

**PROGRAMME**  
**COST 850**  
**Summit Workshop**  
**Schloss Salzau, Germany**

**FRIDAY, June 2, 2006**

**09:00 – 11:00 Session 1:**

**Symbiosis biology - WG1**

**(Chairs: Noel Boemare, France and David Clarke, United Kingdom)**

- 09:00 Relation of nematodes and bacteria during reproduction  
Author: Richou Han (PR China)
- 09:30 Incompatible insect technique: A *Wolbachia*-based technology for insect pest control  
Author: Kostas Bourtzis (Greece)
- 10:00 Competitions and costs in *Steinernema - Xenorhabdus* associations  
Authors: Vanya Emelianoff, Julie Hinsinger, Catherine Moulia & Mathieu Sicard (France)
- 10:30 Recent EPN research and application technology in Japan  
Authors: Toyoshi Yoshiga, Mutsuhiro Yoshida & Hiroshi Tanabe (Japan)

**11:30 – 12:30 Session 2:**

**Valedictory session to honour Noel Boemare**

**(Chairs: Richard ffrench-Constant, UK and Nelson Simoes, Portugal)**

- 11:30 *Photorhabdus* and *Xenorhabdus* - the benefit of COST 850  
Author: David J. Clarke (UK)
- 11:50 *Xenorhabdus* and *Photorhabdus*: Potent producers and natural products  
Authors: Helge B. Bode, A. Brachmann & G. Schwär (Germany)
- 12:10 Functional redundancy of *Photorhabdus* toxins: Why so many and what do they all do?  
Authors: R. ffrench-Constant, A. Dowling, M. Hares, G. Yang & N. Waterfield (United Kingdom)
- 12:30 New insight into diversity in the genus *Xenorhabdus*  
Authors: Patrick Tailliez, Sylvie Pagès, Nadège Ginibre & Noël Boemare (France)

**14:00 – 16:00 Session 3:**

**Socio-Economics: From strain to product - WG5**

**(Chairs: Roma Gwynn, United Kingdom and Giovanna Curto, Italy)**

- 14:00 Progress in internal and external communication of activities: Achievements of WG5 Socio-Economics  
Authors: Giovanna Curto (Italy) & Holger Philipsen (Denmark)
- 14:20 Benefits from the Cost Actions for a commercial EPN producer – A historical overview  
Authors: Rick van der Pas & Frans Weber (The Netherlands)
- 14:40 e-nema GmbH: From EPN start-up to microbial control company  
Authors: Tillmann Frank, Arne Peters & Ralf-Udo Ehlers (Germany)
- 15:00 History of Becker Underwood and the development of EPNs and slug parasitic nematodes.  
Authors: Graeme Gowling & Cyrille Verdun (United Kingdom)
- 15:20 Research into practice: Product development pathways for entomopathogenic nematodes in developing countries.  
Author: Roma L Gwynn (Scotland, UK)
- 15:40 The registration of EPNs - A review of the situation prevailing in Europe and selected foreign countries  
Author: Dr Bernard J. Blum (Switzerland)

**16:30 – 19:00 Session 4:**  
**Interaction field biota-EPN behaviour and survival -WG 4**  
(Chairs: Solveig Haukeland, Norway and Naim Iraki, Palestine)

