



**ISPP** INTERNATIONAL SOCIETY  
FOR PLANT PATHOLOGY

PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

# ISPP NEWSLETTER

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Editor: Daniel Hüberli ([email](#))

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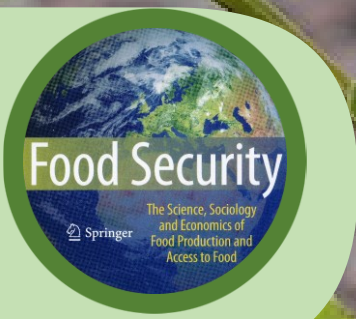
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INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

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## PLANT HEALTH TV: PROMOTING THE IMPORTANCE OF PLANT HEALTH RESEARCH

JO LUCK, BALDISSERA GIOVANI, AND ANNA MARIA D'ONGHIA

The United Nations have declared 12<sup>th</sup> of May the International Day of Plant Health ([IDPH](#)). In this context, many events will be organised to raise awareness on how protecting plant health can help end hunger, reduce poverty, protect the environment, and boost economic development.

By providing the knowledge to understand the threats and to develop the tools to address plant health challenges, research activities must hold a prominent place in modern societies. In order to give visibility to plant health research activities, the International Centre for Advanced Mediterranean Agronomic Studies of Bari ([CIHEAM Bari](#)), the Plant Biosecurity Research Initiative ([PBRI](#)) and the Euphresco network for phytosanitary research coordination and funding ([Euphresco](#)) are pleased to invite you to watch 'Plant Health TV: promoting the importance of Plant Health research'. Eleven videos have been submitted by the Alumni Network of CIHEAM Bari and the PBRI Plant Health Student Network. The videos are available from <https://www.euphresco.net/contest/>. By liking your favourite video on youtube before 31<sup>st</sup> May, you give the video-maker a chance to win a travel grant to take part in a scientific exchange in CIHEAM Bari, Italy!



## **DPIRD'S ANIMATED MOVIE CELEBRATES PLANT PROTECTION ON INTERNATIONAL DAY OF PLANT HEALTH**

DANIEL HUBERLI AND CINDY WEBSTER, DPIRD

The International Day of Plant Health is celebrated every year on 12<sup>th</sup> May to raise awareness about the importance of plant health in ensuring food security and protecting the environment. This year's theme is "Protecting plants, protecting life," which highlights the critical role that plant health plays in sustaining life on Earth.

The Department of Primary Industries and Regional Development (DPIRD) is a Western Australian government agency that plays a key role in protecting plant health and ensuring food security. DPIRD's Crop Protection team is a group of world-class scientists who work closely with WA farmers and the agricultural industry to research and apply the very best innovations in technology and science to protect crops from destructive forces.

The team is equipped with state-of-the-art technologies and analytical tools, enabling them to detect and analyse a wide range of pests and diseases that can harm crops. They work closely with farmers to develop and implement effective strategies to minimise crop losses and increase yields. These strategies include the use of integrated pest management (IPM) techniques, the development of new crop protection products and technologies, and the promotion of sustainable farming practices.

DPIRD's Crop Protection team is committed to staying at the forefront of scientific research and innovation. They collaborate with other scientific institutions and organisations to develop new methods of plant protection and incorporate these techniques into their work. By doing so, they are able to provide farmers with the most up-to-date and effective tools to manage pests and diseases.

In addition to their research efforts, DPIRD's Crop Protection team also plays an important role in educating farmers and the wider community about the importance of plant health. They provide training and workshops to farmers on topics such as IPM, pesticide safety, and pest identification. They also collaborate with industry groups and government agencies to develop and implement policies and regulations that support sustainable agriculture practices.

DPIRD's Crop Protection team is dedicated to protecting plant health and ensuring food security in Western Australia. On this year's International Day of Plant Health, we recognise the important contributions of all other agencies, across the globe, who also work on improving the agricultural industry and the environment through plant protection. Through their research, education, and policy work, they are helping to create a brighter future for agriculture.

Learn more about how DPIRD's Crop Protection team keeps food safe in this brief [animated movie](#).



# YOUNG FILIPINO RESEARCHERS RECOGNISED FOR THEIR SCIENTIFIC CONTRIBUTION TO PLANT PATHOLOGY

MARK ANGELO O. BALENDRES, DE LA SALLE UNIVERSITY, MANILA, PHILIPPINES

Twelve Filipino researchers, age 40 and below, were recognized as Fellows of the 2023 Young Investigators in Plant Pathology (YIPP). The YIPP is a platform that recognizes the scientific contributions made by the Fellows through scholarly outputs (publications and paper presentations) in plant pathology.

