



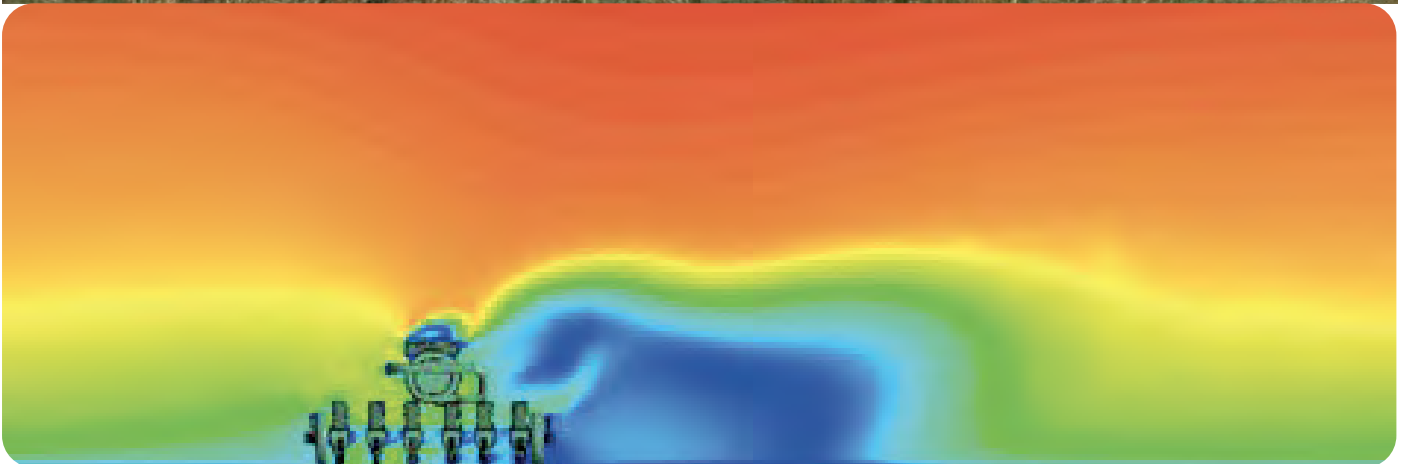
ASSOCIATION OF APPLIED BIOLOGISTS
PESTICIDE APPLICATION GROUP

President: Professor Mike Gooding

International Advances in Pesticide Application 2024

Hybrid Event hosted at the
Brighton Mercure Hotel, 149 Kings Road
Brighton, UK

23-25th January 2024 ([Event website](#))



PROGRAMME

Association of Applied Biologists, Warwick Enterprise Park, Wellesbourne, Warwick CV35 9EF, UK

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International Advances in Pesticide Application 2024

Hybrid Event hosted at the
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(BASIS points will be applied for)

The biennial International Advances in Pesticide Application is the pre-eminent conference aimed at researchers, advisors, manufacturers, practitioners and regulators in this subject area around the world. It provides an opportunity for networking and sharing ideas in an informal and collegial atmosphere for all those with an interest in pesticide application technology, its influence on the performance of plant protection products and human and environmental exposures to pesticides.

We expect that this 2024 conference will cover a very wide range of research, from traditional topics such as spray drift and sprayer testing, through precision application techniques, to new and emerging spray delivery platforms such as autonomous vehicles, both air and ground-based.

Presentations are encouraged from across the research spectrum, from academic studies, including modelling and theoretical approaches, to practical testing and demonstration.

PROGRAMME

Tuesday 23th January

09:00 **REGISTRATION**

09:40 **WELCOME and INTRODUCTION**

CHAIR: EMILIO GIL MOYA (Polytechnic University of Catalonia, Spain)

09:50 *Invited speaker*

TBC

TBC (TBC)

Session One: UAV and new technologies

CHAIR: COLIN MOUNTFORD-SMITH (BASF Agricultural Solutions, UK)

10:30 **Unmanned aerial spray systems for mosquito control; efficacy studies for space sprays**

JANE A S BONDS (Bonds Consulting Group, Florida, USA)

10:50 **Remotely-Piloted aircraft for field crop and orchard insecticide application: Review of California studies**

DURHAM K GILES (University of California-Davis, USA)

11:10 **COFFEE**

11:40 **Overview of spray drone efficacy and operation from the United States perspective**
STEVE LI (Auburn University, USA)

12:00 **Calibration accuracy of drone applications**
ULISSES R ANTUNIASSI (Sao Paulo State University, Brazil)

