

Harvest Hazards Await Unsuspecting Farmers¹

Howard J. Doss and William McLeod²

Grain harvesting is traditionally one of the busiest times of the year for Michigan farmers as they work to "bring in the crop." It can also be one of the most dangerous seasons with farmers often working long, hard days as they attempt to overcome delays caused by equipment failures, breakdowns and poor weather.

Whatever the reason is for being rushed, it's important that farmers be aware that exhaustion coupled with potentially hazardous situations may result in an accident.

Accident reports from 1988 to 1991 show several deaths directly attributable to harvesting. Types of harvesting/grain handling accidents include falling into a combine, suffocation in flowing grain, and electrocution from touching overhead lines with an auger or grain probe. As is the case with most accidents, most of these deaths could have been avoided if more attention had been paid to potential hazards and if safety rules had been obeyed.

CORN PICKERS

Corn picker accidents have caused numerous injuries and deaths among Michigan farmers. Virtually every farmer knows of a family member, friend or neighbor who has been injured in a corn picker.

The picker's snapping rolls are the most common culprit for farmer injury because they frequently plug if ground speed is too fast or slow. When plugged, the

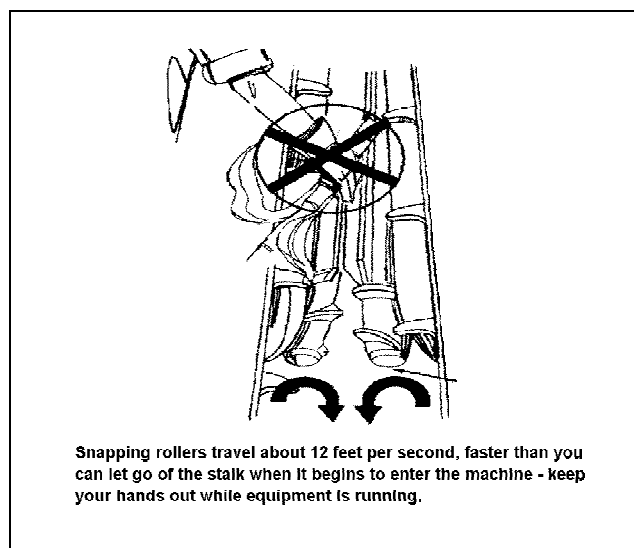


Figure 1.

rollers still travel freely, but stalks bunched around the rolls prevent stalks from entering. In hopes of clearing the plug quickly, farmers may be tempted to unplug the rollers without stopping the picker and shutting off the tractor. As the farmer frees the stalk that caused the plug, it rapidly moves into the roller, sometimes taking the farmer's hand and arm with it. With snapping rollers travelling at about 12 feet per second, a farmer holding onto a stalk two or three feet away from the mechanism has less than a half-second to let go (see Figure 1). Too often there just isn't enough time and the operator is caught in the picker.

1. Michigan State University, Agricultural Engineering Department.
2. Howard J. Doss, Extension Agricultural Safety Specialist; and William McLeod, Agricultural Engineering, Michigan State University Extension, East Lansing, Michigan 48824. 5/93. Funded by the National Institute of Occupational Safety and Health - #UO5/CC-4506052-02.

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Always stop the machine and shutoff the tractor before attempting to unplug the picker.

COMBINES

Like corn pickers, combines have numerous areas where individuals can be injured if they fail to follow safe operating practices. These areas, which must remain open for the crop to enter the machine, must be avoided while the machine is operating. Never attempt to dislodge stalks or grain sheaves with your feet or hands while the combine is running. Always shut down the combine and turn off the ignition before removing plugged or lodged material.

Most combine adjustments should be made with the machine shut off to avoid injury to the operator. While there are certain adjustments that must be made while the machine is running, such as adjusting the variable speed cylinder or fan, these procedures are outlined in the owner's manual and shielding usually provides protection so adjustments can be made without risk to the operator.

Multiple deaths among Michigan farmers have occurred when the operator failed to properly lock or block the combine header while working under it. Don't rely on hydraulic cylinders to hold the header up. Use locks or solid blocks to stabilize the header while working beneath it.

Farmers have also been injured when they climb inside the combine's grain tank to dislodge grain bridges that formed above the unloading auger. If there's room for grain to get to the unloading auger, there's probably enough room to get a hand or foot caught.

