



FROM THE DIRECTOR

Changes and Challenges in 2005

Nature has retorted from its usual nurture to unmercifully unleashing its unimaginable powers, as man and animals only could witness, from the horrendous devastation in the Indian Ocean to the extensive rainfalls and mudslide tragedies right here in California. Much of this destruction has affected global and local agriculture, lands and livelihoods.

With the coming of these dramatic global changes in 2005, our Center has been faced with some changes and challenges as well, minute in comparison, but important to us. With the retirement of Patrick O'Connor-Marer in Fall 2004, the Center had to replace not only its deputy director, but also had to absorb what was left of the Pesticide Safety Education Program, which O'Connor-Marer spearheaded, and due to exhausted funds was not able to survive within the Statewide Integrated Pest Management program.

Kent Pinkerton, a long standing and dedicated principal investigator within WCAHS, was named and accepted the deputy directorship for the Center. I would like to officially welcome him into this position. Please read about him on page 2.

I have named Ketty Mobed to be our Center's new education-outreach coordinator. In this new

(see **Changes** on page 2)



Plowing field, Aconcagua Valley, Chile (above), is an example of the types of photos in Marc Schenker's World Farm Work Exhibit, opening Feb. 18, 7-9 p.m., and on display until April 27 in the UC Davis Buehler Alumni and Visitors Center.

Community-Based Participatory Research in Ag Health & Safety

Ketty Mobed, PhD, MSPH

A new mantra is making its way around town that is considered increasingly valuable for researchers, especially those who are involved with human population studies. Community-Based Participatory Research (CBPR) is a concept that wasn't much used as a research mode even into the 1990s. But over the last few years CBPR is being strongly advocated, including federal granting agencies, as an essential component of population-based studies and material development to im-

prove people's health, especially those from underserved and disadvantaged populations.

In 2000, the National Institute of Environmental Health Sciences (NIEHS), one of the first federal agencies to show interest in CBPR, hosted a meeting on this topic "Successful Models of Community-Based Participatory Research." The agency determined that traditional-based biomedical research methods had been challenged due to limited community participation.

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capacity she will develop a program within WCAHS that combines research and development of educational materials and facilitates outreach to farm working populations in collaboration with local, state and regional stakeholders and constituents.

Another major development is the postponement of the Research to Practice (r2p) conference that was scheduled for September in Asilomar. Due to the unanticipated early release and concurrence of the NIOSH competitive agency renewal request for proposals, the already well-underway and planned conference had to be postponed to a later date in 2006, yet to be determined.

I hope and wish that 2005 will be a good year for all. It will be a critical time for us to pool our resources, and through old and new collaborations keep the presence of our Center a reality. I want to thank our principal investigators, internal and external advisory board members, staff members and our collaborators for all of the time and energy they spent in the last year, and wish them renewed and productive energies in 2005.



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Research Coordinator Stephen McCurdy
Education-Outreach Coordinator Ketty Mobed
Health and Safety Educator Tim Stack
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New Center Deputy Director: Dr. Kent E. Pinkerton

The Western Center for Agricultural Health and Safety (WCAHS) is pleased to announce the appointment of Dr. Kent E. Pinkerton as its new deputy director. Pinkerton is a professor of anatomy, physiology, and cell biology in the UC Davis School of Veterinary Medicine. With more than 20 years experience in respiratory and environmental research, he also serves as director of the Center for Health and the Environment.



Kent Pinkerton

Pinkerton received his M.S. and Ph.D. degrees in pathology from Duke University, and completed his postdoctoral training in the Department of Medicine at Duke University Medical Center. He became a faculty member at UC Davis in 1986, and his research interest is in the area of respiratory toxicology with an emphasis on children and health effects of exposure to airborne particles.

