



AgConnections

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for Agricultural Safety and Health Research, Education, and Prevention

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Partnering with Farm Owners, Operators and Employees to Reduce Injuries and Associated Costs

As part of their mission to prevent agricultural occupational injuries and illness and their associated costs, the NIOSH-funded Agricultural Centers for Research, Education, and Disease and Injury Prevention welcome and rely upon sustained partnerships with producers, farm workers, equipment dealers, insurance providers and other agricultural stakeholders. These partnerships help to foster research that is timely and relevant, while encouraging practical solutions to real-world problems. The result is the further identification and adoption of best practices in agriculture, forestry, and fishing. On June 8, the Western Center for Agricultural Health and Safety celebrated 20 years of successful research and partnerships with colleagues and friends from Cal OSHA, the California Farm Labor Contractor Association, regional farm operations, and other stakeholder groups.

“Ground level discourse” is an essential element of any effective program, and a hallmark of the successful ROPS Retrofit Rebate program in New York has been the use of social marketing techniques to learn directly from farmers what works best for farmers. With support from the state legislature, the NY program offered financial incentives of up to \$765 for farmers to retrofit unguarded tractors with rollover protective structures. As Dr. Julie Sorensen of the Northeast Center reports in this issue, the success of this program has

led to similar efforts in Pennsylvania and Vermont. Through direct engagement with tractor owners and operators, Sorensen and colleagues have discovered both the openness of farmers to retrofitting and the barriers that prevent many from doing so.

Until now, one barrier that kept many farmers from retrofitting unguarded tractors was the daunting task of sifting through multiple, widely scattered and often outdated or incomplete sources of information about ROPS availability for specific makes and models of tractors, as well as where and how to obtain them. Thanks to the painstaking labors of Dr. Mark Purschwitz of the University of Kentucky, however, and the cooperation of ROPS manufacturers and dealers and the Northeast Center, that barrier has been overcome: In this issue, we note the debut of The Kentucky ROPS Guide, a convenient, easy-to-use, online source of ROPS information for any domestic or imported agricultural tractor in the United

States for which a retrofit is available.

These are but two of more than a half dozen influential projects featured in this issue; other articles describe innovative, high impact collaboration with Yakima Valley Farm Workers; Gulf Coast commercial fishermen; and 4H groups in Kentucky, New York, and TexArkana. Readers who wish to learn more about these and other projects are encouraged to use the contact information found on page 8.



Marc B. Schenker, MD, MPH

Dr. Schenker has served as Director of the Western Center for Agricultural Health & Safety (University of California-Davis) since its inception in 1990.



MS

Successful New York Model for Promoting ROPS Retrofitting Expanding into Pennsylvania and Vermont



Julie Sorensen, PhD
Northeast Center

Reducing the rate of tractor overturn fatalities is a primary objective of the NIOSH Agricultural, Forestry and Fishing (AgFF) program -- and for good reason.

Tractor overturns are a major source of agricultural occupational fatalities, yet such deaths and many serious injuries can be reliably prevented with the installation of rollover protective structures (ROPS) on unguarded tractors. Increasing the prevalence of ROPS-equipped tractors requires definitive answers to the question, *How can we convince farmers to make work safer?*

In the past few years, several promising approaches have been identified for stimulating ROPS retrofitting activity in the farm community. Social marketing is one approach and has been tested with success in New York by the Northeast Center for Agricultural and Occupational Health (NEC). This approach requires

1. selecting a target population,
2. identifying the population's motivators and barriers to change, and
3. developing solutions that make change easier.

Using this approach, NEC researchers have utilized rebates and a targeted promotional campaign to persuade nearly 800 New York farmers to install ROPS. Now researchers are seeking to answer the question, *Can this success be duplicated in other states?*

The Northeast Center is working with researchers from Pennsylvania and Vermont to launch similar ROPS interventions using the approach demonstrated successfully in New York. Since August 2009, Drs. Dennis Murphy and Aaron Yoder of Pennsylvania State University and George Cook and Matt Meyers of the University of Vermont Extension have been gathering the data and community support necessary to launch ROPS interventions in their respective states.

Data from preliminary surveys indicate that small crop farmers in Pennsylvania and vegetable and hay farmers in Vermont could be ideal candidates for intervention. These farmers had relatively low proportions of ROPS-protected tractors when compared to farmers in other segments of the farm community. In both states, the majority of farmers completing the pre-intervention survey (86% in Pennsylvania, 81% in Vermont) stated they were not considering retrofitting unprotected tractors.

