

Annual Report

09/30/11 – 09/29/2012

Submitted by

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On behalf of

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*Located in Lexington, Kentucky, the Southeast Center for Agricultural Health and Injury Prevention
serves employers, workers, and families in KY, TN, GA, MS, AL, WV, VA, NC, SC, and FL.*

SECTION I — CENTER SUMMARY

The mission of the Southeast Center for Agricultural Health and Injury Prevention is to develop and sustain an innovative program of research, education, and health promotion to prevent work-related illness and injury and to improve the health and safety of agricultural workers and their families in the southeastern United States. Toward this end, the Southeast Center conducts and supports transdisciplinary, collaborative projects throughout its 10-state service region: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. **Specifically, the Center aims to**

1. Conduct research on the prevention of occupational disease and injury among agricultural workers and their families;
2. Develop, implement, and evaluate education and outreach programs to promote the safety and health of agricultural workers and their families;
3. Develop, implement, and evaluate model programs to prevent illness and injury among agricultural workers and their families; and
4. Develop linkages with other governmental and non-governmental bodies involved in public health and safety, especially other agricultural safety and health research centers.

Under CDC/NIOSH Cooperative Agreement 2 U54OH007547-11, the Southeast Center received initial awards effective 09/30/11 for the first 8 projects and programs listed below, followed by later funding for a ninth project, Native American Safety and Health (funded as of 09/30/12):

Research

1. Latino Farmworkers, Work Organization, Safety and Health

Prevention/Intervention

2. Economics of Preventing Agricultural Injuries to Adolescents and Adult Farmers

Education/Translation

3. Nurses Utilizing Research, Service, Education and Practice (NURSE-AP)
4. Graduate Certificate in Agricultural Safety and Health
5. Administration and Planning
6. Feasibility Studies and Emerging Issues Program
7. Outreach
8. Evaluation
9. Native American Agricultural Safety and Health

RELEVANCE

Through each of these projects and programs, the faculty and staff of the Southeast Center have aimed to approximate **the ideal Agriculture, Forestry, and Fishing program** as defined by the National Research Council and Institute of Medicine: Committee to Review the NIOSH Agriculture, Forestry, and Fishing Research Program. Agriculture, Forestry, and Fishing Research at NIOSH. Report No. 3, Reviews of Research Programs of the National Institute for Occupational Safety and Health. Washington, DC: National Academies Press, 2008

(http://www.nap.edu/catalog.php?record_id=12088#toc.) Moreover, we have been responsive to comments provided by Gunderson & Bean, et al. (2012) following their systematic evaluation of

the AgFF national research program: See Gunderson P, Bean TL, Correa MT, Dosman JA, Groves WA, Lee L, et al. Comments on the Agriculture, Forestry, and Fishing (AgFF) National Research Program Sponsored by the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC). 2012 Jun 26 (<http://www.cdc.gov/niosh/programs/agff/naseval.html>). This demonstrated responsiveness includes

- Prioritizing injury and disease surveillance to keep pace with sector trends, including changing workforce demographics -- especially immigration and aging.
- Properly identifying populations at risk, such as minority farm workers and adolescents, family and non-family laborers, and AgFF workers hired through farm labor contractors.
- Overcoming language and literacy barriers for the growing number of AgFF workers who are not proficient in English or Spanish.
- Addressing the complex and varied occupational hazards associated with specialized AgFF commodities and production methods; *e.g.*, horse farms, a key Kentucky industry.
- Increasing the number of public health graduates, high school teachers, nurses and other practitioners educated and trained through Center programs in agricultural occupational safety and health and related research.
- Enhancing capacity and infrastructure for agricultural occupational safety and health education and research at the University of Kentucky and multiple collaborating institutions.

Key Personnel

Detailed contact information for Center personnel and project staff may be found in Appendix 1.

Name	Role	Phone	Email
David M. Mannino, MD	Acting Director *	859-218-2100	dmmann2@email.uky.edu
Robert H. McKnight	Founding Director	859-323-6836	rmcknig@uky.edu
Wayne T. Sanderson, CIH, PhD	Deputy Director	859-218-2227	wsa223@uky.edu
Deborah B. Reed	PD/PI	859-257-9636	dbreed01@uky.edu
Joan M. Mazur, PhD	PD/PI	859-257-4896	jmazur@uky.edu
Henry P. Cole, EdD	Co-investigator	859-576-6610	hcole01@windstream.net
Mark Purschwitz, PhD	Faculty member	859-257-3000	purschwitz@uky.edu
Ramona Stone, PhD	Center Evaluator	502-727-0081	ramona.stone@uky.edu
Chike Anyaegbunam, PhD	PD/PI	859-257-7820	canya2@uky.edu
Jennifer Swanberg, PhD	PD/PI	859-296-1089	jswanberg@iwin.uky.edu
Christin Kane	Budget Officer	859-323-1278	christin.kane@uky.edu
Teresa Donovan, MPH	Publications	859-323-4602	tdono2@uky.edu
Victoria Davis	KCHIP Coordinator	859-323-5317	vdavi2@email.uky.edu
Amber Kidd	Administrative Asst	859-323-6836	amber.kidd@uky.edu
Susan Westneat, MA	Data Analyst	859-323-8282	swest1@email.uky.edu

Dr. Robert McKnight took extended medical leave from the University of Kentucky as of December 12, 2012. Dr. David Mannino now serves as Acting Director. He will join Deputy Director Dr. Wayne T. Sanderson at the February 2013 meeting of the NIOSH Agricultural Center Directors in Washington, DC.

Southeast Center Web pages: <http://www.mc.uky.edu/scahip/>

SECTION II — PROGRAM HIGHLIGHTS

Research Core: Latino Farmworkers, Work Organization, Safety and Health

In 2009, NIOSH independent reviewers observed that the “ideal” AgFF program will have *“adequate resources to set priorities among and accomplish the congressionally stated goals of surveillance, research and intervention through... identification and characterization of special populations and the unique health and safety risks they face.”*

The Center is addressing the needs of Kentucky’s growing Hispanic/Latino farm worker populations through *Salud y Seguridad del Trabajador Equino* (Latino Farmworkers, Work Organization, Safety and Health), a 5-year project led by Jennifer Swanberg, PhD. The project team continues to study how work is organized in small-scale crop and horse production worksites in Kentucky and is exploring which work organization variables may contribute to occupational injury and illness among Hispanic/Latino workers. From inception, the project has enjoyed enthusiastic cooperation and buy-in from representatives of Bluegrass Farms Charities, the Kentucky Thoroughbred Association, the Kentucky Thoroughbred Farm Managers’ Club, and the Migrant Network Coalition, among other stakeholder groups. Related news articles have appeared in *Business Lexington* (2012 Oct 10) and the *Lexington Herald Leader* (2012 Nov 5). The latter article was distributed via *Associated Press* and also appeared in some form in more than 13 local and state, 20 national, and 1 international media outlets. During the period under review, 35 eligible farms have been identified for the study; 13 farms have completed both the telephone and on-site interviews, and 17 farms have completed the telephone interview as of 12/31/12. (See detailed project report in Section II.)

Education/Translation: Nurses Utilizing Research, Service, Education and Practice

In addition to immigration, another major demographic shift in production agriculture is aging: Approximately 30% of agricultural producers are age 65 and older (USDA, 2007), versus 7 percent of other self-employed workers in nonagricultural industries (Hoppe & Banker, 2006). As NIOSH AFF reviewers have noted, “Such occupational longevity provides ample opportunity for development of a rich body of literature pertaining to occupational exposure risk and outcomes that may presage other U.S. worker futures in the ‘emerging’ world economy of the 21st century.” (Gunderson & Bean et al, 2012). Through the work of Drs. Deborah Reed and Henry Cole, the Southeast Center is championing this body of research, as part of its larger role in anticipating and addressing demographic shifts in production agriculture. Drs. Reed and Cole have each published a number of articles on the work characteristics and needs of older farmers, who constitute slightly more than 26 percent of all U.S. farmers and own approximately one-third of U.S. farm assets. Peer-review journals disseminating these authors’ work have included *Journal of Agricultural Safety and Health*, *Workplace Health and Safety*, *Journal of Agromedicine*, *Southern Medical Journal*, *Journal of Rural Health*, *Geriatric Nursing*, and *Nursing Research and Reviews*. (A list of 2012 Center publications is provided in Appendix 2).

While distinguished by its contributions to the service and well-being of older farmers, the NURSE-AP project is also duly focused on preparing the next generation of occupational and environmental health nurses: Through the NURSE-AP project, Dr. Reed and her colleagues have provided highly praised continuing education (CE) and professional development

opportunities for stakeholders participating in AgriSafe, the UK Summer Series on Aging, and the Rural Nurse Organization. The NURSE-AP program maintains a vibrant social media presence (Facebook, Twitter) as part of its student recruitment and outreach efforts, and innovative PodCasts have been adopted for use at the University of Kentucky, Western Kentucky University, the Idaho State University School of Nursing, and elsewhere.

Through these and other forward-looking endeavors, the NURSE-AP project continues to bridge the historical divide between academia, clinical nursing research and practice, and day-to-day realities of production agriculture. The project seeks to advance *Healthy People 2020* objectives to eliminate health disparities; focuses on educational and community-based programs; and is demonstrating the creative use of information technology in promoting occupational health and injury prevention. (See detailed NURSE-AP project report in Section III.)

Education/Translation Core: Graduate Certificate in Agricultural Safety and Health

Consistent with national objectives for building a more highly skilled public health workforce for the 21st Century (IOM, 2002), the Southeast Center has provided specialized education and professional development opportunities through the *Health of Agricultural Populations* (HAP) curriculum for graduate students. In so doing, it is meeting NIOSH OASH Review Recommendation 7: “implement integrative and interdisciplinary approaches” to agricultural occupational safety and health (NAS 2008). Together with the NURSE AP project, the *Health of Agricultural Populations* has been addressing the critical gap between anticipated U.S demand for occupational safety and health services and the number of trained practitioners who are prepared to offer them, as described by NIOSH in its specially commissioned report: Westat. McAdams MT. Kerwin JJ, Olivio V, Goksel HA. National Assessment of the Occupational Safety and Health Workforce. 2011 Oct. Available online at http://www.cdc.gov/niosh/oshworkforce/pdfs/NASHW_Final_Report.pdf [accessed 2012 Jan 15].

