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Tractor- and ATV-related injuries in farming need prevention strategies

By Marc Schenker, M.D., MPH

Everyone in the agricultural health and safety community is well aware of the hazards of tractor usage on the farm, and of the effectiveness of roll-over protective structures (ROPS) in preventing injuries and fatalities from rollovers. Farm tractor accidents result in approximately 200 deaths per year in the United States, each one of them a personal tragedy. The majority of deaths from tractors are from roll-overs. Tractor incidents remain the leading source of death and injury on farms according to the National Safety Council. Tractor-related deaths are also costly. Researchers at the University of Kentucky examined several sources of national data to estimate the incidence and cost of fatal and non-fatal tractor-related incidents over a 25-year time horizon, beginning in 1997 and extending to 2021. The researchers found the social cost of tractor overturn injuries totaled **\$1.5 billion** when using cost factors for the agricultural population.

In 1993, NIOSH Director J. Donald Millar called tractor rollovers an “occupational obscenity,” and Mel Meyers, NIOSH coordinator for agricultural health and safety programs, noted that “A tractor without a ROPS is a fatality waiting to happen.” Some progress has been made since 1993, but not enough. Approximately 50 percent of the 4.8 million tractors in use have ROPS, a statistic I find consistent with the glass being half full. Effective prevention will require much greater market saturation. Unfortunately, many owners of new tractors with factory-

installed ROPS, are removing them. This is a double tragedy.

Some progress has been made. The innovative Rollover Protective Structure Retrofit Rebate Program of the New York Center for Agricultural Medicine & Health has been successful in the challenging effort to add ROPS to existing tractors. In addition, eight NIOSH Agricultural Health and Safety Centers have produced a Tractor Safety Initiative for use in social marketing, and economic incentives to increase ROPS use.

It has been a long and frustrating effort to get ROPS onto most farm tractors and eliminate the deaths associated with roll-overs. It would require a market saturation closer to 90 percent to see the substantial fatality reduction and economic savings that are possible with ROPS. The current 50 percent market saturation is a long way from that goal, and the longevity of existing tractors and the current economic recession are forces against increasing this percentage. Nevertheless, efforts to create incentive programs for retrofits, social marketing to stimulate retrofits, a spotlight on the unnecessary personal tragedies from tractor deaths, and the use of new tools for social networking and safety campaigns can all help us move towards the goal.

Finally, I want to highlight another topic closely related to tractor deaths. Were you aware that the number of deaths from All-Terrain Vehicles (ATVs) is over twice the number of tractor fatalities? That's right. There are about 550 deaths from ATV accidents each year. Of this total, farming-related ATV deaths average around 20 to 25 per year.

The remainder are classified as recreational. Clearly ATV deaths deserve the attention of the same health and safety community. The fact that most of these deaths are not considered agricultural is a classification phenomena that does not lessen the tragedy. We need to be focusing on the causes, and prevention, of ATV fatalities and not allow our efforts to be distracted by the fact that

“only” 20-25 of these deaths each year are classified as due to farming. For those interested in an innovative program to understand and reduce ATV fatalities, contact Henry P. Cole, Ed.D., professor of preventive medicine and environmental health at the Southeast Center for Agricultural Health & Injury Prevention in Lexington, Kentucky (hcole@uky.edu).

WCAHS honors berry grower's health and safety success

The Western Center for Agricultural Health and Safety (WCAHS) at UC Davis has selected Reiter Affiliated Companies, an Oxnard-based berry producer, to receive the center's 2009 Outstanding Achievement in Farm Health and Safety Recognition Award.

The honor recognizes the efforts of Reiter Affiliated Companies, the largest berry producer in North America, in providing its employees with innovative safety training programs, continuing education and health care services. The award was presented on Sept.

Award continues on page 2



Accepting the Outstanding Achievement in Farm Health and Safety Recognition Award, Garland Reiter thanks the WCAHS for the honor and introduces members of the Reiter Affiliated Companies (RAC) Risk Management department. From the left, next to Dr. Schenker, RAC Risk Manager Adriana Salazar; Risk Management Director Kryz Novotnaj; RAC Director of Clinical Services—HealthSTAT Monica Young; Risk Manager Maria Rojas; and to Reiter's left, WCAHS External Advisory Board Chair William Krycia.

WCAHS researcher awarded NIH grant to study health effects of nanotubes

In September, Kent Pinkerton, director of the UC Davis Center for Health and the Environment and professor in the School of Medicine and the School of Veterinary Medicine, and associate director of WCAHS, was awarded a \$1 million National Institutes of Health (NIH) Challenge Grant for his work titled, "Novel approaches to evaluate carbon nanotube health impacts." The grant award is \$500,000 per year for the next two years.

