



# Manure Management Plan Requirements and Checklist

## Feedlot Program

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### Requirements on Page 3

**Instructions:** Specific information is required in a Manure Management Plan (MMP) and is found in this checklist. When preparing a MMP, anyone can use this checklist as needed, and it does not have to be submitted with the plan. Please note that the checklist contains additional federal requirements for National Pollutant Discharge Elimination System (NPDES) permitted feedlots where indicated. Further information on MMP requirements begins on page 3.

**Purpose:** A MMP that meets Minn. R. ch. 7020 and new federal rule requirements will include the items below. Federal rules permit the option of developing MMPs according to a methodology for managing manure applications instead of writing a series of specific annual plans. Where feedlot owners transfer manure ownership for application to fields that are not owned or leased by the feedlot owner, see MMP guidelines for transferred manure ownership.

## 1. Manure Storage, Handling, and Testing

### 1.1 Manure storage description (Minn. R. ch. 7020.2225, subp. 4, item D(1))

- ☐ Types of storage areas are described.
- ☐ Storage capacity and number of months of storage.
- ☐ Type and number of animals contributing to each storage area are included.

### 1.2 Manure nutrient content (Minn. R. ch. 7020.2225, subp. 4, item D(4) and subp. 2)

- ☐ Testing frequency shows testing at least once every four years and once per year for the first three years (annually for NPDES Permits).
- ☐ Sampling procedures and protocol are described.
- ☐ Estimated nutrient content of manure(s) is listed and is based on past laboratory test results (or average book values for new facilities).

### 1.3 Amount of manure generated (Minn. R. ch. 7020.2225, subp. 4, item D(1))

- ☐ Tons of solid manure and gallons of liquid manure to be land-applied from each storage area per year are listed (based on records of past few years).
- ☐ Annual amount of nitrogen available from all manure storage areas is listed (based on records of amount hauled in past years times the manure nutrient content).
- ☐ Annual amount of phosphorus available from all manure storage areas is listed.

### 1.4 Method of application (Minn. R. ch. 7020.2225, subp. 4, item D(2))

- ☐ Method of application, including number of days between application and incorporation.
- ☐ Equipment calibration practices (if not using a certified commercial applicator).

### 1.5 Timing of application (Minn. R. ch. 7020.2225, subp. 4, item D(8)(13))

- ☐ Expected months of application are listed.
- ☐ For June, July, or August applications, type of cover crop to be planted to harvested fields without actively growing crops is described.
- ☐ NPDES permits: manure is applied to sandy soils during spring or mid-to-late fall (soils less than 50 degrees)

## 2. Field Locations and Acreage

### 2.1 Maps or aerial photos (Minn. R. ch. 7020.2225, subp. 4, item D(3)(10))

- ☐ Fields are shown on maps or aerial photos.
- ☐ Maps or aerial photos highlight planned setbacks.
- ☐ Winter application fields are identified on map(s).

### 2.2 Number of acres (Minn. R. ch. 7020.2225, subp. 4, item D(3))

- ☐ Total number of acres for application is identified.
- ☐ Acreage excludes land not suitable for application (due to setbacks, wetlands, etc.).
- ☐ Identified acreage is sufficient to handle manure nitrogen.
- ☐ Identified acreage is sufficient to receive manure phosphorus (P) without extreme soil P build-up over time.

### 2.3 Winter application fields (Minn. R. ch. 7020.2225, subp. 4, item D(10))

- ☐ Field locations for winter application are generally those farthest from waters and no applications will occur within 300 feet of waters (i.e. special protection areas).
- ☐ Slopes for winter application sites are listed in the plan and generally are the flattest land available.
- ☐ Conservation practices (e.g., contour tillage) are described for winter application sites.
- ☐ NPDES permits: identify sites that meet winter application criteria of four percent slope restrictions for emergency liquid manure applications.
- ☐ NPDES permits: solid manure application sites that meet the slope restriction of six percent and a total phosphorus loss risk index number of two or less calculated according to the Minnesota Phosphorus Index.

### 2.4 Soil conservation practices (CAFOs) (40 CFR Part 122.42 (e) (1) (vi))

- ☐ NPDES permits: Soil conservation practices are described.

## 3. Field specific nutrient management

### 3.1 Crop rotations (Minn. R. ch. 7020.2225, subp. 4, item D(5))

- ☐ Crop rotations are described and indicate which crops in the rotation will receive manure.
- ☐ NPDES sites: Likely alternative crop rotations.

