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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The International Society for Plant Pathology promotes the world-wide development of plant pathology and the dissemination of knowledge about plant diseases and plant health management

IN THIS ISSUE:

A GLOBAL SYSTEM TO DETECT AND HALT THE SPREAD OF EMERGING CROP DISEASES

CIAT COMMUNICATIONS, 28 JUNE 2019

IN THE SAME MANNER THAT NATIONS COLLABORATE TO DETECT AND STOP HUMAN PANDEMICS, A GLOBAL SURVEILLANCE SYSTEM FOR CROP DISEASES NEEDS TO BE CREATED TO SAFEGUARD AGRICULTURAL TRADE AND FOOD SECURITY.

More than 20% of the five staple crops that provide half the globe's caloric intake are lost to pests each year. Climate change and global trade drive the spread, emergence, and re-emergence of crop disease, and containment action is often inefficient, especially in low-income countries. A Global Surveillance System (GSS) to strengthen and interconnect crop biosecurity systems could go a long way to improving global food security, argues a team of experts in the June 28 issue of *Science*.

"As part of efforts to satisfy global demand for food – which could mean increasing agricultural production by as much as 70% by 2050 – we need a GSS to reduce food lost to pests," said Mónica Carvajal, a researcher at the International Center for Tropical Agriculture (CIAT) and lead author. "A lot of collaboration and discussion is needed to rapidly take action and avoid outbreaks that could negatively impact food security and trade."

Carvajal and colleagues hope the GSS framework they propose gains traction in 2020, which was designated International Year of Plant Health by the United Nations. The system would prioritise six major food crops – maize, potato, cassava, rice, beans, and wheat – as well as other important food and cash crops that are traded across borders. The GSS proposal is the result of a scientific meeting convened by CIAT and held in 2018 at the Rockefeller Foundation's Bellagio Center in Italy.

INSPIRED BY RECENT OUTBREAKS

In 2015, Cassava Mosaic Disease (CMD) was discovered in Cambodia but the findings were not reported until 2016. By 2018, the disease had spread to Thailand and Vietnam, and is now estimated to be present in 10% of the surfaces cultivated in the region, threatening millions of smallholders who cultivate cassava and generate US$4 billion in export revenue.

Cassava Mosaic disease (CDM) in Cambogia (Photo: Georgina Smith (CIAT).

This year, agricultural authorities from four countries – Cambodia, Thailand, Vietnam, and Lao PDR – supported by research organisations including CIAT, published an emergency control plan for CMD in Southeast Asia.

Carvajal, who studied the CMD outbreak after its initial report, says that a GSS would help expedite action for future outbreaks.

"The question I asked was why does it take so long to respond to crop diseases in some cases?" said Carvajal. "What is the limitation to responding faster from the outset?"

The GSS proposal draws on lessons learned from the wheat blast outbreak that hit Bangladesh in 2016 and the bacterial outbreak of *Xylella fastidiosa* that started affecting olive trees in Europe in 2013. The proposal is from a multidisciplinary group of experts from academia, research centers, and funding organisations that work on issues related to plant health and human health.

What would GSS do?

The GSS would focus on tightening networks "active surveillance" and "passive surveillance" personnel who are on the front lines of disease outbreaks. Active surveillance consists of laboratories at agriculture inspection stations, and customs and phytosanitary inspectors at borders and ports of entry. Despite their formal infrastructure, only an estimated 2-6% of cargo can be effectively screened.

The second group includes loose networks of farmers, extension workers with national agricultural organisations, scientists and agronomists at research centers and universities, and specialists in agriculture industries.

"For this infrastructure to be effective, connections between first detectors and downstream responders must be enhanced and actions coordinated," said the authors. "But diagnostic capacity, information sharing, and communications protocols are lacking or weakly established in some regions, especially in low-income countries. Our reflection on many disease outbreaks is that whether in high-income countries or low-income countries, the passive surveillance infrastructure has the most in-field monitoring eyes but the least coordination from local to global."

The GSS would tap into cutting-edge technology for rapid disease diagnostics and take advantage of communications networks, including social media, to rapidly share information. The system would have regional hubs and consist of five formal global networks. These would include a diagnostic laboratory network, a risk assessment network, a data management network, an operational management network, and a communications network.

