# Quarter 2 Report

## Year 2

## Southeastern Coastal Center for Agricultural Health and Safety

Rachel Claire Mitchell, Tracy Irani, Andrew Kane, Gregory Glass, Joan D. Flocks, Ricky W. Telg… Maribel Trejo

May 4, 2018

## For More Information

Contact the Southeastern Coastal Center for Agricultural Health and Safety at http://sccahs.org/contact/

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# Contents

# Background

The occupational risks for farmworkers, fishers and forestry workers in the coastal southeast are numerous. Farmworkers who harvest fruit, vegetables, and ornamental plants by hand frequently bend, crouch, and lift to carry crops and tools weighing as much as 90 pounds. They can be exposed to pesticides sprayed on crops and are at risk for injuries caused by farm machinery. Fishers also labor under hazardous conditions, and transportation to medical facilities can be difficult if they are injured while on the water. Most fatalities for fishing industry workers are from drowning, but injuries can also be caused by malfunctioning fishing gear, entanglement in fishing gear, slippery decks, strong currents, tidal surges and waves washing over the deck, and collisions. Forestry workers face risks using heavy logging equipment, as well as risk of injury from the massive weights of falling, rolling and sliding trees and logs. Transporting logs from harvesting sites to processing sites can also lead to injuries in forestry workers. Farmworkers, fishers and forestry workers generally work outdoors in all kinds of weather, leading to major concerns in Florida, other southern states and the Caribbean about the impact of heat stress on workers, particularly in the setting of recent increases in number of days with temperatures above 90 degrees F.

In response to these issues, the Southeastern Coastal Center for Agricultural Health and Safety (SCCAHS) was established in 2016 as part of a Centers for Disease Control and Prevention (CDC) / National Institute for Occupational Safety and Health (NIOSH) Agricultural Health and Safety Initiative. SCCAHS explores and addresses the occupational safety and health needs of people working in agriculture, fishing, and forestry in Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Puerto Rico, and the U.S. Virgin Islands. SCCAHS focuses specifically on the unique environments and occupational communities of this region (e.g., hot, humid climate and coastal/coastal plains with farming and fishing and timber). SCCAHS is a multidisciplinary partnership of academic institutions, community organizations, and industry representatives that brings together individuals and organizations that are already pursuing academic and applied basic research, intervention, translational, and outreach solutions for occupational illness and injuries. SCCAHS provides centralized regional infrastructure where these individuals, organizations and companies can engage in mutual learning, leverage resources, build on previous efforts of colleagues, and promote new research.

The SCCAHS Evaluation Program is tasked with collecting relevant monitoring and evaluation (M&E) data from the Center's projects and Cores to document program progress and assess the extent to which the SCCAHS meets its intended goals. The Evaluation Program analyzes and interprets data to establish the quality, effectiveness, and impact of the Center and its disparate parts, and reports and shares evaluation findings and recommendations with key stakeholders.

# Research Projects

## Research Project 1- Occupational Health and Safety Surveillance of Gulf Seafood Workers

Project PI: Andrew Kane, PhD

### Project Description

This project has two specific aims focusing on surveillance and hazard intervention. Surveillance will be conducted using in-person survey interviews, and by making direct field observations to discern workplace hazards and risk factors associated with the dominant Gulf coast fisheries subsectors. Surveillance data will be used to identify and support relevant points of intervention for hazards in the difference fishery subsectors throughout the study region.

### Specific Aim 1A

"Establish project-specific working relationships with community partners and seafood workers in the five port cities within the study area to facilitate participant recruitment, survey piloting and implementation, collection of workplace observational data, and engaging with the seafood worker community to provide project-related feedback and support."

#### *Activity Indicator: Community Engagement Meetings*

Grant Proposal Text

"We will initiate project-related meetings with community partners and liaisons to reiterate and review project aims, and recruit additional assistance from seafood workers representing the different fishery sections in the region, and to assist with the academic-community partnerships that will be foundational to the successful implementation of this project."

#### *Description of Progress*

YR02 efforts included project team meetings with community partners in Cedar Key (Cedar Key Aquaculture Association and seafood workers in three clam harvesting houses), Steinhatchee (McKinney Seafood), Apalachicola (Franklin's Promise Coalition, SMARRT [Seafood Management and Resource Restoration Team]), the Apalachicola Bay Oyster Management Group (ABOMG), the Escambia County Office of Marine Resources, Pensacola (Robert Turpin), and Organized Seafood Association of Alabama (Ernie Anderson, Debra Jones and Avery Bates).

### Specific Aim 1B

"Develop, pilot, validate and implement a questionnaire instrument in Gulf coast fishery communities to relate occupational health and safety with environmental and personal risk factors.

#### *Activity Indicator: Questionnaire Instrument Development/Pilot Testing*

Grant Proposal Text

"We will develop and validate an in-person questionnaire tool to capture occupational health and safety risk data from the dominant fishery sectors in the different communities within the project study region."

Description of Progress

Survey development and pilot testing – The Seafood Harvester Health & Safety survey instrument was piloted and revised based on internal and external review comments. A modified Oswestry Lower Back Pain questionnaire was added to the survey instrument for participants who self-report having current, chronic lower back pain. The revised survey instrument and protocol, including workplace observations was completed, was reviewed and approved by the UF IRB.

### *Activity Indicator: In-person Questionnaire and Workplace Observation Implementation*

#### Grant Proposal Text

"We expect up to 480 participants contributing to the survey interviews throughout the 5 communities participating in the study."

#### Description of Progress

Implementation of in-person survey and workplace observations – Twelve participants were recruited into the study as of the first half of Project YR02. Two participants field-piloted the survey instrument, and ten participants contributed to workplace observations. Workplace observations yielded videographic data for ergonomic analysis relative to chronic lower back pain, reported to be universal in the clam harvesting and production industry in Cedar Key (see photo, top). Data were analyzed by Dr. Kim Dunleavy, and supported inclusion of lower back pain indices in the revised survey instrument. Noise levels from wash down pumps on clam harvesting boats, and from clam tumblers, were measured. While clam tumbling was considered moderately loud (94 decibels), while wash down pumps were typically >112 db. Chronic noise exposure at these levels can affect hearing loss, and will be addressed later in the study with additional data.

## Specific Aim 1C

Conduct workplace observations with fishery workers on boats, in processing facilities, and at points of distribution to supplement questionnaire-based health and safety data.

