



PREVENTING DEATH AND INJURY THROUGH GRAIN BIN SAFETY AND RESCUE TRAINING FOR FARMERS AND FIRST RESPONDERS

42.5%

farm injuries involve the upper extremities.¹

70%

of agricultural-related injuries are underreported.²

PRIORITY

A R E A S

The agriculture industry is one of the most hazardous industries. Farm operators and workers have a high rate of work-related fatalities. The Occupational and Environmental Medicine Division (<https://oem.msu.edu/>) at Michigan State University (MSU) reported 388 work-related farm injuries in Michigan in 2021. There were an additional 19 agricultural fatalities. Farm-related injuries, like all occupational injuries, are potentially preventable. MSU Extension, Michigan Farm Bureau, Michigan Farm Bureau Insurance and Michigan Corn sponsored a confined-space grain bin safety and rescue program designed to reduce injury and death from grain engulfment.

IMPACTS



44

grain bin rescue certificates of completion were awarded by the National Education Center for Agricultural Safety (www.necasag.org) to first responders from 12 counties.



43

farmers from 16 counties participated in the manure pit and grain bin safety programs.

REFERENCES AND ACKNOWLEDGMENTS

1. Michigan State University. (2023). Tracking work-related farm injuries in Michigan. https://oem.msu.edu/images/Data_Fact_Sheets/SummaryTrackingFarm%20Injuries_3_21_2023.pdf
2. Harduar Morano, L., & Rosenman, K. D. (2024). Non-fatal work-related farm injuries occurring to Michigan adults and youths. *Journal of Agromedicine*. 29(2):155-161. doi:10.1080/1059924X.2023.2281530

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A first responder uses a circular saw to cut patterns into a grain bin square that will relieve pressure on the grain bin wall and prevent it from toppling over to one side. The openings also provide access to the grain bin so rescue procedures can be carried out. All photos by M. Charles Gould, Michigan State University Extension.

GRAIN BIN SAFETY AND RESCUE TRAINING PROGRAMS

The grain bin safety and rescue programs were held at Michigan Agricultural Commodities in Brown City, Michigan, the Clinton County Fairgrounds in St. Johns, Michigan, and the Berlin Fair in Marne, Michigan. The safety programs were designed for farmers, while the rescue program was specifically designed for first responders. For the grain bin safety programs, grain bin extraction was demonstrated once so everyone could see how it was done. For the grain bin rescue training, grain bin extraction was demonstrated multiple times so every first responder got hands-on experience in extracting someone from the grain.

First responders also learned how to cut into a grain bin without making it topple over to one side. First responders gave very positive verbal feedback on the training they received and a plea to do more agriculture rescue programs. Each first responder received a certificate upon completion of the course. The instructors for the safety and rescue training

programs were with the National Education Center for Agricultural Safety (NECAS). Both instructors were paramedics and first responders in their local fire department.

After going through the Clinton County training, a participant was so motivated to purchase a grain rescue tube for his township emergency response personnel that he began contacting local growers and agribusinesses to raise the money to purchase one. However, when AgroLiquid found out about his efforts, they jumped in and purchased the grain rescue tube. It is housed at the St. Johns Fire Department and is available for use by first responders throughout Clinton County.



One of the most important teaching moments came when the instructor pointed out the impact of grain pressure on the body. While individuals were not under the pressure of the grain for a long period of time, it was enough to leave pock marks. It was a visual reminder of the body's reaction to external pressure and serious health repercussions resulting from it.



First responders build the grain entrapment rescue wall around a person trapped in grain.