

# Comprehensive Nutrient Management Plan

**For**

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(Name)

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(location)

**By**

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(Name of Preparer)

**Natural Resources Conservation Service**

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(Date)

# ***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***

## **TABLE OF CONTENTS**

### **SECTION 1**

#### **CNMP PURPOSE AND CONDITIONS**

#### **BASIC FARM INFORMATION**

**Farm Operator information**

**Directions to Farm**

**Farm Description and Purpose**

**Goals and Future Plans**

**Total Acres Cropped (Owned and Rented)**

**Number and types of Animals and Animal Units**

**Special Environmental Factors**

**Sketch or aerial photo of farmstead area (Section 3)**

**Maps (fields, identification numbers, soils, sensitive areas)**

### **SECTION 2**

#### **PLANS AND SCHEDULES**

**Signature and Certification Pages and Permits**

**Conservation Plan (discussion and decisions on all 6 elements)**

**Schedule of Operations (may be part of conservation plan)**

**Changes to CNMP**

**Environmental and Resource Assessments**

Environmental Effects

Cultural Resources

### **SECTION 3**

#### **MANURE AND WASTE WATER HANDLING AND STORAGE**

**Numbers and average weight of animals by type, period of confinement and estimated manure production**

**Manure storage type, volume, length of storage, design info (size)**

**Manure Spreaders or other transfer Equipment Used and Capacities**

**Manure Test Results (See Section 5, Nutrient Management)**

**Manure exported (if any)**

**Manure and Residuals imported (if any)**

**Wastewater volumes produced (milk room waste, wash water, silage leachate etc.)**

**Plan View (sketch) of farmstead showing existing and planned component**

**Operation and Maintenance requirements**

**Odor and Insect Control**

**Emergency Action Plan for Manure Spills**

**Disposal of Dead Animal Carcasses**

## **SECTION 4**

### **LAND TREATMENT PRACTICES**

- Maps of land application areas** (See Sec.1)
- Identification of sensitive areas and property boundaries** (See Sec. 1)
- Soils information** (See Sec. 1)
- RUSLE Calculations** (for fields where sheet and rill erosion are a concern)
- Crop rotations**
- Design information for practices** (Plans and Specifications)
- Operation and Maintenance for Practices**

## **SECTION 5**

### **NUTRIENT MANAGEMENT**

- Purpose and Intent of a NMP**
  - Purpose and intent
  - Relationship between N and P transport and water quality impairment
  - Excessive Soil Potassium
- Summary of Field Data**
- Manure Lab Tests**
- Whole Farm Budget for Nitrogen and Phosphorus**
- Nutrient Management Plans for Individual fields:**
  - Field Information
  - Erosion Control Practices
  - Spreading Setbacks from sensitive areas
  - Crops Grown, Rotations, and Yield Goals
  - Soil Test Data (Soil Tests)
  - Limiting Nutrient
  - Recommended Nutrient Applications to meet yield goals
  - Nutrient Balance Table
- Operation and Maintenance Requirements**

## **SECTION 6**

### **RECORDKEEPING**

- End of year summary of manure and nutrient application**
- Crop planting and harvest dates and yields**
- Levels in manure storage before and after major storm events and emptying**
- Transfer of manure offsite (nutrient content, amount, date, recipient)**
- Emergency Spill Response Activities**
- Records associated with reviews**
- Records of maintenance**
- Nutrient Equipment Calibration**
- Changes made to CNMP**

## **SECTION 7**

### **OTHER ACTIVITIES**

- Feed Management** (Optional if needed)
- Other Utilization Options** (Composting, etc - if needed)

**Exhibit 2**

**Checklist for Preparing a RMS Level Plan**

Planner \_\_\_\_\_

Client \_\_\_\_\_

Reviewer \_\_\_\_\_

Date \_\_\_\_\_

1. Principal client(s) and decision making authority recorded		
2. Client's statement of problems, concerns, and opportunities clearly recorded		
3. Client's objectives recorded		
4. Land units recorded		
5. Location described		
6. Owners and operators identified		
7. Utilities, easements, constraints and determinations recorded		
8. Soils recorded		
9. Benchmark system including narrative, existing practices, and effects recorded		
10. Problem identification consistent with SWAPA and quality criteria		
11. Conservation Management Units are based on similar land use, management objectives, intensity of management, and treatment needs.		
12. CPPE worksheets or CPA-52– completed for each alternative, resource concerns consistent with benchmark, practices consistent with alternative, effects reasonable		
13. Alternative systems recorded, including management system narrative, system land units, system practices, and effects		
14. Alternatives meet quality criteria for resource concerns and client objectives		
15. Supporting forms and worksheets for inventory and evaluation in case file, for example, calculations for soil loss, sediment delivery, etc.		
16. Discussions between client and planner recorded		
17. Selected alternative recorded in case file as planned system including scheduled practice application		
18. Case file contains conservation plan map including scale, location, date prepared, north arrow, property boundaries, field boundaries, field labels including NRCS land use acres		
19. Case file contains soils map and legend		
20. Discussion with client supplies evidence of adequate planner communication with and involvement of client		

