Graduate School Perspectives from the Next Generation of Plant Pathologists

Elisha Allan-Perkins (Graduate Student Committee Immediate Past Chair, eballan@cns.umass.edu), Anna Testen (Graduate Student Committee Chair, testen.2@osu.edu), and Alejandra Huerta (2013–2014 Graduate Student Committee Chair, ahuerta@wisc.edu)

Have you ever wondered what graduate students think about their academic programs? To gain insight on this subject, we surveyed APS student members for their views on graduate school requirements, advisor and student expectations, and career opportunities. Our respondents (72 out of 691 APS student members) consisted mostly of Millennials (89%); 25% of respondents were international students.

Most students in research-based plant pathology graduate programs do not have to worry about going into debt in order to further their education. These graduate programs usually include monthly stipends, tuition waivers, and health insurance. Sixty-one percent of respondents stated that the stipend amount was important or very important in choosing their graduate program. Tuition waivers (95%) and health insurance benefits (92%) were ranked as important or very important benefits, whereas fewer respondents felt this way about child care benefits (41%).

Once in an academic program, students are required to manage their time efficiently. This includes course work, possibly teaching, and their independent research project. Most students work around 40 hours per week (40–50 hours [35%], 30–40 [21%], and 50+ [32%]). A 40- to 50-hour work week is thought to be a reasonable expectation of students (44%), with fewer students (12%) responding that 50+ hours is reasonable. Almost half (45%) responded that two weeks were reasonable for annual vacation time.

As expected in today’s technologically rich world, graduate students are flexible with respect to their working environments: 78% of students say they are comfortable working anywhere. Students today communicate with coworkers in various ways: in person (96%); e-mail (96%); text (65%); phone (45%); and Skype (34%).

When entering a plant pathology graduate program, students have an end goal in mind: to land their ideal job. Today’s students are interested in a diversity of careers. Forty-three percent of students are interested in academia, 24% in industry, 17% are undecided, 10% in government positions, 3% in international work, and 3% in independent businesses. Most students (67%) feel their programs are preparing them for their intended career and that they are sufficiently trained in the following areas: extension (60% responding yes); molecular biology (78%); and field experience (72%). However, only a quarter of students felt they have been adequately trained to work internationally.

No graduate program is perfect, and programs can be improved continuously. Students shared their ideas on what they feel would make their programs even better. Many students want a diversity of plant pathology courses; specifically to broaden their training, so they would feel comfortable with the breadth of the field of plant pathology. Students expressed interest in unique plant pathology experiences such as international work, internships, educational tours, and visits to other

I Nominate...

Make your nominations for VP and CAL by December 4

APS needs experienced leaders who are committed to working diligently for the success of our society and profession. We are especially seeking individuals who are respected in the field of plant pathology, are good mentors, and have leadership experience, a record of service in APS, and a vision for the society. Nominate a colleague or indicate your own interest in serving APS as vice president or councilor-at-large on APS Council. An e-mail with a link to the nomination form will be sent to all current, eligible voting members on Tuesday, November 3. A paper nomination form will be mailed to those members without an e-mail address. All nominations are due by December 4, 2015. Visit www.apsnet.org/members/apsleadership/Pages/APSCouncilNominations.aspx for full details.
Editor’s Corner

Digital Diagnostics Revisited

Doug Jardine, Kansas State University, PhytoNewsEditor@scisoc.org

In my 30-plus years as a plant pathologist, there are only a few Phytopathology News topics that seemed to elicit a chord with the membership to the point that they became a series of point-counterpoint letters to the Editor. I will not, however, open the door to that argument. The other topic and the subject of this, my penultimate column, was digital diagnostics. I have chosen not to include the names of all those involved so as not to stir up old hard feelings.

It apparently started with two presentations made in a session on disease detection at the 1998 Annual Meeting held in conjunction with the Entomological Society of America in Las Vegas. The original letter appeared five months later in the April 1999 issue under the title “Digital Disease and the Ethics of Virtual Plant Pathology.” The author, arguing against the use of digital images of diseases, at one point stated, “Guessing the cause of a disease from a photograph may be fun and challenging at the APS meetings during the disease diagnosis competition, but diagnosis from photographs is not an acceptable standard for the practice of plant pathology. I cannot imagine a situation where an image alone would be suitable for diagnostic purposes and management recommendations.”

Over the next six months, there were seven more letters on the subject, including rebuttals from the authors of the previously cited presentations and a rebuttal to the rebuttal from the original author. In looking at the collective correspondence, the case against digital diagnostics came from private industry, where heavy liability can be incurred from an incorrect diagnosis and those speaking in favor of the use of digital images came primarily from the extension ranks.

Over the next six months, there were seven more letters on the subject, including rebuttals from the authors of the previously cited presentations and a rebuttal to the rebuttal from the original author. In looking at the collective correspondence, the case against digital diagnostics came from private industry, where heavy liability can be incurred from an incorrect diagnosis and those speaking in favor of the use of digital images came primarily from the extension ranks. A few take-away messages from both sides of the debate are that certainly not all disease problems can be identified from a photographic image, especially root-related problems. On the other hand, many diseases have such distinct symptoms (e.g., cedar-apple rust) that they can readily be identified from an image such that appropriate management recommendations can be made.

I think that a fair summarization of the debate that was digital images are just another tool in the toolbox of a diagnostician in making a timely and correct diagnosis. I can support that statement with personal experiences. At Kansas State University, I am actively involved in the daily diagnosis of samples of the agronomic row crops that are my responsibility. One of the most useful pieces of information that I can have is a wide-angle photo of the field where a sample originated. Seeing the pattern in the field can be of great value. Sometimes, the pattern is so distinct as to allow me to rule out a pathogenic cause at all. These images can be very useful in diagnosing potential misapplications of herbicides and fertilizers or perhaps the malfunction of planter equipment. Recently, I was in Australia for an extended period of time and a less experienced graduate student was assisting with sample diagnosis while I was gone. We set up a system whereby the diagnostic lab took photographs of the samples when they were unsure of the cause and placed them in our diagnostic database where I could access them from Australia. While not necessarily being able to make a specific diagnosis, I could create a list of potential causes based on the symptoms observed that they could then use to home in on the cause through culturing, serology, or other appropriate tests. This allowed for a more rapid turnaround of the sample. Without it, the submitters would have had to wait for my return, by which time it is likely the sample would have deteriorated to the point of not being useful.

One other use of digital imaging that I have found useful in the age of social media is to take a photo of diseased plants as I find them on scouting expeditions in the field. I can immediately post these to Twitter or Facebook with a note that the disease is currently active in a particular locality of the state and that extension agents, consultants, and growers should be on the lookout for it, especially if it is one that can be managed by a timely fungicide application.

While we cannot always make a definitive diagnosis from an image, I believe that they serve as a useful piece of information in making a diagnosis and, based on the number of images I receive each summer, they are here to stay, like it or not.
Preparing Aspiring Plant Pathologists

Renée Rioux, NewLeaf Symbiotics, Inc., rrioux@newleafsym.com, and Bill Schneider, USDA ARS, william.schneider@ars.usda.gov

If you’re a scientist, you’ve invested a lot of your life in getting where you are. There was undoubtedly an undergraduate degree and probably a graduate degree, if not a full Ph.D. degree. And it doesn’t stop there. If you did pursue the Ph.D. pathway, you are likely looking at one or more post-docs. A career in science can be incredibly fulfilling. What could be better than a lifetime of solving problems and helping society? Taking something you love and turning it into a lucrative career, that’s just about as good as it gets. Transitioning into a full-time career hinges on a few key moments in which scientists need to do an excellent job of selling themselves: applying for jobs, interviewing, tenure and promotion, etc. Unfortunately, self-promotion is an area where most people, including scientists, are rarely comfortable. In addition, while aspiring plant pathologists are very well trained in scientific skill sets, they do not always receive training in the career skills that are essential for surviving and thriving during those key moments in career advancement.

