

Bridging the Gap Between Agriculture and Public Health: The Role of an Educator

Submitted to:
American Association of Agricultural Educators
Southern Region 2022 Conference

Innovative Idea Poster

Submitted by:

Mallory E. McDonald
University of Kentucky
307 Garrigus Building
Lexington, KY
mallory.mcdonald@uky.edu
859-257-7588

Austin W. Leake
University of Kentucky
309 Garrigus Building
Lexington, KY
austin.leake@uky.edu

Dr. Stacy K. Vincent
University of Kentucky
306 Garrigus Building
Lexington, KY
stacy.vincent@uky.edu
859-257-7588

Daniel T. Prince
University of Kentucky
307 Garrigus Building
Lexington, KY
daniel.prince@uky.edu

Dr. Wayne Sanderson
University of Kentucky
114 Barnhardt Building
Lexington, KY
wayne.sanderson@uky.edu
859-218-2227

Bridging the Gap Between Agriculture and Public Health: The Role of an Educator

Introduction

In 2019, the agriculture, forestry, fishing, and hunting totaled the highest rate of fatal work industries at 23.1 fatalities per 100,000 full-time workers (U.S. Bureau of Labor Statistics, 2019). Agricultural injuries, fatalities, and illnesses are unique in the exposures and dangers workers encounter daily in their occupation, including chemicals, animals, zoonotic diseases, mechanical hazards, environmental factors, and high-stress levels (Ngowi et al., 2012). These risks and exposures are commonly known to those involved in the agricultural industry; however, healthcare professionals and community leaders see these dangers as careless and preventable while not considering the intensive labor, time, and resources already from agriculture workers (Aiwerasia et al., 2016). Traditionally, agriculture is deeply rooted in tradition due to family ties, with safety and health practices passed down generationally (Garner & de la O Campos, 2014). Therefore, changing this population's safety and health habits is challenging for those familiar with agriculture and even more significant for health professionals, government officials, and university specialists seeking to improve safety and health in a field they are unfamiliar with (Adams et al., 2020).

The National Institute for Occupational Safety and Health (NIOSH) and the Center for Disease Control and Prevention (CDC) funded the creation of the Central Appalachian Regional Education and Research Center's (CARERC) Agricultural Safety and Health (ASH) training program to combat the disconnection between agriculturalists and safety and health professionals. ASH provides education to students involved in both public health and agricultural disciplines to become well informed of the dangers and preventative measures in the agriculture industry to become advocates for safety and resources for other professionals in their fields (Central Appalachian Regional ERC, n.d.). Graduate students within the program complete a series of agricultural safety and health courses that provide tools for applying safety management principles within the farming population (Central Appalachian Regional ERC, n.d.). While the educational framework initiates a change in behaviors, in a tradition-rich industry like agriculture, recommendations for change are often not well received from outside professionals which creates opportunity for agriculture educators to bridge this gap as the voices for safety and health awareness (Anderson et al., 2012). The ASH program and the University of [State]'s Agricultural Education graduate program prepare future agricultural educators to become influential leaders and advocates promoting health and safety within the agricultural industry.

How it Works

Graduate students enrolled in Agricultural Education or Public Health programs as well as the ASH program enroll in a series of courses in safety management principles. During semester one, the students enroll in Safety and Health in Agriculture Populations. Within this course, students establish a foundation in understanding the demographics and attitudes of the agricultural industry as these factors relate to health and safety. Additionally, students learn about specific exposures and risks associated with the agricultural industry, leading to such high fatality rates. These exposures include units analyzing respiratory hazards, entomology, zoonotic diseases, machinery injuries, and environmental dangers. Additionally, students in this course

visit various working sites around the state of [State] to gain experiential knowledge related to the topics discussed in lectures, including grain handling facilities, logging operations, and animal health centers.

