

# **Southeast Center for Agricultural Health and Injury Prevention**

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## **Annual Report**

**09/30/2015 through 09/29/2016**

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## SECTION I — CENTER SUMMARY

The Southeast Center for Agricultural Health and Injury Prevention founded in 1992 is located at the University of Kentucky (UK), a land-grant campus that houses the Colleges of Agriculture, Medicine, Nursing, Public Health and Arts and Sciences among others all on one campus. This unique situation allows the Center to focus on multidisciplinary collaboration from agriculture, public health, epidemiology, biology, engineering, education, forestry, communications, nursing, medicine, and Cooperative Extension within UK as well as across universities in the Southeast including Auburn, East Carolina University, North Carolina State University, North Carolina A&T, West Virginia University. The Center's theme, "Multidisciplinary partnerships to improve agricultural safety and health in the Southeast," places emphasis on serving vulnerable farm populations while addressing persistent and emerging agricultural/forestry and fishing safety concerns unique to the 10 southeastern states of AL, FL, GA, KY, MS, NC, SC, TN, VA and WV. The Center expects to have a substantial impact on the prevention of injuries from tractor overturns, reduction of logging injuries and fatalities, surveillance and risk evaluation of emerging issues such as agriculture-related antibiotic resistant infections, the development of widespread multidisciplinary training to increase the number of professionals skilled in addressing health and safety issues faced by agricultural workers and their families and to extend its outreach and programs to address the health and safety needs of the varied fishing industry across its region.

### RELEVANCE

US Department of Labor trend data for the southeast United States, 2006–2014, indicate despite overall downward trends, the burden of fatal occupational injuries remained disproportionately heavy among those employed in agriculture, forestry, and commercial fishing/aquaculture (AFF) industries. Nationally, data from 2014 identifies that agriculture, forestry, fishing and hunting recorded the highest fatal injury rate of any industry sector at 24.9 fatal injuries per 100,000 FTE workers, up 9% from 2013. This toll is *over 8 times higher* than the all-industries rate of 3.3 per 100,000 FTE workers (BLS-CFOI 2014). The increase in AFF fatalities was led by fatalities involving agriculture workers (up 12%) and fatalities involving logging workers (up 31%).

The agriculture, forestry, fishing and hunting sector also continues to record much higher rates of non-fatal occupational injuries than the all-industry average: 112 cases per 10,000 full-time U.S. workers in 2012 (all industries average), compared to 192 per 10,000 full-time workers in agriculture, forestry, fishing, and hunting. (BLS-IIF, 2013).

Following are the current SCAHIP projects with their associated relevance:

**Research Core: Latino Farmworkers, Work Organization, Safety and Health (J Swanberg)**

The goal of this 5-year research project is to improve the occupational safety and health of Latino workers employed on thoroughbred horse farms in Kentucky by reducing job-level and work organization-related hazards in horse production.

**Specific Aims:**

- identify job hazards and work organization factors inherent within thoroughbred horse production;
- describe the work and social demographic characteristics of Latino workers employed on thoroughbred horse farms, the number, type, characteristics and severity of illness, injuries and near miss incidents experienced by these workers;
- determine how work organization factors may increase exposure to and interact with job hazards as well as occupational illness, injury and near misses among Latino workers;
- develop and disseminate educational safety and health materials for thoroughbred horse farm owners/managers and Latino horse workers.

The research is yielding promising results with a hard-to-reach employer population—thoroughbred farm representatives and a hard-to-reach vulnerable worker population that experiences significant health disparities: Latino farmworkers.

**Prevention/Intervention Core: Economics of Preventing Agricultural Injuries to Adolescents and Adult Farmers (J Mazur)**

The earlier **EOP I** project (2006–2011, CDC/NIOSH Cooperative Agreement U50 OH007547 and supplemental) developed and evaluated online versions of narrative simulation exercises and injury cost analysis tools within college courses for post-secondary students preparing for careers as high school social studies and vocational agriculture teachers and agricultural extension agents. Upon graduation, these professionals used the online exercises with hundreds of youths and adults enrolled in their respective educational programs. The current **EOP II** project expands the use of digital, interactive instructional materials aimed at promoting risk-hazard exposure reduction among persons at-risk for farming-related injuries, youth aged 16-20. The project focuses on injuries associated with farm tractor overturns, farm equipment/motor vehicle roadway collisions, head-injuries due to un-helmeted horse and ATV riding and use on farms.

**Specific Aims:**

- Targeting Agricultural Education programs in the Southeast, expand the cadre of pre-career professionals trained in the use of online simulations, cost tools, and digital instructional materials that emphasize the cost-effectiveness of injury prevention.
- Expand regional, national and global access to the Economics of Prevention: Social & Individual Costs course by making it available online in interactive Web formats.

- Develop and field test new highly-engaging digital intervention products, requested by EOP1 partners, including an internet game template from the research-tested simulations and economic cost tools from EOP1 and virtual tractor inspections that motivate youth at high risk of injury to identify hazards and take preventive measures.
- Conduct a multi-state controlled evaluation using 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.

The uptake and institutionalization of farm safety materials into school curriculum requirements is a highly sustainable outcome of farm safety material development. This project enlists the support of local agricultural educators as safety advocates as a measurable farm safety intervention, as each teacher interacts with and influences hundreds of students in the course of a school year – impact that extends over the course of many years of their teaching careers. Students in agricultural education classes typically become local community leaders and continue to grow the culture of farm safety in their rural communities.

### **Education/Translation Core: Nurses Utilizing Research, Service, Education and Practice (NURSE-AP) (D Reed)**

The long-term goal of the NURSE-AP project is to provide farm communities with tailored, evidence-based health care and health promotion delivered by trans-disciplinary teams. The intermediate goal is to advance agricultural health and safety nursing practice through emerging education and communication strategies, new clinical interventions, service learning, and community collaborations. This 5-year educational r2p project addresses barriers to optimal care created by delayed access to agricultural health and safety research, lack of evidence-based nursing practice tailored to local farm communities, and the limited number of nurses with expertise in agricultural health and safety. The NURSE-AP project includes collaborating faculty at Frontier University, Western Kentucky University (WKU), East Tennessee State University (ETSU), the University of Alabama- Tuscaloosa, and Southeastern Louisiana University (SELU).

#### **Specific Aims:**

- 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.
- Develop innovative strategies for nurse students and other students to develop expertise in agricultural health and safety.
- Increase the capacity of nurses to develop and deliver tailored health programs for local farm constituencies.
- Strengthen and increase a networked cadre of agricultural health nurses in practice, education, and research settings that can sustain the project post-funding. Methods

include emerging pedagogy, mass communication information dissemination strategies, student internships and individualized study, faculty and clinical practice fellowships, and consultation services for agricultural nursing research and practice.

- Disseminate health and safety education directly to farm communities.

This project has a direct impact on farmers and their families across the U.S. as noted by the new associations with multiple farm organizations and the continued work with media and other institutions. It shows the hunger that farm families have for health and safety information delivered by nurses who understand and appreciate their work. The presentations have a global reach and the new on-line course (NUR234) proved successful and influences the practice of new nurses. All these indicators point to the rapid translation of research to practice (r2p) that this project accomplishes. The project demonstrates a further “ripple effect” impact, as many disciplines and the public look to the project for guidance, education, and resources.