**Exhibit 2(Cont.)**

**Checklist for Evaluating an Existing Plan**

Planner \_\_\_\_\_

Client \_\_\_\_\_

Reviewer \_\_\_\_\_

Date \_\_\_\_\_

1. Principal client(s) and decision making authority recorded		
2. Client's statement of problems, concerns, and opportunities clearly recorded		
3. Client's objectives recorded		
4. Land units recorded		
5. Location described		
6. Owners and operators identified		
7. Utilities, easements, constraints and determinations recorded		
8. Soils recorded		
9. Benchmark system (and/or current system) including narrative, existing practices, and effects recorded		
10. Problem identification consistent with SWAPA and quality criteria		
11. Supporting forms and worksheets for inventory and evaluation in case file, for example, calculations for soil loss, sediment delivery, etc.		
12. Discussions between client and planner recorded		
13. Discussion with client supplies evidence of adequate planner communication with and involvement of client		
14. Planned system meets quality criteria for resource concerns and client objectives		
15. CPPE worksheets or CPA-52 – completed for each alternative, resource concerns consistent with benchmark, practices consistent with alternative, effects reasonable		
16. Discussions between client and planner recorded		
17. Revisions recorded in case file as planned system including scheduled practice application		
18. Case file contains conservation plan map including scale, location, date prepared, north arrow, property boundaries, field boundaries, field labels including NRCS land use and acres		
19. Case file contains soils map and legend		

***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***  
**TABLE OF CONTENTS**

**SECTION 1**

**CNMP PURPOSE AND CONDITIONS**

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**Sketch or aerial photo of farmstead area (Section 3)**

**Maps (fields, identification numbers, soils, sensitive areas)**

## **SECTION 1**

### **CNMP Purpose and Conditions**

#### **PURPOSE OF THE CNMP:**

The **Comprehensive Nutrient Management Plan (CNMP)** is a conservation plan for your animal feeding operation (AFO). It is designed to address, at a minimum, the soil erosion and water quality concerns of your operation. A CNMP is a grouping of Conservation Practices and management activities which, when implemented as part of a conservation system, will help to ensure that both production and natural resource protection goals are achieved. The CNMP encompasses the following six elements which are considered by the owner/operator during plan development:

1. Manure and Wastewater Handling and Storage
2. Land treatment Practices
3. Nutrient management
4. Record Keeping
5. Feed Management
6. Other Utilization Activities (composting, sales, solids removal, etc.)

#### **NITROGEN AND PHOSPHORUS versus WATER QUALITY:**

The two major nutrients of concern are phosphorus and nitrogen because they can impact water quality, human health, and animal health. Discussion of the effects of these two nutrients on the environment is given in Section 5 Nutrient Management.

#### **CONDITIONS:**

This plan was developed based on the requirements of NRCS CNMP Technical Guidance; current Maine NRCS Conservation Practice Standards; Maine Department of Agriculture, Food, and Rural Resources Chapter 565 - Nutrient Management Rules; Maine Department of Environmental Protection Chapter 419 - Agronomic Utilization of Residuals; and any other applicable federal, state and local regulations.

Any changes in any of these may necessitate a revision of the plan. Also, the plan will need to be updated and approved if there is an increase of 50 animal units, or a change greater than 15% in the acreage used for spreading manure, or there is any significant change in the farm operation such as feeding or bedding used. State of Maine Chapter 565 Nutrient Management Rules require that the plan be updated once a year and approved by a certified NMP Specialist at least every 5 years.

# *Sample Farm*

## **BASIC FARM INFORMATION**

### **Farm Operator Information:**

**Name:**

**Address:**

**County:**

**Phone:**

**E-mail:**

**Location of farm:** (town, road, number, etc.)

### **Farm Description and Purpose:**

#### **Goals:**

1. Maintain and improve the economic return from the dairy operation.
2. To apply dairy manure to obtain maximum nutrient benefit while minimizing runoff of nutrients.
3. To control erosion on the crop fields
4. To operate the farm in an environmentally and socially acceptable manner.