Students enroll in another Agriculture Safety and Health course in the spring semester of students' first year in the program. This course engages agricultural education students with occupational health and safety professionals, nurses, doctors, and engineers. In the cross-disciplinary course, students can see agricultural safety's effects on populations and gain unique perspectives on the disciplines that care for injured individuals. This course covers many facets of agricultural and occupational safety. Students take the foundation they built in the previous semester and apply what they have learned to real-world problems, such as the density of toxic chemicals, the strength of materials, and other issues that may appear in agricultural occupational health and safety. This second-semester course is more intensive in its requirements as it applies both chemistry and physics-based problems and solutions.

Results to Date

Students in this program must write a thesis and contribute research to the limited body of literature regarding agricultural safety and health. Through their research, students have been able to expand their research beyond their disciplines in agricultural education through collaborative projects with the College of Education and College of Public Health. Students in the program provided comments on research they have conducted in the program. One student states, "Conducting research regarding the H2A program in collaboration with the College of Education has allowed me to experience a diverse type of teaching methodology that has enhanced my teaching skills of English Language Learners in my classroom and farmworkers in rural communities". Additional research by students investigates issues in logger safety and mental health in rural communities. The collaborations between the various colleges at the university allow students to research occupational health and safety issues while still applying their findings to future classrooms and connect the information into becoming a greater asset to the community in which they will teach.

Future Plans

With the program's success thus far, the ASH program hopes to expand to offer additional graduate assistantships for both masters and Ph.D. degrees related to the area of agricultural safety and health. Furthermore, this expansion hopes to create new courses for already practicing educators and medical professionals to continue bridging the divide between safety prevention in the agriculture community and well-informed occupational healthcare in rural areas.

Costs/Resources Needed

Three faculty members facilitate the ASH program from the College of Public Health and the College of Agriculture, Food, and Environment at the University of [State]. Therefore, institutions must consider faculty positions, time, and resources to support a similar program. Funding is an additional factor necessary to sponsor seminars and research from the ASH program. Currently, a grant is in place to provide funding for five graduate assistantship students in the program.

References

- Adams, J., Cotton, J., & Brumby, S. (2020). Agriculture health and medicine education – Engaging rural professionals to make a difference to farmers’ lives. *The Australian Journal of Rural Health*, 28(1), 366-375. <https://onlinelibrary-wiley-com.ezproxy.uky.edu/doi/pdfdirect/10.1111/ajr.12637>
- Anderson, B.T., Johnson, G.J., Wheat, J.R., Wofford, A.S., Wiggins, S., & Downey, L.H. (2012). Farmers’ concerns: A qualitative assessment to plan rural medical education. *The Journal of Rural Health*. 28(1), 115-121. <https://onlinelibrary-wiley-com.ezproxy.uky.edu/doi/pdfdirect/10.1111/j.1748-0361.2011.00366.x>
- Central Appalachian Regional ERC. (n.d.) *Agricultural Safety and Health*. <https://www.uky.edu/erc/training-programs/agricultural-safety-health>
- Cramer, M.E., Wulf, K.J., Wendl, M.J., & Keeler, H. (2019). Are advanced providers prepared to care for the agricultural population? *The Journal for Nurse Practitioners*. 15(2), 41-44. <http://europepmc.org/backend/ptpmcrender.fcgi?accid=PMC6706078&blobtype=pdf>
- Garner, E., & de la O Campos, A.P. (2014). *Identifying the family farm: An informal discussion of the concepts and definitions* (ESA Working Paper No. 14-10). Food and Agriculture Organization of the United Nations. <https://ageconsearch.umn.edu/record/288978>
- Ngowi, A., Mrema, E., & Kishinhi, S. (2016). Pesticide health and safety challenges facing informal sector workers: A case of small-scale agricultural workers in Tanzania. *Journal of Environmental and Occupational Health Policy*. 26(2), 220-240. <https://doi.org/10.1177/1048291116650262>
- U.S. Bureau of Labor Statistics. (2019). *Number and rate of fatal work injuries by industry sector* [Data Set]. <https://www.bls.gov/charts/census-of-fatal-occupational-injuries/number-and-rate-of-fatal-work-injuries-by-industry.htm>