### **Education/Translation Core: Graduate Certificate in Agricultural Safety and Health (ASH) (J Mazur)**

Service providers and clinical professionals in rural communities regularly encounter workers, patients or colleagues who live and work on farms. Current knowledge of agricultural safety and health issues is essential to serving these individuals well. However, agricultural education, public health, and gerontology, higher education and professional preparation programs rarely include a focus on health and safety issues related to living and working on farms. Continuing professional education at the post-secondary level is a solution that targets rural populations and advances the *Healthy People 2010* goal to increase the quality and years of healthy life as well as NORA Strategic goals 1-5 related to surveillance, vulnerable workers, outreach/communications and partnerships, agricultural safety and agricultural health. The Certificate in Agricultural Safety and Health, offered through the University of Kentucky College of Public Health addresses the need for the preparation of professionals to serve the needs of agricultural populations. A particular focus has been working with faculty to design and prepare course content in the Certificate anchor course Health of Agricultural Populations (HAP) (CPH 728) for offering as e-learning course modules.

### **Specific Aims**

- To develop a cadre of post-career professionals knowledgeable in the principles of agricultural safety and health at the post-baccalaureate level.
- To implement a graduate level certificate in Agricultural Safety and Health emphasizing the novel approach of progressive inquiry learning and research-to-practice skills.

**2015-2016 Administrative Core Supplemental: Cost-effective Roll-over Protective Structures (CROPS) (S Vincent)**

The goal of this study is to educate students about safe farming and to reduce the number of tractor related injuries and fatalities in farm communities in the southeast, targeting high poverty areas in the Appalachian and Delta regions. The primary strategies to prevent farm injury and fatality are (1) the reduction of exposure to hazard (unprotected tractors without ROPS) through Cost-effective Roll Over Protective Structure (CROPS) installations, (2) changes in behavioral intention to engage in safe farm practices for youth aged 15-20, and (3) long term school-community partnerships that sustain a culture of farming safety and ongoing CROPS installations. The impact of the project validates the effectiveness of an innovative, comprehensive tractor safety curriculum in agricultural power mechanics classes in Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia. The curriculum, training procedures and social media strategies have been piloted in previous research beginning in 2012. For this implementation teachers and students in 75 rural communities are participating in the project. Each school received initial funding to equip two (2) tractors with CROPS. Then, in subsequent grant years a scale-up approach related to an implementation of social media crowd funding, to cover the cost of additional CROPS, has provided local funding to equip additional CROPS to farming operations in those communities. Thus, over the course of five years, school partnership linkages and crowd funding social media campaign are implemented to self-support additional CROPS, 7500 at-risk high school youth will engage in the construction/implementation of 750 CROPS. Risk of exposure to tractor overturn hazard would be reduced for an estimated 3000 individuals who would use those tractors for farming (Mazur, Vincent, Watson & Westneat, 2015).

**Pilot Feasibility Studies and Emerging Issues Program: (W Sanderson)**

This program (1) provides initial funding to develop innovative methods of investigation and prevention/intervention in agricultural/forestry/fishing (AFF) occupational safety and health; (2) stimulates investigators in diverse disciplines to apply their expertise to AFF safety and health issues; (3) enhances external partnerships and cross-center collaboration; (4) provides support for activities designed to move the results of research into practice; and (5) provides pilot data to support successful R-01 type funding.

**Outreach Program: (J Mazur)**

The Outreach program uses purposeful, trans disciplinary approaches for print, online, and face-to-face delivery of safety and health information and training materials to farm/forestry/fish industry owners and operators, hired workers, and the membership organizations, businesses and agencies that serve them. This translation of research activity to real-world application is developed in response to priority health and safety topics identified by input from agriculture/forestry/fishing stakeholders across the 10 state region. Improved access to stakeholders including Hispanic farm workers and other vulnerable populations is a priority. Materials are developed to ensure that farm safety instruction, guidelines, and other prevention activities are culturally, linguistically, and educationally appropriate and 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. A multi-Center outreach strategy is continually developing with collaborations with the Northeast Center (Cooperstown, NY) the High Plains and Intermountain Center (Colorado State University) and Conceptual Arts, Inc., (Gainesville, FL) on expansion of the National Agricultural Safety Database ([www.nasdonline.org](http://www.nasdonline.org)) as the top online source for stakeholder access to resources and tools identified, developed, and evaluated by the NIOSH Agricultural Centers. The program with its strong ties to the University of Kentucky’s instructional design program is using state-of-the-art technology to package, market, and distribute field-tested agricultural occupational safety and health materials and tools.

### **Evaluation Program: (Ingram/Westneat)**

This program monitors and reports the current and ongoing progress and regional/national/international impact of all SCAHIP programs through systematic and widespread tracking in an organized, easily reportable database. A sample of activities being tracked include: classroom research subjects from EOP II and CROPS projects – not only their progress through the program but post program activities including their work placement (county specific) after program completion. This post program tracking allows us to gauge state and county-wide impact of knowledge gained in the research programs. Project-specific publication numbers, citation numbers and journal impact are also being tracked as well as oral, poster, other professional presentations. Number and type of attendees at presentations is also being monitored. These combined activities provide actual numbers to measure the continued impact of our funded programs and trace the web of regional/national/international influence.

The Evaluation core also maintains an up to date email roster of stakeholders across all 10 states and includes representation from each of the ag/forestry/fishing industries. The roster is used to conduct periodic online stakeholder surveys to solicit opinions regarding important health and safety issues across agriculture/forestry/fishing industries. This information is used to guide funding decisions for pilot projects as well as to ensure ideas for future research proposals are meeting the health/safety needs of the region. Questions about use of various forms of media are also included to assure the SCAHIP methods of disseminating information/results are appropriate and usable.

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## SECTION II — PROGRAM HIGHLIGHTS OF HIGH IMPACT

### Research Core:

#### **Latino Farmworkers, Work Organization, Safety and Health (J Swanberg)**

Over the past year, the project had success across all aims. Consistent with study objectives, data collection concluded and the focus shifted to data analysis and dissemination. Research findings have been shared with the scientific community via: 4 published manuscripts; presentations at 4 conferences; and a webinar presentation to a national network of agricultural safety and health researchers and practitioners, reaching approximately 160 attendees. In addition, the Migrant Clinician's Network featured the project in a blog post and in an article in its widely distributed *Streamline* newsletter.

The study team devoted time and resources using a multi-step community guided process to ensure the findings were disseminated to the stakeholder community in a culturally appropriate manner. The activities described below clearly demonstrate the wide reaching and sustainable network that has been developed through this project's activities. Research findings from farm interviews revealed that farms desired the following resources: results from our study, information about what other farms were doing to address health and safety issues with this worker group, and a culturally appropriate graphic job-training and safety tool to help overcome language barriers. In response, we are finalizing and disseminating the following resources to farms and workers in Year 5: 10 Research briefs (see [www.workersafetyandhealth.com/issue-briefs](http://www.workersafetyandhealth.com/issue-briefs)). These briefs, targeted to farm managers and owners, communicate study findings and related management tips and resources in a brief, easy-to-understand format that has been widely praised by both community and industry contacts; the research team helped to update, format, and disseminate a Spanish-language community resource guide that has been very popular among Latino thoroughbred farm workers (see [www.workersafetyandhealth.com/wp-content/uploads/2015/05/Resources-booklet\\_Bilingual5.22.15.pdf](http://www.workersafetyandhealth.com/wp-content/uploads/2015/05/Resources-booklet_Bilingual5.22.15.pdf)); From the Field: A Promising Health and Safety Practices Report based on in-depth interviews with farm managers and owners, is being designed which will share promising health and safety practices being used by thoroughbred farms so that they may learn from one another. This resource was requested by farms and serves as a valuable medium for disseminating health and safety innovations; culturally appropriate Graphic Safety posters created through a multi-step community-guided process. First, the research team presented the study's main findings to a group of eight farm managers and safety and health professionals who participated in a series of two intensive working group meetings to create narratives for a series of 12 graphic bilingual safety posters that were based on project results. These narratives were sent to a bilingual illustrator. Feedback was garnered from the working group members and a second draft was created based on their comments. The second drafts were shown to the following groups for their feedback and comment: 8 original working group members; all members of the project's industry and community advisory councils; Saddle Up Safely: a group of researchers, doctors, safety professionals, and equine experts who meet biweekly to discuss issues related to horses and safety; University of Kentucky Equine Programs: A focus group of

10 Latino thoroughbred workers; A native Spanish speaking vet and farm owner; 11 thoroughbred farm managers representing 7 farms via face-to-face interviews.

