
INTERNATIONAL NEWSLETTER ON PLANT PATHOLOGY

ISPP Newsletter 48 (1) January 2018

News and announcements on any aspect of Plant Pathology are invited for the Newsletter.

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ISPP Presidents Greeting for 2018



Taxing times? *Fusicospora gunnii*, (formerly *Nothofagus gunnii*), the deciduous beech, or fagus after snow, Cradle Mountain, Tasmania. (Picture by Greg Johnson)

During the southern hemisphere autumn, my wife and I spent a few days in Tasmania, Australia. We visited some of the alpine parks which are home to *Fuscospora gunnii*, (formerly *Nothofagus gunnii*), the deciduous beech, or fagus, which is Australia's only native deciduous shrub and is endemic to the Tasmanian highlands. Fagus is much photographed, and this image shows the autumn foliage after snow! The southern beeches (formerly *Nothofagus* spp.) are a Gondwanan group of three of the oldest genera of flowering plants in the world. Their fossil record dates back 80 million years. They occur in South America, New Caledonia, New Zealand and in Australia. Many of them are threatened by deforestation, climate change and disease – all challenges in which the plant pathology community plays vital roles. Here on behalf of the ISPP Executive I extend Greetings and Good Wishes to all for 2018!

ISPP - Report for 2017

The coming year marks some important milestones for the International Society for Plant Pathology – meeting in Boston USA for the 11th International Congress of Plant pathology and celebrating the 50th year of the Society:

I *ISPP International Congress of Plant Pathology (ICPP)*

ICPP2018, Boston. Planning for the 11th ICPP, organised by the American Phytopathological Society (APS), is progressing well. In celebrating of the first 50 years of ISPP we acknowledge the foresight and efforts of the founding societies, and the individuals who maintained the momentum up to today. The ICPP2018 Committee and APS have organised a splendid program of technical sessions and social events for the Congress. They are introducing some innovations including Hot Topic sessions, and POD talks (pathologists of distinction), and there is also a concurrent session on the history of plant pathology which will include a paper on the history of ISPP.

ICPP2023 Lyon. After a two-stage selection process, responsibility for organising the 12th International Congress of Plant Pathology was conferred upon the French Phytopathological Society (SFP). ICPP2023 will be convened in Lyon, France from 20 - 25 August 2023 under the theme "One health for all plants, crops and trees."

II *Associated Societies, ISPP Council and the ISPP World Directory of Plant Pathologists*

Membership, meetings and liaison. Sixty national and regional societies for Plant Pathology or Plant Protection are affiliated with ISPP with c. 22 societies paying membership dues in 2016-2017 in addition to individual members. The ISPP Council consists of c. 100 Councillors representing associated societies and ISPP, with c. 60 Councillors active in ISPP Council ballots and meetings.

Membership fees. During 2016, the ISPP streamlined membership fee payment calculation and payment procedures for Associated Societies, offering the option of a 10% discount for membership fees paid in three or more year tranches. Pleasingly, several Societies also paid back dues and in 2017-2018 there were c. 25 financial member Societies out of c. 60 Associated Societies. In addition, there are in excess of 500 individual members of ISPP.

ISPP Council. During 2017, [guidelines](#) on the role of ISPP Councillors were prepared and Member Societies and Nominating Bodies were reminded of the need to review and to submit to the Council the name(s) of their appointee(s) for the ISPP Council 2018-2023. The draft Agenda for the ISPP Council meeting at ICPP2018 in Boston, USA on Tuesday 31 July 2018 can be found [here](#) .

World Directory of Plant Pathologists. This searchable database of plant pathologists around the world is made possible through support from the Fran Fisher Trust. Currently, 22 societies participate. One impediment to expansion is that some societies use language scripts other than the Latin alphabet (Chinese, Japanese, Korean, Thai etc.) for their membership data bases.

