INTERNATIONAL ORGANIZATION FOR BIOLOGICAL CONTROL
OF NOXIOUS ANIMALS AND PLANTS (IOBC)

IOBC NEWSLETTER 80

WWW.IOBC-GLOBAL.ORG

IOBC is affiliated with the International Council of Scientific Unions (ICSU)
as the Section of Biological Control of the International Union of Biological Sciences (IUBS)

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CONTENTS OF IOBC GLOBAL NEWSLETTER ISSUE 80 – OCTOBER 2006

Soon, the book "IOBC: History of the first 50 years" will appear. See chapter 9.
Order your copy by emailing Joop.vanLenteren@wur.nl

PDF files of previous newsletters can be found at www.iobc-global.org

1. EDITORIAL: IOBC, THOUGH 50 YEARS OLD, IS HEALTHY AND KICKING

Fifty years ago, when IOBC was young, the idea of developing and implementing large-scale biological control and IPM projects seemed rather utopian. However, through the excellent work of the many IOBC WPRS working groups, several important European biological control and IPM projects were developed by combining the skills of relatively small national research groups. As a result of the WPRS network and these achievements, the critical mass and visibility of biological control and IPM increased dramatically, and many governments inside and outside Europe, adopted IPM strategies that included a strong biological control component in the 1980s and 1990s.

IOBC Global has most definitely profited from this European experience, and has assisted in developing and implementing IPM programmes worldwide. The activities of the various Regional Sections are rather different, but experiences in certain regions have helped developments in others. The same can be said about the Working Groups. As a result of the global collaboration, IOBC has the status of a reliable organization providing objective information about biological control and IPM.

Due to the facts that (1) earth will have to feed about 11 billion human beings in the near future, (2) fossil energy is running out, and thus are conventional synthetic pesticides, and (3) man cannot continue to pollute the environment and reduce biodiversity at the same dramatic rate as during the past 100 years, agricultural research needs to be redirected to a systems approach. In such an approach, pest management will be a guiding theme instead of being the marginal issue it was during the past 60 years. Guiding, because methods to prevent or reduce pests influence all agronomic methods from the design of cropping systems to the harvest of crops. Modern pest management will strongly depend on biological control, because it is a sustainable, cheap and clean pest management method. Biological control is expected to make up a considerable part of all crop protection methods in the coming decades.

IOBC intends to continue to play its role and will adhere to the original mission of the organization, but there are additional challenges concerning pest management that IOBC needs to meet in order to remain an important partner in biological control. These challenges can be translated in the following tasks.

Illustrate continuously and everywhere how good biological control is.

First of all, IOBC will have to keep making clear to many different stakeholders that biological control - i.e. using biota to control biota - is often the most successful, most cost effective and environmentally safest way of pest management. Also, IOBC cannot stress sufficiently often that biological control is nature's own way to keep numbers of pest organisms at low levels, that biological control is present in all ecosystems, both natural and man-made, and is always active. As a result of natural biological control, the earth is green and plants can produce sufficient biomass to sustain other forms of life. Without biological control, the production of energy by plants would be a tiny fraction of what it is now. For economic data on the efficiency of biological control, I refer to the IOBC Internet Book of Biological Control on our website.

Make clear that sustainable pest management should be the basis of food production systems

Now that chemical pesticides are no longer seen by many as the major solution for lasting pest control, we cannot simply return to pre-pesticide pest management methods, as the crops that we currently grow are too weak to survive without pesticides, the natural enemies are no longer present in sufficiently large numbers and too many farmers remain "addicted" to pesticide use. So we need to restore previously-used natural, classical, inundative and conservation biological controls, as well as using other alternatives for conventional chemical pest control such as host plant resistance and mechanical, physical, genetic, pheromonal and semiochemical control methods. In addition, we may manipulate the environment to make it more advantageous to natural enemies. We need to return to a systems approach in which the influence of all farming activities on pest development is considered. The aim of such an approach is to create a food production system that is inherently resistant to many pests and, thus, needs fewer or no treatments with conventional pesticides.

Treasure biodiversity and its contribution to biological control

Biological control will be a key element of future sustainable crop production. But when we consider the landscape in which agriculture currently takes place, we may conclude that agroecosystems can be characterized by having (1) a low species diversity, (2) plants with little architectural complexity, and (3) species of plants and animals with a relatively good dispersal ability that are short-lived, produce a large number of offspring and are relatively poor competitors. As a consequence, agroecosystems frequently have highly impoverished natural enemy communities when compared with natural ecosystems. Semi-natural "extra-field" communities, adjacent to crop land are generally less disturbed, architecturally more complex and have a much higher biodiversity than those in fields with crops. These richer extra-field communities provide source populations of beneficial arthropods that facilitate pest management. Sustainable pest management must, therefore, be based on an appreciation for how landscape structure can influence the interactions of extra-field and within-field processes. An understanding of the interchange of organisms and materials between landscape elements and the influence of landscape structure on these interchanges is critical for predicting and managing pest populations in agricultural fields.

Joop C. van Lenteren,

President IOBC-Global

2. RELATIONSHIIPS WITH OTHER ORGANIZATIONS

IOBC-Global has several long standing relationships with other organizations like the International Union of Biological Sciences (IUBS) of the International Council of Scientific Unions (ICSU), the Food and Agricultural Organization of the United Nations (FAO) and the Society for Invertebrate Pathology (SIP) and the Insect Pest Control Section of the joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture to discuss collaboration in the field of area wide IPM programmes (see elsewhere in this newsletter). Also, IOBC is collaborating with the European branch of FAO, EPPO, on environmental risk analysis, regulation of import of natural enemies, and "white lists" of natural enemies used for augmentative releases. Further, IOBC Global is in contact with the Organizing Committee of the International Congress of Entomology (2008, Durban, South Africa) for the joint organization of one or more symposia.

3. BOOKS ON BIOLOGICAL CONTROL: HOW MANY ARE THERE?

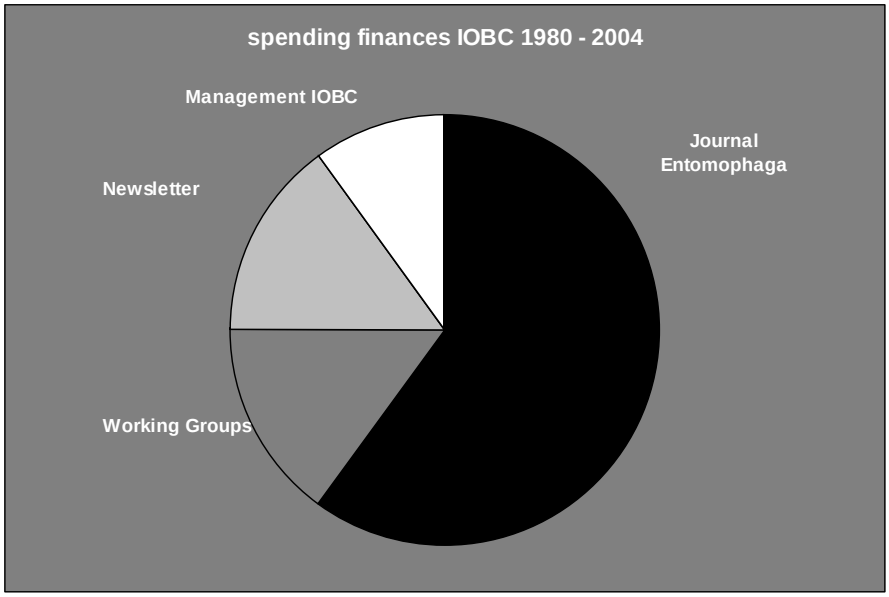
IOBC Global is preparing an overview of available biological control books in national languages. See the appendix of the IOBC Internet Book of Biological Control for the first listing. Ah, you miss your country's biocontrol book? Send us a short summary and a jpeg file of the first page and the book will be added to the list. The Third Edition of the **IOBC INTERNET BOOK OF BIOLOGICAL CONTROL** with a list of biocontrol books is out: see IOBC-Global.org

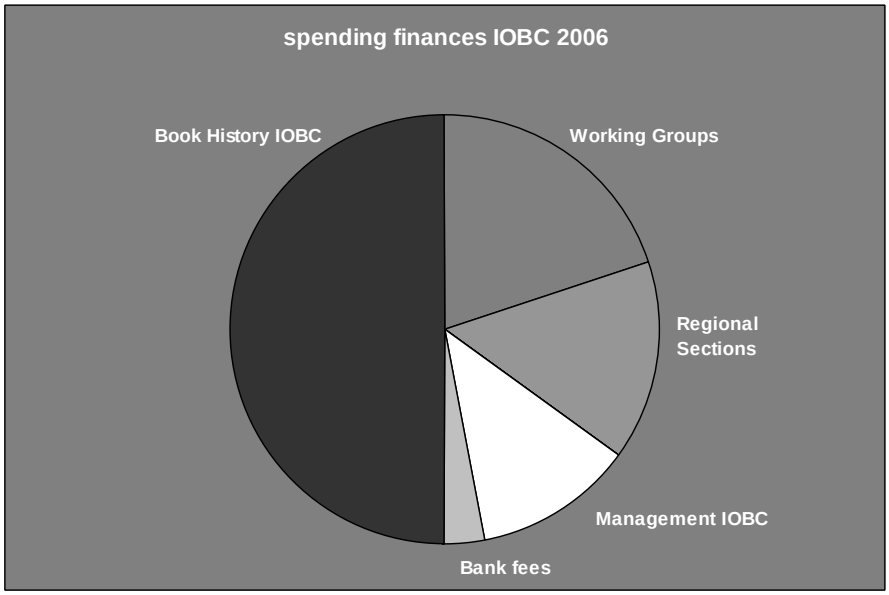
4. A NEW EXECUTIVE COMMITTEE OF THE IOBC GLOBAL FOR 2008 - 2012

The four years period of the Executive Committee will end after the next General Assembly that will be organised within the Framework of the XXIII International Congress of Entomology, Durban, South Africa, in the summer of 2008. New officers are elected by all IOBC members by email postal ballot which will be performed before the General Assembly, likely in the spring of 2008. The Executive Committee consists of the President, the immediate Past-President, the two Vice-Presidents, the Treasurer and the Secretary General. With the exception of the Secretary General, officers are not eligible for a second term in the same office. Any member of the IOBC can be a candidate for the election. If you are interested to be a candidate (either as President, Vice-President, Treasurer or Secretary General), please contact the Secretary General of the IOBC (collazza@unipa.it). The details of the election procedure will be given in one of the following issues of the IOBC Newsletter. For official information on elections, see the statutes at our website.

5. FINANCIAL SITUATION IOBC-GLOBAL

The financial situation of IOBC Global is STRONGLY improving after several years with decreasing assets. The auditing committee, consisting of Prof.dr. J. Eilenberg (Denmark) and Dr. W. Rossing (The Netherlands), have completed the audit of the 2005 finances and have approved the report prepared by our treasurer, Dr. Lise Stengård Hansen.





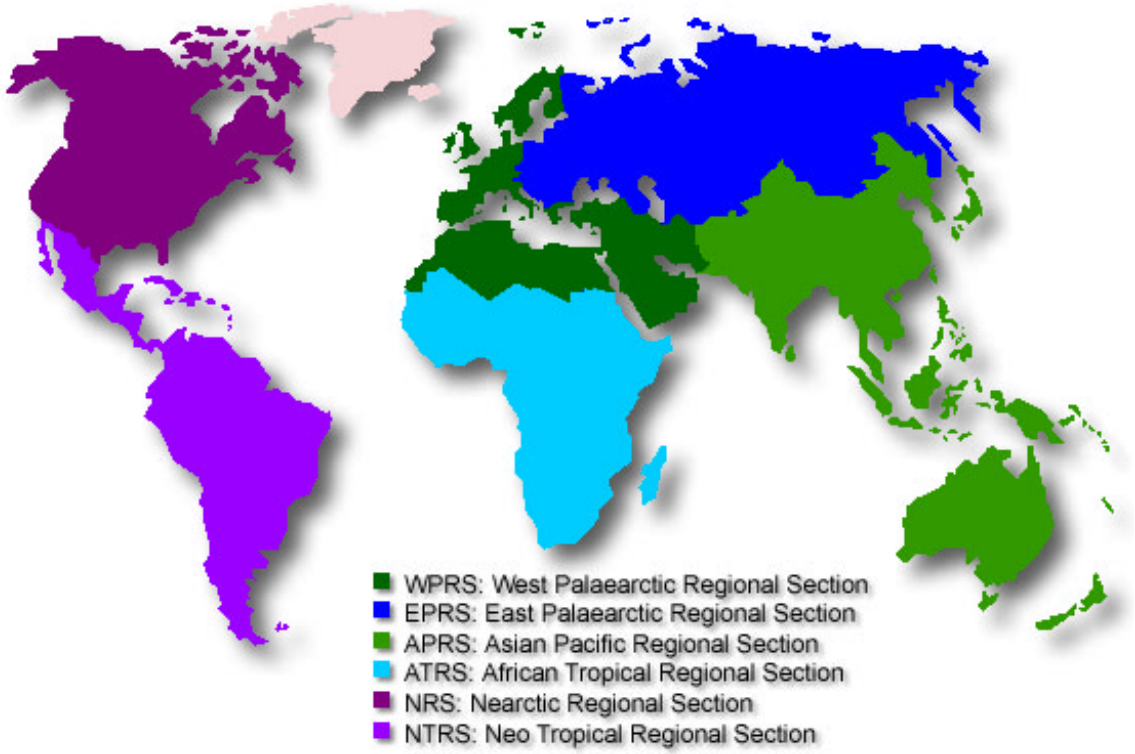
During the period 1980 – 2004, the annual spending of IOBC Global money was quite similar, with most of the money being paid to the publisher of the journals Entomophaga / BioControl.

