



Department of Plant Pathology

2008–2009

Annual Newsletter



Faculty and students from the Plant Disease Diagnosis course during their 2008 visit to Costa Rica (see full story on page 22)

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Many thanks to the members of the PPath Public Relations and News Committee—Scott Isard (Chair), David Geiser, Beth Gugino, Dylan Short, Nancy Wenner, and Yinong Yang—as well as to Steve Conaway, Becky Peplinski, and other members and alumni of the Department of Plant Pathology who contributed news items and/or **photographs to this year's newsletter.**

Please send any comments or suggestions regarding the newsletter to mat1@psu.edu.

The Department of Plant Pathology Newsletter is published annually by the students, faculty, staff, and alumni of the Department of Plant Pathology
The Pennsylvania State University
Buckhout Laboratory
University Park, PA 16802

Greetings from Happy Valley

Fred Gildow

Professor and Head, Department of Plant Pathology

It is with a sense of pride that I find myself the current Head of the Department of Plant Pathology and to have this opportunity to welcome you to the 2008–2009 Plant Pathology Newsletter. As most of you probably know by now, **Barb Christ** did such an outstanding job as our Department Head from 2005 through 2008 that she was selected to become the Senior Associate Dean of our College of Agricultural Sciences in January, 2009. Although I am the “new” Department Head, I am not new to the department. For those of you who do not know me personally, I have been a faculty member in the department since 1983, annually teaching the introductory plant pathology course (PPATH 405) and doing research on insect-transmitted plant viruses. So, now you know that **I am not really “new” at all**. I am the tenth Department Head following in the footsteps of **Dr. James Tammen**, our first Head from 1963–75. Believe it or not, Jim still comes to the department on occasion to visit and I suspect to make sure I am **taking proper care of ‘his’ department, and for this I am grateful**.

As you will find in reading our newsletter, the past two years have been busy. We had quite a few changes with the recent retirements of long-time Plant Pathology faculty and staff. On the flip side, we have a number of new additions, with **Sara May** now running the Plant Disease Clinic, and **Roxanne Lease**, our new facilities coordinator and safety officer. During the past year we hired three new office staff, **Debra Clemmer** (Accounting), **Lori Long** (Graduate Program Assistant), and **Amy Perryman** (Administrative Support Assistant). Our newest faculty addition is **Dr. Beth Gugino**, responsible for vegetable extension pathology. We are also delighted that **Henry Ngugi** and **Maria del Mar Jimenez-Gasco** moved to tenure track faculty positions in 2008. Sadly, we also lost a few friends and colleagues including **Richard Schein**, **Mary Lou Merrill**, and **Larry Jordan**. They will be missed.

Our Plant Pathology Graduate Program is going strong. From summer 2007 through summer 2009 we graduated 7 M.S. and 7 Ph.D. students—all of whom, I can happily say, are either continuing in grad school or gainfully employed. Currently we have 4 M.S. and 18 Ph.D. students enrolled in Plant Pathology and have recently recruited 4 excellent students to begin the fall of 2010. During 2008–09, 9 students received endowed scholastic awards, 5 received travel awards, and 1 received a competitive grant. Three students also won APS awards for presentations. During the summer of 2008, 11 graduate students traveled to Costa Rica to participate in a new course, Tropical Plant Disease Diagnosis, coordinated by **Don Davis** and assisted by his distinguished teaching assistants, **Elwin Stewart** (Head, 1993–2002) and **Barb Christ** (Head, 2005–2008). During the hot summer days, the students learned about diseases associated with tropical crops. **They won’t tell me what they did at night**. Recently, the department has been participating in the development of a new World Campus (on-line) Masters of Professional Studies degree in Homeland Security; **Gretchen Kuldau** serves as Option Director for the Ag Biosecurity Option, which is coordinated through the College of Ag Sciences. To further illustrate our move into the field of biosecurity, **Seogchan Kang** led a team of faculty that successfully landed a \$1 million NSF grant to support graduate training in biosecurity.

Our faculty and staff also have been busy in building our research reputation. We currently collaborate in over \$5.9 million in grants to study a wide range of topics as diverse as plant virus microevolution and vaccine production in mushrooms to biocontrol of invasive tree species. At the local level, **Gary Moorman** has been busy dealing with the recently discovered elm yellows phytoplasma infecting our campus elm trees, which causes elm yellows disease and results in tree death, and adds to the Dutch elm disease dilemma. **Beth Gugino** spent the summer combating the epidemic of tomato and potato late blight that was devastating in most areas. A number of faculty currently are involved in research on *Phytophthora ramorum*, a fungal pathogen with the potential to cause destructive epidemics in many woody forest species. On the brighter side, plum pox virus, which had led to the destruction of all infected peach and plum orchards in the state, was declared eradicated in Pennsylvania by the USDA.

The quality of our faculty and staff was indicated in 2008–09 by several research and teaching awards. Research awards went to **Don Davis, David Geiser, Scott Isard, Seogchan Kang,** and **Peter Romaine**. During the same time the department's Award for Excellence in Teaching, newly endowed by the family of **Dr. William Merrill**, was awarded to **Fred Gildow** (2008) and **Gretchen Kuldau** (2009). In 2008, the first Staff Excellence Award, endowed by **Laurence** and **Mary Ann Moore**, was awarded to **Teresa Shirk**, our long-time facilities manager; and in 2009, the Staff Award was made to **John Peplinski** for over 30 years of superior service directing the Plant Disease Clinic.

On behalf of all of the faculty, staff, and students, I wish to thank all of our generous donors who have given their support over the past years that make our honors and scholarships possible. Many of your endowments and donations are utilized to support our graduate programming. These gifts are invaluable in helping support student research projects and travel for professional meetings or research. Other endowments are specifically targeted to support research programs of interest to the donors. Due to the severe budget crisis associated with decreased funding, our department will receive significant budget cuts over the next several years. Maintaining our high quality graduate program will become increasingly challenging. If you are interested in helping support graduate education in Plant Pathology at Penn State, please see our back page for information on how you can make a small donation or leave a lasting legacy to your Department of Plant Pathology.

To all our alumni and friends of the department, I extend a standing invitation to visit the department whenever you are in town. I would be happy to give you the grand tour and arrange for you to meet current faculty, staff, and students. Check out our website for additional information at <http://www.ppath.cas.psu.edu>.

In Memory



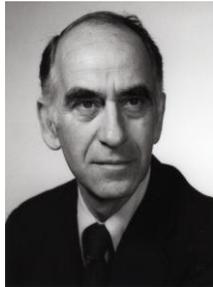
Larry James Jordan

Larry J. Jordan, of State College, passed away May 27, 2009. Larry retired in 2003 with over 44 years of service to Penn State. Larry spent nearly his entire career, beginning in 1964, in the Department of Plant Pathology, first as farm technician and then as Manager of the Plant Pathology Research Farm. Larry was a leader among the staff. He had a special relationship with the faculty and graduate students who conducted farm research, and many benefited from his expertise and generous assistance. The Larry J. Jordan Memorial Endowment, which his family and friends established, is designated to support field research in Plant Pathology at the Larson Research Center at Rock Springs, and will carry forward this legacy. Larry is survived by his wife, Teri-Anne; two daughters, Keri Sue Bailey and her husband, Jeff; Stacey L. Mann and her husband, Mike; a son, Jeffrey; and six grandchildren.



Mary Lou Merrill

Mary Lou Merrill died May 11, 2009, at her home in State College, PA. Mary Lou was a member of Grace Lutheran Church and was active in many church organizations. She is survived by two sons, Kurt and his wife, Krissi; and Bjorn and his wife, Judy; as well as a grandson, Nathan. Mary Lou was predeceased by her husband, William Merrill, Jr., who retired from the Plant Pathology faculty. Following his death in 2003, Mary Lou and her family established the William Merrill, Jr. Memorial Endowment in Plant Pathology in his honor. Mary Lou remained engaged with her friends in Plant Pathology and often attended holiday gatherings and other department events.



Richard D. Schein

Richard D. Schein died January 3, 2009, at his home in State College, PA. Dr. Schein joined the Plant Pathology faculty in the Department of Botany and Plant Pathology in 1955. From 1955 to 1963, he conducted definitive studies on the epidemiology of cereals and was instrumental in establishing a research program in quantitative epidemiology, which later became an internationally recognized area of excellence in the Department of Plant Pathology. From 1964 to 1976, he served as assistant and associate dean in the College of Science, and later as Director of the University of Environmental Quality. He returned to the Plant Pathology faculty in 1975 to conduct research, advise graduate students, and teach. He retired as Professor Emeritus in 1985. Rick is survived by his wife, Cynthia; three sons, Richard and his wife, Sue; Christopher and his wife, Donna; and James and his wife Marti; and two grandchildren.

Retirements



Sheryl and John Ayers
(Photo by Fred Gildow)

John Ayers retired as Professor Emeritus of Plant Pathology on March 31, 2009, after 40 years of service to the department and University. John

joined the faculty in 1969; his area of research and teaching was on corn diseases and host plant resistance. From 2001 until his retirement, John was Director of the Pesticide Education Program and served as Co-Director of the Northeastern Integrated Pest Management Center.

numbers of samples from around the state and assisted in teaching PPATH 502.

Teresa Shirk, Coordinator of Facilities, Services, and Safety for Buckhout Lab, retired on September 30, 2008, after 42 years of service to Penn State. Teresa came to Plant



Pathology in 1980, and for the next 28 years she assisted faculty, students, and staff alike in countless ways. –Ask Teresa” was a familiar slogan in the department, and it was even put on the cake at her retirement party.



Eva Pell retired on December 31, 2009, after 36 years of service to Penn State. Eva joined the Plant Pathology faculty in 1973. In addition to her research and teaching in the area of air pollution and plant stress, she served as mentor and advisor to many graduate students. Since 1999

she served as Senior Vice President for Research and Dean of the Graduate School. The department honored Eva at a reception on December 11, 2009, and wished her well in her new endeavor as Undersecretary for Research for the Smithsonian Institution.

Richard Stevenson (M.S. 82) retired from his position as Senior Research Assistant in Plant Pathology on July 31, 2008, after 36 years of service to Penn State. Dick joined the department as Research Assistant in 1962, working with Stan Pennypacker and contributing to the epidemiology research program. More recently, Dick assisted **John Skelly** (Ph.D. 68) and **Don Davis** (Ph.D. 70) in their research programs.



