

# MANURE MATTERS

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UNL's Livestock Environmental Issues Committee includes representation from UNL, Nebraska Department of Environmental Quality, Natural Resources Conservation Service, Natural Resources Districts, Center for Rural Affairs, Nebraska Cattlemen, USDA Ag Research Services, and Nebraska Pork Producers Association.

**Contact:**  
Chris Henry  
217 LW Chase Hall  
University of NE  
Lincoln, NE 68583  
(402) 472-6529  
chenry@unl.edu

## Land Application Setback and Buffer Requirements for NPDES Permitted Large CAFOs

Christopher Henry  
University of Nebraska-Lincoln

### Introduction

Large Concentrated Animal Feeding Operation (CAFO) owners/operators are required to implement setbacks, buffers, or an alternative conservation practice on all fields to which manure is applied. This newsletter discusses the federal rules and some guidance on how the rule may be applied to land application sites. The setbacks and buffer requirements apply to large CAFOs only. Most states are authorized to implement the CAFO program and may have additional, more stringent requirements. Check with your state permitting authority to determine the requirements that apply to your operation.

### The Rule

Large CAFO owners/operators may not apply manure, litter, or process water closer than 100 feet to any down gradient surface water, open tile intake structures, sink holes, agricultural wellheads, or other conduits to surface waters. CAFO owners/operators may substitute the 100-foot setback with a 35-foot-wide vegetative buffer where applications of manure, litter, or process water are prohibited. If CAFO owners/operators can demonstrate that a setback or buffer is not necessary because

implementation of alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the setback requirement can be waived.

EPA defines a vegetated buffer as a narrow, permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purpose of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients or pollutants from leaving the field and reaching surface waters. Information about setbacks, buffers, or alternative conservation practices for each land application site must be included in the nutrient management plan (NMP) and may also be required in the permit application or notice of intent, depending on state-specific regulatory requirements.

### Discussion

EPA believes that the nutrients entering surface waters will be substantially reduced with the use of setbacks, buffers, or alternative conservation practices. However, they require some additional

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management of land application sites. For each site, CAFO owners/operators must decide which of the three BMPs will be implemented. However, some sites may not require any setbacks or buffers.

Set backs and buffers will reduce the amount of land available for manure application. Therefore, deciding which BMP to use may depend on the CAFO owner's/operator's may choose to install vegetative buffers rather than observe 100-foot setbacks. The field application of setbacks from stream and other surface water conduits may be made easier with the use to Global Positioning Systems data collection parallel guidance, or tracking systems.

A 100-foot setback from any point, such as a well or tile intake, results in an area of 0.72 acres that is not available for manure application but is still available for crop production. A 35-foot vegetated buffer around a point, such as a well or tile intake, removes 0.09 acres of land available for manure application but is still available for manure application and also removes that area from crop production. For every 100 linear feet of distance, 0.23 acres is removed from land application, while only 0.08 acres is removed if vegetative buffer is used.

Table 1. Area needed for setbacks and buffers

	Area Removed from Manure Application	
	Every point (well or tile intake)	Every 100-ft Along Stream or Conduit to surface water
100-ft setback	0.72	0.23
35-ft buffer	0.09	0.08

Financial assistance may be available from the Natural Resource Conservation Service (NRCS) and some state nonpoint source programs for vegetative buffers. In fact, there has been increasing demand for the

NRCS buffer program in recent years. Some state regulatory authorities may consider grassland or an alfalfa crop as equivalent to a permanent buffer. For fields that were planted perennial vegetation, some may allow manure application to within 35 feet of conduits to surface water.

### Application

To comply with the setback requirement, CAFO owners/operators will need to identify, on a topographical or aerial map, the setback or buffered areas in each field that will be used for manure application. Setbacks are measured from the bank's edge for a stream or from the channel's edge for all other conduits. Farm Service Agency acreages will not reflect actual acres available for manure application unless they have been updated from a stream buffer planting.

