



SCIENCE PROTECTING PLANT HEALTH

26–28 SEPTEMBER 2017

BRISBANE CONVENTION &
EXHIBITION CENTRE
QUEENSLAND, AUSTRALIA

sciplant2017.com.au

I DRAFT PROGRAM

CONFERENCE PARTNERS:





WELCOME

by the Conference Convenors

We would like to invite you to Science Protecting Plant Health 2017, to be held at the Brisbane Convention Centre, Queensland Australia, from 26-28 September 2017.

We are pleased to present an international event and host a joint conference of the Australasian Plant Pathology Society and the Plant Biosecurity Cooperative Research Centre. We will present an exciting and invigorating scientific programme that will appeal to a broad audience of researchers, students, educators and policy makers.

Conference themes will focus on the latest science, research and practice from leaders in their fields encompassing all the disciplines of plant biosecurity, plant pathology and entomology. Recent developments, as well as future advances, will be showcased at this peak event, with presentations by international, national and local speakers in a well-rounded program augmented by poster presentations and an exciting social schedule.

Field trips, including to the spectacular "Carnival of Flowers" in Toowoomba on the Darling Downs, are currently being planned, as is a series of workshops by expert presenters on specific disciplines.

Brisbane, in the south-east corner of Queensland, has much to offer Australian and international visitors. Late September provides perfect weather – the days are typically sunny and temperatures warm without high humidity. Brisbane, surrounded by rich horticultural land, is the gateway to the amazing beaches of the Sunshine Coast to the north, the Gold Coast and Lamington Plateau to the south, the sand islands of Moreton Bay and the agricultural lands of the Darling Downs to the west.

Plan an extended visit to Queensland, and experience unique Gondwana subtropical rainforests, breeding grounds of the majestic humpback whale, pristine beaches and coral reefs.

There is much to see and enjoy in Queensland. We look forward to welcoming you in 2017.

Ms Jennifer Cobon
Australasian Plant Pathology Society
Chair | Conference Convenor

Dr Michael Robinson
Plant Biosecurity CRC
Conference Convenor



DRAFT PROGRAM

DAY 0

MONDAY 25 SEPTEMBER

TBC Registration open
TBC Student Professional Development Workshop
18:00-19:30 Welcome Reception
ROOM: SKYROOM BCEC

DAY 1

TUESDAY 26 SEPTEMBER

07:30-17:30 Registration open
ROOM: PLAZA AUDITORIUM REGISTRATION DESK

08:30-09:15 Opening ceremony

9:15-10:00 **Plenary 1** - Daniel McAlpine lecture
Prof Barbara Howlett A genome to paddock approach to control plant disease

10:00-10:30 Morning tea

10:30-12:00 Concurrent sessions

Pests/Pathogens of Forestry & Natural Ecosystems	Pathogen Evolution & Diversity	Community & Industry Engagement	Modelling & Pest Risk Analysis	Diagnostics
Keynote: TBC	Keynote: Prof Gavin Ash Topic: Use of genomics to improve biological control	Keynote: Mr Trevor Nicholls Topic: Building plant health systems to improve nutrition and livelihoods worldwide	Keynote: Dr Dean Paini Topic: Modelling invasive species arrival and establishment	Keynote: Dr Mark Schutze Topic: Linking molecules to morphology: Fruit fly integrative taxonomy

12:00-13:00 Lunch

13:00-14:00 **Plenary 2**
Dr Mark Hoddle What can we realistically expect from biocontrol of insect vectors of plant pathogens: Is significant disease mitigation possible?

14:00-15:00 Poster viewing

15:00-15:30 Afternoon tea

15:30-17:00 Concurrent sessions

Pest & Pathogen Surveillance	Resistance Breeding	Translating Biosecurity Science to Policy	Integrated Pest & Disease Management	Soil Health
Keynote: Dr Jenny Davidson Topic: New technologies for detection of pest and diseases affecting the grains industry	Keynote: Dr Lee Hickey Topic: Standing on the shoulders of giants: Vavilov's wheat collection and sources of resistance	Keynote: TBC	Keynote: Prof Gerhard Pietersent Topic: Grapevine leafroll disease control in white cultivars	Keynote: TBC

17:00 Close of day 1



DRAFT PROGRAM (Continued)

DAY 2

WEDNESDAY 27 SEPTEMBER

08:00-17:00 Registration open

09:00-10:00 APPS President's Address – Dr Kim Plummer - *How to build a plant pathologist*

