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

IOBC Newsletter 63

ORGANISATION INTERNATIONALE DE LUTTE BIOLOGIQUE CONTRE LES ANIMAUX ET LES PLANTES NUISIBLES (OILB)

APRIL 1996

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

IOBC FORUM

A Vision Statement for Biological Control

Biological control has often developed in parallel, but somewhat separately, with other pest management strategies. In the daily scramble of *doing* biological control, we don't always have the luxury of *thinking* about where biological control is heading, or where it should be heading. If there is no vision, concepts can perish. Therefore, I believe that we have an ethical obligation to propose a vision for the future of biological control. This vision should be developed collaboratively as a "work in progress", and should be modified as our science changes, and the society in which we operate changes. Our focus in preparing an IOBC vision statement should be external, and should involve non-traditional partners as well as IOBC members.

It is clearly appropriate that IOBC should take the lead to develop and communicate a vision for the future of global biological control. Such a statement would help everyone understand the processes and goals of biological control, and how biological control

continued on next page

General Assembly of IOBC Global 1996

The General Assembly (GA) of IOBC Global will be held on Monday, 9 September 5 - 7pm, at Montpellier, France, during the International Conference on „Technology Transfer in Biological Control: From Research to Practice", September 9-11, 1996.

The purposes of the GA are (see statutes of IOBC Global) the provision of information on the affairs of the Organization, and the provision of opportunities for members to express opinions on the activities of the Organization and to make recommendations to the Council. Try to attend - it's important!

fits as the pest management option of the future. The NBCI has developed a biological control vision statement, which has been very useful in communicating what we are trying to do [1]

After consulting widely, a draft vision statement has been prepared. I propose the following as a starting point for developing an IOBC vision statement for biological control:

Draft IOBC Vision for Biological Control

Biological control is a sience-based process, planned, conducted, delivered and evaluated by appropriate teams of colleagues. There is a high degree of international cooperation, and free exchange of biological control germplasm. The highest ethical and scientific standards are upheld in the conduct of biological control. It is investigated as the first option for pest management, and replaces chemical control as the base strategy of integrated pest management. The desired outcome of biological control is science-based, sustainable, cost-effective, resource-conserving and environmentally-compatible management of pests of agriculture, forestry, medical and veterinary importance, urban areas, interiorscapes and environmental areas. Biological control results in a global reduction in pesticide use and conservation of biological diversity.

Please e-mail (preferred) or fax to me your comments and suggestions about: (1) the need for an IOBC vision for biological control; (2) the scope of such a vision; and (3) suggestions for modifying the draft IOBC vision statement given above.

E.S. Delfosse

1) view this on the NBCI Internet Home Page: http://www.aphis.usda.gov/nbci.html

A Proposal for an IOBC *World Wide Web Home Page*

The National Biological Control Institute (NBCI) established an Internet Home Page last year, and the response has been outstanding! Thousands of established biological control researchers and practitioners, plus customers who knew nothing about biological control, use the NBCI Home Page regularly. IOBC has not yet taken full advantage of the Internet, although the "Pesticide and Beneficial Organisms" IOBC Working Group, has advertised on the Internet. The potential benefits to IOBC from having a Web page are significant and powerful.

NBCI has designed a draft IOBC Home Page for use by IOBC, but has not yet made it available on the Internet. It is divided into Regional Sections, Global Working Groups, *Entomophaga*, International Exchange of Natural Enemies, Status of Permit Applications for Release (by country), Establishment of New Immigrant Pests, Critical Issues, and Membership. Many other categories could be useful. Sections could upload material directly into the appropriate part of the Home Page, where it could be viewed by anyone in the world with Internet access.

If IOBC members express a need for an IOBC Home Page, NBCI will make it available, at no cost to IOBC, as a service to biological control. (If, at some point in the future, there is a permanent IOBC Office - see the *IOBC Newsletter* **61** - the Web page could easily be transferred to that Office.)

Please let me know by the end of May 1996 if you would like NBCI to proceed in developing an IOBC Home Page. (I would prefer your view by e-mail; send a fax or letter if your group is currently a flat tire on the Information Highway and lacks Internet access.)

E.S. Delfosse
edelfosse@aphis.usda.gov

ENTOMOPHAGA

Summary report of a management committee meeting held at Antibes, France, February 17, 1996

The meeting was attended by S. Poitout (IOBC/WPRS), F. Bigler (IOBC Global), J.M. Rabasse and A. Dufay (Entomophaga)

ENTOMOPHAGA publication has approximately one year delay on the schedule at the present time. This is of course very unpleasant and subscribers may ask whether the journal will continue to be issued. **Yes, it will!**

A number of reasons have caused the delay which accumulated during the last two years. An action plan which will help to make up for the lost time was decided at the Antibes meeting. ENTOMOPHAGA will continue to publish at least 450 pages per volume by maintaining the quality of the papers. The number of submitted manuscripts remains unchanged for the last four years and gives rise to an optimistic evaluation of the future of the journal. The actual delay will be shortened to approximately six months by August 1997 and it will be made up completely by the end of 1997.

The management committee of

ENTOMOPHAGA appologizes for the inconvenience caused to the subscribers and readers of the journal.

A new concept for the IOBC scientific journal

Members of IOBC were informed in previous Global Newsletters (numbers 59, 60, 62) that an *ad-hoc* review committee is working on a new concept for ENTOMOPHAGA. Proposals will be submitted in June 1996 to the Council of IOBC Global and the new concept of the journal will be presented at the General Assembly in Montpellier in September 1996.

HAVE YOU CONSIDERED PUBLISHING YOUR SCIENTIFIC RESULTS AND REVIEW ARTICLES IN ENTOMOPHAGA?

IF NOT YET, JUST DO IT!

REGIONAL SECTIONS

WPRS

West Palaearctic Regional Section

President: D.J. Royle, University of Bristol, Long Asthon Research Station, Bristol BS18 9AF, UK. FAX 275 39 4007.

Secretary General: S.H. Poitout, INRA Stat. Zool., Domaine de St.-Paul, Site Agroparc, 84914 Avignon, Cedex 9, France. FAX 90 31 62 70.

Treasurer: J. Huber, Institute for Biological Pest Control, Heinrichstr. 243, 62287 Darmstadt, Germany. FAX 6151 40790.

The next **General Assembly** will be held at Vienna, Austria 30 September and 1 October 1997.

Profil 21 (the IOBC/WPRS Newsletter) was issued in December 1995. Interesting information is compiled on 25 pages.

A New Study Group: "Critical Assessment of Modelling Approaches in Integrated Pest Management" (CAMAI)

As has already been announced in the last issue of PROFILE: By request of the Council of the IOBC/WPRS a new Study Group has been established on the issue of quantitative approaches in IPM. Two objectives are addressed.

The first objective is to identify the causes of failure and succes of currently available formalized IPM systems in different cropping/farming systems. During coming Study Group meetings supply and demand will be confronted.

The second objective is to stimulate a critical evaluation of the biological contents, modelling concepts and range of validity of pest population models, developed over the last 15 years. We hope to promote a more rigorous standard of documentation of simulation models and evaluation of the range of validity of those models.

The ultimate objective is to improve the usefulness of systems research as a support for pest management decision making at different integration levels (field, farm and policy).

During the niche-finding phase, the approach of the Study Group will be to organize sessions as part of commodity-oriented IOBC/WPRS Working Groups' regular meetings and to co-organize sessions during suitable congresses.

