

USDA \* APHIS \* PPQ

## CPHST NEWS



## Thanks for Four Decades of Service!

15 March 2004



People



Places



Programs



Publications



Policy & Plans



Presentations



Philosophy

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The **Invasive Pests Management Lab** in Niles, MI was established by ARS during 1966 in response to problems with the Cereal Leaf Beetle in the Midwest. During its operational life, the Niles Lab has been responsible for implementing and supporting numerous biological control programs involving weeds and insect pests. Current projects involve CLB and Purple Loostrike.

Niles is located in the southwest corner of Michigan just north of South Bend, Indiana, home of Notre Dame University. Currently the lab employs 15 full-time staff. The Lab Director is **Dr. David Prokrym**.

Long-standing rumors were confirmed recently when the CPHST Director and acting Associate Director **Ron Sequeira** visited Niles, MI to inform staff of the Agriculture Department's decision to close the CPHST lab in Niles. However, this action closes only the physical facility; the objective is to optimize the operation and maximize PPQ's ability to meet its goals.



In a three-hour meeting with staff, the Director acknowledged the past value of the lab to PPQ in support of plant protection and explained the reasons for the closure. He acknowledged that change is personally stressful and organizationally challenging, but also necessary.

CPHST is in the midst of a long-term program to restructure its staff and reposition its resources to maximize involvement in high-quality science and innovative technology to deliver contemporary tools to PPQ.

Some Niles staff are being offered directed reassignments to Fort Collins, CO in support of the new National Weed Management Lab. Dr Prokrym and a few staff will be offered relocation to East Lansing, MI with a mandate to develop a new and innovative relationship with Michigan State University. Other staff will be offered reassignment to Beltsville, MD in support of the National Plant Germplasm and Biotechnology Lab which is soon coming on-line with a 25 -million dollar facility.

During his five year tenure, first as Acting Director and then Director, David has worked tirelessly to maintaining the facility in optimal condition. We appreciate his dedication and efforts.



Submitted by Gordon Gordh



## Real Time PCR Training in Beltsville

16 April 2004

Early in February, the **National Plant Germplasm and Biotechnology Lab** hosted members of the National Plant Diagnostic Network (NPDN) for an advanced molecular diagnostics training session. The purpose of the training was to provide hands-on training to enhance the diagnostic capabilities of the regional hub labs supported by CSREES. Eleven members of the NPDN attended the session which was designed to detect two select agents: Soybean Rust and Brown Rot of Potato (*Ralstonia solanacearum* race 3 biovar 2). **Laurene Levy** and her staff (**Renee DeVries** and **Vessela Mavrodieva**) trained the diagnosticians in serological detection, culturing, and real-time

PCR protocols. The NPDN visitors from Cornell, Michigan State, Purdue, Illinois, Kansas State, Virginia Tech, Florida, Mississippi State, Oregon State, Texas A&M and CDFA received additional training from **Mary Palm** (PPQ NIS) in the morphological identification of soybean rust. Additional training sessions are planned for other select agents. Molecular, serological, and morphological detection and identification of Sudden Oak Death will be provided for NPDN in late April in Beltsville.

<http://npdn.ppath.cornell.edu>.



 Submitted by Laurene Levy



## LucID Grasshopper Keys demonstrated in Colorado

13 January 2004

The development of innovative technology for pest identification is an important aspect of CPHST responsibilities. LucID is a computer-based expert system that has been adopted by PPQ as a tool for pest identification. LucID enables field staff and non-experts to identify pests directly and without the time-consuming delay of consultation with an "expert" taxonomist.

