

PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

ISPP NEWSLETTER

ISSUE 51 (10) OCTOBER 2021

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INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

VOTING IN PROGRESS FOR THE HOST SOCIETY FOR ICPP2028

BRENDA WINGFIELD, SECRETARY GENERAL ISPP

Over the next few weeks ISPP Councillors will be voting to choose the successful society to host the International Congress of Plant Pathology in 2028 (ICPP2028). Four Societies submitted bids including the Australasian, Canadian, Hellenic and Korean plant pathology societies.

The first round of voting will be completed by 31 October and an annoucement of the host society for ICPP2028 made in due course.

ISPP's GLOBAL PLANT HEALTH ASSESSMENT: UPCOMING HYBRID INTERNATIONAL WORKSHOP AND CONFERENCE, 8 OCTOBER 202 I

GPHA CONFERENCE SECRETARIAT: SONAM SAH* AND MANJARI SINGH*

* DOCTORAL STUDENT, DEPARTMENT OF AGRO-METEOROLOGY, GB PANT UNIVERSITY OF
AGRICULTURE AND TECHNOLOGY, PANTNAGAR, UTTARAKHAND, INDIA

The International Workshop and Conference on the Global Plant Health Assessment will be held on 5-8 October at Toulouse School of Economics at the University of Toulouse in a hybrid form, via physical and remote participation. Please see further details of this event in the September ISPP Newsletter.

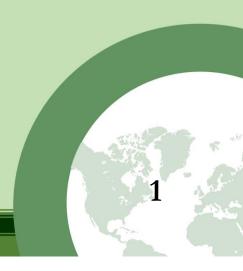
The updated programme of the event, together with information on the GPHA initiative, is available on the GPHA website:

https://sites.google.com/view/global-plant-health-assessment/home?authuser=0

The Conference on 8 October will be open to the public and will include formal lectures and expert-driven panel discussions with the audience.

If you are interested to join the Conference online, please register in advance of the conference to receive confirmation and access at:

https://us06web.zoom.us/meeting/register/tZ0kcO-hqzwiGdV1zil6T2zKHoOWss2RkhRe



ICPP2023: CALL FOR CONCURRENT SESSIONS AND CALL FOR SATELLITE EVENTS

The 12th International Congress on Plant Pathology (ICPP2023) will take place from 20-25 August 2023 in Lyon, France. This will be the opportunity to bring together researchers from our community around the latest issues of Plant Health. Time is close to meet again in person and to find the way back to international congresses!

Call for Concurrent Sessions: Submissions are now open for the ICPP2023 Concurrent Sessions. Individuals, Institutions, Plant Pathology Societies, and any other scientific groups, interested in organizing and moderating a concurrent session are encouraged to contact ICPP2023@univ-lyon1.fr. Concurrent Sessions of two hours will have the following format: three invited speakers (25 minutes each) and three contributed short talks (15 minutes each).

Call for satellite events: "Take advantage of the facilities set up during the ICPP2023-Lyon to carry out your own event in plant pathology!" A satellite event is a symposium or a workshop (half day, 1, 2 or 3 days) that will take place the weekend just before (or just after) the ICPP2023 on a topic of interest to ICPP attendees related to Plant Pathology or Plant Health. Satellite events will allow combination of both events into a single trip!

For more information go to icpp2023.org.

Please forward this message to anyone who may be interested and Save the date!

Dr. Nathalie Poussereau (ISPP vice-president, ICPP2023 co-chair)

Dr. Mathias Choquer (SFP board member, ICPP2023 co-chair)

THE JAKOB ERIKSSON PRIZE FOR PLANT PATHOLOGY - CALL FOR NOMINATIONS

JAKOB ERIKSSON PRIZE COMMISSION

The premier award for achievement in plant pathology, the <u>Jakob Eriksson Prize</u>, was established in 1923 to honor the memory of Jakob Eriksson, a prominent Swedish mycologist and plant pathologist who died in 1931. He was also a dedicated internationalist who espoused the cause of international cooperation in plant pathology. The Prize will be awarded at the <u>International Congress of Plant Pathology</u> held in Lyon, France from 20-23 August 2023. The Royal Swedish Academy of Sciences administers the Jakob Eriksson Prize Fund which provides for a gold medal award at Congresses of the International Society for Plant Pathology.