More information can be obtained from the convener of this new Study Group: W.H. Rossing, Wageningen Agricultural University, Dept. of Theoretical Production Ecology, P.O. Box 430, 6700 AK Wageningen, The Netherlands, FAX: +31 317 48 48 92.

from Profile, Nr. 21, 1995

EPRS East Palaearctic Regional Section

President: A.I. Smetnik, (same address as the EPRS Secretariat)

Secretariat: Journal "Plant Protection", Sadovaya-Spasskaya 18, attn. IOBC/EPRS Secretariat, Moscow, 107807, Russia; FAX 95 924 6655.

SEARS South East Asian Regional Section

President: R. Muniappan, Agricultural, Experiment Station, University of Guam, Mangilao, Guam 96923 USA. FAX 671 734 6842.

Secretary-Treasurer: M. Marutani, (same address as R. Muniappan)

Four Newsletters were released in 1995. Ask R. Muniappan or M. Marutani for copies.

NRS

Nearctic Regional Section

President: I. Obrycki, Department of Entomology, Insectary Build., Iowa State Univ., Ames, IA 50011-3140, USA. FAX 515-294-8027.

Secretary-Treasurer: D. Landis, Department of Entomology, 104B Pesticide Research Center, Michigan State University, E. Lansing, MI 48824-1115, FAX 517-353-5598.

Corresponding Secretary: R. van Driesche, Department of Entomology, University of Massachusets, Amherst MA 01003. FAX 413 545 2115.

IOBC/NRS Resolution to APHIS

WHEREAS the development of appropriate, science-based regulation of the importation and application of biological control organisms in the United States has been identified as a critical need for decades, and

WHEREAS representatives with a USDA-APHIS agency, the National Biological Control Institute, attended numerous meetings and workshops in attempts to formulate regulations in concert with the scientific community, and

WHEREAS it became clear that APHIS was formulating a proposed rule to promulgate biological control regulations without serious consideration of the suggestions made by the community through NBCI, scientists passed numerous resolutions stating concern over the lack of input into regulation development, and

WHEREAS these resolution were passed by the Nearctic Regional Section of the International Organization for Biological Control and the Entomological Society of America at meetings in 1993 and 1994, and

WHEREAS APHIS published a Proposed Rule: Introduction of Nonindigenous Organisms, in the Federal Register on January 26, 1995, and

WHEREAS the rule itself is the best evidence that the scientific community had been ignored and verified the concerns raised by the resolutions which preceded it (i.e., according to APHIS, none of the more than 250 respondents supported the rule), and

WHEREAS on June 16, 1995 APHIS withdrew the rule and notified the public that the agency "will publish an advance notice of rulemaking ... to solicit additional input from interested persons and to present opportunities for additional public participation in discussions of the scope, rationale, and basis of any new proposed regulations." (Federal Register, 9 June 1995), and

WHEREAS no such notice has been published, therefore,

BE IT RESOLVED that the President of IOBC/NRS be instructed to write a letter to the USDA-APHIS Administrator and the Secretary of Agriculture urging USDA-APHIS-PPQ to expedite publication of the advanced notice of proposed rulemaking as planned and that the Secretary formally engage interested groups via formation of a technical advisory group (including biological control specialists, conservation biologists, agricultural producers, commercial interests) in the development of appropriate, science-based regulations affecting biological control.

The above resolution was adopted by the membership of IOBC/NRS at the December 18, 1995 meeting and mailed by NRS President (J.J. Obrycki) to L.J. King, Administrator USDA, APHIS, Washington DC. On behalf of the membership of IOBC/NRS the President requests to expedite the publication of the advance notice of proposed rulemaking and to form a technical advisory group, facilitated by the National Biological Control Institute, to develop appropriate, science-based regulations for biological control. The members of IOBC/NRS are willing to participate on this advisory group.

NTRS

Neotropical Regional Section

President: Francisco Ferrer, Servicio Biologico, Carrera 5 No. 4-76, Urbanizacion del Este, Barquisimeto, Estado Lara, Venezuela. FAX 58-51 316 253.

Secretary: Miguel C. Zapater, Facultad de Agronomia, Universidad de Buenos Aires, 1417 Buenos Aires, Argentina. FAX 54-1 522 8395 or 522 1687.

Treasurer: Vanda Paes Bueno, Departamento de Fitossanidade, Escola Superior de Agricultura de Lavras, Caixa Postal 37, CEP 37200-000. Lavras, Minas Gerais, Brasil. FAX 55-35 829 1100.

The latest Newsletter was issued in December 1995. Very valuable information, including the NTRS member list 1995, is compiled on 13 pages.

Report of a meeting of F. Ferrer, M. Zapater (IOBC/NTRS) and F. Bigler (IOBC Global) at Buenos Aires, December 1 and 2, 1995

1. Subscription rates of IOBC/NTRS members and contributions to IOBC Global

a) Subscription rates

Subscription rates of NTRS individual members without Entomophaga will remain US$ 20.- per year. Entomophaga subscribers will pay US$ 20.- plus the subscription rate of the journal (which is fixed yearly, e.g. US$ 90.- for 1995). It was discussed and proposed to increase the rates for institutional members which is presently US$ 175.- per year. US$ 300.- would be appropriate. It was agreed to encourage the category of supporting members (e.g. private industry, producers of beneficial organisms). The annual fee will be US$ 500.- Supporting members will not have votes.

b) Contributions to IOBC Global

According to the IOBC Global Council decision of 1994 (see Newsletter 59, pp 3-4), **contributions of Regional Sections to IOBC Global** are as shown in the table below.

Because of the difficulties of transferring money and checks between countries of NTRS, it was agreed that payments made by Entomophaga subscribers (Individuals with Entomophaga, Institutional and Supporting members) will be made directly to the Treasurer of IOBC Global. At the end of each year an account will be made by the Treasurer of IOBC Global based on the member list of NTRS. All member contributions will be added and the total amount will be balanced between NTRS and IOBC Global.

Member category and contribution	Service and material included
1. Individual without Entomophaga US$ 10.-	IOBC Global + NTRS Newsletters, access to all Global and NTRS working groups, free access to publish 8 pages in Entomophaga (no page charges)
2. Individual with Entomophaga US$ 10.- plus rate of Entomophaga	same as category 1 plus one copy of Entomophaga
3. Supporting US$ 200.-	same as category 2, plus all Newsletters of IOBC Global and Regional Sections (approx. 120 pages of News per year), one copy of books and proceedings of IOBC Global working groups
4. Institutional US$ 200.-	same as category 3

IOBC/WPRS Bulletins (1500 - 2000 pages of scientific work per year) can be ordered in Belgium (see address in IOBC Global Newsletter 62, p. 3) with additional payment of Swiss F 100.- (approx. US$ 85.-) per year.

c) Address lists and distribution of documents

Member lists of NTRS with Entomophaga (categories 2-4) must be established till the end of March of the current year because of Entomophaga subscribers. The Treasurer of IOBC Global mails the list to the Secretary General of IOBC Global, who is in charge to communicate it to the publisher of Entomophaga. A copy is mailed to the Secretary-General of NTRS at the same time. Copies of NTRS members without Entomophaga (category 1) are mailed by NTRS to the Secretary-General and the Treasurer of IOBC Global. Based on member lists and registered payments of the previous year, the amounts will be balanced in accordance between the Treasurers of NTRS and IOBC Global till the end of March of the current year. NTRS is in charge to distribute global and regional Newsletters and other documents to NTRS members. IOBC Global is in charge to distribute all NTRS documents to the other Regional Sections of IOBC.

