

12th International Workshop on Fire Blight

PROGRAM AND ABSTRACTS



August 16-20, 2010

Warsaw, Hotel Sofitel Victoria, Poland

Organizing Committees

Scientific Committee

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Acknowledgements

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Ministry of Agriculture and Rural Development, Poland

AGROPAK S.J. Zakład Konfekcjonowania Środków Chemicznych, Jaworzno, Poland

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Research Institute of Pomology and Floriculture, Skierniewice, Poland

SUMI AGRO POLAND Sp. z o.o.

Syngenta Crop Protection, Poland

PROGRAM

Monday, August 16

8:00 Registration open

9:30 Introductory, Welcome:

Piotr Sobiczewski – Workshop Convener,

Tadeusz Nalewajk – Undersecretary of State, Ministry of Agriculture and Rural Development, Poland

Danuta Goszczyńska – Director of Research Institute of Pomology and Floriculture, Skierniewice, Poland

Chris Hale – ISHS Representative,

Małgorzata Mańka – President of Polish Phytopathological Society, Member of Polish Academy of Sciences

Virginia Stockwell – Chairman of Fire Blight Working Group of ISHS

INTRODUCTORY LECTURE

10:30 EPPO'S FUTURE EMPHASIS: PREVENTION OR ERADICATION?

Nico Van Opstal (Director General EPPO, Paris)

11:00-12:30

DIAGNOSTICS

Chaired by: **Maria M. Lopez and Joanna Puławska**

- 11:00 O1-1 RING TEST EVALUATION OF TECHNIQUES FOR *ERWINIA AMYLOVORA* DIAGNOSIS AND DETECTION
López M., Peñalver J., Arilla A., Morente C., Dreó T., Pirc M., Poliakoff F., Dousset C., Visage M., Achbani E., Bergsma-Vlami M., Drenova N., Duffy B., Marín M., Meekees E., Moumni M., Obradovic A., Palomo J., Taylor R., Stockwell V., Reisenzein H.
- 11:20 O1-2 AN ANALYSIS OF THE *ERWINIA AMYLOVORA* PAN-GENOME IDENTIFIES NOVEL CHROMOSOMAL TARGETS FOR MOLECULAR DIAGNOSTICS
Powney R., Beer S., Plummer K., Sawbridge T., Luck J., Rodoni B.
- 11:40 O1-3 DETECTION OF PLANT-ASSOCIATED *ERWINIA* AND *PANTOEA* SPECIES BY MALDI-TOF ANALYSIS AND WITH NOVEL PCR PRIMERS
Wensing A., Gernold M., Ullrich M., Geider K.
- 12:00 O1-4 RAPID AND EARLY DETECTION OF *ERWINIA AMYLOVORA* IN PEAR AND APPLE ORCHARDS USING LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP)
Temple T., Johnson K.
- 12:15 O1-5 EMISSION OF VOLATILES DURING THE PATHOGENIC INTERACTION BETWEEN *ERWINIA AMYLOVORA* AND *MALUS DOMESTICA*
Spinelli E., Guglielmo C., Rondelli E., Rodriguez-Estrada M., Busi S., Savioli S., Harren F., Crespo E., Cristescu S.

12:30 – 14:00 LUNCH

14:00-16:00

BIODIVERSITY

Chaired by: **Klaus Geider and Tanja Dreó**

- 14:00 O2-1 APPLICATION OF PCR-RFLP OF HOUSEKEEPING GENES FOR DIFFERENTIATION OF THE BACTERIA FROM THE GENUS *ERWINIA*
Łojkowska E., Waleron M., Waleron K.
- 14:20 O2-2 DIFFERENTIATION OF *ERWINIA AMYLOVORA* AND *E. PYRIFOLIAE* STRAINS WITH SINGLE NUCLEOTIDE POLYMORPHISMS IN THE GALE GENE AND BY DIHYDROPHENYLALANINE
Gehring I., Rausch T., Geider K.

- 14:40 O2-3 *ERWINIA AMYLOVORA* CRISPR ELEMENTS PROVIDE NEW TOOLS FOR EVALUATING STRAIN DIVERSITY AND MICROBIAL SOURCE TRACKING
McGhee G., Sundin G.
- 15:00 O2-4 *ERWINIA AMYLOVORA* CRISPR REGIONS: DIVERSITY AND FUNCTIONALITY
Rezzonico F., Smits T., Duffy B.
- 15:20 O2-5 ANALYSIS OF VARIABLE NUMBER OF TANDEM REPEATS IN *ERWINIA AMYLOVORA* AS AN EPIDEMIOLOGICAL AND BIODIVERSITY TOOL
Dreo T., Frey J., Smits T., Ravnikar M., Duffy B
- 15:40 O2-6 GROUPING OF *ERWINIA AMYLOVORA* STRAINS FROM SERBIA AND MONTENEGRO BASED ON PFGE
Ivanovic M., Minsavage G., Jones J., Gasic K., Gavrilovic V., Balaz J., Obradovic A.