Nominations are solicited for a candidate of distinction in recognition of research in mycology, in plant pathology, or in virus diseases, or of a particular publication dealing with such subjects, with the understanding that the work being recognised is of a distinct international value and merit.

The following rules apply to those making nominations:

- i. Nominators must provide a short statement (2 pages or 500 words) justifying the selection of the nominee plus a short CV maximum three pages, and a publication list of the most relevant papers/publications or reports maximum 20 references. Do not send a detailed Curriculum Vitae. More detail than these requirements will be sought by the Commission if required.
- ii. Names of all nominees must be strictly confidential,
- iii. Individuals cannot nominate themselves and nominators should declare any professional affiliation with the nominee.
- iv. No correspondence concerning unsuccessful nominations will be entered into.

All nominations are to be sent to the Chair of the Prize Commission, in an email headed "Jakob Eriksson Prize Nomination 2023". Send the email to ErikssonPrize@ISPPweb.org with a c.c. to the ISPP Business Manager (andrea.masino@unito.it). The call for nominations will close on 15 March 2022.

Prize Selection

- i. The Jakob Eriksson Prize Commission, in consultation with the Executive of ISPP, will independently undertake the selection processes to enable a recommendation of the Jakob Eriksson Prize recipient at least one year before each International Congress of Plant Pathology.
- ii. The Chair of the Commission will advise the ISPP President of the Commission's recommendation, and after appropriate deliberation, the President of the ISPP will invite the successful nominee to accept the award.

- iii. The Prize Ceremony
- iv. The participation of the Jakob Eriksson Prize recipient in the International Congress of Plant Pathology will be facilitated by the ISPP and the Congress Organisers. Normally this will include complementary Congress registration and attendance at Congress social functions, return economy travel to the Congress and some support for accommodation and reasonable expenses for the duration of the Congress.
- v. The Prize Ceremony will be planned by the ISPP in consultation with the Prize recipient, the Commission Chair and the Congress Organisers.
- vi. As part of the Prize Ceremony, the Prize recipient will also be invited to briefly present their work at the Congress as The Jakob Eriksson Oration with scope and coverage in a style suitable for a more general audience.

The Royal Swedish Academy of Sciences will provide the Jakob Eriksson gold medal.

Information about the selection process is available <u>here</u>.

Jacob Eriksson Prize - 1993-2018

Past recipients of the Prize have included:

- 1993. 7th Recipient Prof Dr Ir Ariena H.C. van Bruggen, Professor Biological Farming Systems at Wageningen University, at the 6th International Congress of Plant Pathology.
- 1998. 8th Recipient Dr Richard Frederiksen, Professor of Plant Pathology at Texas A&M University, at the 7th International Congress of Plant Pathology in Edinburgh.
- 2003. 9th Recipient Dr. Jaccov Katan of the Hebrew University, Jerusalem, at the 8th International Congress of Plant Pathology in Christchurch, New Zealand.
- 2008. 10th Recipient Dr. Laurence V. Madden of the Ohio State University, at the 9th International Congress of Plant Pathology in Torino, Italy.
- 2013. 11th Recipient Professor Jeffrey B. Jones of the University of Florida at the 10th International Congress of Plant Pathology in Beijing, China.
- 2018. 12th Recipient Emeritus Professor Pierre JGM de Wit of the Laboratory of Phytopathology, Wageningen University, the Netherlands, at the 11th International Congress of Plant Pathology in Boston, USA.