In a recent survey of the APS membership, early career professionals placed a high value on career skills training and indicated that such training was not consistent across institutions. Fortunately, there are many career skills resources available to APS early career professionals. This past year, three APS groups (CADRE, the Graduate Student Committee, and the Leadership Institute) collaborated to launch a new resource for aspiring plant pathologists: Careers 101. Careers 101 offers career skills training at APS divisional meetings with a rotating curriculum of classes, including cover letter and CV prep, interviewing skills, and additional topics still to be determined. The intent is to cycle the content such that a typical graduate student or post-doc will be able to take two or more of the Careers 101 classes during the course of their training. The classes are being held at divisional meetings because, in many cases, graduate student and post-doc attendance can be better at the local venues, and because finding time for another workshop within the busy national meeting program is challenging. The classes are taught by APS volunteers and content development is shared among instructors. In 2015, the Potomac and North Central Divisions graciously hosted as hosts for the first iterations of these workshops. The instructor-developed content included two modules: 1) an overview presentation that introduced general concepts in CV and cover letter writing, followed by specifics on applying for academic, private sector, and government positions; and 2) a hands-on portion where participants received a job description and two candidate application packets to review. For the hands-on module, application packets representing the three career tracks (government, academia, and private sector) were available and participants selected the sector in which they were most interested. The two application packets contained subtle differences intended to highlight the importance of tailoring the language and format of one’s CV and cover letter to the position of interest. Highly similar content was used in both divisions, allowing for the development of a single set of materials, as well as for comparison between the two workshops. The 2015 trainings were well received and much appreciated by attendees. Each workshop was attended by, on average, 20 participants, which included graduate students, post-docs, and early career professionals. Assessment data collected immediately after the workshops indicated that participants in both divisions generally found all aspects of the training to be in the “Good” to “Excellent” range (graph). All attendees listed one or more items they learned from the training and essentially all (>95%) would recommend the workshop and attend a similar training on a different topic in the future. Additional handwritten comments left by participants expressed appreciation for the offering of a discipline-specific workshop and enthusiasm for similar future opportunities. With successful pilots in 2015, the Careers 101 workshops will be back in 2016 and expanding to additional divisions. The Southern and Northeastern Division meetings will feature the CV101 workshop content; most remaining divisions will be offering a new workshop on interviewing skills. If you are interested in participating in Careers 101 as a student or a developer/instructor/organizer, please contact Renée Rioux (rrioux@newleafsym.com) or Bill Schneider (william.schneider@ars.usda.gov).
The Changing Paradigm of Cooperative Extension and the Dilution of Extension Impact

Robert Harveson, University of Nebraska, Panhandle Research and Extension Center, rharveson2@unl.edu, and Martin Draper, USDA NIFA, mdraper@nifa.usda.gov

By the turn of the 20th century, the new developments in agriculture made it evident that outreach efforts were needed to relay new scientific knowledge concerning agriculture from the scholars to the farmers. Early efforts included Farmer Bulletins, leaflets, and annual experiment station summaries. Further efforts to “bring the university to the people” were finally successful with the Smith-Lever Act in 1914 formally establishing a Cooperative Extension Service to stand alongside research and teaching to further develop the land-grant ideal.

Changing Times

At its origin, cooperative extension served as the liaison between clientele and the university, helping to filter or “translate” the scientific information into more understandable language for laymen with varying levels of education. Although the role of extension educators and specialists has not changed substantially, the audiences have changed, which calls for much more specific and comprehensive information and sophisticated delivery mechanisms. Early extension workers were generalists, but now more specialization is required due to the demands of clientele that come with more technical training and needs.

The evolution of state and federal funding has also created the restructuring of extension systems at both the state and federal levels. A shift in funding has driven a new paradigm on how the land-grant system carries out its mission and some states are able to deal with the changes better or at least differently than others. Successful grantsmanship in this area has resulted in a move to a more regional or national focus, requiring multiple states/institutions and disciplines rather than addressing locally or regionally relevant issues.

Split Appointments

Since the mid-1950s, the number of full-time equivalents (FTEs) for extension plant pathologists has increased dramatically. However, the number of 100% appointments has decreased, with more than 70% of extension specialists in the United States now having split appointments (usually with research). This increase in split appointments illustrates the growing need for specialization of the extension specialist.

As some extension specialists become more oriented toward basic research (often the measure of productivity that will result in positive evaluation of performance) others will be increasingly encouraged (or required) to teach applied courses such as disease control and diagnostics. A split appointment is the only way to bring the best applied experience into the classroom as full-time extension faculty cannot, per the Smith-Lever Act, be assigned a teaching responsibility.

New Challenges

One new challenge is a change in the typical clientele model. It is now a reality that extension personnel may also be working with and helping people outside of the state of their employment due to a myriad of factors, including a shortage of expertise to serve these communities and commodity groups or cooperatives that operate across multiple state lines. Another of the potential problems with the increased specialization is a gradual drift away from cooperative extension’s original mission of improving producer productivity and profitability. The difficulty in juggling the grower’s needs with the simultaneously increasing responsibilities for producing publications and obtaining grant funding is additionally driving producers away from extension to private consultants and industry for fulfilling these needs.

Finally, documenting the ultimate results of extension efforts (growers adapting recommendations into their production systems) and determining their impacts takes time and it requires expertise and training that subject matter specialists are not trained for. Consequently, it can be comparatively difficult to fairly judge progress and successes in extension with those derived from research data that are more easily and rapidly quantified through publications, but not necessarily reflected in adoption of new technology. Extension is critical to take research discovery to the level of implementation.

LITERATURE CITED


Handbook of Plant Nutrition, Second Edition

The latest edition of this best-selling and trusted resource is a practical, easy-to-use reference for determining, monitoring, and improving the nutritional profiles of plants worldwide. It reflects the newest advances in plant nutrition. Each nutritional element is covered in detail, outlining their beneficial effects, uptake and assimilation, physiological responses of plants to that element, genetics of its acquisition by plants, concentrations of the element, interaction of the element with uptake of other elements, soil testing, fertilizers, and much more. It also includes fertilizer recommendations to address nutritional deficiencies.

Studies in Mycology 80: Hypocrealean lineages of industrial and phytopathological importance

This volume contains five contributions covering fungi in the families Hypocreaceae and Nectriaceae in the order Hypocreales. One contribution discusses the plant-pathogenic genus Calonectria, a serious threat to Eucalyptus in both Brazil and Southeastern China. Another covers the discovery of more than 10 novel Fusarium species, some posing a new risk to commercial forestry in Colombia and elsewhere. A third discusses a large-scale survey of plant and fungal material conducted in Southern Europe and Macaronesia. A morphological and phylogenetic study allowed for the recognition of more than 90 species, of which 17 are newly described. Coverage in other areas explores Trichoderma, Aphysiostroma stercorarium, ascomycetes, and more.


