



Manure management for corn on irrigated sandy soils

Minnesota Feedlot Rule, (Minn. R. ch. 7020.2225) limits the total amount of nitrogen that can be applied to a crop from manure and other sources of plant available nitrogen, including irrigation water. This is based on nitrogen recommendations in the most recent University of Minnesota Extension Service publication, (with some exceptions).

Extension's current recommendations include "*Manure Management in Minnesota*" (WW-03553, Revised 2012). Following that publication and the previous "*Fertilizing Corn in Minnesota*" (FO-3790-C, Revised 2006), the Minnesota Pollution Control Agency (MPCA) has allowed up to a total of 180 pounds of plant available nitrogen per acre for corn production when manure has been applied.

Extension recently published "*Fertilizing Corn Grown on Irrigated Sandy Soils*" (AG-NM-1501, 2015), which modified some of the fertility recommendations for corn production under specific conditions. Irrigated sandy soils require specific management to control nutrient loss. Using best management practices (BMPs) is a recommended strategy to help reduce possible environmental impact.

Some of the recommended BMPs are listed in the following Extension publications: 1) "*Fertilizing Corn Grown on Irrigated Sandy Soil*" (AG-NM-1501, 2015), 2) "*Best Management Practices for Nitrogen on Coarse Textured Soils (Publication # 08556, 2008)*", and 3) Minnesota Crop News, "*New nitrogen guidelines for corn grown on irrigated sandy soils*," April 2015.

The MPCA has interpreted the Extension publication "*Fertilizing Corn Grown on Irrigated Sandy Soils*" (AG-NM-1501, 2015) as a guidance document in which all of the recommendations contained within must be implemented. As a result, the MPCA will require the recommended BMPs to be employed if a farmer will apply manure on irrigated sandy soils and plans to utilize the fertility recommendations listed in "*Fertilizing Corn Grown on Irrigated Sandy Soils*" (AG-NM-1501, 2015).



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Please note:

- This guidance **applies** to corn grown on irrigated sandy soils where manure applications will occur and a farmer plans to use the new recommendations.
- This guidance **does not apply** to corn grown on irrigated sandy soils where only fertilizer is applied.
- This guidance **does not require** farmers who want to continue using their current manure management plan, with an allowable nitrogen rate up to 180 pounds, to follow this guidance.

Extension recommended using all of the following BMPs:

1. Use the Extension MRTN, (Maximum Return to Nitrogen) nitrogen recommendation.
2. Fertilizer nitrogen applications must use a split program.
3. No pre-plant fertilizer nitrogen (this includes no fall nitrogen application).

4. Account for all sources of nitrogen and phosphorus fertilizers.
5. Take credit for previous crop and manure application. (Eg. soybean is a 30 lb. nitrogen/acre credit.

In addition to employing the above BMPs the MPCA will require the following:

1. The highest MRTN ratio is 233 pounds of total nitrogen and is the maximum amount of plant available nitrogen that can be applied.
2. Farmers who have been issued either a National Pollutant Discharge Elimination System Permit (NPDES) or a State Disposal System (SDS) Permit shall delay fall manure application onto fields that are dominated by coarse-textured soils until soil temperatures in the upper six inches are less than 50 degrees.
3. The maximum amount of plant available nitrogen from manure that can be applied is 180 pounds.
4. The requirements for phosphorus listed in Minn. R. ch. 7020.2225 and NPDES or SDS permits must be followed.
5. All sources of plant available nitrogen and phosphorous must be accounted for, including nitrogen in irrigation water.

Fall fertilizer nitrogen application of any kind	Pre-plant fertilizer nitrogen	Side-dress, split applications and, or fertigation	Apply prior to silk brown down	Irrigation water	Manure applications	Apply the MN Extension MRTN value
Not allowed	Not allowed	All Fertilizer nitrogen sources must be a split application or fertigation	Final nitrogen fertilizer application	Test irrigation water annually	Not to exceed 180 pounds of plant available nitrogen	Up to 233 pounds of nitrogen an acre is allowed
				Use MPCA Excel MMP and enter previous years sample result and historical minimum average water usage	NPDES/SDS permitted farms must delay fall applications until soil temps are 50 degrees or less	Inter-seeding cover crops that scavenge nitrogen are recommended