

## IOBC/wprs Bulletin Vol. 32, 2008

Working Group "Integrated Control in Protected Crops, Temperate Climate", Preceedings of the Working Group meeting at Sint Michielsgestel (The Netherlands), 21-25 April, 2008. Edited by: Annie Enkegaard. ISBN 978-92-9067-206-7 [xii + 279 pp.].

Preface .....	i
Subject index .....	iii
Association of fungus gnats with oomycetal plant pathogens <i>Sarah Arnold, Stephen Wraight, Eric Nelson &amp; John Sanderson</i> .....	1
Developments in greenhouse horticultural production systems <i>J.C. (Sjaak) Bakker</i> .....	5
Study of the efficacy of different concentrations of insecticidal soap, in comparison oxydemeton-methyl (Metasystox) to control <i>Aphis gossypii</i> in greenhouse cucumber <i>Valiollah Baniameri</i> .....	13
The switch to IPM in cut-chrysanthemum in the Netherlands <i>Ellen Beerling</i> .....	17
Development of a grower rearing-release system for <i>Atheta coriaria</i> , for low cost biological control of ground-dwelling pest life stages <i>Jude Bennison, Kerry Maulden, Heather Maher &amp; Monique Tomiczek</i> .....	21
Strategies for aphid control in organically grown sweet pepper in the Netherlands <i>Chantal Bloemhard &amp; Pierre Ramakers</i> .....	25
Potential of alternative prey in the conservation and establishment of <i>Orius insidiosus</i> (Say) (Hemiptera: Anthocoridae) <i>Vanda H. P. Bueno, Livia M. Carvalho &amp; Alessandra R. Carvalho</i> .....	29
Intra-guild predation between <i>Amblyseius swirskii</i> (Athias-Henriot) and <i>Neoseiulus</i> <i>cucumeris</i> (Oudemans) (Acari: Phytoseiidae) <i>Rosemarije Buitenhuis, Les Shipp &amp; Cynthia Scott-Dupree</i> .....	33
Release rates of <i>Orius insidiosus</i> to control <i>Frankliniella occidentalis</i> on protected potted gerbera <i>Alessandra R. Carvalho, Vanda KP. Bueno, Alexa G. Santana, Nazaré Moura &amp; Elaine</i> <i>A. Louzada</i> .....	37
Storage of adults of two species of <i>Orius</i> (Hemiptera: Anthocoridae) at low temperature <i>Livia M. Carvalho, Vanda H. P. Bueno, Alexandre J. F. Diniz &amp; Alexa G. Santana</i> .....	41
Control of <i>Frankliniella occidentalis</i> (Thysanoptera: Thripidae) on greenhouse roses with <i>Amblyseius (Typhlodromips) swirskii</i> (Athias-Henriot) (Acari: Phytoseiidae) and <i>Orius</i> <i>insidiosus</i> (Hemiptera: Anthocoridae) <i>Andrew Chow, Amanda Chau &amp; Kevin M. Heinz</i> .....	45
Insecticide resistance in Ontario strains of the American serpentine leafminer ( <i>Liriomyza</i> <i>trifolii</i> (Burgess)) in Ontario <i>L. Conroy, C.D. Scott-Dupree, C.R. Harris, G. Murphy &amp; A.B. Broadbent</i> .....	49
Wilt-Pruf: a novel control agent for American serpentine leafminer <i>L. Conroy, A.B. Broadbent, C.D. Scott-Dupree, C.R. Harris &amp; G. Murphy</i> .....	53
Artificial production of arthropod biological control agents <i>Patrick De Clercq</i> .....	57
Combined use of predatory mites for biological control of <i>Tetranychus urticae</i> (Acari: Tetranychidae) in commercial greenhouse cucumber <i>Gillian Ferguson</i> .....	59
Comparative efficacy of oil- versus aqueous-based formulations of the entomopathogenic fungus <i>Beauveria bassiana</i> applied against melon aphid, <i>Aphis gossypii</i> <i>Melanie Filotas, John Sanderson &amp; Stephen Wraight</i> .....	63
The effect of reduced risk pesticides for use in greenhouse vegetable production on bumble bees ( <i>Bombus impatiens</i> Cresson) <i>A.E. Gradish, C.D. Scott Dupree, L. Shipp, C.R. Harris &amp; G. Ferguson</i> .....	67