The twelve young researchers are either researchers or faculty in various universities around the country at the time of the publication of their work. Two of the Fellows are currently based in Thailand and Germany. Their contributions add to the knowledge in mycology, plant virology, phytoplasmatology, phytonematology, and phyto bacteriology.

This year's YIPP program is hosted by De La Salle University's Plant and Soil Health Research Unit (DLSU PhytoHealth), led by Dr. Mark Angelo Balendres. This is the third edition of the YIPP program.

**The 2023 Philippines  
Young Investigators  
in Plant Pathology**  
3rd Edition

 <b>Herbert Dustin AUMENTADO</b> Mae Fah Luang University #Mycology	 <b>Bernadith BORJA</b> University of Southern Mindanao #Mycology	 <b>Deborah Anne Dimayac</b> Georg-August University #Mycology	 <b>Monica FRONDA</b> University of the Philippines Los Baños #PlantVirology
 <b>Jonathan Jaime GUERRERO</b> University of the Philippines Manila #Mycology	 <b>Joanne LANGRES</b> Caraga State University #Phytoplasmatology	 <b>Jofil MATI-OM</b> Biliran Province State University #PlantVirology	 <b>Reynaldo PEJA JR.</b> Visayas State University #Mycology
 <b>Marynold PURIFICACION</b> De La Salle University #Mycology	 <b>Mari Neila SECO</b> Central Philippines State University #Mycology	 <b>Neil Pep Dave SUMAYA</b> University of Southern Mindanao #Phytonematology	 <b>Aira WAJE</b> Tarlac Agricultural University #Phyto bacteriology

# THIRTEENTH UPDATE ON ISPP RESILIENCE BURSARY FOR PLANT PATHOLOGISTS

ANHELINA KYRYCHENKO, MAŁGORZATA JĘDRYCZKA, MAŁGORZATA MAŃKA AND GREG JOHNSON

This month we are celebrating 12 May, the International Day of Plant Health, designated by The United Nations to raise global awareness on how protecting plant health can help end hunger, reduce poverty, protect biodiversity and the environment, and boost economic development. Of course, plant pathologists play a vital (but under recognised) role in securing and improving plant health, and we should take the opportunity on 12 May to celebrate their achievements as well as our plant pathology societies!

In future years, we hope that the ISPP and the associated Society members can play more active roles in promoting and celebrating this day. Perhaps we could also consider it as an opportunity to contribute to the ISPP Resilience Bursary for Plant Pathologists?

In the last issue of the ISPP Newsletter the ISPP President advised that in partnership with the American Phytopathological Society (APS) Office of International Programs (OIP), ISPP was accepting donations under the Resilience Bursary initiative to helping our plant pathology colleagues in Türkiye and Syria who have been affected by the devastating earthquake and Fulya Baysal-Gurel provided an update on the situation in Türkiye and wrote about the loss of Hatay Mustafa Kemal University Plant Pathology department faculty member, Dr Mona Gazel.

Meanwhile in Poland we have continued to find short term places for colleagues from the Ukraine and we thank the [Polish Phytopathological Society](#) (Polskie Towarzystwo Fitopatologiczne (PTF)) for their generous support for both the Bursary Fund and our Ukraine colleagues.

Remember your donation, no matter how small can help power our support – the link for donations is [here](#) – use the drop-down menu to choose the direction of your donation.

Next month we hope to provide an update on support initiatives for the colleagues from Türkiye and Syria. Meanwhile this month, we have a second update from Dr Anhelina Kyrychenko, senior research associate and the head of Plant Virology Laboratory of D.K. Zabolotny Institute of Microbiology and Virology, the National Academy of Sciences of Ukraine..

## ANHELINA KYRYCHENKO

I am Anhelina Kyrychenko, senior research associate and the head of Plant virology laboratory of D.K. Zabolotny Institute of Microbiology and Virology, the National Academy of Sciences of Ukraine. I have already presented my story of supporting me by the International Society for Plant Pathology (ISPP) here in the ISPP NEWSLETTER (Issue 52(6), 2022), but my story has had a continuation and I would like to share it and once again express my gratitude to the Society for the help they give to Ukrainian scientists!



Almost a year ago, ISPP provided me with the support of a 1-month scholarship that helped me to settle down in Poland and to complete and submit the necessary paperwork for an internship at the Laboratory of Plant Pathogenesis of the Institute of Biochemistry and Biophysics (IBB) of the Polish Academy of Sciences (PAS).

