Livestock and Poultry Environmental Stewardship (LPES) Curriculum

Fact Sheet #5: What if My Operation is an AFO But Not a CAFO?

By Stanley (Lee) Telega, Cornell University, and Peg Cook, Cook Consulting

(Revised 4/2005)

Introduction

Animal Feeding Operations (AFOs) are agricultural operations where animals are housed, fed, and cared for in barns or other confined space. Nationwide, it is estimated there are over 450,00 AFOs. The vast majority of these operations do not confine enough animals to meet the definition of Concentrated Animal Feeding Operations (CAFOs) as defined in the new U.S. Environmental Protection Agency's (EPA) Rules on CAFOs. All CAFOs must operate under a National Pollutant Elimination System (NPDES) permit. (See *CAFO Fact Sheet #2: Do I Need an NPDES Permit for My Livestock or Poultry Operation?*)

In contrast to animal operations that use only pasture or free-range production practices, AFOs, by definition, confine animals more than 45 days in a 12-month period. Furthermore, the area of confinement, such as barns or open lots, does not sustain natural vegetation, row crops, or forage crops during the normal growing season. These operations tend to congregate animals, feed, manure, and other waste into small areas. These confinement facilities usually employ mechanical material handling systems to deliver feed to the animals and remove waste.

Despite the tremendous progress made in cleaning up our nation's inland and coastal waters over the past 30+ years, state assessments report that 40% of our nation's rivers and streams, 45% of lakes and reservoirs, and 50% of estuaries still do not meet goals for swimming, fishing, or both. Agriculture, including AFOs, is a major source of contaminates to the nation's inland waters.

In 1999, EPA and USDA formulated a National Unified Strategy to minimize water quality and public health impacts from AFOs. **The goal of this unified strategy**

is for AFO owners and operators to take actions to minimize water pollution from confinement facilities and land application of manure. The strategy announces an expectation that all AFOs should develop and implement a site-specific, economically feasible, and technically sound Comprehensive Nutrient Management Plan (CNMP). The owners and operators of AFOs not defined as CAFOs are encouraged to participate in voluntary programs conducted by the federal and state agencies to learn about financial and technical assistance available for developing and/or implementing a CNMP for their operation.

A CNMP identifies practices to be followed to meet defined nutrient management goals for the AFO. As necessary, it should address:

- Feed management
- Manure handling and storage
- Land application of manure
- Contaminated runoff from the confinement area
- Land and soil conservation practices
- Proper mortality disposal
- Record keeping

Producer Checklists

The following two tables list management practices that may be included in an AFO owner or operator's CNMP. Some are easy to implement with little or no cost. Others may require significant planning and investment. For additional help in making your farming practices more environmentally sound, consult your local Conservation District, Cooperative Extension, or local USDA Service Center.

Management Practices for Animal Confinement Areas

Environmental Goal	Management Practices
Exclude clean water from contaminated areas.	• Runoff water from roofs, driveways, and other clean areas should not be allowed to mix with water contaminated with manure or feed. • Keep clean water clean; collect and treat contaminated water. ⓘ To learn more, see *LPES Lesson #22. Open Lot Runoff Management Options.*
Contain, collect, and treat barnyard runoff.	• Re-evaluate the use of the barnyard. Eliminating the barnyard, making it smaller, or relocating it to a better site will make addressing runoff concerns less problematic and expensive. • Barnyard runoff should be contained, collected, and released to vegetative filter areas or spread on cropland. ⓘ To learn more, see *LPES Lesson #22*.
Control runoff from bunk silos.	• Consider installing a low-flow, high-concentration collection system with a high-flow, low-concentration filter area one-third the size of the bunk area to control silage juices. See *NRAES 99*, Proceedings of Silage: Field to Feed Bunk Conference, February 1997. www.nraes.org • Managing the silage for the proper moisture content and to prevent spoilage also reduces the potential of pollution.
Maintain the treatment system for milk house waste or egg wash water.	• Pump all settling and storage tanks regularly. • Keep leach fields and vegetative filter areas clean, healthy, and functioning.
Fence animals out of watercourses.	• Do NOT allow animals to lounge along creeks and streams! The damage they do to stream bank vegetation destroys wildlife habitat, changes stream characteristics, and increases nutrients and sediment entering the water. • Maintain grass buffer areas around lakes/ponds and along creeks that run close to the farm.
Keep piles of manure and spoiled silage away from watercourses.	• Allow at least 300-foot flow path to the nearest downslope watercourse. • Manage the flow course to provide diffuse overland flow through well-vegetated fields. • Keep upslope water from contacting the piles.