III *ISPP Subject Matter Committees (SMCs) and Taskforces*

Subject Matter Committees (SMCs). Since 2016, an Oomycete Committee has been newly formed to replace the Phytophthora Committee which had become inactive. Four other SMCs have become inactive due to

retirements or for other reasons, and have been delisted (Citrus, Extension, Common Names of Plant Diseases and Biological Control).

Task Force on Global Food Security. The Editor in Chief of Food Security attended the 2nd Annual Agriculture, Nutrition and Health (ANH) Academy Week and 5th Annual Feed the Future Innovation Lab for Nutrition Agriculture-Nutrition Scientific Symposium in Katmandu, Nepal during July. Professor Korsten was Conference Chair for the 3rd International Conference on Global Food Security: Global Challenges, Local Solutions and Connected Pathways, 3-6 December 2017 sponsored by Elsevier and the University of Pretoria. A position paper on genetic modification was prepared by TF-FS Force members and published as: Peter Scott *et al.* (2016). Genetic modification for disease resistance: a position paper. *Food Security*. 8: 865 –870. Plans for other 'position papers' are being progressed. The TF-FS has organised keynote and concurrent sessions and an evening meeting for ICPP2018.

Task Force on Challenges for Plant Pathology 2050 and the International Year of Plant Health 2020. The ISPP is liaising with the International Plant Protection Convention (IPPC) Commission on Phytosanitary Measures (CPM) which is seeking FAO and United Nations support in proclaiming an International Year of Plant Health (IYPH) in 2020. The IPPC has organised a concurrent session at ICPP2018 in which planning for IYPH2020 will be discussed.

In tandem with the initiative, the ISPP has established a second ISPP Task Force on Challenges for Plant Pathology 2050 (TF-PP2050)- to identify key challenges in plant pathology in 2050 and foster global focus on addressing them. Greg Johnson and Lodovica Gullino are the inaugural co-chairs of the TF-PP2050. Initial outcomes of the TF-PP2050 will include:

- A framework of committees focusing on key subject areas (linked with ISPP Subject matter Committees and ISPP Associated Societies; IMA, IUFR0). Younger plant pathologists will be encouraged to take lead in fore-sighting.
- Consultations and workshops to review and address the key challenges for plant pathology 2050 and develop pathways for progress against them.
- A series of ISPP Books "Plant Pathology in the 21st Century" that covers key challenges.

IV ISPP Newsletter, the Journal and Books.

ISPP Newsletter. The ISPP Newsletter, edited by Daniel Hüberli, goes from strength to strength. Newsletter alerts are emailed to c. 2600 individuals and societies, and individual issues record up to c. 1500 views.

Journal. The journal is progressing very well with Richard Strange as Editor in Chief. In late 2016, Stephen Waddington assumed additional responsibilities as Deputy Editor in Chief. Richard Strange will stand down as Editor in Chief at the end of 2018. ISPP will call for expressions of interest for a new Editor in Chief during 2018.

	2013	2014	2015	2016
Impact factor	1.638	1.495	1.557	2.271

Springer – ISPP Book Series [Plant Pathology in the 21st Century](#). ISPP has reached an agreement with Springer to broaden the scope of the series and publish additional volumes based on key topics, as well as on papers presented at future Congresses. Professor ML Gullino continues as Series editor. An eighth volume was published during 2017.

V Jakob Eriksson Prize for Plant Pathology and other ISPP Awards.

The 2018 Jakob Eriksson Prize is to be awarded to Emeritus Professor Pierre JGM de Wit of the Laboratory of Phytopathology, Wageningen University, The Netherlands, for his pioneering research in molecular plant pathology and plant-microbe interactions.

ISPP Fellows. A call for nomination for ISPP fellows will be made in early 2018 for awards to be made at the ICPP2018 Closing Ceremony.

Francenia Fisher Award. The Fran E. Fisher Award has been established by the ISPP Executive to honor

individuals who have made an outstanding contribution to both the science of plant pathology and society. The inaugural award will be made at ICPP2018 in Boston.

