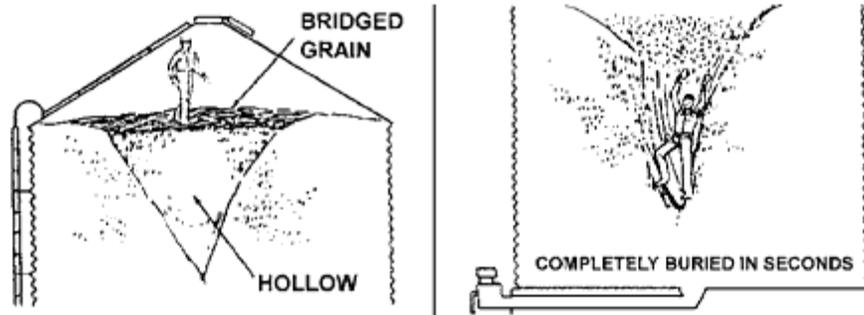


# The Deadly Risk of Grain Suffocation

Grain farmers and their families may face deadly hazards this spring when working with grain bins. At least nine farmers recently suffocated to death in stored grain after being buried alive.

A particularly wet Fall coupled with a large crop means that grain may be stored wet and may be stored longer than is typical. Moisture can cause the grain to cake or crust at the surface (frequently termed bridging). Bridged grain is extremely hazardous because it prevents grain flow and hides underlying pockets in the grain. Farmers walking on the bridged surface or attempting to break up the bridged material have fallen through the surface and become engulfed in grain.



A bridge across the top of a grain bin can collapse under your weight; never enter a bin without taking necessary precautions to protect yourself.

Farm workers may also be buried by stored grain while the grain is being emptied from the bottom of the bin. Much like quicksand, the flowing grain can pull the worker completely into the bin. The force created by the unloading grain is so great that once a person is waist deep in the grain, he or she is unlikely to be able to escape, even with the aid of a safety rope. Typical unloading rates will bury a person in less than a minute. Another serious hazard may occur if grain cakes along the bin walls. When workers try to break the caked material loose from below the level of grain, large sections of grain may break off, burying them below.

The risk of suffocation increases if grain spoils, because it gives off carbon dioxide, which may displace the oxygen in the bin. Even if a worker is not completely buried, he or she can suffocate because of the lack of oxygen above the grain surface.

The opposite side of this flyer describes the deaths of individuals who lost their lives after either falling through crusted surfaces on the top of stored grain or suffocating in grain as it was emptied from a storage bin. To prevent future deaths, people must be told of the hazards they face and the methods for preventing injury and death.

All of the grain in storage is not worth the life of one farmer, and there is no reason that there ever should be another victim of a flowing grain entrapment. If everyone involved is patient and follows the few basic strategies outlined on the back of this flyer, not only will the crop reach the market safely, but everyone involved will be around to enjoy the rewards from its sale.

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## Preventable Deaths

The following workers suffocated in grain bins. Our hope is that future injuries and deaths will be prevented by alerting farm workers to the circumstances of these deaths.

- A 63-year-old man was helping his cousin load corn into a wagon in West Allis, Wisconsin. He was trying to break a bridge with a metal rod when it collapsed beneath him. He was pulled into 30,000 pounds of corn and suffocated.
- A 35-year-old farmer was found buried under approximately twenty-five feet of corn in Mount Auburn, Iowa. He had been working alone, moving corn from a converted silo into a grain dryer. He had apparently fallen into the grain while attempting to dislodge bridged grain with a length of angle iron while the grain auger was still running.
- A 32-year-old man was found dead beneath 60,000 bushels of corn on his family's farm in Minnesota. He was loading trucks from a grain bin and had gone into the bin to check for clumping. He apparently got caught in the flow of corn and was buried beneath it.
- A 52-year-old farmer died while making repairs inside a grain bin in Manning, Iowa. He apparently suffocated when he fell through bridged material and was buried in the grain. The auger was turned off at the time, and no grain was being emptied.
- Three men were attempting to restore the flow of corn in a clogged 30,000-bushel corn bin in Iowa. After climbing one-by-one on top of the grain in the bin, the surface on which they were standing collapsed into a hollow pocket below, burying them. One worker was able to escape and call authorities, but attempts to rescue the other two workers were unsuccessful. The auger was turned off when the incident occurred.
- A 27-year-old man from Brazilton, Kansas suffocated when the grain at the top of a milo bin collapsed under him as he was trying to break up clumped grain.
- A 30-year-old man from Redfield, South Dakota suffocated in a corn bin. He and his brother were having trouble emptying a 20,000-bushel bin. The corn was wet and he had gone into the grain bin to unjam the auger. He was sucked down into the corn and completely covered. He had a safety rope tied around him at the time.
- A 75-year-old Admire, Kansas man suffocated in a 20-foot milo bin. He apparently fell while trying to loosen grain at the top of the bin.

## Steps for Prevention

The following precautions must be taken when working with grain bins.

Break up surface crusts from outside the bin. Surface crusts may be broken through the roof door with a weighted line or a wooden, plastic, or other pole that does not conduct electricity. Conductive poles should not be used, since they may contact power lines near the bin.

Contact your state extension specialist to find out the availability of additional equipment for your bin. Some storage bins can be modified to include equipment capable of mechanically breaking up bridges and clumping. Commercially available equipment and services are also available to assist in breaking crusted grain surfaces from outside of the bin, but the safety of these devices has not yet been determined.

**DO NOT ENTER STORAGE BINS!** If you MUST enter a bin, take the following precautions:

Stay above the material at all times and never stand on top of stored material. Assume that all stored materials are bridged and unstable. The potential for entrapment and suffocation is constant. Never enter a storage area from the bottom when material is caked to the sides of the bin or is bridged overhead.

Wear safety belts or harnesses equipped with properly fastened lifelines that will keep you above the stored material in case of a fall. A similarly equipped standby person should be stationed outside the area. Warning - this safety equipment will not protect a worker if he or she falls below the level of stored material.