16:00 – 16:30 Coffee break

16:30 – 18:30 POSTER Session

DIAGNOSTICS

- P1-1 IDENTIFICATION AND DIFFERENTIATION OF *ERWINIA AMYLOVORA* USING FATTY ACID ANALYSIS AND BIOLOG
Ivanovic M., Dickstein E., Jones J., Gasic K., Gavrilovic V., Balaz J., Obradovic A.
- P1-2 EARLY DETECTION OF *ERWINIA AMYLOVORA* IN ORCHARDS USING REAL-TIME PCR AND LATERAL-FLOW IMMUNOGRAPHY
Braun-Kiewnick A., Dreo T., Lehmann A., Ravnikar M., Stockwell V., Duffy B.
- P1-3 DEVELOPMENT OF SPECIES-SPECIFIC PCR-BASED ASSAYS FOR THE DETECTION OF ASIAN PEAR PATHOGEN *ERWINIA PYRIFOLIAE*
Thapa S., Lim C., Hur J., Kim W., Park D.
- P1-4 CHLOROPHYLL FLUORESCENCE ANALYSIS OF LEAVES OF *PYRUS COMMUNIS* CV. CONFÉRENCE AFTER INFECTION WITH *ERWINIA AMYLOVORA*
Vrancken K., Schoofs H., Deckers T., Valcke R.
- P1-5 SURVEY OF *ERWINIA AMYLOVORA* IN A HEAVILY INFESTED SITE IN NORTHERN LITHUANIA
Burokiene D.
- P1-6 VOLATILE COMPOUNDS PRODUCED BY *ERWINIA AMYLOVORA* AND THEIR POTENTIAL EXPLOITATION FOR BACTERIAL IDENTIFICATION
Spinelli F., Costa G., Rondelli E., Vanneste J., Rodriguez Estrada M., Busi S., Savioli S., Crespo E., Harren F., Cristescu S.

BIODIVERSITY

- P2-1 MALDI-TOF MASS SPECTROMETRY FOR RAPID IDENTIFICATION AND PHYLOGENETIC ANALYSIS OF PANTOEA SPECIES
Rezzonico F., Pflüger V., Vogel G., Tonolla M., Duffy B.
- P2-2 PLASMID CONTENT OF ISOLATES OF *ERWINIA AMYLOVORA* FROM ORCHARDS IN WASHINGTON AND OREGON IN THE USA
Carey A., Pusey P., Loper J., Stockwell V.
- P2-3 SEARCH FOR PEI70 WITHIN *ERWINIA AMYLOVORA* STRAINS FROM BULGARIA
Bobev S., Lopez M., Llop P.
- P2-4 CHARACTERIZATION OF *ERWINIA AMYLOVORA* ISOLATES BY COLONY TYPE AND BACTERIOPHAGE SENSITIVITY
Végh A., Palkovics L., Schwarczinger I., Tóth M., Hevesi M.
- P2-5 FIRE BLIGHT SPREAD IN BULGARIA AND CHARACTERISTIC OF THE PATHOGEN *ERWINIA AMYLOVORA*
Bobev S.G., Maes M., Vaerenbergh J. van., R. Tahzima

PATHOGENICITY AND VIRULENCE

- P3-1 ATTACHMENT STRUCTURES AID IN BIOFILM FORMATION AND XYLEM COLONIZATION OF *ERWINIA AMYLOVORA*
Koczan J., McGrath M., Lenneman B., Sundin G.
- P3-2 SEQUENCING OF PLASMID PEI70 PRESENT IN *ERWINIA AMYLOVORA* EUROPEAN STRAINS AND ITS INVOLVEMENT IN VIRULENCE
Llop P., Cabrefiga J., Smits T., Barbé S., Duffy B., Montesinos E., Lopez M.
- P3-3 SALICYLIC ACID EFFICIENCY ON SYSTEMIC ACQUIRED RESISTANCE INDUCTION OF HOST PLANTS AGAINST FIRE BLIGHT DISEASE
Ghahremani Z., Abdollahi H.
- P3-4 COMPARATIVE ANALYSIS OF THE RCSC SENSOR KINASE FROM *ERWINIA AMYLOVORA* AND OTHER ENTEROBACTERIA
Wang D., Korban S., Zhao Y.
- P3-5 *ERWINIA AMYLOVORA*-INDUCED CELL DEATH RESPONSE IN A MODEL SYSTEM OF INTACT APPLE AND TOBACCO LEAVES
Iakimova E.T., Sobiczewski P., Mikicinski A., Michalczyk L., Woltering E. J.
- P3-6 INVOLVEMENT OF VACUOLAR PROCESSING ENZYME AND ETHYLENE IN *ERWINIA AMYLOVORA*-INDUCED CELL DEATH IN APPLE.
Iakimova E.T., Wegrzynowicz-Lesiak E., Michalczyk L., Sobiczewski P., Woltering E.J.