After completing my IBB fellowship, I found myself in a rather complicated situation: Like the majority of Ukrainian scientists in Poland, I was waiting for the results of long-term program to support Ukrainian research teams at the PAS and had no income coming in from anywhere. The announcement of results was postponed several times because of the large number of submitted projects, and my situation was becoming more and more complicated by the day. The circumstance was further complicated by the fact that my son is in Poland with me. In this situation ISPP, once again, came to my help and supported me: I received a two-month scholarship and now have an internship at Institute of Horticultural Sciences, Warsaw University of Life Sciences – SGGW.

In addition to the financial support, which I certainly needed, I have the privilege of working with the scientific team of the Department of Plant Protection in SGGW headed by Prof. Dr. hab. Elżbieta Paduch-Cichal. I had a great opportunity to work with Polish colleagues at the best agriculture universities in the country and to acquire new knowledge, skills, and experience, which I believe will be helpful to me in my home Institute.



My research during internship is related to the detection and identification of viruses infecting *Cornus* sp. plants. In addition, I am involved in experiments related to the study of the bacteria colonizing corn plants. These scientific topics are very close and interesting to me, and the Department staff are very friendly and always ready to help. I have the feeling that I am at home, although I miss a lot my own Institute in Kyiv and I hope to get back there and enjoy peace and freedom!

I want to sincerely thank the ISPP on behalf of all the Ukrainian scientists who have been supported! Thank you very much!

## ***HOW EXPAT SCIENTISTS CAN HELP ADVANCE SCIENCE BACK HOME***

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SOPHIEN KAMOUN, [KAMOUNLAB.MEDIUM.COM](https://www.kamounlab.medium.com)

Expatriate scientists have an important role to play in advancing science and helping their colleagues back home. This post is to encourage you to do something. Anything.

Here's what you can do as discussed in the [post](#) by Sophien Kamoun.

# AGRICULTURE TAKES OVER TORINO WITH COLTIVATO

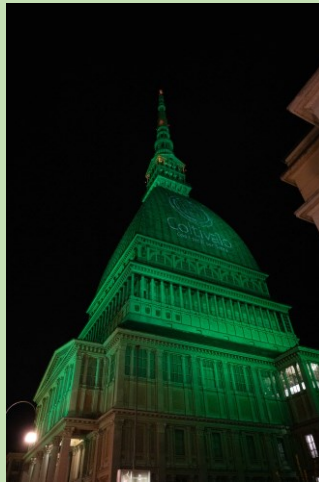
## ANDREA MASINO, ISPP BUSINESS MANAGER

Torino, beautiful Italian city, hosted the first edition of ColtivaTo, the International Festival of Agriculture. This event talked about research and innovation within the sacred temples of Turin's cultural everyday life.

A panel of speakers of the highest level, coming from all over Italy, who enthusiastically accepted the challenge launched by the scientific director, Maria Lodovica Gullino, and by the artistic director, Antonio Pascale. During the Opening, Ilaria Capua effectively explained how the health of animals and humans derives from the health of the environment and plants. Lectures, debates, round tables, impossible interviews attracted the attention of a numerous and curious public.

This very new and innovative Festival was realised thanks to the passion and effort of the numerous project partners: from the patronage of the Ministry of Agriculture, Food Sovereignty and Forests, the Piedmont Region and the City of Torino; the support from Bayer Italia, New Holland, Intesa Sanpaolo, the Chamber of Commerce, SMAT, Agroinnova, the Agritech Foundation, Unioncamere Piemonte, Reale Mutua, Turismo Torino; and thanks to the collaboration with the University of Torino, the CRT Foundation, the *Biennale Democrazia*, the *Biennale Tecnologia* and the weTree Association.

A success, which promises many innovations in the future and a new cultural event which joins the numerous cultural proposals that make Torino a very interesting city to live in and visit.





# NOTICE TO ISPP COUNCILLORS – BALLOT ON CHANGES TO THE ISPP STATUTES AND RULES OF PROCEDURE

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GREG JOHNSON, ISPP PAST PRESIDENT

The ISPP Councillors representing Associated Societies should have received an email in recent days asking them to participate in a ballot to amend some of the ISPP Statutes and Rules of Procedure. The email ballot seeks Council approval for the following changes:

- (a) At ICPP2018, Council agreed to amend ISPP Statutes 14 and 15 and change Constituent body (a) 'General Assembly' to (a) 'Membership' since in modern large congresses, it was impractical to convene a 'General Assembly' and the ISPP Statutes were revised to indicate that ISPP member interests would be maintained through the ISPP Executive and the 'ISPP Council' which convene at each Congress (rather than the "General Assembly"). Unfortunately, Rules 2 and 3 which were subsidiary to these Statutes were not amended as well to reflect this change:

Rule 2 should be amended to say: 'The Council ~~General Assembly~~ shall, in accordance with Statute 15 of the Statutes, be convened to receive:'. . .

