



AgHealth News

From the Western Center for
Agricultural Health and Safety

Winter 2008, Vol. 17 No. 1

University of California, Davis

UPDATE FROM THE DIRECTOR

It has been a busy time for agricultural health and safety at the national level. Many new developments promise fresh ideas and new resources to address the continuing challenge of reducing illnesses and fatal and non-fatal injuries among farmers, farm workers and their families. The details of these efforts are too long to describe here, but I will summarize the different activities. These efforts are particularly relevant to the NIOSH agricultural health and safety center program and to other NIOSH efforts.

The National Academy of Science (NAS) has completed its external review of agriculture, forestry and fishing research at NIOSH. See www.cdc.gov/niosh/nas/ (full report available at: www.cdc.gov/niosh/nas/AgForFish/pdfs/review-12-19-07.pdf). Overall, the NAS gave high scores on relevance to the NIOSH programs, but rated the impact of the research a bit lower. Several recommendations were made in the report for improving NIOSH research, including establishing strategic goals for the overall program, providing national leadership in safety and health research, and implementing a comprehensive surveillance system. This report has resulted in new strategic planning for NIOSH's agricultural research program, with the results to be presented to its board of scientific councilors at the end of this year.

Another ongoing effort is
(see **Director** on page 3)



Dr. Marc Schenker introduces Ria de Grassi during Jan. 7 ag health seminar.

Veterinarians key to identifying infectious diseases transmittable to humans

The Western Center for Agriculture Health and Safety Seminar Series featured Ria de Grassi at its Jan. 7 colloquium. De Grassi, director of national affairs and research at the California Farm Bureau Federation, discussed the roles veterinarians have in containing infectious diseases. She noted that veterinarians act as the first line of defense in protecting human public health. Veterinarians provide such defense against infectious diseases for humans because many infectious diseases are zoonotic in nature, meaning a disease that is able to be transmitted (vectored) from animals, both wild and domestic, to humans or from humans to animals.

According to Bennie Osburn, dean of the UC Davis School of Veterinary Medicine, "75 percent of infectious diseases are zoonotic in nature," which include recent globally emerging infectious diseases including West Nile Virus (WNV), Avian Influenza (AI), Severe Acute Respiratory Syndrome (SARS) and Monkeypox, a rare viral disease that occurs mostly in central and western Africa.

On a local level, West Nile Virus has made newspaper headlines for the past couple of years. Birds are reservoir hosts for WNV, while humans and other animals are accidental hosts which can be debili-

(see **de Grassi** on page 2)

tated, or die. No doubt, the treatment of infectious diseases in animals by veterinarians plays a crucial role in keeping humans healthy.

In her lecture, de Grassi presented information that demonstrated the considerable shortages of veterinarians in the United States – especially veterinarians with farm animal expertise. She informed those in attendance that Bureau of Labor Statistics reported that by 2012 it is expected that the U.S. will have 28,000 job openings for veterinarians. She also noted, “in the next 40 years [the] U.S. will need the equivalent of nine new veterinary colleges to keep pace with current demand for veterinary service.”

As of June 2007, a total of 7,489 licensed vets were in practice in California – 4,000 of which treated pets, 280 specialized in equine, 83 oversaw lab animals, 82 treated zoo animals, 72 practice on cattle, 7 on sheep/goats and 4 specialize in poultry. The role of veterinarians in infectious disease containment and the shortage of these professionals naturally pose a significant public health problem for the United States. This problem could be partially alleviated by HR 1232, the Veterinary Public Health Workforce Expansion Act and other efforts that “improve public health preparedness by increasing the number of vets in the workforce,” said de Grassi.

An editorial in the August 2007 edition of *Hoard's Dairyman* magazine proclaims that veterinary schools throughout the country should place more emphasis on animal experience than relying solely on grades. The article stated, “it doesn't mean lowering admissions criteria but rewarding farm kids who have balanced an active extra-curricular or farm life with a solid academic performance. The admissions process has gotten so tough that a farm kid with good to very good grades – 3.3 to 3.7 gpa



From left, Bill Krycia, CalOSHA; Roy Berke (back to camera), Farm Bureau Group Ins. consultant, State Fund; Bob Rice, professor, UC Davis Environmental Toxicology; Marcia Kreith (back to camera), UC Ag Issues Center; Kent Fowler, California Department of Food & Ag (CDFA) Animal Health Branch; Katie Flynn Wetherall, outreach and education veterinarian, academic liaison, CDFA, Animal Health Branch.

