



ASSOCIATION OF APPLIED BIOLOGISTS

President: Professor Trevor J Hocking, BSc, PhD, FSB

A three day conference

at Hof Wageningen, Wageningen, the Netherlands

on 10-12 January 2012

**PROGRAMME AND
BOOKING FORM**

**International Advances in
Pesticide Application
2012**

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International Advances in Pesticide Application 2012

to be held at Hof Wageningen Hotel, Wageningen, the Netherlands

on 10-12 January 2012

PROVISIONAL PROGRAMME

(Basis Points Awarded 15: (3CP, 3E, 9AP))

TUESDAY 10 JANUARY 2012

08.00-08.50 REGISTRATION AND COFFEE

08.50-09.00 INTRODUCTION

09.00-09.40 *Invited Speaker (to be confirmed)*
Title TBC

Session I : Handheld application techniques

09.40-10.00 **Assessment of droplet size and flow rate of nozzles used on knapsack sprayers**
PAOLO BALSARI *ET AL.* (University of Turin, DEIAFA, Grugliasco (TO), Italy)

Session II : International regulations and standards

10.00-10.20 **Application of the revised EU Machinery Directive on knapsack sprayers by the new EN ISO 19932**
ANDREAS HERBST (Julius-Kühn-Institut, Institute for Application Techniques in Crop Protection, Messeweg Braunschweig, Germany)

10.20-10.40 **Evaluation of spray patterns from motorised air-assisted knapsack sprayers**
PAOLO BALSARI *ET AL.* (University of Turin, DEIAFA, Grugliasco (TO), Italy)

10.40-11.00 **Sprayer pumps performance: first results of tests carried out according to new ISO standard**
PAOLO BALSARI *ET AL.* (University of Turin - DEIAFA, Grugliasco (TO), Italy)

11.00-11.30 COFFEE

Session III : Application of biopesticides/biocontrol

11.30-11.50 **Effect of spray volume on the deposition, viability and infectivity of entomopathogenic nematodes in a foliar spray on vegetables**
EVA BRUSSELMAN (Institute for Agricultural and Fisheries Research (ILVO), Belgium)

11.50-12.10 **Control efficiency of *Spodoptera frugiperda* by directed spraying of insecticide in maize crop**
MARCELO C FERREIRA (UNESP, Sao Paulo, Brazil)

12.10-12.30 **Increasing effectiveness of foliar-applied entomopathogenic nematodes with adjuvants**
BERT BECK (Laboratory of Crop Protection Chemistry, Faculty of Bio-Science Engineering, Ghent University, Belgium)

Session IV : Formulation/Adjuvants

12.30-12.50 **Spraying distribution and sizes of droplets with adjuvant on spraying liquid and distance between nozzles and laser beam analyzer**
MARCELO C FERREIRA (UNESP, Sao Paolo, Brazil)

12.50-13.10 **Kinetics of surface tension and contact angle on soybean leaves of spraying droplets with addition of adjuvant**
MARCELO C FERREIRA (UNESP, Sao Paolo, Brazil)

13.10-14.10 LUNCH

14.10-14.30 **Assessment of effects of anti-drift adjuvants on spray quality and potential drift generated by field crop sprayers**
PAOLO MARUCCO (University of Turin Grugliasco (TO), Italy)

14.30-14.50 **The integration of an aerial pesticide application model ASDISP with an air quality model CALPUFF**
JANE BONDS (Panama City Beach, Florida, USA)

14.50-15.10 **How emulsions influence the performance of agricultural sprays produced through a conventional flat fan nozzle**
EMILIA HILZ (University of Wageningen, the Netherlands)

Session V : Bystander and operator exposure

15.10-15.30 **Probabilistic risk assessment of bystander and resident exposure from spray drift**
MARC KENNEDY (Fera, Sand Hutton, York, UK)

15.30-15.50 **Vapour concentrations of pesticides in residential areas around treated arable fields for bystander and resident exposure determination**
RICHARD GLASS (Fera, Sand Hutton, York, UK)

Session VI : Precision crop spraying/Target sensing techniques

15.50-16.10 **Critical issues in the evaluation of spraying quality of a canon mist blower: A methodological case study**
JEAN-PAUL DOUZALS (UMR ITAP - Cemaref Montpellier, France)

