

CPHST NEWS



CENTER FOR PLANT HEALTH SCIENCE & TECHNOLOGY



People



Places



Projects &
Programs



Publications



Policy & Plans



Presentations



Philosophy

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Inside the Plant Epidemiology and Risk Analysis Lab, Raleigh, NC May 2005

The Plant Epidemiology and Risk Analysis Laboratory (PERAL) provides the scientific underpinnings and analytical horsepower for risk-based decision making in PPQ. Although risk assessment has a decades-long history in PPQ (in one form or another), PERAL represents a significant reformation of this key activity.

Risk analysis took on new importance for all countries following the coming into force of the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement) in 1995. The Agreement states that Members must base their phytosanitary measures (regulatory requirements and restrictions designed to protect plant health or life) on international standards or risk assessment.

Since there are currently very few specific international standards in the phytosanitary area, practically all measures must be based on risk assessment. This has resulted in a steep increase in interest and activity associated with phytosanitary risk analysis over the past decade. It has also created strong political and trade pressure for all countries to develop the risk analysis support needed to justify restrictions on the one hand and gain market access on the other.

From the outset, PPQ has been a global leader in developing and applying appropriate risk analysis methodologies to phytosanitary issues while also helping many other countries to understand and practice risk analysis. From a global perspective, PPQ has demonstrated exceptional transparency and quickly moved to use and promote healthy technical dialogue in place of political wrangling. At the same time, increasing trade pressure has created unprecedented demands on the resources available for this work, making it clear that adjustments were required to provide the environment and resources for PPQ to maintain global credibility

and a favorable position in trade. PERAL represents the upshot of this evolution.

PERAL was created in 2001 after risk assessment functions in PPQ were consolidated and moved to CPHST. The rationale behind this restructuring was to physically and organizationally separate objective scientific studies from the direct influences of policy and trade pressures. This move was designed to help PPQ reinforce its commitment to sound science as the basis for phytosanitary decision making.



PERAL Staff

In addition, it was seen as advantageous to consolidate risk analysis, which has substantial scientific requirements, with other scientific endeavors of PPQ falling within the ambit of the Center for Plant Health Science and Technology (CPHST). The location of the main office in Raleigh was also significant because of the great range of scientific and academic resources available in the area, not the least of which is North Carolina State University with its excellent credentials and a broad range of relevant programs.

Dan Fieselmann was the first Director for the laboratory, followed by **Ron Sequeira** who was also PPQ's National Science Program Leader for Risk and Pathway Analysis. **Bob Griffin** became the Director of PERAL in 2003 after serving six years with FAO as the Coordinator for the International Plant Protection Convention Secretariat.

Plant Epidemiology and Risk Analysis Lab (continued from page 1)

The main laboratory for PERAL is co-located with CPHST Headquarters in Raleigh, North Carolina, but staff members are also located in Riverdale, Maryland and Honolulu, Hawaii. The staff consists of about 30 scientists including entomologists, plant pathologists, botanists, and ecologists who conduct a range of risk analyses for PPQ. The lab is supported by a technical and administrative team that includes administrative assistants, an IT specialist, biological technicians, a writer/editor, a librarian, and a Quality Manager.

Most of the work in PERAL is accomplished in "virtual teams" organized for specific projects and special initiatives.

These teams may utilize several PERAL staff members and sometimes include partners from outside the lab such as ARS and colleagues in PPQ's Regional Offices. Some virtual teams provide ongoing support to continuing initiatives such as the New Pest Advisory Group (NPAG), the Global Pest and Disease Database (GPDD), and the Phytosanitary Alert System (PAS).

Administratively, the laboratory is organized around six core teams representing the main areas of emphasis. Each team is led by Senior Analysts who form PERAL's management team and share responsibility for the work program as follows:

- Q-37-**Gary Cave**
- Q-56-**Ken Lakin**
- Pathways-**Mike Hennessey**
- Organisms-**Larry Brown**
- Export-**Scott Redlin** and **Ed Imai**
- GIS-**Brian Spears**

In sum, PERAL is a relatively young organization faced with exceptional challenges and high expectations, both nationally and internationally. But it is also a very dynamic, diverse, and talented group of colleagues committed to the highest standards of scientific excellence and the best possible risk analysis products for PPQ.



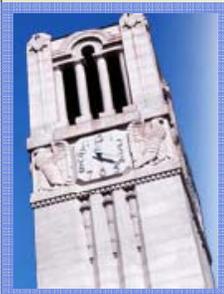
Submitted by Bob Griffin



Regulatory Plant Protection Curriculum underway at NC State University

May 2005

CPHST (**Scott Redlin**, **Alison Neeley**, and **Christina Devorshak**) has undertaken the development of a regulatory plant protection curriculum in conjunction with North Carolina State University. An upper-level undergraduate and graduate level 3-credit hour course was taught in Spring 2005.



