



Society for Invertebrate Pathology Newsletter

Volume 45 Issue 2

June, 2012

**Congratulations to the newest Honorary
Members of SIP!**



Harry Kaya



**Elizabeth (Betty)
Davidson**



Lawrence (Lerry) Lacey

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**From the President**

Dear SIP Colleagues,

According to Cecilia Schmitt, our Executive Secretary, I joined SIP on January 1, 1990 (the New Year celebration must have been rather “low key”....) and, since that day, SIP has been an integral part of my working life. Meetings and interactions with Society members have opened the entire world to SIP members, strengthening our research efforts and



engendering a commitment to global cooperation. Like many other members, I consider SIP to be an extended family, with the added richness of a shared commitment to science and to a very special and fascinating part of the biological realm.

My current nostalgic state was instigated by a few different issues. One is that in the past several months, we have lost four long-time members, Drs. Albert Pye, Albert Sparks, Carlo Ignoffo, and Nancy Beckage. All of these scientists were important to invertebrate pathology research and to the Society. It is difficult to comprehend that these friends and associates are gone, but the marks each made become an indelible part of SIP's history. Likewise, new members and those who are now stepping up to serve will add to the fabric of the Society and evolve it with their work and interactions.

And, of course, this is the last letter I will address to you as SIP president. It has been an incredible 2 years- an opportunity to get to know many of you much better and to work with you to maintain the Society's best traditions and to make some of our own. I'm constantly amazed at the level of dedication SIP members bring to the Society, how much you care about our collective accomplishments and interactions, and how much you do to maintain a strong, progressive, exciting and enjoyable research presence. I am honored to have served as your 2010-2012 president and hope to continue to participate “where most needed”.

Speaking of the past 2 years, some very dedicated and hard-working SIP members deserve special thanks for their efforts on behalf of the Society. Your incoming president, Jørgen Eilenberg, and Past President Mark Goettel have remained at the ready to lend a hand, offer an opinion or a suggestion, and take the lead when necessary. Their advice has been invaluable and

you will be in very good hands when Jørgen accepts the gavel in August. Treasurer Kelli Hoover, Executive Secretary Cecilia Schmitt and Secretary Judy Pell have been amazingly responsive and fastidious about handling our funds and providing a budget and meeting agendas. Kelli generously agreed to stand for another 2-year term as Treasurer and will continue to offer her expertise on budgets and meeting funds to the Society. Trustees Juan Luis Jurat-Fuentes and Regina Kleepies will continue in their positions for the 2012-2014 term, and Christina Nielsen-LeRoux and Jeff Lord complete their 4-year terms this year. All have given generously of their time and experience with SIP affairs to keep the Society running smoothly through term transitions. The Division Chairs and Committee Chairs are keystones in the operation of the Society. They have been a constant support for SIP members as well as for Council and richly deserve our appreciation, as do all committee members and others who give their time and energy for SIP business and meetings. And we can't forget our SIP Newsletter Editor Eric Haas-Stapleton, who has been a patient, creative, and enthusiastic addition to the team. Thank you all- it has truly been a pleasure to work with you the past two years.

A new slate of officers for the 2012-2014 term are announced in this Newsletter. Many thanks to all who agreed to stand for office and sincere congratulations to the new incoming officers, Peter Krell (Vice President), Patricia Stock (Secretary), and Ed Lewis and Surendra Dara (Trustees). Again, all SIP members are encouraged to contribute your ideas and talent by participating on committees, standing for Division and SIP elected offices and by providing suggestions to Council or Division officers.

Our work, though, is not quite done (well, ok, it's never done!). We experienced a lovely and very successful meeting in Halifax organized by Susan Bjornson and look forward to the next one in the exciting venue of Buenos Aires, Argentina. Alicia Siocco-Cap and Victor Romanowski and team are busy with plans and have put together a great program and schedule of activities. The information on the website is excellent, thanks to the organizers;

please look to it for travel information but please feel free to ask for further details.

SIP is currently on relatively strong financial footing. The Halifax meeting was not only scientifically rewarding, but was also profitable, and our sponsors have been generous and supportive. Kelli Hoover and Roma Gwynn deserve much credit for making good contacts and letting sponsors know about the interests and achievements of the Society- a sum total of some pretty amazing parts- *all of you!*

My very best wishes,



Congratulations to SIP's Newly Elected Officers!

President

Jørgen Eilenberg, Denmark

Vice President

Peter Krell, Canada

Secretary

Patricia Stock, USA

Treasurer

Kelli Hoover, USA

Trustees

Surendra Dara, USA

Juan Jurat-Fuentes, USA

Regina Kleespies, Germany

Ed Lewis, USA

Founders Lecture Award



Dr. Flavio Moscardi, Founders' Lecturer

In memory of Dr. Sergio Batista Alves

Dr. Flavio Moscardi received his Bachelor of Science in December of 1973 from Agricultural College "Luiz de Queiroz" (ESALQ- Univ. of São Paulo) with a major in Agronomy. His career was significantly marked with a 1972-1973 scholarship under the supervision of Dr. Roger N. Williams, Ohio State University, who was a visiting professor at the Dept. of Entomology of ESALQ. During this time, Moscardi was introduced to the control of pests with biological control agents. Dr. Williams participated with Dr. George E. Allen at the University of Florida on a project that was related to survey of soybean insect pests and their natural enemies in Brazil. In 1972 a new entomopathogen, a nuclear polyhedrosis virus of the velvetbean caterpillar, *Anticarsia gemmatalis* (AgMNPV), was found, an important milestone for the subsequent career of Dr. Moscardi. After obtaining his BS in Agronomy, Dr. Moscardi was hired by Embrapa (Brazilian Organization for Agricultural Research) in April of 1974 and from July 1975 to June 1979 he undertook his

MSc. and PhD at the University of Florida, Dept. of Entomology and Nematology, Gainesville. There he conducted the first studies with the AgMNPV isolate collected in Brazil. Upon his return to Brazil in June of 1979, he was assigned to the Embrapa National Soybean Research Center, Londrina, PR, where he contributed to the improvement of integrated pest management strategies against soybean insect pests, mainly through researching entomopathogens and their potential as biological insecticides. Among his contributions, one of the greatest impact and international recognition was the implementation of a countrywide program for the use of the AgMNPV against the velvetbean caterpillar. Use of AgMNPV was also adopted in Argentina, Bolivia, Colombia, Mexico and Paraguay. This program was recognized as the largest worldwide for the use of a microbial insecticide against a single pest in one crop. Its use in soybean reached about 2.0 million hectares annually. During his career he has generated over 250 publications, acted as an international consultant, and participated actively in national and international scientific societies and committees. Dr. Moscardi organized the XXXV Annual Meeting of the SIP and the VIII International Colloquium on Invertebrate Pathology and Microbial Control/ VI International Conference on *Bacillus thuringiensis* in Foz do Iguassu, Brazil, in 2002. He has been the recipient of over 20 prizes and awards. In 2003, he was elected as a permanent member of the Brazilian Academy of Sciences. Dr. Moscardi retired from Embrapa in 2009 and currently is a Senior Professor at the Post Graduate Programs at the State University of Londrina and University of Oeste Paulista (Unoeste).



