

Vol 83(2) 1-202 (2018)

**COMMUNICATIONS IN AGRICULTURAL AND
APPLIED BIOLOGICAL SCIENCES**

Formerly known as

**MEDEDELINGEN FACULTEIT LANDBOUWKUNDIGE
EN TOEGEPASTE BIOLOGISCHE WETENSCHAPPEN**

PUBLISHERS

Prof. Pascal Boeckx
Prof. Peter Bossier
Prof. Guy Smagghe
Prof. Els Van Damme
Prof. Niko Verhoest
Bjorn Vandekerkhove

EDITORIAL ADDRESS

Coupure links 653
9000 Gent (Belgium)

Website: www.ugent.be/bw

ISSN 1379-1176

The contents of the contributions published in this book are under the full responsibility of the authors. The organizing committee cannot be held responsible for any errors in this publication and potential consequences thereof.

Proceedings

70th INTERNATIONAL SYMPOSIUM ON CROP PROTECTION

**Editorial Address
Coupure links 653
9000 Gent (Belgium)**

Gent, May 22, 2018

Part I

PATRONS

Faculty of Bioscience Engineering, Ghent University, Gent, Belgium

BASF Belgium, Waterloo, Belgium

Arche Consulting, Leuven, Belgium

Bayer CropScience, Diegem, Belgium

Belchim Crop Protection, Londerzeel, Belgium

Biobest Biological Systems, Westerlo, Belgium

Eppendorf, Aarschot, Belgium

Izotop, Budapest, Hungary

Monsanto Europe, Brussel, Belgium

Novolab, Geraardsbergen, Belgium

Primoris, Zwijnaarde, Belgium

Prime Diagnostics, Wageningen, the Netherlands

Syngenta Crop Protection, Brussel, Belgium

ORGANIZING COMMITTEE

HONORARY CHAIRMEN

**D. DEGHEELE (†), W. DEJONCKHEERE (†),
A. GILLARD (†), R.H. KIPS (†), C. PELERENTS (†),
J. POPPE (†), J. STRYCKERS (†), J. VAN DEN BRANDE (†),
W. WELVAERT (†)**

M. MOENS, W. STEURBAUT

ORGANIZING COMMITTEE

**B. DE CAUWER (Chair), P. DE CLERCQ, M. HÖFTE,
G. SMAGGHE, P. SPANOGHE, L. TIRRY,
T. VAN LEEUWEN, W. WESEMAEL**

**B. VANDEKERKHOVE (Secretary-general)
H. VAN BOST (Assistant-secretary)**

ADVISORY COMMITTEE

**G. ANGENON, K. AUDENAERT, D. BYLEMANS,
M. DEMEULEMEESTER, R. DE VIS, B. GOBIN,
G. HAESAERT, M. MAES, E. PRINSEN, D. REHEUL,
E. VAN DAMME, J. VANDENBROECK, M.C. VAN LABEKE,
M. VAN MEIRVENNE**

SESSIONS

Chairmen

- R. BELZ (University of Hohenheim, Germany)**
- H. MENNAN (Ondokuz Mayıs University, Turkey)**
- A. LEGREVE (Catholic University Louvain la Neuve, Belgium)**
- S. MASSART (University of Liège, Belgium)**
- A. SIAH (ISA-Lille, France)**
- K. DE JONGHE (ILVO, Belgium)**
- D. BYLEMANS (Pcfruit npo, Belgium)**
- H.E. HUMMEL (Justus-Liebig-University, Germany)**
- R. PERRY (University of Hertfordshire, UK)**
- D. BAETS (Bayer CropScience, Belgium)**
- J.H. GALANI YAMDEU (Ghent University, Belgium)**

Vice-chairmen

- H. MENNAN (Ondokuz Mayıs University, Turkey)**
- R. BELZ (University of Hohenheim, Germany)**
- S. FRANÇA (Biobest, Belgium)**
- F. OLORUNLEKE (Ghent University, Belgium)**
- M. AMEYE (Ghent University, Belgium)**
- K. WYCKHUYS (China Academy of Agricultural Sciences CAAS, China)**
- P. DE CLERCQ (Ghent University, Belgium)**
- E. DE LA PEÑA (Ghent University, Belgium)**

CONTENTS

Plenary Session

Abstracts

S.A. FENNIMORE

CHALLENGES AND OPPORTUNITIES FOR AUTOMATION OF WEED CONTROL IN SPECIALTY CROPS 3

R. SHAW

BIOLOGICAL CONTROL OF INVASIVE WEEDS AND ESCAPED ORNAMENTALS IN EUROPE 4

R. BELZ

HERBICIDE HORMESIS: IMPORTANCE AND IMPLICATIONS FOR CROP PRODUCTION AND WEED CONTROL 5

Special session: Biocontrol of Plant Diseases

Abstracts

R-U. EHLERS

REFIT OF REG. 1107/2009 - NOT ANOTHER MISFIT: CALL FOR DEVELOPMENT OF FAST TRACK AUTHORISATION FOLLOWING ADAPTED DATA REQUIREMENTS FOR BIOCONTROL AGENTS 9

A. CLINCKEMAILLIE, G. VAN AUBEL, M.E. RENARD, H. VERHAEGEN, P. VAN CUTSEM & A. LEGRÈVE

ELICITATION OF PLANT DEFENSE BY COS-OGA AGAINST TOMATO EARLY BLIGHT 10

A.R. SARE, A.A. NAWEL, M.H. JIJAKLI & S. MASSART

ECOLOGICAL RELATIONS INSIDE PLANT MICROBIOTA CAN IMPROVE THE EFFICACY OF BIOLOGICAL CONTROL AGENTS: THE CASE OF PICHIA ANOMALA STRAIN K ON APPLE AGAINST BOTRYTIS CINEREA 11

O.O. OMOBOYE, F.E. OLORUNLEKE, H.Z. YIMER, O. FILIPE, A.A. ARIAS, M. DUBAN, M. ONGENA, V. LECLÈRE, P. SPANOGHE & M. HÖFTE