**Future Plans:** (anticipated change of more than 15% of land base or greater than a 50 animal unit change on an annualized basis)

#### **Total Acres Cropped:**

Corn silage and hay are grown for feed. The best fields are in a hay-corn rotation. A crop rotation schedule is included.

acres owned

acres rented

acres total

acres corn:

acres hay:

acres pasture:

**Contacts for rented acreage** (names and phone numbers):

**Number of animals and animal units:**

<b>Animal Type</b>	<b>Number</b>	<b>Ave. Wt.</b>	<b>A.U.</b>	<b>Manure Storage Options</b>
Holsteins milkers				
Breeding heifers and dry cows				
Yearlings				
Young calves				
<b>Total AUs from</b>	<b>animals is:</b>			

**Special Environmental Factors:** (i.e. sensitive watersheds, sand/gravel aquifers, bedrock etc.):

**Maps:**

Attached are copies of aerial photos showing fields, field identification numbers, acreage and sensitive areas. Sensitive areas shown are wells, ponds, streams, waterways, and property boundaries. Field stacking sites for manure are also located on these maps. Soils maps and a legend are also attached.

**Sketch:**

Sketch (or enlarged and labeled aerial photo) of farmstead area

***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***  
**TABLE OF CONTENTS**

**SECTION 2**

**PLANS AND SCHEDULES**

**Signature and Certification Pages and Permits**

**Conservation Plan** (discussion and decisions on all 6 elements)

**Schedule of Operations** (may be part of conservation plan if needed)

**Changes to CNMP**

**Environmental and Resource Assessments**

**Environmental Effects**

**Cultural Resources**

## **SECTION 2**

**Attachment A**

### **CERTIFICATION OF CONSERVATION PLAN**

By signing the participant acknowledges receipt of this conservation plan and confirms intent to implement it.

\_\_\_\_\_  
**Landuser**

\_\_\_\_\_  
**Date**

This Conservation Plan meets the requirements of the Field Office Technical Guide

\_\_\_\_\_  
**NRCS Certified Conservation Planner**

\_\_\_\_\_  
**Date**

Approved by

\_\_\_\_\_  
**Conservation District**

\_\_\_\_\_  
**Date**

**COMPREHENSIVE NUTRIENT MANAGEMENT PLAN – CERTIFICATION**

FARM \_\_\_\_\_

LOCATION: \_\_\_\_\_

\_\_\_\_\_  
CERTIFIED SPECIALIST IN MANURE AND  
WASTEWATER HANDLING AND STORAGE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
CERTIFIED SPECIALIST IN LAND TREATMENT  
PRACTICES

\_\_\_\_\_  
DATE

\_\_\_\_\_  
CERTIFIED SPECIALIST IN NUTRIENT MANAGEMENT

\_\_\_\_\_  
DATE

Nutrient Management Plan Approval  
(Required for MDAFRR)

Name of person writing the plan \_\_\_\_\_

Name of Person approving the plan \_\_\_\_\_ License # \_\_\_\_\_  
Signature of Person approving the plan \_\_\_\_\_ Date \_\_\_\_\_  
Expiration date \_\_\_\_\_

“ I concur with the information and practices outlined in this plan and will record all manure and nutrient applications on the farm. I also agree to amend this plan yearly, especially if

- 1) Changes occur in crops and/or acreage
- 2) Significant changes occur in the annualized number of animal units (AU)
- 3) Changes occur in manure storage facilities or handling

I authorize NRCS to send notification to the Maine Department of Agriculture that my nutrient management plan has been prepared, reviewed and certified as meeting the requirements of the State of Maine Chapter 565 Nutrient Management rules.”

Signature of Operator \_\_\_\_\_ Date \_\_\_\_\_

**Notification to the Maine Department of Agriculture**

(Required for MDAFRR)

It is the responsibility of the Certified Nutrient Management Planning Specialist who has approved this plan to notify the Department that a plan has been completed and approved.

