

Silos

Whenever anyone installs, climbs, enters, fumigates, fills or empties a silo, significant risks may be involved.

Hazards can include insufficient oxygen, toxic gas, explosive atmospheres, unguarded machinery, electricity, grain trapping, silos collapsing, and falls from heights.

There are also significant risks for unsupervised children.

Spot the hazard

Keeping in mind potential hazard areas, conduct a safety audit of your silo and grain storage system. Include machinery used in and around silos, especially grain augers, which can trap limbs and clothing unless adequately guarded, and are prone to tipping unless erected and transported safely.

Look closely at any part of the system that could injure or harm people on the farm, especially children. Check silo ladders, both external and internal, edge protection, and safe procedures for fumigation, dislodging bridged grain, and rescuing somebody trapped inside.

Assess the risk

Check whether identified hazards present risk of serious injury, and consider ways risks can be minimized.

Make the changes

To help farmers make the necessary safety changes, here are some suggestions:

- Remember, grain dust in silos can become explosive, particularly if humidity is low.
- Don't smoke near silos, and avoid causing sparks from metal friction or electric switches.
- Carbon dioxide in a silo can displace oxygen and cause suffocation.
- High temperatures can cause heat stress for people inside a silo.
- Do the job from outside if possible.
- Wear respiratory equipment when appropriate.

Safe fumigation

- Ventilate fumigated silos before entering.
- Always follow the manufacturer's recommended safe ventilation period.
- Open phosphate containers in the open air, not in the shed or silo.
- Hold the container away from your face, and position yourself upwind.
- Wear protective clothing and equipment.
- Have someone standing by when fumigating.
- Place phosphate tablets into the silo from the roof using a tube.
- Clearly mark all areas under fumigation with "DANGER UNDER FUMIGATION" signs.

Avoid grain suffocation

- Don't enter a silo unless you have to.
- If you enter a silo, have someone standing by in case of difficulties.
- Never enter a silo without turning off the auger and ensuring no-one can start filling or emptying the silo while you are inside.
- Stay on the ladder above the level of compacted or bridged grain while dislodging it.
- Ensure external ladders start at a height inaccessible to children.

Check machinery

- Guard auger drive train (belts, pulleys, drive shafts) and the rotating screw fitting.

- Locate mobile augers on firm, preferably flat ground, and operate at a shallow angle (less than 45deg) to prevent overbalancing.
- Lower mobile augers when transporting.
- Never start augers hidden from your view before checking the area is clear of people.

Avoid structural failures

- Every stored material has different structural characteristics - a silo designed to store one product may not be suitable for another. Care must be exercised whenever a new product is stored in a silo.
- Follow manufacturer's instructions exactly in preparing the concrete pad.
- Use "bedding-in" procedure when filling a silo, by drawing off a rubbish bin full of grain.
- Keep people, especially children, well clear when filling or emptying a silo.
- Seemingly simple changes to a silo can drastically alter its structural stability. Consult an engineer before any alterations are made. Equipment attached to silos can also impose dangerous loads.

Avoid falls

- Provide roof fall protection in the form of a simple edge rail.
- Install an external ladder cage where required.
- Provide a permanently hinged wire mesh guard on all external openings above the maximum level of grain.
- Use a safety harness.

Emergency procedures

- If trapped by grain don't panic - the grain will pack tighter. Shield your face and chest with arms and clothing to create space for breathing.
- Plan your escape. Always have a person watch from the outside. The watcher should have clear instructions what to do in an emergency. The first instruction is: "Don't follow me in."
- If only one person is on standby and cannot pull you out without entering, they must call for help. Only then may someone enter, wearing a breathing apparatus and a life-line. One or more people outside can help to pull you out.
- If someone else is trapped in a grain silo, empty the bin by opening any side outlet, then cut flaps in the cone or walls all around the base using power tools.