10:00-10:30 Morning tea

10:30-12:00 Concurrent sessions

Pest Ecology	Molecular Mechanisms of Plant Defence	Diagnostics	Epidemiology	On-farm Biosecurity
Keynote: Dr Mark Hoddle Topic: Palmageddon: The ongoing invasion problem with palm killing weevils	Keynote: Prof Peter Waterhouse Topic: Genome editing for plant defence	Keynote: TBC	Keynote: Prof Chris Gilligan Topic: Use of epidemiological models to predict the spread and potential for control of tree diseases	Keynote: TBC

12:00-13:00 Lunch

13:00-14:00 **Plenary 3**

Prof Roger Innes

Extracellular vesicles: An underappreciated component of the plant immune system

14:00-15:00 Poster viewing

Annual General Meeting of APPS

15:00-15:30 Afternoon tea

15:30-17:00 Concurrent sessions

Biological Control	Agrochemicals & Biopesticides	Soil Health	Diagnostics	Facilitating Trade
Keynote: Dr Nancy Schellhorn Topic: TBC	Keynote: Prof Neena Mitter Topic: Agro-nano innovations: Game changers for crop protection	Keynote: Prof Linda Kinkel Topic: Interaction networks shed light on the ecology and coevolution of soil microbiomes	Keynote: Dr Grant Smith Topic: Point of contact diagnostics: Biosecurity pest identification in the genomics age	Keynote: TBC

17:00 Close of day 2

19:00 **Conference dinner** at Brisbane City Hall - *Allen Kerr Award, Lester Burgess Award*



DRAFT PROGRAM (Continued)

DAY 3

THURSDAY 28 SEPTEMBER

08:00-17:00 Registration open

09:00-10:00 Plenary 4

Prof Chris Gilligan

When, where and how to prepare for and manage emerging epidemics

10:00-10:30 Morning tea

10:30-12:00 Concurrent sessions

Post-harvest Protection from Pests & Pathogens	Emerging Pests & Diseases	Molecular Mechanisms of Plant Defence	Epidemiology	Responding to Pest & Pathogen Incursions
Keynote: Prof Christos Athanassiou Topic: Novel technologies in stored product protection: The European perspective	Keynote: Dr Akif Eskalen Topic: Fusarium dieback in California and other ambrosia beetle associated diseases of avocado and urban forest	Keynote: Prof Roger Innes Topic: Using decoys to expand the recognition specificity of plant disease resistance proteins	Keynote: TBC	Keynote: TBC

12:00-13:00 Lunch

13:00-14:00 Plenary 5

Prof Linda Kinkel

Diffuse symbioses: competition, coevolution, and pathogen suppression in the rhizosphere

14:00-15:00 Poster viewing

15:00-15:30 Afternoon tea

15:30-17:00 Concurrent sessions

Pest Evolution & Diversity	Plant-Virus-Vector Interactions	Novel Methods of Pest & Pathogen Control	Best Posters	
Keynote: TBC	Keynote: Prof Michael Goodin Topic: Modification of plant nuclei by negative-strand RNA viruses	Keynote: Dr Louise Thatcher Topic: Molecular-based strategies for combating Fusarium wilt disease of legumes		

17:00 Closing ceremony with Poster Awards

**Please note this is a draft program and subject to change without notice. Correct as at 05/04/2017*



WORKSHOPS

Please note that you must register to attend the full conference to be able to register for the workshops

WI: Experimental Design for Agricultural Trials

Date: 25th September 2017

Location: Ecosciences Precinct, 41 Boggo Road, Dutton Park

Cost: \$400 per attendee or \$600 per attendee for both workshops I and II

Max. no of participants: 16

Summary: This 1-day workshop will introduce participants to the principles of experimental design and reinforce the importance of these principles when it comes to the conduct of agricultural trials, with a focus on plant pathology experiments. The course will begin with simple block designs and move to more advanced blocking and treatment structures. Different design solutions will be explored for a range of case studies including field, laboratory and controlled environment experiments. Hands-on practical sessions will also provide participants with the opportunity to develop skills to design their own experiments using two statistical software packages.

Presenter Description:

Dr Alison Kelly is a Principal Biometrician with the Queensland Department of Agriculture and Fisheries who leads the Northern Node of the Statistics for the Australian Grains Industry project funded by the Grains Research and Development Corporation. In this role, Dr Kelly both provides and coordinates statistical support and training for all grains industry research projects across the northern region, including those with a focus on plant pathology. Dr Kelly's current applied research interests lie in developing novel statistical analysis techniques aimed at the selection of crop varieties with improved traits of resistance and tolerance to the pathogens *Fusarium pseudograminearum* and *Pratylenchus thornei*; two pathogens of major concern in the northern growing region of Australia.