Dr. Sérgio Batista Alves

In Memory of Dr. Sérgio Batista Alves (1944-2008)

Dr. Moscardi's lecture will highlight Dr. Alves' career and accomplishments, as well as his impact on the field of invertebrate pathology and microbial control of arthropods in Brazil.

Dr. Sérgio Batista Alves, 64, a longtime insect pathologist with the University of São Paulo (ESALQ-USP), died of cancer on October 23, 2008 in Piracicaba, Sao Paulo, Brazil. He was one of the founding fathers of insect pathology in Brazil and dedicated his life to teaching and research of microbial control.

After graduating in agricultural engineering from the Federal Rural University of Rio de Janeiro – UFRRJ in 1969, he worked as a professor at the Faculdade de Agronomia e Zootecnia Manoel Carlos Gonçalves in Espírito Santo do Pinhal-SP from 1970 until 1977. Sérgio received MSc and PhD degrees in Entomology from ESALQ-USP. He began work at ESALQ-USP in 1977. His initial studies focused on the use of *Metarhizium anisopliae* against spittlebugs in pasture and sugarcane. This project was very successful; in 2008, *M. anisopliae* was applied to about 1 million hectares of sugarcane and pastures in Brazil.

Sérgio founded the first laboratory of Insect Pathology and Microbial Control in Brazil. From 1987 to 1989 he frequently visited the University of Florida where he had a collaborative project with Dr. Jerry Stimac on biological control of fire ants and other urban pests. Among other international collaborators are Drs. Don Roberts, Richard Humber, Drion Boucias, Roberto Pereira, and Clay McCoy.

His research had major impact in the use of microbial control, especially with fungal pathogens. However, he also worked with viruses, bacteria and microsporidia. He developed commercial microbial products such as Biomax, Boveril WP, Metarril WP and Trichodermil SC. Sérgio planned and helped to set up laboratories for production of fungal pathogens in Brazil (Labormax, Itaforte BioProdutos, ESALQ), in Peru (Servicio Nacional de Sanidad Agrária del Ministério de Agricultura) and in Florida, USA (University of Florida, Gainesville). He co-authored an international patent on strategies to control termites.

He received 12 awards during his carrier including the Edilson B. Oliveira Award, the highest honor awarded by the Brazilian Entomological Society. His long, distinguished career with the USP included over 180 publications, 4 books, 40 book chapters, the discovery of numerous insect pathogens, and scientific collaborations all over the globe. One of Sérgio's major contributions was the book "Microbial Control of Insects", first published in 1986 as the first textbook on microbial control in Brazil. The text is now in its second edition released in 1998. In 2008, he edited with Dr. Rogério Biaggioni Lopes a book entitled "Microbial Control of Pests in Latin America: Advances and Challenges".

Sergio supervised 24 MSc and 19 PhD students from various countries including Argentina, Uruguay, Costa Rica, Peru, and Colombia. Sérgio was a wonderful person and his enthusiasm and curiosity inspired many of his students and collaborators, who are now professors and researchers in many institutions. His contributions will outlive us all for generations to come through the work of many people he has trained and worked with. Sergio is also remembered for his charity work and his role in contributing to alleviate poverty and hunger. Until his death, he was the president of the philanthropic organization PUSA – Pia União de Santo Antônio.

His sense of humor and vision were an inspiration and comfort for all that met him, from the beginning student in his lab to the highest authorities in the land. Sérgio never forgot the lessons from his very humble upbringing in a small farm in Monte Mor, SP and dedicated his life and profession to providing simple and inexpensive solutions to insect problems.

International Symposium on Insects



"INSECT, HUMAN & ENVIRONMENT"

3-5 December 2012

Mines Wellness Hotel
Kuala Lumpur
MALAYSIA



Entomological Society of Malaysia

45th Annual Meeting of SIP in Buenos Aires, Argentina

Scientific Program

FOUNDERS' LECTURE

James J. Becnel (Chair, Founders' Lecture Committee)

PLENARY SYMPOSIUM

Microbial Control in Public Health and Veterinary Medicine: Reality and Expectations

Organized by Victor Romanowski and Alicia Sciocco-Cap

- “Entomopathogenic fungi can change the paradigm to control blood-sucking insects: the case of Chagas disease vectors” Nicolás Pedrini (INIBIOLP, Facultad de Ciencias Médicas, UNLP-CONICET, Argentina)
- “Use of Entomopathogenic Bacteria in Biological Control of Mosquitoes and Simuliids in Brazil: a critical overview” Carlos José Pereira da Cunha Araújo-Coutinho (Laboratório de Entomologia Médica, Superintendência de Controle de Endemias, São Paulo, Brazil)
- “A bacterium against dengue: our challenge” Luciano A. Moreira (FIOCRUZ / Centro de Pesquisas René Rachou, Belo Horizonte, Brazil)
- “First and second generation paratransgenesis: tools for the control of global vector-borne diseases” Ravi V. Durvasula (The Center for Global Health, Dept of Internal Medicine, University of New Mexico School of Medicine, Albuquerque, USA)

August is winter-time in Argentina!

Average high temperature is 17.3°C/ 63.1°F. The range is 4°C/25°F to 34.4 °C/ 93.9°F. Evenings can be very cool and rain is possible.