The latest book in this popular series offers an up-to-date illustrated account of the various crop pests throughout the world. It focuses on insect and mite pests affecting fruit, hop, and nut crops in both temperate and subtropical climates. Crops specifically covered include pome fruits, stone fruits, cane fruits, strawberries, bush fruits, hops, grapevines, citrus fruits, nuts, figs, olives, and more. More than 1,150 superb color images are included in this essential reference for extension staff, consultants, scientists, students, fruit growers, and private gardeners. Alternative names for genera and species and common names are cross-referenced in a pest index to help readers locate information on pests of interest.


This book presents a robust view of modern plant propagation practices applied to temperate and tropical environments. In addition to fundamental knowledge on plant anatomy and physiology, it features protocols and practices that students can apply in the lab and field. It also guides readers through the best methods and techniques for plant propagation, such as budding, cutting, and layering, and discusses how to recognize and cope with various propagation challenges. Plant Propagation Concepts and Laboratory Exercises offers an excellent format for learning. It includes concept chapters highlighting key information, laboratory exercises, anticipated laboratory results, stimulating questions, and a DVD containing the book’s figures, along with supplemental images.

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Nearly 130 New Reports Added to PDMR Volume 9

An additional 128 reports have been added to Volume 9 of Plant Disease Management Reports (PDMR). This volume now includes nearly 500 trials on the latest fungicides, nematicides, and biological controls covering a variety of important crops. Between the nine volumes of PDMR (www.plantmanagementnetwork.org/pdmr) and its preceding publications, Fungicide & Nematicide Tests (F&C Tests) and Biological and Cultural Tests for the Control of Plant Disease (B&C Tests), more than 10,000 reports are available.

This entire collection of reports is searchable by keyword, which can include product names, active ingredients, host crops, and authors. Sections include cereals and forage crops; citrus, tropical, and vegetable crops; field crops; ornamentals and trees; pome fruits; seed treatments (for all crops); small fruits; stone fruits and nuts; and turfgrass. Users can also opt to browse reports by section.

Each one- to two-page report includes trial conditions and results, test plot trial data, treatment rates, application timings, and pertinent efficacy data for each product tested.

Access all volumes of PMDR, F&C Tests, and B&C Tests online for just $40 yearly through PMN. Your PMN subscription also includes access to the Plant Health Progress journal, webcasts, image collections, proceedings, and more. To subscribe or learn more, visit www.plantmanagementnetwork.org/subscriptions.

Publish Your Efficacy Trials in PDMR, Volume 10

Publishing in Plant Disease Management Reports (PDMR) is easier than ever thanks to more streamlined directions, a simplified style guide, easy-to-understand formatting guidelines, and a more flexible payment process. Consider submitting your efficacy trials in the soon-to-be published 10th volume of PDMR. Publication charges are just $40 per report and are payable upon acceptance.

As in the past, this volume of PDMR will be published in two installments, allowing authors to submit reports twice a year. The first submission period runs from November 2 to December 7 of this year. The second runs from April 11 through May 16, 2016. Learn more at www.sciencessocieties.org/APS/pdmr/guidelines.

Phytopathology Article Chronicles the “Big Rust’s” Impact on Coffee Disease Management

Coffee rust has made significant headlines in recent years for its devastating effect on coffee crops. According to the United States Agency for International Development (USAID), losses in Latin America and the Caribbean alone have totaled well over $1 billion, causing hardship to coffee plantations, their laborers, coffee retailers, and the consumers who pay more for their morning coffee.

But this fungal disease, also known as “the big rust,” has a much longer and more encompassing history that goes all the way back to its discovery in 1869. This history is reviewed in detail through a new Phytopathology article entitled, “The Big Rust and the Red Queen: Long-Term Perspectives on Coffee Rust Research,” written by Stuart McCook, historian at the University of Guelph in Ontario, Canada, and John Vandermeer, professor of ecology and evolutionary biology at the University of Michigan.

In this essay, the authors discuss the big rust in a broader historical context, chronicling coffee rust epidemics, the social and ecological conditions that produced them, and the evolving scientific responses to this threat. The article highlights the many innovations used to combat coffee disease outbreaks, such as the efforts to develop disease-resistant plants, chemical and agroecological control, and even a network of international coffee research institutes. It also incorporates the broader social and economic histories of coffee production into particular stories of rust epidemics and rust research.

“It is important to take a longer and broader perspective on crop diseases and on research,” said McCook. “This can help highlight what aspects of current outbreaks are truly new and different, and which ones are part of much longer patterns and dynamics.”

The article also points out examples of the current research and disease mitigation challenges in developing nations versus affluent parts of the world.

“Scientific institutions in places like Brazil, Colombia, and Costa Rica have done superb work in coffee rust research,” said McCook. “But in those countries and elsewhere, one of the big challenges is in helping farmers—who often lack access to capital or credit—to get access to vital innovations and tools necessary to fight crop diseases.”

By taking this broad perspective, the authors suggest we are entering a new phase in the global history of the coffee rust.

“Up until the mid-1980s, the story of the coffee rust was largely the story of invasions, as the disease spread into regions where it was not previously present,” McCook said. “By the mid-1980s, however, the disease had reached almost every coffee-producing region in the world.”

“For a brief while, in the 1980s and 1990s, it looked as if coffee farmers—with the help of scientists—had adapted to the disease, making it ‘just another disease’ on the farm. But we suggest that this fragile equilibrium has begun to break down, both because of broader ecological changes that we are only beginning to understand, and also because of increasing volatility in the global coffee economy,” he said.

Read this article in the September 2015 issue of Phytopathology.
Big Data on 3K Rice Genomes Available on Amazon

The 3,000 Rice Genomes Project (3K RGP)—a collaborative, international research program—recently sequenced 3,024 rice varieties from 89 countries. This resource will allow for greater understanding of natural genetic variation in rice as well as for large-scale discovery of new genes associated with economically important traits. It will help speed up the development of improved rice varieties around the globe to feed a growing population. Three research institutions—the Chinese Academy of Agricultural Sciences (CAAS), the Beijing Genomics Institute (BGI) Shenzhen, and IRRI—collaborated to sequence the genomes of 3,024 rice varieties and lines housed in the IRRI (82%) and the CAAS (18%) genebanks.

Through funding from the Global Rice Science Partnership, the 3,024 genomes were re-analyzed against five popular varieties that represent the three main subgroups of cultivated rice—indica, japonica, and aus. This new 3K RGP data analysis set is massive at 120 terabytes, which is well beyond the computing capacities of most research institutions. However, these new results are now publicly available online, as an Amazon Web Services (AWS) Public Data Set.

“The dataset provides access to millions of genetic markers that can be used to design sustainable crops for the future, that is, ones that are high-yielding and more nutritious while at the same time requiring less water, fertilizer, and pesticides,” explains Rod Wing, director of the Arizona Genomics Institute at the University of Arizona and a pioneer in rice genome sequencing.

Public Policy Board

An Exciting Time to Be a PPB Early Career Intern

Yazmin Rivera, PPB Early Career Intern, yaz.rivera@gmail.com

For the past two years, I’ve had the privilege of serving in a unique role for most scientists, as one of the APS Public Policy Board (PPB) early career interns. From my perspective, the timing couldn’t have been better. Two years ago, the Phytobiomes Initiative was also born. It has been truly eye opening to see how policy and advocacy works at the national level and how an idea evolves into a significant agricultural proposal. The entire experience has been invaluable.