Rule 3 should be amended to say: 'The Council ~~General Assembly~~ shall meet at least once during each Congress. . .'

- (b) In addition, other changes are needed to ensure that the Statutes and Rules better reflected the Society's core activities and to enhance equity of engagement with Associated Societies and Working groups.
- a change to Statute 5 and addition of a new Statute 19 to cover publications and e-communication and the renumbering of old Statutes 19 to 28 as Statutes 20 to 29.
  - Modification of Rule 5 to (a) increase the number of Councillors representing Societies whose membership numbers range from 100 to 500, to encourage better engagement with under-represented groups and (b) to stipulate that the ISPP Executive Nomination Committee should shortlist either ONE OR TWO candidates for the ballot for each position (rather than just TWO).
  - Adjusting Rule 9 to specify 'the Plant Pathology Society' hosting the next Congress instead of the 'COUNTRY' hosting the next congress.
  - Adjusting Rule 11 to include the ISPP Web Manager and the Chair of any current ISPP Task Forces (rather than the Taskforce on Global Food Security) are members of the Secretariat.
  - Adjusting Rule 14 to specify that Societies submitting a bid to host the International Congress of Plant Pathology should be a financial member of ISPP for at least 3 years prior to submitting a bid.
  - Changing Rule 21 to stipulate that Associated Society membership 'Fees may be influenced under a formula that applies to many different Member Societies, as a percentage of the Society's income in individual member fee which varies according to that member Society's decisions.'
  - Adjusting Rule 22 to mention e-communication vis. : 'The ISPP may also issue other publications and e-communications, the distribution and costs of which shall be decided by the Executive Committee subject to approval by the Council.'

If you are an ISPP Councillor representing a Society, and have not received the email, or have any questions, please contact Greg Johnson ([gregh4d@gmail.com](mailto:gregh4d@gmail.com)). Responses to the ballot are required by 31 May 2023.

# CHAT GTP AND PLANT PATHOLOGY IN THE SOCIAL MEDIA AGE

GREG JOHNSON AND ANDREA MASINO

There's lots in the media just now about AI generated texts and "the end of the world as we know it". So, as part of our exploration of using social media to inspire plant pathologists we used Ask AI Chat with GPT Chat Bot to enquire: How can I use social media to inform and inspire plant pathologists. on 1 May 2023, here is what it said:

Social media can be a powerful tool for informing and inspiring plant pathologists. Here are some tips:

1. Choose the right platform: There are several social media platforms to choose from, including Twitter, LinkedIn, and Facebook. Each platform has its own unique features and audience, so it's important to choose the one(s) that best fit your goals and target audience.
2. Share relevant content: Share articles, research papers, and news related to plant pathology. You can also share your own research or insights on emerging trends in the field.
3. Engage with your audience: Respond to comments and encourage discussions to build engagement with your followers. You can also participate in relevant conversations by using hashtags and tagging relevant accounts.
4. Provide value: Offer tips, advice, or resources that can help plant pathologists in their work. This can include sharing best practices, highlighting new technologies, or providing training resources.
5. Use visuals: Use images, infographics, and videos to make your content more engaging and shareable.
6. Collaborate with others: Partner with other plant pathologists, researchers, or organisations to expand your reach and bring diverse perspectives to your content.
7. Stay up-to-date: Keep up with the latest news, research, and trends in plant pathology and share them with your audience.

By following these tips, you can use social media to inform and inspire plant pathologists and contribute to the advancement of the field.

And to the same question earlier another ChatGPT concluded: By sharing relevant information and engaging in discussions, you can help create a vibrant online community of plant pathologists who are passionate about their work.

## Update on the ISPP Survey on using social media in plant pathology

So far we have received 440+ responses. If you haven't done so yet, help us by completing it now and please add your views in the comments section!

At ICPP2023 and in our reports via the ISPP newsletter, survey findings will be summarised under

- (a) topics most important to social media readership
- (b) platforms respondents use to access plant pathology related topics and inspiration
- (c) scientific societies and other sources of plant pathology information and
- (d) the demographic profiles of users and non-users.

The Green Button below has the link to the survey.

**CLICK HERE TO PARTICIPATE  
IN THE SURVEY!**

Here's a sneak preview of some findings so far (from 444 responses). The table shows how often respondents used different social media platforms and it looks like YouTube must be more than cat videos!

