



AgHealth News

From the Western Center for
Agricultural Health and Safety

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University of California, Davis

WCAHS awards \$30,000 in research funding for five pilot projects and welcomes new researchers to the ag health community

Each year, WCAHS provides start-up funds to researchers from various departments and research centers for innovative and pilot projects related to agricultural health and safety issues. Last October, WCAHS funded the following five projects involving environmental pollution in agricultural worker communities, obesity prevention in Mexican-American children, and the implications of immigration reform on farm worker health and safety.

Health Implication of Airborne Agricultural Particles on the Central Nervous System

Mai A. Ngo, *Center for Health and the Environment (CHE)*

The dry farming practices of California's Central Valley subject agricultural workers to high concentrations of airborne particles during field preparation, harvesting and packing of fruits and vegetables. The ability of inhaled ambient particles to induce inflammation in the central nervous system is of profound importance considering the role of inflammation in a number of neurological conditions including Parkinson's disease. Although Parkinson's disease is manifested late in life, initiation of pathogenic processes may be detected relatively shortly after exposure. This study proposes to resourcefully utilize archived brain tissue from studies previously conducted to assess the

(see **Funded Projects** on page 2)



Mai Ngo (above) received research funds from WCAHS to investigate the health implications of dry farming practices in California's Central Valley.

New Dynamics for 2008 Western Agricultural Health and Safety Conference

Plans are already underway for the next Western Agricultural Health and Safety conference, scheduled for September 2008 in the state of Washington. The Pacific Northwest Agricultural Safety and Health Center (PNASH) will host the conference.

In September 2006, WCAHS hosted this biennial joint conference at Asilomar in Monterey County. The 2008 conference theme is "New Directions in Agricultural Health and Safety." The thematic sessions are being designed to increase audience participation through the sharing of expertise and practical knowledge, as well to encourage active question and answer periods for each session. Slated topics for presentation are: Air Quality and Respiratory Pathways to Disease; Challenges and Opportunities; Emerging Issues; Pesticides and Roundtable Presentations. Up to 20 roundtable topics covering a wide range of issues are under consideration. Marcy Harrington, PNASH assistant

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pulmonary effects of inhaled concentrated ambient particles from the agriculture setting to assess the ability of agricultural particles to alter neurological parameters reminiscent of Parkinson's disease.

Child-feeding practices in Mexican Americans: an early start in obesity prevention

Lucia Kaiser, UC Davis Department of Nutrition

Among Mexican children aged 6-11 years old, 17 percent of girls and 26 percent of boys are overweight, and these numbers increase through adolescence and adulthood. Although dietary factors, low physical activity levels and genetic predisposition have been implicated as plausible contributors to the higher prevalence of overweight Mexican-American children, little is known about the development of eating habits. Strategies to combat the obesity epidemic will undoubtedly require attention to those risk factors that are modifiable and timely. The purpose of this study is to investigate the relationships between child-feeding practices, dietary intake and toddler growth in a Mexican population using a 6-month longitudinal design to capture child-feeding practices during an important dietary transition phase in toddlers. This original research will provide antecedent findings to further our understanding of childhood obesity in Mexican-American children as well as providing strategies for early prevention in a high-risk group.

Building a Foundation for Participatory Action Research with Agricultural Worker Communities: An Environmental Justice Perspective

Jonathan London, John Muir Institute of the Environment (JMIE)

Central Valley communities where agricultural workers and their families predominate are threatened by

multiple sources of environmental pollution, including pesticide contamination of air and water, asthma-causing particulate matter, and leachate from hazardous waste facilities and disposal sites. Despite this concentration of risk, agricultural workers are rarely represented in public decision-making on the policies and practices that affect their lives. This proposed project seeks to address environmental injustices in the Central Valley by (1) conducting an inventory of existing research on the environmental health conditions of agricultural worker communities and of additional questions that members of these communities and their advocates want research to answer, and (2) analyzing an innovative policy experiment underway through the California Department of Pesticide Regulation to engage agricultural worker communities and their advocates in developing an environmental justice action plan.