Due to a new contract with the publisher which was more profitable for IOBC and as a result of strict financial management the situation of almost permanent losses on the journal could be completely reversed in 2005. More money can now be given to other IOBC actvities. First of all, a quite large sum will be spent on the printing of a book about the history of IOBC and on promotion material for IOBC. Next we expect that as a result of the better financial situation, more money will become available for WG activities in 2007, but first a strategy will be developed to reserve a considerable and fixed amount of money in order to create a stable financial basis for the future of IOBC.

6. MEMBERSHIP FEES 2006

Membership fees for 2006 are the same as for 2005! Please be so kind to pay your 2006 fees. All information about membership and fees can be found on the website.

7. State of affairs of Regional Sections of IOBC



Short information of all the Regional Sections, with a link to their websites, can be found on www.IOBC-Global.org and at the end this newsletter.

In 2005, the relationships with the East Palaerctic Section (EPRS) have been intensified. A new Executive Committee was elected during the General Assembly in Budapest, Hungary June 2005. EPRS organized a conference on "Biological Control in Integrated Production"in Poznań, Poland, May 15-19, 2006.

During the past months, much work has been done to reactivate the NeoTropical Regional Section (NTRS). First, a meeting with representatives of several Latin American countries and previous NTRS board members was held in April 2006 in Buenos Aires, Argentina. As a result, elections of a new Governing Board were organized. During a meeting in Recife, Brazil in August 2006, the new Governing Board presented itself and organized a meeting to discuss the future activities of NTRS. In this same period, NTRS organized a meeting in Colombia (see report under the Regional Section at the end of this newsletter). The result of these activities is that NTRS membership increased from 3 to 75 during the past year!

In the other regions, the situation is similar to what was written in previous newsletters.

8. State of affairs Working Groups IOBC-Global

Short information of all the Global Working Groups, with a link to their websites, can be found on www.IOBC-Global.org. at the end of this newsletter.

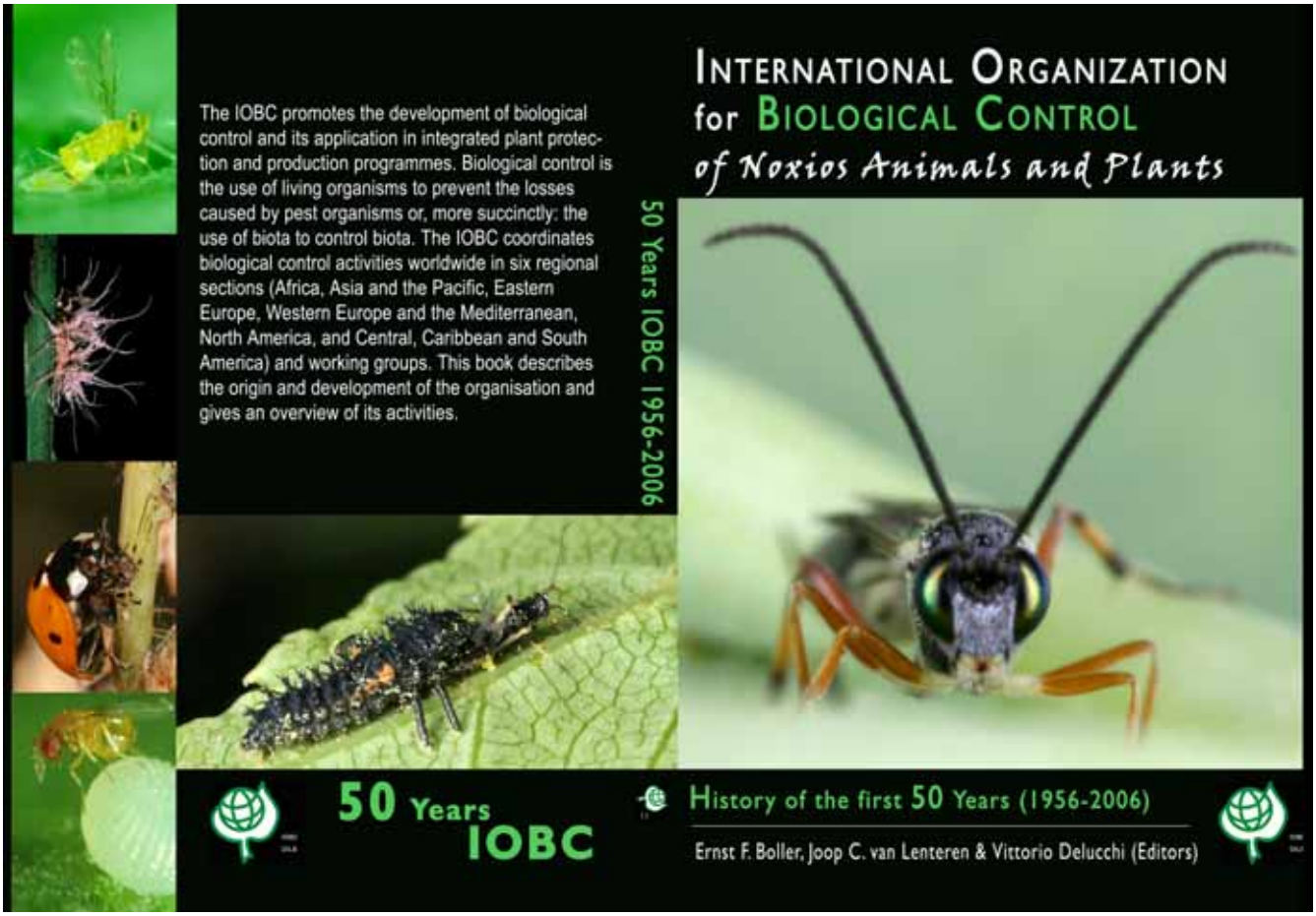
Most of the 8 IOBC Global working groups are active and have planned meetings in the near future. We have received several proposals for new working groups. Proposals include: (1) Environmental benefits and costs of releasing exotic natural enemies, (2) Designing agroecosystems that nurture biological control, (3) Unisex (pure female lines) and biological control. Persons interested in starting up a Global Working Group are invited to contact the Secretary General (colazza@unipa.it).

Because of our earlier poor financial situation, we had to reduce the support for working groups in 2004 and 2005. However, we are now be able to support working groups again if they fulfil the IOBC criteria (see website). Most working groups attract many participants to their meetings, but a rather low percentage of the participants is member of IOBC. We would appreciate working groups to motivate participants to apply for membership!

9. IOBC- 50TH ANNIVERSARY

Last year and also this year several festivities take place memorating the 50th anniversary of our organization. Below we summarize the activities.

Publication of book about history of IOBC



In this book, edited by Ernst Boller, Joop van Lenteren and Vittorio Delucchi, the history of IOBC Global and its Regional Sections is summarized, as well as of all the working groups and commissions of the organization on about 275 pages. The book will appear by the end of this year and can be ordered at Joop.vanLenteren@wur.nl.

Many colleagues have made most valuable contributions to this book either by adding interesting details to the histories of the Regional Sections and IOBC Global, or by writing short historic reviews of individual IOBC Commissions and Working Groups. In reading all these texts, you will discover an interesting characteristic of IOBC: its linguistic diversity. The vast majority of persons actively involved in IOBC activities do not communicate in English as their mother tongue, but in 30 or more different languages. Inevitably, the effort to communicate during international meetings and through written contributions in IOBC publications has created an unorthodox but lively "IOBC English" which captures the flavour of the authors' own culture and geographic regions. Transmitting the content has always been more important than striving for linguistic perfection. Therefore, following a long IOBC tradition, we as editors of this book have refrained from linguistic polishing of the individual contributions, but have intervened discretely where errors could have led to serious confusion.

Fifty Years of IOBC in West Europe and the Mediterranean: Dijon, France, 17-21 September 2005.

The region where IOBC was founded, West Europe, has held an anniversary meeting in conjunction with the General Assembly of WPRS in Dijon, France from 17-21 September 2005. See the bulletin of this meeting for a report

Fifty Years of IOBC in the Nearctic Regional Section
In May 2005 (Bromont, Canada) NRS has held a 50 years anniversary symposium.

Fifty Years of IOBC in the East Palearctic Regional Section
EPRS commemorated the 50 years anniversary of IOBC during its General Assembly in June 2005.

Fifty Years IOBC in Latin America: May and August 2006.
During two IOBC meetings that were organized in Latin America (in Colombia (May 2006) and in Brazil (2006)), the fact that IOBC was 50 years old was commemorated. For more news about these meetings, see under NTRS at the end of this newsletter.

Fifty Years IOBC in Africa and Worldwide: Summer 2008.
In collaboration with the Organization Committee of the 22nd International Congress of Entomology, IOBC-Global will organize a one or more day symposium. The aims of this symposium will be: (1) to give an overview of successful cases of biological control in Africa, (2) to discuss scientific and applied aspects of biological control research.

Candidates for honorary membership
In 2005 - 2008 several festivities are organized to commemorate the start of IOBC 50 years ago. We intend to select and appoint an honorary member for each Regional Section. If you have a good suggestion, please mail the name of the person with a short motivation to the Secretary General (colazza@unipa.it). We prefer to honour "older" persons that have done much work for IOBC and biological control.Quite a number of names have already been suggested to us, thank you!

10. CANADIAN BIOCONTROL NETWORK

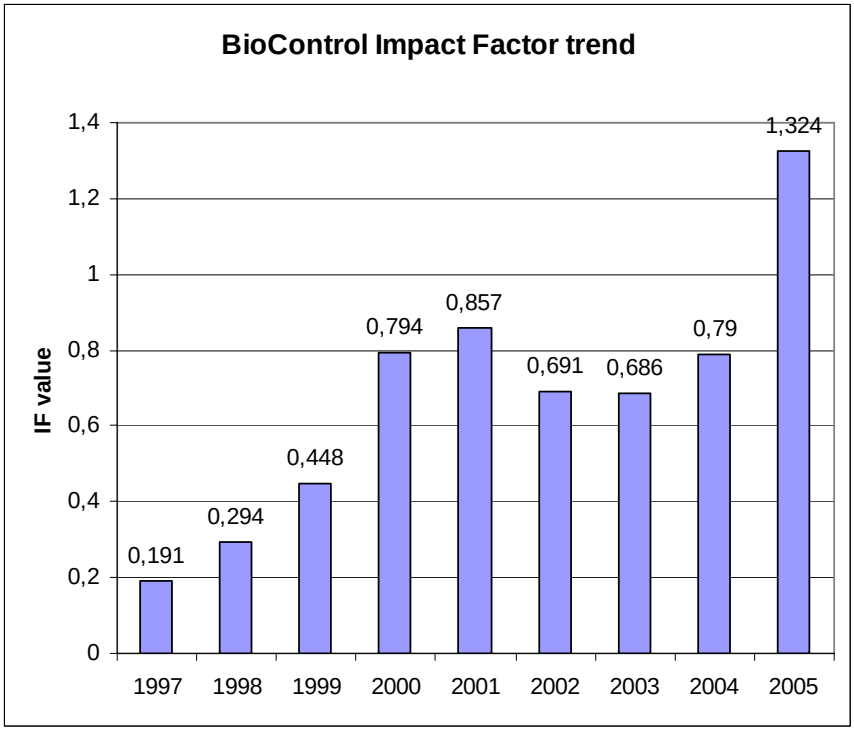
The Canadian Biocontrol Network initiative – why and how?

Jean-Louis Schwartz and Raynald Laprade, Université de Montréal, Montreal, Quebec, Canada.

