The World BioProtection Forum

Newsletter

Issue 1
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Connecting the biocontrol sector

The World BioProtection Forum (WBF) is a non-profit organisation for encouraging collaboration between the biocontrol industry and academia in the AgriTech sector. WBF connects innovators, entrepreneurs, researchers, manufacturers and distributors operating in the biocontrol sector.

In order to help overcome these barriers, the mission of the WBF is to bridge the gap between academia and industry globally to ensure the successful development and commercialisation of biocontrol products. This will allow us to better meet the needs of our current and future global population.

There is an urgent need to develop innovative products and application technologies to not only "fill the gaps" in the market due to pesticide removal, but also to anticipate future requirements as pests and diseases develop resistance to chemical products.

There is also increasing consumer demand from growers to eradicate the use of chemical pesticides with prudence in crop production and to grow fruit and vegetables with reduced residues.

Leveraging new bioprotector technologies and an extensive global network of investors, companies, institutions, corporate and advisers, the WBF aims to:

- Encourage collaborations between academia and industry for research and commercialisation
- Advance the development of next-generation formulation and delivery systems to improve efficacy
- Support innovators and entrepreneurs in their efforts to raise investment for product development and commercialisation
- Raise awareness of the sector among general public and investors

OUR MISSION: TO BRIDGE THE GAP BETWEEN ACADEMIA AND INDUSTRY GLOBALLY TO ENSURE THE SUCCESSFUL DEVELOPMENT AND COMMERCIALISATION OF BIOCONTROL PRODUCTS

Core to achieving these goals is the WBF's annual meeting, the Biopesticide Summit, where participants benefit from our very successful Matchmaking meetings – powered by the Enterprise Europe Network (EEN) – with collaborators in order to share ideas, products, form relationships or obtain advice, as well as attending lectures and debates covering key topics of interest to the sector. Members of the WBF will benefit from a 30% discount for next year's Biopesticide Summit.

Members will also have access to a directory of all member companies and other entities in the Forum. With the goal of creating connections that will contribute to furthering R&D and business development, this directory will offer the opportunity to include details of key areas of current and future business, any outstanding partnership requirements, and the details of a contact person at each company.

As the membership of the WBF grows, this directory will grow alongside it. It is a key goal of the WBF management team to expand this directory to help link companies and academia across the world.

Finally, we will be trialling an InvestmentReady scheme, to support efforts in raising investment for start-ups and SMEs, while working to create more general investor interest in the sector. Workshops will be focused on helping members to become investment-ready and how to make the best approach to investors.

MEMBERS WILL BENEFIT FROM:

- **Quarterly newsletter**
- **Discounted registration for the Biopesticide Summit 2020**
- **Directory of members**
- ***InvestmentReady* scheme**

To join the WBF, please visit **www.worldbioprotectionforum.com** to complete the application form

Benefits of joining the World BioProtection Forum

CONNECTIONS

- Members directory
- Matchmaking meetings
- Linking companies and acedemia across the world

BIOPESTICIDE SUMMIT

- 30% members discount
- Matchmaking meetings
- Lectures & debates
- Networking
- Exhibition area

RESEARCH & DEVELOPMENT

- Innovation
- Collaboration
- Investment
- Impact

INVESTMENT READY

- Advice on raising investment
- Creating investor interest
- Industry growth

INFORMATION

- Newsletters
- Lectures and debates
- Workshops

AWARDS

- Achievement
- Excellence
- Recognition

The Biopesticide Summit 2019

Addressing the **pressing need for alternatives** to synthetic pesticides

The agriculture industry is facing a crisis as it tries to address the pressing need for alternatives to synthetic pesticides. At the inaugural Biopesticide Summit (part of World Bioprotection Forum [WBF]), hosted by Bionema Ltd in conjunction with Swansea University on 2–3 July 2019, more than 200 experts from 20 countries gathered to discuss challenges and opportunities in the biocontrol sector. They represented academia, industry, government organisations, public bodies, professionals, investors and end-users.

The need for change

Over the 20th century, unprecedented global population growth was enabled by medical advances and the advent of food security brought about by chemical fertilizers and pesticides.