Environmental Goal (continued)	Management Practices (continued)
Restrict access of animals to well heads.	• Wells are in direct contact with ground water and can easily cause contamination when animals mill around them, particularly old, shallow, or abandoned wells.
Properly dispose of dead animals.	• Consult authorities and comply with state and local laws about mortality disposal. • Arrange for rendering service pickup within 48 hours. • Proper composting of dead animals is the next best option. • If buried on farm, keep at least 200 foot away from a watercourse. • Bury under a 3-foot minimum of well-packed earth. ⓘ To learn more, see *LPES Lesson #51. Mortality Management.*
Respect your neighbors.	• Unpleasant odors are the number one reason neighbors complain about AFOs. Do everything operationally possible to keep manure odors and other nuisances to a minimum. • Maintain open communication with neighbors so complaints come directly to you instead of local authorities. ⓘ To learn more, see *LPES Lessons #40-#44* in the Outdoor Air Quality Module.
Protect the viewscapes of your neighbors and bypassers.	• Keep your farm scenic and clean. • Projecting a positive image to the community helps your farm as well as the image of the whole industry. • Provide a lot of green grass, plant view screens, and apply a little fresh paint.

Management Practices for Cropland

Environmental Goal	Management Practices
Reduce soil erosion.	• Apply appropriate crop rotations to reduce sheet and rill erosion. • Apply appropriate water management practices on fields with persistent gully erosion.
Maintain field water management practices.	• Ensure earthen diversions and grass waterways are properly vegetated, are free of sediment buildup, and do not show signs of water channeling. • Properly designed and maintained grass waterways can reduce erosion by 65%, and filter out up to 35% of the nitrogen and 50% of phosphorus in water passing through them.
Know the phosphorus status of your fields.	• Soil test regularly. • Reduce manure and fertilizer phosphorus on High or Very High testing fields. • Over two-thirds of the phosphorus entering the farm as feed ends up in the manure. Keep ration phosphorus as recommended. • For non-ruminants, feeding low phosphorus or the enzyme phytase may result in less total phosphorus in rations. ⓘ To learn more, see the LPES lessons in the Animal Dietary Strategies Module and *Lesson #34. Phosphorus Management for Agriculture and the Environment.*

Environmental Goal (continued)	Management Practices (continued)
Use pre-sidedress nitrogen tests.	• Employ the test on fields receiving manure that have been in corn for 2 years or more and where pre-plant broadcast nitrogen is not used. • The test determines the need for additional nitrogen at sidedress time. ⓘ To learn more, see *LPES Lesson #30. Soil Utilization of Manure.*
Plant cover crops on soybean and corn for silage fields.	• Cover crops reduce soil erosion by reducing the effects of raindrop impact on open ground. • Cover crops add to soil organic matter and capture some nitrogen from fall applications of manure, reducing leaching of the winter thaw.
In Northern climates, kill sods later in the fall.	• While soils are still warm in early fall (above 40°F), sod residues, especially legumes, will start decomposing, releasing inorganic nitrogen. If little active uptake occurs from the killed sod, the released nitrates will leach during fall and early winter rains. • Cold soils of late fall retard decomposition and keep nitrogen in the organic, non-soluble form.
Know the nutrient content of your manure.	• Test manure annually to feel confident about its nutrient value for crop production. • Maintain a record of past manure analyses. ⓘ To learn more, see *LPES Lesson #31. Manure Utilization Plans.*
Calibrate manure application equipment regularly.	• Knowing the rate of manure application to land is critical information for effectively utilizing manure as a crop nutrient and reducing fertilizer inputs for crop production. ⓘ To learn more, see *LPES Lesson #32. Land Application Best Management Practices.*
Practice uniform manure spreading.	• Understand the limitations of your equipment to apply a uniform layer of manure. • Emphasize the importance of evenness and uniformity to all workers applying manure to your fields. ⓘ To learn more, see *LPES Lesson #32.*
Determine fields that have a high potential for runoff.	• Avoid spreading on these fields during wetter times of the year. • Use your state's Phosphorus Index or other risk assessment tools to understand the risks of manure applications during wet and other sensitive seasons. ⓘ To learn more, see *LPES Lesson #33. Selecting Land Application Sites.*
Spread manure away from wells, springs, and watercourses.	• Keep manure at least 100 feet from wells and springs to reduce the potential contamination of recharge areas. • Maintain vegetative buffers along waterbodies in fields receiving manure. • Contact your County Cooperative Extension, Department of Health, or County Soil and Water Conservation District to learn about any local restrictions to land application of manure. ⓘ To learn more, see *LPES Lesson #33.*
When possible, till in fall-applied manure.	• Such incorporation will break up soil macropores and reduce preferential flow into drain tile or shallow groundwater. • Incorporation reduces the potential of manure leaving the field through overland flow.