Canada has a long tradition of research and development in biocontrol science. Hundreds of excellent scientists have spent considerable efforts for decades to discover, understand and implement biological alternatives to the use of chemical pesticides for the protection of Canadian agricultural crops and forests against insects, weeds and diseases. In the mid nineties, it was realized that there was a need, in Canada, for a comprehensive effort, supported by additional financial resources, to regroup under a highly integrated initiative the diverse expertise available across the country, to address identified priorities in the area of pest management alternatives and to train young biocontrol scientists in a network-like environment so that a new culture will emerge and impact significantly the science and applications of biologically-based pest management. The Biocontrol Network was created in 2001 to fulfill this need. It regroups 51 researchers from 15 Canadian

universities, one college, 14 government research agencies and two non-profit research organisations, and 82 postdoctoral fellows, students and technical assistants are being trained by the Network. Financial support is provided by Canada's Natural Sciences and Engineering Research Council through a programme that supports complex research collaborations between private and public sector partners working on common research themes where networking provides demonstrable added advantages.

11. IOBC GLOBAL JOURNAL BIOCONTROL



Goodbye Heikki Hokkanen – Welcome Eric Wajnberg

Since the initiation of IOBC in 1956, the organization has had its own scientific journal, first named Entomophaga which changed after 42 volumes into BioControl in 1998 with volume 43 (for detailed information about Entomophaga, see Appendix III.2). A Management Board of 6 members was appointed and Heikki Hokkanen (Finland) was appointed as Editor in Chief. The Editorial Board consisted of 8 associated editors covering different areas of biological control. A contract with Kluwer Academic Publishers (Dordrecht, The Netherlands) was finalised. In 2005 a new agreement was signed with Kluwer/Springer after a process of consultation with the Regional Sections, the Executive Committee of Global and the management board of BioControl. From January 2007, a new Editor in Chief (Eric Wajnberg, France), will replace Heikki Hokkanen. Heikki deserves IOBC'S gratitude for making BioControl a first class peer reviewed international scientific journal!!

The current situation of BioControl is very healthy. Many manuscripts of excellent quality are submitted, the rate of rejection of manuscripts is in the order of 65%, though the number of pages per volume has been increased several times. A system of "publication on line first" will soon be in place and authors can publish additional material related to an article on the website of BioControl. One of the most important achievements of the Heikki Hokkanen and his team of associate editors is to have increased the Citation Index of the journal strongly during the 8 years history of BioControl.

12. IOBC INTERNET BOOK ON BIOLOGICAL CONTROL

The FOURTH EDITION of the IOBC INTERNET BOOK OF BIOCONTROL WILL SOON BE OUT: see IOBC-Global.org

IOBC Internet Book of Biological Control

Aim: to present the history, the current state of affairs and the future of biological control in order to show that this control method is sound, safe and sustainable

The third edition of the book (March 2006) of more than 100 pages with information about biocontrol is available for free on our website, the fourth edition (October-November 2006) will soon be out.

We ask you to support the preparation of this book. The first priority is to receive summaries of the actual application of biological control in each country or region. The second priority is to document the history of biological control in each country, including some key references, so that it will be easier for all biocontrol workers worldwide to know what has been done and what is going on at this moment. This will help us to make clear **how important biological control is**. We have received several very good contributions during the past months, which will be included in the fourth edition, THANK YOU.

13. AVAILABILITY OF PROCEEDINGS/BULLETINS IOBC-WPRS WORKING GROUPS

The working groups of WPRS are producing each year about 10 bulletins containing the proceedings of their meetings. Bulletins that have appeared since 1993 are listed on the WPRS website, and copies of these bulletins can be ordered with a form available on this website (via www.IOBC-Global.org to WPRS, go to publications etc.). Summaries of the contents of WPRS bulletins can also be found on the WPRS website and in Profile, the newsletter of WPRS.

14. IOBC-GLOBAL WRITING PARTNERSHIP

Since the start of the IOBC writing partnership programme, IOBC assisted in preparing more than 40 manuscripts from members in Latin America, Central Europe and Asia for several refereed biological control and entomological journals.

There were quite a number of applications for this service from non-IOBC members, but we had to inform the applicants that we can only do this very time consuming work for our members.

You can apply for a writing partnership if you are from a non-English speaking developing country and member of IOBC. See our website, IOBC-Global.org, for more details and an application form.

15. NEXT MEETING OF EXECUTIVE COMMITTEE AND COUNCIL OF IOBC-GLOBAL

Next meeting of the Executive Committee of IOBC Global will be from 9-11 November 2006, Utrecht, The Netherlands.

The agenda of the Executive Committee meeting will be published soon on our website www.IOBC-Global.org, ***and we appreciate input from members!***

Lise, Joop and Stefano during the Executive Committee meeting in Denmark 2005

Message for all Regional Sections: in 2007 a Council Meeting of IOBC Global will be organized. Please be so kind to mail to Stefano Colazza (Colazza@unipa.it) who will represent your region. Also mail us topics to be discussed at this meeting. We already have many topics for this meetings and will send you a provisional agenda shortly after our Executive Committee meeting in November 2006.

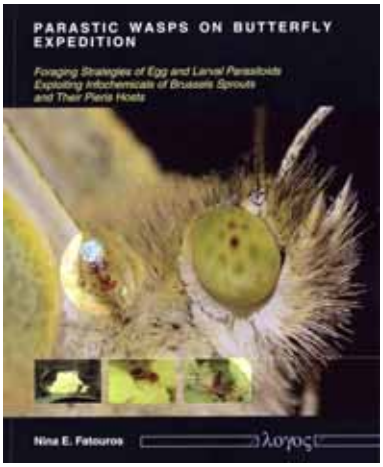
16. 2nd and 3rd INT. SYMP. ON BIOLOGICAL CONTROL OF ARTHROPODS

The Second International Symposium on the Biological Control of Arthropods (ISBCA II) was held in Davos Switzerland on 12–16 September 2005.

In our previous newsletter, we reported about this meeting. The memory of the meeting has been captured in the ISBCA II conference proceedings. The printed ISBCA II proceedings are large, two volumes totalling 734 pages, representing the wealth of information presented at this meeting. The two-volume proceedings include only the articles prepared by invited speakers. The accompanying CD is an electronic version of the conference proceedings and the abstracts of approximately 116 posters that were presented at the meeting which were perused by over 200 meeting attendees representing the international biological control community. The conference proceedings and CD are available free of charge by contacting Dr Richard Reardon at the USDA Forest Service (rreardon@fs.fed.us).

ISBCA III will be held in Christchurch, New Zealand in February–March 2009. The key organizer of ISBCA III is Steve Wratten (Wrattens@lincoln.ac.nz) at Lincoln University.

17. SUMMARIES OF PHD THESES



Parasitic wasps on buttefly expedition: foraging strategies of egg and larval parasitoids exploiting infochemicals of Brussels sprouts and their *Pieris* hosts. PhD thesis of Nina A. Fatouros (Germany), Freien Universität Berling, Juni 2006, 181 pp.

Parasitic wasps or parasitoids are a large group of insects, whose larvae live in or other on host insects and kill the latter after finishing their development. The main task of the female parasitoid is to find the right host, i.e. oviposition site, for her offspring. The host foraging behavior of parasitoids is intensively studied with the main goal to enhance their effectiveness as biological control agents of crops against insect pests. A tremendous variety of host location strategies are known, in which chemical cues, i.e. infochemicals, play an important role.

This thesis focuses on interactions and infochemicals transferred between parasitoids of eggs and larvae of the large cabbage white (*Pieris brassicae*) and its host plant Brussels sprouts. A fascinating strategy by *Trichogramma* egg parasitoids was shown and adds a new dimension to our understanding of host-parasitoid associations: the minute wasps hitch a ride on the female butterfly to the oviposition site and subsequently attack the butterfly eggs after being deposited. To detect the mated female butterfly the egg parasitoids spy on a chemical host cue, a so-called anti-aphrodisiac, transferred during mating to the female. Furthermore the impact of infochemicals of the host plant, on parasitoids was demonstrated. Butterfly eggs deposited on Brussels sprouts plants were shown to induce chemical modifications of the leaf surface detected by the *Trichogramma* wasps and arresting them in the vicinity of the eggs. Again the butterfly anti-aphrodisiac plays a key role, this time in interactions between the host eggs, the host plant and the egg parasitoids. Feeding caterpillars of the large cabbage white induce Brussels plants to emit a modified volatile bouquet of chemicals detected by *Cotesia* larval parasitoids. Here, it was demonstrated that the induced plant volatile production decreases after a successful recruitment of the *Cotesia* wasps, with an advantage for both the parasitoids and the plant itself.

The knowledge assembled in this thesis provides additional information to both fundamental and applied research and may help to improve a targeted application of parasitoids as biological control agents of crop pests.

Thesis information available at Nina.Fatouros@wur.nl and at http://www.logos-verlag.de/cgi-bin/engbuchmid?isbn=1313&lng=deu&id=

Development in different temperature and rearing optimization of the predator *Orius insidious* (Say, 1832) (Hemiptera: Anthocoridae). PhD Thesis of Simone Martins Mendes (Brazil), Federal University Lavras, Minas Gerais, Brazil.

The predator Orius insidiosus (Say) are present in several ecosystems, both natural and managed ones, with great importance for thrips control in several crops. Thus, with the objective to answer several questions related to this predator, occurring in tropical region, and to aim at its use as biological agent, this work had as objectives evaluate the response of nymphal and adult phases at temperatures 16, 19, 22, 25, 28 and 31 ± 1°C, 70 ±10% RH and photophase 12 h; the effect of presence and absence of males on female fecundity; the preference and suitability for oviposition in structure plants as amaranth stem (Amaranthus viridis L.), common bean's stem and pod (Phaseolus vulgaris L.), green bean's pod (Phaseolus vulgaris L.) and farmer's friends inflorescence (Bidens pilosa L.); as well as investigate a rearing technique of O. insidious and the cost/individual production in laboratory. Eggs of Anagasta kuehniella (Zeller) were used as food supply. At 25°C the nymphs showed development time of 12 days, and a threshold temperatures 13.11 and 13.03°C to male and

female, respectively. The thermal constant (K) for embryonic and nymphal stages were 65.5 and 46.67 days-degree, respectively. The oviposition period were 16.9, 53.4, 42.7, 36.3, 21.7 and 19.8 days at 16, 19, 22, 25, 28 and 31°C respectively, and the average number of eggs/female were 35.4; 169.6; 183.0; 206.7; 142.6 and 109. eggs at the same temperatures. The temperature of 25°C was suitable to development of O. insidiosus and the females showed great oviposition capacity in this temperature, to point to 25°C as preferred to the predator rearing. The best mating condition of this predator was found when the females were kept with the males until the beginning of oviposition and after mated each seven days. The farmer's friend inflorescence were the oviposition substrate preferred to O. insidiosus females, in choice and non choice tests. The rearing of the predator showed great production rates of newly-emerged adults when kept in glass pot (1.7 L of capacity) in the density 250 eggs/units, and 400 adults/unit. To predator's production in the laboratory, about 33.000 individuals/month was estimated of US$ 0.069 (sixty and nine cents) cost/ individual.

Information about this thesis can be obtained from VHPBueno@ufla.br

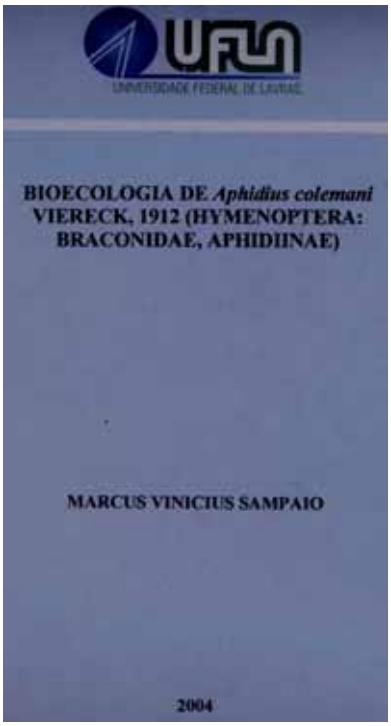
Evaluation of *Lysiphlebus testaceipes* (Cresson, 1880) (Hym.: Aphidiidae) as an agent of biological control of aphids in protected cultivations. PhD Thesis of Sandra Maria Morais Rodrigues (Brazil), Federal University Lavras, Minas Gerais, Brazil.