John and Becky Peplinski

John Peplinski, (M.S. 72), Coordinator of the Plant Disease Clinic, retired from the University on March 31, 2009, after 33 years of service to the Department of Plant Pathology. John joined the Clinic in 1976;

during his career, he diagnosed untold

Dianne Taylor retired from Penn State with 25 years of service on September 30, 2009. Dianne came to Plant Pathology in 2007 and quickly established herself as a key member of the office staff. Dianne served as graduate program assistant and also worked with the Agroecology undergraduate program.





Jim Travis (left) and Fred Gildow

Jim Travis retired on December 31, 2009, as Professor Emeritus of Plant Pathology. Jim joined the faculty in 1981 as fruit pathologist and conducted extension educational

in 2001, and served as director of that facility from 2007–2009.



programming on tree fruits and grapes. Jim relocated from University Park to the Fruit Research and Extension Center in Biglerville

Undergraduate Education Spotlight

The Fungal Jungle—A New General Education Course Offered by the Department

For the past three years, the Department has offered **PPATH 120: The Fungal Jungle**. The course is designed to provide a framework and context for non-science majors to become familiar with the fungi and their importance to other life forms, including humans. Topics covered in the course include: the structure and classification of fungi, the ways in which fungi interact with other organisms as pathogens or beneficial partners, the contributions fungi



Dr. Maria del Mar Jimenez-Gasco working with PPATH 120 students

make to ecosystem functioning, and the ways in which humans use fungi and products derived from them. In addition to sparking students' interest in mycology, the Fungal Jungle instruction team—**Drs. Gretchen Kuldau** and **Maria del Mar Jimenez-Gasco**—report that they are having tons of fun teaching the class together.

Faculty News

Paul Backman's research program has primary activities in the area of biological control of



plant pathogens and weeds, in a context of bio-intensive integrated pest management (IPM). We have been actively pursuing endophytic microbes for long-term residence in the internal tissues of plants, while simultaneously inducing the plant to defend itself by producing defense proteins. Typically, we have worked with bacteria from the *Bacillus* group, because they are easy to formulate and easy to assess for population levels. When these organisms are successful, they often can continue their existence as endospores until the defense systems recede, whereupon the endospores germinate to re-induce the defenses again. Using Q-PCR, we are seeing that population persistence

often continues for several months while simultaneously stimulating multifold increases in host defenses. We are also determining what happens to the microbial diversity in leaves and fruits when a beneficial endophyte becomes a key part of the internal microflora. Automated ribosomal intergenic spacer analysis (ARISA) is underway to determine how the diversity and complexity of leaf microflora changes following colonization with beneficials. Our field

evaluations are primarily carried out in the Andean region of South America. Working with our adjunct scientists in the United States Department of Agriculture (USDA), **Dr. Bryan Bailey**, and **Dr. Rachel Melnick** (she just completed her degree at Penn State in February 2010), we have found from our trials in Ecuador that Bacilli can cause significant reductions in cacao diseases following colonization, and are presently evaluating their potential in other perennial crops. Similarly, in trials performed here and in Bolivia, we are finding that we can suppress diseases of temperate perennials such as apples. This program is largely carried out by Ph.D. candidate **Anissa Poleatewich**. We have just received two new grants from the United States Agency for International Development (USAID) to work on sustainable agricultural systems for Bolivia and Ecuador, with emphasis on IPM and soil borne diseases. Another key area of research is the biological control of Canada thistle using the rust fungus *Puccinia punctiformis*. This grant is funded by USDA's National Research Initiative (NRI) program, and seeks to find ways to strengthen the epidemic by increasing the severity of the systemic phase of this rust. This results in the death of clonal patches of this weed as the disease increases in severity and leaves teliospores in the environment that will resist later reintroductions. Ph.D. candidate **Steve Conaway** is working with USDA Agricultural Research Service (ARS) adjunct professor **Dana Berner**, together with the National Resources Conservation Service (NRCS), and state departments of agriculture and transportation in this effort.



2008 special issue on endophytes for *Biological Control*



“This past year and a half have been interesting to say the least,” reports **Barbara Christ**. “Go back that far since I was happily surviving as department head and maintaining a modest research program through the help of outstanding support people in 2008. And then beginning January 1, 2009, I became Senior Associate Dean of the College—what an interesting position. In the Navy there is a Captain of the ship and an Executive Officer. The duties are split such that the Captain is responsible for the ship and the Executive Officer for the crew and all the day-to-day activities. Here in the College there is a Dean and then my position. I take care of the facilities and the people while the Dean deals with politics, fund raising, upper administration, and strategic issues. I have learned more than you can imagine and learn something new every day. There have been some changes in my research program over the past year as well. **Sara May** (M.Agr. 03), who spearheaded all the applied research both in the field and lab, has moved on to become the Diagnostician in the Plant Disease Clinic. In order to keep that part of the program running, **Dr. Xinshun Qu**, who previously focused on more basic research in the molecular lab, has been placed as scientist in charge of the entire potato program. He has also experienced a steep learning curve. Assisting with the program is our trustworthy and loyal **Mike Peck**, who without him, the applied research program would not be able to exist. Mike’s expertise, knowledge and relationship with members of the industry are highly valuable. He is supported by **Chad Moore**, who also has become a highly valuable member of the crew. The program continues to focus on breeding for disease resistance and is collaborating with several scientists from the USDA as well as breeders throughout the United States. Late blight, early blight and powdery scab are still major diseases that we focus on. Xinshun has identified a new pathogen on potatoes and is still working on details. Finally, I currently serve as the American Phytopathological Society (APS) President, which entails monthly phone calls, all sorts of travel (at least one trip per month), and a task force working on a major issue of governance of the society. All in all, everything seems to be coming together and moving forward.”



Maria del Mar Jimenez-Gasco taught PPATH 120 and PPATH 505 during 2008 and 2009. Also, there have been quite a lot of changes in the Jimenez-Gasco program over the past two years. **Jill Demers** joined the group as a Ph.D. student; she is working on the evolution of pathogenicity and virulence in *Fusarium oxysporum*, focusing on the chickpea pathosystem as a model. **Lili Zhang** also joined the group; she is working towards a M.S. degree investigating *Venturia inaequalis* population dynamics during apple scab epidemics. Jill attended the annual APS meeting in Portland, Oregon, during the summer and proudly presented her work and represented our lab. Ph.D.

student **Ponusa Songtipya** (Intercollege Graduate Program in Materials) continues to work on developing exciting new materials with antifungal activity. During fall 2008, **Dr. Glenna Malcolm** joined our group; she has been focusing on host adaptation on *Verticillium dahliae*. Moreover, during 2009, we worked on setting up an international *Verticillium* culture collection thanks to significant contributions of cultures by **Dr. Randall Rowe** and **Dr. Rafael Jimenez-Diaz**, so Glenna was quite busy. **Maria del Mar Jimenez-Gasco** also had a busy year. She was invited to give a keynote talk at the XI International Conference and XXXVI National Conference of the Mexican Phytopathological Society held in Acapulco, Mexico. During that visit, she also spent time with **Sixto Velarde-Felix**, who previously spent a three-month research visit in our lab during summer 2008. Sixto is a researcher at the National Institute of Agricultural Research (INIFAP) of the Mexican Federal Government, located at Sinaloa, Culiacan, Mexico, one of the most important chickpea-growing regions in the country. While visiting Penn State, Sixto worked on species of *Fusarium* associated with chickpea. **Dr. Jimenez-Gasco** also attended and presented talks at the 10th International Verticillium Symposium, held in the island of Corfu, Greece. While at the Symposium, she was invited to join the International Verticillium Steering Committee. The trip to Greece was wonderful; besides from visiting beautiful Corfu, she had the opportunity to see old friends and establish new collaborations.



The **Timothy Geiser lab** and **Fusarium Research Center** had a busy but fruitful year. Ph.D. student **Aaron Brown** completed his first full field season of his project cataloguing fungal diversity in the Hartley Wood section of The Arboretum at Penn State, and has a database of over 600 specimens to process. He is now working through them both morphologically and by using ITS barcoding. The goal is to produce an online database of fungi on the site. Ph.D. student **Dylan Short** has so much DNA sequence data on the yet-to-be-named human pathogenic *Fusarium* species (known provisionally as “Group 2” of the *F. solani* species complex—catchy, huh?) that he is about to burst. He

made things worse for himself by collecting over 300 new *fusaria* from sink drains across the eastern United States in spring 2009, thanks to funding from the College of Agricultural Sciences student research grant program. There is good evidence that people get *Fusarium* infections from inoculum that comes from plumbing systems, and this work will provide the groundwork for making connections between *fusaria* that do bad things and what is in the human environment. Research Support Technologist **Jean Juba** is surprisingly calm and collected, considering all she has to do maintaining the culture collection and assisting in research and teaching. We enjoyed having **Professor Chang-Won Lee** visiting the lab from Gyeongsang National University in Korea. David is less calm and anything but collected, but did manage to spend part of the spring and summer as a Visiting Professor hosted by **Quirico Migheli** and **Virgilio Balmas** at the University of Sassari on the island of Sardinia. He and his family had a wonderful time and really enjoyed the food, wine and culture. He also managed to work on a paper characterizing the *fusaria* in uncultivated soils on the island, which turned out to be surprisingly unique. Occasionally **T. A. Toussoun** and **Jim Tammen** stop by in the lab to say —H’ We are always delighted to have alumni and emeritus visitors!



Beth K. Gugino was hired as the vegetable extension pathologist in June 2008 and is the newest faculty member in the Department. Her research and extension program focuses on addressing current and emerging diseases of the major vegetable crops grown in Pennsylvania. In April 2009, she hired **Michele Mansfield** (Ph.D. '05) to help run her research program. Michele has been instrumental in the isolation and identification of bacterial pathogens from sweet onion samples as part of a project funded by the Pennsylvania Vegetable Marketing and Research Program and the Pennsylvania Simply Sweet Onion Board. Bacterial pathogens cause up to 50% yield losses for

Pennsylvania's onion growers. Other Pennsylvania Vegetable Growers Association (PVGA) funded projects included delivering tomato blight forecasting recommendations through the Pennsylvania Pest Information Platform for Extension and Education (PA-PIPE) in collaboration with **Joe Russo**, ZedX, Inc., and using an on-farm pumpkin seedling bioassay to assess powdery mildew fungicide resistance. Beth is also conducting on-farm trials to evaluate the use of cover crops to manage soilborne fungal pathogens as part of a Northeastern Integrated Pest Management (NE-IPM) project. In addition, she is collaborating with **Drs. Shelby Fleisher** (Entomology) and **Elsa Sanchez** (Horticulture) as well as others at the University of Kentucky and Iowa State University on a project funded by the Organic Research and Education Initiative to develop sustainable cucurbit crops on organic farms. A portion of this research is being conducted by **Ermita Hernandez** (M.S. '08) as part of her Ph.D research. As part of her undergraduate program, **Isle Huerta**, from the University of Guanajuato, spent time in our lab this fall. During her visit, arranged by former Secretary of Agriculture **Sam Hayes**, Isle had the opportunity to experience all aspects of our program from field to lab as well as help **Sara May** in the Plant Disease Clinic. Upon leaving, Isle expressed sincere interest in returning to the Department to pursue her M.S. degree! This past year, Beth was elected as the Secretary-Treasurer for the Northeast Division of APS and is currently serving as Vice-Chair for the APS Extension Committee. She is also serving as co-chair of the Horticulture Natural Working Group and as co-chair of the Vegetable and Small Fruit Program Team within Penn State Cooperative Extension.

