

Final RPPR

The Southwest Center for Agricultural Health, Injury Prevention and Education
U54 OH007541

PI: Vanessa Casanova, PhD
The University of Texas at Tyler Health Science Center

Grant Period: September 30, 2016-September 29, 2022

Submitted: December 21, 2022

Final RPPR
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A. COVER PAGE

Project Title: SW Ag Center Planning and Evaluation (P&E) Core	
Grant Number: U54 OH007541	Project/Grant Period: September 30, 2016-September 29, 2022
Reporting Period: September 30, 2016-September 29, 2022	Date Submitted: December 21, 2022
Program Director/ Principal Investigator: Vanessa Casanova, PhD	Administrative Official Information: Panda Powell
Change of Contact PD/PI: No	
Human Subjects: Yes	Vertebrate Animals: No
hESC:	Inventions/Patents: No

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

Specific Aim # 1. Support the ability of the Center cores and projects to function and achieve their objectives.
 Specific Aim # 2. Identify, characterize, and prioritize the emerging AFF issues in the region.
 Specific Aim # 3. Determine the efficacy of the SW Ag Center in achieving its goals, utilizing stakeholder input, addressing emerging issues, conducting research, and integrating outreach activities.

B.2. What did you accomplish under these goals?

Specific Aim # 1. Support the ability of the Center cores and projects to function and achieve their objectives.

The SW Ag Center leadership team supported the Center and its key partners through bi-annual board meetings, bi-weekly leadership meetings, accounting, subcontract and service agreement management, IRB renewal tracking, networking, amendment submissions, reporting, budgeting, and communication with the funding agency. Board members and Center leaders assist PIs with research challenges and guide future directions.

Specific Aim # 2. Identify, characterize, and prioritize the emerging AFF issues in the region.

The SW Ag Center identifies emerging issues through bi-annual meetings with the Extension Advisory Team, board meetings, and current affairs. Regular participation in regional meetings and conferences allows the Center to stay abreast of issues that are most relevant to agricultural occupational safety and health. The issues identified are used for priority areas for feasibility studies, outreach mini grants, practicum and capstone projects, and internship projects.

Specific Aim # 3. Determine the efficacy of the SW Ag Center in achieving its goals, utilizing stakeholder input, addressing emerging issues, conducting research, and integrating outreach activities.

The SW Ag Center evaluator used contribution analysis to assess progress toward aims and provide input to inform and direct Center research and outreach. An outreach log captured all the outreach activities that took place and which intermediate outcomes that the activities addressed. A separate tool collected outreach material dissemination. For the research projects, evaluation questions were incorporated into annual reports, progress reports and board meeting presentation templates. These modified tools allowed the Center to streamline data collection. Center staff worked with the evaluator to maintain a Center-wide bibliography to track productivity. The evaluator compiled the data gathered over the 6-year funding cycle into a summative report.

B.3. Competitive Revisions/Administrative Supplements

Not Applicable

B.4. What opportunities for training and professional development did the project provide?

SW Ag Center faculty and staff served as preceptors for practicum students through the Master of Public Health program at The University of Texas at Tyler Health Science Center.

B.5. How did you disseminate the results to communities of interest?

- Planning and Evaluation (P&E) updates were given during routine conference calls and board meetings, both virtual and in-person.
- P&E Core results were assembled into reports for NIOSH.
- Notable accomplishments were described in the bi-annual edition of the Center’s e-bulletin, SWAGbites.
- Virtual and in-person presentations were made to target audiences to increase awareness of the Center’s products and services.
- The SW Ag Center published in trade publications, in publications developed and distributed by the host institution, and through publications managed by our network of strategic partners.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

Not Applicable

C. PRODUCTS

C.1. Publications, conference papers, and presentations

- Newbill, SL (2022). Contribution analysis of a complex system during disruptions. Submitted to Canadian Journal of Program Evaluation.
- Bibliography link: [Microsoft Word - 2011-2022 Bibliography Aug22 \(uthct.edu\)](#)
- Newbill, SL (2022). Summative Report 2016-2022: Contribution Analysis. Folkstone: Evaluation Anthropology.

C.2. Website(s) or other Internet site(s) – include URL(s)

The SW Ag Center’s website, <https://www.swagcenter.org>, includes descriptions of past and current research and feasibility studies. It also includes descriptions and ordering instructions for our educational products. Application information for the feasibility studies, summer internship, and outreach mini-grants are also included on the site.

C.3. Technologies or techniques

Not Applicable

C.4. Inventions, patent applications, and/or licenses

None

C.5. Other products and resource sharing

- SWAGbites e-bulletin circulated twice per year
- Five state specific highlights fact sheets were developed each year

D. PARTICIPANTS

D.1. What individuals have worked on the project? Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
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VCASANOVA		Vanessa Casanova	PhD	PI	3.6					
jlevin		Jeffrey Levin	MD, DrPH	Sr. Advisor	0.6					
AMANDA_WICKMAN		Amanda Wickman	MBA	Program Director	6.54					
kevin_moore		Kevin Moore	PhD	Assistant Professor	0.12					
		Shelbie Lambert	MPH	Content Strategist	0.96					
		Kayla Shelton	MBA	Program Coordinator	6					
		Amanda Watkins		Program Coordinator	1.08					

D.2 Personnel updates

- a. **Level of Effort:** No significant changes
- b. **New Senior/Key Personnel:** NA
- c. **Changes in Other Support:** NA
- d. **New Other Significant Contributors:** NA

E. IMPACT

E.1 - What is the impact on the development of human resources, if applicable?

Not Applicable

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

Not Applicable

F. CHANGES

F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures

Not Applicable

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Not Applicable

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

Not Applicable

G. Special Reporting Requirements

G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements
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Not Applicable

G.2 Responsible Conduct of Research
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Not Applicable

G.3 Mentor's Research Report or Sponsor Comments

Not Applicable

G.4 Human Subjects

G.4.a Does the project involve human subjects?
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Yes

G.4.b Inclusion Enrollment Data

G.4.c ClinicalTrials.gov

No

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

No

G.5 Human Subject Education Requirement
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Are there personnel on this project who are newly involved in the design or conduct of human subject's research?
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No

G.6 Human Embryonic Stem Cells (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 Vertebrate Animals

Does this project involve vertebrate animals?

No

G.8 Project/Performance Sites

The University of Texas at Tyler Health Science Center
G.9 Foreign Component
No
G.10 Estimated Unobligated Balance
G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?
Yes
G.11 Program Income
Is program income anticipated during the next budget period?
No
G.12 F&A Costs
Is there a change in performance sites that will affect F&A costs?
No

I. OUTCOMES

<p>I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets</p> <p>Note: project outcome information will be made public in NIH RePORTER</p> <p>The P&E Core Outcomes are listed below by specific aim.</p> <p>Specific Aim # 1. Support the ability of the Center cores and projects to function and achieve their objectives.</p> <ul style="list-style-type: none"> • Each year of the six-year cycle, we convened a virtual board meeting in the fall and an in-person meeting in the spring. When the pandemic prevented travel, we convened a virtual meeting in lieu of the in-person meeting. • Planning and Evaluation (P&E) Core staff-maintained IRB approvals for projects and cores. These were submitted to NIOSH. • Accounts were reconciled monthly. Year-end balances were determined for internal accounts and external subcontracts. Carryover budgets were built internally for the Cores and collected from subcontractors. • Subcontracts were amended each year for new awards and carryover requests. • The Internal Advisory Committee (IAC) convened quarterly throughout the cycle. Center leaders updated the IAC on current activities and sought recommendations for overcoming challenges. Minutes are kept on a secure server. • The Center Director and key center leaders attended the NIOSH Center Directors' meeting each February. • The SW Ag Center staff and faculty convened every two weeks to discuss progress on current projects and future opportunities. Meeting minutes are kept on file for future reference.

- The Center's leadership team participated in monthly Ag Center Directors' calls.
- Dr. Levin participated on the Advisory Boards for the High Plains Intermountain Center for Agricultural Health and Safety and the Heartland Center for Occupational Health and Safety ERC in Iowa.
- Dr. Levin and Amanda actively participated in the National Tractor Safety Coalition (NTSC) and the National ROPS Rebate Program, both led by the Northeast Center for Occupational Health and Safety. Dr. Levin, Amanda Wickman and Shelbie Lambert have participated in regular conference calls to develop a plan to address tractor safety in Public Health Region 6.
- Dr. Levin, Amanda Wickman and Vanessa Casanova participated in PFD (Personal Floatation Device) Working Groups.
- Dr. Levin actively served on the advisory board for Ann Carruth's project, Thermal Load on PFD Use.
- Center staff were active members on the NORA Ag, Forestry and Fishing subsector councils.

Specific Aim # 2. Identify, characterize, and prioritize the emerging AFF issues in the region.

- Center staff worked with NIOSH personnel and leadership from other Ag Centers to create COVID-19 guidance for farmworkers, a dedicated website, videos, and a social media campaign.
- A safety article on the proper use of portable power generators was created and distributed immediately after Hurricane Laura.
- Drs. Kevin Moore and Alex Nguyen represented the Ag Center on a national AgriSafe webinar to describe the risks associated with portable power generators and the proper way to use them in emergency situations.
- Chainsaw safety information was circulated after large storms due to the uptick in chainsaw injuries while performing storm clean-up.
- SW Ag Center personnel have significantly contributed to the development of an agricultural/rural focused training for mental health crisis hotline staff. The training is intended to better prepare hotline staff to address the specific mental health needs of agricultural workers and rural residents.
- Two outreach mini grants focused on mental health and stress in agricultural communities- a recognized emerging issue.
- Two capstone projects focused on commercial shrimp fishing safety and crew overboard recovery.

Specific Aim # 3. Determine the efficacy of the SW Ag Center in achieving its goals, utilizing stakeholder input, addressing emerging issues, conducting research, and integrating outreach activities.

- The evaluation demonstrated the use of COM-B Theory of Change Contribution Analysis and supports such analyses as being especially effective in complex systems with diverse stakeholders and multiple projects, with partners working toward the same outcome over time.
- The evaluation revealed divergent needs and feasible solutions to form evidence-based connections to build sustainable bridges to accomplish NIOSH and SW Ag Center objectives.

A. COVER PAGE

Project Title: SW Ag Center Outreach Core	
Grant Number: U54 OH007541	Project/Grant Period: September 30, 2016-September 29, 2022
Reporting Period: September 30, 2016-September 29, 2022	Date Submitted: December 21, 2022
Program Director/ Principal Investigator: Vanessa Casanova, PhD	Administrative Official Information: Panda Powell
Change of Contact PD/PI: No	
Human Subjects: No	Vertebrate Animals: No
hESC:	Inventions/Patents: No

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

Specific Aim # 1. Expand the network of strategic partners by participating in regional, national, and international conferences and meetings related to AFF occupational safety and health.

Specific Aim # 2. Create and distribute communication products and education/training materials from evidence-based research, outreach, and stakeholder feedback.

Specific Aim # 3. Conduct prevention activities to promote safe and healthy work behaviors.

B.2. What did you accomplish under these goals?

Specific Aim # 1. Expand the network of strategic partners by participating in regional, national, and international conferences and meetings related to AFF occupational safety and health.

The SW Ag Center participated in over 130 conferences, meetings, and outreach events across the 6-year cycle. Center staff visited every state in the region and reached national and international audiences. The SW Ag Center presented at professional conferences including the International Society for Agricultural Safety and Health and the Agricultural Safety and Health Council of America, as well as trade associations like the Arkansas Timbers Producers Association, Texas Shrimper Association, and Louisiana Forestry Association. The SW Ag Center also engaged cooperative extension, farm bureau, academic institutions, vocational agriculture teacher associations, farmworker advocacy groups, and state departments of agriculture through formal meetings. See the Outcomes section for specific information on network growth.

Specific Aim # 2. Create and distribute communication products and education/training materials from evidence-based research, outreach, and stakeholder feedback.

The SW Ag Center distributed monthly safety blasts, bi-annual e-newsletters, and alerts for emerging issues. These were sent via email using the iContact email marketing platform. The SW Ag Center created numerous materials over the 6-year cycle including brochures, fact sheets, motion graphics, powtoons, testimonial videos, research report videos, social media campaigns, online courses, infographics, professional posters, and peer-reviewed publications. Materials are distributed in-person, by email, and online. Distribution numbers are summarized in the Outcomes section.

Specific Aim # 3. Conduct prevention activities to promote safe and healthy work behaviors.

The SW Ag Center conducted numerous programs to promote injury and illness prevention. These activities were aimed at various populations including producers, students, residents, extension agents, and agricultural organizations.

- The SW Ag Center partnered with The University of North Texas Health Science Center and The University of Texas at Tyler Health Science Center to offer medical students and occupational medicine residents training in rural and agricultural health topics through bi-annual Agromedicine Workshops. The workshops were conducted in-person, virtually, and through online courses.
- The SW Ag Center provided training to AFF stakeholders and producers on numerous topics, including crew overboard prevention, heat illness prevention, pesticide safety, livestock safety, mental health first aid, and forestry/logging safety.
- Master of Public Health students and Occupational Medicine Residents were supported through practicum experiences and capstone projects related to agricultural occupational safety and health.

- In partnership with the Noble Research Institute, the SW Ag Center offered summer internships to undergraduate and graduate students. The CASH (Careers in Agriculture Safety and Health) internship allowed students to work on the Noble campus in Ardmore, OK with the safety specialists and connect with SW Ag Center staff on research and outreach material development.
- Tractor and machinery safety was offered to extension agents and youth seeking employment in agriculture.
- Outreach Mini Grants were offered through subcontract agreements. Seven projects were funded over the cycle.

See the Outcomes section for more detail.

B.3. Competitive Revisions/Administrative Supplements

N/A

B.4. What opportunities for training and professional development did the project provide?

CASH Internship

The Outreach Core offered the CASH Internship in partnership with the Noble Research Institute in Ardmore, OK.

Practicum Experiences

The SW Ag Center had the opportunity to work with four MPH students enrolled at The University of Texas at Tyler Health Science Center.

Agromedicine Workshops

The SW Ag Center partnered with the University of North Texas Health Science Center to host 2 Agromedicine Workshops per year, for a total of 12 workshops over the 6-year cycle.

B.5. How did you disseminate the results to communities of interest?

- The Content Strategist composed and distributed monthly safety articles and a quarterly e-bulletin, SWAGbites, to an email listserv containing approximately 1,400 contacts.
- Safety and health information was posted to Facebook, Instagram, and Twitter at least twice a week.
- Ms. Lambert created a Mental Health First Aid social media toolkit, Seasons Change You Remain, that was shared with a national network.
- Outreach updates were provided at bi-annual board meetings, bi-annual Extension Advisory Team meetings, and bi-weekly staff meetings.
- Presentations were delivered at local, regional, and national conferences.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

Not Applicable

C. PRODUCTS

C.1. Publications, conference papers, and presentations

Publications

- Amanda Wickman (2021) Best Practices in Engagement and Research to Practice, Journal of Agromedicine, DOI: [10.1080/1059924X.2021.1849514](https://doi.org/10.1080/1059924X.2021.1849514)

- Amanda Wickman, Ellen Duysen, Marsha Cheyney, Whitney Pennington, Joan Mazur & Aaron Yoder (2020) Development of an Educational YouTube Channel: A Collaboration Between U.S. Agricultural Safety and Health Centers, *Journal of Agromedicine*, DOI: [10.1080/1059924X.2020.1845269](https://doi.org/10.1080/1059924X.2020.1845269)
- Casanova, V. 2020. 25 Years of Occupational Safety and Health in Agriculture, Forestry and Fishing: The Southwest Center for Agricultural Health, Injury Prevention and Education. *The Shield*. Fall 2020: Volume 02.
- Wickman A, Casanova V, Vance N, Levin J. The Southwest Ag Center responds to Hurricane Harvey. *NIOSH eNews*. 15(10), February 2018.