In order to expand the reach of the aforementioned materials, a website has been created that will host the resources being created through this project. This website, [workersafetyandhealth.com](http://workersafetyandhealth.com), has been a highly successful medium for disseminating research findings to academic, industry, and community audiences. Over the past year, it has garnered 1,569 visits from 1,339 users. Since its publication in May 2015, the website has garnered 4,104 page views from 3,762 users. As of 9/21/16, the research brief page has garnered 124 views and 18 community guides have been downloaded from the website. Since its inception in May 2015, those numbers are 159 views for the research briefs and 90 documents that have been downloaded.

Dissemination efforts to the Latino community have included participation in: the Kentucky Children's Health Insurance Program Hispanic Christmas Party, the University of Kentucky Hispanic Dental Health Fair, the Día de la Mujer Latina (Day of the Latin Woman), formal community advisory council meetings as well as 1:1 meetings community advisory council members.

Dissemination efforts to the thoroughbred Industry have included participation in: the University of Kentucky Equine and Farm Expo, a presentation to the Kentucky Thoroughbred Farm Managers' Club, a presentation to Saddle Up Safety, a group of equine safety and health specialists, a presentation to the University of Kentucky Equine Programs, through working group meetings related to creation and editing of graphic safety posters, formal industry advisory council meetings as well as 1:1 meetings with advisory council members.

In addition to the dissemination efforts of the past year, the following **Intermediate outcomes** have been achieved

- Based in part on study findings showing a proliferation of injuries to the feet, one large farm with over 200 employees has instated a policy to reimburse workers for the purchase of steel-toe boots.
- An advisory group of Chief Financial Officers through the Kentucky Thoroughbred Association/Kentucky Thoroughbred Owners and Breeders has reviewed the research briefs related to the study and is using them to determine if changes are needed in farm operations.
- The Blue Grass Farms' Charities, a farm-funded outreach organization that provides outreach to Latino thoroughbred farm workers is using the study's research briefs to inform the development of future programming and outreach efforts for farms and workers.
- Manuscripts resulting from this project have been cited 39 times in the scientific literature.
- Inspired by the project, a national charitable organization has funded a survey of the health and human service needs of thoroughbred farm and backstretch workers.

## **Prevention/Intervention Core: Economics of Preventing Agricultural Injuries to Adolescents and Adult Farmers (J Mazur)**

### **Hazard Ridge**

During this year, data collection with the *Hazard Ridge 3-D* immersive game intervention continued. Eighty-three students from two agriculture classes at the University of Kentucky participated during the spring 2016 semester. In 2015, an additional set of analysis tools had been developed by the game development partners at SuperSoul to incorporate student tracking data. These tools have enabled the research team to log specific areas of the game that students visit, how long they spend viewing and interacting with various content elements. These logs sync via a Web 2.0 'back end' database to online pre-post measures also delivered with PHP/MySQL database applications. Since these developments, Hazard Ridge has received 12, 302 page views and 5, 448 visitors. Players spent a total of 8, 762.83 minutes playing the game (over 146 hours). Players averaged 55.8 minutes of game time.

In 2016, Hazard Ridge won Bronze in the 2016 International Serious Play Awards for its' outstanding ability to deliver high quality engagement and offer measurable assessment elements.

Virtual Tractor Inspection Training Tool (VIT): The VIT was originally field-tested in December 2014 with 114 students in the Agricultural Education program at North Laurel High School in London, Kentucky. Refinements to the content, delivery system and instructor management interfaces on this online product resulted. A VTI Instructor Guide was developed in summer 2015, and in the 2015/2016 school year, high school agricultural education teachers in four Appalachian Kentucky counties (Boyle, North Laurel, Garrard and Whitley) received the Instructor Guide and an onsite training to implement the program into their tractor safety classes. During the school year, 150 agricultural education students completed the VIT online learning modules and the 20-item final assessment. Within the course, VIT employs a Learning Management System (LMS) that allows teachers to track students' progress and evaluates and provides feedback to the student in real time, as s/he is working through the didactic tutorial information. After some initial feedback from teachers, an item analysis feature was added to allow teachers to aggregate class/individual performance scores for EACH final assessment item. This feature helped the teacher to identify areas that needed further instruction. Resulting changes included splitting the final assessment into two assessments: one at the approximate midpoint of the course, and the other at the end. Each will include 7 to 10 questions with 2 or 3 images per question. Final testing will be conducted in fall 2016.

Overall, feedback from teachers and students has been positive. Here are some comments:

- "We conduct an annual tractor safety inspection." Ag Teacher, Garrard County High School
- "I think it [VIT] will help them [students] become more safety conscious. I do feel like (VIT) will help students to become better tractor operators." Ag Teacher, Whitley County High School
- "I guarantee we learned more about tractors this way than if we just looked at one." Student

### **Education/Translation Core: Nurses Utilizing Research, Service, Education and Practice (NURSE-AP) (D Reed)**

During this final funding year, Dr. Reed expanded the NURSE-AP program with a focus on a vulnerable population in our region, the Plain Population. An on-line continuing education (CE) program, *Providing Quality Health Care for Plain Populations*, has been created and currently in its final review stage. In preparation for the development of this CE program, information was collected from 25 members of Anabaptists communities from 13 states, and 18 health care providers were interviewed about their experiences in providing agricultural occupational safety and health care for this diverse population. The objectives for the CE program are:

1. Describe the historical background and culture of plain people
2. Identify barriers to agricultural health and safety care among the plain people populations.
3. Identify common health issues/concerns of plain people
4. Outline appropriate nursing interventions when providing agricultural health and safety care for plain people.

The AGNURSE Facebook (FB) page continues to increase its visibility and research. Since the last progress report our FB page has grown another 25% to 216 likes (up from 172 in September 2015). This has proven to be a very popular media format for farmers and for health and other farm service professionals. The increase in likes is directly attributable to more postings with links and to the increased exposure due to Dr. Reed's presentations. Interactive messages are also markedly increased. The most shared post focused on mower safety and reached 1,256 people.

The on-line Nursing CE Module, *The Nursing Response to Mental Health Issues in Agriculture Populations*, launched in July 2015 continues to be marketed on the Western Kentucky University (WKU) website (<http://www.wku.edu/lp/nursing-ce-ag.php>). The course is described as: Farmers are at risk for serious health issues, including anxiety, depression and suicide. This continuing education program is designed to help identify the sources and warning signs of these issues and develop successful interventions:

Identify sources of stress associated with farming

Recognize the unique manifestations of stress

Assessment tools

Identify nursing interventions to assist the farmer and the family deal with mental health issues

The course has received excellent reviews as evident by this quote: *"This relevant, well-designed interactive program offers evidence-based strategies for nurses. The videos of the farmers are powerful and capture a realistic picture of the stress associated with farming."*

Vivian McClellan, RN, MSN, Corporate Director of Education and Development, Commonwealth Health Corporation, Bowling Green, KY.

To date, 26 individuals have completed the CE program with 26 (100%) strongly agreeing or agreeing with the statements: 1) “My knowledge was increased as a result of participating in this educational program.”; 2) “I gained new insights relevant to my work.”; 3) “I intend to implement at least one practice improvement as a result of this educational program.”