The initial experience of the Pennsylvania and Vermont researchers indicates that the most formidable challenge may not be convincing farmers to retrofit, but convincing agricultural stakeholders to provide the financial support necessary for ROPS rebates. Despite considerable energy dedicated to fundraising efforts, Pennsylvania and Vermont researchers have received marginal support from agricultural stakeholders. As these experiences illustrate, increasing retrofitting activity will not only require making ROPS a priority for farmers. It will also require making ROPS a priority for the institutions and businesses that serve them.

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Cover photo credits, counterclockwise from top right: No-till planting of corn into cover crop of barley, Jeff Vanuga, USDA; logging road, Robert McKnight, University of Kentucky; Applying weed control to soybeans, Keith Weller, USDA; South Carolina clam harvest, Robert Durborow, Kentucky State University; Tractor with 4-post ROPS, Peggy Greb, USDA; Inspecting cattle for ticks, Scott Bauer, USDA; Dairy research technician, Keith Weller, USDA; Sheep shearer, Teresa Donovan, University of Kentucky; Women processing lettuce, USAID; Grain harvest, Tim McCabe, USDA; Horse grooming, Teresa Donovan, University of Kentucky.



Kentucky ROPS Guide:

Comprehensive source for retrofit information now available online

Used in combination with a seatbelt, rollover protective structures (ROPS) have been shown to be 98% effective in preventing death and serious injury in the event of a tractor overturn. Nevertheless, more than one third of tractors in use today, and perhaps as many as 50 percent in some areas, still do not have these lifesaving structures.

Not knowing what companies supply retrofit ROPS, what ROPS are available for which tractors, and how to obtain these ROPS either prevents, or is a powerful disincentive to, tractor owners from locating and installing ROPS on unguarded tractors. This information barrier also prevents owners from retrofitting ROPS on the increasing number of older "gray market" tractors; i.e., tractors imported without manufacturer authorization entering the United States, particularly compact models manufactured and used in Japan.

To meet the needs of stakeholders and to enable them to make informed decisions about ROPS retrofitting, Dr. Mark Purschwitz of the University of Kentucky has collected and organized existing information on ROPS availability, by tractor make and model, into a user-friendly online guide to ROPS retrofits.

The Kentucky ROPS Guide offers full search capability that allows any tractor owner, as well as equipment dealers and technicians, to determine availability, source, and acquisition procedures for retrofit ROPS for any domestic or imported agricultural tractor in the United States for which a retrofit ROPS is available. The guide by default enables users to determine when a retrofit ROPS is not available for a particular tractor make and model.

<http://www.ca.uky.edu/rops>

Excerpt from a sample search

The Kentucky ROPS Guide



Number of ROPS Found: 3

Tractor Make: International or Farmall - Tractor Model 254

ROPS Supplier: Laurin

ROPS Type: 2-post foldable

Ordering Information: Laurin Inc. is located in Quebec, Canada and only sells through equipment dealers. Contact a dealer and have them order from Laurin by contacting sales representative Jonathan Arkison at 450-689-1962, ext. 216, or via e-mail at jonathan.arkison@laurin-inc.com.

“ This is fantastic. I found a source for a ROPS for our International 706 tractor. I found ROPS for many of the older tractors our neighbors use, too. A couple of clicks...so easy! Thanks to Mark Purschwitz and colleagues for developing this guide. ”

-- Marie Reed, RN, Texas

Several features of the Kentucky ROPS Guide are particularly user friendly. Notably, the Guide

- can be searched simply by selecting a tractor make and model number;
- provides detailed information about ROPS suppliers, ROPS types, and how to order; and
- includes makes and models of "gray market" tractors, particularly Japanese compact tractors frequently being sold in the U.S. market today.

A 1977 ag engineering graduate of Purdue University (PhD, agricultural mechanization, 1989),

Dr. Purschwitz is an Extension Professor and Agricultural Safety and Health Specialist in the UK College of Agriculture, Department of Biosystems and Agricultural Engineering.

Development of the Kentucky ROPS Guide was supported by the Southeast Center for Agricultural Health and Injury Prevention, University of Kentucky College of Public Health, through CDC/NIOSH Cooperative Agreement U50 OH007547-07S1





Southwest Center (University of Texas Health Science Center) Engaging Stakeholders to Improve Commercial Fishing Safety

*Jeffrey Levin, MD, MSPH
Director, Southwest Center for Agricultural Health,
Injury Prevention, and Education*



The conduct of effective research in AgFF occupational safety and health requires mutual respect and trust between the study team and leaders and members of a target audience. This may be particularly true in the case of populations whose members are hard to reach, whose English proficiency is poor or non-existent, and/or whose cultural norms differ from those of the research team.