The *Health of Agricultural Populations* is unique in that it systematically integrates traditional public health course work with agricultural occupational safety and health content at a land-grant university with Colleges of Agriculture, Medicine, Nursing, Engineering, Public Health, Social Work, Communications, and Education on a single campus. Each of these disciplines is represented by our diverse faculty, whose members are helping to build the next generation of “interdisciplinary teams to address the environmental, social, cultural, and psychological complexities of issues that face AgFF workers” (NIOSH Recommendation 7b).

Four students were enrolled in the *HAP* curriculum during the period under review:

- Marjorie Stanek is expected to complete her MPH in 2012 and continues to work toward a doctorate in the College of Education.
- David Carlson, MPH student (Department of Preventive Medicine and Environmental Health) is expected to complete his degree requirements in 2013.

The following students applied to the HAP TPG but were instead admitted under the new CARERC ASH training program, which began July 1, 2012:

- Azia Routson (Department of Preventive Medicine and Environmental Health). A graduate of the University of Findlay with interests in veterinary medicine and the human-animal health interface, Ms. Routson is expected to complete her MPH in 2014.

- Peter van Wie, MPH student (Department of Preventive Medicine and Environmental Health), a native of Moscow, Idaho, has research interests in farm chemical exposures.

These students are also trainees in the new *Central Appalachian Regional Education and Research Center* (CARERC), which was funded by NIOSH in July 2012. In the absence of Dr. Robert McKnight, who is currently on extended medical leave, one course planned for spring 2013 has been cancelled: CPH 728-A, Health of Agricultural Populations (3 hrs). Scott Prince, MD, MSPH, Associate Professor of Preventive Medicine and Environmental Health, has replaced Dr. McKnight as the instructor for CPH 778-C, Injury Prevention and Control (3 hrs).

Further development of the 9-hour certificate program has been delayed until further notice, pending Dr. McKnight's return to the Southeast Center or alternate plan.

Prevention/Intervention: Economics of Prevention II: Extending Impact, Reducing Risk

This innovative project has developed for online delivery a set of narrative simulation exercises and associated cost analysis tools that help users to understand each phase of the Haddon injury matrix, the direct and indirect costs of injuries, and the cost-effectiveness of personal protective equipment and other control technologies. The EOP project is unique in that it has demonstrated how demographic data measures and narrative simulation exercises can be designed so that surveillance and exposure assessment aims are embedded therein. Participants who use the online EOP simulation exercises and associated cost analysis tools may respond to questions regarding whether or not they have, or currently live and/or work on a farm and have been exposed to or experienced a farm-related injury, illness, and/or production loss. The aggregated data provide robust estimates of subjects' exposure to specific injury and illness hazards, as well as the prevalence of close calls, minor, and non-fatal injury events. The latter, which elude traditional reporting mechanisms and surveillance programs, are invaluable in identifying effective risk/hazard reduction strategies.

The EOP research team is collaborating with the National Association of Agricultural Educators (NAAE), KAAE and Dow AgroScience toward wider inclusion of EOP methods and materials in the supervised agricultural experiences of vocational agricultural students and NAAE communities of practice. Three large agricultural education programs in Kentucky (at the Elkhorn Career & Technology Center, the Jessamine County Career & Technology Center, and the highly innovative Locust Trace Agricultural Education High School in Lexington) are now using the *Virtual Tractor Safety Walk-Around Inspection* as curriculum materials in agricultural mechanics classes. These efforts resulted from Dr. Mazur's 2012 presentation to the Kentucky Association of Agricultural Educators (KAAE).

Development of the game-based digital learning product *Hazard Ridge* continued in 2012 with usability testing at the University of Kentucky. Reliable EOP I measures have been augmented with a revised behavioral intention measure that will provide greater sensitivity to impact and behavioral change regarding farm safety practices. The project team continues to expand EOP's regional impact through collaboration with agricultural educators at North Carolina A&T and Arkansas Tech University (See individual project report in Section II.)

Feasibility Studies and Emerging Issues Program

The 5 pilot studies funded during the period under review underscore the Southeast Center's commitment to building sustained partnerships with regional stakeholders and other university-level researchers while, at the same time, generating new knowledge and innovations in teaching, training, and technology:

- Integration of Cost-Effective ROPS (CROPS) Construction and Installations into Agricultural Mechanics Courses: Stacy Vincent, PhD, Assistant Professor, Agricultural Education, College of Agriculture, University of Kentucky. Joan Mazur, PhD, Co-Investigator. Total direct and indirect funds, \$15,000. Start/end 09/30/2012–09/29/2013.
- Emergency Tractor Shut-Off using a Voice Command System: Glen Rains, Associate Professor, Dept. of Biological and Agricultural Engineering, University of Georgia. total direct and indirect funds \$12,593. Start/end 09/30/2012–09/29/2013.
- Assessing the Effectiveness of Audience Response System Technology in Pesticide Applicator Training: W. Gregory Cope, PhD; Professor & Dept Extension Leader, Dept. of Environmental & Molecular Toxicology; North Carolina State University. Total direct and indirect funds \$14,999. Start/end 09/30/2012– 09/29/2013.
- Triazine herbicides and birth defects in Kentucky: David R. Bardach, PhD student; Departments of Epidemiology and Biostatistics, University of Kentucky. Steve Browning, PhD (mentor). Total direct and indirect funds, \$14,240. Start/end 01/02/2013–09/29/2013.
- Tomato Worker Ergonomics: REBA Panel Evaluation of Video. Principal Investigator: Ken Silver, D.Sc., Associate Professor of Environmental Health at East Tennessee State University. Total direct and indirect funds: \$14,828. Start/end 01/01/2012 – 09/29/2013.

An emerging issue noted by Gunderson & Bean et al. (2012) in their re-review of the NIOSH AgFF research program is the major shift in U.S. agricultural production from small farms to very large farms (including corporate family farms) and nonfamily operations. “NIOSH must focus,” these reviewers noted, “on this worksite setting and may have to consider targeting farm management companies and other types of non-owner/operators such as farm labor aggregators.”

The reviewers observed that contract workers in AgFF may encounter work organization patterns, assigned tasks, and exposures that differ from those of non-contract laborers. Moreover, in its quarterly survey of farms for July 2011, the National Agricultural Statistics Service (NASS) found that on-farm employment by labor aggregators was 30% of the total number of hired farm workers (Gunderson & Bean, 2012, citing USDA NASS 2011). Thus, the work of the Southeast Center's Dr. Henry Cole to describe contract labor populations and their specific needs has proved particularly prescient: As early as September 2008, Dr. Cole had presented on “Tools and methods relevant to contract workers' occupational injury risk identification, perception, communication, and prevention” for the NIOSH/ Organization Resources Counselors, Inc (ORC)/Duke Energy Working Group (Washington, DC, 2008 Sep 17). In 2012, Dr. Cole completed work on a textbook chapter that deals almost exclusively with the needs of contract workers and contingent laborers. As of 2013, the text is available through Springer publishing: Cole HP. Workplace injury and illness, safety engineering, economics and

social capital. Chapter 13 in Gatchel Robert J., Izebela Z (Eds.). Handbook of Occupational Health and Wellness. New York: Springer, 2013. ISBN 978-1-4614-4838-9

SECTION III — DETAILED PROGRAM REPORTS

Center-wide Activity: Administration

Personnel changes: Dr. Robert McKnight took extended medical leave from the University of Kentucky as of December 10, 2012. Dr. David Mannino now serves as Acting Director. A commissioned officer of the US Public Health Service (*ret.*), Dr. Mannino is a former NIOSH Pulmonary Fellow and scientific officer of the Centers for Disease Control and Prevention in Atlanta. He is Professor and Chair of the Department of Preventive Medicine and Environmental Health in the University of Kentucky College of Public Health.

Center-wide Activity: Outreach

Aims and Outcomes

The specific aims of the Southeast Center outreach core are to

1. Obtain continuous input on agricultural safety and health concerns in the region
2. Identify priority topics for research and intervention, be they persistent and/or emerging problems;
3. Cultivate improved access to Hispanic farm workers and other vulnerable populations;
4. Ensure that farm safety instruction, guidelines, and other prevention activities are culturally, linguistically, and educationally appropriate;
5. Achieve the widest possible diffusion of Center knowledge and research findings, including evidence-based Simple Solutions, work organization strategies, and best practices for farm safety and health;
6. Develop multi-Center outreach strategy with the proposed Piedmont Center (Wake Forest University, NC) and the Northeast Center (Cooperstown, NY);
7. Utilize state-of-the-art technology to package, market, and distribute field-tested agricultural occupational safety and health materials and tools; and
8. Collaborate with the High Plains and Intermountain Center (Colorado State University) and Conceptual Arts, Inc., (Gainesville, FL) on expansion of the National Agricultural Safety Database as the top online source for stakeholder access to resources and tools identified, developed, and evaluated by the NIOSH Agricultural Centers.

Aims 1 and 2

Obtain continuous input on agricultural safety and health concerns in the region

Identify priority topics for research and intervention, be they persistent and/or emerging problems

Direct engagement with stakeholders provides insight on perennial occupational safety and health concerns and emerging issues in AgFF. Much of this engagement occurs through local, regional, and national events and conferences (see below), through faculty and staff service on community boards and committees, through querying of advisory board members, and through the Center's annual Feasibility Studies and Emerging Issues program, which extends Center reach throughout out 10-state service region. For example,

- SE Center faculty and staff have fostered data sharing and knowledge transfer through multiple AgFF sector and (other) scientific conferences: *e.g.*, International Society for

Agricultural Safety and Health (ISASH); Annual Meeting of the American Public Health Association, Priester National Health Conference (USDA), AAOHN Conference, ASABE, Kentucky Association of Agricultural Educators (KAAE/NAAE), *et al.*

- Melvin L. Myers MPA and Dr. Wayne T. Sanderson serve on the Agricultural Safety and Health Committee of the American Council of Government Industrial Hygienists: http://www.acgih.org/about/committees/c_ag.htm
- Dr. Wayne Sanderson serves as the Chair of the Academic Collaboration Committee of the Kentucky Department of Health committee for Building Epidemiology Capacity in Kentucky (BECKY).
- Victoria Sanchez Davis, BA, coordinator of the Kentucky Children's Health Insurance Program and leader of migrant farmworker outreach, serves on the Executive Committee of the Kentucky Migrant Network Coalition and the community advisory board of *Salud y Seguridad del Trabajador Equino*.

