

Journal of Agromedicine "Leader in the Field" 2024: Stephen Reynolds

Lorann Stallones

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Stephen Reynolds, PhD, CIH, FAIHA has had an illustrious career and remarkable influence on the field of agricultural health and safety. In addition to being well known for his dedication to improving the health and safety of agricultural workers, Reynolds is a humble leader and caring friend, husband and father, mentor, and colleague. Reynolds and his wife Chris have been married 41 years and have two grown children and one grandson.

Reynolds grew up in the Minneapolis-St. Paul area in Minnesota and attended Carleton College as an undergraduate and the University of Minnesota where he received his MS and PhD degrees. He ran track and cross country in college and then competed nationally in the 10,000 m while being sponsored by Brooks Shoe Company. During his tenure at Colorado State University, Reynolds has been active in backpacking, camping, hockey, and fishing, as well as cycling. It would not be unusual to see Reynolds riding his bike on the “Triple By-Pass” annual ride (up and over three 12,000-foot mountain passes) or pedaling to the top of Mount Evans at 14,000 ft. with his colleagues.

Reynolds began his academic journey at the University of Iowa in 1991, in the field of Industrial Hygiene, eventually focusing his attention on occupational health and safety issues in agricultural settings. His early work centered on understanding and mitigating respiratory hazards in various agricultural settings, including turkey production and swine confinement.

Reynolds explored innovative equipment and monitoring techniques, crucial for conducting exposure assessments in agriculture, especially concerning dusts and pesticides. His contributions extended beyond academia through his involvement in the Keokuk County Rural Health Study. This two-decade-long endeavor underscores his dedication to comprehending environmental exposures and the health status of rural residents, marking a lasting legacy of community-based research.

Upon moving to Colorado State University in 2001, Reynolds continued his commitment to

agricultural safety and health. Expanding his focus to include dairy farms, he applied his pioneering spirit and profound understanding of industrial hygiene to a new realm. As the Director of the High Plains Intermountain Center for Agricultural Safety and Health (HICAHS), a CDC/NIOSH-funded center, Reynolds played a pivotal role in steering research, forging partnerships, and addressing emerging issues affecting the health and safety of agriculture and forestry workers in the Rocky Mountain Region. Over the last 20 years, Reynolds led HICAHS research impacting dairy workers. A growing commodity in the region, the dairy industry relies on a foreign-born workforce, hiring immigrants primarily from Mexico and Guatemala. HICAHS has integrated and advanced research in dairy science, epidemiology, exposure science, industrial hygiene, medical anthropology, psychology, and veterinary medicine to advance the health of this population. This interdisciplinary approach, paired with intentional outreach, produces research findings and interventions poised for implementation as they are developed in the context of the complex dairy environment. Reynolds and his colleagues worked to enable dairy industry groups to create robust training programs and equipped dairy owners across the country with accessible tools for improving employee welfare.

Led by Reynolds, HICAHS researchers have pioneered new research methods in respiratory health in the area of bioaerosols on dairies – characterizing the types, sizes, and amounts of biological and chemical constituents on respirable particulate matter. This work required collaboration between engineers, epidemiologists, exposure scientists, and microbiologists to create innovative new instruments and methods to collect and analyze dust particles. Of particular novelty, the HICAHS team developed a new method to detect viruses on dusts. Using these protocols, Reynolds and colleagues found that while bacteria, inorganic materials, and inflammagens were widely present on dust particles in dairy barns, the composition

of these dusts included a significant amount of large particles. The significance of this work was underscored by a publication in *Environmental Science & Technology*. This work called for new strategies in respiratory protection that consider the health of the upper airways in overall respiratory health. Reynolds and colleagues have responded by testing a saline-nasal rinse intervention to address this need. Reynolds' partnerships with agricultural producers and workers serve as a testament to his ability to bridge theory with practical solutions, ensuring that his research has tangible, real-world implications.

However, it is not solely the breadth of his work that distinguishes Reynolds. Renowned for his humility, he is a leader who quietly inspires, setting an example that resonates with emerging leaders in the field. His mentorship of graduate students and academics in occupational health is characterized by a profound commitment to nurturing talent and fostering innovative thinking. In 2015, Reynolds co-founded the Mountain & Plains Education and Research Center, where he trained leaders in Industrial Hygiene while supporting multiple allied fields of occupational health. Throughout his career so far, Reynolds has mentored 145 graduate students.

Reynolds served on Dr David Douphrate's doctoral committee as well as mentored him as a junior investigator in the field of agricultural health and safety. Douphrate said, "Steve is a pillar in the field of agricultural health and safety. He not only was instrumental in piquing my interest in this very important public health issue, but he has also provided a multitude of professional opportunities and guidance. Steve is a gentle giant. He is a brilliant researcher who has trained the next generation of industrial hygienists and agricultural health and safety researchers. He has influenced so many lives in so many ways. Steve is an outstanding colleague and most importantly, an outstanding friend."

Reynolds' influence extends globally through his visionary leadership in establishing an International Dairy Research Consortium that addresses critical issues impacting the dairy industry and has paved the way for regional collaboration across Europe. This consortium is made up of international

researchers who share an interest in dairy worker health and safety issues. This consortium of researchers worked together to generate multiple articles that comprised a special issue of the Journal of Agromedicine (**A Global Perspective on Modern Dairy: Occupational Health and Safety Challenges and Opportunities, Volume 18, Issue 3**), which remains as one of the most cited issues in the Journal's history. This is just one example of how Reynolds' collaborative efforts and global perspective have significantly shaped policy discussions and interventions on an international scale.

Of Reynolds' 200-plus peer-reviewed papers, most are related to agricultural safety and health. Reynolds' dedication and impact have been rightfully acknowledged with several prestigious awards. The Meritorious Achievement Award from the ACGIH® in 2016 and the Individual Lifetime Achievement Award by the Center for Health, Work, and Environment at the Colorado School of Public Health in 2023 are testament to the profound impact of his work to the field of occupational safety and health.

The Journal of Agromedicine "Leader in the Field" is selected based on contributions to agricultural safety and health practice, policy and research. Previous "Leaders in the Field": James Dosman, University of Saskatchewan (2008); Kelley Donham, University of Iowa (2009); Cheryl Tevis, Successful Farming magazine (2010); George Conway, National Institute for Occupational Safety and Health (2011); William Field, Purdue University (2012); Art Kerschner Jr., U.S. Department of Labor (2013); Tom Harkin, U.S. Senator, Iowa (2014); John May, Bassett Healthcare, New York (2015); Kevin Keaney, U.S. Environmental Protection Agency (2016); William J. Nelson, CHS Foundation (2017); Dennis Murphy, Penn State University (2018); Marc Schenker, UC Davis (2019); David Douphrate, University of Texas Health Science Center (2020); Jess McCluer, Agricultural Safety and Health Council of America/National Grain and Feed Association (2021); Jennifer Lincoln, National Institute for Occupational Safety and Health (2022); and Brian Kuhl, Progressive Agriculture Foundation (2023).

Stephen Reynolds, “Leader in the Field” 2024



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Lorann Stallones
*Department of Psychology, Colorado State
University, Fort Collins, CO, USA
on behalf of The High Plains Intermountain Center
for Agricultural Safety and Health Team*
✉ Lorann.Stallones@ColoState.EDU