Clayton Forknall is a Biometrician with the Queensland Department of Agriculture and Fisheries who provides statistical support to a range of plant pathology projects both across the northern grains region and nationally. Clayton is currently working on the development of an improved technique for quantifying the economic impact of root, crown and foliar diseases on the Australian grains industry through the development of yield loss response curves.

WII: Introduction to Linear Mixed Models with applications to Plant Pathology Research

Date: 29th September 2017

Location: Ecosciences Precinct, 41 Boggo Road, Dutton Park

Cost: \$400 per attendee or \$600 per attendee for both workshops I and II

Max. no of participants: 16

Summary: The linear mixed model is a powerful tool for the analysis of agricultural research experiments. In this 1-day workshop, participants will be introduced to the linear mixed model framework, with a focus on applications that commonly arise in plant pathology research. This framework is progressively developed from a simple linear model, through the addition of more complex treatment and blocking terms. The workshop also introduces the fitting of complex variance structures in a linear mixed model framework using Residual Maximum Likelihood (REML) estimation. Hands-on practical sessions will provide participants with the opportunity to develop skills to analyse their own research experiments using the ASReml-R statistical software package.

Presenters:

Dr Alison Kelly

Clayton Forknall

Identification, biology, phylogeny and host range of powdery mildews

Date: Friday, 29th Sept. 2017

Location: USQ, Toowoomba

Cost: \$300 (for registration only) or \$400 (for registration and return transport to USQ from Brisbane on Friday 29th Sept.)

Max. no. of participants: 20

Summary: The Erysiphales (powdery mildew fungi) is a group of ubiquitous obligate biotrophic plant pathogens infecting more than 10,000 dicot and monocot species worldwide. Important crops, including cereals, grapevine, and a number of vegetables and ornamentals, are among the major targets of powdery mildew fungi. Despite extensive research on their pathogenesis, epidemiology and control, powdery mildew infections remain among the most important crop health problems worldwide. This workshop will consist of lectures on the biology, phylogeny, and host range expansions of powdery mildews, as well as hands-on laboratory exercises to identify several important species using microscopy, and to learn quick and efficient DNA extraction methods from powdery mildew samples for genetic analyses.

Presenters: Prof. Levente Kiss (University of Southern Queensland), Dr. Kalman Zoltan Vaczy (Eszterhazy Karoly University, Hungary) and Prof. Susumu Takamatsu (Mie University, Japan - to be confirmed). The presenters have run the International Powdery Mildew Summer Schools annually since 2014. This workshop is a condensed version of the 1-week long summer schools.



WORKSHOPS

(Continued)

Identifying plant pathogenic *Fusarium* species

Date: 23rd and 24th September 2017

Location: Moreton Bay Research Station, North Stradbroke Island

Cost: \$600 per attendee (does not include accommodation)

Max. no of participants: 20

Summary: *Fusarium* species include some of the most important agricultural plant pathogens globally. However identification of many of the species is difficult and complex. In this two day workshop you will have the opportunity to microscopically examine the most important species of *Fusarium* that cause plant diseases in Australia and New Zealand; learn the key approaches to identification using morphological and phylogenetic tools; and understand aspects of the plant diseases caused by these fungi. Accommodation options are either dorm style accommodation at the MBRS or hotel accommodation on the island.

Presenters: Dr Brett Summerell, Dr Edward Liew and Dr Matt Laurence (Royal Botanic Gardens and Domain Trust) and Professor John Leslie (Kansas State University) (to be confirmed). The instructors are mycologists with decades of experience in *Fusarium* research, and all have described numerous new species of *Fusarium* and recovered and diagnosed *Fusarium* species from countless different species of plants. This is a shortened version of the week long workshop Dr Summerell and Professor Leslie have run annually since 2000.

Botryosphaeriaceae Menace: Taxonomy, Disease Impact, Ecology & Management

Date: 25th September 2017

Location: Ecosciences Precinct, 41 Boggo Road, Dutton Park

Cost: \$100 per attendee

Max. no of participants: 25

Summary: Fungal endophytes associated with woody plants are diverse. It is generally believed that endophytes play protective or mutualistic roles with regard to the host plants they inhabit. However, phylogenetic evidence suggests that many endophytes appear to be closely related to pathogens. It is assumed that the endophytic fungi cause latent infection and disease may be induced changes to the host physiology or the environment. Stress is often attributed as the main factor following inducing the change in behaviour of the fungi. However, the mechanisms of development of disease are not known. In the last decade, many commonly isolated endophytes have been reported as causal agents of many severe diseases in several host plants, and the incidence is not abating.

