

# Silo Filling Safety

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For those who work in farming, the fall season brings not only the bounty of the harvest but many safety concerns as well. Safety concerns for silage handling vary according to the type of silo being filled. **Silo gas** is a serious hazard in upright silos as well as ensilage storage bags. Silo gas is composed of nitrogen oxides that are formed as the ensiled forage begins to ferment. This dense, usually reddish-brown gas production is at its peak in four days and can continue for two weeks. It is best to avoid entering the silo during this period. If it is necessary to go into the silo, the following safety precautions are recommended: ventilate the silo before and during entry by running the blower for an hour prior to entry; use electrical lock-outs; wear a lifeline and have outside help available and post warnings around the silo.

The openings in the **ensilage storage bags** can also be a source of silo gas and caution is necessary here as well. An awareness of confined space hazards applies when working in both upright silos and with ensilage bag storage.

Safety measures to keep in mind:

- Never climb over the PTO
- Avoid wearing loose or torn clothing
- Keep all shields in place and repaired
- Never leave the tractor and blower running unattended
- Restrict the area to only those persons needed to perform the work,
- Lockout power to unloaders during repair and maintenance

Other safety practices to remember when filling ensilage storage bags include frequent cable inspection, not leaving the machine unattended, and remembering to shut off the bagger before unclogging. It is also good safety practice to keep children away from the work areas.

**Upright silo safety** means taking measures to avoid climbing hazards such as installing safety cages on external ladders, wearing a safety harness while working on top of the silo, wearing sturdy non slip shoes, and keeping silo ladders above the reach of children.

**Bunker silo hazards** are identified as side and rear tractor rollovers, frozen silage cave-ins, and worker fatigue. Using a ROPS equipped tractor and wearing the seatbelt are sound safety practices. In addition, widening the wheels to increase stability and the increased traction of four wheel drive can reduce the risk rear tractor overturn. Bunker silo work is best done by experienced tractor operators because statistically youth under 16 years of age are more likely to be involved in a rollover.

Safety measures in bunker silos require safe bunker management which includes:

- Wall inspection and maintenance
- Keep surfaces firm to avoid soft spots
- Dump on the floor and push silage up

- Limit piled silage to no more than two feet above sidewalls
- Pack edges from an angle not parallel to the sidewalls
- When piling without sidewalls, keep pile three times wider than it is high
- Silage height should be no higher than unloading equipment can reach
- Keep silage face vertical, avoid under mining

**Personal safety** should not be forgotten during the harvest work. Making it a habit to take 10 minute breaks every hour or so can help reduce worker fatigue. A short walk can promote circulation and increase mental alertness. Other good personal protection practices during silo filling include wearing hearing protection and safety glasses. Visibility for yourself and equipment are important to your safety as well as others when hauling over roadways:

- Keep all SMV signs clean and visible
- Add reflective markers to forage wagons
- Check lights on all vehicles

This silo safety information is provided as part of the agricultural safety and health services at the New York Center for Agricultural Medicine & Health. Writing assistance provided by Pamela Manchester. Safety specialists are available to conduct farm safety training sessions and on-farm safety surveys. All services are offered at no cost, and all information is kept strictly confidential. For more information contact Sharon Scofield at (800)-343-7527 extension 236. NYCAMH, a program of Bassett Healthcare Network, is enhancing agricultural and rural health by preventing and treating occupational injury and illness.