### *Activity Indicator: Workplace Observation Implementation*

#### Grant Proposal Text

"A subset of study participants will be asked to provide a workplace tour to make observations of working conditions"

#### Description of Progress

Informal workplace observations were conducted in Apalachicola and Eastpoint. Oyster boats and boat trailers had a spectrum of maintenance issues, and multiple oyster harvesters wore flip-flops while working. This is important because open-backed footwear appears associated with slips and falls. Shrimp boats (n=59) were observed at Mill Pond in Apalachicola where 100% of these vessels (59/59) had winch gear without any form of stationary guard or e-stop. Unguarded winch equipment on shrimp vessels is associated with the majority of fisher fatalities in the Gulf region, and this will clearly be a focus for intervention opportunity in YRS 04-05 of this project.

# Research Project 2- Extent of Agricultural Pesticide Applications in Florida Using Best Practices

Project PI: Gregory Glass, PhD

### Project Description

This two-year surveillance project uses an integrated remote sensing (RS) system (time series of high and moderate resolution) to create an analytic framework to establish the levels of various, selected herbicides/pesticides (H/P) on specific, commercially grown crops within the state of Florida. The extent of health risks for agricultural workers depends, as an initial step, on the amounts of H/P that they contact during their work activities. Although acute unintentional exposures are serious risks for individuals, the more extensive, lower dosage exposures of the workers may be a more serious issue. Unfortunately, estimates of amounts of H/P used in the industry were last gathered between 2007-2009. This report aggregated H/P usage by target pests and crops but was insufficiently detailed to establish potential worker exposure from the environment. Given the continued absence of exposure data, the proposed work is essential for subsequent research projects seeking to correlate health impact with H/P exposure.

### Activity Indicator: Develop Crop Spectral Signature

#### *Grant Proposal Text*

"Develop spectral signatures from high and moderate resolution archived RS imagery of crop phenology."

#### *Description of Progress*

Developed an updated algorithm for land use classification for target crops that incorporates additional land uses. Test bed evaluation of ground truth classifier. Identified challenge in identifying sugarcane from wetlands (generally). Developed strategy to resolve misclassification errors of sugar cane and are testing this upcoming quarter. Ground truthing of remaining land use continued.

### Activity Indicator: Use Weather Data to Estimate Environmental Conditions

#### *Grant Proposal Text*

"Generate a temperature-precipitation analysis of local conditions to establish the phenology response of citrus, strawberry and snap bean crop development to meteorological conditions and link these results to applications of H/P."

#### *Description of Progress*

Data have been gathered from DayMet generated from Oak Ridge National laboratories. Ground station data have been collected from FAWN weather stations for comparison. Deviations between DayMet and FAWN estimates of maximum/minimum daily temperatures and precipitation have been generated.

## Research Project 3- PISCA: Pesticide & Heat Stress Education for Latino Farmworkers that is Culturally Appropriate

Project PIs: Joseph Grzywacz, PhD / Jose Antonio Tovar-Aguilar, PhD

### Project Description

The overall goal of this project is to reduce poor health outcomes among Latino farmworkers resulting from exposure to pesticides and extreme heat and humidity. To achieve this goal the

proposed project will build a community-advocate-university partnership to accomplish three primary aims.

## Specific Aim 1

"Create reproducible, culturally- and contextually-appropriate appropriate curricula for Latino farmworkers targeting pesticide exposure (suitable for meeting employer requirements under the revised Worker Protection Standards (WPS), and heat-related illness (HRI)."

### *Activity Indicator: Phase 2 Assessment Development*

#### Grant Proposal Text

**Conduct cognitive interviews for assessments-** "Five cognitive interviews will be completed using a demonstrated "think aloud" protocol wherein a question is read to the participant and the participant explains the meaning of the question in their own words."
**Finalize pre- and post-assessments -** "The interviews will be modified to address ambiguity found in question meaning, or to minimize difficulty selecting valid responses"

#### Description of Progress

The research team planned five cognitive interviews to be completed using a demonstrated "think aloud" protocol wherein a question is read to the participant and the participant explains the meaning of the question in their own words. Pre- and post- assessments require modification to address ambiguity found in question meaning, or to minimize difficulty selecting valid responses. The original goal was to complete assessment development in February, 2018. This goal was not achieved, but will be achieved by April 1, 2018. As of this writing (March 13, 2018), the project team has assembled and translated the assessment battery. Because at least 75% of the assessment battery is redundant with that used in Phase I, we are not subjecting that content to cognitive interviews. The new content being added (i.e., behaviors specific pesticide safety and preventing heat related illness) is currently undergoing cognitive interviews. Two of the five interviews are complete, and there is no substantive evidence yet the items need to be modified: cognitive interviews suggest participants understand the content and intention of the questions, and that they are able to place responses into the options provided.

## Specific Aim 2

"Determine the effectiveness of the developed pesticide and HRI curricula implemented by professional educators in promoting advocated safety behaviors."

### *Activity Indicator: Phase 2 Safety Training Sessions*

#### Description of Progress

The fundamental goal of Phase II is to determine if our developed WPS-r training materials perform comparably to those being developed by the EPA. Phase II trainings were to begin in March of 2018 and continue through June 2019. One of three curricula – EPA WPS-r, ***PISCA*** WPS-r, or ***PISCA*** HRI – will be randomly assigned to each scheduled training session. Participants will not know which curricula they will receive upon arriving to the training. Training sessions will be scheduled in partnership with local community partners and stakeholders approximately 3-4 weeks in advance. Unlike Phase I, which used a simple pretest-posttest design, Phase II will incorporate follow-up assessments 3 months after training to capture changes in behavior related pesticide safety and prevention of heat-related illness. Ultimately, N=325 Latino farmworkers will be recruited and enrolled, and follow up data will be collected from at least n=234 participants (assuming 30% loss

to follow-up). The original goal was to commence safety training sessions in March 2018. This goal was not achieved, but will be achieved in April, 2018. Currently three training sessions are scheduled in Lake Park, GA for April 15th, April 22nd, and April 29th. Additional trainings will be scheduled with local community partners and stakeholders. For example, ***PISCA*** project staff attended a recent meeting in Tifton, GA (approximately 60 miles) where one owners/operators requested making the ***PISCA*** training available to their workers. Similarly, in the past two weeks, ***PISCA*** project staff were invited by owners/operators in other parts of the state (Dundee FL and Homestead FL) to deliver ***PISCA*** curricula.

### *Activity Indicator: Phase 1 Data Analysis*

#### Grant Proposal Text

"Data collected from our attention controlled placebo design will be used to test two hypotheses: (1) Individuals randomized to the WPS-r pesticide safety training will show greater changes in pesticide knowledge, attitudes, and behavioral intentions than those randomized to the heat stress training; and (2) Individuals randomized to the heat stress training will show greater changes in knowledge, attitudes and behavioral intentions surrounding heat stress than those randomized to the WPS-r pesticide safety training. Descriptive statistics will be presented as frequency and percentage for categorical variables (e.g., perceived dangerousness of heat stress) and mean or median for continuous measures (e.g., percentage of correct pesticide safety knowledge questions). The 95% confidence intervals will be provided for estimates of effect size and standard deviation."

