sip newsletter

society for invertebrate pathology

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F O U R T H A N N O U N C E M E N T

IVth INTERNATIONAL COLLOQUIUM ON INVERTEBRATE PATHOLOGY

in conjunction with the XIXth Annual Meeting of the Society for Invertebrate Pathology

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T H E N E T H E R L A N D S

This is the fourth and last announcement of the Fourth International Colloquium on Invertebrate Pathology (ICIP86), to be held from August 18-22, 1986, in "Koningshof" Conference and Meeting Center in Veldhoven, the Netherlands. Information on this conference was distributed to members of the Society for Invertebrate Pathology through SIP Newsletter issues of August 1985 (First Announcement), November 1985 (Second Announcement), February 1986 (Third Announcement) and through personal mailings to other interested individuals. The present announcement contains additional information on the conference, as well as the complete program.

SCIENTIFIC PROGRAM

The scientific program now consists of 14 General and 17 Specialized Symposia, 27 Contributed Paper Sessions, 7 Workshops and a Poster Presentation from Monday morning August 18 until Friday 22 closing at lunch time. All sessions will run in blocks of 90 minutes, from 8.30-10.00, 10.30-12.00, 14.00-15.30, 16.00-17.30 and 20.00-21.30 hrs. One General Symposium, one Specialized Symposium and two Contributed Paper Sessions will be held in parallel. In view of the simultaneous activities the contributions should not exceed the time indicated the program. Chairpersons are instructed to adhere strictly the time schedule.

The program will start with a Plenary Session on Monday morning, August 18, at 09.00 a.m.

Divisional meetings

Meetings are planned for the Division on Microsporidia (Business meeting, Tuesday August 19, 07.00-08.00), the Division on Microbial Control (not yet scheduled) and the Division on Safety (Wednesday August 20, 08.30-10.00).

Proceedings

The invited papers (133) and abstracts (196) will be published in the conference Proceedings, entitled "Fundamental and Applied Aspects of Invertebrate Pathology", and will be available at the meeting. Its costs are included in the registration fee. Additional copies can be ordered from the organizers at the expense of Dfl. 60,-. The Proceedings will also contain an ISBN number in order to enhance dissemination of its contents in the official literature and retrieval systems.

Visual aids

For presentations (Symposia, Contributed Paper Sessions and Workshops) 35 mm slide projectors will be available. Please, use 35 mm slides in 50 mm x 50 mm metal or plastic mounts.

All slides should bear a serial number in the upper-right hand corner of the frame and bear the name of the speaker. All figures, tables and subscripts should be prepared in English. There is limited facility for video tapes and films, and these will only be made available if notification of the requirement was received **before June 1, 1986.**

ACCOMMODATION

The Fourth International Colloquium on Invertebrate Pathology will be held at Congress Hotel and Meeting Centre "Koningshof" in Veldhoven. This conference center has exceptional meeting and recreational facilities. More than 350 delegates can be accommodated in Koningshof.

The hotel facility includes 178 single and 87 double bedrooms. Each room is provided with a shower, washstand and toilet, radio and telephone. All necessary services such as restaurant, bank, photocopying and parking facilities are available.

REGISTRATION.

Fees

The registration fee for the conference covers admission to the congress, the Conference Proceedings and a Program Book The late registration fee after April 15, 1986 is Dfl. 300.-. The special registration fee for students (after April 15, 1986) is Dfl. 175.- provided they include proof of student status (see below).

Accompanying persons pay Dfl. 150.- for registration, which includes the complete accompanying persons program.

The all-inclusive rate for full board and lodging (5 nights, 5 breakfasts, 5 lunches, two dinners, mixer and banquet) is Dfl. 700.- for a single room, and Dfl. 550.- for a double, per person. There is no free admission to the restaurant; tickets for meals are provided.

Delegates will be expected to pay the balance of any charges in Dutch currency. Additional meal tickets can be bought.

As of June 9 290 delegates and 30 accompanying persons have registered. In the Third Announcement, included in the February issue of the SIP Newsletter, you will find a registration form. This form contains all the necessary information for board and lodging. Your registration and hotel reservation are only definite if the total amount due is received. It is ESSENTIAL TO REGISTER AND TO RESERVE ACCOMMODATION BEFORE ARRIVAL. To find hotel accommodation on August 17 or later will be extremely difficult.

We try to accommodate all participants in the conference center. However, if the attendance exceeds 375 persons, we have made provisions for accommodation and

transportation in the neighbourhood of the conference center. Accommodation in the conference center in single or double rooms will be granted on a first come first serve basis.

Those arriving earlier and/or leaving later and wishing to reserve additional meals and rooms are requested to indicate this clearly on the registration form (SIP council meeting on August 17 and IOBC/WPRS meeting on August 22). The registration desk will be open from 11.00 to 23.00 h on Sunday, August 17. Throughout the conference the desk will be open daily.

Meals

The provision of meals at the conference center will be by ticket only. Meals will be served at the following times

Breakfast	07.00-09.00 h
Lunch	12.00-14.00 h
Dinner	18.00-19.30 h (except Thursday August 20, when the Banquet will start at 19.30 h)

Coffee and tea will be supplied between 10.00-10.30, and 15.30-16.00 h in the foyers adjacent to lecture rooms.

A licensed bar will be open from 12.00-14.00 h and from 17.00-24.00 h.

Cancellations

Cancellations should be made in writing to the Conference Secretariat. The amount of refund will depend on the date of cancellation, due to our own commitments and contracts, as follows:

Cancellations received before April 30, 1986:
80% of the registration fee refunded;
50% of the accommodation fee refunded
Cancellations received before July 31, 1986:
75% of the registration fee refunded
50% of the accommodation fee refunded
Cancellations received after July 31, 1986:
No refunds.

Refunds will be made payable after the conference.

SOCIAL PROGRAM

The social program is open to all conference delegates and registered accompanying persons. This program already includes an informal get-together or mixer on Sunday evening 19.00-21.00 h, August 17, the Plenary Session on Monday 18, optional excursions and guided tours on Wednesday 20 in the afternoon (small fee), an official reception offered by the Minister of Agriculture in the Van Abbe museum in Eindhoven on Wednesday evening (tentative) and the traditional Society Banquet on Thursday evening, August 21.

Excursions

On Wednesday August 20 in the afternoon four excursions are planned

A. visit to the Philips company, where a limited group of interested scientists will have the opportunity to visit the electron microscope plant and to get acquainted with the latest developments and models. The group will be limited to 25 delegates. Those interested in this exclusive excursion should notify the organizing committee **before August 1, 1986.** Applications will be granted on a first come first serve basis.
B. visit to Heineken Beer Breweries in Den Bosch, the second largest brewery in Europe, about 50 km from the conference center. The group is limited to 120 persons, accompanying persons included. Beer is provided.
C. visit to 'Evoluon' in Eindhoven, a popular science and technology center. Evoluon is an exciting exhibition for active and participating spectators interested in the advanced field of sound, light, electronics and modern communication.
D. visit to nature reserve in the province of Noord Brabant.

5-km Road Race

It is not too late to register for the traditional 5-km SIP Road Race, or jog. An attractive track in the forested surroundings of the conference center has been selected and tailored to the skills of the participants. Who is going to beat England's Norman Crook, winner of the 1985 contest? If you wish to participate, fill out the 5-km Road Race registration form that was enclosed in the February issue of the SIP Newsletter. Return a undersigned registration form to the conference secretariat without delay. This form was included in the February issue of the SIP Newsletter. T-shirts commemorating this race are available when ordered in advance.

ACCOMPANYING PERSONS PROGRAM

There will be a special program for accompanying persons. This program is tentative, and may be subject to changes.

After an informal get-together on **Monday** morning with coffee and a short introduction to the Netherlands, the Dutch and their way of life, a visit will be made to the Wooden Shoes Museum with handycraft and artifact displays in Best in the afternoon.

On **Tuesday** a full-day excursion is planned to the province of Zuid-Holland to visit. A floriculture glasshouse, a botanical garden, the old city of Delft and the windmill area near Kinderdijk will be visited.

Wednesday morning a museum with ancient clocks, church bells and carillons wil be visited in Asten.

On **Thursday** a full day excursion is planned to the open-air museum in Arnhem. A "Brabant Style" lunch will be used in the old city of 's-Hertogenbosch.

The program will finish on **Friday** morning with coffee and shopping in downtown Eindhoven.

Participants in the accompanying persons program are also entitled to take part in the other activities of the social program.

Please, indicate on the registration form if you wish to participate in this program.

GENERAL INFORMATION

Visa

In accordance to our immigration rules, some nationalities may need to have visas to enter the Netherlands. Direct your request for visas to a Dutch Embassy or Consulate before arrival. Participants who need a visa are advised to apply for it well in advance of their departure date to allow adequate time for processing the application. Indicate on the forms that ICIP86 is an international conference, held under the auspices of the Society for Invertebrate Pathology.

SIP NEWSLETTER

The SIP Newsletter is produced four times a year by the Society for Invertebrate Pathology. Annual dues (U.S. funds) in the Society are: regular members, $11.00; and students, $4.00. Members receive the SIP Newsletter and a copy of the abstracts of all SIP Annual General meetings free, whether or not they attend. Application forms for membership in the Society may be obtained from the Treasurer, Dr. James R. Fuxa, Dept. of Entomology, Louisiana State University, Baton Rouge, Louisiana 70803-1710 U.S.A.

Council Officers of the Society are:

President	H. Denis Burges, England
Vice President	John C. Harshbarger, USA
Past President	Wayne M. Brooks, USA
Secretary	Elizabeth W. Davidson, USA
Treasurer	James R. Fuxa, USA
Trustees	John A. Couch, USA
	Brian A. Federici, USA
	John E. Henry, USA
	Hitoshi Watanabe, Japan

Send news items and other contributions to:
Gary G. Wilson, Editor
SIP Newsletter
Forest Pest Management Institute
Canadian Forestry Service
P.O. Box 490
Sault Ste. Marie, Ontario, Canada P6A 5M7

DEADLINE NEXT ISSUE: SEPT. 15, 1986

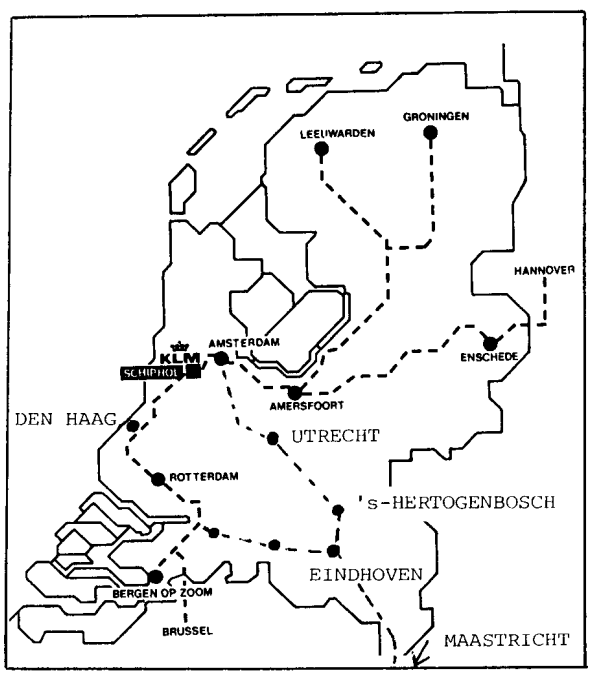
Travel

Visitors arriving **by air** are most likely to arrive at Schiphol Airport, near Amsterdam, on Sunday August 17. From the airport there is a direct train connection (22 min) with the Central Railway Station in Amsterdam. The railway station at Schiphol Airport can be reached by an underground connection from the arrival hall. Buy at Schiphol railway station a one-way ticket to Eindhoven. In Amsterdam you have to change trains.

