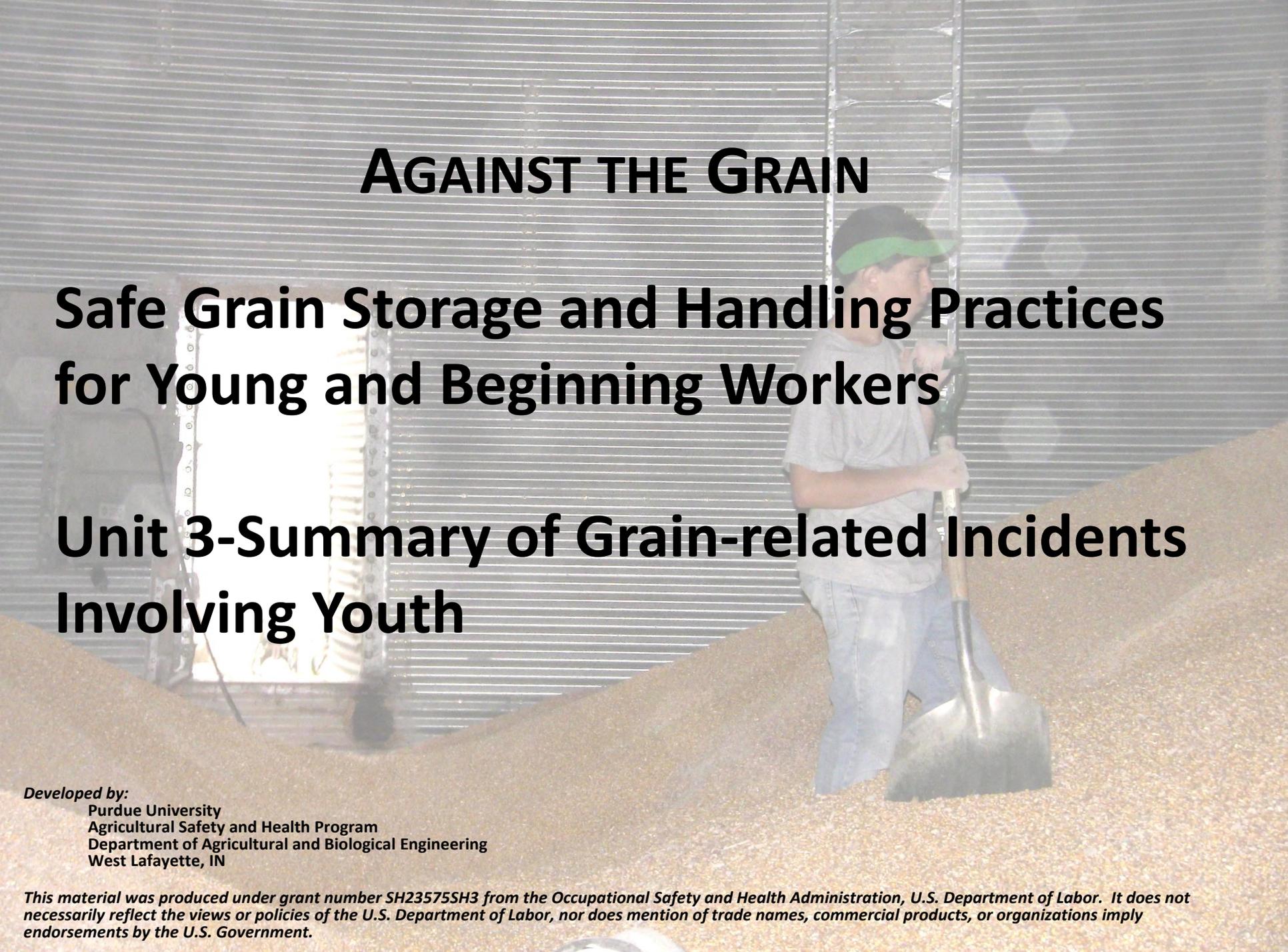


AGAINST THE GRAIN



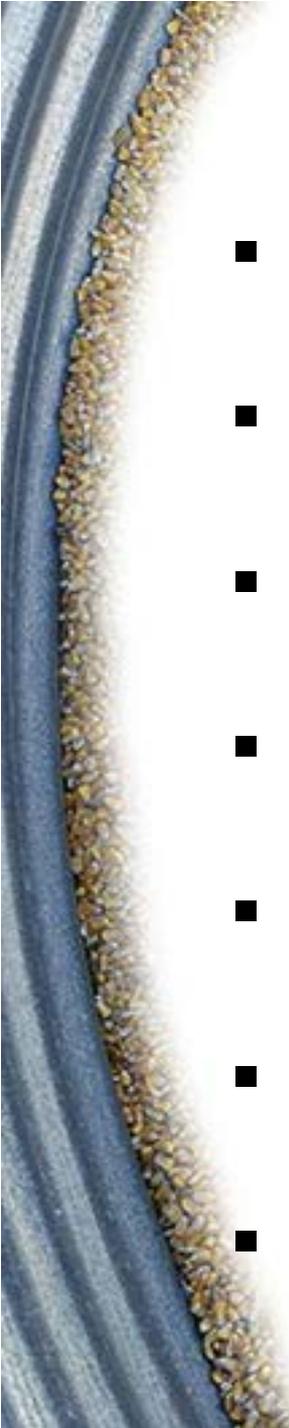
Safe Grain Storage and Handling Practices for Young and Beginning Workers

Unit 3-Summary of Grain-related Incidents Involving Youth

Developed by:

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A decorative graphic on the left side of the slide, showing a cross-section of a grain silo. It features a blue metal wall on the left, a layer of golden-brown grain in the middle, and a white interior wall on the right.

Objectives

- Explain the scope and magnitude of the U.S. grain industry.
- Explain the proportion of victims involved in agricultural confined spaces under the age of 21.
- Describe the nature and characteristics of incidents involving agricultural confined spaces.
- Describe the characteristics of youth that make them so vulnerable to grain-related incidents.
- Identify the regions of the U.S. where most grain entrapments occur.
- Explain the role that out-of-condition grain has on the frequency of grain entrapments.
- Explain the reasons why youth are the most frequent victims of grain transport vehicles.



Introduction

Approximately one out of five documented agricultural confined space fatalities or injuries involves a person, just like you, under the age of 21.