The AGNURSE program continued to mentor the next generation of Ag Nurse researchers. Both of Dr. Reed’s undergraduate student interns presented posters during the project year. Ms. Sidney Boots presented data related to the AGNURSE Facebook page at the International Society for Agricultural Safety and Health conference in Lexington, KY. Ms. Anna Eastman, a BSN student, presented on the health status of Kentucky’s senior farmers at the annual Posters-as-the-Capitol in Frankfort, KY. One PhD scholar, Sharon Hunsucker, successfully completed her dissertation – Effects of Obesity on United States Farmers. Dr. Reed is working with Dr. Hunsucker on manuscript preparation. In addition, Dr. Reed reached out to undergraduate and high school students by: writing and presenting a 10 minute video on agricultural nursing and research for the undergraduate nursing research class in the UK College of Nursing; a one hour talk with the University of Kentucky AHEC (Area Health Education Center) Summer Enrichment Program students (30 rising high school juniors) on nursing and agriculture.

### **2015 Administrative Core Supplemental: Cost-effective Roll-Over Protective Structures (CROPS) (S Vincent)**

As of May 2016, the program has installed 81 CROPS in 29 schools, involving 700 agricultural education high school students. The resulting CROPS products were prominently displayed in the local press in these communities. In July 2016, the 3-day Teacher Seminar was held with the new 2016-2017 CROPS teachers cohort (n=10) to review the newly updated CROPS curriculum and to engage a hands-on construction of an actual CROPS using the NIOSH plans as done in the previous year. In addition, participants learned additional strategies for social media crowd-funding for community based support of CROPS programming and how to set up social media profiles. The goal is for each participating agricultural education program to have its own CROPS social media link where students can pose questions to colleagues and the researchers at the Southeast Center for Agricultural Health and Injury Prevention. Students can also reflect on daily lessons as well as share success stories from the project.

As of fall 2016, each participating agriculture mechanics teacher has established a crowd-funding campaign with their students. With the assistance of the research team's Crowd-Funding Training Guide (see attached), participating teachers' classes are in the process of developing their crowd-funding website. The website allows the agriculture mechanics programs to request funds for implementing the CROPS curriculum beyond the scope of the study. The crowd-funding page can be linked to social media sites that the agricultural education program may have. Once it is published onto a social media site, anyone can share onto their own site for others to aid in the awareness and fundraising. Also, social media profiles have been created on Facebook, Twitter, and Instagram to provide students with a platform to discuss safety-related topics, share ideas and opinions, and learn more about CROPS. Thus far, the CROPS Facebook page has received 49 likes, Twitter 10 followers, and Instagram 67 followers.

An important aspect of last year's 2015-2016 CROPS program was the addition of faculty partner Dr. Preston Byrd, assistant professor of agricultural education, specializing in teaching and learning strategies in agricultural mechanics, from Clemson University. In summer 2015, the CROPS program purchased an EPOCH 650, a portable ultrasonic flaw detector with excellent inspection performance and usability for a wide variety of applications (<http://www.olympus-ims.com/en/epoch650/>). The EPOCH 650 is designed to meet the requirements of EN12668-1 and allows a full range of standard and optional flaw detection features. Dr. Byrd has completed the EPOCH 650 training. Beginning in October 2015, Dr. Byrd visited CROPS program schools, as they completed CROPS constructions, to inspect the CROPS products. Dr. Byrd is using an inspection protocol he developed that focuses on fidelity to plan specifications, correct bolt torque and the structural integrity of welds. Dr. Byrd collected data using his inspection checklist from the blueprints of the CROPS system. Data from this inspection protocol has been compiled and used for quality control and teacher professional development. Pre-test data, plans and curriculum materials was delivered and projects completed in 11 schools (25 CROPS) in Kentucky, Tennessee and North Carolina for the 2015-16 school year. For the 2016-2017 academic year, the CROPS program has tripled in size and includes approximately 290 students

from nine agricultural education programs in nine states including Kentucky (Russell Springs and North Laurel), Tennessee (McMinn), Virginia (Turner Ashby), West Virginia (Liberty), North Carolina (North Wilkes), South Carolina (Strom Thurmond), Georgia (Madison), Alabama (Skyline), and Mississippi (Rankin).

### **Education/Translation Core: Graduate Certificate in Agricultural Safety and Health (ASH) (J Mazur)**

The Certificate in Agricultural Safety and Health (ASH) offers a sequence of rigorous coursework comprised of 12 hours of content (4 graduate level courses) designed to develop expertise and facility in the use of scientific public health investigative methods and a sound research to practice orientation to provide services to rural populations at risk for agricultural health issues and/or occupational injury. Dr. Mazur assisted by Ms. Ellen Bloomfield, M.S., an experienced instructional designer and educator (and doctoral candidate in Instructional Systems Design at the University of Kentucky), completed the instructional design and development for the online 'anchor' course for the ASH Graduate Certificate Program – Health of Agricultural Populations (HAP) (CPH 728). The online course instructional core components have been designed and are in the learning management system delivery system (Canvas) at the University of Kentucky. Additional development documents were also distributed, including the Subject Matter Expert (SME) content form to assist Mazur and Bloomfield with instructional design tasks. Drs. Sanderson and Purschwitz are co-teaching the course and have revised the syllabus from previous offerings. This rigorous course emphasizes inquiry and problem solving using sound research methods to investigate a variety of agricultural health and safety issues. Coursework includes on-site classes, guest lectures from national experts in various agricultural health and safety topics (using teleconferencing tools), farm visits and collaborative group investigations that employ scientific field research methods. During the fall 2015 semester (August-December 2015), weekly digital video taping of on-site and teleconferenced guest lectures through the use of the Adobe Connect Telecourse delivery system was conducted. These digital lectures have been edited and have been provided to lecturers for approval. After this process is complete, they will be available for inclusion in the online course learning management system by spring 2017.

Remaining courses in the ASH certificate program were reviewed and modified as necessary to better meet the aims of the program. This included the streamlining of courses with the fourth course recognized by completion of either the capstone course (CPH 608) or Advanced Agricultural Health and Safety (CPH 729). Recruitment into the ASH certificate program continues to show a steady increase in enrollment with a total of 35 students enrolled in CPH 729/608 courses in 2016, as compared to 33 students enrolled in 2015 all increases from the 28 students who were enrolled in 2012.

### **Outreach (J Mazur)**

The Outreach program uses purposeful, trans disciplinary approaches for print, online, and face-to-face delivery of safety and health information and training materials to

farm/forestry/fish industry owners and operators, hired workers, and the membership organizations, businesses and agencies that serve them. This translation of research activity to real-world application is developed in response to priority health and safety topics identified by input from agriculture/forestry/fishing stakeholders across the 10 state region. Improved access to stakeholders including Hispanic farm workers and other vulnerable populations is a priority.

#### *Activities and Results:*

##### Multi Center Collaboration – Evaluators/Coordinators/Outreach (ECO) Group

An ongoing multi-center collaborative outreach strategy was developed between SCAHIP and the ECO Group comprised of representation from the 10 US Ag Centers and Conceptual Arts, Inc., (Gainesville, FL) on expansion of the National Agricultural Safety Database ([www.nasdonline.org](http://www.nasdonline.org)) as a premier online source for stakeholder access to resources and tools identified, developed, and evaluated by the NIOSH Agricultural Centers. The program with its strong ties to the University of Kentucky's instructional design program is using state-of-the-art technology to package, market, and distribute field-tested agricultural occupational safety and health materials and tools.

##### Stakeholder Outreach

In addition to the specific Center Outreach work with the ECO group and Center faculty, Drs. Reed, Swanberg and Mazur and their programs engaged in numerous outreach activities and distribution of materials to stakeholders as part of their funded research, intervention and educational program. In 2015-16, presentations have reached 764 stakeholders and nearly 1000 safety materials have been distributed as part of these presentations and events. Citation numbers and website/Facebook hits indicate the Center's online reach to over 1500 individuals during this cycle alone.