The Southwest Center's project with Vietnamese commercial fishermen of the Gulf Coast demonstrates how stakeholder engagement is vital to ensuring that

- the research design and conduct are acceptable to the target audience,
- findings will be adopted by the target audience, and
- end users will provide feedback about the impact (i.e., evaluate the process and results).

Initial interest in working with Gulf Coast shrimp fishermen was sparked during a session arranged and conducted in 2003 by Mr. Gilbert Gallardo, U.S. Coast Guard Marine Safety Unit (USCG-MSU) Commercial Fishing Vessel Safety Examiner for the Galveston, Texas, area. Among other duties, the Marine Safety Unit

conducts vessel inspection, search and rescue, port safety, and investigates vessel and personnel casualties. Seven years ago, little was known about the worker population or factors contributing to injuries/fatalities among commercial fishermen along the Gulf Coast. An analysis of data made available by Mr. Mike White, USCG District 8 office in New Orleans, confirmed subsequent reports that this region experiences the second highest level of vessel loss and crew fatalities among commercial fishermen (Dickey & Ellis 2006). Opportunities for research were indicated.

Over the next two years USCG-MSU Galveston took the lead in identifying respected shrimp boat captains, marine supply owners, and other fishing community leaders. USCG-MSU representatives worked with the research team to organize a series of meetings with these stakeholders and with USCG-MSU personnel from New Orleans to Corpus Christi. It became apparent that the most important target audience would be Vietnamese shrimp fishermen. A survey was developed and administered in Vietnamese to validate worker demographics, work practices, perception of risk,

and opportunities for intervention. Experienced Vietnamese fishermen and USCG-MSU helped the research team to develop a safety training program and materials in Vietnamese that responded to the stakeholders' priority requests. The initial training in Galveston was so well-received the USCG-MSU invited the team to replicate the program in other commercial shrimping communities in Louisiana and Texas. As a result of the strong relationships established by engaging workers and USCG-MSU throughout, the project expanded geographically with community-based participation to develop and test safety interventions.

Reference

Dickey DH, Ellis QP. Analysis of fishing vessel casualties: a review of lost fishing vessels and crew fatalities, 1994-2004. A report of the United States Coast Guard. Washington, DC: USCG, Office of Investigation and Analysis, Compliance Analysis Division; 2006:1-42.

Editor's note: Information on the NIOSH Deepwater Horizon Response (Gulf oil cleanup) can be found at <http://www.cdc.gov/niosh/topics/oilspillresponse>





Sharing a vision for safety

Opposite page, top left: Gilbert Gallardo (left) and Captain Mang Vo (right) help a shrimp fisherman use a navigation training tool.

Opposite page, top right: Shrimp fishermen prepare to use the USCG Damage Control Trainer in South Padre Island, Texas.

Opposite page, bottom left: USCG Mike White and Bill Evert demonstrate a personal flotation device.

Opposite page, bottom right: Captain Mang Vo leads the group in a conflagration scenario.

This page, top left: USCG Lt. Thao Nguyen demonstrates fire extinguisher safety in Abbeville, Louisiana.

This page, top center: Thu Bui helps fishermen complete a survey.

This page, top right: Trang Vu, Response Officer for the Texas General Land Office, presents flooding information to shrimp fishermen in Galveston, Texas.

This page, right center: USCG Ron Hellberg demonstrates proper life ring toss techniques.

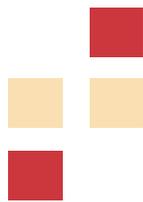
Below right: Captain Mang Vo explains the safety image on a T-shirt intended to be an intervention, as Dr. Jeffrey Levin listens along with audience members.

Inset below: Robert Nguyen, Belle Chasse community stakeholder, explains a winch safety sign that was provided to fishermen as an intervention.

This page, bottom right: Trang Vu (standing left) and Lt. Nguyen (standing right) help participants complete a survey in Belle Chasse, Louisiana.

This page, bottom left: Quyenie Lam (left) guides two shrimp fishermen in a flooding preparedness exercise.

