What’s New in the APSnet Education Center?

Katherine L. Stevenson, The Plant Health Instructor Editor-in-Chief, ks@uga.edu

The APSnet Education Center has been a major outreach and publication education initiative since its opening in the year 2000. Our primary mission is to educate the general public about the science of plant pathology, especially young people who have an interest in science but no understanding about what plant pathology is or what plant pathologists do.

The APSnet Education Center provides online access to educational materials and publishes the online journal The Plant Health Instructor (PHI). The journal consists of peer-reviewed articles for instructional use and teaching scholarship in plant pathology and closely related disciplines. These articles are reviewed every five years to ensure that the materials are accurate and up to date. Articles include disease lessons, laboratory exercises (introductory and advanced), topics in plant pathology (introductory and advanced), teaching articles, case studies, plant disease management simulations (introductory and advanced), and teaching notes.

In an effort to meet the needs of our international audience, we are continuing to add more translations of PHI articles, primarily in Spanish, Portuguese, and Chinese.

If you have not visited the APSnet Education Center in a while, I encourage you to browse the website and take a look at what we have to offer. In particular, please see the following new articles that were added to the APSnet Education Center Introductory Section during the past year.

**Plant Disease Lessons**
- Rapid Blight of Turfgrass by J. L. Kerrigan, M. W. Olsen, and S. B. Martin
- Daylily Rust by J. W. Buck and Y. Ono

**Introduction to the Major Pathogen Groups**
- Introduction to Fungi by L. M. Carris, C. R. Little, and C. M. Stiles
- Introduction to Abiotic Disorders in Plants by M. Kennelly, J. O’Mara, C. Rivard, G. L. Miller, and D. Smith

**Topics in Plant Pathology**
- A Portuguese translation of What are Fungicides? by M. T. McGrath (Portuguese translation: O que são Fungicidas? by P. Spoliti)

In addition to members of the Editorial Board, the following individuals provided constructive critical reviews of one or more manuscripts during the past year. Those who reviewed their first manuscript near the end of the year will be recognized in next year’s acknowledgments. Appreciation for their valuable help to authors and the journal is expressed to the following reviewers: Marin Brewer, Jonathan Chris, David Clement, M. Bess Dicklow, Dennis Gonzales, George Hudler, Jim Kerns, Joao Pedro Luz, and Daren Mueller.

**How Can You Help?**

We need the help of APS members to support the APSnet Education Center so that we can continue to serve the plant pathology profession by educating traditional and nontraditional students and K-12 teachers. You can help by contributing a publication, providing a translation, nominating qualified individuals to serve on the PHI Editorial Board, or make a financial donation.

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**Share Your Research at the 2013 APS-MSA Joint Meeting!**

The 2013 APS-MSA Joint Meeting offers you the chance to submit your research and share it with more than 1,500 of the top minds in the plant pathology community. Not only will you gain valuable exposure for your research, but you have the opportunity to share your ideas and engage with plant pathologists of all specialties, of all career levels, from all over the world. Whether you are gaining valuable feedback and input from your peers or are partaking in a collaborative discussion with fellow researchers, submitting an abstract is one of the best ways to strengthen your research.

Online submissions for both oral and poster presentations will be accepted February 1 through March 15, 2013. More information, including guidelines and criteria for acceptance, is available online at www.apsnet.org/meet. Take advantage of this invaluable opportunity and get ready to submit your research starting February 1!
Editor’s Corner

For Scientists, a Healthy Dose of Skepticism Is a Good Thing!

Doug Jardine, Kansat State University, PhytoNewsEditor@ciosc.org

According to the website Holiday Insights (www.holidayinsights.com), January 13 is International Skeptics Day. It can alternately be celebrated on October 13 or on the first Friday the 13th of the year.

Perhaps the Earth isn’t really round!? Did Neil Armstrong really walk on the moon? Or from a plant pathologist’s point of view, does that fungus really cause that disease? These are the types of questions asked by the classical skeptic.

According to the American Heritage Dictionary, a skeptic is one who instinctively or habitually doubts, questions, or disagrees with assertions or generally accepted conclusions.

It is suspected that a real skeptic created this day. Hence the doubt about the actual date it should be celebrated. While Friday the 13th sounds intriguing, I have my doubts. While there is some reference to this being an “international” day, and it is true that there are bona fide skeptics’ organizations all over the world, there is a lack of documentation that it is celebrated anywhere outside of the United States.

There is a Skeptics Society (www.skeptic.com) in the United States. It is a nonprofit 501(c)(3) scientific and educational organization whose mission is to engage leading experts in investigating the paranormal, fringe science, pseudoscience, and extraordinary claims of all kinds; promote critical thinking; and serve as an educational tool for those seeking a sound scientific viewpoint.

So what does this have to do with us as scientists? Well, it has everything to do with peer review, critical thinking, and the process by which we evaluate science. When reports emerged of a new pathogen found in crops genetically modified to be resistant to the chemical glyphosate, we were skeptical as we should be in the absence of peer-reviewed, published research data. Even when research is published, it is sometimes good to remain skeptical as we recently saw in a paper published in the September issue of Food and Chemical Toxicology that claimed glyphosate-resistant corn caused organ damage, tumors, and early death among rats. In this case, the rigor of critical thinking; and serve as an educational tool for those seeking a sound scientific viewpoint.

The Scientist in Residence Program is made possible through generous support from the Vancouver Board of Education and numerous program partners and donors (www.sciencelearn.ca). More than 200 hands-on science lesson plans developed during the Scientist in Residence Program are available free to educators and the public through the program’s website. The majority of the lesson plans focus on life sciences, including plants, animals, and ecosystems. However, there are no lessons that specifically focus on plant pathology.

Paige Axelrod, Founder and Managing Director, Scientist in Residence Program
It’s All About the Science

Steven C. Nelson, APS Executive Vice President,
snelson@scisoc.org

When I first signed on full time with APS in 1973 (and it is hard to believe it was that long ago), then Executive Vice President Raymond Tarleton told me that members really care about the science—that the services and products were just different avenues for the members to interact and share their science.

When I was later appointed executive vice president in 1991, I recalled the advice Ray had given me and it served me well over the years as I worked closely with APS leaders. APS Council’s current priorities are impressive proof that APS is more dedicated than ever to contributing to the science of plant pathology. APS is an active and vital society; so much so that rare is the occasion that we do not have a council, committee, publications group, or task force meeting at headquarters or a conference call in progress.

In my 40 years with APS (I also worked for the organization as an undergraduate), the technologies used to serve the membership have gone through huge changes, just as they have for the science of plant pathology. Throughout the years, APS members and officers have always been supportive and aggressive in taking advantage of these new opportunities. When computers arrived, we invested in them and the typesetting technologies needed to organize the membership and subscription databases, support the committee structures, and efficiently produce programs and publications.

APS members have always given generously of their time and worked in partnership with the staff to create meaningful services. While I leave with confidence in the organization, I do so with some degree of sadness. APS members have not only been my colleagues, but many are also personal friends. I look forward to more time with family and casual pursuits, but hope to remain active with APS, assisting with various initiatives and special projects.

Thank you for the opportunity to serve APS; it has been a great career and a great pleasure to have been part of such a wonderful organization.

FROM ART TO SCIENCE

Steve Nelson, APS Executive Vice President, to Retire After 40 Years with the Society

With his master’s degree in fine arts, Steve Nelson originally planned a career in art, joining APS in 1973 to work as an artist and keyliner within the Publications Department. He was promoted to the position of publications manager just two years later and would then go on to complete advanced studies in business management, holding several key operational positions at APS Headquarters before being named the society’s executive vice president in 1991.

Over the course of his career, he played a pivotal role in the society’s most preeminent events. He was the director of publications from 1979 to 1982, during which time he managed the startup of several signature publications, including the journals Plant Disease and MPMI. As publications director, he also developed and implemented the APS PRESS book marketing program, and later, as executive vice president, he would play an instrumental role in assisting APS leadership in the development of the Plant Management Network program.

Over the years, he has gained the respect and support of APS leaders, volunteers, and members alike. Past presidents of APS have stated that his strengths and skills in working with a variety of individuals and his ability to think strategically and to effectively guide APS leaders have been key to the success of the society. One past president stated that Nelson has a “masterful ability to work effectively with the many different people from the huge playlist of characters who have trooped across the stage over the decades, with an ever-changing range of personalities, egos, and competencies. Behind it all, the glue was Steve."

Working side by side with Nelson for the past 12 years is Amy Hope, APS’s vice president of operations. Hope joined APS in 1986 and was appointed vice president of operations in 2000. She will serve as executive vice president designate beginning January 1, 2013, and will officially succeed Nelson as executive vice president on April 1, 2013.
EVERYTHING’S BIGGER IN TEXAS, Especially the Plant Pathology at the 2013 APS-MSA Joint Meeting!

Check out this year's Scientific Program, now available on the APS website. See this year's Special Sessions, Workshops, and Field Trips.

2013 Highlights Include:
- Nine featured sessions on various aspects of fungi
- The latest research findings in molecular cell biology and plant-microbial interactions
- Multiple sessions on food safety and biosecurity
- Sessions on crop protection tools, education and outreach, viruses, tree diseases and stresses, bacteria, and more!
- Numerous training workshops to sharpen your skills and abilities and field trips that take advantage of the local Texas flora
- Oral and technical sessions and more than 800 scientific posters!