USAgCenters YouTube Channel. A social media kit was developed for US Ag Centers which included customized bitly urls to various You Tube videos as part of the 2015 National Farm Safety & Health Week (NFSHW) and National Ag Day 2016. The purpose was to create awareness of these two events and drive viewers to the Channel. YouTube Analytics, which are available for every video on YouTube, were analyzed for viewer engagement with the videos. Results demonstrated that social media messages enticed receivers to click the bitly links and watch the YouTube videos. For example, the number of views per day increased nearly 10-fold at a peak of **511 views** per day (9.6 times the average) during the 2015 National Farm Safety and Health Week (NFSHW) promotion. The average number of daily views has steadily increased over time, possibly indicating that the Awareness Events are drawing sustained traffic to the YouTube channel videos. A research poster of the findings was presented as part of the Poster session at ISASH 2016. As a result, further unified social media promotion continues as part of strategy to promote and increase awareness around issues addressed by the videos. The URL for the YouTube site is <http://www.youtube.com/UsAgCenters>

Social Media: a persistent effort continues to increase our social media efforts through regular messages on Facebook and Twitter. Southeast Center Twitter followers have increased from 60 to 112 and Center Facebook friends have jumped from 90 to 134 in the last year. Social media messages that promote EOP project pages included bitly urls in an effort to track hits to those sites. In fact, the bitly/HazardRidge link received a total of 94 hits within a few days of posting the link. The AGNURSE Facebook page continues to increase its visibility and research. Since the last progress report our FB page has grown another 25% to 216 likes (up from 172 in September 2015). This has proven to be a very popular media format for farmers and for health and other farm service professionals. The increase in likes is directly attributable to more postings with links and to the increased exposure due to Dr. Reed's presentations. Interactive messages are also markedly increased. The most shared post focused on mower safety and reached 1,256 people.

Southeast Center electronic outreach at a glance:

<http://www.uky.edu/publichealth/southeast-center-agricultural-health-and-injury-prevention>

<http://www.eoponline.org>

<https://www.facebook.com/580178002007732>

<https://www.facebook.com/ukyCROPS/?fref=nf>

<https://www.facebook.com/Agriculture.nurse>

<http://www.workersafetyandhealth.com/>

<https://www.twitter.com/SCAHIP>

<https://twitter.com/ukyCROPS>

<http://www.youtube.com/watch?v=VfYlX4eJ0fk>

<http://www.youtube.com?USagCenters> (*cross-center collaboration*)

Outreach was facilitated through the Southeast Center's: planning, coordinating and hosting of ISASH (International Society for Agricultural Safety and Health) Annual Conference which was held in Lexington, Kentucky on June 26 -30, 2016. With the highest attendance reported in years, more than 200 people attended the event from around the world; exhibit at the National FFA Convention held in Louisville, KY, in October 28-Nov 1, 2015 that generated contacts with more than 500 FFA members including both youth and agriculture educators. Many of these future farmers subsequently connected with the Center through social media (*i.e.*, Facebook and Twitter), increasing our followers by 23 on Facebook and 32 on Twitter during that week alone, and hundreds of contacts, including 63 high school vocational agricultural instructors who indicated an interest in EOP projects. All contacts were added to the outreach mailing list; participation in the National Association of Agricultural Educators (NAAE) in November 2016; participation at The American Public Health Association Conference, Chicago, Oct 31 – Nov 4, 2015.

### Evaluation (Ingram/Westneat)

Following the previous cycle's very successful stakeholder survey efforts that extended across the agriculture/forestry/fishing industries, this cycle's efforts used targeted stakeholder/needs assessment surveys to zero in on in-depth industry-specific issues. During spring 2016 we conducted an online survey targeted at the beef cattle industry including owner/operators/workers and others associated with the industry. As Kentucky is the largest beef cattle producer east of the Mississippi River understanding occupational safety and health concerns related to this industry is vital. Responses from 110 industry stakeholders is providing vital feedback to the outreach core and is also guiding pilot project funding and future proposal priorities and development. In addition, valuable information about smart phone and access to and interest in social media has been collected on the survey, supporting the Center's social media development plans. Tracking of students, publications, citations, presentations and outreach activities is also ongoing as well as ongoing monitoring of each research project's Facebook and webpages to evaluate dissemination effectiveness.

### Pilot Feasibility/Emerging Issues Program (W Sanderson)

The Southeast Center funded the 5 pilot projects listed below. This cycle's projects show the great range of the Center's research support across the industries of aquaculture, traditional farming, equine operations and forestry.

#### Funded Pilot Projects 2015-2016

Investigator	Institution	Project
<b>Behm, Michael</b>	East Carolina University/NC Sea Grant	Assessment of Occupational Safety and Health Needs and Development of Intervention Opportunities for the North Carolina Aquaculture Industry
<b>Faulkner, Paula</b>	North Carolina A&T	Farm Safety and Health Intervention among Rural Youth, Farmers and Farm Workers in Western North Carolina
<b>Hwang, Jooyeon</b>	Western Kentucky University	Occupational Exposure to Endotoxins in Airborne Particles in Kentucky's Equine Industry
<b>Schall, Mark</b>	Auburn University	Characterizing Exposures to Physical Risk Factors Among Reforestation Hand Planters
<b>Wilburn, Jessica</b>	East Carolina University	Fit to Farm: Protecting Agriculture's Number 1 Asset – The Farmer

Pilot Project abstracts are shown in Appendix A.

## **APPENDIX A – PILOT PROJECTS FUNDED 2015-2016**

### Project 1:

Assessment of Occupational Safety and Health Needs and Development of Intervention Opportunities for the North Carolina Aquaculture Industry

Investigator: Michael Behm, PhD, CSP; College of Engineering and Technology, East Carolina University

### Summary of Project:

The goal of this pilot study is to identify occupational health and safety needs and to develop opportunities for intervention for the North Carolina aquaculture industry. Previous research found that many hazards associated with aquaculture exist, but detailed data regarding the extent of the safety and health consequences of these hazards are lacking. As a result, work is needed to develop targeted interventions to reduce hazards and risks. The project team has strategically established relationships with the aquaculture industry in North Carolina to allow access to complete the goals and aims. Through interviews, surveys, and site visits, this project will identify occupational health and safety needs among aquaculture producers in North Carolina and will prioritize development of interventions that meet the occupational health and safety needs of the industry. When completed, the project will provide baseline data to develop future outreach and research opportunities.

### Project 2:

Farm Safety and Health Intervention among Rural Youth, Farmers and Farm Workers in Western North Carolina

Investigator: Paula Faulkner, PhD, North Carolina A&T University

### Summary of Project:

Agriculture in North Carolina ranks as the state's number one industry contributing more than \$96 billion to the state's economy. The agricultural sector includes more than 50,000 farms that require a workforce or labor force to meet its product outputs for row crops, poultry, swine and Christmas trees. Many large farms in need of more labor have hired Hispanic migrant workers to fill this demand. However, in rural locations, many small farmers rely on family members or hire adolescents for seasonal work resulting in more than 1.47 million youth under the age of 20 working or living on farms in the United States. For many rural youth, farming is not only their family's livelihood, but also their only way of life. Many youth complete farming tasks before and after attending school. Basically, their evenings, weekends and summers are dedicated to farming. For these youth their home and work sites are the same location which poses the greatest potential for exposure to hazards such as machinery,

tools and chemicals. The specific project aims are to improve occupational safety and health among youth farmers, adult farmers and farm workers. The project will be conducted to assess a Farm Safety Field Day Model and associated intervention strategies designed to reduce farm hazards.