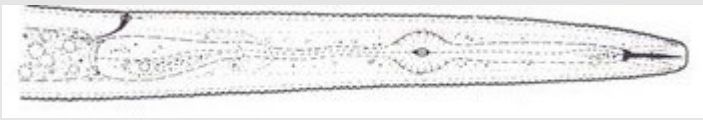
	Never	Once a Month	Four /Month	Twice a week	Once per day	Several times a day
YouTube	92	150	70	64	32	36
Linked In	158	94	58	62	32	40
Facebook	189	76	42	45	37	55
Instagram	208	32	11	23	15	22
Twitter	213	46	39	35	55	56
Pinterest	385	36	11	5	4	3
Tik Tok	408	13	9	3	3	7
Snapchat	426	10	3	1	4	3

## NEMATODES: FRIEND OR FOE

GRAHAM STIRLING

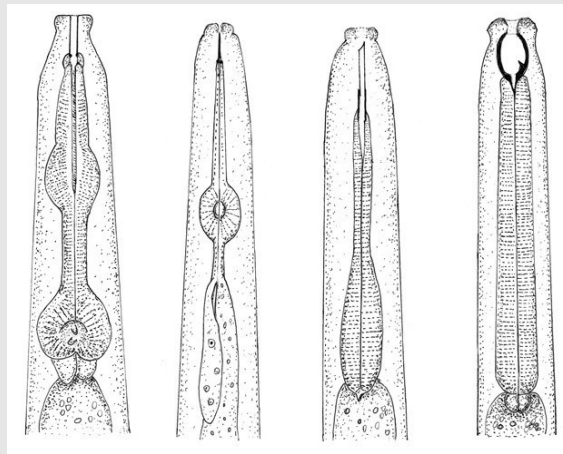
Nematodes are the most numerous multicellular animals on earth. Are you aware that there may be as many as 10 million nematodes in the soil immediately under your feet? Some species reduce crop yields and damage the roots of our garden plants but most nematodes play a vital role in keeping plants healthy.

One group of beneficial nematodes are termed 'plant associates' because they feed on fine roots and root hairs and don't damage the plant (Fig. 1). The reason these nematodes are beneficial is that labile carbon is exuded from roots during the feeding process and it helps sustain a microbial community around the roots that provides the plant with nutrients and protects it from pathogens.



**Fig. 1.** A plant associate (family Tylenchidae) showing the stylet used to feed on fine roots and root hairs

Most terrestrial nematodes don't use plants as a food source. These 'free-living nematodes' use their mouthparts to feed on various soil organisms. Bacterivores are the most common group, and they suck bacteria through a tube-like or funnel-shaped mouth or use their lips to scrape bacteria off surfaces. Fungal feeders have a delicate spear that is used to pierce fungal hyphae and spores. Predatory nematodes have a broad, open mouth armed with teeth that is used to consume other soil nematodes. Omnivores use a retractable spear to feed on fungi, bacteria, protozoa, algae, and other nematodes (Fig. 2).



**Fig. 2.** Mouthparts and oesophagus of the four groups of beneficial free-living nematodes (from left to right). Bacterivore, fungivore, omnivore and predator.

Free-living nematodes contribute a variety of functions in soil and play a vital role in keeping plants healthy.

- **Nutrient mineralisation.** Plants primarily take up inorganic forms of nutrients but because most of the nutrients in soil are in the bodies of soil organisms and are therefore in an organic form, they must be mineralised before plants can use them. Free-living nematodes, especially bacterivores, play an important role in this process because when they consume bacteria, nutrients such as nitrogen are mineralised, and this helps maintain adequate levels of plant-available nitrogen in the root zone. If these nematodes were absent, our native forests and grasslands would suffer from nutrient deficiencies.

- **Enhancement of biological activity.** When bacterial-feeding nematodes graze on bacteria, they rejuvenate old, inactive bacterial colonies. This activates the soil biological community and ensures that organic residues are continually decomposed, and that the nutrients within them are constantly available for plant uptake.
- **Biological control.** Predatory and omnivorous nematodes consume other nematodes, including plant parasites, while fungivorous nematodes may feed on fungal pathogens such as *Rhizoctonia* and *Fusarium*. Consequently, these nematodes help to regulate populations of many devastating pests and pathogens.

If you would like to learn more about this fascinating group of soil organisms, a series of fact sheets have recently been placed on the website of the Australasian Plant Pathology Society. They may be accessed at: <https://www.appsnet.org/nematodes>

## PLANT FUNGUS *CHONDROSTEREUM PURPUREUM* - HUMAN INFECTION

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A paper by Soma Dutta and Ujjwayini Ray titled “Paratracheal abscess by plant fungus *Chondrostereum purpureum*- first case report of human infection” was published on June 2023 by *Medical Mycology Case Reports* (vol. 40, pp 30-32). The abstract is as follows:-

*Chondrostereum purpureum*, is a plant fungus causing silver leaf disease of plants, particularly of the rose family. Here we report a case of paratracheal abscess caused by *C. purpureum*. This is a first of its kind of a case wherein this plant fungus caused disease in a human. Conventional techniques (microscopy and culture) failed to identify the fungus. Only by sequencing, the identity of this unusual pathogen could be revealed. This case highlights the potential of environmental plant fungi to cause disease in humans and stresses the importance of molecular techniques to identify the causative fungal species.

