Joint celebrations planned for ABIM 10 years and IBMA 20 years in Basle

David Loughlin*

I have had the pleasure to attend the annual biocontrol industry meeting in Switzerland since its first days in Lucerne and as other industry events have declined, the popularity of the Annual Biocontrol Industry Meeting (ABIM) as a meeting place has rightly grown. Initially as an almost exclusive gathering of biocontrol only industry members, the greater agrochemical world has clearly recognised and embraced these technologies and now October in Basle resembles the glory days of Brighton without the bitingly cold wind and sea spray.

This year is the 10th anniversary of ABIM, to be held at the Congress Center Basel, Switzerland 19-21 October 2015. The prime international meeting of the biocontrol industry, as always there will be presentations and discussions aplenty on novel biological crop protection products and new trends in the global market. The meeting is jointly organised by the International Biocontrol Manufacturers Association (IBMA) and the Research Institute of Organic Agriculture (FiBL). The IBMA was first discussed at one of the Brighton meetings and came into existence in 1995, 20 years ago.

ABIM not only provides an annual meeting place specifically adapted to the needs of the biocontrol industry, but with reported industry revenues growing at a CAGR of 15%, it has become a market place for discussion of the greater crop protection industry. Perhaps now more than ever, the true meaning of IPM is being understood. Whilst many first world broad acre farmers and third world economics still rely on a spray first ask questions later approach, the ABIM continues to present examples of market leading plant protection strategies that incorporate natural and biological systems and allow for the sustainable production of healthy foods.

The hope is that 2015 will see more visitors than the 800 delegates who attended in last year, representing more than 370 companies. David Cary, Executive Director admits that each year it becomes harder to bring an added special talk in terms of keynote speakers. This has been made more so by having 2 cocktail receptions and 2 keynote address positions to fill. “I think however that you will agree that we have a truly relevant and important speaker in Jim Jones, from the US EPA addressing us on the topic of what the US Administration does to promote biocontrol, how it sees it growing and issues surrounding global harmonisation and trade. And in addition we are pleased to be joined by Maria Helena Semedo (Deputy General of FAO) who is also strongly committed to greening agriculture and ensuring all countries have equal access to the most modern up to date green tools.”

In addition to the welcoming addresses, the 2015 programme will commence with the awarding of the first IBMA Bernard Blum Award, presented by Owen Jones (judging panel chair) for the most innovative biocontrol solution after which the winner will give a presentation.

The main scientific programme contains a further 40 presentations over the Tuesday and Wednesday. David comments that “Some of the key sessions this year focus on where we have come from in the last 10 and 20 years and where we are heading. The regulatory session is as is IBMA focused on low risk, the Green Deal in the Netherlands and the new Chinese regulation. Wednesday is packed with hot topics. We start the day with talks from companies with diverse origins, structures, ethics and goals with ample time for panel and audience interaction. We finish with a session looking at areas where biocontrol has learnt the way to handle ticklish issues and put it into practice.”

The ‘B to X’ of biocontrol

In preparing this preview we invited participants at last year’s meeting to contribute news and information from their own perspective of the biocontrol industry. The following presents a summary of the material we received which we believe gives a flavour for the diverse and rich environment which is the biopesticide and biocontrol industry. Not quite an A to Z but a broad overview in terms of current global research and commercial development.

*Editor, IPC

Ms Semedo has been with FAO for nearly 13 years, serving at different professional and managerial levels. She began her tenure as FAO Representative in Niger, served as FAO Representative in Ghana, Subregional Coordinator for West Africa, and Assistant Director-General and Regional Representative for Africa.
**Biobest: Extension of the aphid range and new wasp for suzukii**

Aphids remain one of the more challenging pests to control biologically. The new Sphaerophoria-System, containing pupae of the native syrphid fly Sphaerophoria rueppellii, is an important addition to Biobest’s existing aphid biocontrol toolkit. Specific advantages include its activity under high temperatures, its active search behaviour, even for small aphid colonies and action on a wide range of aphid species. The product results from the research work of BioNostrum, a young spin-off company from the University of Alicante. In the meantime, Biobest’s R&D department has been doing extensive research in order to identify a biological control strategy for Drosophila suzukii. One of the particular problems with suzukii is that the female flies lay their eggs inside the ripening fruit. This means that crop damage can be extremely severe and it also makes larvae hard to control with pesticides or with natural predators. Native parasitic wasps have been the focus of this search for over two years. Six different wasps have been collected in an intensive screening from which the parasitic wasp Trichopria drosophila has been identified as an excellent candidate.

