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1. EDITORIAL: WHAT IS THE IOBC-NTRS, AND WHAT CAN WE DO FOR IT?

The NTRS, as a part of IOBC Global, shares the same objective of promoting Biocontrol in the region in a wide sense. We, its members, are the NTRS, so its actions will depend on our participation and initiative, and not only on the Governing Board (GB). The success of the organization will depend directly on the level of commitment of each of us. The availability of the e-mail, which has revolutionized communications, allows us to participate easily compared to the early days of the NTRS. In contrast with the FAO, the UN, and national and international agencies, our organization is not a source of project funding. The structure of the West Palearctic Regional Section (WPRS, see section 14 of this newsletter), should be an example for us as regards the level of development of their Work Groups, meetings, and analyses of specific subjects. IOBC is also a philosophy that implies a high wish to cooperate with our colleagues at a regional and international level.

The Work Groups (WG) are the heart of the NTRS; some may count with five people, while others with 50; some will be very active, others not so much. Some will generate bulletins of newsletters with their member’s achievements, others may produce simultaneous research of common interest; e.g., the number of beneficials to use in a given system, ways of quantifying their efficiency, mass rearing techniques, and hundreds of other aspects. Some could have one coordinator, others more. Each WG will have its own traits in accord with its needs, as is the situation in the WPRS WGs. Taking part of a WG stimulates us, allows us to work harder, share discussions under the keeping of a prestigious institution. That is why we invite those with experience and good ideas on a pertinent subject, who would like to give start and coordinate a WG to contact Maria Manzano (see front page and section 5 of this bulletin).

In order to keep a fluent communication between the GB and the different countries, it is important to designate as soon as possible the representatives of each country or region. These will be people that will help the GB to keep abreast of the news of their countries in order to include them in the biannual bulletin, as well as promoting the organization in their country. We have no volunteering representatives yet, so we invite everyone interested in becoming one to contact Willie Cabrera, who will coordinate this activity.

The bulletin is another vital element of our organization, because it is our official communications and dissemination medium. Thus, the contributions of each member, in accordance with its format, are most welcome.

The promotion of meetings for discussing regional problems within national congresses is another aspect that should attract the concern of the NTRS members. Organizing meetings concurrently with these congresses will stimulate a higher participation.

The organization also encourages us to participate in the Global WGs, and publish in its prestigious journal (http://www.springerlink.com/content/102853). We are currently also organizing the compilation of an biocontrol book dealing with Latin-American examples. Your contribution is highly appreciated!

Given that the funds of the NTRS come from its members, it can do very little money wise. However, several specific NTRS research projects have been funded by IOBC Global, FAO, NBCI-USDA, and private investments obtained ad hoc. The reputation of the organization greatly motivates the appearance of third parties willing to support good ideas. Keeping up to date with the NTRS fee should make us feel that
we are helping and supporting an organization that represents us, promotes our objectives, and can help us demonstrate to whom surround and finance us how important biocontrol is for the region.

The members of the GB, representatives, and anybody who assumes a responsibility in the organization must give an example of dedication and commitment to all the members, and come through with his responsibilities.

This is a crucial stage for the NTRS. WE NEED YOU! Get Involved!. We encourage you again to send your miniCV to Willie Cabrera.

Miguel Zapater, Maria Manzano y Willie Cabrera

2. **LETTER FROM THE PRESIDENT OF IOBC-GLOBAL FOR THE IOBC/NTRS**

Dear members of IOBC NTRS

IOBC Global is very happy that IOBC NTRS has been so active during the past year. In the reports of meetings held by NTRS there were a number of activities planned that really could have an important impact on developments in biological control in Latin America. We sincerely hope that the new governing board will be able to realize several of these activities.

IOBC Global would like to compliment NTRS for the Newsletters they have produced, and we were impressed by all the information they contained! A special point of interest is the Editorial that Willy Cabrera Walsh wrote in NTRS Newsletter 15 about collection, export and release of natural enemies. There is worldwide interest in this topic, and IOBC Global could play a role in trying to develop harmonized guidelines related to the collection and export of natural enemies. Maybe this could be a future item for collaboration in NTRS and within IOBC Global. Many biocontrol workers are ignorant about rules for collection and this situation should be improved.

IOBC Global was also happy to see that Profs Bueno and Consoli have organized several symposia at the Siconbiol meeting in Brasilia this year.

IOBC Global is collaborating with Profs Parra, Zucchi and Consoli (Piracicaba) in the organization of a course on Egg Parasitoids (contact fconsoli@esalq.usp.br for more information).

IOBC Global is working together with Dr. Maria Manzano (vice-president NTRS, mrmanzano@palmira.unal.edu.co) on a book about biological control in Latin America.

Finally, during several NTRS meetings, the idea has been discussed to develop an MSc course in biological control, fine-tuned for Latin American countries. IOBC Global has course material available, but the course should be adapted to the Latin American situation. We would appreciate a Latin American coordinator to do this work. WHO IS INTERESTED in this job. Activities such as the course on Egg Parasitoids and the book to be compiled by Maria Manzano could form part of such an MSc course.

IOBC Global hopes that our collaboration will continue and even become more intense.
Regards,

Joop C. van Lenteren  
President IOBC Global  
Joop.vanLenteren@wur.nl

3. MEMBERSHIP FEES

The IOBC fees for the NTRS for the 2007-2008 period remain as last year at 20 US$ (roughly 60 $ Argentinos; 50 Reais; 10500 $ Chilenos, 46000 $ Colombianos; 470 $ Uruguayos, etc.)