Dr. Field Data Video



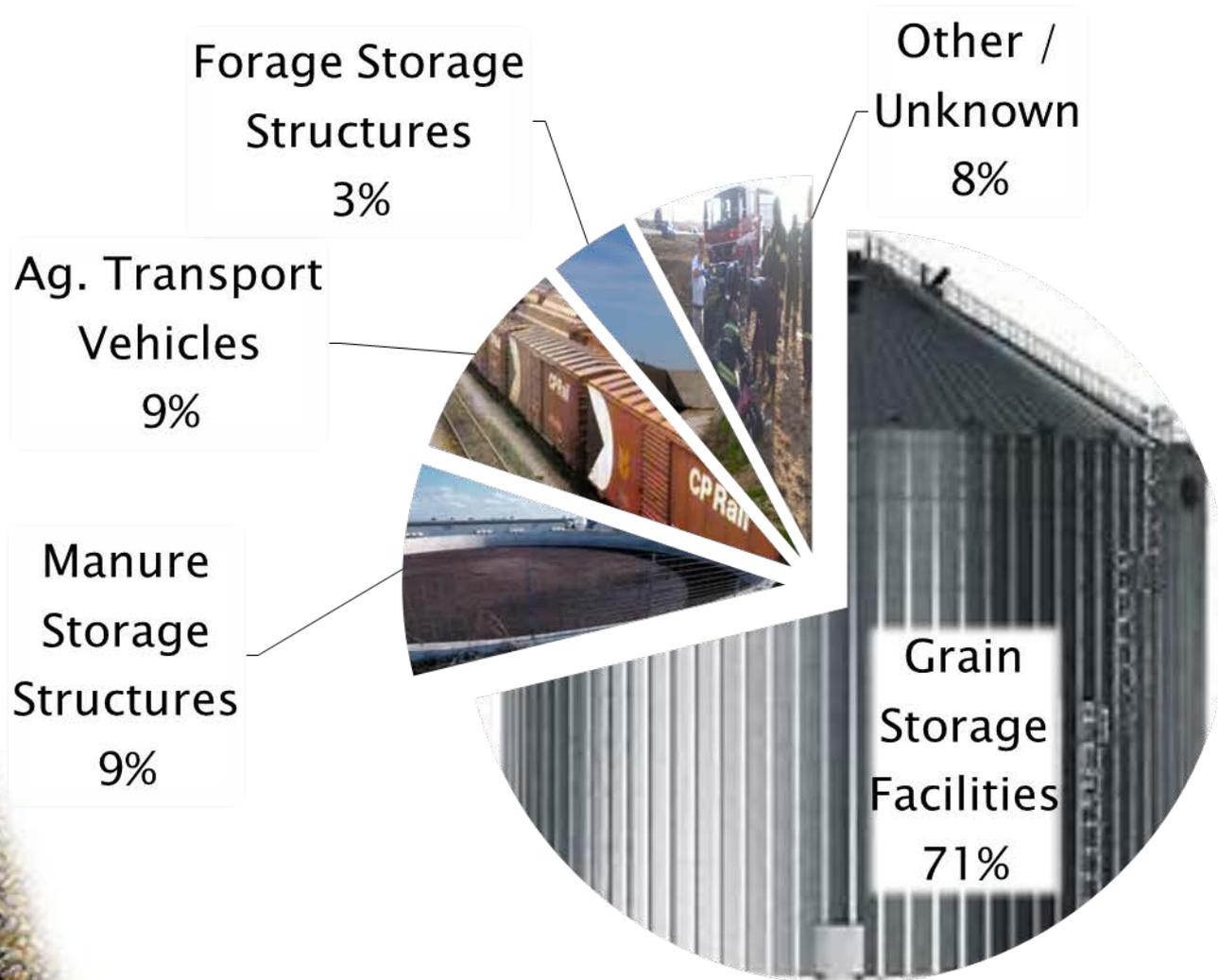


Incidents in Agricultural Confined Spaces Are Much Too Common!

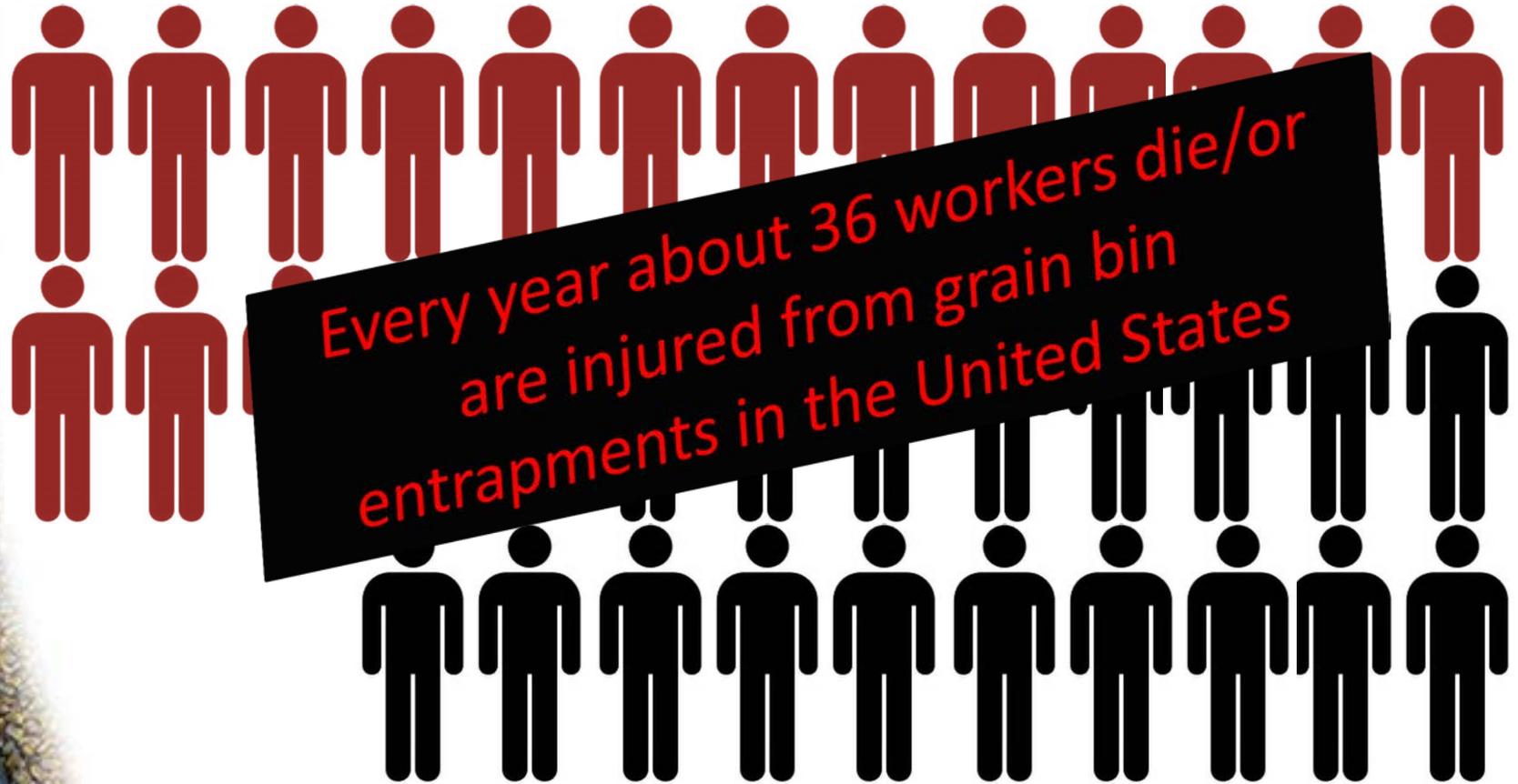
- Over the last 40 years no fewer than 1,700 cases have been documented.
- There are many other cases that have gone unreported.
- Over 1,100 of the documented cases have related to grain storage and handling.
- Over one in five victims were children and youth under the age of 21.
- Over 97% were male.

