



## **Comprehensive Nutrient Management Planning for Your Pork Production Operation**

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### **Introduction**

The Comprehensive Nutrient Management Plan (CNMP) concept has been developed by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) to address conservation planning for animal feeding operations. Additionally, the Environmental Protection Agency (EPA) recognizes that CNMPs address the requirements of the Nutrient Management Plan necessary for the maintenance of a National Pollutant Discharge Elimination System (NPDES) permit [1]. National USDA policy states that animal feeding operations should have a CNMP to be eligible to receive certain cost-share funding, such as Environmental Quality Incentive Program (EQIP) assistance. In 2002, the Farm Security and Rural Investment Act (Farm Bill) increased the amount of conservation program funds available to animal feeding operations, and introduced the mechanism for using certified Technical Service Providers (TSP) as a source of technical assistance for producers. Producers can contact a TSP, request the development of a CNMP and then potentially be reimbursed for a TSP's services with conservation program funds, depending on fund availability in their state.

### **Objectives**

- Define a CNMP and describe its main elements
- Discuss the purpose of a CNMP and how it can benefit a producer
- Describe how to obtain a CNMP

### **What is a CNMP?**

A CNMP is a conservation system developed in accordance with NRCS planning policy that addresses all of the conservation aspects of an animal feeding operation [2]. The purpose of a CNMP is to identify resource concerns on the farm and to establish a Resource Management System specific to that farm that addresses the natural resource concerns. A Resource Management System is simply a set of Conservation Practices designed to address the natural resource concerns on the farm. While all CNMPs should share similar components, each one is unique to a particular production operation. The six basic elements that may be addressed in a CNMP are:

1. Manure and Wastewater Handling and Storage
2. Nutrient Management
3. Land Treatment Practices
4. Record Keeping
5. Feed Management
6. Other Utilization Activities

A CNMP should identify and address natural resource concerns in regards to soil, water, air, plants, animals and people on the farm. Addressing these six elements will assist the producer in meeting soil, water, and air conservation goals as well as reducing the potential and actual threats to water quality and public health from their operations [3]. As defined by NRCS, a CNMP is a grouping of conservation practices and management activities that when implemented as part of a conservation plan helps insure that both production and natural resource protection goals are achieved. The potential impacts of soil erosion and manure on water quality are a key natural resource concern.

## Elements of a CNMP

While all six elements should be considered by a producer, and implemented accordingly, they do not all have to appear within the CNMP. At a minimum, a nutrient plan should address actions pertaining to an animal operation's production area and the land on which the manure and organic by-products will be applied [3]. This means that if an operator applies manure to his crop production area, the plan should at least cover elements 1-4 as listed above (Manure and Wastewater Handling and Storage, Nutrient Management, Land Treatment Practices and Record Keeping). These four elements represent the minimum expectation of a nutrient plan required by federal environmental regulations, often referred to a Nutrient Management Plan (NMP). However, a review of the feed management program and other utilization options often reveals additional valuable options for environmental improvements for some operations.

### ***Manure and Wastewater Handling and Storage***

This element addresses issues concerning manure storage structures and other areas within a production facility used for manure transfer, treatment, and/or storage [3]. Within this section, the CNMP should identify concerns and provide documentation of adequate manure collection, storage, and/or treatment to allow for land application of the material, as well as for dead animal disposal. In addressing these concerns, the CNMP should also take air quality and pathogens into consideration.

### ***Nutrient Management***

This element addresses issues concerning the land application of manures and other nutrient sources to production fields associated with the livestock operation. The CNMP should outline and implement land application practices that minimizes the potential for adverse impacts to the environment and public health [3]. Consideration should also be given to air quality impacts, pathogen movement to water, and salt and heavy metal build-up.

### ***Land Treatment Practices***

This element addresses soil loss and runoff that may be present on fields receiving manure and other soil amending nutrients. Within this section, conservation practices are used as components of a Resource Management System (RMS) to address the resource concerns that have been identified on the farm. A RMS is a suite of Conservation Practices that will be implemented on the animal feeding operation to address any soil, water, air, plant, animals and human resource concerns that have been identified. There are hundreds of Conservation Practices that can be potentially included in a RMS. Some examples of Conservation Practices are buffer strips, diversions, minimum tillage, etc. Traditional Land Treatment Practices (LTP) include buffer strips, various conservation tillage methods, grassed waterways and terraces. The LTP are typically practices that have been traditionally implemented on the land with assistance by NRCS. The LTP element should include a schedule of planned implementation dates as well as an explanation of the operation and maintenance activities required to keep the practices functional. This part of a plan should also recognize the value of organic matter in manure for improving soil quality and reducing soil erosion and runoff

### ***Record Keeping***

This element is essential to the implementation of a CNMP. Records document and demonstrate that activities associated with the CNMP have been implemented. It is the responsibility of the production facility owner/operators to maintain the required records. It is important for producers to understand that a CNMP is dynamic. The original CNMP document that is prepared is basically a list of practices and management actions that will be implemented on the farm. As such, a CNMP is not in place until these practices and management actions have been implemented on the farm. From this standpoint, the most important part of any CNMP is records that show how the plan was implemented. A producer does not truly “have” a CNMP until he/she has implemented the actions contained in the plan and has records to document this implementation. Records are important to provide information to modify a CNMP. For instance, the original CNMP will suggest manure application rates and timing, cropping systems, and fields selected for receiving manure. However, a producer may need to change these management practices for next year because new information available, such as soil tests, stalk nitrate tests, yields, etc.