Project 3:

Occupational Exposure to Endotoxins in Airborne Particles in Kentucky's Equine Industry

Investigator: Jooyeon Hwang, College of Public Health, Western Kentucky University  
Department of Public Health

Summary of Project:

Adverse respiratory health effects in the agricultural industry have been linked to organic particles that contain endotoxin. However, whether the endotoxin concentration is significantly correlated to the size of the particle remains an open question. To date, minimal research has been conducted to assess exposure levels to endotoxin-contaminated particles in the equine industry. This study has three objectives: 1) to measure the endotoxin exposure levels of inhalable and respirable particles; 2) to characterize the exposure assessment by job tasks/work activities and sectors; and 3) to recommend improvements to existing control measures in the equine industry. The knowledge and perspectives gained through this work will provide not only the equine industry but also the scientific community with critical information for implementing occupational exposure limits (OEL) for endotoxins based on particle size.

Project 4:

Fit to Farm: Protecting Agriculture's Number 1 Asset – The Farmer

Investigator: Jessica Wilburn, RN, MSN, East Carolina University

Summary of Project:

The purpose of this project is to determine the effectiveness of the 'Fit to Farm' program in: 1) increasing farmers' awareness of how health and wellness is affected by dietary intake and activity levels; 2) changing farmers' health and wellness behaviors; and, 3) improving farmers' health indicators (blood pressure, blood sugar, weight and body mass index). The 'Fit to Farm' program will be delivered using a train-the-trainer model to provide four interactive educational modules (Healthy Handfuls, Disc That – Salt and Fat, H2O to Go and These Boots are Made for Walking) to individuals farming on NC Department of Agriculture/NC State University Research Stations. Health indicators (blood pressure, blood glucose, height/weight/body mass index) will be measured at the outset and conclusion of the program by AgriSafe-NC staff.

Project 5:

## Characterizing Exposures to Physical Risk Factors among Reforestation Hand Planters

Investigator: Mark Schall, PhD, Auburn UniversitySummary of Project:

Reforestation, or the intentional restocking of depleted forests and woodlands, provides vital products and amenities to our society including quality habitat for wildlife, clean water, sequestration of carbon dioxide from the atmosphere, and recreational opportunities. Hand planting of trees encompasses the majority of reforestation efforts. A high prevalence of work-related musculoskeletal disorders (MSDs) has been reported among reforestation hand planters. Limited information is available documenting exposures to physical risk factors among reforestation hand planters. The specific aim of this proposed study is to characterize the trunk and upper arm postures, movement velocities, forceful muscular exertions, and intensity of occupational physical activity among reforestation hand planters. The study directly addresses Strategic Goal #7 identified within the Agriculture, Forestry, and Fishing (AFF) industry section of the National Occupational Research Agenda (NORA). This research will improve our understanding of the health risks associated with the strenuous jobs forestry workers perform over long work shifts.

## Appendix B – SCAHIP OUTPUTS October 2015 through September 2016

### Publications:

Cole, H. P., Myers, M. L., Westneat, S. C., (2016). Chores at Time of Fatal or Serious Injuries Associated with Tractor Overturns with and without Rollover Protection. *Safety* 2016, 2, 18; doi:10.3390/safety2030018. 28 hits

Schafbuch, M. L., Vincent, S. K., Mazur, J., Watson, J., & Westneat, S. (2016) The CROPS Curriculum Experiment: Evaluating the Farm Safety Knowledge Gained Among Secondary Appalachia Youth. *Journal of Agricultural Education*, 57(2), 134-145. 361 hits to date

Cole, H.P., Myers, M.M., Westneat, S.C., Mazur, J.M., Watson, J.M. (2016) Rural Kentucky High School Students' Exposure to ATV Riding and Injuries. *J. Agromedicine*, 21(1), 5-14. 124 hits

Watson, J.M., Mazur, J.M., Vincent, S.K. (2015). Youth-driven Youth-Adult Partnerships: A Phenomenological Exploration of Agricultural Education Teachers' Experiences. *Journal of Agricultural Education*, 56(3), 105-120. doi: 10.5032/jae.2015.0310.5 710 hits

Mazur, J.M., Vincent, S.A., Watson, J., Westneat, S. (2015) CROPS Assembly & Installation in High School Agricultural Mechanics Classes: A feasibility study. *J. Agromedicine*. (In press)

Swanberg, J., Clouser, J. M., Bush, A., Westneat, S., & Reed, D. (2015). Understanding work organisation factors on thoroughbred farms in southeastern United States. *International Journal of Agricultural Management*, 5(1-2), 4-13. doi: <http://dx.doi.org/10.5836/ijam/2016-05-04>

Swanberg, J., Clouser, J. M., Bush, A., & Westneat, S. (2015). From the horse worker's mouth: A detailed account of injuries experienced by Latino horse workers. *Journal of Immigrant & Minority Health*, 18(3), 513-521. doi: 10.1007/s10903-015-0302

Swanberg, J., Clouser, J. M., Gan, W., Flunker, J., Westneat, S., & Browning, S. R. (2016). Poor Safety Climate, Long Work Hours, and Musculoskeletal Discomfort among Latino Horse Farmworkers. *Archives of Environmental & Occupational Health*, 00-00. doi: 10.1080/19338244.2016.1216387

Flunker, J., Clouser, J.M., Swanberg, J., & Mannino, D. M. (2016). Pulmonary function among Latino thoroughbred horse farmworkers. Paper accepted by *American Journal of Industrial Medicine*

Mazur JM, Westneat, S. A Socio-Cognitive Strategy to Address Farmers' Tolerance of High Risk Work: Disrupting the Effects of Apprenticeship of Observation. *Journal of Safety Research*, Accepted with Revisions Pending.

**Publications under Review:**

Mazur, J., Cole, H, Myers, M., Vincent, S., Swan, G., Swan, K., Issacs, S., Westneat, S., Donovan, T., Ashford, A., Schneider, M., Leytola, C., Ibendahl, G., Watson, J. (In preparation for submission). Economics of Preventing Injury to Adolescent & Adult Farmers: Investing in School-Based Farm Safety Advocates in Rural Communities. *Journal of Agriculture Safety and Health*.

Swanberg, J., Clouser, J. M., Bush, A., & Gan, W. (2016). Work Stress, Supervisor Fairness, Supervisor Language Ability and Their Associations with Occupational Injury among Latino Farmworkers. Paper submitted to the *International Archives of Occupational and Environmental Health*.

**Oral Presentations (including number in audience where available):**

Swanberg, J., & Clouser, J. M. (2016). Community Health Workers as Researchers: An Effective Strategy for Conducting Research with Vulnerable Latino Workers. Paper presented at the Society of Social Work and Research, Washington, DC.

Clouser, J.M. (2016, February). Risk Perception and PPE Provision among Thoroughbred Farm Management. Agrisafe Webinar Presentation.

Swanberg, J., Clouser, J. M., Gan, W., Flunker, J., & Westneat, S. (2016). Poor Safety Climate, Long Work Hours, and Musculoskeletal Discomfort among Latino Horse Farmworkers. Paper presented at the SouthON, New Orleans, LA.

Swanberg, J., Clouser, J. M., Gan, W., Bush, A., & Westneat, S. (2016). Work organization factors and injuries among Latino workers: What increases risk of injuries on horse farms? Paper presented at the International Society for Agricultural Safety and Health, Lexington, KY.

