APPS NEWS

AUSTRALASIAN PLANT PATHOLOGY SOCIETY

APPS Newsletter Vol 33, No. 1 March 2020

In this edition:

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:

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Next deadline: 31st July 2020

www.appsnet.org

President's Message

Context

What a difference a day makes. A few months ago we were celebrating our society's 50th birthday in each others' company – today we keep a metre (or two) apart and invent new greetings to replace the handshake, hug or hongi. COVID-19 (SARS-CoV2) has certainly stolen the limelight from the Year of Plant Health BUT, we know that Plant Health remains vital to our world wealth. As plant pathologists it is unnerving to see scenarios of this pathogen spread across the human population so quickly. We are very familiar with pathogen management so please do keep up the conversations with colleagues and family. But most importantly, please keep yourself, co-workers and family safe.

New APPS Management Committee and handover

It is a pleasure to receive the APPS President baton from Brett Summerell and to form a refreshed Executive Committee with a new group of enthusiastic and able people. As another introduction and update the Executive Committee is now comprised of the following people:

- **President, Dr Robin MacDiarmid** from The New Zealand Institute for Plant and Food Research Ltd (Plant & Food Research) and University of Auckland. Robin is most passionate about viruses and leads the Viruses and Like Organisms team at Plant & Food Research. In the Bay of Islands region she assists Māori organisations in their horticulture and educational aspirations, especially in viticulture.
- **President Elect**, Dr Andrew Geering from the Queensland Alliance for Agriculture and Food Alliance of The University of Queensland has a broad interest in plant pathology, from field work to genomics and has achieved the rare feat of publishing in three of the four major disciplines of the field, virology, mycology and bacteriology. Living in Queensland, his main research interests are related to tropical and subtropical crops, such as avocado, citrus, macadamia and warm season turf species.
- **Vice-President, Dr Colleen Higgins** from Auckland University of Technology. Colleen is part of a busy group working in the area of molecular microbiology with a vibrant group of postgraduate students. Colleen uses her molecular biology skills to contribute to a wide range of areas such as eDNA/microbiomes, bacterial genome analysis and eukaryotic transcriptome responses, but her first love is plant viruses. She is researching in the areas of virus evolution and taxonomy, virus diagnostics and host plant transcriptomic and metabolomic responses.
- **Māori and student representative, Hanareia Ehau-Taumaunu** currently at Penn State University, Pennsylvania, USA. Hanareia is from Ngāti Porou, Ngāti Uepōhatu, Te Whānau-a-Āpanui, and Te Ātiawa iwi in Aotearoa. She is currently studying towards her PhD in plant pathology with a focus on the dynamics of bacterial competition within the plant environment, specifically looking at bacteriocins. As an indigenous scientist she also highly values integrating her cultural values, identity and language in her career and research aspirations.
- **Treasurer, Dr Carl Mesarich** from Massey University in Palmerston North. Carl co-leads the Molecular Plant Pathology Laboratory, where he runs several

research programmes that set out to understand how plants and filamentous microbes interact at the molecular level. Ultimately, it is hoped that the information gained from these programmes can be used to inform durable disease control strategies. Carl currently has two PhD students working on the apple scab fungus, one PhD student studying the kauri dieback pathogen, and one postdoctoral scientist working on the apple scab fungus, the tomato leaf mould fungus, and a beneficial grass symbiont.

- **Executive Secretary, Dr Luciano Rigano** from Ministry of Primary Industries (MPI). Luciano is originally from Argentina, where he did his PhD work on bacterial plant pathogens (*Xanthomonas*). He joined MPI after postdoc positions at the University of Otago and Imperial College London. His current role focuses on the development of innovative diagnostic pipelines for biosecurity.
- **Executive Secretary, Dr Nari Williams** has been a forest pathologist for much of her career, with a primary focus on researching the biology, ecology, impact and control of *Phytophthora* pathogens in forests and natural ecosystems. Nari worked at Scion from 2012 to 019 then joined Plant & Food Research pathology team in Havelock North in January 2020 with an ongoing remit for tree pathology, albeit of the fruiting kind. Her more research has focussed on *Phytophthora* pathogens of importance to New Zealand's natural and production plant systems including the red needle cast of radiata pine (*Phytophthora pluvialis*) and kauri dieback (*Phytophthora agathidicida*).

The incoming members are joined by:

- **Immediate Past President Dr Brett Summerell**, Australian Institute of Botanical Science, Royal Botanic Gardens and Domain Trust.
- **Regional Co-ordinator Dr Monica Kehoe**, Diagnostic Laboratory Services, Biosecurity and Sustainability, Department of Primary Industries and Regional Development, Perth.
- **Business Manager Dr Peter Williamson**, Queensland.
- **Executive Editor Dr Philip O'Brien**, Murdoch University, School of Veterinary and Life Sciences, Perth.

The APPS Executive Committee would like to thank the outgoing committee members for ensuring that the society was in sound financial shape and supported its members, especially through the new initiatives such as the Carer's bursary and the 47 student and early career grants made to enable attendance of the culmination of the society's 50th anniversary, the APPS conference in Melbourne. Outgoing members include those who undertook the following roles 2017–2019:

- **Past President,** Dr Kim Plummer, La Trobe University.
- **Vice President,** Professor Robert Park, University of Sydney.
- **Executive Secretary,** Professor Harbans Bariana, University of Sydney.
- **Treasurer,** Dr William Cuddy, NSW Department of Primary Industries.

Planning for the year

Currently the Executive committee have a range of items on our year plan. These include:

- Streamlining the regional accounting processes and payments
- Reviewing the return / risk of holding an APPS conference
- Establishing sample collection and use guidelines that are respectful of indigenous people
- Reviewing our equity statistics as these are currently not collected
- Establishing a New Zealand-Japan fund for student exchange or other New Zealand-focussed activities that mirrors the Australia-Japan exchange programme
- Establishing a finance sub-committee to ensure benefits to members
- Further developing the Advancing Plant Pathology Fund – Australia
- Further developing our periodic newsletters
- Advancing our social media activity including some new initiatives.
- Revising our operating procedures
- *Other (please let us know your suggestions)*

2020 International Year of Plant Health

A reminder that there is a photo competition with a 15 June 2020 deadline.
http://www.fao.org/plant-health-2020/photo-contest/enter-the-contest/en/
There are both Healthy and Unhealthy plant categories. This is a great opportunity to expose your creative side to international scrutiny. I encourage students and researchers to share their potential entry photos and to submit your best. Wouldn't it be great to have a down under winner!!!!

Safety in times of change

In closing, I would like to reiterate the importance of caring for each other. Please check in to hear how your colleagues are coping especially as we see less of each other in person. As scientists we are generally well set for remote interactions. Please do keep some time to be light – perhaps a local photo display (online optional)? If there is anything that the Executive Committee can do to assist please let one of us know…. You know who we are!

Stay safe. Robin.

New Members

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

Title	Organisation	Country
Dr Paul Dennis	The University of Queensland	Australia
Ms Natasha Brohier	La Trobe University	Australia
Professor Mark Gibberd	Curtin University	Australia
Mr Sukhi Pannu	CSP Labs	United States
Dr Anthony Young	The University of Queensland	Australia
Mr Damola Adejoro	Lincoln University	New Zealand

Dates for your Diary

11th Australasian Soilborne Disease Symposium
Hilton Hotel, Cairns 24 -27th November 2020
http://asds2020.w.yrd.currinda.com/#

Call for **pre-symposium workshop proposals** as part of the program development is now open.

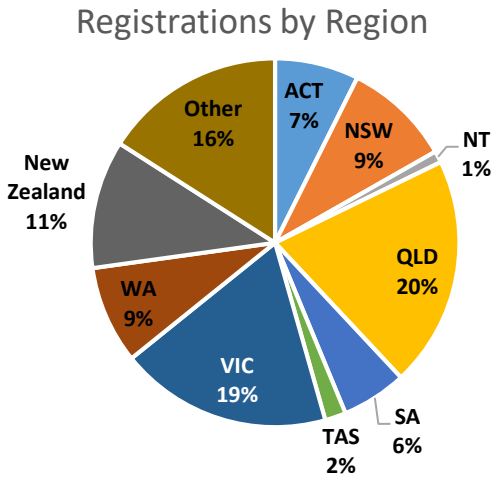
If you are interested in running a pre-symposium workshop, please complete the form found here and return to david.east@daf.qld.gov.au

14th International Conference on Plant Pathogenic Bacteria (ICPPB)
Assisi, Italy. 7-12 June 2020
https://www.icppb2020.it/

Report on the 22nd Australasian Plant Pathology Society Biennial Conference

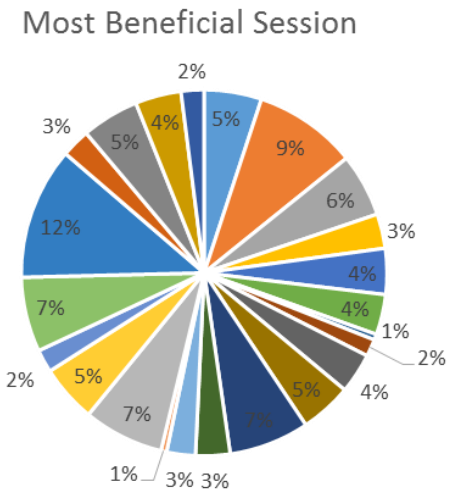
The 22nd Australasian Plant Pathology Society (APPS) Biennial Conference was held at the Melbourne Convention and Exhibition Centre, Melbourne, Australia from 26-28 November 2019. The conference was the culminating event of the 50th anniversary of the founding of the APPS. We were delighted to have three of the founding members, Prof Lester Burgess, Dr Bob Dodman and Dr Gordon MacNish in attendance (photo 1).

A total of 516 delegates registered to attend the meeting (including sponsors, exhibitors, invited speakers, bursary recipients and workshop only). Queensland was the most represented region followed closely by Victoria and a there was a strong international presence (16%) in the delegate pool. The U.S. constituted around 25% of the "Other ". Countries represented were Australia, Bangladesh, Ethiopia, France, Germany, Hungary, India, Indonesia, Italy, Japan, Lebanon, Malaysia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Réunion, Russia, Serbia, South Africa, South Korea, Taiwan, Thailand, United Kingdom, United States and Vietnam.



There was a good balance of male:female participation in registrations (approx. 55% female) which was also reflected in the 174 oral and 188 poster presentations given during the conference.

The conference featured 10 plenary speakers whose presentations were extremely well received. The program covered all aspects of plant pathology from the applied with Disease Surveys and Monitoring, Community & Industry Engagement, and Surveillance and Incursion Response sessions as well as more molecular studies with Taxonomy & Phylogeny, Pathogenomics, Plant-Microbe Interactions and other topics. Agricultural Microbiomes also featured as a new session in the APPS program. In the exit survey, participants were asked "What Session did you find most beneficial?" Of 197 responses, 12% said the Molecular Plant Microbe sessions were most beneficial followed closely by Agricultural Microbiomes at 9%. The adjacent pie chart shows each session represented by a unique colour and the percentage of votes it received.



Workshops and Field Tours, held on the days either side of the main conference were held off-site and, provided a great opportunity for focussed topic sessions,

training, networking, and seeing agricultural and horticultural production regions in Victoria, Australia. Some of the workshops included: dsRNA Applications for Disease Control; Grapevine Viruses: Identification, Symptoms and Management; the 4th Australian Pathogen Bioinformatic Symposium (APBS) 2019; Molecular Plant-Microbe Interactions (a joint session with the Australian Society of Plant Scientists) and more. The Field Tours visited potato production at Toolangi and the Grampians region of Western Victoria for grains pathology.

A very pleasing feature of the conference was the high participation of students (21.5%) and early career researchers. On the first day, students were invited to participate in a special lunch organised by Researchers in Agriculture for International Development (RAID). This lunch was so popular, it was spread across two rooms where experienced researchers circulated to tables of students for guided discussion about careers in plant pathology. "Gurus" provided short CVs to students prior to the lunch and it was interesting to see the many different career paths represented. We thank Sophia Callaghan and Jenny Hanks from RAID for organising this great event.