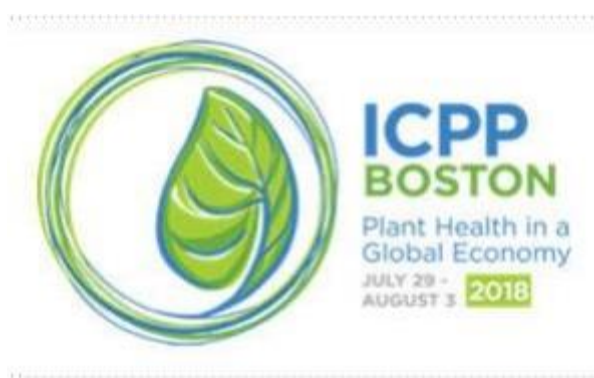
VI *Executive and Administration*

Membership of the incoming Executive of ISPP (2018-2023) was announced in the [August Issue](#) of the ISPP Newsletter. The ISPP Business Manager and the Editor in Chief of Food Security will retire at the end of 2018. The Society continues to conserve income and minimise expenditure with a view to obtaining full ownership of the ISPP Journal Food Security by 2023.

Greg Johnson, President, International Society for Plant Pathology

Registration for ICPP2018 opens in January

Registration and housing for the International Congress of Plant Pathology (ICPP) 2018 opens this month. More details on the [Congress website](#).



10th Australasian Soilborne Diseases Symposium, Adelaide, South Australia

The 10th Soilborne Diseases Symposium will draw together researchers and industry representatives with an interest in soilborne diseases to review research and to identify new strategies and techniques of potential benefit across a range of crops, and to debate the way forward. Several international and local invited speakers will share their ideas and experience in topical areas.

The Symposium's leading expert key note speakers, in-depth educational offerings, and important delegate opportunities for contribution and discussion, make it a "must attend" event for all those with an interest in plant pathogens, soilborne diseases in grain, pasture, cotton, vegetable and fruit crops, forestry and natural environments, soil health and biosecurity issues.

Pre-symposium workshops on current topics of interest including 'field sampling strategy and experimental design', 'nematode diagnostics', 'discovery of actinobacteria' and post-conference tours to visit cropping and wine regions are planned. The program will run over four days.

More information on the [symposium](#) and [South Australia tourism](#).



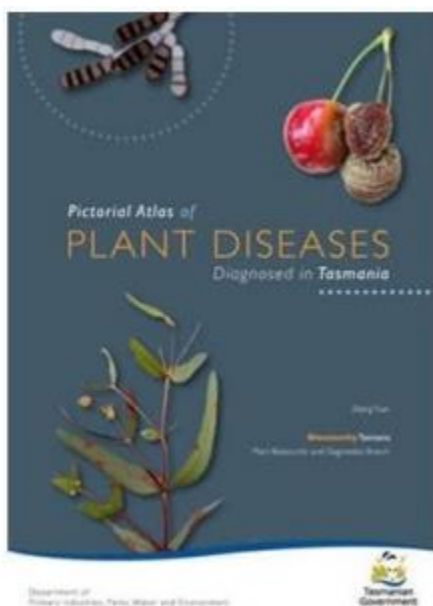
ASDS 2018

National Wine Centre of Australia

10th Australasian Soilborne Diseases Symposium
4 - 7 September, 2018
Adelaide | South Australia



Pictorial Atlas of Plant Diseases Diagnosed in Tasmania, Australia



The “Pictorial Atlas of Plant Diseases Diagnosed in Tasmania” has recently been published by the Department of Primary Industries, Parks, Water and Environment in Australia. The atlas was produced by Dr Ziqing Yuan with the images collated over the past 10 years, working as a Senior Plant Pathologist with the Plant Biosecurity and Diagnostics Branch, Biosecurity Tasmania.