The Center is assisted in identifying priority topics for research and intervention, as well as successful intervention models, through interaction with advisory board members and other respected leaders in AgFF and related research. Distinguished researchers and practitioners who have shared their expertise with us at UK during the past year include

- Ole Brunes, Director, Farmers' Association for Health and Safety; Kongsberg, Norway; "Norwegian Activities in Agricultural Health and Safety," 2011 Oct 4.
- Peter Lundqvist, PhD; Department of Work Science, Business Economics, and Environmental Psychology; Swedish Agricultural University; "Health and Safety in Swedish Agriculture," 2012 Apr 12.
- Dave Robertson, Managing Director, QB Industries Victoria, Australia, "Rollover protective structures for All Terrain Vehicles (ATVs)," 2012 Jun 20.

A (tele)conference of the Center's External Advisory Committee was not held in October 2012 as originally planned, in part due to the health issues that led to Dr. Robert McKnight's announcement of Medical Leave, effective 2012 Dec 12. A teleconference of the External Advisory Committee members and Southeast Center faculty and staff will be held on April 10, 2012.

Aims 3 and 4

Cultivate improved access to Hispanic farm workers and other vulnerable populations; Ensure that farm safety instruction, guidelines, and other prevention activities are culturally, linguistically, and educationally appropriate

The Center aims to articulate research findings in a culturally and educationally appropriate manner, in order to better serve specific populations of interest; *e.g.*, older farmers, adolescent/future farmers, and migrant/Hispanic farm workers.

Outreach to Hispanic farm workers is conducted in large part through the Kentucky Children's Health Insurance Program, led by Victoria Davis. Mrs. Davis serves on the board of the Migrant Network Coalition and attended monthly board meetings throughout the period under review.

Mrs. Davis also serves on the University of Kentucky Latino Task Force and, together with high school student volunteers participating in her KCHIP Experiential Learning Program, has represented KCHIP and the SE Center at numerous community events; e.g., *Dias Festivos*, 2012 Dec 14; *Día de la Mujer Latina* 8th Annual Health Fiesta; 2012 Oct 13; *UK Latino Health Fair*, 2012 Sep 16; *YMCA Healthy Kids Day*; 2012 Apr 29; and many others.

Mrs. Davis has also conducted community outreach through live interviews on Radio Vida, 1440 am, WYGH (host Donald Souleyrette) and has assisted Dr. Jennifer Swanberg and Jessica Clouser with Spanish interpretation services on the 5-year project *Latino Farmworkers, Work Organization, Safety and Health: Salud y Seguridad del Trabajador Equino*.

To ensure that its research, education and prevention activities continue to be relevant and appropriate for regional stakeholders, the Center outreach team is planning a regional needs assessment in 2013.

Aim 5

Achieve the widest possible diffusion of Center knowledge and research findings, including evidence-based Simple Solutions, work organization strategies, and best practices for farm safety and health

The Center disseminates its acquired knowledge and research findings through purposeful stakeholder engagement at the local, regional, national and international levels. For example,

- Project-specific outreach: see EOP and NURSE AP project reports
- Local: CPH Grand Rounds, 2012 Feb 3.
 - McKnight RH. Overview of the Southeast Center for Agricultural Health and Injury Prevention.
 - Browning SR. Children's injuries on Kentucky beef cattle farms.
 - Swanberg J, Miller-Clouser J, Westneat SC. Work organization and Latino farmworker health: understanding the relationship between job conditions and occupational health.
 - Pavilonis B, Sanderson WT, Humann M, Moore G, Merchant JA. Kids, pigs, and respiratory health. CPH Grand Rounds.
- Local / Regional: Dr. Mark Purschwitz appeared on UK Agriculture Radio News, May 18, 2012, discussing the topic "Think safety first this season." <http://news.ca.uky.edu/multimedia/radio>.
- Local / Regional: EOP project staff are collaborating with the National Association of Agricultural Educators (Jay Jackman, PhD, CAE, et al.) and Dow AgroSciences toward a potential pilot project involving farm safety surveys and student experiential learning in Kentucky, Indiana, and Illinois. Cf. Dr. Jackman correspondence to Drs. Mazur and Cole, 2012 Aug and Sept; face to face meeting, 2012 Dec. Stay tuned!
- Regional: The Southeast Center participated in the December 2012 meeting of the Southeastern States Occupational Network (SouthON), *Translating Data into Action*, held at the University of South Florida, Tampa. This was a joint effort of the Sunshine ERC, Deep South ERC, UNC ERC, CARERC, NIOSH, and the Council of State and Territorial Epidemiologists. Dr. Terry Bunn presented on state-level surveillance and policy aimed at

the reduction and prevention of prescription drug abuse, and Teresa Donovan, MPH, presented on the work of the SE Center: Evidence-based interventions in production agriculture. 2012 Dec 3-4.

- Regional / National: Deputy Director Wayne Sanderson, PhD presented on “Agricultural herbicides: Field to home to children” at the 2012 Pediatric Environmental Health Conference, University of Iowa Children’s Hospital, Department of Pediatrics, in cooperation with the American Academy of Pediatrics Iowa Chapter and the UI Center for Health Effects of Environmental Contamination. 2012 Sep 14. (Paper co-authored by Sanderson WT, Curwin B, Golla V, Lozier M.)
- National: The SE Center sent several representatives to 140th Annual Meeting and Exposition of the American Public Health Association (APHA); San Francisco, CA; 2012 Oct. Participants included HAP students Azia Routson and Peter van Wie, and professional staff member Teresa Donovan, MPH. Swanberg JS, Clouser J, *et al.* presented on “Engaging employers to create healthy organizations in Kentucky” (Dr. Swanberg is PI of the Research core project *Latino Farm workers, Work organization, Safety and Health*).
- National: In August 2012, Mark Purschwitz, PhD; Extension Professor and Agricultural Safety and Health Specialist in the UK College of Agriculture, Department of Biosystems and Agricultural Engineering, received the *SMV Technologies Ergonomics, Safety and Health Award* of the American Society of Agricultural and Biological Engineers (ASABE) for his outstanding efforts to promote tractor safety among farmers. Dr. Purschwitz teaches in the *Health of Agricultural Populations* program and developed *The Kentucky ROPS Guide* to tractor retrofits – the only comprehensive online guide to ROPS retrofits in the nation.
- National / International: SE Center faculty members presented research and educational activity to national and international stakeholders assembled for the 2012 Meeting of the International Society for Agricultural Safety and Health (ISASH); Burlington, VT.
 - Reed DB. Focus group meeting to discuss safety strategies for older farmers; 2012 Jun 26.
 - Reed DB. Heart of the story: Injuries and close calls among children and adults. 2012 Jun 26.
 - Saman D. Geospatial analysis of tractor overturns. (Mentor: Henry Cole, EdD).
 - Purschwitz M. The Kentucky ROPS Guide Web site.
- International: On December 7, 2011, the SE Center hosted representatives of the University of Cincinnati ERC and 16 members of a South Korean delegation interested in AgFF research in our region. The delegation included three researchers from South Korea’s Rural Development Administration and 12 government officers from the Ministry for Food, Agriculture, Forestry and Fisheries: Dr. Lee Kyung-Suk of Seoul National University, Dr. Choi Bong-Soon of Korea University and the Korean National Agricultural Cooperative Federation (Agricultural Financial Division), and NIOSH consultant Dr. Hee Kyoung Chun.
- International: In August 2012, Teresa Donovan, MPH, participated in a cultural & educational exchange with John McNamara, M. Agr. Sc.; PhDc, National Health & Safety Officer, Teagasc/Irish Agricultural & Food Development Authority. Kildalton College, Piltown, County Kilkenny, Ireland. McNamara is an Irish dairy producer and specializes in farm injury prevention, farm mechanization, agricultural apprenticeship, and production

efficiency & safety. On-site visits included the dairy, equine, and nursery/horticulture facilities of Kildalton College, as well as the Teagasc Research Facility in Carlow, Ireland. Informal discussion included differences between US and EU approaches to livestock management *vis a vis* European Council Directives 2003/74/EC, 96/22/EC and 96/23/EC.

- International: Drs. Robert McKnight and Mark Purschwitz participated in the 2012 Nordic Meeting on Agricultural Safety and Health and the 3rd International Conference on Safety, Health and Welfare in Agriculture and Agro-Food Systems, Ragusa, Italy in late August-early September. These conferences provided opportunities to exchange information and ideas with leaders from around the world in occupational safety and health:
 - McKnight RH, Purschwitz M. Two Approaches to Masters Education in Agricultural Safety and Health: Lessons from Kentucky, USA. Nordic meeting on agricultural occupational health and safety. Hosted by the Swedish Committee on Working Environment in Agriculture (LAMK) and the Department of Work Science, Business Economics and Environmental Psychology (AEM) at the Swedish University of Agricultural Sciences-Alnarp. Ystad, Sweden. 2012 Aug 27-29.
 - McKnight RH. Agricultural Safety and Health: Lessons from Kentucky. Italian Society of Agricultural Engineering (AIIA), 3rd International Conference on Safety, Health and Welfare in Agriculture and Agro-food Systems: Ragusa SHWA 2012; Ibla Campus, Ragusa, Sicily. 2012 Sep 3-6.

Aim 6

Develop multi-Center outreach strategy with the proposed Piedmont Center (Wake Forest University, NC) and the Northeast Center (Cooperstown, NY)

Dr. McKnight and Dr. John May of the Northeast Center conferred in October regarding planning for the first *Biennial Eastern United States Agricultural Safety and Health Conference: Bringing Research to Practice and Practice to Research (R2P2R)*. The conference would involve the SE Center, NE Center, and potentially Wake Forest University, and is based on a projected \$6,000 of the \$40,000 outreach budget. Planning for this conference has been delayed due to Dr. McKnight's medical leave; please stand by for updates. Outreach Director Joan Mazur, PhD, is convening a team meeting to plan for this Year 2 objective.