Wondering what the latest scoop is on the 2013 APS-MSA Joint Meeting? Stop waiting to read it in your inbox and instead visit the annual meeting website: aps.net/meet. We have just updated the website to reflect this year’s Scientific Program and will keep updating it to reflect the latest information. Bookmark the page and check back often to keep up with the latest information!

Get Your RESEARCH READY!

TIME TO FINE TUNE YOUR WORK.

Call for Papers opens February 1!
Get your abstracts ready.
Visit aps.net/meet for more information.

Important APS Dates to Remember

January 2013
- 7 Applications due for the International Travel Award
- 11 Applications due for the Raymond J. Tarleton Student Fellowship
- 18 Applications due for I. E. Melhus Graduate Student Symposium
- 28 Frank L. Howard Undergraduate Fellowship applications due

February 2013
- 5 Applications due for the French-Monar Latin American Award
- 15 PDMR final approved reports (electronic version) due
- 22 PDMR final approved reports (hard copy version) due

Get Y our RESEARCH READY!
New Editorial Board of Plant Disease Begins Term in January

In January 2013, the new Editorial Board for Plant Disease will begin its three-year term. The senior editors, feature editor, and disease notes assigning editors were appointed by the APS Publications Board on the basis of recommendations by the new editor-in-chief, Mark Gleason. To acquaint APS members with the new board members, brief biographies are presented.

• **Mark Gleason**, editor-in-chief, is a professor and extension plant pathologist in the Department of Plant Pathology and Microbiology at Iowa State University. He earned a B.A. degree in biology from Carleton College, M.S. and Ph.D. degrees in environmental sciences from the University of Virginia, and a Ph.D. degree in plant pathology from the University of Kentucky. Gleason’s research, teaching, and outreach focus on diseases of horticultural crops. His current research involves sooty blotch and flyspeck (apple), bacterial wilt (cucurbits), and anthracnose fruit rot (strawberry). He coauthored the 2009 APS PRESS book Diseases of Herbaceous Perennials. He served one year as an associate editor, six years as the feature editor, and seven years as a senior editor for Plant Disease, as well as two terms on the APS Foundation Board.

• **Mary Burrows**, senior editor, is from Moorhead, MN. After receiving a B.A. degree in biology from Minnesota State University-Moorhead, she obtained a Ph.D. degree in plant pathology from the University of Wisconsin-Madison and did post-doctoral work with the USDA-ARS at Cornell University. She started her position as the extension plant pathology specialist at Montana State University (MSU) in Bozeman in August 2006. Her extension and research activities focus on crops, including wheat and pulses. She also directs the MSU Urban IPM program and the Schutter Plant Diagnostic Laboratory.

• **Kerik Cox**, senior editor, is an associate professor of plant pathology and plant-microbe biology at Cornell University. He has a B.S. degree from Furman University and received M.S. and Ph.D. degrees from the University of Georgia. His research focuses on integrating basic and applied research to develop improved management strategies for fruit diseases of concern to New York and New England producers with an emphasis on practical and molecular mechanisms of resistance to fungicides and transgenic plant technology. Extension efforts are focused on orchard management of fungicide resistance, disease forecasting technology, and programming for virus diseases of small fruit crops. He currently serves as an editor for Plant Disease Management Reports, Pome Fruit, and has served as an ad hoc reviewer (2007–2010) and associate editor (2011–2012) for Plant Disease.

• **Anne Dorrance**, senior editor, is a professor in the Department of Plant Pathology at The Ohio State University. She has a split appointment in research and extension in diseases of field crops. She received her A.S. degree in 1978 from Herkimer County Community College, B.S. degree in 1980 from the State University of New York College of Environmental Science and Forestry, M.S. degree in 1985 from the University of Massachusetts, and Ph.D. degree in 1995 from Virginia Tech. Her soybean pathology research program is located at the Ohio Agricultural Development Center in Wooster. Dorrance’s lab works on identifying and characterizing sources of resistance to soybean pathogens of soybean and evaluating management strategies for soybean diseases in reduced and no-till production systems. She has served previously as an associate editor for Plant Disease.

• **Lindsey du Toit**, senior editor, completed a B.Sc. Honours degree in plant pathology at the University of Natal, Pietermaritzburg, South Africa (1991), and M.S. (1995) and Ph.D. (1998) degrees in plant pathology at the University of Illinois at Urbana-Champaign. From 1998 to 2000, du Toit served as the plant diagnostician for the Plant and Insect Diagnostic Laboratory at Washington State University (WSU) Puyallup Research REC. In 2000, she was hired as an assistant professor/extension specialist with the WSU Department of Plant Pathology and was promoted to associate professor in 2006. Her vegetable seed pathology research and extension program is located at the WSU Mount Vernon NWREC and focuses on diseases of small-seeded vegetable seed crops in the U.S. Pacific Northwest. du Toit has served as an associate editor (2000–2002) and senior editor (2010–2012) for Plant Disease, section editor for Fungicide & Nematicide Tests/Plant Disease Management Reports (2007–2009), associate editor for Phytopathology (2009–2011), and associate editor for Agronomy Journal (2009–2011). She served as chair of the APS Diagnostics (2002–2003) and Seed Pathology (2007–2009) Committees and serves on the APS-International Seed Federation Ad Hoc Committee on Codification of Pathogen Races/Strains Based on Host Differentials (since 2007).

• **Akif Eskalen**, disease notes assigning editor, is an extension specialist and plant pathologist in the Department of Plant Pathology and Microbiology at the University of California (UC), Riverside. He received his Ph.D. degree in mycology and plant pathology from the University of Çukurova in Adana, Turkey. He conducted research on trunk diseases of grapevine as a post-doc in the Department of Plant Pathology at UC Davis. His research at UC Riverside focuses on the identification, biology, epidemiology, and control of pathogens associated with subtropical crops (i.e., citrus, avocado, and tejecote) and native oaks in California, including new potential threats. He is currently serving as an associate editor for Plant Disease and secretary-treasurer of the APS Pacific Division.

• **Carla Garzon**, disease notes assigning editor, is an assistant professor in the Department of Entomology and Plant Pathology at Oklahoma State University-Stillwater. She
received a B.S. degree in biological sciences in 1999 at the Pontificia Universidad Catolica del Ecuador and a Ph.D. degree in plant pathology in 2004 at The Pennsylvania State University (PSU). She conducted postdoctoral research on population genetics, phylogenetics, and management of *Pythium* and on population genetics of *Verticillium* at PSU and on evolution of effectors in the *Phytophthora infestans* species complex at The Ohio State University. Her research is focused on population genetics, phylogenetics, molecular diagnostics, fungicide hormesis, and management of soilborne oomycetes and fungi. She is currently serving as an associate editor for *Plant Disease*.

• **Everett M. Hansen**, senior editor, is emeritus professor of forest pathology in the Department of Botany and Plant Pathology, Oregon State University (OSU), in Corvallis. He has been at OSU since 1972, with sabbatical years with Forest Research in England, the Swedish University of Agricultural Sciences in Uppsala, and INRA in Nancy, France. He has a B.S. degree in forest management from OSU and graduate degrees in plant pathology from the University of Wisconsin-Madison. He is interested in many aspects of forest pathology, including the effects of pathogens on forest ecosystems, population genetics and evolutionary biology of pathogenic fungi, strategies to limit disease spread and intensification, and silvicultural control of forest pathogens. In recent years, his lab has focused on *Phytophthora* species in forest ecosystems. Special attention has been focused on breeding for resistance to *P. lateralis* and the epidemiology of *P. ramorum* as well as discovery of the indigenous *Phytophthora* assemblage in forests. Hansen is a fellow of The American Phytopathological Society.

• **Philip F. Harmon**, feature editor, is an associate professor of plant pathology and extension specialist at the Institute of Food and Agricultural Sciences at the University of Florida in Gainesville. He received his undergraduate and doctoral degrees from Purdue University. His research interests include diseases of warm-season turfgrass species and disease management for southern highbush blueberry. In addition to providing efficient and effective disease management strategies for clientele, research goals include selection for turfgrass and blueberry disease resistance in collaboration with plant-breeding programs. His extension efforts have focused on providing rapid and accurate diagnostic services to the turfgrass, small fruits, and ornamental plant industries. He has served as an assigning editor for *Plant Disease Management Reports* and as an associate editor of *Applied Turfgrass Science*.

• **Chuanxue Hong**, senior editor, is a professor and extension specialist at the Hampton Roads Agricultural Research and Extension Center, Virginia Tech. He obtained a B.S. degree from Anhui Agricultural University and M.S. and Ph.D. degrees from China Agricultural University and conducted postdoctoral research at the International Crop Research Institute for Semi-Arid Tropics in India. Rothamsted Research in England, and the University of California, Davis, before joining Virginia Tech. His research focuses on *Phytophthora* species in the areas of aquatic biology, chemical communication, fungicide resistance, species identification and detection technology, and taxonomy. He served as an associate editor of *Plant Disease* from 2010 to 2012. Hong is a past chair of the APS Diseases of Ornamental Plants Committee. He has coauthored and edited three books.

• **Alexander Karasev**, senior editor, is an associate professor in the Department of Plant, Soil, and Entomological Sciences at the University of Idaho, Moscow. He received his Ph.D. degree in virology from Moscow State University, Russia, and completed his post-doctoral training at the University of California, Riverside, on molecular biology and genetic diversity of closteroviruses with William O. Dawson. He joined the Department of Plant, Soil, and Entomological Sciences of the University of Idaho in 2006. His main responsibilities include virus diseases of potato, legumes, sugar beet, grapes, and small grains. Key research areas are plant virus-host interactions, virus vector transmission, and plant virus evolution. He is also involved in development of new methods to detect and differentiate plant viruses. He has served as a chair of the APS Virology Committee and as an associate editor and a senior editor for *Phytopathology*. He is currently serving as an editor for *New Disease Reports* (British Society for Plant Pathology).

