

**7020.2225 LAND APPLICATION OF MANURE.****Subpart 1. In general.**

A. Manure and process wastewater must not be applied to land in a manner that will:

(1) result in a discharge to waters of the state during the application process, except that manure and process wastewater application is allowed onto seasonally saturated soils that are seeded to annual farm crops or crop rotations of perennial grasses or legumes; or

(2) cause pollution of waters of the state due to manure-contaminated runoff.

B. Manure and process wastewater application into road ditches is prohibited.

C. All manure and process wastewater applications to land must meet the requirements of this part except where specifically exempted.

D. When ownership of manure or process wastewater is transferred from an animal feedlot with capacity of 300 or more animal units or a manure storage area capable of holding the manure produced by 300 or more animal units for application to land not owned or leased by the owner of the animal feedlot or the manure storage area, any person receiving the manure or the process wastewater shall:

(1) comply with the manure management plan completed by the owner of the animal feedlot where the manure or process wastewater was produced; and

(2) complete the manure management plan requirements in subpart 4, item D, except for provisions that were completed by the owner of the animal feedlot where the manure or process wastewater was produced.

**Subp. 2. Manure nutrient testing requirements.** Manure from all manure storage areas storing manure produced from more than 100 animal units must be tested by the owner of the animal feedlot for nitrogen and phosphorus content in accordance with items A to E, except that item A is not required for manure storage areas storing manure produced by fewer than 300 animal units.

A. For manure storage areas storing manure from 300 or more animal units, the manure must initially be tested once per year for at least three years.

B. Manure must be retested following changes in conditions affecting manure nutrient content including unusual climatic conditions, or changes in manure storage and handling, livestock types, or livestock feed.

C. Ongoing testing must continue at least once every four years unless more frequent testing is required under item B or in a permit.

D. The nutrient analysis must be conducted using a laboratory certified by the Minnesota Department of Agriculture or commissioner-approved on-farm sampling and analysis.

E. Sampling must be conducted so that a representative sample is obtained in accordance with University of Minnesota Extension Service recommendations.

Subp. 3. **Nutrient application rate standards.** Items A and B apply to all manure and process wastewater application sites. Item C applies only to animal feedlots with a capacity of 300 or more animal units and manure storage areas capable of holding the manure produced by 300 or more animal units.

A. Manure and process wastewater application rates must be limited as described in subitems (1) to (3) so that the estimated plant available nitrogen from all nitrogen sources does not exceed expected crop nitrogen needs for nonlegume crops and expected nitrogen removal for legumes.

(1) Expected crop nitrogen needs, crop nitrogen removal rates, and estimated plant available nitrogen from manure and legumes must be based on the most recent published recommendations of the University of Minnesota Extension Service or of another land grant college in a contiguous state.

(2) Estimated plant available nitrogen from organic nitrogen sources, including manure, may deviate up to 20 percent from University of Minnesota Extension Service, or of another land grant college in a contiguous state, estimates where site nutrient management history, soil conditions, or cool weather warrant additional nitrogen application. When crop nitrogen deficiencies are visible or measured, remedial nitrogen applications above the 20 percent deviation can be made.

(3) Nitrogen sources include commercial fertilizer nitrogen, soil organic matter, irrigation water, legumes grown during previous years, biosolids, process wastewater, and manure applied for the current year and previous years.

B. Nutrient application rate standards for land in special protection areas must meet the requirements in subpart 6, item B, subitem (2), if applicable.

C. For land receiving manure or process wastewater from animal feedlots capable of holding 300 or more animal units or manure storage areas capable of holding the manure produced by 300 or more animal units, soil samples from the upper six inches must be collected at a minimum frequency of once every four years and analyzed for phosphorus using the Bray P1 or Olsen test. If soil phosphorus levels exceed the levels in subitems (1) and (2), then the owner must complete a manure management plan in accordance with

subpart 4, item D, and submit it with a permit application to the agency or delegated county for review in accordance with subpart 4, item B, subitem (1).

(1) Fields in special protection areas or within 300 feet of open tile intakes that have an average soil phosphorus test level exceeding 75 ppm using the Bray P1 test or 60 ppm using the Olsen test.

(2) Fields outside the special protection areas and more than 300 feet from open tile intakes that have an average soil phosphorus test level exceeding 150 ppm using the Bray P1 test or 120 ppm using the Olsen test.

Subp. 4. **Manure management plan requirements.** Item A indicates who must prepare a manure management plan and when the plan must be prepared. Item B lists when manure management plans must be submitted to the agency or delegated county for review. Item C describes when the manure management plan must be reviewed and revised. Item D lists the required elements of a manure management plan. Item E describes exceptions to manure management plans when manure ownership is transferred.