Aphids are important pests in many crops, which are difficult to control mainly due the fast development of resistance to insecticides. Therefore, during the last decades, attention has been given to researches on the natural enemies of aphids, with the intention of using them as biological control agents. Due to their host specificity and their efficiency, the parasitoids of the family Aphidiidae receive special interest Lysiphlebus testaceipes. The present work aimed to evaluate the influence of different on the development and parasitism of L. testaceipes reared on Aphis gossypii; to determine its life history on S. graminum; to evaluate the effect of storage of mummies of S. graminum parasitized by L. testaceipes at 5°C; and to evaluate the effectiveness of L. testaceipes to control A. gossypii by seasonal inoculative release on chrysanthemum crop in greenhouse. The development and parasitism of the parasitoid at different temperatures (15, 20, 25 and 30 ± 1°C) were evaluated with 30 replicates composed by four 3rd instar nymphs of A. gossypii, which were once attacked by L. testaceipes. The development periods of L. testaceipes were 26.9, 14.8, 11.3 and 12.2 days, and the emergence rates were 80, 61, 62 and 14% at 15, 20, 25 and 30ºC, respectively. The parasitism rates at 15, 20, 25 and 30ºC were 76%, 68%, 65% and 40% respectively. The temperature of 25ºC was the most appropriate for the development and parasitism of L. testaceipes on the aphid A. gossypii. The fecundity of the parasitoid was estimated by using 15 females of L. testaceipes. The net reproduction rate (Ro) and the intrinsic rate of increase (rm) of the parasitoid were 301.9 female and 0.513. The finite rate of increase (l), the generation time (T) and the time for duplication of population (TD) were 1.67 females per day, 11.13 days and 1.35 weeks, respectively. L. testaceipes has a high potential population growth when reared on S. graminum. The tests of mummies storage at low temperature (5ºC) were conducted with 10 treatments (control, 4, 6, 8, 10, 12, 14, 16, 18 and 20 days of storage) in 10 replicates. Forty mummies were stored at 25°C at RH 60 ± 10% and photophase 12h, and 360 mummies were stored at 5°C, RH 60 ± 10% and constant darkness. No significant differences in the emergence of L. testaceipes between the control test (100%) at 25ºC and 4 (80%) and 6 days of storage (80%) at 5ºC were observed. A storage period of up to 6 days of mummies of S. graminum parasitized by L. testaceipes did not show any effect on the reproductive capacity of that parasitoid. The release of L. testaceipes was carried out in commercial greenhouse (600 m2) at Fazenda Terra Viva, Santo Antonio de Posse, SP on cut chrysanthemum, cultivars White Reagan and Sunny Reagan. The parasitoids were released on the fourth (0.15 female/m2) and eighth week after planting (0.24 female/m2) and the aphids were sampled on ten plants per bed weekly. The population growth of A. gossypii on White Reagan and Sunny Reagan reached a peak in the fifth (4.5 aphids/plant) and eighth

week after planting (4.0 aphids/plant), respectively. At the end of the crop 0.2 and 0.3 aphid/plant were counted, on White Reagan and Sunny Reagan, respectively. The parasitism rates, after the first and the second release of parasitoid, were 55.2 and 7.8% respectively, in White Reagan and respectively 31.9% and 10.5% in Sunny Reagan. L. testaceipes showed to be an effective biological control agent to control A. gossypii in cut chrysanthemum, in greenhouse. L. testaceipes could be a part of integrated pest management program in ornamental plants.

Information about this thesis can be obtained from VHPBueno@ufla.br

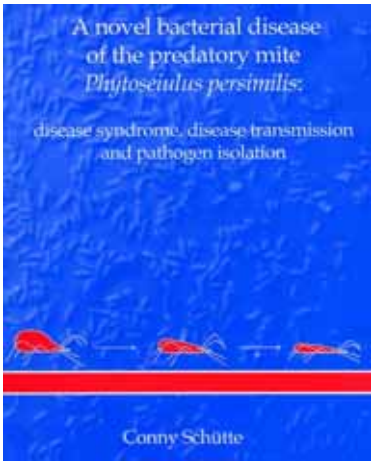
Bioecology of *Aphidius colemani* Viereck, 1912 (Hymenoptera: Braconidae, Aphidiinae). PhD Thesis of Marcus Vinicius Sampaio (Brazil), Federal University Lavras, Minas Gerais, Brazil.



The parasitoid Aphidius colemani Viereck plays an important role on several aphid species control and has been showed a great potential for use on aphid biological control in protected cultivation. This work aimed to determine the aphid host species and the potential competitor parasitoids of A. colemani; to evaluate the larval competition between A. colemani and Lysiphlebus testaceipes (Cresson) in multiparasitism in the host Aphis gossypii Glover; the suitability and the quality of A. gossypii, Brevicoryne brassicae (Linné), Myzus persicae (Sulzer), Rhopalosiphum maidis (Fitch) and Schizaphis graminum (Rondani) as hosts for A. colemani; the biological aspects and thermal requirements of A. colemani and the changes by parasitism of A. colemani on A. gossypii at 16, 19, 22, 25, 28 and 31±1°C; and to investigate the response to different temperatures and the thermal requirements of A. colemani from different climatic regions of Minas Gerais state. The parasitoid A. colemani was found parasitizing Aphis craccivora Koch, A. gossypii, Aphis spiraecola Patch, Rhopalosiphum padi (Linné), S. graminum, Toxoptera aurantii (Boyer de Fonscolombe), Eucarazzia elegans (Ferrari), M. persicae, Nasonovia ribisnigri (Mosley) and Sitobion avenae (Fabricius). The parasitoid L. testaceipes was found as a potential competitor of A. colemani. On larval competition, the parasitoid L. testaceipes was intrinsically superior ($\chi^2$1GL= 15,46, P £ 0,01) to A. colemani. The aphid B. brassicae was not suitable as host for A. colemani. The host's quality for the A. colemani was decreasing according to (M. persicae = R. maidis) > S. graminum > A. gossypii. Larger hosts showed better quality than the smaller ones in size and development of A. colemani, but not on egg load and longevity of the parasitoid. At different temperatures, the period from oviposition to mummy formation were 11.9, 9.8, 7.7, 6.4, and 6.4 days, and the period from oviposition to adult of A. colemani were 19.4, 16.2, 12.6, 10.5, e 10.7 days, respectively on the interval from 16 to 28°C, and there was not mummy formation at 31°C. The threshold temperature was 5.94°C and the thermal constant was 200 day-degrees for A. colemani. The changes caused by parasitism on the host A. gossypii were minimized at 31°C. The response to temperature of A. colemani from different climatic regions at 16 and 28°C showed the emergence of the parasitoids from Juramento (65.9 and 35.4%) and São Gotardo (71.4 and 47.6%) were lower than the emergence found for parasitoids from Lavras (87.1 and 80.9%). The temperature more suitable to the development of the parasitoid A. colemani was 22°C for individuals from Juramento and São Gotardo and the 25°C for individuals from Lavras. The threshold temperatures of A. colemani were 4.30, 2.19 and 2.55°C, and the thermal constants were 217.39, 238.1, and 238.09 for individuals from Juramento, Lavras and São Gotardo, respectively. The effect of the competition with L. testaceipes and high temperatures can interfere in a negative way in the biological control of aphids using A. colemani.

Information about this thesis can be obtained from VHPBueno@ufla.br

A novel bacterial disease of the predatory mite *Phytoseiulus persimilis*: disease syndrome, disease transmission and pathogen isolation. PhD thesis Conny Schütte (The Netherlands), Wageningen Universiteit, February 2006.



The predatory mite *Phytoseiulus persimilis* plays a major role in research on predator-prey interactions worldwide and is a cornerstone in biological control of spider mites on several greenhouse and field crops. Since mid-1992 we recorded several striking symptoms for mated female predators of our laboratory population: they shrink after mating, cease egg-laying and die early. Moreover, they tend to leave a prey patch with ample food, are not attracted to prey-related odours and cease predation on spider mites. Predators showing such attributes will not be effective in biological control.

We could show that droppings released by symptomatic predators induce the symptoms in non-symptomatic predators and that bacteria play a role in this process. Several bacterial species were isolated from symptomatic female predators and their droppings. One of these induced the symptoms plus striking bacterial accumulations in the predator's gut. This isolate represents a new bacterial species in a new bacterial genus, described as *Acaricomes phytoseiuli*. This is the first record of a bacterial pathogen in predatory mites. The results presented in this thesis are of great importance to applied and fundamental science.

A pdf version of this thesis can be obtained at: conny.schuette@tiscali.nl

Record and association of *Orius* and thrips species, influence of the photoperiod on the reproduction and evaluation of *Orius insidiosus* (Say, 1832) (Hemiptera: Anthocoridae) on biological control of thrips (Thysanoptera) in greenhouses. PhD Thesis of Luis Cláudio Paterno Silveira (Brazil), Federal University Lavras, Minas Gerais, Brazil.

Orius Wolff (Hemiptera: Anthocoridae) species are predators of soft-bodied arthropods such as thrips, spider mites, aphids and psyllids. Orius insidiosus is the common species in the tropical regions. The objectives of this research were to record and to characterize the species of the genus Orius found at four sites of the Southeastern Brazil; to determine which plant and species of thrips these predators are associated with; to evaluate the effect of different photoperiod conditions on the reproduction of O. insidiosus and to evaluate the efficiency of O. insidiosus, through the seasonal inoculative release, on the biological control of thrips in greenhouse chrysanthemum. The survey in Lavras (MG), Campinas, Pindorama and Holambra (SP) showed the occurrence of O. insidiosus, Orius thyestes (Herring), Orius perpunctatus (Reuter) and Orius sp. Differences in male and female genitalia of the predators allowed identification of the species found. O. insidiosus occurred on the largest number of cultivated plants such as corn, pearl millet, sorghum, bean, sunflower, alfalfa, soybean, chrysanthemum, tango and cartamus, and in the weed such as farmer's friend (Bidens pilosa L.), amaranth (Amaranthus sp.), parthenium weed (Parthenium hysterophorus L.) and Joseph's coat (Alternanthera ficoidea L.), while the others predators species were found on weed and corn plants. A total of 14 thrips species co-exists with these species of Orius. The different photoperiod conditions (10L: 14E, 11L: 13E, 12L: 12E and 13L: 11E, at 25±1ºC and RH 70±10%), in witch O. insidiosus was kept in the pre-imaginal development (egg-nymph), and modified during adult phase, did not cause reproductive diapause in the predator females. All the females lay eggs normaly during their complete lifetime. Laboratory experiments on crhysanthemum showed a decrease of the incitial thrips population with a factor 10 in six weeks in the presence of O. insidiosus and an increase with a factor 3,5 in the absence of the predators. In greenhouse experiments, the biological control through seasonal inoculative releases of adults and nymphs of the predator, at the rate of 2 Orius/m2 in cut chrysanthemum, showed that the predator was effective in the control of the pest. The population of thrips decreased from 4,7 to 2,5 thrips/plant in "Yellow Snowdon" and from 2,8 for 1,1 thrips/plant in "White Reagan"cultivar after the first release of the predator. After the fourth release (7,5 Orius/m2, in the total), eight weeks after the planting, the numbers of thrips reached 0,3 and 0,4 thrips/plant in "Yellow Snowdon" and "White Reagan", respectively. Thrips population was highly reduced if compared it to the first week after planting. Little thrips injury was found in the crop. O. insidiosus showed effective as biological control

agent of thrips in greenhouse chrysanthemum. However, in the end of the crop (flowering period), the chemical control of other pests (coleopterans) interfered with the biological control of thrips. The occurrence of Orius species, on several cultivated plants and weeds, makes possible maintain these predators in the agro-ecosystem. O. insidiosus can be used for biological control of thrips in different photoperiod conditions, without effect on its reproduction. O. insidiosus, through the seasonal inoculative release, controlled with success the thrips population in cut chrysanthemum. However, an integrated pest management program should accompany its use, where biological control is the main pest control method.

Information about this thesis can be obtained from VHPBueno@ufla.br

Interaction chrysanthemum-aphid-parasitoids/predator seeking the biological control under protected cultivations. PhD Thesis of Maria da Conceição de Menezes Soglia (Brazil), Federal University Lavras, Minas Gerais, Brazil.