Collaborative Community Outreach Project in Parlier, CA

Joyce Gutstein, John Muir Institute of the Environment (JMIE)

The Collaborative Community Outreach Project focuses on air quality and agricultural health issues in Parlier, Calif. The project links UC Davis entities (the JMIE Community Liaison Program, the Center for Health and Environment, and the Western Center for Agricultural Health and Safety) providing more effective community outreach. The project's purpose is to benefit agricultural workers and their families through the sharing of university research knowledge on air quality and its potential impact on human health. Investigators will collaborate with members of the community of Parlier and relevant partners in designing solutions to improve environmental, community and personal health. This approach offers a model for translational science for agricul-

tural health and other topics, which goes beyond research and outreach to ensure community interest, learning and involvement.

Conference Support: Immigration Reform—Implications for Farm Worker Health and Safety

Philip Martin, UC Davis Department of Agricultural and Resource Economics

Immigration reform may be the most significant policy change to affect farm worker health and safety in 2007, affecting the number, characteristics, employment and earnings, and health and health care benefits of farm workers. This conference aims to evaluate immigration reforms, bringing together policy makers with researchers and community leaders; we will work with the WCAHS to identify appropriate health researchers. The project's intended outcome is the development of a research agenda for the commissions charged with evaluating the effects of legalization, guest workers, as well as new interior enforcement efforts.

For more information about these projects, send an e-mail message to agcenter@ucdavis.edu, or call (530) 752-4050.



2008 Conference *from page 1*

director, is the conference planning chair. Committee members represent each of the Western region NIOSH-sponsored Agricultural Centers (Washington, California, Texas and Colorado). Representing the Western Center for Agricultural Health and Safety on the 2008 Conference Planning Committee are Associate Director Kent Pinkerton and Education/Outreach Coordinator Elizabeth Noceti DiDio. Conference updates will be forthcoming in future issues of this newsletter.

Tractor safety focus groups discussed California's concerns

By Emily Evans

In an effort to help reduce tractor-related injuries and deaths, the Western Center for Agricultural Health & Safety recently held a series of focus group sessions in the Sacramento/North Central valley region. The focus groups were part of a larger study funded by the National Institutes of Health. The purpose of the study is to learn what farmers and other members of the farm community think about farm tractor safety in an effort to find ways to reduce injuries and death.

Over the course of two years, groups from multiple organizations across the country met to discuss farm tractor-related injuries and ways to prevent them. The result of their work was the National Agricultural Tractor Safety Initiative. The focus groups are an extension of the research invested in the initiative and a method for determining the relevance of the initiative on a multi-state level, as well as investigating feasibility issues related to implementation and implementation success.

Stephen McCurdy, M.D., M.P.H., has been working in agricultural health and safety since 1988 and is the current associate director of research for WCAHS. Elizabeth Noceti DiDio is education and outreach specialist for WCAHS. Together they coordinated the California section of this multi-state project.

The focus group sessions for this study were separated into groups consisting of farmers, farm service providers, and farmer's wives. The focus group facilitator helped guide and moderate the group discussion on tractor safety and the National Tractor Safety Initiative.

Participants in the focus group sessions were asked to help researchers by examining some of the problems of farm tractor overturns and

roadway collisions. Recommendations for reducing these problems as outlined in the Tractor Safety Initiative.

The focus groups followed a protocol that provided an outline and instructions for focus group activities and probing questions to shape and narrow the conservation on the focused topic of interest to the researchers. Participants interpreted photos of tractor accidents, listened to and commented on public service announcements, and reviewed and discussed the specific recommendations of the National Tractor Safety Initiative.

One of the themes that emerged through the focus group sessions was that California's Central Valley farmers face different tractor safety issues than farmers in other regions. In particular, they noted features of orchard equipment that are incompatible with particular rollover protection structures.



Tractor with no rollover protection.

Focus group sessions were recorded and sent to an agricultural center in Kentucky that spearheaded the project. After all centers complete their focus groups sessions, the Kentucky center will analyze the series of data and come to conclusions about tractor safety behavior and perspectives from multiple communities throughout the nation. In all, the study will receive information from 36 focus groups conducted in at least nine states.

Emily Evans, who is helping with focus group facilitation, is a graduate student in the UC Davis School of Education.