However, as explained by Professor Shashi Sharma, Independent Consultant in Global Food Security (Australia), side effects included a decline in land resources, increased greenhouse gas emissions and – ironically – increasing incidents of pests and diseases as humans introduced them around the world.

This is why, declared Nathalie Bennett, former Leader of the UK Green Party, the world needs to change its farming systems. T here is a distinct need for eco-friendly products that can safeguard the food value chain, agreed Professor Sharma, concluding that biocontrol is a necessity for 21st century food systems.

A new age in agriculture

Typically made up of small enterprises, start-ups and entrepreneurial innovators, it's fair to say that the biocontrol sector is struggling to find a niche in an industry dominated by chemicals giants. The conservative nature of farmers, combined with an intransigent regulatory system, added to early obstacles, explained David Cary, Executive Director of the International Biocontrol Manufacturers Association (IBMA; Belgium). However, as support has grown from society, stakeholders and governments, the biocontrol sector now finds itself sitting at the table with policymakers, discussing a willingness for change.

The expectation that biocontrol technologies will be at the forefront of new developments is represented by the regulatory situation, said Professor Toby Bruce of Keele University (UK). Currently, more than 50% of new regulatory applications are biological plant protection products, and this percentage is only expected to rise.

The sector is highly innovative and is notably drawing on advanced technologies in other sectors. For example, Paul Dyson, Professor of Molecular Microbiology at Swansea University (UK) explained how RNA interference (disrupting a cell's gene to protein information relay), introduced via symbiotic bacteria inside an insect's gut, can offer very species-specific biocontrol of insect pests. The University of Hertfordshire's Professor Keith Davies (UK) has been working with Pasteuria, an obligate parasite that prevents reproduction of problematic nematodes, while Dr Nayem Hassan of Russell IPM (UK) shared insights into novel solutions for fruit fly control. Praharaju Laxminarayana, Managing Director of AgBio Systems (India) explained how his team has been tackling aquatic and terrestrial weeds with novel bioherbicides – so far a relatively untapped area, despite huge gaps in the market following regulatory issues with glyphosate, for example.

Offering a different but supporting perspective, end-users from several different sectors described their own experiences of how biological products can fill gaps in the market, from the control of soil pests on golf courses to vine weevil in soft fruit.

Encouraging the uptake of biocontrol agents, the Centre for Agriculture and Bioscience International (CABI) is launching its Biopesticides Portal this month, said Steve Edgington, Principal Nematologist at CABI (UK). The platform offers free access to information about products registered in any particular country for specific crop pests and diseases. As well as providing promotional opportunities for biocontrol manufacturers looking to encourage wider uptake of their products, it is set to become the go-to resource for identifying and sourcing biocontrol products. By the end of 2019, it will be available in 20 countries.

So, it all looks great for the biocontrol sector… or does it?

The challenges

CHALLENGE #1: Regulations

While regulators seem enthusiastic about withdrawing synthetic pesticides, they can be frustratingly slow in replacing them with biological ones – especially in Europe. Dr Willem Ravensberg of Koppert Biological Systems highlighted the situation with three cases in which demands for irrelevant data or bureaucratic issue have led to unacceptable delays.

Dr Dawn Williams of Innovative Environmental Services (IES; Switzerland) agreed that existing test guidelines are often inappropriate for the properties of these unique test substances. As a result, said Dr Ravensberg, while countries like the US and Brazil have seen about 60 new biocontrol products reach market in the past 2 years, Europe has seen just 28 in 8 years.

A big part of the problem, said David Cary, is that the skills for assessing biological products are different to those for synthetic chemicals. Some EU member states have geared up and have put biology/ecology experts (rather than chemistry experts) in place – states without this expertise simply shouldn't be performing assessments of biocontrol products.

Nick Mole, Policy Officer at the Pesticide Action Network (UK) echoed the need to update the system. He was optimistic that these changes will be made due to shifts in attitude from the public and policy makers, citing new guidance already under development. Data requirements are also under revision to make it easier for biocontrol products to reach the European market.

CHALLENGE #2: Formulation

Implementation and application are strongly linked to formulation, agreed Dr David Calvert, Director of iFormulate (UK). Although the fact that we are dealing with live actives must always be a consideration, issues in formulating biocontrol products are similar to those in other sectors, he insisted, so this is another area we can draw on technologies developed in other industries.