Aims 7 and 8

Utilize state-of-the-art technology to package, market, and distribute field-tested agricultural occupational safety and health materials and tools; and

Collaborate with the High Plains and Intermountain Center (Colorado State University) and Conceptual Arts, Inc., (Gainesville, FL) on expansion of the National Agricultural Safety Database as the top online source for stakeholder access to resources and tools identified, developed, and evaluated by the NIOSH Agricultural Centers

The Center continues to build state-of-the art online resources designed to expedite knowledge transfer and research to practice:

- **Web** site renovation: Dr. McKnight and Teresa Donovan met with Matt Johnson, UKCPH IT Multimedia Specialist, on October 16, 2012 to discuss both renovation of the CPH Web site and design of the Southeast Center and CARERC Web pages. Renovation of

CPH/departmental pages has taken precedence over the Center pages; however, once overhaul of the CPH site is complete, PIs will have limited administrative control of their own project pages, to expedite project-specific updates in the future.

- *Facebook* and *Twitter* accounts were launched for the Southeast Center in December 2012 and January 2013, respectively. NURSE AP *Facebook* page launched in March 2012; *Twitter* and *LinkedIn* accounts in May 2012. Members of the SE Center staff (Kane, Westneat, Donovan) attended the March 8, 2012 Dean's Skill Enhancement Workshop: *Social media--a professional networking tool*; presented by Christopher Rice, PhD; Associate Director, Center for the Enhancement of Learning and Teaching, with a view toward assisting PIs with online outreach.
- **National Agricultural Safety Database (NASD):** Dr. Henry Cole provided the NASD with interactive copies of the *Virtual Tractor Safety Walk-Around Inspection and Checklist*, working with Jeff Nelson and Chris Knack of Conceptual Arts, Inc. Teresa Donovan provided other SE Center archival materials to Nelson and Knack for prior grant years.

Dr. Joan Mazur and the Tractor Virtual Safety Walk-Around Inspection group (Cole, Mazur, Watson, Routson) have had 2 computer teleconferences with the Conceptual Arts development team (2012 Oct, 2012 Nov) to refine design of the online training tools and resources for NASD. The virtual inspection will be their first piloted training tutorial and will include a robust Web-based 'php/MySQL' database and tracking tool. With these online tools NASD will be able to provide training and documentation of performance that can lead to various certifications, graduate certificates, and the like. For example, the Kentucky Department of Education/Career & Vocational Division has expressed interest in using the NASD tool for performance assessments for students in KY high school agricultural mechanics classes that emphasize farm safety units as part of new state required curriculum standards.

Conceptual Arts will continue to enhance the test/question management portion of the NASD training series so that staff can track answers to all questions by all users. This will aid in evaluation of simulation, course, and exam effectiveness. Conceptual Arts, Inc., 3909 Newberry Road, Ste A, Gainesville, FL 32607-2367; received Center sub-awards 09/29/10–09/29/11 (\$8,000) and 09/30/11-09/29/12 (\$8,000). <http://www.nasdonline.org/> and <http://www.nasdtraining.org/>

Three large agricultural education programs in Kentucky (at the Elkhorn Career & Technology Center, the Jessamine County Career & Technology Center, and the highly innovative Locust Trace Agricultural Education High School in Lexington) are now using the *Virtual Tractor Safety Walk-Around Inspection* CD ROM lessons as required curriculum materials in their agricultural mechanics classes. These efforts resulted from Dr. Mazur's 2012 presentation to the Kentucky Association of Agricultural Educators (KAAE). (See EOP II report).

Relevance

Southeast Center outreach emphasizes purposeful, transdisciplinary approaches for print, online, and face-to-face delivery of proven safety and health information and training materials to the field – that is, to farm owners and operations, hired workers, and the membership organizations,

businesses and agencies that serve them. This translation of research activity to real-world application aims to achieve a positive return on investment.

Feasibility Studies and Emerging Issues Program

PD/PI: Wayne T. Sanderson, CIH, PhD

Aims and Outcomes

The feasibility studies and emerging issues program is designed to

1. Provide initial funding to develop innovative methods of investigation and prevention/intervention in agricultural occupational safety and health;
2. Stimulate investigators in diverse disciplines to apply their expertise to agricultural safety and health issues;
3. Enhance external partnerships and cross-center collaboration;
4. Provide seminal support for activities designed to move the results of research into practice; and provide sufficient pilot data to pursue R-01 type funding.

In March 2012, the Center disseminated a request for proposals (RFP) for its 2012 – 2013 Feasibility Studies & Emerging Issues program. The RFP was distributed electronically to more than 375 academic and professional stakeholders in the southeastern U.S.; on the UK campus via UK NEWS, the CPH Friday Letter, and the Graduate School ListServ (1,006 subscribers); via the University of Tennessee College of Agricultural Sciences ListServ (1,349 subscribers), *et al.* Applications were due June 11, 2012 and prompt independent review allowed for the announcement of 4 awards in mid-August:

- **Integration of Cost-Effective ROPS (CROPS) Construction and Installations into Agricultural Mechanics Courses.** Principal Investigator: Stacy Vincent, PhD, Assistant Professor, Agricultural Education, College of Agriculture, University of Kentucky. Co-investigator: Joan Mazur, PhD, Professor, UK College of Education. Total direct and indirect funds, \$15,000. Start/end 09/30/2012–09/29/2013. Among other specific aims, this project seeks to reduce the exposure to tractor overturn hazard in four Kentucky counties through the installation of cost-effective ROPS on 16 farm tractors (Montgomery, Laurel, Whitley and McCreary counties); test the feasibility of integrating CROPS construction and installation projects into required Agricultural Mechanics classes in four rural county high school agricultural education programs; conduct a pre-post evaluation of knowledge/awareness of CROPS and increased skill in constructing and installing CROPS, using surveys of approximately 1000 agricultural education students in the four county high schools, interviews with teachers, and analysis of project logs; and finally, to disseminate findings from this study with educators nationally and at the state level (NAAE, FFA, et al.).

Relevance: This study is fostering the translation of research to practice (R2P) among agricultural educators and future farmers while helping to *institutionalize* proven instructional techniques for helping students recognize the high costs of injuries and the cost-effectiveness of prevention. Moreover, the study is promoting prevention through design (PtD).

- **Emergency Tractor Shut-Off using a Voice Command System.** Principal Investigator: Glen Rains, PhD, Associate Professor, Department of Biological and Agricultural Engineering, University of Georgia. total direct and indirect funds \$12,593. Start/end 09/30/2012–09/29/2013. The primary aim of this project is to test the feasibility of a voice-command emergency stop system on a tractor. One challenge is to make voice commands recognizable from a distance while tractor background noise is present. Specifically, Dr. Rains et al. will develop a speech recognition system using CMU-Sphinx to enable a tractor to be shut-off using a linear actuator connected to the fuel shut-off system. The results of this research will inform future studies to increase the complexity of the interface to accomplish tasks such as automatically sending a help signal when the tractor operator is not responding or has not returned to his or her seat within a specific period of time.

Relevance: This study is promoting prevention through design (PtD).

- **Assessing the Effectiveness of Audience Response System Technology in Pesticide Applicator Training.** Principal Investigator: W. Gregory Cope, PhD; Professor and Extension Leader, Department of Environmental & Molecular Toxicology; North Carolina State University. Total direct and indirect funds \$14,999. Start/end 09/30/2012– 09/29/2013. This study aims to evaluate the effectiveness of audience response system (ARS) technology in enhancing pesticide applicator safety training provided through the NC Cooperative Extension Service in 5 geographical districts of North Carolina.

Relevance: This study is testing a new instructional technology to improve the knowledge and knowledge retention of certified pesticide applicators trained in the State of North Carolina.

- **Triazine herbicides and birth defects in Kentucky.** Principal Investigator: Steve Browning, PhD, Assistant Professor, Department of Epidemiology UK College of Public Health. Co-investigator: David R. Bardach, PhD student; Departments of Epidemiology and Biostatistics, University of Kentucky. Total direct and indirect funds, \$14,240. Start/end 09/30/2012–09/29/2013. This project aims to (1) develop, in collaboration with the Kentucky Department of Agriculture and the Kentucky Geologic Survey, a database of triazine herbicide usage and concentrations of triazine herbicides in Kentucky water systems by county and region, 1998-2007; (2) evaluate the correlations between agricultural activities (such as acres and bushels of crops produced), herbicide use, and concentrations of triazine herbicides in water systems using county and region as analytical units; (3) conduct an ecologic study of the association between the incident rate of various birth defects by county and region with triazine herbicide usage metrics and concentrations in water systems (in collaboration with the Division of Maternal and Child Health, Kentucky Department of Public Health).

Relevance: This study will contribute new knowledge in environmental health that is expected to enhance the safety of vulnerable populations, in particular women and children *in utero*.

During the period under review, the Center also supported a fifth feasibility study, funded earlier:

- **Tomato Worker Ergonomics: REBA Panel Evaluation of Video.** Principal Investigator: Ken Silver, D.Sc., Associate Professor of Environmental Health at East Tennessee State University. Total direct and indirect funds: \$14,828. Start/end 01/01/2012 – 09/29/2013.

Relevance: This community-based study focuses on vulnerable migrant/Latino farmworkers and the prevention of both chronic musculoskeletal disorders (MSDs) and abuse of pain medication/opioids.

Tomato workers cultivate and harvest Tennessee's leading fruit crop and engage in physically demanding indoor and outdoor tasks such as lifting, stooping, and carrying. This study is therefore relevant not only to workers in the field and processing facilities, but also to their employers and rural health care providers. The study aims to inform a larger epidemiological study of the burden of musculoskeletal disorders (MSDs) and pain medication ("pill") use among migrant and seasonal tomato workers, as well as potential evaluation of ergonomic controls; e.g., such as engineered bucket lifts, truck conveyor belts, etc.

Dr. Silver and his team filed a progress report with the Southeast Center on 09/26/2012. Video footage of tomato workers engaged in picking, hoisting, packing and sorting was collected by undergraduate honors student Nicole Manz (ETSU) at the end of the 2011 growing season. Toward this end Dr. Silver and Ms. Manz worked in close cooperation with the migrant health staff of Rural Medical Services. Per the approved human subjects protection protocol for the project, the faces of the workers were marbled-over to protect their identities.