- 16:30 Quantification of the slug parasitic nematode *Phasmarhabditis hermaphrodita* from soil samples using real time qPCR  
Authors: Keith MacMillan, Vivian Blok, Iain Young, John Crawford, Christopher E. Mullins & Michael J. Wilson (United Kingdom)
- 16:45 Persistence of EPN in turf and agriculture ecosystems  
Authors: Alper Susurluk (Turkey) & Ralf-Udo Ehlers (Germany)
- 17:00 Horizontal movement of entomopathogenic nematodes through sand, peat and chipped bark  
Authors: Laura Kruitbos, Stuart Heritage & Mike Wilson (United Kingdom)
- 17:15 Persistence and spread of exotic and indigenous nematodes applied to pine stumps for suppression of pine weevil  
Authors: A.D. Dillon, C.M. Meade & C.T. Griffin (Ireland)
- 17:30 Primary and secondary invasion  
Author: Arne Peters (Germany)
- 17:45 More questions than answers: Application and establishment in agroecosystems  
Authors: Alper Susurluk (Turkey) & Ralf-Udo Ehlers (Germany)
- 18:00 Determination of desiccation and heat tolerance of several local insect-pathogenic nematode strains in Palestine  
Authors: Naim Iraki, Basma Sandouka, & Amani Abu-Sa'da (Palestine)
- 18:15 *Steinernema thermophilum* Ganguly & Singh 2000- an updated picture  
Authors: Vishal S. Somvanshi (Israel) & Sudershan Ganguly, Israel

**SATURDAY, June 3, 2006**

**08:00 – 09:00 Session 5:**  
**Tritrophic interactions - WG4**  
(Chairs: Christine Griffin, Ireland and Stefan Toepfer, Hungary)

- 08:00 Influence of insect-damaged roots on the host-finding behaviour of the entomopathogenic nematode *Heterorhabditis megidis*  
Authors: I. Hiltbold, S. Rasmann & T.C J. Turlings (Switzerland)
- 08:20 Behavioural interactions between the large pine weevil, *Hylobius abietis* and entomopathogenic nematodes.  
Authors: D. E. Ennis & C.T. Griffin (Ireland)
- 08:40 Development of an extraction method for roots of *Thuja occidentalis* and a bio-assay to test its attractiveness for *Heterorhabditis megidis*  
Authors: Marieke W. Prins, Rob W.H.M. van Tol, Pim de Voogt & Maurice W. Sabelis (The Netherlands)

**09:00 – 13:00 Session 6:**

**EPN in orchards - WP3**

(Chairs: Albert Ester, The Netherlands and Jürg Grunder, Switzerland)

- 09:00 EPN and biological control of the root weevil, *Diaprepes abbreviatus*, in Florida citrus  
Author: Robin J. Stuart (USA)
- 09:30 Concepts and strategies for a successful product development - The case of EPN's for the control of hazelnut weevil, *Balaninus nucum*  
Authors: Dr Bernard J. Blum & Jürg Grunder (Switzerland)
- 10:00 Control of the flathead rootborer (*Capnodis tenebrionis*) with the entomopathogenic nematode *Steinernema carpocapsae* in a chitosan formulation in apricot.  
Authors: Maria del Mar Martinez de Altube & Alejandro Martinez Peña (Spain)
- 10:15 Field application of entomopathogenic nematodes against insect pests of fruits and vegetables in Egypt  
Authors: M. M. Shamseldean & A.A. Atwa (Egypt)
- 10:30 Entomopathogenic nematodes as part of the integrated pest management program in guava orchards of Rio de Janeiro State, Brazil  
Author: Claudia Dolinski (Brasil)
- 10:45 Effectiveness of EPN in the control of sawfly (*Hoplocampa brevis*) on pear orchards  
Authors: Giovanna Curto, Stefano Vergnani & Alberto Reggiani (Italy)
- 11:30 Effectiveness of EPN in the control of *Cydia pomonella* overwintering larvae in Northern Italy  
Authors: G. Curto, S. Vergnani, A. Reggiani, R. Cornale, M. Benuzzi, E. Ladurner & S. Caruso (Italy)
- 11:45 Control of codling moth, *Cydia pomonella*, with entomopathogenic nematodes  
Authors: Arne Peters & Ellen Elias (Germany)

**14:00 – 18:30 Session 7:**

**EPN and EPB Genetics & Bioactive Molecules –WGs 1 + 2**

(Chairs: Hinanit Koltai, Israel and Kostas Bourtzis, Greece)