In order to meet this requirement, complete and return this section to:

Maine Department of Agriculture, Food and Rural Resources

Office of Agricultural, Natural and Rural Resources

28 State House Station

Augusta Me. 04333

Farm name \_\_\_\_\_

Owner/operator \_\_\_\_\_

Address \_\_\_\_\_

County \_\_\_\_\_

Farm location \_\_\_\_\_

Phone number \_\_\_\_\_

Number of animal units \_\_\_\_\_

Number of acres \_\_\_\_\_

Name of person writing the plan \_\_\_\_\_

Address of person writing the plan \_\_\_\_\_

\_\_\_\_\_

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Name of person approving the plan \_\_\_\_\_

Address of person approving the plan \_\_\_\_\_

\_\_\_\_\_

License number and expiration date \_\_\_\_\_

***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***  
**TABLE OF CONTENTS**

**SECTION 3**

**MANURE AND WASTE WATER HANDLING AND STORAGE**

**Numbers and average weight of animals by type, period of confinement and estimated manure production**

**Manure storage type, volume, length of storage, design info (size)**

**Manure Spreaders or other Transfer Equipment Used and Capacities**

**Manure Lab Tests (See Section 5, Nutrient Management)**

**Manure exported (if any)**

**Manure and Residuals imported (if any)**

**Wastewater volumes produced (milk room waste, wash water, silage leachate etc.)**

**Plan View (sketch) of farmstead showing existing and planned component**

**Operation and Maintenance requirements**

**Odor and Insect Control**

**Emergency Action Plan for Manure Spills**

**Disposal of Dead Animal Carcasses**

### **SECTION 3**

#### **MANURE PRODUCTION, STORAGE, AND USE:**

**Numbers and average weight of animals by type, period of confinement and estimated or measured manure production.**

**Manure storage type, volume and length of storage, who designed it, design criteria.**

**Describe Manure Spreaders used and capacities:**

**Manure Lab Test Results are attached for each manure type.**

**Manure to be exported:** (amount, to whom, phone number, where it is going)

**Manure and Residuals to be imported:** (list types, amounts, and how to be stored)

\_\_\_ imported manure, specify type and amount \_\_\_\_\_

\_\_\_ non-regulated residuals (please list) \_\_\_\_\_

\_\_\_ regulated residuals\* (please list) \_\_\_\_\_

\* (See DEP Chapter 419 requirements)

**Waste water volumes produced:** (milk room waste, wash water, silage leachate etc.)

**Plan View (Sketch) of Farmstead showing existing and planned components**

## **WASTE STORAGE FACILITY (313) Liquid and Semi-Solid Manure Pit**

### **Operation and Maintenance:**

- Maintain the fence around the top of the storage pit.
- Maintain, repair, or replace warning signs as needed.
- Check for cracks or shifting of concrete components when pit is empty.
- Monitor the earth berm surrounding the structure periodically for burrowing animals, noxious and invasive plant species, small trees and shrubs and remove as required.
- Maintain healthy vegetation on the earth berm.
- Repair any bare spots or burrows in the earth berm.
- Waste levels will be monitored during and following unusual storm events.
- As full capacity is approached, enough waste shall be removed at the earliest environmentally safe period to ensure that sufficient capacity is available to accommodate subsequent storm events.
- Waste shall be removed from storage and utilized at locations, times, and rates in accordance with the Nutrient Management (590) developed for this farm.
- After emptying liquid waste and if needed upon inspection, remove the end gate and remove accumulated solids to preserve storage capacity. Reinstall and reseal the endgate.

## **WASTE STORAGE FACILITY (313) Concrete Stacking Pad**

### **Operation and Maintenance:**

- Maintain vegetation on the earth berm surrounding three sides of the pad. Remove burrowing animals and repair damage.
- Control noxious and invasive weeds and shrubs and trees as they start to grow on the earth berm.
- Annually harvest filter strip vegetation to encourage dense growth and to maintain an upright growth habit. Controlled grazing may be used to remove the vegetation provided the animals are removed when stubble has been reduced to 3 to 4 inches tall. Controlled grazing should only be used when soil moisture conditions will support livestock traffic without excessive compaction.
- Remove manure to a field stacking site when full capacity is reached and more space is needed.
- Waste shall be removed from the stacking pad and utilized at locations, times, and rates in accordance with the Nutrient Management (590) developed for this farm
- Use caution when emptying the stacking pad so as not to damage the earth berm

## Odor Control

No livestock operation is odor-free. A favorable location and well-planned system will help to reduce potentially noxious odors. Producers must choose and follow one or more odor control management practices when developing a nutrient management plan.

