

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**PATHOGEN MANAGEMENT**

(No.)

**CODE 783**

**DEFINITION**

Use of preventative measures, livestock management and conservation practices to provide multiple barriers to the introduction, replication and survival of pathogens in domestic livestock and reducing the risk of pathogen contamination of surface and groundwater resources by treatment and/or controlling the movement of pathogens to water

**PURPOSE**

To reduce the threat to surface and ground water from contamination by pathogenic organisms found in farm animals.

**CONDITION WHERE PRACTICE APPLIES**

On agricultural land (livestock and poultry operations) where there is a need to reduce the potential to contaminate surface and ground water by pathogens.

This standard does not apply to contamination of crops intended for human consumption. This standard also does not apply to pathogen issues related to occupational safety nor catastrophic mortalities, which are under the authority of other federal agencies.

**CRITERA**

A pathogen management component of a conservation plan, which incorporates a 4-barrier approach, as described below, shall be developed. The pathogen management plan will address each of the four barriers. A veterinarian, or other qualified professional, utilizing the protocol from the New York State Cattle Health Assurance Program (NYSCHAP), or other similar protocols for appropriate species, shall develop the first two barriers.

The first barrier is reducing the potential for pathogens to enter the farm. This shall be accomplished by carrying out actions such as the following:

- The testing of non-chlorinated water supplies that serve the herd or flock for fecal coliform bacteria
- Establishing appropriate biosecurity measures, including those controlling people, pets, pests and other animals, equipment or materials that may transport pathogens from other sources.
- Maintaining good hygiene and minimizing herd or flock contact with manure from other animal groups.
- Maintaining an accurate animal identification system and record of all health events

The second barrier minimizes cross-contamination among animals and amplification of infection within a herd or flock. This shall be accomplished by actions such as:

- Keeping animal raising areas clean and dry,
- Proper worker hygiene when moving between facilities or animal groups,
- Ensuring that all feeds are stored and handled properly, and feeding utensils are clean, specifically avoiding manure contamination of feed.
- Implementing rodent and pest control programs,
- Separating pre-weaned animals to prevent direct contact with another young animal and with adult manure,
- Isolating infected animals until they are no longer infectious,
- Identifying the order in which animals should be fed, i.e. youngest to oldest, etc. depending upon the pathogen of concern.

The third barrier provides for collection, handling, and treatment of manure and wastes appropriately to minimize the spread of the pathogens. This shall be accomplished by practices such as:

- The treatment of confinement area runoff according to the Waste Management System (NY312) conservation practice standard
- Waste Treatment Strips (635) conservation practice standard to reducing runoff
- Composting (317) conservation practice standard for the composting of manures
- Animal Mortality (316) conservation practice standard for proper disposal of animal mortalities
- Waste Storage Structure (313) conservation practice standard to extension of waste storage time and/or isolation of waste storages to take advantage of pathogen die-off using
  - Anaerobic Digester, Controlled Temperature (366) conservation practice standard
  - Waste Storage Lagoon (359) conservation practice standard
  - Constructed Wetland (656) conservation practice standard
  - Water Well Testing (355) conservation practice standard

The fourth barrier restricts movement of contaminated feces into watercourses and/or groundwater. This shall be accomplished by practices such as:

- Diversion (362) conservation practice standard to divert clean water away from livestock facilities
- Nutrient Management (590) conservation practice standard to spreading manure.
- Use Exclusion (472) conservation practice standard for the exclusion of animals from water bodies, such as streams, creeks, rivers and lakes
- Fence (382) conservation practice standard for isolating septic systems, leach fields and filter areas, and other seepage disposal areas from grazing animals
- Protecting aquifer recharge areas and wellheads from manure runoff from fields
  - Filter Strips (393) and Riparian Herbaceous Cover (390) conservation practice standards providing buffers around water bodies

## CONSIDERATIONS

Consider establishing an isolation period for animals coming onto a property.

Consider testing non-chlorinated water supplies that serve the herd for fecal coliform bacteria during droughts, local disease outbreaks, and after extreme rainfall events.

Consider participating in the New York State Cattle Health Assurance Program.

Consider developing an appropriate vaccination program.

Consider cleaning rearing housing flooring and air-drying for 2 weeks between animal occupation cycles.

Consider steam cleaning and disinfecting of livestock facilities between animal occupation cycles.

Consider separate feed utensils and buckets for each animal.

Consider washing and drying water buckets between feedings.

Consider (if continuous rearing activities occur on farm) rotating animals across locations in order to allow previously used areas to be thoroughly cleaned and sun dried prior to receiving new animals.

Consider delaying the use of pasture or hay land for one year after fertilization with manure.

Consider participation in the Agricultural Environmental Management Program.

## PLANS AND SPECIFICATIONS

Plans and specifications shall be in accord with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

The producer should receive a pathogen management plan with sections that addresses all four barriers to pathogens. This plan should include the recommendations provided by a veterinarian, or other qualified professional for addressing the first two barriers.

## OPERATION AND MAINTENANCE

The operation and maintenance of pathogen management is critical to the success of reducing the threat to surface and ground water. The owner/client shall be responsible for implementing the pathogen management plan. Operation and maintenance shall address the following:

- Periodic plan review to determine if adjustments or modifications to the plan are needed
- Implementation and annual adjustment of the Waste Management System (NY312)
- Inspection and maintenance of animal exclusion

## REFERENCES

NYS Agricultural Environmental Management (AEM) Tier 2 worksheet titled "Waterborne Pathogens"

<http://www.nys-soilandwater.org/aem/techttools.html>

Waterborne Pathogen Information Sheet:

Principles of Pathogens of Concern:

Cryptosporidium and Giardia

Escherichia coli 0157:H7

Watershed Science Institute, USDA, NRCS

Waterborne Pathogens in Agricultural Watersheds, Watershed Science Institute, USDA, NRCS, June 2000 (NRAES 147)

<http://www.nraes.org/>

NYSCHAP Core and Environmental Pathogen Modules

<http://nyschap.vet.cornell.edu/>