In Amsterdam, take (look for the right platform on the yellow time tables posted at the platforms) the Intercity train with final destination Maastricht. Departures from Amsterdam CS: 07.02, 07.32 and every 30 min until 23.02. Get off after a 1 h and 25 min ride via Utrecht (see map) at Eindhoven railway station (marked Eindhoven).

As you leave the station there is a bus station on the right. Take bus 143 or 150 marked Eersel/Reussel. After a 20 minute-ride you get off at busstop Koningshof. This train ride to Veldhoven will cost approximately Dfl. 35.-, whereas you pay Dfl. 300.- for a taxi from Schiphol Airport to Veldhoven (Koningshof). We plan to organise on Sunday August 17 a direct bus connection from Eindhoven railway station to the Congress center Koningshof. Look for the posted signs with the conference logo!!! The train ticket bought is valid for one day! If you wish you can spend a day in Amsterdam after arrival at the Amsterdam Central Railway Station. There is a storage counter for luggage at the station.

Alternatively, if you travel **by car**, either follow the A2/E9 from the north, the A58 from the west, the E3 from Belgium and Germany towards Eindhoven. Final destination: Veldhoven.



Royal Dutch Airlines (KLM), the airline of the year, has been selected as the official carrier for ICIP86. KLM offices all over the world will gladly assist participants to obtain all information they may need about their travel arrangements. Schiphol airport near Amsterdam is the gateway to Europe and to the conference center. KLM will be happy to fly you in.

KLM
Royal Dutch Airlines

Weather

The weather conditions in August are usually good with average temperatures of around 20 degrees Celcius (68 F). It is suggested to bring a sweater and an umbrella, in case of chilly evenings and an occasional rain shower.

Dutch currency; money exchange

The basic monetary unit in the Netherlands is the guilder (abbreviated DFl.). One guilder = 100 cents. At the beginning of June 1986, Dfl. 100.- was equivalent to about $40 (am), $58 (can), 27 English Pounds, 270 French Francs, 88 German Marks.

Banking and money-exchange facilities are available at Schiphol Airport. In order to pay small expenses (train) it is advised to bring cash.

Money exchange will be possible at the conference center. Traveller's cheques can be cashed, but credit cards cannot be used to obtain cash. So, as you may need ready cash, either bring it in cash of any currency or use traveller's cheques. Payment of the registration fee and the hotel accommodation at the time of the meeting can **only be done in cash, Eurocheques or traveller's cheques.**

Major credit cards (Visa, Master Charge, American Express, Eurocard), as well as traveller's cheques are accepted in the more expensive shops etc.

Insurance

The organizing committee takes no responsability for any losses, accidents or damages during the conference. Therefore, participants are recommended to secure their own insurance.

Official language

The official language of the conference will be English. Facilities for simultaneous translation are not available.

Letters of invitation

On request the Secretariat of the conference will be happy to send a personal letter of invitation to attend the conference. It should be understood that such an invitation is only meant to help delegates to raise travel funds or to obtain a visa and is not a commitment on the part of the organizers to provide any financial support.

Exhibition and advertising

There will be an exhibition of scientific equipment, accessories, chemicals and books related to the conference. Companies interested in participation and not already approached by the organizing committee should direct their inquiries about conditions and facilities to the Conference Secretariat.

Advertisements will be included in the Program Book of the conference.

Governance meeting

The council of the Society for Invertebrate Pathology will convene on Sunday August 17, 1986, at 9.00 h in the morning. Members of the council are advised to arrive on Saturday, August 16, in order to meet the President's call on Sunday. Council members should have indicated their early arrival on the registration and hotel reservation form.

A meeting of the Editorial Board of the Journal of Invertebrate Pathology is scheduled for Tuesday, August 19, from 17.30 until 19.00 h.

During the conference there will be a joint meeting of the Invertebrate Virus Subcommittee and the Baculovirus Working Group of the International Committee on Taxonomy of Viruses (ICTV). This meeting is scheduled on Tuesday, August 19, from 16.00-17.00 h and will be convened by Dr Chris C. Payne, GCRI, Littlehampton, U.K.

Sponsors

At present, generous donations to support this meeting were already received from

Abbott Laboratories, U.S.A.
Agricultural University, The Netherlands
American Cyanamid Company, U.S.A.
Bayer Sparte Pflanzenschutz, German Federal Republic
Boehringer Mannheim B.V., The Netherlands
Ciba-Geigy A.G., Switzerland
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KLM Royal Dutch Airlines, The Netherlands
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Ligtermoet Chemie, The Netherlands
Ministry of Agriculture, The Netherlands
Ministry of Economical Affairs, The Netherlands
Ministry of Foreign Affairs, The Netherlands
Mycogen Corporation, U.S.A.
Royal Academy of Sciences of the Netherlands,

The Netherlands
Schering AAgrunol B.V, The Netherlands
Shell Sittingbourne Research Centre, U.K.
Society for General Microbiology, U.K.

However, in order to complement the scientific and social program and to be able to support scientists who need financial assistance, additional sponsors are kindly invited to support our meeting by giving special donations, organizing an industrial display or advertise in our Program Book. More information is available from our treasurer, Dr Dick Peters.

SATELLITE MEETING

Following the conference, there will be a special meeting of the Study Group on "Insect pathogens and insect parasitic nematodes", as part of the IOBC/WPRS activities. This meeting will expand on the objectives of the study group and will include a series of papers and discussions on the 'host-range of microbial control agents'. This satellite meeting will be held on Friday August 22 from 14.00-17.30 h, and is open for interested scientists from participating countries. Please, book for room and meals on the registration form. Information on this meeting can be obtained from Dr Chris C. Payne, GCRI, Littlehampton, England.

IMPORTANT ADDRESSES

The Congress Hotel and Meeting Centre "Koningshof" can be reached: Locht 117, P.O. Box 140, 5500 AC Veldhoven, The Netherlands, Telephone 31-40-537475, Telex 59278 kohof nl.

Please send all your correspondence regarding the **PROGRAM** to: Dr Rob A. Samson, Program Chairman ICIP86, Centraalbureau voor Schimmelcultures, P.O. Box 273, 3740 AG Baarn, The Netherlands, Telephone: 31-2154-11841.

Please send all your correspondence regarding the **CONFERENCE** to: Conference Office ICIP86, c/o Mrs A.F.F. de Vries-Eras, Department of Virology, Agricultural University, P.O. Box 8045, 6700 EM Wageningen, The Netherlands, Telephone 31-8370-83090, Telex 45015 and 45917.

June 9, 1986 The Organizing Committee

THE SCIENTIFIC PROGRAM

MONDAY AUGUST 18 1986

09.00-10.15 PLENARY SESSION

09.00-09.05 Opening Remarks : J.M. Vlak, Chairman ICIP86
09.05-09.15 Welcome Address : Ir. A. de Zeeuw, Chairman of the National council for Agricultural Research
09.15-09.40 Presidential Address: H.D. Burges, President of the Society for Invertebrate Pathology
09.40-10.15 Founders' Lecture : J. Weiser

10.45-12.15 General symposium G1: Biological control of pests

Chair and convener: R. A. Samson and J. M. Vlak
10.45 Biological control of weeds using fungal pathogens - H. C. Evans
11.15 Biological control of nematodes - J. Cayrol
11.45 Dutch elm disease; prospects for integrated control - R.J. Scheffer

10.45-12.15 Special symposium S16: Comparative tumor pathology

Convener: G. Balouet Chair: J. Harschbarger
10.45 Tumour epidemiology in domestic animals - W. Misdorp
11.00 Tumors in insect - E. Gateff
11.15 Epizootic sarcoma in Chesapeake bay soft-shell clams - a virus? -- C.A. Farley, Sara V. Otto, C.L. Reinisch
11.30 Cellular reactions in molluscs with special reference to chemical carcinogens and tumors in natural populations of bivalve moluscs — L.P.D. Rasmussen
11.45 Neoplasms in scleratinian corals - Esther C. Peters

10.45-12.25 Contributed paper session C6: Biotechnology of insect pathogens

Chair: I. O. Moraes
10.45 Biotechnology of Bacillus thuringiensis in Brazil - I.O. Moraes
11.10 Medium optimization and process development of the thuringiensis fermentation by monitoring of metabolic heat output - E. Zomer, M. Gandman, S. Vecht and Z. Er-El
11.35 Analysis of fermentation conditions affecting production of Bacillus sphaericus toxin - A.A. Yousten and D.A. Wallis
12.00 Restrictionmap of Bacillus thuringiensis var. aizawai transducing phage - J.R.M. Inal, V. Karunakaran and H.D. Burges

10.45-12.15 Contributed paper session C21: Fungal toxins

Chair: A.K. Charnley
10.45 Properties of the antifungal toxin produced by the gut bacterial flora of the desert locust, Schistocerca gregaria - R.J. Dillon and A.K. Charnley
11.05 Mode of action of destruxins - R.I. Samuels, S.E. Reynolds and A.K. Charnley
11.25 Entomotoxicity of destruxin to nymphs of the leafhopper, Empoasca vitis (Homoptera: Cicadellidae) - T.J. Poprawski, N.K. Maniania and P.H. Roberts
11.45 Comparative susceptibility of mosquitoes larvae to purified destruxines of Metarhizium anisopliae - P. Robert, G. Riba J. Fargues and J.J. Vincent
12.15 Studies on the toxinogenic activity of Fusarium sp.: production of two types of insecticidal metabolites by F. solani - M. Chinain and A. Vey

14.00-15.30 Special symposium S4: Status of microbial control in developing countries

Chair and convener: W. A. Otieno
14.00 Laboratory bioassays of Bacillus thuringiensis israelensis against malaria mosquito vectors Anophelus funestus, An. merus, An. arabiensis and An. gambiae in East Africa - W.A. Otieno
14.30 Microbial control in South America - L. P. S. van der Geest and H. Wassink
15.00 S.V. Amonker, Title to be announced

14.00-15.30 Special symposium S10: Viruses of parasitic insects

Chair and convener: D. B. Stoltz
14.00 Viruses of parasitic hymenoptera - D.B. Stoltz
14.20 Effects of the polydnaviridae in select parasitoid host insect systems - S. B. Vinson, D.H. Davies and B.A. Dover
14.40 Molecular biology of the polydnavirus of Campoletis sonorensis - M.D. Summers
15.00 Effects of parasitization by Cotesia congregata on the antibacterial responses of Manduca sexta larvae - D.R. Ross and P.E. Dunn

14.00-15.30 Contributed paper session C3: Chemistry and Serology of Bacillus thuringiensis endotoxin

Chair: P. Lüthy
14.00 Identification of the proncipal active mosquitocidal polypeptide of Bacillus thuringiensis var. darmstadiensis strain 73-E10-2 - F.A. Drobniewski and D.J. Ellar
14.15 Molecular structure of the protein crystal from Bacillus thuringiensis: A raman spectroscopic

study - P.R. Carey, P. Fast, H. Kaplan and M. Pozsgay

14.30 Antigenic structure and insecticidal spectrum of Bacillus thuringiensis crystal proteins - A. van Houten, S. Janssens and H. Vanderbruggen

14.45 Mapping of the functional domains of a Bacillus thuringiensis toxin using monoclonal antibodies - H. Vanderbruggen, H. Hofte and M. Lauwereys

15.00 Structural comparison of Lepidopteran specific Bacillus thuringiensis toxins with distinct host ranges - H. Hofte, S. Jansens and M. Vaeck

15.15 Use of crystal serology to differentiate among varieties of Bacillus thuringiensis - R.A. Smith

14.00-15.30 Contributed paper session C15: Biology and taxonomy of entomopathogenic fungi

Chair: R. Kenneth

14.00 A fourth family in the entomophthorales: Neozygitaceae, including Neozygites and a new genus, Thaxterosporium -I.S. Ben-Ze'ev and R. Kenneth

