



Pima County Board of Supervisors

Richard Elías, Chairman, District 5
Ann Day, District 1
Ramón Valadez, District 2
Sharon Bronson, District 3
Raymond J. Carroll, District 4

PDEQ Good Neighbor Guide for Horse-Keeping: Manure Management and Regulatory Compliance

Horse manure requires constant management for horse health, good relations with neighbors, and legal obligations. When not managed properly, horse manure can pollute the environment as ground or surface water pollution, affect the health of horses and caretakers, promote unwanted insect breeding, and become a nuisance to neighbors by generating excessive odors and flies.

The Pima County Department of Environmental Quality (PDEQ) receives many manure complaints each year. Horse manure is considered a solid waste by state law and must be handled, stored, and/or disposed of properly to prevent pollution and to keep from becoming a public nuisance.

Regulations

The Arizona Administrative Code lists regulations and responsibilities for storage and disposal of manure.

Storage: A.A.C. R18-13-307.(E), “*manure and droppings shall be removed from pens, stables, yards, cages, conveyances, and other enclosures as often as necessary to prevent a health hazard or the creation of a nuisance. All material removed shall be handled and stored in a manner that will maintain the premises nuisance free.*”

Disposal: A.A.C. R18-13-311.(D) “*manure shall be disposed of by sanitary landfill, incineration, or used as fertilizer in such a manner as not to create insect breeding or a nuisance.*”

Violations are verified by a PDEQ site inspection if manure is not handled, stored, or disposed of properly. Fines can be levied for failing to comply with a Notice of Violation (NOV) issued to the property owner requesting remediation.

Manure Management Practices

Manure should be removed from stalls or pens and used or disposed of regularly. Basic options include direct land application, composting, and removal by waste haulers.

Direct land application

Horse manure is valuable, and can be used as a fertilizer for pasture or forage crops. If used for fertilizer, manure must be applied at a rate that the crop will effectively use nutrients. If excessive nutrients are present, manure can be carried by storm water runoff and pollute waterways and filter through the soil to contaminate groundwater in shallow aquifer areas.

In addition, internal parasites may be present in horse manure. It is important to not spread manure in pastures or fields where horses are likely to be re-exposed. When spreading, manure should be applied in thin layers and worked into the soil for rapid drying and to reduce parasites and fly larvae. Manure can be used for dust control in arenas and pens if applied and managed properly.

As a general guideline, manure or a manure/bedding mixture from three to four horses can be spread on each acre of productive pasture.

Manure Management Practices cont'd

Storage

If you use your manure as fertilizer, it must be stored to prevent rain from running through it, and in such a manner as to not create an odor or fly nuisance. Storage piles should be kept in a dry area not affected by flooding or storm water runoff. Store manure on level ground with a firm base and keep covered to prevent runoff or leaching. Use a containment receptacle such as a garbage can, dumpster, trailer, or three sided enclosure with a tarp cover. Manure should never be stored in or near a wash or riverbed, near an adjacent property line, or near a storm water runoff area.

The storage facility must accommodate the expected manure production reflecting disposal and/or soil incorporation efforts. As a general guideline, each horse produces about two cubic feet of manure/bedding mix per day. A minimum of 60 cubic feet of storage per horse is needed for one month of storage.

Composting

Composting results in a dark, crumbly, earthy-smelling organic matter that is a valuable soil amendment or fertilizer. Not only does it provide a valuable and marketable product, it also reduces the volume of waste by 40 to 70 percent. Horse manure with bedding has ideal levels of carbon-based and nitrogenous materials for effective composting.

Compost piles must be kept moist and turned periodically (at least every other day) to ensure rapid and adequate decomposition. An effective compost pile will reach temperatures of 140°F on the interior. Tarping helps to increase the temperature in Arizona. This high temperature kills pathogens, weed seeds, and fly eggs. It is important to turn the pile so that exterior material is incorporated into the middle for complete composting, and to provide adequate aeration. Small compost piles may not retain enough heat to reach suitable temperatures. A three-foot square by three-foot deep waste pile should compost well.

Actively managed stall waste can be composted within one month, whereas a static pile with no active management may take six months to two years (larger piles) to compost. Static composting must be layered with a tarp to comply with the solid waste regulations.

Disposal

If there is too little space for storing or composting, paying to have manure hauled away regularly to an agricultural operation, landfill or recycling facility may be the best option. According to Pima County Code 7.25.040(B)(2), manure may be collected at the discretion of the waste hauler.

An alternative is to interest local farmers or neighborhood gardeners in free manure for its rich nutrients. Empty feed sacks can be filled and used for manure distribution.

Waterway Concerns

In order to prevent surface water and groundwater contamination, horses must have limited access to water sources such as washes, streams, dry riverbeds, and wells. Horses in confined areas must not have access to natural waterways or other water sources (wells). Confinement areas should be located on high ground, away from waterways. Remove manure regularly to prevent contaminated storm water run-off. Feed in areas away from waterways and wells, use livestock waterers, or, if use of natural waterways is necessary, fence to limit access to waterway and avoid horse loitering around water. Do not supplement feed or locate salt licks near a natural waterway or well. Taking these precautions will help prevent pollution.

References

- Farm Structures FACTSHEET*
British Columbia Ministry of Agriculture
- Good-Neighbor Guide for Horse-Keeping*
New Hampshire Department of Environmental Services
- Horse Manure Management*
Colorado State University Cooperative Extension
- Horse Stable Manure Management*
Penn State College of Agricultural Sciences
- Horses and Manure*
Rutgers Cooperative Extension
- Manure Management*
Clemson University Cooperative Extension
- Manure Management*
Cherry Hill, www.horsekeeping.com