- 1) Locate new manure storage structures at least ¼ mile from nearest neighbor when possible.
- 2) Cover field stacked manure when near houses and populated areas with materials such as lime, sawdust or plastic.
- 3) Keep solid manure as dry as possible.
- 4) Minimize spillage of manure on non-crop ground by not overloading spreaders or trucks and having all gates on spreaders functioning correctly.
- 5) Concentrate manure spreading activities rather than spreading small amounts of manure every day for prolonged periods of time.
- 6) Notify neighbors when manure applications may occur, and avoid spreading when outdoor activities may be planned by neighbors. Avoid spreading around holidays and on weekends when the weather is sunny and mild and neighbors are out and about.
- 7) Take the direction of the wind in consideration when spreading manure. Do not spread when the wind is blowing towards a neighbor's home.
- 8) Spread on cool moist days when possible.
- 9) Utilize spreading rates (as outlined in the plan).
- 10) Spread manure as evenly as possible.
- 11) Incorporate applications as soon as possible when applying manure to row crops.
- 12) Spread manure on sod crops before a light or moderate rain is predicted whenever possible.
- 13) Consider composting manure when and where appropriate.
- 14) Consider sub-surface irrigation of liquid manure where feasible.

## **Insect Control**

Insect control in livestock operations may require one or more management practices to control populations from becoming a nuisance to neighbors. Producers need to choose and follow one or more insect control practices to include in the nutrient management plan.

1. Practice proper sanitation in and around farm facilities. Keep all animal and barnyard areas as clean and dry as possible.
2. Clean up spilled feed and spoil piles in timely manner.
3. Remove and destroy dead animals immediately.
4. Maintain clean feed bunks.
5. Keep boxstalls, calf pens and hutches as clean and dry as possible.
6. Keep waterers in working order. Inspect and repair leaks frequently.
7. Provide proper drainage and adequate ventilation to keep all animal facilities and manure storage areas as dry as possible.
8. In poultry houses, spread compost, dry shavings, or lime to absorb water leaks and spills.
9. In poultry houses, use fans and proper animal diet to ensure manure remains as dry as possible.
10. In deep-pit poultry houses, clean accumulated manure out as often as practical and preferably during cooler months to minimize build-up and dispersal of flies. Clean manure out of empty poultry houses within 6 months.
11. In poultry houses, scrape dropping boards at least twice per day.
12. In poultry houses, encourage natural fly enemies by using partial clean-out of manure or by releasing purchased or trapped natural enemies.
12. Use traps or other devices to reduce fly populations in and around animal buildings.
13. Apply insecticides to animal premises or manure only when necessary to reduce very dense fly populations. All insecticides must be used in accordance with the pesticide label, using proper protective equipment and properly calibrated application equipment. All pesticides should be used in accordance with Cooperative Extension recommendations.
14. Utilize insecticidal feed additives or animal treatments only when necessary and in accordance with insecticide label and Cooperative Extension recommendations.
15. Cover manure piles with plastic. Weight down or seal edges to prevent insect escape.
16. The stored manure, both solid and liquid, should not be disturbed until the time it is utilized.
17. Consider composting as a management system that helps reduce insect pest problems.
18. Control flies and maggots in infested manure before transporting it away from a farm facility to a field stacking or spreading site.

Flies and other pests are to be controlled using materials and methods currently recommended by the Cooperative Extension Service. Read the label before mixing and applying the spray materials. The label is the law. The applicator must wear the protective equipment required by the label.

# EMERGENCY ACTION PLAN FOR MANURE SPILLS

## Emergency Response Personnel

<u>Name</u>	<u>Home Phone</u>	<u>Cell Phone</u>	<u>Pager</u>
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## Recovery Equipment

<u>Equipment</u>	<u>Owner</u>	<u>Location</u>	<u>Phone</u>
Sawdust bedding			
Tractor, loader			
Backhoe			
Dozer			
Excavator			
Vacuum Type Septic Tank Pump Truck			

### **Preventing Spills:**

- Don't fill the storage too full.
- Keep the area mowed around the storage to discourage woodchucks and other burrowing animals. Monitor for animal activity, patch holes, and remove animals.
- Make sure end gate is properly installed and tight before filling.
- Frequently monitor filling of storage, levels before and after rainfalls, and loads removed to better manage storage capacity and understand capacity changes with each inch of rainfall.
- Schedule routine maintenance of storage system. Keep written records of maintenance.
- Train employees to drive carefully. Transporting manure can be a source of spills. Tanker trailers, and manure spreaders can overturn, especially on narrow bridges and steep hills. Be careful when applying manure near open waterways.
- Identify all locations where system failure may occur, how serious a problem it may be, and ways to eliminate or stop the source of the spill or runoff.

