



APPS Newsletter Vol 30, No. 1

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APPS NEWS is the official newsletter of the Australasian Plant Pathology Society published electronically 3 times per year. Items for inclusion should be sent to:

Mrs Sara Blake, Plant Health & Biosecurity, South Australian Research and Development Institute, GPO Box 397, Adelaide, SA, 5001. Phone: 08 8303 9383. Email: sara.blake@sa.gov.au

Next deadline: 26th July 2017

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President's Message

I have just landed back in Australia with a dose of northern hemisphere flu. As I recover, I am reminded as to how quickly infections can take hold, and how much easier we make it for pathogens to get around the globe. The meeting that I went to, the [Fungal Genetics Conference](#) at the beautiful Asilomar conference grounds in Pacific Grove California, was home for the week to 900-odd researchers. I don't mean that we are odd, but then again? The grounds are enhanced by native Monterey Pines (*Pinus radiata*), which are also under attack by a fungus, *Fusarium circinatum*, the cause of pine pitch canker. I returned to Australia inspired by a week of incredible research presentations, having carefully cleaned my shoes (pre-entry) and clothes (post entry).

Whilst at the meeting I heard the disturbing news that wheat blast has recently been detected in India, having spread from Bangladesh (first reported last year). More incursions, and more concern for wheat production. The ongoing threat of incursions is clearly a global issue.

The biennial Fungal Genetics meeting is always a place where paradigm-shifting science is reported. The meeting is not specifically for reporting research on plant pathogens and not just for fungi (oomycetes get a gig as well). Four years ago a tall, lanky postdoc, Arne Weiberg presented a modest-looking poster on how *Botrytis cinerea* delivers RNA molecules to target and suppress host plant defence responses. What? Outrageous! For a nasty, thuggish necrotroph to have such phenomenal tools of destruction was unheard of. That work subsequently appeared in *Science* in 2013, Weiberg et al. *Science*: Vol. 342, Issue 6154, pp. 118-123. A flurry of work has appeared in the intervening years on RNA-cross talk between plants and cellular pathogens and the impact of gene silencing via this natural process has been revealed in a number of pathosystems. Several researchers reported at the meeting the successful use of host-induced gene silencing (RNA produced by plants to mess with pathogen attack) as a means of controlling pathogens. This is also being used to understand how tricky pathogens, like the obligate biotrophs, rusts and mildews, invade. Hailing Jin (University of California, Riverside) took this to another level and reported on her elegant work (with colleagues from Korea, Germany and Holland) demonstrating that RNA can be used in spray applications to control plant disease!

In a world of ongoing challenges for crop production, with problems of increasing fungicide resistance and development of new, virile pathogen races, this sort of research gives hope for new options for disease control. Taking this to the field will be the main challenge.

I look forward to hearing about the fantastic research that will be presented in the upcoming [Science Protecting Plant Health](#) 2017 Conference, both from our superb members and our international guest speakers. Hope to see you there, preferably without any hitch-hiking pathogens on us.

All the best,

Kim.

Dr Kim Plummer

president@appsnet.org.au

New Members

On behalf of the Society, the Management Committee would like to welcome the following new members:

- Miss Brittney Caruana, La Trobe University, Australia
- A/Prof. David Jones, The Australian National University, Australia
- Dr Anna Hopkins, Edith Cowan University, Australia
- Dr Richard Lardner, Ministry for Primary Industries, New Zealand
- Ms Aloesi Dakuidreketi, University of Queensland, Australia
- Dr Karen Kirkby, NSW DPI, Australia
- Dr Doris Blaesing, RMCG, Australia
- Ben Callaghan, Horticulture Innovation Australia, Australia
- Dr John Fosu-Nyarko, Murdoch University, Australia
- Dr Brendan Kidd, CSIRO Agriculture, Australia
- Dr Steve McMaugh, Plant Biosecurity CRC, Australia
- Dr Suzy Perry, Biosecurity Queensland, Australia
- Mr Stephen Seaton, Murdoch University, Australia
- Mrs Anita Severn-Ellis, University of Western Australia, Australia
- Dr Louise Thatcher, CSIRO Agriculture, Australia
- Miss Sabrina Chin, The Australian National University, Australia
- Miss Noeleen Warman, DAF Qld, Australia
- Mr Muhammad Tahir, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan
- Dr Adrian Dinsdale, Dept of Agriculture & Water Resources, Australia
- Dr Davinder Singh, University of Sydney, Australia
- Mr Nitesh Chand, Lincoln University, New Zealand
- Mr Rama Dadu, University of Melbourne, Australia
- Dr Andrew Manners, Department of Agriculture and Fisheries Queensland, Australia
- Mrs Olumide Jeff-Ego, The University of Queensland, Australia
- Prof Levente Kiss, Univ. of Southern Queensland, Australia
- Dr Jordan Bailey, NSW DPI, Australia
- Miss Reannon Smith, La Trobe University, Australia
- Mr Mohammed Khudhair, The University of Queensland, Australia
- Mrs Pam Taylor, SCION, New Zealand
- Ms Jing Liu, Lincoln University, New Zealand
- Miss Caitlin Henderson, Lincoln University, New Zealand
- Mr Neil Robinson, University of Southern Queensland, Australia
- Miss Naeela Qureshi, The University of Sydney, Australia
- Ms Mee-Yung Shin, University of Melbourne, Australia
- Mr Pooria Ensafi, University of Idaho, Aberdeen Research & Extension Center, USA
- Dr Rebekah Frampton, Plant & Food Research, Australia

Dates for your Diary



[Registrations Now Open](#)

[ABSTRACTS CLOSE 3 APRIL 2017](#)

[Submit Abstract](#)

SciPlant17 will cover a wide selection of topics and themes including entomology, biosecurity, and plant health/pathology.

[Speakers](#)

We have a fantastic line-up of speakers including Prof Barbara Howlett, who will deliver this year's Daniel McAlpine Memorial Lecture

[Field Trips](#)

Plenary speakers this year include Prof Chris Gilligan, Prof Roger Innes, Prof Linda Kinkel and Dr Mark Hoddle, who are Plenary speakers.

[Workshops](#)

[Venue](#)

Keynote speakers include:

[Sponsors](#)

- Dr Grant Smith, Plant & Food Research
- Dr Jenny Davidson, SARDI
- Prof Gerhard Pietersen, Uni of Pretoria
- Dr Michael Goodin, Uni of Kentucky
- Dr Lee Hickey, QAAFI
- Prof Neena Mitter, QAAFI
- Dr Louise Thatcher, CSIRO Ag & Food
- Prof Peter Waterhouse, QUT
- Mr Trevor Nicholls, CABI
- Dr Dean Paini, CSIRO
- Prof Christos Athanassiou, Uni of Thessaly
- Prof Gavin Ash, USQ
- Dr Mark Schutz, Biosecurity Queensland
- Dr Akif Eskalen, Uni of California

Platinum Sponsors



Australian Government
Department of Agriculture
and Water Resources

Silver Sponsor

Ministry for Primary Industries
Manatū Ahu Matua



Draft Program

Abstracts submissions close at COB **3rd April 2017**. For more information on categories, please click on the link below. Example abstract now included on the website.

[Click here to find out more information on submitting an abstract](#)

Registration Prices

The early-bird registration fee (open until 23 June) is:

- Full registration \$1095
- APPS member registration \$895
- Student registration \$495 (proof of full-time enrolment at university required prior to being eligible for student registration)

Visit the [SciPlant17 website](#) to complete your registration online.

[Click here to Register](#)

Contact Us:

For further information please contact the Conference Secretariat spph@yrd.com.au or phone +61 7 3368 2422.

Science Protecting Plant Health Conference Organising Committee - update

Plans for the next biennial Australasian Plant Pathology Society Biennial conference, combined with the Global Plant Biosecurity Conference as the Science Protecting Plant Health Conference are progressing well.

Registration is now open and abstracts close very soon (3 April 2017).

The Program sessions are almost complete with Plenary and many Keynote speakers in place, check the website for details. With only six months to go, the organising team is now meeting at the EcoSciences Precinct in Brisbane every month to finalise the details for the conference sessions and accompanying workshops.