The goal of the PPB early career internship is to provide early career professionals with hands-on experience in agricultural science public policy. The commitment for my role as an intern included one monthly conference call and one visit to Washington, DC, with PPB. However, the excitement of the PPB members is contagious and as the Phytobiomes Initiative was being crafted, I found myself quickly becoming a natural advocate for PPB in my everyday conversations. Each conference call served to prepare me on the latest topics related to the Phytobiomes Initiative and the challenges of doing high-level advocacy work. These calls also served to prepare me for one of the biggest events for PPB—the yearly visit to Washington, DC.

Being a DC area resident, I had the good fortune to participate in two Washington, DC, visits. At the first meeting in DC it was very apparent how well regarded APS is as a scientific society in DC. This is clearly the result of a well-fostered relationship between PPB and government agency officials over yearly visits. That first year, the Phytobiomes Initiative received a lot of interest but also great feedback from all agencies. The following visit to DC, this past year, we found everybody eager to hear what’s new with the Phytobiomes Initiative. During the visits to DC, I met many of the key people with roles in agricultural funding and government regulations. The meetings had a cordial atmosphere and served to exchange information important for APS as a critical scientific society in agriculture. In addition to the meetings and advocacy work, I had the opportunity to witness other events unique to Washington, DC: for example, the NASS lockdown and one of the House Agriculture Appropriations Subcommittee hearings. Both events have profoundly impacted me and the way I think about agricultural stock prices and the legislative process.

As a PPB early career intern, I also had the opportunity to present the Phytobiomes Initiative to different audiences. In 2014, I joined the APS Office of Public Relations and Outreach booth at the Science and Engineering Festival in Washington, DC, to present the importance of understanding phytobiomes to a K-12 audience. Following my interests and experience in extension, I co-authored a *Phytopathology News* article highlighting the synergies between phytobiomes research and extension (“Phytobiomes: An Extension Perspective,” May 2015). Lastly, I was able to join PPB and the general scientific community at the Phytobiomes 2015 Conference. This meeting brought together experts in diverse fields to work toward designing a Roadmap on Phytobiomes Research and Translation.

My experience as a PPB early career intern has deeply and positively impacted how I view science, policy, and scientific societies.

“*My experience as a PPB early career intern has deeply and positively impacted how I view science, policy, and scientific societies.*”

APS Public Policy Intern Yazmin Rivera (left) had an opportunity to update USDA Under Secretary Cathie Woteki (right) on the Phytobiomes Initiative with PPB Chair Jan Leach (middle) during PPB’s annual meeting in DC.
Accepting Applications for 2016 Funding Opportunities

In November, the APS Foundation will begin accepting applications for the following awards. Applications must be completed in full and uploaded using the new online submission form by January 16, 2016. For information about each award—including eligibility and application requirements—please visit www.apsnet.org/members/foundation/apply.

• **International Travel Award** ($2,000)—Organized by the APS Office of International Programs (OIP) and APS Foundation, this award provides support for early and mid-career APS members native to and working in developing countries to attend the 2016 APS Annual Meeting in Tampa, FL.

• **I. E. Melhus Awards** ($500 each)—In honor of Irving E. Melhus, this award provides an opportunity for four graduate students to each give a 30-minute presentation on their research as part of the 16th I. E. Melhus Graduate Student Symposium. This year’s Symposium will feature presentations on bacteriology and will be organized by the APS Bacteriology Committee.

• **John and Ann Niederhauser Endowment (JANE) Award** ($3,000)—This award provides financial support to proposals that involve a cooperation between persons or institutions within and outside of the United States, display a clear positive impact for the developing country, and have practical applications. Principal investigators applying for this award must hold a postgraduate position in their respective country.

• **Plant Pathology Experiential Awards** ($500)—The APS Office of Private Sector Relations (OPSR), with support from APS Foundation, sponsors the experiential awards to facilitate career and research development experiences with organizations outside of academia. Individual graduate students may apply for funding in 2016, the department award will be available again in 2017.

• **Schroth Faces of the Future Awards** ($500 each)—This award acknowledges up-and-coming plant pathology researchers shaping the future of their scientific discipline. The 2016 Schroth Faces of the Future Symposium will feature early career scientists in epidemiology and management who will present their research and speculate on the future directions of epidemiology.

Funds from the APS Foundation’s portfolio provide financial support for students and student programs, the development of young scientists, the society’s international activities, early career fellowships and workshops, and programs of special interest to the contributor. Support these important efforts by making a tax-deductible contribution to the APS Foundation at www.apsnet.org/members/foundation/giving/.

People

**Student Awards & Degrees**

Augustine Beeman (left) and Jared Jensen (below) were recently named the 2015 recipients of two Zirakparvar Graduate Student Fellowship Awards in the Department of Plant Pathology and Microbiology at Iowa State University. Beeman will oversee the production of the department’s new monthly newsletter *Dispersal Notes*, under the supervision of faculty member John Hill. Jensen will assume responsibilities in maintaining the department’s webpage (www.plantpath.iastate.edu) under the supervision of Laura Jesse. Zirakparvar fellowships are funded by an endowment from the Esmail and Mary Zirakparvar family to support graduate student education.

Tracy Bruns recently completed requirements for her Ph.D. degree in plant pathology from Iowa State University (ISU). Her thesis, “The role of *fusarium* mycotoxins in seeding infection of maize, soybean, and wheat,” was completed under the direction of Gary Munkvold. Bruns is currently working as a post-doc in the ISU Seed Science Center, with research responsibilities in seed pathology as well as projects concerning the National Seed Health Systems.

Sally Mallowa has just recently run her Ph.D. program, Mallowa wrote a case study on fungicide use in corn bel. She has been submitted for publication in *Plant Health Instructor*. This case study was developed for use by undergraduate students enrolled in agricultural and agro-ecological sciences. Over the summer, Mallowa collaborated with colleagues in Uganda and Kenya to develop and test a second undergraduate case study on cassava virus diseases. Her work was funded by the APS Office of International Programs Global Experience Award. Mallowa has just been appointed as the new early career intern to the APS Public Policy Board. Mallowa has recently accepted an undergraduate biology teaching position at Augustana University in Sioux Falls, SD.
Awards

Samia Gargouri, from the Laboratory of Plant Protection, National Institute of Agricultural Research in Tunisia, received a Fulbright visiting scholar fellowship to work with Timothy Paulitz. Her research aims to advance the general understanding and control of transgenic organisms. Malapi-Wight was recently featured in BBC Mundo for the development of an innovative, real-time PCR system for pathogen detection.

Martha Malapi-Wight is a research plant pathologist with USDA ARS, Beltsville, MD, a member of APS, and one of MIT’s “Innovators Under 35.” Using advanced molecular tools, her research aims to advance the general understanding and control of transgenic organisms. Malapi-Wight was recently featured in BBC Mundo for the development of an innovative, real-time PCR system for pathogen detection.