14.15 New Erynia species found in T. Petch's collection - I.S. Ben-Ze'ev

14.30 Aspects of antigenic relationships among species of Basidiobolus as determined by crossed immunoelectrophoresis - B.G. Yangco, Audrey Nettlow and Diane Te Strake

14.45 Parasexual incompatibility between isolates of Verticillium lecanii - C.W. Jackson and J.B. Heale

15.00 Ultrastructural study of the formation and germination of the ballistospores of the Entomophthorales Erynia and Conidiobolus. J.P. Latge, D.F. Perry, M.C. Prevost and R.A. Samson

15.15 Liquid nitrogen storage of Entomophthorales - S.K. Mardell

16.00-17.30 General symposium G4: Biological control of vectors with microbials

Chair and convener: B.A. Frederici and J.F. Copplestone

16.00 Role of Bti and Bacillus sphaericus in mosquito control programs - M.S. Mulla

16.20 Development of operational formulations of Bacillus thuringiensis var. israelensis and Bacillus sphaericus for vector control - L.A. Lacey

16.40 Ecology and control of vectors: use of biological agents as a component of integrated vector control programmes - C. Pant

17.00 P. Guillet, Title to be announced

17.20 Summary and prospective - B.A. Frederici

16.00-17.30 Special symposium S3: System models in epizootiology and insect control

Chair and convener: C. R. Flückinger

16.00 Simulation model of the epizootiology of a microsporidium infecting an insect - D.W.Onstad and W.G. Ruesink

16.15 Optimizing the timing of applications of Bt to control gypsy moth: a modeling analysis - H.T. Valentine, N.R. DuBois and J.D. Podgwaite

16.30 System models in epizootiology and insect control - R. Rabbinge, J.J. Fransen and R. van Soest

16.45 Parameter estimation as a basis for developing systems models for microbial control of pests - H.F. Evans

17.00 The significance of pea aphid (Acyrthosiphon pisum HARRIS) attacking Entomophtera sp. for an alfa alfa ecosystem - J. Baumgärtner

16.00-17.30 Contributed paper session C13: Viruses of parasitic arthropods

Chair: P. Krell

16.00 Partial characterization of a polydnavirus from ichneumonid wasp Diadegma terebrans - P. Krell

16.15 Genomic structure in a braconid polydnavirus - D. Guzo and D.B. Stoltz

16.30 Related viral genes and splicing in Campoletis sonorensis virus - G.W. Blissard, O.P. Smith and M.D. Summers

16.45 The incidence of acute paralysis virus in honey bee colonies infested with the parasitic mite Varroa jacobsoni - B.V. Ball and M.F. Allen

17.00 Transmission of acute paralysis virus by the honeybee parasite Varroa jacobsoni Oud.- F.P. Wiegers

17.15 Assay of acute paralysis virus in populations of Apis mellifera and Varroa jacobsoni by Elisa - M.F. Allen and B.V. Ball

16.00-17.30 Contributed paper session C18: Production and survival of fungal propagules

Chair: R. Humber

16.00 The survival of spores of Aschersonia aleyrodis, an entomopathogenic fungus of greenhouse whitefly, Trialeurodes vaporarium - Joanne J. Fransen

16.15 The function of tetradiate conidia of Erynia species - N.L. Hywel-Jones

16.30 The timing of infective spore production in Erynia conica- N.L. Hywel-Jones

16.45 Novel factors affecting resting spore production by Zoophthora radicans - T.R. Glare and R.J. Milner

17.00 In vitro resting-spore formation in Erynia neoaphidis - Aviva Uziel and R.G. Kenneth

17.15 Survival capacity of capilliconidia over primary conidia at low humidity in Erynia (Subgen. Zoophthora) and Neozygites fresenii (Zygomycetes: Entomophthorales - Aviva Uziel and R.G. Kenneth

20.00 - 21.30 Workshops

Workshop 1 W1: Monoclonal antibodies in invertebrate hosts

Convener: L. E. Volkman

- Biological and antigenic characterization of the Bacillus thuringiensis delta-endotoxin - F. Jaquet and P. Lüthy

Workshop 2 W2: Sunlight and microbial pesticides

Convener: J. D. Podgwaite

- Evaluation of sunlight protectans for gypsy moth, Lymantria dispar L., nucleopolyhedrosis virus - J.D. Podgwaite and M. Shapiro.
- UV inactivation of Spodoptera littoralis nuclear polyhedrosis virus in Egypt: Assessment and protection K.A. Jones and D.J. McKinley.
- Analysis of specific effects in microbial insecticides by ultraviolet, visible, and solar radiation - R.L. Harms, J.K. Lane and V.M. Griego.

Workshop 3 W3: Marine invertebrate tissue culture

Convener: R. Elston

Workshop 6 W6: Collecting fungal pathogens in the tropics

Conveners: M. Rombach and H. C. Evans

Workshop 7 W7: Safety

Convener: L.A. Lacey

TUESDAY AUGUST 19 1986

8.30-10.00 General symposium G8: Enzootic and epizootic diseases of insect pests: strategies for control

Chair and convener: C. M. Ignoffo

08.30 Possibilities for manipulating epizootics caused by protozoa: a representative case-history of Nosema pyrausta - J. V. Maddox

08.50 Further strategies for the use of entomopathogenic virus to regulate forest in Canada - W.J. Kaupp

09.10 Possibilities for manipulating epizootics and enzootics of entomopathogenic bacteria - C.C. Beegle

09.30 G. Brown, Title to be announced

8.30–10.00 Special symposium S6: Physiology, ecology and toxin of Bacillus sphaericus

Chair and convener: A.A. Yousten

08.30 Isolation of new Bacillus sphaericus strains toxic to mosquitoes in Israel - M. Brownbridge and J. Margalit

08.45 An enzymatic analysis using a page system for differentiating strains of B. sphaericus - S. Singer, Beth K. Williston and Cynthia L. Cole

09.00 Cell development during toxin synthesis by Bacillus sphaericus - J.F. Charles

09.15 Chemistry of the Bacillus sphaericus toxin - B. Baumann, A.H. Broadwell, Linda Baumann, B.M. Unterman and R.D. Bowditch

09.30 Mode of action of the Bacillus sphaericus toxin - Elizabeth Davidson

8.30–10.00 Special symposium S13: Advances in insect parasitic nematology

Chair and convener: H. Kaya

08.30 Recent advances on the physiology of Romanomermis culicivorax, a mermithid parasite of mosquitoes - R. Gordon

08.45 Possible directions for genetic analysis and modification of Nematode species - A.J. Otsuka

09.00 Recent advances in Xenorhabdus research - R.J. Akhurst

09.15 Feasibility of genetically improving steinernematid and heterorhabitid nematodes - R. Gaugler

09.30 Mass rearing, storage and transport of entomopathogenic nematodes - R.A. Bedding

09.45 Distribution of insect parasitic nematodes in Sweden - M. Burman, Kirsten Abrahamsson, J. Ascard Anki Sjoberg and B. Eriksson

8.30 - 10.00 Contributed paper session C8: Insect DNA viruses other than baculoviruses

Chair: M. Bergoin

08.30 Molecular biology of Bombyx densoviruses - S. Kawase, H. Bando, J. Kusuda and T. Gojobori

08.45 Structure, sequence and strategy of replication of DNA of Galleria mellonella - P. Tijssen

09.00 Comparison of the restriction map and infectivity of the genomes of three densoviruses - F.X. Jousset, B. Compagnon, M. Bergoin

09.15 CIV (Iridovirus type 6) replication in invertebrate cells: protein synthesis and modifications of phosphorylation - S. Barray, F. Petit and G. Devauchelle

09.30 Replication of an ascovirus from Spodoptera frugiperda in vivo and in SF-IPLB-21 cells - B.A. Federici and J.M. Vlak

09.45 Iridovirus infection of a nematode - Roberta Hess and G.O. Poinar Jr.

10.30–12.00 General symposium G6: Current status on the use of insect pathogens as biological agents in agriculture.

Chair and convener: D. W. Roberts and R. Soper

10.30 Current status of the use of bacteria as biocontrol agents - H.D. Burges and R.A. Daoust

10.50 Current status of the use of microsporidia as biocontrol agents - J.V. Maddox

11.10 Current status on the use of insect pathogens as biocontrol agents in agriculture: Fungi - D.W. Roberts and S.P. Wraight

11.30 L.A. Falcon, Title to be announced

10.30–12.00 Special symposium S11: Codling moth granulosis virus

Chair and convener: J. Huber

10.30 Characterization and genetics of Cydia pomonella granulosis virus - N.E. Crook

10.45 In vivo production and standardization -J. Huber

11.00 Establishment of a Cydia pomonella granulosis virus in vitro replication system - W.L. Naser

11.15 Aspects of the commercialization of codling moth granulosis virus - M.G. Richards

11.30 Experiences field-testing coldling moth granulosis virus in the pacific rim countries - L.A. Falcon and A. Berlowitz

11.45 Recent experiences in the use of the codling moth (Cydia pomonella L.) granulosis virus in Europe - A. Burgerjon

10.30–12.00 Contributed paper session C19: Physiology of entomopathogenic fungi

Chair: To be named

10.30 The use of aphid alarm pheromone ((E) - - farnesene) to increase effectiveness of the entomophilic fungus Verticillium lecanii in controlling aphids on chrysanthemums under glass - S.H. Hockland, G.W. Dawson, D.C. Griffiths, B. Marples, J.A. Pickett and C.M. Woodcock

10.45 Effect of Beauveria bassiana infection on feedling behaviour, oviposition and development of secondary infections in Cerotoma arcuata - J.C. Lord, B.P. Magalhaes and D.W. Roberts

11.00 Effect of water activity on conidial germination and mycelial growth of Beauveria bassiana, Metarhizium anisopliae, Paecilomyces spp. and Verticillium lecanii - A.T. Gillespie and Elizabeth Crawford

11.15 Germination physiology of conidia of Metarhizium anisopliae - R.J. Dillon and A.K. Charnley

11.30 Analysis of in vitro growth of the dimorphic fungus Nomuraea rileyi: emphasis on cell wall composition - B.J. Morrow, D.G. Boucias and J.P. Latge

11.45 Soil profiles of applied aqueous suspensions of commercially-formulated Beauveria bassiana - G.K. Storey and W.A. Gardner

10.30–12.00 Contributed paper session C27: Defense mechanisms in insects

Chair: H. Steiner

10.30 Behavioural characteristics of two subpopulations of haemocytes from the locust S. gregaria - A.M. Lackie, I.M. Huxham and G. Takle

10.45 Isolation and properties of prophenoloxidase-activating enzyme from crayfish haemocytes - Anna Aspan and K. Söderhall

11.00 An in vitro assay to investigate activation and suppression by a pathogenic fungus of prophenol oxidase by insect haemocytes - I.M. Huxham, A.M. Lackie and N.J. McCorkindale

11.15 Cell adhesion of crayfish granular haemocytes - M. Johansson and K. Söderhall

11.30 Purification and properties of an inhibitor to prophenoloxidase activation from plasma of the crayfish Pacifastacus leniusculus - H.G. Hergenhahn, Anna Aspan and K. Söderhall

11.45 Evidences for inducible cell-free antibacterial immunity in diapausing pupae of Celerio euphorbiae (Lep: Sphingidae) - J. Jarosz

14.00–15.30 General symposium G5: Defense strategies of invertebrates

Chair and convener: K. Söderhall

14.00 The role of lectins in immune reactions in insects - S. Natori

14.30 The cell-free immune system in Hylophora cecropia - a review - H. Steiner

15.00 The cellular immune system in crustaceans - K. Söderhall

14.00–15.30 Special symposium S2: Formulations and application techniques of bioinsecticides

Chair and convener: P. F. Entwistle

14.00 Formulation and application techniques for bio-insecticides towards a science of testing and using biologicals - a summary - G.W. Schaefer, K. Allsopp and G. Davies