GENOMICS

- P4-1 TRANSCRIPTOMIC ANALYSIS OF THE RESPONSE OF GOLDEN DELICIOUS TO THE INFECTION BY *ERWINIA AMYLOVORA* USING HIGH THROUGHPUT RNA-SEQUENCING
Righetti L., Potenza E., Moretto M., Cestaro A., Velasco R., Malnoy M.
- P4-2 COMPLETE GENOME SEQUENCE ANALYSIS OF *PANTOEA VAGANS* BIOCONTROL STRAIN C9-1
Smits T., Rezzonico F., Pelludat C., Kamber T., Ishimaru C., Frey J., Goesmann A., Stockwell V., Duffy B.
- P4-3 APPLE (MALUS X DOMESTICA) TRANSCRIPTOME IN RESPONSE TO THE COMPATIBLE PATHOGEN *ERWINIA AMYLOVORA* AND THE INCOMPATIBLE PATHOGEN *PSEUDOMONAS SYRINGAE*
Bocsanczy A., Phillips J., Dardick C., Korban S., Bassett C., Wisniewski M., Norelli J.

EPIDEMIOLOGY

- P5-1 EFFECT OF WETNESS ON BLOSSOM INFECTIONS BY *ERWINIA AMYLOVORA* - IMPACT ON FORECASTING MODELS
Moltmann E., Herr R.
- P5-2 IN VIVO RECOVERY OF *E. AMYLOVORA* VIABLE BUT NON CULTURABLE CELLS IN PEAR PLANTLETS
Santander R., Català-Senent J., Marco-Noales E., Biosca E.
- P5-3 FIRST OCCURRENCE OF FIRE BLIGHT NATIVE INFECTION ON APRICOT (*PRUNUS ARMENIACA*) IN THE CZECH REPUBLIC
Korba J., Šillerová J.
- P5-4 FIRE BLIGHT PROBLEMS NORTH-EAST OF MEXICO CITY
Fucikovsky L.
- P5-5 INCIDENCE OF SUMMER OUTBREAKS OF FIRE BLIGHT IN TREE NURSERIES IN SOUTH ALBERTA, CANADA
Lanthier M.
- P5-6 FIRE BLIGHT SPREAD UNDER CONDITIONS OF BELARUS
Kamardzina V.
- P5-7 FACTORS AFFECTING FIRE BLIGHT INFECTION OF APPLE ROOTSTOCKS
Aldwinckle H., Purnell E., Bushart B., Moktan K., LaReau A.

20:00 – 22:00 Welcome cocktail at the restaurant ‘Browarmia’, Warsaw, ul. Królewska 1 (near Victoria Hotel)

TUESDAY, August 17

8:30 -10:30

PATHOGENICITY AND VIRULENCE

Chaired by: George Sundin and Youfu Frank Zhao

- 08:30 O3-1 GENE EXPRESSION IN THE QUARANTINE PEST *ERWINIA AMYLOVORA* DURING APPLE FLOWER-INFECTION
Pester D.
- 08:50 O3-2 EVOLUTION AND FUNCTION OF FLAGELLA AND NON-FLAGELLA TYPE III SECRETION SYSTEMS IN *ERWINIA AMYLOVORA*
Zhao Y., Qi M., Wang D.
- 09:10 O3-3 DIVERSITY IN *ERWINIA AMYLOVORA* VIRULENCE
Puławska J., Sobiczewski P., Berczyński S., Lewandowski M.
- 09:30 O3-4 *ERWINIA AMYLOVORA* EFFECTOR PROTEIN EOP1 SUPPRESSES PAMP-TRIGGERED IMMUNITY IN *MALUS*
Lalli D., Artlip T., Wisniewski M., Norelli J.
- 09:50 O3-5 THE HRPN EFFECTOR *ERWINIA AMYLOVORA* IS INVOLVED IN TYPE III TRANSLOCATION AND IS REQUIRED TO TRIGGER CALLOSE DEPOSITION
Barny M.
- 10:10 O3-6 COMPARATIVE ANALYSIS OF THE PATHOGENICITY ISLANDS OF *ERWINIA PYRIFOLIAE* AND JAPANESE *ERWINIA* SPP. WITH OTHER CLOSELY RELATED *ERWINIA* SPECIES
Thapa S., Park D., Hur J., Kim W., Lim C.

