

Iowa Farmer Today

Safety Watch: Prevent grain-related injuries

By Brandi Janssen

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Lock Out/Tag Out Before Entry



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Every year in late April, organizations around the world recognize Workers' Memorial Day, which remembers people who have been fatally injured on their jobsites during the previous 12 months. This year, I spoke at the Johnson County, Iowa, Workers' Memorial Service, an event that, because of its focus on Iowa's traditional paid workforce, sometimes overlooks agricultural fatalities.

However, this year, five out of the 34 workers memorialized at the ceremony had died in grain-related incidents. In fact, the night before I spoke, I learned of another fatality in West Branch, Iowa. As I sit down to write this, an 80-year-old man was killed less than a week ago in northern Iowa. In late August, the body of a 56-year-old man was recovered from a bin in Rockwell.

Grain engulfments and fatalities have been a steady challenge for the agricultural industry over the past years. Higher yields, larger storage facilities and equipment that can move grain more quickly create an increasingly hazardous environment. A 2017 surveillance report from Purdue University shows a 10-year average of 31 fatal grain entrapments per year, with the highest rates occurring in the Midwest.

The researchers note that because there is no mandatory incident or injury reporting system for much of agriculture, rates are likely underreported. They estimate that about 30 percent of non-fatal cases go unrecorded.

These tragic fatalities are devastating to families and communities. But even as we grieve for lost loved ones, we must recognize that these deaths are nearly always preventable. Flowing grain is emblematic of Iowa's prolific agricultural production, but unfortunately, the hazards associated with grain handling are often underestimated.

The decision to enter a grain bin is not something to be made quickly or taken lightly. According to the Grain Handling Safety Coalition, based in Springfield, Ill., no one should enter a grain bin without careful consideration of the hazards, training on proper procedure, access to necessary safety equipment and other employees who can be observers.

Entering a bin where grain is flowing is especially hazardous — about 80 percent of grain engulfments are a result of someone being inside a bin when grain is being unloaded. A person can be fully submerged in flowing grain in less than 60 seconds. Once a person is buried to their knees, which can take less than 5 seconds, the weight and friction of the surrounding grain makes it impossible to step up or out of it.

A critical component of safe grain entry procedures is “Lock-Out-Tag-Out” (LOTO). Standard in most industries, and required by OSHA in many worksites, LOTO procedures ensure that workers are not injured by unexpected energy release or equipment start-up during maintenance or repair procedures.

In a grain bin scenario, this refers to de-energizing all unloading and conveying equipment. Prior to entering a bin, all grain moving equipment should be shut down and locked with a padlock or restraint that holds the equipment in a safe or “off” position — that’s the lock-out part. Second, a bright and visible tag should be attached indicating that the equipment should not be energized, unless by an authorized person — the tag-out part.

The Grain Handling Safety Coalition recommends using LOTO before any equipment maintenance or service and before any grain bin entry. They note that failure to lock-out-tag-out is a leading cause of grain bin fatalities.

Equally important to LOTO procedures is having at least one observer stationed outside the bin during entry. The observer should never enter the bin to attempt a rescue. Instead, their role is to call first responders in the event of an emergency. The observer should maintain constant communication with the worker in the bin, ideally by keeping the entrant in their sight at all times. If a harness and lifeline is in use — a recommended practice when working in a bin that has anchor points — an observer should operate the lifeline.

The air quality within the bin should also be assessed prior to entry. Use a gas monitor to ensure that there is adequate oxygen and no toxic gases, such as fumigants, excessive carbon dioxide or carbon monoxide generated from combustion or smoldering grain.

Other preventative measures are consistent with best production practices. Keeping grain in good condition reduces clumping and bridging, which makes it less likely that someone will need to go into the bin to knock down grain stuck to the side of the bin or break up clumps that are clogging equipment. Grain in good condition also contributes to better air quality in the bin.

The Great Plains Center for Agricultural Health has more information about grain engulfments on their website, www.gpcah.org. In addition, the Grain Handling Safety Coalition has many training resources and templates for farms of all sizes at www.grainsafety.org. Iowa farmers can also pick up a Lock-Out-Tag-Out kit at your county's Extension Office or FSA office this fall, courtesy of Iowa's Center for Agricultural Safety and Health.

As the annual Workers' Memorial Day events recognize, the loss of an employee is tragic for a family, a worksite and a community. The steady flow of grain-related fatalities in Iowa take an enormous toll on our agricultural community. I hope that this year we can focus on preventing additional needless injuries and deaths.

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