John Halbrendt has big news for Pennsylvania! Successful eradication of the Plum Pox Virus (PPV) was declared on October 29, 2009, almost exactly ten years after it was discovered in Pennsylvania. John's lab has been actively involved in the eradication effort since its inception by searching for potential PPV reservoirs in the weeds and native trees growing in infested sites. Other projects in John's lab have evaluated the nematicidal activity of several naturally occurring compounds. A collaboration with **Drs. E. Massler** (lead principal investigator), **I. Zasada** and **S. Sardanelli** showed that sub-lethal exposure to isothiocyanates (derived from Brassica) has a lasting negative effect on nematode behavior and reproduction which helps explain the efficacy of biofumigation when green manure is incorporated into the soil. The results are suggestive of an epigenetic effect but that remains to be tested. Collaboration with **Dr. S. Meyer** (lead principal investigator) and others showed that the antibiotic diacetylphoroglucinol (DAPG) produced by the bacterium *Pseudomonas fluorescens* had limited activity against nematodes. In bioassay experiments the compound inhibited egg hatch of root-knot nematodes, stimulated egg hatch of *C. elegans* and was toxic to all stages of the dagger nematode. However, the compound had no effect on four other nematode species that were tested. Results of these studies were presented at the Society of Nematologists annual meeting in Vermont. Working with **Dr. G. Krawczyk**, progress was made on a project to use entomopathogenic nematodes to control dogwood and peach tree borers in the orchard. Although the nematodes effectively kill borers, nematode survival and lack of a practical method of application has been problematic. Early experiments suggest we may have overcome this problem by using a hydroseeder to deliver nematodes in a protective slurry. John was also one

of six authors selected to prepare a review paper on the current status of nematode control in high value crops without methyl bromide.



Scott Isard continues to focus on building and implementing real-time continental-scale tracking systems for pathogens and insect pests. In 2009, his lab working with ZedX Inc., a small Information Technology development company in Bellefonte, initiated a project with the Office of Plant Protection in the Ministry of Agriculture of Mexico, USDA National Institute of Food and Agriculture (NIFA) national program leaders, and the Animal and Plant Health Inspection Service (APHIS) to build a real-time pest tracking system for Mexico. The monitoring program will be officially launched in March 2010 at a workshop in San Luis de Potosi, Mexico. The United States Agency for International Development (USAID) is supporting an expansion of the project to Central America and the Caribbean islands over the next few years. In 2008, Scott, **Erick De Wolf** (Kansas State University) and colleagues from the Agricultural Research Service (ARS) Cereal Disease Lab received a USDA Biosecurity grant to prepare for the entry into the U.S. of new races of the wheat stem rust pathogen (Ug99). Ug99 was first detected in Africa and has recently spread to Iran. Most wheat and barley cultivars, both worldwide and in the United States are highly susceptible to Ug99. The pathogen can be blown long distances and the likelihood of inadvertent human-mediated spread is considerable. Currently, we are developing research, extension and education components of an IPM program to provide growers with efficient in-season stem rust management to protect their crop yields and profits between the time Ug99 enters the U.S. and deployment of cultivars with durable long-term resistance to this pathogen. The IPM Pest Information Platform for Extension and Education (PIPE) continues to grow as the USDA's new paradigm for integrated pest management. **Joe Russo** (President of ZedX Inc) and Scott have coordinated operations for the *ipm*PIPE since its inception in 2005 (as the USDA Soybean Rust Information System). The USDA estimates that the soybean rust component of the *ipm*PIPE saved growers between \$100–200 million in each year of operation.



Seogchan Kang was promoted to full professor and received the Innovation Award from the Penn State Environment and Natural Resources Institute in 2009. He visited China twice to give invited talks and to assist in the development of a fungal genome sequencing initiative in China. Two visiting scientists: **Heungtae Kim** from Chungbuk National University; and **Yunpeng Chen** from Shanghai Jiaotong University, left the lab after one year of sabbatical work. **Venky Muktali**, a Ph.D. student in the Bioinformatics and Genomics program, passed his comprehensive exam. **Hye-seon Kim**, a former student and current postdoc, was invited to give a talk on part of her thesis work during the Fungal Genetics Conference.

Dr. Felix Lukezic (Emeritus Professor of Plant Pathology) has been recognized as a Provost's Emeritus Faculty Teaching Scholar. Dr. Lukezic received his award for teaching AG 160, Introduction into Ethics and Issues in Agriculture. Felix is teaching the course again in spring 2010.



Tim McNellis' group published two papers in 2009. One was published in the journal *Plant Molecular Biology* by former graduate student **Dr. Tzoo-fen Lee**, describing her analysis of a calcium-responsive membrane protein that regulates cell death and disease resistance responses in Arabidopsis. The second was published in the journal *Tree Genetics and Genomes*, with postdoctoral researcher **Dr. Phil Jensen** as first author, describing how rootstocks affect gene expression and phenotype development in scions of apple trees. Graduate student **Steven Lee** presented a poster about his research on fire blight pathogenesis mechanisms at the 109th annual meeting of the American Society for Microbiology, held in Philadelphia, Pennsylvania in April 2009. Graduate student **Dharmendra Singh** presented a poster about his research on the function of chloroplasts and antioxidants during the fire blight disease process at the annual meeting of the American Society of Plant Biologists in Honolulu, Hawaii, in July 2009. Tim McNellis presented a talk about the function of chloroplasts and antioxidants during the fire blight disease process at the annual meeting of the American Phytopathological Society in Portland, Oregon, in August 2009. In September, he gave a Plant Pathology departmental seminar on the subject of his group's research on the molecular genetics of fire blight disease.



Gary Moorman's graduate student, **Padmini Herath**, completed her M.S. thesis on elm yellows and graduated in December 2009. She developed a rapid and accurate real time-PCR test for the pathogen in elm and leafhopper tissue and tested every elm on campus at least twice. Over 1500 leafhoppers were also trapped on sticky cards and tested. She, her husband, and daughter are heading for British Columbia. The next phase of the research is to trap live leafhoppers, test them for the phytoplasma, and determine which ones are actually vectors of the phytoplasma. Gary and Fran's daughter, **Sara**, finished her Ph.D. in sociology of aging at the University of Wisconsin and is a faculty member at Boston College. Their son, Nathan, is a high school senior planning to go to Penn Tech in Williamsport to pursue a degree in automotive technology. Nathan achieved the rank of Eagle Scout in 2009.



Henry Ngugi has a 75% research and 25% extension appointment to support the tree fruit industry in Pennsylvania. Not surprisingly, his laboratory is located at the Penn State University Fruit Research and Extension Center (FREC) at Biglerville in Adams County. About 70% of the tree fruit production in Pennsylvania is within a 25 mile radius around Biglerville. Research in Henry's lab focuses on epidemiology and management of the major diseases limiting the productivity of apples and stone fruits. He has an active program on scab and fire blight on apple; meanwhile, his research on stone fruits focuses on bacterial spot, brown rot and cherry leaf spot. Henry endeavors to understand and describe the development of plant diseases at the population level using statistical and molecular tools to identify which biological, cultural practices and/or physical factors are best indicators of disease progression and intensity in order to develop effective management programs. The lab's personnel currently include a research assistant, two graduate students, and as many as ten undergraduates working during the summer months. Henry's extension programming involves teaching growers and other stakeholders throughout the year. We offer grower schools during the winter months, supplemented by online publications, field days and twilight meetings in the summer. Growers can also walk-in or call with questions, and occasionally, onsite visits are made to orchards to inspect diseased trees.

2009 proved to be an exciting and challenging year for **Pete Romaine** by way of his activities in research, teaching, and extension. Post-doctoral colleague **Carl Schlaghauser** and Pete made steadfast progress in an ongoing Department of Defense-Defense Advanced Research Projects Agency (DOD-DARPA) project in which the common mushroom is being explored as a production platform for human therapeutic protein-based drugs. In addition, Schreyer Honors College student **Ben Woolston** joined the DARPA project. Under the guidance of Pete and **Wayne Curtis** (Chemical Engineering Department), Ben is pursuing an M.S. degree by investigating a gene silencing phenomenon in the mushroom. On the extension front, Pete served as the organizing chair for the Annual Penn State Mushroom Industry Conference, which for the first time in its fifty-year history was held in the U.S. mushroom heartland—Kennett Square, Pennsylvania. 2009 also marked the eighteenth offering of Pete's plant virology course, which he has taught on a regular basis since 1977.



Daniel J. Royse is conducting research and working with growers to improve sustainable production efficiency of mushrooms. He is advising **Stephanie Loehr**, a M.S. candidate working on minimally and non-composted substrate for the production of the common cultivated mushroom, *Agaricus bisporus*. **Chenyang Huang**, a visiting scholar from the Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, Beijing, is working in Dan's lab on a joint Ph.D. degree with the Chinese Academy of Agricultural Sciences (CAAS). He is conducting research on the king oyster mushroom, *Pleurotus eryngii*. Dan also is advising **Amber Slater**, an undergraduate student in the Schreyer Honors College, who is working on her honors thesis in the area of non-composted substrate for mushroom production.