We remind you that becoming a member would give you among other benefits:

- Free access to specific information at the IOBC internet site
- Free access to online IOBC publications
- Free participation in the Global Writing Partnership
- Important discounts for proceedings, workshops and meetings
- 75% discount in publication fees for the journal biocontrol (the successor of the prestigious ENTOMOPHAGA)
- Discounts on the journal Biocontrol, and Science and Technology

For more information please visit our website: [http://www.unipa.it/iobc/](http://www.unipa.it/iobc/)

As for Institutional memberships, IOBC Global is currently re-evaluating membership fees, however, in the mean time, it is Euros 200, and it includes a BioControl subscription.

4 IOBC-GLOBAL WRITING PARTNERSHIP

Among the benefits of your IOBC membership, we mentioned the “Global Writing Partnership”. This unique service was designed to help non-English speakers to get their work published in widespread journals, all of which, whether we like or not, currently publish in English. I presume it is unnecessary to mention the benefits of publishing in English, and in international journals, but apart from the obvious personal benefits there are countless institutional and regional benefits, because the scientific production of Latin American scientists is often ignored, not because of its quality, but simply because it fails to be broadcasted properly.

Since the start of the IOBC writing partnership programme, IOBC assisted in preparing more than 50 manuscripts from members in Latin America, Central Europe and Asia for several refereed biological control and entomological journals.

You can apply for a writing partnership if you are from a non-English speaking developing country and member of IOBC. Contact Dr. Stefano Colazza at [colazza@unipa.it](mailto:colazza@unipa.it).

5. WORKING GROUPS OF IOBC GLOBAL

WORK GROUP ORGANIZATION
As we expressed in the editorial, Work Groups are the heart of the NTRS. The WGs have the objective of bringing together three or more NTRS members who share a common interest in a field of biocontrol to exchange ideas, experience, literature and research projects. Once we organize a group we will propose a monthly appointment to chat and interact more directly. To begin with I propose the creation of the following WG: Biocontrol of white flies, Egg parasitoids, Entomopathogens, Mass rearing and quality control, Biocontrol agents trade, Biocontrol and conservation, Biocontrol of Crambidae. However, feel free to suggest different WG, according to your experience or field of interest.

I invite you to send me an e-mail specifying your WG of choice and willingness to coordinate it.

You are all welcome to take part in the NTRS’s WGs.!!!

Maria Manzano
mrmanzanom@palmira.unal.edu.co

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 (BF21), 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. Leppa, 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 Engineering, 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 OCTOBER 2007 in Canada

WG BIOLOGICAL CONTROL OF APHIDS / APHIDOPHAGA

Convenors: Dr. N. G. Kavallieratos (Greece) G. Laboratory of Agricultural Entomology, Department of Entomology and Agricultural Zoology, Benaki Phytopathological Institute, 8 Stefanou Delta, 14561, Kifissia, Attica, Greece; Email: nick_kaval@hotmail.com, Eric Lucas (Canada), J.P. Michaud (USA)

Next meeting will be in Athens, Greece from 5-10 September 2007: see http://www.aphidophaga10.gr/

WG BIOLOGICAL CONTROL OF CHROMOLAENA ODORATA (SIAM WEED)

New Converor: Dr. Costas Zachariades, ARC-PPRI, Private Bag X6006, Hilton, 3245 South Africa; Tel 033-3559418, cell 0833152100, fax 033-3559423; ZachariadesC@arc.agric.za. The previous convenor, Dr. R. Muniappan, receives IOBC’s great respect and compliments for all his activities in IOBC, both in the APRS
Regional Section and for this Working Group! Without persons like him, IOBC would not be able to function.

The Seventh International Workshop on Biological Control and Management of Chromolaena and Mikania was held in Taiwan last September 2006 and proceeded very well as expected. Dr. Po-Yung Lai of National Pingtung University of Science and Technology hosted the workshop.

See website for future activities/newsletter:

**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 during the International Congress of Entomology in Durban, South Africa (2008)

**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,
GLOBAL WG ON TRANSGENIC ORGANISMS IN IPM AND BIOCONTROL

Convenors: Dr. Angelika Hilbeck, Swiss Fed. Inst. of Technology, Geobotanical Institute, Zurichbergstr. 38, CH-8044, Zurich. Tel: +41 (0) 1 632 4322. Fax: +41 (0) 1 632 1215. Email: angelika.hilbeck@env.ethz.ch. Dr. Salvatore Arpaia, Italy. Email: arpaia@trisaia.enea.it. Dr. Nick Birch, UK. Email: n.birch@scri.sari.ac.uk. Dr Gabor Lovei, Denmark. Email: gabor.lovei@agrsci.dk;

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). A short report of this meeting, including a picture of the participants can be found in newsletter 80.

6. REGIONAL REPRESENTATIVES OF THE NTRS

WE ARE LOOKING FOR VOLUNTEERS TO COVER THE POST OF REPRESENTATIVES FOR THE NTRS.

The Regional Representatives of the NTRS represent the Directive Board (DB) of the IOBC-NTRS in her/his country, and has the following duties:

- Send information for the biannual Newsletter (see annex below)
- Promote the goals of the organization through an active presence in scientific séances by means of communications, posters, brochures, etc.
- Promote memberships and charge the societal fees in the name of the NTRS.
- Inform the DB in December about the annual activities.