### 3.2 Crop nutrient needs from manure (Minn. R. ch. 7020.2225, subp. 4, item D(5) and subp. 3)

- ☐ Nitrogen (N) needs for non-legumes and N removal for legumes are described for fields receiving manure.
- ☐ Range of expected crop yields is listed and realistic.
- ☐ Crop N needs account for previous year legume N credits.
- ☐ Crop N needs account for N credits from alfalfa or red clover grown two years ago.
- ☐ Crop N needs are consistent with recommendations from the University of Minnesota or from another University in Iowa, Wisconsin, North Dakota, or South Dakota.
- ☐ Plans for soil nitrate testing are described, where recommended by the University of Minnesota.
- ☐ N credits from the previous year manure applications are accounted for (i.e., continuous Corn).
- ☐ Crop phosphorus (P) needs are identified and based on soil phosphorus test results.
- ☐ NPDES sites: methodology for determining crop N and P needs for specific manure application sites.

### 3.3 Planned rates of manure application (Minn. R. ch. 7020.2225, subp. 4, item D(5) and subp. 3)

- ☐ Manure rates specific for each field or cropping situation are described.
- ☐ Rates are consistent with crop nutrient needs and expected manure nutrient content/availability.
- ☐ NPDES sites: methodology for determining manure application rates based on N and P content.

### 3.4 Available nutrients from applied manure (Minn. R. ch. 7020.2225, subp. 4, item D(7) and subp. 3)

- ☐ Amount of N and P available to the first crop following manure application are described (lbs/acre).
- ☐ The sum of all manure applied to individual fields approximately equals the expected amount of manure generated at the feedlot.

### 3.5 Total nutrients available to crops from all sources (Minn. R. ch. 7020.2225, subp. 4, item D(6))

- ☐ Total N amounts per acre available to each crop are described (manure N + fertilizer N + other N).
- ☐ Added commercial fertilizer N does not result in total N additions that are above crop N needs.
- ☐ Total P amounts per acre are listed and include fertilizer P.
- ☐ NPDES sites: methodology for determining manure application rates taking into account other sources of N and P.

### 3.6 Nitrogen carry-over into following year (Minn. R. ch. 7020.2225, subp. 4, item D(7) and subp. 3)

- ☐ Manure and/or fertilizer additions during the year following manure application are reduced to account for second year N credits. The amount of carry-over N is incorporated into the plan.

## 4. Sensitive Areas Management

See local requirements, feedlot permit conditions, and the publication "Applying Manure in Sensitive Areas."

### 4.1 Special protection areas (Minn. R. ch. 7020.2225, subp. 4, item D(9) and subp. 6)

**Protective measures are described when applying manure within 300 feet of:**

- ☐ Lakes.
- ☐ Minnesota Department of Natural Resources (DNR) protected wetlands (i.e., over 10 acres).
- ☐ Streams and intermittent streams.
- ☐ Drainage ditches without protective berms.
- ☐ All protective measures for the above areas meet state and county requirements, and otherwise provide sufficient protection of waters.
- ☐ NPDES permits: alternatives to a 100' setback or 35-100' grassed buffer demonstrate equivalent or better protection of waters (see Minnesota Pollution Control Agency (MPCA) form).

#### 4.2 Other avenues to surface water (Minn. R. ch. 7020.2225, subp. 4, item D(9) and subp. 7)

**Protective measures are described when applying:**

- ☐ In flood plains.
- ☐ Within 300 feet of surface tile intakes, including, at a minimum, injection or incorporation within 24 hours.
- ☐ Within 300 feet of non-protected wetlands (e.g., less than 10 acres).
- ☐ All protective measures for the above areas meet state and county requirements, and otherwise provide sufficient protection of waters.

#### 4.3 Groundwater protection (Minn. R. ch. 7020.2225, subp. 4, item D(9))

**Protective measures are described when applying:**

- ☐ In a vulnerable drinking water supply management area.
- ☐ Within 300 feet of sinkholes.
- ☐ On land with less than three feet of soil above bedrock.
- ☐ All protective measures for the above features meet state and county requirements, and otherwise provide sufficient protection of waters.

#### 4.4 High phosphorus soils (Minn. R. ch. 7020.2225, subp. 4, item D(11) and subp. 3, item C – requirements if over 300 animal units (AU))

- ☐ Soils are tested for P at least once every four years. Results are submitted, where testing has been required in previous years.
- ☐ Soil P is managed in special protection areas to prevent increasing P levels over any six-year period (where soil P levels are high enough to meet crop needs and a 50 to 100 foot buffer is not established).
- ☐ Manure application is avoided on soils exceeding 150 parts per million (ppm) Bray or 120 ppm Olsen in areas outside of special protection areas, or to soils exceeding 75 ppm Bray or 60 ppm Olsen in special protection areas (if not avoided, the plan includes a strategy to protect water quality, e.g., meet all Natural Resource Conservation Service (NRCS) standards for high P soils and prevent continued soil phosphorus build-up).
- ☐ NPDES sites: Methodology for managing P application rates according to soil phosphorus test results.