EFFECT OF CYCLIC LIPOPEPTIDES PRODUCED BY PSEUDOMONAS SPP. ON MAGNAPORTHE ORYZAE ON RICE 12

C. DE CLERCK, L. JALLAIS, V. VANGOETHEM, M-L. FAUCONNIER & M.H. JIJAKLI

IDENTIFICATION OF FUNGAL VOLATILE ORGANIC COMPOUNDS EMITTED DURING QUORUM SENSING AS POTENTIAL BIOCONTROL AGENTS 13

Posters: Special Session: Biocontrol of Plant Diseases

- DIAKALIA SON, S. BONZI, I. SOMDA, A. LEGREVE & B. SCHIFFERS**
EFFICACY OF OCIMUM BASILICUM L. EXTRACTS AGAINST THE TOMATO WILT
(FUSARIUM OXYSPORUM F. SP. RADICIS-LYCOPERSICI) IN BURKINA FASO 17
- C. CHOMA & P. HALAMA**
SCREENING IN VITRO OF NATURAL PRODUCTS AGAINST THE PLANT PATHOGENIC
BACTERIUM PECTOBACTERIUM ATROSEPTICUM 27
- G. PICCIRILLO, A. FANI GLIULO, R. CARRIERI, M. SICIGNANO, F. DAPOTO, A. VIGGIANO, R. SORRENTINO, E. LAHOZ & A. CRESCENZI**
CONTROL OF TAKE-ALL AND HEAD BLIGHT DISEASES OF WHEAT BY SEED
TREATMENT WITH STRAINS OF CLONOSTACHYS ROSEA F SP. ROSEA 34
- Abstracts**
- H. BADRI, E.H. ACHBANI & M.H. JIJAKLI**
AUREOBASIDIUM PULLULANS STRAIN ACH1-1 BIOCONTROL OF POSTHARVEST
DISEASES OF APPLES: 15 CRUCIAL YEARS OF RESEARCH BEFORE STARTING
COMMERCIAL DEVELOPMENT 41
- M. KORD, H. ALIZADEH, M. FARZANEH & K. SALARI**
INDUCED RESISTANCE IN CUCUMBER BY SOME MEDICINAL PLANT EXTRACTS
AGAINST PSEUDOPERONOSPORA CUBENSIS 42
- P. RAVIER, S. DEPREY & W. VAN DE VELDE**
COMPATABILITY ASSESSMENT OF BIOSURFACTANTS FORMULATED AS TANKMIX
ADJUVANT WITH BIOCONTROL SOLUTIONS 43
- G. STOUVENAKERS, S. MASSART & M.H. JIJAKLI**
AQUAPONIC WATER: A NOVEL SOURCE TO ISOLATE BCAS AGAINST PYTHIUM
APHANIDERMATUM? 44
- W. VANHOVE, N. VANHOUDT, P. VAN DAMME & A. ZHANG**
BIOCONTROL OF COCOA POD BORER AND VASCULAR STREAK DIEBACK IN
SOUTHEAST ASIA 45
- D. HOLTAPPELS, S. ROMBOUITS, Y. BUSSCHOTS, A. VOLCKAERT, S. POLLET, S. VENNEMAN, M. MAES, J. VAN VAERENBERGH, S. BAEYEN, J. WAGEMANS & R. LAVIGNE**
INTRODUCING NEXT-GENERATION PHAGE THERAPY IN AGRICULTURE 46

G. POP, E. ALEXA, R. SUMALAN, M. NEGREA, D. OBISTIOIU, M. IMBREA ILINCA & V. BUCUR IN VIVO ANTIFUNGAL POTENTIAL OF ESSENTIAL OILS BASED NATURAL PREPARATIONS AND THEIR EFFECT ON WHEAT QUALITY	47
J. MUCHEMBLE, C. DEWEER, G. T'JOEN, K. SAHMER & P. HALAMA IN VITRO AND IN PLANTA ANTIFUNGAL ACTIVITY OF COGNAC OIL ON ZYMOSEPTORIA TRITICI	48
A.C. VELHO, M.C. DE BORBA, A. FOURQUEZ, M. MAGNIN-ROBERT, B. RANDOUX, B. TISSERANT, F. LARUELLE, P. HALAMA, A. SIAH, I. SADOVSKAYA, T. GRARD, P. REIGNAULT & M.J. STAD ULVANS ARE EFFECTIVE IN CONTROLLING POWDERY MILDEW IN BREAD WHEAT	49
M.C. DE BORBA, A.C. VELHO, A. SIAH, A. FOURQUEZ, M. MAGNIN-ROBERT, B. RANDOUX, B. TISSERANT, P. HALAMA, P. REIGNAULT & M.J. STADNIK BIOPROTECTION OF WHEAT AGAINST ZYMOSEPTORIA TRITICI USING ALGAL POLYSACCHARIDES	50
J. BARBRY, F. TEMMERMAN, L. DELANOTE & P. DELTOUR CONTROLLING POWDERY MILDEW ON LATE PLANTING COURGETTE WITH BIOPESTICIDES	51
P. VARGAS, L. BOSMANS, S. VAN KERCKHOVE, W. VANLOMMEL, B. VAN CALENBERGE, B. LIEVENS & H. REDIERS EVALUATION OF GENOTYPIC AND PHENOTYPIC DIVERSITY OF RHIZOGENIC AGROBACTERIUM ISOLATES FROM HYDROPONIC TOMATO GREENHOUSES IN EUROPE	52
R. PLATEL, A. SIAH, M. MAGNIN-ROBERT, B. RANDOUX, Ph. REIGNAULT & P. HALAMA HIGH-THROUGHPUT SCREENING AND MODES OF ACTION OF NEW BIOCONTROL PRODUCTS ON THE WHEAT- ZYMOSEPTORIA-TRITICI PATHOSYSTEM	53
S. MEJRI, M. MAGNIN-ROBERT, A. SIAH, A. GHINET, B. RANDOUX, B. TISSERANT, B. RIGO, Ph. REIGNAULT & P. HALAMA SACCHARIN INDUCES RESISTANCE IN WHEAT AGAINST ZYMOSEPTORIA TRITICI	54
J. MOELANTS, M. VISSERS, K. HEUNGENS, M. HÖFTE & S.C. FRANÇA POTENTIAL OF TRICHODERMA IN THE BIOCONTROL OF FUSARIUM WILT IN THE ORNAMENTAL CROP BEGONIA	55