Transporting a combine on a public road requires knowledge of Michigan highway laws and operator judgement to safely drive to a remote location, especially with today's larger machines which often are wider than the typical vehicle lane of the highway. Properly preparing the combine for transport can reduce the risk of a combine/vehicle accident. This is done by:

- Emptying the grain tank to reduce weight and lower the center of gravity.
- Move the unloading auger to the transport position.
- When practical, remove the header to reduce width and transport it on a truck or other implement carrier.

- Make sure a slow-moving vehicle (SMV) sign, lights and reflectors are in good condition.
- Check that the combine is not wider than any bridges or culverts that must be crossed to reach the field.

Under Michigan law, "a person may operate or move an implement of husbandry (a combine, implements towed by a farm tractor, etc.) of any width on a highway as required for normal farming operations, so as not to minimize the interruption of traffic flow. However, a person must not operate or move an implement of husbandry to the left of center of the roadway:

- from a half hour after sunset to a half hour before sunrise;
- when approaching the crest of a grade or upon a curve when the driver's view is obstructed within a distance as to create a hazard in the event a vehicle might approach from the opposite direction;
- when the view is obstructed upon approaching within 100 ft. of a bridge, viaduct, or tunnel; or
- at any time visibility is substantially diminished due to weather conditions."

For a complete listing of state laws that apply to farm machinery on public roadways the publication *Today's Farm Equipment on Public Roads* (OHSP #883 [7/91]) is available from local Michigan State Police posts.

GRAIN WAGONS

Riding on grain wagons or any other tractor-pulled equipment places the rider at risk for an injury. Children are especially at risk for falling off a wagon as the wheel hits a bump or drops into a rut in the farm lane.

Grain, as it is being unloaded from a gravity wagon, can quickly trap and suffocate a child. As the grain flows out the chute it creates a funnel that can drag a child down toward the opening. The walls of the funnel may collapse and bury the child, resulting in suffocation if assistance is not immediately available.

Never allow children to ride on a tractor or tractor-pulled equipment, or to climb into a gravity wagon during unloading.

AUGERS

Augers can present several safety risks for farmers, including entanglement in the auger shaft, electrocution from touching overhead electric lines, and being crushed by the auger if it unexpectedly collapses.

Augers accidentally contacting overhead electric lines has claimed the lives of several Michigan farmers who attempted to move an auger in the upright position. While the National Electrical Safety Code requires that all overhead power lines in the grain bin area be at least 18 feet above the highest part of the bin (see Figure 2), lowering the auger before transport will eliminate the risk of touching these lines. Lowering augers before transport also stabilizes the unit, reducing the risk of the auger rocking to the side and tipping over.

Collapse of the auger undercarriage during transport and while in use is another common cause of injuries. Workers should secure the auger to a vehicle rather than move it by hand to avoid an upend accident where the end of the auger becomes top heavy. Get out of the way if the end of the auger begins to upend and lift the base out of the worker's hands. There is little that can be done to stop the auger from upending once the base is lifted above the auger's center of gravity. Moving the auger with a tractor will prevent upending accidents and leveling the soil in the bin area will reduce side to side rocking.

Once in position, both ends of the auger should be supported before operation. Crank the auger down far enough so the top of the auger rests on the grain bin and block the wheels in place.

Cable or winch failures are another hazard with augers. Never attempt to stop a freewheeling crank handle with your hand or foot. Some augers are equipped with a clutch to prevent freewheeling and others can be raised and lowered with the tractor's hydraulic system. Proper maintenance and storage increases an auger's lifespan and reduces accident risks. Frequently inspect and replace any cables or support legs that are worn or damaged.

An auger can quickly tangle an operator's hand or foot unless precautions are taken to prevent entanglement. Keep all shields in place and warn workers about the dangers of entanglement. Never use your hand or foot to dislodge grain that is plugging an auger. Use a stick or rod to loosen a plug. Tools and other objects should be picked up and put away to prevent someone from tripping and falling into an auger.

DUST AND MOLDS

Dust and molds are commonly found when harvesting grains that did not fully mature before the first frost and the harvest season was wet and cool.

