

Health Issues & Livestock Production

SPRING 2002

FACT SHEET #1

Living WITH Livestock PRODUCTION



Neighbours living near a livestock operation may have concerns about how their health might be affected. Questions about the safety of the water supply in the area, the quality of the air and whether illness can be passed from animals to humans deserve consideration.

Infectious Diseases – The Concern:

Diseases that can be transmitted from animals (livestock, pets or wildlife) to humans are called zoonotic diseases. Bacteria, viruses, protozoa or parasites are all possible causes of these diseases. Current livestock

management practices minimize the presence of these micro-organisms in manure. Zoonotic organisms die when exposed to drying, sunlight, high temperatures or are destroyed by naturally occurring soil micro-organisms. However, some may survive for varying lengths of time so it makes sense to handle manure with care.

The Facts:

Bacteria are commonly found in livestock manure, and survive for different lengths of time, depending on the environmental conditions such as temperature, exposure to sunlight and drying, and the activity of soil organisms. Some bacteria (*Salmonella*, *Campylobacter* and certain strains of *E. coli*) are zoonotic.



Modern farming operation in Manitoba.



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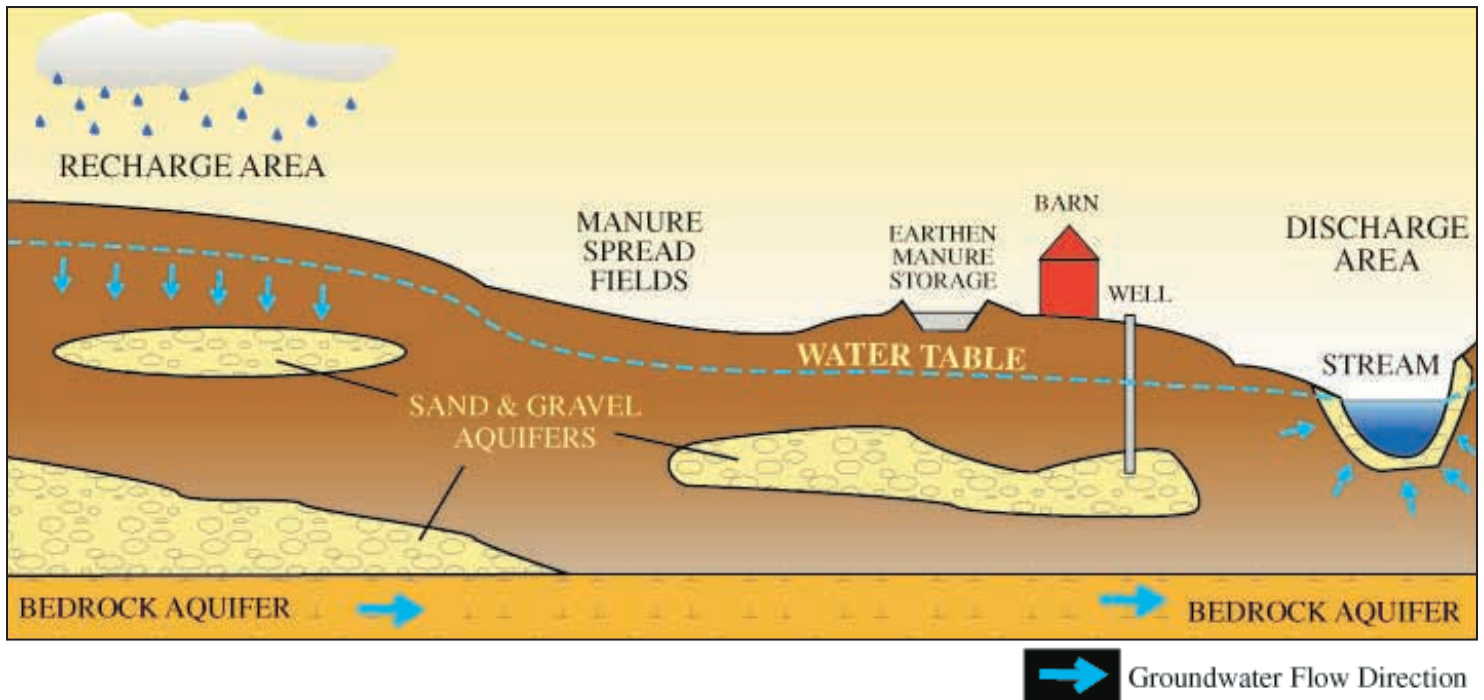
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Special care is needed in recharge areas where groundwater supplies are found close to the surface. With proper management, contamination can be prevented.

Viruses that may be present in livestock manure do not normally survive for long periods of time. They are inactivated by bacteria as well as environmental conditions, and need a host organism to reproduce.

Parasites (e.g. roundworm, nematodes) can produce eggs that survive in livestock manure. However, they usually cause disease only in the host animal species, and infrequently in humans. This can occur when humans eat undercooked infected meat.

Protozoa (such as giardia, cryptosporidium) are hardier, and may cause illness, particularly if present in drinking water sources.

Disease-causing organisms can be spread from livestock to humans

through direct contact such as touching animals or handling manure. They can be transmitted by animal scratches, bites and saliva. Careful hand washing after visiting or working in a barn helps prevent illness. While some raw foods may contain disease causing organisms as a result of production or processing practices, proper handling and cooking of food will prevent most food-borne illness.