Session: Phytopathology

- P. WALKER, P. GLADDERS, A. MOORE, F. BURNETT, S. KNIGHT, P. GOSLING & F. RITCHIE**
APPROPRIATE FUNGICIDE DOSES FOR THE CONTROL OF PHOMA STEM CANKER, CAUSED BY LEPTOSPHAERIA MACULANS, IN WINTER OILSEED RAPE IN THE UNITED KINGDOM 59
- Abstracts**
- C. DEKUIJPER, M. MOULIN, K. LECOINTE, B. SENDID, C. LENAERTS, S. GANESAN, S. MARICOT, J-P. VILCOT, D. BERNIER, F. DORTU, A. ROOBROECK, S. DESPREZ & D. LANTERBECQ**
BIOSENS, DEVELOPMENT OF SPR SENSORS APPLIED TO EARLY DETECTION AND REAL-TIME MONITORING OF PATHOGENS AND BIOCONTROL AGENTS IN AGRICULTURE 71
- P. HELLIN, M. DUVIVIER, G. DEDEURWAERDER, C. BATAILLE, M. DE PROFT & A. LEGREVE**
EVALUATION OF THE IMPLICATION OF FUSARIUM GRAMINEARUM AIRBORNE INOCULUM IN FUSARIUM HEAD BLIGHT OF WHEAT IN THE FIELD 72
- M. BOMBLE, A. SIAH, C. TUFFET, C. PAYET, A. FARCE, PH. REIGNAULT, J-L. HILBERT & P. HALAMA**
EVOLUTION OF ZYMOSEPTORIA TRITICI RESISTANCE TO 14-ALPHA DEMETHYLASE INHIBITORS IN NORTHERN FRANCE: AN UPDATE 73
- K. DE JONGHE, T. GOEDEFROIT, T. OLIVIER, S. STEYER, C. FASSOTTE, J. BONTE & H. CASTEELS**
TRACKING VECTORS OF BACTERIA AND PHYTOPLASMA THREATENING OUR CARROT PRODUCTION 74
- R. TAHZIMA, Y. FOUCART, S. MASSART & K. DE JONGHE**
GLIMPSES ON THE GLOBAL MOLECULAR EPIDEMIOLOGY AND ETIOLOGY OF LITTLE CHERRY DISEASE USING NEXT GENERATION SEQUENCING 75
- A. CEUSTERMANS, J. VAN CAMPENHOUT, S. TORFS, W. KEULEMANS, K. HEUNGENS, W. VAN HEMELRIJCK & D. BYLEMANS**
ARTIFICIALLY INDUCED SPORE RELEASE TO PREDICT ACTUAL APPLE SCAB PRESSURE 76
- J. CLAERBOUT, A. VOLCKAERT, J. NEUKERMANS, A. DECOMBEL, P. BLEYAERT, S. VENNEMAN, I. VANDEVELDE, N. VIAENE & M. HÖFTE**
THE SEASONAL PATTERN OF RHIZOCTONIA SOLANI CAUSING BASAL ROT IN BELGIAN LETTUCE 77

L. TYVAERT, L. LIPPENS, E. EVERAERT, S.C. FRANÇA, W. CUIJPERS & M. HÖFTE ROLE OF COLLETOTRICHUM AND VERTICILLIUM IN WILTING OF PEPPER PLANTS	78
F. BAFORT, C. DAMBLON, N. SMARGIASSO, E. DE PAUW, J-P. PERRAUDIN & M.H. JIJAKLI BIOACTIVITY AND UNEXPECTED INTERHALOGEN PRODUCTION BY THE LACTOPEROXIDASE SYSTEM	79
C. BERHAL, C. DE CLERCK, I. VAN DEN HOUWE, E. KEMPENAERS, N. ROUX & S. MASSART HEALTHY GERMPASMS FOR SUSTAINABLE AGRICULTURE, THE CASE OF AN IMPORTANT CLONAL CROP: BANANA	80
O.O. AFOLABI, J. ONWUGHALU, K. PEETERS, O. OYETUNJI, A. OGUNBAYO & M. HÖFTE ELUCIDATING THE RICE SHEATH ROT COMPLEX IN MALI AND NIGERIA – A CONTRASTING TALE OF TWO DIFFERENT WORLDS	81
K. PEETERS, A. HAECK, O. AFOLABI, K. DEMEESTERE & M. HÖFTE ROLE OF THE TOXINS CERULENIN AND HELVOLIC ACID IN THE RICE-SAROCLADIUM ORYZAE INTERACTION	82
N.N.A. TJOU-TAM-SIN, J.L.J. VAN DE BILT, M. WESTENBERG, P.P.M.A. GORKINK-SMITS, N.M. LANDMAN & M. BERGSMAN-VLAMI ASSESSING THE PATHOGENIC ABILITY OF RALSTONIA PSEUDOSOLANACEARUM (RALSTONIA SOLANACEARUM PHYLOTYPIC 1) FROM ORNAMENTAL ROSA SPP. PLANTS	83
Posters: Phytopathology	
H. CHIKH-ROUHO, A. GARCÉS-CLAVER, V. GONZÁLEZ, R. STA-BABA AND M. DAAMI-REMADI SCREENING FOR RESISTANCE TO RACE 1 OF FUSARIUM OXYSPORUM F. SP MELONIS IN TUNISIAN MELON CULTIVARS USING MOLECULAR MARKERS	87
R. LAHLALI, A. KHOUDANE, A. TAHIRI & S. AMIRI A SURVEY OF APPLE STORAGE CONDITIONS IN MOROCCO AND PREVALENT PATHOGENS ASSOCIATED WITH SPOILT FRUIT AND AIR ATMOSPHERE STORAGE	93
S. AIT BAHADOU, A. OUIJJA, M.A. BOUKHARI, R. LAHLALI & A. TAHIRI IDENTIFICATION AND CHARACTERIZATION OF MOROCCAN ERWINIA AMYLOVORA STRAINS BY RANDOM AMPLIFIED POLYMORPHIC DNA FRAGMENTS (RAPD)	100