The parasitoids Lysiphlebus testaceipes (Cresson), Aphidius colemani Viereck and the predator Orius insidiosus (Say) are present in several crops under greenhouse conditions, and play an important role as biological control agents. Also, plant morphologic characteristics can affect several biological parameters of these natural enemies, within the tri-trophic interactions. The objectives of this study were to evaluate the development and the parasitism of L. testaceipes and A. colemani on Aphis gossypii Glover, in two commercial cultivars of chrysanthemum Yellow Snowdon and White Reagan, with different trichome densities (11.3 and 16.6 trichomes/mm2 of leaf area, respectively), the influence of chrysanthemum foliar trichome densities on the effectiveness of the searching behavior of A. colemani on A. gossypii, the influence of plant/host complexes and plant in the odor response of A. colemani, as well as the effect of cultivars of chrysanthemum on the nymphal development, and predation and on the oviposition behavior of the predator, Orius insidiosus. The experiments were carried out in a climatic chamber (22±1ºC, 70±10% RH, and photophase of 12h), and in an acclimatized laboratory room (23±2ºC, 80±10% RH and photophase of 12h). The orientation behavior of experienced and inexperienced A. colemani females was observed using a Y-type glass olfactometer. The development time was 15.0 and 12.9 days for L. testaceipes, and 17.0 and 16.3 days for A. colemani, on the cultivars Yellow Snowdon (YS) and White Reagan (WR), respectively. The parasitism rates of L. testaceipes were significantly higher (68.4% and 50.0%), as compared to the parasitism rates of A. colemani (46.8% and 35.0%) in nymphs of A. gossypii reared on YS and WR, respectively. The number of contacts of A. colemani with the host, and of long touches with the ovipositor, increased linearly with the increment in the density of A gossypii, independently of the chrysanthemum cultivars. The number of short touches (probes) of A. colemani and the time of permanence of this parasitoid on the leaves were higher on the cultivar WR, and at the density of eight hosts. The walking activity was higher on WR. (64%), compared to YS (47%). When inexperienced and experienced A. colemani females were confronted with the plant/host complex or only with a non-infected plant, they preferentially orientated themselves to the source of odor originated from the Chrysanthemum/A. gossypii complex. When the complexes originated from Sorghum/Schizaphis graminum vs. alternative complex Chrysanthemum/A. gossypii were confronted, it was found that 64.0% of the females' A. colemani without previous oviposition experience, oriented preferentially to their original odor complex. The chrysanthemum cultivars YS and WR did not influence neither the number of instars, nor the development of O. insidiosus nymphs. The consumption of aphids by the adult females of the predator was significantly higher ($p<0.01$) on WR (2.63 nymphs of A. gossypii) as compared to YS (0.7 nymphs of A. gossypii). Females of O. insidosus layed eggs on petioles of the two chrysanthemum cultivars with different trichome densities. The total number of eggs/ female was 23.3 and 22.5 eggs on YS and WR, respectively. Although different host plants produce a range of responses, cultivars of the same species may also differentially affect the parasitoids/predator, through the herbivorous host A. gossypii in the tri-trophic interactions. The cultivars YS and WR offered feasible conditions for colonization and

establishment of the predator O. insidiosus. The development and performance of L. testaceipes and A. colemani are influenced by the chrysanthemum cultivars where A. gossypii is maintained, with a lower development time and higher performance observed for the cultivar with the highest density of plant trichomes on the leaf surface. It can be concluded that the association of L. testaceipes and A. colemani as biocontrol agents and resistant chrysanthemum cultivars, in the regulation of the A. gossypii population, constitutes a feasible strategy for management of this crop under greenhouse conditions.
Information about this thesis can be obtained from VHPBueno@ufla.br

For information about the following PhD theses, see Global Newsletters from 75 onwards (pdf files on website):

Assessing the risks and benefits of flowering field edges: strategic use of nectar sources to boost biological control. PhD thesis Karin Winkler (Germany), Wageningen University, Laboratory of Entomology, The Netherlands; December 2005. A pdf version of this thesis can be obtained at: Karin.Winkler@wur.nl; or Joop.vanLenteren@wur.nl

Associative learning in two closely related parasitoid wasps: a neuro-ecological approach. PhD thesis Maartje A.K. Bleeker (The Netherlands), Wageningen University, Laboratory of Entomology, The Netherlands; December 2005. A pdf version of this thesis can be obtained from maartje.bleeker@wur.nl

Biological control of plant bugs, Lygus spp., PhD thesis T. Haye, Department of Zoology, Christian-Albrechts University, Kiel, Germany, 2004. The full version of this thesis can be obtained at: http://e-diss.uni-kiel.de/diss_1133

Chemical ecology and integrated management of the banana weevil Cosmopolites sordidus in Uganda. PhD Thesis of W. Tinzaara (Uganda), Laboratory of Entomology, Wageningen University, February 2005. A pdf copy of this thesis can be obtained from arnold.vanhuis@wur.nl

Extremely selfish B chromosome initiates only male offspring by eliminating a complete genome: Mode of action, origin and structure of the Paternal Sex Ratio chromosome in the parasitoid wasp Trichogramma kaykai. PhD thesis of J.J.F.A. van Vugt (The Netherlands), Laboratory of Entomology, Wageningen University, The Netherlands. A pdf copy of this thesis can be obtained from joke.vandervugt@wur.nl

Evaluation of Orius species for biological control of Frankliniella occidentalis (Pergande) (Thysanoptera: Thripidae). PhD thesis M.G. Tommasini (Italy), Wageningen University, Laboratory of Entomology, The Netherlands; September 2003. A pdf version of this thesis can be obtained from tommasini@crpv.it

Parasitoids as Biological Control Agents of Thrips Pests. PhD thesis A.J.M. Loomans (The Netherlands), Wageningen University, Laboratory of Entomology, The Netherlands; September 2003. A pdf version of this thesis can be obtained from *a.j.m.loomans@minlnv.nl*

Semiochemical relationships in the tritrophic system Leguminous plants, *Nezara viridula* (L.) and *Trissolcus basalis (*Woll.*).* PhD thesis Alessandro Fucarino, Palermo University, Italy; February 2004. *A pdf version of this thesis can be obtained from elfucaro@hotmail.com*

Semiochemicals used by scale insects and their parasitoids: behavioral and chemical ecology investigations. PhD thesis Paolo Lo Bue, Palermo University, Italy; February 2004. *A pdf version of this thesis can be obtained from paololobue@hotmail.com*

Tailoring complexity: Multitrophic interactions in simple and diversified habitats. PhD thesis T. Bukovinszky (Hungary), Wageningen University, Laboratory of Entomology, The Netherlands; June 2004. A pdf-version of this thesis can be obtained at: *Tibor.Bukovinszky@wur.nl*

The entomopathogenic fungus Metarhizium anisopliae for mosquito control, PhD thesis E-J. Scholte, Laboratory of Entomology, Wageningen University, The Netherlands, November 2004. A pdf version of this thesis can be obtained from ErnstJan.Scholte@wur.nl

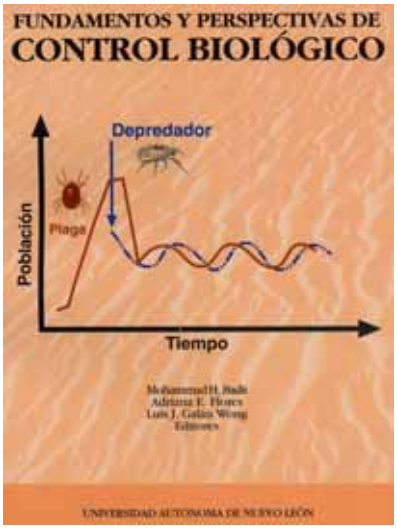
Whitefly control potential of Eretmocerus parasitoids with different reproductive modes. PhD Thesis of Mohammad Javad Ardeh (Iran), Laboratory of Entomology, Wageningen University, February 2005. A pdf copy of this thesis can be obtained from mjardeh@gmail.com

18. RECENT PUBLICATIONS AND BOOKS ON BIOLOGICAL CONTROL AND IPM

If you miss important recent books on biological control or IPM, send us (colazza@unipa.it) a jpeg picture of the front page, a short summary and information on how and where the book can be ordered. Also, please send us pdf files or reprints of important new biocontrol publications and they will be mentioned in the next issue of our newsletter.

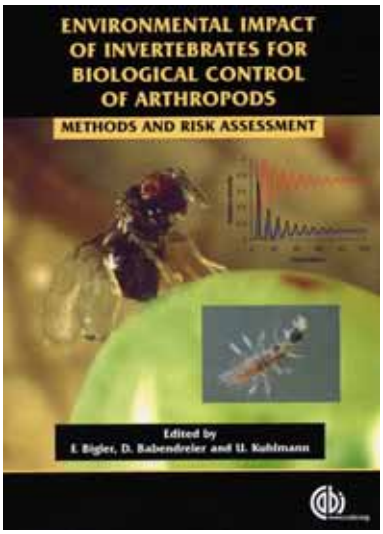
Durable Crop Protection: policy for crop protection towards 2010. Anonymous, 2005. Ministry of Agriculture, Nature and Food Quality, The Netherlands. (Report can be downloaded from www.minlnv.nl).

The Dutch Government has been attempting to change crop protection form pure chemical control to integrated pest management since the 1980s. Initially, it published the Crop Protection Plan in 1984, which resulted in a change of crop protection philosophy at the research and policy level, but as clear policy goals lacked it did not dramatically change application of chemical control. In 1989 the Multi-Year-Crop-Protection Plan was published, which specified in detail where, how and when a reduction could be realized for each of the crops grown in Holland. This plan resulted in a 50% reduction in pesticide use by volume and a complete reorganization of crop protection researc. All research had to be IPM oriented, and many new projects that involved biological control were financed. The next step was published in 1999 policy plan for the period 2000-2010 “Integrated Management, the way ahead”, which aimed at a further strong reduction of chemical pesticide dependence and a strong increase in use of integrated pest management methods. This policy plan was recently adapted and renamed to “Durable Crop Protection: polivy for crop protection towards 2010”. The main goal is a reduction in environmental pollution due to pesticides by at least 95% compared to 1998. The approach for obtaining this goal is the application of true integrated crop protection (a method in which all alternative non-chemical pest control methods are first considered before chemical pesticides are used). Growers/farmers have to keep a log-book in which they motivate which crop protection methods they use, and why they need chemical control if applicable. Growers/farmers have to eveluate the following possibilities when designing their durable crop protection plan: possibilities to prevent pest including use of plants that are resistant to the pest, use of cultural methods, application of warning systems, use of non-chemical crop protection methods including biological control, and as a last step chemical control.



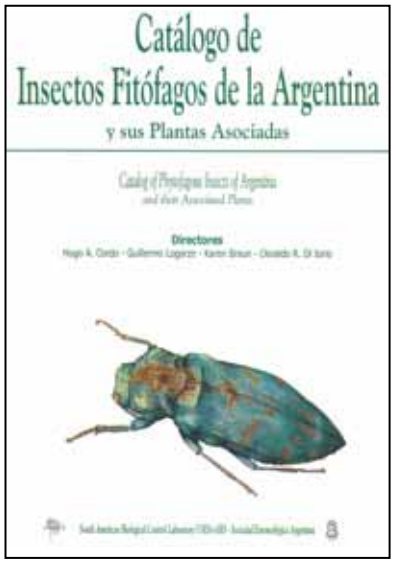
Fundamentos y Perspectivas de Control Biologico. Badii, M.H., A.E. Flores & L.J. Glan Wong (eds.) 2000. Universidad Autonom de Nuevo Leon, Mexico, 462 pages ISBN: 970-694-033-2.

A very complete book of biological control in Spanish. The 34 chapters cover the basis scientifical aspects of biocontrol (ecology, taxonomy, behaviour, population dynamics) as well as applied aspects (quarantine, mass production), case studies and a glossary. For information, contact: mhbadii@yahoo.com.mx



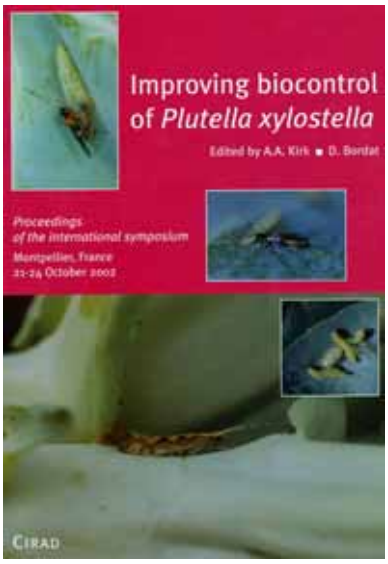
Environmental Impact of Invertebrates for Biological Control of Arthropods: Methods and Risk Assessment; Edited by F. Bigler, D. Babendreier and U. Kuhlmann. CABI, Wallingford, Oxon, UK, 2006.

Classical biological control of insects, where exotic natural enemies are introduced to control exotic pests, has been applied for more than 120 years, and the release of natural enemies has resulted in the permanent reduction of at least 165 pest species worldwide. Augmentative biological control, where exotic or native natural enemies are periodically released, has been used for 90 years, and more than 150 species of natural enemy are available on demand for the control of about 100 pest species. This book responds to the growing need to assess non-target impacts of biological control agents. The aim is, first to compile the current knowledge of methodologies used for assessing environmental impacts of invertebrate biological control agents and, secondly, to advise on how to perform science-based risk assessments which might be required for future regulation of such organisms. This book will be of significant interest to the scientific community involved in biological control and integrated pest management, but also for commercial companies producing biological control agents, for risk assessors and for regulatory authorities around the world.



Catalog of Phytofagous Insects of Argentina and their associated plants. H.A. Cordo, G. Logarzo, K. Braun, O.R. Di Iorio (eds.), South American Biological Control Laboratory, USDA-ARS, Sociedad Entomologica Argentina.