DIVISIONAL SYMPOSIA

Bacteria Division

Bacterial topics of interest to Latin America

Organized by Bill Moar and Alicia Sciocco-Cap

- “Assessment of the high-dose concept and level of control provided by MON 87701 × MON 89788 soybean in Brazil” Samuel Martinelli (Monsanto, Brazil)
- “Vip3A, a novel mode of insecticide action to improve productivity and sustainability” Alejandro Tozzini (Syngenta, Argentina)
- “Systemic utilization of *Bacillus thuringiensis* – a new tool for pest control” Rose Monnerat (EMBRAPA Genetic Resources, Brazil)
- “*Bacillus thuringiensis* crystal proteins as cures for intestinal roundworms” Raffi Aroian (University of California, San Diego, USA)

Diseases of Beneficial Invertebrates Division

Bee health in Latin America

Organized by Elke Genersch and Adriana Alippi

- “Colony collapse occurrence in Africanized honey bees in Brazil” Dejair Message (ex-Prof Departamento de Biologia Animal/UFV, Viçosa, MG, Brasil)
- “Status of pathogens and other potential enemies of native bumblebees in Argentina” Matías D. Maggi (Laboratorio de Artrópodos, Facultad de Ciencias Exactas y Naturales. UNMDP-CONICET, Argentina)
- “Epidemiology of Tetracycline resistant strains of *Paenibacillus larvae*, the cause of American Foulbrood, in the Americas” Adriana M. Alippi (CIDEFI- Facultad de Ciencias Agrarias y Forestales, UNLP, Argentina)
- “Molecular pathogenesis of American Foulbrood, a globally occurring epizootic of honey bees” Elke Genersch (Institute for Bee Research, Friedrich-Engels-Str. 32, D-16540 Hohen Neuendorf, Germany)

Fungus Division

Host Immune Response to Fungal Pathogens

Organized by *Joanna Fisher and Ann Hajek*

- “Metapleural gland secretion, an extra anti-fungal cuticular immune system of leaf-cutting ants” *Annette Jensen* (Centre for Social Evolution, Department of Agriculture and Ecology, University of Copenhagen, Denmark)
- “Avoidance of insect pathogenic fungi by predatory insects” *Nicolai Meyling* (Department of Agriculture and Ecology, Faculty of Life Sciences, University of Copenhagen, Denmark)
- “Fungal Pathogens and Temperature Stress Affect Gene Expression Patterns in Bees” *Rosalind James* (USDA-ARS Pollinating Insects Research Unit, Logan, UT, USA)
- “An antifungal defense strategy in termites and woodroaches” *Mark S. Bulmer* (Towson University, Towson, MD, USA)
- “Sensitivity of behavior to pathogen-related odor in the termite, *Coptotermes formosanus*” *Aya Yanagawa* (Research Institute for Sustainable Humanosphere, Kyoto University, Japan)

Microbial Control Division

Microbial Control – The Latin American Way

Organized by *Surendra Dara and Trevor Jackson*

- “Latin American successes in microbial control” *Flavio Moscardi* (Universidade Estadual de Londrina; Universidade do Oeste Paulista, Brazil)
- “The use of *Bacillus thuringiensis* based biopesticide for small-scale growers in Brazil” *Fernando H. Valicente* (EMBRAPA Milho e Sorgo, Brazil)
- “Progress and opportunities in microbial control in the Chilean fruit industry” *Andrés France* (INIA Quilamapu, Chillán, Chile)
- “Microbial Control of Insects: A Brazilian Perspective” *Daniel R. Sosa-Gómez* (EMBRAPA Soja, Brazil)

Microsporidia Division

Microsporidia from South America

Organized by *Carlos Lange and Dörte Goertz*

- “Microsporidia of fire ants (Hymenoptera: Formicidae) in Argentina” *Juan Briano* (USDA-ARS-South American Biological Control Laboratory, Argentina)
- “Native and alien microsporidia in Argentine grasshoppers” *Carlos E. Lange* (CEPAVE, CIC-UNLP-CONICET, Argentina)
- “Microsporidian isolates from mosquitoes of Argentina” *María Victoria Micieli* (CEPAVE, CIC-UNLP-CONICET, Argentina)
- “Microsporidia from honey bees and bumble bees in southern South America” *Santiago Plischuk* (CEPAVE, CIC-UNLP-CONICET, Argentina)

Nematode Division

EPN discovery and implementarion in Latin America:

Current research and Future Directions

Organized by *Paricia Stock*

- “Use of EPNs in Brazil: present and future” *Claudia Dolinski* (Universidade Estadual do Norte Fluminense, RJ, Brazil)
- “Entomopathogenic nematodes in Venezuela: A short history with a promising future” *Ernesto San-Blas* (Centro de Estudios Botánicos y Agroforestales, Instituto Venezolano de Investigaciones Científicas, Maracaibo, Venezuela)
- “Develop and use of entomopathogenic nematodes in Cuba” *Mayra Rodríguez Hernández* (Centro Nacional de Sanidad Agropecuaria (CENSA), Mayabeque, Cuba)
- “Perspective and research of Entomopathogenic Nematodes in Chile” *Andrés France* (INIA Quilamapu, Chillán, Chile)

Virus Division

Viral biocontrol

Organized by *Alicia Sciocco-Cap, Marlinda Lobo DeSouza and Chris Lucarotti*

- “Dr. Flavio Moscardi and his relevant contribution to viral biocontrol in South America” *Marlinda L. de Souza* (EMBRAPA Recursos Genéticos e Biotecnologia, Brasília, Brazil)
- “Baculovirus: research and commercialization in Colombia” *Laura Villamizar R.* (Biotechnology and Bioindustry Center. CORPOICA, Colombia)
- “Application of slow-killing granuloviruses to control leaf-rollers in tea fields in Japan” *Madoka Nakai* (Institute of Agriculture, Tokyo University of Agriculture and Technology, Japan)
- “The use of *Cydia pomonella* granulovirus in organic and integrated pest management” *Johannes Jehle* (Inst. of Biological Control, Julius Kühn Institut, Darmstadt, Federal Research Center for Cultivated Plants, Germany)

CROSS DIVISIONAL SYMPOSIA

Diseases of Beneficial Insects and Microsporidia Divisions

New insights into host-pathogen interaction in the Microsporidia

Organized by *Dörte Goertz and Grant Stentiford*

- “Genomic insights into the interactions of the microsporidian parasites *Nosema* and their honey bee hosts” *Yan Ping (Judy) Chen* (Bee Research Laboratory, US Department of Agriculture-Agricultural Research Service, Beltsville, MD, USA)
- “Investigating the secretome of diverse microsporidia” *Bryony Williams* (Biosciences, University of Exeter, Devon, UK)

Fungus and Virus Divisions

Pathogen induced host behaviour - clues for mechanisms

Organized by *Monique van Oers and Nicolai Vitt-Meyling*

- “Behavioural changes induced to hosts by Entomophthoralean fungi: mechanisms and evolutionary traits” *Jørgen Eilenberg* and *Annette Bruun Jensen* (Dept. of Agriculture and Ecology, University of Copenhagen, Denmark)
- “Walking with insects: Molecular mechanisms behind parasitic manipulation of invertebrate host behaviour” *Vera I. D. Ros* (Lab. of Virology, Wageningen University, The Netherlands)
- “A behaviour-manipulating virus in a parasitoid wasp: genomics and transcriptomics insights” *Julien Varaldi* (Lab. of Biometry and Evolutionary Biology – UMR CNRS University Lyon 1. France)