Collaboration

Mariem Bouhadida, engineer agronomist in plant breeding from the National Agronomic Institute of Tunisia (INAT) and assistant professor in the Field Crop Laboratory of the National Institute of Agricultural Research of Tunisia (INRAT), is spending three months from August to October 2015 as a Fulbright scholar visiting the laboratory of Weidong Chen, research plant pathologist of USDA ARS and adjunct professor of plant pathology, Washington State University. Bouhadida is responsible for chickpea breeding in the Tunisian food legume breeding program. She is also involved in several national and international projects dealing with the improvement of cereals and legumes using breeding, agronomic, and biotechnological approaches. During her visit, Bouhadida is evaluating Tunisian advanced chickpea breeding lines for resistance to Ascochyta blight and Fusarium wilt, and investigating resistance mechanisms to Fusarium wilt in two chickpea near-isogenic lines.

Achour Amiri joined the Department of Plant Pathology at Washington State University (WSU) in September 2015. He is an assistant professor based at the Tree Fruit Research and Extension Center (TFREC) in Wenatchee. Amiri first received an engineering degree in agronomic sciences from the National Institute of Agronomy in Algeria. His interest in plant pathology and postharvest disease management began at the Gembloux Agricultural University in Belgium, where he earned his master’s degree. He continued to pursue his interest in epidemiology and postharvest disease management at the University of Pierre and Marie Curie, Paris (France), where he earned his Ph.D. degree. Amiri then moved to Clemson University, where he worked as a post-doctoral scientist on major stone fruit diseases, i.e., the brown rot fungus, Monilinia fructicola, and Armillaria root rot. Most recently, he worked at the University of Florida Gulf Coast Research and Education Center where he carried out research aiming to understand the epidemiology of the gray mold fungus in strawberry and develop strategies to mitigate risks related to fungicide resistance development. Amiri is very enthusiastic about the opportunity to develop nationally and internationally recognized research and extension programs at WSU TFREC that will focus on studying the epidemiology and management of pre- and postharvest diseases of major tree fruits grown in Washington and the Pacific Northwest region.

Department News

The College of Agriculture, Human, and Natural Resource Sciences (CAHNRS) of Washington State University (WSU) held its Fall Festival on the Pullman campus on September 10, 2015, to celebrate the fall semester and welcome new students, faculty, and staff. At the festival, graduate students of the Department of Plant Pathology set up a booth to introduce the plant pathology major. They exhibited disease specimens and answered questions to undergraduate students. Several professors were also at the booth answering questions. The booth was well attended by festival participants. Numerous undergraduate students expressed interest in taking plant pathology courses for their undergraduate program and considering plant pathology for their future graduate program.

Continuing Education

Mina Mila, an associate professor in the Department of Plant Pathology at North Carolina State University, completed her certification on big data analytics from the University of California-Irvine in August 2015. Mila was introduced to data science and big data analytics during her sabbatical leave at Stony Brook University, NY, in 2013–2014. Trained as a plant epidemiologist, she plans to use big data to enhance her research program on agricultural modeling with emphasis on plant pests.

WSU Department of Plant Pathology booth participants (left to right): John Weber, Zachary Frederick, Bianca Infante, Afsha Tabassum, Scot Halbert (back), Cristian Arias, Sowmya Ramachandran, Pedro Figueroa-López (back), Gretchen Freed, Shannon Carmody, Hana Pappu, Iqbal Ayala, and David Wheeler (back).

People continued on page 150
Presentation

Axel Elling was the featured speaker at the 13th Annual Iowa State University (ISU) Plant Pathology and Microbiology Retreat held on August 28 at McFarland Park near Ames, IA. The title of Elling’s presentation was “There and Back Again: A Nematologist’s Tale.” Elling, an alumnus of ISU, received his Ph.D. degree in genetics in 2006, under the direction of the department chair, Thomas Baum. As has become the custom in recent years, the Plant Pathology and Microbiology’s Graduate Student Organization (GSO), presently led by GSO President Jared Jensen, had selected Elling to be the honored speaker because of his outstanding accomplishments after his Ph.D. degree. Elling is currently the nematology group leader at Bayer CropScience in Morrisville.

Retirement

On August 31, 2015, Gary W. Moorman, professor and APS Fellow, retired from the Pennsylvania State University (PSU) Department of Plant Pathology and Environmental Microbiology. Moorman, who hails from upstate New York, received his B.S. and M.S. degrees in botany at the University of Maine and University of Vermont, respectively, and earned his Ph.D. degree in plant pathology from North Carolina State University under the direction of Jeng-Sheng Huang and N. T. Powell in 1978. After graduating, he completed four years as assistant professor at the University of Massachusetts Suburban Experiment Station in Waltham, where he was assigned to work on vegetable and floral crop diseases. Since his move to PSU in 1983, he has established multifaceted extension programs, emphasizing the detection, identification, and management of pathogens in greenhouses, nurseries, and landscapes.

Whether working with growers, colleagues, students, or citizens, Moorman performed his scholarly duties with care, diligence, integrity, and a deep commitment to excellence. He has given more than 500 extension presentations in Pennsylvania without missing a single meeting assigned to him. Moorman is highly respected by colleagues in the profession and in the ornamentals industries for the breadth and depth of his knowledge. He has given invited talks in Colorado, Kansas, South Carolina, North Carolina, Maryland, Virginia, New York, Vermont, Massachusetts, and Connecticut, as well as Canada, Denmark, and the United Kingdom. As an extension plant pathologist, he balanced a busy schedule of meeting presentations with a great deal of written output, including disease fact sheets, extension publications, and trade journal articles. Some of these were among the first fact sheets posted by PSU on PennPages, an early version of electronic communications and information dissemination in the late 1980s. While Moorman never held a majority research appointment in his time at PSU, he has maintained a strong presence in the peer-reviewed research literature, authoring and co-authoring many important articles and reviews in the best journals in the discipline. A clear theme in Moorman’s research was to identify and document the key factors associated with disease problems that can be manipulated to develop management strategies, and this line of investigation is evident in practically every publication. In addition to his outstanding integrated extension and research efforts, he has also been dedicated to resident education. He taught and co-taught several courses, including diseases of ornamental plants, and the capstone course of the plant pathology graduate curriculum, fundamentals of phytopathology. He was an early adopter of online education, developing an online noncredit correspondence course on ornamentals diseases, and a highly successful online course on horticultural crop diseases. Perhaps the clearest indication of Moorman’s commitment to students came when he volunteered to teach a two-week intensive course on plant disease diagnosis this summer and to continue doing so indefinitely.

He has served APS in several key capacities, including as Northeastern Division president, councilor-at-large, and senior editor of Plant Disease. Perhaps his greatest impact came in his editing work as senior editor of APS PRESS, Plant Health Progress, and Plant Disease, and co-writing and editing important volumes, including Biology, Detection, and Management of Plant Pathogens in Irrigation Water and Diseases of Herbaceous Perennials.

Students, faculty, and staff in the department have grown to respect and appreciate Moorman for his sense of commitment and fairness. In committees, he can be relied upon to offer a blunt but fair and well thought-out opinion and do so with disarming humility, respect, and often, self-deprecating humor. In retirement, he will exchange faculty meetings for spending time fishing, traveling with his wife Fran, and as emeritus professor, continuing to be an example of excellence as teacher, mentor, colleague, and friend.

