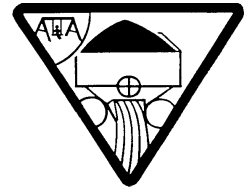




Grain Drain



When grains such as corn, soybeans and oats are harvested, they are emptied into wagons, trucks and storage bins. The grain moves from a large area into a small opening, so a funnel is created by gravity. This funnel can pull people into the grain and cause them to suffocate (or die from lack of oxygen). It only takes two to four seconds to become helpless in the flow of grain. In 8-10 seconds, a person can be completely covered. Children should never play around grain equipment and never go in a grain wagon, truck or bin while grain is unloaded.

Conduct this experiment to demonstrate what can happen to people trapped in a grain flow:

- 1) Cut the bottom off a plastic gallon milk jug.
- 2) Turn the jug upside down and fill it with grain while the cap is on.
- 3) Place a small toy figure on top of the grain and place a container under the cap.
- 4) Remove the cap. As the grain quickly flows out of the jug, it will pull the toy figure along with it.

Grain suffocation can also happen in grain bins where the grain is stored. Sometimes a crust, or bridge, forms over the grain and people think it is safe to walk on. Actually, there is an open pocket underneath the crust that is not filled with grain. When a person steps on the crust, they can fall through, be covered and suffocate.

Conduct either of these experiments to demonstrate how someone can be submerged in stored grain:

2 Liter pop bottle:

- 1) Get a 2-liter pop bottle and clean it out.
- 2) Cut a half inch hole about three inches from the bottom. Place duct tape or masking tape over the hole.
- 3) Fill the jug over three quarters full of grain.
- 4) Turn the jug upside down, remove the duct tape then choose a volunteer to insert a balloon in the hole and partially blow it up.
- 5) Pinch balloon off with fingers to keep the balloon inflated.
- 6) Turn the jug back over and release fingers from the balloon allowing air to escape and the grain to settle. This step demonstrates air leaving the lungs, while trapped in a grain.
- 7) Have volunteer try to re-inflate the balloon. (Do not allow them to overexert themselves.)
The grain may rise slightly but they won't be able to fully inflate the balloon.
- 8) Then ask the volunteer if they would be able to survive being buried under grain. They always answer NO!

Five Gallon Bucket:

- 1) Inflate a balloon and place it at the bottom of a five-gallon bucket.
- 2) Fill the bucket with grain and place a toy figure on top of the grain.
- 3) Pop the balloon with a needle attached to a stick. As the balloon pops, the person will sink into the grain.

During either demonstration you could ask "Who knows what gravity is?" Allow 2-3 children to answer. "Gravity is the invisible force that makes everything stick to the earth. It also causes grain to flow out of a gravity wagon and grain bin. When grain flows it makes a "vortex" just like a tornado vortex."

You could also mention "The grain flows very fast. If a person gets caught or falls into the flowing grain, he could be buried in a very short time – about 8-10 seconds. We call that 'drowning,' just like in water, because there is no oxygen to breathe. By the time the person is buried up to their knees, they can't get out by themselves. Why? Because grain is heavy. Does anyone know how heavy grain is? Grain weighs 50 pounds per cubic foot, the size of a 1' by 1' by 1' box." (*gesture with hands*) "By the time a person is buried up to their armpits, it would require 400 to 1000 pounds of force to pull them out. NO ONE is that strong!"

REMEMBER

"It takes only 8 to 10 seconds for a person, adult or child, to become submerged and eventually DIE from suffocation"



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