The purpose of the course, "Challenges in Plant Resource Protection" is to provide applied training to students on the regulatory aspects of plant protection, using real world case

studies, scenarios and issues, and by developing hands-on problem solving abilities. In Spring 2005, 19 students were registered--15 undergraduate and 4 graduate students. They came from a variety of backgrounds including Entomology, Plant Pathology, Zoology, Horticulture, Botany, and Environmental Technology. Topics covered in the course included international trade issues, national regulatory frameworks, risk analysis, surveillance, pest management, and other aspects of PPQ's work. Details for the course, including a full syllabus can be seen at: <http://www.cphst.org/course>. Ultimately, this course will serve as the keystone course for a regulatory plant protection curriculum minor for under-

graduate and graduate students. The minor, called "Plant Resource Protection," will also include pre-existing courses such as Entomology, Plant Pathology, and Weed Science. It is interesting to note that at least five of the students who took this course have expressed a strong interest in pursuing a minor in regulatory plant protection. The overall success of course and interest in the minor indicate that there is both a need and a demand for curriculum at the University level that focuses on the regulatory aspects of plant protection.



Submitted by Christina Devorshak



International Services Meeting

May 2005

Daniel Fieselmann (NSPL, Survey Detection & Identification) traveled to Riverdale, MD to meet with International Services (IS) leadership to examine areas of overlap and potential cooperation. CPHST and IS currently cooperate on a few issues ranging from Pink Hibiscus Mealybug control in the Caribbean to hand held PDA devices in Costa Rica. Offshore issues are increasingly impor-

tant in the safeguarding continuum, and further collaboration could strengthen capabilities for both groups. IS has an infrastructure within the international arena that could benefit PPQ in terms of risk analysis and information gathering. Alternately, CPHST has expertise and technology that could increase the efficiency of IS programs. Dan Fieselmann emphasized ad hoc projects and regular

projects as an avenue to continue and increase cooperative efforts. The meeting between the two groups resulted in productive discussions with positive feedback.



Submitted by Laura Duffié



2005 Annual Imported Fire Ant Research Conference

March 23-24, 2005

The CPHST-Analytical and Natural Products Chemistry Laboratory (ANPCL)-Soil Inhabiting Pests Section (SIPS) hosted the 2005 Annual Imported Fire Ant Research Conference March 23-24, 2005 in Gulfport, MS. While all SIPS employees were active participants in meeting preparation, **Ron Weeks** chaired the committee overseeing all meeting aspects from announcements to meeting space to social events, **Shannon James** handled program and agenda organization insuring all presentations ran smoothly and on time, and **Doug Meloche** oversaw all registration and administrative issues prior to and during the meeting. The meeting was attended by 150 national and international scientists conducting research on the imported fire ant; state department of agriculture, extension, and industry personnel; and other professionals with an interest in fire ants. Current information and technology was presented on subject areas including biology, ecology, genetics, human health, management and control. There were 36 submitted oral presentations and 27 submitted poster presentations. ANPCL-SIPS per-



Interaction between scientists at the 2005 IFA Research Conference is encouraged through breaks during oral presentations, availability of posters during entire conference and planned social events.

sonnel **Ron Weeks**, **Shannon James** and **Bob Jones** were senior presenters on oral or poster presentations. The keynote address was presented by **Dr. Jerome Goddard**, Mississippi State Medical Entomologist, on "Health Effects of Human-Fire Ant Interactions."

After the conference, 5 international visitors (3 from Taiwan and 2 from Hong Kong) visited the SIPS facility to discuss how the U.S. handles regulatory and quarantine issues regarding the imported fire ant. Red imported fire ants were found in Taiwan in 2003, in mainland China in late 2004, and in Hong Kong in 2005. **Anne-Marie Callcott** (CPHST-

ANPCL deputy director), **Carol Russell** (PPQ-SOSO from Hawaii), **Bill Kauffman** (PPQ-WR program manager), **Charles Brown** (PPQ-ISPM program manager-IFA), and **Tim Davis** (Clemson Univ. extension entomologist hosting the Taiwan visitors) provided information and guidance on establishing quarantines, educating the public, and determining a course of action (eradication vs. management). The visitors also toured the SIPS facility and were introduced to how SIPS tests insecticides for inclusion in the U.S. federal imported fire ant quarantine.



Submitted by Anne-Marie Callcott



Q-56 Fresh Fruits and Vegetables Online Reference Database

May 2005

The Q56 online database (<https://manuals.cphst.org/q56/Q56Main.cfm>) provides a convenient information access point for importation status of fresh fruits and vegetables. The system was developed as a cooperative effort between CPHST's Treatment Quality Assurance Unit, PPQ Manuals Unit, Customs and Border Protection, and NC State University Center for Integrated Pest Management. The new system represents a significant move forward in ease of access and management. Rather than being based on a large Acrobat or paper document, the online system is data driven. This makes updates and summarization very efficient.