Information required from a Representative of the NTRS

- News on meetings, congresses, courses and symposia related to BC (name of the event, date and location, contact information)
- Brief summaries (ca. 60 words) on such meetings, and information on how to get proceedings or abstract books.
- Prizes and honours awarded to our members.
- New books, and book reviews.
- Ads on biological material wanted and offered.
- Brief (30 words) summaries of new biocontrol projects and other pertaining information.

This designation will be renewed every 1st of January, if you are willing.
7. COURSES, WORKSHOPS AND MEETINGS

INSTITUTO NACIONAL DE INVESTIGACIONES DE LA
CAÑA DE AZÚCAR

Estación Provincial de Investigaciones de la Caña de Azúcar
EPICA “Antonio Mesa Hernández”

JORNADA CIENTÍFICO-PRODUCTIVA
POR EL 60 ANIVERSARIO DE SU
FUNDACIÓN

JOVELLANOS,
5 AL 9 DE JUNIO DE 2007

COMITÉ ORGANIZADOR

Estación Provincial de Investigaciones de la
Caña de Azúcar. EPICA “Antonio Mesa Hernández.”
Carretera Central. Km 156, Jovellanos,
Matanzas, Cuba.
Teléfonos: (53) (45) 82593- 83147
e-mail: epica@atenas.inf.cu
Para más información consultar la página: www.inica.edu.cu

MANAGEMENT OF DISEASES AND NEMATODES OF VEGETABLE AND ORNAMENTAL CROPS
OF ECONOMIC IMPORTANCE IN CHILE

Universidad de Chile
Facultad de Ciencias Agronómicas
Departamento de Sanidad Vegetal

4 y 5 de Julio 2007, Santiago de Chile, Chile
Consultas e inscripciones
Marta Sepúlveda - martsepu@uchile.cl
Departamento de Sanidad Vegetal.
Facultad de Ciencias Agronómicas, Universidad de Chile
Santa Rosa 11315 – Casilla 1004, Santiago
Fonos: 9785714 - 9785815 - 9785817
Fax: 9785812.
Valor del curso: $ 100.000.- por participante.
Incluye: Certificado de asistencia y apuntes.

PRODUCTION OF ENTOMOPATHOGENIC ORGANISMS FOR BIOCONTROL OF AGRICULTURAL PESTS
INISAV, Ciudad de La Habana, Cuba, 6 - 10 November 2007
Professor: Dr. Orietta Fernández-Larrea Vega
40 hours (5 days)

Programme:
- Principal microorganisms entomopathogens and antagonists in biocontrol.
  Basis for mass production.
- Isolation, identification and characterization of Bacillus thuringiensis.
  Preservation methods.
- Media preparation and production processes.
- Isolation, identification and characterization of entomophagenic fungi. Preservation
  methods.
- Media preparation and production processes for fungi.
- Visits to biopesticide production centres.
- Quality control of processes and products.
- Formulation of biopesticides.

Information: MSc Bertha Carreras Solís
bcarreras@inisav.cu or FAX 53 (7) 209-1111; Phone: 53(7) 203-5011

XIIth INTERNATIONAL SYMPOSIUM ON BIOLOGICAL CONTROL OF WEEDS
La Grande Motte, Montpellier, France, 22 – 27 April 2007
The International Symposium on Biological Control of Weeds traditionally focuses on classical biological control: the use of exotic biological control agents to manage alien invasive plants. However, while the current conference can not embrace biological control or biocontrol of weeds in the broadest sense, in the interests of encouraging original and novel presentations, we have broadened the scope to include all types of biological control of all weeds through the use of living organisms as biological control agents, including augmentative biocontrol (arthropods, mycoherbicides) and conservation of natural enemies. The main topics will be:
- Regulations & public awareness
- Target and agent selection
- Pre-release specificity & efficacy testing
- Release activities
- Management specifics
- Novel Approaches
- Opportunities and Constraints for BC in Europe
Information: weeds2007@ars-ebcl.org, rsforza@ars-ebcl.org

PRODUCTION AND MANAGEMENT OF BENEFICIAL ARTHROPODS
Hotel Panorama, Miramar, Ciudad Habana, 15 - 18 May, 2007
This workshop had the assistance of specialists from Cuba, México, Perú, Venezuela, Uruguay and Guatemala.
It counted with three conferences and 57 talks, all related to insect rearing and production, conservation and management of natural enemies.
Part of the workshop was devoted to a field visit to a production unit where these techniques are applied.
The next meeting will be held during the 6th International Plant Protection Seminar to be held from 23 - 26 Septiembre, 2008

SICONBIOL

This is the 10th edition of this congress, and it will take place in Brasilia, from June 30 to July 4, 2007. Visit our website (http://siconbiol.cenargen.embrapa.br).

During this edition of SICONBIOL, we will hold the IOBC/NTRS symposium: Biological Control, from production to sales.
1. Challenges in mass production
2. Natural enemy quality
3. Entomophages in the era of transgenics
4. Obstacles and successes in natural enemy marketing

Information and suggestions at: xsicombiol@cenargen.embrapa.br <mailto:xsicombiol@cenargen.embrapa.br>.

Rose Monnerat – President of the Organizing Committee

IOBC/SRNT and SRN Meeting
APHIDOPHAGA MEETING IN ATHENS
Please, visit the web page [www.aphidophaga10.gr](http://www.aphidophaga10.gr) with new information regarding the Ecology of Aphidophaga 10 Symposium to be held in Athens, in September 2007.
Lugar: Corporación Universitaria Autónoma de Occidente Cali, Colombia.