12:20 **Lab and field evaluation of a DJI Agras T10 spray drone at different settings**
DAVID NUYTENS (ILVO, Belgium)

12:40 **Electronic controls and assistance systems – Challenges for sprayer testing and inspection**
ANDREAS HERBST (Julius Kühn Institute (JKI), Germany)

13:00 **LUNCH**

Session Two: Variable Rate Application

CHAIR: BEN MAGRI (Syngenta, UK)

14:00 **Air-pinch PWM valve: An alternative to electric PWM valves for variable rate pesticide applications**
JAVIER CAMPOS (The Ohio State University, USA)

Assessment of functional activation ranges of PWM solenoid valves to control hollow cone nozzles operated at high pressures and frequencies
JAVIER CAMPOS (The Ohio State University, USA)

14:30 **Development and validation of tools for smart spraying in vineyards in Piemonte Region (Italy)**
PAOLO MARUCCO (Università degli Studi di Torino, Italy)

14:50 **Development of stereo vision guided sprayer for real time variable rate application**
HONGYOUNG JEON (USDA-ARS, USA)

15:10 **Performance of real-time variable rate sprayer with stereo vision in controlling spray volumes**
CARLA ROMÁN (The Ohio State University, USA)

15:30 **TEA**

Session Three: Precision application

CHAIR: JAMES THOMAS (Syngenta, UK)

16:00 **Laser-guided intelligent spray technology for sustainable specialty crop production**
HEPING ZHU (The Ohio State University, USA)

16:20 **Predictive value of high resolution imaging to predict crop biomass and deposition of plant protection products**
JOS J H TIELEN (Wageningen Plant Research, The Netherlands)

16:40 **Real time spot spraying based on 3D visual inputs**
LARS TORSTEN BERGER (Pulverizadores Fede S.L.U., Spain)

17:00 **Spraybot: Developing an automated pre-symptomatic disease detection and precision application system**
RICHARD GLASS (Crop Health and Protection, Innovation Centre, York, UK)

17:20 **Targeted application, spray technology and authorisation; Short communication and Workshop feedback. WICC Wageningen, 10-11 May 2023**

JAN VAN DE ZANDE (Wageningen University and Research (WUR), The Netherlands)

17:40 ***Short poster talks***

P1.

Foliar spray and soil drench Vs soil drench effects on plant health of *Brassica rapa* with nanoparticles in spray solution

GRACE GLEND GABISAY (Negros Occidental, Philippines)

P2.

Further investigations on spray drift mitigation by means of artificial barriers in high tunnel strawberries

DANIEL BONDESAN (Technology Transfer Centre, Edmund Mach Foundation, Italy)

P3.

Can adjuvant concentrations interfere with the viscosity of the syrup and the droplet spectrum?

MARIA THALIA LACERDA SIQUEIRA (São Paulo State University (UNESP), Brazil)

P4.

Surface tension of herbicide associated with adjuvants and contact angle on weed leaves

GABRIELA PELEGRINI (São Paulo State University (UNESP), Brazil)

P5.

Impact of adjuvants on product stability in tank mixtures

ANA BEATRIZ DILENA SPADONI (São Paulo State University (UNESP), Brazil)

18:00 ***General discussion***

18:30 ***Poster Session and Hot Buffet***

Wednesday 24th January

Session Four: Training

CHAIR: PAOLO BALSARI (University of Turin, Italy)

09:00 **Combination of new technology (Serious games) and training to accomplish the Farm to Fork Strategy: Sprayer's calibration while playing**

EMILIO GIL (Universitat Politècnica de Catalunya - UMA – Castelldefels, Spain)

New e-learning course on Risk Mitigation Measures. New technologies to improve PPP use

EMILIO GIL (Universitat Politècnica de Catalunya - UMA – Castelldefels, Spain)

Session Five: Formulations and alternative products

CHAIR: RICHARD GLASS (Crop Health and Protection, Innovation Centre, York, UK)

09:30 **Factors and factor analysis in agricultural spraying**

ANTHONY FURNESS (MagrowTec, Ireland)

Nanobubbles – Reviewing the theory and potential for applications in agricultural spraying

ANTHONY FURNESS (MagrowTec, Ireland)

