



Minnesota  
Pollution  
Control  
Agency

Regional  
Environmental  
Management  
Feedlot  
Program

# Manure Management Plan Requirements and Checklist

Water Quality/Feedlots #8.07, Revised June 2005

A manure management plan (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 ground water quality.

## Who needs a plan?

MMPs are required by the Minnesota Pollution Control Agency (MPCA) as specified in Minnesota Rules 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, SDS, Interim or Construction Short Form); OR
- Manure from a feedlot capable of holding 300 or more AU is applied after January 1, 2006, by someone other than a certified animal waste technician (the original deadline of Jan. 1, 2005, was extended by one year during the 2004 legislative session).

## Submitting your plan

Your manure management plan 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 manure management plan and associated records when your feedlot is inspected.

## Updating your plan

Once a manure management plan 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 each 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.

## Record keeping

Records of actual manure application practices are required at all facilities with 100 or more animal units (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 at [www.pca.state.mn.us/hot/feedlots](http://www.pca.state.mn.us/hot/feedlots).

## What must be included?

A MMP plan must contain all of the elements in MN rules Ch. 7020.2225 subp. 4, item D. The plan must contain additional items if the feedlot facility needs an NPDES permit, in accordance with federal regulations and the NPDES permit conditions. Manure management plans include the following four general parts:

1. Manure storage, handling and testing practices;
2. Field locations and acreage used for spreading manure;

### MPCA Area Offices:

#### Rochester area:

507/285-7343

#### Mankato area:

507/389-5977

#### Marshall area:

507/537-7146

#### Willmar area:

320/214-3786

#### Detroit Lakes area:

218/847-1519

#### Brainerd area:

218/828-2492

#### Duluth area:

218/723-4660

#### Metro area:

651/296-6300

#### Toll-Free Number:

800/657-3864

#### Feedlot Service Center:

877/333-3508



3. Field-specific nutrient management; and
4. Sensitive areas management.

The specific information required in the MMP is found on a MMP checklist (Attachment A).

### 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 existing MMP forms or computer programs to 1) ensure that all required elements are included in your MMP, and 2) shorten review and inspection times. However, you are not required to use a specific format for writing your plan. Write a plan that will be in a format most useful to you the producer. Listed below are some of the computer programs and forms available to the public. Other programs may be available from private organizations or others.

#### Computer programs

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. A record-keeping tab also links with the plan to make record-keeping easy when actual management is similar to planned manure management. This program is available at the website [www.pca.state.mn.us/hot/feedlot-management.html](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 powerful planning and record-

keeping aid is a Microsoft ACCESS-based program that will produce a MMP to meet both MPCA and NRCS requirements. More information is available at [http://www.manure.umn.edu/applied/manure\\_management/index.html](http://www.manure.umn.edu/applied/manure_management/index.html) or by contacting Kevin Blanchet at 651-480-7739.

3. “Manure Management Planner” – This Windows-based program was developed by Purdue University. The program uses University of Minnesota recommendations for developing manure and nutrient recommendations. At the time of this writing, the program does not include all of Minnesota’s requirements for setbacks and sensitive areas. However, the program is a good way to develop your field specific nutrient management. The MPCA form entitled “Form and guidelines for completing sensitive areas management planning” can be added for a complete manure management plan. To find out more about the software or to download a copy of the Purdue Manure Management software program go to this website: <http://www.agry.purdue.edu/mmp/>

*Forms for developing MMPs* - An alternative to using computer programs is to write a plan using forms developed by the MPCA, Natural Resources Conservation Service, Extension Service, or others whose forms contain information necessary to complete a plan in accordance with the attachment A 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 web site [www.pca.state.mn.us/hot/feedlot-management.html](http://www.pca.state.mn.us/hot/feedlot-management.html), you will find more information about manure application requirements. Another helpful website is University of Minnesota manure website at <http://manure.coafes.umn.edu>.

The University of Minnesota Extension Service holds small group sessions on how to complete your manure management plan. You may contact your County Feedlot Officer, Regional MPCA feedlot program representative, or the feedlot helpline at 1-877-333-3508.

## **Attachment A - Manure Management Plan Checklist**

A manure management plan that meets Minn. Rules ch. 7020 requirements will include the items below. 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**

(7020.2225 subp. 4, item D(1))

- Type 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**

(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**

(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**

(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**

(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°)

### **2. Field locations and acreage**

#### **2.1 Maps or aerial photos**

(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**

(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**

(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: winter application criteria are met, as required in permit, including 2% slope restrictions for liquid and 6% for solid manure.
- NPDES permits: specific information is provided that allows MPCA to conduct winter spreading site evaluations (check with MPCA office).

#### **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**

(7020.2225 subp. 4, item D(5))

- Crop rotations are described and indicate which crops in the rotation will receive manure.

#### **3.2 Crop nutrient needs from manure**

(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 are 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 Univ. of Minnesota or from another University in IA, WI, ND, or SD.
- 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.

### 3.3 Planned rates of manure application

(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.

### 3.4 Available nutrients from applied manure

(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

(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.

### 3.6 Nitrogen carry-over into following year

(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

(ch. 7020.2225 subp. 4, item D(9) and subp. 6)

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

- Lakes;
- DNR protected wetlands (i.e. over 10 acres)
- Streams and intermittent streams; and
- 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 MPCA form).

### 4.2 Other avenues to surface water

(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; and
- 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 Ground water protection

(ch. 7020.2225 subp. 4, item D(9))

#### Protective measures are described when applying:

- In a vulnerable drinking water supply mgmt area;
- Within 300 feet of sinkholes; and
- 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

(ch. 7020.2225 subp. 4, item D(11) and subp. 3, item C – requirements if over 300 AU)

- Soils are tested for P at least once every 4 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 50-100' buffer is not established).
- Manure application is avoided on soils exceeding 150 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

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areas (if not avoided, the plan includes a strategy to protect water quality, e.g. meet all NRCS standards for high P soils and prevent continued soil phosphorus build-up).