Wellheads and sinkholes that are up gradients of manure runoff would not require setbacks or buffers. Additionally, wells located in the application area of a center pivot, must also have either a setback or buffer applied. This could substantially impact the amount of land available for manure application, depending on the location of the well.

Figure 1 shows the application of both 100-foot setbacks and 35-foot buffers, assuming that all grass waterways, stream corridors, and drainage ditches are considered conduits to surface waters by the state regulatory authority. Tile inlets and down gradient wells are explicitly mentioned in the rule; however, state regulatory authorities will determine conduits to surface waters. Thus, the figure reflects a conservative assumption of what is a conduit to waters of the state and may not apply in your state. CAFO operators need to clarify what land features their state regulatory authority considers conduits to surface waters.

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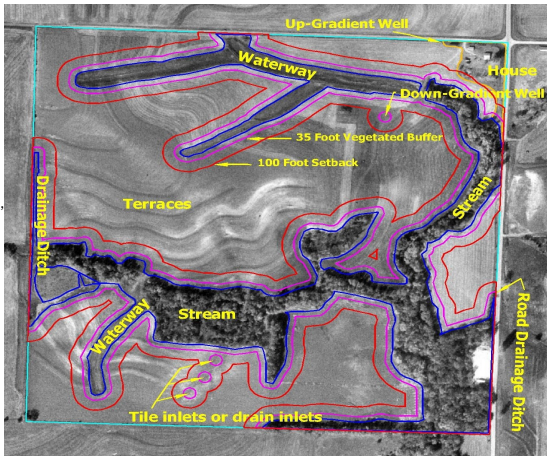


Figure 1. Land application site showing 100-foot setbacks and 35-foot buffers from surface water conduits.

Figure 1 and Table 2 show the application of setbacks and buffers from grass waterways, streams, tile or drain inlets, and a well. At this land application site, there are 119-acre tillable lands. If setbacks are applied, only 71 acres can be used for manure application and crop production; the remaining acres would receive commercial fertilizer. However, if 35-foot buffers are permanently planted around the conduits to surface water, then 101 acres would be available annually for manure application and crop production. In this example, another 30 acres would be available for manure application if buffers were used.

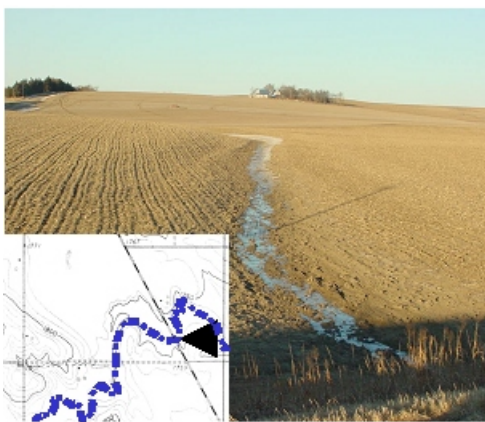


Figure 2. Conduits to surface water may include intermittent streams as defined by USGS maps

	Tillable Acres Before	Tillable Acres After	Remaining Acres for Manure Application	Acres in vegetative buffer
100-ft setback	119	119	71	0
35-ft vegetative buffer	119	101	101	17

Some states may not consider grass waterways as a conduit to surface water. Established stream corridors that meet the definition of a vegetative buffer may be considered adequate and not required setbacks.

Figure 2 shows a small ditch in a field. On a United States Geography Survey (USGS) topography map, it is considered an intermittent stream. Depending on the climate conditions and regulatory authority, this ditch may be considered a conduit to surface water.

### Summary

Large CAFO owners/operations must choose to apply a 100-foot setback, a 35-foot buffer, or an alternative conservation practice standard for every field that receives manure. Deciding which BMP to use could have a dramatic impact on the land available for manure application. Each site should be evaluated on an individual basis in concert with the preparation and implementation of the NMP. Before making a decision about which BMP to implement, check with your state regulatory agency regarding any already approved alternative conservation practices and what are considered conduits to waters of the United States. Alternative conservation practices available for CAFOs will be state specific.

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