#### Description of Progress

Phase I data analysis is complete. As hypothesized, multivariate analyses indicated that pesticide knowledge (Figure 1a) changed for individuals exposed to both curricula (perhaps because of a testing effect), but individuals receiving the ***PISCA*** WPS-r curricula changed more than those receiving the ***PISCA*** HRI curricula ($F(1) = 2.84$, $p < .05$). There was no evidence that individuals exposed to the ***PISCA*** WPS-r curricula improved in their behavioral intentions related to pesticides (Figure 1b), but behavioral intention changed more for those in the ***PISCA*** WPS-r curricula relative to those in the ***PISCA*** HRI curricula ($F(1) = 2.97$, $p < .05$). No evidence was found suggesting the PISCA WPS-r curricula resulted in changed attitudes about pesticides.

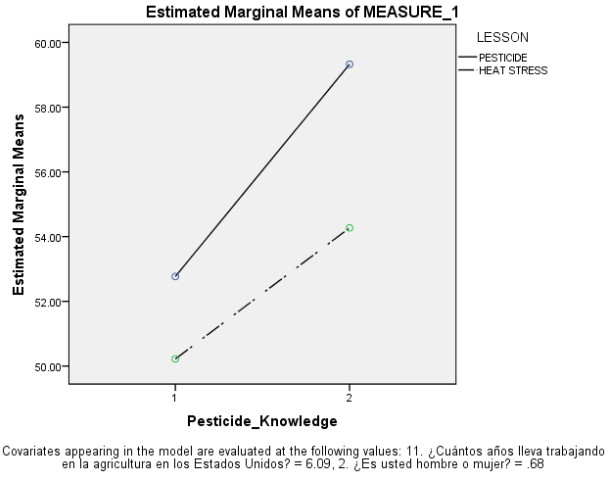


Figure 1a

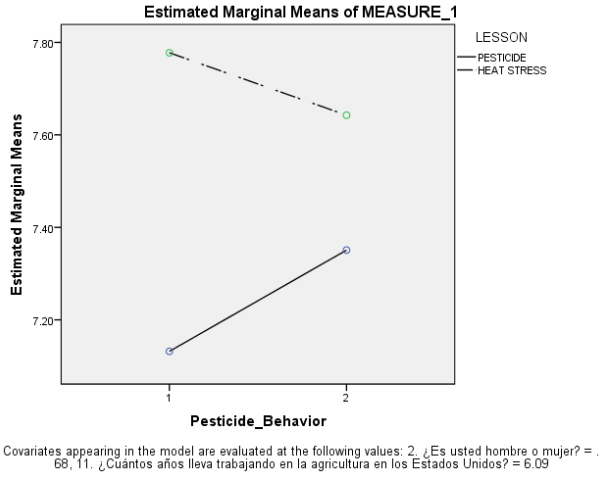


Figure 1b

Also as hypothesized, multivariate analyses indicated that heat stress-related knowledge (Figure 2a) changed more for individuals exposed to ***PISCA*** HRI curricula compared to the ***PISCA*** WPS-r curricula ($F(1) = 13.12$, $p < .001$). There was also evidence that that heat stress-related behavioral intention (Figure 2b) changed more for individuals exposed to ***PISCA*** HRI curricula compared to the ***PISCA*** WPS-r curricula ($F(1) = 6.85$, $p < .05$). No evidence was found suggesting the ***PISCA*** HRI curricula resulted in changed attitudes about heat-related illness.

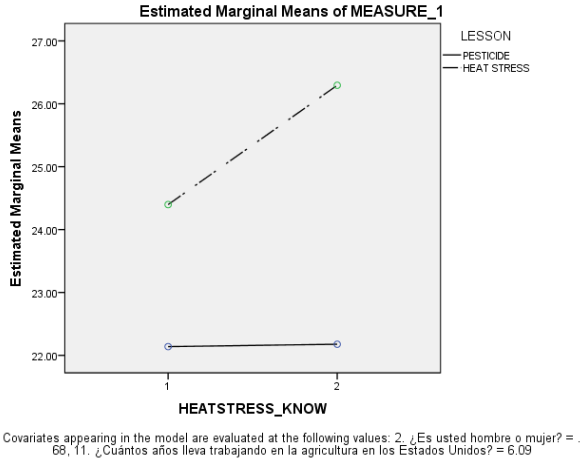


Figure 2a

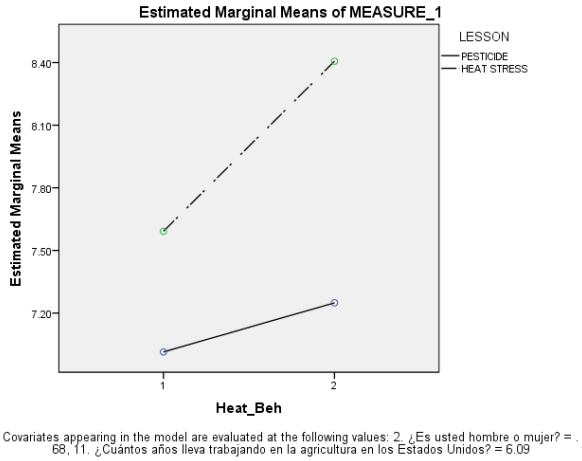


Figure 2b

These results are currently being developed into a manuscript to be submitted to the *American Journal of Public Health* in by May 2018. The results have been submitted as an abstract for the annual meeting of the American Public Health Association, Occupational Health section, to be convened in San Diego CA in November 2018.

## Specific Aim 3

"Identify the comparative effectiveness of promotora-based implementation of developed pesticide and HRI curricula relative to the use of professional educators."

This phase of the project will begin in Year 3.

## Other Activities and Products

### *Community Outreach Events*

Over 300 Hispanic/Latino participants were reached during the following outreach events:

- Advisory Board/Migrant Farmworkers Clinic, quarterly meeting of the advisory board (consisting of 25-30 individuals) in Lake Park, GA.
- Echols County Career Day was a school event held on February 23, 2018 at the Echols County High School in Statenville, GA. PISCA project staff were invited to provide role models to current students (three PISCA staff graduated from the school). The PISCA team talked with students, encouraged pursuit of a college education, and distributed information about local colleges to over 300.
- PISCA attended the Valdosta Latino Networking Monthly Meeting held on February 27 and discussed community planning.