Threshing of rice near Sangrur SE Punjab, India (Photo: Neil Palmer CIAT).

"Our team realised that there is a big issue with communication, even when we speak the same language and use the same technologies," said Carvajal. "One of the most relevant components is the communications network."

The GSS team hopes to contribute to future efforts on strengthening pest outbreak response systems within the International Plant Protection Convention's (IPPC) 2020-2030 Strategic Framework.

"We encourage the annual G20 Agriculture Ministers Meeting, the World Bank Group, and FAO, among others, to join efforts toward enhancing cooperation for a multi-year action plan for the proposed GSS to more effectively reduce the impact of crop diseases and increase global food security," the authors conclude.

THE EDITORIAL BOARD OF FOOD SECURITY MEETS AT IFPRI, WASHINGTON, D.C.

SERGE SAVARY, *FOOD SECURITY* EDITOR-IN-CHIEF

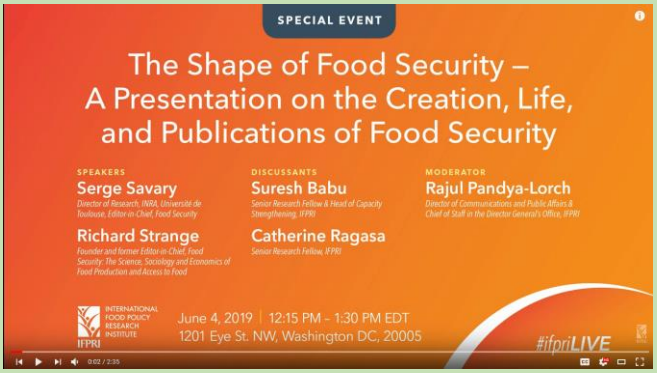
Coinciding with the 10 years of existence of the journal, the change in Editor-in-Chief, the change in Senior Editor at Springer Nature, and a significant turn-over of Senior Editors, it was due time for an Editorial Board Meeting for *Food Security*. The meeting was hosted by the International Food Policy Research Institute (IFPRI) in Washington, D.C., and involved: Serge Savary (Editor-in-Chief, INRA, France), Stephen Waddington (Cuernavaca, Mexico, Deputy Editor-in-Chief and Senior Editor for Biology), Richard Strange (University College, London, past Editor-in-Chief), Melinda Paul (Senior Editor, Springer), and the four other Senior Editors of the journal: Conny Almekinders (Wageningen University, the Netherlands, Sociology), Michael Dibley (University of Sydney, Australia, Nutrition), Reimund Rötter (University of Göttingen, Agronomy), and Derrill Watson (Tarleton University, USA, Economics and politics).

The agenda for discussion was extensive, including an assessment of the vision and scope of the journal, the respective roles of the Senior Editors, the publication strategy of *Food Security*, the review process of submissions, and a number of technical aspects. These will be reported soon to the Executive Committee of the ISPP.

The Editorial Board Meeting of *Food Security* was also an opportunity to give a seminar to the IFPRI community. This was delivered by Richard Strange and Serge Savary. Some of the messages conveyed in this seminar were based on a statistical analysis of the scientific publications published by the Journal over the past ten years. This analysis highlights the components of food security (from production, to access, and to food use), the scales at which food security is addressed (from the individual to the household, to the country and region, and to the global scales). These elements can in turn be related (Figure) with the systems of food security — the physical systems (e.g. agrosystems), as well as the non-physical systems (e.g., the policy environment) — the regions of the world which are covered by *Food Security* articles, as well as the numerous factors that may influence food security.

Food Security **Editor-in-Chief Serge Savary responds to a question as (from left) Suresh Babu, Catherine Ragasa of IFPRI and journal founder Richard Strange look on. (Photo: Jamed Falik, IFPRI)**