A minimum 30-day rest period is recommended before livestock are reintroduced to pastures on which manure has been spread. If animals eat plants that have bacteria on their surfaces, the bacteria remain in the digestive tract of the animal and do not enter the meat or milk. Proper care during slaughter, followed by safe food

handling and cooking, ensure that the meat is safe to eat. Milk must always be pasteurized to destroy any bacteria that may be present.

For more information, contact Manitoba Agriculture and Food offices for a copy of the food safety booklet - "Handling Food at Home" or refer to the Food Safety Feature Page at www.gov.mb.ca/agriculture. Individuals with weakened immune systems are particularly at risk and should take extra care with the safety of their food.

Water-borne disease can occur if organisms in the manure migrate to surface water or groundwater sources that are used as a supply of drinking water. This could occur if manure is spread too near surface water or in

areas of steep slope. Rapid movement to groundwater can also occur if manure is spread in areas where there are sinkholes, bedrock outcrops or the soils are very coarse. It is important to follow the Farm Practices Guidelines for Beef/Dairy/Hog/Poultry Producers in Manitoba and the Livestock Manure and Mortalities Management Regulation to minimize the potential for contamination of surface water or groundwater resources. Information on testing drinking water supplies may be obtained from Manitoba Conservation offices.

Manitoba Health has produced a series of Well Water fact sheets that address the topics of well water safety. They are available from Manitoba Health and Manitoba Conservation offices or on the Internet at www.gov.mb.ca/health/public_health/cmoh/water.html

All micro-organisms can survive in the environment for varying amounts of time, depending on the conditions. For example, *E. coli* can survive in frozen soil for over 300 days, or only one day on a dry surface. For more information on this topic, refer to the fact sheet in the series: Living with Livestock Production entitled: *Livestock Pathogens - A Natural Occurrence*.

Nitrates – The Concern:

Excess soil nitrates can reach groundwater or surface water and contaminate drinking water supplies.

The Facts:

Nitrates are found naturally in certain vegetables, and added as preservatives to some meats. Nitrates are also present in soil as part of the nitrogen cycle and are important for plant growth. Field application of commercial fertilizers and manure increases soil nitrate levels for crop production. Excess nitrates in soil can increase the risk of contamination of groundwater. Spreading manure or commercial fertilizers at rates matching plant needs (based on soil tests and manure analysis) will reduce the risk of contaminating the groundwater.

Methemoglobinemia (also known as blue baby syndrome) is the only health condition widely accepted as being directly related to drinking water high in nitrates. Methemoglobinemia may occur in infants under one-year of age who drink water or formula made with water that has nitrate levels greater than 10 mg/L measured as nitrate-nitrogen. Excess nitrate in drinking water is only one of several possible causes of the disorder. For further information, refer to the publication *Nitrates in Soil and Water*, which is part of this Living with Livestock Production series and can be found at www.gov.mb.ca/agriculture/livestock/publicconcerns/cwa01s00.html

Odour - The Concern:

Some individuals are more sensitive than others and may develop eye, nose and throat irritation, headaches or nausea when exposed to certain odours.

The Facts

Odours come with all livestock operations. They result from the detection of volatile compounds, mostly in dust and gases. Individuals who react are generally sensitive to many types of odours. High concentrations of some odours may affect mood and induce stress and therefore may influence health in sensitive individuals. Odours do not, by themselves, cause disease.

Exposure to odours from manure and dust particles in outdoor areas usually is minimal due to the dilution effects of outdoor air movement. The best opportunity for producers to limit the impact of odour is siting new facilities at adequate distances from neighbours. Odours can also be reduced by covering manure storage sites and by choosing efficient application methods such as injecting manure into the soil. Careful handling of manure during spreading will also help minimize odour production.

Odours can be carried with dust particles. Regular cleaning and adequate ventilation will reduce the amount of dust produced in barns. Most dust particles do not travel very far from exhaust fans. Because it is unlikely that dust travels any great distance, it is also unlikely that asthma attacks could be triggered in people with pre-existing asthma who are living nearby.

Summary

Community health risk from properly managed livestock operations is negligible. By strictly following agricultural guidelines and environmental regulations, livestock producers can minimize potential impacts on health. Individual personal hygiene is very important when visiting or working in a livestock operation.

For further information about livestock production refer to other titles in the series: "Living with Livestock Production" available from Manitoba Agriculture and Food offices.

- *Livestock Odours – Sources, Concerns & Solutions*
- *Surface Water Issues*
- *Nitrates in Soil and Water*
- *Land Application of Manure*
- *Siting Livestock Production Operations*
- *Understanding Anti-microbial Resistance*
- *Food Safety on the Farm*
- *Livestock Operations and Groundwater Quality*
- *Livestock Pathogens: A Natural Occurrence*

More detailed information can be found on the Internet at www.gov.mb.ca/agriculture/livestock. Copies of the Farm Practices Guidelines* for Hog Producers (1998 edition) and Poultry Producers (2000 edition) in Manitoba are available from Manitoba Agriculture and Food offices in rural Manitoba and from Agriculture Publications at 8th floor, 401 York Avenue, Winnipeg MB R3C 0P8 (Telephone: 204-945-3893; FAX: 204-948-2498)

* the 1995 edition of the other titles of the series are presently available; they are being updated.