Source: Purdue University

Why Focus on Grain Storage and Handling Facilities?

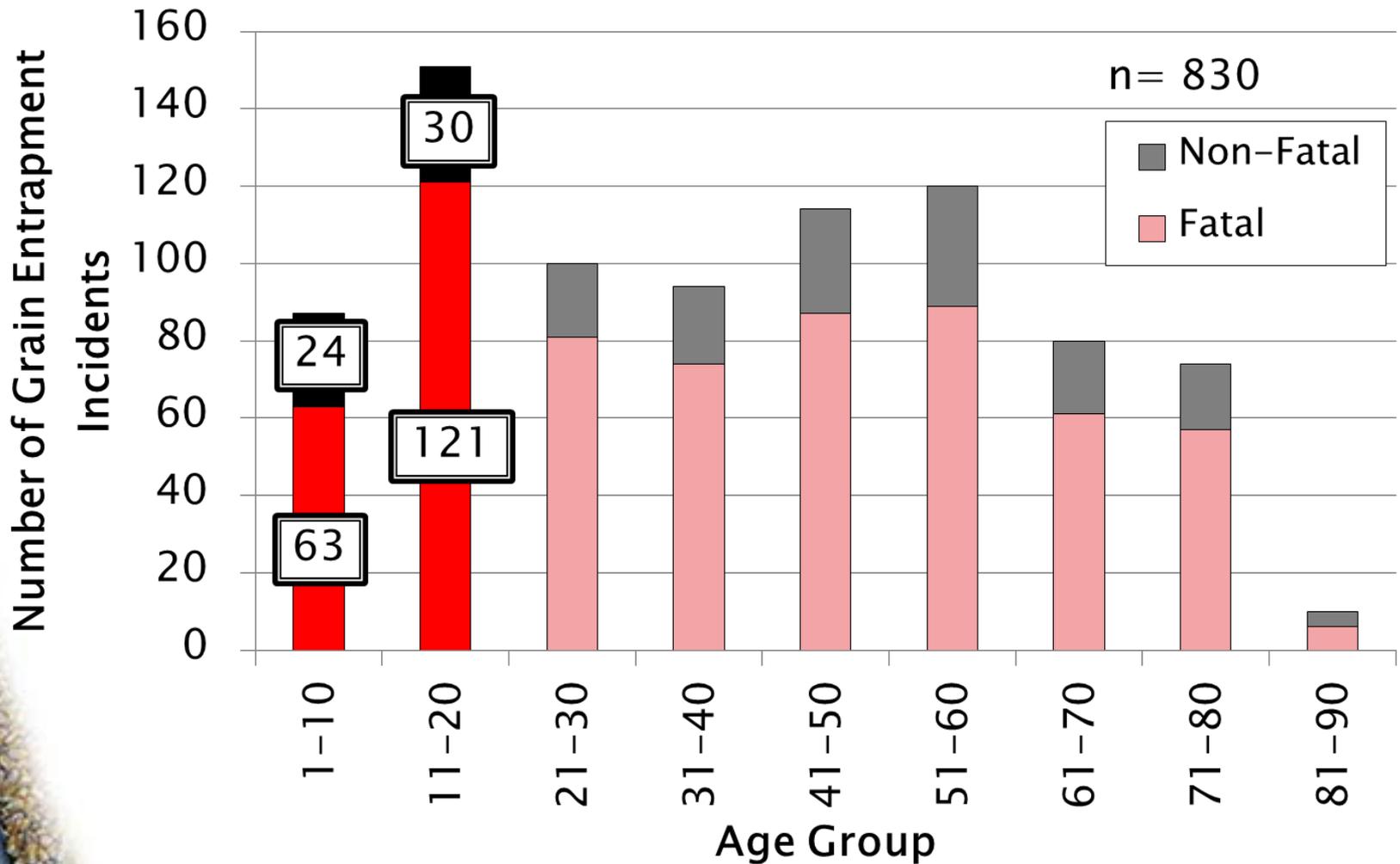


Grain/Feed Entrapments and Engulfments in the United States



Red - Fatalities
Black - Injuries

Age distribution of documented grain entrapments



Do you remember why youth are so vulnerable to being involved in grain-related incidents?



