



Environmentally Friendly Horse Farm Through Better Manure / Waste Management

Introduction

More and more horse owners are becoming aware that rearing and maintaining horses can have a negative impact on the environment. Many of the practices in place on horse farms, from confinement areas to manure management, must be reviewed with the intent of reducing waste streams into the environment. Many horse owners, recognizing the environmental threat from some common practices, have taken welcome steps toward improvements. These improvements include, ways in which manure is stored and handled, how woodwaste is used and livestock are maintained. This factsheet is written with the intent of helping the horse owner to better understand potential environmental impacts.

Managing Agricultural Waste is Important

The Waste Management Act gives the Ministry of Environment (MoE) broad powers to control pollution. MoE, along with the Ministry of Agriculture and Lands, worked with the horse industry to develop the Code of Agricultural Practice for Waste Management.

The Code describes methods for handling agricultural waste (horse manure) and woodwaste to prevent pollution. Horse farms which are unable to satisfy the requirements of the Code, require a permit for the discharge of waste under the Waste Management Act.

Manure Spreading

Manure produced on your farm is valuable, and can be used as a fertilizer for pasture or forage crops. It can be used as a fertilizer if:

- it is applied at a rate that the nutrients in the manure will be used by the crop, or:
- it is applied in split applications to achieve the annual recommended rate during the growing seasons (April to September)

If manure is applied outside of the growing season, or above the rate of pasture use, nutrients from the manure can be carried in the rain water, and may cause pollution to streams or rivers. These nutrient can move through the soil and pollute ground water. In general, in the south coastal area of BC, each acre of a well managed productive pasture can use up 2500 cubic feet of manure bedding per year. **As a general guideline, manure or manure/bedding mixture from 3-4 horses can be spread on each acre of productive pasture.**

Excess Manure

If you have more manure than your pasture can use, it must be disposed of in an environmentally friendly manner. Note: See Table 1, next page, for average manure application rates.

The following are some possible solutions to excess manure:

- Talk to neighbors about the possibility of using excess horse manure on their crops or gardens. A local farmer may even have a manure spreader or tractor you can use.

- Consider straw bedding which can be utilized by mushroom farms.
- Compost manure on your farm to make it more workable. Remember, manure must be composted in way that does not cause pollution.
- Commercial disposal firms will haul away excess manure for a charge. Consult the yellow pages for disposal firms in your area.

AVERAGE DAILY MANURE PRODUCTION AND SUGGESTED STORAGE		
Horse Type	Manure as Excreted Kg/day/animal	Suggested Storage Litres/day/animal (with bedding)
455-kilogram horse (1000)	26 litres (0.02 ft. ³)	56.6 litres (1.9 ft. ³)

EXAMPLE MANURE AND BEDDING STORAGE REQUIREMENTS FROM 10 HORSES OVER A 6-MONTH PERIOD	
Daily Manure Volume	= table 1 value x 10 animals = 26 litres x 10 = 260 litres/day (9.2 ft. ³)
With average amount of bedding	= table 1 value x 10 animals = 56.6 litres x 10 = 566 litres/day (20 ft. ³)
Suggested Storage Period	= 6 months (180 days)
Minimum Storage Capacity	= 260 litres/day x 180 days = 46,800 litres (1,660 ft. ³)
With average amount of bedding	= 566 litres/day x 180 days = 101,880 litres (102m ³ or approx. 7.5m x 7m x 2m)
Conversion to Cubic Feet	= 102 m ³ x 35 ft. ³ /m ³ = 3,570 ft. ³ (approx. 24 ft. x 24 ft. x 6 ft.)

Manure Storage

If you use your farm manure as fertilizer, then it must be stored to prevent rain from washing out the nutrients that may cause pollution. **It is important that a short term manure storage facility be located 30 meters (100 ft) from a watercourse and 30 meters (100 ft) from a well or domestic water source.** The size of the storage facility must be able to accommodate six months of manure production. As a rough guideline each horse kept in a box stall with bedding, produces 2 cubic feet of manure/bedding mix per day (based on a 1:1 ratio of manure to bedding).

For six months of storage your farm needs a minimum of 360 cubic feet of storage per horse. Six months storage for 5 horses would require a covered area of 20 ft. x 20 ft. stacked 4.5 ft. high. This is approximately the size of a two car garage.

A temporary storage facility (for small horse operation only) can be on a high and dry location with a plastic cover over the manure. See Figure 1.

