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Best Management Practices for Broiler Operations

Best Management Practices (BMPs) have been developed and identified for all types of animal feeding operations (AFOs). These are important practices, which contribute to the efficiency and productivity of the operation and safeguard environmental quality. This publication briefly explains the most important general BMPs for all AFOs and Concentrated Animal Feeding Operations (CAFOs) and gives additional guidelines for broiler dry litter/manure BMPs. The recommendations listed here do not include all needed practices or details and are intended only as a guide for operators to prepare their own complete checklist of BMPs for their operation. Publications providing more details on specific topics are available free from your county Extension office and NRCS. Operators should use these publications and consult specialists as necessary to make sure they are following proper procedures. Especially note:

All animal feeding operators are required by federal and Alabama law and ADEM regulations to follow all BMPs that are relevant to their operation regardless of AFO/CAFO designation.

CAFOs require the assistance of Qualified Credentialed Professionals (QCPs) with proven training and/or experience in the selection and application of BMPs to develop their Waste Management System Plan (WMSP) and Pollution Prevention Plan (PPP). The PPP, usually included in the WMSP, must include weekly, comprehensive inspections of all BMPs, annual QCP BMP evaluations, and professional engineer (PE) inspections of liquid systems, dams, et cetera every 5 years.

Definition of Best Management Practices

Alabama's National Pollutant Discharge Elimination System (NPDES) AFO/CAFO Rules adopted by the Alabama Department of Environmental Management (ADEM), effective April 1, 1999, define BMPs as "schedules of activities, prohibitions of practices, maintenance procedures, and other effective management practices that meet or exceed NRCS technical standards and guidelines, NRCS Comprehensive Nutrient Management Plan (CNMP) guidelines, and Department requirements that are implemented to the maximum extent practicable to prevent or reduce pollutant discharges to waters of the State.

"BMPs also include effective treatment requirements, operating procedures, and practices to control construction and operation, site runoff, spillage or leaks, sludge or waste/wastewater transport, storage, disposal or land application, dead animal disposal, or drainage from raw material handling and storage.

"BMPs also mean full implementation and continued maintenance of appropriate structural and non-structural practices, and management strategies to minimize the introduction of pollutants to stormwater and to treat stormwater to remove pollutants to the maximum extent practicable prior to discharge."

BMPs for All AFOs/CAFOs

Construction Stormwater Runoff Control

Construction stormwater runoff control involves diverting any upstream runoff water away from the construction site and controlling any construction-generated sediment on site. Disturbing as little land as possible at any one time and establishing vegetation as soon as possible in the construction process also helps to control runoff from construction sites. Erosion in concentrated flow areas should be controlled by properly sizing and constructing waterways, stormwater channels, and grade control structures according to NRCS or other approved standards. AFOs that are not CAFOs are required to apply to ADEM for an NPDES storm water construction permit before beginning construction when land disturbance exceeds 1 acre.

Construction and Design Environmental Considerations for Poultry and Livestock Shelters

Animal waste is stored in animal shelters of animal feeding operations until removed for treatment or utilization. These shelters (buildings) should be properly designed and constructed to prevent waste leakage to the environment. Particular care should be given to building site preparation for liquid waste containment. NRCS Guidelines call for building designs, construction plans, and specifications to be signed and sealed by a professional engineer registered in Alabama.

Spill Prevention, Control, and Countermeasures (SPCC)

Measures must be taken to prevent or control any spills of stored fuels or chemicals that might, if spilled, be reasonably expected to enter state water or contribute to point or non point source pollution on or from the farm. Fuel and chemical storage should be properly located to minimize the potential for pollution. Any SPCC containment system should be constructed of materials compatible with the substances stored to prevent the pollution of groundwater and should be capable of holding 110 percent of the volume of the largest container of pollutants present.

Nutrient Management

Nutrient management involves carefully monitoring and taking into consideration all aspects of the crops grown, soil fertility, and available nutrients before making any land application of either animal waste or commercial fertilizer. Application rates must then be determined by considering all plant nutrients associated with animal litter/manure/compost, commercial fertilizer, legume crops, and crop residues on site or to be applied. A multiyear nutrient management plan based on this procedure ensures that crop needs are met while minimizing the loss of nutrients to surface or groundwater.

Proper rates, placement, and timing of animal waste and fertilizer application can greatly reduce nitrogen and phosphorus losses and help control erosion and sediment problems. Nutrient management is also a very effective practice for preventing groundwater contamination by nitrates and surface water contamination by phosphorous. Careful planning to determine proper timing and amounts of animal waste or fertilizer application in relation to storm events and seasons will minimize the length of time that nutrients are available for loss to surface or groundwater. Equipment correctly calibrated is also essential.

A good nutrient management program optimizes crop production and protects water quality. Planning considerations involve:

Residual soil nutrients – Nutrient application rates should be based on the results of soil tests and the Auburn University Soil Test Recommendations for Alabama. A soil sample should be tested every 3 years to get an accurate reading of the nutrients available.

Nutrient needs of the crop – A realistic optimum yield goal should be determined for the crop and nutrients applied to satisfy, but not exceed, that goal.

Available nutrients – Nutrients available to crops include those identified by the soil test plus any residual nitrogen provided by animal manure or fertilizer applied in prior years and also that provided by legumes (green manure crops). Prior to its application, all manure, litter, compost, or wastewater should be analyzed for available nutrients.