• **Megan Kennelly**, senior editor, is an associate professor in the Department of Plant Pathology at Kansas State University (KSU). She has previously served as an associate editor for *Plant Disease and Applied Turfgrass Science*, a section editor for *Plant Disease Management Reports*, and currently serves as a technical editor for *Applied Turfgrass Science*. She received a B.S. degree in botany from the University of Wisconsin–Madison and a Ph.D. degree in plant pathology from Cornell University. Her position at KSU includes extension, diagnostics, and research responsibilities for diverse horticultural commodities, including fruit, vegetables, trees, and turfgrass.

• **Gary Moorman**, senior editor, is a professor at The Pennsylvania State University in the Department of Plant Pathology and Environmental Microbiology, where he has had responsibility for extension, research, and teaching programs on diseases of shade trees, woody ornamentals, and floricultural crops since 1983. He earned his B.S. degree in botany from the University of Maine, M.S. degree in botany from the University of Vermont, and Ph.D. degree in plant pathology from North Carolina State University. His first faculty position was at the University of Massachusetts, Suburban Experiment Station in Waltham from 1978 to 1982. Moorman has given more than 580 extension presentations to growers and has taught courses on diseases of ornamental plants since 1981. His current course, Horticultural Crop Diseases, is an online offering, and his current research focuses on *Pythium* and associated microbes in greenhouse crop irrigation systems.

• **Tim Murray**, senior editor, is a professor in the Department of Plant Pathology at Washington State University (WSU). He received a B.S. degree in plant science from
the University of California-Davis and M.S. and Ph.D. degrees in plant pathology from WSU. He has held a faculty research/teaching position at WSU since 1983. He was department chair from 2000 to 2008 and graduate program coordinator and admissions committee chair from 1999 to 2008. He was the first editor-in-chief of Plant Health Progress; has served on the editorial boards of Plant Disease, Journal of Production Agriculture, Annual Review of Phytopathology, and European Journal of Plant Pathology; and is currently an associate editor for the Journal of General Plant Pathology. He is the author of more than 60 peer-reviewed scientific journal articles, coauthor of A Color Handbook of Diseases of Small Grain Cereal Crops, and coeditor of the Encyclopedia of Plant Pathology and Compendium of Wheat Diseases. His research program focuses on the control of wheat diseases, including eyespot, Cephalosporium stripe, snow molds, and Wheat streak mosaic virus. He was elected fellow of The American Phytopathological Society in 2010.

• **Scot Nelson**, senior editor, is an extension specialist in the Department of Plant and Environmental Protection Sciences at the University of Hawaii at Manoa. In addition to teaching several undergraduate courses in genetics, plant disease management, and diagnosis, Nelson conducts applied research and extension programs on important diseases of tropical plants, including coffee, banana, kava, noni, tropical fruits, palms, and native plants. Nelson received an undergraduate degree in history from The Pennsylvania State University (1979), an M.S. degree in plant pathology from Texas A&M University (1988), and a Ph.D. degree from North Carolina State University (1992). Nelson was hired by the University of Hawaii as an epidemiologist in 1992. Early in his career, he focused on the development and application of methods for spatiotemporal analysis of epiphytotics and in recent years described a new species of Phytophthora from Morinda citrifolia. He served as an associate editor for Phytopathology from 1997 to 1999 and for Plant Disease from 2011 to 2012 and has provided manuscript reviews for a dozen scientific journals. He currently serves APS as a member of the Office for Electronic Communications.

• **Pierce Paul**, senior editor, is an assistant professor in the Department of Plant Pathology at The Ohio State University (OSU), with research (60%) and extension (40%) responsibilities for diseases of field crops. Prior to becoming a faculty member at OSU, he was a post-doctoral researcher with **Patrick Lipps** and **Larry Madden** and later a research scientist in the same department. Paul earned his undergraduate degree in agriculture and his M.S. degree in plant pathology at the Federal University of Vícosa in Brazil and his Ph.D. degree in plant pathology from Iowa State University under the guidance of **Gary Munkvold**. Paul’s primary research interest is epidemiology and integrated management of plant diseases of field crops, primarily corn and small grains. He is particularly interested in the use of statistical and computer models to describe plant disease dynamics in the field and to make disease management decisions based on risk assessment and disease predictions. He has researched and published on various aspects of the epidemiology and integrated management of gray leaf spot of corn and Fusarium head blight (FHB) of wheat. He is a leading member of a multistate team of researchers responsible for developing and validating FHB forecasting models. He also coordinates a national collaborative project to develop integrated management strategies for FHB. He has published extensively on the use of a statistical technique called meta-analysis to synthesize and interpret results from multiple individual studies. From 2009 to 2011, Paul served as an associate editor for Plant Disease.

• **Natália A. Peres**, senior editor, is an associate professor of plant pathology at the Gulf Coast Research & Education Center (GCREC) of the University of Florida. She completed all of her degrees at São Paulo State University in Brazil and worked on citrus diseases as a post-doctoral fellow at the Instituto Biológico in São Paulo before joining the University of Florida. Her research program focuses on the etiology, epidemiology, and control of diseases of strawberries, ornamentals, and citrus. Her work has emphasized anthracnose diseases, and she has determined host range and strain specificity of Colletotrichum acutatum. She supervises the diagnostic clinic at the GCREC and has extension responsibilities for strawberry and ornamental diseases. She has received several awards from the University of Florida and the Hewitt Award from APS. She has been active in APS and served as an associate editor for Plant Disease and the APSnet Education Center.

• **Alison Robertson**, senior editor, is an associate professor in the Department of Plant Pathology and Microbiology at Iowa State University. She received her undergraduate degree from the University of KwaZulu-Natal, South Africa, her M.S. degree from the University of Zimbabwe, and her Ph.D. degree from Clemson University. In addition to her extension role, Robertson conducts research on oomycete pathogens of soybean and corn and Goss’s wilt of corn. Her research focuses on understanding the epidemiology of these pathosystems in order to develop and/or improve disease management options.

• **Ioannis Tzanetakis**, senior editor, is an associate professor in the Division of Agriculture, University of Arkansas, working on the epidemiology and molecular biology of berry, ornamental, and soybean viruses. Tzanetakis has a B.S. degree in agricultural chemistry and soil science from the Agricultural University of Athens, Greece, and a Ph.D. degree in molecular and cell biology from Oregon State University. He is currently the vice chair of the National Clean Plant Network for Berries, where he leads efforts for the development of a national certification program for several berry crops. He is also the secretary of the International Council for the Study of Virus and Other Graft Transmissible Diseases of Fruit Crops and the member-at-large of the Plant Virus Subcommittee of the International Committee on Taxonomy of Viruses. He served as a senior editor for Plant Disease in 2011–2012.

*Editorial Board, continued on page 8*
The Next Four Years

Kellye Eversole, PPB Washington Representative, eversole@eversoleassociates.com

After an interminable time, the U.S. presidential election is over and Congress and the president can return to addressing the critical issue of resolving the looming U.S. budget crisis in a balanced way that preserves essential services and ensures economic growth for the future. Now that most of the election dust has settled, what can we expect for the next two years in terms of policies that will impact APS members?

In a broad sense, President Obama has been strong on supporting research and science issues, although agriculture unfortunately has been left out of the increases in funding that have been spread across the other research agencies. Groundwork laid over the past few years with the current administration may help us to reverse this trend. At least we will not be starting over completely with a new administration and completely new staff. There will likely be changes in a few key positions at the U.S. Department of Agriculture (USDA) but it is too early to know exactly who will stay and who will remain. It is quite typical for changes to occur so stay tuned for news.

There will be changes, however, in committees within the U.S. Senate and House of Representatives that determine funding for programs of interest to plant pathologists. Senator Herb Kohl (D-WI), a key champion of agricultural research and the current chair of the Senate Appropriations Subcommittee on Agriculture, retired this year so the chair of the subcommittee will pass to another member. The only other member of the agricultural appropriations subcommittee who retired is Senator Ben Nelson (D-NE). All of the members of the House Subcommittee on Agricultural Appropriations were reelected in November, although the third ranking republican on the panel announced her resignation in early December to take the post as the head of the National Rural Electric Cooperative Association. The exact make-up of the House and Senate appropriations committees and the subcommittees will not be completed until January. New leadership on both the House and Senate subcommittees could occur also as more senior members may opt for leadership positions on other subcommittees.

While the budget negotiations are far from resolved at the time of this writing, we can hope that the automatic sequester of funds (including all research, extension, and education programs) has been avoided and the FY 2013 regular appropriations levels have been settled. Even if the United States has not jumped off the so-called “fiscal cliff,” those of us interested in agricultural research, extension, and education programs will have to continue to educate new and existing members of Congress and administration officials about the importance of our programs for economic growth. Under any scenario, the fiscal difficulties of the United States will continue for the next four years and many groups and interests will be vying for the extremely scarce federal resources.