Nematodes and Bacteria Divisions

Beyond Agriculture: Nematodes and Bacteria applications across the sciences

Organized by *Glen Stevens and Arne Peters*

- “Endotoxin Plasmids of *Bacillus thuringiensis*: From Simple to Complex Genetic Symbionts” *Brian Federici* (Department of Entomology and Interdepartmental Programs in Cell, Molecular and Developmental Biology, University of California, Riverside, USA)
- “*Photorhabdus* and *Xenorhabdus*: A drug discovery goldmine” *Nick R. Waterfield* (Department of Biology and Biochemistry, University of Bath, UK)
- “Using nematodes to teach behavior: do worms and zebras really do the same things?” *Ed Lewis* (Department of Nematology, University of California, Davis; USA)
- “Entomopathogenic nematodes in the undergrad biology classroom: lessons in critical thinking” *Glen N. Stevens* (Environmental Science Program, Ferrum College, VA; USA)

WORKSHOPS

Diseases of Beneficial Invertebrates Division

OIE-notifiable aquatic invertebrate: a Latin American perspective

Organized by *Grant Stentiford*

- “Listed diseases and the global trading of aquatic crustaceans” *Grant Stentiford* (CEFAS: Centre for Environment, Fisheries and Aquaculture Science, Weymouth Laboratory, Dorset, UK)
- “Presence of OIE –Notifiable viral pathogens in crustaceans from Argentina” *Sergio Martorelli* (CEPAVE, UNLP-CONICET, Argentina)
- “First survey of notifiable viral diseases of crustaceans in wild red shrimp *Pleoticus muelleri* in the San Jorge Gulf, Argentina” *Carlos Zenobi* (Departamento de Patología, Dirección de Laboratorio Animal, DILAB, SENASA, Argentina) & *Fernando C. Raidenberg* (Dirección de Acuicultura, Ministerio de Agricultura, Ganadería y Pesca, Argentina)
- “IHHN disease of shrimp: history of the disease and strain divergence of its viral agent” *D.V. Lightner, K.F.J. Tang, J.O. Wertheim, R.M. Redman, C.R. Pantoja, L.M. Nunan, and S.N. Navarro* (Dept. of Veterinary Science and Microbiology, University of Arizona, Tucson, USA)

Microsporidia Division

Host range of microsporidia

Organized by *Dörte Goertz*

- “Host specificity and effects of microsporidia that infect natural enemies used for biological pest control” *Susan Bjornson* (Saint Mary’s University, Halifax, Nova Scotia, Canada)

Cross Divisional

Use of RNAi to control insects

Organized by *William Moar*

- “Why it is untrue that killing the messenger doesn't solve the problem” *Esteban Hopp* (Instituto de Biotecnología, CICVyA, INTA, Argentina)
- “Design and evaluation of a strategy to control of cotton weevil, based on dsRNAs ingestion that induce gene silencing” *Ricardo Salvador* (Inst. de Microbiología y Zoología Agrícola e Inst. de Biotecnología, CICVyA, INTA, Argentina)
- “Pyramiding dsRNA with Bt to control corn rootworm” *William Moar* (Monsanto, St. Louis, USA)

BUSINESS MEETING PRESENTATIONS

- Presented at the SIP Business Meeting: “The three Gs: Personal reminiscences of invertebrate cell culture pioneers: Goldschmidt, Gao, and Grace” *Karl Maramorosch* (Entomology Department, Rutgers-State University of New Jersey, USA)
- Presented at the Microbial Control Division Business Meeting: “Efforts of the Biopesticide Industry Alliance to Promote Microbial Agents in the U.S.” *Eda Renoit* (Chair of the Board of Directors, Biopesticide Industry Alliance)

In addition, there will be concurrent scientific sessions with short oral presentations and posters

Please, check the conference website for updates: www.sipweb.org

Remembrances

IN MEMORIAM: Albert Pye (1945-2012)

Dr. Albert Pye passed away on March 15, 2012 in Willow Hill, Pennsylvania after a very brief illness. Albert is survived by his wife Naomi Pye; sons M. Francis Pye and Robert Pye and wife Stephanie, and his daughter Jane Pye.

Albert was born on March 25, 1945 in Yeaden, PA just outside Philadelphia. He enrolled at Pennsylvania State University in 1962 with the intention of becoming a veterinarian. He switched his emphasis in 1966 to microbiology after an experience working as a technician investigating potential pathogens of the alfalfa weevil. Albert stayed on at Penn State in the department of Entomology studying bacterial resistance in wax worm larvae in the lab of Dr. William Yendol, receiving his MS in 1969. He went on to study the role of phenoloxidase activation and inhibition in insect immunology at Ohio State University under the mentorship of Dr. John Briggs, earning his PhD in 1973.

In 1974, Albert began a postdoctoral position with Dr. Hans Boman at the University of Umea, in Sweden, investigating antibacterial immune responses using diapausing Lepidoptera as models. Several publications resulted from the work on the biochemistry of immune factors, bactericidal reactions, and the mechanism of immunity induction. Albert was also a lecturer at the Umea University where he often gave technical seminars in Swedish. He began working with entomopathogenic nematodes in 1977, developing a passion that continued for the rest of his life. Funding from the Swedish Environmental Protection Board and Swedish Council for Forestry and Agricultural Research allowed Albert to form his own group as project leader studying the infection of large pine weevil by entomopathogenic nematodes. During this time Albert mentored one graduate student and authored 10 publications on the factors affecting nematode infection. He also ran many field trials, developing effective methods for the application of nematodes against pest insects. This experience proved invaluable when he started his business.

Between 1984-1985 Albert suffered a severe brain hemorrhage, and lost a daughter. Without the possibility of a tenured position in Sweden, Albert moved his family back to the United States. With the help of his wife, he founded Biologic Company in the basement of his parents' home in Chambersburg, PA where he developed *Steinernema feltiae* into his product Scanmask. In 1988, Albert moved Biologic Company to its current location in Willow Hill, PA and slowly expanded the business.

Albert also started raising sheep fearing the nematode business was little more than a hobby. Under Albert's careful guidance, the business grew, adding *Steinernema carpocapsae*, and *Heterorhabditis bacteriophora* to the product line. After ten years in business, the nematodes were financing Albert's sheep hobby, and it was time for them to go.

Despite leaving academia, Albert remained an active member in both the SIP where he was a member since 1983 and the American Entomological Society. He assisted in research whenever possible, and co-authored several publications after starting Biologic. Albert believed in the importance of instilling the scientific process in his children and often brought them along to SIP meetings as note takers to sit in on the numerous presentations he couldn't attend.

Albert was a dedicated father who expected much of his children and enabled them to be successful. He welcomed discussion and was always eager to challenge ideas and debate solutions in all areas of work and life. Albert was involved in his community, often providing guidance and aid to local youth. Dedicated to his company, BioLogic, and to his employees and customers, Albert was a hard and honest worker. Albert will be, and already is, missed by all who knew and loved him.