14.15 Spray droplet deposition patterns and loading of spray droplets with NPV inclusion bodies in the control of Panolis flammea in pine forests - P. F. Entwistle
14.30 Calculations on the polyhedra intake by beet armyworm larvae feeding on virus sprayed chrysanthemums - P.H. Smits
14.45 UV protectans in viral control of insects in relation to spray droplet size - H.J. Killick
15.00 Formulation of biological pesticides - B.H. Most and R.J. Quinlan

14.00-15.30 Contributed paper session C4: Bacterial pathogens of vector insects

Chair: L. Lacey
14.00 Long term effects of sublethal concentrations of Bacillus sphaericus on Culex quinquefasciatus - L. Lacey, Cynthia Heitzman, J. Day
14.15 Isolation of three strains of Bacillus sphaericus serotype H-5A5B possessing high larvicidal activity against som Culex mosquitos - A.H. Gharib, F.S. Ali and S.M. Hussein
14.30 Efficacy and fate of Bacillus sphaericus 2362 in culex quinquefasciatus breeding sites in West Africa - L. Nicolas
14.45 Ingestion, dissolution and proteolysis of the Bacillus sphaericus toxin by osquito larvae - C. Aly, M.S. Mulla and B.A. Federici
15.00 Feeding behaviour of Aedes aegypti larvae (Diptera: Culicidae) - A. Zaritsky, K. Khawaled and Z. Barak
15.15 Quantitation of Bacillus thuringiensis var. israelensis toxicity in carcasses of Aedes aegypti larvae (Diptera: Culicidae) - K. Khawaled, Z. Barak and A. Zaritsky

14.00-15.30 Contributed paper session C7: Granulosis viruses

Chair: B.M. Arif
14.00 Location of viral transcripts and their translation products along the Pieris rapae granulosis virus (PrGV) genome - K.G. Dwyer and R.R. Granados
14.15 Latent granulosis virus sequences in Pieris brassicae - I.R.L. Smith and N.E. Crook
14.30 A comparison of three granulosis viruses isolated from Choristoneura spp. - B.M. Arif, Z. Guangyu and P. Jamieson
14.45 A comparative study of 4 isolates of granulosis virus from Agrotis segetum: Ren-patterns and bioassays - J. Knudsen and Annie Enkegaard
15.00 The granulosis virus of the false codling moth, Cryptophlebia leucotreta (Meyr.) - Eva Fritsch and J. Huber
15.15 Soil as a reservoir for granulosis virus from Agrotis segetum, Schiff. (Noctuidae) - L. Øgaard

16.00 -17.30 General symposium G7: Pathogens of terrestrial and marine invertebrates

Chair and convener: Ph. Johnson
16.00 Bacterial diseases of terrestrial and marine invertebrates - Elizabeth Davidson
16.30 Fungi as pathogens of non insect invertebrates - D. J. Alderman
17.00 Comparison of the biology and pathology of microsporidia from different host groups - Ann Cali
17.30 Summary - Ph. Johnson

16.00-17.30 Special symposium S7: Standardization of Bacillus preparations

Chair and convener: H. de Barjac
16.00 Current developments in bioassays for standardization of Bacillus thuringiensis H-14 in the United States of America - R.E. McLaughlin
16.15 Standardization in relation to registration of bioinsecticides - H.D. Burges
16.30 Spectra of activities as problems in standardizing Bacillus preparations - H.T. Dulmage
16.45 Constraints and value of bioassays for standardization of Bacillus thuringiensis var. israelensis and Bacillus sphaericus - I. Thiery
17.00 Bio-assay of Bacillus thuringiensis on Spodoptera exigua: relation between toxicity, serotype and toxin genes. - B. Visser, Marielle van Workum and C. Waalwijk

16.00-17.30 Contributed paper session C16: Fungal pathogens ofmosquitoes and black flies

Chair: J. Weiser
16.00 Evidence for the vertical transmission of Coelomycidium simulii (Myceteae (Fungi): Chytridiomycetes) - Christine A. Tarrant and R. Soper
16.15 Trichomycetes pathogenic to simuliidae - S.T. Moss
16.30 Mosquitocidal activity of Tolypocladium strains - J. Weiser
16.45 Effects of amino acids on sporulations and spore size of Tolypocladium cylindrosporum in submerged culture and implications for pathogenicity - P. Matewele, R.A. Hall and H.D. Burges
17.00 Factors regulating production, activation and field application of the sexual stage of Lagenidium giganteum - J. L.Kerwin & R. K.Washino
17.15 Sporulation of Culicinomyces clavisporus on various nitrogen and carbon sources in submerged culture - P. Matewele, R.A. Hall and H.D. Burges

16.00-17.30 Contributed paper session C24: Microsporidia

Chair: J.E. Henry
16.00 Inoculation of egg batches in the control of Chilo partellus (Lep., pyralidae) using Nosema sp. (Microspora, Nosematidae) - M.O. Odindo
16.15 Characteristics of a dimorphic microsporidium in the long-horned grasshoppers Pediodectes spp. (Orthoptera: Tettigoniidae) - J.E. Henry
16.30 Two types of intranuclear particles in microsporidian spores - J.I.R. Larsson
16.45 Microsporidium novacastriensis Jones and Selman, a new pathogen of the Grey Field Slug Deroceras reticulatum (Muller) - A.A. Jones and B.J. Selman
17.00 Pathological changes of salivary glands of the gypsy moth Lymantria dispar caused by microsporidian Nosema sp. - L. David

20.00-21.30 General symposium G13: Microbial control of soil-borne insects

Chair and convener: S. Keller
20.00 Control of the New Zealand grass grub (Costelytra zealandica) with the bacteria Serratia entomophila - T.A. Jackson and G. Stucki
20.20 Control of may beetle grubs (Melolontha melolontha L.) with the fungus Beauveria brongniartii (Sacc.) Petch - S. Keller.
20.40 Experiences with biological control of the black vine weevil Otiorhynchus sulcatus (F.) - G. Zimmermann and W.R. Simons
21.00 Bacillus popilliae - Prospects and problems - M.G. Klein.

20.00-21.30 Special symposium S8: Specificity of insect viruses in vivo and in vitro

Chair and convener: R.R. Granados
20.00 Molecular basis for infectivity differences of Autographa californica nuclear polyhedrosis virus budded and occluded phenotypes - L.E. Volkman
20.20 What causes host range differences between Artogeia rapei granulosis virus variants? - N.E. Crook and I.R.L. Smith
20.40 Gene expression of baculoviruses in semipermissive insect cell lines - S.L. Bilimora, Hsiao-Sheng Lin, and Alesia J. Reinish
21.00 Molecular approaches in the analysis of cross infectins with baculoviruses - M.J. Frazer and Heidi Wang

Workshop 4 W4: Biotechnology of Bacillus thuringiensis
Convener: P.G. Fast

Workshop 5 W5:Current status of intermediate host of Amblyospora
Convener: T. G. Andreadis

WEDNESDAY AUGUST 20 1986

8.30-10.00 General symposium G10: Insect control with nematodes
Chair and convener: R. A. Bedding
08.30 Controlling insects in soil with entomopathogenic nematodes - R.J. Akhurst
09.00 Steinernema feltiae: Use against foliage feeding insects and effect on nontarget insects - H.K. Kaya
09.45 Control of tree- and stem-borer pests with insect-parasitic nematodes - K.V. Deseo

8.30-10.00 Special symposium S5: Chemistry and mode of action of Bacillus thuringiensis endotoxin
Chair and convener: P. G. Fast
08.30 Cytotoxity of Bacillus thuringiensis d-endotoxins to cultured Cf-1 cells does not correlate with in vivo activity toward spruce budworm larvae. - D.P. Witt, Helen Carson and J.C.Hodgdon
09.00 The insecticidal specificity and toxicity of Bacillus thuringiensis d-endotoxins may be determined respectively by an initial binding to membrane-specific receptors followed by a common mechanism of cytolysis. - D.J. Ellar, B.H. Knowles, F.A. Drobniewski and M.Z. Haider
09.30 Transport physiology of Lepidopteran midgut in relation to the action of Bt delta-endotoxin. - W.R. Harvey, Moira Cioffi and M.G. Wolfersberger

8.30-10.00 Contributed paper session C9: Insect virus infection and pathology
Chair: Y. Tanada
08.30 Replication of the Trichoplusia ni granulosis virus and nuclear polyhedrosis virus in insect cell cultures - R.R. Granados, Anja C.G. Derksen and Kathleen G. Dwyer
08.45 Specificity of receptor sites on insect cells for the synergistic factor of an insect baculovirus - Y. Tanada, M. Nakagaki and M. Ohba
09.00 Inactivation of in vitro infectivity of Baculovirus heliothis by a heat sensitive factor(s) in polyhedral inclusion bodies and larval extracts - A.H. McIntosh and C.M. Ignoffo
09.15 An electron microscope study of codling moth granulosis virus invasion through the tissues of its host - R.T. Hess and L.A. Falcon
09.30 Electron microscopy of several insect cell lines infected with MNPV of the cotton-ball worm, Heliothis armigera - Chen Quhou, Yu Zehua and Chen Xuiying
09.45 Separation of two types of granulosis viruses infecting the fat body of Adoxophyes orana F.v.R. (Lep., Tortricidae) - J. Drolet and G. Benz

8.30-10.00 Contributed paper session C17: Control of insect pests on rice with entomopathogenic fungi
Chair: H.C. Evans
08.30 Blastospore production in Paecilomyces species - A.M. Humphreys, J.M.M. Inch, A.T. Gillespie and A.P.J. Trinci
08.45 Infection of brown planthopper (Nilaparvata lugens) of rice by a Basidiobolus sp. - N.L. Hywel-Jones and A.T. Gillespie
09.00 Entomopathogenic fungi (Deuteromycotina) in the control of the black bug of rice, Scotinophara coarctata (Hemiptera; Pentatomidae) - M.C. Rombach, R.M. Aguda, B.M. Shepard and D.W. Roberts
09.15 Enhanced extracellular enzyme production and sporulation traits in isolates of Metharizium anisopliae used for the control of Nilaparvata lugens - K.D.Z. Samuels, J.B. Heale and M.J. Llewellyn
09.30 Screening of Entomophthoran fungi against rice planthoppers - D.G. Holdom, P.S. Taylor and R.S. Soper
09.45 Control of Nilaparvata lugens with entomogenous fungi - A.T. Gillespie, M.D. Collins and A. Atienza

10.30-12.00 General symposium G9: Biotechnology and production of insect pathogens
Chair and convener: R. A. Hall
10.30 The impact of molecular biology on the biotechnological development of B. thuringiensis d-endotoxin as bioinsecticide - M. Geiser
11.00 Liquid fermentation of entomopathogenic fungi - J.P. Latge, R.A. Hall, R.I. Cabrera Cabrera and J.C. Kerwin
11.30 Biotechnology: the last hope for entomopathogenic fungi - R.J. Quinlan

10.30-12.00 Special symposium S9: Insect RNA viruses
Chair and convener: N.F. Moore
10.30 Cell-free translational behaviour of nodaviral RNA's - D.A. Hendry, Diane Blackhurst, and R. Rueckert
10.45 Cell-free translation of an insect picornavirus genomic RNA - Y. Hashimoto, A. Watanabe and S. Kawase
11.00 Classification of cytoplasmic polyhedrosis viruses by RNA-RNA homology, electropherotype and serological analyses - C.C. Payne, P.P.C. Mertens, S. Pedley, N.E. Crook and R. Rubinstein
11.15 Recent development in the study of the cytoplasmic polyhedrosis virus - S. Belloncik, and M. Arella
11.30 Comparison of cricket paralyses virus with mammalian picornaviruses - Linda King, J.S.K. Pullin and N.F. Moore

