



Protecting our food supply from bioterrorism

As the nation was still reeling three years ago in the emotional aftermath of the Sept. 11 attacks, Americans were gripped by yet another chilling specter: bioterrorism. Letters containing deadly anthrax powder, mailed anonymously to news organizations and government offices, paralyzed millions of Americans in fear. The nation quickly came to understand that bioterrorism involves the use, or threatened use, of biological agents to promote or spread fear or intimidation for political, ideological, financial, or personal purposes.

Citizens were startled to learn from news accounts that these biological agents, with the exception of smallpox virus, are typically found in nature usually in non-lethal concentrations in various parts of the world. Of additional concern both viral and bacterial pathogens can be weaponized to enhance their virulence in humans and make them resistant to vaccines and antibiotics. This usually involves using selective reproduction pressure or recombinant engineering to mutate or modify the genetic composition of the agent. Bioterrorism agents may be disseminated by various methods, including aerosolization, through specific blood-feeding insects, or food and water contamination.

(see **Bioterrorism** on page 2)



Photo courtesy of UC Davis VMTRC

The mission of the Western Institute for Food Safety and Security (WIFSS) is to identify food-borne hazards more rapidly and accurately, and to develop effective methods to prevent natural and intentional food contamination that might lead to food-borne illnesses and outbreaks.

Third conference focuses on sustainable ag workplace

by Eric Swenson

The third annual Western Regional Agricultural Safety and Health Conference, "Cultivating a Sustainable Agricultural Workplace," convened Sept. 12-14, in Troutdale, Oregon. The venue—McMenamins Edgefield—was most appropriate to the theme. It is the former Multnomah County Poor Farm, where residents once sustained themselves and supplied other county facilities by their agricultural production.

Western Center Director Marc Schenker, M.D., M.P.H., said, "The event highlighted worker safety and health as an essential part of social equity," which he described as, "one of the three elements of sustainable agriculture along with the environment and economics."

The conference explored the ways in which occupational safety and health can be integrated into sustainable agriculture practices and how

(see **Conference** on page 3)

Bioterrorism *from page 1*

Terrorists may choose to use biological weapons to achieve their goals because bioterrorism gives them the biggest “bang” for their buck. Reportedly, many of these agents would be relatively easy to prepare and easy to hide. Their use would also allow bioterrorists to protect themselves and escape before any illness is detected. The most attractive feature of bioweapons, however, may be the tremendous psychological impact that their use, or threatened use, would cause on the population.

In response to the threat, the nation has mobilized innumerable resources, including those of the Western Institute for Food Safety and Security (WIFSS) at



UCDavis. To reinforce protection of the food supply of California and the nation against acts of bioterrorism, the Department of Homeland Security awarded a \$4.7 million grant to WIFSS this past August. The two-year grant will support development and delivery of training programs to teach food production workers how to prevent, recognize and suppress potential terrorist acts targeting the nation’s food supply. The training will focus on bringing together all of the

“frontline responders” to prepare them for a coordinated, highly-effective response to any food-related crisis.

Jerry Gillespie, DVM, Ph.D., director of WIFSS, outlined the steps that need to be taken in a presentation titled, “Assessing the Public Health Risk of Foodborne Disease Outbreaks in a World that Includes Terrorists.” He spoke during the Oct. 1 noon seminar sponsored by the Western Center for Agricultural Health & Safety.

“Because California leads the nation in dairy, fruits and vegetables, and other specialty-crop production for our country, and because of the state’s dominance in international food trade, it is extremely important that we do all we can to ensure the safety of our food systems,” said Gillespie. “One of the most effective strategies for achieving this goal is to have food industry employees informed and actively participating in protection strategies.”

Gillespie said the Ag Center could be a beneficial partner in helping to train “front-line personnel” in agriculture to anticipate, prevent and respond to harmful acts directed at the food system.

Gillespie expects the training to become a national model through which food system employees, health officials, law enforcement personnel, and government officials would collaborate in preparing a prompt and effective response to agroterrorist activity.

During the first year of the grant, the WIFSS training program will focus on inventorying existing worker training programs, identifying industry-specific terrorist hazards and

threats, communicating risks to industry leaders, and identifying and coordinating those personnel considered to be in the best position for responding to possible terrorist actions. During the latter part of the program, communications systems will be improved, regional and national workshops and conferences held and an assessment made of the nation’s level of preparedness in agricultural bioterrorism defense.