For more information about this Southwest Center project, contact Dr. Levin and his staff at 903-877-5896, agcenter@uthct.edu



Stakeholder collaboration as a prerequisite to effective education

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According to the NIOSH Childhood Agricultural Injury Surveillance Project (<http://www.cdc.gov/niosh/childag/childagsurvproj.html>) youth living on farms accounted for the most farm injuries in 2006: approximately 11,800 reported injuries, which was more than 8 times the number of injuries reported among hired farm workers in the same year. Because children and adolescents live and work on farms and ranches nationwide, the primary aim of this project is to provide effective educational interventions that can be used at an early age to raise safety awareness, increase knowledge, and encourage behaviors to reduce agricultural injuries and fatalities among youth.

The project team is multidisciplinary and includes expertise in evaluation research, human behavior, industrial hygiene, ergonomics and engineering. Together, project team members and collaborators are working to

1. rigorously evaluate an interactive CD (4-H CD1) developed during the 2001-2006 NIOSH funding cycle, and
2. develop and test 4-H CD2 with the assistance of multiple stakeholders representing three diverse agricultural regions of the country.

Approach/method

The HICAHS team had experience with two previous educational projects involving CD-based instructional material: one targeting high school Vocational Agriculture classes, the other focused on developing the first interactive CD for 4-H youth in grades 3-6. These projects underscored the value of including multiple stakeholders throughout the conception, planning, and execution of a study. Key stakeholders in the current project in-

clude NIOSH (funding source), National 4-H, and three additional Ag Centers that have joined HICAHS in the development and testing of 4-H CD2:

- Northeast Center (NEC/ NYCAMH),
- Southeast Center (University of Kentucky), and
- Southwest Center (University of Texas Health Sciences Center-Tyler).

The project advisory team thus reflects four diverse agricultural regions of the United States.

Additional stakeholder input was obtained early in the project from participants in Regional Panels consisting of 4-H leaders, parents, and children in each region. During a facilitated discussion process, these groups suggested topic ideas seen as timely and relevant for their area. Additional stakeholder input was provided by other Ag Center personnel, Extension professionals, and representatives of state and local farm organizations who also shared insights with the Regional Coordinators.



Photo: Bill Tarpenning, USDA

Outcomes

Analysis of the stakeholder input resulted in the selection of five learning modules that participants from each region agree are both appropriate and important to address for their youth:

- Animal handling & showing,
- ATV safety,
- Chemical health and safety,
- Farm machinery safety, and
- A farm “walk-about” identifying health and safety hazards throughout the farm.



Photo: Gina Cook, USDA

An unexpected bonus of these multiple stakeholder groups is that 4-H leaders, parents, and children from each region offered to assist with the videotaping for components of each module and to provide youth narrators for voiceovers included in 4-H CD2. In addition, some of the groups that were involved in testing CD1 will be providing assistance with formative evaluation of CD2. Based upon preliminary analysis of results from testing CD1 in each of the targeted grades and regions, knowledge gains have been demonstrated on each topic module.

Follow-up telephone interviews of parents regarding behavior change are ongoing, but some of the early results indicate that discussions had been initiated by children with their parents regarding ATVs and chemical and grain handling after watching the CD.

By using technology appropriate to the developmental stage of the target group, working through an existing agricultural organization (4-H), and including multiple stakeholders from the outset of the project, we can anticipate that the relevance, quality, and impact of the final product will be measurably enhanced – thus contributing to more effective safety and health information for a vulnerable population in agricultural production.

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El Proyecto Bienestar: Engaging the Yakima Valley Farm Worker Community in Environmental and Occupational Health Research

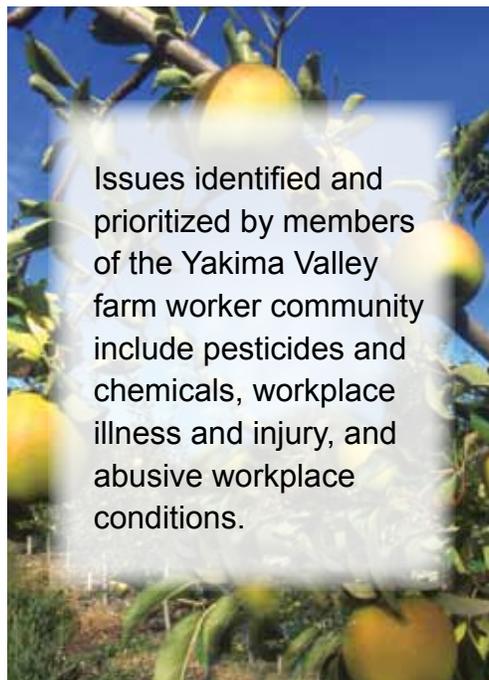
El Proyecto Bienestar (The Well-Being Project) is a community-academic-clinical partnership that aims to improve the health and safety of the agricultural community in Washington's Yakima Valley, the center of tree fruit production in the Pacific Northwest. Originally a NIOSH-funded project, El Proyecto Bienestar has successfully brought together diverse stakeholders to explore and respond to environmental and occupational health and safety issues faced by Hispanic agricultural workers. The project is rooted in community-based participatory research, and the partnership's core team includes the Yakima Valley Farm Worker's Clinic, the Northwest Communities Education Center/Radio KDNA, Heritage University, and the Pacific Northwest Agricultural Safety and Health Center at the University of Washington.