Another opportunity for students and early career researchers was the chance to be a co-chair at the conference. All oral sessions had two chairpersons, with a PhD student or ECR given the opportunity to be a co-chair and introduce speakers, time talks, manage questions and in some cases even assist in abstract selection.

We had a very well-received social program that began with the Welcome Reception on the Monday evening at Show Time Events Centre. There was a great selection of food from different cultures that allowed us to mingle and meet with old friends. On Tuesday evening we had a poster session with drinks and nibbles and on Wednesday evening we had the Gala Dinner at Mural Hall. It was great to see everyone enjoy themselves and have a good time. The Society awards were presented at the dinner. New Fellows of the APPS include Prof. Elizabeth Aitken, Dr Angus Carnegie, Prof. André Drenth, Prof. Robert Park, Prof Terry Price, Assoc. Prof. John Thomas, and Mr John Walker. The Lester Burgess Award for Research Communication was bestowed upon Dr Gordon Murray. Recipients of the Lester Burgess Award for Diagnostics and Extension were Dr Nerida Donovan, Ms Kathy Grice and Mr Mark Whattam. The Allen Kerr Post Graduate Prize was awarded jointly for 2019 to Dr Rebecca Roach and Dr Nga Thi Tran.

Thanks to many generous exhibitors and sponsors (https://www.apps2019.org/sponsorship-and-exhibition.php) we were able to bring speakers and delegates from around the world to present their research. Thanks to all who attended and shared their research and experiences with us. We also thank the APPS2019 Organising and Program Committees and the APPS2019 Secretariat, ICMS Australasia, for their smooth running of the conference including the successful social events. Please join us in Hobart, Tasmania in 2021 for the 23rd APPS Biennial Conference.

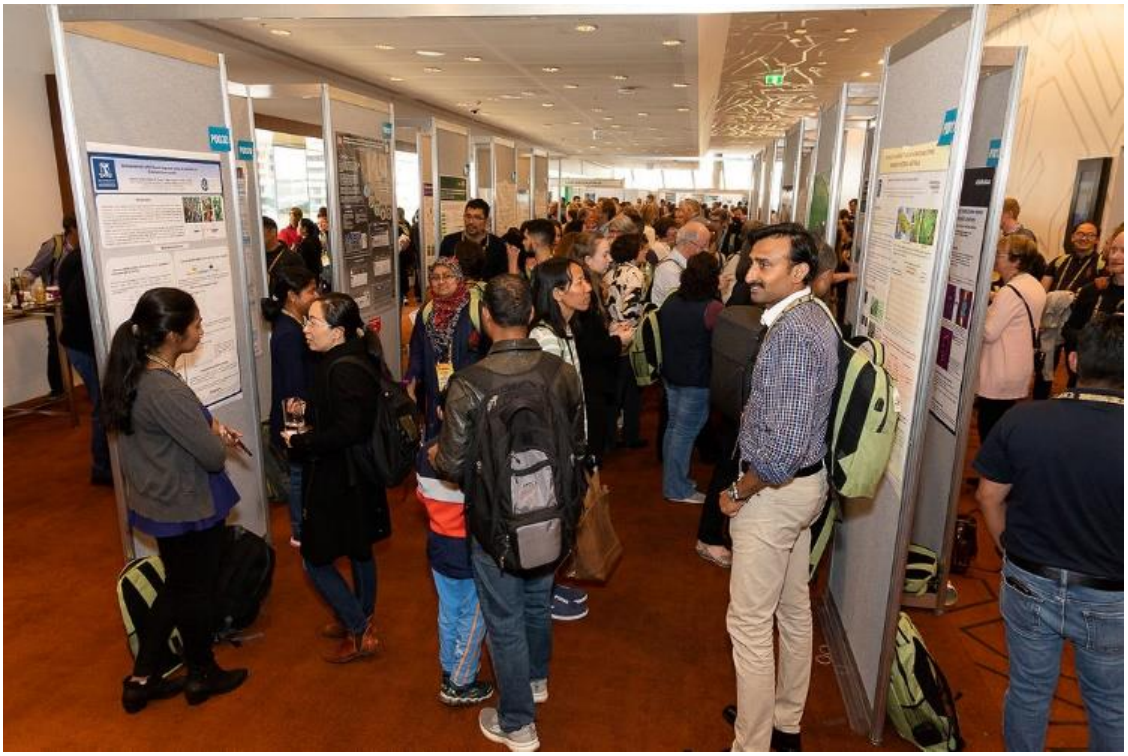
Here is a small selection of photos of the conference. A full set of photos is available from our website at https://www.appsnet.org/events/melbourne2019/index.html

We were delighted to have three of the founding members, Prof Lester Burgess, Dr Bob Dodman and Dr Gordon MacNish in attendance

The conference began with a stirring Welcome to Country given by Uncle Ian Hunter from the Wurundjeri clan of the Kulin Nation and a Didgeridoo performance by Gnarnayarrahe Waitairi

Society Awardees at the Gala Dinner

RAID student lunch where students met Phytopathology gurus (Prof Sophien Kamoun shown here)



Poster session on Day 1

WOOHOO, the co-convenors kick up their heals at the gala dinner

Candace Elliott, Kim Plummer and Helen Hayden

The Monthly Regional Scientific Meetings are back and New Zealand wide!

Last year, the North Island New Zealand branch of APPS held a monthly meeting consisting of two to three scientific presentations of 10 to 15 min each followed by questions and answers. Those presentations were followed by a short discussion about the next meetings and news from APPS. These seminars were held in different venues across the North Island and were followed by Skype from all over the North Island. They turned out to be very popular and gave an opportunity to scientists and students in plant pathology to present their work to their peers and to representatives of New Zealand horticultural industries (kiwifruit, pipfruit, stonefruit, grapes etc.). This year we have restarted those meetings but made them New Zealand-wide thanks to a collaboration between the North Island and the South Island branches.

We will alternate the venue between the two islands. The first seminar was held in Auckland therefore next month the seminar will be held from somewhere in South Island and available for everyone in New Zealand to follow via Skype.

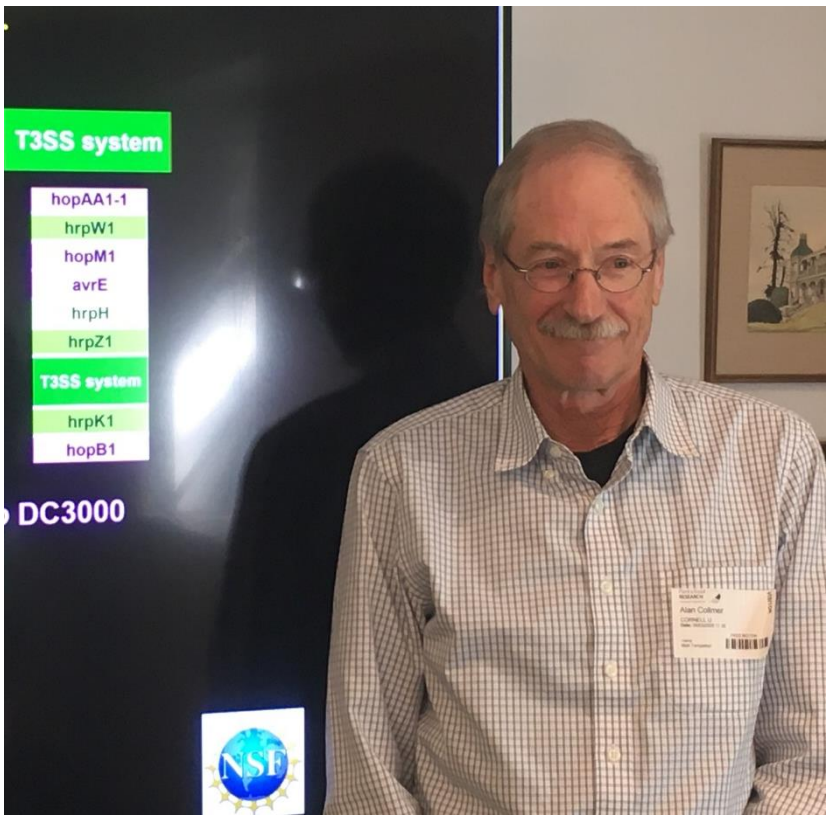
The first seminar was given by Alan Collmer, Professor Emeritus in the School of Integrative Plant Science, College of Agriculture and Life Sciences at Cornell University, Friday March 6.

Prof. A. Collmer received numerous distinctions including: the Noel T. Keen Award for Research Excellence in Molecular Plant Pathology from the American Phytopathological Society; the E. C. Stakman Award from University of Minnesota; the Career Accomplishment Award from Cornell University College of Agriculture and Life Sciences and he was made a fellow of the American Academy of Microbiology. It was a great honour that he accepted APPS invitation to give a seminar about some of his latest work.

Prof. A. Collmer's bio/research as published on Expertise Finder reads: 'Our goal is to understand the molecular mechanisms that enable bacteria to attack plants. Much of our current work is focused on *Pseudomonas syringae* pv. *tomato* DC3000, which is a pathogen of tomato and the model plant Arabidopsis thaliana. Like many host-specific plant pathogens, *P. syringae* is a "stealth" parasite that can multiply for several days in host tissues before symptoms, such as necrotic spots, develop. We have learned that the ability of *P. syringae* to multiply in the intercellular spaces of plant leaves and cause disease is dependent on a "type III" secretion system that injects virulence effector proteins into host cells. Variants of this injector system are also used by many important animal pathogens (for example, *Yersinia pestis*, the plague pathogen) to deliver their virulence proteins. What is the complete repertoire

of effectors and injectisome components secreted by *P. syringae*? How do effectors subvert host defenses? What other adaptations does this sophisticated parasite have for life in plants? To answer these questions, we and a team of researchers from the USDA/ARS Plant-Microbe Interaction research group at Cornell and the Boyce Thompson Institute for Plant Research have been characterizing the genome sequence of DC3000 and developing a variety of bioinformatic, biochemical, genetic, and cell biological tools to support a genome-wide study of virulence mechanisms and to foster functional genomic investigations by the worldwide research community.'

The title of his presentation was 'Functional genomics of *Pseudomonas syringae* pv. *tomato* DC3000 virulence: Lessons, community resources, and new puzzles'.



Professor Emeritus Alan Collmer giving a seminar in Auckland in front of about 20 people but seen by many more throughout New Zealand via Skype.

Joel Vanneste

Regional news from NZ south

It has been a busy time for many of the members within the South Island of New Zealand. The spring-summer season has been frantically busy as we go about our plant pathology tasks! In November, a number of South Island APPS members attended the Australasian Plant Pathology Conference in Melbourne. It was the first time for many of the students (LayLay Nwe, Caitlin Henderson, Noureddine Besselma and Luciano Nunes-Leite whom were all supported by travel grants) attending the APPS conference. All students actively participated in the conference with poster presentations and workshop attendance (Figure 1 and 2). South Island APPS student, Caitlin Henderson (supervised by Seona Casonato) received a poster award (3rd, Figure 3). It was a great conference for all, with terrific talks to attend and colleagues, old and new, to catch up with. Romy Moukarzel attended the miCROPe (Microbe-assisted crop production – opportunities, challenges and needs) conference in Austria where she presented a poster on her research work (Figure 4).

Figure 1. Lay Lay Nwe (white shirt, front left) attending the biocontrol workshop at the APPS Conference, Melbourne.