A. An owner or operator of an animal feedlot shall prepare and retain on file a manure management plan that complies with item D according to the following schedule:

(1) upon application for an NPDES, SDS, interim, or construction short-form permit for a facility capable of holding 100 or more animal units;

(2) an owner of an animal feedlot capable of holding 300 or more animal units that is not required to obtain an NPDES, SDS, interim, or construction short-form permit shall prepare or update a manure management plan prior to January 1, 2005, when a manure management plan does not meet the requirements of this part or reflect current operations and the manure is applied by someone other than a commercial animal waste technician or a certified private manure applicator; and

(3) once a manure management plan is required for a facility, a plan that meets the requirements under this subpart must be retained on file at the animal feedlot or manure storage area.

B. A manure management plan that complies with the requirements of item D must be submitted to the commissioner or delegated county when any one of the following conditions applies:

(1) when an owner submits a permit application to the commissioner for an NPDES, SDS, or an interim permit under part 7020.0405, subpart 1, item C, subitem (2); or

(2) the manure management plan is requested by the commissioner or county feedlot pollution control officer.

C. The manure management plan must be reviewed by the owner each year and adjusted for any changes in the amount of manure production, manure nutrient test results,

fields available for receiving manure, crop rotations, or other practices which affect the available nutrient amounts or crop nutrient needs on fields receiving manure.

D. Except as provided in item E, the manure management plan must contain:

(1) a description of the manure storage/handling system and the expected annual amount of manure and nutrients which will need to be land applied;

(2) application methods, equipment, and calibration procedures;

(3) acreage available for manure and process wastewater application including maps or aerial photos showing field locations and areas within the fields that are suitable for manure or process wastewater application;

(4) a description of nutrient testing methods and frequency and the expected nutrient content of the manure to be applied;

(5) planned manure application rates and assumptions used to determine these rates, including assumptions of crop nitrogen and phosphorus needs and nitrogen and phosphorus supplied from all manure and nonmanure sources;

(6) total nitrogen and phosphorus amounts from manure and nonmanure sources to be applied per acre on each field and for each crop in the rotation when applied in accordance with the planned manure or process wastewater application rates established under subitem (5);

(7) expected first and second year plant available nutrients from the manure and process wastewater;

(8) expected months of application;

(9) a description of protective measures to minimize the risk of surface water and groundwater contamination when applying manure or process wastewater in a floodplain, special protection area, soils with less than three feet above limestone bedrock, drinking water supply management areas where the aquifer is designated vulnerable under chapter 4720, and land within 300 feet of all surface tile intakes, sinkholes without constructed diversions, and uncultivated wetlands. Protective measures include, but are not limited to, soil and water conservation measures, timing of application, methods of application, manure application rates, and frequency of application;

(10) for application onto frozen or snow-covered soil, the following information about the fields that may receive the manure or process wastewater:

(a) field location;

(b) land slopes;

(c) proximity of fields to surface waters;

(d) expected months of application for each field; and

(e) tillage and other conservation measures used to minimize risk of manure-contaminated runoff;

(11) a description of how phosphorus from manure is to be managed to minimize phosphorus transport to surface waters resulting from soil phosphorus build-up to levels described in subpart 3, item C;

(12) plans for soil nitrate testing in accordance with University of Minnesota Extension Service recommendations; and

(13) type of cover crop to be planted when manure is to be applied in June, July, or August to fields that have been harvested and would otherwise not have active growing crops for the remainder of the growing season.

E. When ownership of manure from an animal feedlot capable of holding 300 or more animal units or a manure storage area capable of holding the manure produced by 300 or more animal units is to be transferred for application to fields not owned or leased by the owner of the animal feedlot or manure storage area, the owner of the animal feedlot where the manure was produced need not include the requirements in item D, subitems (3), (5) to (7), and (10) in the owner's manure management plan. Any person receiving the manure shall comply with subpart 1, item C.

Subp. 5. **Record keeping.** Item A establishes the length of time that records must be kept. Items B and C indicate the information needed in records depending on the size and location of the facility.

A. Any person applying or receiving manure or process wastewater from a facility capable of holding 100 or more animal units shall maintain records of the amount of manure or process wastewater application on file:

(1) for the most recent six years for manure or process wastewater application within special protection areas; and

(2) for the most recent three years on land not covered under subitem (1).

B. For an animal feedlot capable of holding 300 or more animal units or a manure storage area capable of holding the manure produced by 300 or more animal units, or where manure or process wastewater is applied from an animal feedlot capable of holding 100 or more animal units or a manure storage area capable of holding the manure produced by 100 or more animal units in a drinking water supply management area where the aquifer is designated vulnerable under chapter 4720, records kept in accordance with item A must contain the following information:

(1) field locations and cropland acreage where manure is applied;

- (2) volume or tonnage of manure applied on each field;
- (3) manure test nitrogen and phosphorus content, as required by subpart 2;
- (4) dates of application;
- (5) dates of manure incorporation when incorporating within ten days;
- (6) expected plant-available amounts of nitrogen and phosphorus released from manure and commercial fertilizers on each field where manure is applied;
- (7) a description of changes to the manure management plan, including documentation of the justification for any remedial nitrogen applications that exceed the nitrogen rate standard in subpart 3; and
- (8) soil nutrient test results.