Application amounts and timing to protect water quality – The type of fertilizer or animal manure, the timing and method of application, and the placement should be adjusted to conform to seasonal variations in the uptake of nutrients by specific crops.

Record Keeping and Documentation

Accurate record keeping is critical to the success of animal waste/nutrient management. The only way to make good decisions for current and future use of waste/nutrients is to have at hand the following information:

- Map of area with field number (showing buffers and "spreadable acres")
- Date applied
- Crop applied to
- Type of nutrients and amount applied
- Analysis of animal waste
- Soil analysis at least every 3 years
- Details of storage pond and lagoon dewatering
- Reports of inspections

Buffers

A critically important practice for protecting water quality is not applying litter or manure near any groundwater source or body of water. However, distance between application area and water source is only part of what is needed. More important than simple distance is that the buffer zone be vegetated at all times and that common sense is used. AFO/CAFO rules and additional BMP recommendations for buffers are as follows:

- 50 ft.. between litter/manure application sites and all surface water sources such as ponds, lakes, streams, sinkholes, springs, wetlands
- 100 ft.. from wells or Outstanding National Resource Waters and Outstanding Alabama Waters (NRCS BMP recommends 300 ft. upslope from wells and 150 ft. downslope)
- 50 ft. for solid wastes and 100 ft. for wastewater between application sites and any public road
- 100 ft. from someone else's house
- 25 ft. from property line (unless neighbor agrees to less)

In all the above situations, buffer distances include at least 30 feet (25 feets for property lines) of dense vegetative growth that allows uniform runoff flow through the buffer. You should ask, "Is this buffer good enough if my family or I drink from, or swim in, this creek?"

Dead Bird/Animal Disposal

Proper disposal of dead birds or other animals must be carefully planned by each AFO/CAFO. It is in the best interest of the operator and neighboring landowners that disposal be done in a timely and appropriate manner. Immediate benefits of prompt and proper disposal include reducing the threat of disease, protecting water quality, and preventing unpleasant odors. Disposal of mortalities is also a consideration in nutrient planning to prevent nutrient overload.

Except in catastrophic situations when the state veterinarian must be involved, the AFO/CAFO operator has several methods available for routine disposal of animal mortalities. All are environmentally safe when done properly and in accordance with applicable Alabama Department of Agriculture and Industries (ADAI) and ADEM regulations:

- Composting
- Rendering – usually freezing carcasses immediately for pickup by a rendering contractor
- Incineration - register equipment with ADEM
- Burial - state veterinarian EMERGENCY approval required for poultry (1-334-240-7255 OR www.agi.state.al.us/poultry_information/Bird_Disposal.doc)

The following considerations should be used as a starting point for planning the disposal method that best suits an individual operation:

(1) State regulations
(2) Type of animal
(3) Size of operation
(4) Cost of installation
(5) Equipment needed
(6) Labor needed
(7) Land area needed if composting

Runoff Management

Effectively controlling runoff at AFO/CAFO sites is vital to water quality protection. Runoff management can prevent clean water from entering the farmstead, service area, waste storage structure, or dry stack. Measures can also be taken to contain and/or treat polluted runoff to prevent it from contaminating any surface or groundwater. Management practices to control runoff include:

Diversions to prevent clean water from flowing over a feedlot or service area or into a waste storage pond or lagoon.

Roof water collection to prevent roof water from washing away building foundations or entering the waste storage dry stack, storage pond, or lagoon. Ways to control roof water include use of troughs, eaves, and rain gutters.

Vegetative filters to treat runoff from a feedlot by passing it over a sufficient area of vegetation.

BROILER DRY LITTER/MANURE BMPs

Dry Litter/Manure Handling and Application

AFO/CAFO farms that produce litter and manure have an opportunity to manage these by-products to their benefit. When applied to cropland, litter/manure can reduce the need for commercial fertilizer and greatly improve the soil tilth. If sold to neighboring farmers, it can generate income. Maintaining environmental quality also requires that litter/manure be applied under the following guidelines:

- Only on actively growing crops, and only in amounts that can be fully utilized before crop dies, is harvested, or becomes dormant
- Not on frozen or saturated soil, during rain, when the National Weather Service forecast/extended forecast is for "more than 50 percent rain probability," "rain likely," "periods of rain," or "occasional rain" within the next 3 days
- Not when wind is high or direction is toward neighboring farms and not on weekends when neighbors may be participating in outdoor activities
- Only on fields and in areas where there are adequate grass filter strips, riparian forest buffers, or distance from any water source and not on land with steep slopes or poor vegetative growth
- Only according to Auburn University Soil Lab recommended application rates, using correctly calibrated equipment

Other important actions to take include informing neighbors of plans to apply litter/manure, covering trucks that haul litter/manure, soil testing at least every 3 years, and keeping records of when, where, and how much litter/manure was applied and/or sold (and to whom it was sold).

Waste Storage

Since land application can take place only under certain circumstances, the operator has decisions to make regarding storage. To protect the environment, especially water quality, all litter/manure that is stockpiled or retained on site prior to land application must be (1) located with adequate separation from adjacent property and water sources, (2) stored under roof or plastic cover to protect from rainfall, and (3) placed on clay or concrete to prevent seepage into the ground.

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For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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