The main advantages of the new Q56 manual over the old paper version are:

- Summaries of products allowed from countries can be found quickly; users simply choose a country from a list and click submit.



- Summaries of countries from which a product is allowed can be made; this was not available in the old version.
- When treatment is a condition for entry for a product, the treatment is linked to the treatment manual index (<https://manuals.cphst.org/TIndex/>).
- When footnotes or plant parts define entry conditions, these conditions are displayed on the page when the user positions their mouse over the condition.
- When decision making flow charts are used to determine importation status, users can access dynamic flow charts from any part of the system.
- The fruit and vegetable guide provides identification guidance on fruits and vegetables included in the guide and

some fruits and vegetables not allowed for import. Key features of this include: written descriptions of the product; botanical names; common names in English and foreign languages (Asian characters can be used); seasonal availability of the product; and links to other products that may be similar in form or name.

- Online management tools allow easy, behind the scenes management of data in the system. Key features include secure login for administrators; ability to add, edit, or delete all data within the system; tracking of all adding, editing, or deleting actions; and an email editor that allows administrators to notify officers of changes to the system.



Submitted by Ian Winborne



Aromatherapy and Medfly SIT

May 2005

The Mediterranean fruit fly is a notorious pest of fruits and vegetables worldwide. In combination with chemical control, the Sterile Insect Technique (SIT) is used to suppress or eradicate incipient populations of this pest. The SIT involves the mass-production and release of large

numbers of sterilized male medflies to generate sterile male by wild female matings, which yield infertile embryos and so reduce the growth rate of the wild population.

To a large degree, then, the success of the SIT depends on the ability of mass-reared males to compete successfully against wild males and obtain copulations with wild females.

Unfortunately, the mass-rearing procedures inherent to SIT often lead to a re-

duction in the mating competitiveness of medfly males. Mating trials in which equal numbers of sterile and wild males compete for wild females routinely show that sterile males obtain only 20-25% of all matings. Consequently, there is a need to develop inexpensive and simple procedures that boost the mating performance of mass-reared medfly males.

For the past few years, CPHST scientists in Hawaii have been developing an unusual method, termed 'aromatherapy', to enhance the mating ability of sterile males. Building on work on natural fruit odors, they discovered that the aroma of ginger root oil (the same species used for cooking) increases the mating success of male medflies. As the work has progressed, the number of males exposed to the oil and the size of the container used for exposure have increased. Last summer, work conducted at the USDA-CDFA Preventative Release Program facility in California, demonstrated that a small

amount of oil (36 ml) effectively increased the mating competitiveness of the 13 million males held in a single emergence trailer. Based on these findings, the California program incorporated aromatherapy as standard protocol in January, 2005.

Why exposure to this oil increases male mating success is still not known. Males exposed to ginger root oil show heightened signaling activity but do not appear to produce a more attractive pheromone. Exposure may affect some aspect of male courtship behavior as, after initiation of courtship, females accept oil-exposed males much more quickly than control, non-exposed males.

For more information, contact **Dr. Todd E. Shelly**, CPHST, Waimanalo, HI at todd.e.shelly@aphis.usda.gov or 808-259-8822.



Submitted by Todd Shelly



Male medfly



Using a Bromide Electrode as an APHIS Field Option to Confirm Fumigation on Select Commodities

May 2005

HISTORY & ISSUE: APHIS PPQ routinely fumigates imported commodities such as citrus with Methyl Bromide (chemical treatment) prior to entry into the United States to help safeguard agriculture from invasive or damaging species. This fumigation can be done prior to shipment to the US or at the actual port of entry if insects are detected upon inspection. Another critical fumigation occurs when citrus fruit is shipped between different citrus growing regions within the US. Experience has shown that sometimes the shipments are certified as being fumigated when in actual fact they are not. A fast and easy method to determine if a commodity has been fumigated has been needed for a long time. This can be done by Inductively Coupled Plasma/Mass Spectrometry (ICP/MS) but this method requires shipment of samples to a laboratory, fairly extensive sample preparation, and actual analysis of the sample. This process is very time consuming, usually taking at least a week to complete. Any extensive (over 1-3 days delay) has a detrimental

effect on the commodity.

PROPOSED SOLUTION: ANPCL has developed a fast, easy, field friendly instrumental method based on a bromide selective electrode with relatively inexpensive accessory equipment. This method requires approximately two hours from start to completion. The instrument has been successfully tested on oranges, grapefruit, valor beans (lab-lab beans), and pineapple. Other commodities will be tested as they become available. Testing confirms a result of 5 ppm or greater of determined Bromide for the citrus fruit peel and the beans indicating that it had been fumigated. Any value less than 5 ppm is taken as evidence that these commodities have not been fumigated. Testing of known un-fumigated and fumigated pineapple has lead to the conclusion that a reading of greater than 11 ppm indicates fumigation of this product. A formal report will



Bromide Electrode

be issued in early June 2005.