## Requirements

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A MMP shows how manure generated at a feedlot facility is going to be used during the upcoming cropping year(s) in a way that maximizes the numerous benefits of applying manure to cropland, meets all rules and regulations, and protects surface and groundwater quality.

### Who needs a plan?

MMPs are required by the MPCA as specified in Minn. R. ch. 7020.2225 when:

- A permit application is submitted from an operation with 100 or more animal units (AU) after October 23, 2000 (permit types include NPDES, State Disposal System (SDS), Interim or Construction Short Form); or
- Manure from a feedlot capable of holding 300 or more AU is applied by someone other than a certified animal waste technician.

Also, MMPs are currently required by federal regulations for Concentrated Animal Feeding Operations (CAFOs).

### Submitting your plan

Your MMP does **not** need to be submitted for review unless specifically requested by the MPCA or a County Feedlot Officer, or when applying for an interim or NPDES/SDS Permit. However, you may be asked to show your updated MMP and associated records when your feedlot is inspected.

### Updating your plan

Once a MMP is required for your facility, you must keep the plan updated and retained on file at the animal feedlot or the owner/operator's office. Review the MMP at least once a year and modify it to include changes in: cropping rotations, manure amounts, manure nutrient levels, fields for application, or other practices that affect the available nutrient amounts or crop nutrient needs. NPDES feedlots must first submit changes on a MPCA standardized form for approval before implementing the changes. Any change determined to be substantial is also subject to a 30-day public notice period before final approval. For information on MMP modifications and a copy of the standardized form go to the MPCA website at <http://www.pca.state.mn.us/index.php/view-document.html?gid=14075>.

### Record keeping

Records of actual manure application practices are required at all facilities with 100 or more AU (even if you are not required to develop a MMP). Records should be used to improve planning for manure applications, including crediting nutrients from previous manure applications and making more accurate determinations of manure generation and nutrient content. Record keeping forms are available on the MPCA website at <http://www.pca.state.mn.us/index.php/topics/feedlots/feedlot-nutrient-and-manure-management.html?menuid=&redirect=1>.

## What must be included?

A MMP must contain all of the elements in Minn. R. ch. 7020.2225, subp. 4, item D. The MMP must contain additional items if the feedlot facility needs an NPDES Permit, in accordance with federal regulations and the NPDES Permit conditions. MMPs include the following four general parts:

1. Manure storage, handling, and testing practices.
2. Field locations and acreage used for spreading manure.
3. Field-specific nutrient management.
4. Sensitive areas management.

The specific information required in the MMP is found on the MMP checklist (Pages 1 and 3). Please note that the checklist contains additional federal requirements for NPDES permitted feedlots where indicated.

## Manure that is sold or given away

Feedlot owner MMP requirements are different when manure is applied onto land that is not owned, leased, or rented by the feedlot owner/operator. When control of manure application decisions and planning does not lie with the feedlot owner/operator or their employees, see MPCA guidelines "Manure Management Plan Requirements when Ownership of Manure is Transferred."

## Forms and computer aids

The MPCA encourages use of the **MPCA Excel Spreadsheet Planner** to: 1) ensure that all required elements are included in your MMP, and 2) shorten review and inspection times. However, other programs and forms, listed below, are available to the public. Other programs may be available from private organizations or others.

### Computer programs

**Note:** Attach copies of your field maps or aerial photos to the computer program outputs for a complete MMP.

1. MPCA MMP Spreadsheet – This Microsoft Excel spreadsheet can be used for completing a plan that includes all MPCA required items for all feedlots. NPDES/SDS sites **must** use this planner, and all other sites are strongly encouraged to use it. A record-keeping tab also links with the plan to assist in record-keeping. This program also provides a format that meets requirements when manure ownership is transferred. This program is available on the MPCA website at <http://www.pca.state.mn.us/hot/feedlot-management.html>.
2. "Nutrient Management Planner for Minnesota" – Developed by the University of Minnesota Extension Service (UMES) and Natural Resources Conservation Service (NRCS). This planning aid is a Microsoft ACCESS-based program that will produce a MMP to meet NRCS requirements and most non-NPDES/SDS MPCA requirements. More information is available on the UMES website at <http://wrc.umn.edu/randpe/agandwg/nmpsoftware/> or by contacting Ann Lewandowski, 612-624-6765.

### Forms for developing MMPs

For non-NPDES permitted sites, an alternative to using computer programs is to write a plan using forms developed by the MPCA that contain information necessary to complete a plan in accordance with the checklist. For example, see "Manure Management Plan – a step-by-step guide for Minnesota feedlot operators" at the MPCA web site listed below.

## For more information

At the MPCA website <http://www.pca.state.mn.us/hot/feedlot-management.html>, you will find more information about manure application requirements. Another helpful website is the University of Minnesota manure website at <http://www.manure.umn.edu/index.html>.

Contact your County Feedlot Officer, or regional MPCA feedlot program representative for more information.