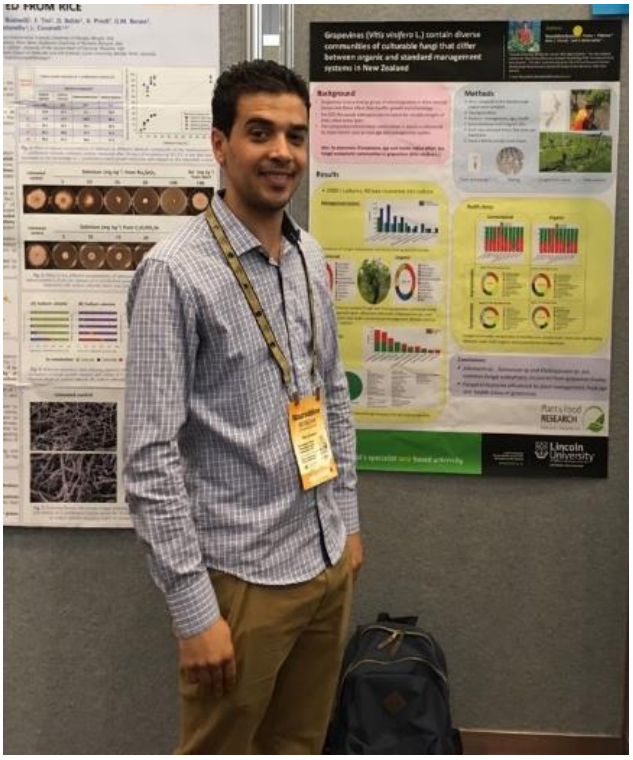


Figure 2. Noureddine Besselma with his poster at the APPS Conference, Melbourne.

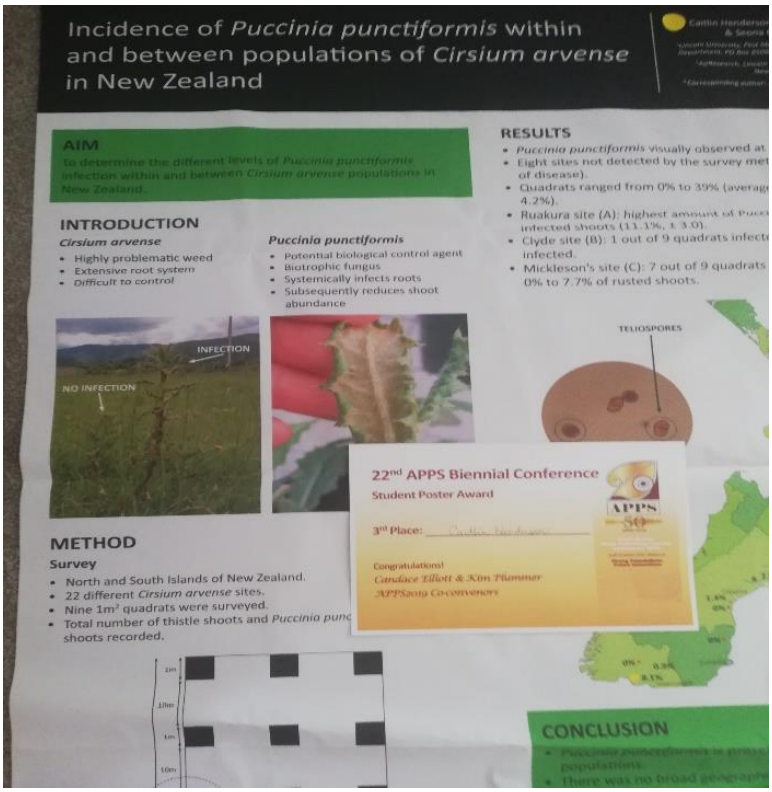


Figure 3. Caitlin Henderson poster and award at APPS Conference, Melbourne.

Figure 4. Romy Moukarzel with her poster at miCROPe.

Seona Casonato

Regional news from QLD

Congratulations to Kathy Grice

Congratulations to Kathy Grice – awarded the 'Lester Burgess Diagnostics and Extension Award' at the Australasian Plant Pathology Society conference in November 2019 for exceptional service to Horticulture Industries.

Kathy Grice is a Senior Experimentalist in plant pathology at DAF's Mareeba Research Facility

Based at the Mareeba Research Facility in Far North Queensland, Kathy has provided expert diagnostic and extension support to growers in her local region for over 30 years.

Fellow researcher from the University of Queensland, Jay Anderson, said Kathy was highly deserving of this prestigious award, "Kathy has helped many colleagues, consultants and importantly growers to recognise and manage diseases of banana, avocado and mango amongst other important crops in North Queensland."

”Kathy is an expert in banana leaf spot pathogen diagnostics and has been recognised for her work nationally and internationally.”

“Between 2001 and 2005, Kathy played a key role in the diagnostic work that supported the black Sigatoka eradication campaign in North Queensland, the first successful eradication of black Sigatoka from a commercial growing region anywhere in the world.”

Congratulations to Dr Dinesh Kafle – recipient of the Cotton Research and Development Corporation Award

After working in Asia, Europe and the Middle East, Dinesh Kafle is turning his hand to helping the Australian cotton industry fight disease. Dinesh received the CRDC-supported ABARES Science and Innovation Award for 2020 at the recent ABARES Outlook Conference dinner in Canberra.

Left to right, Dr Ian Taylor (Executive Director of CRDC), Dr Gabrielle Vivian-Smith (a/g Chief Scientist and a/g Australian Chief Plant Protection Officer), The Hon. David Littleproud MP (Minister for Agriculture, Drought and Emergency Management), Dinesh Kafle, and Dr Jeremy Burdon (member of the board of CRDC). Photo courtesy of Steve Keough Photography.

Dinesh, an agriculture scientist at Queensland’s Department of Agriculture and Fisheries, is set to investigate whether cotton plants can be primed with silicon to boost their defences against fusarium wilt and reniform nematode. His project will germinate cotton seeds in soil with added silicon, before infecting them with the diseases.

Dinesh says that while silica is present naturally in the soil, it is difficult for crops to absorb. He plans to examine if there is any priming effect when plants are given soluble silicon as seedlings. Dinesh says very little work has been done on silicon in the past.

“It’s a novel approach,” he says. “So, if successful, it’s going to be a really great tool… for growers to consider while managing the disease.”

The study will trial cotton seeds grown in both seedling trays and pots, to test whether transplanting silicon-primed seedlings provides better defence than direct sowing. Dinesh says the concept of priming itself is also relatively new, having been studied mostly in ecological settings.

“I’m trying to see if the priming has any implications in agriculture, so it’s really exciting,” he says.

Dinesh grew up in a small village in Nepal, living next to an agricultural research station whose field trials would inspire him for life. He trained in Germany and Israel, before turning his attention to Australian cotton in 2018. Dinesh says it’s been amazing to work in such a large, profitable and interesting industry.

“It’s a lot of opportunities,” he says. “I’m still learning so many things, and it’s an exciting field of agriculture.”

As the recipient of this year's award, Dinesh will receive a CRDC grant to undertake this novel research.

Jennifer Cobon

Regional news from SA

South Australian members represent at the APPS

Many South Australian members attended the APPS conference in Melbourne last November, and we even managed to get 19 of them together for a photo! Amongst them, there were a number of oral presentations including by Diane Mather, Brittany Oswald, Sara Blake, Margaret Evans, Abolfazl Sarpeleh, and Ismail Ismail, as well as poster presentations by Jade Rose and Levina Pieter. It is reassuring to have a mix of early, mid and late career plant pathologists in SA and delegates look forward to the next opportunity to share all things pathology.

L to R (back): Belinda Rawnsley, Blake Gontar, Levina Pieter, Abolfazl Sarpeleh, Diane Mather, Barbara Hall, Pauline Glocke, Prue McMichaels, Jade Rose, Mohsen Khani, Tara Garrard.
L to R (front): Brittany Oswald, Dagmar Hanold, Elizabeth Kiernan, Eileen Scott, Cathy Todd, Margaret Evans, Sara Blake, Ismail Ismail.

Barbara Hall retires

Barbara Hall from SARDI Horticulture Pathology has finally put away her microscope and retired late last year, but not after one last hurrah at the APPS conference. Many of you will know Barb from her services to the Australian fruit and vegetable industry, with her being awarded researcher of the year by AusVeg in 2019. She also served as the APPS Newsletter editor for many years prior to Sara Blake and Will Cuddy. Barb's involvement in Biosecurity is to be commended including many years as the chair of the Subcommittee for Plant Health Diagnostics (SPHD) and coordinating the production of National Diagnostic Procedures (NDPs), with which she is still finalising commitments. She can't quite leave her love of research so she is assisting with Pistachio research and extension activities with a private agricultural research company.

Barb has, with resistance, left her newly completed house & cat family for a bucket list item involving jazz and drinking gin on a cruise in an attempt to adjust to retired life.

With thanks to Cathy Todd and Suzanne McKay

2020 International Year of Plant Health (IYPH)

The SA Regional Committee has been busy preparing to celebrate IYPH and will be running a photo competition in conjunction with the University of Adelaide Waite Research Institute. Banners are being printed, the competition form has been designed and a website is up and running where prospective entrants can submit their entries from now until 30th October 2020.

There are two categories, macroscopic and microscopic, with first, second, and third prizes to be awarded within each category. For more information please visit: https://www.thewaite.org/apps-photo-competition/. All images entered in the competition will also be displayed in the Beltana Café, Lirra Lirra building, on the University of Adelaide Waite campus so come and check it out if you're on campus!

COVID-19 halts international travel for SARDI pathologist Dr Tara Garrard

In February 2020, Dr Tara Garrard was expecting to travel to southern Laos for 3 weeks with Professor Lester Burgess to help the local pathologists by providing training in taxonomy and management of fungal diseases. Dr Garrard was also to expand her current pathology skill set by working with different host crops through training with Prof Burgess. Unfortunately, due to COVID-19 (coronavirus), this trip has had to be cancelled but Dr Garrard is hopeful that the trip can be rescheduled for next year.

SA APPS is now on Twitter @APPS_in_SA

The SA branch now has their own Twitter account for sharing any South Australian plant pathology news, seminars, research, publications etc. Follow us to stay up to date about plant pathology events run in SA, including our social networking gatherings, and get in touch via a Twitter DM (direct message), or direct to Sara Blake (Sara.Blake@sa.gov.au) or Ismail Ismail (Ismail.Ismail@sa.gov.au) if you would like us to promote or share anything.

Pauline Glocke and Sara Blake

Regional news from TAS

APPS 50th National conference – Tasmanian bursary attendees

Three bursaries were provided to students from UTAS which enabled their attendance at the national APPS conference in Nov 2019: Dharushana Thanabalasingam, Yichen Kang, and Yee Lin Tai (Elaine). Their reports can be found later on in the newsletter. There were many other Tasmanian attendees at the conference presenting posters, oral presentations, chairing sessions, running display booths.

APPS 51st National conference
Hobart, Tasmania
November 2021

Tasmania will be hosting the next biennial conference – stay tuned.

New students

Karen Barry has welcomed two new PhD candidates in early 2020. Chiranthika Sinhalagoda has commenced a PhD project on resistance of native pepper to *Phytophthora cinnamomi* and drought, which will be co-supervised by Prof. David Cahil (Deakin University). Alison Ctercteko has commenced a project on Trichoderma biocontrols, exploring factors to enhance their efficacy to control *Botrytis cinerea* in horticultural crops.

New projects

Karen Barry is leading a new 2 year project to screen fungicide alternatives to control blueberry rust (*Thekopsora minima*), in collaboration with Staphyt Ltd. and NSW DPI. The project is funded by the Tasmanian state government Agricultural Innovation Fund, in response to incursion of the rust and containment efforts.

Undergraduate plant pathology enrolments booming at UTAS

Undergraduate plant pathology training is alive and well at University of Tasmania. In semester 1 this year, Karen Barry and Calum Wilson will teach 80 students in the advanced Plant Pathology course which is the highest enrolment ever experienced.

Robert Tegg

Regional news from NT

NT representation at the APPS conference

Five APPS members from the NT attended the recent APPS conference in November 2019. These members were Drs Sharl Mintoff, Blessy Pathrose, Merran Neilsen and Maxine Piggott from NT DPIR, and Harshitsinh Vala from NAQS.

Sharl Mintoff presented a poster titled, 'Identification of alternative hosts in the management of *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4 in the Northern Territory'. Visiting South African plant pathologists from Stellenbosch University, Dr Diane Mostert and postgraduate student Ms Sheryl Bothma came to the NT the following week to observe banana TR4 field trials at Coastal Plains Research Station first hand.

Blessy Pathrose gave a presentation presenting results from detached leaf assays to determine host range of *Xanthomonas citri* subsp. *citri* (A*) causing the current NT outbreak while Merran discussed outcomes from the national Hort Innovation project on 'Improved management options for *Cucumber green mottle mosaic virus*'.