10:30-11:00 Coffee break

11:00-12:30

PATHOGENICITY AND VIRULENCE

Chaired by: Marie-Anne Barny and Jay Norelli

- 11:00 O3-7 REGULATORY NETWORK OF AMYLOVORAN BIOSYNTHESIS IN *ERWINIA AMYLOVORA*
Wang D., Sundin G., Korban S., Clough S., Toth I., Zhao Y.
- 11:20 O3-8 DELETION OF *ERWINIA AMYLOVORA* FLAGELLAR MOTOR STATOR GENES MOTAB ALTERS BIOFILM FORMATION AND VIRULENCE IN APPLE
Koczan J., Sundin G.
- 11:40 O3-9 FUNCTIONAL ANALYSIS OF *ERWINIA AMYLOVORA* TYPE VI SECRETION SYSTEMS
Kamber T., Smits T., Duffy B.
- 12:00 O3-10 HRPL-REGULATED GENES IN THE GENOME OF *ERWINIA AMYLOVORA*
Bocsanczy A.M., Schneider D.J., DeClerck G.A., Cartinhour S., Beer S.V.
- 12:20 O3-11 EVENTUAL ROLE OF CHLOROPLASTS IN INTERACTION OF *ERWINIA AMYLOVORA* WITH HOST PLANTS
Abdollahi H., Ghahremani Z.

12:40-14:00 Lunch

14:00-15:30

GENOMICS

Chaired by: Cesare Gessler and Michael Malnoy

- 14:00 O4-1 THE *MALUS* WHOLE GENOME SEQUENCE PROJECT, WHAT IT IS TELLING US ABOUT THE GENOME AND ITS POTENTIAL IMPACT ON FIRE BLIGHT RESEARCH
Malnoy M.

- 14:20 O4-2 FINE MAPPING OF THE FIRE BLIGHT RESISTANCE LOCUS IN *MALUS ROBUSTA* 5 ON LINKAGE GROUP 3
Fahrentrapp J., Broggin G., Peil A., Malnoy M., Zini E., Kellerhals M., Gessler C.
- 14:40 O4-3 CANDIDATE FIRE BLIGHT RESISTANCE GENES IN MALUS IDENTIFIED WITH THE USE OF GENOMIC TOOLS AND APPROACHES
Norelli J., Gardiner S., Malnoy M., Aldwinckle H., Baldo A., Bassett C., Fazio G., Horner M., Celton J., Borejsza-Wysocka E., Bowatte D., Charmaine M. C., Lalli D., Bus V., Wisniewski M.
- 15:00 O4-4 IDENTIFICATION OF CANDIDATE FIRE BLIGHT RESISTANCE GENES IN APPLE
Parravicini G., Broggin G., Denancé C., Lasserre P., Vergne-Gaillard E., Brisset M., Durel C., Gessler C.
- 15:20 O4-5 TRANSCRIPTOME ANALYSIS OF APPLE BLOSSOM AFTER CHALLENGING WITH FIRE BLIGHT PATHOGEN *ERWINIA AMYLOVORA* WILD TYPE AND MUTANT STRAINS
Sarowar S., Guerra R., Wang D., Korban S., Zhao Y.
- 15:40 O4-6 THE ANALYSIS OF THE TRANSCRIPTION LEVELS OF DIVERSE SOD, APX AND CAT ISOFORMS IN *PYRUS COMMUNIS* CV. CONFÉRENCE AFTER INFECTION WITH *ERWINIA AMYLOVORA*
Vrancken K., Deckers T., Schoofs H., Valcke R. C.

15:40-16:00 Coffee break

16:00-17:40

GENOMICS

Charired by: Brion Duffy and Pablo Llop

- 16:00 O4-7 EVOLUTIONARY INSIGHTS FROM *ERWINIA AMYLOVORA* GENOMICS
Smits T., Rezzonico F., Kamber T., Goesmann A., Frey J., Duffy B.
- 16:20 O4-8 PLASMIDS IN PATHOGENIC FRUIT TREES *ERWINIA* SPECIES: DO THEY HAVE A COMMON FUNCTION AND ORIGIN?
Barbé S., López M., Llop P.,
- 16:40 O4-9 MICROARRAY CHARACTERIZATION OF THE HRPL REGULON OF THE FIRE BLIGHT PATHOGEN *ERWINIA AMYLOVORA*
McNally R., Sundin G., Zhao Y., Toth I., Cock P., Hedley P.
- 17:00 O4-10 COMPARATIVE GENOMICS OF VIRULENT BACTERIOPHAGES INFECTING *ERWINIA AMYLOVORA*
Born Y., Fieseler L., Marazzi J., Duffy B., Loessner M.
- 17:20 O4-11 GENOME COMPARISON OF THE PATHOGENS *ERWINIA AMYLOVORA* AND *E. PYRIFOLIAE* WITH THE FIRE BLIGHT ANTAGONISTS *E. BILLINGIAE* AND *E. TASMANIENSIS*
Kube M., Reinhardt R., Geider K.