10.30-12.00 Contributed paper session C1: Mode of action of Bacillus thuringiensis endotoxin
Chair: T. Iizuka
10.30 Potentation of Bacillus thuringiens var. kurstaki by thuringiensis against Spodoptera exigua (Lepidoptera: Noctuidae) - W.J. Moar, J.T. Trumble and W.L.A. Osbrink
10.45 The susceptibility of the bertha armyworm, Mamestra configurata Walker (Lepidoptera, Noctuidae), to 61 strains of Bacillus thuringiensis Berliner - M.R. Trottier and O.N. Morris
11.00 Effect of temperature on toxicity of Bacillus thuringiensis to spruce budworm - K. van Frankenhuyzen.
11.15 Toxic activity of crystal protein from Bacillus thuringiensis strains to Bombyx mori and Mamestra brassicae - T. Iizuka
11.30 Binding of 125 I-Bacillus thuringiensis kurstaki endotoxin to spruce budworm CF-1 cell membranes - H.J. Notman, H. Falter and R.G.H. Downer
11.45 Toxicity of the polypeptides isolated from Bacillus thuringiensis var. israelensis crystals - C.N. Chilcott and D.J. Ellar

10.30-12.00 Contributed paper session C22: Pathogenicity and control by nematodes
Chair: R. Akhurst
10.30 The use of rhabditid nematodes for the biological control of mushroom flies - P.N. Richardson
10.45 Bioassay-problems with insect parasitic nematodes in Cossus cossus L. - L. Rovesti, F. Gavioli and K.V. Deseo
11.00 Steinernematid nematodes as a possible control measure against the sawfly, Cephaleia abietis - Z. Mracek and L. David

11.15 Entomopathogenic nematode reseach in China - W. Jinzian
11.30 Control of Agrotis segetum and Delia brassicae with species Steinernema and Heterorhabditis - P. van Sloun and R.A. Sikora
11.45 Is the pathogenicity of Heterorhabditis heliothidis dependent on prior history of temperature? - W. Wojcik, I. Popiel and D. Grove

08.70-17.00 POSTER PRESENTATION

- Effect of Bacillus thuringiensis on synthesis and utilization of haemolymph protein in Achoea janata - L.D. Tiwari and K.N. Mehrotra.
- Use of an "isolated midgut system" as a model for studying the mode of action of the d. endotoxin of Bacillus thuringiensis - Hermona Yunovitz, A. Yawetz and B. Sneh.
- Biochemical mode of action of Bacillus thuringiensis israelensis delta-endotoxin on Aedes aegypti larvae (Diptera) - B. Nizeymana, C.P. Vivares and M. Bounias
- Selection for resistance to Bacillus thuringiensis serotype H-14 in a laboratory strain of Aedes aegypti L. - A.H. Gharib and L. Szalay-Marzso
- DNA sequencing of the insecticidal protein toxin gene from Bacillus thuringiensis subsp. kurstaki nrd-12 - Mary A. Hefford, R. Brousseau and P.C.K. Lau
- The mortality of stressed Agrotis segetum larvae (Schiff.) (Noctuidae) exposed to granulosis virus (AsGV) - L. Øgaard
- In vivo isolation of several distinct genotypes from wild-type granulosis virus - I.R.L. Smith and N.E. Crook
- On a new disease of Locusta migratoria caused by an entomopox-virus in Tanzania - K. Purrini, G. Wieland Kohring and Z. Seguni
- Virus study of Heliothis armigera in China - Wu Zang-qi.
- Aspects of dispersal of a noctuid NPV by predators - J.S. Cory, P.F. Entwistle, A.C. Forkner and P.M. Kelly
- Spodoptera littoralis NPV in Egypt: Field trials on cotton - D.J. McKinley, C. Topper, K. Jones, J.F. Cooper and G. Moawad
- Preliminary studies on nuclear polyhedrosis virus as a means of controlling rice armyworm Mythimna separata (Walker)-Penelope R. Hatfield and Ph.F. Entwistle
- Experimental design and statistical analysis in bioassay of baculoviruses - P.R. Hughes, N.A.M. van Beek and H.A. Wood
- Two new insect host orders for Entomophthora species with E. muscae-like primary spores - J. Bresciani, J. Eilenberg and J. Martin
- The Hyphomycete Sorosporella - Syngliocladium from Mole Cricket, Scapteriscus vicinus - J. Pendland and D.G. Boucias
- Effect of the yeast-like symbiote on embryonic development of the brown planthopper, Nilaparvata lugens - R. F. Hou and Ying Hue Lee
- Entomocidal metabolite(s) in larvae of the greater wax moth parasitized by insect-pathogenic nematodes - J. Jarosz, H. Skrzypek and M. Bartyzel
- Control of pests with insect parasitic nematodes in protected crops - K.V. Deseo, M. Constanzi and E. Orsi
- Romanomermis culicivorax parasitism in Kenyan mosquito hosts - N.Vyas-Patel and S. Nyanza
- Characterization of functional domains of the Mr 28.000 crystal protein of Bacillus thuringiensis variety israelensis - C. Waalwijk, Annette Dullemans and B. Visser
- Exchange of genetic information between strains of Bacillus thuringiensis and B. cereus by transformation and cell fusion - D. Schall, K. Bernard and W. Krieg
- Comparative effects of starvation and chlamydian disease on haemolymph and fat body lipids and carbohydrates in Gryllus bimaculatus (Orthoptera) - C.P. Vivares, B. Boulbes-Daclinat and M. Bounias
- Size and numbers of subunits in parasporal crystals of pathotype B strains of Bacillus thuringiensis - K. Bernhard, M. Mahnke, H. Weisser and S. Meyborg
- Biological evaluation of an asporogenic mutant of Bacillus thuringiensis serovar. israelensis - W. Krieg, K.F. Jager, A. Parg, J. Delzer and H. Weiser
- Occurrence of insect pathogenic fungi and nematodes in Finnish soil - H. M. T. Hokkanen and G. Zimmermann
- Insect pathogens and local microbiota in natural habitat - J. Weiser and V. Matha
- The leaf surface pH of cotton in Israel - A. Navon, M. Zur and Lelia Arcan
- Construction of improved strains of Bacillus thuringiensis var. israelensis - H. Weisser, K. Bernard and W. Krieg
- Some observations on the safety of the entomopathogens Bacillus thuringiensis var. israelensis and Lagenidium giganteum to small mammals - J. P. Siegel and J. A. Shadduck
- Soil profiles of applied aqueous suspensions of commercially-formulated Beauveria bassiana - G.K. Storey and W.A. Gardner
- Interactions between Bacillus thuringiensis Berliner, Beauveria bassiana (Bals.) Vuill. and the host-parasitoid-system: Spodoptera littoralis (Boisd.) - Microplitis rufiventris Kuk - M.M.A. El-Maghraby, A. Hegab and S.Y. Khalil
- A densovirus of Casphalla extranea (Lepidoptera: Limacodidae): characterization and use for biological control - G. Fediere, P. Monsarrat, D. Mariau and M. Bergoin
- Pathogenicity of Beauveria bassiana and Erynia radicans to the coccinelid predators Coleomegila maculata and Eriopis connexa - B.P. Magalhaes, J.C. Lord, S.P. Wraight, R.A. Daoust and S.W. Roberts
- Effect Bacillus thuringiensis on cabbage root files - Olkka Havukkala
- Viruses and Bacillus thuringiensis in management of insects on crucifers - R.P. Jaques
- Bonamia ostrea disease of the European Flat Oyster (Ostrea edulis) in North America: Occurrence, environmental effects and host range - R.A. Elston

THURSDAY AUGUST 21, 1986

8.30-10.00 General symposium G2: Genetic manipulation and improvement of Bacillus thuringiensis I
Chair and convener: D.J. Ellar
08.30 Genetic improvement of bacterial insect pathogens B.C. Carlton
09.00 Comparison of insecticidal crystal protein genes from strains of Bacillus thuringiensis - Y. Shibano
09.30 Structure of the Bacillus thuringiensis crystal genes and of their flanking regions - A. Klier, C. Bourgouin, M.M. Lecadet, D. Lereclus, J. Mahillon and G. Rapoport

8.30-10.00 Special symposium S14: Quantitative ecological evaluation of entomopathogenic fungi
Chair and convener: B. Papierok
08.30 Evaluation of Entomophthorales for aphid control: laboratory and field data - N. Wilding, G. Lateur, and C.A. Dedryver
08.45 The role of Neozygites fumosa in regulation of Cassava mealybug populations - B. le Ru
09.00 The role of fungal pathogens in spruce budworm population dynamics: frequency and temporal relationships - D.F. Perry and J. Regniere
09.15 Factors governing the efficacy of Hirsutella thompsonii in the field - C.W. McCoy
09.30 Laboratory and field observations on persistance and recycling potential of Culicinomyces clavisporus - A.T. Sweeney
09.45 Quantitative ecological, evaluation of the May beetle pathogen, Beauveria brongnartii and its practical application - S. Keller

8.30–10.00 Contributed paper session C10: Viruses and insect control: practical considerations

Chair: C. Santiago-Alvarez

08.30 Interaction between host, egg and larval parasites, and nuclear polyhedrosis virus - M.S.T. Abbas.

08.45 Codling moth granulosis virus: Impact on orchard arthropods - J. Ballard and D.M. Glen

09.00 Aerial application of nuclear polyhedrosis virus and Dimilin for control of the nun moth, Lymantria monacha L. (Lep., Lymantriidae) - A.M.C. Lameris, R.F. Laport, P. Grijpma and J.M. Vlak

09.15 Microbial contamination in batches of Spodoptera littoralis nuclear polyhedrosis virus (NPV) produced in insects - D. Grzywacz and D. McKinley

09.30 Improvements in methods used for producting the NPV of Spodoptera littoralis in Egypt - D.J. Mc Kinley, C. Topper, K. Jones, D. Grzywacz and G. Moawad

09.45 Insecticidal value of the Spodoptera littoralis nuclear polyhedrosis virus against Spodoptera littoralis larvae on different host plants - C. Santiago-Alvarez and R. Ortiz-Garcia

8.30–10.00 Contributed paper session C26: Pathology and insect defense

Chair: A. Vey

08.30 Characteristics of a galactose-specific hemagglutinin from hemolymph of Spodoptera exigua larvae - J.C. Pendland and D.G. Boucias

08.45 Comparative studies on the genome of vertebrate and invertebrate chlamydiaceae - R. Frutos, J.C. Veyrunes, M. Bergoin, A. Rodolakis and C. Louis

09.00 Detection of protease inhibitors in the hemolymph of resistant Anticarsia gemmatalis inhibitory to the entomopathogenic fungus, Nomuraea rileyi - D.G. Boucias and J.C. Pendland

09.15 Characteristics of acquired humoral immunity in tsetse flies, Glossina morsitans morsitans - G.P. Kaaya, H.G. Boman, L.H. Otieno and C. Flyg

09.30 Fungal diseases in freshwater crustacea: infection caused by Fusarium oxysporum in the crayfish Atlantoastacus pallipes - V. Maestracci and A. Vey

09.45 Electron microscopy of cat fleas, Otenocephalides felis (Bouche) infected with a rickettsial-like organism - J.R. Adams and E.T. Schmidtmann

10.30–12.00 SIP BUSINESS MEETING

14.00–15.30 General symposium G12: Molecular genetics of baculovirus

Chair and convener: P. Faulkner

14.00 Use of recombinant baculoviruses for the production of subunit vaccines - M.A. Cochran, B.L. Ericson, J.D. Knell and G.E.Smith

14.20 Modes of transcription of the Autographa californica nuclear polyhedrosis virus genome - C. Oellig, T. Muller, B. Happ and W. Doerfler

14.40 Heterologous recombination between baculoviruses - J. Roosien, M. Usmany, E.C. Klinge-Roode, P.H.S. Meijerink and J.M. Vlak,

15.00 M.D. Summers, Title to be announced

14.00–15.30 Special symposium S12: Biology and taxonomy of entomogenous nematodes