[Read paper.](#)

# ADVANCES IN MONITORING OF NATIVE AND INVASIVE INSECT PESTS OF CROPS—NEW BOOK

Michelle Fountain and Tom Pope, Editors (2023). *Advances in monitoring of native and invasive insect pests of crops*. Burleigh Dodds Science Publishing, UK. 394 pp.

Insect pests remain a major threat to crop production primarily because of their ability to inflict severe damage on crop yields, as well as their role as key vectors of disease. Early identification of pests is critical to the success of integrated pest management (IPM) programmes and essential for the development of phytosanitary/quarantine regimes to prevent the introduction of invasive insect pests to new environments.

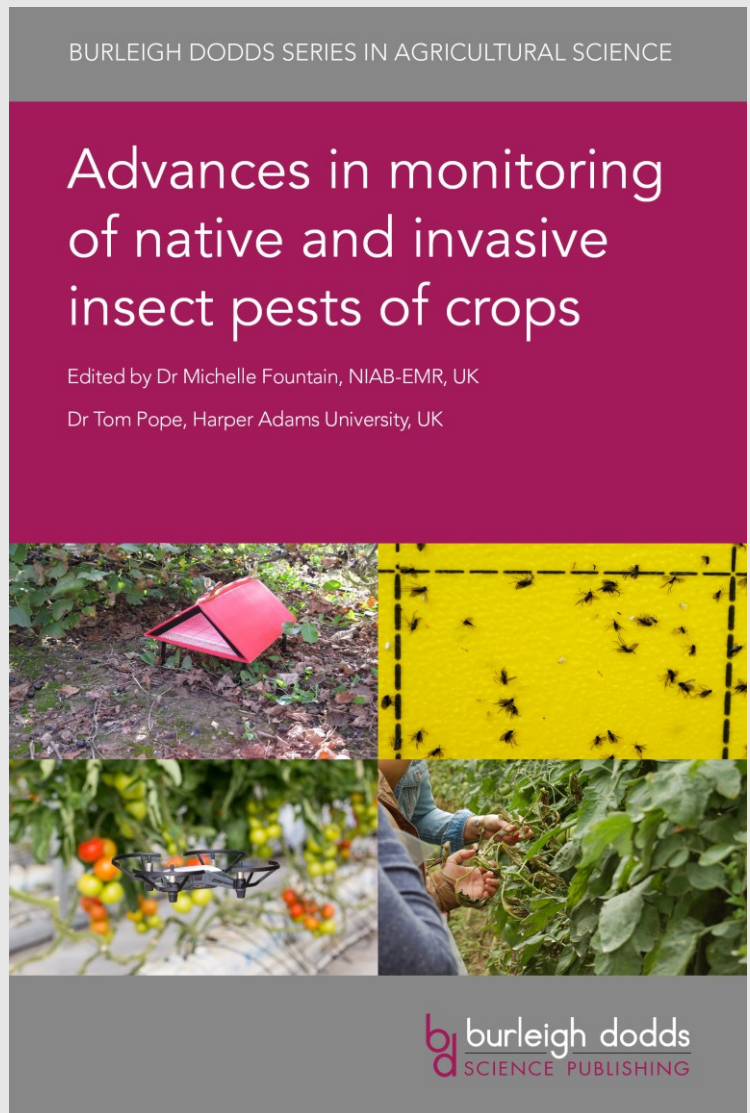
*Advances in monitoring of native and invasive insect pests of crops* reviews the wealth of research on techniques to monitor and thus prevent threats from both native and invasive insect pests. The book considers recent advances in areas such as sampling, identifying and modelling pest populations.

With its considered approach, the book explores current best practices for the detection, identification and modelling of native and invasive insect pests of crops. The contributors offer farmers informed advice on how to mitigate a growing problem which has been exacerbated as a result of climate change.

For more information and to view the full table of contents, visit the Burleigh Dodds Science Publishing [website](#).

## **\*Exclusive Discount for ISPP Members\***

Receive 20% off your order of the book using code PESTS20 via the [BDS Website](#). Please note that this discount code expires 30th June 2023.