Abstracts

- R. KAYA, Y. ZEKAI KATIRCIOĞLU, F. DEMİRCİ, E. KARA, M. AVAN & S. MADEN**
EFFECTS OF SEED TREATMENT FUNGICIDES ON IMPORTANT ROOT ROT DISEASES OF SUGAR BEET IN TURKEY 111
- J. CHAOU, A. ASFERS, R. LAHLALI, A. AIT HOUSSA & A. ASEHRAOU**
EVALUATING THE EFFECTIVENESS OF CERTAIN FUNGICIDES APPLIED PREHARVEST TO CONTROL POST-HARVEST DISEASES OF PEACH AND NECTARINE FRUITS 112
- T. VANWALLEGHEM, K. HEUNGENS, W. VAN HEMELRIJCK & D. BYLEMANS**
DIAPORTHE VACCINII IN BLUEBERRY IN BELGIUM: STATUS AND FUNGICIDE EFFICACY 113
- A. TREGUBA, E.A. BRAUNA, Z. DUMBRE & O. TREIKALE**
EFFICACY EVALUATION OF SEED TREATMENT AGAINST COMMON BUNT IN WINTER WHEAT 114
- M. TÜRKKAN & I. ERPER**
EVALUATION OF INHIBITORY EFFECT OF ORGANIC AND INORGANIC SALTS AGAINST CARROT SOUR ROT AGENT GEOTRICHUM CANDIDUM 115
- I. ERPER, E. ALICI, S. AVCI & M. TURKKAN**
EVALUATION OF ANTIFUNGAL ACTIVITY OF SODIUM SALTS AGAINST FUSARIUM WILT CAUSED BY FUSARIUM OXYSPORUM F.SP. MELONGENAE 116
- R. TAHZIMA, Y. FOU CART, G. PEUSENS, T. BELIËN, S. MASSART & K. DE JONGHE**
NEW AND FAST DETECTION OF LITTLE CHERRY VIRUS 1 USING ONE-STEP REVERSE TRANSCRIPTION LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (RT-LAMP) 117
- N. SALEM, R. TAHZIMA, S. ODEH, A.O. ABDEEN, T. GOEDEFROIT & K. DE JONGHE**
OCCURENCE OF 'CANDIDATUS PHYTOPLASMA SOLANI' IN ASSOCIATION TO A NEW HOST PLANT PLUM (PRUNUS DOMESTICA L.) IN JORDAN 118
- J. RIVIÈRE, P. VANHAVERBEKE, K. CORNELISSEN, K. DEMEULEMEESTER, C. HANNON, R. VALADE, D. GAUCHER, O. MAHIEU & D. LANTERBECQ**
SYTRANSPOM: DEVELOPMENT OF COLLABORATIVE AND INNOVATIVE ALERT AND DECISION SYSTEMS PROMOTING INTEGRATED PROTECTION AGAINST FUNGAL POTATO DISEASES 119
- P. TANGKANCHANAPAS, M. HÖFTE & K. DE JONGHE**
DEVELOPMENT OF FAST AND SENSITIVE ON-SITE DIAGNOSIS, REVERSE TRANSCRIPTION LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (RT-LAMP), FOR PEPPER CHAT FRUIT VIROID (PCFVD) 120

I. ERPER, G. OZER, C. KALKAN & M. TURKKAN FIRST REPORT OF ERYSIPTHE ELEVATA CAUSING POWDERY MILDEW ON CATALPA BIGNONIOIDES IN TURKEY	121
A. DUBA & U. WACHOWSKA TRICHOHECENE GENOTYPES OF FUSARIUM GRAMINEARUM ISOLATED FROM TRITICUM MONOCOCCUM IN POLAND	122
K. GORIEWA-DUBA & W. WIWART IDENTIFICATION OF MARKERS LINKED TO POWDERY MILDEW AND LEAF RUST RESISTANCE GENES IN BREAD WHEAT-SPELT HYBRIDS AND THEIR PARENTAL COMPONENTS	123
N.D.K. YILMAZ & R. KAYA MOLECULAR CHARACTERIZATION OF BNYVV ISOLATES BASED ON P25 CODING REGION IN CENTRAL PART OF TURKEY	124

Session: Herbology

F. HENRIET & O. ROISEUX SELECTIVITY OF SEVERAL HERBICIDES TO SOYBEAN (GLYCINE MAX)	127
--	-----

Abstracts

S. BEN KAAB, I. BETTAIEB REBEY, M.L. FAUCONNIER, C. DE CLERCK, R. KSOURI & M.H. JIJAKLI STUDY OF TUNISIAN PLANT EXTRACTS AS BIOHERBICIDE	137
B. DE CAUWER, J. VAN BESIEEN, S. DE RYCK & D. REHEUL IMPACT OF BRASSICA JUNCEA BIOFUMIGATION ON VIABILITY OF PROPAGULES OF PERNICIOUS WEED SPECIES	138
H. MENNAN, M. NEDIM DOĞAN, M. ŞAHİN & E. KAYA-ALTOP AMARANTHUS PALMERI, NEW THREAT FOR TURKISH AGRICULTURE	139
A. CHRISTIAENS, W. DEKEYZER, J. LATRE, G. HAESAERT, F. VAN BOXSTAELE & I. DIERICKX PRE- AND POST-EMERGENCE HERBICIDE SCREENING FOR WEED CONTROL IN QUINOA (CHENOPODIUM QUINOA): FIELD TRIAL	140
S. DIERICKX, J. DRUART & T. GEEROMS PYRAFLUFEN-ETHYL: A NEW TOOL FOR WEED CONTROL IN POTATOES	141

