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## W085-Nutrient Management Plans

The University of Tennessee Agricultural Extension Service

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## Livestock Waste Management and Conservation

### Nutrient Management Plans

(Class I – Large Dry Litter & Class II – Medium CAFOs)

Tennessee CAFO Factsheet #6

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All Large CAFOs with dry litter operations, all Medium CAFOs and all designated CAFOs are required to develop, submit for state approval, implement and keep on site a site-specific Nutrient Management Plan (NMP). These NMPs are very different than the plans previously required by regulations. They are extensive and focus on many aspects of livestock operations, from application of manure to conservation practices.

Most likely producers cannot develop a NMP alone because specific requirements must be met. For instance, producers and most Extension agents do not have the expertise to run the Phosphorus Risk Index on fields with high soil-test phosphorus. A NMP includes site-specific conservation practices for the operation; so, developing a NMP without input from the Natural Resource Conservation Service (NRCS) is not advisable. To complicate matters further, the NRCS will not develop simple NMPs as in the past. Their approach to managing nutrients is to develop a Comprehensive Nutrient Management Plan (CNMP). A CNMP is similar to a NMP, but is more detailed. A CNMP will meet the requirements of a NMP. A significant difference between the two plans is that NRCS or a certified Technical Service Provider (which NRCS will cost share) must develop a CNMP. Additionally, in order to get cost share funds for waste systems from NRCS or a guaranteed loan from the Farm Services Agency, a CNMP must be developed. In many cases, it may be in the producer's best interest to work with NRCS to develop a CNMP, even though the regulations do not require a CNMP.

The regulations state that a NMP must:

1. Include best management practices and procedures necessary to implement applicable effluent limitations and standards,
2. Ensure adequate storage of manure, litter and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities,
3. Ensure proper management of dead animals so that they are not disposed of in a liquid-manure, storm-water or process-wastewater storage or treatment system that is not specifically designed to treat animal mortalities. Animal mortalities may be composted, incinerated, buried or rendered in accordance with NRCS guidelines.
4. Ensure that clean water is diverted, as appropriate, from the production area,
5. Prevent direct contact of confined animals with waters of the state,
6. Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants,
7. Identify appropriate site-specific conservation practices to be implemented, including, as appropriate, buffers or equivalent practices, to control runoff of pollutants to waters of the state. (These practices must meet minimum standards set in the NRCS Field Office Practice Standard

- and/or the NRCS Animal Waste Handbook),
8. Identify protocols for appropriate testing of manure, litter, process wastewater and soil that are approved by the University of Tennessee testing lab for Tennessee conditions,
  9. Establish protocols to land-apply manure, litter or process wastewater in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater (see below), and
  10. Identify specific records that will be maintained to document the implementation and management of the minimum elements described in items 1 through 9 above.

The NMP (either comprehensive or site-specific) must incorporate a field-specific assessment of the potential for nitrogen and phosphorus transport from the field. The NMP must also address the form, source, amount, timing and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.

Application rates for manure, litter and other process wastewater applied to land must minimize phosphorus and nitrogen transport from the field to surface waters. To achieve this, a manure sample must be analyzed at a minimum of once each year for nitrogen and phosphorus. (Refer to the Procedures for Manure and Litter Sampling, Factsheet #14.) Additionally, soil samples must be analyzed at a minimum of once every five years for phosphorus content. If the soil test results recommend phosphorus application, manure can be applied on a nitrogen basis. However, if the soil phosphorus tests are "high" or "very high," the Tennessee Phosphorus Risk Index must be run. The Phosphorus Risk Index is a field-specific assessment indicating the potential for phosphorus transport from the field. If the potential for phosphorus transport is low, manure may still be applied on a nitrogen

basis. However, if the potential for P transport is significant, manure must be applied based on phosphorus needs of the crop. (For more information regarding the Tennessee Phosphorus Risk Index, please see Factsheet #15.) Detailed documentation of each analysis must be kept.

Other requirements include periodic inspection and calibration of manure application equipment. Records of both must be maintained. The NMP must also address setbacks from surface waters and wells. Manure cannot be applied closer than 100 feet to any down-gradient surface water, open tile line intake structures, sinkholes, agricultural well heads or other conduits to surface water. However, the 100-foot setback can be substituted with a 35-foot wide vegetated buffer where application of manure would be prohibited. Also, manure cannot be applied closer than 150 feet to any up-gradient public or private potable well or any closer than 300 feet to any down-gradient public or private potable well. Additional setbacks to high-quality streams (as identified by the TDEC) are required. CAFOs located on these high-quality streams must leave in place a minimum 60-foot natural riparian buffer between the stream and the land application area.

All existing CAFOs should have their NMPs developed immediately. Existing operations that are now defined as CAFOs must have their nutrient management plans developed, approved and implemented by December 31, 2006. Newly constructed operations must have their NMPs developed 180 days prior to startup. Producers should realize that development of these plans may take a few weeks to a few months, and approval will also take a significant amount of time. Producers are urged not to wait until the last minute to begin the development process.