Grain Bin Safety Meeting Kit

Grain bins are one of the biggest safety hazards for farmers who work in and around them. Serious and life-threatening dangers lurk throughout grain facilities, so it is imperative that farmers and workers are aware of these threats in order to protect themselves from serious injury and fatalities.

GRAIN STORAGE/HAZARDS

The key to good grain storage is to put the highest quality grain into the bin, or bring it to the proper moisture condition as quickly as possible. Overall quality of stored grain always deteriorates, it is just a matter of how fast. Storing the grain longer than next spring requires much more vigilance in management.

- Remove all traces of old grain from combines, truck beds, grain carts, augers, and any other equipment used for harvesting, transporting, and handling grain. Even small amounts of moldy or insect-infested grain left in equipment can contaminate a bin of new grain.
- Rodents and pest problems are big issues with left owner grain residue in bins and equipment / machinery.
- Inspect bins and foundations for structural problems. Uneven settlement of foundations can cause gaps between the foundation and bottom edge of the bin. This can result in grain spills and provide entry points for water, insects, and rodents.

Engulfing and Suffocation Hazards

Engulfing and suffocation are major hazards. One of those being that bins have an opening in the center where grain is pulled from, so when the door is opened and grain is being pulled out, the grain on the inside is pulled down. Workers in the bins can become engulfed and suffocated in mere moments. Alternatively, if a worker is pulling grain that is vertically crusted inside the bin, this can cause an “avalanche” of grain that can also engulf

and suffocate. Grain that is crusted on the surface can create holes underneath, called bridging; an unbeknownst farmer can climb into the bin without seeing these voids and fall under the surface.

Any time you enter a grain bin, be aware of constantly changing conditions and possible hazards – like lowered oxygen levels and toxic gases – all which can cause serious injury or death. Toxic gases can present themselves from fumigants that are used to prevent insect infestation while grain is stored in bins. It is recommended to wear appropriate respirators when the aforementioned situations cannot be avoided.

HOW WORKERS SUFFOCATE – THREE WAYS

Workers can become caught or trapped in grain bins in three different ways: **the collapse of bridged grain, the collapse of a vertical wall of grain and engulfment in grain.** Moving or flowing grain is involved in all three.

SAFETY TIPS

Whenever possible, don't enter a grain bin. If you must enter the bin, as a farm owner/operator you should:

- Break up crusted grain from the outside of the bin with a long pole. When using a pole, check to see that it doesn't come into contact with electric lines.
- Wear a harness attached to a properly secured rope.
- Stay near the outer wall of the bin and keep walking if the grain should start to flow. Get to the bin ladder or safety rope as quickly as possible.
- Have another person, preferably two people, outside the bin who can help if you become entrapped. These people should be trained in rescue procedures and should know and follow safety procedures for entering the confined space.
- Grain fines and dust may cause difficulty in breathing. Anyone working in a grain bin, especially for the purpose of cleaning the bin, should wear an appropriate dust filter or

filter respirator.

- Stay out of grain bins, wagons and grain trucks when unloading equipment is running.
- If it is necessary to enter the bin, remember to shut off the power to augers and fans. It is a good idea to lock out any unloading equipment before you enter a bin to prevent someone from unintentionally starting the equipment while you are in the bin.
- Children should not be allowed to play in or around grain bins, wagons or truck beds.
- Where possible, ladders should be installed inside grain bins for an emergency exit. Ladders are easier to locate inside a dusty bin if there are brightly painted stripes just above or behind the ladder.

SAFETY/QUESTION CHECKLIST

- Has equipment been powered off at main disconnect and locked and tagged?
- If there is potential for combustible gas, vapors or toxic agents, has the oxygen level been tested with a gas monitor?
- Is a rope and harness available for anyone entering a grain bin?
- If a worker enters, is an observer present and in communication?
- Is the observer trained and able to initiate rescue?
- Is rescue equipment provided and specifically suited for entry?
- Are there NIOSH approved masks or respirators available?
- Are grain and feed bins clearly labeled to warn of the hazards of flowing grain or feed?
- Do all bins have permanent ladders inside and outside?
- Are hearing protectors available for wearing around noisy equipment?
- Are equipment guards and shields in place and in good condition?

FINAL EMPLOYEE SAFETY TIPS

- Do not enter a bin when grain is flowing
- Do not enter a bin when you suspect carbon dioxide is present
- Shut off and secure all power sources before entering a grain bin
- Maintain protective guards on equipment
- Wear a dust mask
- Use correct fumigation procedures
- Be prepared for emergencies

FINAL WORD

Preparing grain bins for harvest should be done to maintain the quality of grain and to make sure the areas around bins are ready for the busy season ahead. Simple maintenance and safety rules will make sure you don’t experience any difficulties in the season ahead.