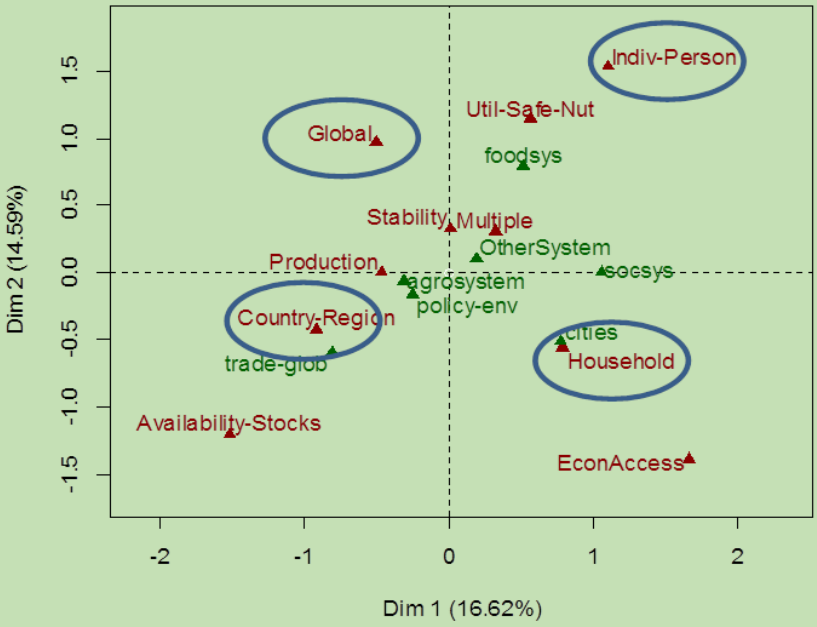
A video of the seminar is available at the following link: http://www.ifpri.org/event/shape-food-security-%E2%80%93-presentation-creation-life-and-publications-food-security.



This analysis highlights the interdisciplinary nature of the journal, and its success in linking many disciplinary fields to a set of key issues related to food security. Some directions for the future were discussed. These included the consequences of extreme climate events for food security, the importance of agricultural extension with respect to food production, or of major plant pathogens which threaten food security. Stronger efforts to reach scientific communities in South Asia, where the majority of the world's poor live, were considered. Emphasis on physical systems beyond the classical agrosystems – household gardens, cities, forests and agroforests, were also addressed. Many directions in the future development of the Journal thus exist. This is in large part because of the success of *Food Security* in establishing itself as a multidisciplinary journal.

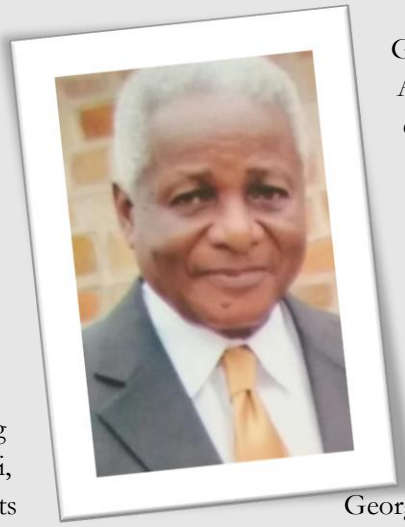
A MULTIVARIATE ANALYSIS OF FOOD SECURITY PUBLICATIONS OVER 10 YEARS

Food security scales (blue) are associated with different food security components (red): individuals with the utility and nutritional value; households with economic access; countries with national stocks and production; and the global scale with most of the components of food security. In terms of Systems (green), individuals are strongly linked with food systems and social systems, households are often associated with social systems and with cities, countries are linked with trade, and the global scale with most of the considered systems.



OBITUARY OF GEORGE CARVER CLERK, 1931-2019

DANIEL CLERK



George Carver Clerk, a pioneering plant pathologist in West Africa, died on 2 May 2019 in Accra, Ghana, after a short illness, aged 87. Known for his quiet demeanor and love of cakes, his academic career was largely spent at the University of Ghana, Legon, where he lectured and conducted research in botany, plant pathology and ecology. As a young academic, he investigated fungi, viruses and other infectious agents that affect crop yield and agricultural productivity in the sub-region, including those that cause diseases of sweet potato and cola. His work also forayed into aquaculture and environmental plant health.

Clerk championed science education at the secondary level in West Africa, co-authored an ecology textbook for high school students and for many years, served as the chief examiner for biology of the West African Examinations Council, the regional body responsible for administering final secondary school examinations in Anglophone West African jurisdictions. During the late 1950s, he was a biology tutor at Prempeh College, a boys' public boarding school in Kumasi, Ghana.