F. PALA & H. MENNAN MAJOR WEEDS IN BARLEY FIELDS OF DIYARBAKIR	142
--	-----

Posters: Herbology

Abstracts

İ. TÜRKTEMELE & A. TANSEL SERİM EFFICACY OF REDUCED RIMSULFURON DOSES IN COMBINATION WITH SUNFLOWER WATER EXTRACTS ON THE WEEDS	145
E. KAYA ALTOP & H. MENNAN MORPHOLOGICAL AND GENETIC DIVERSITY OF ACETOLACTATE SYNTHASE- INHIBITING, HERBICIDE-RESISTANT SCIRPUS MUCRONATUS BIOTYPES	146
D. CALLENS & R. PARMENTIER POSSIBILITIES OF HERBICIDES FOR WEED CONTROL IN PARSNIP	147

Session: Nematology

T. BEHMAND, Y. ER, N. SIVRI, L. OZTURK & İ. HALİL ELEKÇIOĞLU EFFICIACY OF TRICHODERMA VIRIDE IN THE CONTROL OF ROOT LESION NEMATODES (PRATYLENCHUS THORNEI AND P. NEGLECTUS) AND DAGGER NEMATODES (XIPHINEMA INDEX AND X. PACHTAICUM) IN TURKEY	151
L. OZTURK, G. GUVENC AVCI, T. BEHMAND, N. SIVRI & İ. HALİL ELEKÇIOĞLU SEASONAL FLUCTUATIONS, POPULATION DYNAMICS, VERTICAL AND HORIZONTAL DISTRIBUTIONS OF XIPHINEMA INDEX AND XIPHINEMA PACHTAICUM IN VINEYARDS INFECTED BY GRAPEVINE FANLEAF VIRUS IN TEKIRDAG, TURKEY	157

Abstracts

M. DHAKAL, K.B. NGUYEN, D.J. HUNT, R.-U. EHLERS, S.E. SPIRIDONOV & S.A. SUBBOTIN IDENTIFICATION AND PHYLOGENY OF THE ENTOMOPATHOGENIC NEMATODES OF THE GENUS HETERORHABDITIS: A MULTIGENE APPROACH	169
K. BURANA & P. NIMKINGRAT COMPARISON OF STEINERNEMA SIAMKAYAI AND STEINERNEMA CARPOCAPSAE AGAINST SPODOPTERA LITURA (COMMON CUTWORM) IN MARIGOLDS	170

- K.G. DAVIES, AROHI SRIVASTAVA & V. PHANI**
HOW TO BECOME ATTACHED TO A NEMATODE: NEW DEVELOPMENTS IN
PASTEURIA ENDOSPORE ADHESION TO JUVENILE CUTICLE 171
- J.H.M. VISSER, L.P.G. MOLENDIJK, H. FEIL, H. MEINTS & T. VAN BEERS**
SOIL RESET: AN INNOVATIVE METHOD OF ANAEROBIC SOIL DISINFESTATION TO
CONTROL SOIL-BORNE PATHOGENS AND NEMATODES 172
- E. DE LA PEÑA, L. BLANCO, J. ANTONIO DÍAZ-PENDÓN, Ó. HERRERO, R. PLANELLÓ,
R. FERNÁNDEZ-MUÑOZ & V. FERRERO**
ANALYSIS OF PARTIAL RESISTANCE TO FOLIAR HERBIVORES AND MELOIDOGYNE
INCOGNITA IN WILD AND MEDITERRANEAN TOMATO ACCESSIONS 173
- G. AYDINLI & S. MENNAN**
RESEARCHES ON GROWING WINTER BRASSICA SPECIES TO REDUCE THE DAMAGE
OF ROOT KNOT NEMATODES IN TOMATO FIELDS 174
- L. OZTURK, T. BEHMAND, N. SIVRI, G. GUVENC AVCI & İ. HALIL ELEKCIOGLU**
PLANT PARASITIC NEMATODES ASSOCIATED WITH OLIVE TREES AND
PATHOGENICITY OF XIPHINEMA INDEX AND MELOIDOGYNE JAVANICA IN
TEKIRDAĞ TURKEY 175

Posters: Nematology

- I. AMAHZOUNE, R. LAHLALI, G. ECHHGADDA, A. TAHIRI & S. AMIRI**
NEMATOCIDAL ACTIVITIES OF NATURALLY-BASED PRODUCTS COMPOST AND
NEMAGOLD ON ROOT-KNOT NEMATODES 179
- Y. BENSEDDIK, A. BOUTALEB JOUTEI, S. AMIRI & A. BLENZAR**
THE FIRST RECORD OF ENTOMOPATHOGENIC NEMATODES
(HETERORHABDITIDAE AND STEINERNEMATIDAE) IN MOROCCO AND THEIR USE
IN BIOLOGICAL CONTROL AGAINST SOIL-DWELLING PESTS 188

Abstracts

- F. FEKRAT, S. KARIMI & Z. AZAMI-SARDOOIE**
EFFECT OF GRAPEFRUIT WASTE ON INHIBITION OF ROOT KNOT NEMATODE
(MELOIDOGYNE JAVANICA) IN TOMATO PLANTS 199