WHAT IS THE APHIS DELIVERABLE? APHIS will be provided a detailed step-by-step procedure for using the electrode and a listing of equipment and chemicals that are required to perform the analysis in the field by APHIS staff.

The equipment will be usable indefinitely with the few chemicals used being the only consumables. Once the initial investment for the equipment is made, the maintenance and replacement of the consumables will be inexpensive. With CPHST- ANPCL basic training, port employees or designated staff could utilize this technique as part of their tool box in assessment of commodities to determine fumigation. The technique can be applied in the field to make the determination on-site within 1-3 hours.



Submitted by Robert D. Smith



Modeling Analysis Indicates Low Risk of Introduction of Pine Shoot Beetle into New Areas of Maine

May 2005

CPHST scientists recently completed a quantitative analysis of whether white pine materials could be safely moved from quarantine counties in Maine (ME) and New Hampshire (NH) to sawmills and bark processors in non-quarantine Maine counties, without introducing pine shoot beetles (PSB). PSB greatly prefers Scotch pine to white pine, so processors hoped that white pine could be safe to move during the Spring flight period for PSB. Restrictions on the movement of quarantine materials during that time have meant that supplies often cannot keep up with the Springtime demand for mulch and bark products. The analysis looked at bark that had not yet been ground to 1", and logs with bark still on them ("raw logs").

Scientists created a probabilistic model using previous risk analyses, published research on PSB biology and ecology, and recent trapping data from ME and NH. PSB have been trapped in both states, leading to the current quarantines, but never in white pine-dominated areas or at processors. The model accounted for some common risk mitigation proce-

dures, such as cutting trees at least 10 cm (4") above the ground because PSB overwinter very close to the forest floor. Predicted values included the number of mills receiving beetles, the number of dispersing adult beetles per mill, the number of mating pairs formed, and the number that successfully colonized. Risk was evaluated by calculating overall probabilities of colonization and the predicted number of years until the first successful colonization.

Model results indicated that the risks of colonization were very near zero for both bark from Maine and raw logs from New Hampshire, and slightly greater but still only 0.26% for raw logs from Maine. On average, beetles emerged at mills about once in four years for materials from Maine, and once in ten years for raw logs from NH. The predicted mean number of years until the first colonization was 385 years for raw logs from ME, 1428 years for raw logs from NH, and >100,000 years for unprocessed bark. Estimates for New Hampshire and Maine raw logs differed only because more trapping data existed for New Hampshire.



Adult pine shoot beetle on pine shoot. (NCTC Image library)

Importantly, scientists in Maine have estimated that the dispersal rate for PSB in the Northeast is about 20 miles per year. Therefore, in the next two decades PSB seems much more likely to move into non-quarantine counties by natural spread than via logs or bark for processing. CPHST scientists concluded, therefore, that moving quarantined white pine materials from Maine and New Hampshire poses an insignificant risk.



Submitted by Barney Caton



Lab Directors Meeting in Mission, Texas

April 26-28, 2005

Over twenty participants attended the CPHST lab directors meeting held at the Pest Detection Diagnostic Management Lab (PDDML) in Mission, TX in late April. Fair skies and moderate temperatures greeted the attendees from labs

across the U.S. and CPHST headquarters in Raleigh. Extensive discussions were held on the development of strategic plans for CPHST and individual lab facilities. This included discussion of a prioritized CPHST wide staffing plan, projected 3-5 years



Pest Detection Diagnostic Management Lab, Mission, TX

out. Core and project budgets were reviewed and discussed in detail followed by a discussion of Activity Based Costing. Individual lab progress reports were presented by the lab directors. The role and function of the National Science Program Leaders was a topic of discussion as was the purpose and processes of Ad Hoc projects.

There were four guest presentations given including one by **Alfred Garcia**, Facility Manager for PPQ/MAB. Alfred discussed facility management and how it functions within PPQ and the impact that increases in construction costs have had upon PPQ operations. Other presentations by **Ray Prewitt**, Texas Citrus Mutual, discussed issues relating to long term eradication efforts with Mexican fruit fly. Presentations by **Patrick Moran**, USDA ARS, Weslaco, TX described current weed bio-

logical control programs in progress and the collaborative work that exists between ARS Weslaco and the PDDML lab.

Randy Coleman, also from ARS Weslaco discussed insect biological control as it relates to boll weevil and **Mani Scaria** from A&M Citrus Center spoke of collaborative work on citrus pest.

Aside from the work details, attendees enjoyed an evening dining at "Pepe's on the River", situated on the banks of Rio Grande River and for lunch feasted on South Texas barbeque prepared by the staff of PDDML. Tours of the molecular genetics unit, giant Salvinia biocontrol agent production, arthropod quarantine, and the GPS, GIS group were provided to meeting participants.