Presentations

- Forestry & Logging Safety Series. Arkansas Timber Producers Association, Arkansas & Oklahoma. Ongoing.
- Lambert S, Wickman A, and Casanova V. Stress Assistance for Agricultural Workers: Reducing stigma around mental health in AgFF communities through social media. Presented at Agriculture Safety & Health Council of America North American Agricultural Safety Summit, March 29, 2022.
- Lambert, S. It's OK to Ask for Help: Partnering to Provide Stress Assistance, *ISASH Conference*, June 2022
- Lambert, S. Protecting Your Legacy, Farm Safety, *Texas Farm Bureau Conference*, April 2022
- Powell, S. Shop Safety for Ag Shop Classes. *ATAT Conference*, Online, June 1, 2021.
- Powell, S. Cultivating Messaging That Reduces Mental Health Stigma. *ISASH Conference*, Online, April 21, 2021.
- Powell, S., Wickman, A., Levin, J. & Casanova, V. Promoting Agricultural Occupational Safety and Health Education in NE Texas. *East Texas Research Conference*, Tyler, Texas, April 3, 2020.
- Stress and Mental Health in Rural Communities, *AgroMedicine Workshop*, Spring 2022
- Mental Health in Rural Communities, *Agriculture Safety and Health Council of America*, Mar. 2022
- Mental Health in Rural Communities, *Agriculture Safety and Health Council of America*, Mar. 2021
- ARK PRO Logger On-Line Training. *Logger Safety*. Arkansas Timber Producers Association, Hope, Arkansas, June 2, 2021.
- Heat Safety, *Agricultural Teachers Association of Texas Professional Dev. Conference*, July 2020
- Effectiveness of Social Media for Ag Centers, *Western Center for Ag Safety & Health Panel*, Aug. 2019
- Levin, J. June 2019. SW Ag Center: Safety resources for the ag industry. Farm Bureau Meeting. San Marcos, TX.
- Wickman, A. June 2019. SW Ag Center: A partner in extension outreach. Louisiana County Ag Agents Association. New Iberia, LA.
- Environmental Exposures in Agriculture, *Agromedicine Workshop*, Fort Worth, TX, November 2019.
- Levin, J. September 2018. The State of Health and Workforce Needs in Northeast Texas. *AgriLife Extension* (invited presentation).
- Agromedicine Introduction, *Agromedicine Workshop*, Stephenville, TX, November 2018.
- Casanova, V. Total Rural Worker Health: Agricultural Workplace Risks and Health Outcomes. With Amanda Wickman, Jeffrey Levin, and Kent Willis. 2nd Annual Symposium to Advance Total Worker Health, Bethesda, MD, May 8-11, 2018.
- Wickman, A. April 2018. Texas Agriculture Memorial Day. SouthON.
- Wickman, A. October 2017. Agricultural Health and Safety for the Next Generation. San Houston State University faculty presentation.
- Vance, N. June 2017. Texas Agriculture Memorial Day. International Society of Agricultural Safety and Health Conference.
- Casanova, V. Counting the Numbers of Farmworkers in Texas. MET-MAFO Farmworker Housing Summit, San Antonio, TX, April 12, 2017.
- Wickman, A. April 2017. Understanding Occupational Hazards. MAFO National Farmworker Conference.
- Pesticide Handling Safety. Texas Agrilife Extension, Overton, TX, October 2017.
- Pesticides: Exposure, Health Effects, and Safety Education, Greenhouse & Nursery Regulatory Compliance Workshop, Overton, TX, December 2017.

- Fire Safety Training. Arbor-gen Tree Nursery, Bullard, TX, July 2017.
- Gaona, M. & Wickman, A. April 2017. Bites, Stings and Venomous Things. Rodeo de Salud.
- Environmental Exposures in Agricultural Settings, Agromedicine Workshop, Fort Worth, TX, November 2017.
- Vance, N. October 2016. Stress Management. Texas Forestry Association Conference.
- Overview of Southwest Agricultural Commodities, Agromedicine Workshop, Fort Worth, TX, November 2016.

C.2. Website(s) or other Internet site(s) – include URL(s)

The SW Ag Center's website, <https://www.swagcenter.org>, includes descriptions of past and current research and feasibility studies. It also includes descriptions and ordering instructions for our outreach products. Application information for the feasibility studies, the CASH summer internship, and outreach mini grants are also included on the site.

C.3. Technologies or techniques

Rise E-learning platform hosts online learning modules for health and safety training courses.

C.4. Inventions, patent applications, and/or licenses

None

C.5. Other products and resource sharing

2016-2022

- 12 SWAGbites e-bulletins
- 72 monthly safety blasts
- 30 state-based fact sheets (5 states x 6 years)
- Outreach Log
- Material distribution database
- Rise E-learning platform
- Comprehensive Heat safety Training
- Shop Safety Miniseries
- Thistle Make You Sick Tip Booklet
- Thistle Make You Sick brochure
- Bites, Stings and Venomous Things brochure
- Online courses in Livestock Safety, Heat Safety and Ag Shop Safety
- Home Safe Home Testimonial Video Series (4) and discussion guide
- Research Reports-short videos highlighting Center-funded research
- SW Ag Center. Keep Your Logging Site Safe. <https://www.uthct.edu/wp-content/uploads/logger-tailgate-training-covid-20200728.pdf>
- In collaboration with CDC/NIOSH and OSHA. Coronavirus Precautions for Agricultural Producers. <https://www.uthct.edu/wp-content/uploads/coronavirus-precautions-for-ag-producers-20200409.pdf>

D. PARTICIPANTS**D.1. What individuals have worked on the project?** Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
VCASANOVA		Vanessa Casanova	PhD	PI	1					
Jlevin		Jeffrey Levin	MD, DrPH	Sr. Advisor	.5					
AMANDA_WICKMAN		Amanda Wickman	MBA	Program Director	2.8					
		Shelbie Lambert	MPH	Content Strategist	9.0					
kevin_moore		Kevin Moore	PhD	Assistant Professor	.1					
		Kayla Shelton	MBA	Program Manager	20					

D.2 Personnel updates

- a. Level of Effort:** No significant changes
- b. New Senior/Key Personnel:** NA
- c. Changes in Other Support:** NA
- d. New Other Significant Contributors:** NA

E. IMPACT**E.1 - What is the impact on the development of human resources, if applicable?**

Not Applicable

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

Not Applicable

F. CHANGES**F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures**

Not Applicable

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Not Applicable

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

Not Applicable

G. Special Reporting Requirements

<p>G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements</p> <p>Not Applicable</p>
<p>G.2 Responsible Conduct of Research</p> <p>Not Applicable</p>
<p>G.3 Mentor's Research Report or Sponsor Comments</p> <p>Not Applicable</p>
<p>G.4 Human Subjects</p> <p>G.4.a Does the project involve human subjects? Not Applicable</p> <p>G.4.b Inclusion Enrollment Data Not Applicable</p> <p>G.4.c ClinicalTrials.gov Not Applicable</p> <p>Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA? Not Applicable</p>
<p>G.5 Human Subject Education Requirement</p> <p>Are there personnel on this project who are newly involved in the design or conduct of human subject's research? No</p>
<p>G.6 Human Embryonic Stem Cells (HESCS)</p> <p>Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)? No</p>
<p>G.7 Vertebrate Animals</p> <p>Does this project involve vertebrate animals? No</p>

G.8 Project/Performance Sites
The University of Texas at Tyler Health Science Center
G.9 Foreign Component
Not Applicable
G.10 Estimated Unobligated Balance
G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?
Yes
G.11 Program Income
Is program income anticipated during the next budget period?
No
G.12 F&A Costs
Is there a change in performance sites that will affect F&A costs?
No

I. OUTCOMES

<p>I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets</p> <p>Note: project outcome information will be made public in NIH RePORTER</p> <p>Outcomes are described below by aim.</p> <p>Specific Aim # 1. Expand the network of strategic partners by participating in regional, national, and international conferences and meetings related to AFF occupational safety and health.</p> <ul style="list-style-type: none"> • The email listserv grew from 1,200 to 1,400. • SW Ag Center staff participate in bimonthly ECO (evaluation, coordination/communication, and outreach) calls to discuss joint projects and opportunities for collaboration. The SW Ag Center Program Director, Amanda Wickman, served as the leader for these meetings. • The SW Ag Center engaged its Extension Advisory Team (EAT) twice a year. The EAT is comprised of extension agents from all 5 states in the SW Ag Center region; the members provide valuable feedback about emerging and persistent issues in agricultural safety and health. EAT members also connect the Center to community and grassroots AFF groups. • Center staff and faculty participated in over 130 outreach events over the funding cycle. • SW Ag Center initiated contact with every state Department of Agriculture in the region. Safety and health material created by the SW Ag Center is used in their publications.
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- Center staff participated in multiple committees and advisory groups, including the ROPS Initiative, Surveillance Working Group, NORA Sector Council, AgriStress Network, and Commercial Fishing Advisory Committee.

Specific Aim # 2. Create and distribute communication products and education/training materials from evidence-based research, outreach, and stakeholder feedback.

- The SW Ag Center started a new Facebook account in 2019. We now have 680+ followers.
- The SW Ag Center YouTube account gained 151K views and 240 subscribers from September 2016 to September 2022. The Center posted 18 new videos over the cycle.
- The SW Ag Center started a Twitter account and gained 250+ followers.
- The SW Ag Center created and disseminated 12 safety blasts and 2 digital newsletters entitled SWAGbites per year. These products were sent via email to the Center's listserv. Monthly blasts can be found at <https://www.uthct.edu/monthly-safety-blasts/> and SWAGbites can be accessed through <https://www.uthct.edu/swagbites/>.
- Each year, state-based fact sheets were created to highlight the Center's benefit to each of the 5 states in the region.
- A mental health promotional toolkit called Seasons Change | You Remain was created. This toolkit offered messages to AFF workers on how to deal with stress and mental health concerns. It also directed producers to the AgriStress Helpline, a resource sponsored by the Texas Department of Agriculture, AgriSafe and the SW Ag Center. https://drive.google.com/file/d/1kUdHuzDLhINUVb0fk0_UCdPF5KNpD2ry/view
- The Center established a virtual learning lab on the Rise platform. This platform allowed the SW Ag Center to upload and conduct trainings for the AFF worker population virtually. Over 420 people have enrolled in Rise courses to date. <https://www.uthct.edu/rise-virtual-learning-courses/>
- Seasonally relevant safety e-articles were written and distributed to 1,400 contacts via email each month.
- The Center created a COVID specific webpage. [COVID-19 Resources for Agricultural Workers – The University of Texas at Tyler Health Science Center \(uthct.edu\)](https://www.uthct.edu/COVID-19-Resources-for-Agricultural-Workers-The-University-of-Texas-at-Tyler-Health-Science-Center)
- The Shop Safety Miniseries and Basic Farm Safety Sheets were created in partnership with interns and content experts. [Health & Safety Resources – The University of Texas at Tyler Health Science Center \(uthct.edu\)](https://www.uthct.edu/Health-Safety-Resources-The-University-of-Texas-at-Tyler-Health-Science-Center)
- 'Thistle Make you Sick', a tip booklet on poisonous plants, was developed and translated into Spanish. <https://www.uthct.edu/wp-content/uploads/thistle-make-you-sick-spanish-20200428.pdf>
- 'Thistle Make You Sick' and 'Bites, Stings and Venomous Things' were adapted into paper brochures for economical distribution to large groups.
 - <https://www.uthct.edu/wp-content/uploads/thistle-make-you-sick-brochure-english-shortened-booklets-20201027.pdf>
 - <https://www.uthct.edu/wp-content/uploads/bsvt-dangerous-dozen-brochure-20200428.pdf>
- A collection of Heat Safety resources was created. [Heat Safety – The University of Texas at Tyler Health Science Center \(uthct.edu\)](https://www.uthct.edu/Heat-Safety-The-University-of-Texas-at-Tyler-Health-Science-Center)
- Four testimonial videos were produced to highlight the consequences of an agricultural incident. The series is titled Home Safe Home. There is an accompanying discussion guide for the videos. <https://www.uthct.edu/homesafehome/>

Distribution

- Bites, Stings and Venomous Things (BSVT) tip booklet- 7018
- BSVT brochure- 1360
- Thistle Make You Sick tip booklet- 860
- TMYS brochure- 1360

Specific Aim # 3. Conduct prevention activities to promote safe and healthy work behaviors.

- The SW Ag Center coordinated 12 Agromedicine Workshops over the cycle. The SW Ag Center partnered with The University of North Texas Health Science Center to host 2 Agromedicine Workshops per year, for a total of 12 workshops over the 6-year cycle. The SW Ag Center used a combination of online platforms and in-person meetings to deliver the content. During the pandemic, students connected via Teams, completed online courses offered by the University of Iowa, and 34 students were certified in Mental Health First Aid. Each course was attended by 30-45 students and faculty. Attendees included occupational medicine residents, medical students, psychology residents, public health professionals, and outreach personnel. Speakers were recruited from Oklahoma State University, Texas Transportation Institute, Department of State Health Services, The University of Texas Health Science Center at Tyler, The University of Texas School of Public Health, and Texas AgrAbility.
- SW Ag Center staff supported 4 students within the MPH program at The University of Texas at Tyler Health Science Center. The students' projects focused a variety of topics. Paige Huntington formalized the evaluation tools for the mentorship component of the Pilot Feasibility Program within the SW Ag Center. Grant Lundstedt created case studies for pesticides safety education. Alex Nguyen and Tung Ho, both occupational medicine residents, assisted with commercial fishing research and safety training.
- Trainings were offered by the Center on pesticide safety (200 participants), crew overboard (123 fishermen), and livestock safety (120 students).
- The SW Ag Center supported the National Safe Tractor and Machinery Operation Program for Oklahoma extension agents. Over the cycle, 46 Community Lead Instructors and 9 Master Trainers were trained, and 74 students were certified for employment in agriculture.
- AFF safety and health capacity was built through the CASH internship. Each intern researched 3 topics and wrote safety blasts for circulation to the SW Ag Center listserv. In addition, they conducted a project with a deliverable and performed safety tasks at Noble. Their contributions are summarized below.
 - 2017- Megan Kelley researched rural roadway safety and assembled Recommended Methods and Strategies for Safe Work Practices on a Farm or Ranch for the U.S. Roundtable for Sustainable Beef. Megan secured a regional job in safety after graduation.
 - 2018- Tristan Johnson researched farm machine entanglement, drowning, and tractor rollovers. He created tailgate trainings and helped to present on personal protective equipment at the Vocational Ag Teachers Association of Texas annual in-service.
 - 2019- Zac Harris put his advanced knowledge and skill in shop safety to good use. He created a Shop Safety Miniseries. It is posted to the Center's website. Zac also extensively research poisonous plants and created the Thistle Make You Sick tip booklet-also available on the Center's website.
 - 2020- Blake Brawley reviewed new online courses and wrote safety articles on sun safety, prescribed burning, and small animal acclimation. He created presentations for our products, Thistle Make You Sick and Bites, Stings and Venomous Things.
 - 2021-Jesus Sanchez created a safety poster pack for nurseries featuring nutrition, pesticide safety, and hydration. He also translated several of the SW Ag Center products into Spanish.
 - 2022- Gunner Arms mastered online editing software and wrote articles on slips, trips and falls, tractor and equipment safety, and personal protective equipment. Gunner was able to secure a job in occupational safety immediately after graduation.
- The Center funded 7 Outreach Mini Grants. A summary of funded projects is provided below.
 - 2018
 - Carolyn Sheridan, Ag Health and Safety Alliance, Agricultural Injury Prevention for College and High School Students

- 2019
 - Carolyn Sheridan, Ag Health and Safety Alliance, Development of a Heat Illness Motion Graphic
- 2020
 - Carolyn Sheridan, Ag Health and Safety Alliance, Livestock Safety Virtual Reality Educational Tool Development
 - Jim Rhodes, Oklahoma State University, ATV Youth Safety Training Program
- 2021
 - Brittney Schrick, PhD, University of Arkansas, Needs Assessment for the UADA-CES Farm Stress Management Program
 - David Boldt, Louisiana State University, ATV Youth Safety Training Program
 - Jim Rhodes, Oklahoma State University, ATV Youth Safety Training Program

A. COVER PAGE

Project Title: SW Ag Center Feasibility Studies Core	
Grant Number: U54 OH007541	Project/Grant Period: September 30, 2016-September 29, 2022
Reporting Period: September 30, 2016-September 29, 2022	Date Submitted: December 12, 2022
Program Director/ Principal Investigator Kevin Moore, PhD	Administrative Official Information Panda Powell
Change of Contact PD/PI: PI was changed to Dr. Kevin Moore in 2021. PI change request was submitted and approved by NIOSH.	
Human Subjects: N/A	Vertebrate Animals: N/A
hESC: N/A	Inventions/Patents: N/A

B. ACCOMPLISHMENTS**B.1. What are the major goals of the project?**

1. Identify researchers to conduct small-scale, short-term innovative research (translational, etiologic, intervention or surveillance) projects in AFF occupational safety and health that address National Occupational Research Agenda goals and SW Ag Center Strategic Goals for agriculture
2. Support innovative, small-scale, short-term research projects in AFF occupational safety and health that have the likelihood of garnering additional funding through the submission of longer-term comprehensive projects;
3. Establish and foster mentoring relationships between early-stage investigators and established scientists to build capacity of AFF occupational safety and health researchers;
4. Employ innovative surveillance techniques to identify trends, emerging issues, and potential partners for the SW Ag Center to engage in investigative projects.

B.2. What did you accomplish under these goals?

Twelve projects were funded during the grant period as outlined in the Outcomes section. Follow-up with these PI's continues, but the majority of these projects have resulted in presentations and publications as well as support for submission of larger-scale proposals.

B.3. Competitive Revisions/Administrative Supplements

N/A

B.4. What opportunities for training and professional development did the project provide?

- Each feasibility study investigator worked with a mentor for their respective projects. Each investigator was given the opportunity to present their work at the annual meeting to receive feedback and guidance from Center leaders and other feasibility study investigators.
- In 2021, the SW Ag Center began partnering with the Southwest Center for Occupational and Environmental Health at The University of Texas Health Science Center at Houston to hold a joint symposium for pilot/feasibility study participants. This has provided a broader audience for feasibility study presentations, allowing for more feedback and networking among participants. This is now an annual activity for the Centers.
- A Master of Public Health student (Paige Huntington) participated in a practicum project with the Program Director and the PI of the PFP to formalize the mentorship program for the SW Ag Center.

B.5. How did you disseminate the results to communities of interest?

- Participants are required to submit their final project report in manuscript format to help encourage publication of the study results.
- Co-PIs, Center staff, and board members promoted the Feasibility Studies Program through personal connections, sharing email funding announcements, and invited presentations.
- A dedicated distribution list was created to target regional colleges and universities with information and opportunities related to the Feasibility Studies Program.
- Center made concerted efforts to reach out to PIs from states that have historically underutilized the feasibility studies program.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

N/A

C. PRODUCTS

C.1. Publications, conference papers, and presentations

This information is provided for each project in the Outcomes section.