Elwin Stewart entered into a phased retirement program with Penn State this past July and is now working quarter time which translates to one long work day per week. At the end of two years the retirement will be 100%. In the meantime, he remains actively involved in the politics of the wine grape industry in general and still finds time to campaign on behalf of Pennsylvania for involvement in the NCPN (National Clean Plant Network). He also has a following amongst the central Pennsylvania grape growers so he can also be busy visiting vineyards to discuss foliar and grape vine trunk diseases, lightning strikes, herbicide damage, and nutrient issues. During fall semester 2009, Elwin taught an advanced course in Fungal Pathogens & Systematics to five graduate students and is still in awe of how much he learned from the students in the course, so much so that he is considering teaching the class again in 2010. The lab, on the other hand, has some research to complete on Petri Disease fungi and **Aaron Brown** continues to make steady progress on his thesis research topic (co-advised by **Drs. Stewart** and **Geiser**). Finally, Elwin's 75% retirement is absorbed by the family farm, its livestock, and an eight acre vineyard.



Wakar Uddin is an Associate Professor in Plant Pathology specializing in turfgrass disease research and teaching. Wakar also maintains an outreach program providing diagnosis of turfgrass disease problems and management recommendations to turfgrass industry clientele in Pennsylvania. Wakar's international activities in 2009–2010 include collaborative research at the University of Bangalore, India, and Universidade Federal de Viçosa, Brazil. Wakar teaches three courses in turfgrass disease diagnosis and management, including an online course at Penn State World Campus. **Alamgir Rahman**, **Yinfei Li** and **Manzoor Hussain** are Ph.D candidates in the turfgrass disease research program. **Jesse Benelli** is the assistant in laboratory and field research. The turfgrass disease research program maintains two laboratories, 58,000 square foot turf research plots,

and three outdoor humidity/mist chambers (1500 square feet each) at the Joseph Valentine Turfgrass Research Center. The turfgrass disease program is part of the Center for Turfgrass Science and the World Campus Distance Education Program at Penn State.



Yinong Yang continues to study the complex network of signal transduction involved in the rice-fungus interaction, disease resistance and drought tolerance. He is currently working with three Ph.D. students (**Wenhua Liu**, **Emily E. Helliwell**, and **Dzarifah M. Zulperi**), three postdoctoral research associates (**Drs. Gang Ren, Kabin Xie, and Zhenyu Liu**), a senior research technologist (**Qin Wang**), and a visiting scientist (**Dr. Junhua Zhang** from Northeast Agricultural University in China). In the spring of 2009, **Jai S. Rohila** (a former post-doc) took a tenure-track assistant professor position at the newly established Plant Stress Center at South Dakota State University. **Jianping Chen** graduated with a Ph.D. in Cell and Developmental Biology

and took a post-doc position at the University of Illinois at Chicago. In addition, Professor **Rengao Xue** completed a five-month sabbatical to study the RNA interference technique in the Yang lab and returned to Qingdao Agricultural University in China. Dr. Yang's research program is mainly supported by the National Science Foundation (NSF) and the U.S. Department of Agriculture (USDA), including a newly awarded grant on "cereal drought stress response and resistance networks" from the NSF/Plant Genome Program. Dr. Yang has been collaborating with **Ralph Dean** (North Carolina State University), **Daniel Ebbole** (Texas A & M University) and **Guoliang Wang** (Ohio State University) on an NSF/Plant Genome project for characterization of *Magnaporthe oryzae* effectors. He also initiated collaboration with **Andy Pereira** (Virginia Polytechnic Institute and State University) on a cereal drought stress signaling network. Together with other faculty members, Dr. Yang taught Plant Genomics, Plant Stress Biology, and Plant Communication and Growth in 2009. Currently, Yinong serves on three APS committees and is the Chair of the Biotechnology Committee. In summer 2009, Dr. Yang presented a plenary talk entitled "Signal Perception and Transduction in the Rice-fungus Interaction" at the Annual Meeting of the Chinese Society for Plant Pathology in Kunming, China. He also visited and presented seminars at Yunnan Agricultural University, Kunming; South China Agricultural University, Guangzhou; and the Chinese University of Hong Kong.

USDA Biosecurity Grant to Help Prepare the United States for the Incursion of New Wheat Stem Rust Races

In 2009, **Scott Isard**, **Erick De Wolf** (Kansas State University), **Joe Russo** (ZedX Inc.) and **Les Szabo** (USDA, ARS, Cereal Disease Lab) received a \$1 million USDA grant to help prepare our country for the incursion of new wheat stem rust races. The fear is that new races of the wheat stem rust pathogen (Ug99) may enter the U.S. at anytime. Ug99 was first detected in Africa and has recently spread to Iran. The pathogen can be blown long distances and the likelihood of inadvertent human-mediated spread is considerable. Our country grows 60 million acres of wheat, valued at \$13 billion, and the USDA estimates that the potential loss to Ug99 could exceed a staggering \$10 billion. Most U.S. wheat and barley cultivars are susceptible to Ug99. Wide deployment of resistant cultivars will likely require 7–10 years and until then the first line of defense will be applications of fungicides. Our project is to develop research, extension and education components of an IPM program to provide growers with efficient in-season stem rust management to protect their crop yields and profits between the time Ug99 enters the U.S. and deployment of cultivars with durable long-term resistance to this pathogen. The work involves developing rapid diagnostic procedures for identifying Ug99 and training National Plant Diagnostic Network staff to use these PCR tools. We are creating the information technology to

integrate observations from disease monitoring and spore collection networks with aerobiology modeling to provide growers with early warning of disease spread once Ug99 arrives. We are also working with stakeholders to enhance monitoring programs and provide an Internet-based platform for communicating information critical for wheat disease management decision making.

James Tammen Chronicles the History of the Department of Plant Pathology

On Friday, April 24, 2009, **Dr. James Tammen**, Professor Emeritus of Plant Pathology at Penn State and former head of the Department, presented a copy of his recently completed book, *History of the Department of Plant Pathology, The Pennsylvania State University, University Park, Pennsylvania, 1956–1976* to the Penn State Archives. The work was inspired by the Department's 40th Anniversary celebration which commemorated the establishment of plant pathology as an autonomous department within the College of Agriculture in January 1963. The formation of the department represented more than a century of teaching and research in the science, in combination with more than nine years of faculty efforts to establish plant pathology as an independent academic unit. Dr. Tammen's preparation of reminiscences for the 2003 anniversary celebration ultimately led to the preparation of a manuscript chronicling events that transpired during Dr. Tammen's 1963–1976 tenure as department head (acting head, 1963–1965; head, 1965–1976). The book depicts the early efforts which provided the foundation upon which the department's nascent years of 1963–1976 were built. Dr. Tammen's work represents an important initial contribution to an ongoing project intended to comprehensively chronicle the development of the department from its initial formation to the present day.



Jim Tammen presents a copy of *History of the Department of Plant Pathology* to the Penn State Archives

Help Chronicle the Department's History

In 2013, the Department of Plant Pathology will be celebrating its 50th anniversary. In recognition of this important milestone, we are attempting to compile a comprehensive history of the Department. However, we need your help in achieving this goal. We are especially interested in the following:

- Photos of individuals (faculty, staff, or students) or events related to the Department.
- Written or oral reminiscences about notable individuals or events associated with the Department.
- Information about research projects that you participated in while working at the Department.

To submit items or for more information about the department's history project, please contact: Marsha Ann Tate, Hildebrandt Library, 222 Buckhout Laboratory, University Park, PA, 16802. Phone: 814-865-7736; email: mat1@psu.edu.



Department of Botany and Plant Pathology Faculty and Staff, November 19, 1957. Photo taken in Room 112 Buckhout Laboratory

Front row (left to right): Helen Hill, Perrina Shultz, Jean Harpster, Margaret Wilson, unknown; unknown.

Second row (left to right): Frank D. Kern (standing), Leon R. Kneebone, Charles L. Fergus, James R. Bloom, Henry W. Popp, Wilford R. (Bill) Mills, David A. Kribs, Richard D (Rick) Schein.

Third row (left to right): Fred H. Lewis, James E. (Jim) Wright, Houston B. Couch, John S. Boyle, Joseph H. (Joe) Graham, Harry Fink (Finch), John Houser.

Fourth row (left to right): William J. (Bill) Stambaugh (standing), Charles J. (Jim) Hillson, Walter F. (Walt) Westerfeld, Paul Grun, Alvin R. Grove, Jr., Clifford C. (Cliff) Wernham, Woodrow (Woody) Smith, Bob Struble.

Fifth row (left to right): Donald F. (Don) Mitchell, James F. (Jim) Tammen, Lloyd Driver, George Fritz, Anton J. (Tony) Kovar, Herbert A. (Herb) Wahl.

Plant Pathology Party Time

Members of the Department of Plant Pathology occasionally take a break from their work and simply have some fun. Below is a sampling of the Department's 2008–09 social events.

2009 Plant Pathology Holiday Party
December 18, 2009
Hilton Garden Inn
(Photo by Yinong Yang)



Faculty & Staff Appreciation Luncheon
March 12, 2009
(Photo by Steve Conaway)

Plant Pathology Welcome Brunch
September 2009



Plant Pathology Welcome Brunch
September 9, 2008

And More:

- Potluck breakfast, September 23, 2009
- Clem's BBQ lunch sales
- Blue & White Potato Chip sales
- Apple sales
- Pig roast

Visiting Scholars

Over the past two years, our department has been very pleased to host the following international scientists who visited the department to collaborate on research projects with our faculty.

Dr. Yunpeng Chen (September 2008–September 2009)

Shanghai Jiaotong University, China
Molecular and cellular mechanisms underlying plant root-fungal pathogen interactions, with **Dr. Seogchan Kang**

Dr. Chenyang Huang (April 2009–March 2010)

Chinese Academy of Agricultural Sciences, Beijing, China
Ph.D. studies on breeding and selection of strains of *Pleurotus ostreatus* for commercial production, with **Dr. Dan Royse**

Dr. Yong Chull Jeun (August 2007–July 2008)

Cheju National University, South Korea
Plant-fungal pathogen interactions using cytological tools, with **Dr. Seogchan Kang**

Dr. Heung-Tae Kim (August 2008–August 2009)

Chungbuk National University, South Korea
Mechanisms of fungicide resistance among fungal pathogens and molecular genetic manipulation of *Colletotrichum* species, with **Dr. Seogchan Kang**

Dr. Chang Won Lee (July 2008–June 2009)

Gyeongsang National University, South Korea
Molecular genetics of fungi, especially *Fusarium*, with **Dr. David Geiser**

Jongsun Park (July–September 2008 and 2009)

Seoul National University, South Korea
Development and optimization of Cyberinfrastructure for fungi and functions in fungal pathogen databases, with **Dr. Seogchan Kang**

Dr. Rengao Xue (December 2008–May 2009)

Qingdao Agricultural University, China
Rice biology related to drought tolerance and disease resistance, with **Dr. Yinong Yang**

Dr. Junhua Zhang (August 2009–August 2010)

Northeast Agricultural University, Harbin, China
Rice sheath blight disease, including characterization of the fungal pathogenesis and host resistance mechanisms, with **Dr. Yingon Yang**



Post-Doc & Graduate Student News



Maria Burgos received an Alfred P. Sloan Foundation Scholarship and also replaced **Rachel Melnick** on the Graduate Student Advisory Council (GSAC). The Council, charged with representing the needs of graduate students to leadership in the College of Agricultural Sciences, provides input on all issues of student concern, ranging from professional development to academic satisfaction to social activities. Members of the Council are volunteer graduate student representatives from graduate programs throughout the College of Agricultural Sciences. Graduate students who are in intercollege programs and advised by faculty in the College of Agricultural Sciences are also members.