The APS Public Policy Board (PPB) will meet in Washington in March to try not only to maintain funding for key research, extension, and education programs but also to urge that these programs receive an overall net increase in funding over the next few years. We will meet with key officials from the administration and Congress to make our case. The great challenge before us is to provide these officials with concrete examples of impact from previous investments. This can take the form of “economic growth” that results from funding received or “cost avoidance” (i.e., costs that would have occurred had the investment not been made). If you have any examples, please forward them to PPB Chair Jan Leach (jan.leach@colostate.edu) or me so that we can use them in our talking papers. For example, we used this strategy successfully in the past to save the funding for the National Plant Diagnostic Network and the foundational grants program at the USDA.

While the next four years will be difficult for the science of plant pathology, we can make some progress if we continue our efforts.

Ron R. Walcott, senior editor, is a professor in the Department of Plant Pathology at the University of Georgia (UGA). He obtained his B.S. (1993) and M.S. (1995) degrees, both in plant pathology, from Iowa State University and his Ph.D degree from UGA in 1999. Walcott joined the UGA Plant Pathology Department (Athens campus) as an assistant professor in 1999. His teaching responsibilities have included introductory plant pathology, plant disease diagnosis and management, and plants, pathogens, and people. His main research focus is seed pathology with a specific emphasis on bacterial pathogens of vegetable seeds. Much of his research effort is committed to the study of Acidovorax citrulli, the causal agent of bacterial fruit blotch of cucurbits. In particular, he is interested in elucidating the mechanisms of seed infection, factors that influence seed-to-seeding transmission of bacterial diseases, and the development of novel seed treatments and seed health assays. He has previously served on the APS Seed Pathology Committee and as a senior editor for Plant Disease from 2007 to 2008.

Kiersten Wise, senior editor, is an associate professor and extension specialist for agronomic field crop diseases at Purdue University, with primary responsibility for diseases of corn, soybean, and wheat. Wise earned her B.S. degree in plant health and protection from Iowa State University, her M.S. degree in plant pathology from the University of Georgia, and completed her Ph.D. work at North Dakota State University, also in plant pathology. Her research and extension programs focus on developing economical and sustainable disease management practices for agronomic field crops. Her research efforts examine the effects of management techniques on the biology of plant diseases and aim to identify disease management practices that will improve crop production efficiency and simultaneously increase awareness of how diseases interact with their hosts. In addition, she has served as an associate editor for Plant Disease and serves as a section editor for Plant Disease Management Reports.

Kellye Eversole, PPB Washington Representative, eversole@eversoleassociates.com

After an interminable time, the U.S. presidential election is over and Congress and the president can return to addressing the critical issue of resolving the looming U.S. budget crisis in a balanced way that preserves essential services and ensures economic growth for the future. Now that most of the election dust has settled, what can we expect for the next two years in terms of policies that will impact APS members?

In a broad sense, President Obama has been strong on supporting research and science issues, although agriculture unfortunately has been left out of the increases in funding that have been spread across the other research agencies. Groundwork laid over the past few years with the current administration may help us to reverse this trend. At least we will not be starting over completely with a new administration and completely new staff. There will likely be changes in a few key positions at the U.S. Department of Agriculture (USDA) but it is too early to know exactly who will stay and who will remain. It is quite typical for changes to occur so stay tuned for news.

There will be changes, however, in committees within the U.S. Senate and House of Representatives that determine funding for programs of interest to plant pathologists. Senator Herb Kohl (D-WI), a key champion of agricultural research and the current chair of the Senate Appropriations Subcommittee on Agriculture, retired this year so the chair of the subcommittee will pass to another member. The only other member of the agricultural appropriations subcommittee who retired is Senator Ben Nelson (D-NE). All of the members of the House Subcommittee on Agricultural Appropriations were reelected in November, although the third ranking republican on the panel announced her resignation in early December to take the post as the head of the National Rural Electric Cooperative Association. The exact make-up of the House and Senate appropriations committees and the subcommittees will not be completed until January. New leadership on both the House and Senate subcommittees could occur also as more senior members may opt for leadership positions on other subcommittees.

While the budget negotiations are far from resolved at the time of this writing, we can hope that the automatic sequester of funds (including all research, extension, and education programs) has been avoided and the FY 2013 regular appropriations levels have been settled. Even if the United States has not jumped off the so-called “fiscal cliff,” those of us interested in agricultural research, extension, and education programs will have to continue to educate new and existing members of Congress and administration officials about the importance of our programs for economic growth. Under any scenario, the fiscal difficulties of the United States will continue for the next four years and many groups and interests will be vying for the extremely scarce federal resources.

The APS Public Policy Board (PPB) will meet in Washington in March to try not only to maintain funding for key research, education, and extension programs but also to urge that these programs receive an overall net increase in funding over the next few years. We will meet with key officials from the administration and Congress to make our case. The great challenge before us is to provide these officials with concrete examples of impact from previous investments. This can take the form of “economic growth” that results from funding received or “cost avoidance” (i.e., costs that would have occurred had the investment not been made). If you have any examples, please forward them to PPB Chair Jan Leach (jan.leach@colostate.edu) or me so that we can use them in our talking papers. For example, we used this strategy successfully in the past to save the funding for the National Plant Diagnostic Network and the foundational grants program at the USDA.

While the next four years will be difficult for the science of plant pathology, we can make some progress if we continue our efforts.
USDA NIFA Seeks Grant Applications

USDA National Institute of Food and Agriculture (NIFA) seeks research grant applications for the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area under its Agriculture and Food Research Initiative (AFRI). Eligible applicants include public and private institutions of higher education, nonprofits and for-profit organizations, individuals, and others. NIFA anticipates having approximately $5,000,000 in total available grant funds for the program for FY 2013. View the full announcement at www07.grants.gov/search/search.do?&mode=VIEW&oppId=207033. Applications are due April 15, 2013 (letter of intent is due December 31, 2012).

Phytopathology Welcomes Two New Senior Editors

Robert Jackson, senior editor, is a lecturer in microbiology at the University of Reading, United Kingdom. He received his B.Sc. and Ph.D. degrees at the University of the West of England, Bristol, studying bacterial pathogen plasmids with Alan Vivian. Following training at the Universities of Oxford, Auckland, and Bath, he started his research group at the University of Reading. His research focuses on using genetics and genomics to understand how some bacteria cause diseases in plants while others are beneficial to plants. Recently, he has started to work on bacterial-insect interactions to identify and characterize novel insect-killing bacteria. He has editorial experience with the European Journal of Plant Pathology and Molecular Plant Pathology and also sits on the board of the British Society for Plant Pathology, particularly focusing on outreach.

Ching-Hong Yang, senior editor, is an associate professor in the Department of Biological Sciences at the University of Wisconsin-Milwaukee. He received his undergraduate and M.S. degrees from National Chung Hsing University of Plant Pathology in Taiwan and his Ph.D. degree from the University of California-Riverside. His main research interests include host-microbe interactions, molecular mechanisms of the type III secretion system, and development of antimicrobials that target bacterial virulence factors. In addition, Yang works on microbial ecology using microbial diversity profiling. Previously, he served as a member of the Editorial Board of the journal Applied and Environmental Microbiology. He is also the session organizer and chair of bacterial genomics and proteomics for the International Congress of Plant Pathology.

Funding Opportunity

USDA NIFA Seeks Grant Applications

USDA National Institute of Food and Agriculture (NIFA) seeks research grant applications for the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area under its Agriculture and Food Research Initiative (AFRI). Eligible applicants include public and private institutions of higher education, nonprofits and for-profit organizations, individuals, and others. NIFA anticipates having approximately $5,000,000 in total available grant funds for the program for FY 2013. View the full announcement at www07.grants.gov/search/search.do?&mode=VIEW&oppId=207033. Applications are due April 15, 2013 (letter of intent is due December 31, 2012).

Division News

2013 APS Southern Division Meeting in Baton Rouge, LA

Don’t forget to register by January 14, 2013, to join your colleagues at the 2013 Southern Division Annual Meeting February 8–10, 2013, in Baton Rouge, LA, for good science, good food, and a good time! The special symposium this year is “Plant Pathology 2.0: Considerations for the Future of Our Discipline.” Additional information regarding meeting registration, hotel arrangements, and schedule can be found on the Southern Division’s website at www.apsnet.org/members/divisions/south/meetings.
So, What Do You People Do at Those Council Meetings?

David Gadoury, APS Internal Communications Officer, dng4@cornell.edu

Those of us caught up in the ongoing operations of APS Council have a hard time accepting that many APS members are perhaps not conversant with the details of our activity. Most rank-and-file APS members are sufficiently occupied by their day jobs that their attention is required elsewhere. But, if you are still reading this, I’d like to take this opportunity to make the activities of APS Council perhaps a little less mysterious and a lot more relevant to your professional life.

The Present Structure of APS Council

APS Council was downsized two years ago. Since my goal for this piece is to bring everyone up to speed on the present, let’s forget the old structure and simply stick with the present. In cooperation with the permanent professional staff at APS Headquarters, the members of APS Council oversee the operations of APS. Council consists of the four individuals in the presidential lineage (vice president, president-elect, president, and immediate past president), three councilors-at-large, a divisional councilor, a publications councilor, a treasurer, and an internal communications officer. The executive vice president, essentially our chief of staff at APS Headquarters in St. Paul, is also a member of council. Council convenes a conference call monthly and throughout the year over a period of two to three days in the fall, winter, and spring. About half of our time is spent dealing with the nuts and bolts of running APS and providing member services, with the rest of our time spent on strategic issues and planning. Council accomplishes much by proxy through oversight of 16 boards, offices, and committees. Table 1 provides a highly condensed version of who does what among the entities overseen by APS Council. This does not include the dozens of subject matter committees that are overseen by the Committee on Committees, which is chaired by the senior councilor-at-large. The structure of APS Council itself is explained in detail on APSnet (www.apsnet.org/about/governance/Pages/default.aspx).