Chair and convener: G. O. Poinar

14.00 Life cycles of Pheromermis-species (Mermithidae, Nematoda) parasitic in social Hymenoptera and the phylogenetic aspects on the taxonomy of mermithids - H. Kaiser

14.15 The ecology of mermithid nematode parasites of grasshoppers and locusts in South-east Australia - G.L. Baker

14.30 The significance of head papillae in the taxonomy of the families Steinernematidae and Heterorhabditidae - Z. Mracek

14.45 Infectivity of three Heterorhabditis isolates for Otiorhynchus sulcatus at different temperatures - W.R. Simons and D.A. van der Schaaf

15.00 A synopsis of the genus Neoaplectana - G.O. Poinar Jr.

14.00–15.30 Contributed paper session C2: Genetics of Bacillus thuringiensis

Chair: D. H. Dean

14.00 Comparative DNA sequencing and restriction Site analysis of B. thuringiensis insecticidal crystal protein genes - D.H. Dean, J.R. Sabourin and J.H. McLindin

14.15 A study of the distribution of endotoxin genes within Bacillus thuringiensis subspecies using short synthetic DNA probes - Gabrielle Prefontaine, P. Fast and R. Brousseau

14.30 Cloning, expression and toxicity studies on a delta-endotoxin gene from Bacillus thuringiensis variant nrd-12 - R. Brousseau, Gabrielle Prefontaine, P.G. Fast, A. Pang and L. Gringorten

14.45 What about the d-endotoxin genes in B. thuringiensis strains active against Spodoptera littoralis? - M.M. Lecadet, D. Martouret, V. Sanchis and D. Lereclus

15.00 Cloning of Bacillus thuringiensis israelensis toxin genes - C. Bourgouin, A. Klier and G. Rapoport

15.15 Nucleotide sequence of the gene coding for the 135-KDAL mosquitocidal protein of Bacillus thuringiensis israelensis - T. Yamamoto, A. Ehmann, T.A. Andrea, L. Kim, M.V. Sage. R. Stratton, N. Akande, Y. Li, D.-P. Ma, B.A. Roe

14.00–15.30 Contributed paper session C14: Epizootiology of entomopathogenic fungi

Chair: G. Zimmermann

14.00 The occurrence of Erynia radicans in an illinois Empoasca fabae field population - M.G. McGuire, J.V. Maddox, M.J. Morris and E.J. Armbrust.

14.15 Effect of Entomophthora muscae (C.)Fres. on egg-laying behaviour of female flies (Psila rosea F.). - J. Eilenberg

14.30 Field transmission of Erynia radicans to Empoasca leafhoppers in alfalfa following application of a dry, mycelial preparation - S.P. Wraight, S. Galaini-Wraight, R.I. Carruthers and D.W. Roberts

14.45 Effect of starvation on mortality of Pieris brassicae L. larvae after infection with Erynia radicans (Brefeld) - R. Mietkiewski and L.P.S. van der Geest

15.00 The role of Entomophthorales in the reduction of Brevicoryne brassicae L. on cabbage - I. Sivcev

15.15 Insect pathogenic fungi reported in Colombia - Dora A. Rodriquez Sieppa

16.00–17.30 General symposium G2: Genetic manipulation and improvement of Bacillus thuringiensis II

Chair and convener: A. Klier

16.00 Characterisation of the toxic polypeptide fragment from a B. thuringiensis crystal protein - H. Hofte, M. Zabeau and M. Vaeck

16.30 Structural and functional analysis of the gene coding for the 27 kD dipteran toxin from Bacillus thuringiensis var israelensis. Cloning and expression in sporogenic and asporogenic strains of Bacillus subtilis - D.J. Ellar, E.S. Ward, A.R. Ridley and J.A. Todd

17.00 M. Adang, Title to be announced

16.00–17.30 Special symposium S17: Biology and taxonomy of entomogenous fungi

Chair and convener: N.E. Wilding

16.00 Primary spore formation and discharge in the genus Entomophthora - J. Eilenberg, J. Brescani and J.P. Latge

16.15 The genus Verticillium: taxonomic problems in

species with invertebrate hosts - H.C. Evans and R.A. Samson
16.30 Variations in entomophthoralean life cycles: practical implications - R. Humber and W.A. Ramoska
16.45 Resting spore formation in species of Neozygites - S. Keller
17.00 Some noteworthy biological problems within the genus Conidiobolus - B. Papierok
17.15 Taxonomic criteria for inter- and intra-specific differentiation in the Entomophthoraceae, exemplified by the subgenus Zoophthora - S. Balazy
17.30 Isoeoterax variability among geographical populations of Beauveria bassiana (Fungi Imperfecti) isolated from Meridae - G. Riba, T. Proprawski and J. Maniana

16.00-17.30 Contributed paper session C11: Molecular genetics of insect viruses

Chair: H.A. Wood
16.00 Replication of Heliothis zea nuclear polyhedrosis virus in HZ-1075A cells - R.R. Gettig, J.P. Burand, P.H. Flore and H.A. Wood
16.15 Physical map of the DNA of the Spodoptera littoralis Boisd. nuclear polyhedrosis virus of b type. Genotypic comparison of the S. littoralis and Spodoptera litura fabr. baculoviruses - G. Croizier, K. Boukhoudmi-Amiri, L. Croizier
16.30 Transovarial transmission of Lymantria dispar nuclear polydrosis virus - H.A. Wood, J.P. Burand, P.R. Hughes, P.H. Flore and R.R. Gettig
16.45 Exploitation of genetic diversity in the Oryctes baculovirus - C.J. Lomer
17.00 Replication of Amsacta moorei Entomopoxvirus in insect cell lines - Lu Zhiyu and R.R. Granados
17.15 Characterization of the DNA from Orthopteran Entomopoxviruses - D.A. Streett, E.A. Oma and J.E. Henry

16.00-17.30 Contributed paper session C23: Biology of nematodes

Chair: W. Simons
16.00 Sex attraction in the mermithid nematode Romanomermis culicivorax - Judith L. Taylor and W.M. Hominick
16.15 Doubtful involvement of antibiotics of bacterial associates origin in pathogenesis of insect diseases caused by nematodes - J. Jarosz
16.30 Metabolites produced during in vitro growth of Xenorhabdus sp. - G.A. Couche and R.P. Gregson
16.45 Starch gel electrophoresis for the taxonomy of Heterorhabditis spp. - R.J. Akhurst
17.00 Population dynamics of Neoaplectana carpocapsae in vitro - I. Popiel, D. Grove, W. Wojcik, D. Alonso, W. Raabe and W. Lanier
17.15 Phase variation and taxonomy of Xenorhabdus spp. - R.J. Akhurst and N.E. Boemare

FRIDAY AUGUST 22, 1986

8.30-10.00 General symposium G11: Registration of bio-insecticides

Chair and convener: H. D. Burges
08.30 The registration of microbial products: industry's viewpoint - S.G. Lisansky
09.00 Registration of microbial products - J.A. Todhunter
09.30 Notification and registration of genetically manipulated organisms - H.D. Burges

8.30-10.00 Special symposium S15: The arthropod cuticle and its role in the defense reactions against entomopathogenic fungi

Chair and convener: J. P. Latge and D. Boucias
08.30 Chemical composition of the insect cuticle: recent developments - S.O.Andersen
08.45 Epicuticular hydrocarbons: a chemical barrier against toxins and pathogens - P. Escoubas, J.L. Clement, C. Lange and N. Ronzani
09.00 Adhesion of entomopathogenic fungi on their host cuticle - D. Boucias and J.P. Latge
09.15 Cuticular regulation of host recognition and spore germination by entomopathogenic fungi - J. Kerwin
09.30 Cuticle degrading enzymes - R.J. St Leger, A.K. Charnley and R.M. Cooper

8.30-10.00 Contributed paper session C5: Biological control with bacterial insecticides

Chair: H. Dulmage
08.30 Bacillus thuringiensis var. san diego: characterization, quantitation and field efficacy - W. Gelernter and J. Payne
08.45 Bacillus thuringiensis subsp. tenebrionis, a new pathotype effective against colorado potato beetle and other leaf beetles - W. Schnetter, K.P. Kister, A. Krieg, A.M. Huger, G.A. Langenbruch.
09.00 Stabilization of alfalfa fields ecosystems in the Jordan Rift Valley by replacing chemical pesticides with Bacillus thuringiensis - M. Broza, B. Sneh and A. Venitzian
09.15 Bioassays and field trials with Bacillus thuringiensis var. tenebrionis to control larvae of the Colorado beetle (Leptinotarsa decemlineata) - G.A. Langenbruch, U. Riethmuller, A. Krieg, A.M. Huger and W. Schnetter
09.30 Field trials with a novel recombinant DNA insecticide - G.G. Soares, F.H. Gaertner, T.E. Gilroy and E. Wilcox
09.45 Application of irradiated bacterial insecticides in an integrated mosquito control program in West Germany - N.F Becker and A. Metz

8.30-10.00 Contributed paper session C25: Tumor pathology

Chair: L. Rasmussen
08.30 Renal carcinoma in American oysters exposed to contaminated estuarine sediment - G.R.Gardner and P.P. Yevich
08.45 A putative neoplasm in the hindgut of the red king crab, Paralithodes camtschatica - A.K. Sparks and J.F. Morado
09.00 Proliferative changes of glandular and lymphoid tissues of the penaeid shrimp Penaeus monodon and P. vannamei (Crustacea: Decapoda) hat possess characteristics of Adenocarcinomas and Lymphosarcomas - D.V. Lightner and J.A. Brock
09.15 Acellular idiopathic proliferative lesions of the midgut of the penaeid shrimp Penaeus japonicus, P. plebejus and P. merguiensis (Crustacea: Decapoda) - D.V. Lightner, R.M. Redman and J.A. Brock
09.30 Cystic kidneys in copper-exposed mussels, Mytilus edulis L. - Inke Sunila

10.30-12.00 General symposium G15: Recent advances in microsporodiology (dedicated to the late Edwin I. Hazard)

Chair and convener: W.M. Brooks
10.30 Microsporidian sexuality in culicine mosquitoes - J.J. Bechnel
11.00 Microsporidian taxonomy: Application of electrophoretic and immunological techniques - C. Kawanashi
11.30 Sporogony of microsporida: Ultrastructural features of taxonomic significance - J.I.R. Larsson

10.30-12.00 Special symposium S1: Constraints to commercialization of bio-control products

Chair and convener: C. W. McCoy
10.30 Constrains to the commercialization of bacterial insecticides - G.A. Hardy
10.45 Problems with the commercialization of viruses as biocontrol agents - J.C. Cunninham and W.J. Kaupp
11.00 The entomophilic protozoa: realistic expectations - W.M. Brooks
11.15 Commercial development of deuteromycetous fungi of arthropods: a critical appraisal - S.T.Jaronski

11.30 Constraints associated with commercialization of entomogenous nematodes - H.K.Kaya
11.45 The Entomophthorales after the resting spore production age - J.P. Latge

10.30-12.00 Contributed paper session C12: Insect-virus relations and evolution

Chair: N. Crook

10.30 Effect of number of nucleocapsids per envelope on mean survival time of Trichoplusia ni larvae infected with Autographa californica nuclear polyhedrosis virus - N.A.M. van Beek, R.R. Granados, H.A. Wood and P.R. Hughes
10.45 Spodoptera frugiperda susceptibility to nuclear polyhedrosis virus isolates with reference to insect migration and host-virus coevolution - J.R. Fuxa
11.00 Plants as intermediary hosts, or "vectors", of pathogens of homopterous insects: a new concept in the evolution and ecology of viruses - I. Harpaz
11.15 Differential response of male and female spodoptera littoralis (Boisduval) individuals to baculovirus infections - E. Vargas-Osuna and C. Santiago-Alvarez
11.30 A hereditary Reo-like virus as a putative agent of the S character in Drosophila simulans - M. Lopez-Ferber, C. Louis, J.C. Veyrunes, M.A. Comendador and G. Kuhl

10.30-12.00 Contributed paper session C20: Infectivity of entomopathogenic fungi

Chair: J.P.Harper

10.30 Susceptibility of sixteen species of Diptera to the fungal pathogen Entomophthora muscae - D.C. Steinkrans and J.P.Kramer
10.45 Paecilomyces tenuipes-in vitro culture culture and host infectivity studies - J.D. Harper
11.00 The effect of humidity on the pathogenicity of Verticillium lecanii towards the glasshouse whitefly Trialeurodes vaporariorum - Jane Drummond, N.W. Hussey and J.B. Heale
11.15 Virulence of mutans and revertants of Metarhizium anisopliae var. anisopliae towards Rhodnius prolixus - J.C. Silva and C.L. Messias
11.30 Strain improvement etc. - Jane Drummond and J.B. Heale
11.45 Infectivity of Paecilomyces fumosoroseus and Nomuraea rileyi to larvae of Mamestra brassicae and Spodoptera littoralis at two temparatures - N.K. Maniania and J. Fargues

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MICROBIAL CONTROL DIVISION SURVEY

PEST LEPIDOPTERA ON VEGETABLE CROPS AND THEIR CONTROL BY BACILLUS THURINGIENSIS (B.T.)

