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| PROGRAM: | Environmental Agriculture Program |
| EFFECTIVE REGULATION(s): | <i>Water Quality Control Commission Regulation 5 CCR 1002-81</i> November 30, 2013 |
| GUIDANCE No.: | EAP-1601 |
| DATE: | January 2016 |
| SUBJECT: | Horse Manure Management Guidance |

Purpose

To assist Colorado horse owners with implementation of best management practices as required by Colorado Water Quality Control Commission Animal Feeding Operations Control Regulation, 5 CCR 1002-81 (Regulation No. 81).

Introduction

The Colorado Department of Public Health and Environment’s Environmental Agriculture Program (Ag Program) developed this guidance document to assist horse owners with interpretation and compliance questions related to manure management at farms and facilities where horses are stabled or corralled. This document is guidance only and should be used together with the regulatory requirements included in Regulation No. 81.

Background

Colorado is home to more than 256,000 horses that are owned by an estimated 55,000 owners across the state. During any given year, the visibility of horses and horse properties can result in a significant number of complaints about the storage and management of manure and other wastes generated when stabling and caring for horses. Following a few simple best management practices can prevent manure from contaminating groundwater or washing into nearby streams and rivers.

Manure Management

Manure management is the process horse owners use to collect and store manure waste from their horses. A horse that weighs 1,000 pounds produces approximately 15 cubic yards of manure waste per year. The addition of bedding materials such as straw or wood shavings can cause that amount to double. The storage and handling of this waste becomes important when precipitation or snowmelt comes into contact with manure, or can carry waste off of pen or corral surfaces into ditches or irrigation canals that eventually end up in streams, lakes or rivers. In addition, areas that pool or commonly experience standing water can contribute runoff into surface water or seep into underground drainage systems.

Best Management Practices

Horse owners are responsible for managing the manure on their property to prevent contamination in low-lying areas and to minimize runoff to Colorado’s freshwater sources. In Colorado, best management practices (BMPs) are used to comply with state water quality requirements. BMPs are procedures, or practices that horse owners can implement to reduce the impact of runoff from corrals or horse feeding areas to surface and groundwater resources. Several examples of potential BMPs are included in Table 1 below.



Table 1: Manure Management Best Management Practices

| Regulatory Requirement | Best Management Practice |
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| Divert clean water run-on | ✓ Divert clean water such as rain or snowmelt so that it does not collect in, or flow across, dry lot paddocks or manure storage areas. |
| Decrease open lot surface area | ✓ Eliminate animal confinement areas, manure and wastewater control structures in areas where wastewater and runoff cannot be contained or properly managed. |
| Decrease water volume | ✓ Repair or adjust watering systems to minimize waste. |
| Decrease wastewater discharges to surface water | <ul style="list-style-type: none"> ✓ Prevent direct contact of animals with surface water. ✓ Store waste in locations where it cannot be transported into surface water by high stream flow or stormwater runoff. ✓ Collect and evenly apply wastewater to land application sites at agronomic rates. ✓ Treat wastewater using a wastewater treatment strip or other method approved by the Ag Program. |
| Minimize manure transport to surface water | <ul style="list-style-type: none"> ✓ Provide adequate manure storage capacity and collect manure from corrals frequently. ✓ Locate manure stockpiles away from surface water and 100-year floodplains, unless adequate flood proofing structures are in place. ✓ Berm manure stockpiles to minimize run on and runoff. ✓ Apply manure to land application sites at agronomic rates. ✓ Incorporate manure after spreading in a land application site. ✓ Do not apply manure to saturated soils. ✓ Use edge-of-field, grassed strips, filter fences or straw bales to separate manure and eroded soil particles from field runoff. |
| Protect groundwater | <ul style="list-style-type: none"> ✓ Locate manure and wastewater management facilities hydrologically down gradient and at least 150 feet from water supply wells. ✓ Do not store manure on high permeability soil or in shallow groundwater areas. ✓ Use a buffer area around water wells when land applying manure and wastewater. ✓ Install a liner with a seepage rate of 1×10^{-6} cm/sec or less, if there is an impoundment and if required by the Ag Program. |

Citizen Complaints

Complaints about potential contamination and runoff associated with horse waste are fairly common and are directed to the Environmental Agriculture Program. In Colorado, the Ag Program implements and enforces regulations pertaining to the protection of surface and groundwater quality specific to animal feeding operations, including all sizes of horse operations. If the Ag Program receives a complaint about potential contamination or runoff from a horse facility, a member of the program staff may contact the horse owner and schedule a site visit to assess the facility and offer compliance assistance and advice.

For more information on effective manure best management practices, please contact the Environmental Agriculture Program at 303-692-3520.