**BioConsortia: Advanced Microbial Selection (AMS) technology**

The AMS process utilizes a plant’s natural tendency to associate with soil microbes. Plants interact with the microbial communities and are then selected based on enhanced expression of certain beneficial characteristics. Growing conditions can be designed to impose a selective pressure or stress, such as the presence of a pest or disease. Following iterative rounds of plant-microbe selection, the microbiome evolves towards a community enriched in beneficial microbes from which individual organisms are isolated. The result is a group of compatible microbes that confer benefits onto a plant. High-throughput DNA sequencing surveys the microbial community dynamics throughout the selection process and guides the initial construction of consortia, which are then refined through further trials intomanageably sized multi-microbe treatments.

Targets for trait enhancement include abiotic stress tolerance, general growth improvement, fertilizer use efficiency and biotic resistance. Current work includes soil and seedling diseases in leafy vegetables and tomatoes. In the U.S. BioConsortia has plans to identify consortia that will confer plant resistance or tolerance to nematode stress in soybeans and corn rootworm. Products are designed to improve on best available agronomic practice; the performance of chemical fungicide and insecticide seed treatments or GM traits. End use applications include commercial seed treatments, liquid in-furrow applications and drenches, as well as granule products for application on a range of crops.
Bio-ferm: Nearly 50 product registrations in over 20 countries

Bio-ferm, Biotechnologische Entwicklung und Produktion GmbH, was founded in 2004 as a start-up company of the University of Natural Resources and Life Sciences (Vienna). The company is part of the Erber Group, specializing in the deactivation of mycotoxins in feed with global activities. The focus is on the international product registration and marketing of innovative biotechnological plant protection products. The active ingredients are two very closely related strains of the yeast-like fungus Aureobasidium pullulans, a naturally occurring antagonistic competitor for nutrition and space against several fungal and bacterial diseases.

It works by allowing the microorganisms to act as antagonists and prevent specifically the infection by pathogens (e.g. botrytis, storage diseases, fire blight) by natural competition for space and nutrients. The yeast-like fungus settles down in the micro-scratches of the fruit or berry skin, which are the natural entrances for pathogens like Botrytis cinerea. A. pullulans can utilize sugars and amino acids, available in the micro scratches faster than the pathogens. Because its proliferation rate is much higher than the pathogens, the antagonist can close the micro-scratch before an infection can occur. A. pullulans eventually forms a biofilm, which acts as a natural protection shield.

The OECD dossier for the inclusion into EU Annex I of the Directive 91/414 for A. pullulans was submitted in 2008 as Blossom Protect, (a biotechnological bactericide against Erwinia amylovarora the causing agent of fire blight), the active substance was approved and included in Annex I on February 1st 2014. In July 2014, the Post Annex I re-registration procedure started in the EU central and southern zones with Austria and France as zonal Rapporteur Member States (zRMS). Also, the Pest Management Regulatory Agency (PMRA) and the Environmental Protection Agency (EPA) approved the products respectively in Canada and the United States.

The bio-ferm products are sold through local distributors in select countries. The advantages of the products is that their efficacy is comparable to chemical pesticides, but leave no chemical residues.

Bionema: Swansea University spin out bio-pesticides developer wins ‘watchdog’ accreditation

A west Wales based high-tech spin out company has become the first and only bio-pesticides business in the UK to win accreditation for independent testing in the sector, making it a UK leader. It means that Bionema Ltd, based at Swansea University, now has a major advantage in a rapidly emerging market, opening up new business opportunities. The new SME, which develops biopesticides for the agricultural/horticultural market, has received accreditation under the Official Recognition of Efficacy Testing facilities or Organisations (ORETO) scheme for efficacy testing in Biologicals and Semiochemicals.

Bionema was founded in 2012 by Dr Minshad Ansari, with support from the Research, Engagement & Innovation Services team at Swansea University. It is currently developing a biopesticide to combat Western Flower Thrips. Other services include efficacy testing of current and new biopesticides, diagnostic services, research and development of novel pesticides, support of EU regulatory dossier submission and training in the use of biopesticides. Visit www: bionema.com

Bioplant Naturverfahren: homeopathic plant strengtheners

The use of homeopathy has a long history in both human and veterinary medicine. Rather unfamiliar to many but already widely adopted is its use in conventional and organic farming, where homeopathic treatments have shown to contribute significantly to the health and growth of plants.