Correction

An article titled "**Community Outreach for Research & Education activities underway**" that appeared on page 4 of the Winter 2007 issue of *AgHealth News* contained a few errors and omissions, and we wish to publish the following correction:

Over the past year, scientists have collaborated with the California Department of Pesticide Regulation (DPR) collecting air samples as part of a year-long Environmental Justice Pilot Program to focus on the measurement of pesticide air concentrations in the small agricultural community of Parlier, Calif. WCAHS scientists are working with these agencies to address potential exposure to pesticides via particle and mineral dust inhalation in laboratory rodent studies. DPR formed a local advisory group composed of members from the community to engage them in the research process. A second progress report has been recently released by DPR, and they will develop an outreach plan to communicate the results to the community.

Schenker appointed to new federal workplace safety research council

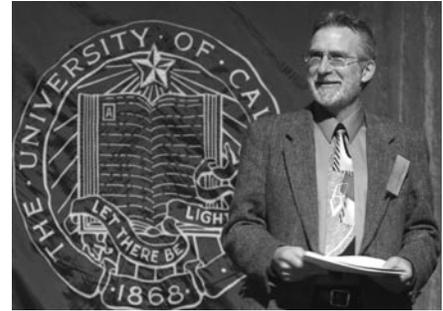
NIOSH and partners have formed eight National Occupational Research Agenda (NORA) Sector Councils, which include participants from academia, industry, labor, and government. The charge for each Sector Council is to identify and address important sector-specific problems, minimize their impact through partnerships by promoting adoption of improved workplace practices based on research results.

Representing western agricultural health and safety issues, WCAHS Director Marc Schenker, M.D., M.P.H., joined the Agriculture, Forestry & Fishing (AgFF) Sector Group. "I'm very pleased with this effort to set national priorities for agricultural health research, and to be involved in

that process," said Schenker. "I think that western agriculture has unique needs in agricultural health and safety, and they should be reflected in these national priorities."

Co-chairs of the AgFF Sector Council are NIOSH Agriculture Program Leader George Conway, M.D., M.P.H., and Barbara Lee, Ph.D., director of the National Farm Medicine Center at Marshfield Clinic Research Foundation, Marshfield, Wis. Dr. Lee and Dr. Conway have pledged to work together to assure an open and effective process for developing and implementing a strategic plan for agriculture, fishing and forestry workplace safety research.

The AgFF council is composed of 30 stakeholders representing



agricultural business, producers, migrant workers, safety professionals, and NIOSH scientists. Corresponding members of the council will provide guidance on specific research topics. Since 1996, NORA has defined and prioritized research for safer workers and workplaces, helping to better target limited federal research.

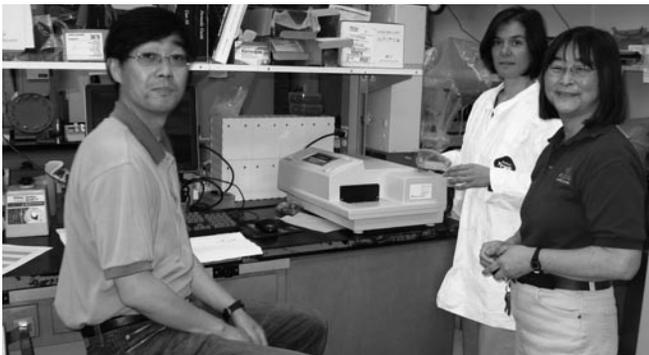


Investigators aim to develop analytical tools for exposure assessment

By Melissa Torres-Montoya, WCAHS student research asst.

A project titled "Rapid Assays for Human and Environmental Exposure Assessment" is underway at the Western Center for Agricultural Health and Safety.

Principal Investigator Bruce Hammock, professor of entomology and a member of the UC Davis Health System Cancer Research Center, and Shirley Gee, staff research associate in entomology, along with postdoctoral researchers Ki Chang Ahn, Mikaela Nichkova and Hee Joo Kim, are seeking to develop tools that help identify routes of pesticide exposure to farm workers and their families. The tools will be tested and validated in a study headed up by co-investigator



From left, Ki Chang Ahn and Mikaela Nichkova, postdoctoral researchers in Bruce Hammock's lab, and Shirley Gee.

Debbie Bennett who is an assistant professor in Public Health Sciences Department in the UC Davis School of Medicine. The project goals are to:

- Develop and apply analytical methods, in particular, immunoassays.
- Study the relative contribution of pesticides from the diet compared to exposure that might occur from the environment (e.g. dust in the home).
- Develop intervention strategies to reduce pesticide exposure.