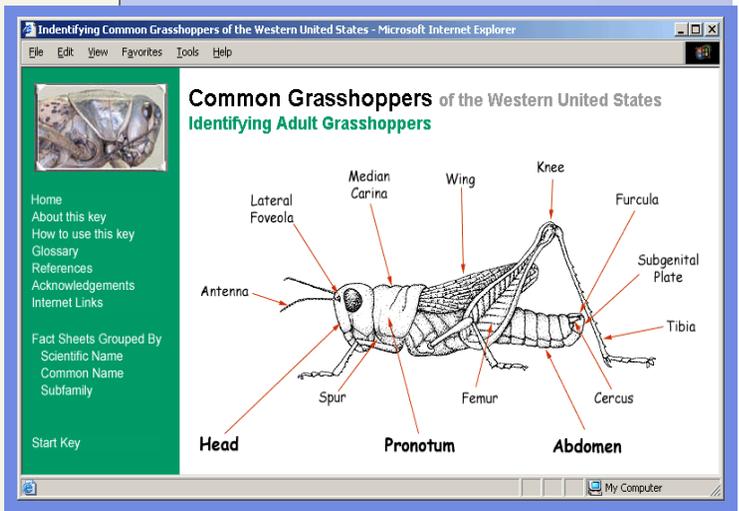


Recently **Rob Quartarone** and **Chris Reuter** of **Decision Support & Pest Management Systems Lab**

in Phoenix, AZ demonstrated their LucID key to common western grasshoppers at the National Grasshopper Management Board meeting in Aurora, CO. The attendees had the opportunity to see how this multimedia, interactive taxonomic tool can be used for identification and as a resource for learning about grasshoppers. The PPQ State Plant Health Directors and other Western region personnel in attendance were vocal in their support of this system, indicating that it will be a valuable tool for future grasshopper programs.

 Submitted by Dan Fieselmann

*LucID enables field staff and non-experts to identify pests rapidly and with confidence.*





## CPHST Meets PHP & PDMP

23 March 2004

**Gordon Gordh** and the CPHST National Science Program Leaders traveled to Riverdale on March 23 for a 1-day facilitated meeting to discuss ways to foster better communication, program development and linkages with Plant Health Programs (PHP) and Pest Detection & Management Programs (PDMP). About 40 PPQ staff were in attendance.

**Alan Dowdy**, Acting Director of PHP provided an overview of PHP's programs and services. His talk was followed by 15 presenters from PHP and PDMP, including **Mike**

**Firko** (Biological & Technical Services), **Cathy Enright** (Phytosanitary Issues Management), and **Matt Royer** (Acting Assistant Director of PDMP). **Cheri Oswald** of PPD facilitated discussions to identify linkages and cooperative opportunities within and among the three program areas.

CPHST NSPLs gave overviews of their work during the afternoon session. These presentations pointed to the diversity of scientific work conducted by CPHST. The meeting identified gaps in communication between CPHST NSPLs and their PHP counterparts.

As part of our efforts to strengthen working relationships, CPHST will continue to improve communication with Riverdale staff.

One outcome of the meeting will be a staff program matrix that identifies the lead individual for each specific program area within the three PPQ organizations and the regional offices. The presentations and a meeting report will be made available to all of PPQ later this spring.



Submitted by Alan Dowdy



## Working Group on Fruit Flies of the Western Hemisphere

16 April 2004

Fruit Flies are a Family of Diptera that comprises nearly 5,000 species, several of which are major and constant threats to American tree crops. Most Fruit Fly species naturally live in the tropics but periodically invade the US with travel and commerce. A few notable invasive pests are the Mediterranean, Mexican and Oriental Fruit Flies. CPHST staff scientists in Hawaii, Florida, Texas and Guatemala work on many aspects of Fruit Fly biology and management. CPHST's involvement in Fruit Fly work is internationally recognized and vital to the safeguarding of many agricultural commodities.

**Bob Heath** (ARS SHRS Miami) and **Sue McCombs** (CPHST FFGML Hawaii) are Co-Organizers of the 5th Meeting of the Working Group on Fruit Flies of the Western Hemisphere (<http://www.conference.ifas.ufl.edu/Flies>).

The meeting, to be held in Fort Lauderdale, Florida from May 16-21, 2004, provides a forum for interdisciplinary discussions of research and management activities. The

highlight of the plenary session will be presentation of a lifetime achievement award to **Don Lindquist** for his contributions to fruit fly sterile insect programs. Don will deliver the Plenary Address entitled 'Future Perspectives of SIT'. Invited speakers will address components of the systems approach for movement of regulated commodities from areas with populations of pest fruit flies. Poster presentations will cover state-of-the-art technologies in topical areas that include basic and applied biology; detection methods; control and eradication methods; biological control; sterile insect technique; regulatory procedures; and program management. The attendees, representing government, academia and industry from 22 countries, will participate in developing a prioritized list of research needs for fruit fly suppression programs throughout the western hemisphere. Summary documents and poster presentations will be available from the organizers following the meeting.