For information, contact: gcabrera@speedy.com.ar



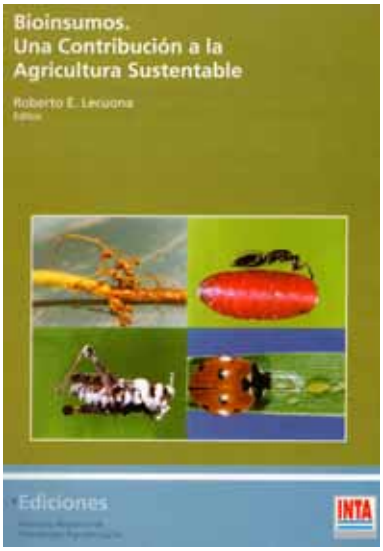
Improving biocontrol of Plutella xylostella. Editors A.A. Kirk & D. Bordat. Proceedings of the international symposium. Montpellier, France, 21-24 October 2004.

Plutella xylostella (DBM) is the most cosmopolitan of pests and has spread, in part naturally by wind aided movement, and by the hand of man, to all those parts of the planet where crucifers are grown as crops or exist as wild plants. It is resistant to many pesticides and some biologically based toxins. Hence biological control has been used both as a component of IPM programs designed to manage *Plutella* and on its own to reduce DBM populations to an acceptable level. The results have been varied, with good success in some areas and complete failure in others. How can the biological control of DBM be improved?

Keynote speakers presented reviews on the current status of *Plutella* in different parts of the world, pathogens as biocontrol organisms, and classical systematics of parasitoids. The different topics are arranged into 7 chapters beginning with the status and role of Hymenoptera in biological control of DBM (Chapter 1) which discusses Hymenoptera as biocontrol

agents and reviews current parasitoid taxonomy. Chapter 2 discusses the role of entomopathogens in DBM biological control . The review covers each pathogen group, advances achieved and their contribution to the biocontrol of DBM. Chapter 3 reviews biological control of DBM in Africa where although ranked as the most destructive crucifer pest, yield loss information is lacking. Very high parasitoid diversity was recorded from South Africa and current biocontrol work in Africa is discussed. Chapter 4 reports on the biocontrol of DBM in South and Central America. DBM causes immense damage to crucifers in the region and the review highlights attempts to control it using biocontrol and selective insecticides which conserve biocontrol agents. The North America review, (Chapter 5) points out that DBM belongs to a complex of pests attacking crucifers. A dynamic approach including the conservation and introduction of biocontrol agents would improve overall management of DBM. The review of biocontrol of DBM in Asia (Chapter 6) highlights the region wide approach to management of DBM. Some of the most successful IPM and classical biocontrol programs have been carried out in Asia. However continued use of ineffective insecticides is the greatest challenge to biocontrol in the area. Chapter 7 reviews biocontrol of DBM in the Oceania region. Despite good control of DBM by introduced agents in New Zealand and Australia continued use of insecticides and subsequent resistance has led to crop failures recently. A report on the workshop sessions constitutes chapter 8 in this book. Recommendations included improving taxonomic methods using on-line keys and genetic characterization, improved exchange of information and dependable methods for rearing and applying biological control agents, and faster registration of biopesticides.

In addition a further 26 proceedings contributions make up the rest of the publication. The quality of them is very high and many are from areas little represented at mainstream meetings.



Bioinsumos: Una Contribucion a la Agricultura Sustentable. Lecuona, R.E. (ed.), 2004. Ediciones Instituto Nacional de Technologia Agropecuaria, 58 pp. Booklet providing information about all categories of natural enemies (predators, parasitoids and pathogens), antagonists of diseases and composting; with illustrations. In Spanish.

Control Biologico: Espescies entomofagas en cultivos agricolas. Molinari, A.M., 2005. Ediciones Instituto Nacional de Technologia Agropecuaria, 80 pp. Nicely illustrated booklet giving an overview on beneficial organisms (predators, parasitoids and pathogens). Surprisingly with advertisments of chemical control companies. In Spanish.

For information on the publications below: see IOBC Global Newsletters from 75 onward (pdf files on iobc website).

Biological Control in Brazil (in Portuguese). Information about this book can be obtained from the senior editor, Prof. dr. J.R.P. Parra (jrpparra@esalq.usp.br).

Biological Control in IPM Systems in Africa. P. Neuenschwander, C. Borgemeister and J. Langewald (eds.), CABI, Wallingford, UK, Hardback, 448 pp., ISBN 0 85199 639 6

Biological Control in Protected Culture. Editors: Kevin M. Heinz, Roy G. Van Driesche and Michael P. Parrella. Ball Publishing, Batavia, Illinois, Hardbound, ISBN 1-883052-39-4, 552 pp

Biological Control of Invasive Plants in the United States. E. M. Coombs, J. K. Clark, G. L. Piper & A. F. Cofrancesco (Eds). Oregon State Univerity: 476 pp. ISBN 0-87071-029-X. Ordering info at: http://oregonstate.edu/dept/press/a-b/BioControl.html

Biological Pest Control in Chile: History and Future. S. Rojas, 2005. Libros INIA 12, Ministry of Agriculture, Instituto de Investigaciones Agropecuarias, 125 pp. ISBN 956-7016-19-4l ; ISSN 0717-4713. (In Spanish).

Cabbage, Eggplant and Tomato Integrated Pest Management, FAO Inter-country Programme for IPM in Vegetables in South and Southeast Asia. Anonymous, 2000. FAO Regional Office for Asia and the Pacific. Phra Athit Road, Bangkok 10200. Thailand, 205 pp.

Crop protection in biological agriculture in Italy. M. Benuzzi and V. Vacante, in Italian. Information about this book can be obtained from M. Benuzzi (benuzzi@intrachem.it).

Discovery of the Parasitoid Lifestyle. Special feature in Journal of Biological Control Vol 32, No. 1, January 2005

Ecological Infrastructures: Ideabook on Functional Biodiversity at the Farm Level. Boller, E., Häni, F. & Poehling, H.-M., 2004. ISBN 3-906776-07-7. 230 pp.

From farmer field school to community IPM. Ten years of IPM training in Asia. Pontius, J., R. Ditls, A. Bartlett, 2002.FAO Regional Office for Asia and the Pacific. Phra Athit Road, Bangkok 10200. Thailand, 106 pp.

Genetics, Evolution and Biological Control. L.E. Ehler, R. Sforza and T. Mateille (eds.), 2000. CABI, UK, Wallingford, UK, Hardback, 288 pp., ISBN 0 85199 735 X

Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia. Shepard, B.M., G.R. Carner, A.T. Barrion, P.A.C. Ooi, H. van der Berg, 1999.Quality Printing Company, Orangeburg, South Carolina, USA (ISBN 0-9669073-0-2), 108 pp.

Insect Plant Biology by Louis M. Schoonhoven, Joop J.A. van Loon & Marcel Dicke. Oxford University Press, Oxford, UK, 421 pp. http://www.oup.co.uk/isbn/0-19-852594-X

Integrated Pest and Disease Management in Greenhouse Crops. Editors: Ramon Albajes, M. Lodovica Gullino, Joop C. van Lenteren and Yigal Elad. Kluwer Academic Publishers, Dordrecht, Hardbound, ISBN 0-7923-5631-4, 568 pp.

The IPM Practitioner. Annual Directory of Least-Toxic Pest Control Products. For information, contact BIRC, POBox 7414, Berkeley, California, 94707, USA.

Natural crop protection in the tropics. Letting information come to life. Stoll, G., Margraf Verlag. 2nd edition, 2005, 380 pp.; 15 ills. ISBN 3 8236 1317 0.

Natural Enemies: An Introduction to Biological Control. Ann Hajek. Cambridge University Press, Cambridge, UK, Hardback and Paperback, 378 pp., ISBN 0 521 65295 2

Parasitic Wasps: Evolution, systematics, biodiversity and biological control. G. Melika and C. Thuroczy, eds. Agroinform, Kiado & Nyomda kft, Budapest, 2002: 480 pp.

Quality Control and Mass Production of Natural Enemies. V.H.P. Bueno (ed.), in Portuguese. Information about this book can be obtained from V. H.P. Bueno (vhpbueno@ufla.br).

Quality Control and Production of Biological Control Agents: Theory and Testing Procedures. J C van Lenteren (ed.), CABI, Wallingford, UK, Hardback, 327 pp., ISBN 0 85199 688 4

The Manual of Biocontrol Agents. Third Edition. Editor: L.G. Copping. BCPC, Alton, Hampshire, 2004: 702 pp. ISBN 1 901396355. Info: www.bcpc.org.

19. REGIONAL SECTIONS OF IOBC

Information provided below about regional sections of IOBC is limited, most information is regularly updated on our website www.IOBC-Global.org.

ASIA AND THE PACIFIC REGIONAL SECTION (APRS)

President: Dr. Eizi Yano, National Agricultural Research Center for Western Region, Fukuyama, Hiroshima, 721-8514, Japan.
Email: yano@nara.kindai.ac.jp
Vice Presidents: Dr. Fang-Hao Wan, Biological Control Institutue,
Chinese Academy of Agricultural Sciences, Beijing, P.R. China. Email: wanfh@cjac.org.cn
Dr. Suasa-Ard, Director of the National Biological Control Research Center (NBCRC), Central Regional Center (CRC) at Kasetsart University, Nakhon Pathom, Thailand. Email:agrwis@ku.ac.th
Secretary/Treasurer: Dr. Takeshi Shimoda, Insect Biocontrol Lab., National Agricultural Research Center, 3-1-1, Kannondai, Tsukuba, Ibaraki, 305-8666 Japan. Tel:+81-29-838-8846, Fax:+81-29 838-8837. Email: oligota@affrc.go.jp
Past President: Dr. Rachel McFadyen, Australia. Email: Rachel.mcfadyen@dnr.qld.gov.au

APRS will soon organize the election of the next Executive Committee.

AFROTROPICAL REGIONAL SECTION (ATRS)

President: Dr. James A. Ogwang, Biological Control Unit, Namulonge Agricultural Research Institute, Kampala, Uganda. Email: jamesogwang@hotmail.com
Past President: Dr. H.G. Zimmermann, Agricultural Research Council, Plant Protection Research Centre, Weeds Research Division, Pretoria, South Africa. Email: riethgz@plant2.agric.za
Vice-President: Dr. Charles O. Omwega, International Centre of Insect Physiology and Ecology, Nairobi, Kenya. Email: comwega@icipe.org
General Secretary: Dr. M.P. Hill, ARC PPRI, Private Bag X 134, Pretoria 001, South Africa.
Email: riethgz@plant2.agric.za
Treasurer: Dr. J. Ambrose Agona, Post Harvest Program, Kawanda Agricultural Research Institute, Kampala, Uganda. Email: karihave@starcom.co.ug

IOBC Global is organizing a symposium at the next Congress of Entomology in Durban about biocontrol in Africa.

EAST PALEARCTIC REGIONAL SECTION (EPRS)

President: Dr. Istvan Eke. Budapest, Hungary. Email: Ekei@posta.fvm.hu; istvan.eke@freemail.hu
Vice Presidents: Dr. Danuta Sosnowska. Institute of Plant Protection, Department of Biocontrol and Quarantine, 60-138 Poznan, Miczurina Str. 20, Poland.
Email: D.Sosnowska@ior.poznan.pl
Dr. Vladimir Nadykta (Institute of Biocontrol, Krasnodar, Russia)
General Secretariat: Dr. Yury Gninenko and Dr. E. Sadomov, Russia

Report of the EPRS/IOBC meeting „Biological methods in Integrated Plant Protection and Production", 15-19 May 2006, 2006, Poznan, Poland

More then 80 researchers participated in this meeting. They represented the following countries: Belarus, Czech Republic, Germany, Hungary, Poland, Russia, Serbia and Montenegro and Ukraine. The purpose of conference was to show ways how to increase application of biological methods in Integrated Technology of Production and how to use better interactions, which appear in natural agricultural conditions. More then 50 oral reports and 31 posters, which covered many problems in biological control in Integrated Plant Protection (IPP) were presented. Prof. S. Pruszynski from the

Institute of Plant Protection (Poznan, Poland) reminded the meaning of the word integration in plant protection. This word was used for the first time in plant protection in 1959 and it was a solution proposed by science to eliminate adverse effects accompanying mass application of chemical plant protection products. Officially integration in agricultural production was introduced in 1993 when a Technical Guide prepared by experts from IOBC was published.

The greatest application of biological control was in former USSR. Prof. V. Nadycta (Biocontrol Institute, Krasnodar, Russia) said that in 1980 in USSR there were more then 600 biolaboratories which produced biopesticides and beneficial insects and they were used on more then 30 million ha. It was the highest application of biocontrol in the world. Political and economical changes in USSR reduced more then half of these laboratories, but today in Russia biological control is still applied on more than 10 million hectares and still it is the highest application in the world.