– has little to no chance of getting into one of the best schools, thus they don't even bother applying, so the schools continue to accept students with slightly better grades with little or no animal experience beyond a family pet.”

The *Hoard's Dairyman* editorial further mentions that when asked by their counterparts why graduating vets didn't choose practice, many cited “poor pay, lack of experience around farm animals, physically demanding, long hours and fewer opportunities to do good medicine.”

Dr. Kent Fowler, chief of the Animal Health Branch of the California Department of Food and Agriculture shared that for 26 years he practiced as a large animal veterinarian but decided to leave before it took a toll

on him physically – a debilitating common occurrence.

Dr. Marcia Kreith, of the UC Davis Agricultural Issues Center, said when she was involved with the new veterinary school at UC Davis in the 1950s, accepted students had to promise to pursue a large-animal practice upon graduation.

Kent Pinkerton, WCAHS associate director, said the need for additional veterinarians in the state of California is well known, and a lot of work has been done in the last 10 years to try to increase the numbers.

Dr. Marc Schenker noted analogies between vet schools and our medical schools, suggesting, that like the medical profession, intermediate degrees, professional certifications could provide some relief.



UC Davis program for large animal vet experience

Because of the growing demand nationally for veterinarians who wish to work with cattle, UC Davis established its Early Veterinary Student Bovine Experience Program (www.vetmed.ucdavis.edu/evsbep/default.htm). EVSBEP is designed to expose students to commercial cattle operations and to veterinarians working with cattle, who can mentor the student. Since most veterinary students don't come from agricultural backgrounds, exposure to animal agriculture and veterinarians working with cattle creates awareness of new career possibilities. The UC Davis School of Veterinary Medicine uses the program to increase the number of students choosing to work with cattle following graduation, and to better prepare veterinary students for their career working with livestock.



On Nov. 13, WCAHS Director Marc Schenker, M.D., M.P.H., principal investigator for the Mexican Immigration to California: Agricultural Safety and Acculturation (MICASA) project, presented results of his farm family study to the Mendota City Council. Handouts of key study findings were prepared in both English and Spanish and distributed. An open community meeting also was held that day to disseminate study findings and to provide an update. The community meeting was conducted in Spanish to best meet the needs of the study participants and most attendees.

Director *from page 1*

development of a new NIOSH National Occupational Research Agenda (NORA) in agriculture, forestry and fishing sectors. A broadly constituted national sector council, of which I am a member, is working to develop the new NORA research agenda for NIOSH. The committee has been working diligently for the past year, and a draft report will soon be posted on the Web for comments. This effort promises to provide more focus and attention to NIOSH's efforts to improve health and safety in this sector. More information about the NORA sector councils, including the soon-to-be-released draft report, is available at www.cdc.gov/niosh/nora/councils/agff/default.html.

The final report of the National Tractor Safety Initiative was another important effort that was completed in the past year. This collaborative effort by all of the NIOSH agricultural health and safety centers was an effort to use novel approaches (e.g., social marketing) to decrease tractor-related fatalities in the country. More information is available at <http://depts.washington.edu/trsafety/index.html>

Many farm worker health conferences have taken place in the past year, focusing attention on the unique needs of the hired farm worker. I'm co-organizing a conference, to be held in Oakland on April 18 and sponsored by the Center for Occupational and Environmental Health, which will focus on the challenges to health and safety among immigrant workers, with particular attention to

agricultural workers. More information is available at <http://coeh.berkeley.edu/>.

The private sector also has been active in creating a new non-profit organization of agricultural interests called the Agricultural Safety and Health Council of America (<http://www.ashca.com/>). The goal of this new group is to pursue a national strategy to create a safe and healthy work environment for American agriculture. Strategic goals for this group are posted on the Web.