PLANT PATCH ENABLES CONTINUOUS MONITORING FOR CROP DISEASES

NORTH CAROLINA STATE UNIVERSITY NEWS, 7 JULY 2021

Researchers from North Carolina State University have developed a patch that plants can "wear" to monitor continuously for plant diseases or other stresses, such as crop damage or extreme heat. "We've created a wearable sensor that monitors plant stress and disease in a noninvasive way by measuring the volatile organic compounds (VOCs) emitted by plants," says Qingshan Wei, co-corresponding author of a paper published recetnly in the journal *Matter* on the work. Wei is an assistant professor of chemical and biomolecular engineering at NC State.





Current methods of testing for plant stress or disease involve taking plant tissue samples and conducting an assay in a lab. However, this only gives growers one measurement, and there is a time lag between when growers take a sample and when they get the test results.

Plants emit different combinations of VOCs under different circumstances. By targeting VOCs that are relevant to specific diseases or plant stress, the sensors can alert users to specific problems. "Our technology monitors VOC emissions from the plant continuously, without harming the plant," Wei says. "The prototype we've demonstrated stores this monitoring data, but future versions will transmit the data wirelessly. What we've developed allows growers to identify problems in the field – they wouldn't have to wait to receive test results from a lab."

The rectangular patches are 30 millimeters long and consist of a flexible material containing graphene-based sensors and flexible silver nanowires. The sensors are coated with various chemical ligands that respond to the presence of specific VOCs, allowing the system to detect and measure VOCs in gases emitted by the plant's leaves.

The researchers tested a prototype of the device on tomato plants. The prototype was set up to monitor for two types of stress: physical damage to the plant and infection by *P. infestans*, the pathogen that causes late blight disease in tomatoes. The system detected VOC changes associated with the physical damage within one to three hours, depending on how close the damage was to the site of the patch. Detecting the presence of P. infestans took longer. The technology didn't pick up changes in VOC emissions until three to four days after researchers inoculated the tomato plants.

"This is not markedly faster than the appearance of visual symptoms of late blight disease," Wei says. "However, the monitoring system means growers don't have to rely on detecting minute visual symptoms. Continuous monitoring would allow growers to identify plant diseases as quickly as possible, helping them limit the spread of the disease

Read more.

ACHIEVING DURABLE DISEASE RESISTANCE IN CEREALS - NEW BOOK

Richard Oliver, Editor (2021). Achieving durable disease resistance in cereals, Burleigh Dodds Science Publishing, UK. 970 pp.

It has been estimated that up to 40% of crop yields are lost to pests and diseases worldwide, a problem exacerbated by increasing fungicide resistance. Given the continuous struggle between crops and the diseases which exploit them, achieving durable disease resistance remains a key challenge in ensuring global food security. A range of issues need to be addressed to meet this challenge for major diseases affecting cereal crops such as Fusarium, barley yellow dwarf virus (BYDV) and Septoria.

Achieving durable disease resistance in cereals provides an authoritative review of key advances, from better understanding of pathogen biology/epidemiology and plant-pathogen interactions, to identifying sources of resistance and advances in techniques for breeding new varieties. This collection offers a comprehensive review of research on achieving durable resistance to diseases such as leaf rust, Fusarium head blight, Septoria tritici blotch, Septoria nodorum blotch, tan spot, blast, BYDV and Ramularia.

Edited by Professor Richard Oliver, Curtin University, Australia, *Achieving durable disease resistance in cereals* will be an excellent reference for researchers in cereal science, arable



farmers, government and private sector agencies supporting cereal production and companies supplying the cereals sector (e.g. seed companies). It complements Integrated disease management of wheat and barley, also edited by Professor Oliver, published by Burleigh Dodds Science in 2018.

For more information and the full table of contents visit <u>Burleigh Dodds Science Publishing</u>.

Exclusive Discount for ISPP Members

Enter code **ISPP20** at checkout via the Burleigh Dodds <u>website</u> to receive 20% off your purchase of the book. Code expires 31st October 2021.

HOW DO PATHOGENS EVOLVE NOVEL VIRULENCE ACTIVITIES?