Pinkerton has worked closely with members of WCAHS since the early 1990s. His research in respiratory toxicology provides a logical connection with ongoing research at WCAHS. Dry farming practices used in the Western United States subject farm workers to airborne particles during field preparation, harvesting, and produce

packaging. Exposures can be to a wide variety of substances, some potentially toxic. In collaboration with Marc Schenker, director of WCAHS, and Francis Green, professor of pathology at the University of Calgary, Pinkerton examined the lungs of young deceased male Hispanic farm workers from the Central Valley of California. The team investigated particle deposition and corresponding pathological changes in the lungs. Their goal is to better understand the relationship between particle retention and pathobiological alterations based on anatomical location in the lungs. This study has served as the basis for new studies with UC Davis faculty specializing in soil science and atmospheric engineering to further characterize the chemical composition of airborne particles in the Central Valley.

Pinkerton plans to work closely with the Center director and members of the internal and external advisory committees to formulate new ideas and research plans for the Center. His experience in basic research methods will be used to encourage new translational research agendas to examine health and safety issues in the farming environment.

"I am excited with the many opportunities to engage in research critical to agriculture in the Western United States," said Pinkerton, whose priorities include farm worker safety, vegetative burning, mega-dairies and air quality in a changing agricultural environment.

If you would like to contact Kent Pinkerton, please call him at (530)752-8334, or send an e-mail message to kepinkerton@ucdavis.edu.

CBPR from page 1

The concept of CBPR has been reviewed and defined by a variety of population scientists. According to *Leung et al.*, CBPR is composed of three major and overlapping components: participatory research, education, and social action.

O'Fallon and Dearry describe CBPR as being based on six principles:

- promotion of active community collaboration and participation,
- fostering co-learning,
- assurance that projects are community-driven,
- dissemination of study results in a useful way,
- ensuring that research and intervention strategies are culturally appropriate, and
- defining the community as a unit of identity.

Arcury et al. assign four elements to CBPR:

- participation of the people being studied,
- use of the personal experience and the perceptions of community members as data,
- focus on empowerment, and
- action by the community and community members to change the conditions causing the problem.

When all factors are considered, the most successful research projects are those in which the community plays an active role in defining the research problem, designing the research tools, implementing the research, dispersing the research results and co-authoring the final recommendations. This seems like a daunting process, but it proves to be a very effective way to improve standards of health in the community. An initial and necessary step is to establish genuine community partnerships and build trust by bringing



In order to improve specific aspects of occupational health in any community, research and outreach teams need to know and understand the culture and language of the people within the community.

together community members, leaders and researchers on an equal footing.

CBPR is absolutely necessary to successfully develop and disseminate health and safety information, recommendations, guidelines and educational material for California's culturally diverse and frequently disadvantaged agricultural population.

One of the important goals of CBPR among agricultural populations is the development of appropriate educational materials and guidelines for these communities. This would include the assessment, development and evaluation of multi-lingual and culture-appropriate educational health and safety guidelines. A recent nationwide study by *Weber et al.* examined linguistic needs of agricultural workers and availability of language-specific pesticide safety training and education material. Their results indicate a severe lack of these materials for most of the more than 50 non-English languages spoken and read by agricultural laborers. When extrapolating to other agricultural health and safety issues, the need to develop linguistic and ethnically appropriate prevention and intervention guidelines is immense.

The Western Center for Agricultural Health and Safety's

newly established Education Research—Outreach Program will have two core functions:

- 1) to acquire resources to strengthen existing and initiate new collaborative and empowering community partnerships, and
- 2) to evaluate existing and develop new appropriate educational health and safety materials, with collaborative help from agriculture-affiliated communities.

We encourage and appreciate any recommendations you may have. Please contact Ketty Mobed at kmobed@ucdavis.edu.

References

- Arcury TA, Quandt SA, Dearry A. *Farmworker Pesticide Exposure and Community-Based Participatory Research: Rationale and Practical Applications*. *Environ Health Perspect* 2001, 109(S3):429-434.
- Leung MW, Yen IH, Minkler M. *Community Based Participatory Research: A Promising Approach for increasing Epidemiology's Relevance in the 21st Century*. *Int J Epid* 2004, 33(3):499-506.
- O'Fallon LR, Dearry A. *Community-Based Participatory Research as a Tool to Advance Environmental Health Sciences*. *Environ Health Perspect* 2002, 110(S2):155-159.
- Weber J, Kinro G, Snedeker S, Swift SF. *Non-English Language Needs for Pesticide Safety Education*. *J Pest Safety Edu* 2004, 6:24-33. ☞

Agricultural Air Quality Seminars at UC Davis

California is known to be the leading state in agricultural production. Parts of the state (San Joaquin Valley and South Coast) are having the nation's worst air quality with regard to ozone and particulate matter. Until last year, California agriculture was exempt from air quality regulation; however, the Ag exemption was lifted in 2004.