# WEBINAR “CHEMICAL TREATMENTS TO MANAGE SEEDBORNE PATHOGENS”

GIANFRANCO ROMANAZZI, ISPP SEED PATHOLOGY COMMITTEE CHAIR



The ISPP Seed Pathology Committee organised on 21 April 2023 a webinar titled “Chemical treatments to manage seedborne pathogens”, in cooperation with International Seed Federation (ISF), International Seed Testing Association (ISTA), and Italian Association for Plant Protection (AIPP). A welcome address by Gianfranco Romanazzi (ISPP Seed Pathology Committee Chair), Rose Souza Richards (Seed Health Manager of ISF), and Ruud Barnhorn (Vice Chair of ISTA Seed Health Committee) pointed out the importance of the quality of the seed and the need to apply appropriate treatment for decontamination and disinfestation. The two invited speakers highlighted different aspects related to the seed treatment with chemical compounds. Michael Klueken from Bayer covered the different types of seed infection and contamination, and provided an overview of the synthetic fungicides available for the management of a series of seedborne fungi. Jay-Ram Lamichhane from INRAE discussed the points that need to be taken into consideration when we proceed to a chemical treatment for seedborne fungi. The video of the webinar is available on the ISPP Seed Pathology Committee YouTube channel at the link <https://www.youtube.com/watch?v=eOOOuo32TQE>. The next appointments of the Committee are the sessions organised within ICPP2023 in Lyon.

## FUNGAL INFECTIONS THREATENING GLOBAL FOOD SECURITY

LOUISE VENNELLS, UNIVERSITY OF EXETER

Scientists have warned of the “devastating” impact that fungal disease in crops will have on global food supply unless agencies across the world come together to find new ways to combat infection.

Worldwide, growers lose between [10 and 23% of their crops](#) to fungal infection each year, despite widespread use of antifungals. An additional 10-20% is lost post-harvest. In a commentary in [Nature](#), academics predict those figures will worsen as global warming means fungal infections are steadily moving pole-wards, meaning more countries are likely to see a [higher prevalence of fungal infections damaging harvests](#). Growers have already reported wheat stem rust infections, which normally occur in the tropics, in Ireland and England. The experts also warn that tolerance to higher temperatures in fungi could increase the likelihood of opportunistic soil-dwelling pathogens to hop hosts, and infect animals or humans.

Professor Sarah Gurr, Chair in Food Security at the University of Exeter, co-authored the report. She said fungi had recently attracted attention through popular hit TV show *The Last of Us*, in which fungi take over human brains. She said: “While the storyline is science fiction, we are warning that we could see a global health catastrophe caused by the rapid global spread of fungal infections as they develop increasing resistance in a warming world. The imminent threat here is not about zombies, but about global starvation.”

Across the world, food security is expected to encounter unprecedented challenges as rising populations mean more demand. Across the five most important calorie crops of rice, wheat, maize (corn), soya beans and potatoes, infections cause losses which equate to enough food to provide some 600 million to 4 billion people with 2,000 calories every day for one year.

Commentary co-author Eva Stukenbrock, professor and head of the Environmental Genomics group at Christian-Albrechts University of Kiel, Germany, and fellow of the Canadian Institute for Advanced Research (CIFAR), said: “As our global population is projected to soar, humanity is facing unprecedented challenges to food production. We’re already seeing massive crop losses to fungal infection, which could sustain millions of people each year. This worrying trend may only worsen as a warming world makes fungal infections more prevalent in European crops, and as they continue to develop resistance to antifungals. This will be catastrophic for developing countries and will have a major impact in the Western world, too.”

The commentary highlights a “perfect storm” which is causing fungal infections to spread rapidly. Among the factors is the fact that fungi are incredibly resilient, remaining viable in soil for up to 40 years, with airborne spores that can travel between continents. Added to this, they are extremely adaptable, with “phenomenal” genetic diversity between and among species. Modern farming practices entail vast areas of genetically uniform crops, which provide the ideal feeding and breeding grounds for such a prolific and fast-evolving group of organisms. They are also well equipped to evolve beyond traditional means to control their spread. The increasingly widespread use of antifungal treatments that target a single fungal cellular process means fungi can evolve resistance to these fungicides, so that they are no longer effective. This forces farmers to use ever-higher concentrations of fungicide in a bid to control infection, which can accelerate the pace of resistance developing.

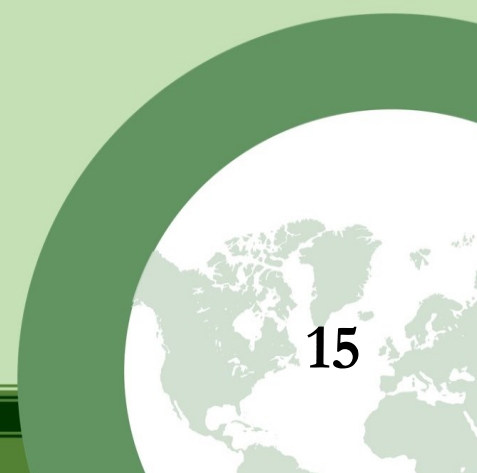
However, there is some cause for hope. In 2020, a team the University of Exeter discovered a new chemistry which could pave the way for a new type of antifungal targets several different mechanisms, meaning it is much harder for fungi to develop resistance. The Exeter group found the antifungal to be useful against a range of fungal diseases – [Septoria tritici blotch on wheat, rice blast, corn smut](#) and against the fungus which causes [Panama disease of bananas](#).