B. GERIČ STARE, P. STRAJNAR, G. ANTHOINE, A-M. CHAPPE, F. OLLIVIER, L. FOLCHER, A. BUISSON, M.L. INÁCIO, F. NÓBREGA, L. RUSINQUE, E. ANDRADE, L. CONCEIÇÃO, I. ABRANTES , C. MALEITA , E. Y.J. HEESE, G. KARSENEN, J. BAČIČ & S. ŠIRCA	
CHALLENGES OF THE EUPHRESCO PROJECT MELOTROP: GLOBAL WARMING AND DISTRIBUTION OF ROOT-KNOT NEMATODE SPECIES OF THE TROPICAL GROUP	200
T. DEMIR & S. MENNAN	
THE HOST STATUS OF SOME TOMATO VARIETIES TO DIFFERENT INITIAL POPULATIONS OF MELOIDOGYNE ARENARIA AND MELOIDOGYNE JAVANICA	201
P. NIMKINGRAT, W. GUAENOON, N. SIRI, R-U. EHLERS & K. BURANA	
EFFECT OF INSECTICIDES ON THE SURVIVAL AND CONTROL RATES OF ENTOMOPATHOGENIC NEMATODE AGAINST CHILI FRUIT FLY PUPAE (BACTROCERA LATIFRONS HENDEL)	202

Vol 83(3) 203-417 (2018)

**COMMUNICATIONS IN AGRICULTURAL AND
APPLIED BIOLOGICAL SCIENCES**

Formerly known as

**MEDEDELINGEN FACULTEIT LANDBOUWKUNDIGE
EN TOEGEPASTE BIOLOGISCHE WETENSCHAPPEN**

PUBLISHERS

Prof. Pascal Boeckx
Prof. Peter Bossier
Prof. Guy Smagghe
Prof. Els Van Damme
Prof. Niko Verhoest
Bjorn Vandekerkhove

EDITORIAL ADDRESS

Coupure links 653
9000 Gent (Belgium)

Website: www.ugent.be/bw

ISSN 1379-1176

The contents of the contributions published in this book are under the full responsibility of the authors. The organizing committee cannot be held responsible for any errors in this publication and potential consequences thereof.

Proceedings

70th INTERNATIONAL SYMPOSIUM ON CROP PROTECTION

**Editorial Address
Coupure links 653
9000 Gent (Belgium)**

Gent, May 22, 2018

Part II

CONTENTS

Session: Agricultural Entomology and Acarology

D. JANSSEN, M.M. TELLEZ, L. RUIZ, E. RODRIGUEZ & A. SIMON CONTROL OF TOMATO LEAF CURL NEW DELHI VIRUS AS A MAJOR CHALLENGE IN HORTICULTURE	205
V. VAN KERCKVOORDE, R. CLYMANS, E. BANGELS, A. ALHMEDI, T. THYS, M. DE RO, J. BONTE, H. CASTEELS, P. DE CLERCQ, D. BYLEMANS & T. BELIEN IMPROVED CONTROL OF SPOTTED WING DROSOPHILA WITH FEEDING ENHANCERS	209
Abstracts	
W. VANHOVE, L.A. N'GUESSAN TOUSSAINT & P. VAN DAMME THE SHOTGUN APPROACH OF COCOA PEST MANAGEMENT IN WEST-AFRICA	223
K. WYCKHUYS UN-ANTICIPATED SOCIETAL BENEFITS OF A (GLOBE-SPANNING) BIOLOGICAL CONTROL CAMPAIGN AGAINST THE CASSAVA MEALYBUG	224
N. EBRAHIMI, N. CAP, K. SPIESSENS, J. DE MEY, F. TEMMERMAN, J. BONTE, N. BERKVENES & H. CASTEELS SEASONAL OCCURRENCE AND LIFE CYCLE OF THE ALLIUM LEAF MINER (PHYTOMYZA GYMNOSTOMA) IN BELGIUM	225
S. FRATI, A. NESLER & S. NGUYEN EFFICACY SPECTRUM OF A NEW INSECTICIDE BASED ON CLITORIA TERNATEA EXTRACT	226
L. BLANCO, J.A. DÍAZ-PENDÓN, V. FERRERO, R. FERNÁNDEZ-MUÑOZ & E. DE LA PEÑA REGULATORY MECHANISMS OF TOMATO GLANDULAR TRICHOMES AGAINST THE APHID MACROSIPHUM EUPHORBIAE	227
S.M. FOTOUKIAII, N. WYBOUW, D. TSAKIRELI, J. VONTAS & T. VAN LEEUWEN CROSS-RESISTANCE SCREEN OF A NOVEL COMPLEX II INHIBITING ACARICIDE ON THE TWO SPOTTED SPIDER MITE TETRANYCHUS URTICAE	228
L. LEUS, J. WITTERS, J. VAN HUYLENBROECK, E. PAUWELS, C. VAN POUCKE, G. LUYPAERT & J. AUDENAERT LEVELS OF SALICYLIC ACID CORRELATE WITH BROAD MITE (POLYPHAGOTARSONEMUS LATUS) SUSCEPTIBILITY IN POT AZALEA	229

