

# MAFES Dawg Tracks

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MISSISSIPPI STATE UNIVERSITY™  
MS AGRICULTURAL AND  
FORESTRY EXPERIMENT STATION

*Safety Tips:  
Grain Bin Safety*

National statistics show that over the past 50 years, there has been over 900 cases of grain engulfment with a 62% fatality rate.

Here in Mississippi, as you travel around the central, delta and north ends of the state, you see an influx of new grain bins, and they seem to expand each year. In the last few years producers have begun adding gas and electric dryers to get an edge on harvesting early for price advantages at the elevators.

Some farmers, due to the size of their operation, sometime work alone, which increases their potential to expose them to dangerous situations, such as:

#### **Potential grain hazards-**

- Suffocation – this is the most prominent cause of grain fatalities, resulting from engulfment and entrapment.
- Exposure to carbon dioxide – resulting from wet grain.
- Exposure to grain dust – leads to suffocation and/or explosion.
- Exposure to fumigants – Toxic to humans through inhalation, swallowing, or absorption.

#### **SAFETY TIPS-**

- ✓ **Never enter a flowing grain bin-**  
~ Suffocation is the no. 1 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, over 200 folks have lost their lives 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 operating equipment.

##### **Avoid Carbon Dioxide-**

- ✓ Fermenting grain products produces carbon dioxide - A colorless, 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 should get into your bloodstream, can cause breathing difficulties, drowsiness, headaches and possibly death by suffocation.
- ✓ To reduce this possibility, open all manholes and doors to force air through the bin.

##### **Wear a 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 that the masks are approved by the National Institute of Safety and Health (NIOSH).
- ✓ Before you enter a bin run the ventilating fan to reduce the potential danger to you.
- ✓ 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.
- ✓ Removing them will greatly enhance the potential for risk of injury to you or your employees.
- ✓ A PTO shaft running a grain auger, without the shaft guard and assuming you were dressed in loose clothing or not having long hair tied back, in either of these scenarios, results in getting one of these caught in the shaft would mean a critical injury or possibly death. The shaft turns at approximately 540 RPMs. If you even get a finger or clothing in one of these joints, an injury is pretty certain and possibly an amputation.

##### **OTHER SAFETY TIPS-**

- ✓ Maintain good quality grain – (regulating moisture and heat controls).
- ✓ Never enter a bin without albino Entry” permit.
- ✓ Always check the oxygen levels (minimum-19.5%) and the toxic/flammable gas levels) phosphine CO<sub>2</sub>, dust before you enter.
- ✓ If you have to enter the bin, have a “buddy” standing close by with a safety harness and a lead rope to help, in case of an emergency. If at all possible, the investing of a res-q-tube to have as a standby would be beneficial.  
The “buddy” would need a cell phone or another type of communication to be able to call for help or emergency responders.
- ✓ Always lockout unloading equipment before entering (so they can't be turned on by mistake).
- ✓ Always have a life-line close by and adequate lighting inside.
- ✓ A life-saving tip of last resort – cross your arms across your chest if you're sinking- so that you can breathe.
- ✓ Even during the most frantic times- don't risk your life or anyone else's for a 5-minute shortcut!
- ✓ Prepare a written plan for training and rescue-practice it often. This is the best insurance!
- ✓ **Time is of the essence- if you are engulfed- it only takes 90 seconds for you to die!**

**Grain bin safety is such an important job and should never be taken lightly! The tips above are taken from real life situations that cover the gamut of grain bin safety. My endeavor is that this paper would be circulated out to many grain producers so that injuries might be saved and possibly lives.**

**WORK SAFE TODAY-  
HEAVEN CAN WAIT**

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**GET SMART ~ USE SAFETY FROM THE  
START**

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**ALERT TODAY <><> ALIVE TOMORROW**

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

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