The University of California, Davis, is positioned to investigate some of the critical air quality concerns through numerous research and extension programs. The campus is home to more than 50 faculty members and their laboratories that are specialized in areas of health, emission estimation, and control related to air quality.

During the fall quarter of 2004, Shrini Upadhyaya, a professor in the UC Davis Biological and Agricultural Engineering Department, and Frank Mitloehner, an air quality Extension specialist in the Department of Animal Science, organized a seminar series focusing on agricultural air quality issues.

Speakers from UC Davis, environmental groups, and regulatory agencies discussed issues that are of pressing nature to California. Matt Summers, an air quality engineer with the California Department Food and Agriculture, opened the seminar series with an overview of agriculture and its effects on air quality.

Mitloehner discussed issues related to dairy air quality mitigation, and Ruihong Zhang, UC Davis professor in the

Department of Biological and Agricultural Engineering, offered innovative means for utilization and treatment of animal waste to mitigate air emissions.

Ken Krich, a representative from the environmental group "Sustainable Conservation" led a discussion around the development of bio-power from dairies.



Frank Mitloehner, an air quality Extension specialist in the UC Davis Department of Animal Science, is studying dairy cows confined in small enclosures equipped to measure all the cows' production of gases and particulate matter.

The section related to air impacts from animal feeding operations was concluded by Jim Sweaney, permitting director for the San Joaquin Valley Air Pollution Control District, Modesto, who explained how new air regulations, which for the first time include agriculture, will affect the Agricultural industry with the goal of improving overall air quality.

A second seminar block focusing on modeling, measurement technology and effects of crop production on air quality was started by Michael Kleeman, a professor in the Department of Mechanical Engineering at UC

Davis. Kleeman demonstrated the power of atmospheric modeling to illustrate air pollution trends throughout the Central Valley as well as main culprits polluting the air.

Mang Zhang of the UC Davis Mechanical Engineering Department introduced a new gas and particle analyzer with continuous sampling capabilities. Dan Downey of Biological and Agricultural Engineering discussed dust generation potential from different nut harvesting equipment, and Teresa Cassel of the Crocker Nuclear Lab at UC Davis presented results related to on-field sampling of particulate matter in agricultural production systems.

Finally, Frank Mitloehner finished the series by leading a roundtable discussion with Air Resources Board (ARB) representative Patrick Gaffney, who discussed his agencies' main concerns related to agricultural air quality in the state. Gaffney explained that livestock operations, and especially dairies, will continue to be a focal point for his agency as they are believed to significantly contribute to poor air quality in the San Joaquin Valley.

Overall, the Agricultural Air Quality seminar series was very well attended and helped to illustrate the significant challenges that California faces, as well as exploring ways in which UC Davis researchers can help to provide solutions to air quality problems.



In the News

NAWS Suspended

On January 24 the *Wall Street Journal* (WSJ) reported that the U.S. Department of Labor (DOL) has suspended the only national survey that collects detailed data on employment, health and living conditions of migrant and seasonal farm workers. Based on interviews with thousands of laborers, the National Agricultural Workers Survey (NAWS) gathered data that helped the federal government allocate funds to health, education and social programs in rural areas for nearly two decades.

Until introduction of the survey, relatively little was known about the farmworker population of the U.S., agriculture researchers say. NAWS surveyors have been deployed into the fields three times a year to track wages, migration patterns, English fluency and housing, among other things. In turn, the federal government uses the data to decide how to allocate funds to schools, clinics and nonprofit groups in rural areas.

