



# MAFES Dawg Tracks

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## Grain Bin Hazards & Safety Precautions



Handling grain and storage is a vital part in Mississippi farming. In the last few years we have seen grain bin storage increase tremendously along with increases in technology where either gas or electric dryers are used in bins for drying the grain. The modern technology, with larger capacity grain bins, has brought on more automated, faster methods for handling the various types of grain.

However, with this new technology, the potential for hazards has increased. One being that farmers working alone expose themselves to dangerous situations, such as:

### Potential Grain Hazards-

- ✓ Suffocation – The most prominent cause of grain fatalities. Resulting from entrapment or engulfment.
- ✓ Exposure to Carbon Dioxide – From wet grain.
- ✓ Exposure to grain dust – Leads to suffocation/explosions.
- ✓ Exposure to fumigants – Toxic to humans through inhalation, swallowing or skin absorption.

### SAFETY TIPS-

- **Never Enter Flowing Grain Bins –**  
~Suffocation is the most common cause of death from grain bins. Entering a bin with flowing grain can suck you under in a few seconds.  
~Over the past 30 years, approx. 200 folks have died from grain suffocation in the USA.  
~**Do not enter a bin when grain is being loaded or unloaded!**
- **Shut off/Secure Power Source –**  
~Be sure to shut off and lock out all power sources connected with the grain, including augers, when they aren't in use.  
~Be especially careful with automatic unloading equipment and keep bystanders away from the operating equipment.
- **Avoid Carbon Dioxide –**  
~Fermenting grain produces carbon dioxide, a colorless and odorless gas.  
~Grain bins usually have an oxygen deficient atmosphere -so working in them might cause you to be exposed to carbon dioxide.  
~Carbon dioxide, if it gets into your bloodstream, can cause breathing difficulties, drowsiness, headaches and possibly death by suffocation.  
~To reduce this potential, open all manholes and doors to force air through the bin.
- **Wear Dust Mask –**  
~Small amounts of spoiled grain can produce millions of tiny mold spores that can get airborne when disturbed.  
~Airborne spores can be inhaled into the lungs through the nose and mouth, causing reactions so severe that hospitalization may be necessary. **Farmers working around moldy grain must wear respiratory protection!**
- **Correct Fumigation Procedures –**  
~Fumigants are highly toxic to humans when swallowed, inhaled and even absorbed through the skin.  
~It is imperative to follow all label instructions when in use.

- ~Be sure when in use to use masks that are approved by the National Institute of Safety and Health (NIOSH)
- ~Before entering a bin run the ventilating fan to reduce the potential danger to your health.
- ~It is recommended to post a warning sign for people in the area to know that you are fumigating and to stay clear.
- **Equipment Guards –**  
~Guards and shields are installed on all types of equipment to reduce the potential for injury.  
~Remove them and you greatly enhance the potential for risk of injury to the employees.  
~On a PTO shaft running a grain auger, without the shaft guard, if you have on loose clothing or hair not tied back and either of these scenarios results in getting caught on the shaft means sure injury and possible death. The PTO shaft turns at abt. 540 RPMs. If you get a finger or clothing caught in one of these points, an injury is pretty certain and it could mean an amputation.

### OTHER SAFETY TIPS-

- ✓ Maintain good quality grain. (Regulating moisture and heat controls).
- ✓ Always check the oxygen levels (minimum -19.5%) and the toxic/flammable gas levels (phosphine CO2, dust etc.) before you enter.
- ✓ Never enter a grain bin without a “bin entry permit.”
- ✓ If you have to enter, have a “buddy” standing by with a safety harness and lead rope to help, in case of an emergency. If at all possible, it would be very beneficial to have a res-q-tube available for insurance. The “buddy” needs to have a cellphone or other means of quick communication to be able to contact more help or emergency responders.
- ✓ Always lock out unloading equipment before you enter a bin. Have a life-line nearby and make sure there is adequate lighting inside.
- ✓ A good life-saving tip (if you're sinking)- fold your arms across your chest which will help you maintain your breathing.
- ✓ Time is of the essence- if you are engulfed, it only takes 90 seconds for you to die.

Grain bin safety is an important job and should never be taken lightly. The tips above have generally covered the gamut of grain bin safety. In the next few years, hopefully, this word will be spread around so that injuries and possibly lives can be saved.

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Excerpts: <http://agchat.org/2014/02/grain-bin-safety>  
<http://farmsafety.mo.gov/safety-topics/grain>

**POOR PLANNING CAN RESULT IN POOR SAFETY!**

**ACCIDENT PRICES ARE ALWAYS HIGH**

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**BE SAFE ♦ BE ALERT ♦ BE ALIVE**