For example, Zhibing Zhang, Professor of Chemical Engineering at the University of Birmingham (UK) shared some of his group's recent research, performed in collaboration with Bionema (UK) on a controlled release bioinsecticide using microencapsulated technology. Drawing from international groups' work on drug delivery and microencapsulation, Professor Zhang explained how encapsulation technology can address issues of maintaining viability of living microorganisms during processing and storage.

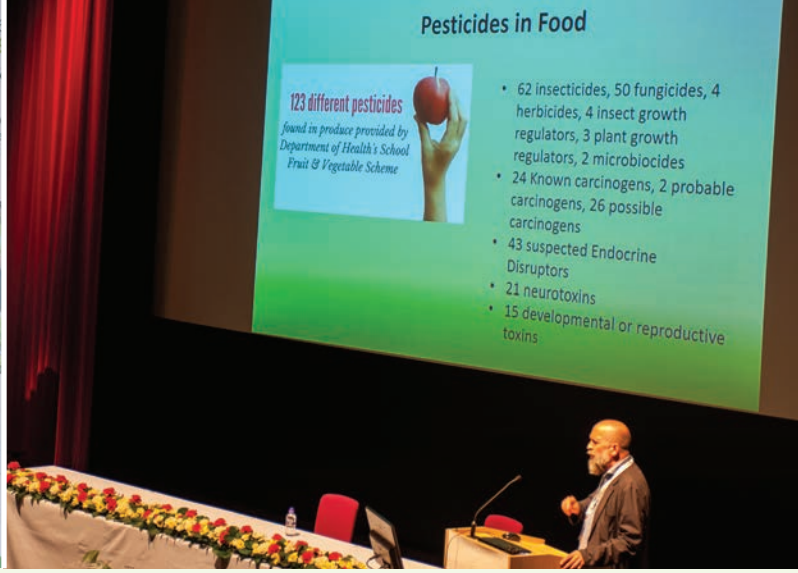
Felicity Lenyk explained how Eden (UK) has developed a natural sustained release technology based on particles derived from yeast cells. The capsule's pores open when wet, but close again as it dries, effectively trapping the remaining active for later release. The technology is useful across a range of ingredients in a number of sectors, said Lenyk, and can certainly be applied to biocontrol products.

This latter example also overcomes a common challenge in that many substances added to formulations might not be organic, or compatible with the active organisms. Fortunately, a small number of bio-adjuvants are already available, and more are expected to enter the market – suitable for partnering with specific biocontrol agents – in the future. Gary Adkins, Product Director at ECO-FP (UK), noted that, in the biocontrol setting, adjuvants are particularly useful in enhancing coverage, reducing foaming, UV protection and helping to delay desiccation.

As well as more organic and biocompatible additives and adjuvants, said Dr Calvert, we can probably expect to see more combinations of products in the future. These will include mixes of more than one biological agent as well as hybrid biological–synthetic combinations. He also predicted the wider use of Picker emulsions/encapsulations, which use solid particles to stabilize formulations.

The Biopesticide Summit 2019

Thank you to all the exhibitors and sponsors of the Summit!



CHALLENGE #3: Implementation

Historically, biocontrol products have been criticised for a lack of efficacy. However, University of Warwick's Dr David Chandler (UK) has seen major issues with application, and a general lack of understanding in how to use them. He challenged manufacturers to improve labels and guidance, to help growers to get the best out of these products.

Dr Andrew Brown of Andermatt (UK) agreed, pointing out that biocontrol products require more real-world knowledge for effective use. Post-launch technical support is key to market development, he said, urging the sector to encourage knowledge transfer through the supply chain.

Part of the problem is a disconnect between the laboratory and the real world, said Jim Petta, President of Ecoflora (a member of the Gowan Group; USA). He stressed the importance of moving beyond the laboratory. Field understanding is critical to the adoption of biocontrol products, and researchers must connect the laboratory with real-world use.

Dr Minshad Ansari, CEO of Bionema and Chairman of the Biopesticide Summit, emphasized that a major challenge is the development of formulations that can be used with 'normal' application equipment.

Growers invest heavily in machinery for the application of pesticides, and they expect to use the same equipment for biological agents. Therefore, formulations need to be improved, alongside practical knowledge and guidance (e.g. nozzle size dictates droplet size, which can have a significant impact on persistence and efficacy).