Family-owned Bioplant, founded in 1984, has developed a product range that consists of homeopathic-potent complexes based on biochemical functional agents which have been proven to be successful, in particular in ornamental plant production. Biplantol® plant management leads to more robust and enhanced plant growth by strengthening plants from the inside out. It supports plant health and vigour, stimulates the plant’s natural ability to regenerate and enhances soil fertility. Plants stressed by fungal diseases, insect pests or other environmental influences can recover more easily with pre-emptive and repeated applications. Conventional agriculture benefits most from the use of Biplantol since gradually up to 20% of mineral fertilizers and 50% of insecticides or fungicides can be reduced as production costs can be cut down.

Plant strengtheners, in addition to other crop protection measures are a solution to integrated crop protection systems and a contribution to sustainable ecosystem management.

CPL Business Consultants

In early 2016, CPL Business Consultants will be publishing a new and updated study of Agrobiologicals, the current term for biologically-derived products that are useful in agriculture. This will be the 10th edition of CPL’s study which began reviewing the industry in 1987. The study will provide detailed market, product and company data on biopesticides including microbial, macrobials, pheromones and biochemicals. New for this edition will be similar data for biostimulants and biofertilisers, both becoming more important components of the agrobiological portfolio. Also new for 2016 will be a section on analysis and future development of the business, including key success factors, market ‘white spaces’, new technologies and products in the pipeline. The study will be in three volumes, Europe, Americas and Asia/Australia. Data will be given for each region as well as for several key countries within each region. At ABIM in Basle in October, CPL will
be taking advance orders for the new study (at a discount of course) and offering the 9th 2013 edition, also at a show discount.

Éléphant Vert: Providing a positive response to global challenges in agriculture.

Founded in 2012, Éléphant Vert acts with the financial support of Antenna Technologies, a Swiss foundation which specialises in the research, adaptation, and transfer of innovative technologies to fight poverty and promote sustainable development. The Group focuses on nutrition and crop protection as well as on the revitalization of soil. Through its 360° approach, from the bench to the field, Éléphant Vert develops sustainable products and services for the environment, economically and socially.

The Group’s ambition is to make Africa a global hub of biocontrol and has, through its subsidiary Valorhyze, based its production facilities and the Research & Developing Department there. Production investment for 2015-2017 in Mali and Morocco will amount to over €30m. There are 7 more implementations to be done by 2017, in particular in the Ivory Coast and Ghana. They have a goal of exporting 75% of the Moroccan production of biostimulants and biopesticides towards several African countries by 2016. The Group relies on a network of partnerships and collaborations (institutes and research and development centres) and supports financially and technically several research projects in Africa.

The example of Éléphant Vert philosophy must be followed by many in order to save agriculture and increase the use of biocontrol widely. The Group proves that the development of organic agricultural products, competitive and accessible for all the farmers, is possible.

Futureco Bioscience: A high bet for innovation

From its foundation in 1993, Futureco Bioscience has scoped the self-finance of its research on biopesticides, while manufacturing and selling products for plant nutrition such as deficiency correctors, natural defence activators and co-adjuvants. The RDI-RA Department structure accelerates the launch of new biostimulants and biopesticides and enhances the quality and formulation of the already existing portfolio. It also meets the needs of customers and designs new products à la carte. Within the recent success of the company, is the approval of Nofly. Commercialized in Israel, this bioinsecticide is based on spores of the strain FE9901 of the entomopathogenic fungus *Isaria fumosorosea* which began its development in 2001 and started its registration for commercialization in the US and Canada in 2008 and in the EU in 2013. Nofly is currently available in Morocco, Kenya, Belgium and Italy, and is under registration in the remaining twenty-five countries of the EU and in Latin American countries such as Mexico, Brazil, Argentina, Chile, Peru, Colombia, Ecuador, Guatemala, Dominican Republic and Costa Rica.