Aaron Brown presented a poster, “Fungi of the Hartley Wood: PSU Arboretum,” at the Mycological Association of America Conference in 2008. Among Aaron’s other 2008–09 activities included serving as a poster judge at the 24th Annual PSU Graduate Exhibition, assisting with the Department’s exhibit at the 2009 Ag Progress Days, and serving as an organizer and guide for the Hartley Wood Foray 2009. In 2008, Aaron also received a College of Agricultural Sciences Competitive Grant.

Jianping Chen, a Cell and Developmental Biology Ph.D. student in **Dr. Yinong Yang’s** lab successfully passed his dissertation defense on Feb. 23, 2009. He also recently started to work as a postdoctoral research associate at the University of Illinois at Chicago.



Emily Helliwell traveled to the Philippines to attend the 6th International Rice Genetics Symposium, held at the Manila Hotel November 16–19, 2009. At the Symposium, she presented a poster titled “The Involvement and Regulation of Ethylene Biosynthesis and Signaling in Host Resistance to Rice Blast Disease.” After the meeting, she visited and toured the International Rice Research Institute (IRRI) and the University of Philippines, Los Baños, Laguna.



Wenhua Liu, a Ph.D. student with **Dr. Yinong Yang** in the intercollege Program of Plant Biology, successfully passed his comprehensive exam on June 22, 2009.



Rachel Melnick received an APS Potomac Division Graduate Student Travel Award and also placed second in the Division’s Graduate student competition. In addition, Rachel presented posters at the Gamma Sigma Delta poster competition and at the 2009 APS annual meeting in Portland, Oregon, where she also gave a talk. Rachel’s trip to the APS meeting was funded, in part, by an Eddie Echandi and H. David Thurston Student Travel Award she received from the APS Foundation.

Anissa Poleatewich and **Katelyn Tilley** were selected as speakers in the 9th I. E. Melhus Graduate Student Symposium at the 2009 APS annual meeting in Portland, Oregon. In addition, Anissa received a College of Agricultural Sciences graduate student travel award to attend the meeting.



Dharmendra Singh was awarded 3rd place in the Gamma Sigma Delta 14th Annual Graduate and Undergraduate Research Expo. He also presented a poster at the American Society of Plant Biologists (ASPB) meeting.

On August 9, 2009, the Department hosted a reception in honor of August graduate **Katelyn T. Willyerd**. Katelyn is now working with Dr. Pierce Paul as a post-doc at Ohio State University in Wooster, Ohio.

Kabin Xie and **Zhenyu Liu** joined **Dr. Yinong Yang's** lab as postdoctoral research associates. Dr. Xie received his Ph.D. from the National Key Laboratory of Crop Genetic Improvement, Huazhong Agricultural University in China. Dr. Liu graduated with a Ph.D. from the Department of Plant Pathology, University of Wisconsin, Madison.

Plant Pathology Association (PPA) Elm Sale



Matt Kasson (left) with "Elm" (aka Maria Velez-Climent)
(Photo by Anissa Poleatewich)

Members of the Plant Pathology Association held their inaugural Elm Sale in 2009. The elm seedlings, grown from seeds collected from the East and West Old Main elms, took approximately three months to reach about 8 inches tall.



"We were happy to do a fundraiser so closely related to plant pathology and were able to distribute information sheets we designed about pathogens," said PPA President Steve Conaway. "We hope to do the elm sales in the future," he added.



Congratulations to Our 2007–2009 Graduates



Aaron D. Brown (M.S., Plant Pathology; David Beyer, advisor)
Graduated summer 2007
Thesis title: **Quantitative analysis of bacterial blotch disease symptom development on *Agaricus bisporus***

Nicholas Dufault (Ph.D., Plant Pathology; Scott A. Isard, advisor)
Graduated summer 2008
Thesis title: **The deposition of *Phakopsora pachyrhizi* urediniospores on soybean**

Alma Edith Rodriguez Estrada (Ph.D., Plant Pathology; Daniel J. Royse and Maria del Mar Jimenez-Gasco, co-advisors)
Graduated summer 2008
Thesis title: **Molecular phylogeny and increases of yield and the antioxidants selenium and ergothioneine in basidiomata of *Pleurotus eryngii***

Padmini Herath (M.S., Plant Pathology; Gary Moorman, advisor)
Graduated fall 2009
Thesis title: **Elm yellows phytoplasma detection in trees and insects**

Ermita Hernandez Heredia (M.S., Plant Pathology; Paul A. Backman and Shelby Fleischer, co-advisors)
Graduated fall 2008
Thesis title: **Integration of alternative tactics to manage key diseases and insect pests in cucurbits**

José H. Santa Cruz Hidalgo (M.S. Plant Pathology; Barbara J. Christ, advisor)
Graduated summer 2008
Thesis title: **Inheritance and marker-assisted selection for resistance to early blight disease in a diploid hybrid *Solanum phureja* - *S. stenotomum* population after one cycle of recurrent selection**

Jeffrey J. Kern (M.S., Plant Pathology; Wakar Uddin, advisor)
Graduated fall 2007
Thesis title: **Cross-pathogenicity of *Magnaporthe oryzae* isolates on perennial ryegrass and kikuyugrass turf and the effect of temperature and leaf wetness duration on development of gray leaf spot in kikuyugrass**

Hye-Seon Kim (Ph.D., Plant Pathology; Seogchan Kang, advisor)
Graduated fall 2008
Thesis title: **Molecular and cellular basis of *Fusarium* wilt in *Arabidopsis***

Jean-Philippe Marelli (Ph.D., Plant Pathology; Mark J. Guiltinan and Seogchan Kang, co-advisors)
Graduated summer 2008
Thesis title: ***Solanum lycopersicum* as a model system to study pathogenicity mechanisms of *Moniliophthora perniciosa*, the causal agent of witches' broom disease of *Theobroma cacao***

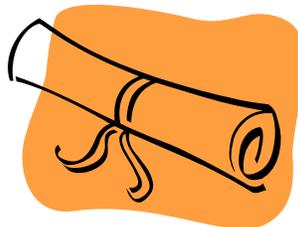
Philip Robert Northover (Ph.D., Plant Pathology; James Travis, advisor)
Graduated spring 2008
Thesis title: **Factors influencing the infection of cultivated grape (*Vitis spp.* section *Euvitis*) shoot tissue by *Guignardia bidwellii* (Ellis) viala & ravaz**

Mark J. Schall (Ph.D., Plant Pathology; Donald Davis, advisor)
Graduated fall 2008
Thesis title: ***Verticillium* wilt of *Ailanthus altissima***

Maria C. Vélez-Climent (M.S., Plant Pathology; Scott A. Isard, advisor)
Graduated spring 2008
Thesis title: **Adhesion of *Phakopsora pachyrhizi* urediniospores to soybean leaves**

Katelyn Willyerd (Ph.D., Plant Pathology; Gretchen Kuldau, advisor)
Graduated summer 2009
Thesis title: ***Fusarium* head blight disease development and mycotoxin accumulation in wheat**

Damitha Wickramasinghe (M.S., Plant Pathology; Barbara Christ, advisor)
Graduated summer 2007
Thesis title: **Linkage analysis, QTL mapping and marker-assisted selection for disease resistance in a diploid hybrid potato population**



International Activities *Spotlight:* Plant Disease Diagnosis Course Takes a Tropical Turn

Don Davis took his popular Plant Disease Diagnosis course to the tropics in 2008. Don, eleven graduate students, and two able "teaching assistants" (Department Head **Barb Christ** and former Department Head & Mycologist **Elwin Stewart**) spent June 2nd through the 11th diagnosing diseases of tropical crops in Costa Rica. The class was hosted by **Dr. Carlos Araya** (Ph.D. Nebraska) and **German Rivera** (M.S. Missouri), plant pathologists with the National University of Costa Rica, together with **Marcela Arguedas** (M.S. Lavall), forest pathologist with the Technical Institute of Costa Rica (Engineering and Forestry). Diseased crops examined and diagnosed included: cocoa, coffee, papaya, banana, numerous vegetables, citrus, forest trees, and many others. Considerable time was spent at experiment station plantations where banana, cocoa, and papaya were bred or evaluated for disease resistance. A variety of small and large farms, tree plantations, forest nurseries, and greenhouses were visited. Throughout the period (including Saturday and Sunday!), one day was spent in the field conducting macroscopic diagnoses and collecting samples; the next was spent in well-equipped labs identifying pathogens microscopically. In the lab, students described via oral presentations how he/she made each diagnosis. Overall, the class was considered a great success. In addition, as one highly placed, unnamed source said, "It was a great learning experience; the days were hot, but the beer was cold, and the food fantastic." Needless to say, plans are being made for similar sojourns to the tropics in future years.

Contributed by Dr. Donald Davis.

Cacao Research in Ecuador

In January 2009, **Dr. Paul Backman**, graduate student **Rachel Melnick**, and **Dr. Bryan Bailey** from the USDA-ARS Sustainable Perennial Crop Lab (SPCL) in Beltsville, Maryland traveled together to the INIAP Estacion Experimental Tropical (EET) in Pichilique, Ecuador, to continue a 20 month study on the biological control of witches' broom of cacao and also to establish an experiment on the biological control of frosty pod of cacao. Frosty pod, caused by the fungus *Moniliophthora roreri*, only infects cacao pods and can lead to roughly 80% yield loss. The disease is found throughout cacao growing regions in Central and South America, except Brazil and poses a vexing problem for both large and small-scale cacao farmers alike.

Contributed by Rachel Melnick.