VI International Scientific Seminar of Plant Health

September, 22- 26th, 2008

“Plant health for the environmental sustainability”

Havana Convention Palace, Cuba

For more information, please, contact:

Seminar Professional Organizer Organizer Committee Secretaries
Msc. Dr. Rodolfo Arencibia Figueroa Dra Orietta Fernández-Larrea Vega
Tel: (00537) 208 7541/ 202 6011-19 ext 1507 oflarrea@inisav.cu
Fax: (00537) 202 8382 Dra Yamila Martinez Zubiaur
arencibia@palco.cu yamilamz@infomed.sld.cu
Web: www.palco.cu

The seminar will include the following events:

· 48 Annual Meeting of the American Phytopathological Society-Caribbean Division
· II International Conference on Methyl Bromide Alternatives
· II Latin American Workshop of Phytopathogen Biocontrol
· II International Phytoplasma Workshop
· II International Workshop of Production and agro ecological management of Beneficial Arthropoda

International Symposium on the Biological Control of Arthropods (ISBCA III)

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

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.

8. COUNCIL MEETING 2007
A council meeting of IOBC Global is planned to be held during a congress organized by NRS, NTRS and the Mexican Society for Biological Control from 11-16 November 2007 in Merida, Mexico. We have already many items for the agenda, but we welcome any contributions from members. Global will present an overview IOBC activities and relationships and will inform participants about the financial situation and the journal BioControl.

The council will be asked its opinion about:

- Proposed adaptations in statutes and by-laws of Global and all Regional Sections
- Proposed guidelines IOBC Global, including Regional Sections and Working Groups
- Proposed Honorary members

The council will be asked to officially dissolve the following Working Groups:

- Biological control of Heliothis
- TIE training, information and education
- Biological Control of Coffee Berry Borer
- Fruit flies of Economic Importance (but may be activity by Boller, Joop will ask)

The council will be asked to officially approve the formation of a new Working Group on Benefits and risks associated with exotic biological control agents.

Ample time will be reserved for a general discussion on future activities of IOBC Global, its regions and working groups.

If you have any items for the agenda, please contact the Secretary General at colazza@unipa.it

9. BIOCONTROL PROJECTS IN THE NTRS

Is *Amitus fuscipennis* a promising biocontrol agent for *Bemisia tabaci* biotype B on beans in Colombia?

The white flies *Trialeurodes vaporariorum* and *Bemisia tabaci* biotype B are key pests of several vegetable crops in the Cuca Valley (Colombia). *B. tabaci* biotype B has replaced a *T. vaporariorum* in the andean valleys (400 to 1000 masl), and has started to spread toward the mountains dominated by *T. vaporariorum* (> 1000 m). *Amitus fuscipennis* MacGown & Nebeker (Hymenoptera: Platygasteridae) is a promising control agent for *T. vaporariorum* on beans in the Andes (> 1000 m).

The reproductive potential and search capacity are two important criteria in the selection of biocontrol agents. In order to determine if *A. fuscipennis* could also be used to regulate populations of *B. tabaci*, María Manzano and William Andrés Mosos (both form the Universidad Nacional de Colombia, at Palmira) are studying whether the reproductive potential of the parasitoid is superior to that of its host in laboratory conditions. In addition, they will determine if *A. fuscipennis* uses chemical cues from the plant, or the *B. tabaci*– plant interaction, to find its host.

María Manzano: mrmanzano@palmira.unal.edu.co
Harvesting *Trichoderma harzianum* strain A-34 aerial mitosporos by fluidised bed and dual cyclone, and by electric vibratory sieving.

*Trichoderma harzianum* strain A-34 is widely used by producers in Cuba as an antagonist biological control agent against different fungal plant pathogens such as *Rhizoctonia solani*, *Sclerotium rolfsii*, and various species of *Pythium* and *Phytophthora* in potato, tomato, tobacco and other crops. It has been very successfully tested in several trials conducted both in *vitro* and in field conditions. At present, research on *Trichoderma* formulations, to achieve a shelf life of at least 18 months and compatibility with conventional application techniques, is on-going in Cuba. One aspect is to assess more efficient methods for harvesting spores from the production substrate; depending upon purpose and formulation, the degree of purity of the extracted spore powder can be very variable. Recently there have been advances in this aspect by harvesting *Trichoderma harzianum* native strain spores, grown on rice and rice husk mixes, using two methods: separation by a fluid-bed and dual cyclone machine and separation by electric vibratory sieving. With the former method, after 20 minutes of harvesting, only 2.2% of the total spores were recovered, due in part to clogging of filters with rice husk. The spore extract had a $3.6 \times 10^{10}$ spores g$^{-1}$ final concentration. In contrast, a final yield of 29.7% spore extraction with a concentration of $4.50 \times 10^{10}$ spores g$^{-1}$ was achieved with the vibratory sieving method with 209 µm single sieve after 20 minutes of harvesting.