For more information about CPHST activities, clients and collaborators in fruit fly programs, please consult our webpage.



Submitted by Sue McCombs

*Most fruit fly species naturally live in the tropics but periodically invade the US with travel and commerce.*





## Lab Directors Meeting in Fort Collins

24 February 2004

The CPHST Lab Directors and headquarters staff met in Fort Collins this year to review programs, projects and issues. CPHST began holding these meetings two years ago in an effort to bring leadership together to discuss issues important and critical to CPHST. Last year's meeting was held in Raleigh; this year the meeting was held in Ft Collins to coincide with a meeting with the Western Region

Program Managers and selected State Plant Health Directors.

These meetings provide an opportunity for frank discussions regarding CPHST funding, policy and strategic planning. They assure a shared vision and help optimize the use of scientific resources.



Submitted by Gordon Gordh



## GMOs and Pest Control

16 April 2004

One of CPHST's major responsibilities is the identification and development of new technologies for control and eradication of plant pests. Currently, the **Decision Support & Pest Management Systems Lab** is working in partnership with the University of California and private industry to develop transgenic pink bollworm (PBW) strains for future eradication programs. This joint program has since generated lines of PBW that are tetracycline-dependent, a lethal condition for irradiated sterile insects. Over the past year, the group has developed and tested eleven lines of genetically transformed PBW.

This technology is exciting and important to the existing PBW sterile release program because it allows for a lower sterilizing dose of radiation which improves the quality of released moths. The use of a new autocidal biological control strain may achieve even greater benefits by completely eliminating the need for radiation. Overall, the successful use of new genetic control technologies will greatly reduce the cost of federal, state, and U.S. cotton industry PBW control and eradication programs.

The lab recently reached a major milestone in the development of improved genetic marking techniques. A new strain of PBW was developed, marked with the DsRed protein gene. This strain is easier to see compared to PBW strains with other genetic markers.

Other important progress includes the development of an options paper on a National Environmental Policy Act (NEPA) environmental analysis of the use of genetically modified PBW in control programs. This information will aid Agency policy makers for decision making on the use of genetically modified PBW and other insects in APHIS insect control programs.

*During the past year, eleven lines of genetically transformed PBW have been developed and tested.*



Pink Bollworm Pupae

*Transformed pink bollworm pupae with DsRed genetic marker (three on left) under excitation light next to unmarked pupae*



Submitted by Greg Simmons



## National Plant Board Meeting

9 April 2004

The National Plant Board is one of our most important stakeholders and partners in plant stafeguarding. The NPB is divided into several Regional Plant Boards, each of which meets annually to exchange information, discuss regional problems and review PPQ involvement in regional issues. The Southern Plant Board annual meeting was held 5-7 April in Williamsburg, Va., and was the largest gathering on record with more than 100 attendees. The meeting was organized by **Frank Fulgham** (VaDACS). **Craig Roussel** (SPB President) presided and **Bill Dickerson** (NPB President) gave a report on NPB activities. Several presentations focused on Sudden Oak Death. **Craig Re-**

**gelbrugge** (American Assoc. of Nurserymen) reaffirmed the the importance of industry, state and federal organisations working together to confront this impending national disaster. **Bob Spaide** (PPQ PDMP) answered questions about the PPQ perspective for the emergency plan for SOD.

During the past 18 months the US has experienced two incursions of the bacterial plant pathogen *Ralstonia solanacearum* on geraniums. CPHST has worked effectively with Headquarters and the Regions in providing technical and scientific support of both eradication projects. **Lynn Schmale** (American Society of Florists)

gave an assessment of the recent episode with *R. solanacearum* infecting geraniums in Guatemala.

The Sweet Potato Weevil is a perennial problem in southern states. Several discussions focused on the current status of the pest in various states, existing technologies and the importance of continuing to refine research and technology in controlling this pest. R&D areas of concern focus on pheromones, traps and sampling. The SPB will develop a letter requesting USDA help in reviewing the status of science and technology in controlling this pest.