C.2. Website(s) or other Internet site(s) – include URL(s)

The SW Ag Center’s website was updated regularly: <https://www.swagcenter.org>. It includes descriptions of past and current research and feasibility studies. It also includes descriptions and ordering information for our outreach products. Application information for the feasibility studies, summer internship and outreach mini grants are also included on the site.

C.3. Technologies or techniques

N/A

C.4. Inventions, patent applications, and/or licenses

N/A

C.5. Other products and resource sharing

- SWAGbites e-bulletin
- Feasibility Studies Announcement
- Short-term Feasibility Studies Announcement

D. PARTICIPANTS

D.1. What individuals have worked on the project? Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
VCASANOVA		Vanessa Casanova	PhD	PI	0.6					
AMANDA_WICKMAN		Amanda Wickman	MBA	Program Dir	1.2					
		Shelbie Powell	MPH	Outreach Ed Coor	0.2					
kevin_moore		Kevin Moore	PhD	Assistant Prof	1					
		Kayla Shelton	MBA	Program Mgr	0.6					
		Nickie Warren	BBA	Program Coor	0.2					

D.2 Personnel updates

- a. Level of Effort:** No significant changes
- b. New Senior/Key Personnel:** Kevin Moore, PhD assumed the role of PI for the Feasibility Studies Program. An official PI Change Request was submitted to and approved by NIOSH.
- c. Changes in Other Support:** No
- d. New Other Significant Contributors:** No

E. IMPACT**E.1 - What is the impact on the development of human resources, if applicable?**

The feasibility studies program solicited applications from junior researchers and researchers who are new to research in AgFF safety and health. Mentors were required for each PI to assist in the development of researchers, and some of our more experienced researchers also mentored graduate students as part of their projects.

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

N/A

F. CHANGES**F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures**

No

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

No

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

No

G. SPECIAL REPORTING REQUIREMENTS**G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements**

N/A

G.2 Responsible Conduct of Research

N/A

G.3 Mentor's Research Report or Sponsor Comments

N/A

G.4 Human Subjects

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

No

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

No

G.6 Human Embryonic Stem Cells (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 Vertebrate Animals

Does this project involve vertebrate animals?

No

G.8 Project/Performance Sites

N/A

G.9 Foreign Component

N/A

G.10 Estimated Unobligated Balance

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

Yes

G.11 Program Income

Is program income anticipated during the next budget period?

No

G.12 F&A Costs

Is there a change in performance sites that will affect F&A costs?

No

I. OUTCOMES

I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets

Note: project outcome information will be made public in NIH RePORTER

The Pilot/Feasibility Program (PFP) funded 12 projects during the grant period. Work was completed across the region, with research including bas projects are outlined below, along with relevant publications.

BASIC/ETIOLOGIC RESEARCH

The Relationship between Work Hours and Chronic Diseases Among Workers

PI: Sarai Conway, PhD, University of Texas Health Science Center at Houston

Mentors: Lisa Pompeii, PhD; Joseph Grzywacz, PhD

Goal: To systematically describe the work hour patterns of hired farm workers and assess the relationship between work hours and three cardio-metabolic conditions.

A Comparison of Physical Risk Factors Among Tree Planters Using Mechanized and Hand Planting Methods

PI: Robert Granzow, PhD candidate, Auburn University

Mentor: Mark Schall, Jr., PhD, AEP

Goal: To compare the trunk and upper arm postures, movement velocities, muscular exertions, and intensity of occupational physical activity among reforestation planters using mechanized and hand planting methods.

Outputs:

- Granzow RF, Schall Jr MC, Smidt MF, Chen H, Fethke NB, Huangfu R. (2018). Characterizing Exposures to Physical Risk Factors among Reforestation Hand Planters in the Southeastern United States. *Applied Ergonomics*. 66, 1-8. [doi:10.1016/j.apergo.2017.07.013](https://doi.org/10.1016/j.apergo.2017.07.013)
- Schall Jr MC, *Granzow RF, Casanova, V., Smidt MF, Douphrate DI. Improving the Health and Safety of Forestry Workers through a Cross-Regional Collaboration. Deep South Center for Occupational Health and Safety Research Symposium; 2018 April 3-4; Savannah, GA.

- Schall, Jr MC., Granzow, RF., Smidt, MF., Seseck, RF., Gallagher, S., & Davis, GA. "Applying Wearable Sensors to Characterize Exposures to Ergonomic Hazards among Alabama Forestry Workers." This is Research: Faculty Symposium, 2017 September 22; Auburn, AL.
- Granzow RF, Schall Jr MC, Smidt MF. Hand Planter Ergonomics: Characterizing Physically Demanding Work in the Southeastern United States. 125th Anniversary Congress 2017 hosted by the International Union of Forest Research Organizations. 2017 September 19-22; Freiburg, Germany.
- Granzow, RF., Schall, Jr MC., & Smidt, MF. Evaluation of physical risk factors among hand planting reforestation workers. Southeastern Human Factors Applied Research Conference (SHARC). 2017 April 1; Raleigh, NC.

Farmworkers Risk of Exposure to Antibiotic-Resistant Bacteria in Soils

PI: Itza Mendoza, PhD, Texas A&M University

Mentor: Matthew Nonnenmann, PhD, CIH

Goal: To identify temporal correlations between the concentration of antibiotics in agricultural soils with changes in bacterial populations and antibiotic-resistant genes.

Outputs:

- Pérez-Valdespino, A., R. Pircher, C.Y. Pérez-Domínguez, and Mendoza-Sanchez, I. (2020). "Impact of flooding on urban soils: Changes in antibiotic resistance and bacterial community after Hurricane Harvey." *Science of the Total Environment*, doi:10.1016/j.scitotenv.2020.142643
- Mendoza-Sanchez, I. and A. Perez-Valdespino (2019), "Occurrence of antibiotic-resistance genes in public areas impacted by hurricane Harvey", Association of Environmental Engineering and Science Professors, May 2019, Tempe, AZ
- Mendoza-Sanchez, I. & A. Perez-Valdespino (2019), "Antibiotic-resistance genes in soils from parks impacted by hurricane Harvey", One health: Building resilience in a changing world, September 2019, Houston, TX
- Mendoza-Sanchez, I., A. Perez-Valdespino, and B. Lynch (2018), "Influence of tetracycline on antibiotic-resistance genes occurrence in farming soils", American Geophysical Union, Fall 2018, Washington D.C.

Role of Lung Epithelial Cell Exosomes in the Induction of Lung Inflammatory Mediators by Organic Dust (TX)

PI/ Mentor: Vijayakumar Boggaram, PhD, University of Texas Health Science Center at Tyler

Mentees: Students

Goal: To study the effects of treatment of airway epithelial cells with poultry dust extracts on the production of exosomes and their inflammatory potential. Additionally, to study proteomic profiles of exosomes from control and treated cells to identify differentially expressed proteins.

- Natarajan, K., Gottipati, K. R., Berhane, K., Samten, B., Pendurthi, U., & Boggaram, V. (2016). Proteases and oxidant stress control organic dust induction of inflammatory gene expression in lung epithelial cells. *Respiratory Research*, 17(1), 1-19.
- Data used to support larger project proposal

Examining the Effects of Hurricane Harvey Among Farmers in South Texas (TX)

PI: Josie Rudolphi, PhD, National Farm Medicine Center

Mentor: Rick Peterson

Goal: To explore the relationship between resources loss and symptoms of psychological distress among agricultural producers in South Texas, while also examining the impact of Hurricane Harvey on the larger agricultural community.

Outputs:

- Rudolphi, J. & Peterson, R. Examining the Effects of Hurricane Harvey Among Farmers in South Texas, Presented at ISASH, 2019.

Understanding the Exposure and Hazard Risks Associated with Nanomaterial Enabled Agriculture Products (TX)

PI/Mentor: Christie Sayes, PhD, Baylor University

Mentees: Students

Goal: To develop a framework to qualitatively and quantitatively evaluate the release of engineered nanomaterials from different stages of the product life cycle and second to apply the framework to sustainable agriculture practices.

Outputs:

- Sayes, C. Understanding the Exposure and Hazard Risks Associated with Nanomaterial Enabled Agriculture Products, 2020.

Organic Farmer COVID-19 Regional Survey

PI: Daisy Rosero, MPH candidate, University of New Mexico

Mentors: Francisco Soto Mas, MD, PhD, MPH

Goal: To conduct a cross-sectional survey of organic farmers related to COVID-19 as part of a larger study funded by the SW Ag Center.

Outputs:

- Rosero, D. V., Soto Mas, F., Sebastian, R., Guldán, S., Casanova, V., & Nervi, L. (2021). Covid-19 prevalence and prevention behaviors among US certified organic producers. *Journal of Occupational & Environmental Medicine*, 63(12). <https://doi.org/10.1097/jom.0000000000002411>
- Rosero DV, Sebastian R, Soto Mas F. The Impact of COVID-19 on US Organic Farmers. APHA, 2021 American Public Health Association Annual Meeting & Expo, Denver CO, October 24- October 27, 2021.
- Rosero DV, Parshall C, Brigance C, McDaniel T, Jamaledin F, Soto Mas, F. Organic Farming, a Formula for Health and Wellness? New Mexico Organic Farming Conference, Albuquerque NM, February 2020.

Role of Protease from Poultry Organic Dust in Induction of Lung Inflammation (TX)

PI: Shilpa Kusampudi, PhD, University of Texas Health Science Center at Tyler

Mentor: Vijayakumar Boggaram, PhD

Goal: To identify the purified protease by mass spectrometry/amino-terminal sequencing and study its effects on inflammatory mediator production in airway epithelial and macrophage cells and in mouse lungs and determine the involvement of protease activated receptor pathway in the induction of inflammatory mediators by the protease.

Output:

- Kusampudi, S., Meganathan, V., Keshava, S., & Boggaram, V. (2022). Purification and Characterization of Trypsin-Like Protease (s) from Organic Dust and Studies of Their Effects on Induction of Inflammatory Mediator Expression in Lung Epithelial Cells. In *B105. MORE CALLS TO ACTION: AIR POLLUTION EXPOSURES AND HEALTH* (pp. A3582-A3582). American Thoracic Society.
- Pilot data used to support larger proposal

Assessment of Wellness of School-based Agricultural Education Teachers: A Preliminary Study (OK)

PI/Mentor: Robert Terry, Oklahoma State University

Mentees: Students

Goal: To collect quantitative and qualitative data to assess the wellness and stress associated with teaching school-based agricultural education and compare various biometric measures to assess their effectiveness, practically and feasibility with our target population. The survey will also gather information on educators that are also involved in agricultural production.

SURVEILLANCE RESEARCH

Refining Guidelines for Localized Enumeration of Migrant and Seasonal Farmworkers (Regional)

PI/Mentor: Alice Larson, PhD, Larson Assistance Services

Mentees: Students & community organizations

Goal: To create a teachable process for gathering county-level migrant and seasonal farmworker estimates.

Outputs:

- Larson, Alice C. Guide to Conducting a Migrant and Seasonal Farmworker Enumeration Profiles Study. March, 2017
- Data was used in larger proposal application

NAAA Aerial Application Industry Survey: Pilots & Operators (Regional)

PI: Tim Struttmann, MSPH, Wabee Farms

Goal: To (a) gather data from the population of agricultural pilots and Part 137 operators; (b) gather data on risks, safety practices, risk perceptions and health for future training purposes; (c) compare these data with data obtained in prior surveys; and (d) gather information on the aerial application of crop protection products and provide such data to the EPA and crop protection product manufacturers to aid in registration and reregistration, thereby increasing the availability of those products to the aerial application industry.

Outputs:

- Calleja, J. (Spring 2019). Making census of the ag aviation industry. *Agricultural Aviation*. https://www.agaviationmagazine.org/agriculturalaviation/spring_2019/MobilePagedReplica.action?pm=2&folio=12#pg14
- [NAAA Aerial Application Industry Survey: Pilots- 2019](#)
- [NAAA Aerial Application Industry Survey: Operators- 2019](#)
- Data to support larger proposal

Improvement of Current Medical Surveillance of Coumaphos Exposure in TAHC Fever Tick Eradicators (TX)

PI: Dalia Nessim, MD, PhD, The University of Texas Health Science Center at Tyler

Mentor: Jeffrey Levin, MD, DrPH

Goal: To examine both work and non-work activities of enrolled inspectors using survey instruments. Survey data will be compared to the serial cholinesterase levels obtained in on-going monitoring.

Outputs:

- Wirsching M, Nessim D, Rowlett CD, “Improvement of Current Medical Surveillance of Coumaphos Exposure in TAHC in Fever Tick Eradicators” presented by Dr. Michael Wirsching in the Texas College of Occupational and Environmental Medicine (TxCOEM) Annual Meeting (Virtual) in June 2020.
- Nessim D and Rowlett CD. Surveillance of Organophosphate Pesticide Workers; Lessons Learned from “Tick Eradicators” in Texas. Presented at the Texas Public Health Association Annual Education Conference (TPHA AEC) – Virtual Conference, May 2021.

Agriculture Injury Surveillance Using a Regional Trauma Registry in East Texas (TX)

PI/Mentor: Alan Cook, MD, MS, University of Texas Health Science Center at Tyler

Mentees: Students

Goal: To improve reporting and surveillance of injury and illness in the agriculture sub-sector using a regional trauma registry.

Outputs:

- Cook, A., Fry, R., Desai, Y., Swindall, R., Boyle, J., Wadle, C., ... & Norwood, S. (2022). Agricultural injury surveillance using a regional trauma registry. *Journal of surgical research*, 273, 181-191.
- Established connection between a regional trauma registry and the SW Ag Center.

INTERVENTION RESEARCH**Assessing Readiness for Safety of Nanotechnology Application in Fisheries Industry (LA)**

PI: Ephraim Massawe, ScD, Southeastern Louisiana University

Mentor: Rena Saito, PhD, CIH

Goal: To assess the readiness, in terms of the information and technological needs to support safe and sustainable handling of nanotechnology, including a toolbox of emergency preparedness protocols, exposure control measures, and training to better understand the existing regulatory framework.

Feasibility Study of Resident Community Experience (NM)

PI: Melissa Fleegler, MD. University of New Mexico

Mentor: Laura Banks, DVM, MPH

Goal: To investigate the feasibility of increasing emergency medical (EM) residents' exposure to agricultural medical knowledge and delineating factors that increase the likelihood EM residents would choose to participate in a rural agricultural community. It will also offer the opportunity for two senior residents to rotate in emergency departments located in agricultural communities in New Mexico.

Outputs:

- Casanova V, Cook A, Fleegler M, Levin J, Agromedicine in the Education and Training of Future Rural Clinicians, Workshop, The Rural Training Track Collaborative (RTTC) Annual Meeting, April 2021, Pittsburg, TX
- Casanova V, Cook A, Fleegler M, Levin J, Agromedicine in the Education and Training of Future Rural Clinicians, Public Health Brown Bag Panel Presentation, The University of Texas Health Science Center at Tyler, March 2021

Needs Assessment of Total Worker Health Intervention Among Dairy Workers in West Texas (TX)

PI: Anabel Rodriguez, PhD, University of Texas Health Science Center at Houston, School of Public Health

Mentor: David Douphrate, PhD

Goal: To gather self-reported information concerning current health care services access and barriers as well as top five screenings, examinations, and programs most important to dairy workers employed in the region.

Outputs:

- Rodriguez A. COVID-19 outreach—Collaborating with Agricultural Producers and Workers. ESCORT ID&R Forum Session. Virtual Presentation. October 1, 2020
- Provided pilot data for a grant from the National Center for Farmworker Health/CDC, 2021
- Pilot data to support larger proposal

Grow the Grower Safety and Health Training and Evaluation (NM)

PI: Tammy Thomas, PhD, University of New Mexico

Mentor: Francisco Soto Mas, MD, PhD, MPH

Goal: To collaboratively develop and pilot a health and safety training module to address the specific health and safety needs of traditional farmers.

TRANSLATIONAL RESEARCH

Short-term Feasibility Study of Gulf Coast Fishers' Health Outcomes

PI: Shannon Guillot-Wright, PhD, University of Texas Medical Branch

Mentor: Jeff Temple, PhD

Goal: To examine commercial fishers' oral history interviews to study the social and structural factors that impact their health outcomes.

Outputs:

- Guillot-Wright, S., Cherryhomes, E., & Davis, L. (2022). The impact of economic deregulation for health disparities among Gulf of Mexico commercial fishermen. *Marine Policy*, 141, 105099.

Optimizing Text Messaging to Improve Occupational Health Outcomes Among Commercial Fishermen

PI: Shannon Guillot-Wright, PhD, University of Texas Medical Branch

Mentor: Jeff Temple, PhD

Goal: To create a text messaging campaign based in the science and research of safety and injury prevention for commercial fishers.

Outputs:

- 36 injury prevention text messages (written & audio) created and disseminated in English, Vietnamese and Spanish
- Presentations delivered to Gulf Coast Fishery Council, Texas Sea Grant, US Coast Guard, SW Ag Center, and the Southwest Center Occupational Health Research Symposium
- Pilot data to support larger proposal

Risk Perceptions and Safety Training in Agricultural Aviation

PI: Nishita Sinha, PhD, Texas A&M Transportation Institute

Mentor: Eva Shipp, PhD

Goal: To identify demographic and work-related correlates of risk perceptions among Part 137 pilots and operators and the estimate the casual impact of Professional Aerial Applicators' Support System (PAASS) program on risk perceptions.