Time Line for Voluntary Action

The intent of the USDA-EPA Unified National Strategy for AFOs is for the owners and operators of all AFOs to develop and implement their CNMP by 2009. Both agencies continue to commit resources to build capacity for CNMP development and implementation. Through accelerated, voluntary incentive-based programs and industry leadership, it is expected that the owners and operators of most AFOs will take action to minimize the risk of pollution from their operations.

Definition of Terms

Animal Feeding Operation (AFO)–A lot or facility where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Comprehensive Nutrient Management Plan (CNMP)–Site-specific plan that considers the source and fate of nutrients on the farm and is designed to minimize potential loss of nutrients to the environment while achieving production and economic goals.

Concentrated Animal Feeding Operation (CAFO)–AFO containing animal numbers above a defined threshold or that has been designated as a CAFO after determining it to be a significant contributor of pollutants to waters of the United States. CAFOs are point sources of pollution and must operate under a National Pollutant Discharge Elimination System permit.

Diversions and grass waterways–Water control structures constructed in a field to reduce flow across a field for soil erosion protection.

Phosphorus Index–A risk assessment tool to estimate the potential for phosphorus movement from a field into a nearby waterbody.

Phytase–Enzyme that when added to rations of non-ruminant animals makes the phosphorus in grains and other feed ingredients more available during digestion.

Pre-sidedress nitrogen test–Test taken when corn is less than 12 inches tall to determine if additional nitrogen fertilizer is needed to reach a yield goal for the crop.

Sheet and rill erosion–Type of soil erosion that occurs when soil is removed by water more or less uniformly from every part of the slope in a field.

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Environmental Regulations Related Resources
http://www.epa.gov/npdes/caforule/–To obtain copy of regulations
http://www.epa.gov/npdes/afo/statecontacts/–To obtain state environmental agency contact

Educational Resources
http://www.lpes.org/–To view the Livestock and Poultry Environmental Stewardship (LPES) curriculum resources

Fact sheet modified by: Joe Harrison and Tip Hudson, WSU
Washington State Department of Agriculture
Washington State Department of Ecology

Washington State Livestock Technical, Financial and Educational Assistance

Natural Resources Conservation Service	Website: www.wa.nrcs.usda.gov
Washington State Conservation Districts	Website: www.conserver.org
Office Addresses and Phone Numbers	