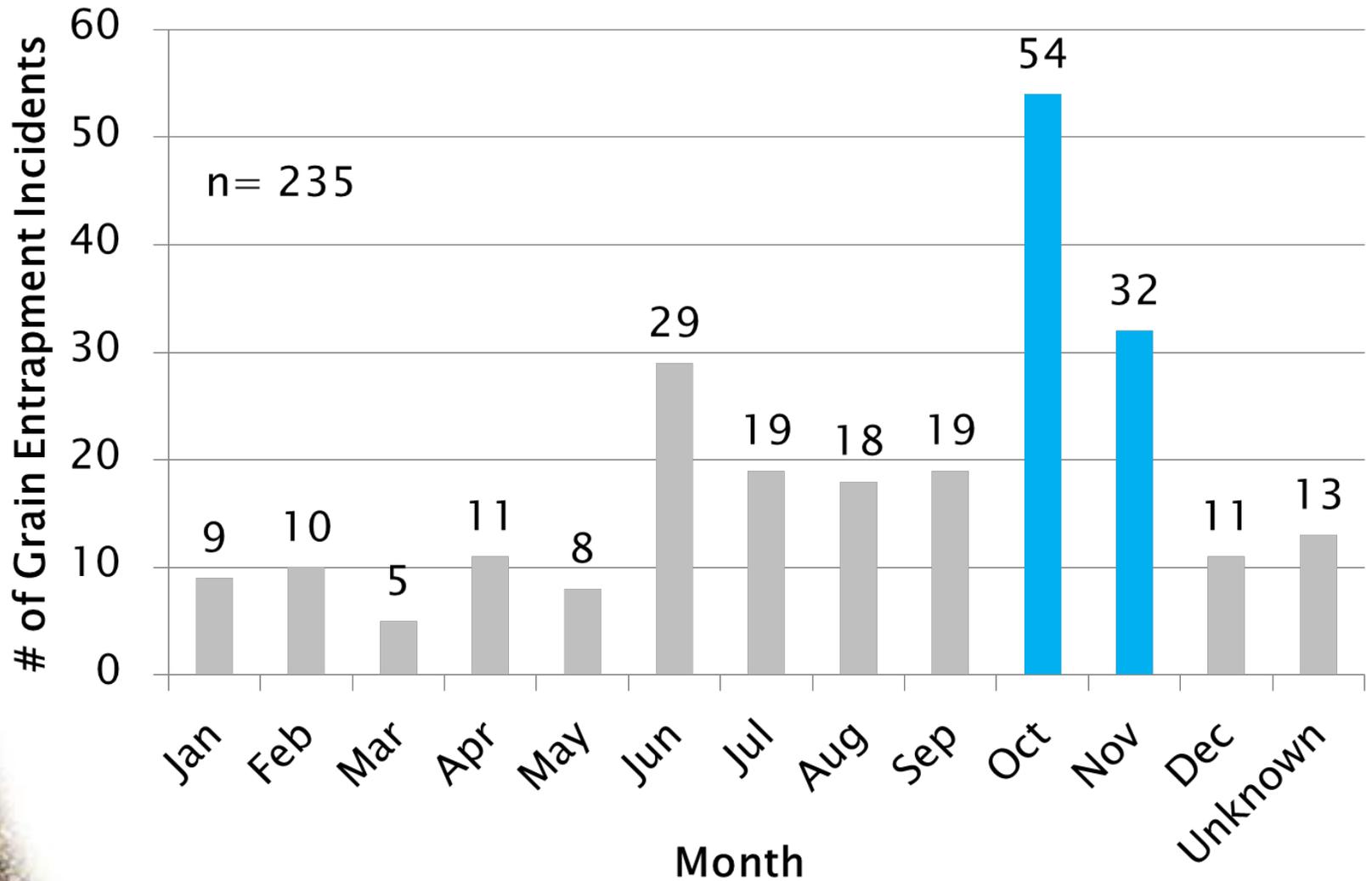
- Inability to assess risk
- Natural risk takers
- Lack of training
- Immaturity