Outputs:

- Pilot data used to support larger research proposal
- Nishita, S., Shipp, E., Struttman, T., Payne, S., & Borowiec, J. Risk Perceptions among Part 137 Operators and Pilots. In: Agricultural Safety and Health Council of America's (ASHCA) North American Agricultural Safety Summit, Virtual, March 22-24, 2021.
- Pant, A., Trueblood, A.B., Kim, J., Kum, H.C., Das, S., & Shipp, E.M. Methodology for Flagging Agriculturally-Related Crash Narratives Using Keywords: A Microsoft Excel Based Approach. College Station, TX: Texas A&M Transportation Institute.

Using ROPS Rebate Program Waitlist Data to Garner Support for Funding in Texas

PI: Shelbie Lambert, MPH, The University of Texas at Tyler Health Science Center

Mentor: Pam Milkovich, PhD, Bassett Healthcare Network

Purpose: To study the distribution of tractor rollover injuries in the state of Texas and relate it to the Texas waitlist for the National ROPS Rebate Program.

A. COVER PAGE

Project Title: Poultry dust exposure and lung inflammation	
Grant Number: U54 OH007541	Project/Grant Period: 09/30/2016 – 09/29/2022
Reporting Period: 09/30/2016 – 09/29/2022	Date Submitted: 09/29/2022
Program Director/ Principal Investigator Vijayakumar Boggaram, PhD	Administrative Official Information Panda Powell
Change of Contact PD/PI: No	
Human Subjects: NA	Vertebrate Animals: Yes
hESC:	Inventions/Patents: None

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

Specific Aim 1. Determine mechanisms by which protease activities in poultry dust and protease activated receptors (PARs)-1 and -2 induce lung inflammation.

Specific Aim 2. Determine if STAT3 activation mediates poultry dust induction of inflammatory gene expression and lung inflammation.

Specific Aim 3. Determine the role of oxidants in poultry dust induction of inflammatory gene expression and lung inflammation. Determine the role of mitochondrial impairment in lung inflammation.

B.2. What did you accomplish under these goals?

Major findings and accomplishments:

Specific Aim 1.

1. Protease activities found in poultry organic dust extracts (hereafter referred to as dust extracts) induce expression of proinflammatory mediators (IL-6, IL-8, IL-1 β , ICAM-1, MMPs) in human airway epithelial cells *in vitro*. Protease activities were found to be responsible for dust extract induction of TNF- α and IL-1 β levels in mouse lungs.
2. A serine-protease was purified from dust extracts by affinity chromatography and identified as chicken trypsin II P29. Purified protease induced the expression of proinflammatory mediators in human airway epithelial cells and in mouse lungs.
3. Protease activities found in dust extract contribute to induction of inflammatory mediators via increased reactive oxygen species (ROS) production. Purified protease likewise increased expression of inflammatory mediators via enhanced ROS production.
4. Activation of NF κ B and Stat3 mediate induction of inflammatory mediators by dust proteases and the purified protease.
5. Purified protease activated PAR-1 and PAR-2 to induce inflammatory mediator expression by dust extract.

We have shown that proteases in organic dust are important pro-inflammatory constituents. We have identified chicken trypsin II P29 as a proinflammatory constituent of poultry organic dust.

Specific Aim 2.

1. STAT3 transcription factor is an important regulator of induction of proinflammatory mediators by organic dust extract.
2. Dust extract induced ROS activate STAT3 via Tyk2 and EGFR tyrosine kinases.

We have shown that STAT3 is an important transcriptional regulator of induction of inflammatory mediators by poultry organic dust.

Specific Aim 3.

1. NADPH oxidases (NOX) and xanthine oxidase (XO) generated ROS controls induction of inflammatory mediators by organic dust extracts.
2. Dust extracts activate NOX2 to increase ROS production.
3. NOX inhibition reduced NF κ B and STAT3 activation by dust extract.
4. Mitochondria derived ROS do not appear to be important for the induction of inflammatory mediators by dust extract.

We have shown that NOX- and XO-generated ROS mediate induction of inflammatory mediators by poultry organic dust.

Other studies:

Our research also showed that poultry organic dust contains nano-sized bacterial extracellular vesicles (EVs) and they cause neutrophilic inflammation indicating that bacterial EVs contribute to induction of lung inflammation by organic dust.

Overall, our studies have identified new proinflammatory constituents in organic dust and have elucidated mechanisms by which they induce lung inflammation.

B.3. Competitive Revisions/Administrative Supplements

NA

B.4. What opportunities for training and professional development did the project provide?

The project provided opportunities for the training and professional development of postdoctoral research fellows. Postdoctoral Fellows received training in project-specific and standard biochemical, cellular, and molecular biological techniques and one-on-one work with mentor in the initial stages. They also received guidance on recording and upkeep of research data. Regular laboratory meetings were held to assess research progress and plan future experiments. Postdoctoral Fellows present their research in the regularly scheduled student and postdoc seminars. They also attend and participate in regularly held faculty and departmental seminars. They have the opportunity to attend National/International Scientific Conferences to present their research findings and interact with other researchers in the field. Postdoctoral Fellows prepare manuscript drafts for publication of research findings. Senior postdoctoral fellows are encouraged to submit pilot and other short-term grant proposals in collaboration with the mentor.

B.5. How did you disseminate the results to communities of interest?

Research Community – Results were disseminated via abstracts, oral, and poster presentations at National/International Conferences and in published form in peer-reviewed scientific journals.

External Review Board – Research progress was presented to the Board during bi-annual/annual meetings. Members of the External Review Board consist of agriculture extension agents, veterinarians, public health, and occupational health scientists.

High School Summer Interns – Research was also introduced to high school summer interns. Summer interns typically spent 4 weeks in the laboratory and participated in certain laboratory experiments.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

NA

C. PRODUCTS**C.1. Publications, conference papers, and presentations****Publications:**

1. Natarajan K, Gottipati K, Berhane K, Samten B, Pendurthi U, and **Boggaram V**. Proteases and oxidant stress control organic dust induction of inflammatory gene expression in lung epithelial cells. *Respir. Res.* 17(1):137, 1-19, 2016.
2. Natarajan K, Gangam K, Meganathan V, Gottipati K, Mitchell C, and **Boggaram V**. Organic dust inhibits surfactant protein expression by reducing thyroid transcription factor-1 levels in human lung epithelial cells. *Innate Immun.* 25(2):118-131, 2019.

3. Natarajan K, Meganathan V, Mitchell C, and **Boggaram V**. Organic dust induces inflammatory gene expression in lung epithelial cells via ROS-dependent STAT-3 activation. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 317(1): L127-L140, 2019.
4. Meganathan V, Moyana R, Natarajan K, Kujur W, Kusampudi S, Mulik S and **Boggaram, V**. Bacterial EVs isolated from organic dust induce neutrophilic inflammation in the lung. *Am. J Physiol. Lung Cell. Mol. Physiol.* 319: L893-L907, 2020.
5. Meganathan V, Hamilton CE, Natarajan K, Keshava S, and **Boggaram, V**. NADPH oxidases control induction of inflammatory mediator expression by organic dust. *FASEB J.* 36: e22381; 2022.
6. Kusampudi S, Meganathan V, Keshava S, and **Boggaram V**. Purification and characterization of a serine protease from organic dust and elucidation of its inductive effects on lung inflammatory mediators. *Am. J. Physiol. Lung Cell. Mol. Physiol*, in revision, 2022.

Abstracts:

1. Meganathan, V., Hamilton, C., Natarajan, K., and **Boggaram, V**. Role of NADPH oxidases in organic dust induced inflammatory gene expression in lung epithelial cells. Abstract 2768, ATS International Conference 2019.
2. Natarajan, K., Meganathan, V., Mitchell, C., and **Boggaram, V**. Organic dust induces inflammatory gene expression in lung epithelial cells via ROS-dependent STAT-3 activation. Abstract 2769, ATS International Conference 2019.
3. Meganathan V, Stenhouse M, Kusampudi S and **Boggaram V**. Aryl hydrocarbon receptor (AhR) regulates induction of lung inflammatory mediators by organic dust. Abstract 9370, ATS International Conference, 2022.
4. Kusampudi S, Meganathan V, Keshava S and **Boggaram V**. Purification and characterization of trypsin-like protease(s) from organic dust and studies of their effects on induction of inflammatory mediator expression in lung epithelial cells. Abstract 9236, ATS International Conference, 2022.

C.2. Website(s) or other Internet site(s) – include URL(s)

NA

C.3. Technologies or techniques

NA

C.4. Inventions, patent applications, and/or licenses

NA

C.5. Other products and resource sharing

1. Lung Inflammation in Poultry Workers Linked to Dust Bacteria. Centers for Disease Control/ NIOSH, Research Rounds, Volume 19, Number 7 (November 2021).
2. Poultry Dust Safety. Southwest Center for Agricultural Health, Injury Prevention, and Safety, University of Texas Health Science Center at Tyler (October 2021). <https://www.uthct.edu/monthly-safety-blasts/>

D. PARTICIPANTS**D.1. What individuals have worked on the project?** Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
VIJAYB	PI	Vijayakumar Boggaram	MSc, PhD	PI	2.4				USA	
		Velmurugan Meganathan	MSc, PhD	Postdoc Fellow	10.97				USA	
		Shilpa Kusampudi	MTech, PhD	Postdoc Fellow	11.36				USA	

D.2 Personnel updates

- a. **Level of Effort:** consistent
- b. **New Senior/Key Personnel:** no
- c. **Changes in Other Support:** no
- d. **New Other Significant Contributors:** none

E. IMPACT**E.1 - What is the impact on the development of human resources, if applicable?**

NA

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

Our research has indicated that nano-sized bacterial extracellular vesicles and chicken trypsin are potential contributing agents to the overall lung damaging effects of poultry organic dust. Our findings stress the use of PPEs such as N95 respirators (masks) and air filtration systems for health protection of animal farm workers.

F. CHANGES**F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures**

NA

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

NA

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

NA

G. Special Reporting Requirements**G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements**

NA

G.2 Responsible Conduct of Research

NA

G.3 Mentor's Research Report or Sponsor Comments

NA

G.4 Human Subjects

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

NA

G.4.c ClinicalTrials.gov

NA

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

NA

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

NA

G.6 Human Embryonic Stem Cells (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 Vertebrate Animals

Does this project involve vertebrate animals?

Yes

G.8 Project/Performance Sites

The University of Texas at Tyler Health Science Center

G.9 Foreign Component

NA

G.10 Estimated Unobligated Balance

\$0

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

No

G.11 Program Income

Is program income anticipated during the next budget period?

NA

G.12 F&A Costs

Is there a change in performance sites that will affect F&A costs?

No

I. OUTCOMES

I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets

Note: project outcome information will be made public in NIH RePORTER

Inhalation of dust in industrial animal farms can lead to the development of lung diseases. Inflammation, protective response to injury, is beneficial in the short term however, continued inflammation can lead to the development of disease. We studied the effects of poultry farm dust on lung inflammation with the objective of understanding biological mechanisms controlling inflammation. Our studies identified proteases and nanosized bacterial particles (vesicles) found in poultry farm dust as proinflammatory constituents. These constituents were found to increase the production of oxidants in lung cells to stimulate the release of substances that cause inflammation. Targeting these substances and/or reducing their levels in the farm environment could serve as a strategy to mitigate the development of lung diseases in poultry farm workers.

A. COVER PAGE

Project Title: The Impact of Reduced Thermal Load on PFD Use Among Shrimp Fishermen	
Grant Number: U54 OH007541	Project/Grant Period: September 30, 2016-September 29, 2022
Reporting Period: September 30, 2016-September 29, 2022	Date Submitted: December 21, 2022
Program Director/ Principal Investigator Ann K. Carruth, DNS, RN	Administrative Official Information Office of Sponsored Research and Grants SLU Box 10508 Hammond LA 70402
Change of Contact PD/PI: NA	
Human Subjects: Yes	Vertebrate Animals: No
hESC: NA	Inventions/Patents: NA

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

Aim 1: To understand, quantify and compare physiological responses to the thermal environment, heat stress symptoms, and physiological measures, with and without PFD and cooling devices among Vietnamese shrimp fishermen during the physically demanding work of harvesting shrimp in the Gulf of Mexico region.

Aim 2: : Identify commercially available personal cooling equipment designs that have demonstrated comfort and workability. These will be identified by conducting a trial with two types of personal cooling equipment designs with Vietnamese shrimp fishermen. These data will be used to further improve adoption of PFD use.

Aim 3: To design, launch and evaluate the effectiveness of a multimodal and culturally appropriate social marketing campaign to increase OSHA/NIOSH recommendations for heat stress reduction and PFD use.

B.2. What did you accomplish under these goals?

Aim 1: To understand, quantify and compare physiological responses to the thermal environment, heat stress symptoms, and physiological measures, with and without PFD and cooling devices among Vietnamese shrimp fishermen during the physically demanding work of harvesting shrimp in the Gulf of Mexico region.

A series of tests have been conducted in simulated and on vessels to evaluate measures while performing fishing tasks.

This translation project applies validated technology for heat stress assessment as well as testing heat mitigating PFDs and cooling devices. A trial on board vessels as well as in simulated environments have been tested. Core Temperature (CT) and Thermal Strain (TS) rose continuously throughout the 90 min work trial. CT was different over the work trial ($p=0.008$), and final mean CT was $38.5 \pm 0.5^\circ\text{C}$. HR and RPE fluctuated depending upon which task was being performed at the 10 min data collection time point. HR was different over the work trial ($p=0.001$). Perceived exertion and perceived heat strain were not significantly different over the 90-min work trial ($p=0.086$). The greatest disparity between PeS and PhS was during the first 50 min (mean difference = 0.8). However, from 60 to 90 min the subjects' PeS more closely matched the Physiological strain (mean difference = 0.1).

These results suggest that perceptual heat strain can be used as an indicator of physiological heat strain at a moderate intensity under similar hot and humid environmental conditions.

Validated calculation of equations used to predict Physiological and Perceptual heat strain:

(Physiological Strain Index) $\text{PhSI} = (5 \times ((\text{TCT} - \text{TC0}) / (39.5 - \text{TC0})) + (5 \times ((\text{HRt} - 60) / (\text{HRmax} - 60)))$

where TCt was measured core temperature (via ingested sensor) at that particular time point; TC0 was measured core temperature at baseline; HRt was measured heart rate (via Zephyr Monitor) at that particular time point; HRmax was predicted maximum heart rate (by the equation $220 - \text{age}$)

(Perceptual Strain Index) $\text{PeSI} = (5 \times ((\text{TSt} - 7) / 6)) + (5 \times (\text{PEt}/10))$

where TCt was thermal sensation (via the Vokac scale) at that particular time point; PEt was perceived exertion (via the 20-point Borg scale) at that particular time point.

The PhSI and PeSI were not different ($p=0.086$) during the work trial which indicated that non-invasive perceptual responses may be used in lieu of invasive physiological measures to assess heat strain in workers.

Aim 2: Identify commercially available personal cooling equipment designs that have demonstrated comfort and workability. These will be identified by conducting a trial with two types of personal cooling equipment designs with Vietnamese shrimp fishermen. These data will be used to further improve adoption of PFD use.

Tested several cooling devices for comfort and wearability. Hats and t-shirts were the most favored. Gators were not selected at all.

Aim 3: To design, launch and evaluate the effectiveness of a multimodal and culturally appropriate social marketing campaign to increase OSHA/NIOSH recommendations for heat stress reduction and PFD use.

The findings were integrated into a social marketing approach that has demonstrated evidence for behavior change with this population. The product is a message focused on symptoms and awareness of heat strain. Data collection from 45 Vietnamese owners, captains and crew demonstrated the preference for messaging to be on the vessels rather than radio or print ad. Participants wish to have messages on t-shirts, towels, and hats. Evaluation of the impact of the messaging is ongoing.

B.3. Competitive Revisions/Administrative Supplements

NA

B.4. What opportunities for training and professional development did the project provide?

- Three kinesiology majors, and one biochemical major trained to collect data: Zephyr bioharness gathering physiological data, CoreTemp core temp monitoring, blood pressure, weight and core temp calculations. Two of these kinesiology students were accepted to medical school the semester they worked on this project.
- Six graduate nursing students enrolled in my fall 2022 section of N695 Focused Scholarly Project. Each student worked on various phases of the project to develop manuscripts for submission for publication.

B.5. How did you disseminate the results to communities of interest?

Have met with the community of Vietnamese fishermen throughout the project to describe the project and to discuss results of research for their feedback. The most recent meeting was held in September 2022.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

- Submit manuscripts for publication
- Develop a social marketing campaign with Louisiana Public Health Institute to present to the community.