Competition was intense for the NIH Challenge Grants, which are part of the American Recovery and Reinvestment Act (ARRA) stimulus bill. More than 25,000 grant proposals were submitted, and only 200 were awarded.

James Evans, project scientist in the Department of Molecular and Cellular Biology at the UC Davis College of Biological Sciences, also won a \$1 million grant for his work in proving that the world's first electron microscope is capable of filming live biological processes.

Evans is a co-investigator on Pinkerton's grant, along with UC Davis colleagues Ting Guo, associate professor of chemistry, and Laura Van Winkle, associate adjunct professor of anatomy, physiology and cell biology in the School of Veterinary Medicine.

Carbon-based engineered nanomaterials, such as single-walled carbon nanotubes, are expected to be incorporated into many manufactured goods in the next five years, due to their superior electronic, optical, mechanical, chemical and even biological properties.

Inhalation of carbon nanotubes may cause cellular injury and respiratory distress. This grant will bring together a number of novel approaches to address key issues regarding the potential human health effects of inhaled engineered nanomaterials. Evans will direct high-resolution imaging and characterization of carbon nanotubes present in cellular tissue after inhalation.

Pinkerton's work will provide a broad understanding of how inhaled ultrafine or nanosized particles in the form of single-walled carbon nanotubes (SWCNTs) produce effects through physical or chemical particle-cell interactions in the respiratory system and possibly other target organs. It is envisioned that this approach with SWCNTs can be widely used to define physical-chemical-activity pathways that will aid in setting future occupational and environmental standards

based on data reflective of the most sensitive health outcomes and relevant routes of exposure.

Carbon nanotubes are anticipated to have significant beneficial applications in agriculture to allow for the slow-release of pesticides that become intercalated into the mesh-like structure of carbon nanotubes to minimize the frequency of pesticide application to field crops.

For more information, contact Kent Pinkerton at kepinkerton@ucdavis.edu.

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Brenda and Garland Reiter enjoy the award reception along with Melanie and Richard Cavaletto. Dr. Cavaletto received the WCAHS Certificate of Honorable Mention for his long history and current work developing practices that improve safety for those working on farms.

18 to Garland Reiter, the firm's chief executive officer and president, at the conclusion of the center's annual retreat at the R.H. Phillips Winery and Vineyard.

"Reiter Affiliated Companies is a longtime family business and an amazingly forward-thinking operation," said WCAHS Director Marc Schenker, M.D., MPH. "It is the first agricultural firm in the nation to provide private health clinics for farm workers.

"Reiter has set a new standard for the agricultural industry by placing a high priority on employee health and safety and following through on that commitment with practical health services, training and education," Schenker said.

The company reports that during 2008, its risk-management and health care options

resulted in a 40 percent decrease in the severity of employee accidents and illnesses.

During the September awards ceremony, the center also presented an honorable mention award to Richard Cavaletto, director and department chair in the Agricultural Safety Institute at California Polytechnic State University, San Luis Obispo.

This is the second year that the health and safety award is being presented. It was developed by WCAHS, with funding from the National Institute of Occupational Safety and Health, to recognize an individual, group, organization, association or business that consistently strives to reduce agricultural workplace injuries and improve overall health on the farm.



During the WCAHS Sept. 18 annual advancement planning retreat, held this year at the RH Phillips Winery and Vineyard, Victor Duraj, Biological & Agricultural Engineering (back to camera) discusses varied ladder rung spacing with (from left) Brent Ulrey, Marc Schenker, Christoph Vogel and Amjad Ramahi. In the foreground, Professor Jerry Last tests a ladder from the Agricultural Ergonomics Research Center.

New DOSH deputy chief's goal: Firm, fair and consistent enforcement

Christopher Lee says his philosophy as the new Deputy Chief for Field Enforcement at the Division of Occupational Safety and Health (DOSH) will be firm but fair in the enforcement and consistent application of Cal/OSHA regulations. He boils it down to a simple phrase: "Don't do dumb stuff."



Christopher Lee

Lee, who was guest speaker at WCAHS' Oct. 5 seminar, said, "The cornerstone of my OSH philosophy will be strict, consistent and fair enforcement. Employees deserve it and employers benefit by a level playing field."

Lee comes to DOSH about a year after retiring from Fed-OSHA, where he spent 28 years, most recently as deputy regional administrator for Region 9, which includes California.

He also served for six years as a congressional aide and on the California Assembly Committee on Rules. He holds a degree in public administration from Cal State Sacramento.