Strategic Planning

I often think we’ve given strategic planning a bad name at universities and research institutes. Many associate strategic planning with long-winded and seemingly never-ending discussions. But it doesn’t need to be that way. A strategic plan has but one great purpose and that’s to reconcile and align your principles to your practices. If you say that something is important to you, and that it’s a strategic goal, then your actions should reflect that goal. If not, you need to reconsider your actions. But, strategic plans do not need to be windy, obtuse documents. The strategic plan for APS fits on one page. There are five goals: 1) the highest quality scientific standards; 2) a strong, proactive, and united professional organization; 3) be the globally recognized resource for plant health information and knowledge dissemination; 4) increased opportunities for professional growth and development; and 5) prioritization and action on issues most relevant to the future of plant pathology. Check out the details of the full plan on APSnet (www.apsnet.org/about/governance). The beauty of such a simplified and direct plan is that even my addled memory can keep its goals front and center, which is essential if your daily

Table 1. Condensed listing of entities overseen by APS Council.

<table>
<thead>
<tr>
<th>WHO WE ARE</th>
<th>WHAT WE DO</th>
</tr>
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<tbody>
<tr>
<td>Annual Meetings Board</td>
<td>Coordinates planning of scientific programs offered by APS</td>
</tr>
<tr>
<td>Awards and Honors Committee</td>
<td>Receives and processes award nominations for the society</td>
</tr>
<tr>
<td>Committee on Committees</td>
<td>Represents subject matter committees (e.g., Mycology Committee) to APS Council and represents council to individual committees.</td>
</tr>
<tr>
<td>Divisional Forum</td>
<td>Promotes membership and operations of APS divisions</td>
</tr>
<tr>
<td>Financial Advisory Committee</td>
<td>Advises APS Council on financial matters</td>
</tr>
<tr>
<td>Foundation Board</td>
<td>Manages and distributes the proceeds of the APS Foundation endowment</td>
</tr>
<tr>
<td>International Society Relations</td>
<td>Coordinates APS relations with international sister societies</td>
</tr>
<tr>
<td>Leadership Institute</td>
<td>Manages activities to develop leadership for APS</td>
</tr>
<tr>
<td>Nominations Institute</td>
<td>Identifies, screens, and forwards to membership the names of nominees for elected positions</td>
</tr>
<tr>
<td>Office of Education</td>
<td>Coordinates the various educational efforts of the society</td>
</tr>
<tr>
<td>Office of Electronic Communications</td>
<td>Identifies and develops new electronic technologies to advance the strategic goals of APS and meet the needs of APS members</td>
</tr>
<tr>
<td>Office of Industry Relations</td>
<td>Represents the priorities of industry members of APS to council</td>
</tr>
<tr>
<td>Office of International Programs</td>
<td>Facilitates international activities of APS members and advises council on international issues</td>
</tr>
<tr>
<td>Office of Public Relations and Outreach</td>
<td>Creates and distributes information to document the impact of the profession and to raise awareness of plant pathology as a career choice</td>
</tr>
<tr>
<td>Publications Board</td>
<td>Has overall responsibilities for all publications of the society, working with the editors-in-chief of APS PRESS, Phytopathology, Phytopathology News, Plant Disease, Plant Disease Management Reports, Molecular Plant-Microbe Interactions, PMN, and Plant Health Instructor</td>
</tr>
<tr>
<td>Public Policy Board</td>
<td>Advocates for the public policies of the society before stakeholder groups, governments, and the general public</td>
</tr>
</tbody>
</table>
activities are going to be consistent with any plan. Another key feature of strategic planning is vertical integration. Our long-term survival as a profession requires that our priorities align with those of the highest administrative levels and with those of the stakeholders we serve. Such a level of coordination is essential given the interdependency of the issues we face. With this in mind, APS has led the effort to develop a formal structure to unite department heads and leaders from across the country, including not only the large stand-alone plant pathology departments, but to identify and reach out to key individuals within multidisciplinary units to share resources, perspectives, and expertise to meet coming challenges.

Note that last goal of our strategic plan well: it compels APS Council to act upon the most critical issues that face our profession, and that’s what council has been up to since the strategic plan was developed. Read on.

Communication and Documentation of Impact

This issue has consistently surfaced as one of the most critical facing our profession, and it is inseparably linked to a second critical issue: funding. Funds are directed toward activities that are perceived to yield a desired result. They do not flow toward areas perceived as irrelevant or areas that are invisible. To successfully attract funding requires that our profession is perceived as more deserving of investment than other competing interests. Communicating with decision makers who control the distribution of funds and with the broad base of stakeholders for our profession is therefore essential to our survival. Carol Ishimaru thus made “Communicating Science” the theme of her presidency. What has transpired over the last year is a concerted and coordinated effort by the Public Policy Board (PPB), the Office of Public Relations and Outreach (OPRO), and the Office of Education (OE) to get our message out. Council has invested in the development of a video (www.youtube.com/watch?v=B60le9pKZ20), the first in a series, to explain the importance of our discipline to a broad range of audiences. APS has continued to provide early career scientists with opportunities to hone their professional skills through workshops and resources on APSnet. Those of us who attended the 2012 Annual Meeting in Providence were introduced to a new initiative developed by the Center for Communicating Science at Stony Brook University during the Plenary Session of the meeting. It’s online at APSnet if you missed it, or want to see it again. Better still, catch Alan Alda’s fascinating video on how and why the center was started and what it can do for you. He speaks for 32 minutes and rivets your attention the entire time without a single PowerPoint slide (www.youtube.com/watch?v=R60le9pKZ20). The Center for Communicating Science holds two-day workshops twice a year. More information can be found at www.centerforcommunicatingscience.org. Workshops at the annual meetings, activities of the Leadership Institute, and more, will continue this essential strategic activity. Improving our communication skills is not only essential to our future success, it can be a lot of fun and anyone can profit from a few simple exercises. If you missed the Plenary Session at the meeting in Providence, check out what transpired at www.scientificsocieties.org/aps/plensess/2012/default.asp.

Funding

APS is not a significant direct source of funds required for research. However, we are the single most effective advocate for the profession on every front. The interdependency of our educational efforts, our emphasis on communicating impact, and advocacy are all part of a coordinated effort to ensure the future of our discipline. PPB works in a coordinated fashion with professional advocates to make sure that key decision makers in DC understand how their decisions impact our profession, and why they should care. As a consequence, funding opportunities within USDA AFRI programs for research and outreach are open to a broader cross section of our discipline than they were two years ago. That was an outcome largely affected by activities of APS leadership, and their coordination of stakeholder input across our membership. Council goes out of its way to welcome directors of USDA NIFA to our annual meetings to engage with members and hear from our leadership. Council is also exploring how APS can further help all levels of our profession, from providing training and mentoring of early career professionals to more effective advocacy to make everyone more aware of our critical role in feeding the world.

Plant Pathology Education

The new OE is the single largest development during the past year on this front. Through this office, APS Council seeks to coordinate educational efforts of our society. Again, the interdependency of the challenges we face demands coordination. Documenting impact requires that we collect the required data to present a persuasive argument. Council has done that through two large-scale studies of the present state of our discipline (Plant Dis. 93:1228-1237 and 1238-1251). We continue to monitor the state of department and plant pathology programs across the country and make this information freely available to all departments for discussions with their administrations and stakeholders (Phytopathology News, March 2012). We have identified the most productive means of channeling the best and brightest students into graduate programs and have actively promoted research experience for undergraduates (REU) programs on APSnet. I don’t know if we can claim all the credit, but enrollment in graduate programs in plant pathology is up 20% from...
Communicating with decision makers who control the distribution of funds and with the broad base of stakeholders for our profession is therefore essential to our survival.

2009. Industry has been recruited as an active partner through APS leadership within CSAW (an industry consortium that advocates at the national level for agricultural workforce development), and through a new pilot project to develop an undergraduate/graduate course tentatively called “Industry 401,” which will highlight the science and career opportunities within the industry. This initiative grew from a roundtable meeting of industry scientists at the spring 2012 meeting of APS Council. Industry moves fast!

Attracting Students

Research under the direction of ad hoc committees appointed by APS Council effectively documented what many of us know from personal experience: the two most effective paths by which students are attracted to our discipline are 1) a fascinating introductory course, and 2) work experience. We are acting upon that knowledge (there’s that goal five of the strategic plan again). APSnet maintains an extensive list of REU programs offered across the country, and the list is growing (see: www.apsnet.org/careers/internships). We plan to become the national clearinghouse for information on plant pathology REU opportunities not only at universities but within industry and government as well. By optimizing APSnet for the various search engines in use, we want to ensure that anyone anywhere looking for an exciting REU opportunity having to do with plants lands on our site and learns about plant pathology as a career option. Council also supports numerous outreach efforts of OPRO and OE and of a new outreach initiative of the Divisional Forum designed to bring promising undergraduates to any of the divisional meetings of APS.

We Need Your Help, Your Participation, and Your Ideas

Council is assisted by a remarkable headquarters staff in St. Paul. We could never accomplish what we’ve done without them. But, council members are all volunteers with day jobs. Without the assistance of literally hundreds of committed APS members this enterprise simply would not function at its present high level. I was never a great fan of committees or volunteer boards. Before I was drafted into my present position on council, like many of us, I had suffered through some excruciatingly dull and unproductive meetings. Now, if you want to see how a deliberative body is supposed to function, get a seat on council. It’s an eye opener, and if you believe that you play up to the level of your partner in a game, then you’ll personally benefit from the experience by acquiring skills and a professional network that will serve you well for the duration of your career. My advice to all members is to seek and accept opportunities to serve.