C. PRODUCTS

C.1. Publications, conference papers, and presentations

- Lincoln, J.M, Carruth, A., Cherry, D., Kinci, L., & Syron, L. (2021). Occupational health research in the commercial fishing industry. *J Agromedicine*, Jan 26 (1) 28-30.
- Jeffrey Levin, Ann Carruth, Thu Bui, Robert Perkins, Karen Gilmore & Amanda Wickman (2019) Experiences in the Gulf of Mexico: Overcoming Obstacles for Commercial Fishing Occupational Safety and Health Research, *Journal of Agromedicine*, 24:4, 351-356, DOI: [10.1080/1059924X.2019.1639577](https://doi.org/10.1080/1059924X.2019.1639577)
- Physiology and Perceptual Heat Strain During Simulated Fishing Tasks in Hot and Humid Environment. Carruth, A.K., Levin, J., Sirikul, B. ISASH Annual Conference, Fort Collins. CO.
- Evaluation of PFDs by Vietnamese Commercial Fishermen in the Gulf of Mexico. AK Carruth, J. Levin, E. Creel. STTI 28th International Nursing Research Congress Dublin Ireland July 27-31, 2017
- Nurse Scholar - Innovations in Worker Health Protection Among Fishermen
- AgriSafe Webinar, June 11th, 2018.
- Obstacles to Performing Occupational Safety and Health Research in Commercial Fishing. June 12, 2018, St. John’s Newfoundland. The Fifth International Fishing Industry Safety and Health Conference Authors: Jeff Levin, Ann Carruth, Thu Bui, Robert Perkins.
- Changing Commercial Fishing Personal Floatation Use Behavior: What Can We Learn from Efforts To Address the Most Important Safety Technology Adoption Challenge of Our Time? June 12, 2018, St. John’s Newfoundland. The Fifth International Fishing Industry Safety and Health Conference Authors: Julie Sorensen, Rebecca Weil, Ann Carruth, Jeffrey Levin, Jennifer Lincoln, Frankie Horne, JoJo Mains, Derek Cardno, Ted Teske, Mark Dolomount, Amanda Dedrick
- Carruth, A.K., Levin, J. Lincoln, J., Sorensen, J., Perkins, R. (2016) Evaluation of PFDs by Vietnamese Commercial Fishermen in Gulf of Mexico. ISASH Annual conference, Lexington Kentucky.

C.2. Website(s) or other Internet site(s) – include URL(s)

NA

C.3. Technologies or techniques

NA

C.4. Inventions, patent applications, and/or licenses

NA

C.5. Other products and resource sharing

NA

D. PARTICIPANTS

D.1. What individuals have worked on the project? Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
AKCarruth		Ann Carruth	DNS, RN	PI	.3					
DDOUPH7		Dave Douphrate	PHD	Co-PI	.9					
GIMENOD		David Gimeno	PHD	Co-PI	.6					
BHATTAAT1		Amit Bhattacharya	PHD	Co-PI	.3					

D.2 Personnel updates

- a. Level of Effort:
- b. New Senior/Key Personnel:
- c. Changes in Other Support:
- d. New Other Significant Contributors:

E. IMPACT

E.1 - What is the impact on the development of human resources, if applicable?

NA

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

Heat stress is an important consideration for those who work in the Gulf of Mexico. For those acclimated to the heat, life-threatening symptoms may be ignored or attributed to other causes. Education and outreach are needed to communication symptoms, importance of paying attention while at work on a vessel, Subjective heat and exertion was greater with various tasks on the vessels; however, core body temperature did not significantly go up while wearing suspender type PFD.

F. CHANGES

F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures

Contract work with LPHI, social marketing firm, was delayed due to state regulations and negotiations. This limited the implementation of a community wide campaign. The community was able to participate in informing the campaign and evaluating one message prepared by governmental agency. The message, however, is not tailor to the needs based on community participatory input.

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

NA

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

NA

G. Special Reporting Requirements

G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements

NA

G.2 Responsible Conduct of Research

NA

G.3 Mentor's Research Report or Sponsor Comments

NA

G.4 Human Subjects

G.4.a Does the project involve human subjects? Yes

G.4.b Inclusion Enrollment Data

In phase I, 20 healthy subjects were recruited to test the ingestible pill measuring core body temperature compared to noninvasive calculation of physiological heat strain using Zephyr Bioharness data. Five crew members were recruited to collect data while working on vessels in the Gulf of Mexico and 16 Vietnamese males were recruited for phase II using a heat chamber to control environment while collecting data.

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

NA

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

No

G.6 Human Embryonic Stem Cells (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 Vertebrate Animals

Does this project involve vertebrate animals?

No

G.8 Project/Performance Sites

Sea Grant Office – Abbeville LA. And Southeastern LA University

G.9 Foreign Component

NA

G.10 Estimated Unobligated Balance

\$92,213.56

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

Yes

G.11 Program Income

Is program income anticipated during the next budget period?

No

G.12 F&A Costs

Is there a change in performance sites that will affect F&A costs?

No

I. OUTCOMES

I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets

Note: project outcome information will be made public in NIH RePORTER

Shrimp fishing in the Gulf of Mexico is performed during the hottest months of the year. Gulf shrimp fishermen are frequently exposed to high heat while performing physically demanding tasks and as a result, have a disproportionate risk of heat stress. This translation project applies validated technology for heat stress assessment as well as testing heat mitigating PFDs and cooling devices. A trial on board vessels as well as in simulated environments have been tested. In the simulated environment and on the vessels, results included perceived heat stress and exertion was greatest while sorting "picking" shrimp on the deck or while doing "net work". There were no significant differences in core body temperature with or without PFD use. Vietnamese fishermen prefer messages about heat stress to be available on T-shirts, hats or stickers that can be placed on the vessels. Family is rated as important and is a motivator for paying attention to heat stress signs and symptoms. Fishermen indicated they knew to drink plenty of water and stay cool by standing under the tarp. Captains bring adequate water with them when going on extended trips in the Gulf of Mexico.

A. COVER PAGE

Project Title: Occupational Exposures of Tree Planters in the Forestry Services Sector	
Grant Number: U54 OH007541	Project/Grant Period: September 30, 2016-September 29, 2018
Reporting Period: September 30, 2016-September 29, 2022	Date Submitted: December 21, 2022
Program Director/ Principal Investigator Vanessa Casanova, PhD	Administrative Official Information Panda Powell
Change of Contact PD/PI: No	
Human Subjects: Yes	Vertebrate Animals: No
hESC:	Inventions/Patents: No

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

The primary objective of this project is to provide an evidence base for a research program that focuses on the occupational health and safety outcomes of tree planters in the forestry services sector. Using a participatory approach, this project will commence with an assessment of workplace risks and exposures, using both direct measures and self-report with both manual and machine tree planters.

Through in-depth interviews, an industrial hygiene exposure assessment and an ergonomics risk assessment, we will address three specific aims:

Aim 1: Delineate health and safety risk factors associated with tree planting;

Aim 2: Develop a draft of an exposure assessment instrument for use with tree planters;

Aim 3: Establish the feasibility of collecting quantitative data from forestry services workers on their occupational health risk factors, health outcomes and mobile device usage.

B.2. What did you accomplish under these goals?

Expanded network of partners, access to target populations, baseline measure of perceived risks on reforestation sites, exposure assessment tool for manual and machine tree planters.

B.3. Competitive Revisions/Administrative Supplements

Not Applicable

B.4. What opportunities for training and professional development did the project provide?

Expertise to adapt and develop appropriate educational materials and training tools for machine tree planters.

B.5. How did you disseminate the results to communities of interest?

Presentations at professional meetings and forestry associations, developing extension and outreach materials.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

Not Applicable

C. PRODUCTS

C.1. Publications, conference papers, and presentations

- Casanova, V. Mechanized Planting in the Southwest. Forestry – Integrating Safety in a Time of Rapid Change. Western Ag Safety & Health Conference, Seattle, Washington, August 8, 2019.
- Casanova, V. Diversity Within the Forestry and Logging Workforce. Hired and Contract Ag Workforce – Sustainable Solutions. *Western Ag Safety & Health Conference*, Seattle, Washington, August 7, 2019.
- Casanova, V., Parra, F., Fethke, N., Douphrate, D., and Khademi, S. Preliminary Assessment of Whole-Body Vibration in Wild Land Mechanized Tree Planting in the Ark-La-Tex Timber Producing Region. *Nordic Meeting on Agricultural Occupational Health and Safety*, Hurdal, Norway, September 13, 2018.
- Casanova, V. (with Francisco Parra). H2-B Guest Workers and Labor Unfreedom: The Case of Guest Workers in the Forest Services Sector in the U.S. 21st Century Coolies – U.C. Davis School of Law, Davis, CA, March 15-17, 2018.

- Casanova, V. (with M. Schenker, P. Lunqvist, and T. Andrews). Engaging Immigrant and Migrant Workers in Agricultural Research and Outreach Activities. International Society for Agricultural Safety and Health, Logan, UT, June 28, 2017.

C.2. Website(s) or other Internet site(s) – include URL(s)

Not Applicable

C.3. Technologies or techniques

Not Applicable

C.4. Inventions, patent applications, and/or licenses

Not Applicable

C.5. Other products and resource sharing

- Forestry & Logging Safety Series. *Arkansas Timber Producers Association*, Arkansas & Oklahoma. Ongoing.
- Pesticide Handling Safety. *Texas Agrilife Extension*, Overton, TX, October 2017.
- Fire Safety Training. *Arbor-gen Tree Nursery*, Bullard, TX, July 2017.

D. PARTICIPANTS

D.1. What individuals have worked on the project? Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
vcasanova		Vanessa Casanova	PhD	PI	1.476					
renasaito		Rena Saito	PhD	Co-I	1.08					
DDOUPH7		David Douphrate	PhD	Co-I	1.20					

D.2 Personnel updates

a. Level of Effort:
 b. New Senior/Key Personnel:
 c. Changes in Other Support:
 d. New Other Significant Contributors:

E. IMPACT

E.1 - What is the impact on the development of human resources, if applicable?

Not Applicable

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

Basic understanding of working with highly mobile, settled-out immigrant worker that are often hard to reach.

F. CHANGES

F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures

Not Applicable

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Challenges with recruiting target population (H2-B guest workers and manual/hand tree planters); able to recruit mechanical tree planters. No data collected on the use of mobile devices as irrelevant to this population.

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

Not Applicable

G. Special Reporting Requirements

G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements

Not Applicable

G.2 Responsible Conduct of Research

Not Applicable

G.3 Mentor’s Research Report or Sponsor Comments

Not Applicable

G.4 Human Subjects

G.4.a Does the project involve human subjects?

Yes

G.4.b Inclusion Enrollment Data

G.4.c ClinicalTrials.gov

No

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

No

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

No

G.6 Human Embryonic Stem Cells (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 Vertebrate Animals

Does this project involve vertebrate animals?

No

G.8 Project/Performance Sites

The University of Texas Health Science Center at Tyler

G.9 Foreign Component

No

G.10 Estimated Unobligated Balance

\$0

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

No

G.11 Program Income

Is program income anticipated during the next budget period?

No

G.12 F&A Costs

Is there a change in performance sites that will affect F&A costs?

No

I. OUTCOMES

I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets

Note: project outcome information will be made public in NIH RePORTER

Project outcomes for this award include:

- An expanded network of partners in the forestry services/reforestation sector in the Ark-La-Tex region,
- Partnering with machine planting operators to assess risk on planting sites,
- Baseline measure of perceived risks on reforestation sites,
- Exposure assessment tool for machine tree planters,
- Education/training materials to include training on basic pesticide/herbicide exposures and proper PPE usage; outreach and education materials on whole body vibration and musculoskeletal complaints in English and Spanish.

Cumulative Inclusion Enrollment Report

This report format should NOT be used for collecting data from study participants.

Study Title: Occupational Exposures of Tree Planters in the Forestry Services Sector

Comments:

Racial Categories	Ethnic Categories									Total
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			
	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	
American Indian/ Alaska Native										0
Asian										0
Native Hawaiian or Other Pacific Islander										0
Black or African American		1								1
White	1	19			5					25
More Than One Race										0
Unknown or Not Reported										0
Total	1	20	0	0	5	0	0	0	0	26

A. COVER PAGE

Project Title: Physical Exposures and Musculoskeletal Symptoms Among Logging Machine Operators	
Grant Number: 2 U54 OH007541-16	Project/Grant Period: 9/30/2016 - 9/29/2022
Reporting Period: 9/30/2016 - 9/29/2022	Date Submitted: 12/9/2022
Program Director/ Principal Investigator Center PI: Casanova, Vanessa Project PI: Douphrate, David	Administrative Official Information
Change of Contact PD/PI: none	
Human Subjects: yes	Vertebrate Animals: no
hESC:	Inventions/Patents: none

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

Logging machines may expose workers to risk factors associated with the development of work-related musculoskeletal disorders (MSDs), which include whole-body vibration (WBV), static and awkward postures, and repetitive hand and feet movements. Literature regarding ergonomic investigations of WBV, postures, and repetitive movements among logging machine operators (LMOs) is limited, as no studies have measured these exposures simultaneously using direct instrumentation. A more comprehensive understanding of the interactions between these physical risk factors will help guide the development of intervention strategies to decrease the incidence of work-related MSDs among LMOs. No specific aims have been modified from the original application.

- 1) Characterize low back, neck/shoulder, and distal upper extremity MSS among logging machine operators in the Southeastern U.S. logging region. Status: COMPLETED without modification.
- 2) Characterize exposure to physical risk factors for low back, neck/shoulder, and distal upper extremity MSS among logging machine operators in the Southeastern U.S. logging region. Status: COMPLETED without modification.
- 3) Estimate associations of physical risk factors with low back, neck/shoulder, and upper extremity MSS among logging machine operators in the Southeastern U.S. logging region. Status: Status: COMPLETED without modification.

B.2. What did you accomplish under these goals?

During the reporting period, our participant enrollment and data collection activities were interrupted by the COVID-19 pandemic. Due to institutional travel restrictions, as well as logging contractor restrictions, we were not able to resume travel and research activities. However, with the addition of the extra year of funding, the research was able to resume participant enrollment and data collection. We successfully accomplished data collection for all three aims of the study and are currently preparing manuscripts for publication.

B.3. Competitive Revisions/Administrative Supplements

Not applicable

B.4. What opportunities for training and professional development did the project provide?

Opportunities for training and professional development provided in this project included graduate students being involved in many aspects of the study which include methodology development, as well as data collection and analysis. These experiences still provide valuable experience and learning opportunities which will equip them to be more effective safety researchers and practitioners upon graduation. For example, Dr. Anabel Rodriguez has been involved in this project since its launch and served as a GRA, Manager, and now Co-Investigator post graduation. She recently accepted a tenure-track position at the rank of Assistant Professor at the UTHealth School of Public Health in San Antonio. She remained on the project. The project has provided Dr. Rodriguez many opportunities to network with logging contractors and machine operators. This has inspired her to continue her research addressing worker health and safety in the AgFF sector. Dr. Rodriguez will serve as a Co-Investigator on future Ag Center submissions with Dr. Douphrate.

B.5. How did you disseminate the results to communities of interest?

To date, preliminary findings has been disseminated to logging contractors as well as attendees at logging association meetings. Additionally, timber procurement companies have received preliminary findings at annual meetings.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

This is the final reporting period of the grant cycle.

C. PRODUCTS**C.1. Publications, conference papers, and presentations**Publications:

Four publications are currently in development for submission for publication.

Manuscript 1: Reported MSS among LMOs

Manuscript 2: Vibration exposure comparison between logging machinery

Manuscript 3: Exposure characterization (vibration, muscle activity, posture) among LMOs-machinery comparison

Manuscript 4: Association between reported MSS and measured exposures

Presentations:

Douphrate D and Rodriguez A. Logging machine operators health and safety training. Western Ag Safety and Health Conference: Cultivating Collaborations, Seattle, WA, August 7-9, 2019.

Douphrate D Sustainable forestry management: the role of worker health and safety. Invited keynote presentation. Arkansas Timber Producer Association Annual Meeting, Hot Springs, AR, August 24-25, 2018.

Conway S, Pompeii L, Casanova V, Douphrate, D. A qualitative assessment of safe work practices in logging in the Southern United States. Epidemiology in Occupational Health (EPICOH) Conference, Barcelona, Spain, September 4-7, 2016.

C.2. Website(s) or other Internet site(s) – include URL(s)

none

C.3. Technologies or techniques

We developed a novel reporting mechanism for daily musculoskeletal symptoms, environmental conditions and work durations. Using LifeData software, our daily survey instrument (deployed on personal mobile devices (i.e. smartphone) is being successfully used by enrolled participants in the study. This approach enables the more frequent assessment of musculoskeletal symptom status than what has been accomplished in prior AgFF studies.

Also, we employed direct measurement techniques to assess whole body vibration as well as limb posture and motion, as well as muscle activity levels. We are also deploying GoPro cameras in the logging machine cab to provide video documentation of head, trunk and limb postures and motion. Additionally, we have developed custom software written in Labview and Matlab to process and analyze EMG and IMU data collected in the field.

C.4. Inventions, patent applications, and/or licenses

none

C.5. Other products and resource sharing

none

D. PARTICIPANTS**D.1. What individuals have worked on the project?** Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
DDOUPH7		Douphrate, D	PhD,MPT,MBA	PI	2.40	2.40	0.0		USA	
GIMENOD		Gimeno, D	PhD	Co-I	1.20	1.20	0.0		USA	
ARODRIGUEZ19		Rodriguez, A	PhD	PrMgr/Co-I	1.20	1.20	0.0		USA	

D.2 Personnel updates**a. Level of Effort:****b. New Senior/Key Personnel:** NA**c. Changes in Other Support:** NA**d. New Other Significant Contributors:** NA**E. IMPACT****E.1 - What is the impact on the development of human resources, if applicable?**

NA

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

Findings from this study will contribute to the body of knowledge of associations between the development of work-related musculoskeletal symptoms and physical exposures from logging machine operation. Findings will lead to the development of improved logging machine seating technologies and cab designs.

F. CHANGES**F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures**

No changes in approach to report.

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Weather/environmental conditions occasionally limited our ability to access remote logging cut sites. Access to cut crews is unpredictable in cold-wet season months. For this reason, we concentrated our field-based direct measure exposure assessments to the warmer months in the spring and summer. Additionally, we did experience minor technical difficulties in downloading the mobile app onto participant personal smartphones due to limited cellular reception in remote logging regions, often under the canopy of large pine trees. To overcome this difficulty, we purchased a portable cell signal booster which enhances the cell reception for app download. This has proven to be an effective solution. The COVID-19 pandemic restricted travel for data collection. Once travel restrictions were lifted, we took all necessary COVID precautions during data collection activities.