A review by Soledad Sacristán *et al.* titled "How do pathogens evolve novel virulence activities?" was published on 23 July 2021 by *Molecular Plant-Microbe Interactions* (online early). The abstract is as follows:-

This article is part of the Top 10 Unanswered Questions in MPMI invited review series.

We consider the state of knowledge on pathogen evolution of novel virulence activities, broadly defined as anything that increases pathogen fitness with the consequence of causing disease in either the qualitative or quantitative senses, including adaptation of pathogens to host immunity and physiology, host species, genotypes, or tissues, or the environment. The evolution of novel virulence activities as an adaptive trait is based on the selection exerted by hosts on variants that have been generated de novo or arrived from elsewhere. In addition, the biotic and abiotic environment a pathogen experiences beyond the host may influence pathogen virulence activities. We consider host-pathogen evolution, host range expansion, and external factors that can mediate pathogen evolution. We then discuss the mechanisms by which pathogens generate and recombine the genetic variation that leads to novel virulence activities, including DNA point mutation, transposable element activity, gene duplication and neofunctionalization, and genetic exchange. In summary, if there is an (epi)genetic mechanism that can create variation in the genome, it will be used by pathogens to evolve virulence factors. Our knowledge of virulence evolution has been biased by pathogen evolution in response to major gene resistance, leaving other virulence activities underexplored. Understanding the key driving forces that give rise to novel virulence activities and the integration of evolutionary concepts and methods with mechanistic research on plant-microbe interactions can help inform crop protection.

Read paper.

NONLINEAR SHIFTS IN INFECTIOUS RUST DISEASE DUE TO CLIMATE CHANGE

A paper by Joan Dudney *et al.* titled "Nonlinear shifts in infectious rust disease due to climate change" was published on 2 September 2021 by *Nature Communications* (vol. 12, Article number: 5102). The abstract is as follows:-

Range shifts of infectious plant disease are expected under climate change. As plant diseases move, emergent abioticbiotic interactions are predicted to modify their distributions, leading to unexpected changes in disease risk. Evidence of these complex range shifts due to climate change, however, remains largely speculative. Here, we combine a long-term study of the infectious tree disease, white pine blister rust, with a six-year field assessment of drought-disease interactions in the southern Sierra Nevada. We find that climate change between 1996 and 2016 moved the climate optimum of the disease into higher elevations. The nonlinear climate change-disease relationship contributed to an estimated 5.5 (4.4-6.6) percentage points (p.p.) decline in disease prevalence in arid regions and an estimated 6.8 (5.8–7.9) p.p. increase in colder regions. Though climate change likely expanded the suitable area for blister rust by 777.9 (1.0–1392.9) km² into previously inhospitable regions, the combination of host-pathogen and drought-disease interactions contributed to a substantial decrease (32.79%) in mean disease prevalence between surveys. alternate Specifically, declining host abundance suppressed infection probabilities at high elevations, even as climatic conditions became more suitable. Further, drought-disease interactions varied in strength and direction across an aridity gradient—likely decreasing infection risk at low elevations while simultaneously increasing infection risk at high elevations. These results highlight the critical role of aridity in modifying hostpathogen-drought interactions. Variation in aridity across topographic gradients can strongly mediate plant disease range shifts in response to climate change.

Read paper.

WEBINAR ON UPDATING THE GLOBAL FOOD SECURITY RESEARCH STRATEGY: NEW EVIDENCE AND OPPORTUNITIES

A robust evidence base demonstrates that strategic agricultural, food and nutrition-related research investments enable the productivity and human outcome gains that drive global improvements in food security and increase resilience to current and future food security risks. U.S. Government agencies that are partners in implementing the Global Food Security Act, along with allied federal agencies that invest in relevant research, will develop an updated U.S. Government Global Food Security Research Strategy to help achieve sustainable reductions in hunger, poverty and malnutrition through science, technology and innovation.