Mazur, JM., Vincent, SK. (2016) Hazard Reduction Strategies of Cost-Effective Roll-Over Protective Structures through High School Ag Mechanics Curriculum. Presentation at the International Society of Agricultural Safety & Health (ISASH). Lexington, KY, June, 2016

Mazur, JM. (2016) Assessing Knowledge of Injury Costs and Behavioral Intention for Safe ATV Practices Using an Immersive 3D Video Game. Presentation at the International Society of Agricultural Safety & Health (ISASH). Lexington, KY, June, 2016

Tingle, A., Vincent, S., Schafbuch, M., Mazur, JM & Watson, J. (2016) Exploring Behavioral Change Among High School Youth Regarding Tractor Rollover and Farm Injury Prevention. Presentation at the International Society of Agricultural Safety & Health (ISASH). Lexington, KY, June, 2016

Schneider, M. & Mazur, JM. (2016) The Use of a Digital Game-Based Safety Program for All-Terrain Vehicles: Operational Knowledge for Youthful Riders. Presentation at the International Society of Agricultural Safety & Health (ISASH). Lexington, KY, June, 2016

Schafbuch, M. M. L., Vincent, S. K., & Mazur, J. (2016, February). Establishing a Crowd funding Sustainability Project for Resource-Depleted Secondary Agricultural Education Programs. In *Southern Region Conference of the American Association for Agricultural Education* (p. 34).

Mazur, J.M., Nelson, J., Olion, B., Watson, J.M. (2016) Virtual Tractor Inspection Tool for Agricultural Educators: Use Online or Farm. Presentation at the National Association of Agricultural Educators (NAAE) 2015 Convention. New Orleans, LA., November 2015.

Mazur, J.M., Vincent, S., Watson, J.M. (2015) Economics of Prevention: Free Online Farm Safety and Economics and Curriculum. Presentation at the National Association of Agricultural Educators (NAAE) 2015 Convention. New Orleans, LA., November 2015.

Flunker, J., Swanberg, J., Clouser, J. M., Mannino, D. M., & Gan, W. (2015). Respiratory health among Latino thoroughbred workers. Paper presented at the American Public Health Association Annual Meeting, Chicago, IL, Oct 31 – Nov 4, 2015.

Swanberg, J.M. & Clouser, J.M. (2015). Community Health Workers as Researchers: An Effective Strategy for Conducting Research with Vulnerable Latino Workers. Society for Social Work Research Conference.

### **Pending oral presentations**

The Latino Thoroughbred Farm Worker project is looking forward to two upcoming presentation events. In November 2016, team will partner with the leading workers' compensation provider for the state's thoroughbred industry (Kentucky Employers' Mutual Insurance) to present all educational materials and main findings of the study to area thoroughbred farms. It is estimated that 125 people will attend the event. In February 2017, the research team anticipates presenting the educational materials and research findings to the Kentucky Thoroughbred Farm Managers' Club. This meeting is usually well attended with up to 200 managers expected.

### **Poster Presentations:**

Mazur, J.M., Watson, J.M., Franklin, R., Muertties, C., & Clouse, T. *Next Generation NASD: A Virtual Tractor Inspection Training Tool (VIT) An Examination of the Implementation of the VIT into KY High Schools.* Poster presented at the 2016 International Society for Agricultural Safety and Health (ISASH).

Cassidy, A., Watson, J.M., Wickman, A. *Does Marketing through Social Media Increase YouTube Viewership?* Poster presented at the 2016 International Society for Agricultural Safety and Health (ISASH).

Namkoong, K., Vincent, S., Mazur, J.M., *Asset and Needs Assessment for eCROPS.* Poster presented at the 2016 International Society for Agricultural Safety and Health (ISASH).

Byrd, Vincent, & Mazur, (2016). *Discovering What Lies Beneath: Utilizing Ultrasonic Testing for the Evaluation of Welds in Secondary Schools*. Poster presented at the 2016 Southern Region Association for Agricultural Scientist, San Antonio, TX.

Boots, Sidney, Reed, D.B. Using Social media to inform nurses about farm health and safety; Posters at the Capital: Frankfort Kentucky, Feb, 2016.

Eastman, Anna, Reed, D.B. Our Aging Farmers: Risks and Benefits of Lifetime Work. Posters at the Capital: Frankfort Kentucky, Feb, 2016.

**Conference presence/booths: SCAHIP staff, demonstrations and materials displayed/presented:**

Future farmers and the educators who lead them. The SCAHIP exhibit at the National FFA Convention held in Louisville, KY, in October 28-Nov 1, 2015 attracted contacts with more than 500 FFA members. Many of these future farmers subsequently visited Center social media (*i.e.*, Facebook and Twitter), increasing our followers by 23 on Facebook and 32 on Twitter during that week, and hundreds of contacts, including 63 high school vocational agricultural instructors who indicated an interest in EOP projects. All contacts were added to the outreach mailing list.

Participation in the National Association of Agricultural Educators (NAAE) in November 2016.

Organizing, hosting and participation in the International Society for Agricultural Safety and Health (ISASH) 2016, June 26-29, Lexington, KY.

The American Public Health Association Conference, Chicago, Oct 31 – Nov 4, 2015 attracted contacts with all the Schools of Public Health in our 10 state region that were represented at APHA.

Russell County, KY presentation to the Russell Co Farm Bureau: Health and aging for farmers, Oct 6, 2015.

**Pending booth/conference presence:**

The Southeast Center booth at the National FFA Conference, Indianapolis, IN Oct 18-21, 2016 is a wonderful yearly opportunity to make contact with a large number of youth and ag educations from across our region and beyond. Nearly 63,000 FFA members and guests from across the country participate in general sessions, competitive events, educational tours, leadership workshops, an expo and shopping mall, volunteer activities and more. It is one of the largest annual student conventions in the world.

National Association of Agricultural Educators (NAAE), Nov 29-Dec3, 2016 Las Vegas, NV.

## **Community Presentations/Material Distribution:**

### **Advisory council activity**

The Southeast Center's external advisory board was informed of the Center's activities throughout the cycle with distribution of reports, Facebook and web postings and conference calls. The external advisory board was consulted as the Center planned its next 5 year cycle of projects and the recruitment of its 2016-2021 cycle external advisory board.

Individual projects maintained contact with their project-specific advisory boards throughout the cycle. Selected highlights include: The Latino Farmworkers, Work Organization, Safety and Health (J Swanberg) project held multiple stakeholder meetings with: 1) the Industry Advisory Council including members of the Kentucky Thoroughbred Farm Managers Club, Kentucky Thoroughbred Association, Bluegrass Community Health Center, Commerce Lexington, farm owners, Latino farm workers, and human resource personnel. and 2) Migrant Farm-workers with Disabilities Employment Partnership, Blue Grass Farms Charities, Office of Multicultural Affairs/Lexington Fayette Urban County Government, North Central Kentucky Area Health Education Center (AHEC), and the Migrant Network Coalition, Goodwill Industries. Other engaged stakeholders for this project that were involved during the 2015-2016 reporting period included representatives from the Kentucky Employers' Mutual Insurance (KEMI); BB and T Insurance; owners, managers, financial officers, human resource managers representing 12 thoroughbred farms, farmworkers representing 10 thoroughbred farms; Saddle Up Safely; and University of Kentucky Equine Programs.

### **Latino Farmworkers, Work Organization, Safety and Health (J Swanberg):**

*Latino Community presentations/material distribution (510 items distributed):*

Kentucky Children's Health Insurance Program Hispanic Christmas Party, distributed 35-page Spanish language resource booklet (40)

Saddle Up Safely, got feedback on graphic safety posters and distributed 15 packets of 9 research briefs (135)

Equine Forum, got feedback on graphic safety posters and distributed 15 packets of 9 research briefs (135)

Advisory Council Meetings, presented to community and industry advisory councils and distributed 6 packets of 9 research briefs (54)

Resource views/downloads from website as of 9/22/16: 146

EOP SCAHIP material was disseminated LaBonty's Class in Equine & Farm Management (EQM 101) – Presentation given on EOP2 materials to 117 Equine Science Majors. Distributed materials on the individual and social costs of ag injury using the EoP2 website at <http://eoonline.org>

*Dissemination/reach via web:*

The Latino Farmworkers, Work Organization, Safety and Health (J Swanberg) website has been a highly successful medium for disseminating research findings to academic, industry, and community audiences. Over the past year, it has garnered 1,569 visits from 1,339 users. Since its publication in May 2015, the website has garnered 4,104 page views from 3,762 users. As of 9/21/16, the research brief page has garnered 124 views and 18 community guides have been downloaded from the website. Since its inception in May 2015, those numbers are 159 views for the research briefs and 90 documents that have been downloaded.