In addition to service on council or the major boards, offices, and committees overseen by council, we need your ideas. Council has launched a new site to better field ideas from APS members. It’s the new Idea Inventory on APSnet (www.apsnet.org/members/pages/ideasinnovation.aspx). Any member can fill out a simple form in just a few minutes and send in their best ideas for new services, products, or ways to generate revenue for the society. The ideas are screened by council and evaluated by APS Headquarters staff. You’ll be asked how your idea fits the strategic goals of APS. Not all ideas are pushed forward, but those that are will have the complete support of council and staff and will be developed and refined, hopefully with additional input from the author. Check out the site and if you have an idea that fits, please share it. ■

Detailed APS Annual Report and Committee Listings Available Online; Treasurer’s Report in February Phytopathology News

A detailed version of the 104th Annual Report is available at www.apsnet.org/about/governance/annualreports. The report of the treasurer is now published annually in the February issue of Phytopathology News. Check next month’s issue for full details. In addition, for the most up-to-date listing of APS leadership, including council, boards, offices, and committee listings, visit www.apsnet.org/members/apsleadership.
In Focus—What’s New from the Plant Management Network

PMN Webcast Resources Are Now Even More “Mobile Friendly”

The Plant Management Network’s (PMN’s) “Focus On” webcast resources now feature larger text and a wider content-viewing area for easier browsing with mobile devices. Focus on Potato, Focus on Soybean, Focus on Corn, and Focus on Tomato also feature improved masthead designs.

Focus on Potato Webcast Provides Basics of Seed Potato Certification

“Seed Potato Certification” by Robert Davidson (Colorado State University) will help users in the United States and Canada learn about the basics of seed potato certification. This presentation covers the basis for seed potato certification, the current certification processes, diseases and conditions that are the focus of inspections, and how these problems are managed through the use of clean, high-quality seed potatoes. View this presentation at www.plantmanagementnetwork.org/edcenter/seminars/potato/seedpotatocertification.

Focus on Tomato Features Disease, Diagnostic Webcasts

“Late Blight Pandemic in Northeastern USA in 2009” by Bill Fry, professor of plant pathology at Cornell University, discusses the causes of the 2009 late blight epidemic and also features a new online decision support system (DSS) that provides information to practitioners in near real time for in-season disease management decisions. Fungicide trials involved in the making of this DSS are also covered. View this presentation at www.plantmanagementnetwork.org/edcenter/seminars/Tomato/LateBlight.

Twenty-Seventh Annual Tomato Disease Workshop at OSU

The 27th Annual Tomato Disease Workshop was held at The Ohio State University (OSU), Ohio Agricultural Research and Development Center (OARDC) in Wooster, October 16–17, 2012. Eighty participants attended the workshop, which included 35 oral and poster presentations that covered sessions on Field Tomato Diseases and Management, Pathogen Etiology and Epidemiology, Tomato Diseases and Management in Protected Culture, Tomato Diseases and Pest Resistance, and Tomato Food Safety. The workshop included many opportunities for networking and discussion among participants from academia, government, and industry. Workshop organizers were Sally Miller, professor, and Melanie Lewis Ivey, research scientist, from OSU’s Department of Plant Pathology at OARDC. Abstracts and PowerPoint presentations can be accessed on the OSU Vegetable Pathology website (http://oardc.osu.edu/sallymiller). The 28th Annual Tomato Disease Workshop will be held in conjunction with the 4th International Symposium on Tomato Diseases, which is being organized by the University of Florida and will be held in Orlando, FL, June 24–27, 2013 (http://nfrec.ifas.ufl.edu/4istd/index.shtml).

Don’t Miss January’s Special MPMI Focus Issue

Molecular Plant-Nematode and Plant-Insect Interactions

The January issue of MPMI focuses exclusively on the molecular biology and molecular genetics/genomics of parasitic interactions of nematodes and insects with plants, presenting the progress being made. Key scientists in the field have provided mini-reviews on the following critical topics:

• nematode salivary proteins/effectors
• aphid salivary proteins/effectors
• nematode-induced feeding structures

Guest editors for this highly anticipated special issue are Geert Smant, professor of nematology at Wageningen University, the Netherlands, and Saskia Hogenhout, John Innes Centre in Norwich, United Kingdom. Read this special Focus Issue online today at http://apsjournals.apsnet.org/loi/mpmi.
What is phytopathology (and, coincidentally, how do you pronounce it)? These were the common questions at the APS booth at the 85th National FFA Convention and Expo in Indianapolis, IN, October 25–26, 2012. The booth, sponsored by the APS Office of Public Relations and Outreach (OPRO), was especially popular with teachers this year—teacher packets were in high demand. There was also significant student interaction this year, attributed to our catchy slogans. All of our career posters “You Can Change the World” were exhausted by the end of the second day, as were the corn smut stickers. New to the booth this year was a tri-fold brochure describing how to apply to graduate school and bookmarks highlighting the intersection between plant pathology and human history. Gail Ruhl of Purdue University provided diseased pumpkins for the booth. These are perennial favorites with FFA members as they often sell pumpkins to raise funds for their chapters.

The “Don’t Get Caught with Your Plants Down” t-shirt and other APS t-shirts were prominently displayed this year. While many students initially stopped by the booth to enter the t-shirt raffle, this gave OPRO board members Tim Durham (Florida Gulf Coast University) and Kari Peter (USDA) the opportunity to explain phytopathology to students and teachers and answer their questions about our discipline and employment opportunities. More than 200 “FFA Career Profile of a Plant Pathologist” handouts were distributed to attendees.

According to Durham “successful branding is going to be the key to bolstering APS interaction with students and teachers alike.” Both he and Peter have provided the OPRO board with ideas to improve the APS booth presence at the FFA convention in 2013.

Attending the Opportunity Fair at the Agriculture Future of America (AFA) Leaders Conference in Kansas City, MO, on November 2 were APS industry members William Dolezal (DuPont Pioneer) and Issa Qandah (Monsanto). This was the first time that APS had a booth at this event, which is targeted at college men and women who are preparing for careers in agriculture-related fields. Dolezal said that the “traffic was good to the booth and the students were sharp, asking good questions about possible career fields within plant pathology and other plant sciences.” Dolezal and Qandah used the corn smut stickers and historic disease bookmarks as icebreakers to meet the students, distributed numerous APS brochures, and followed up with showing of the new APS plant pathology career video (available at www.apsnet.org/Pages/APSVideo.aspx).

The APS booth is available to members for use at their recruitment events or other related activities throughout the year. The banners can be requested from APS Headquarters (members pay for the shipping costs) or members can download them from the OPRO Outreach Resource page at www.apsnet.org/members/outreach/opro/Pages/OutreachResources.aspx and have them printed locally. Career posters and brochures are also available. And, don’t forget the plant pathology career video to use at events or in the classroom. Help spread the word about plant pathology as a career choice! ■
APS Foundation

Apply Today! Last Call for Several Funding Opportunities

Deadlines for several funding opportunities are quickly approaching. These awards provide unique opportunities for student plant pathologists to support their research and increase their participation in APS activities.

The 2013 I. E. Melhus Graduate Student Symposium will feature four to five graduate student presentations on minimizing crop losses; each presenter will receive at least $500 in travel funds for the 2013 APS-MSA Joint Meeting. Applications are due January 18, 2013. Full details are available at www.apsnet.org/members/foundation/apply/Pages/IEMelhusGradStudentSymposium.aspx.

The Raymond J. Tarleton Student Fellowship can be used as a stipend for research expenses, books, research or scientific meeting travel, summer internships, and/or equipment. Applications are due January 11, 2013. One award of $1,000 is available; view full details at www.apsnet.org/members/foundation/apply/Pages/RaymondTarleton.aspx.

The Frank L. Howard Undergraduate Research Fellowship supports undergraduate research to be conducted over a minimum of one summer or school term, and the funds may be used for stipend and research budget expenses. One award of $1,000 is available. Applications are due January 28, 2013; see www.apsnet.org/members/foundation/apply/Pages/UndergradFellowship.aspx.

Online Application for the 2013 Student Travel Awards Opens in February

If you are an APS student member giving an oral or poster presentation at the 2013 APS-MSA Joint Meeting in Austin, TX, we encourage you to apply for an APS Student Travel Award. Awards are available to students in all disciplines of plant pathology, at any stage of education. The APS Student Travel Award program is aimed toward recognizing and rewarding the best and brightest students in plant pathology.

The online application process for these awards will open February 15, 2013, and will end March 21, 2013. Students that received an award in 2012 will not be eligible for an award until 2014. Award winners will receive $500 to support their travel to the 2013 APS-MSA Joint Meeting. Applications are due by noon Central Time on March 21, 2013, and advisor letters are due by noon Central Time on March 28, 2013. These deadlines are strictly enforced; no applications or advisor letters will be accepted after the posted deadline.

“Receiving an APS travel award was a great experience. It brought me closer to the APS community and has helped me connect with other upcoming graduate student members,” says Kate Fiedler, a previous awardee from Virginia Tech. “I’ve discovered more about our society than ever before and winning this award encourages me to give back,” adds Fiedler.