2. Finances of NTRS

The financial situation of NTRS was discussed. Member contributions which should be the main source of income are very limited (less than US$ 400.- per year). In order to have a minimal sum available to "run" NTRS, new funds are urgently needed. Increasing member contributions are possible for institutional members only. It was proposed to make a special advertisement of NTRS which will be mailed to a number of institutions, ministries of agriculture (through the country representatives) and other potential members. It will be included in the NTRS Newsletter as well.

An other possibility would be offering space of NTRS Newsletter for advertisement of e.g. books for biocontrol and orga-

nisms used for biocontrol (advertisement of goods not directly related to biocontrol would be in disagreement with IOBC philosophy).

To this end it is planed to evaluate possibilities to improve the format of the Newsletter.

Financial support of NTRS working groups is extremely difficult. Minimal funds are though necessary for covering mailing and printing costs. Conveners of WG should be advised to extend their initiative for fund raising as well. They should be advised by the NTRS Governing Board to increase registration fees for workshop participants, especially for those who are not IOBC members.

When ever possible and appropriate, international organizations must be envisaged as donors of funds for special activities (e.g. book printing of IOBC Conferences).

3. Project of a NTRS data base

The idea of a data base for biocontrol scientists in the NTRS area was submitted previously by F. Ferrer. Such a data base would be a valuable source of information, though it needs to be updated permanently. F. Ferrer has already gathered information from many biocontrol scientist of Mexico, Venezuela, Colombia and Peru. An other important data base had been released in Brazil by Sousa Diaz. Different possibilities of establishing and maintaining a data base were evaluated. The following was decided:

a. M. Zapater will contact S. Diaz and check if he would be willing to extend the Brazilian data base to the NTRS geographical area
b. In case S. Diaz will accept to work for NTRS, it will be necessary to discuss details together with F. Ferrer and M. Zapater and formulate the project. The draft project, already written by F. Ferrer, will be used. However, some specifications must be added (e.g. how will the data base be structured, who, where and how often will the up-date be made)
c. The project will be mailed to F. Bigler who will submit it to potential donors.

4. Meeting place of the Quality Control Working group of IOBC Global in 1997

At its last meeting in October 1995 the Working Group decided to organize its next meeting 1997 in Latin America. F. Bigler was asked to investigate the best possibility together with F. Ferrer and M. Zapater and to report to the Conveners of the WG. (See under Working Groups in this issue).

5. Representation of Latin America at the IOBC Conference in Montpellier 1996

F. Ferrer will present a well established case of successful biological control in Venezuela at a workshop entitled "Private-Public Sector Cooperation in the Development and use of Natural Enemies".

6. Publications by NTRS members in Entomophaga

Publications in English should be encouraged. The editor can offer only minor improvements of lingual problems through generous assistance of English speaking colleagues. Authors cannot expect the editor to rewrite articles. This message was transmitted by F. Bigler on behalf of M. Rabasse, editor-in-chief of Entomophaga.

7. NTRS Working Groups

The only active NTRS working Group at the present time is the Fruit Flies of the Western Hemisphere.

Several attempts to activate the Trichogramma WG failed. It was decided to ask M. Botto (Argentina) to act as new Convenor assisted by F. Garcia (Colombia). A new WG on "Maize Pests with Emphasis on Spodoptera" was founded recently and it will start its activities.

The present status of an other WG on "Phytopathogens" is still uncertain.

Possibilities of funding and structuring the WG were discussed. It seems to be important to have small amounts of "seed money" which may help the WG to take-off.

F. Bigler will evaluate possibilities for support of the Trichogramma and / or Spodoptera WG.

F. Bigler

Share your information

Activities and events within IOBC Regional Sections do interest your colleagues outside the Sections as well. They will most probably not be informed if you don't tell them. You may share information by sending any kind of NEWS to me.

F. Bigler, Editor

ATRS

Afrotropical Regional Section

President: H.G. Zimmermann, Plant Protection Research Institute, Private Bag x 134, Pretoria 0001, Rep. S. Africa. FAX 12329 3278.

Secretary-General: G. Bani, B.P. 2499, DGRST, Brazzaville, Congo. FAX 242 831 337.

Treasurer: A. Paraiso, B.P. 12625, Niamey, Niger. FAX 227 73 22 37.

WORKING GROUPS

WG Quality Control of Mass-reared Arthropods

Chairman: N.C. Leppla, ASDA/ APHIS, National Biological Control Institute, 4700 River Road Units, Riverdale, MD 20737-1229, USA. FAX 301 734 7823.

Co-chairman: M. Benuzzi, INTRACHEM Italia Srl. Via XXV Aprile 44, 24050 Grassobio (Bergamo), Italy. FAX 35 33 53 34

The next meeting will be held in Colombia in 1998. It is planed to organize a one or two days joint workshop together with the WG on Trichogramma and other egg parasitoids.

WG Biological Control of Plutella

Co-chairmen: N.S. Talekar, AVRDS, P.O. Box 42, Shanhua Tainan 74199, Taiwan, FAX 06 583 0009.

J.K. Waage, CABI/IIBC, Buckhurst Road, Ascot, Berks SL5 7TA UK. FAX 344 875 007.

WG Fruit flies of Economic Importance

Chairman: M. Aluja, Inst. Ecol., A.C. Apdo Post. 63, Xalapa, Veracruz 91000, Mexico. FAX 281 86 809

Co-chairmen: J. Piedade-Guerreiro, Div. Luta Biol., Inst. Invest. Cient. Trop., Junquiera 14, 1300 Lisboa, Portugal. FAX 364 20 08.

B.A. McPheron, Dept. Entomology, Pennsylvania State University, Univ. Park, PA 16802, USA. FAX 814 865 30 48.

WG Ecology of Aphidophaga

Chairman: D. Horn, Dept. Entom., Ohio State Univ., 1735 Neil Ave., Columbus OH 43210-1220, USA. FAX 614 292 2180

Co-chairmen: R. Chambers, Entom., AFRC Inst. Hort. Res., Worthing Rd. Littlehampton W. Sussex BN17 6LP, UK.

I. Hodek, Inst. of Entomology, Czech Academy of Sciences, Branisovska 31, 37005, Ceské Budejovice, Czech. Republic.

The next Aphidophaga Conference entitled "Biological Control and Management of Aphids" will be held at the Faculty of Agronomy of Gembloux, Belgium, in September 1996. For more information contact the Chairman of the Working Group or the local organizer J.L. Hemptienne, Faculté des Sciences Agronomiques, Passage des Déportés, 2, B-5030 Gembloux, FAX 32 81 62 22 86.

WG Chromolaena odorata

Chairman: R. Muniappan, University of Guam, Agricultural Experiment Station, Mangilao, Guam, 96923 USA. FAX 671 734-6842.

The 4th international workshop on biological control and management of *Chromolaena odorata* will be held October 14-19, 1996, in Bangalore, India. The Workshop will be organized by the "Association for Advancement of Pest Management in Horticultural Ecosystems" in India, *Chromolaena* Network and the International Organization of Biological Control (IOBC) Global Working Group on *Chromolaena odorata*.

