



Comprehensive Nutrient Management Plan (CNMP)

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What is a CNMP?

A CNMP is a "Conservation (Farm) Plan" specific to Animal Feeding Operations (AFO). The CNMP addresses the management and treatment necessary for the AFO to meet their production goals and protect soil and water resources on the farm and leaving the farm.

Why CNMPs?

The CNMP process is part of a national strategy by USDA and USEPA to better address the resource concerns with animal feeding operations, preserve the livestock industry, create a more uniform planning system nation-wide.

Does a CNMP Need to be Certified?

CNMPs must be approved by a "certified" technical service provider. The certification program is currently under development at the national and state level.

What does a CNMP Contain?

The CNMP normally contains 6 different elements as highlighted below:

1. **Manure and Wastewater Handling and Storage:** how manure and runoff are managed at the facility;
2. **Land Treatment Practices:** the treatment and practices that will be applied on the land receive manure;
3. **Nutrient Management Plan:** the time, rates, forms, and methods of application of manure and other fertilizers;
4. **Record Keeping:** how and what records the producer maintains;
5. **Feed Management Considerations:** feed ration and management considerations to reduce manure nutrient contents;
6. **Other Waste Utilization Options:** alternative use of manure when there is not sufficient land available for manure application.

Nutrient Management Element of a CNMP (element 3)

The nutrient management element of the CNMP, as defined by USDA NRCS, contains nine components (listed below) to be included as part of the element's plan. This plan is used when manure and other organic nutrients (along with other sources of nutrients) are land-applied for production of food, fiber, or forage.

1. **Provide site maps, including a soil map:** These maps are generally part of the overall conservation plan, and can be aerial photographs, computer generated, geographic information system (GIS) maps and printouts, hand-drawn sketches, or any another acceptable form. Information will be given for the land where nutrients are to be applied. This information will include field boundary and acreage, location of any sensitive areas, soil types present and their associated soil interpretation, plus any other pertinent information.
2. **Location and description of sensitive resource areas:** If present, sensitive resource areas will be delineated on the site map. Sensitive areas may be highly erodible land (HEL), sole-source aquifer recharge areas, soils that are highly leachable, fields that have a high risk for phosphorus transport, or areas in close proximity to neighbors or public areas. Sensitive areas usually require some form of reduced or restricted nutrient

application. Assessment tools and maps to determine sensitive areas are available in the NRCS Field Office Technical Guide (FOTG).

3. **Soil, plant, water, and organic material sample analysis results:** Nutrient management is based on crop requirements and the resources available to supply these crop nutrients. All appropriate sample analyses will be part of the nutrient management component. These analyses become basic information to complete the nutrient budget. Appropriate explanation of each analysis needs to be presented to the producer.
4. **Current and planned crop production sequence or crop rotation:** Nutrient application is based on crop requirements. Planning the crop rotation will determine the nutrient needs, nutrient carryover to subsequent crops, and windows of opportunity to apply organic waste material. A three to five year history of past, present, and future crops is essential for planning nutrient management.
5. **Expected yield:** The expected crop yield is a basis for determining the level of nutrients required for that particular crop. Generally, the higher the yield the higher the nutrient requirement. There are a number of methods available to determine expected yield. Soil, climate, crop variety, and management skills are all factors. Consult with the land grant university for those acceptable methods used in the area.
6. **Quantification of all nutrient sources available:** Nutrient sources may include soil reserves, commercial fertilizer, animal manure and other organic waste products, irrigation water, atmospheric deposition, and legume credits. Many of the estimates of nutrient sources are determined by laboratory analysis or crop history.
7. **Develop a nutrient budget for the crop rotation being planned:** A nutrient budget determines the amount of nutrients available from all sources and compares this to the amount of nutrients required to meet the expected yield. If the crop yield requirement for nutrients exceeds the currently available sources, then an additional source of nutrients is needed. If nutrient supplies exceed crop requirements, however, then management measures must be taken to ensure the excess nutrients are either reduced or their application will not cause detrimental effects to plants, soil, water, or air resources.
8. **Recommended rates, timing, and method of nutrient application:** These are the three specifications for nutrient application that are given to the producer. All three specifications are part of the nutrient management element plan. The rate of nutrient application depends on the results of the nutrient budget. Timing is determined by crop growth stage, field conditions for application equipment, and climatic conditions that can affect the transformation and transport of nutrients. How the nutrient is applied will be based on its form and consistency, soil and weather conditions, and potential for movement or loss to the environment.
9. **Operation and maintenance of the nutrient management plan:** A number of management items need to be reviewed and updated on a regular basis. Soil tests will be taken periodically to track soil reserves. Application equipment will be calibrated to supply uniform and precise amounts of nutrients. A safe working environment will be maintained while handling and storing nutrient products. Records of nutrient application also will be kept by the producer.

For More Information please visit the following web sites:

- http://www.nrcs.usda.gov/programs/afo/cnmp_guide_index.html
- <http://www.epa.gov/npdes/pubs/finafost.pdf>

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