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## Safety Watch: Responders prep for safe harvest

By Brandi Janssen

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Ladora volunteer firefighter DeAnn Scott-Harp explains a grain rescue tube at a Women, Land & Legacy Farmhand 201 event in Iowa. Photo courtesy Tama Soil & Water Conservation District

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**E**very shop should be well stocked with the right tools. Sometimes, there are tools you need but hope to never use.

The same is true for emergency services: They need all the best rescue equipment available, but hope to never have to use them to respond to a preventable farm incident.

Harvest time comes with a number of risks, including roadway crashes and equipment entanglements. But many preventable injuries and fatalities are related to the product coming in from the fields — grain.

During the last week of July, I talked about grain handling safety at Women, Land and Legacy's Farmhand 201 event, held in Toledo, Iowa. Women, Land and Legacy is an Iowa non-profit that brings together women farmers and landowners to network and learn about issues related to agricultural policy and farm practices.

Presenting with me was DeAnn Scott-Harp, I-CASH program assistant, University of Iowa master's student and volunteer firefighter for the Ladora fire department. We had lots to talk about, including augers and grain wagons, Slow Moving Vehicle Emblems and equipment lighting, PTO shields and roll-over protective structures on tractors.

But we spent much of our time discussing the dangers of flowing grain and grain bin entrapments.

### **Grain bin entrapments**

The majority of engulfments occur in grain bins when a person is inside the structure while grain-unloading equipment is running.

A person can sink knee-deep within four seconds and be completely buried within 20 seconds. Most people who are completely engulfed do not survive.

Recent record harvests, increased on-farm storage capacity, and equipment that can move large quantities of grain efficiently and quickly have contributed to a rise in engulfments in the Grain Belt. 2010 was a record year, with 59 entrapments nationwide; 26 of those resulted in a fatality. There were 38 entrapments in 2014, up from 33 in 2013.

Rural fire departments have responded by adding grain rescue tubes to their arsenal of equipment.

Scott-Harp demonstrated the rescue tube used by Ladora's fire department. Consisting of five interlocking panels, each over 5 feet tall, the tubes are brought into the bin one piece at a time and built around the victim. Scott-Harp pointed out it takes a minimum of two rescuers, each securely tied off in the bin, to operate the tube, plus more outside to monitor the safety of the rescuers.

After the victim is enclosed, the tube is wedged further into the grain. If the victim is responsive, he or she is asked to help move grain out of the tube. This can be done by hand with a scoop, or by using a small auger attached to a power drill.

"But," Scott-Harp cautions, "make sure you have a non-sparking drill, otherwise there is risk of a grain-dust explosion."

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Her key message was that even though a rescue tube is an important tool for rural fire departments, they hope they never have to use it.

Like almost all farm-related incidents, grain bin entrapments are preventable.

Even though rescue equipment exists, a grain bin rescue takes enormous resources for a rural, volunteer fire department. In addition, as the statistics show, most engulfments are a recovery, not a rescue.

#### **Prevention**

The best way to prevent an entrapment is to stay out of the bin unless it's absolutely necessary. Maintain grain quality to prevent spoilage and clumping. If clumps or crusts are present, break them up from outside the bin using a pole.

Post signs and keep bin entries locked so that only trained personnel can enter.

When entry is necessary, have an emergency plan in place and follow it. This should include having cell phones and numbers for emergency responders at the ready.

Shut down all grain moving equipment and "lock out/tag out" the power source by locking or barring access to the power source and tagging with a sign that indicates that the equipment should not be turned on.

Use a harness tied to a secure wall anchor to prevent falls and keep the entrant from sinking into the grain.

Have at least two bystanders to observe the person in the bin. Bystanders should not go in after anyone who has become entrapped. Many fatalities are would-be rescuers. The job of the bystander is to call emergency personnel if necessary and follow their directions.

The Great Plains Center for Agricultural Health at the University of Iowa has more detailed information on safety procedures in grain bins here: <http://tinyurl.com/zvhxxe3>

It's important to have a full toolkit — and that includes first responders' rescue and recovery gear.

But just because you have the tool doesn't mean you want to use it. Grain bin entrapments are preventable. Let's keep the grain rescue tubes at home in the station this harvest season.

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