WG Trichogramma and other egg Parasitoids

Co-chairmen: S.A. Hassan, Inst. Biol. Pest Control, Heinrichstr. 243, 6100 Darmstadt, Germany. FAX 6151 40 790

E. Wajnberg, INRA Station Zool., 37 Bv. du Cap, B.P. 2078, 06606 Antibes Cedex, France. FAX 93 67 88 25

The next symposium of the working group will be held within the XX International Congress of Entomology, 25-31 August 1996, Florence, Italy. Ask the co-chairmen for more information. It is planed to include a discussion and a training course with practical demonstration on the taxonomy of *Trichogramma* to be carried out by Dr. Pinto (USA) and Dr. Pintureau (France).

The next full meeting of the WG will be held in Colombia in 1998. A one or two days joint workshop with the WG on Quality Control of mass reared arthropods is planed.

WG IWGO - Ostrinia and other maize pests

Chairman: H.K. Berger, Federal Office and Research Centre, Institute for Phytomedicine, Spargelfeldstr. 191, 1226 Vienna, Austria. FAX 1 288 16 5225 or 2108.

Co-chairman: L.C. Lewis, USDA-ARS, Corn Ins. Research Unit, Genetics Laboratory, Insectary Bldg. Iowa State University, Ames, Iowa 50011, USA

Convener of the Diabrotica Subgroup: R.C. Edwards, Purdue University, 1158 Entomology Hall, West Lafayette, IN 47907-1158 Indiana, USA. FAX 317 494 2152

IWGO Newsletter 15/2 (27 pp.) was issued in November 1995.

Abstracts of the meeting held in 1995 at Turda, Romania are published.

IWGO Newsletter 16/1 (32 pp.) was released in February 1996. This Newsletter is an extended report of the International Meeting on Diabrotica virgifera held in Gödöllö, Hungary, 8 November 1995. It contains six papers and recommendations for future activities against this maize pest which was accidentally introduced into Europe. The pest was found for the first time in 1992 close to Belgrad, Serbia.

Ask the Chairman for a copy of the Newsletters.

The next IWGO meeting will be held in Braga, Portugal in autumn 1997.

WG Training, Information, Education (TIE)

Chairman: M. Oraze, Nat. Biological Control Institute, USDA/ APHIS/NBCI, 4700 River Road Unit 5, Riverdale, MD 20737 - 1229, USA, FAX 301 734 7823

E.S. Delfosse (see address page 1) will take over from M. Oraze as co-chair of the TIE Working Group in September 1996.

A video ("Biological Control: Learning to Live with the Natural Order"), and a workbook ("Pests Have Enemies Too. Teaching Young Scientists About Biological Control" M.R. Jeffords and A.S. Hodgins) have been prepared for free distribution by the National Biological Control Institute. Both of these tools are designed for middle-school-aged children, or those with minimal science background, and are available on the NBCI Internet Home Page. (http://www.aphis.usda.gov/nbci/nbci.html)

E.S. Delfosse

IOBC Conference on Technology Transfer in Biological Control: from Research to Practice

9.-11. September 1996, Montpellier, France

Contact person for the local organizing committee: J.P. Aeschlimann, CSIRO Biological Control Unit, F-34982 Montferrier s. Lez. Cedex, France, Fax 33 67 59 90 40

Correspondence related to the programme should be sent to W.M. Lonsdale, same address as J.P. Aeschlimann

Scientific Programme

(as per 28 March 1996, not yet finalized)

Keynote addresses

1. **Overview** by J.K. WAAGE, CABI / IIBC, Ascot Berks. (UK)
2. **Production** by N.J. FOKKEMA, DLO Res. Inst. Plant Protection, Wageningen (NL),

   E.G. KING, Subtrop. Agric. Res. Lab, USDA / ARS, Weslaco TX (USA) and N. LEPPLA, Nat. Biological Control Institute, USDA / APHIS, Riverdale, MD, (USA)
3. **Delivery** by H.A. WOOD, Boyce Thompson Res. Inst., Ithaca NY (USA)
4. **Extension** by P.A.C. OOI, FAO Intercountry IPM Program in S.E. Asia, Makati, M. Manila (Philippines), and D.L. MAHR, Dept. Of Entomol., Univ. Of Wisconsin, Madison WI (USA)
5. **Evaluation** by P. NEUENSCHWANDER, Int. Institute for Trop. Agriculture, Cotonou (Rép. Bénin)
6. **Public policy** by G. RIBA, INRA Station de Lutte Biologique, La Minière, Guyancourt (F), and Paul WELLINGS, CSIRO Div. Of Entomology, Canberra (Australia)
7. **Recommendations** by E.S. DELFOSSE, Nat. Biological Control Institute, USDA / APHIS, Riverdale, MD, (USA

Symposia

(programme as per 28 March 96, a few titles my be changed, added or removed)

1. BIOLOGICAL CONTROL OF *Bemisia*

Organizer: W.A. Jones

1. Drost, Y., Van Lenteren, J.C. Prospects for using parasitoids for managing *Bemisa tabaci* in greenhouse crops
2. Wraight, S., Bradley, C. Use of Mycotrol (*Beauveria bassiana*) for controlling *Bemisia arentifolii* in field crops
3. Osborne, L.S., Landa, Z. Progress in the use of *Delphasus pusillus* and *Paeilomyces fumosoroseus* for managing *Bemisia* in greenhouse ornamentals
4. Kirk, A.A., Goolsby, J., Ciomperlik, M., Hoelmer, K. and Jones, W.A. The collection, importation and current status of *Eretmocerus mundus* and other parasitoids released in the United States
5. Onillon, J.C. Title to be submitted
6. Petitt, F.L., Fan, Y., Wietlisbach, D.O., Etzel, R.W. Production and use of spray-glue system for applying *Chrysoperla* eggs to foliage for control of *Bemisia* and other pests at the Epcot Center, Disney World
7. Beitia, F.J., Adan, A., Cenis, J.L., Guirao, P. Title to be submitted
8. Wendel, L. Current programs on biological control of Bemisia by USDA, APHIS in the USA
9. Hagler, J.R. Using predator gut content immunoassays to expedite the search for indigenous, foreign and augmented natural enemies of Bemisa tabaci

2. "PRIVATE-PUBLIC SECTOR COOPERATION IN THE DEVELOPMENT AND USE OF MASS-PRODUCED MULTI-CELLULAR NATURAL ENEMIES"

Organizer: R. Ridgway

1. Trumble, J. Development and use of mass-reared natural enemis
2. Scriven, G. Practical use of predaceous mites to manage twospotted spider mites on strawberries
3. Raulston, J., Georgis, R., Development and use of an entomopathogenic nematode with the aid of licensing
4. Ravensburg, W., Ramakers, P. Use of mass-reared natural enemies on glasshouses
5. Kabiri, F., Bigler, F. Development and use of Trichogramma for insect control in Western Europe
6. Ferrer, F. Successful technology transfer in biologicals in sugarcane and corn crops
7. Steinberg, S. Augmentative biological control of scales on olive and citrus
8. Ridgway, R., Future strategies for the public sector
9. Fidget, M. strategies for the private sector

3. BIOLOGICAL CONTROL OF POSTHARVEST FRUIT DISEASES: MAKING IT A REALITY THROUGH TECHNOLOGY TRANSFER

Organizer: C.L. Wilson

1. Wilson, C.L. A broader biological control concept
2. Fokkema, N. Ecological basils for the use of natural antagonists to control postharvest diseases
3. Wisniewski, M.E., How natural antagonists work to bring about biological control of post-harvest diseases
4. Cutler, H., Natural plant and animal-derived fungicides
5. El Ghaouth, A. & Arul, J. A multifaceted biological control strategy
6. Chalutz, E. & Droby, S. Bridging the gap between laboratory results on biological control of postharvest diseases and commercial application
7. Hofstein, R., Fridlender, B., Commercialization of biologically-based technology for the control of postharvest diseases
8. Froyd, J. Industry's Perspective on new biologically-based controls for postharvest diseases
9. Villet, R. Consortia for technology transfer in agriculture