According to the WSJ, Veronica Stidvent, assistant secretary for policy at DOL said NAWS had been suspended because the congressional mandate to conduct it had expired in 1993 and that the data were mainly benefiting other government departments or agencies, such as Health and Human Services and Education.

The move has caused concern among some policy makers and scholars, who say the survey has documented the rapid growth of immigrant labor in the agriculture industry. With immigration such a hot-button issue, some agricultural scholars see political overtones in the decision. "If somebody doesn't like that result, one way not to show it is by canceling the survey," says Phil Martin, professor of agricultural economics at the University of California, Davis. In a nutshell, NAWS

- Began in 1988,
- Interviewed 3,800 workers a year,
- Was the only national information source on demographics, working and living conditions of farm workers,
- Covered workers 14 years old and up in crop agriculture, including field workers in nursery products, cash grains, field crops, fruits and vegetables, field packers and supervisors.

[Source: Department of Labor]

Before DOL's final decision and as a last ditch effort, directors of the 10 federally funded Agricultural Centers wrote an open letter to DOL, stating reasons of their opposition to the termination of NAWS. In the letter they highlighted their unanimous support of NAWS as a vital national resource and as the only national information source on the demographics, working conditions, and living conditions of U.S. farm workers. The document stated "it serves as an extremely valuable database for employers, health care providers, researchers, and educators in our regions."

The letter further pointed out that "the National Institute of Occupational Safety and Health (NIOSH) has depended on the NAWS to fulfill its mandate to conduct occupational injury and health surveillance on hired farmworkers, a largely foreign-born and Hispanic population. This ongoing collaboration between NIOSH and DOL has resulted in the first ever, national-level health assessment of hired farm workers and NAWS is critical for the continuation of this work."

For more information contact WCAHS by e-mail at agcenter@ucdavis.edu

New NIOSH Administrator

Lee Husting is the new Scientific Program Administrator for the agriculture centers in the Office of Extramural Programs of the National Institute for Occupational Safety and Health (NIOSH) in Atlanta. His other grant management program areas include work organization, musculoskeletal disorders, and radiation. He has extensive experience with agriculture in California, Zimbabwe, and Jamaica. As Acting Chief of Injury Control with the California-based Public Health Institute and the CA Department of Health Services he coordinated NIOSH-funded projects related to surveillance and prevention of agricultural injuries during 1994-1998. He was Chief of the Intervention and Evaluation Team, (NIOSH), Centers for Disease Control in Morgantown, West Virginia from 2001 to 2004, where he supervised scientists focused on injury and illness prevention in agriculture, health care, emergency services, and trucking.

Husting holds a Ph.D. degree from the University of London, and a Master of Public Health degree from the University of Pittsburgh. He has been elected as a Fellow of the American College of Epidemiology (FACE), and a Fellow of the Royal Society of Tropical Medicine and Hygiene. You can contact him at (404) 498-2605, or by e-mail at eih8@cdc.gov. ☞



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AG10

CALENDAR

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:

Shirly Gee, Ph.D., Staff Research Associate, Entomology, UC Davis

April 1, 2005

Foster Room, UC Davis, 12:10–1p.m.

Residential Permethrin Application and Exposure: Deborah Bennett, Ph.D., Faculty, Biological & Agricultural Engineering, UC Davis

May 6, 2005

Foster Room, UC Davis, 12:10–1p.m.

Overview of the NIOSH/Agricultural Safety and Health Centers National Agricultural Tractor Safety Initiative:

Fadi Fathallah, Ph.D., Faculty, Biological & Agricultural Engineering

June 3, 2005

Effects of Atmospheric Reactions on the Composition and Toxicity of Airborne Particles: Cort Anastasio, Ph.D., Faculty, Land Air & Water Resources, UC Davis

September 2005 Conference Postponed

Please note that the annual collaborative WCAHS/PNASH conference titled “Agricultural Health & Safety: From Research to Practice (r2p)” previously scheduled for Sept. 7–9, in Asilomar—Pacific Grove, CA, has been postponed to 2006. Watch for more information from WCAHS <http://agcenter.ucdavis.edu>.