In Memory

Laurence Henry (Hank) Purdy, September 28, 1926, to September 28, 2015, died peacefully on his 89th birthday. Born in Miami, AZ, his family moved to San Diego, CA, when he was three years old. Predeceased by his parents, Winnie Gibson Purdy and Laurence H. Purdy, and his four older sisters, he is survived by his wife of sixty-seven years (Barbara) and four children: Cynthia D. Bertelsen (Mike), Laurence J. Purdy (Isabel), Timothy C. Purdy (Keiko), and Paula E. Purdy (Kevin), six grandchildren, and two great grandchildren (with another on the way). Hank was a super athlete, scientist, husband, and father. He was a 4-letter athlete in high school (football, baseball, basketball, and track); in college, he set records in javelin and discus that were not exceeded for many years. Although he served his country for only a brief time toward the end of World War II, one of his lifelong interests was the history of that war. Following his honorable discharge from the army in 1945, he began his college education at Montana State University in Missoula. Returning to San Diego in 1948, he continued his education at San Diego State College (now University) and received a B.S. degree in chemistry in 1949. While taking a required course in biological science, he fell in love with the spores he saw under the microscope and continued his education at the University of California-Davis, receiving the Ph.D. degree in plant pathology in 1953. He was offered and accepted a position with USDA with facilities located on the campus of Washington State University, Pullman. He and a team of coworkers solved many problems associated with diseases of grains, such as wheat and barley. In 1967, Purdy was offered and accepted the position of chair of the Department of Plant Pathology at the University of Florida, which he occupied for the next 12 years. Returning to research, he attacked diseases of sugarcane and cacao, the plant that produces chocolate, and traveled the tropical world for many years. He was elected president of APS in 1980. He became professor emeritus in 1992 after which he maintained his involvement with international organizations. In addition to his professional achievements, he was a talented Mr. Fixit, a woodworker, a Little League coach, a Cub Scout leader, an inspiration to his wife and children, and a handsome dude. Hank and Barbara owned a small citrus grove for many years and held an annual fruit picking party for friends. A celebration of his life will be held soon.
ABSTRACT SUBMISSIONS FOR PROGRAM
Accepted February 1 – March 15, 2016
apsnet.org/meet
Post-Doctoral Associate

University of Arkansas-Fayetteville, Division of Agriculture, has a post-doctoral associate position available for individuals interested in virus epidemiology/virus-vector interactions and/or bioinformatics. Position responsibilities and duties include designing experiments, data analyses and management, publication of results in scientific journals, and ability to work well in a team as well as independently. Skills required for this project include knowledge of bioinformatics and commonly used virology techniques (design and utilize regular and qPCR assays, cloning, sequencing and sequence analyses, hybridizations, ELISA, etc.). The individual in this position is expected to perform research and data analyses independently using scientifically appropriate procedures. Responsibilities also include field trips for sample collection. The position is temporary and full-time. Initial appointment is for 1 year and is renewable annually dependent on funding. Salary is commensurate with experience and includes annual leave and medical benefits. Job requirements include a Ph.D. degree in molecular biology, virology, bioinformatics, or related field. Strong demonstrated background in bioinformatics, molecular and immunological techniques, and demonstrated technical experience with viruses. The successful candidate is expected to conduct research independently and have excellent written and oral communication skills. The applicant must demonstrate careful attention to detail, excellent record keeping, and ability to organize their time effectively and manage multiple concurrent research projects. The applicant must hold a valid U.S. driver’s license. Submit application including CV, cover letter/letter of application, and list of three professional references (name, title, e-mail address, and contact number) at https://jobs.uark.edu/postings/9065. Review of applications will begin right way and continue until a successful candidate is identified. This position is open until filled.

Assistant Professor of Statistics

South Dakota State University (SDSU), The Department of Mathematics and Statistics, invites application for a nine-month tenure-track faculty position in statistics with principal duties to include research, teaching, and outreach with an emphasis on precision agriculture. The ideal candidate will have prior experience in the application of statistical methods including spatial statistics to a variety of scientific disciplines, preferably in relation to precision agriculture, plant, soil, pest management, and other biological sciences, natural resource management, or animal science. Required qualifications include an earned Ph.D. degree in statistics or closely related field; broad training in statistical theory, methods, and data analysis; demonstrated potential to be an effective teacher at the graduate and undergraduate level; demonstrated potential to conduct an effective research agenda; excellent written and verbal communication skills; and excellent collaborative and interpersonal skills. Additional desired qualifications include experience in spatial and temporal statistics, machine learning, data mining, and in the provision of applied statistical consultative services in a variety of scientific disciplines. The candidate should have a research agenda in the field of precision agriculture and an understanding of agricultural systems with the potential to obtain external funding. The candidate should have demonstrated enthusiasm and aptitude to supervise student practicum experiences and internships, and direct undergraduate research. SDSU accepts applications through an online employment site. To apply, visit: https://yourfuture.sdbor.edu, search by the position title, view the job announcement, and click on “apply for this posting.” Please contact SDSU at +1.605.688.4128 if you require assistance with this process. For more information, contact Cedric Neumann, Search Committee Chair, +1.605.688.6196 or Cedric.Neumann@sdstate.edu. This position is open until filled.

Professor and Head, Department of Entomology and Plant Pathology

The University of Tennessee Institute of Agriculture is seeking applications and nominations for the position of professor and head of the Department of Entomology and Plant Pathology. This is a 12-month, tenure position, located in Knoxville, TN. Responsibilities include leadership of all departmental programs and administrative responsibility for planning, fiscal management, human resources, and facilities. The successful candidate is expected to lead education, research, extension, and outreach activities in the department with fairness and integrity; effectively represent and advocate for the department to internal/external constituencies and the administration within the university; recruit, motivate, and support faculty, staff, and students through active engagement, mentoring, and professional development programs; exercise fiscal responsibility and transparency with departmental finances; develop and implement a dynamic, progressive, and strategic vision for excellence and expansion for all departmental programs in collaboration with faculty; adhere to university policies and bylaws and respect and value faculty governance; foster an environment of collegiality, teamwork, diversity, and respect for multicultural and multidisciplinary settings; interact with faculty, students, and stakeholders to determine direction and priorities; enhance cooperation and collaboration with other departments, colleges, and universities; cultivate externally sponsored opportunities to support our programs, including fundraising and establishment of endowments; promote a culture of inclusivity, civility, and community; and expand diversity in the department and in the university community. Applications should include a letter of application summarizing the applicant’s qualifications and vision of departmental leadership; a complete CV; and names, addresses, e-mail addresses, and telephone numbers of at least five professional references. Application materials should be submitted electronically as attachments to Kim Campbell (kcamp@tennessee.edu). Nominations and other inquiries should be addressed to Keith L. Belli, Search Committee Chair Professor and Head Department of Forestry, Wildlife and Fisheries, 425 Plant Biotechnology Building, The University of Tennessee Knoxville, TN 37996-4563; +1.865.974.7989; kbelli@utk.edu. This position is open until filled.