In 1972, he took a sabbatical at the botany faculty of the University of California, Riverside and taught at the University of Port Harcourt in Nigeria in the 1980s. In 1973, Clerk was elected a Fellow of the Ghana Academy of Arts and Sciences, the national learned society. The following year, his magnum opus, "Crops and their diseases in Ghana," was published by the Ghana Publishing Company.

Outside the classroom, he was the Hall Master and a Senior Common Room member at the Akuafo Hall at the University of Ghana and served on the board of the Ghana Atomic Energy Commission, a state-sponsored institute for applied research in nuclear energy tailored to national needs, including agriculture. In the 1970s, he was a regional representative of the Association of African Universities.

George Carver Clerk was born on 29 July 1931 in Accra, Gold Coast, to the Rev. Carl Henry Clerk, an educator and Presbyterian minister, who belonged to a broader lineage of pioneer intellectuals in Ghana. His mother, Martha Ayorkor Clerk, née Quao, descended from a notable royal household in Accra. Clerk's father who had read agricultural science at the Tuskegee Institute in Alabama in the United States, named his son after his former professor, the eminent American botanist, George Washington Carver. Carl Clerk had a backyard vegetable garden which was undoubtedly George Clerk's first science laboratory as a child.

As a pupil, George Clerk attended an all-boys Presbyterian boarding school where he learned to play the piano. He undertook his undergraduate studies at the University College of the Gold Coast (now the University of Ghana) and graduated with a first in botany as an external student of the University of London. Clerk went on to receive his PhD in botany from Imperial College London in 1963.

George Clerk's craving for cakes must have come from the bakery his mother owned in his formative years. His relatives fondly recall his soft-spoken nature and self-effacing knack for keeping in the background at family events. He would be remembered for his calligraphic handwriting and for his deep knowledge of his family's distinguished history. Clerk's Jamaican great-grandfather, Alexander Worthy Clerk was among a group of 24 Caribbean Moravians recruited by the Basel Mission in 1843 to establish schools in the country. His grandfather, Nicholas Timothy Clerk, a theologian and educator, who trained in Basel, Switzerland in the 1880s, was a proponent of secondary education for all, including girls.

A lifelong learner, George Clerk's last academic paper was published in 2014, when he was 83, and in his retirement, he continued to occasionally mentor and advise postgraduate students, even in the last weeks of his life. He is survived by his children, Nicholas, Theodore, Daniel and Dinah and his brothers, Arnold and Henry.

"SNEEZING" PLANTS CONTRIBUTE TO DISEASE PROLIFERATION

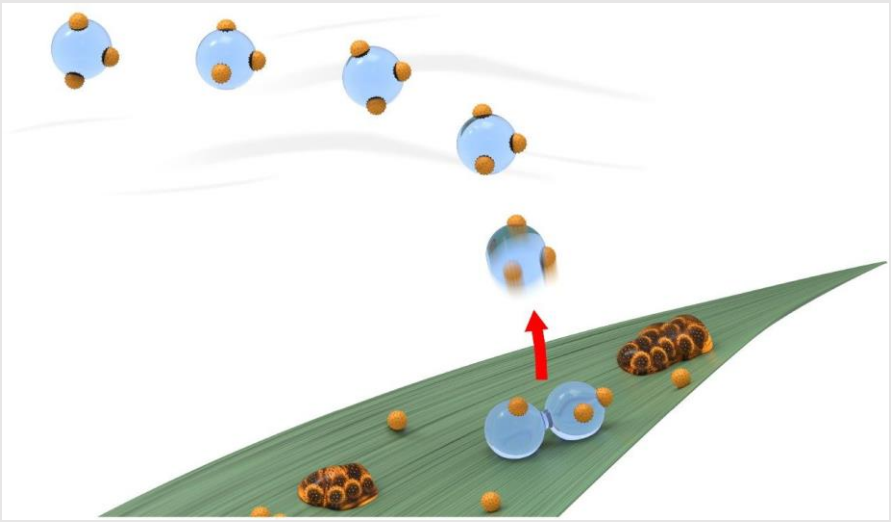
VIRGINIA TECH DAILY, 20 JUNE 2019

Virginia Tech researchers discovered that wheat plants "sneezing" off condensation can vastly impact the spread of spore-borne diseases, such as wheat leaf rust, which can cause crop yield losses of up to 20 percent or more in the United States and higher average losses in less developed agricultural nations. The study, published in June, and featured on the cover of the *Journal of the Royal Society Interface*, is part of a three-year grant obtained from the U.S. Department of Agriculture's National Institute of Food and Agriculture to study the dispersal of wheat pathogens by rain splash and jumping-droplet condensation.

