

Comprehensive Nutrient Management Planning (CNMP) in Massachusetts

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A CNMP is a conservation activity that is unique to animal feeding operations. A CNMP is a grouping of conservation practices and management activities which, when implemented as part of a conservation farming system, will help to ensure that both production and natural resource protection goals are achieved. It incorporates practices to utilize animal manure and organic byproducts as a beneficial resource. A CNMP addresses natural resource concerns dealing with soil erosion, manure, and organic by-products and their potential impacts on water quality, that may be emanate from an animal feeding operation. A CNMP will assist the farmer in meeting all applicable local, tribal, State, and Federal water quality goals or regulations.

The six main elements of a CNMP to consider are:

- 1- Manure and wastewater handling and storage
- 2- Land treatment practices
- 3- Nutrient management
- 4- Record keeping
- 5- Feed management
- 6- Other waste utilization options

In December 2002 a 319s grant entitled "Implementation of Nutrient Management Standards on Massachusetts Crop/Livestock Farms to Reduce the Risk of Nonpoint Source Pollution" was awarded to the University of Massachusetts by Dept of Environmental Protection (DEP). In this grant, USDA Natural Resources Conservation Service (NRCS) is collaborating with UMass Extension to develop CNMPs. The order of steps for the CNMP process are as follows:

1. Farm selection: Priority goes to the farms who have signed EQIP Livestock Contract with NRCS.
2. Establishing Working Team: In each county/region a working team has been established. The team members include: a) NRCS: Conservation Planner, Natural Resources Specialist, Field Engineer; b) UMass: Nutrient Management Specialists, Animal Nutritionist/Feed Specialist (if required).
3. Planning Process:
 - a) Review existing information and data on farm.
 - b) Identify objectives, problems and opportunities.
 - c) Detail tasks (what-who-when).
 - d) Preparation of aerial photos, plan map, field crop history, others.
 - e) Letter to the farmer to explain contract responsibilities for development and implementation of CNMP, describe the planning process, plan/product expectations, and farmer responsibilities.
 - f) Contact farmer to schedule farm visit and planning interview.
 - g) Farm visit and data collection. Data categories include manure management, animal inventory and mortality disposal, fertilizer utilization, cropping system and

history (field by field), collecting documents such as copy of soil and manure test results, fertilizer purchase receipts, and other relevant information.

h) Compiling interview notes and data sheet information. Team members develop component parts:

i. Conservation Planner: land treatment (erosion, runoff, and water management controls at RMS level).

ii. Natural Resources Specialist: watershed location (description and map), fields, GIS acres, soils information, sensitive areas, environmental risk assessment (MANTI), risk maps and plan map.

iii. Field Engineer: manure and wastewater storage and handling plan and associated worksheets.

iv. Nutrient Management Specialist: nutrient management plan and recommendations.

i) Assemble CNMP document and review component plans by team members.

j) Meet with the farmer and review the plan and make appropriate changes.

k) NRCS certification review and approval.

At present, we have accomplished and delivered 3 CNMP to the farmers in Hampshire, Franklin and Berkshire counties. Several other CNMPs are in progress.

In our previous Nutrient Management Planning project with DEP and NRCS we developed NMP plans for 30 farms across the State. Other technical assistance delivered to the participants in the project included:

- Determination of soil N status using PSNT, corn stalk $\text{NO}_3\text{-N}$, and amino sugar concentration.
- Manure sampling and analysis.
- Manure spreader calibration.
- Determination of realistic yield for corn.
- Cropping management such as cover cropping, crop rotation, conservation tillage, rotational grazing, grass re-seeding, etc.

Moreover, several on-farm demonstrations were established on different dairy farms to determine realistic yields and to determine nitrogen requirement and efficiency in corn. A computer program, FarmSoft, was developed for the assessment of whole farm nutrient management as well as individual fields. Other educational materials generated included 17 fact sheets, 14 worksheets, and 11 miscellaneous materials all related to nutrient management. Many of these are or will be available on the Crops, Dairy, Livestock website www.umass.edu/cdl

In general, the farmers were pleased with the outcomes of the planning process and stated that they had a clearer picture of the environmental quality issues, especially for phosphorus. They expressed they had a better knowledge about available the best management practices to reduce the potential risk of environmental pollution. Many farmers who voluntarily participated in the nutrient management project, appreciated the dollars saved through reduction in commercial fertilizer purchase costs. Most of those participating commented that they will continue updating their nutrient management plan in the future, and will encourage other farmers to adopt a nutrient management program for their farms.