On May 8, 2012 the project team conducted its first REBA panel evaluation of tomato worker tasks. After a half-day training session led by Dr. Nathan Fethke of the University of Iowa, the panel used the Rapid Entire Body Assessment (REBA) method to rate video segments and tasks with respect to ergonomic hazards. A language interpreter from ETSU's Language and Culture Resource Center facilitated the participation of 3 Spanish-speaking tomato industry workers on the panel. The other panelists included 4 physicians, 2 environmental safety and health professionals, 3 cooperative extension agents, and 1 nurse, for a total of 13 panelists. The research team is now analyzing the data for inter- and intra-rate variation, to test the hypothesis that individuals of similar professional backgrounds are more likely to apply similar scores to ergonomic hazards. Intra- and interclass statistical methods will be used to estimate the extent to which raters agree on the major body parts at risk of chronic MSDs. If ratings assigned by industry workers correlate with those of health professionals, this will form the basis of a community consensus for practical intervention research. If the two groups diverge in their ratings, then qualitative research methods will be used to identify the sources of variability. In either case, by providing "seats at the table" for

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Data collected at annual health screenings conducted on tomato farms in 2009, 2010 and 2011 provide a window into longitudinal assessment. (Data for 2012 not yet formatted). Over these three years, 465 individuals had screening exams. Nearly all of these subjects were employed in tomato harvesting, packing, staking or sorting. Longitudinal observations across two or more growing seasons are available for 31 individuals. A total of 11 newly incident cases of MSDs were recorded in the charts of these 31 individuals. These newly incident cases did not have musculoskeletal complaints at their first screening exams. Complaints (or diagnoses) consisted of back pain (7), knee pain (2) and pain or numbness in the upper extremities (2).

Pill Burden and Pain Treatment Issues. Researchers found that approximately 15 to 20% of tomato workers were taking at least one medication at the time of screening. The most frequently prescribed medications for musculoskeletal pain were acetaminophen and ibuprofen. A single case of opiate use for low back pain was recorded in 2009. Up to two workers per year were prescribed muscle relaxants.

Dr. Silver notes that an opportunity exists to foster genuine community-based participatory research efforts between clinical students in the ETSU Rural Track class migrant section and RMS clinicians who staff the summer health screenings. ETSU's 2-semester, inter- professional Rural Track class, which includes all of the health disciplines at ETSU, continues to be a hub of research and service projects. Three ETSU students assisted in project activity during the period under review, and Ms. Manz was lead author on a paper presented at the 140th Annual Meeting and Exposition of the American Public Health Association (APHA) in October 2012.

Student Michael Bradfield and Drs. Joe Florence (Family Medicine) and Dr. Sharon Loury (ETSU College of Nursing) discussed pedagogical aspects of the migrant section of the Rural Track class during the December 2012 meeting of the National Rural Health Association: See Bradfield M, Florence J, Loury S. Integrating cultural competency, experiential learning into interdisciplinary education NRHA Rural Multiracial and Multicultural Health Conference; Asheville, NC; 2012 Dec 4-6.

Relevance

The feasibility studies funded during the period under review underscore the Southeast Center's commitment to

- sustained partnerships with regional stakeholders and other university-level researchers, including East Tennessee State University, the University of Georgia, North Carolina State University, the National Association of Agricultural Educators, FFA, North Carolina Cooperative Extension, et al.
- enhanced capacity for agricultural occupational safety and health education and training at the University of Kentucky and collaborating institutions
- new knowledge regarding changing workforce demographics and special populations at risk, in particular migrant/Latino farmworkers and youth

- translation of research to practice, in particular the dissemination of novel control technologies and innovations in teaching.

Publications

Rinsky JL, Hopenhayn C, Golla V, Browning S, Bush HM. Atrazine exposure in public drinking water and preterm birth. Public Health Rep. 2012 Jan-Feb;127(1):72-80. Work supported in part through Southeast Center feasibility project award, 5/1/2008–09/29/2009.

Manz N, Silver K, Fethke N, Hoffman K, Louri S, Florence J. Building a consensus for tomato worker ergonomics: A community-expert panel study. 140th Annual Meeting and Exposition of the American Public Health Association. 2012 Oct 29. Work supported in part through Southeast Center feasibility project award, 01/01/12—09/29/2012.

Swanberg JS, Clouser JM, Westneat S. Work Organization and Occupational Health among Latino Farmworkers: Perspectives from Latinos Employed on Crop and Horse Breeding Farms. Am J Ind Med. 2012 Aug;55(8):714-28. Work supported through Southeast Center feasibility project award, 5/1/2009–09/29/11.

Latino Farmworkers, Work Organization, Safety and Health

PD/PI: Jennifer Swanberg, PhD. Co-investigator: Deborah B Reed, PhD, RN, MSPH. Project Coordinator: Jess Miller Clouser, BA. Research Assistant: Mary Katherine Webster, BS.

Aims and Outcomes

The goal of this 5-year research project is to improve the occupational safety and health of Latino workers by reducing job-level and work organization-related hazards in horse production. Specifically, this project aims to

1. Identify the job hazards and work organization factors inherent within horse production;
2. Complete a systematic demographic description of Latino workers employed on horse farms in Kentucky, the types of illness, injuries and near miss incidents that are experienced by this worker population, and the circumstances associated with these incidents;
3. Determine how work organization factors may increase exposure to and interact with these job hazards as well as occupational illness, injury and near misses among Latino workers;
4. Develop and disseminate educational safety and health materials for horse farm owners/managers and Latino workers on horse farms.

To date, and as according to plan, the project has been focused on **Aim 1** through the Thoroughbred Farm Review (Horse Farm Survey): identify job hazards and work organization factors inherent within horse production. During the period under review, we have worked in tandem with our advisory boards to finalize and pilot test our research protocol, publicize the study, and begin data collection in accordance with our goals for Years 1 and 2. Described below, this process is highly relevant to key NIOSH goals for cultivating direct stakeholder engagement and buy-in and addressing the needs of limited English proficiency and otherwise vulnerable populations.

Protocol Finalized. In August and September 2012, we finalized and pilot-tested the two research protocols comprising the Thoroughbred Farm Review (Phone and Farm Interviews). Feedback from advisory board members and project consultants was solicited and found to be extremely useful. The Phone Interview (a 20-30 minute, phone-administered survey), gathers farm and workforce demographics and the prevalence of farm policies, practices and programs. The Farm interview is a face-to-face primarily qualitative instrument used to collect farm representatives' perspectives on the physical and social context of horse farm work, health and safety priorities and practices, incidences of work-related illnesses/injuries, context around recent illness/injury, and specifics about other workforce-related practices. When time allows and permission is granted, photographs have been made of aspects of farms that have been identified to pose a health and safety challenge and/or strategies implemented in response to a challenge.

Recruitment. Recruitment began in October 2012. The Executive Director of the Blue Grass Farms Charities provided a list of approximately 60 thoroughbred farms which serves as the initial population from which farms may be selected for participation. Potential participants receive 2 letters: the first from the Executive Director of BCFC and the second from the Executive Director of the Kentucky Thoroughbred Association and the President of the

Kentucky Thoroughbred Farm Managers' Club. These letters outline the study and express these leaders' endorsement.

Data Collection. Interviews with farm managers/owners/HR representatives have lasted 1-3 hours. In addition to the information gathered from the Phone and Farm Interviews, we are requesting copies of farm safety manuals, policy manuals, OSHA/workers' compensation injury logs, and any other information that farms provide workers pertaining to employee benefits, safety and health. When time allows and permission is granted, we are making photographs of aspects of farms that have been identified to pose a health and safety challenge to workers and/or strategies implemented in response to a specific safety or health challenge.

Data Analysis. We are developing the database for the quantitative information gathered from both protocols and are transcribing the audio files from the qualitative interviews. Analysis of transcribed interviews began in January 2013. Photos have been tagged and will be later analyzed.

Evaluation Indicators

As this is a research study, we are focusing on process evaluation of our methods and engagement of our advisory boards. In our proposal we stated that our councils will review progress, inform methods, inform and offer criticism of protocols, inform and critique educational materials, and advise on outreach opportunities. We stated that members' participation would be evaluated by tracking number of meetings, attendance, and activity level (Table 2). Both boards have provided input on protocol development and methods.

We aim to complete the Thoroughbred Farm Review with 30-40 farms. As of 2012 Dec 31,

- 50 farms had been sent recruitment letters and called at least once
- 17 Phone Interviews had been completed (6 small, 5 medium, 6 large-sized farms)
- 13 farms had completed both the Phone and the Farm Interview (4 small, 4 medium, 5 large-sized farms)
- 7 farms were deemed ineligible and 7 more declined participation.

Translational Activity: Promotion efforts have been steady since we started to collect data in October 2012. The PI presented study information to the Portland State University Department of Occupational Health Psychology in Dec 2012 (~40 attendees), and the Project Manager presented to the Kentucky Thoroughbred Farm Manager's Club in Oct 2012 (~125 attendees). Articles were published in *Business Lexington* and in the *Herald Leader*

(HL). The *Associated Press* released a version of the HL article which appeared in over 15 local and state, 20 national, and 1 international media outlets. The project web page, which was created at the end of September 2012, has already had 68 hits in just over 3 months. <http://www.uky.edu/Centers/iwin/thoroughbred.html>.

Table 1. Translational Activity	Y1	Y2
Submitted Manuscripts	1	1
Academic Presentations	1	1
Non-Academic Presentations	2	1
Project Web Page Total Views	10	68
Media Coverage, Total # of Outlets	0	39
* Y1= Oct 2011-Sept 2012, Y2= Oct 2012-Dec 2012		

The activities listed in Table 2 have been tracked to demonstrate the activity of our advisory boards. As the first phase of the project focuses on engaging farm representatives, the Industry Board has been involved more heavily.

Plans: Jan-March 2013

Continue recruitment, data collection, data entry and cleaning, analyzing qualitative data.
Reconvene Industry and Community Advisory Boards
Begin planning for worker survey.

Table 2: Advisory Board Activity		Y1*	Y2*
Industry Board			
Advisory Board Mtgs (cumulative attendance)	2(7)	0	
1:1 Meetings with Industry Advisors	8	0	
1:1 Consultations with Industry Advisors	20	6	
Number of Formal Industry Endorsements	6	9	
Team Attendance at Industry Meetings	5	1	
Community Board			
Advisory Board Mtgs (cumulative attendance)	1(8)	0	
1:1 Meetings with Community Advisors	6	0	
1:1 Consultations with Community Advisors	7	0	
Team Attendance at Community Meetings	2	0	
*Y1= Oct 2011-Sept 2012, Y2= Oct 2012-Dec 2012			

Relevance

This study of work organization and occupational injuries and illness among Hispanic/Latino horse farm workers is highly relevant to key NIOSH goals for cultivating direct stakeholder engagement and buy-in; improving understanding of occupational injuries and illness among hard-to-reach populations; addressing the needs of limited English proficiency and otherwise vulnerable workers, and disseminating health and safety best practices through community and industry partnerships.