Left to right: Dr. Bryan Bailey (USDA-ARS Sustainable Crop Lab), Ing. Vero (INIAP), Dr. Paul Backman, and Dr. Jayne Crozier (CABI Biosciences) labeling CCN51 pods for application of bacteria

Awards and Honors

2007 Service Awards

10-Year Award	20-Year Awards	25-Year Awards
Seogchan Kang	Randall Dreibelbis	Roxanne Lease
	Vija Wilkinson	Michael Peck
30-Year Award	35-Year Award	
Peter Romaine	Richard Stevenson	

2008 Service Awards

5-Year Awards	10-Year Awards	15-Year Awards
Sara R. May	Paul A. Backman	Joseph E. Martain
Kimberly E. Paley	David M. Geiser	Elwin L. Stewart
	Wakar Uddin	
20-Year Awards	25-Year Awards	30-Year Award
John M. Halbrendt	Frederick E. Gildow	Daniel J. Royse
Jean H. Juba	Gary W. Moorman	

Excellence in Teaching Award

The Excellence in Teaching Award recognizes outstanding teaching by a faculty member in the Department of Plant Pathology. The award was made possible through an endowment established by **Mary Lou Merrill** in memory of her husband, **Dr. William Merrill, Jr.**, who served on the Plant Pathology Faculty from 1965 to 1999.



Left to right: Mary Lou Merrill; Dr. Gretchen Kuldau, recipient of the 2008–09 Excellence in Teaching Award; Dr. Barbara Christ

Laurence D. and Mary Ann Moore Faculty and Staff Award in Plant Pathology

This award was established by **Laurence D. Moore** (Ph.D. '65) and his wife, **Mary Ann**, to honor and recognize achievements by a faculty or staff member in the Department of Plant Pathology.



Left to right: Teresa Shirk, 2007–08 Laurence D. and Mary Ann Moore Faculty and Staff Award in Plant Pathology recipient; Dr. Barbara Christ; Dr. Fred Gildow, 2007–08 Excellence in Teaching Award recipient



John Peplinski receives the 2008–09 Laurence D. and Mary Ann Moore Faculty and Staff Award in Plant Pathology from Dr. Barbara Christ

Additional Faculty Awards and Honors

Don Davis received the *Environment and Natural Resources Institute's (ENRI) Career Award*.

David M. Geiser, Scott A. Isard, and **Seogchan Kang** received the *Environment and Natural Resources Institute's (ENRI) Innovation Award*.

Peter Romaine received the *2009 Gamma Sigma Delta Faculty Award for Outstanding Research*.

2009 James W. Sinden Scholarship Fund Recipients

In fall 2009, staff member **Kimberly Paley** and graduate student **Stephanie Loehr** each received awards from the American Mushroom Institute's **James W. Sinden Scholarship Fund**. The annual scholarship, established by the Institute in 1980 to honor James W. Sinden's 50 years of service to the mushroom industry, is awarded competitively to students working in mushroom science. Dr. Sinden was a member of the Penn State faculty in the 1930s and 1940s who conducted industry research for numerous regional mushroom-production companies. His innovations included introducing synthetic compost, grain spawn and short composting in narrow piles that could be mechanically turned.

Graduate and Undergraduate Student Awards

L. Earl and Veronica G. Casida Graduate Scholarship

2007-08	2008-09
Steven Lee	Emily Helliwell Hye-Seon Kim

Arthur Gaspari Memorial Scholarship

2007-08	2008-09
Aaron Brown	Aaron Brown

Harold J. Miller Memorial Award

2007-08	2008-09
Kelly Anne Cooper Charles Mason	Alicia Spangler

Lester P. Nichols Memorial Award

2007-08	2008-09
Mark Schall	Matthew Kasson

Henry W. Popp Award

2007-08	2008-09
Nicholas Dufault Jeffrey Kern Ermita Hernandez Jose Santa Cruz Katelyn Willyerd	Steven Conaway Rachel Melnick Katelyn Willyerd

James P. Roberts Scholarship

2007-08	2008-09
Alma Rodriguez	Stephanie Loehr

Graduate Student Travel Awards

2007-08	2008-09
Hye-Seon Kim Rachel Melnick Anissa Poleatewich Maria Velez-Climent Katelyn Willyerd	Aaron Brown Rachel Melnick Dylan Short

Staff News



Debra Clemmer

In September 2008, **Debra Clemmer** joined the Department of Plant Pathology as our accounting assistant. Debbie is approaching nearly 25 years at Penn State and came to the department from the Conferences and Short Course office in the College of Ag Sciences. Debbie replaced **Jodi Reed**, who was our accounting assistant from 2003–2008. Jodi left to accept a promotion in the Office of Sponsored Programs.



Jodi Reed (left) and Becky Peplinski



Amy Perryman

Amy Perryman joined the office staff in May 2009 as administrative support assistant and provides backup support to both the accounting and graduate education functions. Amy previously worked in Conferences and Short Courses, as well. In November 2009, **Lori Long** joined the department as Graduate Program Assistant, taking over for **Dianne Taylor**, who retired in September. Lori coordinated the graduate program in the Educational Psychology department for 12 years and also served in the Research Office of the School of Nursing prior to coming to Plant Pathology.



Facilities Spotlight

The Plant Disease Clinic at The Pennsylvania State University, University Park, Pennsylvania



On May 1, 2009, **Sara R. May** was appointed Coordinator of the Plant Disease Clinic. Sara holds a masters degree in Plant Pathology from Penn State and provided research support to **Dr. Barbara Christ's** program from 2003 until her appointment in the Plant Disease Clinic. Sara took the reins of the Clinic following **John Peplinski's** retirement on March 31, 2009. John served as diagnostician and coordinator of the Plant Disease Clinic for 33 years, and he is continuing to assist with disease diagnoses and activities related to the National Plant Diagnostic Network (NPDN).

Currently, the Plant Disease Clinic is working on several activities beyond diagnosing the many samples that are submitted each year. First, Sara is serving on the NPDN Diagnostics Committee where she is leading an effort to establish an online forum for plant disease diagnosticians to share information and ask questions about particularly difficult samples that are received. In addition, Sara and **Dr. Beth Gugino** are organizing a national workshop on basic diagnostic techniques that will be held at Penn State in May 2010. This workshop will provide excellent training and networking opportunities for current and future plant diagnosticians. The workshop instructors will include several Penn State faculty and alumni, as well as other experienced diagnosticians.

Sara is a member of the APS Diagnostics Committee and attended the 2009 APS annual meeting in Portland, Oregon. She also served on the Posters and Exhibits Committee for the planning of the National NPDN Meeting held in

Miami, Florida, in December 2009. Sara took along **Maria Velez-Climent**, one of the graduate students from the Department who helps in the clinic to the meeting. Sara also serves as the coordinator for the First Detector training program in Pennsylvania, a project developed by the NPDN to promote the early detection of high risk, exotic, and emerging plant pests. Likewise, she serves on the University Staff Advisory Council (SAC), which is made up of staff from all over the University and provides recommendations to the central administration on issues that affect staff. The SAC also meets once a year with the President of the University, **Graham Spanier**.

Brief History of the Plant Disease Clinic

Plant Pathology at Penn State had its beginnings within the Department of Botany. In 1954, the department was renamed the Department of Botany and Plant Pathology, and in 1963 the Department of Plant Pathology was established as a separate administrative unit.

Prior to the formal establishment of the Plant Disease Clinic in August 1970, plant disease diagnostic services were made available to the agricultural industry and the citizens of Pennsylvania. Indeed, since the 1920s, nearly 50 years prior to the Clinic's creation, disease diagnostic services were provided on an unorganized basis as part of the educational programs of Plant Pathology Extension at Penn State and of the regulatory programs of the Bureau of Plant Industry of the Commonwealth of Pennsylvania.¹

In 1953, **Dr. Thora Hardy** was hired as a part-time technician to assist the extension specialists with disease diagnoses, and a

small laboratory was set up. Later, in 1970, **Dr. Richard C. Ostrowski** was named director of the new Plant Disease Clinic. He was followed by **Dr. Donald H. Petersen** (1971–73), **Professor Lester P. Nichols**, (1973–1982), **John D. Peplinski** (1982–2009), and **Sara R. May** (2009–present). In addition, Mildred H. Jodon served as research aide/diagnostician in the Clinic from 1970–76. Then, in October 1976, John Peplinski was hired as diagnostician.

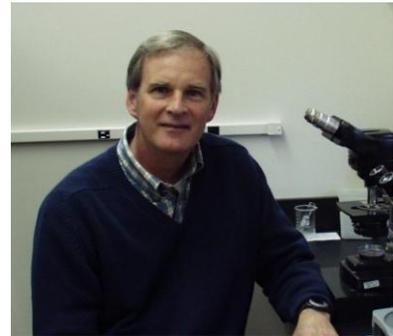
Contributed by Sara May and John Peplinski



Sara R. May
(photo 2007)

Plant Disease Clinic Directors

1970–1971	R. C. Ostrowski
1971–1973	D. H. Petersen
1973–1982	L. P. Nichols
1982–2009	J. D. Peplinski
2009–present	S. R. May



John D. Peplinski
(photo 2007)



Mildred Jodon poses with plant samples awaiting diagnosis, 1973



Lester P. Nichols,
Director of the Plant
Disease Clinic,
1973–1982

Air Quality Center Tour

On Monday, September 22, 2008, **Dr. Dennis Decoteau**, courtesy faculty member in Plant Pathology and Professor of Horticulture and Plant Ecosystem Health, gave members of the Department a tour of the Air Quality Learning and Demonstration Center. The Center, located in the northwestern section of the Arboretum currently under development, is devoted to providing educational programs and public outreach regarding air quality in Pennsylvania and its impact upon native and agricultural flora.

To learn more about the Center and The Arboretum at Penn State, please visit <http://arboretum.psu.edu/research/air.html>

The Forest Pathology Laboratory

Dr. Don Davis and the forest pathology laboratory continued to study potential biocontrol of the invasive tree-of-heaven (*Ailanthus altissima*) using the soil-borne pathogenic fungus *Verticillium albo-atrum*. **Mark Schall** received his Ph.D. on the project, and accepted a position as forest pathologist for the state of Missouri. He recently relocated to the Pittsburgh area, taking a position with private industry. **Matt Kasson** is currently working on the project for his Ph.D., emphasizing the role of ambrosia beetles as agents of dissemination for *V. albo-atrum*. In November 2009, Matt presented his recent findings at the Northeast Division of APS in Quebec City. **Maria Velez-Climent** will be working on a new project for her Ph.D. involving *Phytophthora* and forest trees. Maria's initial studies will involve studying the impact of various *Phytophthora* species on Pennsylvania Christmas trees (mainly Fraser fir). Much of Maria's proposed Ph.D. research will deal with adverse effects of *Phytophthora* on trees of Puerto Rico, with emphasis on *Phytophthora ramorum*. Other forest pathology projects in our lab include effect of ozone on forest vegetation and accumulation of total mercury in various forest ecosystem components, such as moss. Related horticultural projects deal with suppression, by applying recycled mushroom compost, of nuisance fungi such artillery fungi (*Sphaerobolus* spp.) in landscape mulch. New projects include studying potential effects of drilling into the Marcellus Shale Formation, to extract natural gas, on adjacent forest vegetation. Contributed by Don Davis.