Complex interactions between <i>Rhizoglyphus robini</i> and <i>Fusarium oxysporum</i> : implications an onion pest management <i>Tal Hanuny, Moshe Inbar, Leah Tsrer &amp; Eric Palevsky</i> .....	71
Results of a survey on plant production in organic nursery production in Germany <i>Martin Hommes, Julianna Bors, Katharina Raupach &amp; Sabine Werres</i> .....	75
Alternative food sources to enable establishment of <i>Amblyseius swirskii</i> (Athias-Henriot) an chrysanthemum without pest presence <i>Hans Hoogerbrugge, Yvonne van Houten, Elmer van Baal &amp; Karel Bolckmans</i> .....	79
The potential of eggplant as a trap crop for the management of <i>Trialeurodes vaporariorum</i> (Homoptera: Aleyrodidae) an poinsettia <i>Doo Hyung Lee, Jan Nyrop &amp; John Sanderson</i> .....	83
Towards a robust IPM programme for organic tomato <i>Rob Jacobson</i> .....	87
Intraguild predation among biological control agents used in greenhouse floriculture crops: a preliminary review <i>Sarah Jandricic, John Sanderson &amp; Steve Wraight</i> .....	91
In fluence of continuous lighting an the biology of <i>Trialeurodes vaporariorum</i> (Homoptera: Aleyrodidae) <i>Nina Svae Johansen</i> .....	95
Synergistic interaction between parasitoids and sterile insects <i>R. Kaspi &amp; M.P. Parrella</i> .....	99
Occurrence and population trends of spider mite specialist predators under field and greenhouse conditions <i>Neda Kheradpir, Valliollah Baniameri &amp; Mohammadreza Rezapanah</i> .....	103
New dipteran pests in Belarus greenhouses <i>Tatiana P. Kondratenko</i> .....	107
Application methods for commercial biofungicides in greenhouses <i>Marja-Leena Lahdenperä &amp; Majju Korteniemi</i> .....	111
Prospects for biological control of pest problems in outdoor nursery production in Western Canada <i>Mario Lanthier</i> .....	115
Status of Integrated Pest Management (IPM) practices in outdoor nursery production in Canada <i>Mario Lanthier &amp; Peter Isaacson</i> .....	119
IPM strategies in the Colombian cut flower industry <i>Rebecca A. Lee</i> .....	123
Can natural flightless ladybird beetles improve biocontrol of aphids? <i>Suzanne T.E. Lommen, Cock W. Middendorp, Carola A. Luijten, Jeroen van Schelt, Paul M. Brakefield &amp; Peter W. de Jong</i> .....	127
Do whiteflies help controlling thrips <i>Gerben Messelink &amp; Arne Janssen</i> .....	131
Improving thrips control by the soil-dwelling predatory mite <i>Macrocheles robustulus</i> (Berlese) <i>Gerben Messelink &amp; Renata van Holstein-Saj</i> .....	135
Biological control of whitefly in poinsettia in Ontario, Canada <i>Graeme Murphy, Mike Short, Ann Marie Cooper, Margarethe Fast &amp; David Neal</i> .....	139
Bug Gardens for education and research in conservation biological control and sustainable horticulture <i>Michelle Nakano &amp; James Alan Matteoni</i> .....	143
<i>Ceratitis capitata</i> larvae as an alternative food source for <i>Macrolophus caliginosus</i> <i>Mauro Nannini, Luca Ruiu &amp; Ignazio Floris</i> .....	147
A novel use of <i>Ceratitis capitata</i> for biological control programs <i>Mauro Nannini, Francesco Foddi, Giovanni Murgia, Riccardo Pesci &amp; Francesco Sanna</i> .....	151
Some pest problems and solutions in Swedish organic greenhouse production <i>Barbro Nedstam</i> .....	155