The next big task is the reviewing of abstracts and finalising the program sessions... so please get your abstracts in soon!

Regional news from NT



Northern Territory Government host *Fusarium oxysporum* f. sp. *cubense* world experts

On February 27th and 28th the Department of Primary Industry and Resources (DPIR) were fortunate to host Dr Stanley Freeman (President of the Israeli Phytopathological Society Dept. of Plant Pathology and Weed Research ARO, The Volcani Centre), Yuval Levy (Banana Extension Specialist, State of Israel, Ministry of Agriculture And Rural Development), Dr Navot Galpaz (Northern Research And Development, Israel), Dr Altus Viljoen (TR4 World Expert, Stellenbosch University, South Africa) and Jeff Daniels (Banana horticulturist, Queensland Department of Agriculture and Fisheries (QDAF)).

On the first morning, Dr Freeman gave attendees to the meeting an insight into *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4 (TR4), causal agent of *Fusarium* wilt (Panama disease) in bananas, and its effect on Middle Eastern banana production. Dr Galpaz presented an overview of the banana cultivation in Israel, while Dr Viljoen provided an update of TR4 in Mozambique and the work being done to control its spread. Dr Lucy Tran-Nguyen, Dr Jose Liberato and Dr Charl Mintoff gave an insight into the history of TR4 in the Northern Territory, past and present research and future research being planned. Dr David Lovelock provided background on *Cucumber green mottle mosaic virus* in Australia and the research being conducted at DPIR. Dr Liberato provided an update of the banana freckle eradication program and its current status in the NT.

Following presentations, the researchers were taken on a tour of the banana variety screening trial at Coastal Plains Research Station (CPRS), where banana varieties are being assessed for their tolerance to TR4 and agronomic qualities (*Fig 1* and *Fig 2*). The following day, three field visits were organised giving the attendees an opportunity to visit two banana growing properties and one mango growing property. While visiting the banana growing properties attendees learnt about the management strategies NT growers are utilising to grow bananas while dealing with TR4 through crop rotations and a TR4 tolerant banana variety. Attendees were also able to examine a mango property previously infected with mango malformation disease (MMD) and discuss the steps taken to become MMD free. Biosecurity was high on the agenda, with discussions around the protocols implemented by each of the international research groups for decontaminating on and off properties (*Fig 3*).

David Lovelock



Figure 1: Banana plants at CPRS showing symptoms associated with TR4.



Figure 2: Dr Galpaz (left) and Dr Freeman (right) assessing banana plants at CPRS.



Figure 3: Dr Galpaz (bottom), Dr Freeman and Dr Viljoen (top) adhering to the biosecurity standards of CPRS before entering banana growing areas.

Regional news from SA



Dr Margaret Evans (Plant Health & Biosecurity, SARDI) travelled to the United States of America to attend the Fusarium Head Blight Forum on 4th-6th December 2016 in St Louis, Missouri and to visit Professor Ruth Dill-Macky on 8th December 2016 in Minneapolis, Minnesota. Dr Evans raised the profile of research undertaken by SARDI, discussed results from her phenotyping experiments with members of the international research community, identified methods which would benefit her research, informed researchers in the USA that white grain disorder is not associated with toxins, and expanded her international networks. Dr Evans also determined that the national Fusarium Head Blight Forum was a valuable learning venue which allowed opportunities for interactive exchange of ideas and research methods and as such was suited to future attendance by PIRSA/SARDI employees.

Our association with the Grains Intern Traineeship program co-funded by GRDC, SARDI and SAGIT saw Melissa McCallum (second year Agricultural Science student at the University of Adelaide) undertaking work experience with the Cereal and Pulse Pathology groups in 2015. One aspect of the work Melissa assisted with included experiments involving white grain disorder in wheat. Melissa elected to continue working with the Cereal Pathology group in a casual capacity which included more work on white grain disorder. As a result of this, Melissa has chosen to do her Honours year with us (University supervisor – Professor Amanda Able; co-supervisor – Dr Evans), commencing in February 2017. The title of her project is “Understanding how *Eutiarosporella* spp. cause white grain disorder in wheat”. The work Melissa is undertaking will contribute to the GRDC funded project DAS00154 “White grain disorder in wheat”.