17:40- 18:15 POSTER Session

BREEDING FOR RESISTANCE

- P6-1 RELATIONSHIP BETWEEN FIRE BLIGHT RESISTANCE AND MORPHOLOGICAL TRAITS IN SOME PEAR (*PYRUS COMMUNIS* L.) CULTIVARS
Abdollahi H., Tahzibi Hagh F., Ghahremani Z.
- P6-2 INVESTIGATION ON FIRE BLIGHT RESISTANCE CORRELATION WITH VEGETATIVE TRAITS IN 30 APPLE CULTIVARS
Hajnajari H., Tarrahi S., Ghahremani Z.
- P6-3 TESTING OF RESISTANCE OF PEAR CULTIVARS AFTER ARTIFICIAL INOCULATION WITH *ERWINIA AMYLOVORA* IN FIELD CONDITIONS
Sillerova J., Korba J., Paprstein F., Sedlak J.
- P6-4 INDUCTION OF POLYPHENOL GENE EXPRESSION IN PEAR (*PYRUS COMMUNIS*) AFTER THE APPLICATION OF A DIOXYGENASE ENZYME INHIBITOR
Halbwirth H., Schlangen K., Peterek S., Fischer T., Treutter D., Stich K.

- P6-5 POSSIBLE APPROACHES FOR MOLECULAR BREEDING FOR FIRE BLIGHT RESISTANCE IN APPLE TREES
Halbwirth H., Flachowsky H., Janvary L., Treutter D., Hanke M., Szankowski I., Richter K., Fischer T., Stich K.
- P6-6 DETERMINATION OF FIRE BLIGHT RESISTANCE AND CONSTRUCTION OF A MOLECULAR GENETIC MAP IN A BI-PARENTAL *MALUS SIEVERSII* POPULATION
Lalli D., Norelli J., Malnoy M., Pindo M., Fazio G., Forsline P., Aldwinckle H., Gardiner S., Chagné D., Wisniewski M.
- P6-7 INOCULATION OF MALUS X ROBUSTA 5 PROGENY WITH A STRAIN BRACKING RESISTANCE REVEALS A MINOR QTL ON LG5
Peil A., Richter K., Rode J., Flachowsky H., Hanke M.V.
- P6-8 INTROGRESSION OF A MAJOR QTL FOR FIRE BLIGHT RESISTANCE USING EARLY FLOWERING TRANSGENIC APPLE TREES
Le Roux P., Flachowsky H., Hanke M., Gessler C., Patocchi A.
- P6-9 SUSCEPTIBILITY OF BELARUSIAN APPLE CULTIVARS TO FIRE BLIGHT
Lagonenko A., Kudzina I., Kastritskaya M., Kukharchyk N., Evtushenkov A.
- P6-10 FIRE BLIGHT GREENHOUSE-RESISTANCE ASSESMENTS OF PEAR GENOTYPES ORIGINATING FROM DIFFERENT EUROPEAN COUNTRIES
Przybyła A., Bokszczanin K., Schollenberger M., Odziemkowski S.
- P6-11 QTLs FOR FIRE BLIGHT (*ERWINIA AMYLOVORA*) RESISTANCE IN *PYRUS USSURIENSIS*
Bokszczanin K., Przybyła A., Dondini L., Palucha A.
- P6-12 DEVELOPMENT OF IN VITRO SYSTEM FOR TESTING OF POME FRUIT RESISTANCE AGAINST FIRE BLIGHT
Sedlak J., Paprstein F., Korba J., Sillerova J.
- P6-13 TESTING OF RESISTANCE AGAINST *ERWINIA AMYLOVORA* IN IN VITRO CULTURE CONDITIONS
Paprstein E., Korba J., Sillerova J., Sedlak J.