### **Spills From Containment Breach or Structure Failure:**

- Construct earthen dikes or use sawdust bedding or other materials to contain or divert spill away from watercourses, roadways, wells, lawns etc. Use sawdust bedding to soak up liquid manure where it can't be collected and pumped.
- Set up equipment and procedures to secure the structure from further release of manure. Utilize materials on the farm to contain the leak.
- Remove liquid spill from diked areas and low areas with vacuum type septic tank pump truck. Remove sawdust and manure with tractor loader. Transport to fields for spreading or to another storage.

### **Spills From Pumping Operation:**

- Shut off pumping equipment.

- Use sawdust bedding or solid manure from pad to divert, or contain spill away from watercourses, roadways, and wells and lawns. Use sawdust bedding to soak up liquid manure.
- Remove liquid spill from diked areas and low areas with septic tank vacuum pump trucks. Remove sawdust and manure with tractor loader. Transport to fields for spreading or to another storage.

### **Spills During Transportation on Public Roadways:**

- Coordinate efforts with local law enforcement and emergency personnel.
- Contain spill or divert manure away from watercourses, roadways or improved property.
- Remove solid manure with a tractor loader, backhoe, or excavator and transport to field for spreading.
- Wash liquid or slurry manure from roadways and public use areas into a contained area using a fire truck.
- Remove liquid spill from contained area with a vacuum type septic tank pump truck.

### **Spill Reporting:**

- Maine Department of Agriculture requires that it be notified as soon as possible, preferably within 24 hours, immediately if manure threatens a water body.
- Information to provide when calling agencies include: name, telephone number, nature of emergency, location of spill including address and site description, direction of spill movement, the perceived impact, and any control action implemented.

### **Clean Up Spill Area:**

- Remove dike and any materials used.
- Level any soil disturbance and incorporate any residue.

### **Documentation:**

The following should be documented in writing and kept with the Emergency Action Plan for future reference and emergency response training:

- Date, time, location of spill, affected landowners
- Effect of manure spill on any surface water body or potable water well.
- Approximately how much manure was released and for what duration.
- Amount of manure, if any, that left the farm property.
- Any damage done, such as personal injury, fish kill, property damage.
- Cause of the spill.
- Procedure to handle the emergency.
- Clean up efforts.
- List of authorities called, those that responded, and the time it took for them to respond.
- Recommendations to prevent a reoccurrence.

***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***  
**TABLE OF CONTENTS**

**SECTION 4**

**LAND TREATMENT PRACTICES**

**Maps of land application areas** (See Sec.1)

**Identification of sensitive areas and property boundaries** (See Sec. 1)

**Soils information** (See Sec. 1)

**RUSLE Calculations** (For fields where sheet and rill erosion are a concern. May be in Conservation Plan)

**Crop Rotations Planned** (May be located in Sec. 1 or in Table 1 of Section 3)

**Design information for practices** (Plans and Specifications, Locations and descriptions) (Show locations on field maps)

**Operation and Maintenance for Practices Installed and Planned**

***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***  
**TABLE OF CONTENTS**

**SECTION 5**

**NUTRIENT MANAGEMENT**

**Purpose and Intent of a NMP:**

**Purpose and intent**

**Relationship between N and P transport and water quality impairment**

**Excessive Soil Potassium**

**Summary of Field Data**

**Manure Lab Tests**

**Whole Farm Budget for Nitrogen and Phosphorus**

**Nutrients to be Imported**

**Nutrient Management Plans for Individual fields:**

**Field Information**

**Erosion Control Practices**

**Spreading Setbacks from sensitive areas**

**Crops Grown, Rotations, and Yield Goals**

**Soil Test Data (Soil Tests)**

**Limiting Nutrient**

**Recommended Nutrient Applications to meet yield goals**

**Nutrient Balance Table**

**Operation and Maintenance Requirements**

## ***SECTION 5***

### **NUTRIENT MANAGEMENT PLAN**

#### **Purpose and intent of a Nutrient Management Plan**

The purpose is to manage and use effectively and efficiently all nutrient resources including manure, other organic by-products, bio-solids, and other nutrients in the soil to:

1. Supply essential nutrients to soils and plants to produce adequate food, forage, fiber, and cover.
2. Provide for efficient and effective use of scarce resources so that they are not wasted.
3. Maintain and improve the physical, chemical, and biological condition of the soil.
4. Minimize environmental degradation caused by excess nutrients in the soil.

By managing the amount, source, placement, form, and timing of the application of all nutrients and soil amendments, this plan is intended to prevent the nutrients (nitrogen and phosphorus) supplied for crop production purposes from contributing to water quality impairment.