Submitted by Paul Parker



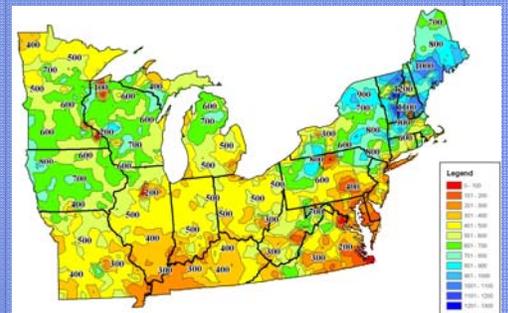
Predicting Dieback in US Forests

May 2005

There are important reasons to predict accurately the onset and progression of forest dieback episodes in the US and elsewhere. These include extensive, ongoing dieback and the expectation of increased levels as climate becomes warmer, drier, and more variable. The wealth of new spatial information in the US Forest Health Monitoring Program (FHMP) on the incidence of symptoms and on inciting factors has enabled us to develop and calibrate an early warning predictive landscape-level model of risks to forest dieback. The test model is based on a series of risk indicators using dieback etiology, stand species composition, age and structure, site conditions (soils, aspect, catena), and high resolution (i.e., daily), real-time temperature and precipitation data at 850 weather stations across the Northeastern US. Plotted in ArcInfo GIS, maps will form part of the Agency's

Forest Health Decision Support System available on the Web to assist managers in identifying the areas at risk and options for timely intervention and treatment. Feedback from the continual stream of new FHMP data and from new applications of the model is expected to significantly improve mapping resolution and indicator efficacy over time. Limitations as a decision tool and the potential for wider use across other forest regions will be discussed.

The map shows incidence of thaw-freeze events in the northeast US 1950 to 1998. These events injure or kill the tree with the implication that the thaw-freeze map shows the risk of injury and impact on tree health. The blue areas coincide very well with forest crown dieback which is a good indicator/signal of health. The damaged areas (blue) also show the areas of



Map created by Glenn Fowler, CPHST PERAL

forest injured/killed/under stress and hence open to invasion by exotic forest pests (as well as native pests such as forest tent caterpillar, among others).



Submitted by Allan Auclair



Ad Hoc Projects Submission

May 2005

The database submission process serves as a means of efficiently moving projects from the CPHST client to a CPHST scientist resulting in a needed deliverable.



Submitting a new proposal occurs via an electronic application. When the requester enters a

project submission, the project is transferred to the requester's supervisor (AD/ARD) for recommended approval, recommended revisions, and recommended termination. After the AD/ARD provides their input, the project is sent to the Associate Director of CPHST, **Dr. Alan Dowdy**. The AD assigns the project to a

National Science Program Leader (NSPL) who reviews the request for completeness, confirms estimates of project duration, and selects a CPHST scientist for the project. The NSPL contacts the supervisory Lab Director, scientist, and client. As a group, they review the project description, create a timeframe for completion, and establish timeliness for project deliverables. A communication feature of the Ad hoc system is notification emails. When any activity has taken place in a project, such as approval, assignment, and progress, emails are sent out to appropriate parties, normally consisting of the requester, ARD/AD, and Dr. Dowdy. Open communication between client,

scientist, and NSPL concerning Ad hoc work and progress is encouraged. The Ad hoc database is a tool to facilitate communication but not to replace it. The NSPL is responsible for certifying project completion, summarizing results to the CPHST AD for record keeping, and providing the ARD/ADPHP/PNPB and client (s) with information for implementation. We acknowledge the inevitability of "slippage" and understand that some projects designed for three months may require more time.



Submitted by Christina Lohs



Publications

May 2005

Recent publications stemming from our research initiatives:

Data Analysis for a Hybrid Sensor Array, M. Pardo, L. G. Kwong, G. Sberveglieri, K. Brubaker, J. F. Schneider, W. R. Penrose and J. R. Stetter, *Sensors and Actuators B*, 106, 136-143, 2005.

Odor Concentration to Improve Electronic Nose Performance, Carrie M. Thomas and John F. Schneider, *The Journal of Process Analytical Chemistry*, 9, (2), 43-54, 2004.

Detection of contraband food products with a hybrid chemical sensor system, M. Pardo, L.G. Kwong, G. Sberveglieri, J.F.

Schneider, W.R. Penrose, J.R. Stetter, *Sensors*, Volume: 2, 22-24, 1073-1076, 2003.



Submitted by John Schneider



Congratulations to PERAL!

May 2005

For approximately 18 months, the staff at PERAL has been developing an ISO 9001 Quality Management System. On May 11-12, 2005 this system was put to the test as PERAL was audited by National Quality Assurance (NQA), an RAB accredited ISO registration organization, for compliance to the ISO 9001 international standard. It is with much pleasure and pride in the accomplishments and hard work of all employees at PERAL that we announce their successful ISO certification - - the first of many CPHST laboratories working towards ISO certification.

