

Filling Silos A Dangerous Job

UNIVERSITY PARK (Centre Co.) — Few farm operations are as dangerous as filling a silo, said a farm safety expert in Penn State's College of Agricultural Sciences.

"This complex task combines raising heavy equipment and working in close quarters with powered machinery, extremely loud noise and deadly silo gases," said Dr. Dennis Murphy, professor of agricultural engineering. "It sounds like a potential disaster, but knowing how to handle these hazards will let you fill your silo safely."

Preparation for silo filling includes raising the unloader to the top of the structure. "Do this on a calm, dry day to reduce the risk of slips and falls," Murphy said. "Make sure all cables, wires, pulleys, and connections are anchored and working properly before you start."

"One person at ground level should raise the unloader. Another

person should watch from the blower pipe platform, signaling if problems arise. Never enter the silo while the unloader is being raised or try to crawl out onto it after it is suspended. An unloader can easily crush you if it falls."

Moving machine parts pose the greatest risk during silo filling. Both self-unloading forage wagons and silo blowers are operated by power takeoff (PTO) shafts that often aren't properly guarded.

"A PTO rotates at 9 or 16 times per second at full speed," Murphy said. "No one can react fast enough to pull away once caught in the revolving shaft. Stepping over PTO shafts makes accidents much more likely. Walk around tractors and wagons instead."

Unloading wagons have a combination of moving aprons, beaters, conveyors, or augers, and an assortment of chains and sprockets. "Keep all protective machinery shields in place," Murphy

said. "To prevent getting snagged, wear comfortable but close-fitting clothing and keep long hair tied up or under a hat."

Never enter a self-unloading wagon or reach into an unloading chute to speed the unloading rate while the machine is running. "If it gets clogged, disengage the PTO and stop the tractor," Murphy said. "PTOs can accidentally slip into gear, so always stop the engine. Keep the unloading wagon's emergency shut-off device in good working condition. It could save your life."

As forage moves from the wagon into the silo blower hopper, it's carried by an auger or conveyor to the blower fan, which forces it into the silo. "Silo blower operators need to watch out for the PTO shaft, the exposed conveyor or auger and the blower fan blades,"

Murphy said.

Blower accidents are most likely when the machine plugs up. "If this happens, don't climb onto the hopper or try to force forage into the blower blades," Murphy said. "Turn off the blower, cut the power, and make sure the fan blades have stopped turning before you try to clear the machine."

Also be sure to securely fasten the silo blower to the tractor drawbar. Otherwise, the PTO could separate or vibrations could make the blower pipe fall.

Machinery is not the only danger associated with silo filling. "Silo gases can cause unconsciousness, injury and even death, especially in the first 48 to 60 hours after filling," Murphy said. "If you must enter the silo during this time, wear a self-contained breathing apparatus. If you don't have one, stay out of the silo."

Dangerous levels of silo gas may persist for two to three weeks after filling. "Before entering

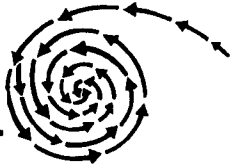
without a self-contained breathing apparatus, use the blower to ventilate the silo," Murphy said. "Open all doors, run the blower fan for 20 minutes, and leave it running while you're in the silo. Enter only after you have put on a respirator for toxic dust and have a second person standing by to assist in an emergency."

Silo blowers, unloading wagons, and the tractors that power them are loud enough to cause noise-induced hearing loss. "When all of these machines are operated together, the hazard increases," Murphy said. "Workers should wear hearing protection."

Children often think silo-filling time is fun, without knowing the danger. They may want to climb on wagons and tractors or help. "Keep children and other bystanders out of the area and allow only those persons necessary to participate in filling the silo," Murphy said.

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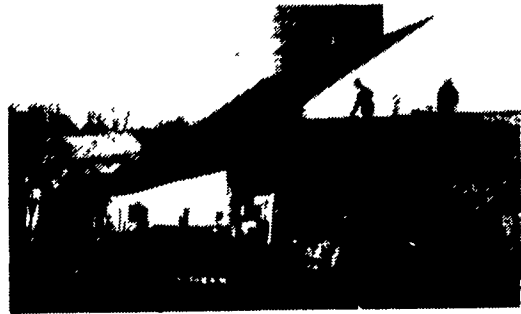
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