M. Francis Pye



IN MEMORIAM: Nancy Beckage (1951-2012)

Dr. Nancy E. Beckage, Member of the Society for Invertebrate Pathology, died suddenly at her home in Riverside, CA, on April 1, 2012. Dr. Beckage, Professor Emerita of Entomology and of Cell Biology and Neuroscience at the University of California, Riverside (UCR) was 61 at the time of her passing.

Dr. Beckage received her BS degree from the University of Wisconsin at Madison after transferring there from the College of William and Mary. In 1980 she received her Ph.D. in Zoology from the University of Washington for work that she did in the laboratory of Dr. Lynn Riddiford. It was during her Ph.D. that she started work on the *Manduca sexta* (Lepidoptera: Sphingidae) and *Cotesia congregata* (Hymenoptera: Braconidae) host-parasitoid system. This system would soon become the model system for studying the physiological and behavioral effects endoparasitoids (and their associated polydnviruses) have on their host. Work coming out of the Beckage laboratory at UCR showed that the wasps control the caterpillar host by manipulating the host's endocrine system, immune system, and metabolism. Through meticulous experimentation it was demonstrated that many interactions in nature are multi-trophic and are often heavily influenced by pathogens such as viruses and bacteria. Dr. Beckage never lost sight of the fact that the molecular and biochemical facets she studied in such detail also had an effect on the whole animal, such as suppression of feeding, locomotion and other behaviors.

In the years prior to her retirement Dr. Beckage focused on hormonal control of mosquito immunity by parasites and pathogens. This work, and her vast entomological knowledge, was translated into an educational outreach project that targeted agriculture and human health in the African country of Mali and was continued after she retired in 2011.

Dr. Beckage was elected a Fellow of the American Association for the Advancement of Science in 2004, for "contributions to the field of insect physiology." In 2008 she received an Honorary Doctorate from ETH Zurich (Swiss Federal Institute of Science and Technology) for "contributions to the fields of insect endocrinology, insect immunology, and host-parasitoid interactions." Other awards included the 2005 UCR Chancellor's Faculty Award for Excellence in Mentorship of Undergraduate Research and the 1996 UCR "Woman Who Makes a Difference" Award. We honor Nancy as a supportive and friendly mentor to many junior colleagues in entomology, especially women. We will miss her as a friend, but feel very fortunate that she was our graduate (Alleyne) and postdoctoral (Adamo) advisor.

Marianne Alleyne, Ph.D. – Department of Entomology, University of Illinois at Urbana-Champaign (vanlaarh@life.illinois.edu)

Shelley Adamo, Ph.D. – Departments of Psychology and Neuroscience, Dalhousie University (sadamo@dal.ca)

To honor Dr. Beckage please consider contributing to the "The Nancy E. Beckage Scholarship for Women in Entomology" <http://www.entfdn.org/nancybeckagescholarship.php>



Member Highlight: David Shapiro-Ilan and Dany Kim-Shapiro

Reprinted with permission from the Winter 2010 issue of WorldView by the National Peace Corps Association.

Identical twins Daniel Kim-Shapiro and David Shapiro-Ilan have more in common than matching DNA. Both 51-year olds are high-level research scientists. Both credit Peace Corps volunteer service 25 years ago with helping to launch their professional careers, and both are still making a difference in people's lives through advanced research and education.

Dany, as the older brother (by five minutes) is known to friends and colleagues, taught physics at a teachers college in Zaire, now the Democratic Republic of Congo, from 1984 to 1986. Today he is a physics professor at Wake Forest University in Winston-Salem, N.C., where his hemoglobin research focuses on curing sickle cell disease and making stored blood safer.

"There is no doubt that Peace Corps helped me develop my career and was a great asset with looking for a professor job", Dany says. David served as an agricultural volunteer in Niger from 1985 to 1987. Today, he is a research entomologist with the U.S. Department of Agriculture



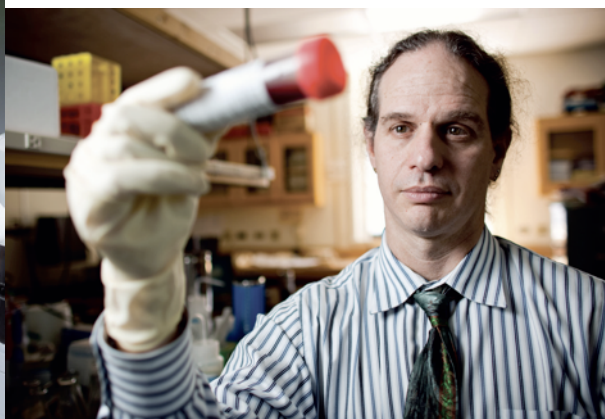
Southeastern Fruit and Tree Nut Laboratory in Byron, G.A. He focuses on controlling crop pests using natural enemies such as nematodes.

"I was already interested in a scientific career oriented toward improving agriculture by decreasing chemical inputs to the environment", David says. "Peace Corps was kind of a 'testing ground' to

see if I really wanted to go in that direction. In the end, Peace Corps definitely reinforced my career aspirations."

From childhood, the twins shared an interest in nature and science. Born and raised in New York City, they spent weekends at their grandparents' country home, where their grandfather encouraged them to collect and study insects and amphibians. The mischievous youngsters performed "household experiments" such as starting fires using rubbing alcohol and dissecting things for a peek inside. They enjoyed switching places and fooling schoolteachers.

As they grew older, they followed separate but strikingly similar paths. Both brothers qualified for honors science programs, but in different high schools. Both headed west for top colleges, but in different states. After earning undergraduate degrees in physics and biology, both volunteered for Peace Corps and went to Africa, but to different countries. Following Peace Corps, they earned Master's and doctorate degrees at four different



Top: David (left) and Dany Shapiro at the age of 10.

Far Left: David Shapiro-Ilan at work in his USDA Agricultural Research Lab.

Left: Daniel Kim-Shapiro examines a blood sample in his Wake Forest research lab.

universities and completed post-doctoral fellowships in 1996—David as a Fulbright Scholar in Israel, while Dany was a National Institutes of Health Fellow in California. Each married and attached his spouse's surname to his own, but one added it before and the other after. Each has fathered only boys. One has three; the other has two.

After more than a decade working in separate fields, David asked Dany to apply his physics expertise to a study of how electromagnetism influences the movement of nematodes in soil. In 2009, they published a paper together in the *Journal of Invertebrate Pathology* entitled "Directional movement of steinernematid nematodes in response to electrical current" (<http://dx.doi.org/10.1016/j.jip.2008.11.001>)

They speak about their Peace Corps days as if it were yesterday. Experiencing dramatically different cultures and helping people with acute material needs produced indelible memories.