Futureco Bioscience is investigating to have in its portfolio at least a biopesticide for each group of major pests and diseases of crops, such as bio-insecticides, bio-nematicides, bio-bactericides and bio-fungicides.
pests and diseases of crops, such as bio-insecticides, bio-nematicides, bio-bactericides and bio-fungicides. In the plant nutrition products pipeline, Futureco Bioscience is developing a new line of bio-stimulants for specific crops, products to overcome hydric stress situations and new solid formulations that may improve the stability, application and shelf life of the products.

Goemar: Together at the heart of bioperformance.
Goëmar (Arysta Group) develops solutions for crop protection that allow growers to produce more and better, promoted as Bioperformance – focusing on the dual performance improvements to the economy and environment. Among the results from the latest research and development efforts is VacciplantTM, an innovative biocontrol solution (foliar application) efficient against fruit and vegetable crop diseases. It is a natural stimulator, triggering natural plant resistance via induction of plant defense mechanisms. Its natural active ingredient Laminarin is extracted from Laminaria digitata seaweed. The product is approved against apple scab in France, Belgium and the Netherlands, against Scab and Gloeosporium (storage diseases of apple) and against apple and pear fire blight in France, Belgium, Switzerland, Spain, Portugal, Greece and Morocco. The product is also registered to protect strawberry, lettuce and grape. There is no pre-harvest interval in most countries due to zero residue.

Used within an integrated strategy during secondary scab infections, it has shown equivalent efficacy compared to 100% fungicides strategies.

Goëmar also develops Carpovirusine™ a micro-organism-based biocontrol product containing CpGV-M (Cydia pomonella Granulovirus, Mexican isolate) to control both codling moth and Oriental fruit moth in orchards. Offering the highest virus load per hectare in the market, it has a double effect: by destruction of neonate larvae and by contamination and destruction of overwintering larvae. For further information: www.goemar.com

IDRG: Global co-operation across political borders
The biopesticide industry has led the development of new types of products, new ways to produce and market crops, and new ways to compile data packages for authorization. We now call on this industry again to lead the cooperation between and among growers, processors, scientists, industry and regulators as if political borders would not exist! For science, human needs and environmental protection, political borders do not exist. For legislation and law enforcement they do. As a result we have to globally assess and approve the application of 60 million crop/pest/product/country combinations. That is an unachievable workload for any individual country.

This fact has been acknowledged by all stakeholders – governments included – and is a unifying factor between industrialized and developing countries. Since 1995, under the lead of OECD, member states and observing countries have worked together to establish the necessary structures that allow global cooperation for all. Governments have agreed on data requirements, study protocols, document formats for applicants and authorities, and the EU has established uniform principles for the risk assessments and the risk mitigation measures for individual crop/pest/product combinations.

The system will continue to evolve as Science and Technology progress. It is the ‘nature of the beast’, as it is for all science related topics that regulations have to follow scientific progress.

At the beginning of the regulatory approval process stands the pre-submission consultation request that allows applicants to tell government about their product and its uses and government to tell applicants about the information that is required to assess the safe use of their product. Currently, this process is used by few companies in few countries. We invite companies to use the existing structures to communicate in one step with all authorities worldwide prior to an application in a specific single country. For more information please contact us at www.idrg.eu.

Progema: Protecting plants responsibly.
An international brand from Neudorff, Progema has been marketing sustainable products that meet the growing demand for residue-free nutrient production and plant care since 2004. The focus is on highly effective and, at the same time, environmentally-friendly products for the garden, landscape trade and farming, which are manufactured in the most economical and sustainable way possible.

Sluxx HP is the only slug and snail bait in Germany widely registered for the use in all agricultural, vegetable and fruit crops and for ornamental plants in open field and greenhouses. It has no harvest interval. It delivers excellent results, even when the infestation is severe, due to a very high bait density (60 pellets per m²). The bait can also be used safely at low temperatures. The product contains iron-III-phosphate. After consumption, the active causes cell changes in the goitre and mid-gut gland, and the creatures quickly stop eating. They retreat to their hiding places in the soil and die quickly. As the effect is not based on dehydrating, it also works in wet weather and the snails do not lose their slime.

The pellets swell when it rains and are then even more attractive to the molluscs, as they prefer soft food. The pellets shrunk back into their original form during dry periods. This process can be repeated several times. The pellets are extremely resistant to dye and mould. The intensive blue colour makes them easily visible on the ground. Certified for organic farming in accordance with the EU-Eco-Regulation, it is registered with FiBL (German Research Institute of Organic Agriculture) and it is tested by Ecocert Inputs.