Farming practices may also hold the key to change, after a study in Denmark showed promise by planting seed mixtures which carry a range of genes which are resistant to fungal infection. Technology may also prove crucial, with AI, citizen science and remote sensing tools such as drones allowing for early detection and control of outbreaks.

Overall, the authors argue that protecting the world’s crops from fungal disease will require a far more unified approach, bringing together farmers, the agricultural industry, plant breeders, biologists, governments, policymakers and funders.

Professor Sarah Gurr concluded: “Fungal infections are threatening some of our most important crops, from potatoes to grains and bananas. We are already seeing massive losses, and this threatens to become a global catastrophe in light of population growth. Recently, we’ve seen the world unite over the human health threat posed by covid. We now urgently need a globally united approach to tackling fungal infection, with more investment, from governments, philanthropic organizations and private companies, to build on the seeds of hope and stop this developing into a global catastrophe which will see people starve.”

The commentary is entitled “[Address the growing urgency of fungal disease in crops](#)”, and is published in Nature.





## CURRENT VACANCIES

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### **Assistant Professor of Plant Pathology (Potato Pathology) - Washington State University, Position # 128780**

The Department of Plant Pathology at Washington State University (WSU) is recruiting a full-time (12 months), tenure-track position in plant pathology at the rank of Assistant Professor. The successful candidate will: 1) develop a nationally and internationally recognized research program leading to enhanced management of diseases of potatoes grown in Washington State and the Pacific Northwest; 2) develop an extension program relevant to Washington potato production; 3) contribute to the teaching mission of the department and the College of Agricultural, Human, and Natural Resource Sciences (CAHNRS); 4) provide service contributions to the department, college, and university; and 5) contribute to WSU's commitment to diversity, equity, and inclusive excellence. More info about the position and further instructions in the [PDF](#).

Submit the application online (<https://hrs.wsu.edu/jobs/>).

## ACKNOWLEDGEMENTS

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## COMING EVENTS

### 13<sup>th</sup> International Congress on Plant Biotechnology and Agriculture

12 June - 16 June, 2023  
Cayo Guillermo, Cuba  
Website: [bioveg.bioplantas.cu](http://bioveg.bioplantas.cu)

### International Fusarium Laboratory Workshop

18 June - 23 June, 2023  
Bari, Italy  
Website: [fusarium2023.ispacnr.it/](http://fusarium2023.ispacnr.it/)

### Plant Health 2023 – APS Annual Meeting

12 August - 16 August, 2023  
Denver, Colorado, USA  
Website:  
[www.apsnet.org/meetings/annual/Pages/default.aspx](http://www.apsnet.org/meetings/annual/Pages/default.aspx)

### 12<sup>th</sup> International Congress of Plant Pathology (ICPP2023)

20 August - 25 August, 2023  
Lyon, France  
Website: [www.icpp2023.org](http://www.icpp2023.org)

### Plant Pathology 2023

5 September - 8 September, 2023  
Birmingham, UK  
Website: [www.bspp.org.uk/conferences/plant-pathology-2023/](http://www.bspp.org.uk/conferences/plant-pathology-2023/)

### X International Conference “Bioresources and Viruses”

11 September - 13 September, 2023  
Kyiv, Ukraine  
Website: [icbv.knu.ua](http://icbv.knu.ua)

### 24<sup>th</sup> Australasian Plant Pathology Society Conference

20 November - 24 November, 2023  
Adelaide, South Australia  
Website: [eventstudio.eventsair.com/apps2023/](http://eventstudio.eventsair.com/apps2023/)

### XX International Plant Protection Congress

1 July - 5 July, 2024  
Athens, Greece  
Website: [www.ippcathens2024.gr](http://www.ippcathens2024.gr)

### 9<sup>th</sup> ISHS International Postharvest Symposium

11 November – 15 November, 2024  
Rotorua, New Zealand  
Website: [scienceevents.co.nz/postharvest2024](http://scienceevents.co.nz/postharvest2024)





# ICPP 2023

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[www.icpp2023.org](http://www.icpp2023.org)



## INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

[WWW.ISPPWEB.ORG](http://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.

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