Orestes Elosegui Claro, Orietta Fernandez-Larrea, Enrique Ponce Grijuela, Giovanni Borges Marin, Luciano Rovesti, y Jesús Jimenez Ramos
<oflarrea@inisav.cu>

**NUEVO HONGO EN ARÁNDANO**


Un nuevo hongo perteneciente al género *Bipolaris*, aún no citado en el país, fue encontrado en plantas de arándano en el invierno de 2006. El hongo estuvo asociado a tizón de ramas y yemas. Los estudios efectuados en la Univ. Nac. de la Plata confirmaron que la especie *Bipolaris indica* estaría asociada a dicha sintomatología. La prueba de patogenicidad se efectuó en INTA-IMYZA-Castelar.

No se dispone de información adicional sobre su difusión, importancia y rol en la muerte prematura de ramas y yemas.

CONTRIBUCIÓN DEL CONOCIMIENTO LOCAL Y FACTORES (AGRO-)ECOLÓGICOS EN LA TASA DE ADOPCIÓN DE MIP EN LA AGRICULTURA DE SUBSISTENCIA DE HONDURAS

El gusano cogollero (GC), *Spodoptera frugiperda* constituye uno de los mayores problemas para la producción de maíz en Honduras. Con el objetivo de responder a las explosiones poblacionales de esta plaga y asegurar la producción de alimentos, los agricultores de subsistencia frecuentemente utilizan prácticas ambientalmente inapropiadas, como el uso excesivo de pesticidas. Varias instituciones han conducido programas de Manejo Integrado de Plagas (MIP) para reducir el uso de pesticidas. Actualmente, no existe ninguna evaluación formal de esos programas ni de los obstáculos que limitan la adopción del MIP. La aplicación del MIP en la agricultura de pequeña escala consiste principalmente en la manipulación de enemigos naturales y, dado que estos insectos benéficos tienen requerimientos ecológicos fuera del área de cultivo, el éxito de estas tecnologías depende de la composición y manejo integral del agro-paisaje. En este estudio, se cuantificaron oportunidades para el manejo eficiente de GC dentro del agro-paisaje que rodea los cultivos. El nivel de infestación por GC y la respuesta asociada de enemigos naturales dentro del área de cultivo fueron relacionados a las características del agro-ecosistema y a su vez al manejo de la plaga. Además, la adopción y difusión de prácticas MIP fueron evaluadas a través de encuestas a los productores; y conducidas en comunidades tipificadas por su historial de entrenamiento MIP, composición del agro-paisaje y presión por GC. El complejo de enemigos naturales dentro de las parcelas de maíz esta compuesto por arañas, tijerillas, hormigas, avispas sociales y escarabajos, y juega un papel importante en prevenir el estallido poblacional de GC. La abundancia y dinámica poblacional de esos enemigos naturales esta determinado por la composición del agro-paisaje. Por ejemplo, las tijerillas abundan en parcelas rodeadas de pastizales mientras que los escarabajos y arañas alcanzan niveles altos en ambientes de sucesión tardíos (tierras boscosas y arbustivas). Por lo general, los agricultores valoran acertadamente la severidad de la plaga y adoptan prácticas de manejo adecuadas. Su conocimiento de los enemigos naturales es fuertemente influenciado por la experiencia obtenida por medio de percepción e ideas dominantes dentro de la comunidad. Más que todo, la información sobre insectos depredadores se difunde por canales inter-personales. Por ende, valorar el conocimiento local, suplementarlo con información agro-ecológica apropiada y promover el manejo racional del mosaico agrícola podría prevenir una futura degradación ambiental y resultar además, en una mayor resiliencia para los sistemas de producción agrícola. Tecnologías de Sistemas de Información Geográfica (SIG) deben ser consideradas para mejorar la extensión agrícola e identificar áreas operacionales en conjunto al manejo de recursos naturales a nivel de ecosistema, región o cuenca.

Más info:

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**PASTEURIA SP. BACTERIA ANTAGÓNICA DE MELOIDOGYNE SP.**

En la actualidad el control de nemátodos fitoparásitos se realiza principalmente mediante fumigantes del suelo, nematicidas y solarización. El desarrollo de estrategias alternativas al control químico ha recibido poca atención debido a la disponibilidad de
fumigantes eficaces de amplio espectro. Hoy existe un marcado interés en el control biológico de nemátodos como por ejemplo la bacteria *Pasteuria sp.* (Thorne) Sayre & Starr, parásito obligado que ha sido encontrado sobre *Meloidogyne* sp. a campo y en experimentos (Brown and Smart, 1985; Chen et al., 1996; Freitas et al., 2000; Oostendorp et al., 1991; Stirling 1984; Weiblezahl-Fulton et al., 1996. Tiene alta especificidad el hospedante, tolerancia al calor, la desecación y a nematicidas.


10. PH.D. DISSERTATIONS

**Study of *Thrypticus* species (Insecta, Diptera, Dolichopodidae) associated with *Eichhornia crassipes* and other Pontederiaceae in South America.**
Ma. Cristina Hernandez, ARS/SABCL, Hurlingham, Buenos Aires

*Thrypticus* is a genus of small flies whose larvae feed on monocots. All of the other members of this family are predators. Nine new species are described: *Thrypticus truncatus*, *T. sagittatus*, *T. yanayucu*, *T. chanophalus*, *T. circularis*, *T. romus*, *T. azuricola*, *T. formosensis* and *T. taragui*. They form a taxonomic unit, the *truncatus* group. They are Neotropical species found in the basins of the Paraná-Paraguay and Amazon Rivers, and east of Brazil. Five of them are associated with *E. crassipes*, two with *E. azurea*, one with *P. cordata* and one with *P. subovata*. All the host plants belong to the Pontederiaceae. The anatomy and bionomy of adults and immature stages of *T. truncatus* and *T. sagittatus* are described. For the first time, the modality of feeding and behavior of the larvae are characterized. The larval habitat is the sequence of aerial cells in the aerenchyma joined by the tunnel of the mine. A morphological review of the Pontederiaceae host plants and the aerenchyma characteristics that describe the larval habitat is given. *Thrypticus truncatus* was monospecific on *E. crassipes* in the field host range and multiple choice tests with Pontederiaceae and Commelinaceae species. In addition, 32 fungal species were isolated from the larval mines of *T. truncatus* and *T. sagittatus*.

