

Protect yourself from grain-related hazards

Farming is one of the most dangerous jobs in the U.S. Every year, thousands of farm workers are injured and hundreds more die from farming accidents. Worse, many of those farming accidents involve young people who often lack a good understanding of the potential dangers and proper safety procedures.

This brochure describes common hazards related to the harvesting, transporting and storing of grain and offers potential safe-work practices that both farmers and young workers can utilize to prevent accidents and avoid injury.

Please read and follow all the safety information in this brochure.

Share this information with your parents or legal guardians so they are aware of the potential hazards related to the transporting and storing of grain.

Why is grain safety so important?

- Flowing grain can act like quicksand – creating a potentially deadly entrapment that can crush or suffocate you within seconds
- The speed and weight of flowing grain make it extremely difficult to escape without assistance and proper safety equipment
- Engulfment in grain can occur quickly and without notice upon entering a bin or grain wagon
- Engulfment in grain bins can result in multiple fatalities when others attempt to rescue and become victims as well
- 58% of entrapments resulted in death*
- 77% of the entrapments occurred on the farm*
- There were 38 grain entrapments representing a 26% increase over 2018*
- There were 8 fatalities under the age of 21 resulted from grain related incidents*

*Source: Purdue University



Stay Out Of Grain Bins!

- Never attempt to rescue someone without proper training, assistance and equipment. Call an adult or dial 911 or your local emergency number immediately.
- Wear a dust mask. Grain dust can cause breathing difficulty. If you are working around a grain bin during loading or unloading, wear a dust mask.

Note On Confined Spaces

Under OSHA guidelines for a commercial operation, a grain bin is considered to be a “permit- required confined space”. This means there are recognized hazards that could cause injury or death and may only be entered following specific procedures contained in a formal permit system. Due to the dangers associated with grain bins, youth working on farms should NEVER enter a grain bin.

Grain Bins

Storage and handling of grain creates unique hazards on the farm. Potential hazards include engulfment and entrapment, injury from falls, and respiratory and breathing problems from inhalation of dust, molds and allergens. Be aware of these hazards when working around grain bins:

Flowing grain — Grain is flowing when a bin is being unloaded from the bin. Flowing grain can act like quicksand, pulling a person into the grain and entrapping them in a matter of seconds. Suffocation and death is often the result.

Bridged grain — Bridged grain occurs when the top layer crusts over a void making the bin appear full. It may look safe, but walking on the bridge may cause it to collapse, engulfing you. Break up the crusted grain from outside the bin with a long pole.

Columned grain — Columned grain occurs when grain is stuck to the side walls of a bin, creating very steep slopes. Avalanching can occur, engulfing anyone near the base of the column. Break up the crusted grain from outside the bin with a long pole.

Grain augers — Augers can be under the sumps in the floor of the bin, on the bin floor (sweep), or portable and placed in the bin through an opening on the side. Augers are extremely dangerous and can cause severe injury – even death. Common auger injuries are lacerations, fractures and amputation.

Air Quality — Gases from deteriorating grain or smoke from equipment malfunctions can develop inside a grain bin. Sometimes these gases and fumes are toxic or may displace oxygen, increasing the risk of suffocation. Tractor or truck exhaust can also be drawn into a bin by aeration fans, creating dangerous levels of carbon monoxide.

Grain Dryers

Grain dryers use large fans and heat/flame to reduce moisture content in harvested grain. Potential hazards include burns; entanglement in augers, pulley belts and fan blades; and electric shock from electric powered motors and control panels.

- Never attempt to operate a grain dryer unless you are properly trained and the dryer is properly maintained
- Never place any part of your body inside a dryer
- If you must enter for service or repairs, all power must be shut down and locked out, including closing gas supply valves or disconnecting and plugging gas lines
- Keep hands away from any moving parts while dryer is operating

Grain Wagons

Grain wagons are used to transport grain from the fields to the bins or semi trucks.

- Stay out of loaded grain wagons, even if grain isn't flowing
- If you must enter a loaded grain wagon, stop the unloading of the wagon, secure a life line and use a spotter
- Children should not be allowed to play in or around grain wagons at any time

Grain Augers

Grain augers can also be used outside of bins. Augers may be independent, portable or integrated with other machinery, such as combines, grain dryers and grain wagons. Regardless of the auger type, you must take the necessary precautions to keep yourself safe.

- Familiarize yourself with the various features and the necessary precautions for safe and efficient operation
- Have another person nearby who can shut down in the auger in case of an accident
- Ensure safety guards are in place
- Keep body, hair and clothing away from moving parts
- Keep away from electric and overhead power lines
- Shut off and lock out all power to auger before servicing, cleaning or adjusting
- Shut off augers before entering a grain bin

Tractors and power take-offs

A tractor's power take-off (PTO) powers many implements and equipment used in farming. Unfortunately, getting caught by a PTO can cause severe injury or death. Most accidents happen when clothing, such as a boot lace, pant leg, hoodie string or shirt sleeve, become caught in the rotating shaft.

- Ensure all PTO guards and shields are properly maintained and in place
- Stay clear of unshielded PTOs
- Always walk around an operating PTO, never over it
- Don't wear loose fitting clothing or allow loose, long hair around machinery with moving parts
- Disengage PTO and turn off the engine before getting off tractor. Remove the key and drop it in your pocket to prevent anyone else from starting the machine.

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