

Let's Stop Treating Our Youth Like Dummies

W. E. Field, Y.-h. Cheng, R. Tormoehlen, R. Aherin,
C. Schwab, D. Neenan, M. Roberts

At a recent training event to evaluate various types of rescue devices and strategies to extricate victims from partial entrapment in free-flowing grain, a group of volunteer high school students were invited to participate as test subjects. For each test, two youth were equipped with full-body harnesses and lifelines, asked to stand on the grain surface in a semi-trailer load of dry corn, and then allowed to be drawn into the grain as the bottom discharge gate under each youth was opened. Both “victims” were drawn into the grain at either end of the trailer at the same time, each located over the deepest section of the trailer directly above a hopper. Photos were taken of the entrapped youth showing no more than their heads and shoulders above the grain surface.

The lifelines were then disconnected from the body harnesses, and various rescue cofferdams were demonstrated to assess their efficacy in extricating the victims from the grain. The cranks used to open and close the bottom gates at each end of the trailer were not locked out, nor tagged out, and were left unsupervised. In some cases, based on the photographs, it appears that the level of the grain surrounding the victim was higher than the airway of the entrapped youth.

This exercise was repeated with several different students participating as victims. In each case, there was no provision in place to prevent intentional or unintentional opening of the bottom gate, which, if it occurred, would have resulted in complete engulfment of the unsecured victim within seconds. Each youth was in a position in which a simple human error could have resulted in suffocation—with dozens of first responders present, who would have been nearly helpless to extricate the victim in a timely manner.

It is our opinion, based on extensive studies of grain entrapments, including over 175 incidents involving grain transport vehicles, that these youth were placed in a position of unacceptable risk—not only of suffocation, but also of entrapment-related injury due to the pressures placed on their bodies by both the grain and the weight of no less than four adult first responders on the grain surface surrounding them. This “teaching methodology,” with youth serving as volunteer victims, appears to be increasingly common for demonstrating the entrapment process. However, little attention has been given to the potential consequences, as well as the liability, if something should go wrong.

Placing any person, especially a young person, in such a position is incompatible with

Submitted for review in February 2018 as manuscript number JASH 12822; approved for publication as an editorial by the Ergonomics, Safety, & Health Community of ASABE in February 2018.

Mention of company or trade names is for description only and does not imply endorsement by the USDA. The USDA is an equal opportunity provider and employer.

The authors are **William E. Field**, Professor, **Yuan-hsin Cheng**, Post-Doctoral Researcher, and **Roger Tormoehlen**, Professor, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana; **Robert Aherin**, Professor, Department of Agricultural and Biological Engineering, University of Illinois, Urbana, Illinois; **Charles Schwab**, Professor, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana; **Daniel Neenan**, Manager, National Education Center for Agricultural Safety (NECAS), Peosta, Iowa; **Matthew Roberts**, Owner, Roberts Farms, Syracuse, Indiana. **Corresponding author:** William E. Field, 225 S. University Street, Purdue University, West Lafayette, IN 47907; phone: 765-494-1191; e-mail: field@purdue.edu.

the provisions of any university policy for the responsible conduct of research or Institutional Review Board oversight. It also appears to be in violation of the required safe work practices found in two federal workplace safety and health regulations (CFR 1910.146 and CFR 1910.272). Even though the youth in this situation were not employees, and the farm may not have been under OSHA jurisdiction, an OSHA compliance officer would certainly have considered such an event a serious violation in any OSHA-covered occupational setting.

The organizers of the event were specifically asked if any of the youth were under 18. Their response was that care had been taken to ensure that the youth were over 18 to avoid the “need for parental consent.” It was also stated that the use of “live victims” gave the first responders a “real world” environment in which to conduct the testing of rescue devices and train for actual entrapments.

In our research, we have documented incidents involving trained first responders who volunteered to be partially buried for training purposes and who experienced harmful physical and emotional effects of the entrapment. Those effects included elevated heart rate, breathing difficulty, and post-incident emotional discomfort.

The staff conducting the training event with young volunteer victims were not experienced in grain rescue procedures and were not adequately briefed on the hazards involved. Placing a group of youth in a position of such high risk confirmed their lack of understanding of the health and safety issues involved in grain entrapment.

Having conducted numerous training and safety demonstration events related to grain storage and handling, we know that the use of youth as test subjects or for training purposes cannot be justified based on any reasonable risk assessment model. We don't use youth in automotive crash tests, we don't drop them into the deep end of a pool to test the lifeguards, and we don't test the effectiveness of ROPS by putting youth inside the cab and then rolling the tractor down a hill. That is the purpose of mannequins and test dummies.

At the training event described in this editorial, no fewer than three full-size test mannequins were available to the participants. Those test mannequins were never used.

We encourage re-evaluation of the practice of using youth as “victims” at public awareness events, first responder training sessions, and for testing rescue devices. We suggest that such involvement with an uninformed or untrained staff may, in fact, be an unintentional form of exploitation. Finally, we ask those who conduct these exercises to consider that their attempt to make grain entrapment a “fun” experience, with only safe outcomes, may communicate the wrong message about the very real hazards associated with grain entrapment.

Let's stop being professional dummies by treating youth as if they were expendable.