Publications

Ayres MR, Wicks TJ, Scott ES and Sosnowski MR (2017) Developing pruning wound protection strategies for managing *Eutypa* dieback. *Australian Journal of Grape and Wine Research* 23, 103-111.

Ayres M, Billones-Baaijens R, Savocchia S, Scott E and Sosnowski M (2016) Susceptibility of pruning wounds to grapevine trunk disease pathogens. *Wine and Viticulture Journal* 31(6), 48-50.

Yongle, L., Rupero, P., Batley, J., Edwards, D., Davidson, J., Hobson, K., and Sutton, T. (2017) Genome analysis identified novel candidate genes for ascochyta blight resistance in chickpea using whole genome re-sequencing data. *Frontiers in Plant Science*, 8, Article 359. DOI: 10.3389/fpls.2017.00359

Pauline Glocke

Regional news from TAS



Current soil-borne disease research summaries

Below is a summary of a new national project involving Tasmanian researchers:
VG 15050 A multi-faceted approach to soil borne disease management

Soil borne disease prioritisation

Project VG15010, A multi-faceted approach to soil borne disease management, is a vegetable levy funded research and extension project. Extension outputs for this project are delivered by the Soil Wealth and Integrated Crop Protection Projects (VG13076 and VG13078).

Vegetable growers and their advisers have identified soil borne diseases as one of their main challenges for soil management and crop protection. Soil borne diseases cost Australia's \$4 billion vegetable industry an estimated \$120 million each year. Generally, soil borne disease management has become more challenging due to fewer crop protection options, more intensive production systems and consumers demanding perfect-looking produce, while at the same time wanting growers to minimise the use of pesticides. Growers and advisers also said that they are interested in integrated control methods and looking after soil health.

The project has already undertaken a range of activities since it was established in November 2016. These built on the first task to prioritise the main soil borne disease threats facing growers and then work out what the project would do to improve their management.

The latest techniques for managing these diseases was reviewed, and the information is now being translated into a suite of new grower-oriented best practice materials to communicate this information in an effective way. Other project activities include demonstration sites, field walks, webinars and master classes. Several of the high priority diseases still need more research. For these, focused field and glasshouse research is being undertaken to provide effective management solutions to growers and advisers.

A key output for the project will be a comprehensive best practice guide for the management of economically important soil borne diseases in vegetables in Australia.

Disease prioritisation

The project conducted a comprehensive gap analysis and prioritisation of soil borne diseases, hosts and regions using a process that built on previous projects and research in the area.

This process resulted in a comprehensive prioritisation database. From that, the following disease and crop combinations were identified as priorities for the project (see Table 1).

Table 1: Priority disease and crop combinations for levy vegetables

Crop	Soil borne disease focus
Brassicas	Clubroot (<i>Plasmodiophora brassicae</i>) Sclerotinia (<i>S. sclerotiorum</i>) Damping off (<i>Rhizoctonia</i> spp.)
Carrots	Cavity spot and forking (<i>Pythium sulcatum</i> and <i>P violae</i>) Damping off complex (<i>Rhizoctonia</i> spp./ <i>Pythium</i> spp.) Root knot nematodes (<i>Meloidogyne</i> spp)
Baby leaf spinach	Damping off complex (<i>Rhizoctonia</i> spp/ <i>Pythium</i> spp/ <i>Fusarium oxysporum</i>)
Lettuce	Sclerotinia (<i>S. sclerotiorum</i> and <i>S. minor</i>) Damping off complex (<i>Rhizoctonia solani</i> / <i>Pythium</i> spp., <i>Fusarium oxysporum</i>)
Capsicums and chillies	<i>Sclerotium stem rot</i> (<i>Sclerotium rolfsii</i>) Damping off complex (<i>Rhizoctonia</i> spp, <i>Pythium</i> spp, <i>Fusarium oxysporum</i> , <i>Phytophthora</i> spp.) Root knot nematodes (<i>Meloidogyne</i> spp)
French beans	Sclerotinia (<i>S. sclerotiorum</i>) Damping off (<i>Rhizoctonia</i> spp) <i>Sclerotium rolfsii</i>
Leeks, celery	Basal plate rot (<i>Fusarium</i>) Pink root (<i>Pyrenochaeta terrestris</i>)

Some key management practices apply to all the key soil borne diseases and vegetable crops and are therefore a focus of the project's extension and demonstration activities to better understand and manage risks.