In sum:

Total sessions from 9/30/15- 8/18/16: 1,569 (Total: 4,104)

Total unique users from 9/30/15-8/18/16: 1,339 (total: 1,762)

Migrant Clinicians Network highlighted research: Seda, C. H. (2015, December). Occupational safety on the horse farm. Available at

<http://www.migrantclinician.org/blog/2015/dec/occupational-safety-horse-farm.html>

**NURSE-AP (D. Reed):**

The NURSE-AP program continued to mentor the next generation of Ag Nurse researchers through presentations and meetings. Dr. Reed reached out to undergraduate and high school students by: writing and presenting a 10 minute video on agricultural nursing and research for the undergraduate nursing research class in the University of Kentucky College of Nursing; to the University of Kentucky (Area Health Education Center) AHEC Summer Enrichment Program students (30 rising high school juniors) presenting a one hour talk with on nursing and agriculture.

**CROPS (S. Vincent):**

Social media profiles have been created on:

Facebook (<https://www.facebook.com/ukyCROPS/?fref=nf>),

Twitter (<https://twitter.com/ukyCROPS>) and

Instagram (ukycrops) to provide students with a platform to discuss safety-related topics, share ideas and opinions, and learn more about CROPS. Thus far, the CROPS Facebook page has received 49 likes, Twitter 10 followers, and Instagram 67 followers.

**Courses Developed/Offered:**

Agricultural Health Nursing (3 credit hours, WKU NUR234, online course) launched in fall 2015 continues to be offered. During 2015-2016, 21 students completed the course. 85% of the students (n=13) completing the evaluation agreed or strongly agreed with the statement, "I can

apply information/skills learned in this course.” To date, the course has been completed by 47 nurses.

The on-line Nursing CE Module, *The Nursing Response to Mental Health Issues in Agriculture Populations*, launched in July 2015 continued to be viewed. To date, 26 individuals have completed the CE program with 26 (100%) strongly agreeing or agreeing with the statements:

1. “My knowledge was increased as a result of participating in this educational program.”
2. “I gained new insights relevant to my work.”
3. “I intend to implement at least one practice improvement as a result of this educational program.”

An on-line continuing education (CE) program, *Providing Quality Health Care for Plain Populations*, has been created and currently in its final review stage. In preparation for the development of this CE program, information was collected from 25 members of Anabaptists communities from 13 states, and 18 health care providers were interviewed about their experiences in providing care for this diverse population. The objectives for the CE program are:

1. Describe the historical background and culture of plain people
2. Identify barriers to health care among the plain people populations.
3. Identify common health issues/concerns of plain people
4. Outline appropriate nursing interventions when providing health care for plain people.

### **Student Involvement:**

Spring/ Summer 2016– An Agricultural Education Master’s student was funded to work on Center Outreach activities and the CROPS project for the Center. This includes visits to high schools with agriculture programs for data collection and preparation of materials for dissemination at conferences.

Fall 2015-present: the NURSE AP project continued to support undergraduate and graduate students in a variety of ways including:

- Undergraduate Ag Education major continued to work as a student intern on the Facebook Page (FB) and helped with literature review for project. Data related to the AGNURSE Facebook page was presented at the International Society for Agricultural Safety and Health Conference in Lexington, KY in June 2016
- Undergraduate nursing student continued to serve as a project research intern, presenting her research on the health status of Kentucky’s senior farmers at the annual Posters-as-the-Capitol in Frankfort, KY.
- PhD nursing student successfully defended her dissertation “Effects of Obesity of United States Farmers” under the guidance of Dr. Reed. Manuscripts in preparation.

**Other Southeast Center Faculty Achievements:**

Center Director Dr. Mannino was selected to present the keynote address at the Black Lung conference in Lexington, September 2016.

**Dissemination of products through social media:**

During the past year, the Center continued to expand its online/social media presence and online outreach activity. A targeted stakeholder survey was completed yielding over 100 responses from individuals associated with the beef cattle industry, supported this effort showing a majority of the respondents having smartphones and half indicating interest in receiving health and safety information via Facebook; YouTube, text messaging and app platforms.

Social Media: a persistent effort continues to increase our social media efforts through regular messages on Facebook and Twitter. Southeast Center Twitter followers have increased from 60 to 112 and Center Facebook friends have jumped from 90 to 134 in the last year. Social media messages that promote EOP project pages included bitly urls in an effort to track hits to those sites. In fact, the bitly/HazardRidge link received a total of 94 hits within a few days of posting the link. The AGNURSE Facebook page continues to increase its visibility and research. Since the last progress report our FB page has grown another 25% to 216 likes (up from 172 in September 2015). This has proven to be a very popular media format for farmers and for health and other farm service professionals. The increase in likes is directly attributable to more postings with links and to the increased exposure due to Dr. Reed's presentations. Interactive messages are also markedly increased. The most shared post (on mower safety) reached 1,256 people. The CROPS project has launched Social media profiles on:

Facebook (<https://www.facebook.com/ukyCROPS/?fref=nf>), Twitter (<https://twitter.com/ukyCROPS>) and Instagram (ukycrops) to provide students with platforms to discuss safety-related topics, share ideas, and learn more about CROPS. Thus far, the CROPS Facebook page has received 49 likes, Twitter 10 followers, and Instagram 67 followers.

Southeast Center electronic outreach at a glance:

<http://www.uky.edu/publichealth/southeast-center-agricultural-health-and-injury-prevention>

<http://www.eoonline.org>

<https://www.facebook.com/580178002007732>

<https://www.facebook.com/ukyCROPS/?fref=nf>

<https://www.facebook.com/Agriculture.nurse>

<http://www.workersafetyandhealth.com/>

<https://www.twitter.com/SCAHIP>

<https://twitter.com/ukyCROPS>

<http://www.youtube.com/watch?v=VfYlX4eJ0fk>

<http://www.youtube.com?USagCenters> (*cross-center collaboration*)

Drs. Mazur and Purschwitz continued working with Jeff Nelson and Chris Knack of Conceptual Arts, Inc., to refine the design of online training tools and resources for the [National Agricultural Safety Database](#) (NASD).

### **Examples of Uptake & Use of Southeast Center Information and Products**

During the reporting period, **Intermediate outcomes** have been achieved from the Southeast Center's activities.

Selected examples include the following:

- Based in part on study findings showing a proliferation of injuries to the feet, one large farm with over 200 employees has instated a policy to reimburse workers for the purchase of steel-toe boots.
- An advisory group of Chief Financial Officers through the Kentucky Thoroughbred Association/Kentucky Thoroughbred Owners and Breeders has reviewed the research briefs related to the study and is continuing to use them to determine if changes are needed in farm operations.
- The Blue Grass Farms' Charities, a farm-funded outreach organization that provides outreach to Latino thoroughbred farm workers is using the study's research briefs to inform the development of future programming and outreach efforts for farms and workers.
- New manuscripts resulting from Southeast Center projects during this past year alone have already been cited 1223 times in the scientific literature.
- Inspired by the project, a national charitable organization has funded a survey of the health and human service needs of thoroughbred farm and backstretch workers in order to better understand how to meet those needs.
- Virtual Tractor Inspection Training Tool (VIT) project within EOP II has shown sustained outcomes having led to an annual tractor safety inspection at a rural Kentucky county high school.
- As of May 2016, the CROPS program has installed 81 CROPS on previously unguarded tractors in 29 schools.