Since the project's inception in 2004, community stakeholders have been involved in every aspect of El Proyecto Bienestar. Led by a Community Advisory Board, project members disseminate public information through the local Spanish-language public radio station, Radio KDNA. El Proyecto Bienestar also builds capacity among local undergraduate college students who learn about environmental and occupational health research through hands-on data collection in the ConneX program (Connecting Students to Health Careers). The Yakima Valley Farm Worker's Clinic developed ConneX to connect local students to health sciences careers and increase healthcare provider diversity.

These young stakeholders, children of farm workers themselves, helped El Proyecto Bienestar to collect more than 900 surveys from community members to assess local environ-

mental and agricultural occupational health concerns. The concerns were prioritized during a town hall meeting using Nominal Group Process, a collective decision-making tool. Issues identified and prioritized by members of the Yakima Valley farm worker community include pesticides and chemicals, workplace illness and injury, and abusive workplace conditions.

The demonstrated success of El Proyecto Bienestar has led to other research grant awards. Currently, El Proyecto Bienestar is developing ra-



Issues identified and prioritized by members of the Yakima Valley farm worker community include pesticides and chemicals, workplace illness and injury, and abusive workplace conditions.

dionovelas (radio dramas) centered on a fictional, multi-generational farm worker family to disseminate environmental and occupational health information in a culturally and linguistically relevant way. Novela character actors are local community volunteers. El Proyecto Bienestar also was awarded an Environmental Protection Agency CARE I grant to perform well-water testing in the Yakima Valley and a grant from the National Institute of Environmental Health Sciences (NIEHS) to explore agricultural aggravators of asthma.



El Proyecto Bienestar's approach using community-based participatory research has been replicated with the Idaho Partnership for Hispanic Health. The Idaho Partnership is currently working on a health intervention for metabolic syndrome using a promotora education model.

For more details contact Rachel Schwartz, MSW, MPH, or Matthew Keifer, MD, MPH, at pnash@uw.edu or 206-616-8904.

Resources

Hofmann JN, Crowe J, Postma J, Ybarra V, Keifer MC. Perceptions of environmental and occupational health hazards among agricultural workers in Washington State. *AAOHN J*. 2009 Sep; 57(9):359-71. PMID: 19715263

Crowe JL, Keifer MC, Salazar MK. Striving to provide opportunities for farm worker community participation in research. *J Agric Saf Health*. 2008 Apr; 14(2):205-19. PMID: 18524285

National Children's Center for Rural and Agricultural Health and Safety (NCCRAHS)

Safe Play Materials Available in Spanish

Helpful, informative materials on childhood farm safety are available in English and Spanish from the National Children's Center/Marshfield. See more details about **Creating Safe Play Areas on Farms/Creación de áreas de juego seguras en granjas** at http://www.marshfieldclinic.org/nccrahs/default.aspx?page=nfmc_nccrahs_safe_play_welcome and in our next issue (Fall 2010).

The Centers

for Agricultural Disease and Injury Research, Education, and Prevention represent a concerted effort of CDC/NIOSH to protect the health and safety of farm operators, hired farm workers, and their families. The Centers act by cooperative agreement to address urgent, persistent, and/or emerging problems related to occupational safety and health in agriculture, forestry, and fishing. The Centers are located in geographically diverse regions and respond to the unique needs of their stakeholder populations.

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On June 8, 2010, the Western Center for Agricultural Health and Safety celebrated its 20th anniversary together with colleagues and friends from CalOSHA, the California Farm Labor Contractor Association, regional farm operations, and other guests. Words from Director Marc Schenker, MD, appear on page 1.



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