- PISCA attended the Echols County School Board Meeting to determine if Familia Adelante was approved.
- PISCA was involved with the Emory University Kickoff meeting to plan the Emory Farmworker Health Fair.

### *Associated Projects/Research*

#### Vamos a la Escuelita de Terapia de Arte

Successful implementation of a pilot intervention to help preschool-aged children become more kindergarten ready. The PISCA project team along with collaborators from the FSU Art Therapy program with the College of Fine Arts implemented the Vamos a la Escuelita de Terapia de Arte, a 6-week intervention conducted at one of the farmworker camps served by the PISCA project. The intervention provided structured Art Therapy to 20 children for 2 hours/week, along with exposure to community leaders (e.g., visits from firefighters, police officers, health care providers). Simple pretest-posttest comparisons indicated significant growth in two dimensions of child development directly related to kindergarten readiness (i.e., communication, and fine motor skills), and promising evidence that it contributed to socioemotional development. The art therapy team is working with East Coast Migrant Head start to deploy and evaluate a school-based version of this program in its Jennings Center beginning in May of 2018.

#### Pilot Trial

Successful implementation of a pilot wear trial for t-shirts specifically designed and manufactured to help the body better regulate heat. Using a case-crossover design, 20 farmworkers were randomly assigned a polyester blend shirt with printed cooling technology or a control polyester blend shirt. Collected data included body temperature sensors, heart rate variability, and end of day diaries. On days when the shirts with printed cooling technology were worn, participants reported greater self-reported coolness and comfort. Analyses of heart rate variability and body temperature are underway, and preliminary evidence suggests lower average heart rate on days participants wore the shirts with the printed cooling technology.

#### Familia Adelante

The Echols County School Board has granted the PISCA project team permission to deliver Familia Adelante to middle school-aged children in farmworker families. Familia Adelante is a multi-factor risk prevention intervention targeting alcohol, tobacco, drug use and risky sexual behaviors. The team began delivering the Familia Adelante curriculum to youth in the school on school time the week of March 5th, and will continue through the end of the school year.

#### National Conference

Grzywacz, J.G., Gonzales-Backen, M.A., Aguilar Tovar, A., Marin, A., Trejo, M., Ordaz Gudino, C., Garcia Rendon, M., & Liebman, A.K. (2018*). Improving pesticide and heat stress knowledge among Latino farmworkers: Phase I of* ***PISCA***. Abstract submitted for presentation at the American Public Health Association Annual Meeting and Exposition (November). San Diego, CA.

## Research Project 4- Heat Stress and Biomarkers of Renal Disease

Project PI: Linda McCauley, PhD

## Project Description

We **hypothesize** that biomarkers of renal damage previously identified in the Mesoamerican population will also exist among farmworkers from Mexico who have immigrated to the U.S. to work in agriculture. We will recruit 70 agricultural workers in Florida who are between 18 and 54 years of age and 30 controls of similar heritage who do not work in heat intensive agricultural environments such as mushroom facilities, restaurants and hotels. In this work, we will accomplish the following specific aims:

1. characterize the occupational environment of these workers including work practices, workplace heat exposure and work intensity;
2. characterize the physiologic profile of these workers including body anthropometrics, dehydration, and self-reported heat–related illness symptoms;
3. determine if biomarkers indicating kidney injury are present (kidney injury molecule – 1 (KIM-1), Beta-2 microglobulin (B2M), neutrophil gelatinase-associated lipocalin (NGAL), elevated blood urea nitrogen (BUN), creatinine, uric acid, uromodulin, and decreased glomerular filtration rate (GFR)) and if the presence and levels of these biomarkers in agricultural workers differ from controls who are not employed in agriculture; and
4. use non-targeted metabolomics analysis of blood plasma to explore the molecular mechanisms of renal dysfunction associated with occupational heat exposure.

### *Activity Indicator: Community Health Worker Training*

#### Grant Proposal Text

"Community Health Workers will be hired from local communities to assist in the implementation of all study procedures in community settings. Workers will disseminate information about the project, administer questionnaires and surveys, and assist in the implementation of other study protocols."

#### Description of Progress

The Farmworker Association of Florida will support the project through the staffing of trained promotoras/CHWs. Training for recruitment and data collection of Community Health Workers will be carried out by the Farmworker Association of Florida (FWAF). Community Health workers were selected and have begun training in preparation for data collection, which commences in April 2018. Community health workers will receive training in administration of survey materials as well as study participant recruitment and handling.

### *Activity Indicator: Emory Staff Onboarding*

Emory field staff onboarding is underway. Training in biological sample collection, data download process, Red Cap database training, human subjects research, biosafety training is underway with an in-person/skype training scheduled for April 17th. All staff will be trained and receive CITI certificates EHSO biosafety training. Also trained quality assurance staff at Emory to monitor biological and RedCap data during data collection and notify study team about process improvements needed in real time.

### *Product Indicator: Instrument Approval*

Instruments (Occupational Heat-Related Illness Questionnaire and post-workday survey) were updated based on findings from girosoles study, as well as recently published findings based on other research groups working on CKDu. Instrument has IRB approval but is being revised to be translated

and backtranslated. It will be resubmitted as an IRB amendment at the end of Quarter 2. Research team also tested, calibrated and updated equipment software in preparation for data collection. Equipment included the ISTAT machine, Actilife software, and iButtons.

***Activity Indicator: SCCAHS Seminar***

Dr. Linda McCauley, PI, presented a workshop on community partnerships at the University of Florida through the SCCAHS Seminar series entitled "Occupational Health and Farmworkers: Partnerships and Progress". This workshop outlined the history of the current project and relationship with community partners as well as the findings of the Girasoles Study that led to the current study. Approximately 30 University of Florida researchers and health professionals attended.

# Outreach Core

## Project Description

The Outreach Core is comprehensive in nature, providing knowledge transfer support for the proposed research projects, integration with all proposed educational and extension activities, and effective and culturally competent communication and information dissemination to stakeholders across the six state region. Outreach Core activities align with the National Occupational Research Agenda (NORA AgFF) plan. Our outreach plan follows NORA AgFF's Strategic Goal 3 – Outreach, Communications and Partnerships, which indicates the intention to "move proven health and safety strategies into agricultural, forestry and fishing workplaces through the development of partnerships and collaborative efforts" (CDC, 2013). As in the NORA AgFF plan, our outreach consists of disseminating relevant risk reduction interventions and research findings and promoting adoption of best practices in the agricultural and fishery workplaces.

## Specific Aim 1

"Develop a robust, comprehensive plan to disseminate research to practice findings and promote adoption of health and safety strategies in agricultural workplaces among the center's target populations, including underrepresented, vulnerable and culturally diverse subpopulations."