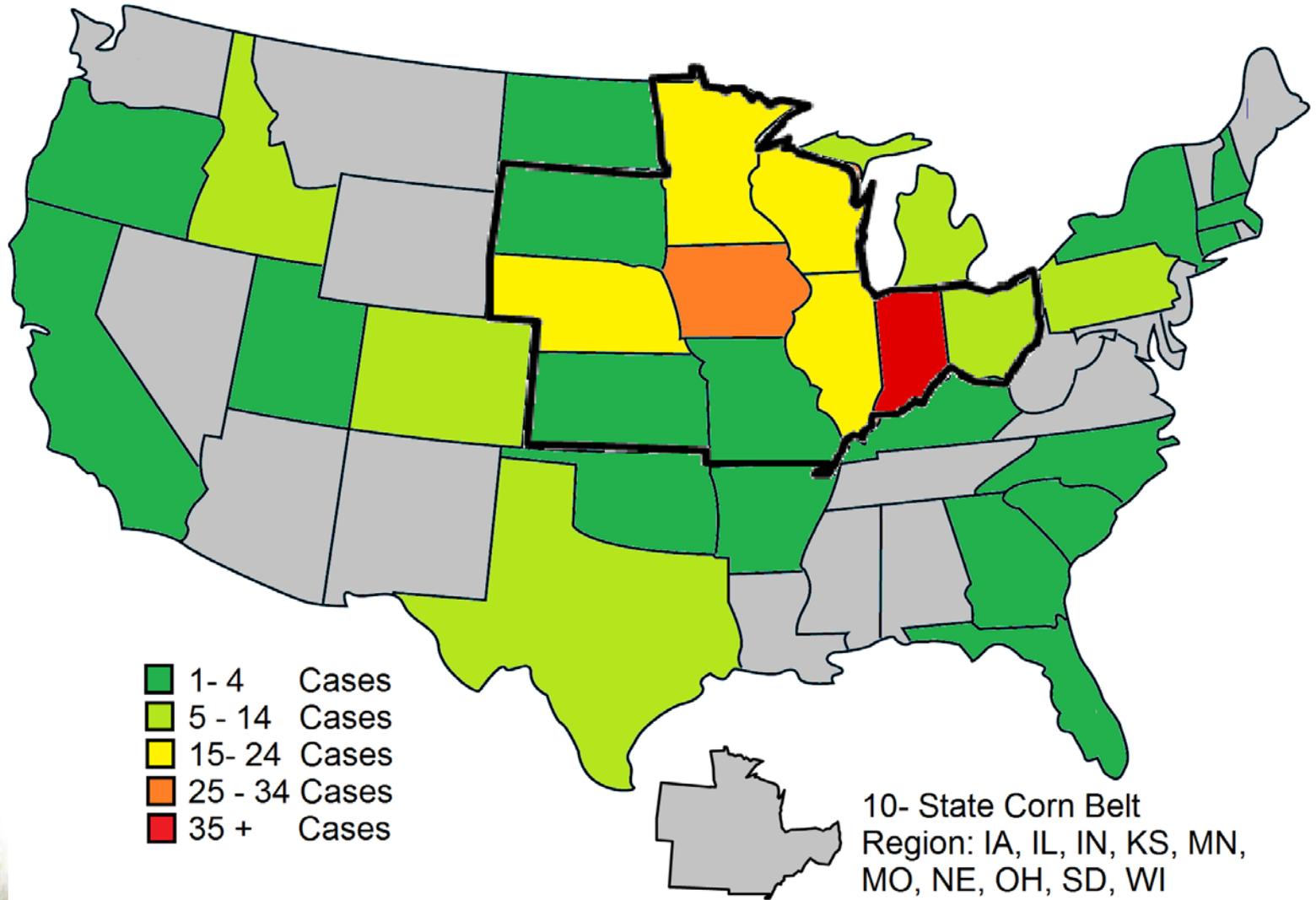
When are younger workers most likely to be exposed to grain-related hazards?



Grain Entrapments Incidents by Month for Ages 1-20



Distribution of Grain Entrapment Incidents By State for Age Group 1-20.