Finally, a few important national meetings are coming up that will address agricultural health and safety. The first is the 6th International Conference at the University of Saskatchewan, Canada. The topic of this year's conference, to be held Oct. 19-23, is Public Health and the Rural Ecosystem (www.cchsa-ccssma.usask.ca/meetings/). Our own co-sponsored biannual conference will held on Nov. 11-13 in Cle Elum, Washington. The theme will be "Health and Safety in Western Agriculture: New Paths" (<http://depts.washington.edu/pnash/>).

All in all, I'm happy to see so much attention being paid to agricultural health and safety. I hope that this attention and creative new approaches with new resources will continue to reduce the preventable burden of illness and disease in American agriculture.

Marc Schenker, M.D., M.P.H.
Western Center for Agricultural Health and Safety



2007 AgrAbility conference draws nearly 200 from across the nation

The National AgrAbility Project held its national conference in November 2007 at the Doubletree Hotel in Sacramento. Representatives from the 21 state and regional AgrAbility projects from across the country attended. The AgrAbility Project was created to assist people with disabilities employed in agriculture. The project links the Cooperative Extension Service at a land-grant university with a private nonprofit disability service organization to provide practical education and assistance that promotes independence in agricultural production and rural living. The Cooperative State Research, Education and Extension Service (CSREES), www.csrees.usda.gov, an agency of the U.S. Department of Agriculture, administers the AgrAbility Project.

Keynote speaker Bradley Rein, USDA, National Program Leader, Agricultural Engineering/Occupational Safety, presented "Changes in Agriculture and How AgrAbility Keeps Pace with Change." Break-out sessions included presentations on safety and standard conditions when modifying machinery controls; agricultural ergonomics; promotoras; and training for new AgrAbility project staff nationwide.

Highlights included a presentation by Penny Cowan, founder and executive director of the American Chronic Pain Association, and amazing wheelchair demonstrations that ranged from land-roving chairs to chairs that stand average heights and climb stairs. These innovative chairs enable many disabled individuals to continue in farming.



A participant at the AgrAbility conference, co-sponsored by WCAHS, reviews ag center information.

Nearly 200 people from across the country participated in conference activities and training workshops.

Martha C. Stiles, program director of the California AgrAbility Program and this year's National Conference host, can be reached for additional information about AgrAbility and/or the conference outcomes at (530) 752-2606 or mcstiles@ucdavis.edu.



WCAHS' new 'Outstanding Achievement' award

The ag center is happy to announce a new award, titled the "WCAHS Outstanding Achievement in Farm Health & Safety Award." This award honors an individual, group, organization, association or business/industry that consistently strives to reduce agricultural workplace injuries and improve overall health in the agricultural workplace. Nominees could be recognized for their

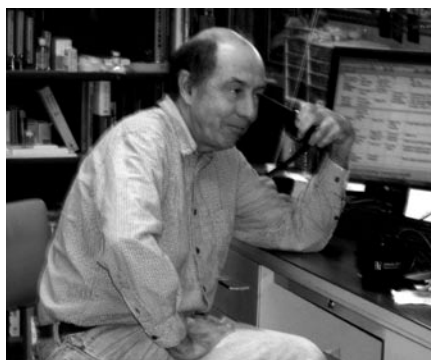
- noteworthy advancement of new agricultural health and safety practices;
- development and/or implementation of model farm safety programs that reduce injury and illness;
- a program of continuing education/enforcement

- of safe farming practices;
- rewarding innovative approaches to ensuring farm safety;
- exceptional involvement in promoting safe farming practices not only on the farm, but within communities;
- demonstrated forward thinking into improvements in overall agricultural health, including sustainable farming techniques.

The deadline for submitting nominations for the award is **April 28, 2008**. A nomination form can be downloaded from <http://agcenter.ucdavis.edu>. Please call WCAHS at (530) 752-4050 if you have questions.

Investigators publish new creatinine testing method used in WCAHS study

Creatinine is produced from creatine, a molecule of major importance for energy production in muscles. On a daily basis, approximately 2 percent of the body's creatine is converted to creatinine, which is transported through the bloodstream to the kidneys. The kidneys filter out most of the creatinine and dispose of it in the urine. Because of this constant rate of elimination of creatinine, researchers and clinicians use creatinine content in a urine sample to assess the completeness of any one 24-hour collection.