#### **Relationship between N and P transport and water quality impairment**

High levels of production depend on an adequate supply of nutrients. However, if nutrients are present in the soil in greater quantities than they are needed or at times when they cannot be used by crops or soil microbes, then they may be lost to the environment through runoff, erosion, leaching, or volatilization. The two major nutrients of concern are nitrogen and phosphorus because they can impact water quality, human health, and animal health.

**Nitrogen** in the form of organic matter or soluble ammonium and nitrate can be carried off the land surface through runoff and erosion and eventually into surface water bodies. Excess movement of nitrogen into surface waters can lead to degradation of water quality. Ammonia and nitrates are soluble in water and are utilized as sources of nitrogen by aquatic plants and microorganisms, including algae. Nitrogen in the form of nitrate in the soil is very mobile and therefore subject to leaching. Leaching occurs when precipitation or irrigation supplies water in excess of soil storage capacity. Continued leaching can move the nitrate to the ground water, especially where it is near the surface. Water concentrations of nitrates of greater than 10 mg/L are considered unsafe for human consumption especially for small babies. Water concentrations of greater than 100 mg/L are considered unsafe for livestock. Ammonia can also be harmful to aquatic life if it becomes concentrated in levels of 0.20 mg/L or greater.

The major loss of **phosphorus** from land surfaces is through the process of surface runoff and erosion. Approximately 80-90 percent of the phosphorus loss is carried in the sediment. The remaining 10 to 20 percent of the phosphorus loss is carried in solution as soluble organic phosphorus. However, where excessive amounts of phosphorus are in the soil, than a greater proportion of the phosphorus loss is from soluble organic phosphorus in the soil water. Phosphorus can also get into surface water by being carried in solution as soluble phosphorus. Small amounts of soluble phosphorus transported to surface waters can lead to eutrophication (the enrichment of an ecosystem with nutrients that provides a potential for increases in biological production, i.e. algae blooms). This can lead to depressed oxygen levels and fish kills.

#### **Excessive Soil Phosphorus**

If soil phosphorus levels are expected to reach the above optimum or excessive level, then it may be desirable to convert to a phosphorus based budget in which application of available phosphorus from manure is limited to the phosphorus removed by the harvested crop (P crop removal). Above optimum or excessive soil phosphorus levels can be drawn down over time by the planting and harvesting of forage crops provided available phosphorus application is limited to P crop removal.

### **Excessive Soil Potassium**

There are no known deleterious effects of **potassium (K)** on fresh or saline waters except to increase the salt content and electric conductivity. However, excessive soil potassium (K) poses several threats to animal health. First, soils excessive in K will produce hay with a high K content. Feeding hay high in K increases the risk of milk fever in dry cows that are within 4 weeks of calving. Hay harvested from low K fields should be reserved for feeding to dry cows, especially to those within 4 weeks of calving. Second, lactating animals grazing on lush grass in fields with high soil K levels are at risk from grass tetany. Providing magnesium supplements or feeding supplemental dry hay reduces the risk. A Cooperative Extension Educator with a background in animal nutrition can give detailed recommendations.

### **CONDITIONS:**

This plan was developed based on the requirements of NRCS CNMP Technical Guidance; current Maine NRCS Conservation Practice Standards; Maine Department of Agriculture, Food, and Rural Resources Chapter 565 - Nutrient Management Rules; Maine Department of Environmental Protection Chapter 419 - Agronomic Utilization of Residuals; and any other applicable federal, state and local regulations.

Any changes in any of these may necessitate a revision of the plan. Also, the plan will need to be updated and approved if there is an increase of 50 animal units, or a change greater than 15% in the acreage used for spreading manure, or there is any significant change in the farm operation such as feeding or bedding used. State of Maine Chapter 565 Nutrient Management Rules require that the plan be updated once a year and approved by a certified NMP Specialist at least every 5 years.



**Manure Lab Test Results are attached for each manure type.**

**Whole Farm Nutrient Budget (attached) shows farm can utilize all nutrients produced.**

Manure is utilized as nutrients for the production of the farm's corn and hay crops. None is exported. Extra nutrients needed will be supplied by starter fertilizer for corn, urea and muriate of potash for topdressing of sod and side dressing of corn.