During the first day of oral presentations in general areas of IPP was discussed. Prof. Z. Dabrowski from Warsaw Agricultural University presented data about "Farmers' knowledge attitude and needs for biological control adoption in integrated production: the case studies in Poland", which show that it is important to understand farmers' perceptions of pest problems and the role played by natural enemies, as a prerequisite for implementing pro-ecological plant protection programmes. Successful integrated crop and pest management programmes need to take farmers' opinions into consideration. Kormany A. et al. from Hungary presented interesting information about the project "Channel" (Opening communication channels between Associated Candidate Countries and the EU about ecological farming) which completed in the EU 6 Framework Program, collected data from different fields of ecological farming, with the contribution of 25 partner organisations from 15 countries. One of the main goals of the project was to assess the status of ecological farming in the 15 participating countries and initiative communication between these countries and the EU, regarding the different fields of ecological farming. Scientists from Systematic Parasitoid Laboratory, Plant Protection and Soil Conservation Service from Hungary proposed to establish of a Parasitoid

Identification Centre within EPRS/IOBC, which can strongly improve the identification efforts and can serve for essential improvement of precise identification of parasitoides.

The participants paid attention to the many problems in using entomopathogenic fungi, bacteria, viruses and nematodes against several important pests in cereal crops, apple orchards, ornamental plants, oilseed rape, vegetable greenhouse crops, potato, cotton plants, tobacco and mushrooms. Several presentations concerned biological control in forests in Russia, Buryatya, Serbia and Montenegro and Ukraine.

All publications will be published in an EPRS Bulletin.

During conference an Council EPRS Council meeting was held on 17 May 2006. On this meeting a new member was admitted to the EPRS: the Institute of Microbiology from Minsk, Belarus and its director Kalamiyets Emiliya will be a new member of EPRS Council. All issues concerning the activities of the EPRS for the next year were discussed, of which we mention two issuesç

- The 30th Anniversary of EPRS will be organised by the All-Russian Institute of Plant Protection in St. Petersburg (Russia) from 21-25 May 2007.
- Payment of annual membership contributions will be increased to 200 Euro/year.

Besides the scientific work, the participants had opportunity to see the sights of the first capital of Poland, the city of Gniezno, and to visit the museum of Polish agriculture history.

Dr Danuta Sosnowska, Vice President IOBC EPRS
Institute of Plant Protection, Department of Biocontrol and Quarantine, Poznan, Poland

NEARCTIC REGIONAL SECTION (NRS)

President: Robert N. Wiedenmann, Center for Economic Entomology, Illinois Natural History Survey, 607 East Peabody, Champaign IL 61820, USA. Email: rwieden@uark.edu
Vice-President: Nick Mills, University of California, Berkeley, CA 94720, USA. Email: nmills@nature.berkeley.edu
Secretary-treasurer : Stefan T. Jaronski, USDA ARS NPARL, 1500 N. Central Ave., Sidney, MT 59270 USA. Email: sjaronski@sidney.ars.usda.gov
Corresponding Secretary: Susan Mahr, Dept. of Entomology, University of Wisconsin, Madison WI 53706, USA. Email: smahr@entomology.wisc.edu
Past-President: Molly S. Hunter, Department of Entomology, University of Arizona, Tucson AZ, USA. Email: mhunter@ag.arizona.edu
Members-At-Large: Jacques Brodeur, Dept de Phytologie, Universite Laval, Sainte-Foy, Quebec, Canada. Email: jacques.brodeur@plg.ulaval.ca; George Heimpel, Department of Entomology, St. Paul, MN 55108, USA. Email: heimp001@tc.umn.edu; Sujaya Rao Department of Entomology, Oregon State University, Corvallis, USA. Email: sujaya@science.oregonstate.edu

Next meeting of NRS will be held during the ESA meeting

NEOTROPICAL REGIONAL SECTION (NTRS)

President: Prof.dr. Vanda .H.P. Bueno, Department of Entomology/UFLA, P.O.Box 3037, 37200-000 Lavras, MG, Brazil. Email: vhpbueno@ufla.br
Secretary General: Dr. William Cabrera, South American Biological Control Laboratory, Agricultural Counselor American Research Service Laboratory, USDA--ARS, U.S. Embassy–Buenos Aires. Unit 4325, APO AA 34034–0001. Email: gcabrera@speedy.com.ar
Treasurer: Dr. Luis Devotto, Avda. Vicente Méndez 515, and Instituto de Investigaciones Agropecuarias (INIA), Chillán, Chile. Email: ldevotto@inia.cl
Vice President 1: Dr. Maria Manzano, Universidad Nacional de Colombia, sede Palmira, Colombia. Email: mrmanzano@palmira.unal.edu.co

Vice President 2: Dr. Mary M. Whu Paredes, Enrique León García N° 527. Urb. Chama-Surco. Unidad de Producción de Insectos Benéficos del Programa Nacional de Control Biológico del Servicio Nacional de Sanidad Agraria -SENASA Lima-Perú. E-mail: mwhu@senasa.gob.pe
Vice President 3: Dr. Leopoldo Hidalgo, Centro Nacional de Sanidad Agropecuaria (CENSA), Carretera a Tapaste y 8 vías, Apartado 10, CP 32700, San José de las Lajas, La Habana, Cuba. Email: lhidalgo@censa.edu.cu
President Elect: Prof.dr. F. Consoli, Department of Entomology, Fitopatologia e Zoologia Agrícola, ESALQ. Universidade de São Paulo, Av. Pádua Dias 11, Piracicaba, SP 13418-900, Brazil. Email: fconsoli@esalq.usp.br
Past President: Dr. Raquel Alatorre, Mexico. Email: alatoros@colpos.mx

Dear Biological Control workers in Central and South America

I am happy to be able to announce you that IOBC NTRS is active again. There have been some difficulties in the previous period, but several of our members have always continued with NTRS activities. This made it possible to organize a meeting earlier this year in Argentina, where we discussed the problems and proposed a number of ideas to improve the situation. I will not repeat the details of the meeting, because a full report of this meeting can be found in NTRS newsletter 14 (summer 2006; available in English and Spanish at www.IOBC-Global.org). We hope that you will send us your reactions to the content of this report and to other topics that are written in this newsletter. Be so kind to send your reactions to our Secretary General, Willy Cabrera at: gcabrera@speedy.com.ar
As the new president of IOBC NTRS, I hope to meet many of you during the coming years.

Vanda H. P. Bueno,
President IOBC/NTRS

Participants NTRS revival meeting in Buenos Airos, Argenina. Left to right: Prof. dr. M. Zapater (Argentina), Dr. E. Botto (Argentina), Prof.dr. V.H.P. Bueno (Brazil), Dr. M. Gerding (Chile) & J.C.van Lenteren (IOBC Global)

During the Argentina meeting a programme to reactivate IOBC NTRS was discussed, resulting in a new Governing Board, a newsletter, many new members (75 to date), a programme for meetings in the coming years and ideas for working groups.

First Uruguayan workshop on the production of microbial biocontrol agents – March 2006

The First Uruguayan Workshop on the Production of Microbial Bio-Control Agents (MBCA) was held on March 21 and 22, 2006, at INIA La Estanzuela Experimental Station, Colonia, Uruguay. Over 60 participants of private and public Institutions interested in the biocontrol of insect pests and diseases gathered to discuss the current status of the MBCA in the country, its limitations and perspectives and to coordinate actions to improve the application of BC in different production systems. The participants represented all areas of interest; research, teaching, private companies, agricultural production, public health, local and national government agents. International experts in the application of MBCA were invited as speakers and also to shared their knowledge and experience with the national participants in order to widen the analysis of the situation. Dr. Joop van Lenteren, IOBC President, joined the meeting on March 22 and addressed the participants about *"How does IOBC promote the implementation of Biological Control?"*. Drs. Flavio Moscardi, Daniel Sosa Gomez y Rose Monnerat from Brazil (EMBRAPA), Drs. Roberto Lecuona (IMYZA - INTA) and Juan Claus (Universidad Nacional del Litoral) from Argentina, Drs. Trevor Jackson and Gabriel Visnovsky (AgResearch) from New Zealand and Dr. Colin Berry (Cardiff University) from UK presented the "state of the art" and the current

development of different microorganisms as bio control agents in their countries. Uruguayan researchers and local private companies exposed and discussed their current situation; their advances, achievements, as well as their limitations and agreed to the following conclusions: 1) to acknowledge the scientific development of different research teams with an important background on microbial processes, 2) to request a stronger legal and institutional support to encourage the use of BCA, 3) to emphasize the need of education in BC at different levels; civil society, farmers, consumers, scientific community and government agents. The organizing committee thanks all participants and takes upon the responsibility to keep on calling for this type of activities.
Rosario Alzugaray, Colonia, Uruguay (April 2006)

Participants first Uruguayan workshop on the production of microbial biocontrol agents, March 2006, Colonia, Uruguay

IV International Congress of Biological Control IOBC NTRS – May-June 2006
The IV th Internacional Congress of Biological Control IOBC NTRS organized by Fulvia Garcia Roa and Francia Varón was held in Palmira, Colombia at CIAT from May 31-Junio 2. 150 participants coming from 14 countries of the area Neotropical like Cuba, United States, Brazil, Venezuela, Bolivia, Peru, Argentina, Mexico, Costa Rica, Nicaragua, Honduras, Ecuador, Chile, Colombia and Israel took part in the meeting. In total 39 papers were presented and 20 posters displayed. The subject matter was diverse covering topics as *Trichoderma* spp, *Bacillus thuringiensis*, *Trichogramma* sp, predatory Acari, Biological Control of Weeds, Non-conventional Methods to Control Pests and Diseases, Regulation for Mass Production and Commercialization of Biological Control Agents, Situation of Biological Control on certain Neotropical Countries and Cooperative Research Between Different Countries. Abstracts of conferences, papers and posters were recorded and distributed on CD. Main social activity was a city tour by “chiva” (typical bus used by Colombians to move through the Andes range) that was well

IV International Congress of Biological Control IOBC NTRS – May-June 2006, Palmira, Colombia

appreciated by participants. Latin-American participants were enthusiastic about being part of the OIBC-NTRS and as a result 20 new members were registered!
Maria Manzano, IOBC NTRS, Universidad Nacional de Colombia, Palmira (June 2006)

Workshop Biocontrol of Phytopathogens with *Trichoderma* and Other Antagonists – April 2006

Drs. Marusia Stefanova and Orietta Fernández-Larrea, scientific secretaries of the Workshop

Participants of the Workshop

A workshop on biocontrol with phytopathogens was held in the City of the Havana, Cuba from 28 -31 April 2006. During the the meeting , 85 specialists participated, 40 from Cuba and the remaining 45 representatives were of other Latin American countries (Argentina, Brazil, Costa Rica, Chile, Ecuador, Guatemala, Mexico and Venezuela), but also specialists from Germany, Slovakia, Italy and Turkey took part.

Three keynote lectures were offered by the Drs. Mateo Lorito, Wagner Bettiol, and Wolfang Zeller. In addition, oral reports by other specialists were presented. Round tables were organized on the use of *Trichoderma* as a good alternative to methylbromide, and on alternative biological for control of nematodes. Sessions were organized where topics on the production and use of microorganisms for control of phytopathogens were discussed. Centers of Biopesticide Production and agricultural areas where the biological control agents are applied were visited during the field day.

The most important conclusions and recommendations of the Workshop were:

1. To organize a network for those working on the Control of Phytopathogens and Nematodes by using Biological Control Agents.
2. To publish the Summaries of the Workshop in the Journal Fitosanidad that is edited by the Institute of Investigations of Vegetable Health of Cuba
3. To organize a second Workshop in 2007 in Costa Rica.

After to the Workshop two training courses were held, one on the production and one on the taxonomy of antagonists of the genus *Trichoderma* by Drs. Orietta Fernández-Larrea and Ma Ofelia López in which 18 specialists of different countries participated.

Orietta Fernández-Larrea, Cuba (April 2006)

Report of First Meeting of the Governing Board (GB), Advisory Board (AB) and IOBC Global, Recife, Brazil, August 7, 2006

Participants: Vanda Bueno, FernandoConsoli, Miguel Zapater, José Parra, Hugo Arredondo and Joop van Lenteren. Observer: Manuel Amaya

The launch of the NTRS web site and the newsletter publication on scheduled dates were considered high priority. The NTRS web site design and maintenance will be coordinated by Fernando. It will be

edited in Spanish and English (the original version in English will be translated into Spanish by Miguel Zapater. Vanda Bueno will assist Fernando Consoli, who in turn will keep the GB informed about this ongoing task. In addition, he will set to elaborate a budget for the current year and another one for 2007.

NTRS newsletters will come up on biannual basis with editions on June 15 and December 15. Willie Cabrera will be in charge. To achieve this goal he will prepare a draft to gather input from the members of the GB and AB. In case of extra expenses, he will soon prepare an estimated budget. Fernando will also be responsible for the newsletter translation into English to be included in the Web site.