A circular was distributed at the Annual General Meeting of the Division for Microbial Control in August, 1985. During the autumn of 1985 this circular was also sent to divisional members and other relevant SIP members. It requested information on (1) the lepidopterous pests on different vegetable crops, (2) their importance in the respondent's area, (3) the susceptibility of the different pest species to B.t. and (4) their potential for control by B.t. In addition to obvious 'vegetable' crops, root crops for animal feed, sweetcorn and tobacco, were included - while cereal grains, fibre crops and forests were excluded. As you can imagine, the information was difficult to collate. I have delayed reporting because replies continued to dribble in, the latest being received on March 10, 1986.

I received 25 replies with information from 16 countries, fairly well spaced worldwide, except in the 'Communist Bloc'. The countries, with the number of respondents in parentheses, were; Argentina (1), Australia (3), Canada (1), Denmark (1), Egypt (1), India (2), Israel (1), Italy (2), Japan (2), Malaysia (1), Mexico (2), Nigeria (1), Philippines (2), Spain and Morocco (1), UK (1), USA (3).

Species considered important in more than one country are listed below.

Countries	Pest species considered important
11	**Plutella xylostella***
7	**Pieris rapae***
5	(Heliothis armigera)*
4	Spodoptera littoralis, **Pieris brassicae***
	(Ostrinia nubilalis)*, Spodoptera litura, **Crocidolomia binotalis***
3	Mamestra brassicae, (Phthorimaea operculella), **Trichoplusia ni***
2	(Adoxophyes orana), Agrotis ipsilon, A. segetum, Chilo agramenon, (Heliothis assulta), (H. zea), (Hellula undulatis*), **Hyphantria cunea***, **Lacanobia oleracea***, **Manduca quinquemaculatus***, Sesamia cretica, Spodoptera exigua, S. frugiperda, Syllepte derogata*, **Yponomeuta malinellus***

Species printed in bold type are readily controlled by B.t. products containing the HD-1 strain. Those highly susceptible to HD-1 have an asterisk and parentheses indicate those with control hampered in situations where they can bore into plants away from B.t.-treated plant surfaces. The remaining unannotated species have either poor or unknown susceptibility to HD-1.

Some general comments can be made about genera but note that some species may be exceptions to these remarks. Below is given an importance ranking of 'vegetable' pests, which in no way reflects suitability for control with B.t. This ranking is of course my own subjective impression based on replies to the circular. Factors that I have considered high in rank are: 1. occurrence of an important species in a large number of countries; 2. great importance of a single species in a large country and 3. the mention of a large number of species in a genus.

Rank of importance	Genus (number of species in parentheses)
1	Plutella (1)
2	Spodoptera (6)
3	Heliothis (3)
4	Pieris (2)
5	Agrotis (3), Chilo (1), Crocidolomia (1), Mamestra (2), Ostrinia (2), Phthorimaea, Trichoplusia (1)
6	Autographa (2), Evergestis (3), Hellula (3)
7	Adoxophyes (1), Erias (2), Lacanobia (1), Manduca (2), Plusia (3), Sesamia (2), Syllepte (1), Yponomeuta (2)

The group of vegetables most commonly mentioned, among a wide variety, was the Brassicas.

Several respondents mentioned B.t. being used when resistance to chemicals (e.g. diazinon) occurred. Others commented that increasing resistance to synthetic pyrethroids would be likely to increase use of B.t. in the future.

In order to prepare these summary tables, I initially compiled more detailed tables. I will send copies of the latter to anyone making a postal request (address below).

I wish to thank - on behalf of the S.I.P. - all respondents, some of whom devoted much work to their

replies: M.S. Abbas, K. Aizawa, C.S. Alvarez, S.V. Amonkar, A.S. Atwal, H.D Burges, J. Eilenberg, M-C. L.J. Galan Wong, J. Hargreaves, J.D. Harper, T. Iizuka, H.A. Kadir, A.I. Kovacs, B.A. Matanmi, F.L. Mitchell, O.N. Morris, A. Navon, L.E. Padua, C. Panter, C.N. Ramos, M.C. Rombach, D.R. Sosa Gomez, R.E. Teakle, G.T. Tompkins. One respondent wished to remain anonymous.

H.D. Burges
Institute of Horticultural Research (formerly Glasshouse Crops Research Institute)
Littlehampton, W.Sussex, BN17 6LP, England

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MEETINGS

Symposium in Commemoration of Dr. Ernst Berliner on the Occasion of the 75th Anniversary of the Description of Bacillus thuringiensis

The Symposium will be convened August 25, 1986 at the Institute of Biological Pest Control, Heinrichstrabe 243, D-6100 Darmstadt, Fed. Rep. of Germany. In view of the important contribution of Bacillus thuringiensis in microbial control of insects, a one day symposium in commemoration of the pioneering contributions of Dr. Ernst Berliner has been organized by the Federal Biological Research Centre for Agriculture and Forestry, Institute for Biological Pest Control at Darmstadt. This symposium celebrates the description of Bacillus thuringiensis by Dr. Ernst Berliner in 1911. Invited papers include the following topics:

The discovery of Bacillus thuringiensis by Dr. Ernst Berliner: A milesone in insect pathology and microbial control of pest insects.

Pioneering and advanced phase of commercial use of Bacillus thuringiensis in North America.

Impact of Bacillus thuringiensis on applied entomology in Eastern Europe and in the Soviet Union.

Methods of practical application of Bacillus thuringiensis in plant protection.

Bacillus thuringiensis Serotype 14: A microbial alternative in control of mosquitoes (Culicidae).

Prospects in microbial control of black flies (Simuliidae) by Bacillus thuringiensis Serotype 14.

Discovery of new strains of Bacillus thuringiensis, effective against Coleoptera.

Genetics and aspects of genetic manipulation of Bacillus thuringiensis.

Interested persons are requested to announce their plan for attendance by June 30, 1986. Communications are to be sent to the Institute at the address given at the beginning of this announcement. Applicants will be provided with a hotel reservation card which you will forward to "Verkehrsamt der Stadt Darmstadt, Luisenplatz 5, D-6100 Darmstadt, Fed. Rep. of Germany". In view of the "Frankfurt Fair" at the same time, it is advisable to make hotel reservations as early as possible. There are no registration fees.

Society of Environmental Toxicology and Chemistry (SETAC) will hold its Seventh Annual Meeting November 2-5, 1986, at the Radisson Mark Plaza Hotel in Alexandria, VA (a suburb of Washington, DC). The keynote theme is "Environmental Data: Significance in Decision Making".

For information on the technical sessions, contact Keith R. Solomon, Canadian Centre for Toxicology, 645 Gordon Street, Guelph, Ont. N1G 2W1, Canada (519-837-3320). For general and abstract information contact the SETAC office, P.O. Box 4352, Rockville, MD 20850 (301-468-6704).

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PUBLICATIONS

Histological Techniques for Marine Bivalve Mollusks

The National Marine Fisheries Service Laboratory in Oxford, Maryland, announces the publication of the above manual. This manual describes and illustrates techniques used by the Oxford Laboratory in processing marine bivalve mollusks for histopathological examination. Anyone interested in obtaining a free copy can contact the authors, Dorothy Howard and Ceil Smith, at the National Marine Fisheries Service, Oxford, Maryland 21654. Since copies of this manual are limited, only those having a sincere need should request a copy.

Synopsis of Invertebrate Pathology

This book, edited by A.K. Sparks, provides a comprehensive coverage of the non-infectious and infectious diseases of marine, freshwater and terrestrial invertebrates other than insects. The infectious disease portion concisely, but comprehensively, covers what is known of the gross and histopathology, physiopathology, host response, and epizootiology of all the major and most of the minor invertebrate diseases. Sufficient detail is provided to allow the diagnosis of the vast majority of invertebrate diseases when encountered by researchers. It is extensively illustrated, with numerous high quality photomicrographs and electron micrographs. Order from: Elsevier Science Publishers, P.O. Box 211, 1000 AE Amsterdam, The Netherlands or in Canada and U.S.A. P.O. Box 1663, Grand Central Station, New York, NY 10163, U.S.A. Price: US$120.50/Dfl.325.00.

ENGINEERED ORGANISMS IN THE ENVIRONMENT SCIENTIFIC ISSUES

Proceedings of a Cross-Disciplinary Symposium Held in Philadelphia, Pennsylvania, 10-13 June 1985.

Editors: Harlyn O. Halvorson, David Pramer, and Marvin Rogul

The development of recombinant DNA and other genetic techniques, along with an increased awareness of the impact of humanity on the environment, has led to debate on the benefits and risks of releasing the living products of these techniques into the environment.

How can such organisms be designed for maximum benefit and minimum risk? How can these qualities be predicted and assessed?

These issues were addressed by distinguished scientists from a variety of fields - ecology, genetics, microbiology, molecular biology - at a symposium organized by ASM in collaboration with seven other scientific societies. Their contributions are presented in Engineered Organisms in the Environment: Scientific Issues, published December 1985.

Focus on Design and Risk Benefit Analysis

Case history presentations cover the development of several projects that are close to practical application. The ecology of the introduction or organisms into a new environment is examined from many perspectives. Papers and discussions focus on assessment techniques and risk analysis.

The volume follows the symposium sessions: State of the Art Case Histories, Genetic Variation and Gene Transfer, Other Introductions into the Environment, Biological Responses to Perturbation: Genome to Ecosystem, Future Trends: Toward a Predictive Capability.

Essential Reading for Scientists and Laymen

Non-scientists involved in public policy on biotechnology will be interested in the lay summary of the book, written by Bernard Dixon, as well as the session summaries and the floor discussions.

Genetically engineered organisms, their development and their wise use, are the concern of many fields ranging from macroecology to molecular biology. A free flow of information among related scientific disciplines is essential. Engineered Organisms in the Environment: Scientific Issues is a significant contribution to this important, ongoing dialogue. Paperback, 239 pages, illustrated, $18.00. Lay summary only: $3.00.