Eligible students are encouraged to review the application requirements for the travel award, which are available at www.apsnet.org/members/foundation/apply/Pages/StudentTravelAwards.aspx. Applicants should consider preparing responses in a word processing application prior to completing the online form. Once the form is available online, applicants can paste the content of their submission directly into the form. Applicants are required to submit a formal abstract for an oral or poster presentation for the 2013 APS-MSA Joint Meeting prior to application. The application requires students to make the case for a hot topic that they feel should be presented as a symposium at the next APS meeting, and requires a letter of recommendation from their current graduate or undergraduate advisor.

“The Student Travel Award program of APS is a wonderful opportunity that I encourage all graduate students to take advantage of. Not only does this program help fund student travel to important plant pathology society meetings, the awards are regarded as some of our disciplines most distinguished, and I am honored to be among the extraordinary group of past recipients,” says Paul Giordano, a previous awardee from Michigan State University.

Early Career Mycologists—Apply for the 2013 Schroth Faces of the Future Award

The APS Early Career Professionals Committee, with support from the APS Foundation, is sponsoring the Schroth Faces of the Future Symposium at the 2013 APS-MSA Joint Meeting. The award, created through an endowment established by Milt and Nancy Schroth, recognizes early career scientists (within 10 years of receiving a Ph.D. degree) whose research and forward thinking have positioned them to be the “up and coming” in their fields. These fields, which are rotated on an annual basis, are nematology, mycology, bacteriology, virology, and most recently, host resistance-host/pathogen interactions and epidemiology-disease management. This year’s symposium, entitled “Schroth Faces of the Future—Explorations in Contemporary Mycology,” will feature presentations from four individuals shaping the future of mycology. Speakers will be selected from a committee composed of prominent mycologists and members of the Early Careers Professionals Committee. Awardees will receive $500 to subsidize travel to the meeting and an opportunity to submit a mini-review for publication as an APS News feature article.

To apply, visit www.apsnet.org/members/foundation/apply/Pages/SchrothSymposium.aspx for additional details.

French-Monar Fund to Support Travel to ALF Meeting in 2013

The APS Foundation French-Monar Latin American Fund was established by Edward R. French and Delia Monar French. The fund supports several potential opportunities for early career and student plant pathologists from Latin America. In 2013, the funding will be directed to support travel costs for the awardee to attend the 2013 Latin American Phytopathological Congress (organized by the Latin American Phytopathological Association [ALF]).

Through a competitive process, there will be one French-Monar Latin American Award of up to $1,000. Graduate students and early career plant pathologists living in Latin American countries are eligible. Applicants must have obtained their highest degree as an ingeniero, agronomo, or equivalent, or an advanced degree, obtained within the last 10 years. The main criterion for the award is the professional promise of student applicants and the apparent productivity of early career applicants.

For complete application details visit www.apsnet.org/members/foundation/apply/Pages/FrenchMonar.aspx. Applications are due by February 5, 2013. Questions can be directed to APS Foundation Board member Lawrence Datnoff at +1.225.578.1366 or LDatnoff@agcenter.lsu.edu.
Gary Chastagner, professor of plant pathology and located in Washington State University Puyallup Research and Extension Center, coauthored the Oregon State University (OSU) Christmas Tree Nutrient Management Guide which received the Extension Education Materials of Excellence Award. Chastagner, for the past several years, has worked with the OSU coauthors on the effect of fertility levels on current season needle necrosis and provided the biomass accumulation data that were used to estimate nutrient uptake values. Chastagner is working on ways to improve the sustainability of the Christmas tree industry which is valued at nearly $1 billion in the United States. Besides his expertise in Christmas tree health and postharvest quality, he conducts research and extension on diseases of ornamental bulbs. Chastagner was a recipient of the National Christmas Tree Association’s Outstanding Service Award and Excellence in Extension Award from The American Phytopathological Society.

Dennis Johnson, professor in the Department of Plant Pathology, Washington State University (WSU), Pullman, was presented with the 2012 Kenneth J. Morrison Extension Award in Crop and Soil Sciences. Rich Koenig, chair of the Department of Crops and Soil Sciences and associate dean for extension in the College of Agriculture, Human, and Natural Resource Sciences, WSU, presented the award to Johnson at a special departmental event held on October 22, 2012. The award was established in 1987 for the purpose of recognizing annually an extension faculty member who has made outstanding contributions to Washington State's agriculture, especially in agronomic crop production improvement and/or soil management. Johnson is an APS fellow, an honorary life member of the Potato Association of America, a recipient of the Friend of the Washington Mint Industry Award, and past president of the APS Pacific Division.

Jonathan D. G. Jones, professor, University of East Anglia, United Kingdom, received the 2012 E. C. Stakman Award from the Department of Plant Pathology, University of Minnesota. The award is bestowed on individuals of any country and nationality for outstanding achievements in plant pathology in honor of one of the legendary figures of the department, Elvin C. Stakman. Jones has made numerous and sustained contributions to the discipline. His group was among the first to isolate and characterize a plant disease resistance gene. By cloning the Cf9 gene in 1994, Jones was the first to demonstrate that resistance induced in plants towards pathogens is based on specific classes of innate immune receptors. His work preceded the 1996 discovery of innate immune receptors in animal systems, which was recognized by the 2011 Nobel Prize in Medicine and Physiology. In essence, Jones’ discovery that an R gene codes for a receptor-like protein was a validation of the concept of gene-for-gene and elicitor-receptor interactions that originated from the work of Stakman, Harold Flor, and other pioneers of plant pathology. Jones’ current research is focused on the effector complements of the Arabidopsis oomycete pathogens Hyaloperonospora arabidopsidis and Albino candida using next-generation sequencing methods.

Laurel Leedy, information associate in the Department of Plant Pathology at The Ohio State University, was awarded the Shirley Brooks-Jones Citizenship Award by the College of Food, Agricultural, and Environmental Sciences (CFAES). The award is given annually to a staff member to recognize outstanding job performance. Leedy, who is based at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, has multiple departmental responsibilities, including inventory, glassware cleaning, and assistance with student programs. Leedy was presented with the award by Shirley Brooks-Jones (former staff member) and Bobby Moser (former vice president of agriculture and dean) at the CFAES Staff Advisory Council luncheon in Columbus on November 7, 2012. In addition, Bob James, agricultural technician in Wooster’s Research Operations Department, was honored with an OARDC Outstanding Staff Award, which is presented annually to two nonfaculty employees on OARDC’s Wooster campus. James was recognized for providing outstanding service to customers and colleagues, most notably in the plant pathology greenhouses and phytotron. The award was presented by Steve Slack, OARDC director, at the center’s annual Employee Appreciation Night on October 11 in Wooster.

Ravi Singh was recently awarded the 2012 Crop Science Research Award from the Crop Science Society of America (CSSA) in recognition of his many contributions to the field of wheat breeding. Singh is recognized as one of the foremost authorities on rust diseases of wheat. He has designated 20 genes for different traits in wheat and molecular markers for several major and minor rust resistance genes. Singh’s participation in breeding has resulted in the release of more than 200 wheat cultivars, including 20 that are resistant to Ug99 stem rust, in numerous developing countries that have contributed over US$5 billion through yield savings in leaf rust epidemic years.

Claudia Probst recently joined Gary Grove’s lab in the Department of Plant Pathology at Washington State University’s Irrigated Agriculture Research and Extension Center (IAREC) in Prosser, as a post-doctoral fellow. Probst hails from Koblenz, Germany. She received her Ph.D. degree from the University of Arizona under the direction of Peter J. Cotty. Her
Lindsey du Toit, associate professor in the Department of Plant Pathology, Washington State University and located at the Northwest Research and Extension Center, Mount Vernon, was invited to participate as one of the guest speakers in the Onion Seed Safari in the Klein Karoo, South Africa, October 9–10, 2012. The event was organized by Klein Karoo Seed Production (KKSP), based out of Oudtshoorn, South Africa, and was attended by 85 onion seed farmers in South Africa as well as seed production managers. On October 9, attendees toured numerous onion seed crops in the Klein Karoo to observe and discuss disease management.

du Toit gave a presentation entitled “Disease management for sustainable onion seed production: What? Who? How? Why?” du Toit was also invited to lead a discussion entitled “The university role in agricultural extension: Lessons from Washington State University” to faculty in the School of Agricultural, Earth and Environmental Science at the University of KwaZulu-Natal, Pietermaritzburg, South Africa.

**Department Update**

More than 30 undergraduate and high school students gained internship and work experience in the Department of Plant Pathology at The Ohio State University’s Columbus and Wooster campuses during the summer and early autumn. Students spent at least eight weeks working in faculty laboratories and had the opportunity to participate in campus tours and present their research at forums. The department hosted students through the Summer Research Internship in Plant Pathology Program (http://plantpath.osu.edu/undergraduate/internships) and the OARDC Research Internship Program (http://oardc.osu.edu/orip). The goal of the internships is to provide research experience and expose students to educational and career options in plant pathology.

Lei Zhang recently joined Axel Elling’s lab in the Department of Plant Pathology, Washington State University (WSU), Pullman, as a post-doctoral associate. Zhang is originally from China. He received his Ph.D. degree from the Molecular Plant Sciences Program at WSU under the direction of Joe Poovaiah. Zhang’s dissertation was on calcium/calmodulin signaling in plant defense responses. Zhang will be working on a project focused on the functional characterization of *Meloidogyne incognita* effector genes.