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

No changes

G. Special Reporting Requirements**G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements**

No special reporting requirements

G.2 Responsible Conduct of Research

Not applicable

G.3 Mentor's Research Report or Sponsor Comments

Not applicable

G.4 Human Subjects

G.4.a Does the project involve human subjects?

yes

G.4.b Inclusion Enrollment Data

See table

G.4.c ClinicalTrials.gov

Not applicable

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

no

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

no

<p>G.6 Human Embryonic Stem Cells (HESCS)</p> <p>Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?</p> <p>no</p>
<p>G.7 Vertebrate Animals</p> <p>Does this project involve vertebrate animals?</p> <p>no</p>
<p>G.8 Project/Performance Sites</p> <p>UTHealth School of Public Health Remote logging cut sites</p>
<p>G.9 Foreign Component</p> <p>none</p>
<p>G.10 Estimated Unobligated Balance</p> <p>\$101,119.22</p> <p>G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?</p> <p>Yes</p>
<p>G.11 Program Income</p> <p>Is program income anticipated during the next budget period?</p> <p>NA</p>
<p>G.12 F&A Costs</p> <p>Is there a change in performance sites that will affect F&A costs?</p> <p>No</p>

I. OUTCOMES

<p>I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets</p> <p>Note: project outcome information will be made public in NIH RePORTER</p> <p>Logging machines may expose workers to risk factors associated with the development of work-related musculoskeletal disorders (MSDs), which include whole-body vibration (WBV), static and awkward postures, and repetitive hand and</p>
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feet movements. Literature regarding ergonomic investigations of WBV, postures, and repetitive movements among logging machine operators (LMOs) is limited, as no studies have measured these exposures simultaneously using direct instrumentation. A more comprehensive understanding of the interactions between these physical risk factors will help guide the development of intervention strategies to decrease the incidence of work-related MSDs among LMOs.

Findings from this study provided new information about exposures to physical risk factors and musculoskeletal symptoms (MSS) experienced among LMOs. In timber procurement operations in the southeastern U.S., workers operate large machinery which specialize in three primary harvesting activities: fellers (cutting down trees), skidders (moving felled trees to processing location), and delimeter/loader (trim limbs off tree trunks and load on truck for transport to mill). Findings suggest operators of all three machines experience musculoskeletal symptoms. Skidder operators report a higher prevalence of discomfort in the neck, shoulders and trunk as compared to feller and delimeter/loader operators. Additionally, observed higher exposures to whole body vibration (WBV) in skidder machinery as compared to fellers and delimeters/loaders.

Our findings suggest LMOs in the southeastern U.S. report musculoskeletal symptoms in multiple body regions, with skidder operators reporting higher symptoms in the neck, shoulder and trunk regions. Additionally, skidder machinery may expose operators to higher levels of WBV than other machinery. These findings reflect unique aspects of skidder operations, including repetitive head rotation as well as driving the machinery over tree trunks which increases vibratory exposures. Our findings suggest logging machinery manufacturers should continue to explore engineering controls to mitigate vibratory exposures in the cab of logging machinery, as well as cab design to reduce head and trunk rotations. Logging contractors can explore administrative controls such as machinery operation rotation or scheduled rest breaks to mitigate these machinery exposures.

PHS Inclusion Enrollment Report

OMB Number: 0925-0001 and 0925-0002

This report format should NOT be used for collecting data from study participants.

Expiration Date: 10/31/2018

*Study Title (must be unique): Physical Exposures and Musculoskeletal Symptoms Among Logging Machine Operators

* Delayed Onset Study? Yes No

If study is not delayed onset, the following selections are required:

Enrollment Type Planned Cumulative (Actual)
Using an Existing Dataset or Resource Yes No
Enrollment Location Domestic Foreign
Clinical Trial Yes No **NIH-Defined Phase III Clinical Trial** Yes No

Comments:

Racial Categories	Ethnic Categories									
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			Total
	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	
American Indian/ Alaska Native	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	0	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0
Black or African American	0	11	0	0	0	0	0	0	0	11
White	0	79	0	0	19	0	0	0	0	98
More than One Race	0	0	0	0	0	0	0	0	0	0
Unknown or Not Reported	0	0	0	0	0	0	0	0	0	0
Total	0	90	0	0	19	0	0	0	0	109

Report 1 of 1

A. COVER PAGE

Project Title: Contributing factors on slips, trips, and falls among Texas shrimp fishermen	
Grant Number: U54 OH007541	Project/Grant Period: 11/16/2020-09/29/2022
Reporting Period: 11/16/2020-09/29/2022	Date Submitted: 12/09/2022
Program Director/ Principal Investigator Shannon Guillot-Wright, BA, MA, PhD Assistant Professor Dept of Family Medicine 301 University Blvd. Galveston, TX 77555-1123 409.772.3126 spguillo@utmb.edu	Administrative Official Information Erika LeGros Research Operations Manager, Sponsored Programs 301 University Blvd. Galveston, TX 77555-0156 409.266.9400 Sponsored.research@utmb.edu
Change of Contact PD/PI: N/A	
Human Subjects: Yes	Vertebrate Animals: No
hESC: No	Inventions/Patents: No

B. ACCOMPLISHMENTS**B.1. What are the major goals of the project?**

Specific aims were:

1. to identify potential occupational and environmental hazards and other contributing factors for slips, trips, and falls among fishermen by conducting workplace observations and questionnaires using photovoice and semi-structured interviews.
2. to estimate the frequency of slips, trips, and falls, and other related non-fatal injuries among fishermen using questionnaires via semi-structured interviews.

3. to identify cultural and non-cultural factors associated with the acceptance of traditional safety interventions (such as the use of safety boots) using community-based participatory research techniques.

B.2. What did you accomplish under these goals?

Specific Aims 1 & 2:

All interviews (n=77), observations (68 hours), and photovoice (n=14) deliverables were met with Gulf of Mexico shrimpers.

Specific Aim 3:

Completed community based participatory research (CBPR), which involved being present at the docks during work hours, observing their patterns of behaviors, and hearing what needs they were interested in having met. Through this work, a Docside Clinic was set up at the docks. Since July 2021, over 200 shrimpers have been seen by a healthcare professional and over 60 vaccines have been distributed, including COVID, flu, and tetanus shots. Through the CBPR work, our team built trust and was able to understand more of the cultural and social factors that impact safety interventions' acceptance among the population.

B.3. Competitive Revisions/Administrative Supplements

No

B.4. What opportunities for training and professional development did the project provide?

Medical and public health graduate students trained under the direction of Dr. Guillot-Wright on how to conduct interviews, code and analyze data, and develop manuscripts.

B.5. How did you disseminate the results to communities of interest?

Results were disseminated through community presentations (e.g., Seafarers Center's), to the US Coast Guard as reports and policy briefs, and to participants when offering services they requested (i.e., Docside Clinic).

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

N/A

C. PRODUCTS

C.1. Publications, conference papers, and presentations

Publications

1. Guillot-Wright, S., Farr, N.M., *Cherryhomes, E. (2022). "A community-led mobile health clinic to improve structural and social determinants of health among (im)migrant workers," *International Journal for Equity in Health*, 21 (58): DOI: <https://doi.org/10.1186/s12939-022-01630-7>.

Conference papers/presentations

1. **Guillot-Wright, S.** (2023). Docside Clinic: Working with trainees to implement a free clinic for under-reached populations. Oral presentation at *Society of Teachers of Family Medicine Conference*, New Orleans, LA. (accepted)

2. **Guillot-Wright, S.** (2022). Neoliberalism & its impact for Gulf Coast fishermen's health. Oral presentation at *Southwest Centers Occupational Health Research Symposium*, Virtual
3. **Guillot-Wright, S., Davis, L.** (2022). Improving Structural and Social Determinants of Health through Community-Led Interventions. Oral presentation at *International Symposium to Advance Total Worker Health*, Bethesda, MD.
4. **Guillot-Wright, S., Davis., L.** (2022). Docside Clinics: Creating a free mobile health clinic for im/migrant workers. Oral presentation at *Healthier Texas Summit*, Austin, TX.
5. **Guillot-Wright, S., Cherryhomes, E., Davis, L.** (2022). Increasing Occupational Health Equity through Community Engaged Research. Oral presentation at *Society for the Advancement of Violence and Injury Research*, Washington, DC.
6. Cherryhomes, E., Davis, L., **Guillot-Wright, S.** (2022). A community-led mobile health clinic to improve structural and social determinants of health among (im)migrant workers. Oral presentation at *Health of Migrants Conference*, Virtual.
7. Cherryhomes, E., Davis, L., **Guillot-Wright, S.** (2022). Increasing occupational health equity among Texas Gulf Coast shrimpers. Poster presentation at *Public Health Symposium*, Galveston, TX.

Invited presentations

- 2022 Implementing Community-Led Interventions Among Vulnerable Populations, Stress and Mental Health Concerns in Commercial Fishing, *Northeast Center for Occupational Health and Safety*, Virtual
- 2022 Contributing factors on slips, trips, and falls among shrimp fishermen, *National Institute for Occupational Safety and Health, All Centers' Meeting, AgFF*, Virtual
- 2022 Implementing community-led interventions with Gulf Coast seafood workers, *AgriSafe*, Virtual
- 2022 Community Engaged Research: Increasing Occupational Health Equity Among Historically Marginalized Populations, *Emerging Issues in Occupational, Environmental, and Preventive Medicine Conference*, University of Texas at Tyler, Tyler, TX

C.2. Website(s) or other Internet site(s) – include URL(s)

Instagram: @healthequitylab

C.3. Technologies or techniques

N/A

C.4. Inventions, patent applications, and/or licenses

N/A

C.5. Other products and resource sharing

N/A

D. PARTICIPANTS**D.1. What individuals have worked on the project?** Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
Spguillo	K	Shannon Guillot-Wright	PhD	Site PI	0.12					
N/A		Lacy Davis	MA	Research Manager	6.00					

D.2 Personnel updates

- a. **Level of Effort:** Nothing to report
- b. **New Senior/Key Personnel:** Nothing to report
- c. **Changes in Other Support:** Yes
- d. **New Other Significant Contributors:** Nothing to report

E. IMPACT**E.1 - What is the impact on the development of human resources, if applicable?**

N/A

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

After we interviewed participants and heard what needs they had, our team implemented a free mobile clinic at the docks. Participants in the mobile clinic were seafood workers (i.e., shrimp fishermen and dock workers) and their wives and children. They were predominately male (~95%), identified as racial/ethnic minorities (~90% Vietnamese, ~10% Latino/a), and were between the ages of 30-65, except for two children who were both under the age of 10. The Fishermen's Health Clinic was planned over the span of two months, which included finding volunteers, ordering supplies, outreaching to shrimpers, and gaining access to the single-shot Johnson and Johnson COVID-19 vaccine; this latter coordination effort was necessary given the difficulty in arranging a second shot with a migratory population. To access the greatest number of workers with the highest likelihood of disparities, we implemented the health clinic in the morning and early afternoon (9 am – 1 pm). Implementing the intervention just prior to the opening of the Texas shrimp season provided nearly universal access to area shrimpers, including some of the most vulnerable workers who would be fishing during the roughest conditions (i.e., hurricane season).

The clinic was staffed by volunteer faculty, staff, and students. In addition to vaccinating workers, we offered hypertension screening, diabetes screening including Point-of-Care Tests A1C, medical evaluation services by physicians and nurse practitioners, wound care supplies including appropriate antibiotics for marine skin infections, foot care, Occupational Therapy evaluation and treatment, boxed lunches, and medical kit bags, including an emergency medical guide (see Table 1). We also handed out t-shirts with instructions on how to access a safety prevention texting service (see Figure 1), as well as structural and social service resources, including representatives who could assist with housing, food, toiletry, clothing, and transportation needs. Additionally, we were able to link participants to a full spectrum of free medical care services through an on-site physician and local free clinic.

The services offered were based on feedback from the fishermen about their most pertinent healthcare needs. The success of the one-day clinic created an opportunity to continue it past July 2021. It is currently once a month and support by university resources, research awards, and grants.

F. CHANGES

F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures

Nothing to report

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Nothing to report

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

Nothing to report

G. Special Reporting Requirements

G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements

Nothing to report

G.2 Responsible Conduct of Research

N/A

G.3 Mentor's Research Report or Sponsor Comments

N/A

G.4 Human Subjects

G.4.a Does the project involve human subjects? Yes

G.4.b Inclusion Enrollment Data

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA? No

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

Nothing to report

<p>G.6 Human Embryonic Stem Cells (HESCS)</p> <p>Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?</p> <p>Nothing to report</p>
<p>G.7 Vertebrate Animals</p> <p>Does this project involve vertebrate animals? No</p>
<p>G.8 Project/Performance Sites</p> <p>University of Texas Medical Branch</p>
<p>G.9 Foreign Component</p> <p>N/A</p>
<p>G.10 Estimated Unobligated Balance</p> <p>\$391.60</p> <p>G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?</p> <p>No</p>
<p>G.11 Program Income</p> <p>Is program income anticipated during the next budget period? No</p>
<p>G.12 F&A Costs</p> <p>Is there a change in performance sites that will affect F&A costs? No</p>

I. OUTCOMES

<p>I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets</p> <p>Note: project outcome information will be made public in NIH RePORTER</p> <p>Research shows that fishermen are at heightened risk for workplace injury and illness. Our research adds to this growing body of literature by showing the multiple layers of vulnerability and danger among shrimpers, which includes not only traditional workplace vulnerabilities such as slips, trips, and falls, but also how social vulnerabilities are connected to occupational health and manifested through access to healthcare, housing, and healthy food. In</p>
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short, shrimper's injuries could not be delinked from their social world. For example, they discussed issues of injury within larger structural contexts of having little to no health care. Their lack of health care options varied, but included lack of coverage, little time to make appointments between shrimping trips, financial and language barriers, and lost, stolen, or incorrect citizenship documentation. Additionally, participants experienced varying degrees of access to housing with approximately one-third of participants living seasonally unhoused at the docks. Participants routinely requested basic medical supplies onboard vessels, an on-site clinic at the docks, and assistance with housing and food.

Shrimpers routinely identified falls overboard as a potential hazard or described in detail their experiences falling overboard or watching another crewmate fall overboard. Although slips, trips, and falls were common and frequently identified as a danger by shrimpers, they were quick to shift the focus away from these dangers, often with a fatalist attitude. Almost every person we interviewed said they do not wear a personal flotation device (PFD). The overwhelming responses was that it is uncomfortable to wear, difficult to work in due to its bulkiness, or too hot to wear in the summer. Additionally, some interviewees said they did not wear a PFD because they know how to swim, and therefore did not see a use for it.

Therefore, interview questions about interventions that could directly target slips, trips, and falls often went unanswered or were superficially answered. However, questions related to other non-fatal injuries created more opportunity to discuss larger cultural, social, and structural factors that impacted health disparities. By broadening our approach, we learned that most deck hands 1) do not have personal health insurance and 2) use emergency healthcare services but not primary or preventive healthcare. For example, when a group of fishermen were asked about what services, other than the Coast Guard, were available to help them when injured, one man replied, "Bud light," to which the others laughed and agreed. Tellingly, non-fatal work-related injury is a leading cause of suicide, opioid misuse, and overdose death, with higher prevalence of opioid use disorder in those with heavy physical jobs, more precarious work, and limited health care benefits. Additionally, social and economic factors, such as language barriers and incentives to work while ill, contribute to increased health and safety risk. As an example, workers reported that an absence of sick leave benefits influenced their health-seeking behaviors like delaying medical care and working while sick. One worker reported, "I lost all my teeth in a crash. My nose was cut open and everything in my mouth. I didn't want to call the Coast Guard. The boss wanted me to return to land but I need the money, I needed to work, so I put up with it at sea with pills for pain and infection to handle the trip."

PHS Inclusion Enrollment Report

OMB Number: 0925-0001 and 0925-0002

This report format should NOT be used for collecting data from study participants.

Expiration Date: 10/31/2018

*Study Title (must be unique): Contributing factors on slips, trips, and falls among Texas shrimp fishermen

* Delayed Onset Study? Yes No

If study is not delayed onset, the following selections are required:

Enrollment Type Planned Cumulative (Actual)

Using an Existing Dataset or Resource Yes No

Enrollment Location Domestic Foreign

Clinical Trial Yes No **NIH-Defined Phase III Clinical Trial** Yes No

Comments:

Racial Categories	Ethnic Categories									
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			Total
	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	
American Indian/ Alaska Native	0	0		0	0					0
Asian	1	42		0	33					76
Native Hawaiian or Other Pacific Islander	0	0		0	0					0
Black or African American	0	0		0	0					0
White	0	0		0	0					0
More than One Race	0	0		0	0					0
Unknown or Not Reported										
Total	1	42		0	33					76

Report 1 of 1

A. COVER PAGE

Project Title: Reducing Pesticide Exposure Among Latino Adolescents through Promotora-Based Interventions	
Grant Number: 6 U54OH007541-20-03	Project/Grant Period: 09-30-2016 – 09-29-2022
Reporting Period: 09-30-2021 – 09-29-2022	Date Submitted: 12-09-22
Program Director/ Principal Investigator Michael J. Merten	Administrative Official Information
Change of Contact PD/PI: No	
Human Subjects: Yes	Vertebrate Animals: No
hESC:	Inventions/Patents: No

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

1. To determine if a promotora-based intervention targeting pesticide safety in the workplace is effective in increasing knowledge about safety behaviors among Latinx adolescents engaged in farm work.
2. To delineate variation by group among adolescents' knowledge about safety behaviors.
3. To delineate variation in adolescents' pesticide safety behaviors after intervention between all groups.