K. DE SOUSA PEREIRA, I. MEEUS, N. PIOT & G. SMAGGHE GROWTH IMPACT OF DOUBLE-STRAND RNA ON THE HONEYBEE GUT PARASITE CRITHIDIA MELLIFICA	230
H. E. HUMMEL CHEMICAL ECOLOGY ON A PROMISING ROUTE INTO ITS SECOND CENTURY AND BEYOND	231
S.A. HOSSEINI, S.H. GOLDANSAZ, P. ROESSINGH, S.B.J. MENKEN, M. VAN WIJK & A.T. GROOT ELECTROPHYSIOLOGICAL RESPONSES AND FIELD ATTRACTION OF CAROB MOTH TO POMEGRANATE AND CONSPECIFIC FEMALES	232
D. LA FORGIA & F. VERHEGGEN WIREWORMS UNDER THE SWORD OF DAMOCLES: DIFFERENT VOCs ATTRACTION AND REPULSION OF FOUR DIFFERENT MAIZE VARIETIES	233
S. BLANCHARD, C. DETRAIN, G. LOGNAY & F. VERHEGGEN IMPACT OF CARBON DIOXIDE CONCENTRATION ON THE PLANT-APHID-NATURAL ENEMIES RELATIONSHIP	234
 Posters: Agricultural Entomology and Acarology	
H. CHIKH-ROUHOU, A.M. BEN BELGACEM, R. STA-BABA, N. TARCHOUN & M.L. GÓMEZ-GUILLAMÓN SCREENING FOR RESISTANCE TO APHIS GOSSYPHII COLONIZATION IN TUNISIAN MELON ACCESSIONS	237
K. BECKER, A.S. STEPHAN, L. RANGANATH & H.E. HUMMEL THE POLLEN BEETLE MELIGETHES AENEUS: A CHALLENGING PEST IN RAPE SEED FIELDS WITH PROPOSALS FOR FUTURE ATTEMPTS TOWARDS ITS SUSTAINABLE MANAGEMENT	244
R. WANNA, P. KHANGKHUN, M. WONGSAWAS & D. BUNPHAN CHEMICAL COMPOSITION AND EFFICACY OF BETEL PIPER ESSENTIAL OIL AGAINST RED FLOUR BEETLE, TRIBOLIUM CASTANEUM (HERBST)	256
L. SARLES, A. VERHAEGHE & F.J. VERHEGGEN SEMIOCHEMICALS TO CONTROL THE WALNUT HUSK FLY RHAGOLETIS COMPLETA	264
L. ROSSINI, M. SEVERINI, M. CONTARINI & S. SPERANZA DISTRIBUTED DELAY MODELS AND ROOT: BUILDING A SOFTWARE TO SIMULATE PEST INSECTS' LIFE CYCLE USING THE DAILY TEMPERATURE	270
S. VUKOVIĆ, S. LAZIĆ, D. ŠUNJKA, A. ŽUNIĆ & J. JOJIĆ CONTROL OF ELATERIDAE AND SCARABAEIDAE IN SUGAR BEET BY SEED TREATMENTS	276

Abstracts

H.E. HUMMEL

TOWARDS SMARTER IPM: HOW PHEROMONE DISPENSER TECHNOLOGY DEVELOPED WITHIN THE LAST FIFTY YEARS 285

J. BONTE, I. DELCOUR, N. BERKVEN, J. AUDENAERT, B. GOBIN & H. CASTEELS

SIMULATING THE POPULATION GROWTH AND DISPERSAL OF POTENTIAL OUTBREAKS OF ANOPLOPHORA SPP. IN BELGIUM 286

J. BONTE, J. WITTERS, N. BERKVEN, L. TANING, B. VERVISCH, F. TEMMERMAN, S. WOUTERS, L. VANHAEREN, J. DE WIN & H. CASTEELS

CROP MANAGEMENT WITH A CRYSTAL BALL: A DAMAGE PREDICTION MODEL FOR WIREWORMS (COLEOPTERA: ELATERIDAE) 287

V. VAN KERCKVOORDE, R. CLYMANS, E. BANGELS, A. ALHMEDI, T. THYS, M. DE RO, J. BONTE, H. CASTEELS, P. DE CLERCQ, D. BYLEMANS & T. BELIEN

DETERMINATION OF THE SUSCEPTIBILITY FOR SPOTTED WING DROSOPHILA OF DIFFERENT RIPENESS STAGES OF SWEET CHERRY, STRAWBERRY AND BLACKBERRY 288

Y. CHEN, F. VERHEGGEN, J.C. FINGU MABOLA, Z.Y. WANG, K.L. HE & F. FRANCIS

EFFECTS OF ELEVATED CO₂ ON OLFACTORY BEHAVIORS FOR DIFFERENT MORPHS OF CORN LEAF APHID, RHOPALOSIPHUM MAIDIS 289

J.C FINGU MABOLA, E. BOSQUÉE, Y. CHEN, F. VERHEGGEN & F. FRANCIS

IS THE VIRUS VECTOR MYZUS PERSICAE SULZER (HOMOPTERA: APHIDIDAE) LIFE HISTORY AFFECTED BY ENDOPHYTIC ENTOMOPATHOGENIC FUNGI PRESENCE IN TOBACCO PLANTS? 290

