

Silo Gas

What is it?

Shortly after green plant material is ensiled, it begins to ferment. Oxygen used in fermentation combines with nitrates in the plants, and nitric oxide gas is released. This combines with oxygen in the air to form nitrogen dioxide, a heavier-than-air, toxic gas which can injure or kill people or animals.

Silo gas forms within a few hours up to three weeks after fresh plant material is added to the silo. It is a problem in conventional, non-airtight silos.

Dry growing conditions may cause an increase in the nitrates in the plant material. Weeds and corn are naturally high in nitrates. Nitrate levels in corn are extremely high after a rain following a dry period. Harvesting the plant high will help to decrease the nitrate level.

**If you see it or smell it
- it may be too late!**

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Silo-Filler's Disease

Silo-filler's disease is the term given the injury resulting from exposure to silo gas. Inhaling even a small amount can result in serious, permanent, or fatal lung injury. The nitrogen dioxide combines with water in your lungs to form highly corrosive nitric acid.

Symptoms of silo-filler's disease include coughing, burning, shortness of breath, chills, fever, headaches, nausea, or vomiting. While a person may not immediately experience the symptoms from a mild exposure, in 3-30 hours there is a slow, progressive inflammation of the lungs that results in fluid buildup in the lungs. ***This can be fatal.*** A unique characteristic of this disease is that there may be a relapse in two to six week after the original episode, which may be milder or more severe than the first episode.

To prevent Silo- Filler's Disease:

1. Stay out of the silo for at least three weeks after filling.
2. Be alert for bleach-like odors and/or yellowish-brown gases in or near the silo.
3. If you must enter the silo, e.g., to set up a silo unloader, do so immediately after the last load is in. Do not wait several hours or overnight. Run the blower 15-20 minutes before entering and keep it running while inside. Keep a door open down to the silage surface, and have someone keep in contact with you from the outside.
4. Ventilate the silo room adequately for three weeks after filling, keeping windows and doors open.
5. Keep the door between the silo room and the barn closed to prevent silo gas from killing livestock.
6. If you experience throat irritation or coughing in the silo, get fresh air immediately.
7. ***See your doctor immediately after exposure to silo gas.***

**UW Center for Agricultural
Safety and Health**

UW-Extension/Madison
Dept. of Biological Systems Engineering
460 Henry Mall ♦ Madison, WI 53706
ph. 608-262-9336



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