B.2. What did you accomplish under these goals?

- Benefit of promotora-based intervention vs. control group in increasing pesticide safety knowledge from baseline to posttest.
- Added benefit of a family-focused strategy over an individual-focused strategy in terms of increasing knowledge about safety behaviors
- Increase in hand washing behaviors
- Increase in proportion of days adolescents safely handle clothes upon getting home from work

B.3. Competitive Revisions/Administrative Supplements

Not applicable

B.4. What opportunities for training and professional development did the project provide?

This project provided the opportunity for pesticide safety training for both adolescents and parents via a 4-week training program. In addition, project promotoras were trained in pesticide safety curriculum, which in turn they delivered to adolescents and parents. This was a strong professional development opportunity for promotoras as it strengthened their ability and skill set to do pesticide safety programming in communities.

B.5. How did you disseminate the results to communities of interest?

Results from this research were disseminated at national and international conferences focused on agricultural and worker health.

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

Not applicable

C. PRODUCTS

C.1. Publications, conference papers, and presentations

- Merten, M. J., Wickrama, T., & Leow, C. (under review). Social connectedness, delinquency, and mental health of urban and rural Latino adolescents. *Journal of Rural Health*.
- Merten, M. J., & Wickrama, T. (in preparation). A family-enhanced model to promote safety knowledge, attitudes and behaviors of Latinx youth in an agricultural context.
- Merten, M. J., Wickrama, T., & Leow, C. (2022). Pesticide safety education among rural Latinx youth: Exploring a family enhanced strategy. International Society for Agricultural Safety & Health Conference. Fort Collins, CO. June 2022.
- Merten, M. J., Wickrama, T., & Leow, C. (2022). Pesticide safety behaviors among

Latino adolescents in an agricultural context: A family-focused model for change. Agricultural Safety & Health Council of America, North American Agricultural Safety Summit. Research Lightning Talk. Las Vegas, NV. March 2022.

- Merten, M., Wickrama, T., & Leow, C. (2022). Association between social connectedness, delinquency, and mental health of Latino adolescents. Poster presented at the Biennial Meeting of the Society for Research on Adolescence. New Orleans, LA. March 2022.

C.2. Website(s) or other Internet site(s) – include URL(s)
Not applicable

C.3. Technologies or techniques
Not applicable

C.4. Inventions, patent applications, and/or licenses
Not applicable

C.5. Other products and resource sharing
Safety Stories. “Andres Story” was created to illustrate the impact of an adolescent not working safely around pesticides. This story illustrates the dangers of inhalation exposure. The story and illustrations are currently being transformed into a 2-3 minute video, using a narrator. As a result of this project, two additional stories will be created that will illustrate dermal and ingestion exposure types and the health impact on adolescents and their families.

D. PARTICIPANTS

D.1. What individuals have worked on the project? Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
mertenmj		Michael Merten	PhD	PI	2.40				US	
		Thulitha Wickrama	PhD	Senior Research Associate	2.40				US	
		Cassandra Leow	PhD	Graduate Research Associate		4.41			US	

D.2 Personnel updates

a. Level of Effort: N/A
 b. New Senior/Key Personnel: N/A
 c. Changes in Other Support: N/A
 d. New Other Significant Contributors: N/A

E. IMPACT

E.1 - What is the impact on the development of human resources, if applicable?

Not applicable

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

The impact of this research is the potential reduction in human health costs that are paid for by a third party.

The impact of this work will increase worker productivity (reduce absenteeism), thus productivity and availability of products workers are producing are enhanced (e.g., peaches, plants).

This project promoted safety practices among a vulnerable group of workers (adolescents & occupational risk) who received training that will keep this important sector of workers more safe, healthy, and productive.

F. CHANGES**F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures**

None

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Expenditures were impacted as there were significant human resource delays in hiring assistance outside of the university to assist with certain dimensions of the project (e.g., safety stories and illustrations).

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

None

G. Special Reporting Requirements**G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements**

Not applicable

G.2 Responsible Conduct of Research

Not applicable

G.3 Mentor's Research Report or Sponsor Comments

Not applicable

G.4 Human Subjects

G.4.a Does the project involve human subjects? Yes

G.4.b Inclusion Enrollment Data**G.4.c ClinicalTrials.gov**

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA? Yes

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

No

G.6 Human Embryonic Stem Cells (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 Vertebrate Animals

Does this project involve vertebrate animals?

No

G.8 Project/Performance Sites

University of Nebraska Lincoln

G.9 Foreign Component

No

G.10 Estimated Unobligated Balance

\$64,558.47

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

Yes

G.11 Program Income

Is program income anticipated during the next budget period?

No

G.12 F&A Costs

Is there a change in performance sites that will affect F&A costs?

No

I. OUTCOMES

I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets

Note: project outcome information will be made public in NIH RePORTER

This project implements and evaluates a promotora-based intervention targeted at Latinx adolescent farm workers and their families. Using data collected from a total of 118 adolescent-parent dyads, this project illustrates the added benefit of providing pesticide education training to the family (i.e., parent) in addition to the adolescent. Adolescent-parent dyads were randomly assigned to one of three groups: (1) adolescent only, adolescents receive the adapted La Familia Sana program; (2) family-enhanced, adolescent and mother both receive the adapted La Familia Sana program; and (3) control group, no pesticide education given to either adolescent or parent. This family-enhanced strategy yielded more optimal safety knowledge outcomes among Latinx youth engaged in agricultural work compared to both the control group (no pesticide education) and the group in which only the adolescent receives the pesticide safety education. The family-enhanced group also exhibited the largest gains in number of safety behaviors exhibited in comparison to the control group and adolescent-only group. These behaviors included increased frequency in hand washing behaviors while engaging in farm work as well as safer and higher frequency of safe handling and washing of clothes after work in an agricultural setting. Resources created include adolescent specific messaging about pesticide safety behaviors and educational resources (e.g., story with illustrations) that depict culturally relevant scenarios of Latinx adolescents and families working in an agricultural setting.

PHS Inclusion Enrollment Report

OMB Number: 0925-0001 and 0925-0002

This report format should NOT be used for collecting data from study participants.

Expiration Date: 10/31/2018

*Study Title (must be unique): Reducing Pesticide Exposure Among Latino Adolescents through Promotora-Based Interventions

* Delayed Onset Study? Yes No

If study is not delayed onset, the following selections are required:

Enrollment Type Planned Cumulative (Actual)
Using an Existing Dataset or Resource Yes No
Enrollment Location Domestic Foreign
Clinical Trial Yes No **NIH-Defined Phase III Clinical Trial** Yes No

Comments:

Racial Categories	Ethnic Categories									
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			Total
	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	
American Indian/ Alaska Native	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	0	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0
Black or African American	0	0	0	0	0	0	0	0	0	0
White	0	0	0	47	71	0	0	0	0	118
More than One Race	0	0	0	0	0	0	0	0	0	0
Unknown or Not Reported	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	47	71	0	0	0	0	118

Report 1 of 1

A. COVER PAGE

Project Title: Leveraging motor vehicle crash data for injury surveillance and research in AFF.	
Grant Number: 2U54OH007541	Project/Grant Period: 9/30/2016 to 9/19/2022
Reporting Period: 9/30/2016 to 9/19/2022	Date Submitted: 12/9/2022
Program Director/ Principal Investigator Eva M Shipp, PhD Senior Research Scientist & Program Manager Texas A&M Transportation Institute	Administrative Official Information Tanya Alabsawi, J.D., CRA, Senior Contract Negotiator II Sponsored Research Services 400 Harvey Mitchell Parkway South, Suite 300 College Station, TX 77845-4375 Tel. (979) 845-6273 awards@tamu.edu
Change of Contact PD/PI: Not applicable	
Human Subjects: TAMU IRB: IRB2016-0592D	Vertebrate Animals: Not applicable
hESC: Not applicable	Inventions/Patents: Not applicable

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

To address surveillance and research needs, this project includes two aims:

- (1) To construct a model system to support surveillance and research of nonfatal and fatal crashes involving AFF equipment and vehicles in the SW Ag Center region.
- (2) To develop and evaluate a process for identifying and extracting variables from crash narratives that aids in the identification and characterization of crashes involving AFF equipment, vehicles, and workers.

B.2. What did you accomplish under these goals?

Specific Aim 1 (model surveillance system based on crash records):

- We characterized farm and logging crashes and identified factors associated with higher severity crashes (Shipp et al., 2019; Shubhangi Vasudeo DrPH Dissertation, 2022). Products included a public fatal crash dashboard.
- The database currently houses over 8 million crash records covering the years 2005 to 2020 depending on the state. Over 10,000 records are farm or logging related based on fields in the structured data.
- We developed an initial data infrastructure and data management methods to handle integration of a large number of crash records from multiple states. Then, we developed a new data infrastructure plan to handle continued growth in the acquisition of additional records and to handle changes in how states code their records over time to better align with the Model Minimum Uniform Crash Criteria put forth by the National Highway Traffic Safety Administration.
- We developed best practices for using crash records for crash and injury surveillance. We presented these findings at the 2022 National Occupational Injury Research Symposium and a resulting paper is under review for publication in the *Journal of Safety Research*.

Specific Aim 2 (crash narrative analysis using machine learning):

- We developed and made freely available, a gold standard lexicon for farm and logging-related crashes. This type of resource is critical for other researchers seeking to do natural language processing of free-text crash narratives.
- We developed a simple, easy-to-use, freely available keyword search tool Microsoft Excel (Trueblood et al., 2019).
- We developed and evaluated a machine learning algorithm to help in identifying farm vehicle-related crashes through the free-text crash narrative (Kim et al., 2021).
- We identified that unlike farm vehicle-related crashes, free-text crash narratives for logging truck crashes often lack sufficient language to be able to support analysis using natural language processing. The reason for the discrepancy is unclear. We plan to examine this issue further as part of a future education and outreach project targeting improvement of crash reporting with law enforcement.

B.3. Competitive Revisions/Administrative Supplements

Not applicable

B.4. What opportunities for training and professional development did the project provide?

Pursuit of Specific Aims 1 and 2 provided a number of training opportunities for junior and senior researchers who were new to AgFF safety and health. In addition, we trained undergraduate and graduate students in surveillance and

other epidemiologic research methods and data science within the context of AgFF health and safety, and transportation safety.

These included training:

- 4 junior research staff
- 2 university faculty
- 4 undergraduate, 3 graduate students (1 masters, 2 doctoral)
- 1 DrPH dissertation, Texas A&M School of Public Health (Shubhangi Vasudeo)
- 1 doctoral student transitioned to a PI on a SW Ag Center pilot project Nishita Sinha focusing on preventing crashes among agricultural aviators (Risk Perceptions and Safety Training in Agricultural Aviation).

B.5. How did you disseminate the results to communities of interest?

We presented the project at professional conferences and other meetings in addition to publications and fact sheets as listed under products. State legislative offices also requested materials about the project which were provided by SW Ag Center staff and PI. Collaborating with the SW Ag Center staff, we participated in social media postings that focused road safety around slow moving vehicles (e.g., tractors) and the importance of “sharing the road.”

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

The project ended this funding cycle.

C. PRODUCTS

C.1. Publications, conference papers, and presentations

Publications:

Kim, J., Trueblood, A. B., Kum, H. & Shipp, E. M. (2021). *Traffic Injury Prevention*, 22(1), 74-78.

Shipp, E. M., Trueblood, A. B., Kum, H. C., Garcia, T., Vasudeo, S., Perez, M. (2020). JA: 2021-33. Logging Truck Crashes in the SW Agricultural Region: Examining Severity and Associated Factors. *Journal of Agromedicine*, 25(3), 257-258. (published abstract)

Shipp, E. M., Vasudeo, S., Trueblood, A. B., & Garcia, T. P. (2019). Single vehicle logging-related traffic crashes in Louisiana from 2010-2015. *Journal of Agromedicine*, 24(2), 177-185.

Trueblood, A. B., Pant, A., Kim, J., Kum, H., Perez, M., Das, S., & Shipp, E. M. (2019). A semi-automated tool for identifying agricultural roadway crashes in crash narratives. *Traffic Injury Prevention*, 20(4), 413-418. DOI: 10.1080/15389588.2019.1599873

Dissertation:

Shubhangi Vasudeo. Estimating Behavioral Factors Associated with Logging-Related Crashes on Public Roadways in Louisiana (2010-2018). Texas A&M School of Public Health Department of Epidemiology and Biostatistics (*DrPH degree in Epidemiology & Environmental Health, graduated May 2022*).

Presentations:

Shipp, E. M., Trueblood, A. B., Kum, H. C., Vasudeo, S., Perez, M., Wu, L. 2022. Lessons Learned from Using Crash Records for Injury Surveillance in the AgFF Sector. NIOSH National Occupational Injury Research Symposium (NOIRS). Virtual conference. May 10-12 (moderator and oral presentation).

Shipp, E. (2020). Logging Truck Crashes: Examining Data from the SW AgCrash Surveillance System. Presentation at the NHTSA Regional Partners Safety Meeting. Ft. Worth, TX, January 15 (oral presentation).

Shipp, E., Trueblood, A., Kum, H.C., Garcia, T., Vasudeo, S., Kim, J., & Perez, M. SW AgCrash: Leveraging Crash Data for Injury Surveillance in the Southwest Agricultural Region. (2019). Western Agriculture Safety and Health Conference, Seattle, WA, August 7-9 (poster presentation).

Trueblood, A., Shipp, E., Kum, H.C., Kim, J., & Pant, A. (2019). SW AgCrash: Mining Motor Vehicle Crash Report Narratives to Improve Worker Safety. International Society for Agricultural Safety and Health, Des Moines, IA, June 24-29 (poster presentation).

Shipp, E.M., Trueblood, A., Pant, A, Kum, H.C., Garcia, T., Kim, J., Vasudeo, S., Perez, M. (2018). SW AgCrash: Leveraging Motor Vehicle Crash Data for Injury Surveillance and Research in AFF. National Occupational Injury Research Symposium, Morgantown, WV, October 16-18 (poster presentation).

Invited Presentations:

Shipp, E.M. (2022). Rural Roadway Crashes. 2022 Agromedicine Workshop. Hadley Ranch, Cleburne, TX, November 18.

Shipp, E.M. (2022). Transportation Safety in Agriculture. Emerging Issues in Occupational, Environmental and Preventive Medicine Conference. Tyler, TX, June 24.

Shipp, E.M. (2022). Crashes Involving Agricultural Vehicles in the SW Region. AgriSafe National Farm Safety and Health Week Webinar Series, September 19. (122 attendees in our webinar, available at: https://youtu.be/CQYtW6_uPY8)

C.2. Website(s) or other Internet site(s) – include URL(s)

<https://groups.tti.tamu.edu/cts/swagcrash/>

C.3. Technologies or techniques

Not applicable

C.4. Inventions, patent applications, and/or licenses

Not applicable

C.5. Other products and resource sharing

- Regional Farm Crash Factsheet available at: https://cts.tti.tamu.edu/files/2021/02/SWag_farm_7.pdf
- Regional Logging Crash Factsheet available at: https://cts.tti.tamu.edu/files/2021/02/SWag_logging_5.pdf
- Excel-based keyword search tool available at: <https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fstatic.tti.tamu.edu%2Ftti.tamu.edu%2Fdocuments%2FTTI-2018-8-tool.xlsx&wdOrigin=BROWSELINK>
- Regional Fatal Crash Dashboard available at: <https://cts.tti.tamu.edu/swagcrash/dashboard/>

D. PARTICIPANTS**D.1. What individuals have worked on the project?** Please include calendar, academic, and summer months.

Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
shippeva	K	Eva Shipp	PHD	PI	1.8					
kumhye	K	Hye-Chung Kum	PhD	Co-I	0.6					
marcieperez	K	Marcie Perez	MS	Staff	0.9					
nishitasinha	S	Nishita Sinha	PhD	Staff	0.4					
Not applicable	S	Mahin Foukolayi Ramezani			0.2					

D.2 Personnel updates

- a. Level of Effort:** No major changes
b. New Senior/Key Personnel: None
c. Changes in Other Support: None
d. New Other Significant Contributors: None

E. IMPACT**E.1 - What is the impact on the development of human resources, if applicable?**

Through this project, we trained a number of researchers and students. As noted above in Section B.4, these included training:

- 4 junior research staff
- 2 university faculty
- 4 undergraduate, 3 graduate students (1 masters, 2 doctoral)
- 1 DrPH dissertation, Texas A&M School of Public Health (Shubhagi Vasudeo)
- 1 doctoral student grew into a PI on a SW Ag Center pilot project Nishita Sinha focusing on preventing crashes among agricultural aviators (Risk Perceptions and Safety Training in Agricultural Aviation).

In addition, Amber Trueblood, DrPH, was staff on this project while an Associate Research Scientist at TTI. In part through the skills she gained in data science and experience in data management and analysis, she qualified to take a position as the Director of the Data Center for The Center for Construction Research and Training (CPWR).