Potential of entomopathogenic fungus <i>Isaria fumosorosea</i> to protect potted ornamental plants against <i>Bemisia tabaci</i> during shipping <i>Lance S Osborne, Zdenek Landa, Andrea Bohata &amp; Cindy McKenzie</i> .....	159
Prey-Stage Preference in <i>Scolothrips longicornis</i> Priesner (Thysanoptera: Thripidae) on <i>Tetranychus urticae</i> Koch (Acari: Tetranychidae) <i>H. Pakyari, Y. Fathipour, M. Rezapanah &amp; K Kamali</i> .....	167
Predatory mites for biocontrol of Western Flower Thrips, <i>Frankliniella occidentalis</i> (Pergande), in cut roses <i>Juliette Pijnakker &amp; Pierre Ramakers</i> .....	171
Biological activity of two strains of <i>Lecanicillium lecanii</i> (Zimmerur.) Zare & Gams to <i>Myzus persicae</i> <i>Lyudmila Prischepea &amp; Ekaterina Ugnachyova</i> .....	175
Efficacy of Eradicoat and Eradicoat T against <i>Tetranychus urticae</i> (Koch), their toxicity to <i>Phytoseiulus persimilis</i> (Athias-Henriot) and their role in integrated pest management programs <i>Adam Root, Clare Sampson &amp; Jennifer Lewis</i> .....	179
Development and implementation of biological control of spider mites in Oregon nurseries <i>Robin Rosetta</i> .....	183
Developments in the use of predatory mites for biological pest control <i>Maurice W. Sabelis, Arne Janssen, Izabela Lesna, Nayanie S Aratchige, Maria Nomikou &amp; Paul C.J. van Rijn</i> .....	187
Using bees to disseminate multiple fungal agents for insect pest control and plant disease suppression in greenhouse vegetables <i>Les Shipp, Jean Pierre Kapongo, Peter Kevan, John Sutton &amp; Bruce Broadbent</i> .....	201
Commercial application of beneficial insects in Canadian nurseries <i>Brian Spencer</i> .....	205
A preliminary predictive model for the consumption of powdery mildew by the obligate mycophage <i>Psyllobora vigintimaculata</i> (Coleoptera: Coccinellidae) <i>Andrew Sutherland &amp; M. P. Parrella</i> .....	209
Experimental studies an <i>Typhlodromips (Amblyseius) swirskii</i> in greenhouse cucumbers <i>Y. Trottin-Caudal, J.-M. Leyre, V. Baffert, C. Fournier &amp; C. Chabriere</i> .....	213
Plant health in innovative growing systems <i>Carin van der Lans, Ellen Beerling &amp; Pierre Ramakers</i> .....	219
<i>Silene dioica</i> (Caryophyllaceae: Silenoidae) as a reservoir and a hibernation site for predatory mites (Acari: Phytoseiidae) <i>Anton van der Linden</i> .....	227
Natural occurrence and establishment of predatory mites (Acari: Phytoseiidae) on nurseries for amenity trees <i>Anton van der Linden</i> .....	231
Market demands for food safety: perception of a public sale company <i>Arie van der Linden</i> .....	235
The generalist predator <i>Typhlodromalus limonicus</i> (Acari: Phytoseiidae): a potential biological control agent of thrips and whiteflies <i>Yvonne M. van Houten, Julietta Rothe &amp; Karel J.F. Bolckmans</i> .....	237
Prey preference of the generalist predator <i>Amblyseius swirskii</i> <i>Roos van Maanen &amp; Arne Janssen</i> .....	241
The release of beneficials in greenhouses with an air blower, a new wind in biocontrol <i>Jeroen van Schelt, Alex Tetteroo, Hans Hoogerbrugge, Rene Veenman &amp; Karel Bolckmans</i> .....	245
Knowledge transfer of 1PM to Finnish ornamental growers in 2004-2007 <i>Irene Vänninen, Marika Linnamäki &amp; Pauliina Laitinen</i> .....	249
Food for thought: how to cater to the nutritional needs of biological control agents? <i>Felix L. Wäckers</i> .....	253

Recent progress in IPM and biological control in Japan <i>Eizi Yano</i> .....	261
Creating crop solutions in chrysanthemums by using the combined strengths of beneficials and chemicals <i>Martin Zuijderwijk Caroline van den Hoek &amp; Jan Mostert</i> .....	265

### Poster abstracts

A review of thrips (Insecta: Thysanoptera) fauna of ornamental plants in Iran <i>Valiollah Baniameri &amp; Ebrahim Gilasian</i> .....	271
Novel products for control of American serpentine leafminer <i>Liriomyza trifolii</i> in greenhouse floriculture <i>L. Conroy A.B. Broadbent, C.D. Scott-Dupree, C.R. Harris &amp; G. Murphy</i> .....	273
Integrated management of powdery mildew and grey mould of greenhouse pepper in Egypt <i>Wafaa M. Haggag</i> .....	275
<i>Ceratitis capitata</i> larvae as an alternative food source for <i>Macrolophus caliginosus</i> <i>Mauro Nannini, Luca Ruiu &amp; Ignazio Floris</i> .....	277
A novel use of <i>Ceratitis capitata</i> for biological control programs <i>Mauro Nannini, Francesco Foddi, Giovanni Murgia, Riccardo Pesci &amp; Francesco Sanna</i> .....	279

Additional poster abstracts are published in Sting 31, April 2008,  
<http://web.agrsci.dk/plb/iobc/sting/sting31.pdf>