The U.S. Agency for International Development (USAID) and the U.S. Department of Agriculture (USDA) are co-convening public consultations to help inform the development of the new strategy to achieve the goals of the Global Food Security Act and to respond to a refreshed whole-of-government Global Food Security Strategy. USAID and USDA are seeking to raise awareness of this effort to update the research strategy, and welcome input, feedback, and ideas from the U.S and international research communities and stakeholders. Together with updated evidence-based analysis and consideration of recent advances in a wide range of research tools and approaches, the effort will inform the drafting of the updated Global Food Security Research Strategy, in advance of it's interagency launch in January 2022. The draft strategy will ultimately be reviewed and approved by the presidentially appointed Board on International Food and Agricultural Development (BIFAD).

You are invited to participate in a webinar that begins a process for developing an updated Global Food Security Research Strategy.

Updating the Global Food Security Research Strategy:

New Evidence and Opportunities

Thursday, October 7, 2021

9:00 - 11:00 am ET

Register Here

This webinar will introduce plans for updating the Research Strategy. The agenda will include opening remarks by USAID Bureau for Resilience and Food Security (RFS) Deputy Assistant Administrator Mike Michener and framing comments by RFS Chief Scientist Rob Bertram and Senior Advisor in the USDA Office of the Chief Scientist Jaime Adams. USDA Economist Keith Fuglie will review evidence for optimising inclusive economic growth and provide key insights relevant to research investment priority setting. Renee Lafitte, Deputy Director for Crops Research and Development at the Bill and Melinda Gates Foundation, will discuss new research approaches in a changing climate, and Tufts University Research Associate Professor Shibani Ghosh will speak about diet quality, nutrition, and inclusion. The session will end with an overview of the timeline for the Research Strategy update and a call for stakeholder feedback.

STRONGER LETTUCE STEMS ARE A KEY PART OF DISEASE RESISTANCE

AMERICAN PHYTOPATHOLOGICAL SOCIETY, 29 JULY 2021

Lettuce drop is a lettuce disease that results in browning or wilting of leaves, plant collapse, and death. The disease has not been well-researched, but a new study recently published in *PhytoFrontiers* shows that a stronger stem increases resistance to lettuce drop. This disease is caused by *Sclerotinia* spp., one of the most destructive plant pathogens that infects more than 700 plant species around the world. We still don't have a deep understanding of host resistance to this pathogen but scientists in California were the first to observe that the species *Sclerotinia minor* formed a sclerotia (resting structure) in lettuce stem.



Bullo Erena Mamo with lettuce (Photo credit: Bullo Erena Mamo).

To describe this phenomenon, researchers at the University of California, Davis, and the United States

Department of Agriculture–Agricultural Research Service in Salinas conducted additional studies and found differences between modern commercial cultivars and wild lettuce. "The modern cultivars were susceptible to rapid basal stem and root rot by *Sclerotinia minor*. Oil-seed lettuce and the prickly wild lettuce were resistant to rot," explained lead author Bullo Mamo, a postdoctoral researcher in the UC Davis Department of Plant Pathology. Wild lettuce species also showed reduced symptom development but sclerotia formation went up to a significantly higher height in their stems.

Infected modern cultivars saw a rapid decrease in photosynthesis efficiency within a day of infection while the wild lettuce species saw no difference. The wild lettuce species also saw an increase in the degree of stomatal opening of leaves within one to three days after infection.

Most importantly, the severity of basal stem rot and stem collapse was low in plants with strong stems. "This indicated that genetic factors associated with stem strength determine the outcome of Sclerotinia infections of the host plant," said Ivan Simko, a senior researcher involved with this study. "We determined that soft stem is a prominent lettuce drop predisposing factor that could be taken into consideration when developing lettuce drop-resistant lettuce varieties through plant breeding."

"Our research demystifies the long-held belief that resistance to *Sclerotinia* spp. in early bolting host plants is associated with 'disease avoidance.' This work clearly shows resistance in early bolting plants is due to their basal stem strength—which has a genetic underpinning," said Mamo. "Our research also helps explain why commercial lettuce cultivars are usually susceptible to lettuce drop."