Matt Kasson collecting beetles from an ethanol-baited insect trap within hardwood forests of south-central Pennsylvania



Department of Plant Pathology Group Photo 2008

Professional Activities

24th Annual Tomato Disease Workshop

In early November 2009, **Beth Gugino** and **Ken Martin**, from Furmano Foods, co-organized and hosted the **24th Annual Tomato Disease Workshop** at the Ramada Conference Center in State College, Pennsylvania. Sixty-five university researchers, together with extension and industry personnel from

across the United States and Canada participated in the one and a half day workshop. The workshop, which started in the early 1980s to address bacterial canker, has since expanded to include presentations on a wide array of current and emerging diseases that

threaten the profitability of the tomato industry. The 2009 event kicked off Tuesday evening with a joint social with the Plant Pathology department. Wednesday morning, **Dean Bruce McPheron** more formally

opened the meeting and welcomed everyone to Happy Valley. Topics at the meeting ranged

from regional production updates and grafting, to tomato viroid diseases and breeding for disease resistance. In addition, a session was devoted to late blight and the widespread outbreak that occurred in the Northeast in 2009. Many of the presenters and attendees were or had been affiliated with The Pennsylvania State University (see inset picture) and several were graduates of the Department of Plant Pathology, including: **Dr. Kelly Ivors** (Ph.D. '02; Assistant Professor, North Carolina State University), **Dr. Meg McGrath** (Ph.D. '88; Professor, Cornell University), **Dr. Mary Hausbeck** (Ph.D. '90; Professor, Michigan State University), **Dr. Michele Mansfield** (Ph.D. '05) and **Sara May** (M.Agr. '03). Several people remained on Thursday afternoon to tour The Mushroom Test Demonstration Facility with **Dr. John Pecchia** (thanks John!) followed by a tour of the Valentine Turfgrass Center, and last but not least, a tour of the Berkey Creamery lead by **Robert Lumley-Sapanski**. A special thanks goes out to our industry sponsors who contributed to the success of another Tomato Disease Workshop: Furmano Foods; Bonnie Plant Farm; DuPont; Acadian Seaplants Limited; Koppert Biological Systems, Inc.; Hirzel Canning Co.; Marrone Bio Innovations; Red Gold, Inc.; and Crop Management Strategies, Inc. Planning for the 25th Annual Tomato Disease Workshop is already underway by colleagues at the University of Florida. The 2010 workshop will be held in Florida in conjunction with the Tomato Breeders Roundtable meeting.

Contributed by Beth Gugino.



Participants in the 24th Annual Tomato Disease Workshop with ties to Penn State

Front row (left to right): Sara May (M.Agr. '03) Majid Foolad, Kelly Ivors (Ph.D. '02), Michele Mansfield (Ph.D. '05), Meg McGrath (Ph.D. '88), Mary Hausbeck (Ph.D. '90), Beth Gugino (Ph.D. '04), and Seong Hwan Kim. **Back Second row (left to right):** Fred Gildow, Tim Elkner, Steve Bogash, Frank Donohue, Scott Hoffman, unknown, and Paul David.

2009 Ag Progress Days

Our Ag Progress Days exhibit this year included microscope stations with samples of powdery mildew, downy mildew and black knot, and rust. Pythium cultures releasing zoospores could also be viewed on the "big screen" (TV screen that is). Meanwhile, other activities included a matching game to test visitors' ability to match the disease symptom and/or sign to the disease name; an opportunity to be a plant detective and "spy" the differences between healthy plants and those infected with barley yellow dwarf virus, cowpea mosaic virus, etc.; as well as numerous hands-on samples including dollar spot, brown patch, corn smut, apple scab and tomato late blight, as well as the always popular mushroom display.

Contributed by Beth Gugino.



The PPath exhibit at the 2009 Ag Progress Days



An aspiring plant detective at Ag Progress Days

2009 Pennsylvania Vegetable and Small Fruit Field Day

On August 13th, the **2009 Pennsylvania Vegetable and Small Fruit Field Day** was held at Penn State's Southeast Research and Extension Center in Landisville, Pennsylvania.



Demonstration at the 2009 Pennsylvania Vegetable and Small Fruit Field Day (Photo by Steve Conaway)



FREC Field Day (Photo by Steve Conaway)

Fruit Research and Extension Center (FREC) Field Day

The **FREC Field Day** was held Wednesday, July 22, 2009, at Biglerville, Pennsylvania. The Field Day encompasses all aspects of fruit production, the latest in disease control and cultural techniques.

"Ag Day: Harvest to Household"

On April 22, 2009, the College of Agricultural Sciences hosted "**Ag Day: Harvest to Household**," an event highlighting the goals and accomplishments of the College, its students and the agricultural field. The main theme of the event, which also featured games and activities, was the production of Creamery ice cream. The Department of Plant Pathology's displays focused upon Plum Pox, mushroom production, fungi on mulch, plant diseases on campus, and more.



The Department's Ag Day Exhibit

Office of Pesticide Programs. (OPP)/Environmental Protection Agency (EPA) Roundtable

Members of the Department of Plant Pathology attended the Office of Pesticide Programs (OPP)/Environmental Protection Agency (EPA) Roundtable, held November 12–13, 2008 at the EPA's headquarters in Arlington, Virginia. **Barb Christ**, President elect of APS, attended the meeting along with two members of the Public Policy Board, representatives from industry, university extension faculty and **Kellye Eversole** of Eversole Associates, an APS representative in Washington DC. Syngenta offered to sponsor the travel of several students to attend this meeting. Two graduate students in Penn State's Department of Plant Pathology—**Rachel Melnick** and **Anissa Poleatewich**—were subsequently able to take advantage of Syngenta's offer and attend the meeting. The meeting focused on providing an overview of the OPP including legal issues, registration, human health, biological and economic analysis, environmental fate and effects, endangered species, plant-incorporated protectants, and use of National Agricultural Statistics Service (NASS) data. Everyone who attended learned a lot. Graduate student **Rachel Melnick** said the round table was “a truly value experience” for her. “Not only did I get to learn about how the EPA deals the mounds of issues related to pesticide registration,” notes Melnick, “also got to experience firsthand how APS truly is in the forefront of educating our government about the many issues faced by people in agriculture.” The meeting marked the first time that an agricultural scientific society requested to meet with officials from OPP. Submitted by Dr. Barbara Christ.

APS Officers and Staff Members Visit Department

In fall 2009, American Phytopathological Society (APS) President **Barbara Christ** hosted officers and staff members at a retreat in State College. Following the retreat, the APS representatives participated in an interactive discussion hosted by the Department of Plant Pathology. Among the topics discussed included APS Public Policy Board activities, the results of the Ad Hoc Committee on the Future of Education in Plant Pathology's final report to Council, and the Ad Hoc Committee on APS Governance Structure and its subcommittee's proposed approach to societal governance.



Barb Christ (first row, second from left) with APS officers and staff

2008 Annual Meeting of the Mycological Society of America

The Department of Plant Pathology hosted the 2008 Annual Meeting of the Mycological Society of America at University Park, August 9–14. Four faculty members (**David Geiser**, **Seogchan Kang**, **Gretchen Kuldau**, **Maria del Mar Jimenez Gasco**) and five graduate students (**Aaron Brown**, **Li Guo**, **Michele Mansfield**, **Bongsoo Park**, and **Katelyn Willyerd**) from the Department of Plant Pathology presented or co-presented papers and/or posters. In addition, **David Geiser** served as the local arrangements coordinator for the Meeting and also assisted with the conference website.

Guest Seminar Speakers

Spring Semester 2008

Dr. David Huff

Department of Crop and Soil Science, Penn State, University Park, PA.

Title: *Salmacisia*, a new genus of *Tilletiales*: Reclassification of *Tilletia buchloana* causing induced hermaphroditism in buffalograss.

Fall Semester 2009

Dr. Gloria Abad

USDA-APHIS-PPQ Beltsville, MD.

Title: *Integrating morphological and molecular tools for the identification of Phytophthora, Pythium and related genera.*

Dr. Greg Martin

Department of Plant Biology and Boyce Thompson Institute, Cornell University, Ithaca, NY.

Title: *Bacterial elicitation and evasion of plant innate immunity.*

Dr. Manuel Ospina-Giraldo (Ph.D., '98)

Department of Biology, Lafayette College, Easton, PA.

Title: *An insight into the genes encoding carbohydrate-active enzymes in the Phytophthora infestans genome.*

Dr. Teresa Powlowska

Department of Plant Pathology & Plant Microbe Biology, Cornell University, Ithaca, NY.

Title: *Genetics and evolution of arbuscular mycorrhizal fungi.*

Spring Semester 2009

Dr. Bill Schnieder

Foreign Disease-Weed Research Unit, USDA-ARS, Ft. Detrick, MD.

Title: *Pathogen detection technologies.*

Christian Vinten-Johansen

Information Technology Management, Penn State, University Park, PA.

Title: *Building and nurturing online communities: A path to plant pathology 2.0.*

Fall Semester 2009

Mr. Tom Butzler

Penn State Cooperative Extension Clinton Co., Mill Hall, PA.

Title: *How Phytophthora infestans changed my life: Journey from Penn State student to educator.*

Dr. Martin Draper

National Program Leader–Plant Pathology, USDA/NIFA, Washington D.C.

Title: *The land grant partnership – the new federal partner and how things get done.*

Dr. Roger Koide

Department of Horticulture, Penn State, University Park, PA

Title: *Community biology of mycorrhizal fungi.*

Dr. Thomas Mitchell

Department of Plant Pathology, The Ohio State University, Columbus, OH.

Title: *Using whole genome approaches to understand fungal pathogenesis and host associations.*

Dr. Kerry Pedley

Foreign Disease-Weed Research Unit, USDA-ARS, Ft. Detrick, MD.