Merran Neilsen is the NT regional councillor for the APPS and is looking forward to organising APPS-supported events in the NT in 2020.

Clockwise from bottom left: Merran Neilsen, Blessy Pathrose & Sharl Mintoff

Capacity building for NT in virus diagnostics

Northern Territory APPS member, Maxine Piggott recently started with the NT Department of Industry & Resources as Principal Molecular Scientist. In January 2020, she undertook a diagnostic residential at AgriBio in Melbourne, working with Fiona Constable and Linda Zheng to gain experience in using NGS and molecular diagnostics for plant pathogenic viruses. Maxine used MiSeq targeted genome sequencing on *Cucumber green mottle mosaic virus* (CGMMV)-positive samples and other samples collected as part of the Hort Innovation Area Wide Management project. Only samples with high virus titre were successfully sequenced. A diseased volunteer melon yielded a contig with 99.84% similarity to the NT CGMMV genome, while *Papaya ringspot virus-W* was identified in snake gourd.

Maxine also gained experience in ELISA testing. Training NT molecular diagnosticians in NGS and ELISA techniques will add to our improved diagnostic capacity in the future. A new molecular science building is currently under construction at Berrimah Farm, so we are looking forward to having new labs and facilities to work in in the coming months.

Volunteer melon infected with CGMMV at a site where the virus was previously identified

Merran Neilsen

Fires and plant disease in Australia

The latter half of 2019 and beginning of 2020 have not been a good for plant health in Australia, and certainly there has been relatively little positive to talk about in this the International Year of Plant Health. The extended drought and this current fire season have seen devastating impacts on agriculture, horticulture and the natural world across Australia. The extent of the bushfires has been of a scale that is very difficult to comprehend.

We have seen millions of hectares of natural ecosystems burnt, orchards and vineyards destroyed, and pastures burnt out. I keep getting asked what the impact on plants has been. Charred landscapes of immense size are of course predominantly images of burnt plants – trees and the understorey species that comprise those ecosystems. It is difficult to estimate the number of plants impacted by fire but it is in the multiple billions.

However, the answer to this question is much more nuanced. The flora of Australia has evolved with fire – species like Eucalypts and wattles have numerous adaptations to cope with fire – in Eucalypts epicormic buds protected by bark spring to life after a fire with amazing haste – and seed of wattles and Banksia are stimulated to germinate and grow once it rains enough to allow successful establishment. In some cases we may even see species of plants grow that have not been observed for a long time.

The extent of recovery will depend on the intensity of the fire – lower intensity fires do not substantially damage Eucalypts and will stimulate germination of seed of a range of species. If the fire is high intensity, we see trees killed and an almost sterilisation of the forest floor. In these situations, the loss of plant diversity may well be profound.

In ecosystems that are not adapted to fire the losses can be much higher. Rainforests have not evolved to cope with dry conditions or fire. The trees in these forests are often thin-barked and easily killed by the heat of bushfires and when these habitats burn the outcome is poor.

The impact of fire on plant diseases is complex. In bushland fire may clean up general fungal pathogens but the critical diseases in these systems, Phytophthora root rot and Myrtle Rust are less likely to be negatively (from their perspective)

impacted. All the data we have indicates that Phytophthora survives well underground, likely to be just as active after the fire event and may be more easily anthropogenically distributed due to a lack of ground cover to buffer this impact. New flushes of young growth and seedlings of Myrtaceae plants are more susceptible to the Myrtle Rust fungus and the weather since the fires has been ideal for the development of the disease. Stressed and damaged plants in orchards and vineyards are likely to much more susceptible to attack by pathogens and pests. There will be plenty of work and inquiries for those of us working in these systems.

As plant pathologists it is likely that we will see new, or previously unimportant, diseases come to the fore that will test our diagnostic and research capacity. This type of impact and the expectation that climate change will continue to facilitate fires in the future highlights the importance of ensuring that we understand the response of plants and plant diseases to a changing climate. This is likely to continue to throw complex challenges to plant scientists including plant pathologists, for which we might need to set aside our preconceived ideas.

Plants are vital for life. These fires highlight how much more research is needed to ensure their, and our, survival.

Dr Brett Summerell

Advancing Plant Pathology Fund - Australia Undergraduate Honours Scholarship

The Advancing Plant Pathology Fund - Australia of the Australasian Plant Pathology Society (APPS) awarded an Undergraduate Honours Scholarship to a student pursuing undergraduate honours study in 2019 in a field relevant to plant pathology. The scholarship was for one year and comprises a tax-free stipend of $4,000 and an additional $2,000 to be paid to the host institution for project operating expenses.

Julie Sosso, University of Queensland

As the fortunate recipient of the APPS's Advancing Plant Pathology Fund - Australia Undergraduate Honours Scholarship in 2019, I am thrilled to have successfully completed my research year with an Honours Class I overall. This result confirmed my belief that chronological age is no barrier to mental exercise and academic achievement!

As a late-blooming Plant Science student, my journey into the world of microbes in macadamias has been the scientific ride of my life to date. I was blessed when accepted as an Honours student by Associate Professor Olufemi Akinsanmi (University of Queensland) to join the Macadamia Plant Pathology team. Femi and his team of PhD students were extraordinarily supportive and encouraging throughout my very steep learning curve towards identifying microbes in macadamias. I am forever grateful for their friendship and assistance in improving my lab skills and plant pathology knowledge. I am living proof that you can teach an old dog new tricks, it just takes a lot more patience!

In a macadamia nutshell ☺, the outcomes of this Honours project entitled *Prevalence of endophytes in macadamia plants in Australian nurseries* demonstrate that growth stage, environmental variance and plant tissue part influence the prevalence of endophytes in young macadamia plants. What's more, this new knowledge reveals that beneficial and latent pathogenic endophytes are acquired both vertically from the seed and horizontally from the environment in juvenile macadamia plants and this information contributes to our overall understanding of how climate could influence emerging disease trends in macadamia orchards globally.

In closing, I would sincerely like to thank the Australasian Plant Pathology Society for awarding me the Undergraduate Honours Scholarship in 2019 and wish the 2020 Scholarship recipient every success in their Honours adventure too.

A sweet 'thank you' treat for the Maca team.
Top Photo (from left), Vheena Mohankumar, Zakeel Mohamed Cassim, myself, Associate Professor Femi Akinsanmi, Olumide Jeff-Ego and Kandeeparoopan Prasannath.

APPS ECR Bursary Awardee Reports

The APPS provides bursaries for students and early career researchers in Australasia, the Pacific region and South East Asia, who have less than 10 years' experience in the plant pathology profession (including any postgraduate training as part of that experience) to attend either an APPS biennial conference or an APPS special interest group meeting during the non-biennial conference year. These bursaries assist with conference registration, accommodation during the conference and travel.

The following are the travel reports from each of the bursary awardees.

State	Name
SA	Jade Rose Ismail Ismail Levina Pieter
Vic	Prakash Nair Cordelia Dravitzki Donovan Garcia Anjali Zaveri Hayley Wilson
NSW	Ganja Rai Bayantes Dagvadorj Michael Norman Haochen Wei Pravin Khambalkar Belinda Fabian
QLD	Kandeeparoopan Prasannath Henry Birt Sari Nurulita Mohamed Zakeel Mohamed Cassim
Tas	Dharushana Thanabalasingam Yichen Kang Yee Lin Tai (Elaine)

South Australia

Dr Ismail Ismail
Research Officer, SARDI

Dr Ismail A. Ismail a Research Officer, Plant Health & Biosecurity, SARDI, attended the 19th Australasian Plant Pathology Society Conference 25-28 November 2019 held in Melbourne, Australia. Dr Ismail presented a paper 'Powdery mildew and fungicide resistance: evaluation of *in-vivo* and *in-planta* bioassays'.

Fungicide resistance poses a major threat to all agricultural production systems, including the wine industry, worldwide, and Australia is no exception. The APPS conference is the main forum for the national research community to present and discuss the latest research and information on all aspects of Plant pathology, including Plant-Microbe Interactions, Agrichemicals & Managing Chemical Resistance, Community & Industry Engagement Innovations in Detection & Diagnosis Foliar & Postharvest Diseases and other. The emphasis on resistance research continues to increase worldwide due the current and potential resistance problems. In this conference, 12 papers focussed on aspects of resistance, including monitoring, risk assessment, molecular mechanisms, management and regulation. The program can be viewed here https://www.apps2019.org/full-program-tuesday.php

APPS Travel Bursary allowed me to attend this conference and present my research to the wider research community as well as initiate potential collaborations with other researchers. The exposure to all aspects of research relating to plant pathology will continue to benefit a wide range of Australian agricultural industries.

I would like to thank the APPS for supporting me to go to this conference.

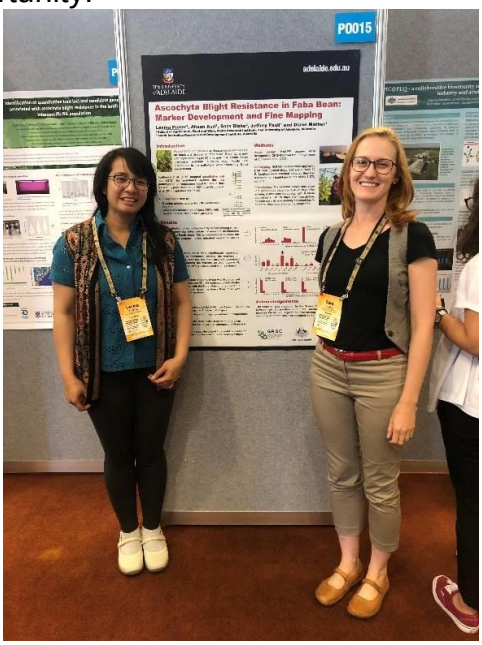
Levina A.G. Pieter
Master Student, University of Adelaide

I presented a poster at the conference. It was about genetic mapping on the faba bean resistance towards ascochyta blight. The response of the audience was quite well. The audience asked a lot of questions. Some of them shared their experience in growing faba bean. We were facing some different problems on growing faba bean. I think presenting a poster is a good idea because we can share the results in a relaxed manner. We are not in a rush when giving the results, and we can have a good conversation while doing the presentation.

It looked like there was a lot of material to be shared on each day. I felt like too much information in each day. It was hard to remember all the substances. It was also a bit tiring when we have to stay in one place the whole day and receive a lot of different knowledge. The subjects were quite broad and diverse, which is good. I was impressed with the keynote speakers. They really broaden my knowledge. The presentations were arranged in a panel system, which made it easier to chose the theme and did the discussion. I have to admit that sometimes I wished I could split my self to attend two different topics at a time.

This conference made a great opportunity in network building because it provided social function. Since the beginning, the welcome reception was set for the participant to blend in. The student lunch facilitated student to discuss with the plant expert. There was a lot of question to ask, but the time was too short. One of the most significant activities was the gala dinner. It was made for socializing. I think it is easier to talk and build some network when we feel relaxed.

Overall, the conference was well planned. It was an excellent opportunity for an overseas student like me to attend this conference. I could meet a lot of plant pathologist, discuss a lot of issues and it broadened my knowledge about the new invention on plant pathology. Thank you APPS committee for giving me this opportunity.

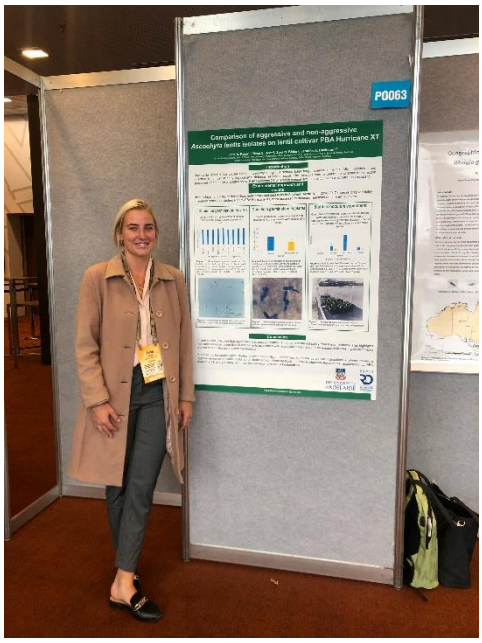


Jade Rose
Research Intern, Hart Field Site Group

The 2019 APPS conference in Melbourne began on the 26th of November 2019 - 29th November 2019. A number of session research areas were covered including plant microbe interactions, agrichemicals & managing chemical resistance, community & industry engagement, innovations in detection and diagnosis and foliar & postharvest diseases. On this day, I helped co-chair the Foliar and Postharvest diseases session, this included presenting speakers, keeping time and asking questions. On the 26th, I also presented my poster on my honours research "comparison of aggressive and non-aggressive *Ascochyta lentis* isolates on the lentil cultivar PBA Hurricane XT" for the poster session.