- 14:00 Invasion of the body-snatchers: symbiont transmission by *H. bacteriophora*  
Author: Todd Ciche (USA)
- 15:00 The complete mitochondrial genome of the entomopathogenic nematode *Steinernema carpocapsae*: Insights into tRNA editing mechanisms  
Authors: R. Montiel, G. Nascimento, M.A. Lucena, J. Medeiros & N. Simões (Portugal)
- 15:20 Generation and analysis of an EST dataset from recovering axenic dauer juveniles of *Steinernema carpocapsae*.  
Authors: Zoe Mulroy-Hehir, John T. Jones, Gayle K. Philip, Linda Cardle & Ann M. Burnell (Ireland)
- 15:40 Expression of prtX like-proteases by *Xenorhabdus nematophila* and *Photorhabdus luminescens*  
Authors: G. Nascimento, R. Montiel, C. Cabral, T. Martins, J. Medeiros, M. Robles & N. Simões (Portugal)
- 16:30 Recent research on entomopathogenic nematodes in China  
Author: Richou Han (China)
- 16:50 The *Heterorhabditis* Genome Project  
Author: Todd Ciche (USA)
- 17:10 Proteins expressed by *Steinernema carpocapsae* during the infection process  
Authors: N. Simões, D. Toubarro, & J. Martins (Portugal)
- 17:30 Transcription analysis of *Steinernema carpocapsae* induced with insect haemolymph  
Authors: Y.J. Hao, R. Montiel, G.Nascimento & N. Simoes (Portugal)
- 18:10 Development of molecular markers for stress response in different species of entomopathogenic nematodes  
Authors: Vishal S. Somvanshi, Hinanit Koltai & Itamar Glazer (Israel)

## SUNDAY, June 4, 2006

### 09:00 – 11:00 **Session 8:** **Tools for EPN and EPB genetics - WG1 and WG2** (Chairs: Ann Burnell, Ireland and Todd Ciche, USA)

- 09:00 Mutagenesis as a tool for improvement of biocontrol potential of entomopathogenic nematodes.  
Author: Marek Tomalak (Poland)
- 09:20 Genetic selection as a tool for improvement of beneficial traits in *Heterorhabditis* sp.  
Authors: Olaf Strauch & Ralf-Udo Ehlers (Germany)
- 09:40 Improvement of EPN by genetic and molecular tools: the nematologist perspective  
Author: Itamar Glazer (Israel)
- 10:00 Genomics as an approach for research and improvement of entomopathogenic nematodes  
Author: Hinanit Koltai (Israel)

### 11:30 – 13:00 **Management Committee Meeting** **Future perspectives in science & collaboration - COST 850**

- 11:30 COST 850 Biocontrol Symbiosis: Achievements  
Author: Ralf-Udo Ehlers
- 12:00 COST 850 Management Committee Meeting (Ballet Room, third floor of Castle Salzau)

### 14:00 – 16:00 **Session 9:** **Achievements - COST 850** (Chairs: Marek Tomalak, Poland and Oreste Triggiani, Italy)

- 14:00 Progress of the research on symbiotic and pathogenic interactions between *Xenorhabdus* and *Photorhabdus* bacteria and the phylum Ecdysozoa in France (COST 850 period)  
Authors: Noël Boemare, Michel Brehelin, Sophie Gaudriault, Alain Givaudan, Anne Lanois, Catherine Moulia, Sylvie Pages, Mathieu Sicard, Patrick Tailliez, Olivier Thaler & Robert Zumbühl
- 14:15 Activity in Israel during COST 850  
Author: Itamar Glazer (Israel)
- 14:30 Research on entomopathogenic nematodes in Ireland  
Authors: C.T. Griffin, A.M. Burnell & M.J. Downes (Ireland)
- 14:45 Achievements during COST 850 in Belgium  
Authors: Jeff Coosemans & Maurice Moens (Belgium)
- 15:00 Use of EPN in Germany  
Authors: Michael Barth, Arne Peters & Ralf-Udo Ehlers (Germany)
- 15:10 Use of EPN in Scandinavia  
Author: Solveig Haukeland (Norway)
- 15:20 Progress in EPN use and research in Italy  
Author: Oreste Triggiani (Italy)
- 15:30 Research and use of EPNs in Poland  
Author: Marek Tomalak
- 15:40 Achievement in EPN research and use in biological control in Switzerland  
Author: Jürg Grunder (Switzerland)