Most Frequent Types of Flowing Grain/Feed Entrapments

- Entrapment in a free flowing column of grain
- Bridging/crusted horizontal surface entrapment
- Collapse of vertically crusted grain surface (avalanche entrapment)
- Entrapment in free standing pile of material (avalanche entrapment)
- Entrapment in grain transport vehicle
- Entrapment due to unintended release of material or structural failure
- Entrapment while using a grain vacuum machine

Entrapment in a Flowing Column of Grain



Collapse of Horizontally Crusted or Bridged Grain Surface



Collapse of Vertically Crusted Grain



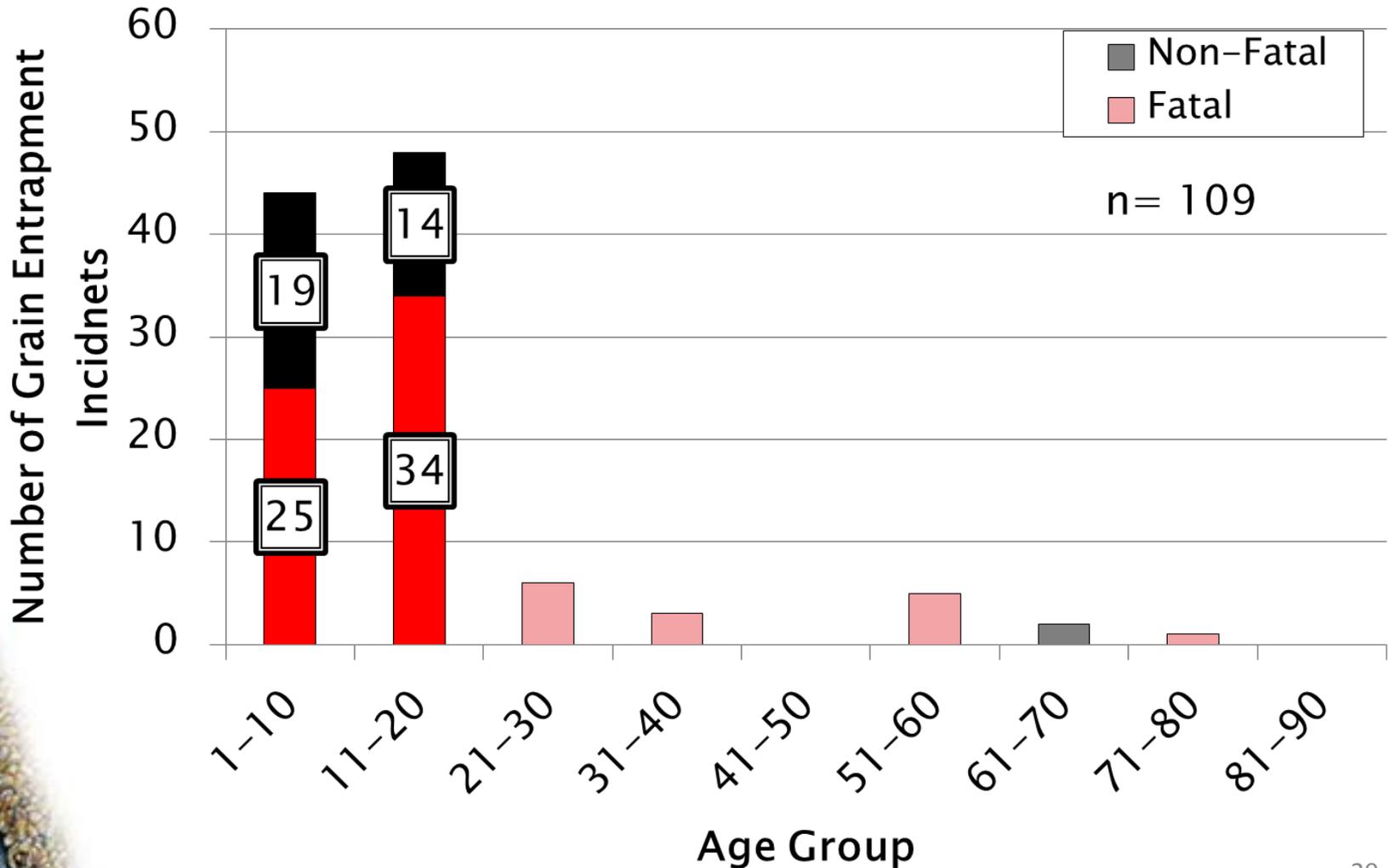
Entrapment in Free-Standing Pile of Grain



Entrapment in Grain Transport Vehicles



Grain Entrapment Incidents Involving Grain Transport Vehicles



Why do so Many Entrapments in Grain Transport Vehicles Involve Children?