Assistant Professor in Plant Pathology

This is a 12-month tenure-accruing assistant professor position that will be 70% research (Florida Agricultural Experiment Station) and 30% extension (Florida Cooperative Extension Service), located at the Quincy campus of the University of Florida (UF)/Institute of Food and Agricultural Services
North Florida Research and Education Center (NFREC), Institute of Food and Agricultural Sciences. The context will be cropping systems at field and regional levels. Work with emerging pathogens, disease-forecast models, and new crops is possible. It is expected that the successful candidate will develop an internationally recognized program while meeting the specific needs of the region. Through extension the successful candidate, in a team environment, will train county agents and clientele in plant disease related issues and assist county agents in the implementation of IPM programs. The successful candidate will participate actively in undergraduate and graduate education by serving as chair and member on graduate student committees, supervising thesis, dissertation and undergraduate research, and publishing research results with students. For full consideration, candidates should apply and submit additional materials by November 6, 2015. The position will remain open until a viable applicant pool is determined. Nominations are welcome. Individuals wishing to apply should go online to https://jobs.ufl.edu (search for requisition #493377) and submit an application cover letter that states applicant’s interest in the position and qualifications relative to the credentials listed above. CV, official transcripts showing receipt of the doctoral degree, and three letters of recommendation should be sent to Josh Freeman, Chair, Search and Screen Committee, University of Florida, North Florida Research and Education Center, 155 Research Road, Quincy, FL 32351. Please refer to Requisition #493343. E-mail: joshuafl@ufl.edu.

Assistant Professor in Entomology

This is a 12-month tenure-accruing assistant professor position that has a 70% research (Florida Agricultural Experiment Station) and 30% extension (Florida Cooperative Extension Service) appointment, located at the Quincy campus of the UF/IFAS North Florida Research and Education Center (NFREC), Institute of Food and Agricultural Sciences, at the University of Florida. This assignment may change in accordance with the needs of the unit. Tenure will accrue in the Entomology and Nematology Department. The successful candidate’s research will focus on insect vectors of plant pathogens that may include, as examples, vector/pathogen associations, vector ecology, and/or chemical signaling between plants and insect vectors. The successful candidate will function as part of a team at NFREC while cooperating with agronomy, plant pathology, soil science, animal science, and scientists in other units as needed. For full consideration, candidates should apply and submit additional materials by November 6, 2015. Position is open until filled. Nominations are welcome. Individuals wishing to apply should go online to http://explorec.jobs.ufl.edu/ (search for requisition #493343). Submit an application cover letter that states applicant’s interest in the position and qualifications relative to the credentials listed above, CV, official transcripts showing receipt of the doctoral degree, and three letters of recommendation should be sent to Josh Freeman, Chair, Search and Screen Committee, University of Florida, North Florida Research and Education Center, 155 Research Road, Quincy, FL 32351. Please refer to Requisition #493343. E-mail: joshuafl@ufl.edu.

Assistant/Associate Professor and Director, Clean Plant Center Northwest

The College of Agricultural, Human, and Natural Resource Sciences (CAHNRS) at Washington State University seeks a dynamic, motivated, problem-solving leader to join an extraordinary team as director for the Clean Plant Center Northwest (CPCNW). Applications are invited for a full-time, 12-month, tenure-track faculty position to begin January 4, 2016, or as negotiated in Prosser, WA. The position will be located at the WSU IAREC, in Prosser. The tenure unit for this position is the WSU Department of Plant Pathology. The successful applicant will manage and continue to build a globally recognized and regionally relevant program focused on management of diseases caused by viruses and virus-like agents that affect vegetatively propagated perennial crops, including fruit trees, grapevines, and hops. Required qualification: Earned Ph.D. degree in plant pathology or a closely related field at the time of hire; demonstrated expertise in conducting research on diagnosis; and management of viruses and other subviral plant pathogens. Applications must be submitted on-line. To apply, visit www.wsujobs.com (position #122000) and applications must include a cover letter specifically addressing each required and preferred qualifications; CV; a statement of research and extension/outreach interests; a vision statement for the leadership and management of CPCNW; and names, titles, organizations, phone numbers, and e-mail addresses of three people willing to serve as a professional reference. Soon after the application is submitted online, the System will automatically send each of the professional references a direct link to upload the reference letter. Please contact Scot Hulbert, Chair, Department of Plant Pathology, at scot_hulbert@wsu.edu, +1.509.335.4504, or Naidu Rayapati, Chair, Search Committee, at naidu_rayapati@wsu.edu, +1.509.786.9215, with questions about this position.

Associate Professor in Plant Pathology

Zamorano University, Honduras, seeks an associate professor in plant pathology. Conduct at least two courses per year, or related to plant pathology. Give lectures and conferences in order to contribute to the training of students and clients of the institution. Assist students in the development and completion of thesis and special assignments related to plant pathology. Develop an innovative program of outreach activities aimed at strengthening the academic component and research in plant sciences with the aim of generating new material. Design and actively participate in the supervision of the activities of learning by doing, based on the academic requirements of Zamorano, in order to guarantee the quality and contents suitable for the formation of the student body. Coordinate activities with production units that require the help of the plant pathologist. Manage and operate the diagnostics laboratory. Manage the human, physical, natural, and financial resources assigned to it. Manage, implement, and publish results of research projects. Successful candidates will have a Ph.D. degree in plant pathology, five years of experience in teaching related activities and research, experience in the field of plant protection management, and contacts with universities, agrochemical industries, governmental, and non-governmental organizations particularly related to plant pathology. Able to reside in Zamorano campus located 30 km from Tegucigalpa, the capital of Honduras. Please include an application letter, a current CV, copies of undergraduate and post-graduate notes, a statement of interest for research topics and the possibilities of student participation, a statement of interest for education and experience, and three letters of recommendation that indicate the achievements in teaching and research of the candidate. The material should be sent in MS Word or PDF format to the Human Talent Unit at talentohumano@zamorano.edu with subject line: associate professor in plant pathology. The closing date of November 20, 2015, is not adjustable.

Chief Research Scientist

The Citrus Research Program is a grower-funded and grower-directed program established in 1968 under the California
Marketing Act as a mechanism for enabling the California citrus growers to sponsor and support needed scientific and technical research to further the goals of the California citrus industry. The program is administered by the Citrus Research Board (CRB). The chief research scientist performs scientific project reviews, including reviewer recruitment, stewardship, assignment, and analysis of evaluations. The position is responsible for tracking research progress, providing analyses and critique of projects, relaying/interpreting complex scientific projects to/for lay persons, understanding and communicating the significance of project outcomes, prioritizing projects into perspective to aid CRB in accomplishing its organizational goals, and providing leadership to assist CRB to move into the future. Qualifications excellent communication skills; demonstrated ability to write, understand, and critically review and edit technical and research articles; ability to clearly and effectively communicate with scientists and lay persons; good people skills; ability to interact positively with a diverse set of people; critical thinking skills; ability to effectively use Microsoft Outlook and Word; ability to effectively use Microsoft Excel, PowerPoint, and Dropbox. Experience and education: Ph.D. degree in agriculture production-related science from an accredited university; minimum of 5 years research experience in agricultural production or related science; general knowledge of and research experience in citrus production; and general understanding of scientific methods and ability to translate into real world examples to produce positive outcomes for organizational goals. Send electronic letter of application and resume to Gary Schulz, CRB President, at Gary@citrusresearch.org.