David was the first Peace Corps volunteer to serve in Bazaga, a village of about 200 families, near the southwestern border with Nigeria. When he arrived, he found the mud house where he was to live full of stored grain. "I think they didn't believe I was coming," he says. David acclimated himself to life without electricity or running water and led projects digging wells and planting trees for firewood and to slow desertification. "The best part was how rewarding the job felt," David says. "The people there were extremely happy to have me there and grateful for the things we were doing." Subsequent Volunteers told him his village became a model for others.

Dany envisioned himself in similar rural conditions but went instead to Kikwit, a regional capital and commercial center with a population then of about 250,000 people. Still, the city had just one paved road and mostly mud houses. He had



David Shapiro stands outside his home in Bazaga and Danny Shapiro fishes in the Kwilu River.

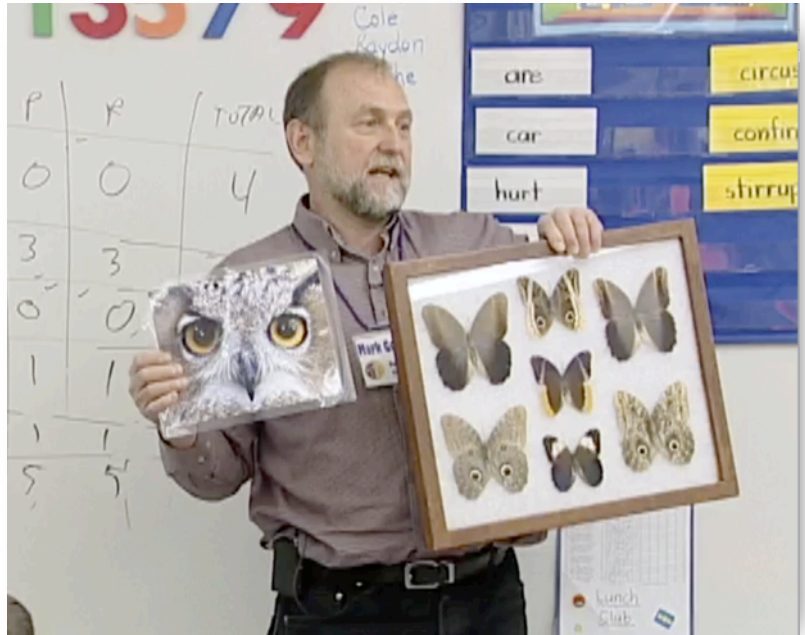
expected to teach high school physics but was assigned to one of Zaire's few teachers colleges and taught from the same college textbook that he had just used. "I learned it so much better," he says. "By the time I got to grad school, I really understood it." Lecturing 18 hours each week gave him a level of preparation that he rarely sees in applicants for professorships today. Their jobs give Dany and David opportunities to recruit for Peace Corps. Dany displays posters in his office and helps the North Carolina Peace Corps Association at campus events. David's USDA lab hosts numerous college interns, and he encourages them to consider volunteering. For budding scientists, the twins' experiences appear to prove a simple hypothesis: Peace Corps service produces lasting value for volunteers and the people they help.

Eric F. Frazier lives and writes in Kernersville, North Carolina.

Member News: Mark Goettel

After over 22 years at Agriculture & Agri-Food Canada's Lethbridge Research Centre, Mark Goettel has taken an early retirement and switched gears. He retains his position as Editor-in-Chief of Biocontrol Science & Technology and provides lectures and workshops worldwide on preparing manuscripts for publication in peer reviewed scientific journals. In addition, he is a presenter for a Canadian charitable organization called "Scientists in School" (<http://www.scientistsinschool.ca/>) where he enthusiastically provides half-day workshops entitled "Never Say Ugh to a Bug" and "Life's Like That" in elementary schools throughout southern Alberta. To view Mark in action, go to www.apubliceducation.ca click on Feb 2012 in the upper right, thence Jenny Emery Scientists in School on the bottom right. Enjoy!

Mark's new e-mail address is bstedit@telusplanet.net



Mark show how insect eyespots mimic predators



Rosie: A star of the show!



Answering some of the toughest scientific questions of his career!

Book Review

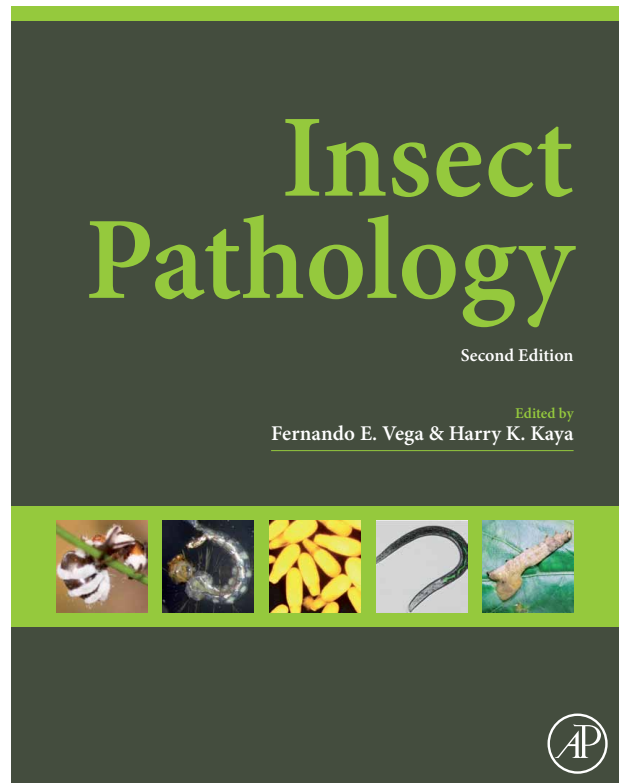
Insect Pathology, 2nd edition

Edited by Fernando E. Vega and Harry K. Kaya
Academic Press, San Diego, CA 2012
490 pages, \$129.95 (U.S.)
ISBN: 978-0-12-384984-7

Although insect pathology has been an area of occasional scientific interest to thinkers and scientists throughout history, its emergence as a full-fledged academic discipline can be documented with the 1949 publication of the first insect pathology textbook, Dr. Edward Steinhaus' "Principles of insect pathology". Since that time, comprehensive textbooks on the topic have been few and far between (especially when considering only English language texts), but each of those published since Steinhaus' original book have provided fascinating and instructive windows into the state of the discipline at the time.