Economics of Preventing Agricultural Injuries to Adolescents and Adult Farmers

PD/PI: Joan M. Mazur, PhD

Aims and Outcomes

Aim 1. To strategically target Agricultural Education programs in the Southeast Region to expand the cadre of pre-career professionals trained in the use of simulations, cost tools and their digital intervention materials that emphasize the cost effectiveness of injury prevention.

- Presentation at the Kentucky Agricultural Educators Conference in July 2012 resulted in curriculum integration and changes using the *Virtual Tractor Inspection* materials in four Kentucky regional Career & Technology Centers, as well as the new Locust Trace Agricultural High School in Lexington.

Aim 2. To expand regional, national and global access to the *Economics of Agricultural Injury Prevention: Social & Individual Costs* course by making it available online in interactive webinar formats.

Objective 2.1. To develop on online, Web-based version of the *Economics of Agricultural Injury Prevention: Social & Individual Costs* based on the Economics of Prevention course developed as part of EOP1 (EDC 730/AEC 780. Dr. Mazur has extensive experience developing and delivering online courses in both synchronous (same time/same place) and asynchronous (differing times and places) modes. We will be using Adobe Connect software, the license provided by the University of Kentucky Teaching & Academic Support Center to provide synchronous instruction that will be then archived for asynchronous and Web-supported course delivery.

- *Economics of Agricultural Injury Prevention: Social & Individual Costs* based on the Economics of Prevention in a totally online version is scheduled for the May 2013 Four Week Summer Session at the University of Kentucky.
- Modules for the online course are also available in ‘Webinar’ formats for professional development of Agricultural Health & Safety professionals, classroom teachers in general education courses, and Agricultural Education programs in high schools and post-secondary programs. This arrangement has been approved the University of Kentucky Graduate School
- The Course, formerly offered at a “700” level number has been changed to a ‘500’ number to facilitate undergraduate and non-matriculated participants in compliance with the University of Kentucky SACS accreditation strictures.

Aim 3. To develop and field test several new highly engaging digital intervention products, requested by EOP1 partners, that include an Internet game template from the research-tested simulations and economic Cost Tools from EOP1 and virtual tractor inspections that will motivate youth at high risk of injury to identify hazards and take preventive measures.

Objective 3.1. To develop an ‘Economics of Ag Injury Prevention’ online game template, *Hazard Ridge*, based on the ATV simulation *Brad’s Last Ride* (Cole, 2007) and interactive Excel™ -based Cost Tool that calculates the costs of each injury and the cost effectiveness of

its prevention (e.g., ATV riders wearing of approved helmets) developed as part of the EOP1 grant. This Web-based template will be a so-called serious game. Serious games combine interactive simulation technologies with social networking media and online instruction.

- Game Design Document Completed and field tested in a Usability Test in Spring 2012 by students in Mazur's graduated course EDC 609.
- Game Development is underway with local gaming development group *SuperSoul*, Pilot of 1st edition planned in Agricultural Education classes at North Carolina Agricultural & Technical College, UK College of Agriculture and Arkansas A&T University, which joined our regional partnership as of fall 2012.

Objective 3.2 Develop and field-test an interactive *Virtual Walk-Around Tractor Safety Inspection* tool for use by at-risk youth who live or work on rural farms. This tool will combine high-resolution digital photography with Web-based technologies that allow students in agricultural education classes to perform virtual tractor inspections on a wide variety of makes, models and in the range of conditions that they may encounter on actual farms in the rural areas in which they live and work. Tools that allow zoom and close inspection of potential hazards such as improperly installed ROPS, lack of PTO guards, and dangerous bypass starting can be illustrated. Strategic and informative feedback during the virtual inspection is key to understanding the risks and making farm equipment safe to operate.

- Two teleconferences with Conceptual Arts, Inc. (Gainesville, FL) have completed the design of the *Virtual Walk-Around Tractor Safety Inspection* instructional materials
- Conceptual Arts is preparing the database programming tools and resources to make the *Virtual Walk-Around Tractor Safety Inspection* available on the National Agricultural Safety Database (NASD) by May 2013, as both an instructional safety resource AND an online performance tool, that can be used to develop tractor safety certificates based on user performance scores. (<http://www.nasdtraining.org/>)
- The CD format of the *Virtual Walk-Around Tractor Safety Inspection* has been taken up for use in four regional Kentucky Career & Technology Centers – that is, as institutionalized curriculum materials in high school agricultural mechanics classes – reaching more than 500 students this past year.
- Once the *Virtual Walk-Around Tractor Safety Inspection* is available in the NASD training and performance format, the Kentucky State Career & Technical Education Division of the Kentucky Department of Education is interested in using it for Performance Testing for Agricultural Mechanics in Kentucky High Schools to meet new required state standards for performance indicators.

Aim 4. To conduct a multi-state controlled evaluation utilizing the reliable EOP1 measures with the addition of a revised behavioral intention measure that provides greater sensitivity to impact and behavioral change regarding safe farm practices.

- Control data collected in five agricultural education classes at the University of Kentucky. For this research grant evaluation, the simulations and cost tools of the

EOP1 program are the non-treatment comparison group. The *Hazard Ridge* game will be the treatment intervention.

- Human subjects approval to extend the current protocol as well as to add other state partners in North Carolina and Arkansas has been received.

EOP11 Evaluation Indicators

The logic model below provides an overview of the progression of project activities (USDHHS CDC, 2005). The Evaluation indicators that have been achieved are highlighted in contrasting gray: The outcome regarding integration of agricultural safety materials in high school curriculum is partially met but we are very enthusiastic about our progress toward this outcome.

Inputs/Aims	Outputs	Intermediate Outcomes	Outcomes
<ul style="list-style-type: none"> ■ Digital Material Development Aim # 3 ■ Instructor Tele-conferences Aim #1 ■ Monthly Development Meetings ■ Annual Advisory Group Meetings ■ Research Procedures Aim #4 ■ Telephone/email follow-up surveys. Aim #4 	<ul style="list-style-type: none"> ■ Peer-reviewed articles ■ Participation in instructor teleconference ■ Use of game/materials in college Ag. Ed. Classes (n=400) ■ Conference presentations ■ Conference handouts ■ Agricultural Education students in rural schools use safety instructional materials. ■ Econ. Safety Course Participation/Completion (n=100/n= 100 continue. Ed. Credits) ■ Official reports of tractor overturn deaths or serious injuries 	<ul style="list-style-type: none"> ■ Knowledge of safety interventions and cost effectiveness of prevention ■ Changes in behavioral intention to use safe farm practices ■ Documentation of purchase of safety equipment (SMV signs, helmets, etc). ■ Public salience regarding unsafe tractors indicated by increased references to ROPS in news reports ■ Increased interest in ROPS retrofits 	<ul style="list-style-type: none"> ■ Less exposure to four injury category hazards ■ Integration of agricultural safety information through all subjects in high school curriculum ■ Reduced frequency and severity of injuries associated with tractor rollovers, motor vehicle/equipment collisions, ATV rider closed head injury, hearing impairments

We have submitted four articles that are under review and have submitted to the International Society for Agricultural Safety and Health (ISASH) and the National Association of Agricultural Educators (NAAE) for 2013.

Our grant involves some significant technical challenges, the most pressing being finding a game development group (originally planned for graduate students) that can meet our demanding timeline and that has the skills needed to perform the complex technical tasks. We had to re-think our approach and budgeting to support an external partnership with a local business. We now have a game developer on board and are confident we will be able to re-coup our evaluation timeline, with a *Hazard Ridge* prototype as the intervention material in this upcoming year. We have also a dedicated ‘game’ server at the UK College of Education; this a technical ‘win’ as EOP2 will have its ‘own’ virtual space to house the online game, accumulate data on users, and show dissemination and use of materials incorporated in the gaming format. This development will facilitate better online access for users.

Our continued dissemination and communication with the Agricultural Education community, both at the high school and post-secondary levels, has been very successful and we anticipate further in-roads in multiple states as we move forward with our goals of involving agricultural educators more strategically in the use of our research-tested, effective EOP2 approach.

EOP2 has revised its Website and all materials, research measure and a sample of digital documentaries developed in the Economics of Prevention classes is available at <http://www.eoponline.org>. The EOP2 Website is also linked on the SCAHIP Facebook page.

Relevance

The EOP project is unique in that it has demonstrated how demographic data measures and narrative simulation exercises can be designed so that surveillance and exposure assessment aims are embedded therein. Aggregated user data provide robust estimates of subjects’ exposure to specific injury and illness hazards, as well as the prevalence of close calls, minor, and non-fatal injury events. The latter, which elude traditional reporting mechanisms and surveillance programs, are invaluable in identifying effective risk/hazard reduction strategies. Reliable EOP I measures have been augmented in EOPII with a revised behavioral intention measure that will provide greater sensitivity to impact and behavioral change regarding farm safety practices.

Nurses Utilizing Research, Service, Education and Practice (NURSE-AP)

PD/PI: Deborah B. Reed, PhD, RN, MSPH

Aims and Outcomes

Aim 1: *Collect, package, and deliver state-of-the-art farm health and safety research to clinical and academic nurses and students using emerging e-learning technologies and social media.*

- 2011: Three webinars (through AgriSafe, attendance >100); UK Summer Series on Aging (attendance estimated 75, ratings excellent, CE awarded); and the Rural Nurse Organization (12 in attendance); one podcast developed. That podcast is being used by the Idaho State University School of Nursing and the WKU NUR 317 course.
- 2012: Three new webinars (through AgriSafe, UK Summer Series on Aging, and the Rural Nurse Organization). CE awarded for each offering.
- 2012: Facebook page established. Current “Friends” = 39

Aim 2: *Develop innovative strategies for nurse students and other students to develop expertise in agricultural health and safety.*

- WKU NUR317 – Agricultural Nursing – 3 credit hours. Developed Spring/Summer 2012, offered Fall 2012. 20 students enrolled (target was 10 students).
- One Undergraduate research intern at UK (2011-12).
- Interest and Needs survey completed for occupational/environmental health nurses through collaboration with AAOHN. Most nurses use web sparingly, do use Facebook, few use apps. The majority still rely on formal programs delivered in person at conferences or on CE programs, thus our focus will remain there.
- August 2012: New OEHN PhD program funded through the Central Appalachian Regional ERC: One student dissertation focused on agricultural health.