Jonathan Boreyko, assistant professor of mechanical engineering in the College of Engineering is a co-principal investigator on the grant and David Schmale, professor of plant pathology, physiology, and weed science in the College of Agriculture and Life Sciences, is the primary investigator. "Professor Schmale had seen some of the work we've been doing on condensation and was curious to see what we could learn about condensation on wheat leaves," said Boreyko. "The project didn't start with any expectations, but people already knew that rain splash and wind caused pathogenic spores to be removed from plants and spread to others, and we wanted to see if condensation might also have a role to play in spore dispersal."

"Conceptually, what the plants are doing is sneezing," Boreyko said. "The jumping droplets, at the rate of 100 or more an hour, are a violent expulsion of dew from the surface. It's good for the plant because it is removing spores from itself, but it's bad because, like a human sneeze, the liquid droplets are finding their way onto neighboring plants. Like a cold, it's easy to see how a single infected plant could propagate a disease across an entire crop."

The paper, co-first-authored by Saurabh Nath and Farzad Ahmadi, engineering mechanics graduate students in Boreyko's lab, showed the jumping droplets can dramatically increase the dispersal of disease spores. "We wanted to find out, first if the condensation droplets can carry spores, and while 90% of them carry only a single spore, we have seen instances where a droplet has carried as many as 11," Ahmadi said. "We also looked at how high the spores can jump and whether they can get past the boundary layer of the leaf."



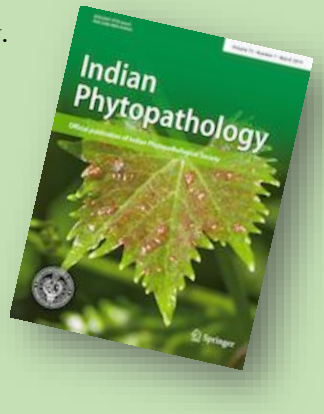
Dew droplets gather wheat leaf rust spores. When the droplets merge, they convert surface tension into kinetic energy and 'jump' from the leaf surface. If these droplets get past the boundary layer of the leaf, typically about 1 millimeter, they can be taken by the wind and deposited on other plants nearby or in other fields or even farms.

The boundary layer, which is about a millimeter thick, is the region of air near the leaf's surface where the wind doesn't affect the droplet. If the kinetic energy from merging moves the jumping droplet above the boundary layer, the droplet can be taken by the wind. Depending upon the wind speed, it's feasible for the droplet to then be moved great distances, including to neighboring fields or farms.

INDIAN PHYTOPATHOLOGY – TOP THREE ARTICLES FROM YEAR SO FAR

The top three articles from *Indian Phytopathology* are free to access until end of July. These include:

- First report of edible mushroom *Pleurotus ostreatus* from India with potential to kill plant parasitic nematodes
- Morphological characterization and screening for sheath blight resistance using Indian isolates of *Rhizoctonia solani* AG1IA
- Etiology of an emerging disease: bakanae of rice



CROP PESTS MORE WIDESPREAD THAN PREVIOUSLY KNOWN

UNIVERSITY OF EXETER NEWS, 25 JUNE 2019

Insects and diseases that damage crops are probably present in many places thought to be free of them, new research shows. Pests that have not been reported in a certain area are usually assumed to be absent, but analysis by the University of Exeter shows many pests are "currently unobserved, but probably present" (a likelihood of more than 75%). The study identified large numbers of pests in this category in China, India, southern Brazil and some countries of the former USSR. The researchers used data for 1,739 pests in the Centre for Agriculture and Bioscience International (CABI) pest distribution database.

"Our model allows us to quantify the risk that a certain pest is present in a certain place," said Dr Dan Bebber, of the University of Exeter. "Our trick for testing model accuracy was to use pest observations from China published in the Chinese literature, which have not yet been incorporated into global pest databases.