And time (and science) move rapidly, which is why the 2012 publication of the text "Insect Pathology", edited by Fernando Vega and Harry Kaya, is such a welcome, useful and in many ways, long overdue addition to the insect pathology literature. It has been 14 years since the most recent insect pathology text was published (Boucias and Pendland, 1998), and since that time, great strides have been made in our understanding of the molecular biology, phylogeny, taxonomy, ecology and genetic modification of insect pathogens. These recent advances are well documented in the text of Vega and Kaya's new book, and the information is integrated with earlier, fundamental data. The book is nominally a second edition of the 1993 text, "Insect Pathology" by Tanada and Kaya (1993), but differs significantly from this earlier book in scope, organization, content and authorship.

The current book is organized into 13 chapters, each authored by very well-chosen experts in their respective fields. The first three chapters lay a useful groundwork for what follows, with discussions on principles in insect pathology, the history of insect pathology, and principles of epizootiology and microbial control. The next 8 chapters take on each of the major pathogen groups, including baculoviruses (and other occluded insect viruses), RNA viruses, fungi, microsporidia, bacteria, *Wolbachia*, protists and nematodes. The final two chapters address diseases of beneficial insects and the physiology and ecology of host defense responses. Color photographs and good color diagrams and line drawings help to enliven what is necessarily very dense information.



It's easy to see why insect pathology textbooks are relatively rare – the undertaking is simply enormous due to the multi-disciplinary nature of the topic. As May Berenbaum points out in her foreword to the book, insect pathology embraces of multitude of disciplines and vantage points, in that it addresses not only the threat of disease to beneficial insects, but also the use of disease to kill insects. Its subject area includes not only entomology, but also microbiology, ecology, physiology and toxicology. It deals with the basic nature of insect/microbe interactions, genetics and taxonomy, and also the application of information to the very practical world of pest control. Berenbaum jokingly refers to insect pathology's broad scope as being "uniquely bi-polar", but I would go further and suggest that "multi-polar" is a more accurate description of insect pathology's sometimes overwhelmingly broad scope.

To address the enormity and complexity of their subject area, Vega and Kaya, although authoring some chapters on their own, have taken advantage of expertise from an impressive roster of researchers to deal with the broad spectrum of information presented. And to keep the material

focused, they have concentrated exclusively on insect pathology, with no discussion of pathogens of non-insect invertebrates. Likewise, while microbial control principles and case studies receive sufficient attention here, they do not receive the intensive scrutiny that appear in texts (Ravensberg, 2011; Hajek et. al., 2009) devoted solely to the topic.

The book is targeted towards advanced undergraduates and graduate level students, and would provide an excellent basis for insect pathology courses, but would also be an indispensable addition to the library of any researcher interested in insect pathology, entomology, biological control, mycology, virology, bacteriology, protozoology, or nematology. The extensive references that are cited at the end of each chapter are alone worth the investment. Further reason to purchase the book, which is relatively reasonably priced at \$129.95 (U.S.), is that all royalties will be donated to the Society for Invertebrate Pathology's Chris J. Lomer Memorial Fund, a worthy cause that supports scientists from developing countries who wish to attend SIP annual meetings.

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Have you considered including SIP in your will?

As we reach "that age", many of us are writing or updating our wills. While it is most important to assure the future of our children and grandchildren, and to donate to our favorite charities or to our alma maters, let's consider also including SIP in our wills. These donations will assure the future of SIP as well. The

Society relies heavily on funds from meetings and membership. A single disastrous event such as the last minute cancellation of a meeting could have a huge impact on the ability of the Society to continue to be one of the finest, most international, and most friendly, scientific organizations in the world. Your donations can also add to the awards that permit student scientists to attend our meetings, preparing the next generation of invertebrate pathologists.

If you would like to include SIP in your will, be sure to use the full name, Society for Invertebrate Pathology, and include the official address, PO Box 11, Marceline, MO 64658 USA .

New Books

Manual of Techniques in Invertebrate Pathology, 2nd Edition

Editor: L. A. Lacey

Publisher: Academic Press

Publication Date: June 12, 2012

ISBN: 9780123868992

Price: \$149.95

Pages: 504

Key Features

- Step-by-step instructions for the latest techniques on how to isolate, identify, culture, bioassay and store the major groups of entomopathogens.
- New edition fully updated to address changes in the taxonomy of the vast majority of taxa.
- Discussion of safety testing of entomopathogens in mammals and also broader methods such as microscopy and molecular techniques.
- Provides extensive supplemental literature and recipes for media, fixatives and stains.

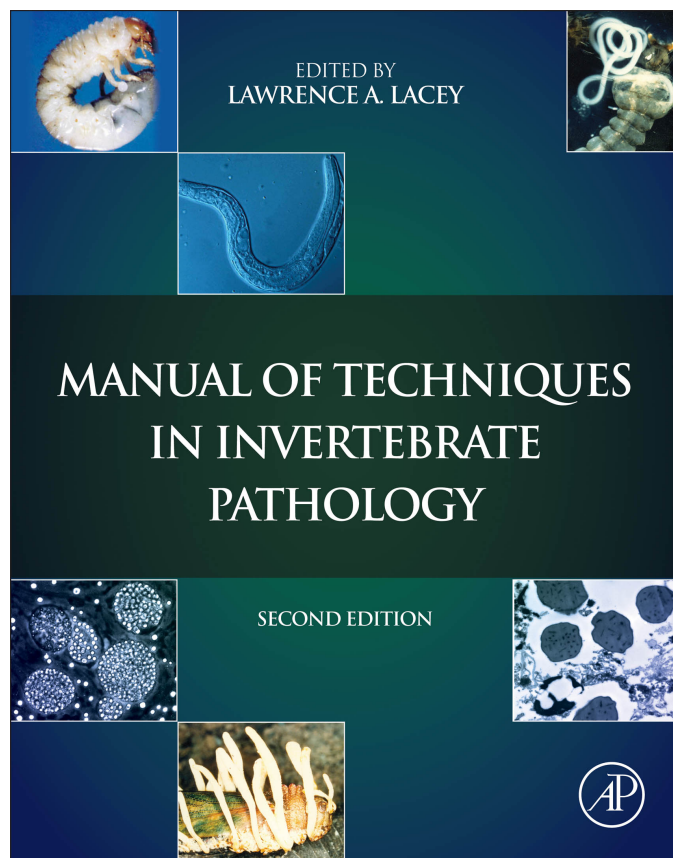
Description

The second edition of *Manual of Techniques in Invertebrate Pathology* is written by an international

group of experts that contribute a broad array of techniques for the identification, isolation, culture, bioassay, propagation, and storage of the major groups of entomopathogens. The manual provides general and specific background to experienced insect pathologists, biologists, and entomologists who work with pathogen groups that are new to them. It is also useful as a laboratory manual for courses in insect pathology and biological control and related areas of study. Safety testing of entomopathogens in mammals and complementary techniques for the preparation of entomopathogens are included as well as broader methods for the study of specimens such as microscopy and molecular techniques. This manual concentrates primarily on practical step-by-step aspects of the techniques, but also provides the reader with a short history, rationale for usage, guides to supplemental literature, plus recipes for media, fixatives, and stains.