ISO was originally founded in 1946 for the purpose of promoting voluntary, common manufacturing, trade and communication standards and to encourage the trade of quality products and services around the globe. The benefits of using ISO 9001 as a basis of an organization's quality management system include:



- Achieving a better understanding and consistency of all quality practices throughout the organization
- Ensuring the continued use of the required quality system year after year
- Improved documentation
- Improved quality awareness
- Strengthened confidence and relationships between the organization and its stakeholders and shareholders
- Reduction in cost and increased efficiency
- Formation of a foundation and discipline for continuous improvement activities within the organization

The CPHST Quality Management Unit (**John Gallagher** and **Kathy Burch**) is tasked with the responsibility of spearheading the ISO certification process. They are traveling throughout CPHST to assist the laboratories with the development and implementation of the CPHST quality management system. Currently, the CPHST Quality Manual and the first six quality procedures have been authorized for use. To view these documents, and all others as they are authorized, access the CPHST web site and follow the "Quality Management (ISO)" link.

It's always difficult to be the first, so again we say congratulations to **Bob Griffin** and the entire PERAL staff on attaining ISO certification.



Submitted by Katherine Burch



CPHST Peer Review Process

May 2005

The CPHST Peer Review Process was established to identify the accomplishments of scientific staff and appropriately recognize the significance of their contributions to PPQ and the greater scientific community. The Review evaluates an individual scientist's accomplishments, technical expertise, and professional stature through a panel of peer scientists and operational staff from Riverdale, the regional offices, and the ranks of the State Plant Health Directors. Periodic review of CPHST scientists was one recommendation of the Safeguarding Review Committee.

The second cycle of the Peer Review is complete and final reports, certificates, and \$66,000 in awards have been sent to the laboratory directors to distribute to the 24 scientists that participated in this year's process. **Dr. Alan Barak** at the Otis Lab was recognized as the top scientist this year for his consistent significant contributions to the scientific support of

PPQ's commodity treatment programs. Last year 22 scientists were reviewed and 32 scientists have been notified that they will be reviewed this coming year.

The confidential panel reports contain information to inform the scientist about the value of their contributions to the agency, the strengths they have developed in their position, as well as identifying some areas that may need further development through different kinds of work experiences or training. Feedback from scientists that have participated in the review process has been positive. Many have commented that it gave them an opportunity to truly reflect on what they have accomplished in their career and help establish goals for the future.

Based on the results of the first two years, the submission requirements for peer review cases have been significantly changed to reduce the level of effort necessary for scientists to prepare a good case and to facilitate the reviews by panel

members. Every effort has been made to minimize redundancy and use the existing information scientists already have entered into the CPHST Workbench and Skills & Knowledge Inventory (SKI). The necessary information in SKI has been transferred into the Workbench and a reporting function developed that will result in generation of a suitable report with minimal effort. Also included are up to five 2-page statements of technical accomplishment that describe the most important contributions during the rating period.

Drs. DeHaven and Dunkle are supportive of the Peer Review and are making plans to deploy a standardized peer review for all APHIS scientists. No time frame has been established for deployment, however.



Submitted by Alan Dowdy



A Texas Transplant's Technical Talk

May 2005

Being a native of Puget Sound in Washington State, my first assignment with the CPHST Pest Detection Diagnostics and Management Laboratory in Edinburg, TX as a Biological Science Technician was rather unique. I was assigned the task of establishing a 1 acre plot of *Opuntia* cacti in support of the mass rearing and sterile release of the *Cactoblastis cactorum* moth. My long handled weeder and a walk-behind rototiller have been my most effective tools for weed control. The plot of "spineless" cacti are kept looking like a well groomed desert with the added benefit of a simple T-Tape irrigation system. The plot is expected to produce 8,000 to 12,000 fresh pads per year.

Some relief from the hot Texas sun is offered while analyzing digital images of citrus canker infected leaves. The lesion number, necrotic and chlorotic areas are measured from images taken in the field. With over 1000 images analyzed so far, it has proven to be an efficient, objective method for quantifying disease severity. A portion of the analyzed images could

provide a very useful visual aid to train APHIS field surveyors involved in the citrus canker survey.

The Mobile Containment Greenhouse Laboratory was delivered to its first field site in southern Florida on March 18, 2005 for immediate use by the citrus canker program. My portion of the final outfitting involved equipment procurement, oversight of equipment installation, communications equipment testing, control system development and troubleshooting, and final preparations for deployment.

The PDDML involvement in the citrus canker program initiated my recent travels to Florida to assist with bacterial dispersal studies. The effect and impact of wind driven rain splash has been the focus of these collaborative studies with ARS. I prepare massive amounts of media for bacterial culture, organize lab equipment, set up collection equipment and environmental monitoring systems and assist with plate reading and data collection.



Amanda Cook in the opuntia plot taken 9/04. The plants were started in the greenhouse from single pads in 2/04 and transplanted to the field in 3/04.