"A lot of species that people are worried about finding in certain places are probably already there. That early stage is crucial if we want to stop the spread – so these are the pests we should be focussing our efforts on."

The discovery of crop pests and pathogens in new areas has accelerated in recent years, driven primarily by global trade, but also potentially by climate change. Targeting areas where new pests are probably present – or are highly likely to arrive – could be a key aspect of tackling their spread and reducing the resulting crop damage.

"Prior studies have often assumed that unreported pests in a global distribution database represent a true absence," Dr Bebber said. "Our analysis provides a method for quantifying these 'pseudo-absences' to enable improved distribution modelling and risk analysis."

The paper, published in the journal *Global Change Biology*, is entitled: "Many unreported crop pests and pathogens are probably already present."

SUDDEN OAK DEATH POSES THREAT TO OAKS IN INDIANA

JOHN E. WOODMANSEE, MORNING AG CLIPS, 7 JUNE 2019

Recent news alerts have been sent out by Purdue Extension, Indiana Department of Natural Resources (DNR), and other groups regarding the disease, Sudden Oak Death (SOD), *Phytophthora ramorum*, in Indiana, USA. On 22 May, Indiana DNR confirmed that it had intercepted plants containing *P. ramorum* for the first time in about 10 years. They confirmed on 29 May that more than 80 retail stores in the state received rhododendron plants infected with SOD.

Symptoms of the disease on a rhododendron leaf. (Photo: Ken Peek, Alameda Dept. of Agriculture)

Janna Beckerman, Professor of botany and plant pathology at Purdue, said that sudden oak death, as the name suggests, is a disease that is capable of rapidly killing certain species of oaks. It was first identified in California, in 1995.

"If the pathogen becomes established in Indiana, SOD could change the structure of American forests and landscapes, just as emerald ash borer is currently doing, and how Dutch elm disease did 50 years ago, or the chestnut blight did 100 years ago," said Beckerman.

Indiana DNR also reported that they have destroyed approximately 1500 infested rhododendron so far, and pulled another 1500 from stores, with an order to stop selling rhododendron until further notice.

Read more.

NEW MICRONEEDLE TECHNIQUE SPEEDS PLANT DISEASE DETECTION

MATT SHIPMAN, NORTH CAROLINA STATE UNIVERSITY NEWS, 10 JUNE 2019

A new technique that uses microneedle patches to collect DNA from plant tissues in one minute, rather than the hours needed for conventional techniques has been developed by researchers at North Carolina State University. DNA extraction is the first step in identifying plant diseases, and the new method holds promise for the development of on-site plant disease detection tools.

"When farmers detect a possible plant disease in the field, such as potato late blight, they want to know what it is right away; rapid detection can be important for addressing plant diseases that spread quickly," says Qingshan Wei, an assistant professor of chemical and biomolecular engineering at North Carolina State University and co-corresponding author of a paper on the work.

"One of the obstacles to rapid detection is the amount of time it takes to extract DNA from a plant sample, and our technique provides a fast, simple solution to that problem," Wei says.

"Some plant diseases have similar leaf symptoms, such as late blight caused by the famed Irish famine pathogen Phytophthora infestans, and Phytophthora blight caused by a sister species P. nicotianae," says Jean Ristaino, William Neal Reynolds Distinguished Professor of Plant Pathology at NC State and co-corresponding author of the paper. "The gold standard for disease identification is a molecular assay. Our new technique is important because you can't run an amplification or genotyping assay on strains of P. infestans, or any other plant disease, until you've extracted DNA from the sample."

Typically, DNA is extracted from a plant sample using a method called CTAB extraction, which has to be done in a lab, requires a lot of equipment, and takes at least 3 to 4 hours. CTAB extraction is a multi-step process involving everything from tissue grinding to organic solvents and centrifuges.

By contrast, the new DNA extraction technique involves only a microneedle patch and an aqueous buffer solution. The patch is about the size of a postage stamp and is made of an inexpensive polymer. The surface on one side of the patch is made up of hundreds of needles that are only 0.8 millimeters long.

A farmer or researcher can apply the microneedle patch to a plant they suspect is diseased, hold the patch in place for a few seconds, then peel it off. The patch is then rinsed with the buffer solution, washing genetic material off of the microneedles and into a sterile container. The entire process takes about a minute.