Aim 3: *Increase the capacity of nurses to develop and deliver tailored health programs for local farm constituencies.*

- Met through item 1.
- No fellowships have been awarded thus far. Need to work on this in the coming year.
- Campus visit, presentation, and networking:
- Reed DB. What nurses need to know about farming. East Tennessee State University. May 17-20, 2011.
- Reed DB. What nurses need to know about farming. UT Knoxville College of Agriculture, Nov 29, 2012. Follow up planned
- Poster: Jones, M.S., Reed, D.B., Lashley, D., Lovan, S., & Claunch, D.T. (2011). *Student Engagement: Blending research, service, and education* (Poster). Western Kentucky University Scholarship Day, Bowling Green, KY, November 11, 2011.

- From comments received after the 2012 Summer Series presentation, Dr. Reed elected to write a research-based health column for the Southeast Farm Press. To date, three postings have been made with very positive comments by the readers. We will be focusing on other nurses doing this in their communities.

Aim 4: *Strengthen and increase a networked cadre of agricultural health nurses in practice, education, and research settings that can sustain the project post-funding.*

- Dissertation completed: Jessica Rice Wilson, ARNP. ATV Use on Kentucky Farms (May 2012).
- Precepting one MPH RN student (Sandra Maciuba) in her capstone project.
- Ecuadoran Nursing Students – visit to UK September 4, 2012

Presentations/posters

- Reed, D.B. *The protective mental health effects of farm work among aging farmers*. Poster presentation at National Occupational Injury Research Symposium, Morgantown, WV, October, 25, 2011.
- Reed, D.B., Jones, M.S., Lovan, S., Lashley, D., & Claunch, D.T. *Infusing research, service, and education through community engagement* (Poster). APHA annual conference, Washington, DC, October 30 – November 1, 2011.
- Reed, D.B., Claunch, D.T., McCallum, D.M. Reynolds, S.J. *Cooperative Research to Promote Rural Children's Safety: results of a Community-efficacy Trial*. Presented at the 2102 Priester National Health Extension Health Conference; Washington, DC; 2012 Apr 10.
- Reed, D.B., Teaster, P.B., Claunch, D.T. *Working Together to Develop Strategies for Safety of Older Farmers*. Presented at the 2102 Priester National Health Extension Health Conference; Washington, DC; 2012 Apr 10.
- Jones, M.S., Reed, D.B., Lovan, S., Lashley, D., & Claunch, D.T. (2012). *Infusing Occupational health in undergraduate nursing education* (Poster). AAOHN annual conference, Nashville, TN, April 22-25, 2012.
- Also, Bernadette Hodge, RN, at the NYCAM Center (one of our advisors), helps us keep a current listing of nurse-authored ag publications.

NURSE-AP Evaluation Indicators

Number of nurse-authored peer reviewed agricultural health articles, student products produced, grants submitted, clinical and service interventions established, media hits, and number of requests for information or services. Number of service recipients (farmers and others in agriculture) and number and type of collaborations with farm groups.

- Number of nurse-authored peer-reviewed agricultural health articles tracked = **118** (2001-2012)

- Student products: 6 peer-reviewed publications (*denotes student)

Marcum JL,* Browning SR, Reed DB, Charnigo RJ. Farmwork-related injury among farmers 50 years of age and older in Kentucky and South Carolina: a cohort study, 2002-2005. *J Agric Saf Health*, 2011;17(3):259-73.

Marcum JL,* Browning SR, Reed DB, Charnigo RJ. Determinants of work hours among a cohort of male and female farmers 50 years and older in Kentucky and South Carolina (2002-2005). *J Agromedicine*. 2011;16(3):163-73.

Heaton K, Azuero A, Phillips J, Pickens H,* Reed D. The effects of arthritis, mobility, and farm task on injury among older farmers *Nursing Res Reviews*. 2012

Reed DB, Rayens MK, Conley C,* Westneat S, Adkins SM. Farm elders define health as the ability to work. *Workplace Health Saf*. 2012; 60(8):345-51.

McCallum DM, Murphy S,* Reed DB, Claunch DT, Reynolds SJ. What we know about the effectiveness of farm safety day programs and what we need to know. *J Rural Health*. In press Oct 2012.

Maciuba SM,* Westneat SC, Reed DB. Active coping, personal satisfaction, and attachment to land in older African-American farmers. *Issues Mental Health Nursing*. Accepted for publication 2012 Nov 24.

- Grants submitted: none to date
- Clinical/service interventions: The tetanus project is expanding in south central KY
- Media hits: List serve n=109; 39 friends on Facebook. We are now able to track Facebook hits through a graph provided by Facebook called "Talking About." Most activity was after the NUR317 students visited the page in late September. It plunges between postings as one would expect. We are posting about once a month. The CON Ag nurse webpage was destroyed when the College of Nursing website migrated. We are in the process of trying to rebuild it. This will take some time.
- Number of requests: Average 1 per week, usually for publication reprints, asking for specific information, and networking referrals. I have also been contacted by students in journalism and economics requesting interviews for their classes. This was an unanticipated outcome.
- Number of service recipients (farmers and others in agriculture): A conservative estimate is 15,000 based on the statistics of the *Southeast Farm Press*. It is impossible to estimate the number of viewers of the health columns on the web as they only track the entire site. I am mentoring the PI of a feasibility grant funded by the National Children's Ag Center. The capacity-building feasibility project is located in MS in the Mississippi Rural Health Association.
- Number and type of collaborations with farm groups: 6 [*Southeast Farm Press*, *Farmer's Pride*, Farm Bureau (national), Kentucky Cattlemen's Association; AgriSafe, AgrAbility]. These collaborations consist of providing health and safety information to each group. For instance, we presented on aging farmers at the National Farm Bureau Safety Directors Training in May 2012. 29 directors from across the nation participated.

We have remained under budget on all projects and products. The exception to this is the WKU course, which became much bigger than we had anticipated. Dr. Jones had to shift all her time to this project and Aim 3 had to be delayed. We will need to rethink this for Fall, 2013 when the course will be offered again.

Webinars and conferences have proved to be effective vehicles for knowledge transfer; they are cost effective and have a broad reach. Moreover, the agencies we work with for the webinars archive the content. The challenge is achieving any meaningful evaluation of the content other than live attendance and the limited evaluation solicited from the sponsoring agency.

The limited needs and use survey we have so far (the Rural Nurse Organization is ongoing as of December 2012, but Dr. Reed expects a poor response as that organization is very challenged) reveals that we should place our emphasis on CE offerings, conference presentations, and some on webinars. We will be developing CEs from the NUR 317 course next year and conducting trials of those. Conferences are very expensive so we must try to capitalize on the possibility of others presenting at those or finding additional sources of revenue.

Relevance

All NURSE AP events have been targeted to nurses and other health professionals. Feedback reveals we are on target with presenting the “basics” of agricultural health and agricultural occupational health nursing concepts. Incorporation of current and recently completed research makes the products much more valuable to the audiences. The relevance of our project is reflected by feedback commonly received after the 2011 UK Summer Series presentation (23 evaluations, 9 disciplines), *e.g.*, “I will use this [information] in my professional and personal life. Will share with others...”

Evaluation Program

PD/PI: Ramona Stone, PhD, MPH. Co-investigator: Teresa Donovan, MPH

The Southeast Center aims to (1) conduct research on the prevention of occupational disease and injury among agricultural workers and their families; (2) develop, implement, and evaluate education and outreach programs to promote the health and safety of agricultural workers and their families; (3) develop, implement, and evaluate model programs to prevent illness and injury among agricultural workers and their families; and (4) develop linkages with other governmental and non-governmental bodies involved in public health and safety, especially other agricultural health and safety research centers.

Led by Ramona Stone, PhD, MPH, the **evaluation core** serves to track and assess Center progress toward these four goals, which are closely aligned with NORA II objectives for surveillance, special populations at risk (vulnerable workers), risk/hazard reduction leading to improved safety and health of AgFF workers, and outreach.

Aims and Outcomes

1. **Evaluate the cohesiveness and effectiveness of the Southeast Center in preventing agricultural occupational disease and injuries as a result of its transdisciplinary activities.** This includes establishing an “infrastructure” for evaluation and ensuring that each project/program both attains and articulates measurable short-term and long-term outcomes. Toward this end, the evaluation team has ensured timely data gathering and reporting and offered formative and process evaluation to Center PIs to assist in making “mid course” corrections or other quality improvement steps in the execution of their projects. Periodic evaluation reports have been shared with the Director and PD/PIs.
2. **Evaluate the impact of the Center on the safety and health of workers in production agriculture, forestry, and commercial fishing/aquaculture through its Research core.** This includes ensuring valid, reliable, and appropriately tailored data collection methods, and assistance in tracking project aims and milestones.
3. **Evaluate the impact of the Center on the safety and health of workers in production agriculture, forestry, and commercial fishing/aquaculture through its Education/Translation core.** This includes tracking the progress of education/translation projects and assessing their outcomes.
4. **Evaluate the impact of the Center on the safety and health of workers in production agriculture, forestry, and commercial fishing/aquaculture through its Prevention/Intervention core.** This includes ensuring timely, complete, and consistent documentation of project outputs and outcomes.
5. **Collaborate with other NIOSH-funded Agricultural Centers toward development of a uniform and scientifically rigorous evaluation framework across the Agriculture, Forestry, and Fishing Initiative.** This includes meeting with fellow NIOSH Agricultural

Centers in person and via conference calls to compare evaluation approaches and exchange mutually beneficial information.

During the period under review we have

- **Systematically examined and summarized key NIOSH evaluation documents in order to highlight current priorities for the AgFF program and to help align Southeast Center project and assessment activities accordingly.** These documents include those generated by the 2006-2007 independent review of the NIOSH AgFF program (often referred to as the “NAS review,” albeit erroneously) and by the spring 2012 follow-up review chaired by Dr. Paul Gunderson:

Gunderson P, Bean TL, Correa MT, Dosman JA, Groves WA, Lee L, et al. Comments on the Agriculture, Forestry, and Fishing (AgFF) National Research Program Sponsored by the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC). 2012 Jun 26 (<http://www.cdc.gov/niosh/programs/agff/naseval.html>).