For larger horse farms and those that do not have an appropriate site as described above, a more elaborate storage facility with a permanent roof is needed. See Figure 2.

Access to Watercourses

Horses in confined livestock areas must not be allowed access to watercourses. Please see definition of “confined livestock area” in the Glossary.

Livestock confinement areas must be located on high ground, away from watercourses to prevent pollution. Remove manure regularly to prevent contaminated run-off. The use of natural watercourses as a water supply for horses can lead to pollution. This can be prevented by:

- Using livestock waterers.
- Feeding away from watercourses.
- In those areas of BC where livestock waterers cannot be used, contamination can be minimized by:
 - Fencing to limit access to a small area of the watercourse and to avoid horse loitering around water.
 - Choose an area of the watercourse with a gradual slope and gravel for improved footing

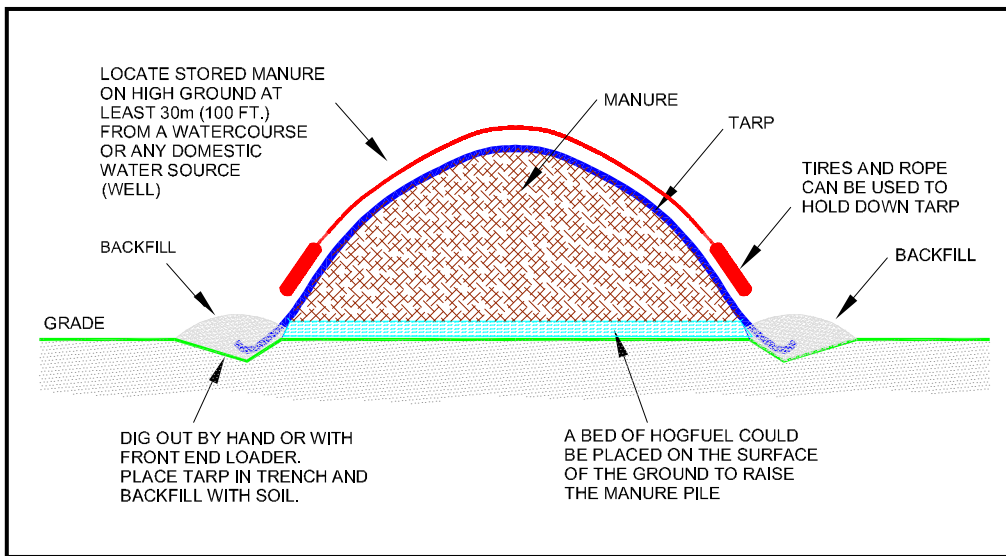


Figure 1 Field Storage of Manure

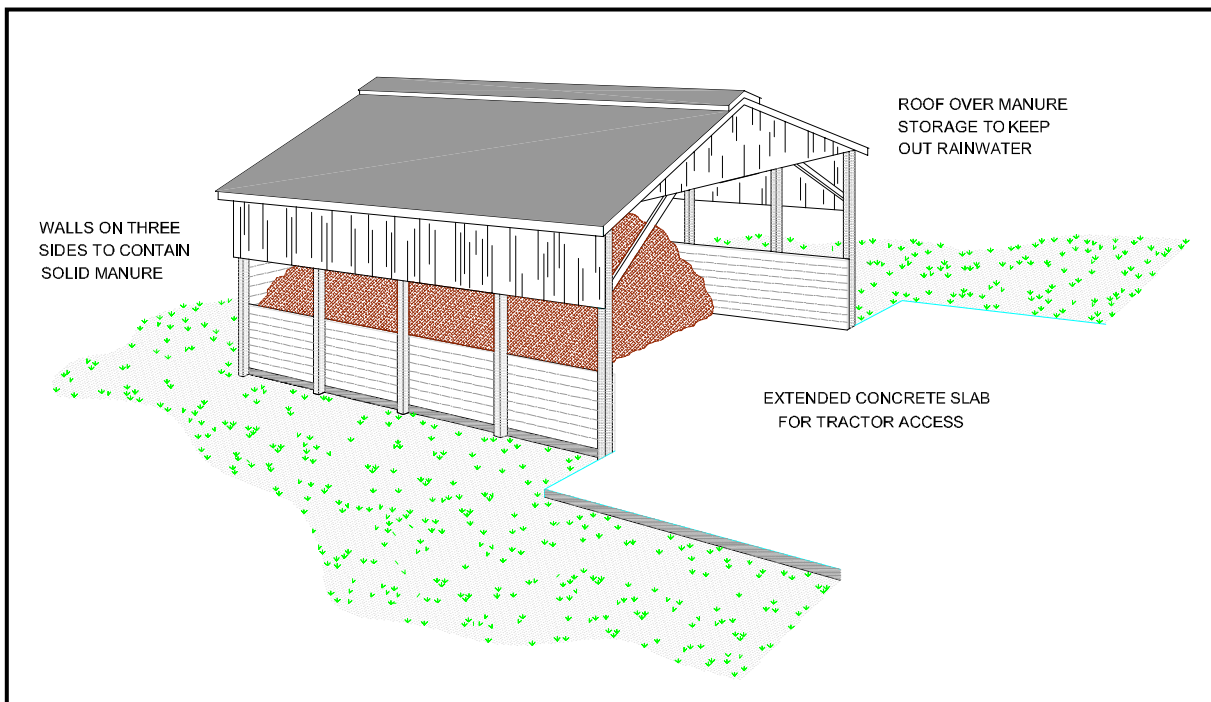


Figure 2 Example of A Solid Manure Storage Facility

Grazing Areas

- The definition of a “*grazing area*” is provided in the Glossary. In south coastal BC productive pasture can support, on average, two mature horses per acre (0.4 ha) from April to September. If you have a higher density of horses per acre on your pasture and /or provide supplemental feed to horses while on pasture there is a potential for pollution. This can happen when excess water moves downward through the soil to groundwater, or, when carried overland in runoff into watercourses. To prevent pollution, the following are recommended:
- Do not exceed the recommended number of horses for your pasture.
- Do not supplement feed or locate salt licks within 30 m (100 ft.) of a watercourse or domestic water sources (wells).
- Rotate supplemental feeding areas where possible and provide stock waterers.
- Harrow fields to break up manure.
- Fence horses away from domestic water sources (wells).

Use of Woodwaste