One hundred plant diseases caused by fungi and nematodes occurring in Tasmania and mainland Australia are presented in the atlas. Ninety two species of fungi and eight nematodes are illustrated morphologically, and in most cases the disease symptoms are also shown in the atlas.

The book covers a wide range of host plants in agriculture, horticulture and forestry and will become a valuable reference to plant pathologists throughout the country and internationally. The significant micrographs are also great resources for teaching.

[Download a copy of the Atlas.](#)

(Department of Primary Industries, Parks, Water and Environment, 2017)

Establishing a soil borne pathogen research center in Turkey

Turkey's Ministry of Food, Agriculture and Livestock (MFAL) has for the first time allocated funding to establish a world-class center for research on soil borne pathogens. The announcement was made at an international workshop on soil borne pathogens (SBP) organised at MFAL in Ankara in October by the Directorate of Turkey's [Plant Protection Central Research Institute](#), Ankara (PPCRI). The new SBP research center will be located at that PPCRI, according to Dr. Nevzat BİRİŞİK, Director General, MFAL General Directorate of Agricultural Research and Policies.

The SBP program is also involved with the use of chemical control on soil pathogens, with regard to the outlook and future expectations of pioneering pesticide producers in the world. The SBP program at International Maize and Wheat Improvement Center (CIMMYT) is using seed treatment to investigate whether or not it can synergistically reduce diseases populations. Seed treatment is absolutely required where diseases are present or where farmers do not accept changing their local, highly susceptible varieties with the resistant and modern ones.

[Read more.](#)

(Abdelfattah Dababat and Emre Evlice, CIMMYT News, 27 November 2017)

GM banana shows promise against deadly Fusarium wilt TR4

A field trial in Australia has shown that genetically modified banana trees can resist the deadly fungus that causes Panama disease, which has devastated banana crops in Asia, Africa, and Australia and is a major threat for banana growers in the Americas. The transgenic plants might reach some farmers in as few as 5 years, but it's unclear whether consumers will bite. The work may encourage plant breeders using tr additional techniques to create resistant varieties.

Biotechnologist James Dale and colleagues at Queensland University of Technology in Brisbane, Australia, cloned a resistance gene named RGA2 from a type of wild banana that's impervious to TR4 and inserted it into the Cavendish, creating six lines with varying numbers of RGA2 copies. They also created Cavendish lines with Ced9, a nematode gene known to confer resistance to many kinds of plant pathogenic fungi.

In 2012, the researchers planted their transgenic bananas, along with unmodified controls, at a farm about 40 km southeast of Darwin, Australia, where Panama disease arrived 20 years ago. Additionally, researchers buried infected material near each plant. In the 3-year trial, 67% to 100% of control banana plants died or had yellow, wilting leaves and rotting trunks. But several transformed lines did well, with about 80% of plants remaining symptomless, and two lines, one with RGA2 and the other with Ced9, were unaffected by the disease, the team reported online in November 2017 in [Nature Communications](#). The resistance genes did not reduce the size of banana bunches.

Dale and his colleagues are going ahead with a second field trial, including new lines. "We'll tick all the boxes on quality and prepare for deregulation," he says. "We now have at least one solution for continuing Cavendish as the world's most important banana."

[Read more.](#)

(Erik Stokstad, Science Mag, 17 November 2017)

Disease suppressive soils: New insights from the soil microbiome

A paper by Daniel Schlatter *et al.* titled " Disease suppressive soils: New insights from the soil microbiome" was published in November 2017 by *Phytopathology* (vol. 107 pp. 1284-1297). The abstract is as follows:-