**Systematics and bionomics of species of *Megamelus* Fieber (Hemiptera: Delphacidae) associated with Pontederiaceae in South America for being utilized in the biological control of water hyacinth (*Eichhornia crassipes*)**
Alejandro J. SosaARS/SABCL, Hurlingham, Buenos Aires, Argentina

*Eichhornia crassipes* (Solms) Laubach (Pontederiaceae), commonly called water hyacinth is an aquatic plant native to South America and considered a serious weed in more than 60 countries. In this thesis the capability of *Megamelus* spp. Fieber (Hemiptera: Delphacidae) as biocontrol agents is studied. These planthoppers are characterized by particular features of male genitalia, however the lack of a key of South American *Megamelus* and accurate species descriptions promote the necessity of new studies of the genus in this region. Here *M. scutellaris* Berg, *M. electrae* Muir, *M. iphigeniae* Muir and *M. timehri* Muir are redescribed, and *M. bellicus* described as a
new species. For this purpose, the male genitalia, and for the first time, female genitalia and coloration pattern were utilized. Further information on host plant and geographical distribution of the species are added. Because *M. scutellaris* is the most abundant on water hyacinth, biology of the species -from descriptions of immature stages to bionomic parameters- was studied. Nymphal stages were characterized from the combination of the following characters that changed among instars: body length, number of tarsomeres, number of tibia spines, denticulation of metatibial spur, and general coloration. This planthopper developed successfully on water hyacinth, so implications of these parameters in future mass rearing is discussed. The high level of host specificity was demonstrated utilizing multiple and non choice tests (using different aquatic plants). This planthopper produced significant damage on the photosynthetic portion of the plant- estimated as a diminution of the leaf biomass- product of insect feeding; potential interactions with parasitoids in areas that required control and the use of this insect to control the plant are discussed.

11. IOBC INTERNET BOOK ON BIOCONTROL

The FOURTH EDITION of the IOBC INTERNET BOOK OF BIOCONTROL IS 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 fourth edition of the book (October 2006) of more than 100 pages with information about biocontrol is available for free on our website.

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.

12. IOBC GLOBAL JOURNAL BIOCONTROL

BioControl is the official journal of the International Organization for Biological Control (IOBC). It includes original papers on basic and applied research in all aspects of biological control of invertebrate, vertebrate and weed pests, and plant diseases. Subject areas covered in BioControl comprise biology and ecology of organisms for biological control, and various facets of their use including any biological means of control for integrated pest management (IPM) such as plant resistance, pheromones and intercropping. Developments in molecular biology and biotechnology that have direct relevance to biological control will also be considered for publication. BioControl also
publishes forum papers and reviews (solicited by the Editor-in-Chief), Letters to the Editor on critical issues, and research notes relevant to biological control.

**BioControl does not have page charges (except for colour pages).**

Impact factor: 1.324 (2005)  
Section "Entomology": Rank 16 of 66

Abstracted/Indexed in:  
Biological Abstracts, BIOSIS, CAB Abstracts, CABS, Chemical Abstracts Service,  
Current Contents/ Agriculture, Biology & Environmental Sciences, Entomology Abstracts, Geobase, Pest Management Focus, SCOPUS  
[http://www.springerlink.com/content/102853](http://www.springerlink.com/content/102853)

**TEN YEARS OF WORK FOR BioControl**  
by Heikki Hokkanen

The text below was prepared by Heikki Hokkanen and formed his last editorial as Editor-in-Chief of BioControl. The Executive Committee and members of IOBC Global wish to thank Heikki for the immense job done in materialising our new journal after a difficult period with its predecessor Entomophaga. IOBC hopes that the new Editor in Chief, Dr. Eric Wajnberg, will be as successful as Heikki and we wish him good luck!

In autumn 1996 I was made aware of the plans for a complete overhaul of the IOBC scientific journal, and of the creation of “BioControl”. The request by the IOBC President to me to become the first Editor-in-Chief of this ‘newborn’ journal was flattering, and as I am usually not shy of exciting new challenges, an agreement was quickly found. Having served longer than initially foreseen, it is high time after ten years to pass the helm to the competent hands of Eric Wajnberg, and to wish him success in steering the journal to yet greater heights. This is an appropriate time to review how the journal actually has fulfilled its aim in serving the biocontrol and the overall scientific community, as the ‘flagship’ journal of the IOBC.

During its first ten years BioControl attracted well over 1000 manuscripts; on 26 November 2006 the number was 1027. After a stable period of some five years at about 100 manuscripts per year, a steady increase has taken place to the current over 150 received manuscripts per year.