A number of plenary sessions were held each day before the research sessions; a stand out for me was listening to Jan Leach, Colorado State University, present "pursuing durable, broad-spectrum disease resistance in plants". And also Neena Mitter present "Sustainable crop protection: BioClay technology to deliver RNAi".

Paul Taylor (L) and Jade Rose (R) chairing session "foliar and postharvest disease session"



Jade Rose presenting research poster

Despite learning about a number of new fields in pathology that occur in Australia, it was incredibly fascinating learning about new and ongoing research occurring worldwide. It was a fantastic event not only to learn but network with other researchers and be a part of the SA APPS group. The bursary was greatly appreciated.

Victoria

Dr. Prakash Nair,
Faculty of Veterinary and Agricultural Sciences, The University of Melbourne

I was delighted to have been awarded Early Career Researcher bursary to attend the 22nd biennial APPS conference held at Melbourne Convention and Exhibition Centre from 25th to 28th November 2019 with around 500 delegates from 30 countries. The scientific quality of the conference was outstanding, my highlights being the talks by Dr Thierry Candresse who presented about the biosecurity perspective of high-throughput sequencing for virus detection and diagnosis.

It's an honour to Co-Chair a session on Plant disease surveys and monitoring where speakers presented the prevalence and incidence of viruses on field crops. The session highlight was the presentation by Prof. Robert Park on the long-term pathogenicity survey of *Puccinia triticina* underpin sustained genetic control of leaf rust in Australian wheat crops.

I was additionally chosen to give a poster presentation on 'the effect of *V. dahliae* to cause Potato Early Dying syndrome in Victoria, Australia'. This was a fantastic opportunity for me to share my PhD research with experts in the field of soilborne diseases and helped to promote the importance of *V. dahliae – Pratylenchus crenatus* interactions casing severe disease in Australia.

The conference was the climax of the APPS 50th birthday celebrations with Gala Dinner at Mural Hall, which is the most exquisite, European style venue in Melbourne where we celebrated our "Strong Foundations and highlight the latest advances in plant pathology that will lead to "Future Innovations".

As an ECR, APPS conference inspirited me to connect with the greater scientific community from all over the World. It opened the door to network with industry and academic researchers, meet keynote speakers, gain industry knowledge and enjoy exciting programmes. These facilitated me to refresh thoughts about novel strategies to approach my research, contemplate the bigger picture, and establish collaborations.

I am very grateful and would like to extend my thanks to my PhD supervisors; Prof. Paul Tylor, Dr. Tonya Wiechel and Dr. Nigel Crump, for the constructive criticism and constant encouragement during the course of research.

Thanks APPS for providing ECR bursary to attend and present my PhD research. It was an immense opportunity to be a part of the APPS 50th birthday celebrations with a theme, 'Strong Foundations, Future Innovations". More than ever 'Plant health is still earth's wealth'!


Prakash
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University of Melbourne
Australia
Australasian Plant Pathology Society Conference 2019
25-28 November 2019 Melbourne
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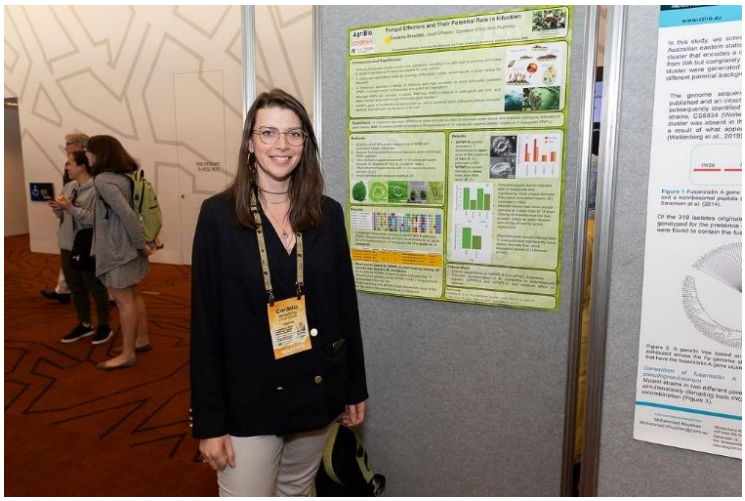
Cordelia Dravitzki
Honours student, La Trobe University

I spent my honours year in 2019 studying apple scab (*Venturia inaequalis*) with Kim Plummer at La Trobe University. After becoming a member of APPS I submitted an abstract and applied for a bursary to attend the APPS2019 conference, as being a full time student did not leave me with enough funds to pay for a ticket myself. It was a very exciting moment when I was awarded a bursary and given the opportunity to present a poster, as this would be my first conference in my burgeoning career as a scientist.



I learned a great deal from all of the talks, and my particular favourites were the two RNAi talks by Hailing Jin and Neena Mitter. It was exciting to be at such a large event that was full to the brim of scientists all working in the same field as me, I could really go to any room during any of the sessions and the talks would be in some way relevant to my own studies. From the first day I met some great people that I became good friends with over the next few days. I was recently in Bendigo at a GRDC Research Update where I bumped into someone I had met at the conference, who was able to give me some research advice.

As much as I'm sure anyone's first conference may be a memorable event, this particular one was perhaps a bit more memorable than most! I would really like to thank Kim Plummer and Candace Elliott (and all of the other organisers) for organising such a great event, it started with a cocktail party on the water and ended with an amazing dinner and dance in a beautiful old hall. I definitely would not have been able to go to the event without receiving my bursary, so I would like to thank the APPS for enabling me to attend. I realise how important it is to attend these kinds of events to build on my network of contacts, to get experience in discussing my work with others, and also to discover what scientific work is being done in my field that I have not yet been exposed to. So thanks again APPS!

Donovan Garcia-Ceron
PhD Candidate,

I had the opportunity to attend the meeting thanks to a student bursary awarded by the Victorian APPS branch. I gave an oral presentation of my PhD, which focuses on understanding the role of extracellular vesicles (EVs) from *Fusarium* pathogens.

I believe the organization of the meeting was great from the registration process to the sessions and social functions. The venue and food for the gala dinner were outstanding!

It was great to see that two of the plenary speakers were studying EVs. Similarly, I had great talks with people interested in my presentation who wanted to know more, and I also took the chance of approaching senior researchers to discuss my results and learn from their experience.

This is without a doubt the conference where I have made the most from networking opportunities. I had the chance of connecting with researchers from ANU which were to help me in improving my research. Additionally, I established a connection with Prof. Roger Innes, since we are both involved in the study of EVs. I was thrilled to know that he was interested in collaborating with our group to identify specific proteases from fungal pathogens. We have been in touch and this will probably lead to publications soon.

In summary, the APPS meeting was an amazing experience that lead me to communicate my science, meet new friends and create valuable connections. I would not think twice about attending the next meeting.

Anjali Zaveri
PhD student, Agriculture Victoria

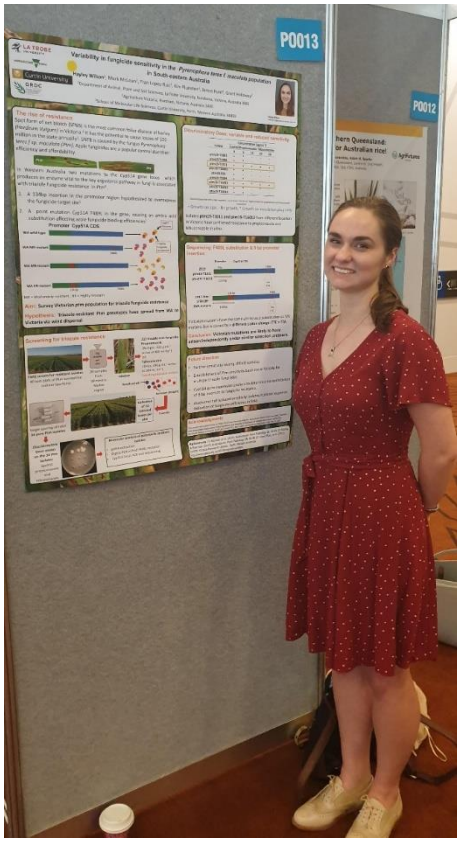
I am a PhD student at Agriculture Victoria. I have attended the 22nd Biennial APPS conference held at the Melbourne Convention Centre. The main aim of the conference was to celebrate the strong foundations of APPS and highlight the latest advances in plant pathology, This conference allowed students and scientists to discuss future innovations and provided an excellent networking platform for plant pathologist.

The main highlight of the conference was the 50th birthday celebration of APPS, followed by a scientific presentation by local and international speakers and various field tours and workshops. At the conference lunch, they also organised a student lunch for us to meet the "Gurus" of plant pathology and ask them some plant pathology career-related questions. At the student lunch, it was great listening to "Gurus" experiences throughout their career. I also got a chance to meet Dr Kim Plummer, Dr Jacky Edwards, Len Tesoriero, Dr Helen Hayden at student lunch. Last but not least, we attended 50th-anniversary gala dinner at the exquisite European style venue, Mural Hall. I enjoyed the dinner as it also allowed meeting people in plant pathology field.

It was a three days program for the plenary lecture and talks from researchers working on various aspects of plant pathology field. It was fascinating for me by listening to them and the work they are doing to make a significant contribution in the Agriculture industry. Plenary lecture from the Hailing jin and Nina Mitter on RNAi was the interesting as I found this work as an upcoming new concept in plant pathology. They had arranged poster sessions which provided many PhD students to present their work to the plant pathology community. I had presented the poster at the conference on investigating the endosymbiotic relationship of *Rhizopus stolonifer* with bacteria in hull rot pathosystem. The title of the poster "Needle in a haystack – searching for evidence of symbiosis between *Rhizopus stolonifer* and a bacterium in the almond hull rot pathosystem". I was pleased to get the APPS conference bursary award for my research abstract, I have submitted on endosymbiotic work.

Overall, it was an excellent experience at the APPS conference. I am looking forward to the upcoming APPS conference in Tasmania.

Hayley Wilson
La Trobe University



Attending the APPS conference in November was my first experience at a conference of any kind. The passion of the speakers, particularly those who gave a keynote address, was very inspiring. What astounded me the most was years of research summarised and sheer amount of curiosity that drove them to those results. It also provided a change in perspective. In that it became obvious that academics, whom I often view as unreachable, are still students in their chosen field. And that mistakes (even the really stupid ones) are completely allowed and expected.

Receiving the student bursary also provided a guarantee to present my own work as a poster. Where the presentation of my results opened knew discussions with people working in my research space accompanied with contacts should I need advice or a fresh perspective in the future. Meeting inspiring young researchers from the University of Queensland, catching-up with colleagues from my time spent at Curtin University, and seeing my supervisor at a party were the absolute highlights from the APPS 50th Anniversary conference. The week left me certain that I have chosen the right career path, and comforted in knowing I am not the only one with a strange obsession with Fungi.