Lee told WCAHS that Cal/OSHA already has exceeded the number of heat illness inspections conducted in 2008, with more than 2,700 this year so far. DOSH has issued citations for more than 500 alleged violations of General Industry Safety Orders §3395, but as inspections go up, Cal/OSHA is finding a higher level of compliance with the standard. When DOSH began heat illness inspections in 2005, it found a 33 percent compliance rate; this year it was up to 81 percent.

He noted that DOSH is looking into possibly collaborating with the California District Attorney's Association to refer potential misdemeanor prosecutions for heat illness violations. Such a project could "further the deterrent effect," he said.

DOSH also will embark on an outreach campaign after being granted \$1.5 million by the California Legislature to educate non-English-speaking, at-risk workers about heat illness hazards and prevention. The program will target inland valleys, desert ag

| Fatalities: Crop Production | |
|-----------------------------|-----|
| 2003 | 14 |
| 2004 | 16 |
| 2005 | 17 |
| 2006 | 34 |
| 2007 | 16 |
| 2008 | 22* |

* Preliminary

| Most Frequently Cited Cal/OSHA Standards – Agriculture | |
|--|--|
| GISO §3395 | Heat Illness Prevention |
| GISO §3457 | Field Sanitation |
| GISO §3203 | Injury and Illness Prevention Program |
| DOSH §342(a) | Fatality and Serious Injury Reporting |
| GISO §3314 | Control of Hazardous Energy – Prime Movers |

regions, the Central Valley and coastal areas, reaching working adults in low-paying, outdoor environments. DOSH must spend at least half of the grant money on seminars and other outreach, but no television ads and no more than half the money on radio.

DOSH also wants to reach working minors, ages 12 to 17, employers and frontline supervisors of outdoor workers.

This article was excerpted from the Oct. 9 issue of *Cal-OSHA Reporter*.

Two UC Campuses join to launch New Migrant Health Research Center

Xóchitl Castañeda, director of the Health Initiative of the Americas (HIA) at the UC Berkeley School of Public Health, and WCAHS Director Marc Schenker launched a new Migration and Health Research Center (MAHRC) on Sept. 9, at the University of California Center in Sacramento.

MAHRC will focus on conducting and sponsoring research related to acute and chronic illnesses and injuries among migrating people. The resulting research discoveries will be made available to help guide public policy aimed at alleviating such health problems across the board.

Current funding for the new center has been provided by UC's Health Initiative of the Americas, Center for Occupational and Environmental Health, California Program on Access to Care and research grants.

"Immigrant workers have significantly higher rates of occupational injury and illness, yet have less access to health care," said the new center's Director Marc Schenker. "The new Migration and Health Research Center will explore the causes and potential solutions for these very serious health issues by providing research and training

opportunities for graduate students, faculty researchers and visiting professors from a variety of different specialty areas."

Attending the event, Mexican Consul Carlos González Gutiérrez said, "Migration is a difficult process, regardless of the motivations behind it. Research about the transnational effects of migration on health is desperately needed to inform national and international health policy agendas."

Steve Shortell, dean of the UC Berkeley School of Public Health noted that this collaboration will

enhance our multi-disciplinary approach. Shortell said. "It will build across the 10 UC campuses and bridge national borders to become a Western Hemisphere leader in the emerging field of migration and health." Barry Klein, UC Davis' vice chancellor for research added that UC Davis, with its expertise in agricultural health and safety, migration and labor economics and public health will bring a wealth of experience to the new center.

For additional information about the Migration and Health Research Center, please send an e-mail to mahr@phs.ucdavis.edu.



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Calendar of Events

December 7

Max Lum, Ed.D., MPA, NIOSH director of e-news and communications, will present "New media and agricultural health and safety: Is My Space really our space?" during the WCAHS Seminar Series, 4-5 p.m., 3201 Hart Hall, UC Davis Campus

January 4

Pamela Wofford and **Randy Sagawa** of the Department of Pesticide Regulation—Cal EPA—will discuss DPR's monitoring network during the WCAHS Seminar Series, 4-5 p.m., 3201 Hart Hall, UC Davis Campus

February 1

WCAHS Graduate Student Presentations (four at 10-minutes each) during the WCAHS Seminar Series, 4-5 p.m., 3201 Hart Hall, UC Davis Campus

March 1

Rob Atwill, DVM, MPVM, Ph.D., interim director of the Western Institute for Food Safety and Security, will discuss pre-harvest food safety, food safety and farmworkers during the WCAHS Seminar Series, 4-5 p.m., 3201 Hart Hall, UC Davis Campus

The 2009 WCAHS seminar series is available via video webcast at http://agcenter.ucdavis.edu/seminar/webcast_2009.php