Bruce Hammock

A simple method for determining urinary creatinine has been developed by investigators with the Western Center for Agricultural Health and Safety (WCAHS), and was used to evaluate 24-hour urine samples collected as part of their study conducted in Costa Rica to assess the effects of paraquat exposure on respiratory health.

WCAHS investigators Shirley Gee, Bruce Hammock and Marc Schenker, along with Eun-Kee Park and Takaho Wantanbe of the UC Davis Department of Entomology and Cancer Research Center, have coauthored a paper detailing the testing method that will be published in the *Journal of Agricultural and Food Chemistry*. Currently, the



Shirley Gee

on-line version of the manuscript can be found at <http://pubs.acs.org/journals/jafcau/> (search for "Creatinine" in the "Title" index).

The manuscript describes the development of a method for creatinine measurements in urine by liquid chromatography–Tandem Mass Spectrometry (LC-MS/MS).

“When conducting studies to assess human exposure to pesticides, we collect urine samples in which we measure the pesticide. In some cases we are asking participants to

collect urine for a full 24 hours,” said Shirley Gee, M.S., senior staff research associate in the UC Davis Department of Entomology. Creatinine is a byproduct normally found in urine that is excreted at a constant rate. By measuring the level of creatinine, investigators can determine if the sample was in fact, a full 24-hour sample.

“It helps us with assuring compliance from the volunteers and offers us a way to adjust data if the sample collection is not complete,” said Gee.

The method described in the paper is somewhat different from what has been published by others in that a smaller sample is needed for analysis and the analysis time is faster than most LC-MS/MS methods. LC-MS/MS is often used for analysis of pesticides in urine, and the development of this creatinine method can be coupled with the measurement of the pesticides making the total sample analysis simpler.



WCAHS Job Opportunity Educator/Outreach Coordinator

As a result of Elizabeth DiDio's promotion through the UC Davis Health Services, the WCAH is recruiting for her replacement with a revised position. This new full time (100%) career position is through UC Davis Public Health Sciences at UC Davis. The position provides support for the Outreach Program for the Western Center for Agricultural Health and Safety (WCAHS), under the direction of Stephen McCurdy, M.D., M.P.H. Working with significant independence, this position requires daily collaboration with all components of the ag center, and is under the administrative supervision of the center manager. Collaboration with faculty and staff at UC Berkeley is critical to the successful performance of the goals for the Outreach Program. For more information, please contact Tina Perez, Human Resource Manager, at (530) 752-6937.



**Western Center
for Agricultural
Health and Safety**

One Shields Avenue
Davis, CA 95616-8757
AG10

Join our list server!

Have puzzling questions about occupational hazards in agriculture? Wondering about resources for teaching pesticide safety? Interested in Spanish-language resources for agricultural health and safety training? Then subscribe to our list server by visiting our Web site at <http://agcenter.ucdavis.edu>, and click on "AgHealth E-mail List."

AgHealth News is published quarterly by the Western Center for Agricultural Health and Safety, University of California, Davis CA 95616-8757; phone (530) 752-4050; FAX 752-5047; e-mail: agcenter@ucdavis.edu
<http://agcenter.ucdavis.edu>

Director.....Marc Schenker
Assoc. Director.....Kent Pinkerton
Research Coordinator.....Stephen McCurdy
Education/Outreach Coordinator.....TBA
Manager.....Sandra Freeland
Produced by.....EditPros, Davis

WCAHS Seminar Series

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

Monday, March 3

Thomas A. Arcury, Ph.D., Department of Family and Community Medicine, Wake Forest University School of Medicine. "Pesticide exposure among North Carolina farmworkers"

Monday, April 7

Shirley Gee, M.S., UC Davis Department of Entomology, Pesticide Immunoassay Lab. "Immunoassay methods for pesticide exposure monitoring"

Monday, May 5

Fadi Fathallah, Ph.D., AEP, UC Davis Biological and Agricultural Engineering, "Agricultural ergonomics research at UC Davis: Past, present & future"

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