OFFICES	ADDRESS	NRCS Phone	CD Phone
Adams	402 E. Main, Ritzville 99169-1338		509/659-1553
Adams	506 Weber Avenue, Suite B Ritzville, WA 99169	509/659-1761	
Asotin County	720 - 6th St., Suite B, Clarkston 99403-2012	509/758-8012	509/758-8012
Benton	24106 N. Bunn Rd., Prosser 99350		509/786-9230
Benton	618 8th Street Prosser, WA 99350	509/ 786-1923	
Central Klickitat	1107 S. Columbus Ave., Goldendale 98620-9296	509/773-5822	509/773-5823
Chelan County	301 Yakima St. Room 307, Wenatchee 98801-2996	509)/664-0210	509/664-0265
Clallam	111 E. 3rd, Room 2A, Port Angeles 98362-3018	360/ 452-8994	360/452-1912
Clark	11104 NE 149th St, Bldg. C, Suite 400, Brush Prairie 98606-9518	360/883-1987	360/885-2284
Columbia	U.S. Post Office Building, 202 S. Second St., Dayton 99328-1327	509/382-2421	509/382-4773
Cowlitz	2125 - 8th Ave., Longview 98632	360/425-1880	360/425-1880
Eastern Klickitat	1107 S. Columbus Ave., Goldendale 98620-9296	509/773-5822	509/773-5823
Ferry	84 E. Delaware Ave., PO Box 1045, Republic 99166-1045	509/775-3473	509/775-3473
Foster Creek	103 N. Baker St., PO Box 428, Waterville 98858-0428	509/ 745-8561	509/745-8362
Franklin	1620 Road 44 N., Pasco 99301-2667	509/545-8546	509/545-8546
Grays Harbor	330 Pioneer Ave. W., Montesano 98563-4499	360/249-5900	360/249-5980
Jefferson County	205 W. Patison St., Port Hadlock 98339-9751		360/385-4105
Jefferson County	111 East 3rd Street, Room 2B Port Angeles, WA 98362	360/452-8994	
King	935 Powell Ave. SW, Renton 98055-2908	206/764-3325	206/764-3410
Kitsap	817 Sidney Ave, Port Orchard 98366-2460	360/337-4433	360/337-7171
Kittitas County	607 E. Mountain View Ave., Ellensburg 98926-3863	509/925-8585	509/925-8585
Lewis County	1554 Bishop Rd., Chehalis 98532	360/748-0083	360/748-0083
Lincoln County	1310 Morgan St., PO Box 46, Davenport 99122-0046	509/725-4501	509/725-4181
Mason	SE 1051 Hwy 3, Ste. G, Shelton 98584		360/427-9436
Mason	817 Sidney Ave, Port Orchard 98366-2460	360/337-4433	
Moses Lake	1775 SE Hwy. 17, Moses Lake 98837-9326		509/765-5333
Moses Lake	2145 Basin St. SW, Suite B, Ephrata 98823-9617	509/754-2463	
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Okanogan	1251 S. 2nd Ave. Room 101, Okanogan 98840	509/422-2750	509/422-0855
Othello	449 E. Cedar Blvd., Othello 99344-0323	509/488-2802	509/488-2802
Pacific	1216 Robert Bush Dr., PO Box 968, South Bend 98586-0968		360/875-9424
Pacific	1216 Robert Bush Dr., PO Box 336, South Bend 98586-0968	360/875-6300	
Palouse	325 NW State Street, Pullman 99163		509/332-4101
Palouse	805 S. Vista Point Dr. Suite 2, Colfax 99111-9565	509/397-4301	
Palouse-Rock Lake	N. 3 Front St., PO Box 438, St. John 99171-0438	509/648-3680	509/648-3680
Pend Oreille	100 N. Washington Ave., PO Box 280, Newport 99156-0280	509/447-4217	509/447-5370
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Skagit	2021 E. College Way, Suite 203, Mt. Vernon 98273-2373		360/428-4313
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South Yakima	1116 A Yakima Valley Hwy., Sunnyside 98944-1555	509/837-7911	509/837-7911
Spokane County	210 North Havana, Spokane 99202-4724		509/535-7274
Spokane County	1908 N. Dale Lane Spokane, WA 99212-2445	509/924-7350	
Stevens County	232 Williams Lake Rd., Colville 99114-9638	509/685-0858	509/685-0937
Thurston	2400 Bristol Court SW, Ste 100, Olympia 98502		360/754-3588
Thurston	1835 Black Lake Blvd. SW, Suite E Olympia, WA 98512	360/704-7740	
Underwood	170 NW Lincoln St., PO Box 96, White Salmon 98672-0096		509/493-1936
Underwood	11104 NE 149th Street, Bldg C, Suite 400 Brush Prairie, WA 98606	360/ 883-1987	
Upper Grant	2145 Basin St. SW, Suite C, Ephrata 98823-9617		509/754-0195
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Wahkiakum	PO Box 67, Cathlamet 98612-0067		360/795-8240
Wahkiakum	2125 - 8th Ave., Longview 98632	360/425-1880	
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