"We are very interested in having analytical methods for measuring the internal exposure of pesticides," said Gee. "Typically one considers that the measure of pesticides excreted in the urine are an indication of actual 'intake' of pesticides. But most pesticides are metabolized (or broken down) in the body and excreted in the urine as these breakdown products. So we specifically target our methods to measure these metabolites."

Miniaturizing assays will mean that smaller samples will need to be taken. For example, instead of milliliters of blood, we may be able to conduct assays on blood obtained from a finger-prick, which will likely be more acceptable to future study participants.

The aim of the study is to produce more acceptable less invasive (smaller samples) for the study of biomarkers in the future.



Campus Administrative Coordinating Council of Deans (ACCD) awards WCAHS \$100,000 for graduate student fees

The ACCD awarded the Western Center for Agricultural Health and Safety matching funds of \$100,000 to be used for program graduate student fees and stipends. The funds are a generous gift from UC Davis Graduate Studies (GS), College of Agricultural & Environmental Sciences (CAES), College of Engineering (COE), School of Medicine (SOM) and the Office of the Vice Chancellor for Research (OVCR).

Dr. Schenker, WCAHS director, announced that students receiving the funds are Laurie Hopkins, PTX Graduate Group (CAES); Chelsea Eastman and Hong Xiao, EPI Graduate Group (CAES, SOM, OVCR); Brandon Miller from the College of Engineering and the School of Medicine; Danny Nou and Brent Ulrey, Bio and Ag Engineering Graduate Group (COE); Johnny Garcia, Ag and Environmental Chemistry Graduate Group (GS); Scott Hamilton, Animal Biology (GS), and Laurel Plummer, Center for Health and the Environment (GS, CAES, OVCR).

The nine graduate students were invited to meet with the WCAHS faculty and staff on April 3 for a general



Grad students meet at the WCAHS site on Old Davis Road. From left, Dr. Kent Pinkerton, Brent Ulrey, Scott Hamilton and Laurel Plummer.

orientation and the opportunity to talk about their projects. Students reported that hearing about what other projects the center principal investigators are involved in was surprising in some cases and appreciated. Plans for a fall symposium featuring the graduate students are being finalized.

Conference explores health and safety issues facing aging farmers

Robert “Chip” Petrea, Ph.D., extension specialist in agricultural safety and health in the Agricultural Engineering Department at the University of Illinois, Urbana, hosted an invitation-only conference titled “The Aging Farm Community: Using current health and safety status to map future action.” The conference, attended by about 30 people, was held on March 6-8 at the Holiday Inn at the Indianapolis airport.



From left, WCAHS Director Marc Schenker, Joe Martinez and Diane Mitchell.

The purpose of conference was to present information, data and perceptions that will serve as a current status report on the occupational health and safety issues facing the aging farm population.

Dr. Marc Schenker, an opening day presenter, spoke on “Older Farmers in the Western U.S.,” citing analyses from the UC Davis Farmer Health Study.

In comparison to the general population, Californian farmers over 65 are less likely to have diabetes and stroke, but more likely to have skin cancer, lung problems or arthritis. Although 70% of farmers over 75 continue to work in some capacity, those that do retire are twice as likely to have diabetes, or rate themselves as having poor health. Poor health was the main reason for retirement in this group.

Other WCAHS representatives attending the conference were Diane Mitchell, Sandy Freeland and Joe Martinez, owner of Martinez Ranchers in Winters and vice president of the Solano County Farm Bureau.



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for Agricultural
Health and Safety**

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WCAHS Seminar Series

4-5 p.m., 3201 Hart Hall, UC Davis Campus

May 7

Kathleen O'Connor, Ph.D.

UC Davis School of Public Health Sciences,

"New Approaches for Community-Based Participatory Research Among Central Valley Hispanic Farm Workers"

June 4

Gideon Zeidler, Ph.D.

UC Davis Department of Animal Science,

"Elevating Food Safety Capabilities Using Wireless and Remote Emerging Technologies"

**The seminar series is available via video webcast at
<http://agcenter.ucdavis.edu/seminar/webcast.php>**