WIFSS was established in 2002 as a partnership between UC Davis and California’s Department of Food and Agriculture and Department of Health Services. Its mission is to develop the capability to identify food-borne hazards more rapidly and accurately, and to develop effective methods to prevent natural and intentional food contamination that might lead to food-borne illnesses and outbreaks.

Collaborating with the institute on the new training grant are 14 partners representing agriculture, public health, law enforcement, and emergency services and management.

For more information, contact Dr. Jerry Gillespie, Western Institute for Food Safety and Security, at (530) 757-5700, or jrgillespie@wifss.ucdavis.edu.



News is published quarterly by the Western Center for Agricultural Health and Safety, University of California, Davis CA 95616-8575; phone (530) 752-4050; FAX 752-5047; e-mail: agcenter@ucdavis.edu
 URL: <http://agcenter.ucdavis.edu>

Director Marc Schenker
 Research Coordinator Stephen McCurdy
 Deputy Director Kent Pinkerton
 Center Manager Kety Moberd
 Health and Safety Educator Tim Stock
 Writing, editing, production EditPros, Davis

Conference *from page 1*

research and outreach can contribute to that effort. Conference planners believe it was the first in the nation to focus so extensively on these subjects.

One remarkable feature of the event was the broad range of participants, both by discipline and geography. In addition to Oregon, California and Washington, attendees came from Idaho, Hawaii, Nevada, and as far away as North Carolina. A little more than half of the 110 conferees were from academia, including 12 students. Almost a quarter came from public agencies, mostly those of western states. Producers, business people, private consultants, and several non-profit organizations were well represented, with health care providers, labor representatives, and members of the Yakama and Paiute Nations also attending.



Karla Chambers

The conference keynoter was Karla Chambers, co-owner of Stahlbush Island Farms, a 2,000-acre sustainable family farm in Corvallis, Oregon. A fifth-

generation Oregon farmer, she immediately stressed equity in her operation. Chambers said she and her husband began farming sustainably because “we didn’t



Frank Mitloehner, UC Davis animal scientist and air quality specialist

want to ask our workers to do anything that we were no longer willing to do.” Their commitment to workplace equity continues with worker benefits, including a retirement plan; good wages; and good housing.

More than 25 other speakers addressed the forum on topics as diverse as worker standards, zoonotic diseases, new safety interventions, and injuries to workers in both California and the Northwest. In addition, 16 posters were presented.



Rupali Das, California Department of Health Services

One conference aim was to showcase sustainable agriculture success stories from the West Coast. Conferees learned how producers at several Columbia

Valley orchards, Washington’s Inaba Produce Farms, California’s Swanton Berry Farm and Fetzer Vineyards, and Oregon’s Stahlbush Island Farms are succeeding in improving the workplace and the quality of their land, water, and crops.



Jim Cochran, Swanton Berry Farm

Producers described their efforts on behalf of workers with housing, health care, shared management, and strategies to provide year-round work. They related how their move to organic farming, strip tilling, cover cropping, composting, and using low-pressure irrigation and pesticide alternatives among other means has led to enhancing the environment. Presenters from the Oregon Sustainability Board and Portland-based Food Alliance spoke to how sustainability can be supported by policy and certification.

Another aim of the conference was to begin to develop a research agenda for improving worker health and safety in sustainable agriculture. Those issues that could be classified as specific to sustainable agriculture included



Eric Swenson and Marcy Harrington, PNASH

the worker health and safety implications of the labor-intensive work and pesticide alternatives. Conferees noted the

(**Conference** *continued on 4*)

Save the Date!

- When:** *September 7-9, 2005*
- Where:** *Asilomar—Pacific Grove, CA*
- Why:** *2005 Annual Collaborative Conference (WCAHS/PNASH)*
- Theme:** *Agricultural Health & Safety: From Research to Practice (r2p)*

WCAHS bids farewell to an innovative leader

Patrick O'Connor-Marer retires from UC Integrated Pest Management

The Western Center for Agricultural Health & Safety (WCAHS) has benefited from nearly 15 years of extraordinary contributions from its Deputy Director Patrick O'Connor-Marer, who helped to expand its programs and build its reputation as the Western Region's advocate for the health and safety of agricultural workers and their families.

O'Connor-Marer, who retired as director of the UC Integrated Pest Management Pesticide Safety Education Program (PSEP) on September 30, amassed a distinguished record of achievements that have helped to reduce the environmental and human health risks of pesticide use.