CHALLENGE #4: Size matters

The biocontrol sector is unique in that it comprises of many small enterprises and start-ups alongside the giants of the AgriTech industry. This is why, said Dr Ansari, a key focus of the Biopesticide Summit was to encourage collaboration between academia and industry, to create the bonds needed for small companies to survive. Like its umbrella organization the WBF, the mission of Biopesticide Summit is to bridge the gap between academia and industry.

One platform that can help with this is the Enterprise Europe Network (EEN), explained Lawson Coombes, Innovation Specialist at EEN. This huge network helps companies to match with other suitable candidates for technology cooperation, joint ventures, commercial or manufacturing agreements. Covering 68 countries, this is a fantastic source of international market information.

However, to convert innovation into commercialisation requires investment, explained entrepeneur Karl Willes, and to obtain investment it is necessary to demonstrate a proper structure.

In the UK specifically, the sector is supported by Innovate UK. Chris Danks of the Knowledge Transfer Network's Agri-Food Sector stressed his commitment to bringing together businesses, entrepreneurs, academics and funders to help find solutions through collaborative R&Ds. Harking back to earlier suggestions that the sector is drawing on technologies from other areas of research, he noted that about half of the collaborations arranged by the Network involve partners from different sectors.

Such collaborations and resulting new business models may be imperative to the future of the biocontrol industry which, encouragingly, is clearly united in a common goal to address the pressing need for alternatives to synthetic pesticides.

The Biopesticide Summit 2020

To receive a quote on sponsorship and exhibition space for the Biopesticide Summit 2020, please contact Syeda Meraj at **events@biopesticidesummit.com**

NEO Pizza

The Biopesticide Awards 2019

Outstanding winners of the Biopesticide Awards 2019

Bionema Limited, in conjunction with Swansea University, hosted the Biopesticide Awards at a prestigious awards reception and presentation on the evening of 2nd July 2019. Finalists were selected by a panel of five judges from the academic, commercial and technical sectors, who were highly qualified in their respective fields.

Opening the Biopesticide Awards 2019, Chairman, Dr Minshad Ansari, hailed a "shared vision for industry growth" that was evident in the investments being made in new facilities and expansion by so many shortlisted entrants. Businesses stretching across the biocontrol sector were celebrated for their achievements, as eight outstanding entities scooped the awards:

• New Bioinsecticide Product	Ecolibrium Biologicals
• New Biofungicide Product	Ecoflora Agro
• New Bionematicide Product	Ecospray
• New Semiochemical Product	Eco-FP
• New Biostimulant Product	Maxstim
• Innovative Research Project	Agbio Systems
• Industry Collaboration Award	Bionema and Birmingham University
• Outstanding Achievement Award	Dr Shakir Al-Zaidi, Founder & Chairman, Russell IPM

Stephen Ford *from Ecolibrium Biologicals accepted the award for New Bioinsecticide Product*

Jim Petta *from Ecoflora Agro accepted the award for New Biofungicide Product*

Phillip Charlton Smith *from Ecospray accepted the award for New Bionematicide Product*

Gary Atkins *from Eco-FP accepted the award for New Semiochemical Product*

Richard Salvage *from Maxstim accepted the award for New Biostimulant Product*

Praharaju Laxminarayana *from AgBio Systems accepted the Innovative Research Project Award*

Dr Minshad Ansari *from Bionema and* ***Professor Zhibing Zhang*** *from Birmingham University accepted the Industry Collaboration Award*

Dr Shakir Al-Zaidi*, Founder and Chairman, Russell IPM, accepted the Outstanding Achievement Award*

Commenting on this year's entries, Biopesticide Summit Chair, Dr Ansari said,

> *"Many congratulations to all the finalists on reaching the shortlist – and huge thanks you to all our entrants for the time and energy they put into their entries for the Biopesticide Awards 2019. The standard of entries this year has been exceptionally high, making our judges' task extremely hard."*

The event ended with a final announcement that **The Biopesticide Awards 2020** would continue in recognising outstanding achievements in the biocontrol sector, as the event becomes an important part of the annual calendar.

Stay tuned for more information about next year's Awards!

Bionema
Founded on research – focused on nature

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