Soils suppressive to soilborne pathogens have been identified worldwide for almost 60 years and attributed mainly to suppressive or antagonistic microorganisms. Rather than identifying, testing and applying potential biocontrol agents in an inundative fashion, research into suppressive soils has attempted to understand how indigenous microbiomes can reduce disease, even in the presence of the pathogen, susceptible host, and favorable environment. Recent advances in next-generation sequencing of microbiomes have provided new tools to reexamine and further characterize the nature of these soils. Two general types of suppression have been described: specific and general suppression, and theories have been developed around these two models. In this review, we will present three examples of currently-studied model systems with features representative of specific and general suppressiveness: suppression to take-all (*Gaeumannomyces graminis* var. *tritici*), Rhizoctonia bare patch of wheat (*Rhizoctonia solani* AG-8), and *Streptomyces*. To compare and contrast the two models of general versus specific suppression, we propose a number of hypotheses about the nature and ecology of microbial populations and communities of suppressive soils. We outline the potential and limitations of new molecular techniques that can provide novel ways of testing these hypotheses. Finally, we consider how this greater understanding of the phytobiome can facilitate sustainable disease management in agriculture by harnessing the potential of indigenous soil microbes.

[Read paper.](#)

Plant disease illustrations by Margaret Senior



Illustrations by Margaret Senior including left to right: Brown rot *Monilinia fructicola*, Fusarium of wheat *Fusarium graminearum* and Bacterial wilt *Pseudomonas solanacearum*.

These coloured illustrations were commissioned by the New South Wales (NSW) Department of Agriculture (now NSW Department of Primary Industries) in 1964. The artist, Margaret Senior (1917-1995), was originally commissioned to produce 24 coloured paintings of plant diseases and other aspects of biology at £21 each. She eventually produced more than 80 superb illustrations which are still used in publications produced by the Department today.

Margaret Senior was one of the celebrated artists of her time. She was the illustrator for Eve Pownall's "The Australia Book" which won the Children's Book of the Year award in 1952 and illustrated other children's books, some of which also won awards. She was an excellent illustrator of Australian natural history, producing the illustrations for a series of highly popular posters on Australian Parrots, Raptors, Waterfowl and Reptiles for the NSW National Parks and Wildlife Service.

She left a bequest to NPWS in her will to be used to promote natural history illustration and the Margaret Senior Wildlife Illustration Award is presented annually by the University of Newcastle.

To commemorate Margaret's 100th year, the [NSW Biosecurity Collections](#) founded in 1890 is selling a range of objects with her prints which are available on [Redbubble](#). Purchases support the NSW Biosecurity Collections and Australian biosecurity efforts.

Phytopathologists of Distinction talks

Four POD (Phytopathologists of Distinction) talks are now available on the American Phytopathological Society (APS) [website](#). Selected APS fellows discuss their career journey and share “their story,” insights, and life experiences in the world of plant pathology. This series includes Jim Cook "From Farmer to a Farmer's Scientist", Allison Tally "Corporate Plant Pathologist—Jack-of-All-Trades, Master of None", Charlie Delp "Phytophthora: The Full Circle of My Career", and Sue Tolin "A Variable Viral Career."



Four POD talks from Jim Cook, Allison Tally, Charlie Delp and Sue Tolin.

Top five most cited articles in the *Journal of Phytopathology and Forest Pathology*

The top five most cited papers over the last two years in the *Journal of Phytopathology and Forest Pathology* are freely accessible.

Journal of Phytopathology:

- [Microbiota in wheat roots, rhizosphere and soil in crops grown in organic and other production systems](#)
- [First report of *Curtobacterium flaccumfaciens* pv. *flaccumfaciens* causing cowpea bacterial wilt in Iran](#)
- [Characterization and pathogenicity of *Colletotrichum gloeosporioides* and *C. karstii* causing preharvest disease on *Citrus sinensis* in Italy](#)
- [Effect of inoculum density on Verticillium wilt incidence in commercial olive orchards](#)
- [Identification and pathogenicity of *Lasiodiplodia* species from *Eucalyptus urophylla* x *grandis*, *Polyscias balfouriana* and *Bougainvillea spectabilis* in China](#)

Forest Pathology:

- [Widespread *Phytophthora* infestations in European nurseries put forest, semi-natural and horticultural ecosystems at high risk of Phytophthora diseases](#)
- [First definite report of natural infection of *Fraxinus ornus* by *Hymenoscyphus fraxineus*](#)
- [Pathogenicity of *Hymenoscyphus fraxineus* and *Hymenoscyphus albidus* towards *Fraxinus mandshurica* var. *japonica*](#)
- [Global geographic distribution and host range of *Dothistroma* species: a comprehensive review](#)
- [Dothistroma needle blight, weather and possible climatic triggers for the disease's recent emergence](#)

Australian plant biosecurity gets a \$21M technology injection

Australia is on track to adopt some of the most sophisticated plant pest surveillance technologies in the world after Horticulture Innovation Australia (Hort Innovation) secured a Federal Government grant and co-investor funding to deliver a \$21M plant biosecurity push. The \$6.8M Rural R&D for Profit grant will complement more than \$14M in investment across the seven plant Research and Development Corporations and partners such as the CSIRO, universities and state government agencies. Vegetable industry body AUSVEG and Plant Health

Australia are also key collaborators.

The five-year project will see the construction and establishment of eight state-of-the-art mobile pest monitoring hubs, including a suite of smart surveillance traps that capture airborne fungal spores and insects and reference them against GPS, temperature, humidity, wind speed and direction data. That data will then be fed real-time into cloud-based system AUSPestCheck – a national database that is already being used by State and Territory governments. It will then be distributed to producers, governments and industry groups in the form of immediate alerts, pest forecasts and general reports to support fast, informed and collaborative decision making.

This new initiative will utilise next-generation technologies to allow producers to receive timely and accurate information about pests and pathogens in their region, help them with management decisions, reduce resistance and demonstrate pest-free status to export markets.

([Hort Innovation Media Release](#), 22 May 2017)

Joanne Chory awarded prestigious Breakthrough Prize in Life Sciences

Joanne Chory from the Salk Institute in California, USA, one of the world's plant biologists who is leading the charge to combat global warming with plant-based solutions, has been awarded a 2018 Breakthrough Prize for her pioneering work deciphering how plants optimise their growth, development and cellular structure to transform sunlight into chemical energy. The prestigious award, founded in 2013 by Silicon Valley luminaries Sergey Brin and Anne Wojcicki, Mark Zuckerberg and Priscilla Chan, and Yuri and Julia Milner, honors top achievements in life sciences, physics and mathematics.



Because plants are rooted in the ground, they must constantly adapt their shapes and sizes to an ever-changing environment. Chory has spent more than 25 years deciphering the mechanisms that allow plants to achieve this flexibility in form, pioneering the use of molecular genetics to study how plants respond to their environments and producing major discoveries surrounding how plants sense light and make growth hormones.

More recently, Chory has teamed up with other plant biologists at the Salk Institute to turn their hard-won knowledge of plant biology into practical solutions for tackling global warming. Their recently launched [Harnessing Plants Initiative](#) hinges on developing what they've dubbed "ideal plants" to help tackle the critical and interlinked challenges of human emissions of carbon dioxide, declining agricultural yields and collapsing ecosystems.

As part of the initiative, the Salk Institute is building a state-of-the-art climate simulation facility that will allow Chory and her colleagues to mimic climate conditions of almost anywhere on Earth. This facility will allow the team to uncover the genetic traits that plants use to survive in stressful environments so they can use that information to develop crops that can survive in more extreme conditions.

A major focus of the initiative is to develop crops that are able to capture large amounts of carbon in their roots and store the carbon in the ground for long periods of time. In addition to land plants, the team plans to extend their research to seagrasses, one of the other major repositories of the planet's carbon. Maintaining existing seagrass ecosystems and restoring others offers a clear-cut solution to addressing climate change.

[Read more.](#)

(Salk Institute News, 3 December 2017)

Acknowledgements

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