Adam Sparks joined the Crop and Environmental Sciences Division of the International Rice Research Institute (IRRI) as a scientist in December 2012. He received his Ph.D. degree from Kansas State University in plant pathology in 2009. Previously he had been a post-doctoral researcher with the wheat scab modeling group at Kansas State University and The Ohio State University and most recently a post-doctoral fellow at IRRI linking plant disease models with GIS. His new position at IRRI will focus on the epidemiology and ecology of chronic and emerging diseases of rice in the context of changing production situations and climate change and developing tools and strategies to minimize the impact of these diseases.

Phytopathology News
**Assistant Professor in Plant Sciences—Plant Microbiologist in Food Safety**

University of California-Davis seeks an assistant professor in plant sciences, plant microbiologist in food safety. Research will focus on plant-environmental-microbial interactions of crops and produce, with emphasis on microbial community processes in relation to plant and/or human pathogens. This position provides the opportunity to investigate fundamental principles that determine how plants and their environment affect the microbial communities upon the plant surface. An intended outcome of these discoveries will be identification of key ecological and/or molecular traits that can in turn improve handling strategies and food safety by modulating the presence, persistence, or activities of beneficial and deleterious microorganisms. A successful candidate will utilize metagenomics, transcriptomics, metabolomics, molecular analysis of plant-microbe interactions, eco-physiological processes, or any related combined approaches to analyze microbial communities in the phyllosphere, rhizosphere, and other plant niches. These studies may occur in a range of successive contexts, from field systems through the multiple human environments involved in postharvest processes to the transmission of human pathogens in the food chain. To apply, the candidate must hold a Ph.D. degree or equivalent level of experience in plant biology, postharvest biology, or microbiology with experience in plant-microbial interactions or related fields. Candidates should register at http://recruitments.plantsciences.ucdavis.edu. For technical/administrative questions regarding the application process, please e-mail Melanie Greenleaf (mjgreenleaf@ucdavis.edu). Review of applications begins January 1, 2013. The position will remain open until filled.

**Food Safety Outreach Specialist—Vegetable and Fruit Extension**

This position will support the extension efforts of fruit and vegetable production faculty in the University of Wisconsin-Madison Department of Plant Pathology and Horticulture by serving as an extension program leader in the area of food safety in production and postharvest handling. Incumbent will generate a suite of educational materials/programs for fruit and vegetable growers and processors to meet consumer expectations and guidelines for GAP/GHP and minimize food safety risks to Wisconsin residents and liability to Wisconsin produce growers. Coordination of on-farm demonstrations of good food safety practices necessary to fully integrate activities of commercial industry with outreach specialist. Develop relationships with stakeholders/advisors to identify information gaps in certification requirements and remediation recommendations (15%); identify/analyze currently available sources of food safety information and based on these materials create centralized information resource/clearinghouse for producers (15%); generate suite of educational materials and programs that growers/processors can use to meet consumer expectations and guidelines for GAP/GHP and minimize food safety risks to Wisconsin residents and liability to Wisconsin growers (50%); provide guidance to producers/processors in accessing, completing, and submitting food safety inspection/certification documents (10%); develop statewide program leadership in food safety education for fruit/vegetable industries in Wisconsin (10%). To apply, send resume and cover letter referring to #75166 to Amanda Gevens (+1.608.890.3072, gevens@wisc.edu) 1630 Linden Dr., Room 689, Madison, WI 53706-1598 U.S.A. View online at www.ohr.wisc.edu/WebListing/Unclassified/PVLSummary.aspx?pvl_num=75166. The closing date is January 15, 2013.

**Assistant Professor of Applied Plant Pathology**

The Department of Plant, Soil, and Environmental Sciences at the University of Maine seeks applications for an academic year, tenure-track assistant professor of applied plant pathology (30% teaching/70% research) to begin work by July 1, 2013. Instructional responsibilities include an annually taught, upper-level plant pathology course with a laboratory and an additional alternate-year course contributing to undergraduate and/or graduate programs. The successful candidate will provide expertise to graduate thesis committees as well as applied/basic research on important specialty crops in Maine. The successful candidate will vigorously pursue external funding and develop a research program that utilizes field assessments, molecular tools, and other diagnostic techniques. A Ph.D. degree is required by date of hire in an area relevant to plant pathology. Documented record of conducting high-quality, applied scientific research, demonstrated by publication in peer-reviewed journals is required. Effective oral/written communication skills and teaching experience and demonstrated record of obtaining funding in the form of competitive grants required. To apply, submit cover letter, CV, statements of teaching/research interests, and copies of graduate transcripts in PDF format to Kate. Flanagan@umit.maine.edu with subject line “Plant Pathologist Search.” Also arrange for three letters of recommendation to be sent in PDF format to Kate.Flanagan@umit.maine.edu using subject line “Plant Pathologist Reference Letter_Applicant Name.” Review of applications begins January 1, 2013, and will continue until the position is filled.

**Assistant/Associate/Professor Research Plant Pathologist**

The Mississippi State University (MSU) Agricultural and Forestry Experiment Station seeks to fill a full-time, non-tenure-track assistant/associate professor (100% research) position in plant pathology. The successful candidate will support the row crop industry by providing applied research on management of diseases, nematodes, and their interactions in corn, cotton, rice, soybean, and other important row crops in the Mississippi Delta. A successful research program will consist of a combination of field- (approximately 70%) and laboratory-based (approximately 30%) experiments designed to provide critical information to the clientele of MSU. An important component of the research program will be to evaluate the impact of diseases (folar and soilborne) and disease-causing organisms on the quality/yield of row crops grown in Mississippi and the efficacy control options available to growers. The applicant must have excellent written/oral communication skills. Extramural funding will be vital for maintaining a viable research program and should be obtained from multiple sources. Duties include identification and development of research objectives; publication in refereed journals, experiment station bulletins, popular press articles, and mass media and electronic communications that support the MSUCares.com web page with plant pathology/nematology information; and collaboration with other researchers extension personnel in the planning and implementation of field activities and field days for growers and the agricultural industry. Job materials should include a detailed description of the position and application instructions can be found at www.jobs.msstate.edu/applicants/jsp/shared/ frameset/Frameset.jsp?time=1332445065323. Questions may be sent to Jeff Gore (jgore@drec.msstate.edu) or Tom Allen (tallen@drec.msstate.edu). The closing date is February 1, 2013, but it will remain open until filled.
## Calendar of Events

### APS Sponsored Events

<table>
<thead>
<tr>
<th>Month</th>
<th>Event</th>
<th>Location</th>
<th>Website</th>
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</thead>
<tbody>
<tr>
<td>April 2013</td>
<td>2013 Potomac Division Meeting.</td>
<td>Shepherdstown, WV.</td>
<td><a href="http://www.apsnet.org/members/divisions/pot">www.apsnet.org/members/divisions/pot</a></td>
</tr>
<tr>
<td>June 2013</td>
<td>2013 North Central Division Meeting.</td>
<td>Manhattan, KS.</td>
<td><a href="http://www.apsnet.org/members/divisions/nc/Pages/default.aspx">www.apsnet.org/members/divisions/nc/Pages/default.aspx</a></td>
</tr>
<tr>
<td></td>
<td>2013 Caribbean/Pacific Division Meeting.</td>
<td>Tucson, AZ.</td>
<td><a href="http://www.apsnet.org/meetings/divisionmeetings">www.apsnet.org/meetings/divisionmeetings</a></td>
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<tr>
<td>October 2013</td>
<td>2013 APS Northeastern Division Meeting.</td>
<td>Southbury, CT.</td>
<td><a href="http://www.apsnet.org/members/divisions/ne/meetings">www.apsnet.org/members/divisions/ne/meetings</a></td>
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### Upcoming APS Annual Meetings

<table>
<thead>
<tr>
<th>Month</th>
<th>Meeting</th>
<th>Location</th>
<th>Website</th>
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<tbody>
<tr>
<td>August 10-14, 2013</td>
<td>— Austin, TX.</td>
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<td>August 9-13, 2014</td>
<td>— Minneapolis, MN.</td>
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### Other Upcoming Events

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<tr>
<th>Month</th>
<th>Event</th>
<th>Location</th>
<th>Website</th>
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<tr>
<td>March 2013</td>
<td>Society for General Microbiology Spring Conference.</td>
<td>Manchester Convention Complex</td>
<td><a href="http://www.sgm.ac.uk/meetings/MTGPAGES/Manchester2013.cfm">www.sgm.ac.uk/meetings/MTGPAGES/Manchester2013.cfm</a></td>
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<tr>
<td>April 2013</td>
<td>17th International Reinhardbrunn Symposium on Modern Fungicides and</td>
<td>Friedrichroda, Germany.</td>
<td><a href="http://www.reinhardbrunn-symposium.de">www.reinhardbrunn-symposium.de</a></td>
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<td></td>
<td>Antifungal Compounds.</td>
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<td>ISAA 2013—10th International Symposium on Adjuvants for Agrochemicals.</td>
<td>Foz do Iguacu, Paraná, Brazil.</td>
<td><a href="http://events.isaa-online.org">http://events.isaa-online.org</a></td>
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<td>Göttingen, Germany.</td>
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<tr>
<td>June 2013</td>
<td>Joint Meeting of the 4th International Symposium on Tomato Diseases</td>
<td>Orlando, FL.</td>
<td><a href="http://ntrec.ifas.ufl.edu/4istd/index.shtml">http://ntrec.ifas.ufl.edu/4istd/index.shtml</a></td>
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<tr>
<td></td>
<td>and the 28th U.S. Annual Tomato Disease Workshop.</td>
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<td></td>
<td>Czech Republic.</td>
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