19:30 Chopin Concert at Podchorążówka, Warsaw Łazienki Park, ul. Agrykoli 1

WEDNESDAY, August 18: Field Trip – nurseries, orchards and visit to RIPF Skierniewice

THURSDAY, August 19

8:30-10:20

EPIDEMIOLOGY

Chaired by: Sherm Thomson and Elena Biosca

- 08:30 O5-1 EPIDEMIOLOGY OF *ERWINIA AMYLOVORA* AND THE DEVELOPMENT OF IMPROVED STRATEGIES FOR CONTROL OF FIRE BLIGHT
Thomson S.
- 08:50 O5-2 TRANSMISSION OF *ERWINIA AMYLOVORA* THROUGH THE MEDITERRANEAN FRUIT FLY CERATITIS CAPITATA
Ordax M., Piquer-Salcedo J., Sabater-Muñoz B., Biosca E., López M., Marco-Noales E.
- 09:10 O5-3 ROOT INFECTION AND COLONIZATION OF PEAR PLANTS INOCULATED WITH *ERWINIA AMYLOVORA* BY SOIL IRRIGATION
Santander R., Català-Senent J., Ordax M., Marco-Noales E., Biosca E.
- 09:30 O5-4 DESCRIPTION AND PRELIMINARY VALIDATION OF A NEW MODEL FOR FIREBLIGHT FORECAST
Philon V., Trapman M.
- 09:50 O5-5 SPREAD OF *ERWINIA AMYLOVORA* IN APPLE TREES OF DIFFERENT VARIETIES AFTER ARTIFICIAL INOCULATION
Persen U., Gottsberger R., Reisenzein H.
- 10:05 O5-6 COUGARBLIGHT EZ, A SUBSTANTIAL UPDATE OF THE COUGARBLIGHT FIRE BLIGHT INFECTION RISK MODEL
Smith T, J., Pusey P. L

10.20-10.50 Coffee break

10.50-12.30

BREEDING FOR RESISTANCE

Chaired by: Markus Kellerhals and Andreas Peil

- 10:50 O6-1 BREEDING FOR FIRE BLIGHT RESISTANCE IN APPLE
Kellerhals M., Franck L., Baumgartner I., Patocchi A., Frey J.
- 11:10 O6-2 MAPPING OF MALUS FUSCA: A VALUABLE GENETIC RESOURCE FOR RESISTANCE TO FIRE BLIGHT
Peil A., Zini E., Richter K., Hanke M.V., Malnoy M.
- 11:25 O6-3 FIRE BLIGHT RESISTANCE FROM 'EVERESTE' AND *MALUS SIEVERSII* USED IN BREEDING FOR NEW HIGH QUALITY APPLE VARIETIES: STRATEGIES AND RESULTS
Baumgartner I., Franck L., Broggini G., Patocchi A., Kellerhals M.
- 11:45 O6-4 SELECTION FOR FIRE BLIGHT RESISTANCE OF APPLE GENOTYPES ORIGINATING FROM EUROPEAN GENETIC RESOURCES AND BREEDING PROGRAMS
Sobiczewski P., Peil A., Berczyński S., Lewandowski M., Richter K., Żurawicz E., Kellerhals M.,
- 12:05 O6-5 MOLECULAR SCREENING OF APPLE GENOTYPES FROM EUROPEAN GENETIC RESOURCES AND BREEDING PROGRAMS FOR INCREASING TOLERANCE TO FIRE BLIGHT
Korbin M., Przybytkowicz-Keller S., Sobiczewski P., Mikiciński A., Lewandowski M.
- 12:20 O6-6 INTRAGENIC STRATEGY TO CREATE FIRE BLIGHT RESISTANT APPLE CULTIVARS
Aldwinckle H., Borejsza-Wysocka E.

12:35-14:00 Lunch

14:00-15:35

BIOLOGICAL CONTROL

Chaired by: Virginia Stockwell and Wolfgang Zeller

- 14:00 O7-1 CHALLENGES AND SUCCESSES IN THE IMPLEMENTATION OF BIOLOGICAL CONTROL METHODS FOR FIRE BLIGHT
Vanneste J.
- 14:20 O7-2 APPROACHES FOR BIOLOGICAL CONTROL OF FIRE BLIGHT IN HUNGARY
Hevesi M.
- 14:40 O7-3 PROPERTIES OF *ERWINIA AMYLOVORA* PHAGES FROM NORTH AMERICA AND GERMANY AND THEIR POSSIBLE USE TO CONTROL FIRE BLIGHT
Müller I., Lurz R., Jelkmann W., Geider K.
- 15:00 O7-4 INTERACTION OF VIRAL AND BACTERIAL LYSOZYMES WITH *ERWINIA AMYLOVORA* AND THEIR INHIBITION BY A BACTERIAL PROTEIN
Geider K., Schneider B., Müller I.
- 15:20 O7-5 ENVIRONMENTAL MONITORING OF *PANTOEA AGGLOMERANS* BIOCONTROL STRAIN E325 IN SWISS ORCHARDS: SURVIVAL, DISPERSAL AND IMPACT ON INDIGENOUS MICROFLORA
Braun-Kiewnick A., Lehmann A., Dreo T., Duffy B.