## Poster Session

(Chairs: Stefan Kuske, Switzerland and Olaf Strauch, Germany)

LIBRARY

1. Role of hemolymph factors during in vitro cellular encapsulation of nematodes by the hemocytes of *Galleria mellonella*  
Authors: M. Nalini, P. Hyrsl & T. Raman (Czech Republik)
2. Installation of a Swiss zooparasitic nematode bank  
Authors: Stefan Kuske & Jürg M. Grunder (Switzerland)
3. New isolate of *Photorhabdus luminescens* ssp. *kayaii* from Czech Republic  
Authors: P. Hyrsl, I. Sedlacek & Z. Pacova (Czech Republic)
4. Monitoring of insect-hosts of entomopathogenic nematodes in Bulgaria  
Authors: D. Gradinarov & N. Atanasov (Bulgaria)
5. Isolation and characterization of a novel subspecies of *Photorhabdus asymbiotica* isolated from *H. indica*  
Authors: Ryusei Kuwata, Toyoshi Yoshiga, Mutsuhiro Yoshida & Eizo Kondo (Japan)
6. A report on the occurrence of *Heterorhabditis indica* with two symbiotic bacterial species in Japan  
Authors: M. Yoshida, R. Kuwata, T. Yoshiga & T. Mizukubo (Japan)
7. Testing the male colonisation hypothesis in *Steinernema* spp.  
Authors: M.A.M. Alsaiyah & C.T. Griffin (Ireland)
8. Novel mitochondrial gene arrangement among some species of the Genus *Heterorhabditis*  
Authors: Sassia O. Regeai & Ann M. Burnell (Ireland)
9. Attempts to develop an RNAi protocol for *Steinernema carpocapsae*  
Authors: Ilona Dix, Trevor Tyson & Ann M. Burnell (Ireland)
10. A review on entomopathogenic nematodes in Turkey  
Author: Alper Susurluk (Turkey)
11. Effectiveness of entomopathogenic nematodes (*Steinernema* and *Heterorhabditis* spp.) from Azores-Portugal, against the Mediterranean Fruit Fly  
Authors: A. Medeiros, P. Garcia, N. Simões, & L. Oliveira (Portugal)
12. An experience about biological control of *Caliroa varipes* Klug (Hymenoptera Tentredinae) by EPN, in an urban park of Bologna suburbs (Emilia-Romagna, Northern Italy)  
Authors: Giovanna Curto & Nicoletta Vai (Italy)
13. Checking for synergistic effects between *Bacillus thuringiensis* and *Steinernema carpocapsae* against *Plutella xylostella*  
Authors: Xiaoli Yi & Ralf-Udo Ehlers (Germany)
14. Overlooked important characters in females and infective juveniles of the entomopathogenic family *Steinernematidae* (Nematoda)  
Authors: Zdeněk Mráček & Vladimír Půža (Czech Republic)

**17:30 – 19:30 Session 10:**

**Biotechnology and Application - WG 3**

(Chairs: **Mayra de la Torre, Mexico and Denis Wright, United Kingdom**)