Assistant Professor Plant Pathology

North Carolina State University (NCSU), Department of Plant Pathology, invites applications for a 12-month tenure-track position at the assistant professor level. This faculty position is located on main campus in Raleigh, NC, and has a 70% extension/30% research appointment. The selected individual is expected to develop an innovative extension and research program on diseases and nematodes that damage tobacco and major field crops (soybeans, corn, and cotton) in the region. The breadth of position responsibilities provides opportunity for program development that can extend from discovery research through applications in management to develop a leading program that maintains a state, regional, national, and international presence. The incumbent is expected to generate extramural funding to help support their program following start-up resources and is expected to mentor graduate students and participate in the academic programs of the department. Multidisciplinary extension and research activities in diseases of tobacco and field crops that address stakeholder concerns, field facility education, interactions with commodity organizations, and scholarly achievement are expected. Significant opportunities exist for collaborations with college faculty and members of the NCSU Plant Breeding Center on main campus, among staff of the statewide network of North Carolina agricultural research stations and cooperative extension agents, and with agricultural specialists throughout the southeast region. In addition, NCSU is located in close proximity to the North American headquarters for three of the largest crop protection companies and numerous other potential industry partners in Research Triangle Park. The incumbent is expected to generate extramural funding to help support their program following start-up resources and is expected to mentor graduate students and participate in the academic programs of the department. For a complete job description and details for submission of applications, please reference http://jobs.ncsu.edu/postings/59178.
Inhibition of *Phytophthora parasitica* and *P. capsici* by Synthesized Silver Nanoparticles Synthesized using Aqueous Extract of *Artemisia absinthium*

Mohammad Ali, Bosung Kim, Kevin D. Belfield, David Norman, Mary Brennan, and Gul Shad Ali

**Krishna Subbarao, Phytopathology, editor-in-chief**

Evaluation of Plum pox virus Eradication Programs in Pennsylvania and Ontario

A. V. Gougherty, K. T. Pazdernik, M. S. Kaiser, and F. W. Nutter, Jr.

**Mark Gleason, Plant Disease, editor-in-chief**

Reducing Antifungal Activity and Enhancing Fungal Virulence in Tomato

Mansoor Karimi Jashni, Ivo H. M. Dols, Yuichiro Iida, Sjef Booren, Henrick G. Beenen, Rahim Mehrabi, Jérôme Collemare, and Pierre J. G. M. de Wit

**Jane Glazebrook, MPMI, editor-in-chief**

First Report of Russian-thistle (*Salsola tragus* L.) as a Host for the Southern Root-Knot Nematode (*Meloidogyne incognita*)


**Pamela D. Roberts, Plant Health Progress, editor-in-chief**

Phytopathology

- The Big Rust and the Red Queen: Long-Term Perspectives on Coffee Rust Research
  Stuart McCook and John Vandermeer

**#1 MOST DOWNLOADED ARTICLE**

- Winter Conditions Correlate with *Phytophthora alni* Subspecies Distribution in Southern Sweden
  Miguel A. Redondo, Johanna Boberg, Christie H. B. Olsson, and Jonás Oliva

- Combining Models is More Likely to Give Better Predictions than Single Models
  Xiaoping Hu, Laurence V. Madden, Simon Edwards, and Xiaming Xu

Plant Disease

- Leaf Doctor: A New Portable Application for Quantifying Plant Disease Severity
  Sarah J. Pethbridge and Scott C. Nelson

- First Report of *Candidatus Liberibacter solanacearum* Associated With Psyllid-Infested Carrots in Germany
  J. E. Munyaneza, K. D. Swisher, M. Hommes, A. Willhauck, H. Buck, and R. Meadow

- Bioassay Conditions for Infection of *Pinus radiata* Seedlings with *Phytophthora pinifolia* Zoospores
  Timothy L. Widmer and Stephen C. Dodge

MPMI

- Broadly Conserved Fungal Effector BEC1019 Suppresses Host Cell Death and Enhances Pathogen Virulence in Powdery Mildew of Barley (*Hordeum vulgare* L.)
  Ehren Whigham, Shan Qi, Divya Mistry, Priyanka Surana, Ruo Xu, Gregory Fuerst, Clara Pliego, Laurence V. Bindschedler, Pietro D. Spanu, Julie A. Dickerson, Roger W. Innes, Dan Nettleton, Adam J. Bogdanove, and Roger P. Wise

- Linking Jasmonic Acid Signaling, Root Exudates, and Rhizosphere Microbiomes
  Lilíia C. Carvalhais, Paul G. Dennis, Dayakar V. Badri, Brendan N. Kidd, Jorge M. Vivanco, and Peer M. Schenk

- Stable Fluorescent and Enzymatic Tagging of *Bradyrhizobium diazoefficiens* to Analyze Host-Plant Infection and Colonization
  Raphael Ledermann, Ilka Bartisch, Mitja N. Remus-Emsermann, Julia A. Vorholt, and Hans-Martin Fischer

Plant Health Progress

- Timing and Efficacy of Fungicide Applications for Diplodia Ear Rot Management in Corn
  M. P. Romero Luna and K. A. Wise
## Calendar of Events

### APS-Sponsored Events

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<tr>
<th>Month</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
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<td>January 2016</td>
<td><strong>Northeastern Division Meeting</strong></td>
<td>Philadelphia, PA. <a href="http://www.apsnet.org/members/divisions/ne">www.apsnet.org/members/divisions/ne</a></td>
</tr>
<tr>
<td>February 2016</td>
<td><strong>Southern Division Meeting</strong></td>
<td>Balm, FL. <a href="http://www.apsnet.org/members/divisions/south">www.apsnet.org/members/divisions/south</a></td>
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<td>March 2016</td>
<td><strong>Potomac Division Meeting</strong></td>
<td>Richmond, VA. <a href="http://www.apsnet.org/members/divisions/pot">www.apsnet.org/members/divisions/pot</a></td>
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<td>June 2016</td>
<td><strong>North Central Division Meeting</strong></td>
<td>Chaska, MN. <a href="http://www.apsnet.org/members/divisions/nc">www.apsnet.org/members/divisions/nc</a></td>
</tr>
<tr>
<td></td>
<td><strong>Pacific Division Meeting</strong></td>
<td>LaConner, WA. <a href="http://www.apsnet.org/members/divisions/pac">www.apsnet.org/members/divisions/pac</a></td>
</tr>
<tr>
<td>July 2016</td>
<td><strong>APS Annual Meeting</strong></td>
<td>Tampa, FL.</td>
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### Other Upcoming Events

#### November 2015

**29-Dec** 36th New Phytologist Symposium—Cell Biology at the Plant–Microbe Interface.
Munich, Germany. [www.newphytologist.org/symposiums/view/38](http://www.newphytologist.org/symposiums/view/38)

#### December 2015

- **5-11** Plant-Parasitic Nematode Identification Workshop. Clemson, SC. [www.clemson.edu/calls/nematology/short_course.html](http://www.clemson.edu/calls/nematology/short_course.html)
- **6-8** 2015 National Fusarium Head Blight Forum. St. Louis, MO. [www.scabusa.org/forum15](http://www.scabusa.org/forum15)
- **8-10** Soilborne Oomycete Conference. Hawks Cay, Florida Keys. [http://oomyceteconference.org](http://oomyceteconference.org)

#### March 2016

- **7-9** 2016 Rust Symposium. Pensacola, FL. [www.apsnet.org/meetings/topicalmeetings/Pages/2016RustSymposium.aspx](http://www.apsnet.org/meetings/topicalmeetings/Pages/2016RustSymposium.aspx)
- **30-Apr** Genetics of Maize-Microbe Interactions Workshop. College Station, TX. [https://gmdw.tamu.edu](https://gmdw.tamu.edu)

#### June 2016


#### July 2016


#### September 2016