In addition to my usual work, I am occasionally "loaned" to other projects throughout the laboratory to perform various tasks such as insect slide mounts, DNA extractions and digital photography. I have enjoyed the diversity of my experiences so far, and look forward to many more.



Submitted by Amanda Cook



Recent Awards to CPHST Staff

May 2005

Lisa Kennaway of the National Weed Management Lab in Fort Collins, CO was awarded 2.6 Continuing Education Units for her work "Developing, Implementing, and Maintaining an ISO 9001 QMS with ISO 17025."



Submitted by Tom Kalaris

Laurene Levy and **Wayne Claus** of the National Plant Germplasm and Biotechnology Lab in Beltsville, MD were presented the APHIS Environmental Excellence Award on April 13, 2005. **Mr. Edwin Pinero**, Federal Environmental Executive, presented this award to the NPGBL whose personnel developed and implemented the Environmental Manage-

ment System (EMS) in accordance with Executive Order 13148, *Greening the Government Through Leadership in Environmental Management*. This facility is one of the first APHIS facilities to have a second-party Environmental Compliance Audit performed, and to develop the EMS to address specific findings, as well as improve the process. Facility personnel voluntarily attended Hazardous Waste Management, Hazardous Materials Transportation Act, and EMS training to ensure their understanding of related environmental processes. The NPGBL exceeded expected performance by improving overall compliance with environmental codes, increasing Government efficiency by delineating waste streams,

and examining reduction methods. They also reduced environmental liability by training, implementing, and interacting with facility personnel, as well as State, Federal, and local environmental authorities to ensure environmental compliance deadlines were initiated, met, and adhered to in a timely fashion. The EMS will act as a guidance tool for all APHIS facilities required to implement an EMS. Wayne Claus, NPGQC Facility Manager, received the Facility Manager Award for Environmental Excellence.



Submitted by Laurene Levy



CPHST Spotlight: Terrence Walters

May 2005

Terrence Walters joined CPHST (National Weed Management Laboratory, Fort Collins, Colorado) as a Taxonomist in April of this year. As the LucID Coordinator for CPHST, he will be focused on the development of LucID keys, marketing the usefulness of this extremely valuable software to the PPQ team, and providing support to our team.

Prior to joining CPHST, Terrence was the executive director of Montgomery Botanical Center (MBC), a 120-acre research and education tropical garden in Miami specializing in wild-collected population-based collections of palms and cycads. During his 10-year tenure at MBC, he also was the institution's archivist and cycad scientist. He directed a culturally diverse staff of 32 and a volunteer base of 25.

Terrence received his B.A. (major: biology; minor: chemistry) from the University of Colorado and his M.S. and Ph.D. (botany) from Texas A&M University (TAMU). He met his wife (botanist Deena Decker-Walters) while they were both working on their Ph.D.s. After graduating from TAMU, Terrence taught general botany, plant taxonomy, and economic botany at that university and later at the University of Guelph in Canada. Terrence also completed a post-doctoral position with Marie Selby Botanical Garden in Sarasota, Florida, where he was responsible for developing a plant collections database. In the early 1990s, he spent four years as cycad researcher at Fairchild Tropical Botanic Garden in Miami.

Terrence and Deena spend much of their

free time traveling the world in search of wild and cultivated members of the Cucurbitaceae (e.g., gourds, melons, cucumbers, squash, etc.). Their field research studies have taken them to China, Indonesia, Mexico, Morocco, Namibia, South Africa, and Zimbabwe.

Please contact Terrence by phone at (970) 484-7528 or by email at terrence.w.walters@aphis.usda.gov with any questions, comments, or suggestions you might have concerning LucID. He will appreciate hearing from you.



CPHST Spotlight: Aziza Clark

May 2005

Aziza B. Clark joined CPHST Headquarters in November 2004 as an Administrative Support Assistant. She initially began her employment with the USDA in the Eastern Regional Office of APHIS' Employee Relations September 2002 as a temporary employee. In July 2003 Aziza became a government employee. Prior to working for the government she worked for First Union Mortgage Corporation for fourteen years. Her last position with FUMC was as the regulatory compliance manager for the mortgage loan servicing group.

Agriculture is in Aziza's family background on both sides, her mother's parents in the San Joaquin Valley in California and her father's family in the deltas of Egypt. Aziza is a fifth generation Californian, on her mother's side. A dream of hers is a two year TDY to Cairo, with her family.

Aziza has a B.S. from Appalachian State University. Following graduation, she earned her NC Real Estate Broker's License (inactive), became a Notary Public (current) and earned a Paralegal Certificate from Meredith College May 2002.

Aziza is married to Scott Clark (twenty years this year), has two daughters, Kenzi and Nazli and a very large baby, an Alaskan Malamute named Malek. In her time away from the office she enjoys reading, boating, and camping with her family. Aziza also likes to travel and especially enjoys the NC coast and mountains.