### ***Feed Management***

The inclusion of a feed management plan can be a critical component for CNMPs [3]. Feed program decisions directly impacts the quantity of manure nutrients excreted and available for use as a fertilizer resource, the land needed for apply the nutrients, and the magnitude of air emission (odor, ammonia, and others) from a livestock operation. A CNMP plan provider should work with a producer and the farm’s nutritionist to determine how much a feed management plan could potentially assist in meeting the CNMP goals. If sufficient opportunity for benefit exists, then the producer should consider enlisting the help from a qualified animal nutritionist to develop a Feed Management Plan for the CNMP. In some situations the implementation of a Feed Management Plan may provide large reductions in excreted nutrients and reduce the land requirement from a nutrient balance standpoint. A professional animal nutritionist should be consulted if feed management alternatives are being considered. Example of strategies to consider may include phase feeding, split-sex feeding, amino acid supplemented low crude protein diets, the use of low phytin phosphorus grain, growth promotants, processing of feeds and specific enzymes [3].

### ***Other Utilization Activities***

When insufficient land area is available and application of manure nutrients are greatly in excess of crop requirements with the potential for causing an environmental risk or if air quality concerns exist for an operation, alternative utilization methods may be considered. For pork operations that buy the majority of the feed used, export of manure becomes a critical other utilization option to consider. Emerging technologies may be an option for reducing nutrients and minimizing odors. The best possible alternatives should be similar in cost to traditional methods. Many times, however, alternative utilization options cost more than traditional land application. Because these alternatives are not conventional, industry standards do not always exist, and specific NRCS conservation practice standards may not be available. Land grant universities or other research organizations may provide more recent information on emerging alternatives.

## **Purpose and benefit of a CNMP to a producer**

When implemented, a CNMP should help ensure that both production and natural resource protection goals are achieved. Because a CNMP utilizes conservation practices to beneficially use animal manures, it also assists animal feeding operations in meeting regional and federal water quality goals and regulations. There are many ways a producer can benefit from the development of a CNMP for his/her operation. The CNMP protects the environment.

- A CNMP may improve the efficiency of nutrient utilization, improve productivity, and/or reduce costs.
- A CNMP improves the economic value recovered from manure.
- A CNMP demonstrate a farm’s stewardship to your neighbors.
- A CNMP can be used to satisfy most of the EPA requirements for a NPDES permit Nutrient Management Plan.
- A CNMP creates the opportunity for USDA cost-share funding through EQIP (CNMP development costs) and Conservation Securities Program (apply for payments by implementing a CNMP and keeping records)

In 2003, when the EPA revised the NPDES effluent limitation guidelines, they updated the rules that impact CAFOs. As part of the rule change, a very clearly defined nutrient management plan is now required as part of the permit. The EPA definition of a nutrient management plan to meet NPDES permit requirements contains many CNMP components. Producers who choose to develop CNMPs to satisfy NPDES nutrient management plan permit requirements also have the added advantage of potentially being reimbursed for the cost of the CNMP preparation.

## How can a producer obtain a CNMP?

A producer can choose to have a CNMP completed by an NRCS employee or a certified TSP. If a producer chooses to have an NRCS employee develop a CNMP for his or her operation, there may be a waiting period involved due to other NRCS commitments. Alternatively, a producer may choose to hire a TSP that can provide the services in a shorter time frame. To find a USDA-certified TSP to prepare a CNMP in your area use the TechReg webpage (<http://techreg.usda.gov>). To determine if it is possible to receive reimbursement for your CNMP preparation costs contact your county NRCS District Conservationist. Funding availability will vary by location and time within the NRCS fiscal year. You should consult with your local NRCS District Conservationist before beginning your CNMP to have the best chance of receiving cost-share assistance with your plan. In addition to the TechReg website information, your District Conservationist can also provide you with a list of TSPs active in your area.

Services provided by TSPs may be reimbursed under a state-wide contract or using "Not-To-Exceed" rates (NTEs) developed by NRCS. The producer and the technical service provider negotiate service fees. However, fees in excess of the NTE must be compensated by the producer. Not-To-Exceed rates can be determined for a given service using the NTE rate calculator on the TechReg website. Not-To-Exceed rates are calculated based on practice and location.

## Summary

Comprehensive Nutrient Management Plans are designed to help animal producers implement conservation planning on their farms to improve the management of farm resources. These resources include soil, water, air, plants, animals and people. A CNMP should be comprehensive in nature and should address resource concerns across the entire farm using a systems approach. It should be possible for most producers to receive reimbursement for CNMP development costs if they utilize USDA certified TSPs to prepare their CNMPs. Producers should work closely with their NRCS District Conservationists in planning the development of a CNMP.

## References Cited

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2. USDA-NRCS. Comprehensive Nutrient Management Planning Assistance From Technical Service Providers. Accessed June 14, 2006. Available at: <http://www.nrcs.usda.gov/programs/afo/2003pdf/TSP%20CAFO%20Fact%20Sheet.pdf>.
3. USDA-NRCS. 2003. Part 600.5 – Comprehensive Nutrient Management Planning Technical Guidance. National Planning Procedures Handbook.

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