- 10:00 **Very low volume application and attendant suspension concentration formulation design**
ANDREW C CHAPPLE (Bayer AG, Monheim, Germany)
- 10:20 **Does working pressure affect the performance of *Beauveria bassiana* in spray applications?**
ROBERTO BELTRÁN-MARTÍ (Instituto Valenciano de Investigaciones Agrarias (IVIA), Spain)
- 10:40 ***COFFEE***
- 11:10 **Parameters related to droplet size in two nozzle models and adjuvant concentrations**
ALINE DELL PASSO REIS (São Paulo State University (UNESP), Brazil)
- 11:30 **Influence of adjuvant concentration on droplet size**
GABRIELA PELEGRINI (São Paulo State University (UNESP), Brazil)
- 11:50 **Application volume and nozzle type effect on pre-emergence herbicide weed control in sugarcane**
PEDRO HENRIQUE URACH FERREIRA (Spraytech Ltda., São Paulo, Brazil)
- 12:10 ***LUNCH***
- 13:10 ***Pesticide Application Group AGM***

Session Six: Drift

CHAIR: SIMON COOPER (Harper Adams University, UK)

- 13:40 **Preliminary investigations into drift capture efficiency of off-field plant canopies**
RENA ISEMER (Bayer AG, Monheim, Germany)
- 14:00 **The SETAC DRAW Guidance protocol for arable crop deposition spray drift trials**
PAUL C H MILLER (SSAU, Silsoe, UK)
- 14:20 **Spray drift variability alongside field edge of sprayed orchard**
JAN VAN DE ZANDE (Wageningen University and Research (WUR), The Netherlands)
- 14:40 **Influence on drift reduction by combining nozzle profile, droplet size and surfactant concentration**
RAMÓN SALCEDO (Universitat Politècnica de Catalunya - UMA – Castelldefels, Spain)
- 15:00 ***TEA***

Session Seven: Modelling

- 15:30 **OPTiSPRAY: Selecting optimal spray application techniques and settings using a CFD model – Part 2: Modelling approach**
TEWODROS ANDARGIE ZEWDIE (KU Leuven, Belgium)
- 15:50 **Modelling spray drift in precision spray applications**
HENK JAN HOLTERMAN (Wageningen University and Research, The Netherlands)
- 16:10 **Predicting the spray drift captured by non-target plants**
CLARE BUTLER ELLIS (Silsoe Spray Application Unit Limited, UK)
- 16:30 **OPTiSPRAY: Selecting optimal spray application techniques and settings using a CFD model – Part 1: Experimental work**
INGRID ZWERTVAEGHER (ILVO, Belgium)
- 19:00 ***CONFERENCE DINNER***

Thursday 25th January

Session Eight: Spray deposition and efficacy

CHAIR: DAVID NUYTTENS (ILVO, Belgium)

09:00 **Spray deposition on dormant apple trees using modern spray technology**

DIRK C de HOOG (Wageningen Plant Research, The Netherlands)

09:20 **Effect of location, nozzle type, crop density, and cultivar on deposition and efficacy of herbicides in *Zea mays* L.**

JOS J H TIELEN (Wageningen Plant Research, The Netherlands)

09:40 **Optimizing the spray application in citrus crops to reduce bystander exposure**

GARCERÁ CRUZ (Instituto Valenciano de Investigaciones Agrarias (IVIA), Spain)

10:00 **Quantifying canopy deposition and ground losses of fixed spray delivery system designs for trellised vineyards**

MARCO GRELLA (Università degli Studi di Torino, DiSAFA, Italy)

10:20 **Evaluate DJI Agras T30, airplane and ground sprayer for spray converge and canopy penetration to simulate fungicide application on tassel stage corn**

STEVE LI (Auburn University, USA)

10:40 ***COFFEE***

Session Eight: Spray deposition and efficacy (Continued)

CHAIR: EMILIO GIL MOYA (Polytechnic University of Catalonia, Spain)

11:10 **Efficiency of contact herbicides in controlling small weed seedlings using drift reducing nozzles**

DAVID NUYTTENS (ILVO, Belgium)

11:30 **Efficacy of drift reducing technologies in controlling weeds and potato blight**

GERRIT VAN STEENBERGEN (Wageningen Plant Research, The Netherlands)

Session Nine: Drift (Continued)

11:50 **A new drift curve for determining UK aquatic buffer zones**

CLARE BUTLER ELLIS (Silsoe Spray Application Unit Limited, UK)

12:10 **Spray drift from application of plant protection products with drones in vineyards**

ANDREAS HERBST (Julius Kühn Institute (JKI), Germany)

12:30 **Proposals for new spray drift exposure values in orchard and vineyards for residents and bystanders**

NEIL MORGAN (Syngenta, Jealott's Hill International Research Centre, UK)

12:50 ***FINAL DISCUSSION***

13:15 ***LUNCH and DEPART***