



Council of Bay Area Resource Conservation Districts

Equine Facilities Assistance Program

“Working with horse owners to protect San Francisco Bay Area water resources.”

Horse Manure Management

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Horses are a valued part of California’s suburban and rural environment. Just as horse owners plan the input (feed) for horses, they need to plan for the output (manure). Horse facility owners should develop a waste management plan to ensure clean and safe facilities, protect creeks and ground water, reduce odors and insect breeding opportunities. The plan can be functional — not an elaboration creation. Document the manure use or disposal options you plan on using, such as utilizing manure as a soil amendment or hauling manure off-site. Consider visual impact, odor, health and safety implications, as well as economic costs and benefits in developing and implementing the waste management plan. Effective horse manure management helps protect water quality.

Benefits of implementing a comprehensive waste management plan:

- Healthier environment for horses
- Cleaner and safer work area
- Utilization of manure as a soil amendment
- Protect creeks and streams
- Reduce waste volume
- Reduce odors
- Reduce insect breeding opportunities
- Reduce neighbor complaints

Natural land features must be considered when developing a waste management plan. Evaluate slopes, soils, vegetation, and proximity to creeks and drainageways to avoid polluting water. With growing concern about groundwater protection, land characteristics below the soil surface also need evaluation.

A successful manure management plan involves collection, storage, and disposal or utilization.

Collection

- Clean-up manure from stalls and paddocks daily; scrape (or otherwise clean out) turn-outs and corrals regularly.
- Horses on pasture generally disperse their manure where it is recycled naturally by the land. If horses deposit manure in one area, periodically spread it around.

Storage

Manure must be properly stored to maintain good condition, be easy to handle, and avoid leaching nutrients to ground or surface water. Management measures include:

- Locate the storage facility away from creeks, ponds and wells.
- Storage facilities may be covered bins, sheds of concrete or lumber, piles covered with tarps, dumpsters, or covered garbage cans. The type and size of the storage facility depends on how much manure will be stored and the method of disposal or utilization. Include the volume of bedding when sizing a storage facility. Two cubic feet per day of manure and bedding is an estimate of what a 1000 lb. horse can generate.

- The storage facility may require a concrete base depending on the permeability of the soil.
- Be sure the area is convenient for loading and unloading. If motorized equipment will be used, construct the facility large enough and strong enough for the equipment.
- Clear out manure storage areas before the winter rains.
- Grading of the site may be necessary. Check regulations and required permits, and avoid working around environmentally sensitive areas like wetlands or creeks.

Control Drainage

Use drainage improvements to protect stored manure from rainfall, surface runoff and flooding.

- Use a cover to prevent stored manure and liquid drainage from manure piles (leachate) from entering creeks and waterways.
- Locate the storage facility on an impervious surface such as concrete, compacted clay, or plastic to reduce the potential for seepage into groundwater.
- Divert any runoff that does leave the storage site to a grass filter strip.

Utilization

- Manure can be applied to land as a fertilizer and soil amendment. Composted horse manure decreases the risk of spreading internal parasites and weed seeds.
- Composting manure and bedding materials reduces bulk, eliminates odor, improves handling qualities, and produces a valuable product that can be given away or used on the property. Composting requires sufficient nearby level space, equipment, labor, and a source of water. (See Fact Sheet #2 — *Composting Horse Manure.*)

- Large horse facilities might want to hire a consultant to help plan a workable, environmentally safe manure management system.

Disposal

- Local or regional “green waste” composters will accept manure for a fee.
- CALMAX (California Materials Exchange program) lists horse stables that have manure to give away. Contact is: (916) 255-2369 or www.ciwmb.ca.gov/calmax
- Hauling off manure can be expensive, but may be the only alternative. Neighbors, landscapers, gardeners, and nurseries may want horse manure, but they usually want composted or aged manure.
- Ask your local waste management/recycling authority if there is a list of outlets.

A sound manure management plan needs careful attention to detail. It uses principles from engineering, animal science, economics, and crop and soil science to maximize the value of using animal waste as a soil amendment and to minimize the potential for environmental damage. Also, anyone keeping a horse should be aware of zoning, health, and water quality regulations. Resource Conservation Districts, USDA Natural Resources Conservation Service, University of California Cooperative Extension, and private consultants offer assistance in the development of these plans.

References:

USDA Soil Conservation Service, Agricultural Waste Management Field Handbook, April 1992.

For more information contact:

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