CPHST Spotlight: Terry DiLeone

May 2005

Terry Di Leone, coming from the Center for Integrated Pest Management (CIPM) of North Carolina State University, joined the CPHST group November 2004 as a term employee. Recently, she has been busy preparing the PERAL staff for their ISO registration audit. Terry's vast experience in the food industry gave her the skills to direct PERAL's triumph. The Plant Epidemiology and Risk Analysis Laboratory (PERAL) received their ISO certification from a third-party auditor, making their quality assurance program recognized by 125 countries. PERAL is the first risk analysis group in the world, and

the first laboratory in CPHST, to receive the ISO 9001-2000 certification.

As a former employee of CIPM, Terry's background in web design has helped her develop infrastructures and decision support systems for scientific applications such as Risk Analysis Biological Informational Database (RABID) and CRA Requests Website where Import Specialists and Trade Directors place their requests. In addition, Terry has developed and maintained a dynamic, multiple-source, reference database that serves as a repository of technical information that trans-

formed USDA APHIS' Biological Assessment and Taxonomic Support (BATS) decision sheet library from a paper-based to an electronic, searchable system. The database includes eighty-years of history of decisions at PPQ and is necessary to complete risk assessments. All the infrastructures' information assists APHIS risk analysts in completing trade-relevant and safeguarding related analyses.



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Click the following link for the latest on CPHST "Hot Projects"
<http://www.chpst.org/hotprojects>



PPQ and the Agricultural Handlers Exposure Task Force Team Together in South Dakota

May 2005

Rangeland is a critical agricultural resource in the Western United States and ranchers utilize it to graze their livestock. Mormon Cricket and various grasshopper species are native to rangeland ecosystems; however if left unmanaged, populations can grow to outbreak levels and result in an adverse impact to ranchers. Eco Bran Ultra 5% or Sevin 5 bait, both of which are formulations containing a 5% carbaryl active ingredient concentration, are registered and approved for use in the suppression of grasshoppers and Mormon crickets on rangeland vegetation. In April 2005, a study was conducted in Pierre, South Dakota to develop data to determine the potential exposure for workers applying carbaryl bait to rangeland vegetation during an efficacy study, utilizing typical application rates used on Federal treatment programs.

To accomplish this objective, PPQ teamed with the Agricultural Handlers Exposure Task Force (AHETF) for the determination of dermal and inhalation exposure to workers during loading or application of carbaryl bait. Occupational handler exposure data for use in calculating risk assessments has been an EPA Guideline since 1986. Based on an agreement regarding the premise that handler exposure to pesticides is generic rather than product specific, the industry and the regulatory agencies cooperated in establishing the Pesticide Handlers Exposure Database (PHED) in the early 1990's. Companies contributed their exposure data for the common benefit for all registrants. PHED was then used by the regulatory agencies and all registrants to sat-

isfy the data requirements. The PHED satisfied the need for occupational exposure data during the 1990's. However, the PHED has since become outdated and needs to be revised. In cooperation with the EPA and regulatory agencies in California and Canada, the AHETF was formed in December of 2001 with the mission to share resources in the design,



APHIS Personnel loading carbaryl bait for aerial application

evaluation, and development of a proprietary agricultural mixer/loader applicator exposure database, for use in regulatory risk assessment. The data generated in Pierre, South Dakota will be used in the PHED as well as by PPQ's Grasshopper Program.

The treatment location was South Dakota rangeland in which CPHST scientist **Nelson Foster** was conducting an efficacy study of carbaryl bait. Workers monitored consisted of eight APHIS employees, (two pilots and six loaders), with each employee treatment activities limited to one day. The exposure sampling team consisted of **Dr. Richard Honeycutt**, AHETF Technical Represent-

tative; **Kiesett Collier**, PPQ's Environmental Monitoring Team (EMT) Principal Field Investigator; **Dan Hill**, Biologist; **Brian DeGeare**, Quality Assurance Manager; and **Lisa Mosser**, CPHST Senior Analytical Chemist. Samples were collected over two days and included dermal and inhalation exposure sampling. For dermal exposure, an inner dosimeter consisting of 100% cotton long underwear provided by the AHETF was worn by the worker. The inner dosimeter was designed to represent the worker's skin and acted as a collection medium that was analyzed. The inner dosimeter was covered by appropriate outer work clothes. Face/neck exposure was measured by wiping the area with gauze pads. Hand wash samples were also collected. For inhalation exposure, personal air sampling pumps with an OVS tube were attached to a belt around the worker. The tube was then clipped to the collar of the worker and positioned in the breathing zone of the worker. Sample matrix fortifications were done to assess the stability of carbaryl under field, storage and transit conditions in or on the sampling materials. In-progress inspections and raw data/report audits were conducted by the Quality Assurance Manager during sampling. All samples were sent to Morse Laboratory for analysis. A total of 88 exposure samples, 56 fortified samples, and 16 control samples were collected to provide exposure data for the PHED and the Grasshopper Program.



Submitted by Lisa Mosser