16.10-16.30 **Advances in autonomous pesticide application technology for orange groves**
ANDREW LANDERS (Cornell University, NYSAES, Geneva, USA)

16.30-17.00 **TEA**

17.00-17.20 **Algorithms for site specific herbicide and fungicide use**
CORNÉ KEMPENAAR (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

17.20-17.40 **Weed control on pavements; progress in application technology**
CORNÉ KEMPENAAR (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

17.40-18.00 **The development and field evaluation of a system for the spot treatment of volunteer potatoes in vegetable crops**
PAUL MILLER (Silsoe Spray Application Unit, Wrest Park, Silsoe, Bedford, UK)

18.00-18.20 **Development of sensor guided precision sprayers**
A N NIEUWENHUIZEN, JAN VAN DE ZANDE & ARD NIEUWENHUIZEN (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

18.20-18.40 **Crop adapted spray application (CASA) - precise and safe plant protection in fruit growing**
GREG DORUCHOWSKI (Research Institute of Horticulture, Skierniewice, Poland)

18.40-19.00 **A new method for testing GPS based boom section switching systems**
ANDREAS HERBST (Julius-Kühn-Institut, Institute for Application Techniques in Crop Protection, Messeweg Braunschweig, Germany)

20.00 DINNER

WEDNESDAY 11 JANUARY

08.30-09.00 REGISTRATION

09.00-09.40 *Invited Speaker (to be confirmed)*
TBC

Session VI : Precision crop spraying/Target sensing techniques (cont'd)

09.40-10.00 **Stem smearing: A new eco-friendly and cost economic technique of using insecticides for sucking pest management in cotton**
SHAHISHIKANT S UDIKERI & S B PATIL (College of Agriculture, Bijapur, Karnataka, India)

Session VII : Sprayer loading and cleaning/point source pollution

10.00-10.20 **Environmentally optimised sprayers**
MANFRED ROETELLE (Better Decisions, Dülmen, Germany)

10.20-10.40 **External loading of an orchard sprayer with agrochemical during application**
JEAN-MARIE MICHIELSEN, JAN VAN DE ZANDE, MARCEL WENNEKER, HEIN STALLINGA & PLEUN VAN VELDE (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

10.40-11.00 **The development and evaluation of nozzle systems for use in targeted spot spraying applications**
PAUL MILLER (Silsoe Spray Application Unit, Wrest Park, Silsoe, Bedford, UK)

11.00-11.30 COFFEE

11.30-11.50 **Assessment of parameters needed to design agitation systems for sprayer tanks**
PAOLO MARUCCO (University of Turin, Grugliasco (TO), Italy)

11.50-12.10 **The loading of agricultural sprayers with water dispersible granule formulations: towards better label guidance**
DILWYN HARRIS (Dow AgroSciences LLC, King's Lynn, Norfolk, UK)

Session VIII : Control systems for sprayers/GPS technology

12.10-12.30 **FlexiDose – a spraying system developed for variable pesticide dosage without using pesticide injection methods**
NILS BJUGSTAD (Department of Mathematical Sciences and Technology, Norwegian University of Life Sciences, Norway)

12.30-12.50 **Integrated actuator for real time control of spray nozzle flow rate and droplet size spectrum**
DUANE NEEDHAM (Holtz Needham Development, LLC, San Francisco, California, USA)

12.50-13.10 **An autonomous self-propelled sprayer for safer pesticide application in glasshouse**
PAOLO BALSARI (University of Turin, Grugliasco (TO), Italy)

13.10-14.10 LUNCH

Session IX : Spray drift

14.10-14.30 **Spatial influence of spraying applications on water quality: the case of the Gibault-Delisle watershed (Quebec)**
CAROLE SINFORT (Montpellier SupAgro, Departement Sciences des Agro-Bio-Procedes, UMR ITAP, Montpellier, Cedex 1, France)

14.30-14.50 **Drift calculators based on field measurements**
TIM GROOT (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

14.50-15.10 **Anti-drift performance comparison research of Sheifl sprayers**
XIONGKUI HE (China Agricultural University, Beijing, China)