With the help of UC IPM PSEP staff members Gale Perez, Jennifer Weber and Melanie

Zavala, O'Connor-Marer developed safety education workshops, seminars, publications, instructional video tapes and classes for hundreds of thousands of individuals—mostly in Spanish and English, but also in Punjabi, Hmong, Cambodian and Lao.

O'Connor-Marer received his bachelor's degree in biology from the U.S. International University in San Diego, and his Ph.D. in entomology from UC Davis. He joined the IPM Project in 1985, and is the author or co-author of



Pat O'Connor-Marer

numerous publications focusing on pesticide use and safety, including *The Safe and Effective Use of Pesticides, 2nd*

Edition, published by UC Agricultural & Natural Resources (ANR) Communication Services in 2000. Like the first edition, published in 1988, this comprehensive publication is the recommended study guide for the California Department of Pesticide Regulation's PCA and pesticide applicator examinations.

Under the leadership of O'Connor-Marer and in collaboration with the Department of Pesticide Regulation, PSEP established the criteria for state-approved train-the-trainer programs and implemented the first approved program in the state. The program has been used not only in California, but also in Mexico, and by the Inter-Tribal Council of Arizona Inc., to benefit 15 Western American Indian tribes.

WCAHS Center Director Marc Schenker emphasizes the importance of O'Connor-Marer's collaboration in establishing the Center at UCD in 1991 and for its subsequent successes. "Pat's vision and tireless effort enabled him to develop model outreach/education programs that have become a cornerstone of public service for our Center," said Schenker. "The influence and value of these programs ripples throughout the agricultural industry, reaching well-beyond California borders. Along with our researchers and staff members, I want to wish him the very best in his retirement. We hope to continue in his footsteps to make the Center's education/outreach program even more comprehensive and accessible to all persons in the field."

Conference *from page 3*

need for quantitative data to promote sustainable agriculture and to proactively define worker health and safety within its practice. One focus should be to devise ergonomic solutions to musculoskeletal problems that can result from sustainable practices, such as hand weeding.

Dr. Schenker noted that "the variety of stakeholders attending, especially producers and worker advocates, gave the event a lot of translational relevance not typical at university events and foreshadowing the 'Research to Practice' theme of next year's conference." It is scheduled for the Asilomar Conference

Grounds, Monterey, California, Sept. 7-9, 2005.

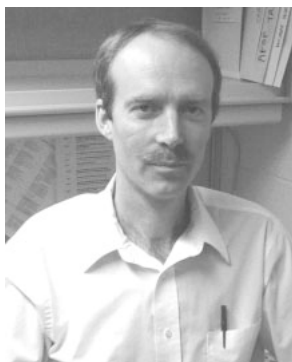
In addition to the Western Center and the Pacific Northwest Agricultural Safety and Health Center, "Cultivating a Sustainable Agricultural Workplace" was cosponsored by the University of Washington Northwest Center for Occupational Health and Safety; the National Institute for Occupational Safety and Health; and the Centers for Disease Control and Prevention.

Eric Swenson is a writer/information specialist for PNASH.



Center Health & Safety Educator: Tim Stock

The Western Center for Agricultural Health & Safety (WCAHS) welcomes Tim Stock as its new Health and Safety Educator. Stock brings an extensive and varied background in education and training to the Center. He began working internationally in 1984, when he directed a small health care program for abandoned children in Honduras. After working for two years in Mendocino County as a Family Services Coordinator for Migrant Head Start, he went back



Tim Stock

to Honduras to work in agricultural development for the Honduran Ministry of Natural Resources. Stock then moved to Africa, where he became the manager of an agricultural and rural reconstruction project in Mozambique in 1991.

Stock also lived and worked in Asia as an educational consultant for various institutions and organizations including the Philippine government, the Japanese government, the United Nations Center for Human Settlements, and the Food and Agriculture Organization of the United Nations. In the midst of his consulting work, he managed to earn a master's degree in agricultural extension from the University of Reading, England, in 1994.

In 1997 Stock joined the Washington State Department of Agriculture as a Farmworker Education Specialist. He organized a farmworker education committee with farmworkers, industry, and educational institutions, and conducted

pesticide safety training for farmworkers. In 2000 he left Washington to work in Nicaragua on an agricultural development project for the Tropical Agricultural Research and Higher Education Center (CATIE). At CATIE he facilitated an incorporation of participatory methods and a family focus into the project's agricultural training. One of the strengths that Stock brings to the Center is his fluency in the Spanish language.