4. COMMERCIALIZATION OF INSECT VIRUSES AND EXPRESSION SYSTEMS (titles not yet finalized)

Organizer: E.M. Dougherty

1. Vail, P. Non-recombinant viruses
2. Robinson, R. Non-recombinant viruses
3. Possee, R. Recombinant viruses
4. Chejonsky, N. Recombinant viruses
5. Bergoin, M. Recombinant viruses
6. Lynn, D. Adjuvants
7. McGuire, M. Adjuvants
8. Hughes, P. Production
9. Walls, E. Production

5. NOVEL STRATEGIES FOR THE APPLICATION / INTRODUCTION OF PATHOGENS FOR THE CONTROL OF PEST INSECTS AND WEEDS

Organizer: L.A. Lacey

1. Goettel, M. Formulation of entomopathogens to overcome low humidities: strategies for control of migratory locust
2. Yang, S. A novel broad host pathogens and delivery system for controlling weed
3. Van den Burg, Application of entomophatogens using irrigation systems
4. Chappleel, A. Application of microbial pesticides: limitations and a practical solution
5. Vega, F., Lacy, L. Autodissemination of entomopathogens
6. Connick, W., Formulation strategies for control of weeds in crops
7. Jackson, T. *Serratia entomophila* for control of *Costelytra zealandica*
8. Lewis L. *Beauvaria bassiana* as an endophyte in corn
9. Greaves, M. Application of mycoherbicides in the field

6. BIOLOGICAL CONTROL OF SOIL BORNE PEST AND DISEASES

Organizer: R. Sikora

1. Kerry, B. Fungal pathogens of nematode females and eggs
2. Sikora, R. Fungal endophytes and biocontrol of nematodes and root pathogens
3. Hoffman-Hergarten, S. Biological control of plant parasitic nematodes with rhizobacteria - strategies and technical requirements
4. Glen, D.M. The use of slug-parasitic nematodes for integrated control of slugs (Mollusca) in sustainable crop management systems
5. Ehlers, R.-U. Entomopathogenic nematodes
6. Gowen, S. or Davis, K. Management of the obligate parasite *Pasteuria penetrans* for the control of root-knot nematodes in vegetable production systems
7. Speigel, Y. Control of root-knot with *Trichoderma*

7. PRODUCTION AND DELIVERY OF BIOPESTICIDES

Organizer: S. Roussos

1. Quintero-Ramirez, R. Potential production of biopesticides in Latin America
2. Durand, A. Production and formulation of *Beauveria bassiana*
3. Buitelaar, B. The European program on the production of *Trichoderma*
4. San Martin, R. Production of *Trichoderma harzianum* in solid

and liquid media

5. Andersch, W. Production in liquid culture and formulation of *Metarhizium anisopliae*
6. Landa, Z. Production and formulation of *Poecylomyces*
7. Abol-Ela, S. Production and formulation of entomoviruses in Egypte
8. Duponnois, R. & Mattei, T. Production of *Pasteurela* for the control of nematodes in tropical soils
9. Paredes, O. Production and formulation of *Bacillus thuringiensis*

8. EVALUATION OF THE EFFICIENCY OF BIOCONTROL

Organizer: D. Gerling

1. Gerling, D. Isreal - The scope of the problem
2. Klonsky, A. Economic aspects of evaluation

Techniques for evaluating biocontrol efficacy

3. Gonzales, D. USA parasitoids and predators used against insect pests
4. (Speaker to be determined) R. Plant feeders used for weed control
5. Carrathurs, R. Microorganisms used for all pests
6. Mills, N. USA the use of models to evaluate control efficacy

Practical examples

7. (Speaker to be determined) Greenhouses
8. Minkenberg, O. Field crops
9. Mols, P. Orchard crops

9. LOCUST AND GRASSHOPPER CONTROL

Organizer: J. Fargues & M. Goettel

1. Prior, C. Strategies for locust and grasshopper control
2. Stephan & Wilps, H. Development and field evaluation of *Metarhizium flavoviride blastospores*
3. Lomer, C. Development and field evaluation of *Metarhizium flavoviride* conidia
4. Swearingen, E. Development and field evaluation of *Beauveria bassiana* conidia
5. Swanson, D. Commercial feasibility of mycopesticides for locust control
6. Goettel, M., Fargues, J. Environmental constrains of mycopesticides. a challenge
7. Peveling. Potential non-target effects of mycopesticides in locust control
8. Krall, S. Towards the development of IPM for locust control

10. PRODUCTION OF BIOCONTROL AGENTS IN RESOURCE-POOR REGIONS

Organizer: M. Downes

1. Downes, M.J. Production of entomopathogenic nematodes in resource-poor regions
2. Jones, K. Appropriate methods of virus production in resource-poor regions
3. Manjunath, T.M. Biological control agents in India: from lab to land
4. Conlong, D.E. Appropriate methods of rearing insects for biological control in resource-poor areas
5. Blehm, J. Insect handling and distribution in resource-poor areas
6. Odindo, M.O. Farmer-participatory evaluation of biological control preparations
7. Jenkins, N. Production of biocontrol fungi in resource-poor conditions
8. Jamil, K. Indigenous technology for the production of biocontrol agents for control of *Eichhornia crassipes* (Mart) Solms

11. USE OF PHEROMONES IN BIOLOGICAL CONTROL

Organizer: H. Arn and P. Witzgall

1. Waldner, W. Three years of large scale control of codling moth by mating disruption
2. Ogawa, K. The key to success of mating disruption
3. Barnes, B. Goading growers towards mating disruption - the South African experience with oriental fruit moth and codling moth
4. Louis, F. Effect of mating disruption on beneficial insects in vineyards
5. Kirsch, P. IPM systems
6. Feldhege, M. Population sampling during mating disruption in vineyards
7. Backman, A.K. and Witzgall, P. Mating disruption in pea moth by a repellent blend of pheromone and attraction

12. BIOLOGICAL CONTROL OF PLANT DISEASES: STRATEGIES AND IMPLEMENTATION

Organizer: N.J. Fokkema

1. Fokkema, N.J., Köhl J., Strategies for biocontrol of foliar pathogens with emphasis on biological control of necrotrophis pathogens by suppression of sporulation
2. Elad, Y. Use of "Trichodex" (*Trochoderma harzianum*) in IPM of *Botrytis cinera* in greenhouse crops
3. Gubler, D. Biocontrol of biotrophic pathogens suppression of sporulation, exemplified by the control of grapevine powdery mildew using *Ampelomyces quisqualis*
4. Wilson, M. Biocontrol of foliar bacterial diseases, exemplified by biocontrol of tomato diseases
5. Alabouvette, C. Biological control of fusarium wilts

6. Whipps, J. or van den Boogert, P. Prospects of the use of mycoparasites in biocontrol of sclerotial diseases
7. Lumsden, R.D. Development of "Gliogard" *Gliocladium virens* for control of *Pythium* and *Rhizoctonia*
8. Scheffer, R. or Harman, G. Biological seed coating as a biocontrol strategy, exemplified by "Biocoat radish" against fusarium diseases