The most common culprits belong to the fungal families *Botryosphaeriaceae* and *Amphisphaeriaceae* (including *Pestalotiopsis* spp.). Fungal species in the family *Botryosphaeriaceae* have been recently recognized as the most common fungi isolated from cankers, branch dieback and leaf spots. However, the role of these fungi in causing diseases as well as their status as major pathogens in several plant species is still largely unknown. The workshop will bring together academia, applied scientists, graduate students, crop consultants and industry leaders to present and discuss the latest development on the biology, genetics and management of diseases caused by these fungi in tree and horticultural crops. The participants will exchange information and identify future needs and challenges for research and management.

Presenters:

Dr Femi Akinsanmi is a Research Academic at The University of Queensland, Brisbane. Femi has over 20 years of research experience in plant disease epidemiology in grains, tree nut and fruit crops. His current research focus is on pathogen biology, epidemiology, and integrated management of plant diseases, with emphasis on sustainable agriculture in macadamia (tree nut crop) production system. His interest in organising the *Botryosphaeriaceae* menace workshop started from the increasing rate of detection, prevalence and severity of diseases caused by fungi belonging to the *Botryosphaeriaceae* family in macadamia, and the apparent lack of adequate control to predict, prevent and reduce the impact of the diseases in several horticultural crops.

Dr Rosalie Daniel is a Plant Pathologist with the NSW Department of Primary Industries, based at the Central Coast Primary Industries Centre, Ourimbah. She discovered the magic and mysteries of fungi and plant diseases during her undergraduate studies. Her research experience includes plant-pathogen interactions and disease management in natural ecosystems and horticultural crops in Australia and the Asia-Pacific. Her research interests are in understanding the biology and epidemiology of plant pathogens to develop integrated disease management options for horticultural crops, and effectively communicating these outcomes to industry. Her current projects include identifying effective management options for Blueberry rust, caused by *Thekopsora minima*, and Elsinoë leaf spot and scab (*Elsinoë* sp.) in tea tree (*Melaleuca alternifolia*). Her interest in *Botryosphaeria* arose from its ever-increasing significance in a range of horticultural crops.



WORKSHOPS

(Continued)

Management of plant-parasitic nematodes through crop rotation, plant breeding and other means

Date: 29th September 2017

Location: Toowoomba

Cost: \$300 per attendee (does not include accommodation in Toowoomba on Thursday night)

Max. no of participants: 20

Summary: Plant-parasitic nematodes are important constraints to crop production worldwide. This workshop will feature the research of the University of Southern Queensland's (USQ), Centre for Crop Health, Crop Nematology team on rootlesion nematodes (*Pratylenchus* spp.) in cereal and legume crops. Participants will be transferred by bus from Brisbane to Toowoomba after the closing session of SCIPANT2017 on 28th September 2017 and returned to Brisbane in the afternoon of 29th September 2017 following the workshop.

The workshop will begin at the Crop Nematology team's field research site at Formartin (70 km west of Toowoomba) and participants will inspect experiments on pre-breeding, field resistance and yield loss in wheat, chickpea, faba bean and field pea and National Variety Trials for wheat and barley. After lunch, workshop participants will return to Toowoomba for a series of seminars. Workshop participants will have the opportunity to present new developments in the field of nematology and exchange ideas. Nematology students are encouraged to present outlines and results of their projects. The workshop will conclude with afternoon tea and a tour of the USQ Crop Nematology glasshouse experiments.

Presenters: The workshop is organised by Dr Rebecca Zwart and Dr Kirsty Owen from the USQ Centre for Crop Health, Crop Nematology team. The Crop Nematology team, led by Professor John Thompson, is experienced in researching integrated nematode management options that sustainably reduce rootlesion nematode populations and improve crop yields.

Brown Marmorated Stink bug: An Imminent Threat to Australia and Zealandia

Date: 25th September 2017

Time: 1.00 pm to 5.00 pm

Location: Brisbane Convention & Exhibition Centre

Cost: Free to registered delegates

Max. no of participants: 50

Summary: Brown marmorated stink bug (BMSB) is an insect pest that originates from Asia that is currently spreading rapidly throughout the world. It is now widespread in North America and Europe but no established populations have been recorded in the southern hemisphere.