The paper, "Extraction of Plant DNA by Microneedle Patch for Rapid Detection of Plant Diseases," is published in the journal *ACS Nano*.

CURRENT VACANCIES

Assistant Professor Plant Nematology, Clemson University, USA

The Department of Plant and Environmental Sciences in the College of Agriculture, Forestry and Life Sciences at Clemson University is seeking to fill a 9-month, tenure-track position at the Assistant Professor level (70% research and 30% teaching) to work on nematode diseases of plants. The successful candidate is expected to develop a vigorous, innovative, and extramurally-supported research program in fundamental and applied Plant Nematology, focused on nematodes affecting economically important plants in South Carolina and the southeastern United States. Review of applications will begin on or around 21 June 2019 and will remain open until filled. Further details about the position and how to apply are available in the PDF.

Assistant/Associate Professor (Plant Nematologist), Louisiana State University, USA

Department of Plant Pathology and Crop Physiology at the Louisiana State University, Baton Rouge, LA seeks to fill a position of Assistant/Associate Professor (Plant Nematologist). This position is a tenure-track 12-month appointment with 60% research, 30% extension (LSU AgCenter) and 10% teaching responsibilities (LSU College of Agriculture). The responsibilities for this position will be to address knowledge gaps in the epidemiology of plant-parasitic nematodes in agricultural systems, implementing contemporary diagnostic technologies and developing integrated management strategies for established and emerging plant parasitic nematodes in Louisiana while supervising the Nematode Advisory Service Laboratory. Application screening will begin 15 August 2019 and will remain open until filled. Further details about the position and how to apply are available at this link: https://lsu.wd1.myworkdayjobs.com/en-US/LSU/job/LSU---AG-Center/Assistant-Associate-Professor--Plant-Nematologist-_R00034627

Assistant Professor of Plant Pathology, Washington State University, USA

The Department of Plant Pathology at the Washington State University seeks to fill a 12-month, permanent, full time tenure-track position at the rank of Assistant Professor of Plant Pathology. The position has research and extension responsibilities in potato pathology and teaching responsibilities at the undergraduate and graduate levels. Application screening will begin on 30 April 2019 and remain open until filled. Further details about the position and how to apply are available in the PDF.

ACKNOWLEDGEMENTS

Thanks to Greg Johnson, Jan Leach, and Andrea Masino for contributions.

COMING EVENTS

51st Pest Management Council of the Philippines Anniversary and Annual Scientific Conference
2 July - 5 July, 2019
Coron, Palawan, Philippines
Contact: Mr. Freddiewebb B. Signabon
philphytopath@gmail.com

Rhizosphere 5
7 July - 11 July, 2019
Saskatoon, Saskatchewan, Canada
Website: www.rhizo5.org

11th International Workshop on Grapevine Trunk Diseases
7 July - 12 July, 2019
Penticton, British Columbia, Canada
Website: iwgtd2019.ca/

4th International Symposium on Biological Control of Bacterial Plant Diseases (BIOCONTROL2019)
9 July - 11 July, 2019
Viterbo, Italy
Website: www.biocontrol2019.com

XVIII International Society for Molecular Plant-Microbe Interactions Congress
14 July - 18 July, 2019
Glasgow, Scotland
Website: www.ismpmi.org/Congress/2019

1st International Wheat Congress
21 July - 26 July, 2019
Saskatoon, Saskatchewan, Canada
Website: 2019iwc.ca

American Phytopathological Society Annual Meeting – Plant Health 2019
3 August - 7 August, 2019
Cleveland, Ohio, USA
Website:
www.apsnet.org/meetings/2019/Pages/default.aspx

6th International Conference on Bacterial Blight and Bacterial Leaf Streak of Rice
18 August - 22 August, 2019
Cantho City, Vietnam
Website: icbb6.org/

BSPP Annual Meeting: Arms Race – evolution of plant pathogens and their hosts
2 September - 3 September, 2019
Bristol, UK
Website: www.bspp.org.uk/conferences/arms-race-evolution-of-plant-pathogens-and-their-hosts/

International Workshop on the Fruit Microbiome: A New Frontier
3 September - 6 September, 2019
National Conservation Training Center, Shepherdstown, West Virginia, USA
Website: www.bard-isus.com/fruitmicrobiome.html