Submitted by Gordon Gordh



## Skills Inventory Up & Ready for Business!

16 April 2004

Science and Technology development are core activities of CPHST. Our ability to respond to S&T needs within PPQ is based largely upon the skills and knowledge of our scientists and technical staff. CPHST's effectiveness in providing support to PPQ in response to S&T problems is determined by management's knowledge of staff abilities. The CPHST Skills & Knowledge Inventory (SKI) was designed and developed by a team of CPHST staff to summarize this kind of information. The blueprint they produced captures with simplicity and ease the professional skills, technical knowledge and work experience of CPHST's scientific staff.

The SKI team was composed of subject matter experts who defined requirements, provided advice and guided the development effort. The job was substantial because it involved long meetings, weekly teleconferences and extensive discussions that extended over several months. Team members included **Larry Brown, Anne Marie Callcott, Matt Ciomperlek, Alan Dowdy, Rich Hansen, Dave Prokrym, Jim Shepley** and **Michelle Walters. Deb Mellis** and **Kathy Schrack** of MRP

Business Practices (Ft Collins) served as project coordinators and managers in the development process. Beta Testing of the pilot project was completed last December.

The SKI database is an electronic tool that was developed in Microsoft Access 2002 and is designed to facilitate input information regarding highly specific skills and knowledge provided by the employees themselves at their PC workstations. As a management tool, SKI has several useful features. Most important, it will be used to identify and select the "right" person with the technical knowledge, skills and experience for a particular project. Also, SKI will address critical management needs and enable analyses of skills and abilities to facilitate succession planning and identify skill "gaps".

Most information will be added during the initial data entry phase, with periodic updates on a continuous basis. SKI will enable users to complete and update their own individual records. CPHST management will be able to generate a variety of standard and parameter reports providing summary in-

formation on such elements as skills availability, training needs and gap analysis. By organizing the collection and access to this information via a customized database application, the SKI system will serve as a valuable decision-support and search tool for promoting individual professional development and improved organizational development within CPHST.

Each principal CPHST facility should have a SKI representative from the development team. This representative should be able to provide instructions for installing the operational files on your computer and getting linked to the server for updating the database housed in Raleigh. Each user should read the User Manual to understand the features and obtain an overview of how data will be entered. If a SKI representative is not available at your location, then please contact Jim Shepley at the Otis Lab (508) 563-9303 (ext 228) for technical support. **Dr Larry Zettler** is the NSPL in charge of SKI and may be contacted for other comments or questions.



Submitted by David Prokrym



## CPHST Spotlight: Judit Monis

16 April 2004

**Judit Monis joined CPHST (NPGBL) in Beltsville** as a Supervisory Plant Pathologist - Virologist in March 2004. She is a native from Argentina, where she received a BS in Agriculture from the Universidad Nacional de Cordoba. Her graduate work includes research on beetle transmitted viruses at the University of Arkansas Fayetteville (MS, Plant Pathology, 1984) and the molecular and serological characterization of potato virus S at the University of Wisconsin-Madison (Ph.D., Plant Pathology, 1989). From

1990-1993 she was a post-doctoral fellow (Mc Knight and NIH) at the University of California at Berkeley.

In 1993 Dr. Monis began an industrial career at Agritope, Inc. There she directed the plant pathology group, with a principal focus on the development of diagnostic and eradication methods of important grapevine pathogens. Dr. Monis joined Seminis Vegetable Seeds, Inc. in 2000 her responsibilities included the management and oversight of research and scientific programs

related to vegetable disease resistance discovery in France, Italy, Spain and The Netherlands.

On a personal note, Judit is married to Carey Pico. They have two daughters, Tamara (11) and Hannah (7), and a handsome dog (Sandy). When Judit takes a break from killing plants (at work or in the yard), she enjoys outdoor activities such as hiking and biking. Judit is fluent in Spanish.