BMSB has an extensive host range and is a major nuisance and plant pest of significant economic importance. Since 2014, raised awareness of BMSB's potential destructive impact to Australia and New Zealand's valued plant systems and increasing border interceptions have led to a greater focus on border operations and research required to prevent its establishment and to reduce its potential negative impact.

This workshop will review the potential impact of BMSB in Australia and New Zealand and examine current and planned activities across the biosecurity spectrum to answer key questions about risk assessment, pathway risk management, diagnostics, surveillance and eradication including pro-active consideration of BMSB biological control agents

Keynote:

Dr Tim Haye, Head Arthropod Biological Control, CABI, Switzerland. Tim has been a central figure in recognising, documenting and seeking solutions for the BMSB outbreaks in Europe since its initial introduction there in 2004. His research on BMSB includes biological control, climate matching, and invasion dynamics. He has extensive connections with BMSB researchers in Europe, Asia and North America.

Please contact Dr David Teulon, Better Border Biosecurity (NZ) (David.Teulon@plantandfood.co.nz) or Dr Rod Turner, Plant Health Australia (rturner@phau.com.au) if you would like to present at this workshop.

This workshop is sponsored by:



Postgraduate Student Professional Development Workshop

Date: 25th September 2017

Time: 1.30 pm to 5.00 pm

Location: Rydges South Bank

Cost: Free to registered postgraduate students. This workshop is sponsored by the Plant Biosecurity CRC.

Max. no. of participants: 40

Summary: This interactive half day workshop is specifically designed to assist the next generation of scientists protecting plant health in securing employment. It will focus on careers planning and identifying potential career pathways in biosecurity policy, academia and industry. The workshop will be facilitated by a senior consultant from The Agribusiness, specialists in recruitment in agribusiness and agriculture. If you're a student thinking about your next steps don't miss out on this great opportunity to hear from the experts.

PLEASE VISIT THE WEBSITE FOR NEW WORKSHOPS AND UPDATES.



FIELD TRIPS

Please note that you must register to attend the full conference to be able to register for the field trips



Northern Grain and Gardens Pre-conference Tour

Date: 25th September 2017

Cost: \$85.00 AUD

Overview: Travel into the countryside along the scenic rim of Queensland's Main Range National Park to visit the historical Department of Agriculture and Fisheries (DAF) 100 year old Research Station situated at Hermitage. Hermitage is the pivotal centre in breeding technologies for crops such as sorghum, barley and mung bean. Enjoy a home baked morning tea provided by the Country Women's Association and inspect trials involving foliar and soil borne diseases of cereals and chickpea. Departing Hermitage you will head for Australia's renowned garden city of Toowoomba to visit the University of Southern Queensland Centre for Crop Health to inspect facilities and enjoy a packed lunch whilst taking in the tranquility of the nearby Japanese gardens. The final stop of the day will be at the spectacular Queens Park Botanical Gardens in Toowoomba for a relaxing afternoon. We will then head down the Great Dividing Range and drive through the "salad bowl" of the south east Lockyer Valley in time for the welcome reception in Brisbane.

Key Destinations/Stops:

- Hermitage Research Station, Warwick, Queensland, Department of Agriculture
- Centre for Crop Health, University of Southern Queensland
- Japanese Gardens "Ju Raku En Japanese Gardens", Regent Street, Toowoomba
- Queens Park Botanical gardens, Margaret Street, Toowoomba



Tweed Horticultural Region SPPH Post-conference Tour

Date: 29th September 2017

Cost: \$85.00 AUD

Overview: Enjoy the best that the Tweed Valley has to offer! Located in NSW about 100km south of Brisbane, the Tweed shire encompasses agriculture (sugarcane, horticulture, beef and dairy), national parks, coastline, wetland and forest, and is a significant tourist destination. Stretch your legs and look for whales at the magnificent Point Danger lookout at Coolangatta. We will visit one of the largest avocado nurseries in Australia, and inspect the banana Foc Race 1 screening and selection blocks. At Tropical Fruit World we will tour the vast collection of hundreds of species of tropical fruit from all over the world and enjoy a fruit tasting session and lunch. We will return to Brisbane at approximately 15:30.

Key Destinations/Stops:

- Point Danger Lookout, Coolangatta
- Anderson Horticulture, Duranbah
- Tropical Fruit World, Duranbah

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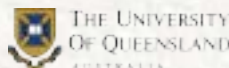
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