### Communication with Internal and External Stakeholders

***Activities Indicator: Community Stakeholder Advisory Board (CSAB) Meeting***

Grant Proposal Text

"The CSAB will meet formally as a group with project staff twice a year. In addition, public education and outreach team members will personally meet with each of the board members during the summer months."

Description of Progress

In November 2017, letters of invitation to join the CSAB were sent to potential members via e-mail and regular mail. Potential members were asked to contact us via e-mail with their desire to serve, or not to serve, on the board, and 21 stakeholders accepted the role. CSAB members were then invited to the first annual CSAB meeting, which took place in conjunction with the Center's annual scientific advisory meeting on March 15, 2018 in Gainesville, FL. A total of 55 people attended, including members of the CSAB, members of the external scientific advisory board (ESAB) and SCCAHS team members. Research project and pilot project PIs presented updates about their projects, including progress made, research findings and next steps. Project leaders also

participated in a panel question and answer session, in which meeting participants posed questions about the science presented. Next, meeting participants divided into small groups to discuss topics related to the four research projects: seafood worker surveillance, pesticide and herbicide application, culturally appropriate farmworker training, and heat related illness. The small group discussions were summarized in front of the whole group. Finally, SCCAHS administrators presented next steps for the Center. The CSAB meeting report will be written, shared with stakeholders and published on the SCCAHS website in Year 2 Quarter 3.

## Specific Aim 2

"Translate r2p best practices and approaches to the workplace through prevention and promotion activities targeted to farmworkers, farm employers and supervisors and farm family members."

### Prevention and Promotion Activities

#### *Activity Indicator: CBSM with Stakeholders*

Grant Proposal Text

We will work closely with the CSAB to determine what practice changes and risk reduction and mitigation strategies are relevant for farmworkers, operators and crew leaders and then develop appropriate tools and trainings to enhance adoption. The use of social marketing will focus our efforts on developing best practices and materials for dissemination as well as the means of promotion for these activities.

Description of Progress

CBSM activities were conducted with farm crew leaders in Y2Q1. No additional CBSM took place in Y2Q2.

#### *Activity Indicator: CBSM instrument for Crew Leader Training*

Grant Proposal Text

CBSM is an approach based on using research to identify barriers and benefits to engaging in a socially desirable behavior, followed by using the results of that research to formulate education and outreach strategies. In support of this approach, we will utilize the members of the CSAB to collect data, via focus groups, surveys, and key informant interviews in years one and two of the project.

Description of Progress

CBSM instruments were developed in Y2Q1. No additional instrument development took place in Y2Q2.

#### *Activity Indicator: Roka-Monaghan Crew Leader Training*

Grant Proposal Text

"In years one and two, we plan to leverage the work of PIs Roka and Monaghan, who have developed existing programs to conduct training and professional development opportunities focused on specialty crop worker health issues, such as eye injuries, heat stress and ladder safety. We will work with Roka and Monaghan to refine materials for, promote and expand these trainings to a broader geographic area, and with more frequency. We plan to conduct four to six trainings a year in the first two years of the project. We will utilize the findings from the CBSM research that will be conducted by PI Monaghan in years one and two with CSAB members to determine the most

effective adoption practices and training modalities and will assist in adapting the existing trainings and testing of these in years three to five."

Description of Progress

No crew leader trainings were held in Y2Q2. Crew leader trainings typically occur in the fall growing season.

***Activity Indicator: Extension In-Service Trainings (Y1-Y5)***

Grant Proposal Text

"We will develop promotional tools and Extension In-Service Trainings (ISTs) to promote effective worker protection strategies and training of county Extension agents and Sea Grant Extension agents in Florida and Georgia to deliver trainings to crew leaders, workers, independent contractors and supervisors in support of the findings from all of the research projects. Each year, we will hold four one-day training workshops webinars, and multiple train-the-trainer activities throughout the region."

Description of Progress

Dr. Paul Monaghan is collaborating with the Outreach Core to establish an advisory board to provide feedback about appropriate IST topics. The Outreach Core created a list of over 200 agricultural Extension agents and County Extension Directors who were contacted to participate in the Year 1 Needs Assessment Survey, as well as experts identified by SCCAHS team members. The first topic for Extension ISTs will be new Worker Protection Standard respirator regulations. Dr. Monaghan will work with the Outreach Core communications team to design IST webinars that will be distributed through the UF/IFAS Program Development and Evaluation Center to reach agricultural Extension agents and Directors.

***Activity Indicator: Farm Risk-Management Web-based In-Service Training***

Grant Proposal Text

"We will also develop tools, disseminated by county Extension faculty, to promote farm family awareness of property and liability risk management activities involving farm work… A series of web-based in-service training sessions (1.5 hours each) will be held quarterly to increase extension agents' knowledge and access to property and liability risk management resources. Each web-based session will be recorded and made available for future viewings."

Description of Progress

In Y1Q4, farm risk-management themes were identified, including basic liability insurance, agritourism liability, worker liability, and health insurance. Webinar in-service training sessions will be recorded for each topic. The first training was released on March 5, 2018 in conjunction with the National Ag Safety Awareness campaign. The webinar title was An Overview of Risk Management and General Liability Insurance, and is available for public viewing at https://mediasite.video.ufl.edu/Mediasite/Play/3281bfff685943759541f78774ca2ebb1d. The subsequent trainings are tentatively scheduled for May, July and September 2018.

***Product Indicator: Farm Risk-Management Fact Sheets***

No new material was created in Y2Q2.

***Activity Indicator: Monthly Seminars/Webinars in Agricultural Safety and Health***

Grant Proposal Text

"Monthly SCCAHS seminars/webinars in agricultural safety and health/occupational health. The seminar series will draw on SCCAHS investigators as well as external speakers. At least one of the

sessions will be devoted to short project presentations by investigators in the pilot/feasibility grant program. All seminars will be webcast and archived on the SCCAHS website, to facilitate inclusion of investigators at collaborating institutions. Our group at UF routinely webcasts all seminars, and the IT group from the Administration Program will work with each collaborating institution to assure that necessary facilities are available for webinar participation."

### Description of Progress

The Outreach Core and Administration Program proposed three separate regular web training schedules in the SCCAHS grant proposal. Rather than conduct monthly or quarterly webinars in these three subject areas, the Outreach Core and Administration Program will coordinate to host quarterly webinars in agricultural crew leader training, farm risk-management trainings, and general topic trainings. In Y2Q2, a leading researcher in farmworker safety and SCCAHS research project PI, Linda McCauley, PhD, presented a seminar which convened on March 16, 2018. Dr. McCauley, who is the Dean and Professor at the Emory University Nell Hodgson Woodruff School of Nursing, spoke about the evolution of academic/community partnerships between Emory University and the Farmworker Association of Florida. The partnerships have focused on farmworker health and safety issues, including pesticide exposure and heat-related illness. McCauley discussed major findings, publications and future research directions. Dr. McCauley's work with the Farmworker Association of Florida as well as her published studies shed light on the health and safety challenges faced by agricultural workers throughout the state, specifically female farmworker health and the danger pesticides and other chemicals can pose to laborers in this sector. UF faculty, staff and CSAB members attended in the College of Public Health and Health Professionals.

