

Grain Flow

Overview

Demonstrate the danger of playing or being in a gravity flow wagon or grain bin. Show how quickly one is pulled into the grain mass and can be suffocated when wagons and bins are unloading. Organizers need to provide grain for these demonstrations. Also it may be necessary to obtain a small toy person or action figure as the little toy person may not be included.

Objective

Show the dangers of flowing grain by demonstrating how a person can become caught and suffocate in grain storage facilities or transport vehicles.

Introduction

1. Introduce yourself to the students; let them know your name, background, and anything else that may interest them and ties into the presentation.
2. Make the students aware that the information you will present to them is important and that they need to pay attention.
3. Inform the students that they will participate in an activity as time allows and they must be responsible during this activity. Stressing responsibility is especially important if you deal with a younger group of students.

Introduce the Grain Flow Hazards Topic

- Students all have their own stories and experiences to tell.
- Introduce the grain flow hazards topic, and ask the students if they know what some of the hazards might be.
- Ask students if they have ever played in a sand pile. Ask how many have played in piles of grain, trucks filled with grain, full grain wagons or other grain storage areas.

Activity

Materials Needed

- Model grain bin and/or wagon filled with corn, popcorn, wheat, or other grain
- Small doll
- Bucket or pail to catch flowing grain

Conducting the Demonstration

- Discuss how flowing grain entrapments occur.
- Place the toy “victim” in the model grain bin. Explain that with no grain flowing, a person will not sink in the grain unless a void is caused by a surface crust.
- Start the unloading auger by sliding the plate from the bottom of the model.

- The flowing grain draws the victim in and pulls him toward the auger where the grain leaves the bin.
- Point out that the speed of the entrapment in the model is the same speed as in real life.
- If desired, and if time permits, repeat the activity with the grain wagon. When opening the grain wagon, make sure grain flows into a bucket or other holding container.

Wrap Up

After the activity, talk to the students and discuss what could happen if flowing grain trapped their body. Use the following discussion questions:

1. Have you ever heard of someone suffocating in grain?
2. Will you sink if you walk on grain in a bin or wagon when the auger is not running?
3. What state of matter does flowing grain most resemble: solid, liquid, or gas?
4. How deep must you be buried to be helpless in flowing grain?
5. How long would it take for a person to become helpless in flowing grain?
6. How do you rescue someone submerged in grain?

Re-discuss the safety rules when working with flowing grain. Go through the following list with the students and make sure they understand the importance of these rules.

- Always lock access doors to grain storage structures.
- Lock out power to all types of grain-handling equipment.
- Always use the buddy system when unloading or loading grain, notifying a second person where you are.
- Never permit children to ride in grain wagons or enter grain storage areas.
- Always know where ALL family members are (especially children) at all times when grain is loaded, unloaded, moved or otherwise handled.
- Do not enter grain bins that are loading or unloading. Flowing grain can trap and suffocate you in seconds.
 - Never permit children to ride in grain wagons or enter grain storage areas. Never allow children to play in grain storage equipment—empty or full.