This article is the first of its kind to measure and report that stem strength provides disease resistance. These results also serve as the starting point to conduct additional analysis to determine the biological basis of resistance to *Sclerotinia* spp. in lettuce and other hosts.

CURRENT VACANCIES

The Department of Plant Pathology at the University of Nebraska-Lincoln is seeking a Field Crop Pathologist to lead an integrated, high impact extension and research field-crop pathology program that meets the needs of agricultural producers in Nebraska, and connects with regional and national crop pathology programs and colleagues with an emphasis on soybean pathology. This is a tenure-track, academic-year appointment at the rank of Assistant or Associate Professor.. To ensure consideration, please submit all application materials before the review date of 1 November 2021. Further details about the position and how to apply are available in the PDF.

The Division of Agriculture and Natural Resources at the University of California, seeks to fill a position at the rank of Plant Pathology Advisor. The Plant Pathology Advisor will implement an extension education and applied problem-solving research program in plant pathology for the agricultural clientele of Monterey, Santa Cruz and San Benito counties. To assure full consideration, complete application packets must be received by 18 October 2021, or open until filled. Further details about the position and how to apply are available in the PDF.

ACKNOWLEDGEMENTS

Thanks to Grahame Jackson, Greg Johnson, Jan Leach, Sonam Sah, and Manjari Singh for contributions.

COMING EVENTS

Association of Applied Biologists Virtual Conference - Thinking differently about soilborne disease management

10 November, 2021

Website: web.cvent.com/event/adc5a4f6-0657-496b-

bb81-a1bed45e7d7c/summary

7th International Conference of Pakistan Phytopathological Society

21 November - 23 November, 2021 University of Agriculture Faisalabad and Ayub Agricultural Research Institute, Faisalabad, Pakistan

Website: 7icpps.pakps.com

Australasian Plant Pathology Society Conference – Staying Connected for Plant Health

23 November - 26 November, 2021

Online conference

Website: appsconference.com.au/home

International Plant & Animal Genome XXIX

8 January -12 January, 2022 San Diego, California, USA Website: www.intlpag.org/2021/

10th International IPM Symposium

28 February - 3 March, 2022 Denver, Colorado, USA

Website: <u>ipmsymposium.org/2021</u>

16th Congress of the Mediterranean Phytopathological Union

4 April - 8 April, 2022 Limassol, Cyprus

Website: https://cvprusconferences.org/mpu2022/

7th International Congress of Nematology

1 May - 6 May, 2022

Antibes Juan-les-Pins, France

Website: www.alphavisa.com/icn/2020/index.php

International Plant Health Conference "Protecting Plant Health in a Changing World"

Week of 12 May 2022 Location to be advised

Website: www.fao.org/plant-health-2020/events/events-

detail/en/c/1250609/

4th International Erwinia Workshop

2 July - 3 July, 2022

Assisi, Italy

Website: www.icppb2020.com

14th International Conference on Plant Pathogenic Bacteria

3 July - 8 July, 2022

Assisi, Italy

Website: www.icppb2020.com

12th International Workshop on Grapevine Trunk Diseases (ICGTD12)

11 July - 15 July, 2022 Mikulov, Czech Republic

Website: ucanr.edu/sites/ICGTD/Workshops 559/

International Phytobiomes Conference 2022

13 September - 15 September, 2022

Denver, Colorado, USA

Website: phytobiomesconference.org/

13th Arab Congress of Plant Protection

16 October - 21 October, 2022

Le Royal Hotel, Hammamat, Tunisia

Contact: Dr. Asma Jajar, Chairperson of Organising

Committee info@acpp-aspp.com

Website: acpp-aspp.com

11th Australasian Soilborne Diseases Symposium

Mid-late 2022

Cairns, Queensland, Australia

XX International Plant Protection Congress

10 June - 15 June, 2023

Athens, Greece

Website: www.ippcathens2023.gr

12th International Congress of Plant Pathology (ICPP2023)