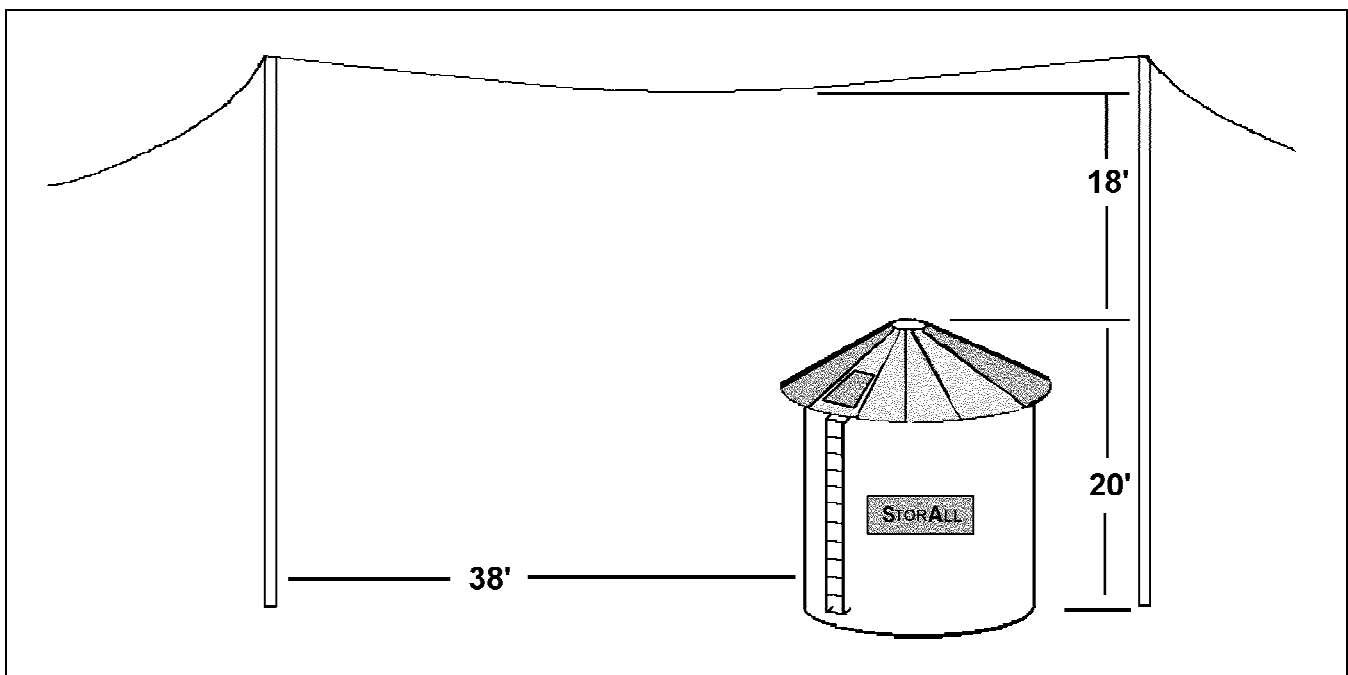


Figure 2.

Dusts, which can develop from small particles (fines) created during the harvest of immature grains, may result in organic toxic dust syndrome (OTDS) among individuals. Depending on a person's susceptibility, OTDS can develop after a single exposure to dust and molds or may take several exposures before symptoms develop. Flu-like symptoms such as coughing, chills, fever, fatigue, muscle aches, and sometimes shortness of breath that may begin two to six hours after exposure are symptoms of OTDS. Persons usually feel better within two to three days, but fatigue and shortness of breath may continue for weeks. Severe cases may require medical attention.

Molds that can develop in corn can also produce pneumonitis in humans. Symptoms include fever, drippy nose, persistent cough and pneumonia. Symptoms may appear within a few hours after exposure, or may take up to two weeks to develop.

Farmers can protect themselves with a dust mask that is manufactured to filter pollen and plant mold spores. Do not count on a standard painter's mask to provide protection from mold or grain dusts.

There are several brands available, including a 3-M 8710 or equivalent, or a 3-M 9920 or equivalent. The cost of these types of masks are about \$1 each. Face masks with disposable cartridges are also available. Dispose of the mask or filters when normal breathing becomes difficult through the unit.

Farmers who rely on dust masks or filters for much of their work may want to consider an air-purifying helmet that provides the wearer with constant purified air. These helmets cost about \$700, but workers find them more comfortable to wear for long periods of time than masks or masks and face shields.

REFERENCES

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Front page illustration courtesy of Deere & Company.