13. PROBLEMS IN PRODUCTION, SALES AND DISTRIBUTION OF BIOLOGICAL CONTROL AGENTS

Organizer: R. Daoust

1. Daoust, R. Introduction to the problems in the production, sales and distribution of biological control agents
2. Natali, A. Problems in the development and commercialization of *Bacillus thuringensis* based bioinsecticides and other biocontrol agents in Europe
3. Potter, S. Problems in the production, sales and distribution of entomopathogenic nematodes for insect and slug control
4. Laude, G.D. Problems in the production, sales and distribution of pheromone based biocontrol products for insect control
5. Hofstein, R. Constraints to the development and commercialization of biofungicides for foliar disease control
6. Bolckmanns, K. Problems in the production, sales and distribution of biocontrol agents for insect control in greenhouses
7. Manjunath, T.M. Mass production, marketing and field application of biocontrol agents: opportunities and constraints
8. Schonherr, I. and Brinkmann, B.V. Problems in the production, sales and distribution of the viral based insecticide, SPOD-X, for control of greenhouse pests
9. Braunwarth, C. Problems in the registration of biological pesticides in Europe, focal point Germany

14. GENETIC RESOURCES IN BIOLOGICAL CONTROL

Organizer: de Montagu

Titles to be announced

15. OPENING THE DOOR FOR AUGMENTATION OF PARASITIC AND PREDACEOUS ARTHROPODS IN AGRICULTURAL SYSTEMS THROUGH ARTIFICAL DIETS AND AUTOMATED IN VITRO REARING SYSTEMS

Organizer: D.A. Nordlund & S. Grenier

1. Leppla, N.C. Introduction: Artifical Diets and automation - keys to the general adoption of augmentation techniques in biological control in extensive agricultural systems
2. Nordlund, D.A., Wu, Z. & Greenberg, N.C. Development of an automated in vitro mass propagation system for *Trichogramma* spp.: progress and opportunities
3. King, E.G., Coleman, J.R., Morales-Ramos, J.A., Rojas, G.M. Feasibility of biological control for the boll weevil in cotton by mass propagation of vitro reared *Catolaccus grandis*
4. Cohen, A. Potential for automation and commercialization of artificial diet-based technology for insect rearing
5. Grenier, S. Artificial rearing of *Trichogramma*: form storage of medium and egg laying stimulation to emergence of normal adults
6. Parry, R. & Whitten, J.L. Lessons learned in commercial biological control applicable to use of parasitic and predaceous arthropods

16. TECHNOLOGY TRANSFER IN CLASSICAL BIOLOGICAL CONTROL OF WEEDS BY INSECTS AND MITES

(titles not yet finalized)

Organizer: L. Knutson & M. Lonsdale

1. Knutson, L. Introduction - Planning research with the objective of implementation
2. Schroeder, D. Establishing linkages, consortia and partnerships
3. Cofrancesco, A. Release review panels
4. De Clerck-Floate, Optimizing initial releases
5. Myers, J.H. Analysis of recovery data
6. Wendell, Redistribution and implementation
7. Labrada, R. Integration of biological control with other control methods
8. Hoffman, J. Case study 1: Prosopis in South Africa
9. Briese, D. Case study 2: Community involvement in the distribution and evaluation of biological control agents: Landcare in Australia

Titles of posters can still be submitted to the organizers

Reports on Bio-Control Activities

Natural enemies of arthropod pests will have a better protection by European Union law

The Commission of the European Union (EU) has released a new directive on ecotoxicological studies on 8 March 1996. The directive enteres into force on 1 April 1996 and EU member states shall adopt and bring it into force by 31 March 1997. The directive summarizes the information needed in ecotoxicological studies for plant protection products to assess relevant risks on non-target organisms. It is the first time that natural enemies of pests are explicitly mentioned and listed separatly from other non-target organisms (e.g. honey bees, earth worms, fish, etc.). The directive states: "The effects of plant protection products on non-target terrestrial arthropods (e.g. predators or parasitoids of harmful organisms) must be investigated. The test should provide sufficient information to evaluate the toxicity of the plant protection product for selected arthropod species that are relevant to the intended use of the product."

The new EU regulation is a big step forward in IPM and it strengthens the importance of natural control. IOBC has contributed substantially to this success. IOBC/WPRS founded in 1974 a working group with the aim to develop methods, based on uniform principles, for assessing negative side-effects of pesticides on natural enemies. It is this working group that has coordinated and fostered the activities in Europe relative to this topic over the last 20 years. The working group has broadened its activities on side-effects of pesticides on natural enemies and it is nowadays an irreplacable source of knowledge and information in Europe and elsewhere.

F. Bigler

Pheromone Mating Disruption of Codling Moth on 4500 ha in Northern Italy

A recent breakthrough of the mating disruption technique has been achieved in Northern Italy. Increasing resistance of codling moth, *Cydia pomonella*, against selective insecticides has encouraged control by mating disruption with pheromone. Treatment with the less selective and more toxic organophosphates necessitates expensive treatments against mites. The pheromone-treated surface was 2'250 ha in 1994 and has been expanded to 4500 ha in 1995.

(from Profile, Nr. 21, 1995)

Biological Control in the United States and the U.S. Wildlife Laws

A recent article by John Medoza (American Entomologist, summer 1995 issue, pp. 75-76), and a companion article by J. Miller in the same issue, discuss an important area that has until recently been unfamiliar to biological control workers: their obligations under U.S. wildlife laws. Three laws are discussed as being relevant to entomologists: (1) the Lacey Act, (2) the Endangered Species Act, and (3) the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The Lacey Act controls the importation of animals and their products (all species, not just endangered), among other things making it illegal to import animals in ways that are in violation of the laws of the country of origin. This act covers both live and dead specimens and, according to the Fish and Wildlife Service, covers invertebrates as well as vertebrates. Thus, for example, insect specimens collected in Mexico (for any purpose, including biological control projects) are subject to the Mexican laws protecting wildlife. In order to legally bring such material into the U.S., you need to demonstrate that you have conformed to the Mexican wildlife protection laws. This may entail getting permits from Mexican authorities. Similar laws could exist in any particular country. The essence of the Lacey Act is that it makes it an offense in the U.S. to bring into the U.S. material obtained in ways not in conformity with such foreign laws.

The Endangered Species Act protects listed species, some of which are invertebrates. This act does not directly affect biological control projects, as endangered species are unlikely to be either the targets or agents of biological control. Nevertheless, it is valuable to be aware of which species of invertebrates (and, for weed bc workers, of plants) have been listed as endagered in your state, so that you can avoid conducting trials in or around their habitats, and so that you can be certain that any natural enemies you may be working with will not attack an endangered species. Plant biological control project must, as part of the process of importing weed control agents, demonstrate safety to any endagered plants that might be related to the target species, in the country into which

introductions are to be made.

The CITES treaty controls international trade in endangered species that have been officially listed. Again, for the same reasons as above, this act is unlikely to directly affect biological control projects.