15.10-15.30 **Drift from fruit sprayers – why not prevent it at source?**
ANDREW LANDERS (Cornell University, NYSAES, Geneva, USA)

15.30-15.50 **Development of a full automated high-resolution mechanical spray patternator**
IVAR LUND (University of Southern Denmark, Dept of Industrial and Civil Engineering, Odense, Denmark)

15.50-16.20 TEA

Session X : Spray physics and application variables

16.20-16.40 **The effect of boom height and spray fan angle on spray drift deposition downwind of a treated swath**
PAUL MILLER (Silsoe Spray Application Unit, Wrest Park, Silsoe, Bedford, UK)

16.40-17.00 **Setup and verification of a nozzle classification system for orchard sprayers**
JAN VAN DE ZANDE, MARCEL WENNEKER, HEIN STALLINGA, JEAN-MARIE MICHELSEN, HENK JAN HOLTERMAN & PLEUN VAN VELDE (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

17.00-17.20 **Comparison of spray retention on synthetic superhydrophobic surface with retention on outdoor grown wheat leaves**
MATHIEU MASSINON & FRÉDÉRIC LEBEAU (Université de Liège (ULg), Gembloux Agro-Bio Tech, Gembloux, Belgium)

17.20-17.40 **The effect of sprayer forward speed on the air flows around a spray boom and the implications for spray drift, off-target contamination and evenness of distribution of spray under the boom**
PAUL MILLER & CLARE BUTLER-ELLIS (Silsoe Spray Applications Unit, Wrest Park, Silsoe, Bedford, UK)

17.40-18.00 **Implications for pesticide delivery and insecticide selection using chemical analysis of plant tissue and efficacy**
RICHARD DERKSEN (USDA-ARS, Application Technology Research Unit, Wooster, USA)

18.30-19.30 **POSTER SESSION**

20.00 **CONFERENCE DINNER**

THURSDAY 12 JANUARY

08.10-08.40 REGISTRATION

Session X : Spray physics and application variables (cont'd)

08.40-09.00 **Study on the processes regarding the breakdown of the fluorescent dye BSF**
HEIN STALLINGA (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

09.00-09.20 **Effect on drop size of multi nozzle bodies**
TIM GROOT (Wageningen UR - Plant Research International, Wageningen, the Netherlands)

09.20-09.40 **Effect of nozzle design on reaction thrust and spray dynamics**
JIAXI FANG (University of California, USA)

Session XI : Crop adapted spraying

09.40-10.00 **Variable-dimension air-jet for improved pesticide application with sprayers inside herb greenhouses**
ABRAHAM GAMLIEL (Institute of Agricultural Engineering, ARO, Bet Dagan, Israel)

10.10-10.20 **Influence of application equipment on depoition of spray droplets in wheat canopy**
ERDAL OZKAN (The Ohio State University, Columbus, USA)

10.20-10.40 **New technologies adapted to alternative dose expression concept**
EMILIO GIL, JORDI LLORENS & JORDI LLOP (Department of Agri Food Engineering and Biotechnology-Universitat Politècnica de Catalunya, Esteve Terradas, Castelldefels, Spain)

10.40-11.00 **Crop adapted spraying in high crops - consequences of different training systems and leaf wall areas on dose rate expression models**
REINHARD FRIESSLEBEN (Bayer CropScience, Monheim, Germany)

10.40-11.10 COFFEE

Session XII : On target deposition

11.10-11.30 **Application factors and the distribution of pesticide sprays within a cereal canopy**
CLARE BUTLER-ELLIS (Silsoe Spray Applications Unit, Wrest Park, Silsoe, Bedford, UK)

11.30-11.50 **An integrated study to improve spray deposition in a dense crop with a horizontal leaf position**
DIETER FOQUÉ (Institute for Agricultural and Fisheries Research (ILVO), Belgium)

11.50-12.10 **Field measurements to support dose adjustment for efficient use of potato spraying products**
PETER WALKLATE (East Malling Research, Kent, UK)