- 17:30 Foliar application of entomopathogenic nematodes: progress and prospects  
Authors: Denis J Wright & Roma L Gwynn (United Kingdom)
- 17:50 Use of nematodes for control of *Plutella xylostella* on cabbage foliage  
Authors: Xiaoli Yi, Sibylle Schroer & Ralf-Udo Ehlers (Germany)
- 18:10 Evaluating efficacy of application of entomopathogenic nematodes via a drip line irrigation system  
Authors: Andrew P. Brown, J. Pearce, C. Verdun & D.J. Wright (UK)
- 18:30 Investigating different application strategies of *Phasmarhabditis hermaphrodita*  
Authors: Robbie G. Rae, Jamie, F. Robertson & Michael J. Wilson (United Kingdom)
- 18:50 Effect of the superficial gas velocity on hydrodynamics and growth kinetics of *Steinernema* spp in a bubble column.  
Authors: Y. Reyes, M. Adame, .O Gómez & M. de la Torre (Mexico)
- 19:10 Monoxenic production of the entomopathogenic nematode *Steinernema carpocapsae* in an internal-loop airlift bioreactor: Evolution of the hydrodynamic conditions.  
Authors: Gabriela Maciel-Vergara, René Sanjuan-Galindo, Blanca-Rosa Rodríguez-Pastrana, Luis Medina, Adriana-Inés Rodríguez-Hernández & Norberto Chavarría-Hernández (Mexico)
- 19:30 Life cycle and liquid culture production  
Authors: Olaf Strauch, Ralf-Udo Ehlers & Arne Peters (Germany)

**MONDAY, June 5, 2006**

**09:00 – 10:30 Session 11:**

**Use of EPN in closed environments –WG3**

(Chairs: **Mohammed Shamseldean, Egypt and Arne Peters, Germany**)

- 09:00 Control of western flower thrips by entomopathogenic nematodes: possibilities and challenges  
Authors: Lemma Ebssa & Hans-Michael Poehling (Germany)
- 09:15 An overview of the use of entomopathogenic nematodes in different crops in Spain  
Authors: Maria del Mar Martinez de Altube & Alejandro Martinez Peña (Spain)
- 09:30 Lure, release and kill: EPN against isopodes  
Authors: Arne Peters & Christine Lentz (Germany)
- 09:45 The efficacy of predatory mites and entomopathogenic nematodes in controlling insect pests during mushroom cultivation  
Authors: S. Jess, C.T. Griffin & B. Desrumaux (Ireland)
- 10:00 Cockroach control with EPN  
Authors: Arne Peters & Kristina Hasselmann (Germany)
- 10:15 Progress, issues and constraints in Africa for the development of entomopathogenic nematodes  
Author: Roma L Gwynn (Scotland, UK)

**10:30 – 12:30 Session 12:**

**Use in outdoor environments - WG3**

(Chairs: **Itamar Glazer, Israel and Lemma Ebssa, Germany**)

- 10:30 The use of slug-parasitic nematodes for the control of slug damage in lettuce  
Authors: Albert Ester & Klaas van Rozen (The Netherland)
- 10:45 Use of the entomopathogenic nematode *Steinernema kraussei* in Norwegian field grown strawberries  
Author: Solveig Haukeland (Norway)
- 11:30 Control of the invasive alien maize pest *Diabrotica virgifera virgifera* using nematodes  
Authors: St. Toepfer (Hungary), R.-U. Ehlers, B. Kurtz (Germany), R. Burger & U. Kuhlmann (Switzerland)
- 11:45 Biological control of leatherjackets using EPN and Bti  
Authors: Jesko Oestergaard, Annelie Fellinghauer, Sabina Voß, Olaf Strauch & Ralf-Udo Ehlers (Germany)
- 12:00 Use of EPN against grubs in turf  
Authors: Roger Fischer, Arne Peters & Ralf-Udo Ehlers (Germany)
- 12:15 Entomopathogenic nematodes in the control of oilseed rape pests  
Authors: M. Zec-Vojinovic, H.M.T. Hokkanen, G.-B. Husberg, I. Menzler-Hokkanen (Finland), W. Büchs, Z. Klukowski, (Germany), A. Luik, C. Nilsson, B. Ulber & I.H. Williams
- 12:30 Transfer of biocontrol techniques to management programs for the Red Palm Weevil in the Middle East, a project conducted by the Arab Organization for Agricultural Development: Entomopathogenic nematodes  
Authors: Mahmoud M.E. Saleh, M.A Al Heji., H. Al Ferdan & A. Darwish (Egypt)

**14:30 Visit to fermentation facility at E-NEMA GmbH, Raisdorf**