



SAFE WORK



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Worker Health and Bio-Security

Bio-security protocols offer the livestock industries an increased level of food safety and production stability. Many of the practices outlined in bio-security protocols also, protect worker health. Additional safety provisions for workers will enhance both herd / flock health and public health. It is important that anyone entering into or working at a livestock facility understand the need for following additional precautions, to protect their own health as well as that of others which the worker may come into contact with after leaving the barn.

Routes of Entry

There are four primary routes of entry into the human body:

Inhalation - inhaling or breathing in the material

Ingestion - eating the material intentionally or unintentionally (licking your dusty lips, splashes of manure in the face)

Absorption - having the material absorbed through your skin or exposed tissue such as around the eyes or open sores.

Injection - having the material forced under the skin or nails, such as with a hypodermic needle (sharps used around animals) or a high pressure jet.

Health Hazards

The primary health hazards that exist in livestock buildings are:

Gases - that are either biologically generated (decomposing manure) or mechanically produced (internal combustion engines and fossil fuel furnaces), and

Biological material - which includes; animal dander, mould, bacteria, viruses, animal waste and bodily fluids, rodent and insect waste, grain dust, antibiotics and animal growth supplements.

Risks of Not Controlling the Hazard

A variety of respiratory conditions may result from exposure to particulates found in the air in livestock barns. Typical conditions experienced by barn workers include: asthma, allergic reactions, Toxic Organic Dust Syndrome, farmer's lung as well as viral and bacteriological infections.

Gases commonly found in barns fit into three categories, which could result in health impairment: *irritants*, *asphyxiants* and *toxic gases*.

- Ammonia gas in low concentration is an irritant to the eyes and nose and will typically drive a person out of the area before hazardous concentrations are reached. However, some individuals may react with respiratory distress symptoms even at low concentrations.
- Asphyxiants are gases that are heavier than air, such as carbon dioxide and methane, and displace sufficient oxygen to cause suffocation of a breathing creature.
- Toxic gases interfere with the body's ability to function in a normal manner, causing serious injury and/ or death. Hydrogen sulphide and carbon monoxide are the two most common gases in this category.

Zoonotic diseases are infectious diseases commonly found in animals which may be transferred to people. Rabies and anthrax are common examples, however there are numerous other conditions such as influenza (avian and from hogs), tuberculosis, and strep suis which can impact worker health.

Personal Protection

Workers can be protected from workplace hazards in several ways. Designing the facility to restrict worker exposure is the ideal approach, however this may not be practical in some instances. Alternately, a combination of training, implementation of safe work procedures, and use of personal protective equipment can effectively protect both worker and stock health.

Particulate in the air: When it is not practical or possible to sufficiently control dusts in the work environment, workers must wear respiratory protection. Respiratory protection must be selected according to the risks present. Generally speaking, a disposable dust mask having an N95 rating is suitable for work in light dust conditions. When dust is clearly visible in the air, the selected respirator (other than a disposable paper respirator) must provide an effective seal around its perimeter to prevent any contaminated air leakage into the breathing zone.

Gas generation or release: In work environments where there is a potential for gas generation or release, respirator protection selection must be based on a careful evaluation of the conditions including potential types of gases and duration of exposure. It is critical to understand that a chemical cartridge respirator will **NOT** provide protection in an oxygen deficient environment. In oxygen deficient or toxic gas environments, a self-contained breathing apparatus or supplied air respirator is required.

Biological agents: In conditions where biological agents (viruses, moulds, bacteria) may be present in the work environment it is important to wear clothing that will minimize dust / liquid contact with the worker's body, including the hair. The selection of clothing (including gloves), whether disposable or reusable should be based on a risk assessment of the work environment. It is critical that the worker not wear the same clothing in the barn environment as the home (this includes vehicles). Although clothing worn in the barn can easily be decontaminated by laundering, it should be handled in such a manner as to avoid spreading any dust or particulate that may be on the barn clothing into a 'clean' environment.

Personal hygiene: Good personal hygiene is key to any bio-security protocol. Thorough hand washing prior to eating or any other activities that may result in cross contamination is essential. Hand washing should also always be performed after removing or handling clothing or materials taken from the barn environment.

Vaccinations: Influenza vaccinations for workers in livestock housing buildings may have both personal and public health benefit. *It is theorized that under certain conditions, when a human influenza virus is exposed to an animal influenza virus a mutation may occur resulting in a hybrid virus that affects both animal and man.*

"Cette information existe également en français au www.gov.mb.ca/labour/safety/index.fr.html"