Readership

Insect pathologists; biological control and integrated pest management specialists; entomologists; marine biologists, microbiologists; nematologists; protozoologists; virologists; mycologists and biologists involved in basic and applied research on invertebrate pathogens.



If you have authored or edited a book and would like it highlighted in the newsletter, please contact the Newsletter editor, Eric.Haas-Stapleton@CSULB.edu

Announcements

Position announcements have moved to the SIP web site!

To aid in the timely announcement of open positions, SIP is publishing Position Announcements exclusively on the SIP website. Please use the Position Announcement Submission Form on the SIP website to get your announcement posted.

The Co-operative Research Programme: Biological Resource Management for Sustainable Agricultural Systems (CRP) of the Organisation for Economic Co-operation and Development (OECD) is sponsoring travel fellowships between member countries and conference/workshop sponsorship.

This program covers three Theme areas: 1) Natural Resource Challenge; 2) Sustainability in Practice; and 3) the Food Chain.

The Programme is intended to help younger scientists gain international experience. Senior scientists are encouraged to explore a research project to work with experts from beyond their normal disciplines – *i.e.* with social scientists, rural development experts, economists – to bring a multi-disciplinary aspect to their project. Scientists working in a foreign laboratory with a grant from another source may apply for a fellowship to remain in that laboratory to complete work under way (*i.e.*, sabbatical leave).

OECD CRP also sponsors up to 10 workshops or conferences annually on topics related to the Themes. The conference proposal should relate to national and international policy issues – for example either how new policies influence the science to be examined, or how leading edge scientific research should be being used to support new or amended policies.

Fellowship and Conference Proposal applications for 2013 must be received before 10 September 2012. Additional details of the Programme are available at www.oecd.org/agriculture/crp. Fellowship applications are now an on-line process; conference applications will shortly be an electronic process. Only scientists from OECD-CRP member countries are eligible. For questions, contact Dr. John Sadler (John.Sadler@ars.usda.gov), who is one of two scientific advisors for Theme 1 – The Natural Resource Challenge, or Ms. Eileen Herrera (Eileen.Herrera@ars.usda.gov), the US National Correspondent.



ENTOMOLOGY 2012

ESA 60TH ANNUAL MEETING
NOVEMBER 11-14, KNOXVILLE, TN

Microbial Control News

2012 U.S. Microbial Insecticide Registration Actions

Active Ingredient	Uses	Actions	Registrant
<i>Chromobacterium subtsugae</i> strain PRAA4-1	Agricultural and greenhouse crops, including vegetables, fruit, flowers, bedding plants, ornamentals and turf.	Registration granted, conditional on supply of requested data.	Marrone Bio Innovations Inc.
<i>Pasteuria nishizawae</i>	Soybean (<i>Heterodera glycines</i> , soybean cyst nematode)	Exemption from Residue tolerance established*; summary of toxicity and pathogenicity data submitted to USEPA published at https://federalregister.gov/a/2012-3586	Pasteuria Bioscience Inc.
<i>B. thuringiensis</i> subsp <i>galleriae</i> strain SDS-502, containing Cry8Da (Phyllom SDS-502 Manufacturing Product (MP), and grubGONE!® Granular formulation)	Turf and ornamentals for white grub control	Application for registration	Phyllom LLC
<i>Chromobacterium subtsugae</i> strain PRAA4-1	Residential uses	Application received for new use.	Marrone Bio Innovations Inc.
<i>Isaria fumosorosea</i> (<i>Paecilomyces fumosoroseus</i>) FE-9901 “No-Fly” Technical and WP	Nonfood nursery and greenhouse crops (whiteflies, aphids, thrips, psyllids, mealybugs, leafhoppers, plant bugs, weevils, grass-hoppers, Mormon crickets, locusts and beetles)	Registration granted, conditional on supply of requested data. (Original application had been withdrawn in 2011, but subsequently resubmitted)	Natural Industries Inc.
<i>Cydia pomonella</i> granulovirus (CpGV)	Apple, pear, plum, prune and walnut in residential settings	New uses granted	Certis USA LLC
<i>Isaria fumosorosea</i> (<i>Paecilomyces fumosoroseus</i>) Apopka 97	Use on all food commodities	New uses granted along with Exemption from residue tolerance requirement	Certis USA LLC
<i>Metarhizium anisopliae</i> Strain F52, as TAE-001 Technical Bioinsecticide, Taenure Granular Bioinsecticide, Tick-Ex EC	Use on all food commodities	New uses granted along with Exemption from residue tolerance requirement	Novozymes Biologicals Inc.
<i>Wolbachia pipientis</i>	Mosquitoes specifically <i>Aedes polynesiensis</i>	Receipt of application for Experimental Use Permit	University of Kentucky
<i>Bacillus thuringiensis</i> Cry1Ab	Cotton	Registration granted	Bayer CropScience
<i>B. thuringiensis</i> Cry2Ae	Cotton	Registration granted	Bayer CropScience
<i>B. thuringiensis</i> combined and single trait hybrids with Cry1Ab, Cry2Ae, vip3Aa19, and full-length Cry1Ab as plant incorporated protectant (PIP)	Cotton	Request for Experimental Use Permit	Bayer CropScience
<i>B. thuringiensis</i> combined and single trait hybrids with Cry1Ab, Cry34Ab1, Cry35Ab1, Vip3Aa20, modified Cry3A, Cry1F, with focus of stacked traits	Maize	Request for Experimental Use Permit on 1082 ha to test efficacy and resistance management	Pioneer Hi Bred International
<i>B. thuringiensis</i> Cry1F, Cry34Ab1 and Cry35Ab1 as stacked PIP	Maize (4114)	Application for registration	Pioneer Hi-Bred International
<i>B. thuringiensis</i> eCry3.1Ab, Cry1Ab, Cry34Ab1, Cry35Ab1, Vip3Aa20, modified Cry3A, Cry1F as PIP	Maize	Amended/ extended Experimental Use Permit, on 1537 ha to test efficacy and regulatory studies, to 13 December 2013	Syngenta Seeds Inc.
<i>Bacillus thuringiensis</i> Cry2Ae as PIP	Cotton and cotton byproducts	Exemption from Residue tolerance established	Bayer CropScience
<i>B. thuringiensis</i> Cry1Ac as PIP	Soybean (Mon 87701)	Registration granted for 3 years	Monsanto

*Exemption from the requirement of a tolerance for residues means that the microbial can be used without restriction on food crops.

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