**Nutrients to be imported:** (where crop needs exceed nutrients produced)

- commercial fertilizer
- imported manure, specify type and amount \_\_\_\_\_
- non-regulated residuals (please list) \_\_\_\_\_
- regulated residuals\* (please list) \_\_\_\_\_
- Lower crop yields

\* (See DEP Chapter 419 requirements)

**Nutrient Management Plans for Individual Fields  
or Groups of Fields Having Similar Soil Test Values, Crop Management, and Soils**

**Field Information:**

<b>Field Name(s)</b>	<b>Acres</b>	<b>Soil Type and Slope</b>	<b>Resource Concerns</b>
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**Erosion Control Measures:**

See Conservation Plan and Section 4. Corn-Hay rotations and farming across the slope reduce soil erosion to or below the allowable soil loss (T) for the soils on each field. Rotations are in the conservation plan and in table 1.

**Spreading Setbacks from sensitive areas:**

**Crops Grown, Rotations, and Yield Goals:**

<b>Field(s)</b>	<b>Crops Grown</b>	<b>Rotations</b>	<b>Yield Goals</b>
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**Soil Test Data**

Nutrient applications rates were calculated based on current soil test recommendations and yield goals not exceeding state averages. Current Soil Tests are attached.

**Soil Test Levels: (lbs per acre or parts per 2 million)** Note that soil test results are reported as Phosphorus (P) not Phosphate (P<sub>2</sub>O<sub>5</sub>) and Potassium (K) not Potash (K<sub>2</sub>O)

<b>Field(s)</b>	<b>Test Date</b>	<b>Phosphorus (P)</b>	<b>Potassium (K)</b>	<b>pH</b>	<b>O.M.%</b>
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**Recommended Nutrient Applications to meet yield goal (lbs. per acre) from soil test.**

<b>Field(s)</b>	<b>Nitrogen</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>	<b>Lime</b>
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**Limiting Nutrient**

The limiting nutrient to balance on for manure application was determined using current soil test data and the N and P Priority Matrix.

<b>Field(s)</b>	<b>Limiting Nutrient</b>	<b>Lbs. P<sub>2</sub>O<sub>5</sub> for limiting manure application rate</b>
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## Nutrient Balance Table

(Filed report from Nutrient 5cpXP.xls Excel Spreadsheet may be used here instead)

For Field(s):

<b>Nutrient Sources</b>	<b>(Pounds per acre)</b>		
<i>CREDITS</i>		<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
1. N credits from previous legume crop		N/A	N/A
2. Residual N from previous manure		N/A	N/A
3. Other credits			
<b><u>N credits-----</u></b>			
<i>PLANT AVAILABLE NUTRIENTS</i>			
4. Credits (from above)			
5. Starter fertilizer to be applied			
6. Planned manure application contribution			
7. Additional fertilizer needs:			
8. Total nutrient contributions (add 4,5,6,7)			
9. Nutrients Recommended (from Current Soils Tests)			
10. Lbs. P <sub>2</sub> O <sub>5</sub> for limiting manure application rate if required to balance on P.			
11. Field balance (plus = excessive amounts minus = shortage)			

**Method, Form and Planned Timing of Application:**

## **OPERATION AND MAINTENANCE OF NUTRIENT MANAGEMENT PLAN:**

Clean, inspect, repair, and lubricate equipment at recommended intervals.

Calibrate manure spreaders and fertilizer attachment on planter annually.

Maintain the fence around the liquid manure pit.

Wear goggles and dust mask when spreading dry poultry manure and any manure on windy days.

Obtain soil tests at least once every 5 years or more often when phosphorous levels are high or when the crop is rotated..

Obtain manure test every 5 years and whenever there is a change in manure handling systems, feeding program, or bedding used.

This NMP needs to be updated at least once a year and must be approved every 5 years. The NMP must be updated and approved sooner if one of the changes listed in the State Nutrient Management Rules occur.

***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***  
**TABLE OF CONTENTS**

**SECTION 6**

**RECORDKEEPING**

**End of year summary of manure and nutrient application**

**Crop planting and harvest dates and yields**

**Levels in manure storage before and after major storm events and emptying**

**Transfer of manure offsite (nutrient content, amount, date, recipient)**

**Emergency Spill Response Activities**

**Records associated with reviews**

**Records of maintenance**

**Nutrient Equipment Calibration**

**Changes made to CNMP**



***COMPREHENSIVE NUTRIENT MANAGEMENT PLAN (CNMP)***  
**TABLE OF CONTENTS**

**SECTION 7**

**OTHER ACTIVITIES**

**Feed Management** (Optional if needed)

**Other Utilization Options** (Composting, etc - if needed)