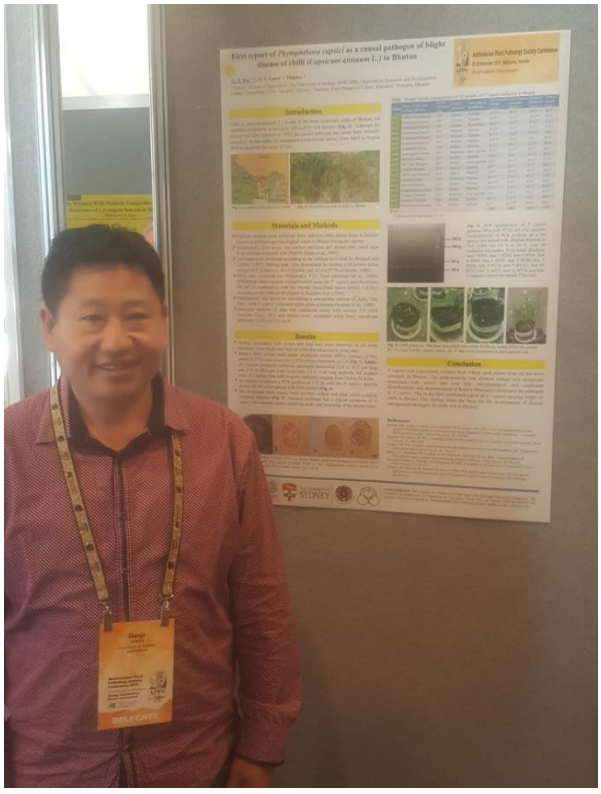
New South Wales

Ganja Rai,
PhD Candidate, The University of Sydney

The Australasian Plant Pathology Society (APPS) Conference is held biennially and is the largest conference on plant pathology in the southern hemisphere. The 22nd APPS Conference was held at the Melbourne Convention and Exhibition Centre (MCEC) in Melbourne, Australia from 25 – 28th November 2019. This 22nd APPS Conference was also the Society's 50th Anniversary conference. The conference featured excellent scientific presentations by local and international researchers, workshops and field visit to the key agricultural sites in the areas surrounding Melbourne.

The APPS Student Conference bursary has enabled my attendance at the 22nd APPS Conference. As a third year PhD student in the University of Sydney, I presented a poster on my thesis work titled "First report of *Phytophthora capsici* as a causal pathogen of blight disease of chilli (*Capsicum annuum* L.) in Bhutan". In this work, I conducted a nationwide survey in Bhutan from April to August 2018 to diagnose the cause of wilt disease of chilli. *P. capsici* was consistently isolated from wilted chilli plants. Morphological and molecular identifications, and demonstration of Koch's Postulates confirmed the pathogen as *P. capsici.* Our finding forms the basis for the development of disease management strategies for chilli wilt in Bhutan.

This conference gave me the opportunity to exchange ideas and hear constructive feedback from the world's experts in the subject. The poster session brought about many fruitful discussions with senior members of the field about future direction. Over the course of the conference, I had the opportunity to meet new people and network with many members of the plant pathology community. In addition, I attended many oral presentations and posters that were very relevant to my current work and provided inspiration for my research.



Overall, this conference came with a lot of benefits in regards to personal communications and gaining experience from expertise over the world in the field of plant pathology. I would like to thank APPS for their monetary support in my conference attendance. My participation in this conference will immensely help me in my future career.

Bayantes Dagvadorj,
Postdoctoral Researcher, Australian National University

I attended the APPS 2019 conference held in Melbourne. The conference happens every two years and draws in researchers of the field of plant pathology from the Australasian region as well as other parts of the world. This meeting provided an excellent opportunity for the society`s members to gather and share their research on the diverse topics of plant pathology.

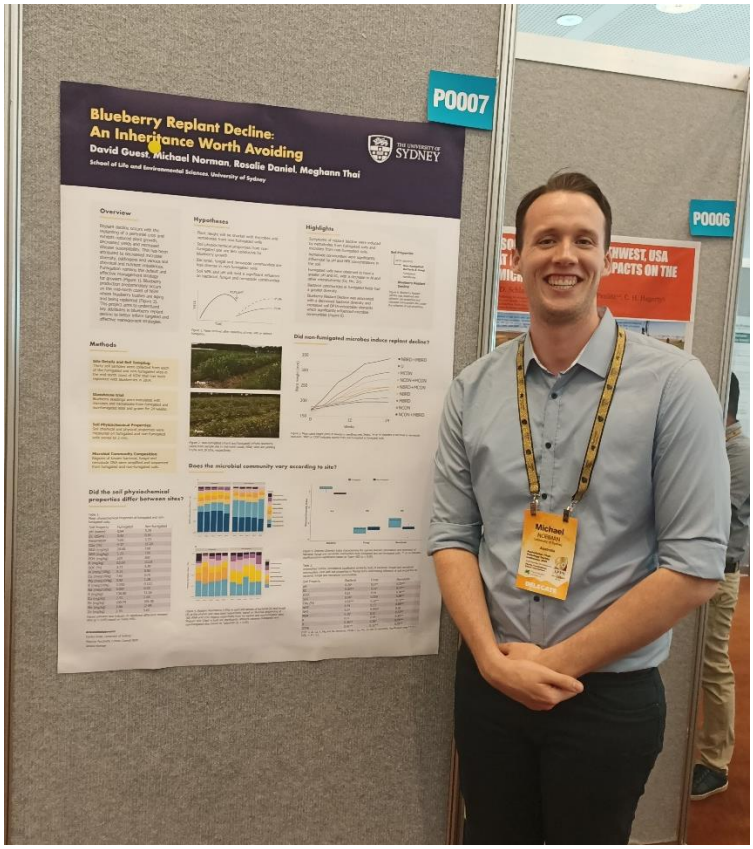
I enjoyed by the diversity of topics covered in both the plenary and the concurrent sessions. One of my favourite highlights from the meeting was Prof Roger Innes, who gave an incredible talk on his work on engineering disease resistance using a protease decoy system in plants. During my Poster Presentation, I had the unique opportunity to discuss my research with experts, including Prof Sophien Kamoun, and received useful feedback and valuable ideas on my research. Last but not least, as I am only new to Australia, the meeting was a fantastic opportunity to network with both local and international colleagues and to collaborate them in future. Overall, my time at APPS 2019 was incredibly valuable and satisfying. I would like to thank APPS for the travel bursary to attend the meeting.

Michael Norman
Honours Student, University of Sydney

It was an immense pleasure to go to the APPS conference in Melbourne late last year. It was my first experience at a conference, so it was amazing to realise just how big the plant pathology community is, not only within Australia.

My highlight was being able to present my own research, 'Blueberry Replant Decline: An Inheritance Worth Avoiding'. It was a delight to present and explain the work I had done; even more so was the discussions that arose during and afterwards. It was great to be able to provide my insight into blueberry replant decline, but to also discuss possible solutions and issues with the occurrence of replant decline in other crops.
I thoroughly enjoyed the 'soilborne diseases and pests' and 'agricultural microbiomes' talks, not only due to its relevance to my own research, but due to a genuine interest and fascination with the many aspects and factors involved. These presentations covered a range of topics from pre-existing inoculum levels, microbial populations, crop choice, soil amendments and even international disease management, which I believe reflects the wide-reaching impact of plant diseases.

I'd like to thank my supervisors, David Guest and Rosalie Daniels, for their guidance and generous teaching over the course of my honours project. Their enthusiasm and input has transformed me into a plant pathologist for life. I would like to thank APPS for awarding me a student bursary and giving me, and so many other students, the chance to attend and present our work.



Hoachen Wei
PhD student, The Australian National University

I'm Haochen Wei, a PhD student from the Australian national university. I attended the 2019 APPS conference in Melbourne from 25th to 28th November 2019 at Melbourne Convention and Exhibition Centre, where I got a cherish chance to present a talk about my PhD study.

APPS was a huge conference where not only five different topics hold in concurrent sessions, but also, 8 wonderful plenary talks, and lots of interesting workshops were running throughout the four days' conference time. Additionally, there were three highlights during the conference for myself.

The first highlight was the talks from the plant-microbe interaction and pathogenomics sessions. A lot of impressive talks were presented, which gives me a good opportunity to learn from my colleagues and inspires my study as well.

I'm presenting my study during the APPS conference.

The second highlight to me is the poster sessions. Throughout the three days' conference, there are a great deal of high quality posters presented. And it was a great enjoy to talk to my colleagues about their interesting research progress and their opinions of the field.

50th Anniversary Gala dinner with colleagues and friends.

The third highlight to me is the unforgettable 50th anniversary gala dinner. It was a great enjoy. Moreover, it provides me a great opportunity to expend my social network with all the outstanding scientists. We had great food, drinks and chats together. Last but not least, I would like to thank APPS committee for awarding me the travel bursary to attend the 2019 APPS conference and I look forward to attend other conferences, present my research, and meet other plant pathologists in the future.

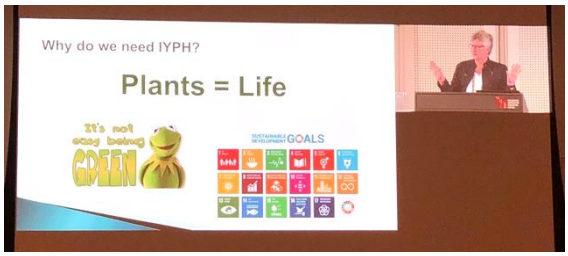
Pravin Khambalkar,
PhD student, Australian National University

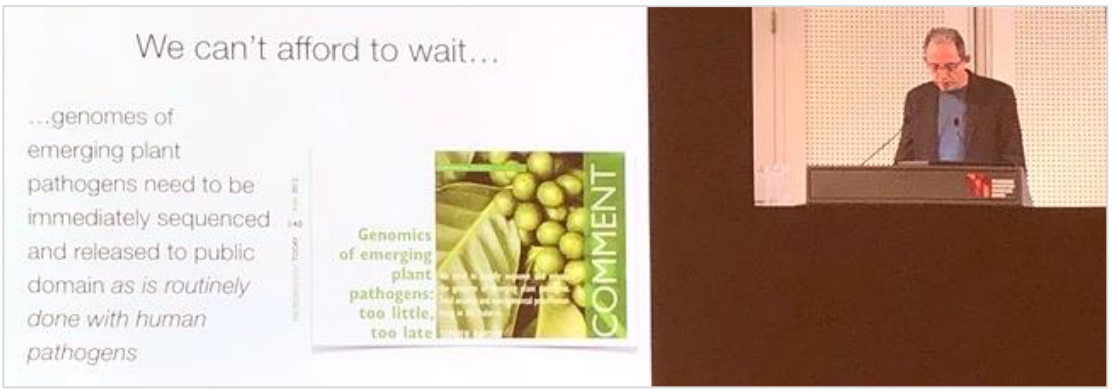
I would like to thank APPS for awarding me the conference bursary to attend APPS, 2019 conference in Melbourne. It was my first conference as far as my PhD is concern. I had opportunity to present my PhD work as oral presentation. It was really fruitful conference as it was related to my area of research interest. I learn a lot about different types of disease and their mechanism, which I found very fascinating. All the plenary talks were excellent and I really enjoyed listening to all of them, even if some were out of area of research interest. I learn some new technologies and new ideas, which I can apply in my research. Attending APPS, Melbourne conference well worth registration fees and travel expense in regards with place, ambiance, food and organization. I would say it's well worth to keep some days form your calendar every two year for each APPS meeting. I look forward to attend the next APPS conference.

Presenting my research topic: A semi specific necrosis inducing protein SIX6

Belinda Fabian
PhD Candidate, Macquarie University

In November 2019 I was excited to attend the Society's biennial conference in Melbourne. A big drawcard for me was the fantastic plenaries and keynotes spread across all three days of the conference. To start off Brett Summerell, the APPS President, showed us how we can effectively communicate scientific findings in a 'post-truth, post-trust, post-expert world' where facts are outweighed by opinion. Sophien Kamoun gave the EMBO Keynote lecture where he stressed the importance of sequencing and releasing the genomes of emerging plant pathogens, the new modes we have for releasing information and the impact that worldwide collaboration and free flow of information can have on a disease outbreak. There were also amazing plenaries by Carolee Bull on translational taxonomy, George Sundin on the fire blight pathogen, Thierry Candresse on viral detection with high throughput sequencing, Hailing Jin on small RNAs in plant-pathogen interactions and Neena Mitter on the development of an RNA spray for crop protection. I could go on and on!