American Society for Microbiology
Publication Sales
1913 I Street, N.W.
Washington, DC 20006 USA

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S-135 REGIONAL RESEARCH PROJECT

The Technical Committee of the S-135 Regional Research Project titled "Entomopathogens for Use in Pest Management Systems" held its annual meeting in Orlando, Florida from February 19 to 21, 1986. Chairman John Hamm called the meeting to order with 48 members and associates present. The Technical Committee is composed of 4 subcommittees which are Virus and Bacteria (Chairman Jim Maruniak), Fungi (Chairman Don Roberts), Protozoa (Chairman Ted Andreadis) and Nematodes (Chairman John Capinera). Subcommittees met and discussed last year's research results and made plans for future regional research within the guidelines of the 4 objectives of S-135. These objectives are 1) to identify, characterize, and standardize entomopathogens and entomopathogenic formulations to be used in regional trials; 2) to evaluate and optimize efficacy of entomopathogenic formulations prepared under objective 1; 3) to determine and analyze the physical and biotic factors that regulate epizootics of entomopathogens, and 4) to establish regional procedures and protocols required to maximize the utility of entomopathogens in pest management systems. In addition to the subcommittee meetings, the entire committee met and members reported on the past year's research. Harry Kaya will serve as Chairman for the Technical Committee between 1986 and 1988 and will be assisted by Drion Boucias as Secretary, Gerry Carner as Member-at-Large, and the subcommittee chairmen. Mycogen Corporation invited S-135 to have the annual meeting in San Diego and tour its facilities in 1987. The annual meeting will be held in San Diego from February 18 to 20.

Harry K. Kaya
Secretary, S-135

DONATION TO THE SOCIETY

I am delighted to announce that one our of members, who wishes to remain anonymous, donated in December 1985 $3500 to the Society, with the stipulation that the interest should be used to pay the dues of two named present members, who both have foreign currency problems. When these members retire the Council will decide future recipients. The interest from the donation will also finance two copies of the Journal of Invertebrate Pathology, one for each of two Institutions, to be selected by the Council at its meeting in 1986. These institutions will also be in areas with currency difficulties. Our Treasurer, Jim Fuxa, has thanked our kind member on behalf of all SIP members and has taken steps to ensure that the fund will be conscientiously administered in the years to come.

Personally, I feel this donation strengthens one's faith in people.

DENIS BURGES
President

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ENTOMOLOGICAL SOCIETY OF AMERICA: CIBA-GEIGY RECOGNITION AWARD

Dr. Donald W. Roberts was nominated by the Eastern Branch of the Entomological Society of America for the Society's CIBA-GEIGY Recognition Award. The nomination was based on meritorious contributions to the advancement of agriculture through work in the field of Entomology. Dr. Roberts was recognized for being the nominee of the Eastern Branch at an Awards Banquet held in October, 1985 during the 57th Annual Meeting of this group in Williamsburg, Virginia.

Since 1965 Roberts served in positions of Assistant, Associate, and presently full rank Insect Pathology at Boyce Thompson Institute for Plant Research, Cornell University. His major research interests involve entomopathogenic fungi and microbial control of insect pests. Most recently, Roberts was awarded a Fulbright Senior Research Fellowship to conduct research in Australia. He has published over 90 research papers and organized numerous international meetings on the use of microbial agents for insect control.

Dr. Donald Roberts receiving the CIBA-GEIGY Recognition Award in Entomology from Dr. John W. Neal, Jr., President, Eastern Branch, Entomology Society of America.

U.S.-JAPAN SEMINAR

The National Science Foundation (United States) and the Japan Society for Promotion of Science sponsored a U.S.-Japan Seminar on "Biotechnology Advances in Invertebrate Pathology and Cell Culture," which was held in Honolulu, Hawaii, at the East-West Center of the University of Hawaii, November 12-15, 1985. The coordinators of this seminar were Dr. Karl Maramorosch and Dr. Robert R. Granados from the United States, with Dr. Keio Aizawa and Dr. Jun Mitsuhashi, from Japan.

Thirty-four invited speakers and participants from 6 different countries were in attendance. The purpose of the seminar was to focus attention on new approaches to insect pest and vector control and to foster closer collaboration between U.S. and Japanese scientists. This meeting provided a unique opportunity for direct contacts, and for direct exchange of information among the diverse areas of gene manipulation and biotechnology as related to invertebrate pathology. The information presented at this seminar will be published by Academic Press and edited by Dr. Karl Maramorosch.

Participants at the U.S.-Japan seminar on "Biotechnology Advances in Invertebrate Pathology and Cell Culture." East-West Center, University of Hawaii, Honolulu, Hawaii.

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HAIL AND FAREWELL

By the time this article is in the reader's hands, it is anticipated that the wrecker's-ball will have begun its assault on the walls of a well-known Sault Ste. Marie building: the Laboratory of Insect Pathology, which in 1960 became the Insect Pathology Research Institute.

When I reported for duty as a somewhat elderly assistant in the spring of 1948 I was assigned to the Path lab - a grossly overcrowded, noisy and confused facility in the basement of the Forest Insect Laboratory in downtown Sault Ste. Marie. I became the temporary proud custodian of about five running feet of bench space, sharing a sink with 3 other people with a bench drawer for an office. We (there were others) were willing to accept this because a new spacious, wondrous (and expensive) facility was being planned for completion in 1950. When I returned for duty in the summer of 1949 there was indeed, a mile to the east, a solid boxy structure, a building planned for occupancy in 1950. Somewhat behind schedule, and in spite of a long list of omissions and changes to be made, we moved in the summer of 1950 to our new scientific Taj Mahal.

The building was (for 1950) truly state-of-the-art: filtered, washed, almost sterile air delivered to each laboratory unit, terrazzo floors for easy mop-up, vitrolite glass walls that could be hosed down, ultraviolet lights for disinfection, stainless-steel laboratory furniture, heavy door seals for air containment, piped distilled water, explosion-proof lighting fixtures - the list was endless.

Heavily influenced (with respect to some containment features) by labs built for groups working with highly-infectious human and animal disease agents, the facility (to use a modern buzz-word) was overdesigned. Some of its 'features' were simply by-passed as unnecessarily complex, or were rendered obsolete by later developments such as glove-boxes or laminar flow hoods. Some aspects of the design were in a sense 'premature'. The insect-rearing facility in its early years seemed over-elaborate and needlessly complex but with the development of artificial diets in the 1960's, the unit (and adjoining rooms) were quickly and effectively modified into a highly successful and productive facility for rearing a wide variety of material for experimental use and pathogen (polyhedral viruses) production.

Proof of the pudding was in terms of productivity and reputation, the Laboratory of Insect Pathology was enormously successful. In 1960 it became in a re-organization of Forestry Research, a national institute: the Insect Pathology Research Institute. When in 1961, a decision was made to broaden the Institute's research base (pheromones, growth regulators, insect physiology, etc.) a temporary facility was added in the form of a big Nissenhut (to Americans - Quonset). Ugly as sin, its inmates insisted it was a fun place; from a manager's point of view it was a productive, busy and successful can-of-worms. Continued growth led to tacking on some hand-me-down trailers at the back of the original building.

The writing was on the wall when in 1975 a large part of the research staff, and the administrative elements of the Institute moved into the newly opened Great Lakes Forest Research Centre. In 1985 a new wing was commenced at the Centre to house the Institute and this is now in operation. The decision to abandon the old Path Lab (later named the Cameron Building in honour of Dr. J.M. Cameron) was dictated by the high cost of converting an old structure to a modern configuration with new and rigorous standards re fire safety, environmental-control, use by handicapped people, and energy efficiency.

The 'Old Path Lab'

In its day the Path Lab was home/graduate lab/sabbatical site to a long list of scientists whose names are still well-known. Over the years, in spite of its geographical location, a long list of distinguished visitors came to Sault Ste. Marie to look, to learn (and instruct) and often to participate.

To some this event may be saddening but perhaps it should be looked at as the passing on of an old friend. The touchstone surely is - was it all worth it? In 1959, insect pathology was in Canada (and elsewhere) an obscure, minor speciality whose worth was if not questionable at least doubtful. Today the status of insect pathology as a legitimate, recognized field of study is no longer in question, and the old Path Lab (as a crucible) and its staff (as reactants) played an enviable part in this process. Its less than classic outline will be missed by some of us, but we hope its contribution will not be too soon forgotten.

T.A. Angus

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RETIREMENT

Mauro Martignoni retires

Every branch of science produces its personalities. One such in Invertebrate Pathology is Mauro Martignoni, renowned for his meticulous, high personal standards. From the pinnacle of being the first GS-16 scientist at the Pacific Northwest Research Station, Corvallis, Oregon, and one of the few in the Forest Service of the United States Department of Agriculture, he took early retirement on November 23, 1985. In his own words "You reach a time when you've done what you set out to do and it's time for a change". However, he will not be lost to our discipline, or to the SIP, because he plans to teach and consult in the field of microbial control of insect pests in some part of the world that needs that sort of help.

By nature, he is a denizen of the laboratory bench and there most happy. While being a skilled and active teacher, he has also conducted basic and applied research, instrumental in developing biological control for the Douglas-fir tussock moth. The microbial insecticide, TM BioControl-1, is based on the nuclear polyhedrosis that he isolated.

Even now most of us are conscious of Mauro's Swiss origin. A native of Lugano, Switzerland, he graduated, taught and completed a PhD (1956) at the Swiss Federal Institute of Technology in Zurich. In 1951-52 he did graduate work at the University of California at Berkeley, to which he returned to teach. One of my most pleasant experiences has been his year (1972-3) as visiting scientist at our laboratory in Sussex, England - The Glasshouse Crops Research Institute - which is part of our Agricultural and Food Research Council.

We all wish Mauro and his wife Louise an active, happy retirement.

Denis Burges
President
15 March 1986

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POSTDOCTORAL POSITION

Position: Research Entomologist, GS-414-11/12
Location: USDA, ARS, Pollinating Insect Biology, Management, Systematics Research, Logan, Utah.
Appointment not to exceed 2 years.

Description of Duties: The incumbent serves as an insect pathologist and provides the expertise in the identification of causal organisms responsible for diseases of pollinating insects and/or their parasites, development of mechanisms to control these diseases, especially those caused by the fungi, Ascosphaera spp. (chalkbrood), and the determination of undescribed organisms. The incumbent will conduct lab research at Logan, but is expected to undertake the field research involving seasonal travel to unspecified locations in the western states where alfalfa seed is produced and populations of native bees occur.

Special requirements: Knowledge of (1) insect pathology; (2) pathogen culturing techniques; (3) systematic methodology; (4) field applications; and (5) skill in use of microcomputers for data analysis.

For further information: Cathleen Enuton, FTS 344-3138, Area code (301) 344-3138. Submit applications to: Dr. Frank D. Parker, USDA, ARS, Rm. 261 BNR, Utah State University, Logan, Utah 84322-5310

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OBITUARY

Bernhard C. Hertlein, Senior Research Microbiologist at Lee County Mosquito Control District, Ft. Myers, Florida died December 21, 1985 after a short illness. Ben received the BA degree from the University of Chicago and a BS from the University of Illinois. He received the MS in microbiology and biochemistry from the University of Illinois in 1956, and did work toward the doctorate at the University of California at Davis. Ben was a pioneer in the development of continuous fermentation technology for Bacillus thuringiensis israelensis and Bacillus sphaericus. He was among the first to demonstrate persistence of Bacillus sphaericus, and developed many techniques for the field use of these organisms. He is survived by his wife, Doris, a son, Mark and a daughter, Beth.

Betty Davidson

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NEWSFLASH

NEW OFFICERS SIP

Three hundred and forty one ballots were counted on June 6, 1986 by a committee consisting of Donald Lightner, Martha Gilliam and Elizabeth W. Davidson. As a result of this election, the following officers will serve the Society for 1986-88, taking office at the meeting in Eindhoven.

President: Dr. John Harshbarger

Vice President: Dr. Donald Roberts

Secretary: Dr. Ann Cali

Treasurer: Dr. Robert Granados

Trustees: Dr. Christopher Bayne, Dr. Christopher Payne

We wish to thank all the candidates who agreed to stand for election to offices in the Society. The close vote on all offices, and strong response of the membership to the election, is an indication that the Nominating Committee chose an excellent slate of candidates this year.

Respectfully submitted,
Elizabeth W. Davidson, Secretary