National Research Council and Institute of Medicine. Committee to Review the NIOSH Agriculture, Forestry, and Fishing Research Program. Agriculture, Forestry, and Fishing Research at NIOSH. Report No. 3, Reviews of Research Programs of the National Institute for Occupational Safety and Health. Washington, DC: National Academies Press, 2008; 354 pp. ISBN-10: 0-309-11579-5. Accessed online at http://www.nap.edu/catalog.php?record_id=12088#toc.

NIOSH Agriculture, Forestry, and Fishing Program *Plan to Implement the National Academies Program Evaluation Recommendations*, Draft 2009 Mar; Final 2011 Jan. Accessed online at <http://www.cdc.gov/niosh/nas/pdfs/AgFFImpPlanfinal.pdf> [accessed 2011 Sep 23].

- **Conferred by telephone and in person with PD/PIs to track project-level progress, advise on any modifications to originally approved protocols (e.g., Latino Farmworkers, Work Organization, Safety and Health: *Salud y Seguridad del Trabajador Equino*) and encourage movement toward intermediate and long-term outcomes as defined by the NIOSH Logic Model for AgFF Evaluation (OEP 2012).**
- **Collected quarterly project updates from PD/PIs for all Southeast Center projects funded as of 09/30/2011.** Reports will also be collected in the future for “Native American Safety and Health,” PD/PI: Chike Anyaegbunam, PhD.
- **Collaborated with other NIOSH-funded Ag Centers toward development of a more uniform, scientifically rigorous evaluation framework across the AgFF.** This has included
 - conference calls with counterparts at the Southwest and High Plains and Intermountain Centers regarding continuity and adaptation in the Ag Centers’ approach to internal and cross-center evaluation;
 - participation in the 2012 Oct 24 meeting of the NIOSH Ag Center Evaluators in Minneapolis, MN;

- participation in conference call of the NIOSH Ag Center Directors: 2012 Jan 26; 2012 Mar 15; 2012 Mar 22; 2012 Mar 30; 2012 July 12; 2012 Aug 2; 2012 Oct 2.; 2012 Nov 6; 2012 Dec 11
- obtaining access to a prototype online (SQL) data collection system in development at CSU-HICAHS. This system and similar models will be used by at least 3 of the NIOSH-funded Ag Centers; all keeping in view the possibility of future “compatibility” or “cross talk” with the NIOSH Project Planning and Management System (NPPM). Per internal agency documents, the NPPM "system allows system users internal-to-NIOSH to analyze project and some program level data such as funding, personnel time, goals, outputs, and **outcomes**." [emphasis added].
- **Planned for future online data collection and analysis, consistent with Aim 5 and NIOSH use of the NPPM system, by development of a local online system, housed on REDCap.** Transition of the first-generation NIOSH Ag Centers’ Evaluation database to the more facile and informative RedCap system has been facilitated with the help of Dr. Dong y Zhong (Dongying), specialist in Biomedical Informatics, Center for Clinical & Translational Science, Biomedical Informatics Core (CCTS).

This has entailed face-to-face meetings on Nov 20, Nov 30 and December 13, 2012. Further modification of the Southeast Center evaluation database is planned to serve local needs and to allow for direct data entry by PD/PIs and/or their designated project coordinators.

As noted by its designer, “REDCap is a secure, Web-based application for building and managing online surveys and databases. REDCap provides automated export procedures for seamless data downloads to Excel and common statistical packages (SPSS, SAS, Stata, R), as well as a built-in project calendar, a scheduling module, *ad hoc* reporting tools, and advanced features, such as branching logic, file uploading, and calculated fields.”

The Evaluation team will meet with PD/PIs and their project coordinators in spring 2013 for training in use of the REDCap system.

Relevance:

The evaluation core is tracking and documenting the Southeast Center’s continued responsiveness to top priorities of the NIOSH Agriculture, Forestry, and Fishing (AFF) initiative and the National Occupational Research Agenda (NORAI). In so doing, it is guiding our research, prevention, and education cores toward a more synergistic focus on both intermediate and long-term outcomes as identified in the NIOSH logic model for program evaluation (Felknor, O’Hara, Robison 2012).

Native American Agricultural Safety and Health

PD/PI: Chike Anyaegbunam, PhD.

This four-year project will use community-based participatory research (CBPR) to assess and improve agricultural occupational safety and health in and around a Native American reservation in southwest Alabama. The project aligns with NORA strategic goals focused on surveillance, vulnerable populations, outreach, communications and stakeholder partnerships. In 2010, the Southeast Center worked with the Indian Health Service (IHS), the United South and Eastern Tribes (USET), and the Deep South ERC to develop a partnership with the Poarch Band of Creek Indians in Atmore, Alabama. Operations of this federally recognized tribe include a commercial farm with beef cattle, timber and other crops, as well as family farming by both native and non-native farmers within a 5-mile radius of tribe headquarters. The Southeast Center engaged these stakeholders in a mutually instructive process of CBPR while respecting the principles of Native sovereignty. Six specific aims were drafted as a result of these meetings:

Aims and Outcomes

1. Partner with the elders, leaders, and community members of the Poarch Band of Creek Indians and organizations that provide them with services to develop a systematic plan for assessing agricultural safety and health needs within a five-mile radius of the Atmore reservation (needs assessment).
2. Partner with the elders, leaders and community members of the Poarch Band of Creek Indians to review farm policies and work organization as they may affect farm worker safety and health.
3. Share the technical expertise of agricultural engineers and farm safety specialists associated with the Southeast Center in a systematic assessment of machinery, equipment, and production techniques used on the tribe's corporate farm.
4. Assess the knowledge and skills of local EMS providers and clinic staff regarding traumatic injuries and illness associated with production agriculture – including zoonoses, use of large machinery, and farm rescue techniques – and establish protocols for improved tracking of "close calls" and non-fatal injuries, as these are important risk-hazard indicators.
5. Partner with the elders, leaders and community members of the Poarch Band of Creek Indians and organizations that provide them with services to develop and implement strategies for reducing and/or eliminating farm hazards over the next four years.
6. Partner with the elders, leaders and community members of the Poarch Band of Creek Indians to develop a sustainability plan for agricultural occupational safety and health at the community level.

IRB Approvals

As of December 2012, the Southeast Center has received all Human Subjects Protection approvals for Phase I of the project from UK IRB, the Indian Health Services office, Nashville and the University of South Alabama (USA).

Contract Negotiations/Project Implementation Planning

The Poarch Band of Creek Indians (PBCI) have accepted a revised contract that increased the amount of their sub-contract from \$28,381 to \$38,594 (Personnel \$30,770 + \$7,824 (25.43% F&A costs)*)

Salary	18,720	.50 FTE Safety and Health Coordinator	\$37,440/yr
Fringe	5,242	28% Safety and Health Coordinator X	\$18,720
Salary	5,491	10 FTE Perdido River Farm Manager	\$54,908/yr
Fringe	1,317	10% Perdido River Farm Manager X	\$13,171/yr

* The 2012 rate was reduced to 25.43% from 36.45%

As of December 2012, the subcontracts for the PBCI and USA are being developed. When completed by UK, the PBCI contract will first go to Arlene Mack, who will review and then forward it to the tribe's Legal department before it goes to James T. Martin, executive director of Creek Indian Enterprises (CIE), who will sign on behalf of the tribe. The USA contract will be reviewed by Ms. Gina Hedberg, Director, USA Office of Grants Administration and signed by Robert K. Davis, Contract Officer. Both subcontracts take effect from November 15, 2012 and actual project implementation will start spring 2013. While the office of Creek Indian Enterprises will oversee the project on behalf of the PBCI, the USA College of Nursing will collaborate with SCAHIP to implement the project.

Key Personnel

Chike Anyaegbunam, Ph.D. – **PD/PI**

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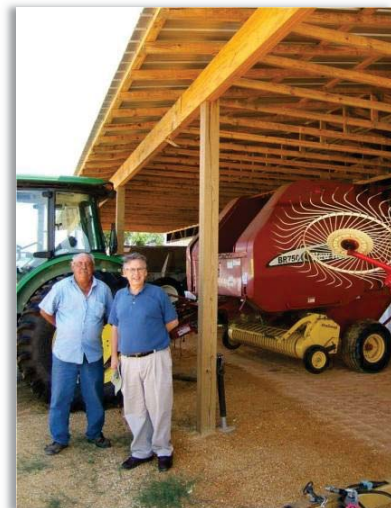
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Dr. Robert McKnight, Founding Director, Southeast Center for Agricultural Health and Injury Prevention (r) with PBCI Tribal farm employee Floyd Turberville (l), 08/10

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Relevance

This transdisciplinary project links a NIOSH-funded agricultural center and ERC in a forward-looking partnership with the University of South Alabama, the U.S. Indian Health Service, and the Poarch Band of Creek Indians. This partnership will address NIOSH and IHS objectives for injury reduction in native populations.

References

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National Research Council and Institute of Medicine. Committee to Review the NIOSH Agriculture, Forestry, and Fishing Research Program. Agriculture, Forestry, and Fishing Research at NIOSH. Report No. 3, Reviews of Research Programs of the National Institute for Occupational Safety and Health. Washington, DC: National Academies Press, 2008; 354 pp. ISBN-10: 0-309-11579-5. See, esp., **Chapter 2: The Ideal Agriculture, Forestry, and Fishing Research Program**. Accessed online at http://www.nap.edu/catalog.php?record_id=12088#toc. The NIOSH AgFF review was begun in 2007 by the Board on Agriculture and Natural Resources of the National Research Council and Institute of Medicine and chaired in both 2007 and 2012 by Dr. Paul Gunderson. This document will henceforth be referred to in the text as NAS, 2008.

NIOSH. National Occupational Research Agenda (NORA) Agricultural, Forestry, and Fishing Sector Council. National Agricultural, Forestry, and Fishing **Agenda for Occupational Safety and Health Research and Practice in the Agricultural, Forestry, and Fishing Sector**. 2008 Dec. 93 pp. Accessed online at <http://www.cdc.gov/niosh/nora/comment/agendas/AgForFish/pdfs/AgForFishDec2008.pdf>.

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