## CPHST Spotlight: Kurt Zeller

16 April 2004

**Kurt A. Zeller joined CPHST (NPGBL) in Beltsville** as a Plant Pathologist – Mycologist in Jan 2004. A native of Indiana, Kurt received his B.S. in Biology from Indiana University in 1987. He received a Ph.D. in Genetics from the Department of Biology of Purdue University in 1994 where he studied the evolution of host specificity in the *Erysiphe cichoracearum* powdery mildew species complex. After completing his dissertation at Purdue, he worked at Kansas State University from 1995-2004 as a Postdoctoral

Associate, then as a Senior Scientist in the Department of Plant Pathology. At KSU, Kurt studied genetics, population genetics, and phylogenetics of fungal plant pathogens, and developed diagnostic molecular markers for differentiating between closely related fungi in the genera *Fusarium* and *Harpophora* (formerly *Cephalosporium*).

Kurt's wife, Dr. Nicole Zeller, is a frog ecologist. Outside of science, Kurt's favorite hobby is making his own beer.

*Get to know the  
new CPHST  
team members!*



## CPHST Spotlight: Dawna Jones

16 April 2004

**Dawna D. Jones joined CPHST (NPGBL) in Beltsville** as a Plant Pathologist – Bacteriologist in Nov 2003. A native of Opelousas, LA, she attended Southern University in Baton Rouge where she earned her B.S. in Plant Science in 1997. Dawna did doctoral studies in Plant Pathology at the University of California, Davis under the guidance of Dr. Bruce Kirkpatrick. She studied chemical and biological strategies for the man-

agement of *Xylella fastidiosa*, causal agent of Pierce's disease of grapevine. She received her Ph.D. in 2004.

Dawna is married to Chauncey Jones, an Internal Medicine Resident at the University of Maryland Hospital in Baltimore. In her spare time she enjoys traveling, skiing, and other outdoor activities, and is currently learning French.



*Top left: Judit Monis  
Top right: Kurt Zeller  
Left: Dawna Jones*



## Publications

16 April 2004

Reporting of results is a critical aspect of the work completed by CPHST scientists. This can take the form of a technical report to a client, a presentation or demonstration to clients, an explanation of technical procedures in manuals or publications. The work of our scientists goes largely unnoticed. Many of our scientists publish some of their work in peer-reviewed journals. Publication of work in journals by CPHST scientists is not an expectation of APHIS, but is a noteworthy achievement, and an indication of the value of the work to the scientific community. In this Publications section of our newsletter we will report on work that is important, timely, appropriate and of wide scientific interest.



Submitted by Gordon Gordh

**Vessela Mavrodieva** and **Laurene Levy** recently published a paper in journal *Phytopathology* entitled "Improved Sampling Methods for Real-Time PCR Diagnosis of Citrus Canker from Field Samples" (*Phytopathology* 94:61-68). **Dean W. Gabriel** of the University of Florida was a contributing author.

*Synopsis:* Accurate, fast, and reliable detection of regulatory pathogens, such as citrus canker, is of great importance. However, citrus bacterial canker is caused by at least two groups of phylogenetically distinct *Xanthomonas citri* strains, and there is host



range variation within both groups. The CPHST **NPGBL in Beltsville** developed a fast, sensitive and reliable real-time polymerase chain reaction (PCR) assay using a portable, field-hardened RAPID machine and primers designed to detect all canker-causing strains. Primer design was of

significant importance in both specificity and sensitivity. Single-lesion sampling methods were developed that required minimal handling and allowed complete real-time PCR diagnosis in a total time of 4 h and with an apparent sensitivity of less than 10 CFU of target cells from diseased lesions. One format for lesion sampling involves swabbing the lesion on infected leaves allowing Pathologists to swab samples in the field and send them directly to a lab for confirmation. The test sensitivity allowed molecular detection for the first time of *X. citri* in a herbarium sample from the 1912 citrus canker outbreak. CPHST NPGBL transferred the real-time canker PCR technology to DOACS, DPI, in Gainesville, FL in August 2003 following a court-order that required DNA testing for positive determination of citrus canker trees. (*Phytopathology* 94:61-68, publication number: P-2003-1024-01R)



Submitted by Laurene Levy



## Civil Rights & Anti-Harassment Policy Reminder

16 April 2004

CPHST remains committed to keeping our part of PPQ free from discrimination and harassment. All CPHST staff must treat their coworkers and customers with respect and dignity.

Furthermore, I expect NSPLs, Lab Directors and supervisors to set the standard and maintain a safe work environment that

allows staff to maximize productivity and in which they can contribute and grow as individuals.

