



# AEM Tier 2 Worksheet

## Horse Farm – Outdoor Paddock & Arena Management

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### Glossary

**Arena:** A constructed area with a solid-surface or oval track for training, riding and exercising horses.

**Compaction:** The deterioration in soil structure caused by repeated trampling by horses or livestock. The resulting increased soil bulk density, reduced water and air infiltration, and reduced root penetration leads to poor growing conditions for plants and increased water runoff and soil erosion from the compacted area.

**Paddock:** A small fenced area typically used for turnout and exercise with little vegetation for grazing and high concentrations of manure.

**Pasture:** A fenced grazing area fully vegetated that provides forage for horses.

**Permeable Soils:** Soils that are subject to leaching through the profile, thereby creating a possible source of contamination to ground water supplies. Nitrogen, pesticides, or herbicides if applied to these soils are a concern.

**25-year/24-hour Rain Event:** The amount of rain that falls in 24 hours during a 25 year storm event. In New York it ranges from 3.8 to 4.5 inches.

### Background

Paddocks, or turn out areas, are small fenced areas that have little vegetative growth and high concentrations of manure. The soils in these heavily used areas tend to be compacted, allowing for more runoff and less infiltration of water.

Outdoor arenas may have areas that are impermeable and are often drained to allow use in wetter times of the year. Both paddocks and outdoor arenas that are located close to a watercourse or road ditch have potential to discharge sediment, manure and other contaminants to surface water.

There is potential to affect ground water if:

- Paddocks are located on coarse-textured permeable soils (sands and gravels)
- The water table is at or near the surface
- Bedrock is within a few feet of the surface
- Polluted runoff from the paddock flows directly onto permeable soils or bedrock

### Agricultural Water Quality Principle

Outdoor livestock containment areas should be managed in ways that minimize the delivery of pollutants from erosion and manure to the surface and groundwater resources.

<b>AEM Tier 2 Worksheet: Horse Farm – Paddock and Outdoor Arena Management</b>		<b>Potential Concern</b>		
<b>Factors Needing Assessment:</b>	<b>Lower 1</b>	<b>2</b>	<b>3</b>	<b>Higher 4</b>
<b>What is the condition of the vegetation in the paddock areas?</b>	Maintains a dense vegetation.	Except for minor areas of heavy use, paddock maintains a dense vegetation.	Vegetation is spotty.	No vegetation or only weedy, non grazeable vegetation exists.
<b>How is the manure managed in paddocks?</b>	Manure is regularly cleaned up and removed to storage area or container.		Manure is not regularly cleaned up or removed.	Manure is never cleaned or removed.
<b>Is clean water (including roof water and upslope runoff) kept separate from the paddock and arena areas?</b>	The runoff from up to a 25 year/24 hour rainfall event is diverted away from the paddock and arena.		Some clean water is diverted from the paddock and arena areas.	Clean water is not diverted from the paddock areas.
<b>What is the distance runoff from the paddock and/or arena will flow before entering the nearest watercourse or road ditch?</b>	Greater than 200 feet.	Between 100 and 200 feet.	Between 50 and 100 feet.	Less than 50 feet.
<b>What are the conditions of the flow path for runoff from the paddock and/or arena?</b>	Runoff enters a designed vegetative filter area that meets NRCS standards.	Runoff enters a well- vegetated area with no discernable soil erosion (channeling).		Runoff has created a clear flow path with signs of soil erosion directly to a watercourse or road ditch.

## **Other:**

1. What is the square footage of paddock areas and outdoor arenas?
2. Are the roof gutters of adjacent barns well maintained and adequately sized?
3. Where do downspouts from rain gutters outlet?
4. Is vegetation maintained outside the paddock fence and arena areas to help contain nutrients that may be in runoff?
5. Is there a visible amount of sediment and waste leaving the paddock or arena areas in runoff?
6. Are paddocks and outdoor arenas artificially drained? If so, where do the drains outlet?
7. Can surface water from paddocks or arenas enter the tile drainage system?
8. What is the surface material used in the arenas?
9. Are any surface treatments used in the arenas?

## **Comments:**