A growing need for an active participation of the members of the GB, the AB and representatives in national congresses and meetings of all regional countries, in the form of communications, explanatory panels, descriptive triptychs, mini-courses and small symposia was perceived.

The formation of regional working groups will be strongly endeavored. Though all GB members would strive to this mission, Miguel proposed that María Manzano be responsible for some sort of coordination..

The importance of identifying members' needs to make the NTRS helpful was highlighted. Individuals with certain level of responsibility in the NTRS will be encouraged to become members.

Any scheme or task that members of the GB or the AB , or other category members are willing to perform on their own and in favor of the RS will be fostered, as long as it does not impinge on the organization's finance and that has the GB's approval. For instance, Hugo proposed to coordinate a board of NTRS biofactories. Another interesting suggestion was that of developing a complete database.

The designation of representatives for each country of the NTRS was also pointed out as a relevant issue. Accordingly, Miguel will continue to prepare the pertaining documentation and submit it to the GB. Some concrete proposals are underway, such as the ones presented to Brazil.

Application form: Having seen the old formats and analyzed Vanda and María's suggestions, it was agreed that María, Luis Devotto and Miguel would be in charge of developing new templates/forms as well as defining an appropriate management of membership fees, conditions, forms of payment and funds movements within the NTRS.

The AB will prepare a report to be submitted to the GB concerning membership fees and requirements for next year.

Luis' role in the NTRS treasury was highlighted as it is crucial for an effective management of balance sheets, budgets and bank accounts among others.

A fair workload distribution among all GB members was agreed. Likewise, participants committed themselves to an active involvement and participation to fulfill their responsibilities at both individual and organizational levels.

Vanda informed about the first steps taken in relation to networking with the Nearctic Regional Section and suggested some ideas to thrive this link. She will coordinate cooperation activities and organize together with the NRS a joint congress with Mexico; she will also be in contact with the Global Organization and perform the protocol tasks inherent to the position.

The GB highly encourages the AB to collaborate and participate as proactively as possible

Financial sources will be sought after identifying the tasks and activities to be developed.

The next GB meeting was agreed to be held in Brasilia during the upcoming SICONBIOL that will take place in June, 2007 to facilitate members' attendance.

This report is open to those members of the GB and AB that were unable to attend this meeting so that they can contribute with initiatives and new projects.

During the Brazilian Entomological Congress, several IOBC NTRS supported activities took place in the form of Symposia, Round Tables or lectures. There was also an active lobby for members which resulted in the registration of a good amount of new NTRS members.

Migual Zapater, Buenos Aires, Argentina, 18 October 2006

WEST PALEARCTIC REGIONAL SECTION (WPRS)

NEW Executive Committee was elected in September 2006:
President: Dr. F. Bigler, Switzerland, email: franz.bigler@fal.admin.ch
Vice Presidents: Prof.dr. Sylvia Blümel (Austria), Dr. Heidrun Vogt (Germany), Prof. Dr. L Tirry, University of Gent, Laboratory of Agrozoology, Department of Crop Protection, Gent, Belgium. Email: luc.tirry@ugent.be
Secretary General: Dr. Philippe Nicot(INRA, Avignon)
Treasurer: Prof. Dr. R. Albajes, Universita de Lleida, Centre Udl-IRTA, Lleida, Spain. Email: ramon.albajes@irta.es

This Section of IOBC has always been one of the most active and has an excellent website with all information on working groups, meetings and bulletins: www.iobc-wprs.org. This website also has PDF files of the WPRS newsletter **PROFILE**, providing all recent information about IOBC WPRS.

20. WORKING GROUPS OF IOBC GLOBAL

Information provided below about working groups is limited, most information is regularly updated on our website and the websites of the working groups.

WG ARTHROPOD MASS-REARING AND QUALITY CONTROL

Convenors: Dr. S. Grenier, UMR INRA/INSA de Lyon, Biologie Fonctionnelle, Insectes et Interactions (BF2I), INSA, Bâtiment Louis Pasteur, 20 av. A. Einstein, 69621 Villeurbanne Cedex, France. Tel: +33 (0)4 72 43 79 88. Fax: +33 (0)4 72 43 85 34. Email: sgrenier@jouy.inra.fr. **Dr. N.C. Leppla**, University of Florida, Institute of Food and Agricultural Sciences, Department of Entomology and Nematology, Gainesville, Florida, USA. Email: ncl@gnv.ifas.ufl.edu. **Dr. P. De Clercq**, Laboratory of Agrozoology, Department of Crop Protection, Faculty of Bioscience Engeneering, Gent University, Belgium. Email: Patrick.DeClercq@ugent.be

See website for future activities: http://users.ugent.be/~padclerc/AMRQC/contacts.htm.
Next meeting of the WG is planned for the autumn of 2007 in Canada

WG BIOLOGICAL CONTROL OF APHIDS AND COCCIDS

Convenors: Dr. N. G. Kavallieratos (Greece), **Eric Lucas** (Canada), **J.P. Michaud** (USA

Next meeting will be in Athens, Greece in 2007

WG BIOLOGICAL CONTROL OF CHROMOLAENA ODORATA (SIAM WEED)

Chairman: **Dr. R. Muniappan**, Agricultural Experimental Station, University of Guam, Mangilao, Guam 96923 USA. Fax: +1-671-734-6842. Email: rmuni@uog9.uog.edu

See website for future activities/newsletter: http://www.ehs.cdu.edu.au/chromolaena/siamhome.html

WG BIOLOGICAL CONTROL OF PLUTELLA

Convenors: **Dr. A.M. Shelton**, Department of Entomology, Cornell University, New York State Agricultural Experimenta Station, 416 Barton Lab Geneva, NY 14456, USA. Tel: +1-315-787-2352. Fax: +1-315-787-2326. Email: ams5@cornell.edu. **Dr. A. Sivapragasam**, Strategic, Environment and Natural Resources Centre, MARDI, Kuala Lumpur, Malaysia. Email: sivasam@mardi.my. **Dr. D.J.**

Wright, Department of Biology, Imperial College at Silwood Park, Ascot, Berkshire, UK. Email: d.wright@ic.ac.uk

See website for future activities: http://www.nysaes.cornell.edu/ent/dbm/

WG Biological Control of Water Hyacinth

Chairman: **Dr Martin Hill**, Department of Zoology and Entomology, Rhodes University, P.O. Box 94, Grahamstown, 6140, South Africa. m.p.hill@ru.ac.za

WG Egg Parasitoids

Convenors: **Prof.dr. F. Bin**, Department of Arboriculture and Plant Protection, University of Perugia, Borgo XX Giugno, 06121 Perugia, Italy. Tel: +39-075-585-6030. Fax: +39-075-585-6039. Email: fbin@unipg.it. **Dr. E. Wajnberg**, Ecologie Comportementale, I.N.R.A., Sophia Antipolis, France. Email : wajnberg@antibes.inra.fr. **Dr Guy Boivin**, Research Station, Agriculture Canada, St-Jean-sur-Richelieu, Québec, Canada. Email: boiving@agr.gc.ca

The next meeting of this working group is planned in Brazil, August 2007, and will be organized by Prof.dr. J.R.P. Para (jrpparra@esalq.usp.br).

WG Fruit Flies of Economic Importance

Chairman: Dr. B.A. McPheron, Dept. Entomology, 501 ASI Bldg., Pennsylvania State University, Univ. Park, PA 16802, USA. Tel: +1-814-865-3088. Fax: +1-814-856-3048.Email: bam10@psu.edu

WG IWGO – *Ostrinia* and Other Maize Pests (by H. Berger)

Convenors: Ulrich Kuhlmann; CABI-BioScience; Head Agricultural Pest Research CABI Bioscience Switzerland Centre, Delémont; Switzerland, Email: u.kuhlmann@cabi.org. **C. Richard Edwards**; Purdue University; Dep. of Entomology; Indiana; USA; Email: richedwards@entm.purdue.edu. **Harald K. Berger**; AGES, Spargelfeldstraße 191; 1226 Wien; Austria; Tel.: # 43 /664/56-42-885. Fax: # 43/1/732-16-2106. Email: harald.berger@ages.at.

All relevant data, reports and future meetings are published on the IWGO website: http://www. iwgo.org

Global WG on Transgenic Organisms in IPM and Biocontrol

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The WG organised the Workshop "Environmental Risk Assessment of GM plants: discussion for consensus" in Rotondella, Italy, from 6-9 June 2006, in cooperation with ENEA (Italian National Agency for New Technologies, Energy and Environment). There were 54 registered participants at the workshop coming from 21 different countries from Asia, Africa, Europe, North and South America were; thirty-eight scientific contributions were presented. The scope of the meeting was to arrange a multi-stakeholder forum to discuss options, with associated advantages and disadvantages, for pre-release risk assessment and post-release monitoring of genetically modified (GM) crops. The discussion was focussed on the scientific bases of environmental risk assessment (ERA) with the aim of producing a 'Status Report' about the ERA of GM crops. As long as the knowledge in this specific field is increasing, it is appropriate that scientists discuss with the aim of finding, at least at some degree, a consensus on the type and quality of the information that regulators need for improving their monitoring systems. Governments will take their final decision considering scientific results, but not

Participants Workshop "Environmental Risk Assessment of GM plants: discussion for consensus", Rotondella, Italy, June 2006

only those. What is important though, is that the decision making processes are transparent, rational and understandable.

Three scientific sessions were held: pre-release environmental risk assessment, post-release monitoring and risk-benefit issues. It is particularly important for the working group that colleagues from developing countries were present, as in those areas there is an increasing interest in understanding the real extent of benefits that agriculture can obtain from gene technology, used in a safe way. A delegate from FAO attended all the scientific sessions. The presence at the workshop of members from regulatory bodies also led to a fruitful exchange of views between regulators and scientists that need to strengthen their cooperation in order to "understand each other" better. As a result of the breakout groups organised during the last days of the workshop, a Status Report about the current knowledge on the biosafety of Genetically Modified Plants is being produced. Among the main points brought up to the plenary discussion, there was a lively debate on several points, which will be further developed in the 'Status Report'. The knowledge about the potential environmental impact of GMOs is increasing, but information on other non target organisms and different receiving environments still needs to be collected. Post-release monitoring is an important goal that regulatory bodies should pursue to detect possible long term effects. Testing methods should be very sensitive and scientifically sound; current methodologies can be improved using knowledge in different areas of applied ecology.

In developing countries, it might be particularly difficult to achieve such high levels of accuracy due to the incomplete bio-ecological information available and the limited funds accessible for such studies. Several developing countries are in megadiverse regions and/or there are important centres of origin for several crop species; therefore a proper environmental impact assessment of growing GM plants is extremely important. These topics will appear in the planned Status Report and will focus the future WG activity.

21. MEETINGS ON BIOLOGICAL CONTROL AND IPM

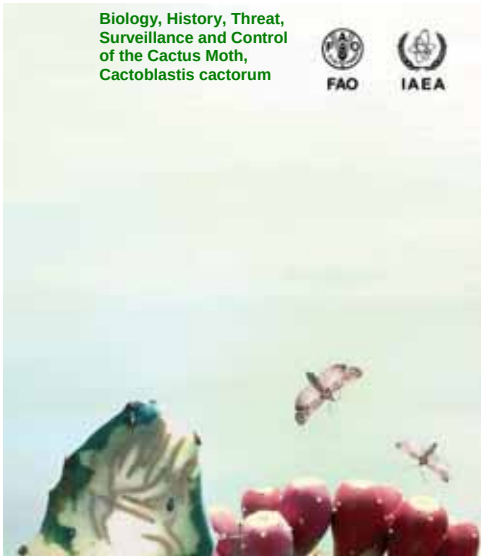
Please consult www.IOBC-Global under "meetings" for future meetings on biological control and you will be linked to the IOBC-WPRS website (www.iobc-wprs.org) where a list with meetings is kept up to date. The IOBC-WPRS newsletter PROFILE can also be found at this website and contains a lot of information about working group activities and meetings. If you would like to see your biological control or IPM meeting listed on this site, please send us an email with relevant information

Newsletter contributions: We would like to thank all members who provided items for this edition of the IOBC Newsletter. If you have not previously sent anything, please consider doing so. Remember that this is your opportunity to let others know what is going on in biological control. Take a few minutes and email items concerning biological control to Stefano Colazza (colazza@unipa.it), so they can be included in the next issue.

Any comments on this newsletter are welcome. Do not hesitate to contact us if there is any further information on biological control that you would like to see here.

Editors: Joop C. van Lenteren and Stefano Colazza, IOBC Global, 31 October 2006

Very interesting report about the good and the bad sides of a herbivorous insect:



Biology, History, Threat, Surveillance and Control of the Cactus Moth, *Cactoblastis cactorum.* H. Zimmermann, S. Bloem, H. Klein. IAEA/FAO-BSC/CM, Printed by the IAEA, Vienna, Austria. ISBN 92-0-108304-1