Title: *Functional analysis of soybean defense pathways using virus-induced gene silencing.*

2009 Graduate Student Invited Seminar Speaker

As is tradition, the PPath graduate students had an opportunity to invite a seminar speaker of their choosing during the spring semester.

On April 6, 2009, **Dr. Jay Norelli**, USDA-ARS Appalachian Fruit Research Lab,

Kearneysville, West Virginia, presented a seminar titled *Using functional genomics to develop tools to breed fire blight resistant apples*. Dr. Norelli's current research centers on characterizing the underlying basis of disease resistance in fruit trees as well as the development of novel control strategies for

specific tree-fruit diseases. Fire blight of apple, caused by the bacterial pathogen *Erwinia amylovora*, is the major focus of this research. Dr. Norelli uses functional genomics and reverse genetics to characterize the response of apple to *E. amylovora* and, thereby, identify new opportunities for improving fire blight resistance.

Graduate Student Exchange Program

On April 21, 2008, **Nathan Kleczewski** from the Department of Plant Pathology at The Ohio State University presented the graduate student exchange seminar titled *“Fertility effects on metabolic and ectomycorrhizal tradeoffs in birch.”*

2008–2009 Richard R. Nelson Memorial Lectures

The Richard R. Nelson Memorial Lectures were established in memory of Dr. Richard R. Nelson (1926–1991). Dr. Nelson joined the faculty of the Department of Plant Pathology in 1966 and was subsequently named Evan Pugh Professor in 1974. Dr. Nelson retired from Penn State with Emeritus rank in 1985.

On April 28, 2008, **Dr. Marty Dickman**, Christine Richardson Professor of Agriculture, from the Department of Plant Pathology and Microbiology, Texas A&M University, presented *Death be not proud: Modulation of programmed cell death for disease/stress tolerance in plants.*

On April 20, 2009, **Dr. Alan Collmer**, Professor, Department of Plant Pathology, Cornell University, presented *Pseudomonas syringae and plants: A relationship built on lethal injections.*

Alumni News

Jaime Blair (Biology Ph.D. 2005, post-doc with **Drs. David Geiser** and **Seogchan Kang**, May 2005–August 2006) is currently in his second year as Assistant Professor of Biology at Franklin & Marshall College. Jaime teaches Molecular Genetics and is developing a new major in Bioinformatics. Jaime and his students are working on a number of projects involving *Phytophthora* and *Pythium*, including baiting a local waterway to survey diversity (genomics in the field!). Jaime’s husband, **Jorge Mena-Ali** (Biology Ph.D. '06), is currently a Visiting Assistant Professor at Franklin & Marshall and will continue on next year as an NSF-funded research associate. Jaime and Jorge have a one year old son, **Ivan**, who keeps them very busy when they are not in class!

After moving to Stuttgart Arkansas—rice and duck capital of the world—**Stefano Costanzo**, Research Plant Pathologist, USDA-ARS DB-NRRC, reports that he has ~~survived~~ the translocation from my preferred work on *Phytophthora* spp. and dicots like potato, tomato and soybean to a comparably challenging world of rice in association with two of its long time friends: *Magnaporthe oryzae* and *Rhizoctonia solani*. . .While adjusting to the local Cajun cuisine and the more relaxing atmosphere of the south, I ended up stumbling across a series of alternative splicing event for transcripts of the rice blast resistance gene *Pi-ta*,” he writes. ~~+~~also identified a transposable element in proximity of the *Pi-ta* promoter region, which we found exclusively associated with the resistant form of *Pi-ta*. I recently concluded a study on haplotype diversity of the rice *Pi-km* locus for blast resistance and developed some molecular markers for breeding purposes. My work in progress is, instead, on sheath blight; [I am] hoping to fine map

a *Rhizoctonia solani* toxin sensitivity gene. Sorry, last year it didn't happen, but I really hope to soon visit my friends in the department and go mushroom hunting while wandering across some of the Happy Valley woods. Ciao to all of you!"

József Geml, (Ph.D., 2004) reports: –The year 2009 marked the end of our 9-year stay in the U.S. After spending five wonderful years at the Institute of Arctic Biology, University of Alaska Fairbanks (UAF) (intermittent by a nine-month research period in Norway and Germany), I joined the National Herbarium of the Netherlands (NHN) at Leiden University last summer. My arrival coincided with exciting times, as the NHN has been recently merged with two other institutes, namely the Zoological Museum Amsterdam and the National Museum of Natural History Naturalis to form the Netherlands Centre for Biodiversity Naturalis (NCBN) that will instantly house the world's fifth largest specimen collection. I am fortunate to be able to continue my work on the biodiversity, biogeography and molecular ecology of arctic fungi and I will keep spending parts of my summers collecting fungi in the Arctic, this year in Svalbard. On the personal front, we are gradually adjusting (back) to European life, following the long-distance move that we hope was our last one. My wife, Johanna, completed her M.A. in Anthropology at UAF. The title of her thesis was *Stigma, Suffering, and Memory in the Lives of Norwegian War Children*. Here, our children, **Maya** (2003) and **Táltos** (2006), are attending Dutch schools and are learning the language at an incredible rate. We all enjoy the cultural and historical aspects of living in Europe and to be able to cycle on the bike paths to school/work daily and to the dunes at the North Sea on the weekends."



József Geml on the Siberian Express during a field trip to the Russian Arctic in 2008 (Photo by Donald A. Walker)



Michael Goodin

Michael Goodin (M.S. 1991; Ph.D. 1995), an associate professor in the University of Kentucky College of Agriculture, is leading a team of international researchers who are using innovative plant biotechnology techniques to address ten current or emerging viruses that affect the primary sources of food (including maize, cassava and cowpea) for millions of people or significant cash crops for developing countries (such as citrus, wine grapes and peppers). Some of the viruses may also have the potential to be engineered to produce vaccines or other biopharmaceuticals.

Kelly Ivors (Ph.D. 2002) has been an Assistant Professor and Extension Specialist in the Department of Plant Pathology at North Carolina State University since 2004. She was recently promoted to Associate Professor with tenure (spring 2010). Her research and extension responsibilities involve pathogens of ornamentals, Christmas trees and vegetables, with a focus on management of *Phytophthora* diseases.



Kelly Ivors

Phytopathology News reports that **Agustin B. Molina** (Ph.D. 1983), a senior scientist with Biodiversity International Commodities for Livelihood and a regional coordinator for Asia-Pacific, has received the Kadali Purashkar Award from the Association for the Improvement in Production and Utilization of Banana (AIPUB). Agustin was recognized for his leadership in setting the *Musa* research agenda in the Asia-Pacific region, particularly in the area of *Musa* germplasm conservation and use. The award also cited his efforts to harmonize banana research by promoting the value of regional collaboration through the BAPNET.

Chang Hyun Khang (Ph.D. 2005) continues to work with **Dr. Barbara Valent** as a research associate in the Department of Plant Pathology at Kansas State University. “I am working on the mechanism of secretion of rice blast effector molecules inside living rice cells,” Chang writes. “My family, Ah-Young and Sam (3 years old), and I would like to wish you all the best.”

Payungsak Rauyaree “M” (Ph.D. 2003) is currently working for the Biotechnology Research and Development Office at the Department of Agriculture in Thailand. He reports that “Life in Bangkok for me is going okay. However, if politics [were more] stable, Thai people would be happier,” he notes. During 2007–2008, Payungsak received a scholarship from the Japanese government to stay in Japan for one year and conducted research on gene cloning techniques for improving drought tolerance traits for cowpea. Meanwhile, in Thailand, Payungsak has been working on cassava and another project coming up soon. He also attended the Annual Thailand Plant Pathology Society Meeting. M closed his message with “I still miss PSU (PPath) and PSU people and wish to be there again is possible.”

From 2005–2007, **Fritz Westover** (M.S. 2004) worked as Viticulture Research and Extension Associate for Virginia Cooperative Extension (Virginia Tech), at the Alson H. Smith Research & Extension center in Winchester, Virginia. After two years of serving the wine industry of Virginia, Fritz moved to Houston, Texas, where his wife Sabrina was offered a position as Geologist with ExxonMobil. Sabrina completed her PhD in Geological Sciences at Penn State in 2006. Since January 2007, Fritz has been working with the Texas AgriLife Extension Service (Texas A&M) as a Viticulture Extension Associate for the Texas Gulf Coast region. His extension region consists of 82 counties stretching from northeast Texas to the lower Rio Grande Valley of south Texas. In October 2009, Fritz was promoted to Extension Program Specialist–Viticulture. In addition to his role as viticulture advisor to the Texas Gulf Coast, he also provides coordination and supervision of the Extension Viticulture Team comprised of three Extension Associates–Viticulture, plus himself. In 2008, Fritz and Sabrina bought their first home in northern suburbs of Houston. They survived Hurricane Ike, which properly baptized their home with the collision of a 90 foot pine tree. All of the damage has since been repaired, and their dog Piero and cat Luna are once again frolicking happily in the garden.

Ning Zhang (former post-doc in **David Geiser's** lab) is now working on population and evolutionary biology of fungal pathogens and molecular diagnostics of important plant pathogenetic fungi and oomycetes.



Endowments

Larry J. Jordan Memorial Endowment in Plant Pathology

The department extends special thanks to the family, friends, and colleagues of Larry Jordan, who have established an endowment in his honor. The Larry J. Jordan Memorial Endowment in Plant Pathology will be used to support field research in plant pathology at the Russell E. Larson Agricultural Research Center, located in Rock Springs, PA.

Endowments in Plant Pathology

Thank you to our alumni and friends for your contributions to the endowments in Plant Pathology. Your support and your generosity make possible many activities that enrich and enhance our programs.

Leonard J. Franci Memorial Endowment in Plant Pathology

Albert Hildebrandt Botany Library Endowment

Larry J. Jordan Memorial Endowment in Plant Pathology

Alan A. MacNab Plant Pathology Memorial Endowment

William Merrill, Jr. Memorial Endowment

Laurence D. and Mary Ann Moore Faculty and Staff Award in Plant Pathology

Mushroom Industry Endowment for Penn State

James Oscar Watts Memorial Potato Research Endowment for Plant Pathology

Arthur Gaspari Memorial Scholarship

Harold J. Miller Memorial Endowment

Lester P. Nichols Memorial Award

Henry W. Popp Graduate Assistantship

James P. Roberts Scholarship

Plant Pathology Graduate Studies Enhancement Fund

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