

**Rate Limits**

**Match N needs** - Limit rates so that estimated plant-available N from all manure and fertilizer sources combined does not exceed expected crop N needs for the upcoming crop.

**Legumes** - Crop-available manure N applied to legumes can not exceed 3.5 lbs N per bushel of soybeans; 50 lbs N per ton of alfalfa; 27 lbs N per ton of grass hay or pasture; 43 lbs N per ton of grass/legume; and 45 lbs N per ton red clover.

**Base on Univ. of Minn. recommendations** – Determine crop nitrogen needs and the amount of nitrogen available from manure or legumes from published recommendations of the University of Minnesota Extension Service or another land grant college in a contiguous state.

**Base rates on:** cropping sequence, expected yields, soil organic matter category, previous year manure credits, method of application, and manure analysis nutrient levels.

**Calibrate equipment** – Calibrate equipment regularly and apply evenly to ensure that the intended rates of application are consistent with actual rates of application.

**Application Timing**

**Summer applications** – Plant a cover crop where manure is applied in June, July or August to harvested fields that would otherwise remain without crop cover for the rest of the growing season. Use a soil nitrate test during the following spring to credit remaining nutrients.

**Soil Phosphorus (P) Management**

**Soil P Testing** – Test soils for P at least once every four years (where manure is regularly received from a feedlot with 300 or more animal units).

**Avoid P Build-Up Along Waters** – Manage manure additions so that soil P levels do not show increase over time within 300 feet of certain waters\*, except where soil P is insufficient for crop growth, or where a 50-100’ vegetative buffer is established along waters.

**Avoid Extremely High P Soils** – Avoid manure application onto fields where soils exceed P levels in the table below, unless a plan is submitted to the MPCA or County Feedlot Officer that describes how water pollution will be prevented when applying manure to these soils.

Soil Test Method	Outside of 300 ft from waters*	Within 300 ft from waters* and open tile intakes
Bray P1	150 ppm	75 ppm
Olsen	120 ppm	60 ppm

\* “waters” refers to lakes, streams, intermittent streams, wetlands over 10 acres, and drainage ditches without protective berms.

**Setbacks When Applying Manure in Sensitive Areas**

Feature	Surface Application	Incorporation Within 24 hrs
Lakes, Streams	300’*	25’
Wetlands (10+ ac)	300’*	25’
Ditches w/o Berms	300’*	25’
Open Tile Intakes	300’	0’
Sinkholes w/o Berms		
Downslope	50’	50’
Upslope	300’	50’
Wells and Quarries	50’	50’

\* 100’ vegetated buffer can be used instead of 300’ setback for non-winter applications (50’ buffer for wetlands/ditches)

**Keeping records**

The cropland manager where manure is applied must keep the following records of manure application practices for a period of at least three years (six years if applying manure near waters):

- Manure nutrient test results (provided by feedlot owner)
- Field locations and acreage
- Dates of application and timing of incorporation
- Amount of manure applied per acre
- Total N and P applied on each field
- Soil nutrient test results
- If manure is applied in during the winter, record the land slopes, distance to nearest water, and field conservation practices in place.

**Short-Term Stockpiling Practices**

Follow all stockpiling setbacks for waters and conduits to waters (ranging from 50 to 300 feet); avoid sandy soils and high water table soils (<2’); avoid slopes over 6%; use diversions if slopes exceed 2%; and keep records as required in Minn. R. ch. 7020.2125. The stockpile size must not exceed the amount of manure needed to supply nutrient needs to 320 acres of crops.

**Spills**

If manure spills occur that have the potential to pollute waters, contact the state duty officer at 1-800-422-0798 immediately.



Minnesota Pollution Control Agency

**More information:** For more detailed information on these specific requirements contact the MPCA or go to the web site at: [www.pca.state.mn.us/hot/feedlots](http://www.pca.state.mn.us/hot/feedlots)