Session XIII : Glasshouse spraying

- 12.10-12.30 **Improvements of pesticide handling in greenhouse situations**
KLARA LÖFKVIST HIR (The Rural Economy and Agricultural Societies, Borgeby, Sweden)
- 12.30-12.50 **Modelling the emission of pesticides from greenhouses to air**
HENK JAN HOLTERMAN (Wageningen UR - Plant Research International, Wageningen, the Netherlands)
- 12.50-13.50 LUNCH
- Session XIV : Fruit/vine/vegetable spraying***
- 13.50-14.10 **Assessment of orchard sprayers using laboratory trials**
DAVID NUYTENS (Institute for Agricultural and Fisheries Research (ILVO), Belgium)
- 14.10-14.30 **Assessment of orchard sprayers using field trials**
NICO HENDRICKX (Research Station for Fruit Growing (PCFruit vzw), Belgium)
- 14.30-14.50 **Assessment of orchard sprayers using computational fluid dynamics**
AYENEW MELESE ENDALEW (Catholic University of Leuven, Department of Biosystems, MeBioS, Belgium)
- 14.50-15.10 **Spraying in fruit**
MARCEL WENNEKER (Wageningen UR - Applied Plant Research, AE Zetten, the Netherlands)
- 15.10 **TEA AND DEPART**

POSTERS

Spray drift reduction in Greek conditions: A pilot study in the ECOPEST project

A TSAKIRAKIS (Benaki Phytopathological Institute, Athens, Greece)

Experimental and numerical study of pesticide dispersal from vineyards

ALI CHAHINE (INRA, Villenave d'Ornon, France)

Diameter of drops and retention of spray solution sprayed with commercial formulations of copper fungicides on citrus

HENRIQUE CAMPOS (Universidade Estadual Paulista, (FCAV), Sao Paulo, Brazil)

Technology application used in control of *leptopharsa heveae* in rubber tree

HENRIQUE CAMPOS (Universidade Estadual Paulista (FCAV), Sao Paulo, Brazil)

The effect of formulations on spray drift: a case study for commercial imidacloprid products

EMILIA HILZ (University of Wageningen, the Netherlands)

Reduced use of pesticides in controlling house fly, *Musca domestica* L. through the use of entomopathogenic fungi

MONA SHARIFIFARD (Jundishapur University of Medical Science, Ahvaz, Iran), MOHAMMAD SAEED MOSSADEGH (Shahid Chamran University, Ahvaz, Iran) & BABAK VAZIRIANZADEH (Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran)

Biocontrol of the brown-banded cockroach, *Supella longipalpa* F. (Blattaria: Blattellidae) with entomopathogenic fungi

MONA SHARIFIFARD (University of Medical Science, Ahvaz, Iran), MOHAMMAD SAEED MOSSADEGH (Shahid Chamran University, Ahvaz, Iran) & BABAK VAZIRIANZADEH (Infectious and Tropical Diseases Research Center, Ahvaz)

Spatial distribution of plant protection products in soilless cultivation in a greenhouse and effect on emission to surface water

DR ERIK VAN OS (Wageningen UR Greenhouse Horticulture, Wageningen, the Netherlands)

Innovations: Towards a new sustainable growing system, based on 10 innovations

DR ERIK HEES (CLM Research and Advice, Culemborg, the Netherlands)

Collection of farm survey data in six EU MS for risk assessment of non-dietary cumulative exposure to pesticides

RICHARD GLASS, DAVID GARTHWAITE (Fera, UK), ANGELA SACCHI (UCSC, Italy), PIETER SPANOGHE, KIM DOAN NGOC, BERT BECK (UGent, Belgium), KYRIAKI MACHERA, NTEMI NIKOLOPOULOU, NIKI ARAPAKI (BPI, Greece), RIANDA GERRITSEN-EBBEN (TNO, the Netherlands), FRANCISCO EGEA GONZÁLEZ (University of Almeria, Spain) & STANISLAW STOBIECKI (IOR, Poland)

Adjuvant use to improve efficacy of foliar application of entomopathogenic nematodes to brassica plants to control Lepidoptera pests

SERGII VEREMIEIEV, HARVEY THOMPSON (Leeds University, UK) RICHARD GLASS, ANDREW CUTHBERTSON, JAMES MATHERS, (Fera, UK) & ANDREW BROWN (Becker Underwood, UK)