All staff should be familiar with the USDA and APHIS Civil Rights and Anti-Harassment Policies. Relevant documents should be prominently displayed in all Labs and Stations. Staff are expected to know

their rights and responsibilities under these policies, regulations and directives.

CPHST encourages training and participation in relevant activities. For more information on programs and activities contact Doug Harris.



Submitted by Gordon Gordh

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## CPHST Philosophy: An Open Forum

16 April 2004

**Where are we going? What are we doing? Why are we here?** These frequently asked questions are certainly appropriate in light of today's global unrest, government restructure in response to 9-11 and the evolving PPQ. With a constant rain of emergencies (Ralstonia, SOD, EAB, ALB...) upon us, we feel a slippery working environment that leaves us unsettled. An untrained observer may say that we are disorganized and in turmoil; in reality PPQ is undergoing restructure on a massive scale that has not been seen since the Agency was created more than 30 years ago. At the same time we are developing an interface with DHS and other agencies, re-examining our domestic responsibilities and fulfilling our mission of safeguarding American agriculture. Challenging and confusing? Certainly. Disorganized and dysfunctional? Definitely not.

**So where does CPHST fit in this seemingly endless round of change and reorganization?** Actually, CPHST's mission has not changed in the midst of this turmoil—we remain responsible for engaging science and developing technology for PPQ in support of the Agency's mission to protect American plant resources. During the past three years, CPHST has tried to refine its way of organizing work, improve the quality of its workforce and improve its service to clients. We have undergone internal restructure that enables us to work more effectively and cost-efficiently. Labs have reshaped their areas of responsibility and been renamed based upon the experience, vision and leadership of Lab Directors. Some facilities have been closed; other facilities have been opened. Staff have been moved to concentrate resources at Land Grant Universities where we can benefit from synergy and access to experts in a face-to-face, real-

time, problem-solving environment.

Some staff would argue that we can deal with other agencies, industry and academia just as always - in a remote manner, through informal relationships and broadly-defined cooperative agreements. In reality, the conditions have changed... Bioterrorism has added a new dimension and sense of urgency to our mission that did not exist before 9-11. Our work has become intrinsically more critical. The stakes are too high and the consequences of failure are too great to leave our organization and planning to piecemeal change and random chance for success. We must deliver products at a much faster pace; we must be prepared to shift directions in program and project to rapidly respond to new challenges. CPHST must respond to *the new PPQ's* needs with new faces in new places... hence our changes and the seeming impression of turmoil.

With the inauguration of this newsletter, I hope to entertain new ideas, hear your comments and accept complaints in an open forum. This forum is intended to promote understanding and reassure staff about uncertainties and show everyone that CPHST is one seamless unit with one purpose... servicing the science and technology needs of our clients. I encourage you to put voice to your concerns and ideas by addressing them directly to me. CPHST needs your input on matters small and large; we need your support in shifting and balancing the workload; we need your insight, intelligence and experience in exposing issues that never seem to surface directly. In short, we need you...

CPHST's newsletter will be published bimonthly. The forum page (philosophy)

is one of seven elements that define the newsletter: People, Programs, Places, Policy & Plans, Publications, and Philosophy. Each issue will report news in each area and identify recurring themes important to that area. The goal is to show how everything we do makes sense, is important to our mission, and ties together to define the substance and to outline the shape of CPHST.

I have deliberately placed the philosophy page at the end of our newsletter... not because it is least important but because the topics can become open ended and require more space. Also, I see the philosophy of one newsletter as the catenating point for introducing the following issue... During the course of time, we will develop answers to questions that you may have about our structure, mission, methods and management. Questions that are specific, personal and urgent may be addressed outside the pages of our philosophical forum; some specific or personal issues may be "bundled" when it becomes apparent that we have common concerns that can be addressed collectively. Critical or fundamental questions that are cross-cutting may earn a place of undivided attention on the philosophy page of the CPHST newsletter.

Letters to the editor can be addressed to me – [gordon.gordh@aphis.usda.gov](mailto:gordon.gordh@aphis.usda.gov). I welcome your contact and look forward to this newsletter being a primary source of communication – and element of community – for CPHST.



Submitted by Gordon Gordh