One of the further obligations of these acts, specifically the Lacey Act, is that importations must be made via 11 designated ports of entry. This may create problems with biological control shipments, because the logical port of entry may not be one of these eleven locations. In addition, a fee is charged and there is a permit form to be filled out. Furthermore, there is a conflict in that the Lacey Act requires inspection of material in incoming packages. Since this would breach the quarantine of the imported material, this is in conflict with established procedures for natural enemy introductions. These conflicts have been recognized, but at this time APHIS and the USFWS have not formally resolved the problem.

from IOBC/NRS Newsletter, 17, 3, 1995

RAVEN, the First Live Microbial Pathogen Made by Recombinant DNA Techniques to be Registered by EPA

The US EPA has given approval for the use of the first viable microbial pesticide to be produced by recombinant DNA technology. (Previous genetically engineered biopesticides have either consisted of dead bacteria, as in Mycogens's MVP, or have been made by conjugal transfer methods). *Raven* is based on *Bacillus thuringiensis* subsp. *tenebrionis* and is aimed at the Colorado potato beetle, *Leptinotarsa decemlineata*, on potatoes and tomatoes. It contains two different Coleopteran-active toxins from two strains, the combination of the two being more effective than either separately. (from Biocontrol News and Information, Vol. 16 (2), p. 21N).

Pink Mealybug - the parasites strike back !

In 1993 people on the Caribbean island of Grenada started to notice extensive damage to a large number of trees, shrubs, fruits and vegetables, caused by a previously unknown pest. This turned out to be the pink mealybug (PMB), *Maconellicoccus hirsutus* which is found in many parts of the Old World. Grenada's horticultural production has been badly affected while earlier this year the mealybug found its way to neighbouring Trinidad and has now been confirmed in St. Kitts. Applying selective pesticides and burning affected material only offers a short-term solution so a sustainable control programme has been launched, to introduce natural enemies of the mealybug from its native range.

Supported by FAO, the International Institute of Biological Control (IIBC) is collaborating with Caribbean ministry colleagues to study the mealybug and select the most promising control agents. Several species of *Anagyrus* encyrtid wasp have proved particularly effective. In Egypt *Anagyrus kamali* has been released and provides very good control of the mealybug with parasitization levels in the field ranging from 66-98%. The PMB was also accidentally introduced into Hawaii in 1983 and has been kept under natural control by *A. kamali* and another *Anagyrus* species, which were apparently introduced at the same time as their host. As an internal parasitoid with a strong preference for mealybugs in general and the PMB in particular, *A. kamali* will not pose a risk to non-target organisms and is the logical choice for the Caribbean.

Live wasps were hand-carried to Grenada in October 1995 and are currently being multiplied in an insectary on established mealybug cultures. Staff of the Ministry of Agriculture in Grenada are being trained in rearing methods and they made the first pilot field release of 1,000 adults in November. They will now monitor how the wasp adapts to the environmental conditions in Grenada, make further releases and assess its impact on PMB populations. As part of its wider aims, the programme plans to train farmers and agricultural industries in how to integrate biological control into their cropping systems and reduce their reliance on chemical methods.

For information contact: Tony Cross, IIBC, Silwood Park, Buckhurst Road, Ascot, Berks. SL5 7TA, UK.

REQUESTS & OFFERS

NBCI Home Page on the Internet

The National Biological Control Institute (NBCI, USDA, APHIS) established the world's first biological control Home Page on the Internet (http://www.aphis.usda.gov/nbci/nbci.html). There are sections on establishment of NBCI; NBCI's Customer Service plan (which won an award from the US Vice President, Al Gore, last year); Products and Services such as the NBCI Facilitation Grant Program, Implementation Grant Pro-

gram, Postdoctoral Fellowships in Systematics; News items; NBCI staff details; and Biological Control Information. The latter section has the NBCI Store (where you can order electronically free videos, posters, pamphlets and books), and provides „hotlinks" to other global sites of interest to biological control and IPM. A key document currently on the NBCI Web page is the „Strawman" (see below). Comments from colleagues to help improve the NBCI Web page will be greatly appreciated.

E. S. Delfosse

IOBC Internet Directory

An increasing number of IOBC members have Internet access, but there is no compilation of Internet addresses. NBCI has volunteered to assemble an *IOBC Internet Directory*, and to make it available via the NBCI Home Page (see above), or the IOBC Home Page if one is approved.

Please send your name, mailing address, telephone and facsimile numbers, and e-mail address to: edelfosse@aphis.usda.gov.

E.S. Delfosse

Biological Control „Strawman" for Peer Review on the Internet

Following five years of consultation with the biological control community and other colleagues, in January 1996 the National Biological Control Institute placed a document called „Options for Changes in Biological Control Regulation in the United States: A Strawman for Comment" on the Internet (http://www.aphis.usda.gov/nbci/nbci.html). This is the first time that the Internet has been used to seek peer review of a scientific document. Comments about the „Strawman" have been very positive; additional input from global customers of NBCI are welcomed.

E.S. Delfosse

Ecological Database of the World's Insect Pathogens

David Onstad at the University of Illinois and Illinois Natural History Survey received funding for a second year from the National Biological Control Institute (US DA-APHIS) to continue improving and expanding the Ecological Database of the World's Insect Pathogens, EDWIP. He plans to fill in the gaps concerning the ecology of the insect hosts and add more associations between insect species and pathogen species. The Larsson, Humber (ARSEF), and Martignoni databases will be used to add more entries to the database. With additional references published on viruses since Dr. Martignoni's retirement, the number of associations is likely to approach 4,500 by the middle of 1996.

A smaller but important database is WIPLI, World's Insect Pathogens: Lack of Infection. This complementary database consists of published negative lab results for insect-pathogen associations. Currently, 106 entries have been made based on only three recent publications.

Onstad requests that anyone knowing of a published hostrange test send him the article or reference. In addition, any unpublished or published information regarding viruses, fungi, protozoa, and bacteria (other than *B. thuringiensis*) that may contribute to the database will be accepted by Onstad (Center for Economic Entomology, Illinois Natural History Survey, 607 E. Peabody Dr., Champaign, IL 61820, USA) FAX 217 333-4949.

In 1996, the two databases will probably be placed on the World Wide Web so that any scientist with Internet connections can search them.

Read the following advertisement ("Call for papers") very carefully! Many statements are so provocative and challenging for biocontrol scientists, for the whole biocontrol community, that all those who feel competent should react to it.

(F. Bigler)

Call for papers

Special Issue of Agriculture and Human Values

THE ETHICS OF BIOLOGICAL CONTROL

With the publication of Rachel Carson's Silent Spring, the use of broad-spectrum synthetic pesticides became a widely acknowledged threat to the well-being of humans and the environment. As such, biological control received an enthusiastic public greeting. The use of living organisms as our allies in controlling pests promised an ecologically based, environmentally sound „natural" alternative to the abuses of pesticides. The potential benefits of biological control to human well-being, relative to the historical misuses of chemical pesticides, are incontrovertible. However, the environmental risks of biological control are of a unique kind and degree. Because biological control makes use of living organisms that are often intended to reproduce and spread from the point of release, we now have the potential to permanently and irreversibly alter ecosystems on a continental, if not global, scale. Previous pest control technologies were spatiotemporally limited in their benefits and harms; environmental alterations due to the use of chemical, mechanical, and cultural tools were usually localized and were almost certain

to disappear with ecological time. By contrast, when biologisal control involves the establishment of an organism with the potential to track its host in time and space, the permanent suppression of pest or nontarget species across entire ranges is possible. Thus, along with the potential for indefinite benefit to human interests come the potential for permanent, unintended, and largely unpredictable disruption of ecosystems, including the extinction of nontarget species.

The purpose of this special issue is to explore the consequences of different strategies of biological control, their effectiveness and, especially, their ethical implications. Papers are invited on topics covering a wide range of issues. Topics may include, but are not necessarily limited to considerations of the following questions.

