downstream processing, formulations, and marketing chain should come in place.
- Semio-chemistry is mature component of IPM. However, formulation, quality assurance, and dispensing methods are to be in place.
- Entomophage parks may be established for storing natural enemies and their host.
- Strong public-private partnerships with government support for selection, production, packaging, and delivery to end users to be developed and subsidy to biocontrol production systems to be encouraged.
- There is still a necessity to establish convincing demonstration trials on

large-scale reproducible results, and bulk data.

- Microbial agents like Bt, Bti, Bs, and formulations of spinosad are widely being used for mosquito control and have a potential to reduce use of synthetic pesticides. Further, use of larvivorous fish and aquaculture in water bodies and rice fields may be advocated.
- Allelopathic interactions by alternate plant species may be exploited for suppression of obnoxious weeds like Parthenium.
- Application of genetic engineering and nanotechnology to improve biopesticides production formulation and delivery would lead to wider publicity, improved efficacy, and cost reduction in future.
- Wide and constant support from media is essential for the success of biopesticides at the farm level.

The chairperson announced that the Sixth International Conference on Biopesticides will be held in 2012 in China/Singapore/Indonesia. The steering committee nominated Dr Seema Wahab as the Secretary of ICOB-6. The best poster presentation certificate was awarded to six presenters as well.

Dr Seema Wahab, Organizing Secretary ICOB-5 and Advisor DBT, proposed the vote of thanks.



Dr M Nagesh



Dr Errol Hassan



Prof Alan Cork



Dr T M Manjunath