In my view BioControl has covered the global research community probably better than any other journal in our area: we have received manuscripts with the corresponding author residing in at least 50 different countries, including 8 countries from Africa, 5 from South- and Central America, 9 from Asia, and 4 from the Middle or
Near East. BioControl has evolved and maintained a remarkable balance between the different sub-disciplines (Table 1). With the scientific heritage of Entomophaga, it is hardly surprising that in the first 1-2 years parasitoid papers were dominating, and that papers reporting on the biological control of plant pathogens were rather rare. By 2005, these two groups were almost even, with the majority of the growth in manuscript numbers being due to plant-pathology papers.

Table 1. Proportion of submitted papers by sub-disciplines

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2002</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parasitoids</td>
<td>37.1</td>
<td>22.3</td>
<td>21.2</td>
</tr>
<tr>
<td>Predators</td>
<td>16.8</td>
<td>12.7</td>
<td>15.2</td>
</tr>
<tr>
<td>IPM</td>
<td>12.8</td>
<td>16.3</td>
<td>13.2</td>
</tr>
<tr>
<td>Weeds</td>
<td>10.1</td>
<td>14.4</td>
<td>11.1</td>
</tr>
<tr>
<td>Insect pathogens</td>
<td>10.4</td>
<td>13.9</td>
<td>15.7</td>
</tr>
<tr>
<td>Plant pathology</td>
<td>8.0</td>
<td>15.4</td>
<td>20.7</td>
</tr>
<tr>
<td>Nematodes</td>
<td>5.1</td>
<td>3.8</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Quite interestingly, the published papers through these nine years (1998-2006) follow these proportions very well: BioControl published 101 parasitoid papers (24.8% of all published papers), 72 predator papers (17.7%), 56 papers on IPM (13.8%) as well as on weed biocontrol (13.8%), 50 papers on insect pathogens (12.3%), 49 on plant pathogens (12.0%), and 23 papers on entomopathogenic nematodes (5.7%).

**Editorial work and journal production**

An efficient team of Associate Editors and a superb Editorial Office of the publisher have made the job of the EiC relatively easy. In addition, hundreds of biocontrol experts – BioControl readers and contributors – have collaborated in the vital process of peer-reviewing the submitted manuscripts. In the end the editors have filtered a total of 407 papers for publication in the journal from 1998 till 2006.

Many good manuscripts had to be rejected simply due to the lack of space: the journal has a fixed annual page budget, which has increased over the years from 492 pp to the current 850 pp.

With increasing number of submitted manuscripts, this automatically had to lead to a gradual increase in our rejection rates. Rejection rates of manuscripts submitted Currently we only can publish about one out of every three submitted manuscripts (close to 70% rejection rate).

**Making an impact**

The quality of a scientific journal is currently most often measured by its Impact Factor, published annually for the majority of well-established and esteemed journals. For the editorial team it is gratifying to see that BioControl has made impressive increases in this respect (Fig. 3), and ranks currently among the top-third of all entomological journals in this rating. Considering that more than half of all scientific articles published in the world’s around 15000 journals are never cited, the citation data
for articles published in BioControl look very good (Table 2). Please note that the more recent the Volume is, the less time there has been to cite those articles – the data cannot be compared between different years as such.

Considering that more than half of all scientific articles published in the world’s around 15000 journals are never cited, the citation data for articles published in BioControl look very good (Table 2). Please note that the more recent the Volume is, the less time there has been to cite those articles – the data cannot be compared between different years as such.

Table 2. Cumulative average number of citations to articles published in BioControl 1998-2004, and number of articles in each Volume that have not yet been cited at all. Calculated from Web of Science/Science Citation Index, accessed on 26 November 2006.

<table>
<thead>
<tr>
<th>Volume</th>
<th>No. of articles</th>
<th>Total citations per article</th>
<th>No of articles that have NOT been cited yet</th>
</tr>
</thead>
<tbody>
<tr>
<td>43 (1998)</td>
<td>35</td>
<td>8.0</td>
<td>0</td>
</tr>
<tr>
<td>44 (1999)</td>
<td>28</td>
<td>7.8</td>
<td>2</td>
</tr>
<tr>
<td>45 (2000)</td>
<td>36</td>
<td>4.4</td>
<td>3</td>
</tr>
<tr>
<td>46 (2001)</td>
<td>33</td>
<td>5.6</td>
<td>5</td>
</tr>
<tr>
<td>47 (2002)</td>
<td>54</td>
<td>2.9</td>
<td>9</td>
</tr>
<tr>
<td>48 (2003)</td>
<td>52</td>
<td>4.2</td>
<td>10</td>
</tr>
<tr>
<td>49 (2004)</td>
<td>51</td>
<td>1.7</td>
<td>11</td>
</tr>
</tbody>
</table>

An Editor-in-Chief cannot resist compiling a list of the most often cited papers published in ‘his’ journal. For BioControl, the ‘citation classics’ or the ‘top-ten most cited articles’ in our journal (by 26 November 2006) have been:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Year</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>van Lenteren et al.</td>
<td>2003</td>
<td>37</td>
</tr>
<tr>
<td>Stouthamer et al.</td>
<td>1999</td>
<td>35</td>
</tr>
<tr>
<td>Dutton et al.</td>
<td>2003</td>
<td>33</td>
</tr>
<tr>
<td>Charudattan</td>
<td>2001</td>
<td>27</td>
</tr>
<tr>
<td>Witzgall et al.</td>
<td>1999</td>
<td>26</td>
</tr>
<tr>
<td>Sterk et al.</td>
<td>1999</td>
<td>26</td>
</tr>
<tr>
<td>Michaud</td>
<td>1999</td>
<td>26</td>
</tr>
<tr>
<td>Ehlers et al.</td>
<td>1998</td>
<td>24</td>
</tr>
<tr>
<td>Walzer and Schausberger</td>
<td>1999a</td>
<td>21</td>
</tr>
<tr>
<td>Walzer and Schausperger</td>
<td>1999b</td>
<td>19</td>
</tr>
</tbody>
</table>