- In a biological control program, how do we balance the value of native nontarget species with the damage done by the target pest?
- What are our "obligations" to the species being "used" for our benefit as biological control agents - are there any ethical constraints with what we do to/ with other species in this regard?
- How do the ethical consequences of an introduction of an exotic biological control agent differ from the concerns related to the release of genetically engineered organisms?
- How certain of nontarget effects must we be prior to a biological control release?
- When is biological control "natural" and does it matter?
- How do we balance the possibility of extinction with agricultural and other human interests?
- How do the various forms of biological control (e.g., augmentation of native agents versus introductions of exotic organisms) differ in terms of ethical considerations?
- What are our obligations to future generation in the context of exotic introductions for biological control?
- What are our moral requirements for compensation to (often poor) countries from which biological control agents are taken?
- What are our ethical obligations with respect to being able to reverse a biological control program once the organisms are released?
- What is the nature of our obligations in monitoring the beneficial and harmful impacts of biological control? How do various formulations of environmental ethics apply to biological control?
- What social and legal constraints are necessary to assure the ethical application of biological control technologies?
- What is the proper role of government regulation with respect to biological control?
- Who is responsible for damages from unintended environmental impacts of biological control?
- How do ethical considerations vary across the different classes of organisms used in biological control (e.g, insects, mammals, fungi)?

Submission deadline for papers is September 1,1996. Send two copies to Dr. Jeffrey A. Lockwood (who is guest editing this special issue), Department of Plant, Soil, and Insect Sciences, University of Wyoming, Laramie, WY 82071; and two copies to Richard Haynes, Editor, Agriculture and Human Values, P.O. Box 118545, University of Florida, Gainesville, FL32611-8545.

Make inquiries to Dr. Lockwood at 307-766-4260 (lockwood@uwyo.edu) or Dr. Haynes at 904-392-2084 (aghuval@nerv.nerdc.ufl.edu).

BOOKS

Acton D.F. and L. J. Gregorich (Eds.), 1995. The health of our soils: toward sustainable agriculture in Canada. 120 pp. Agric. Agri-food Canada.

Barrion A.T. and J.A. Litsinger, 1995. Riceland Spiders of South and Southeast Asia. 736 pp. CAB International, Wallingford, Oxon OX10 8DE, UK.

Chapman R.F. and G. de Boer, 1995. Regulatory mechanisms in insect feeding, 398 pp. Chapman & Hall.

Kettle D.S., 1995. Medical and Veterinary Entomology, 2nd Edition. 720 pp. CAB International, Wallingford, Oxon OX10 8DE, UK.

Lenteren J.C. van, A.J.M. Loomans and M.G. Tommassini, 1995. Biological control of thrips pests. 201 pp. Wageningen Agricultural University Papers, Wageningen.

CALENDAR

May 15-16, 1996
The 2nd International Agro-Ecology Symposium on Integrated Pest Management: From the Drawing Board to the Market, Tel Aviv, Israel. Contact: Symposium Secretariat, c/o CARMEL Organizers of Conferences, P.O. Box 1912, Ramat Gan 52532, Israel. Fax (972-3) 5753 107.

May 26-30, 1996
Congreso de Entomologia (VI Latinoamericano y XXXI Nacional), Yucatan, Mexico. Contact: Viajes Novel de Mexico, S.A. de C.V., Hamburgo 55 Apdo. Postal 61856, 06600 Mexico

D.F. Fax (5) 511-0971, 525-7643 y 207-0957.

June 10-14, 1996
Biological and Integrated Pest Management in Greenhouse Pepper. Hódmezövásárhely, Hungary. Contact: Zoltán Ilovai, Biological Control Laboratory, Csongrád County Plant Health and Soil Conservation Station, Rárósistr. 110, Hódmezövásárhely, H-6801, Hungary. Fax: +36 62 346036.

August 18-22, 1996
International Society of Chemical Ecology - 13th Annual Meeting, Prague, Czech Republic. Contact: Juraj Harmatha, Institute of Organic Chemistry and Biochemistry, Flemingovo 2, Cz-16610 Prague, Czech Republic. Fax 422 243 10090.

August 25-31, 1996
XX International Congress of Entomology, Florence, Italy. Contact the Organizing Secretariat O.I.C., Via A. La Marmora, 24, 50121 Florence, Italy. Fax 39 55 500 19 12.

August 25-31, 1996
Symposium on "Artificial rearing of insect parasitoids and predators as part of "Entomophagous Insects and Biological Control". XX International Congress of Entomology, Florence, Italy. Contact: Dr. Simon Grenier, Laboratoire de Biologie Appliquée, INRA, Bât. 406, INSA, 20 Avenue A. Einstein, 69621 Villeurbanne Cedex, France, Fax 33 72 43 85 11.

September 4-6, 1996
Symposium of the IOBC Global working group "Ecology of Aphidophaga". Gembloux, Belgium. Contact: J.L. Hemptienne, Faculté des Sciences Agronomiques, Passage des Déportés 2, 5030 Gembloux. Fax 32 81 622 286.

October 14-16, 1996
Ecotoxicology, Pesticides and Beneficial Organisms: An International Review Conference. Cardiff, UK. Contact: Conference Secretariat, Ecotoxicology Conference, School of Pure & Applied Biology, University of Wales, Cardiff, P.O. Box 915, Cardiff CF1 3TL UK. Fax 1222 450 538

October 14-18, 1996
Fourth International Workshop on Biological Control and Management of *Chromolaena odorata*. Bangalor, India. Contact: Dr. R. Muniappan, Agricultural Experimental Station, University of Guam, Mangilao , Guam 96914, USA. Fax (671) 734 6842.

November 17-22, 1996
XIVth International Congress for Tropical Medicine and Malaria. Nagasaki City, Japan. Contact: Hideyo Itakura, Secretary General, c/o Institute of Tropical Medicine, Nagasaki University, 1-12-4 Sakamoto, Nagasaki 852, Japan. Fax 81 958 43 2194

Training Courses

8-19 July 1996
IPM-Tools for Implementation. Organized by CRC for Tropical Pest Management, University of Queensland, Brisbane, Australia.

The aim of the course is to provide participants with an understanding of approaches, concepts, and techniques that will be of value to them in deciding on IPM research priorities, designing and implementing IPM strategies, and training pest managers and their advisers.

Contact: The Conference Secretariat (Sally Brown) Continuing Professional Education, The University of Queensland 4072 Australia

Fax 61 7 3365 7099, Telex AA40315 UNIVQLD, Tel. 61 7 3365 6360, e-mail: sally@ceu.uq.oz.au

Election of a new Executive Committee of IOBC Global

The nomination period of members for the new Executive Committee has ended on 31 March 1996. The postal ballot will be performed between mid-May and mid-August 1996. IOBC members (except supporting members which do not have votes) will receive the list of canditates together with additional information. They are asked to return the lists not later than August 8, 1996.

Requested:
Newsletter Contributions

I would like to thank all those members who are taking time to send items for the Newsletter. If you have not previously sent anything, please consider doing so. Remember, this is **your** opportunity to let others know what is going on in biocontrol. Take a few minutes and mail or fax items of biological control to the Newsletter editor, so they can be included in the next issue. Deadline for submitting items for the October 1996 issue of IOBC Newsletter is **September 30, 1996**. Send items to F. Bigler (address on page 1).

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