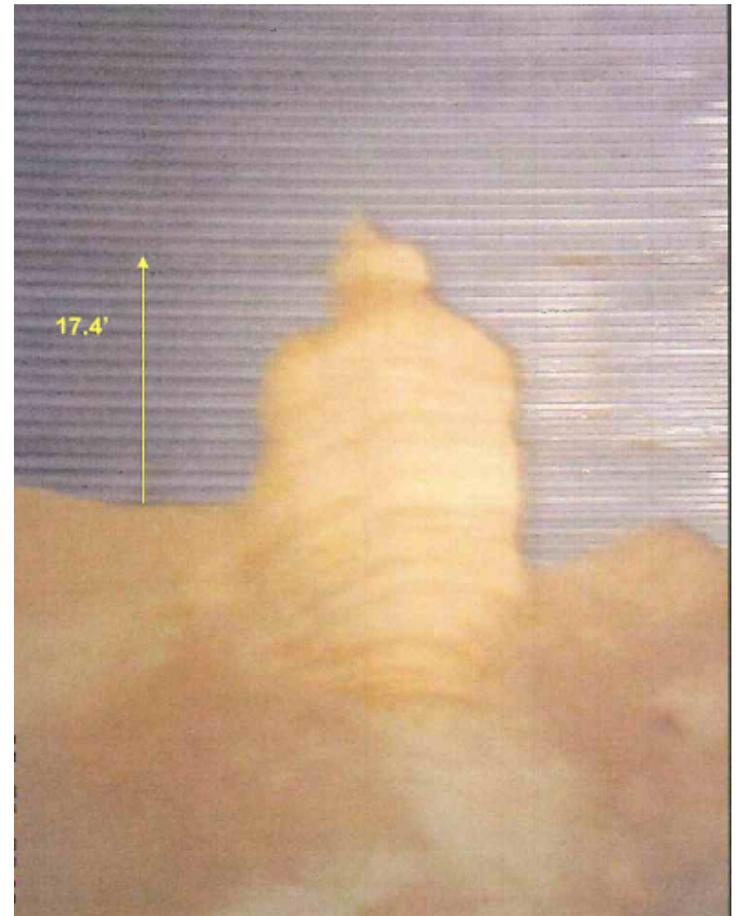
Entrapment Due to Unintended Release of Material or Structural Failure



Entrapment While Using Grain Vacuum Machines



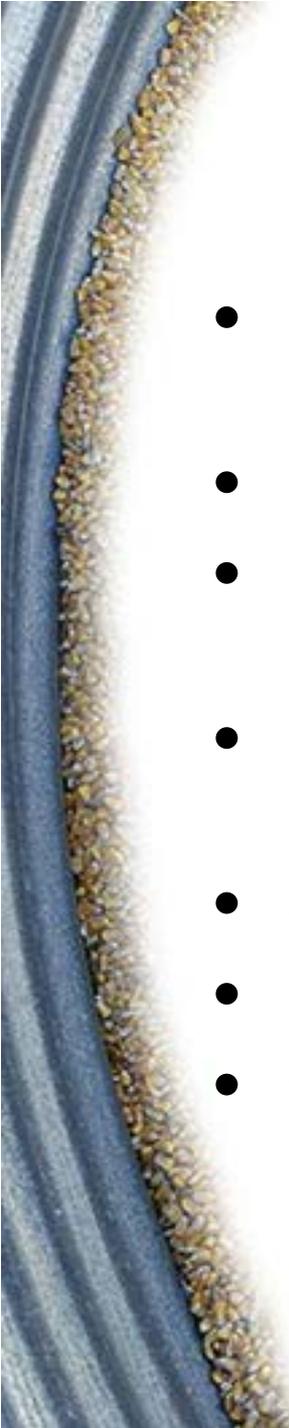
The Single Most Important Contributing Factors to Grain Entrapment is Out-of-Condition Corn



A decorative image on the left side of the slide showing a blue conveyor belt with a layer of yellow grain on top, curving upwards.

Factors Influencing the Trend in Grain-Related Entrapments

- Increasing production of grain
- Longer term storage of grain increasing potential for spoilage
- More storage being built at exempt facilities
- Increased rate of grain handling
- Increased size of storage structures
- Expanded use of grain for energy production
- Changing workforce
- Increased cost of drying grain



Summary

- 1 out of 5 injuries/fatalities involve youth under age of 21
- Nearly all victims are male
- Entrapments involving GTVs occur mostly to males under age of 21
- Most entrapments happen in October during harvest season
- Corn is the grain most likely involved
- Most entrapments occur in Midwest
- Out-of-condition corn is a significant contributor

Questions