15:35-16:00 Coffee break

16:00-17.10

BIOLOGICAL CONTROL

Chaired by: Maria Hevesi and Joel Vanneste

- 16:00 O7-6 DEVELOPMENT OF STRATEGIES FOR FIRE BLIGHT CONTROL IN ORGANIC FRUIT GROWING
Kunz S., Schmitt A., Haug P.
- 16:20 O7-7 DEVELOPMENT OF NON-ANTIBIOTIC PROGRAMS FOR FIRE BLIGHT CONTROL IN ORGANIC APPLE AND PEAR
Johnson K., Temple T.
- 16:40 O7-8 ANTAGONISTIC INTERACTION BETWEEN THE BIOCONTROL AGENT BLIGHTBAN C9-1 AND THE PLANT DEFENSE ELICITOR ACTIGARD
Philion V., Toussaint V.
- 16:55 O7-9 INTEGRATED CONTROL POSSIBILITIES OF FIRE BLIGHT IN PEAR ORCHARD IN TURKEY USING PROHEXADIONE-CA AND BACTERIAL ANTAGONISTS
Özaktan H., Aslan E., Akköprü A., İlhan K., Koltuksuz T.

17:15- 18:45 POSTER Session

BIOLOGICAL AND CHEMICAL CONTROL

- P7/8-1 BACTERIOPHAGES AS BIOPESTICIDES: ROLE OF EXOPOLYSACCHARIDES IN PHAGE ATTACK
Roach D.R., Castle A.J., Svircev A.M.
- P7/8-2 CONTROL OF FIRE BLIGHT BY BACTERIOPHAGES ON APPLE FLOWERS
Schwarzinger I., Kiss E., Tóth M., Hevesi M., Süle S.
- P7/8-3 CHARACTERIZATION OF THE ANTIBACTERIAL PEPTIDE HERBICOLIN I BIOSYNTHETIC OPERON IN THE FIRE BLIGHT BIOCONTROL AGENT *PANTOEA VAGANS* C9-1
Kamber T., Lansdell T., Smits T., Stockwell V., Ishimaru C., Duffy B.

- P7/8-4 PANTOCIN A ANTIBIOTIC PRODUCED BY *PANTOEA VAGANS* C9-1: CHEMICAL AND GENETIC CHARACTERIZATION
Ishimaru C., Lansdell T., Gross J., Clardy J., Smits T., Duffy B.
- P7/8-5 EVIDENCE THAT ANTIBIOTIC OF *PANTOEA AGGLOMERANS* E325 IS PRODUCED AND ACTIVE AGAINST *ERWINIA AMYLOVORA* ON STIGMAS OF POMACEOUS BLOSSOMS
Pusey P., Stockwell V.
- P7/8-6 SURVIVAL OF *PANTOEA AGGLOMERANS* E325 AS FIRE BLIGHT BIOCONTROL AGENT WHEN OSMOADAPTED IN HIGH-SALINE MEDIUM
Pusey P., Wend C.
- P7/8-7 *PSEUDOMONAS GRAMINIS* AS BIOCONTROL AGENT OF FIRE BLIGHT
Mikiciński A., Sobiczewski P., Jakubowska A., Puławska J., Berczyński S.
- P7/8-8 EFFECAY OF SOME PLANT EXTRACTS ON THE GROWTH OF STREPTOMYCIN RESISTANT AND SENSITIVE ISOLATES OF *ERWINIA AMYLOVORA*
Tawfik A., Shahin H., Barakat F., Mikhail M.
- P7/8-9 MECHANISM OF ACTION OF NOVEL ANTIBACTERIAL PEPTIDE DERIVATIVES IN THE FIRE BLIGHT PATHOGEN: COMPUTATIONAL MODELING STUDIES
De Zoysaa G., Reynisson J., Mitchell R., Sarojini V.
- P7/8-10 A SUMMARY OF STUDIES ON EFFICACY OF ANTIBIOTICS AND NON-ANTIBIOTIC MATERIALS AGAINST FIRE BLIGHT OF APPLE AND PEAR
Smith T.
- P7/8-11 ENVIRONMENTAL MONITORING OF ANTIBIOTIC RESISTANCE AND IMPACT OF STREPTOMYCIN USE ON ORCHARD BACTERIAL COMMUNITIES
Duffy B., Walsh F., Oulevet C., Pelludat C., Holliger E., Widmer F.
- P7/8-12 ANTIOXIDANTS IN APPLE LEAVES AFTER *ERWINIA AMYLOVORA* INFECTION AND BTH TREATMENT
Skłodowska M., Mikiciński A., Gajewska E., Kuźniak E., Wielanek M., Sobiczewski P.
- P7/8-13 SALICYLIC ACID EFFICIENCY ON SYSTEMIC ACQUIRED RESISTANCE INDUCTION OF HOST PLANTS AGAINST FIRE BLIGHT DISEASE
Ghahremani Z., Abdollahi H.
- P7/8-14 PHYTOTOXICITY EFFECTS OF COPPER FUNGICIDE FORMULATIONS APPLIED TO APPLE FLOWERS
Lesnik M., Kurnik V., Gabersek V.