Such a list suffers from the fact that older articles have a time-advantage over more recent papers. On a ‘citations per year’ –basis we can see some very prominent articles that likely will penetrate the ‘top-ten’ –list quickly. For example, the paper by Obrist et al. was published in 2006, but has been cited three times already! Other high-risers in the future may include Morrison and Porter (2005; five citations already), Grabenweger (2003; ten citations), and Brown (2003; ten citations).
And the beat goes on

It has been a great and gratifying experience for me to be involved in the production of BioControl. I wish to thank all the supporting scientists and editorial staff for this time: it has been a true, wonderful team effort. Certainly the same spirit will continue, and carry the journal still much further, now with fresh ideas and steam.

Heikki M.T. Hokkanen, Editor-in-Chief 1997-2006; e-mail: heikki.hokkanen@helsinki.fi

References


13. PUBLICATIONS AND BOOKS ON BIOCONTROL

BC: History of the first 50 years” has appeared. Order your copy (10 Euro or 15 US$) by emailing Joop.vanLenteren@wur.nl

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

Especies de Acridomorfos (Orthoptera) de Argentina y Uruguay. En formato CD
CD ROM

Más info: Dra. Maria Marta Cigliano <cigliano@fcnym.unlp.edu.ar>

Natural enemies of herbivores exist in nature as an assemblage of species that interact with one another and may transcend trophic levels. The community embracing a natural enemy can be complex and includes taxonomically dissimilar species of pathogens, parasitoids, and predators. These interactions involve predation and competition processes and share the typical characteristics of resource-consumer relationships where the resource species is killed and consumed by the other. Although they are mostly viewed as primary carnivores (developing on herbivores), natural enemies can also be secondary carnivores (when they attack other natural enemies), hosts, prey, or even herbivores, as several species may also feed on and acquire energy from plant resources. This book explores a broad range of ecological and evolutionary issues in animal species interactions, mostly in the context of biological control. From the beginning of this project we were seeking original viewpoints on a growing field. All authors have used ecological theory to better interpret emerging patterns of interactions in biological control. The core of the book is a series of chapters that examine how species interactions, such as competition, predation, parasitism, disease, mutualism, and omnivory affect population dynamics of natural enemies. Chapters include critical discussions of the current status of research in the field, comparative and meta-analyses, case studies, new data, models, and approaches to measure trophic and guild interactions. Drawing on a diversity of plant, herbivore and natural enemy examples from different ecosystems, each contribution illustrates how trophic and guild interactions, whether they be direct or indirect, simple or complex, strongly affect the efficiency of natural enemies and, over time, determine the outcome of biological control.

Jacques Brodeur and Guy Boivin

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

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

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).


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


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).


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


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).


14. IOBC REGIONAL SECTIONS: ADDRESSES AND INFORMATION

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 Institue, 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)**

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**Vice Presidents**: Dr. Danuta Sosnowska. Institute of Plant Protection, Department of Biocontrol and Quarantine, 60-138 Poznan, Miczurina Str. 20, Poland.
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Next meeting of NRS will be held during the ESA meeting

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Vice President 2: Dr. Mary M. Whu Paredes, Enrique León García Nº 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
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Past President: Dr. Raquel Alatorre, Mexico. Email: alatoros@colpos.mx
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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.

15. PUBLICITY AND ADS

SANOPLANT
We invite you to visit our WEBPAGE to see our catalogue of biological supplies. HTPP/ www.sanoplant.com.co

Companies commercializing natural enemies in Brazil:

- Biocontrole Métodos de Controle de Pragas (http://www.biocontrole.com.br/) has a number of bioproducts available to be used in IPM programs, mainly insect pheromones. They sell a number of pheromone traps that are commonly used in Europe and USA. They have products available to many crops, such as tomato, cotton, citrus, tobacco, and corn among others.

- BUG Agentes Biológicos (http://www.bugbrasil.com.br/) is a company located in Piracicaba/SP which produces and sells Trichogramma species for the biological control of tomato, corn and sugarcane pests. This company also has other bioproducts available and a line of traps suitable to a variety of agroecosystems. They complement their line of products making available literature in the field of biological control.

- Itaforte Bioprodutos (http://www.itafortebioprodutos.com.br/) is a company located in Itapetininga/SP which produces and sells a number of entomopathogenic fungi, such as Beauveria, Metharizium, Lecanicillium and Trichoderma.

16. ACKNOWLEDGEMENTS

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 Willie Cabrera Walsh (gcabrera@speedy.com.ar), 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.

Editor: Willie Cabrera Walsh, June 25, 2007

Special thanks to Joop C. van Lenteren and Stefano Colazza, for the material stolen from the IOBC Global newsletter, 31 March 2007; and Estela Favret, Lorena La Fuente, and Roberto Lecuona (Instituto de Microbiología y Zoología Agrícola (IMYZA) INTA – Castelar, Argentina), for the material stolen from their IPM newsletter <biblioteca@cnia.inta.gov.ar>.