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

The public health relevance and impact of this project primarily relate to improving nonfatal injury surveillance in AgFF. Advances include an understanding of best practices for the use of crash records for the surveillance of occupational injury events occurring on the public roadways. In addition, this project enabled initial analyses of free-text crash narratives in order to validate crashes as occupationally related. During this process, it became clear the logging truck crashes did not include sufficient free text to conduct machine learning techniques and this was unlike other crash types, including those involving farm vehicles. A subject proposal was developed based on this and other

findings from this project. The proposal included efforts to improve the reporting of logging truck crashes in AR, LA, and TX and was funded in 2022 by the Federal Motor Carrier Safety Administration. Additional findings from this project include the following factors associated with higher severity crashes involving farm and logging vehicle respectively.

Key findings relevant to farm vehicle crashes include that in Texas from 2010 to 2018, factors associated with higher severity single vehicle (SV) crashes included: farm driver not restrained (OR= 2.9; 95% CI=1.6-9.9), farm driver speeding (OR=3.1; 95% CI=1.3-7.4), and curved roadway (OR=4.1; 95% CI=1.3-7.4). For multi-vehicle crashes (MV), key factors included: farm driver not restrained (OR=1.7, 95% CI=1.2-2.4), curved roadway (OR=1.4; 95% CI=1.4-5.9), intersection-related (OR=1.9; 95% CI=1.4-2.4), overturned (OR=7.8; 95% CI=4.5-13.7), other driver intoxicated (OR=3.3; 95% CI=1.8-6.3), other driver not restrained (OR=3.4; 95% CI=1.6-7.2), and other driver fatigued (OR=3.3; 95% CI=1.4-7.7).

With respect to logging truck crashes, 11% of logging truck drivers in Louisiana from 2010 to 2018, were involved in SV crashes and were not wearing their seatbelt. This percentage increased to 22% for higher severity SV crashes. Distraction was prevalent at 62% overall and 66% for higher severity SV crashes. Careless operation of the truck was coded for 67% overall and 82% for higher severity SV crashes. Finally, cargo/equipment loss or shift was coded for 21% overall and 29% for higher severity SV crashes. For MV crashes, the other vehicle driver was considered at-fault in 37% of lower severity crashes and 47% of higher severity crashes. In general, the prevalence of risk behaviors among logging truck drivers in MV crashes was lower than SV crashes. Based on a multiple logistic regression model, variables statistically significantly ($p < 0.05$) associated with higher crash severity for SV crashes were not wearing a seatbelt (OR=3.2; 95% CI=1.6-6.4), careless operation of the truck (OR=2.6; 95% CI=1.3-5.2) and run-off-road to the left (OR=2.3; 95% CI=1.2-4.3). Based on a multinomial logistic regression model, variables statistically significantly ($p < 0.05$) associated with highest severity MV crashes included truck driver not wearing a seatbelt (OR=5.7; 95% CI=1.5-21.0), other driver being female (OR=2.3; 95% CI=1.4-3.8), and careless operation of the vehicle for the other driver (OR=4.0; 95% CI=2.0-7.7) among other variables.

Finally, data from this project supported a subsequent project that was awarded as part of the SW Ag Center renewal package. This project is titled, "Integrating Motor Vehicle Crash and Injury Data in AgFF Surveillance and Research." It focuses on extended this project by (1) Expanding the SW Ag Center regional crash surveillance system to capture fatal and nonfatal injuries involving motor vehicles on public roadways and other locations, and (2) Developing and evaluating a pilot set of AgFF motor vehicle occupational health indicators for monitoring fatal and nonfatal injury due to motor vehicles in youth and adult AgFF workers.

F. CHANGES

F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures

Not applicable

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Not applicable

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

Not applicable

G. Special Reporting Requirements

<p>G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements</p> <p>Not applicable</p>
<p>G.2 Responsible Conduct of Research</p> <p>Not applicable</p>
<p>G.3 Mentor's Research Report or Sponsor Comments</p> <p>Not applicable</p>
<p>G.4 Human Subjects</p> <p>G.4.a Does the project involve human subjects? Yes; but only secondary data from crash records. No human subjects were directly recruited for this project.</p> <p>G.4.b Inclusion Enrollment Data</p> <p>Not applicable.</p> <p>G.4.c ClinicalTrials.gov</p> <p>Not applicable</p> <p>Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?</p> <p>No</p>
<p>G.5 Human Subject Education Requirement</p> <p>Are there personnel on this project who are newly involved in the design or conduct of human subject's research?</p> <p>No</p>
<p>G.6 Human Embryonic Stem Cells (HESCS)</p> <p>Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?</p> <p>No</p>
<p>G.7 Vertebrate Animals</p> <p>Does this project involve vertebrate animals?</p>

No
G.8 Project/Performance Sites
G.9 Foreign Component Not applicable
G.10 Estimated Unobligated Balance \$172.21 G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget? No
G.11 Program Income Is program income anticipated during the next budget period? Not applicable
G.12 F&A Costs Is there a change in performance sites that will affect F&A costs? No

I. OUTCOMES

I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets

Note: project outcome information will be made public in NIH RePORTER

In January of 2022, Transportation Secretary Pete Buttigieg announced the new National Roadway Safety Strategy. This is of critical important to this project since the new national goal is zero deaths or serious injuries on our roadways. At the same time, the nation is adopting a Safe System Approach (SSA) to transportation safety. The Safe System Approach is holistic and as such in alignment if NIOSH's Total Worker Heath Initiative (TWH). This project reflects an integrated approach of SSA with TWH by focusing on crashes and their prevention in AgFF and those that share the road with agricultural and logging vehicles. The primary outcomes of this project were (a) a regional crash surveillance system covering AR, LA, NM, OK, and TX, (b) new information for characterizing these crashes, and (c) identification of factors associated with higher severity crashes for events involving farm vehicle and logging trucks. In addition, methods for analyzing free-text crash narratives were developed including those based on natural language processing. Finally, at least 13 students, researchers, and faculty were trained during this project on AgFF health and safety research. One DrPH dissertation in epidemiology and environmental health resulted. In addition, one doctoral student in agricultural economics progressed to becoming a successful new principal investigator for a pilot study focusing on preventing crashes and understanding risk perception among agricultural aviators.

A. COVER PAGE

Project Title: Organic Farmer Safety, Health and Life Survey	
Grant Number: Cooperative Agreement # U54-0H007541	Project/Grant Period: 09/30/2018-09/29/2022
Reporting Period: 09/30/2018-09/29/2022	Date Submitted: 12/07/2022
Program Director/ Principal Investigator Francisco Soto Mas, PhD	Administrative Official Information Michael Schwantes Chief Financial Services Officer. HSC
Change of Contact PD/PI:	
Human Subjects: Yes	Vertebrate Animals: No
hESC: No	Inventions/Patents: No

B. ACCOMPLISHMENTS

B.1. What are the major goals of the project?

Overall aim: To develop, validate and administer a comprehensive survey that identifies and typifies health and safety risks among organic producers in the SW Ag region

Aim 1: Identify and typify health and safety risk among organic producers

Aim 2: Provide information on the psychosocial and contextual factors that may contribute to injury and disease prevention

Aim 3: Explore issues related to organic farmers' contributions to local food systems and their participation in occupational injuries and illnesses surveillance systems.

B.2. What did you accomplish under these goals?

All aims achieved

- ✓ Developed, piloted and validated a novel comprehensive survey that includes community and interpersonal and societal level factors that may contribute to disease and injury
- ✓ Administer the Organic Farmer Safety Health and Life survey instrument to certified organic farmers in the SW Ag Center region
- ✓ Data management, and analysis
- ✓ Report and disseminate results (in progress)

B.3. Competitive Revisions/Administrative Supplements N/A

B.4. What opportunities for training and professional development did the project provide?

Junior/midlevel researchers (UNM, NMSU, UT)

Students involved/trained: undergraduate, master, PhD candidates, ABD Statistician

B.5. How did you disseminate the results to communities of interest?

11 Scientific presentations

2 published manuscripts

1 manuscript under second review

2 in development

B.6 - What do you plan to do during the next reporting period to accomplish the goals?

N/A

C. PRODUCTS

C.1. Publications, conference papers, and presentations

1. Rosero DV, **Soto Mas F**, Sebastian R, Guldan S, Casanova V, Nervi L. COVID-19 Prevalence and Prevention Behaviors among US Certified Organic Producers. *Journal of Occupational and Environmental Medicine*, 2021; 63(12):e937-e943. doi:10.1097/JOM.0000000000002411.
2. **Soto Mas F**, Nervi L, Rosero DV, Sebastian R, Guldan S, Casanova V. COVID-19 and essential workers: healthcare delays among organic farmers. *Journal of Healthcare Quality Research*, 2022, Feb. doi:10.1016/j.jhqr.2022.02.001
3. Rosero DV, **Soto Mas F**, Nervi L, Sebastian R, Casanova V, Guldan S. Impact of COVID-19 on USDA certified organic producers: Exploring the role of sociodemographic and contextual factors (submitted).

Presentations

- Local food systems and population health. **NMPHA Conference**, Las Cruces, NM, April 2019.
- Organic farming, a formula for health and wellness? **New Mexico Organic Farming Conference**, February, 2020.

<ul style="list-style-type: none"> • The Organic Farmer Health, Safety & Life Survey, an Innovative Approach to Occupational Safety and Health. NM Public Health Association Annual Conference, October, 2020. • The impact of COVID-19 on US organic farmers. APHA Annual Meeting and Expo, Denver, CO, October, 2021. • The Health, Safety and Psychosocial Organic Farming Survey Study. Ex4OSH 2021 Conference, December, 2021 (virtual). • The Organic Farmer Safety, Health and Life Survey (OFSHL). Ex4OSH 2021 Conference, December 2021 (virtual). • The Organic Farmer Safety Health and Life Survey (OFSHL): A Survey of Work and Life Experiences of Organic Producers. 30th Annual Midwest Stream Forum for Agricultural Worker Health, March, 2022, Austin, Texas. • The National COVID-19 Organic Farmer Study. 2nd Annual Southwest Centers Occupational Health Research Symposium (virtual), June 10, 2022. • Impact of COVID-19 on Organic Farmers; Results of a National Study of USDA Certified Organic Farmers. NM Public Health Association Annual Conference (virtual), May, 2022. • Overall Results of the 2021 National COVID-19 Organic Farmers Study. Second Annual Southwest Centers Occupational Health Research Symposium, June 2022 (virtual) • Results of the Organic Farmer Safety, Health, and Life Survey: A Cross-Sectional Study of the Certified Organic Producer. APHA Annual Meeting & Exposition, Boston, MA, November 2022.
<p>C.2. Website(s) or other Internet site(s) – include URL(s) Newsroom (Dec 5, 2022): https://hsc.unm.edu/news/2022/12/researchers-covid-toll-farmers.html Institutional website: https://hsc.unm.edu/population-health/research/assessment-planning/apel-projects.html YouTube video presentation https://www.youtube.com/watch?v=RdL_2L8c-V8</p>
<p>C.3. Technologies or techniques N/A</p>
<p>C.4. Inventions, patent applications, and/or licenses N/A</p>
<p>C.5. Other products and resource sharing National COVID-19 Organic farmer Survey Organic Farmer Safety, Health & Life Survey Contributed to the development of Safety Training for Organic Farmers</p>

D. PARTICIPANTS

D.1. What individuals have worked on the project? Please include calendar, academic, and summer months.										
Commons ID	S/K	Name	Degrees(s)	Role	Cal	Aca	Sum	Foreign	Country	SS
FSotom	S	Francisco Soto Mas	MD, PhD, MPH	PI	12					
	K	Daisy Rosero	MPH	Research Scientist	12					
D.2 Personnel updates										
<p>a. Level of Effort:</p> <p>b. New Senior/Key Personnel:</p> <p>c. Changes in Other Support:</p>										

d. New Other Significant Contributors:

1. GRA-Amber Gonzales, MPH student
2. GRA-Karaleah Garcia, MPH student
3. GS-Tracy McDaniel, MPH student
4. GRA-Kaski Suzuki, MPH student
5. URA-Mercy Jones, BSPH student
6. GRA-Daisy Rosero, MPH student
7. Statistician-Rachel Sebastian, PhD candidate (ABD)

E. IMPACT**E.1 - What is the impact on the development of human resources, if applicable?**

Trained junior and midlevel researchers on occupational safety and health research and surveillance

E.2 - What is the impact the Public Health Relevance and Impact? The investigator should address how the findings of the project relate beyond the immediate study to improved practices, prevention or intervention techniques, legislation, policy, or use of technology in public health.

- Organic farmers are essential workers and typically run small farms that are family owned. This may make them more susceptible to social, environmental and economic changes. This survey can help to understanding how organic farmers' work, home, and community contribute to health and safety and can help develop safety guidelines to prevent injuries and illness.
- We developed a Farmer Safety Training curriculum to educate farmers about injury and illness prevention.
- Organic farmers are essential workers and organic farming is one of the fastest growing sectors in the agricultural industry. This project aligns with NIOSHs Total Worker Health model and generated new information on organic producers that does not currently exist. Results of this study have the potential to contribute to current federal efforts for improving surveillance and inform research, practice and policy aimed at injury and illness prevention.
- Projects like this are a good investment because organic farming is a rapidly growing field with an aging population. This survey and safety train curriculum supports a healthier and productive farming community, contributes to sustainability and to injury and illness prevention of organic and non-organic farmers.

F. CHANGES**F.1 – Changes in approach and reasons for change, including changes that have a significant impact on expenditures**

Added a COVID-19 survey that has generated unique data on this population and scholarly work

F.2 - Actual or anticipated challenges or delays and actions or plans to resolve them

Dissemination first focused on COVID-19 time-sensitive data

Dissemination of results on the OFSHL Survey are forthcoming

F.3 - Significant changes to human subjects, vertebrate animals, biohazards, and/or select agents

None

G. Special Reporting Requirements

G.1 Special Notice of Award Terms and Funding Opportunities Announcement Reporting Requirements

NA

G.2 Responsible Conduct of Research

NA

G.3 Mentor's Research Report or Sponsor Comments

NA

G.4 Human Subjects

G.4.a Does the project involve human subjects? Y

G.4.b Inclusion Enrollment Data

499 USDA certified organic producers reached out

122 responded to the OFSHL Survey; 4 participated qualitative interview

Total 126 (See Inclusion report)

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

No

G.5 Human Subject Education Requirement

Are there personnel on this project who are newly involved in the design or conduct of human subject's research?

All personnel was IRB trained and approved

G.6 Human Embryonic Stem Cells (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 Vertebrate Animals

Does this project involve vertebrate animals?

No

<p>G.8 Project/Performance Sites UNM, Albuquerque, NM</p>
<p>G.9 Foreign Component No</p>
<p>G.10 Estimated Unobligated Balance \$2,840 G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget? No</p>
<p>G.11 Program Income Is program income anticipated during the next budget period? No</p>
<p>G.12 F&A Costs Is there a change in performance sites that will affect F&A costs? No</p>

I. OUTCOMES

I. Provide a concise summary of the outcomes or findings of the award, written for the general public in clear and comprehensible language, without including any proprietary, confidential information or trade secrets

Note: project outcome information will be made public in NIH RePORTER

This study generated unique information that may contribute to the safety and health of the farmer in general and organic farmer in particular. The COVID-19 Study estimated case prevalence, identified preventive practices, and explored healthcare delays experienced by this population. It also estimated vaccination rates and vaccination-related issues (e.g. hesitancy, intention). For more information see:

-Rosero DV, Soto Mas F, Sebastian R, Guldán S, Casanova V, Nervi L. COVID-19 Prevalence and Prevention Behaviors among US Certified Organic Producers. *Journal of Occupational and Environmental Medicine*, 2021; 63(12):e937-e943. doi:10.1097/JOM.0000000000002411

-Soto Mas F, Nervi L, Rosero DV, Sebastian R, Guldán S, Casanova V. COVID-19 and essential workers: healthcare delays among organic farmers. *Journal of Healthcare Quality Research*, 2022, Feb. doi:10.1016/j.jhqr.2022.02.001

The Organic Farmer Safety, Health & Life Study developed a comprehensive survey that may be used to identify occupational risks and prevent injury and illness in agricultural workers and organic farmers. The survey was administered to a sample of certified organic farmers in the SW region of the United States, including Arkansas,

Louisiana, Oklahoma, New Mexico, and Texas. The analysis of the data was still in progress at the time of submission of this report. The study contributed a tool that is consistent with the *Total Worker Health*[®] model and approach. The results of this study have the potential to contribute to current federal efforts for improving surveillance and inform research, practice and policy aimed at injury and illness prevention. More results and publications on this study are forthcoming.

PHS Inclusion Enrollment Report

OMB Number: 0925-0001 and 0925-0002

This report format should NOT be used for collecting data from study participants.

Expiration Date: 10/31/2018

*Study Title (must be unique): Organic Farmer Safety, Health and Life Survey

* Delayed Onset Study? Yes No

If study is not delayed onset, the following selections are required:

- Enrollment Type** Planned Cumulative (Actual)
Using an Existing Dataset or Resource Yes No
Enrollment Location Domestic Foreign
Clinical Trial Yes No **NIH-Defined Phase III Clinical Trial** Yes No

Comments:

Racial Categories	Ethnic Categories									Total
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			
	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	
American Indian/ Alaska Native	0	9	0	0	0	0	0	0	0	9
Asian	2	0	0	0	0	0	0	0	0	2
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0
Black or African American	0	1	0	0	0	0	0	0	0	1
White	27	48	2	5	10	1	0	0	0	93
More than One Race	0	0	0	0	0	0	0	0	0	0
Unknown or Not Reported	0	0	0	0	0	0	0	0	21	21
Total	29	58	2	5	10	1	0	0	21	126

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