20:00– 23:00 Workshop dinner at the restaurant ‘Siwy Dym’, Warsaw, ul. Puławska 378

FRIDAY, August 20

8:00

BUSINESS MEETING

ISHS Working Group on Fire Blight Business Meeting

Chaired by Chris Hale

8:30 -10:30

CHEMICAL CONTROL AND RESISTANCE INDUCTION

Chaired by: Karl Stich and Ken Johnson

- 08:30 O8-1 FIRE BLIGHT (*ERWINIA AMYLOVORA*) STATUS IN ROMANIA: DISTRIBUTION, STRAINS CHARACTERIZATION AND DISEASE CONTROL
Constantinescu F., Dascălu L.G., Manole F., Radulescu V., Oprea E., Saviuc C., Severin V., Şesan T. E.
- 08:50 O8-2 EFFECT OF ACIBENZOLAR-S-METHYL (ASM) AND RAHNELLA AQUATILIS (RA39) ON CHITINASE AND β -1,3-GLUCANASE ACTIVITIES AND DISEASE RESISTANCE OF APPLE PLANT
Zeller W., Abo-Elyousr K., Sallam M.
- 09:10 O8-3 NEW BACTERICIDES AGAINST FIRE BLIGHT (*ERWINIA AMYLOVORA*)
Gosch C., Fischer T., Thallmaier V., Stich K.
- 09:30 O8-4 EVALUATION OF KASUGAMYCIN-USE STRATEGIES DESIGNED TO DELAY DEVELOPMENT OF RESISTANCE IN *ERWINIA AMYLOVORA*
Hubbard A., Temple T., Johnson K.
- 09:50 O8-5 KASUMIN: FIELD RESULTS FOR FIRE BLIGHT MANAGEMENT AND EVALUATION OF THE POTENTIAL FOR RESISTANCE DEVELOPMENT IN *ERWINIA AMYLOVORA*
McGhee G., Sundin G.
- 10:10 O8-6 BACTERIAL STIGMA SURVIVAL IN THINNING PROGRAMS USING DECISION ANALYSIS TOOLS
Wend C.

10:30 -11:00 Coffee break

11:00-13:00

CHEMICAL CONTROL AND RESISTANCE INDUCTION

Chaired by: Tom Deckers and Lech Michalczuk

- 11:00 O8-7 LAMINARIN ELICITS DEFENSE RESPONSES TO MANAGE PLANT DISEASES
Joubert J-M., Bordier A., Lefranc G.
- 11:20 O8-8 SOIL DRENCHES OF SYSTEMIC ACQUIRED RESISTANCE INDUCERS AS A FIRE BLIGHT MANAGEMENT TOOL FOR DISEASED PEAR AND APPLE TREES
Johnson K.
- 11:40 O8-9 INDUCTION OF PLANT DEFENCE REACTIONS ON FRUIT TREES AS PART OF A FIRE BLIGHT CONTROL STRATEGY
Deckers T., Verjans W., Schoofs H.
- 12:00 O8-10 DIFFERENTIAL GENE EXPRESSION DURING INDUCTION OF DEFENCE MECHANISM IN APPLE BY SELECTED FIRE BLIGHT BIOCONTROL AGENTS
Wójcik D., Michalczuk L., Sobiczewski P., Brzozowska-Michalak J., Mikicinski A., Kowalczyk K.
- 12:20 O8-11 A MECHANISTIC INVESTIGATION INTO THE INHIBITION OF GROWTH AND BIOFILM FORMATION IN *ERWINIA AMYLOVORA* BY NON-PROTEIN AMINO ACIDS
De Zoysaa G., Washington V., Mistry M., Lewis G., Mitchell R., Sarojini V.
- 12:40 O8-12 BIPHENYL AND DIBENZOFURAN FORMATION IN FIRE BLIGHT-INFECTED *MALUS DOMESTICA* CULTIVARS
Hüttner C., Beuerle T., Liu B., Richter K., Flachowsky H., Peil A., Hanke M., Beerhues L.

13:00-14:00 Lunch

14:00-15:00 ROUND TABLE AND WORKSHOP SUMMARY (Closing)

Brion Duffy, Klaus Geider, Markus Kellerhals, Joanna Puławska, Piotr Sobiczewski, Virginia Stockwell, George Sundin, Sherman Thomson, Joel Vanneste