

Canadian
Agricultural
Safety Week
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FACT SHEET #6

THE CANADIAN FEDERATION OF AGRICULTURE
1101-75 Albert Street, Ottawa, Ontario K1P 5E7
Tel: (613) 236-3633 Fax: (613) 236-5749 farmsafety@cfafca.ca

Managing risks in confined spaces

Confined spaces are common on today's farms and can pose a serious danger to workers. While many people think of a confined space as something with a small sized opening to the space, this is misleading. A confined space in any space not intended or designed for continuous worker occupancy. It often has a restricted access, hosts a mechanical hazard, and may have reduced levels of oxygen or sometimes hold toxic or explosive gases.

Deaths from exposure to toxic substances, particularly gases in manure storage areas, silos and grain bins are the most common. They account for three per cent of fatal farm-related incidents in Canada, with young to middle aged, male workers at especially high risk. Similarly, suffocation or asphyxiation by grain or soil account for one per cent each of farm-related fatalities. While these numbers may not seem very high, the point is that *all* deaths from confined spaces are entirely preventable.

"*Farm safety is MY business.*" is the theme of this year's Canadian Agricultural Safety Week (CASW) campaign, March 8-14, 2006. The campaign emphasizes the personal and professional responsibilities of farm managers for their own safety as well as for their workers. This risk management theme will give a special focus on youth aged 15 to 29 who make up a significant portion of new farm workers – many of whom have no training or experience working with confined spaces. CASW is delivered by the Canadian Federation of Agriculture (CFA) and Canadian Agricultural Safety Association (CASA) in partnership with Farm Credit Canada (FCC) and Agriculture and Agri-Food Canada (AAFC).

"When it comes to safety, if a hazard is predictable, then it is preventable," said Denis Roy CASA director. "This campaign is about getting farm safety information to the people that need it and hopefully help to avert an unnecessary tragedy."

Places that meet the conditions of a confined space include: silos, grain bins, manure pits, deep trenches, controlled atmosphere storage buildings, well shafts, air seeder tanks, holding tanks, tanker trailers, culverts, septic tanks, or welding inside a combine body, to mention just a few.

The development of large-scale livestock operation with manure pits is attributed to an increase in the risk of exposure to animal confinement gases (hydrogen sulfide) as almost half (44%) of farm-related toxic substance fatalities are due to inadequately ventilated manure storage areas. The danger of gases from manure pits can be deceptive since many pits appear partially open, but because the deadly gases are heavier than air they remain in the pit at lethal concentrations. Ventilation and air circulation must be provided with manure pits, especially if the pit is located close to buildings where livestock are housed or where humans enter.

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Exposure to carbon monoxide gas accounted for about a third (29%) of deaths due to toxic substances. Combustion engines should never be run in confined spaces without adequate ventilation.

The third most frequent killer is silo gas accounting for one in eight (12%) of toxic substance fatalities. Silo gas accumulates and reaches dangerous concentrations when silage ferments in poorly ventilated silos. Silos should be ventilated adequately and workers should be trained in proper silage handling procedures.

Another unfortunate reality of gases in confined spaces is that frequently good intentioned, but untrained and ill equipped, would-be rescuers also die. These victims typically collapse and lose consciousness when they too are overcome by fumes, then they either drown or stop breathing.

A key preventative measure is the implementation of sound design and maintenance of farm buildings and the use of safe practices when handling and storage of manure. All agricultural workers should be educated about the hazards associated with confinement gases, and about associated emergency procedures.

Suffocation or asphyxiation in grain typically occurs when the victim falls or sinks into grain stored in a bulk container or silo. More than half of the adult victims sank down into the grain while trying to loosen a blockage in the grain flow or while trying to level the grain. Blockages in grain flow should be loosened with a long pole from the outside of the bin or silo. If you must enter the container then you should wear a safety harness secured by a rope and have someone assist to ensure your safe entrance and exit of the bin.

Suffocation or asphyxiation in soil typically involves a trench collapse. Trench collapse fatalities can be avoided if standard safety practices of shoring up the walls of a trench are followed, and if workers are never left alone on a work site.

The CFA along with FCC, CASA and AAFC want to remind Canadian farmers that “*Farm safety is MY business.*” means that you are responsible for your safety and that of your workers.

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For more information call:

Theresa Whalen–Ruiter, CFA Farm Safety Coordinator

Tel/Fax: (613) 731-7321 E-mail: farmsafety@cfafca.ca

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