C. For an animal feedlot or a manure storage area with a capacity of 100 or more animal units and fewer than 300 animal units, where manure or process wastewater will not be applied in a drinking water supply management area in which the aquifer is designated vulnerable under chapter 4720, records kept in accordance with item A must contain the following:

- (1) information necessary to credit the nitrogen available for crop growth that is supplied by manure and process wastewater applications; and
- (2) manure and process wastewater test results for nitrogen and phosphorus content, if required in subpart 2.

D. Where manure or process wastewater from animal feedlots or manure storage areas with a capacity of 300 or more animal units is transferred for application to fields not owned or leased by the owner of the animal feedlot which produced the manure, the owner of the animal feedlot or the manure storage area from which the manure is produced must meet the following requirements:

- (1) the manure and process wastewater records for the most recent three years must be kept on file and must contain the following information:
  - (a) the volume or tonnage of manure or process wastewater delivered;
  - (b) the nutrient content of the manure or process wastewater delivered;
  - (c) the name and address of any commercial hauler or applicator who received the manure or process wastewater; and
  - (d) the location where the manure or process wastewater was applied and rate of application; and
- (2) commercial applicators spreading manure or process wastewater onto land not owned or leased by the owner of the animal feedlot or the manure storage area from

which the manure or process wastewater is produced shall keep records, in accordance with subitem (1). A copy of these records must be submitted to the owner of the animal feedlot or the manure storage area from which the manure or process wastewater is produced no later than 60 days following land application.

**Subp. 6. Manure and process wastewater application requirements in special protection areas.**

A. Manure or process wastewater must not be applied to frozen or snow-covered soils in special protection areas.

B. Manure or process wastewater applied to unfrozen soils in special protection areas must comply with subitem (1), (2), or (3).

(1) A vegetative buffer must be maintained that:

- (a) consists of perennial grasses or forages;
- (b) is a minimum of 100 feet wide along lakes and perennial streams and 50 feet wide in other special protection areas; and
- (c) does not receive manure applications from any animal feedlot or manure storage area.

(2) The following practices must be complied with:

- (a) no application within 25 feet of the protected water, protected wetland, intermittent stream, or drainage ditch in the special protection area;
- (b) inject or incorporate within 24 hours and prior to rainfall; and
- (c) apply at a rate and/or frequency which will not allow soil phosphorus levels to increase over any six-year period with the following exception: soil phosphorus may be increased to 21 ppm (Bray P1) or 16 ppm (Olsen) when soil testing indicates soil phosphorus test concentrations are less than these values.

(3) Other agency-approved practices must be implemented that have been demonstrated through research by a land grant college to provide an equal degree of water quality protection as the measures in subitems (1) and (2).

C. Manure and process wastewater application by a traveling gun, center pivot, or other irrigation equipment that allows liquid application of manure to travel more than 50 feet in the air is prohibited in special protection areas.

**Subp. 7. Manure and process wastewater application for land within 300 feet of open tile intakes.** Manure and process wastewater applied within 300 feet of open tile intakes, and where manure-contaminated runoff may flow into the open tile intake, must be injected or incorporated within 24 hours of application according to the schedule in items

A and B unless other agency-approved water quality protection management practices are implemented in accordance with item C.

A. All liquid manure and process wastewater applied within 300 feet of open tile intakes must be injected or incorporated within 24 hours of application beginning October 23, 2000.

B. All manure and process wastewater applied within 300 feet of open tile intakes must be injected or incorporated within 24 hours of application when applied after October 1, 2005.

C. Other agency-approved practices must be implemented that have been demonstrated through research by a land grant college to provide an equal degree of water quality protection as injection or incorporation within 24 hours.

Subp. 8. **Manure and process wastewater application near sinkholes, mines, quarries, and wells.**

A. Manure and process wastewater must not be applied to land within 50 feet of an active or inactive water supply well, sinkhole, mine, or quarry.

B. Manure and process wastewater must be incorporated within 24 hours of surface application when applied to land that slopes toward a sinkhole and is less than 300 feet from the sinkhole except that no setback incorporation is necessary where diversions prevent manure-contaminated runoff from entering the sinkhole.

**Statutory Authority:** *MS s 115.03; 116.07; 122.23*

**History:** *25 SR 834*

**Published Electronically:** *October 27, 2003*