## Specific Aim 3

"Develop, test and implement culturally competent communications and education materials utilizing a wide range of traditional and social media on agricultural and seafood workers' health and safety issues."

## Communications Activities

### *Activity Indicator: Message Testing for Stakeholder Groups*

### Grant Proposal Text

"Pursuant to the content analysis and social media analysis and in conjunction with the other teams on this proposal, we will develop messages for farm families, laborers, supervisors and company owners (all the stakeholders) to communicate important points about workplace safety. These messages will be developed with different frames to ascertain which frame is most effective."

### Description of Progress

In Y2Q1, a plan was developed for message testing. Outreach Core members Dr. Lisa Lundy and Dr. Tracy Irani formulated a plan for message testing in 2018. The Outreach Core discussed key messages related to the center and to each research program. In Y2Q2, the Outreach Core is revising the key messages for final approval from the Outreach Core and making plans to test them with the Community Stakeholder Advisory Board in 2018 through Cognitive Response Testing methods via in-depth interviews.

### *Activity Indicator: Website Update*

#### Grant Proposal Text

"We will provide... effective utilization of cutting edge communication techniques, including an interactive public outreach web site containing information databases, downloadable print fact sheets for use by county extension faculty and Sea Grant agents, and brochures, video interviews, blogs and social media. (The public outreach web site will include a link to the project web page maintained by the Planning and Evaluation Core)."

#### Description of Progress

The finalized SCCAHS website redesign was released in early 2018. A total of 42 general agricultural health and safety resources have been added to the website that cover a range of topics, including pesticide safety, equipment safety, and opioid abuse. News stories and reports are being posted more frequently with an average of one new post per week. The center is currently editing two videos- one informational video featuring several researchers from the center and one video featuring a pilot project funded by SCCAHS.

### *Activity Indicator: Social Media Update*

#### Grant Proposal Text

"We will provide... effective utilization of cutting edge communication techniques, including an interactive public outreach web site containing information databases, downloadable print fact sheets for use by county extension faculty and Sea Grant agents, and brochures, video interviews, blogs and social media. (The public outreach web site will include a link to the project web page maintained by the Planning and Evaluation Core)."

#### Description of Progress

The center participated in the Agricultural Safety Awareness Campaign and provided a relevant social media toolkit to regional partners. The campaign reached 1,290 people on Facebook with an average reach of 145 people per day of the campaign. During the campaign, the Southeastern Coastal Center for Agricultural Health and Safety's Facebook page received 93 clicks, 21 shares, 20 likes, and 14 comments. The center's Twitter activity garnered 2,411 impressions.

### *Activity Indicator- Social Media Analysis*

#### Grant Proposal Text

We will pay attention to social networks such as Facebook and Twitter to listen to conversations related to agricultural safety and health. Our sampling frame will be Facebook posts and tweets identified through a Twitter search using the keywords "agricultural safety", "farm safety", "farm risk" and others identified through our preliminary participatory research. We will include tweets and posts written in English and Spanish. If tweets and posts have links to articles, photos or videos, this material will also be archived, coded and analyzed. We will identify influential voices in these conversations. Examples of these include, but are not limited to, media outlets, community leaders and religious leaders. Listening to these voices will lead to a better understanding of perceptions and an increased capacity to develop messages that effectively communicate about agricultural safety and health in authentic ways.

#### Description of Progress

SCCAHS is working with the PIE Center on this activity, which has access to Sysomos, a social media analysis program. SCCAHS will also have access to this program to conduct a social media analysis in Y2. Results of the content analysis conducted in Year 1 yielded a list of health and safety topics. This list of topics was used to inform the construction of the Needs Assessment Survey, and will be

used again to input search terms in Sysomos. Once the PIE Center acquires rights to Sysomos, SCCAHS will have six months to use it.

## Other Activities and Products

### National Conferences

- Annual Public Interest Environmental Conference – February 2018, Gainesville, FL. Dr. Angela Lindsey gave a presentation titled "Southeastern Coastal Center for Agricultural Health and Safety Community Stakeholder Advisory Board".
- Agricultural Safety and Health Council of America – February 2018, Scottsdale, AZ. Drs. Paul Monaghan and Joan Flocks presented a poster titled "SCCAHS Current Projects at the Newest NIOSH Center for Ag Disease and Injury Research, Education, and Prevention". Claire Mitchell presented a poster called Engaging Stakeholders: Community Stakeholder Advisory Meeting for the Southeastern Coastal Center for Agricultural Health and Safety".

### Community Outreach Events/Campaigns

- Community Stakeholder Advisory Meeting-October 2017
- Emerging Pathogens Institute Research Day- February 2018. Poster presentation on SCCAHS.
- Community Stakeholder Advisory Board Meeting- March 2018
- Extension Disaster Education Network Meeting- October 2017. Dr. Angela Lindsey presented a poster on the SCCAHS Outreach Core.
- National Association of Credit Management Statewide Agriculture and Turf Suppliers Credit Group- January 2018. Dr. Angela Lindsey gave a presentation on SCCAHS.
- Bradford County Farm City Luncheon- November, 2018. Dr. Angela Lindsey was invited as a guest speaker and presented on SCCAHS.

# Planning and Evaluation Core

## Administration

### Program Description

"The Administration Program will provide support for Planning and Evaluation Core and SCCAHS activities, including communication, Advisory Board and Committee support, administrative infrastructure, and biostatistics and IT/data management."

### Task 1

"Coordinate/integrate Center components and activities."

#### *Coordinate Center Activities*

Description of Progress

The planning/administrative core continues to work directly with the outreach cores media specialist to provide infrastructure, access and support for SCCAHS. The Center's primary website is http://sccahs.org. We again secured a one-year license to BASECAMP for year two. The value/use of Basecamp's primary features are to do lists, milestone management, forum-like messaging, file sharing, and time tracking. These tools proved to be valuable in our effort to facilitate communication between and amongst the cores and projects. The planning (administrative) core,

working with the outreach core, provided logistical support for the community advisory/scientific advisory all-day meeting held on March 15, 2018, such as assembling scientific presentations, coordinating attendance, securing meeting space, parking, and refreshments.