In 2002 he joined the Pesticide Safety Education Program at UC Davis, where he formed an advisory committee with experts from agricultural commodity groups to create pest management risk reduction training. He also developed curricula and participated in hands-on pesticide train-the-trainer programs both in English and Spanish. He remained in that position until the Pesticide Safety Education Program was dissolved at the end of September, at which time he joined WCAHS.

Stock is excited about the opportunity to expand his background in educational methods and models to new areas of agricultural health and safety, and increase collaboration with other states in the region. "There are many educational needs in agricultural health and safety that have to be addressed, from stooping in strawberry fields, to confined spaces on dairy farms, to bioterrorism and more," says Stock. "I am looking forward to meeting researchers and staff members from the Center and beyond, and to work with them on developing innovative and effective outreach programs for our diverse agricultural populations in California and the neighboring states."

If you would like to contact Tim Stock, please call him at (530) 752-6841, or send an e-mail message to twstock@ucdavis.edu.



New system to improve pesticide illness reporting, case management & investigations

Reporting of pesticide-related illnesses by physicians has been a statutory requirement in California for over two decades. In 2002, the California Department of Pesticide Regulation reported that pesticide exposure had been at least a contributing factor in 1,316 illness cases. Nevertheless, the overall number of pesticide-associated cases remains seriously underreported and continues to decline each year.

The Office of Environmental Health Hazard Assessment (OEHHA) at the California Environmental Protection Agency (Cal/EPA) began

working with the Department of Health Services (DHS) to include pesticide illness reporting on the Confidential Morbidity Report (CMR) form. The CMR serves as the primary tool for physicians to report communicable diseases and certain other health conditions. About this same time, DHS had taken major strides toward establishing a new Web-based CMR system for health care providers and local health departments. Since this new Web-based reporting system offered further promise for strengthening disease surveillance across the state,

(see **Reporting** on page 6)



Western Center for
Agricultural
Health and Safety

One Shields Avenue
Davis, CA 95616-8757
AG10

Reporting *from page 5*

OEHHA saw a unique opportunity for appending pesticide illness reporting onto the emerging WebCMR system.

With funds provided through the U.S. Centers for Disease Control (CDC) Environmental Health Tracking grant program, OEHHA and DHS began the initial design for integrating pesticide illness reporting into the WebCMR system. Under this reporting mechanism, physicians will be able to submit reportable diseases, including pesticide-related illness, through the WebCMR to the local health officer. The local health officer and appropriate state agencies will be able to access a specific "disease" module for pesticide-related illness, the WebPIR, which will contain the pesticide illness report (PIR) form as well as case investigation and management tools. The first phase of this effort is scheduled for implementation in January 2005.

The WebPIR will integrate training modules for health care providers on the recognition, management, laboratory resources, and reporting of pesticide illnesses. The final phase of the project will be integration of the WebPIR into the Cal/EPA Exchange Network and establishment of data linkages with the Environmental Public Health Tracking Grant Program via the WebPIR system.

This project could help to diminish the incidence and ameliorate the effects of pesticide-related illness by improving information exchange among physicians, poison control centers, local health officers, county agricultural commissioners, and state regulatory and public health agencies, as well as illness investigation response times of the appropriate local and state agencies.



CALENDAR

December 3, 2004

Foster Room, UC Davis, 12:10–1p.m.

Air Quality Control for Animal and Human

Environments: Ruihong Zhang, Ph.D.,
Biological & Agricultural Engineering, UC
Davis

January 7, 2005

Foster Room, UC Davis, 12:10–1p.m.

Integrated Pest Management Program in Public

Schools: TBA, California Department of
Pesticide Regulation, Sacramento

February 4, 2005

Foster Room, UC Davis, 12:10–1p.m.

Farmworkers and Cancer Risks:

Paul K. Mills,
Ph.D., M.P.H., Epidemiologist, California
Cancer Registries, Region 2, Fresno

March 4, 2005

Foster Room, UC Davis, 12:10–1p.m.

Biosensor Formats for the Detection of Agricultural Chemicals in Humans or the Environment by

Immunoassay: Shirley Gee, Ph.D., Staff
Research Associate, Entomology, UC Davis

September 7–9, 2005 (Mark Your Calendar!)

Asilomar, Pacific Grove, California

Agricultural Health and Safety: From Research to Practice (R to P)

Watch for more information from WCAHS
<http://agcenter.ucdavis.edu>.