Working Party Meeting of IUFRO WP 7.03.10 Methodology of forest insect and disease survey in Central Europe - "Recent Changes in Forest Insects and Pathogens Significance"
16 September - 20 September, 2019
Suceava, Romania
Website: www.silvic.usv.ro/iufroromania2019/

22nd Biennial Conference of the Australasian Plant Pathology Society
25 November - 28 November, 2019
Melbourne, Australia
Website: www.apps2019.org

International Symposium on Microbe-Assisted Crop Production – Opportunities, Challenges and Needs
2 December - 5 December, 2019
Vienna, Austria
Website: microp.org/

Indian Phytopathological Society 7th International Conference on "Phytopathology in Achieving UN Sustainable Development Goals"
16 January - 20 January, 2020
New Delhi, India
Website: ipsdis.org

16th Congress of the Mediterranean Phytopathological Union
23 March - 27 March, 2020
Limassol, Cyprus
Website: cyprusconferences.org/mpu2020

14th International Conference on Plant Pathogenic Bacteria
7 June - 12 June, 2020
Assisi, Italy
Website: www.icppb2020.com

Joint 18th International *Botrytis* Symposium & 17th International *Sclerotinia* Workshop
8 June - 12 June, 2020
Avignon, France
Website: colloque.inra.fr/botrytis-sclerotinia-2020

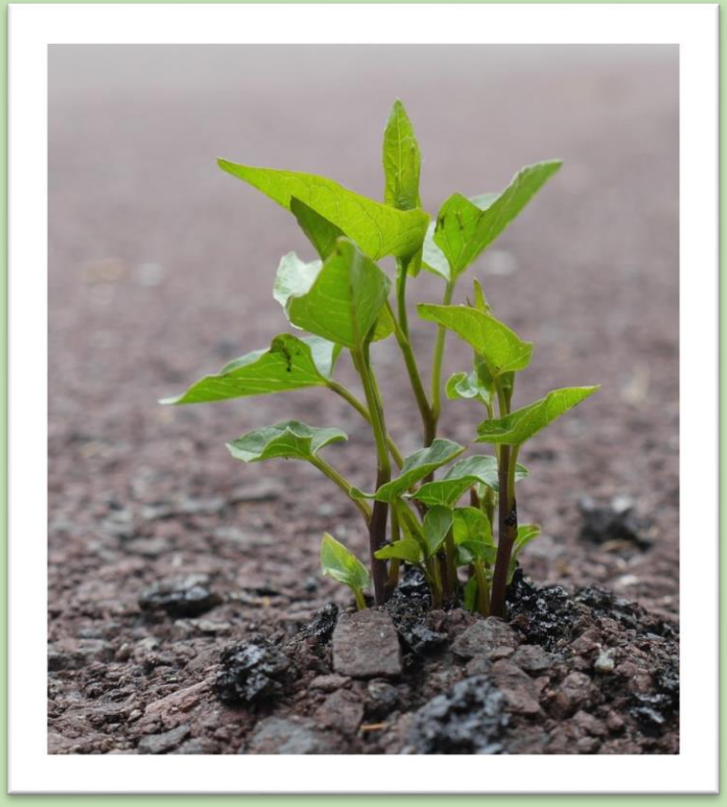
Asian Conference on Plant Pathology: Importance and Impact of Global Plant Health
15 September - 18 September, 2020
Tsukuba International Congress Center, Ibaraki, Japan
Website:
www.ppsj.org/pdf/meeting/2020_ACPP.pdf?0913-2

13th Arab Congress of Plant Protection
1 November - 6 November, 2020
Le Royal Hotel, Hammamat, Tunisia
Contact: Dr. Asma Jajar, Chairperson of Organising Committee info@acpp-aspp.com
Website: acpp-aspp.com

IX International Postharvest Symposium
9 November - 13 November, 2020
Rotorua, New Zealand
Website: scienceevents.co.nz/postharvest2020

12th International Congress of Plant Pathology (ICPP2023)
20 August - 25 August, 2023
Lyon, France
Website: www.icpp2023.org

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 Privacy Information Notice 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 business.manager@issppweb.org

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