### *Quarterly PI Meetings*

#### Grant Text

Quarterly one-on-one meetings with the Center Director/Associate Center Director and each PI and Core Director. Meetings will focus on reviewing results to date, and assuring that work is moving forward appropriately. Ways in which the Administration Program and other Center staff/investigators can facilitate progress will be identified. If there appear to be major challenges with a project, meeting frequency will be increased to monthly. Meetings will be in person, or by Skype.

#### Description of Progress

Communication with PIs occurred during monthly IOC meetings, no follow up meetings were scheduled.

## Task 2

"Organize and staff Advisory Boards and key SCCAHS committees"

### *Formation of External Scientific Advisory Board*

#### Grant Proposal Text

"A five-member External Scientific Advisory Board (ESAB) will be selected for SCCAHS, in consultation with NIOSH program staff. The ESAB will meet on an annual basis, in conjunction with the Center's annual scientific/programmatic meeting, to serve as a senior external advisory group to evaluate Center programs, progress, and direction; this will include a private meeting with the Center PI and NIOSH Program Officer."

#### Description of Progress

Year 1 of the SCCAHS began with three external scientific advisors Dr. Bob McKnight, retired, Dr. Barbara Lee, Senior Research Scientist, National Farm Medicine Center & Director of National Children's Center for Rural and Agricultural Health and Safety, and Dana Barr, Research Professor, Emory University, Rollins School of Public Health. Dr. Barr was not able to continue as a scientific advisor as she had a conflict of interest, however Drs. McKnight and Lee have provided invaluable advice and recommendations for our center. In Y2 of the award, in an effort to expand membership to four advisors, the Center director solicited additional external advisory board members. Using recommendations made by the IOC, the center recruited Judith McKenzie, MD, MPH, FACOEM, Professor, Division Chief, Residency Program Director, Division of Occupational Medicine; Department of Emergency Medicine, Ground Silverstein, University of Pennsylvania Perelman School of Medicine and George Rust, MD, MPH, Professor & Director, Center for Medicine and Public Health, School of Medicine, Florida State University.

### *Activity Indicator: Pilot Project Funding and Project Monitoring*

#### Grant Proposal Text

"The Pilot Project Research Committee, operating as a subcommittee of the IOC, will oversees pilot project grant selection and monitor progress on pilot grants after funding. Committee membership and operation is described in detail in the Pilot Grant Program section of the proposal."

#### Description of Progress

The Pilot Project Research Committee (PPRC) is made up of designated members of the IOC committee and Center faculty/staff. External review expertise is requested as the final step in finalizing awards. The PPRC met on March 21, 2018 (an annual meeting) to review pilot project proposal scores and make pilot award funding recommendations to the IOC.

## Task 3

"Provide administrative support for Center."

### *Activity Indicator: Hire Program Coordinator*

#### Description of Progress

It was determined that a full-time, program coordinator was needed to fully support the administrative tasks of the SCCAHS. Farah Arosemena was hired based on her background in public health, extensive experience in partnership building with community leaders along the Gulf coast, directing steering committees, coordinating center-based research activities, developing financial and center research reports for federal agencies, developing and maintaining web-based outreach content, and excellent communication skills.

### Task 4

***Provide biostatistical support for research projects***

#### Grant Proposal Text

"Strong biostatistical support is critical to research, and is an essential part of the IRB and IACUC approval process. In our experience, integration of biostatistical support into the core infrastructure of Center grants is a highly effective (and cost-effective) way to assure that studies are appropriately designed, with a sufficient sample size, and that plans for data analysis are in place from the start of the project. We have also found that by having a single statistical teamwork across all projects within a Center, there is often recognition of opportunities for collaborative studies which might not otherwise have been recognized. Oversight of the biostatistical group will be provided by Dr. Babette Brumback, Professor and Associate Chair of Biostatistics in the UF College of Public Health and Health Professions and the UF College of Medicine."

#### Description of Progress

The biostatistical support is led by Babette Brumback, Professor and Associate Chair of the Department of Biostatistics at the University of Florida. Dr. Brumback provides her biostatistical expertise and oversees research assistants to assist faculty across the research core. Our previous research assistant, Hanzhi Gao, was accepted into the University of Florida Department of Biostatistics PhD program with a fellowship, and so he is no longer with the project. However, this transition is evidence that the training provided by the project has been substantial and valuable. This year, we have hired a new research assistant, Piyush Chaudhari. Piyush has attended all of the monthly meetings for the project together with Dr. Brumback. We have been training Piyush in complex programming using the statistical software program SAS. In particular, he has learned how to use all aspects of SAS PROC NLMIXED for nonlinear mixed effects models, and he has learned how to conduct a simulation study. He has applied this training to investigate a method to analyze censored data as part of his capstone project for his MS degree in Biostatistics at the University of Florida. As the project is still in its early stages, the Biostatistical support team is still awaiting major data analyses from the principal investigators. We have reached out to all investigators and we have been learning new techniques so as to be ready to conduct the data analyses when they are needed.

## Evaluation Program

### Program Description

"A formal monitoring and evaluation (M&E) strategy is a critical, interwoven component in SCCAHS. Evaluation tools provide meaningful data to guide the work of the Center as well as accountability information to the sponsoring agency. The Evaluation Program places special emphasis in managing the evaluation process and meeting evaluation standards for utility, feasibility, propriety, and accuracy."

### Task 1

"Engage key stakeholders to maintain a responsive and focused evaluation program."

***Activity Indicator: Communication with SCCAHS Teams***

The Evaluation Program keeps in regular contact with internal stakeholders, such as project PIs and project staff about upcoming reporting, and to identify efficient ways to integrate evaluation and monitoring activities in their projects as their information needs evolve. For example, evaluation has worked with project leaders to tailor data reporting to each project's needs to ensure that activities and products are being accounted for and reported in an efficient manner. Additionally, Evaluation Program personnel attend monthly Internal Operation Committee meetings and bi-weekly Outreach & Evaluation meetings.

## Task 2

"Collect relevant M&E data from the Center as a whole, its Cores, and individual research projects."