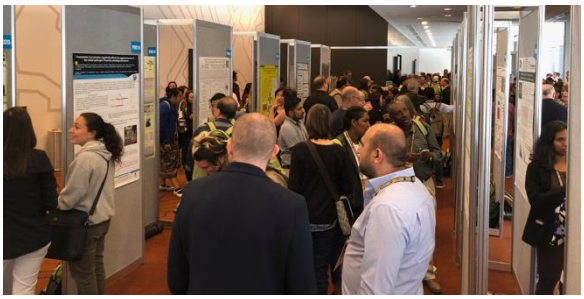




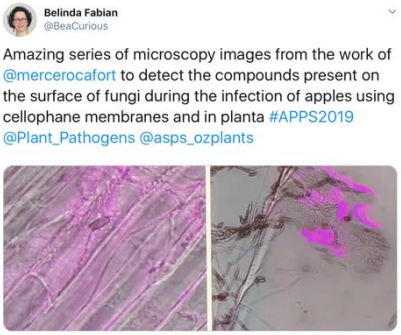
There were so many interesting sounding talks across the six parallel sessions – I really wanted to have a Hogwarts time-turner so I could manage to be in multiple places at once! In the end I decided to concentrate my attention on the Biocontrol, Plant-Microbe Interactions and Pathogenomics sessions. These topics complement my PhD work where I'm using a genome-wide methodology to identify plant colonisation genes of a biocontrol bacteria. There were so many fascinating talks – some of the highlights that pushed me to the edge of my knowledge were on fungal genome sequencing, small RNAs and fungal effectors.

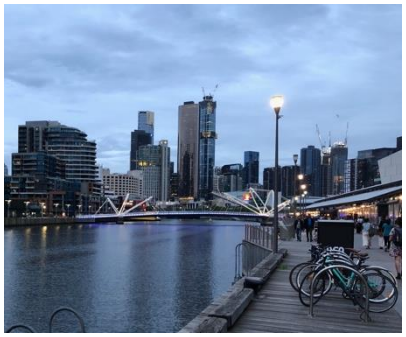
The three poster sessions were so busy! I really enjoyed seeing a broad cross-section of plant science and meeting so many great scientists. The poster sessions gave me a peek into research areas for which I didn't get to see the talks and gave me lots of fantastic ideas for poster designs and the ways people use posters to communicate their science. It was wonderful to see both early career researchers

and more senior members of the community presenting posters. I haven't seen this broad range of career stages presenting posters at other conferences. This was a really great way to approach more senior scientists.


As well as attending the main conference I also enjoyed participating in two of the satellite sessions. The 4th Australian Pathogen Bioinformatic Symposium (APBS) was held at Agribio, La Trobe University the day before the main conference. I presented my work on transposon insertion sequencing and had some great interactions with the researchers in the audience. It was a low-key, collegial start to the conference which meant I already knew a few people when I got to the much bigger main conference. Afterwards I enjoyed the Molecular Plant-Microbe Interactions joint session with the Australian Society of Plant Scientists, again at AgriBio. There were some really engaging presentations on topics as diverse as engineering the root microbiome with plant root exudates, detecting compounds on the surface of pathogenic fungi, and the transport of iron in Rhizobia-legume symbiosis.





To round out a wonderful conference experience there were two fabulous social events. The welcome reception was held the evening before the first full day of the conference and was a superb way to meet new people (plus the food was amazing!). The gala dinner was a more formal affair held in the stunning Mural Hall. I met a wonderful range of researchers over dinner and was introduced to some people I wouldn't have met otherwise.

I'm very grateful for the support of APPS which allowed me to attend the conference and meet so many fantastic scientists. Thank-you as well to the organising committee for supporting gender equality and making sure that there was gender balance in the presenters at every level.

Queensland

Kandeeparoopan Prasannath
PhD candidate, The University of Queensland

I was very privileged to receive a bursary from the Australasian Plant Pathology Society (APPS) to attend the 22nd Biennial APPS Conference in Melbourne, Australia from 26 – 28th November 2019, which had a far larger delegation than any conference I had been to previously and was one of the best-organized and well-conducted conferences I have ever experienced in my life.

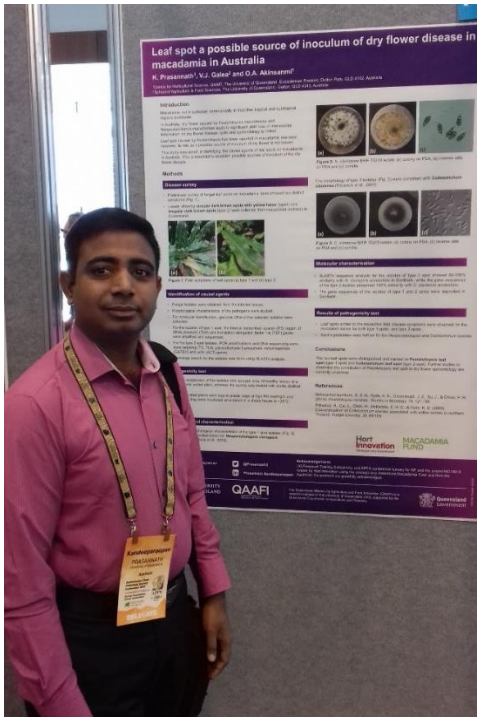
My journey with the conference started on 25th November 2019 with Plant pathology in perennial cropping systems workshop held at the University of Melbourne. Then on the next day the main conference started at the Melbourne Convention and Exhibition Centre. I attended all the plenary sessions and several talks of the concurrent sessions. As there was six concurrent sessions at the same time, it was bit difficult to prefer one concurrent session over the others. However, I tried to analyse the sessions and attended those which is most relevant to my current PhD study. I enjoyed all the talks I attended. There were many numbers of posters from different disciplines of Plant Pathology. I got the chance to talk with many of the authors of the posters. The interaction with the authors was quite amazing. The plenary sessions, talks and posters-viewing session all were started and ended on time.

As a PhD student at the completion of one year, it was fantastic to see such a high calibre of talks and to have the opportunity to network with some of Australia's and the world's foremost scientists in plant health. I made a poster presentation from my PhD research project, "Etiology of flower blight complex in macadamia", and received invaluable feedback.

The other social events were great to introduce myself and my research. The welcome reception was great to develop initial links with other delegates at the conference as well as put names to faces. The tailored student lunch themed "Careers, Working abroad and Plant pathology" was really beneficial for me personally as I am at the start of my professional career. The conference dinner was also extremely valuable to interact with scientists and potential collaborators in a more informal social setting.

After such a great and unforgettable time in Melbourne, I'm excited for the next APPS conference in Tasmania in 2021. Thank you to the society for not only the bursary, but for such a helpful and vital experience in my personal and researcher development.

Some moments from the conference:


Leaf spot a possible source of inoculum of dry flower disease in macadamia in Australia
QAAFI

Henry Birt
PhD candidate, The University of Queensland

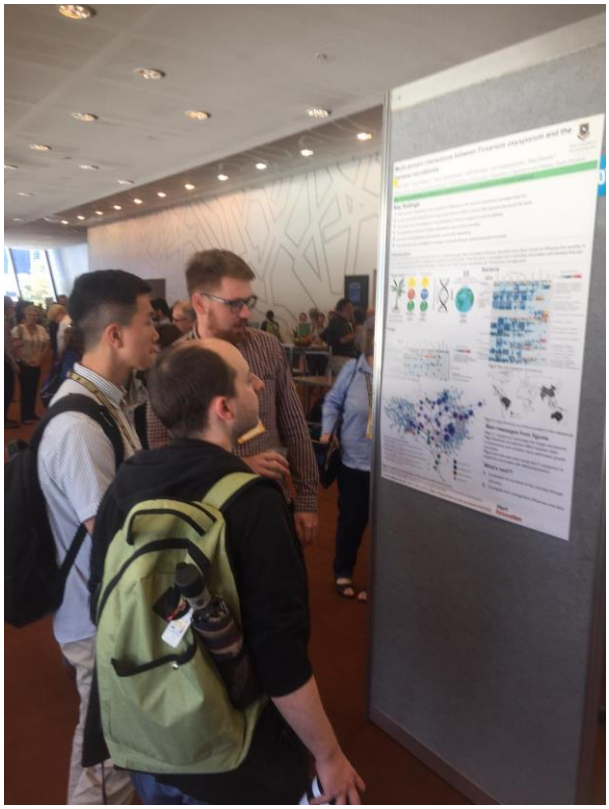
What an experience! The APPS 2019 conference just blew me away. The trip to the conference was my first trip to Melbourne, having arrived on the Sunday from Brisbane it was great to explore the beautiful city and get some excellent Ethiopian dinner in East Melbourne before the conference fully kicked off. On Monday, we were treated to an agricultural microbiome work shop in the beautiful AgriBio building at La trobe University. The workshop hosted by Linda Kinkel and JP Dundore-Arias was a buzz of activity. We shared our experiences working in the field of agricultural microbiomes, discussed exciting new ideas and networked with researchers from all around Australasia.

Then the talks at the conference started on the Tuesday with a bang. I was truly blown away by some excellent didgeridoo playing and a highly memorable welcome to country. We were then treated to a great presidential address from Brett Summerall on science communication in a fake news world. Both an important message and one that was delivered so well. The following talk by Sophien Kamounon on rapid plant pathology responses was a stimulating talk and a great insight into the work being conducted at the Sainsbury lab in the UK. I found the possibility of synthetic R genes a mind boggling and exciting concept. Many great talks followed in the conference, although too numerous to mention all here, I found the presentation of work in iRNA presented by Hailing Jin and Nina Mitter to show what a innovative research is being undertaken to battle plant pathogens in the 21st Century.

Not only were the talks brilliant but the networking opportunities also made the conference such a rewarding experience. Meeting some scientists that I had been such a fan-boy of such as Lester Burgess and Carolee Bull, really had me pinching myself at some points! The ability to see some of the great work of these scientific heavyweights and then be able to engage with them in an informal setting afterwards has really electrified my motivation in the final year of my PhD.

I was so happy to be able to present some of my own research on multi-domain interactions in the banana microbiome to add to the excellent research being shared at APPS 2019. My poster was received really well by other attendees and I had many stimulating conversations about my research. I'd really love to thank APPS for granting me a bursary to attend such a well-run and engaging conference. It will not be an experience I will forget and I will be sure to attend many more in the future!


Mulit-domain interactions between Fusarium oxysporum and the banana microbiome
Key findings
Introduction
Approach
Bacteria
Fungi



Sari Nurulita
PhD candidate, QAAFI – The University of Queensland

I would like to express my thanks to Australasian Plant Pathology Society (APPS) for selecting me as a bursary awardee. This funding gave me a great opportunity to attend 22nd APPS Conference on 25 – 28th November 2019 in Melbourne. During the conference, I presented part of my current research, entitled “Investigation of the basis behind selection of superior and inferior garlic lines from uniformly virus-infected cultivars” explaining about the development of specific detection method for ten viruses infecting garlic and the importance and impact of good planting materials selection to yield production and virus complement. As a PhD student and young scientist, presenting my research and attending this conference was an enjoyable and rewarding experience for improving my communication skill and knowledge in plant pathology.

Fig 1 Attending and presenting part of my PhD project in APPS 2019 conference

This event was special, because this year is the celebration of 50th anniversary of APPS and from my personal perspective, I noted some interesting parts in both the scientific and social events during the conference. Dr Brett Summerell as vice president of APPS from Royal Botanic Garden Sydney gave an impressive presidential address about “Communicating our science in a ‘fake news’ world”. His speech emphasised the importance and identification of the problem in science communication. Due to his background as chief botanist, he also highlighted the value of plants for our future life. In addition, I also enjoyed the plenary talk from Dr Thierry Candresse regarding “A biosecurity perspective of high-throughput sequencing (HTS) for virus detection and diagnosis”. His explanation about analysis and decision-making based on HTS results in virus detection was very useful for me as a junior plant virologist. From individual talks, a highlight talk was from Dr Kar Mun Chooi and team about “Enhanced disease detection using proximal sensing and machine learning”. Their research topic was interesting because they created an app able to diagnose specific disease symptoms and suggest a possible treatment.