B. YAROU BONI, J.C. FINGU MABOLA, J.F. VERHEGGEN & F. FRANCIS

TROPICAL BASIL EFFECT ON TUTA ABSOLUTA MEYRICK (LEPIDOPTERA: GELECHIIDAE) OVIPOSITION RESPONSE 291

A. ALHMEDI, S. RAYMAEKERS, D. BYLEMANS & TIM BELIËN

DIET-MEDIATED INDIRECT INTERACTIONS ALTER HOST RANGE OF PARASITIDS 292

E. VAN DE VIJVER, S. LANDSCHOOT, G. SMAGGHE, B. DE BAETS, F. TEMMERMAN, J. DILLEN & G. HAESAERT

REVIEW OF A GROWING DEGREE DAY APPROACH TO PREDICT CEREAL LEAF BEETLE 293

J. RAZINGER & Š. MODIC

ENTOMOPATHOGENIC AND SOIL FUNGI AGAINST SPOTTED WING DROSOPHILA (DROSOPHILA SUZUKII) 294

D. BAETS, M. FOUNTAIN, J.V. CROSS, J. CEUSTERS, T. BELIEN, K.J. VERSTREPEN, H. JACQUEMYN & B. LIEVENS TOWARDS AN INTEGRATED PEST MANAGEMENT STRATEGY TO COMBAT DROSOPHILA SUZUKII	295
J. WITTERS, J. VERSTRAETEN, J. BONTE , F. TEMMERMAN, B. VERVISCH, S. WOUTERS, L. VANHAEREN, J. DE WIN, K. DE JONGHE & H. CASTEELS IDENTIFICATION OF AGRIOTES SPP. (COLEOPTERA: ELATERIDAE) BY LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP)	296
M. CONTARINI, V. CRISTOFORI, C. SILVESTRI, L. ROSSINI, L. VARVARO, A. GASPARRI, E. GARONE, T. UDELHOVEN, R. RETZLAFF, S. LAMPRECHT, E. GRAZIANI, M. PECCHIA & L. GIUSTARINI, D. GALLI, C. CARLETTI, G. ULIVI, R. TORLONE, A.F. ALESSANDRO & S. SPERANZA PANTHEON (PRECISION FARMING IN HAZELNUT ORCHARDS) FOR THE IMPROVEMENT OF INTEGRATED PEST MANAGEMENT (IPM) EFFECTIVENESS	297
K. DE SOUSA PEREIRA, N.M. PINHO GUEDES, J.E. SERRÃO, J.C. ZANUNCIO & R.N. CARVALHO GUEDES FITNESS OF A GREGARIOUS PARASITOID: A THRESHOLD BETWEEN LARVAL COMPETITION AND HOST IMMUNITY	298
S. BAHRAMI-KAMANGAR, G. SMAGGHE & K. DE JONGHE POTATO VIRUS Y TRANSMISSION AND QUANTITATIVE DETECTION IN THE STYLET OF APHID SPECIES	399
S. BAHRAMI KAMANGAR, O. CHRISTIAENS, K. DE JONGHE & G. SMAGGHE CUTICLE PROTEINS ARE INVOLVED IN POTATO VIRUS Y TRANSMISSION IN THE GREEN PEACH APHID (MYZUS PERSICAE SULZER)	300
M. DE RO, T. ENRIQUEZ, J. BONTE, N. BERKVEN, H. CASTEELS, V. VAN KERCKVOORDE, T. BELIËN, P. DE CLERCQ & H. COLINET EFFECT OF STARVATION ON THE COLD TOLERANCE OF ADULT DROSOPHILA SUZUKII (DIPTERA: DROSOPHILIDAE)	301
R. PLANELLÓ, Ó. HERRERO, C. PLA, L. BLANCO & E. DE LA PEÑA 2-DODECANONE: A POTENTIAL ALTERNATIVE TO SYNTHETIC INSECTICIDES?	302
A. BONTŠUTŠNAIA, R. KARISE, G. SMAGGHE & M. MÄND THE IMPACT OF LAND-USE TYPES ON COMMERCIAL BUMBLEBEE COLONY FORAGE AND SUSTAINABILITY	303
E.A. DOS SANTOS, C.N. TIZI TANING, O. CHRISTIAENS, M. ZOTTI & G. SMAGGHE ENGINEERING OF THE HALYOMORPHA HALYS VIRUS FOR RNAI IN EUSCHISTUS HEROS	304

Session: Formulation and Application Technology, Pesticide Residues, Toxicology and Ecotoxicology

P. JAEKEN & K. HEYLEN TRANSPARENCY IN ACADEMIC AND REGULATORY SCIENCE RELATED TO PLANT PROTECTION PRODUCTS	307
D. BAETS, R. SUR, R. KREBBER & D. LEMBRICH HIGH-RESOLUTION WATER MONITORING PROGRAM GIVES FURTHER INSIGHTS ON SOURCES OF RESIDUES FROM HERBICIDES IN SURFACE WATER	326
R. SUR, M. WINCHELL, H. RATHJENS, D. BAETS, F. KREBS & D. LEMBRICH IDENTIFICATION OF HERBICIDE SOURCE AREAS AND EXPOSURE PATHWAYS IN A WATERSHED BASED ON LANDSCAPE MODELING AND HIGH-RESOLUTION MONITORING DATA	336
E. MEDICO, E. VAN HENDE, K. EL OUADI & M. M. VILLAGRA A NEW TERPENE-BASED NEMATICIDE AGAINST ROOT-KNOT NEMATODE ON SOLANACEOUS PLANTS AND CUCURBITS	341
H. H. BOUKHALFA, A. DHORBAN, K. ABROUGUI & M. BELHAMRA CHARACTERIZATION OF GREENHOUSE SPRAY	349
K. TOUMI, L. JOLY, C. VLEMINCKX & B. SCHIFFERS ASSESSMENT OF BELGIAN FLORISTS EXPOSURE TO PESTICIDE RESIDUES	355
A. I. GOUDA, I. IMOROU TOKO, MHL. MEHOBA, M. L. SCIPPO, P. KESTEMONT & B. SCHIFFERS EXPOSURE ASSESSMENT OF OPERATORS IN NORTHERN BENIN	369

Abstracts

I. JORIS, P. SEUNTJENS, P. CAMPLING, N. DESMET, W. BOËNNE, K. KOOPMANS, K. VANDAELE, E. BELMANS, M. LOPEZ DE ALDA, A. KUCZYNSKA, A. HOJBERG, N. SUCIU, P. MELLANDER, E. PAUWELYN & A. PUSCAS PROTECTING DRINKING WATER QUALITY IN AGRICULTURAL CATCHMENTS USING A MULTI-ACTOR APPROACH	383
Y. J. H. GALANI, M. HOUBRAKEN, F. J. DJEUGAP, D. FOTIO & P. SPANOGHE EVALUATION OF 69 PESTICIDE RESIDUES IN MAJOR AGRICULTURAL PRODUCTS FROM THE WESTERN HIGHLANDS ZONE OF CAMEROON USING THE QUECHERS METHOD EXTRACTION AND LC-MS/MS & GC-ECD ANALYSIS	384

**Posters: Formulation and Application Technology, Pesticide Residues,
Toxicology and Ecotoxicology**

W.THAIMUANGPHOL & P. KASAMESIRI

ECOTOXICOLOGICAL EFFECTS OF CONVENTIONAL AND ORGANIC RICE FIELDS ON
PLANKTON COMMUNITY

387

KARIMOUN M. ILLYASSOU, RABANI ADAMOU & BRUNO SCHIFFERS

DIETARY EXPOSURE TO DICHLORVOS AND LAMBDA-CYHALOTHRIN RESIDUES IN
FOOD AND RISK ASSESSMENT FOR CONSUMERS OF NIAMEY

397

S. LAZIC, D. SUNJKA & S. VUKOVIC

RAGAN METHOD FOR THE DETERMINATION OF THIOPHANATE-METHYL AND
PROTHIOCONAZOLE IN PPPs

411