SGS: Investing in South America
In response to increasing demand for innovation in the seed and crop protection product market, SGS has tailored investments in South America to increase its capabilities and capacity. New field stations in Argentina support the country’s regulatory enforcement of GLP in field trials and residue analysis for new products. An expanded network of
field stations in Brazil, numbering 10 stations, serves the development of crop protection products for all major crops as well as fruits, vegetables, cotton and sugar cane. Quarantine testing services, developed in close association with Brazilian authorities, have enabled SGS to expand its capabilities and improve the flow of innovative seeds into the country. Plans are in place to open further field trial stations in Argentina, Peru and Chile, while the company’s local laboratory services are linked to its existing ISO 17025 laboratory network. SGS’s global network provides expertise and a local presence in all major cropping regions. Visit www.sgs.com/seedandcrop or www.sgs.com to find out more.

**Staphyt: GUSTAVE (GUS Technology for Analyze and Validate your plant Elicitor)**

Considering the strong research and development of new elicitors, the aim of GUSTAVE is to rapidly screen and validate the plant defence activation using a fast on plant tool. For that, Staphyt has optimized a test using GUS transgenic plants (*Arabidopsis thaliana*). The strategy is based on key markers, involved in the two main ways of plant defences that are SAR (Systemic Acquired Resistance) and ISR (Induced Systemic Resistance), which are switched on when activated. Among our targeted markers, the most famous is PR1 gene that is widely involved in the SAR. Thus, we have implemented and optimized a test able to bring out elicitors but also potentiation activators (priming). This tool was validated by molecular approach (qPCR) and is now available. It is particularly useful to screen new elicitor molecules and/or demonstrate the activation of the plant immune system. This work will be presented at IBMA Session 5 Services to the Biocontrol Industry and Semiochemicals by Frédéric Giraud from Staphyt Bioteam. For more information please contact bioteam@staphyt.com

**Xilema: Developing Integrated Pest Management in Chile**

A Chilean company, belonging to ANASAC, Xilema’s objective is to develop, produce and commercialize biological control agents. In addition, the company has integrated services such as pests and natural enemies monitoring, under the name of Pest Monitoring System. The service currently covers more than 4000 ha in fruit production. Moreover, Xilema is approved by the Ministry of Agriculture (SAG) to operate as an experimental station.

Various tests have been undertaken to examine the effectiveness of integrated control programs, highlighting trials of Pseudococcus spp control in vines and Eriosoma lanigerum control in apple.

The following is a summary:

**Pseudococcus c rubata** (Hemiptera: Pseudococcidae) was recently identified in Chile damaging table grapes. Unlike other species, it has an explosive population growth at the beginning of the season, causing chlorosis in new leaves and a lot of honeydew. Two trials were conducted; one to determine mortality of control agents caused by several products and a second trial was established to determine control abilities of predators. According to analysis, the best treatment was a combination of buprofezin plus *Sympherobius* and *Cryptolaemus* at 3000/ha each.

**Eriosoma lanigerum** is a pest that damages both conventional and organic apple production. It can stay in the peduncle of the fruit and be a cause for rejection. In order to incorporate a biological control agent in periods where use of insecticides are not possible (due to MRLs restrictions) the effect of different released amounts of *Eriopis chilensis* (Coleoptera: Coccinellidae) on *Eriosoma lanigerum* control were tested. Density was measured in terms of number of aphids per colony, number of colonies per tree and natural enemy amounts pre- and post- applications. Treatment of *Eriopis* 3000/ha was significantly better than control plot and rest treatments regarding number of aphids per colony.

**International Pest Control @ABIM**

We would like to congratulate the IBMA and ABIM for reaching their respective anniversaries and look forward to yet another busy and enjoyable meeting. As a magazine now in its 57 year we are proud to chart the development of various sectors and markets of the pest management industry. Where the biocontrol industry is today is just the beginning (even after all this time) and with applications in forestry, animal health and public health still to be explored, the future for the biocontrol industry is looking strong. Should you be a researchers wishing to promote your talents and work to a larger audience or a commercial company keen to reach out to an international audience, we welcome hearing from you and receiving your news and technical articles. Have a good meeting.