Fig 2 Enchanting presentation from Dr Brett Summerell

I also enjoyed the RAID student lunch which was part of the social events during the conference. This program was unique because it gave PhD students and early career researchers the opportunity to interact and listen to some great experienced professional plant pathologists aka gurus. I noted a good message from one guru about not judging success based on certain parameters; some people put the number of scientific publications as their main goal while others prefer to measure their contributions to community than other material things. On this occasion, we could also meet with other high degree research students to make new friends and thus expand our network. I am really appreciate and thankful to the committee and gurus.

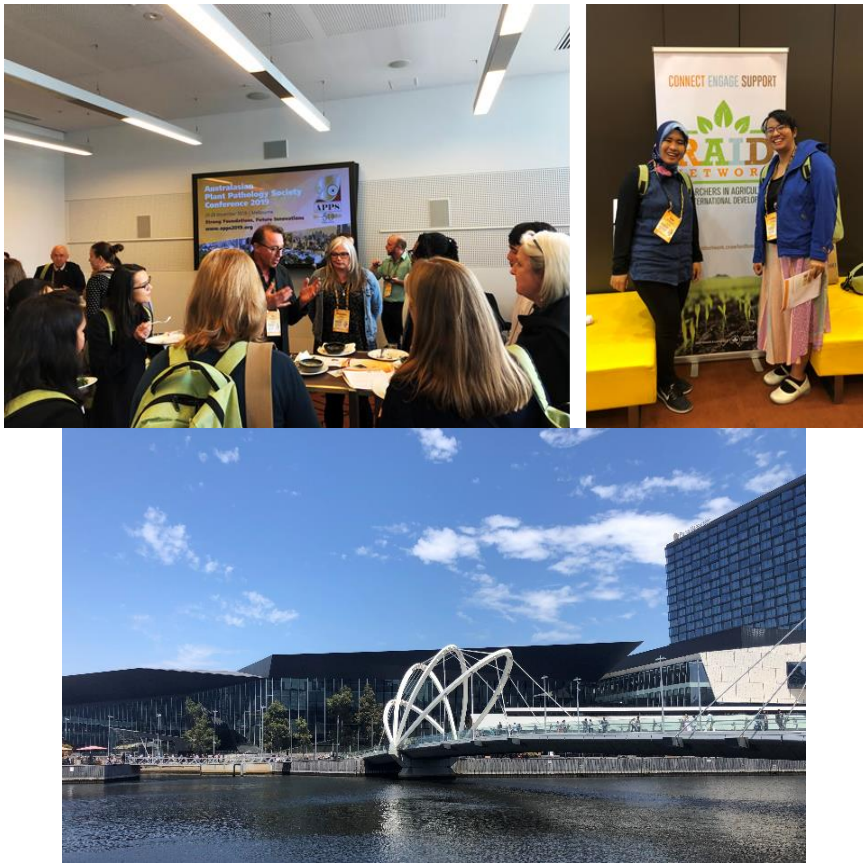


Fig 3 APPS – RAID Student lunch (above), Melbourne exhibition and convention centre (below)

Overall, the conference was fun and well organized. I really enjoyed and appreciated the venue and delicious foods, so thank you APPS 2019 committee for four amazing days.

Mohamed Zakeel Mohamed Cassim
PhD candidate, The University of Queensland, Australia

I was ecstatic and honoured to receive a bursary award from the Australasian Plant Pathology Society (APPS), to attend the 22nd Biennial APPS Conference held in Melbourne, Australia from 26 – 28th November 2019. I am incredibly grateful to the APPS for their support. This was a remarkable conference due to the society's 50th anniversary and had a very large delegation. This conference has proven invaluable in driving discoveries and discussions in the field of plant pathology and was one of the well-organized conferences I have attended.

The conference was featured with a series of workshops on the 25th of November 2019. I was excited to attend the workshop titled "Agricultural Microbiomes: Promises, Practices and Partnerships" at the AgriBio, La Trobe University, Bundoora, Victoria and present my PhD project in five minutes which was challenging, but very interesting. The main conference held from 26th to 28th at the Melbourne Convention and Exhibition Centre, which was a great venue for a conference.

The organization of the conference was extremely well put together, with plenary talks and five concurrent sessions each day. I was fortunate to attend almost all the plenary talks and as many talks of the concurrent sessions as possible, despite difficulties I had as a young researcher in choosing one over the other. The scientific quality of the conference was outstanding. A highlight of the conference was the EMBO keynote lecture by Prof. Sophien Kamoun on "The edge of tomorrow – plant health in the 21st century".

Another important aspect of this conference was poster sessions and I had a great opportunity to present a poster, summarising my work on endogenous geminiviral elements in macadamia genome and their association with abnormal vertical growth of macadamia. I was able to discuss my project with many leading researchers in the field and receive feedback, which are useful to shape up my research.

This conference was a fabulous opportunity to meet and network with many world-famous researchers, particularly in the fields of disease diagnostics and agricultural microbiomes. In addition, I was fortunate to meet Prof. Chris Gilligan from the University of Cambridge during the conference to get his expert advice and feedback on a manuscript that has now been accepted for publication.

The welcome reception of the conference, tailored student lunch and conference dinner were remarkable social events, encouraging and providing a more informal setting to meet mentors and for more networking with potential collaborators.

Overall, the APPS conference 2019 was a great success and a fantastic experience, which has greatly benefitted my research, not only due to the outstanding scientific content of the conference, but also the collaborations that I have formed with some researchers. The talks instigated vibrant scientific discussions that allowed me to reflect on my own research work to find where it fits in with current research trend and shape it up accordingly.

With this fabulous experience, I am excited and look forward to the next APPS conference in Tasmania in 2021.

Some memorable clicks:

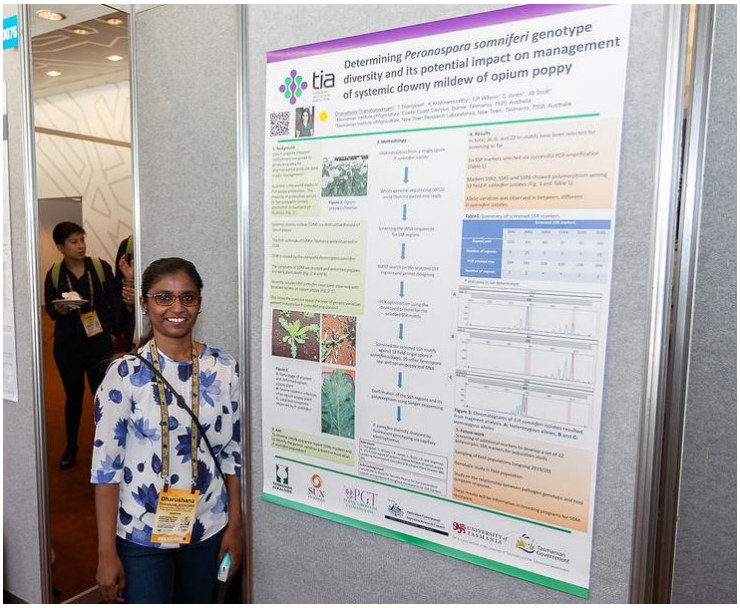
Tasmania

Dharushana Thanabalasingam
PhD Candidate, University of Tasmania

I am Miss Dharushana Thanabalasingam, a PhD candidate from Tasmanian Institute of Agriculture, Cradle Coast Campus, University of Tasmania. I am conducting the PhD research under supervision of Dr. Jason Scott. My PhD research focuses on identifying the critical inoculum sources in epidemic initiation of systemic downy mildew of opium poppy. I was awarded a bursary from Australasian Plant Pathology Society (APPS) to attend the APPS conference held in Melbourne from 25th to 28th November 2019.

The APPS conference was a great opportunity for me to obtain new ideas, knowledge and skills. As part of the conference I got accepted to make a poster presentation on part of my PhD research. The poster session helped me to meet and discuss about my work with other experts and students in plant pathology. Also, I received valuable feedback to improve my research further. The oral presentations and plenary talks were of great interest to me during the conference. It was a good chance to learn about the work and new findings from other plant pathologists.
In addition, the 50th anniversary gala dinner organized by the APPS provided a relaxing environment to network with other conference participants in a non-formal manner. All the conference events were organized in a way that all delegates got plenty of time in between events to meet other professionals, industrialists and students for face to face conversations. This aided me in gaining contacts with other academics with shared interests and share knowledge.

Overall, APPS conference has been a beneficial opportunity for my research and career development. I would like to take this opportunity to thank APPS for awarding me the bursary which financially helped me to attend the conference and gain a whole new learning experience. Finally, and above all I am forever grateful for giving me two new lovely friends whom I met in the APPS conference.



Yichen Kang
University of Tasmania

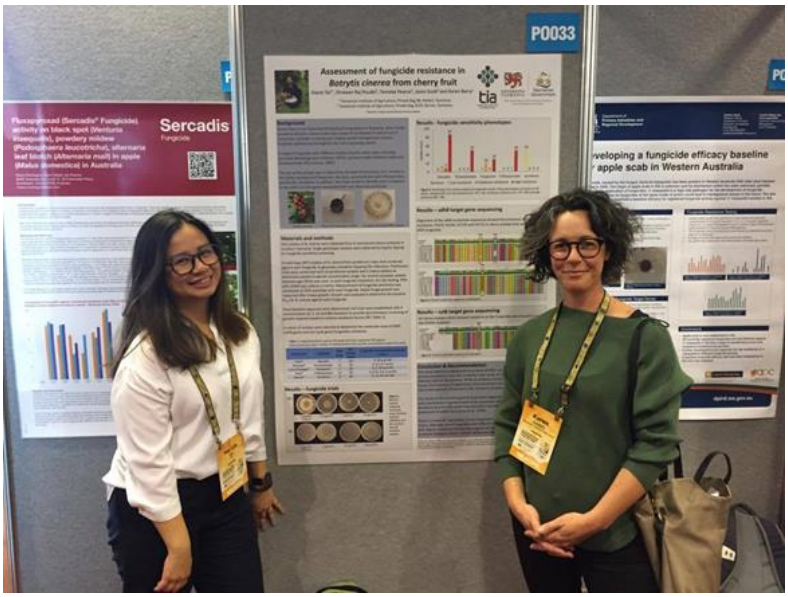
I attended this conference to deliver a presentation of my research study on “Wheat powdery mildew resistance breeding”. The conference gave me an opportunity to learn about ongoing research activities in plant pathology undertaken by global researchers. I like the way how conference built different session topics, so we attendees can easily match our own tastes. The highlights of the conference that inspired me were getting first-hand information about advanced technology in plant health and networking with industry bodies. The conference was refreshing and supportive, as either a student or an early career researcher, there were many people we can talk to. During the conference I met with a couple of presenters who also work in my field of study, we focused on issues that we were facing and discussed the solutions that might help. Since I would like to think about how to better translate academic outcome to industry’s benefit, it was really good to know how these people conceive the idea of research and what problems industry needs to solve.

Yichen Kang and Dharushana Thanabalasingam on Seafarers Bridge over the Yarra, Melbourne

Yee Lin Tai (Elaine)
University of Tasmania

This conference is the APPS 50th and there are excellent scientific presentations by local and international speakers regarding plant pathology in the agriculture sector. I was very grateful with my conference attendance. The networking opportunities appealed to me, as I have never attended any conference before, and this was my very first time. I have learnt a lot other information regarding plant pathology, I never thought that plant pathology is actually quite an important part in agriculture. I was particularly impressed by a talk presented by Professor Eileen Scott on grapevine powdery mildew: from fundamental plant pathology to new and future vineyard technologies. The experience was absolutely valuable.

During the conference, I was able to attend numerous sessions. The most enjoyable part is that I could go for the sessions that I was interested the most which was the agrichemicals and managing chemical resistance. During the session, I was particularly interested in a presentation by Katherine G. Zulak on digital PCR improves detection and qualification of fungicide resistance in *Blumeria graminis f. sp. hordei*. I learned a lot of new things and practice strategies which can be implemented in my study. In addition, I was able to speak to students, professors and several plant pathology experts during the poster sessions. The networking experience was beneficial, and I have gained valuable experience in discussing new solutions and current technologies with them. This opportunity was worthwhile and couldn't be obtained anywhere else.



Yee Lin Tai (Elaine) and supervisor, Assoc Prof. Karen Barry