20 August - 25 August, 2023

Lyon, France

Website: www.icpp2023.org

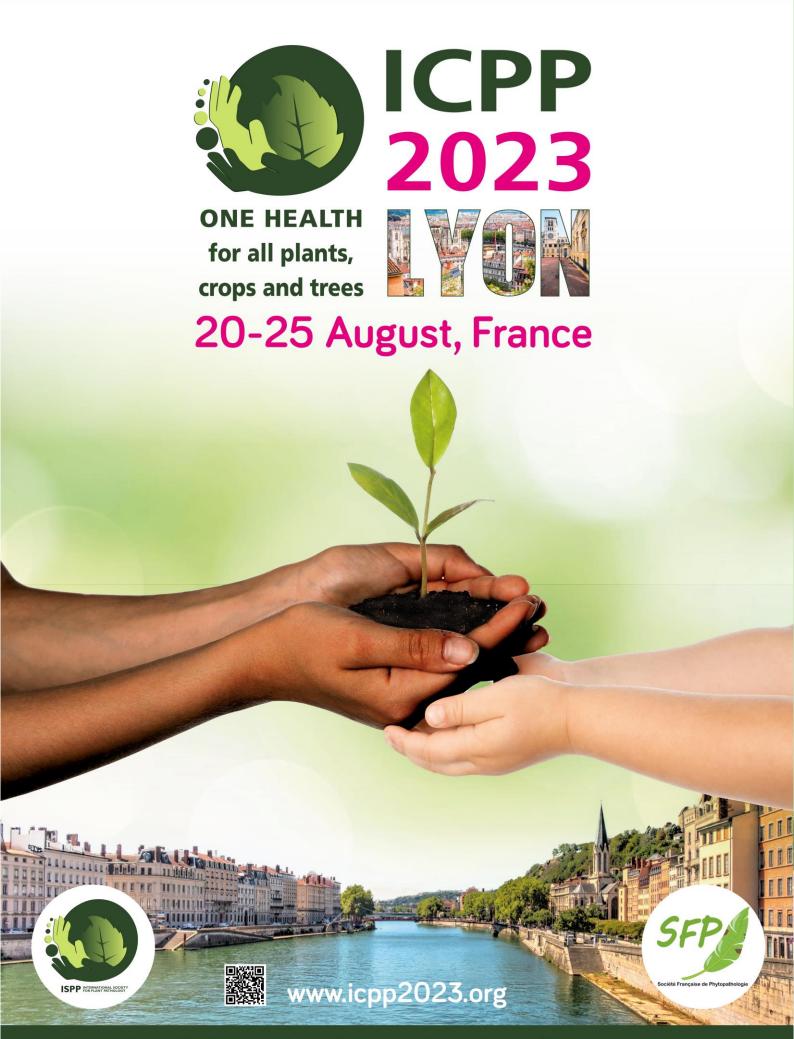
9th ISHS International Postharvest Symposium

11 November – 15 November, 2024

Rotorua, New Zealand

Website: scienceevents.co.nz/postharvest2024





INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

WWW.ISPPWEB.ORG

The ISPP List is an e-mail list server which broadcasts messages and announcements to its subscribers. Its goal is to facilitate communication among members of the International Society for Plant Pathology and its Associated Societies. Advertised vacancies in plant pathology and ISPP Newsletter alerts are also sent to members of the ISPP List.

In accordance with the guidelines and recommendations established by the new EU General Data Protection Regulation 679/2016 (GDPR), the International Society for Plant Pathology has created a <u>Privacy Information Notice</u> containing all the information you need to know about how we collect, use and protect your personal data.

This policy explains when and why we collect personal information about our users, how we use it, the conditions under which we may disclose it to third parties, how we keep it safe and secure and your rights and choices in relation to your personal information.

Should you need further information please contact <u>business.manager@issppweb.org</u>

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