Water from direct rainfall or from overland flow, must not be allowed to saturate stored woodwaste piles or clean or soiled bedding to create runoff. This is important because water passing through woodwaste produces a toxic leachate that can pollute water courses at very low concentrations. Stored bedding must be covered to prevent pollution. Run-off from riding arenas and paddocks must not enter any watercourse or ground water.

Guidelines for using woodwaste in riding arenas and paddocks are as follows:

- Applications must not exceed 15 cm (6 inches) per year and must not exceed 45 cm (18 inches) in total.
- Do not use within 30 m (100 ft) of domestic water sources (wells) or within 30 m (100 ft) of a water course.

- Do not use woodwaste as landfill or backfill.
- The best time to apply woodwaste is in April or May.
- Consider an alternative footing, such as sand if setbacks cannot be met.

Further Assistance

Factsheet 655.000-2 *Woodwaste Use – Precautions to Horse Owners!* and Factsheet 386.000-7 *Building an Environmentally Sound Outdoor Riding Ring* are available from Horse Council BC and the BC Ministry of Agriculture and Lands.

Glossary of Terms

Confined Livestock Area: An outdoor, non-grazing area where horses are confined by fences or structures i.e. paddocks, corrals, exercise pens and riding arenas.

Grazing area: Means a pasture or range land where livestock are confined solely for the purpose of growing or finishing and are sustained by means other than grazing.

Ground water: Water below the surface of the ground. (In rural areas, this water is often used for domestic water use i.e. well water).

Pasture/Grazing Area: Pasture which provides forage for grazing horses.

Pollution: The presence in the environment of substances or contaminants that substantially alter or impair the usefulness of the environment.

Watercourse: A watercourse that is permanently or intermittently contains water including a lake, river, creek, canal, spring, ravine, swamp, salt water marsh or bog, and drainage ditch.

Woodwaste: Byproducts of the lumber industry, i.e. hog fuel, wood chips, bark, shavings or sawdust.

FOR FURTHER INFORMATION CONTACT:

Ministry of Agriculture and Lands

1767 Angus Campbell Rd, Abbotsford, BC V3G 2M3
Basil Bactawar, Livestock Industry Development Specialist
Phone: (604) 556-3081 Fax: (604) 556-3030

Resource Management Branch

Phone: (604) 556-3100

