

STORAGE AND TRANSPORT OF LIVESTOCK MANURE

Why should you be concerned?

Many manure storage structures have been built to store manure for 200 days or more to ensure that manure does not have to be applied on frozen ground or snow. Having more than 200 days storage capacity enables the producer to deal with unfavourable field conditions in the fall or spring, particularly excess soil moisture. Most earthen manure storage structures are built to provide storage for more than 400 days. This long storage capacity gives the producer more flexibility in applying the manure closer to when crops/forages can utilize manure nutrients.

Regular inspections of a storage structure are necessary to detect any damage or wear, and to ensure sufficient capacity for additional manure until application to cropland/forages can be done. If a manure storage structure is not constructed, maintained and operated properly, manure or components of it may be released to soil and/or water. As a result, the quality of surface water or groundwater supplies may be at risk, including water supplies of the livestock operation or its neighbours. Even a small leak can lead to environmental damage or can be a warning sign of potential catastrophic failure of the storage, which may result in a much greater environmental impact.

Safety precautions, both for workers and other people, are a critical part of any manure storage structure. Proper fences, barriers and signs should be installed around storage structures, and safety equipment placed nearby ready for use. Most importantly, no one should enter an operating storage system, especially confined spaces such as tanks, under-floor pits and tanker trucks without taking all necessary precautions, including using a proper breathing apparatus.

Machinery and equipment access to the storage structure, such as for agitation and pump-out of liquid manure storages, should be designed so that any activity does not compromise the integrity of the storage structure. Any damage to the structure should be repaired immediately to minimize the risk of leakage. For earthen manure storage structures, concrete ramps must be installed to provide access for equipment. Grass must also be seeded on the sides and tops of earthen manure storage structures to prevent erosion from rainfall. In addition, a monitoring well system used to detect leaks is required anytime a liner is used.

Manure is a valuable fertilizer resource that must be properly stored until it can be applied to cropland. Under the Livestock Manure and Mortalities Management Regulation (LMMMR), all earthen manure storage structures constructed, expanded or modified since 1994 require a permit. In 1998, the requirement for a permit was expanded to include steel and concrete manure storage structures. Through the permitting process, all new manure storage structures must be designed and constructed under the supervision of a professional engineer. Amendments to the regulation in 2004 require that all earthen manure storage structures constructed prior to 1998 must be registered with Manitoba Conservation by 2010.

The regulation prohibits the improper manure storage or transportation of manure that results in pollution of soil, surface water or groundwater. The regulation contains requirements for manure storage and transportation which include:

- No direct discharge or any other release of manure into surface or groundwater.
- Setbacks from watercourses, sinkholes, springs and wells for constructed manure storage structures, composting sites and field storage sites.
- Depth of underlying clay or other impermeable layer (e.g. synthetic liner) with a maximum allowable rate at which liquids can move down through the soil.
- Special pollution prevention measures where necessary (e.g. dikes around field storage areas) to minimize the risk of soil or water contamination.
- Prevention of manure spills from transport vehicles and immediate reporting of spills to Manitoba Conservation.

A storage structure must also have sufficient capacity to ensure that manure can be stored long enough so that manure is not applied over the winter months. The regulation prohibits winter application of manure, between specific dates, by ALL new livestock operations and existing operations with 300 or more animal units. Existing operations between 300 and 400 animal units have until November 10th, 2010 to comply.

What can you do?

1. Inspect your manure storage structure regularly. Check for signs of wear, damage or leakage in all parts of the structure - make prompt repairs.
2. Regularly check the safety of the storage structure and surrounding area. Verify that signage, fencing and any other barriers are in place. If any of these are missing or damaged, take the necessary measures to keep the area secured.
3. Choose locations for field storage of solid manure which have low risk of runoff or leaching from the piles. According to the LMMMR, livestock manure in a field storage area shall be removed and disposed of no later than November 10th of the year following any year when the livestock manure is stored in the area. After the manure is removed, the field storage area must remain empty of manure for at least 12 months and a crop grown in the area to deplete the area of any leached nutrients.
4. Ensure safety equipment is readily accessible and in working order, and personnel are fully trained in the use of safety equipment.
5. Prepare an emergency plan to deal with a spill or dangerous situation and ensure that all personnel understand and can execute the plan.
6. Inspect transport vehicles and application equipment for wear or damage prior to each use. Make necessary repairs. Take all reasonable precautions to minimize the risk of manure spills during transport and report any spills to Manitoba Conservation immediately after they occur.
7. Use this worksheet to evaluate how well manure is managed in your operation.
8. Contact your local GO Office for additional information and support, or other appropriate agricultural extension specialist.