***Activity Indicator: Process Evaluation***

The Evaluation Program team developed a process evaluation instrument to gauge levels of communication and collaboration among primary workgroups and within the Center as a whole. SCCAHS members provided suggestions on improving work processes within their primary teams and within the Center. They identified the teams they currently collaborate with, and which teams they are currently not collaborating with and need to collaborate with in the future. Participants were also asked whether the project management software, Basecamp, has been effective in facilitating communication and collaboration within the Center. Finally, participants were asked to describe barriers and challenges for communication and collaboration among SCCAHS teams, as well as recommendations for improving communication and collaboration. A third-party evaluator collected the data and screened it to protect respondents' anonymity. Forty-five team members were contacted and 21 responded. Data collection began December 4th, 2017 and continued through January 8th, 2018. Data were analyzed in Y2Q2. Open responses were organized according to theme and category. Respondents reported positive experiences working in their primary teams, indicating high levels of communication and collaboration. Working with SCCAHS teams as a whole provided more challenges to respondents, who reported lower levels of communication and collaboration. Respondents suggested that more opportunities for collaboration were needed and suggested more updates from other teams and more opportunities to meet outside of IOC meetings. The Process Evaluation Report was shared at the January IOC meeting and distributed to SCCAHS teams for review.

## Task 3

"Analyze and interpret data to establish the quality, effectiveness, and impact of the center as a whole, its cores, and the individual research projects."

***Activity Indicator: Process Evaluation***

The aforementioned process evaluation provided some initial assessment of the quality and effectiveness of the center. Additional analyses using quarterly reporting are under development.

## Task 4

Report and share evaluation findings and recommendations with key stakeholders.

***Product: Quarterly report***

Data from quarterly indicator forms were compiled into quarterly reports which are shared with project and core leaders. For Y2, the Evaluation Team published the Quarter 1 Report and is collaborating with the Administration Program collecting data for the second-quarter report. This

collaboration allows for a lower reporting burden for project leaders and maintains open lines of communication among the Planning & Evaluation Core. The quarterly report was shared among SCCAHS team members, addressing communication challenges outlined in the Process Evaluation Report, to facilitate keeping staff from various Center projects updated about the progress made by colleagues on different teams. The first-quarter report was shared with scientific advisors and community stakeholders in the SCCAHS stakeholder meeting on March 15. Stakeholders were encouraged to ask questions about SCCAHS and the report through small group discussions, during which SCCAHS PIs invited feedback and input from stakeholders. The Quarterly Report is published on the SCCAHS website for public review at http://www.sccahs.org/wp-content/uploads/2018/03/Year-2-Quarter-1-Report.pdf.

### Task 5

"Maintain an open line of communication and engagement with the Evaluation Programs of other Ag Centers across the country."

#### *Activity Indicator: Cross-Center Evaluation Engagement*

The Evaluation Program participated in the NIOSH ECO call on February 14, 2018. The Evaluation Coordinator assumed responsibility for organizing the video review process for the Ag Center YouTube Channel. This will allow her to network with experts in the Southeast region when seeking expert review of agriculture topics featured in YouTube videos. Additionally, the Evaluation Program collaborated with staff from NIOSH to submit a poster abstract for the 2018 International Society of Agricultural Safety Health (ISASH) conference using the social ecological system as a framework to describe agricultural health and safety.

#### *Other Activities: National Conference*

Southern Rural Sociology Association Conference – January 2018, Jacksonville, FL. Claire Mitchell gave a presentation titled "Stakeholder Needs Assessment for the Southeastern Coastal Center for Agricultural Health and Safety".

## Emerging Issues Program

### Program Description

The Emerging Issues Program (EIP) will work within the Center, maintaining connections will all projects, cores, advisory boards and other stakeholders in a seamless effort to identify, prioritize, and address issues that appear during the life of the Center. The tasks of the emerging issues program include: identify new agricultural and fishery worker safety and health problems in the region, prioritize emerging issues; address prioritized emerging issues through small investments; and refer other emerging issues to appropriate resources.

### Task 1

Identify new AgFF worker safety and health problems in the SCCAHS region.

#### *Activity Indicator: Monitor Industry Media Sources*

Grant Proposal Text

"Develop an inventory of the most relevant electronic and print sources of Center relevant information including (but not limited to) trade publications, relevant nonprofit organization

resource, academic journals, NIOSH communications and publications, and traditional media. These resources will be consulted regularly for stories about potential emerging health and safety issues."

### Description of Progress

EIP research assistant monitored regional ag newsletter (Morning Ag Clips), set up Google Alerts using variety of appropriate keyword combinations (industry/issues/topics) for research, breaking news, and stories. EIP also monitored stories from AgriSafe mailing lists and industry association social media sites. Potential emerging issues from these observations included the following:

- Continuing to address WPS revision priorities, such as changes to respirator use regulations
- Assessment of post hurricane worker housing conditions in Florida
- Opioid addiction
- Mental health issues among industry professionals
- Legal marijuana industry
- Increase in Florida H-2A workers
- Sexual harassment of female farmworkers

## Task 2

"Prioritize emerging issues."

### *Activity Indicator: Prioritize Emerging Issues*

#### Grant Proposal Text

"The EIP leader and assistant will meet regularly and document any emerging issues of concern monthly. They will discuss these issues during regularly scheduled meetings with the Center Director, IAB, and Community/Stakeholder Advisory Board. If there are emergency issues or no upcoming regular meetings, the EIP will request meetings with key personnel to discuss prioritization. The purpose of discussing documented issues will be to determine if any issues: 1) can be addressed through ongoing research projects or cores; 2) can be referred to known outside resources; 3) should be addressed immediately through the provision of small amounts of funding from the EIP program."

#### Description of Progress

Emerging issues were presented at the IOC and Outreach meetings during Y2. Based on feedback from SCCAHS personnel and on EIP resources and knowledge, steps have been made to address issues related to: post hurricane housing assessment, changes to respirator regulations in revised WPS, and increase in Florida H-2A. Specifically, the EIP team finalized a directory of health care providers capable of providing medical evaluations for workers who must wear respirators and disseminated the directory with a medical evaluation template to stakeholders. The program also designed and included housing assessment questions in ongoing survey research and focused on existing housing condition data to be summarized in journal articles. Presentations on H-2A workers were made at various university seminars and outside conferences and also will become the focus of future publications. Finally, the EIP will solicit research partnership with local experts on female farmworkers to determine interest in a pilot project focusing on sexual harassment.

### *Activity Indicator: Award EIP funds*

#### Grant Proposal Text

"A special fund (total of $8,000) is included in the EIP budget to respond to highly prioritized emergency health and safety issues. The EIP program will develop a protocol for awarding these funds on a case by cases basis to assist stakeholders in addressing these issues. Funds will be expended after careful consultation with program administration and key advisory groups, and approval by the IOC."

#### Description of Progress

Year 2 EIP funding has not yet been allocated.

## Task 4

"Refer other emerging issues to appropriate resources."

#### Description of Progress

No updates to report in Quarter 2.

## Other Activities and Products

### *National Conference*

"Current Projects at the Newest NIOSH Center for Agricultural Disease and Injury Research, Education, and Prevention," presented at the 2018 ASHCA Safety Summit, Scottsdale, AZ.