The project also has a focussed research component, which currently investigates new methods for managing damping off complex in baby leaf spinach, *Sclerotium rolfsii* and damping off in capsicums and cavity spot in carrots. To date, field trials on new fungicide chemistry have been established in Tasmania and Bundaberg, and the impact of improved soil management, including cover crops, biofumigation, calcium cyanamide and compost additions is being evaluated in Tasmania and Western Australia. This project will identify where more in-depth pathology research is needed.

The project links closely with SARDI on a project that is developing DNA testing methods to quantify disease inoculum in vegetable soils (VG15009). The current focus is on developing soil tests for club root in brassicas and cavity spot/forking in carrots. The soil borne disease project is also engaging with the national vegetable extension network (VegNET) in each state to bring regionally topical information to growers.

This project has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

For more information, please refer to the Soil Wealth website soilwealth.com.au or contact Dr Doris Blaesing (dorisb@rmcg.com.au) or Dr Gordon Rogers (gordon@ahr.com.au).

Robert Tegg

Regional news from VIC



New subcommittee member

Joanne Mackie joins the team

This year the members of the Victorian Subcommittee include Candace Elliott (Regional Councillor), Rohan Lowe and Nigel Crump (treasurers), Pragya Kant, Shakira Johnson and new member Joanne Mackie. Joanne is currently a member of the Operational Science Services team at the Department of Agriculture and Water Resources Post Entry Quarantine Facility at Mickleham where all important high risk plant material comes for quarantine pest pathogen screening.

First meeting on April 26th

Our first meeting of 2017 will be held at the University of Melbourne in Biosciences 1 in room G26 at 2pm. The theme of the day is “Blowing in the wind”. We look forward to a virtual tour of the post entry quarantine facility and a talk about the recent Russian Wheat Aphid incursion. We will learn about methods for detecting what is moving about in the wind as well as talks from new members. We will have some time for a general meeting to update members about future plans and gather ideas for future events. There will be also be plenty of time for discussion over tea and coffee during the breaks. Hope to see you all there.

Field tour proposal for October

A field tour to the Grains Innovation Park at Horsham has been proposed for the middle of October 2017. We have a full day of activities planned including a visit the Australian Grain Genebank which houses over 124,000 accessions of plants and is growing at 3,000 per year. Also the plant phenomics glasshouse is now up and operational and will be extremely interesting to many. October is a good time of year to see plenty of disease in the field and we will have time to visit plenty of field sites. Please let me know if you are interested in participating in such a tour this spring. We need around 20 people to make this a viable day.

2019 Biennial APPS conference

The state of Victoria will be the location for the 2019 APPS conference and we are already starting to get organised. Anyone interested in being involved in the organisation of the conference, please contact me. I think there are lots of ideas floating around and plenty of people with experience to offer. We are in the process of forming a Local Organising Committee and hope to have some ideas to discuss with members on the 26th of April at the University of Melbourne during the Vic Branch meeting.

Candace Elliott

Manuscript Screening Service

Springer, publishers of Australasian Plant Pathology (APP) and Australasian Plant Disease Notes (APDN) have introduced a new manuscript screening service for manuscripts submitted for publication.

The service introduced in late February this year involves screening manuscripts for:

1. Clarity of English language use. This will be very useful as we are receiving a lot of manuscripts from authors in non-English speaking countries.
2. Ethics compliance. This is based on a range of checks in accordance with guidance on scientific and publishing ethics.
3. Plagiarism. This checks the manuscript against the Cross Check database for material from published sources that has not been properly attributed to the original author. The report of this check is available to the editors.

This service is carried out by the Springer Nature Technology and Publishing Solutions (SN TPS) Manuscript Services team and will be of tremendous help in maintaining the high standards we have come to expect of APP and APDN.

Phil O'Brien
Executive Editor APP and APDN