Best Management Practices for the St. Peter Drinking Water Supply Management Area (DWSMA)

Updated: 9-27-2024

This document is a list of University of Minnesota nitrogen (N) fertilizer best management practices (BMPs) that apply within the St. Peter Drinking Water Supply Management Area (DWSMA) (see map on page 4). The BMPs are from the following University of Minnesota resources:

- Best Management Practices for Nitrogen on Coarse Textured Soils,
- Best Management Practices for Nitrogen Use in South-Central Minnesota,
- Fertilizing Corn in Minnesota, and
- University of Minnesota Extension webpage Crop-Specific Nutrient Needs (https://extension.umn.edu/nutrient-management/crop-specific-needs)

Considerations when reading the tables

- The BMPs listed below are applicable to all soils or specific to coarse or fine textured soils. There are both coarse and fine textured soils across the cropland within the St. Peter DWSMA.
- The St. Peter DWSMA Map (https://tinyurl.com/DWSMAstpeter) identifies where coarse soils exist.
- In situations where a field includes both coarse and fine textured soils, the operator can either manage each area of the field separately or follow the BMPs for the majority soil texture for the entire field.
- The BMPs on the final list must be followed on 80% of the cropland (excluding soybean acres) in the DWSMA.
- Nitrogen management records need to be provided to show that a practice was adopted. If a responsible party does not provide information or provides insufficient information showing a practice has been followed, it counts as non-implemented during MDA's evaluation/survey of nitrogen fertilizer BMP implementation.
- Some BMPs may not apply to all cropping systems, such as, incorporation of urea with tillage in no-till systems. If a BMP is agronomically or technically unsuitable for a specific field based on soil type, topography, crop or management system, a suitable BMP or Alternative Management Tool (AMT) can be selected in its place.
- See the companion document "Definition of Terms in the University of Minnesota Nitrogen Fertilizer BMPs" for definitions of terms related to the BMPs. This document is available on the St. Peter DWSMA webpage (www.mda.state.mn.us/stpeter-dwsma).

Questions or Comments?

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Best Management Practices (BMPs)

BMP No	Nitrogen Rate BMPs for All Soil Types	Applies to
1	Nitrogen rates are based on the nitrogen fertilizer application guidelines from the University of Minnesota[1].Rates were last updated July 2022. **Dryland corn following corn**: up to the 0.1 MRTN (currently at 175 lbs N/ac)[1,2] **Dryland corn following soybean:** up to the 0.1 MRTN (currently at 140 lbs N/ac)[1,2] For other crops grown in the DWSMA, follow the University of Minnesota guidance applicable to that crop[3]	All agronomic crops on all soils
2	Include N supplied in a starter, weed and feed program, and contributions from phosphorus fertilizers such as MAP and DAP when calculating total N rate[4].	All agronomic crops on all soils
3	Take appropriate N credit for previous legume crops and any manure used in the crop rotation[5].	All agronomic crops on all soils

[1] Corn nitrogen rate guidelines from the University of Minnesota, Fertilizing corn in Minnesota (https://extension.umn.edu/crop-specific-needs/fertilizing-corn-minnesota), or its successor.
[2] The implementation of approved Alternative Management Tools may allow a higher nitrogen rate provided that the field specific data indicates this is appropriate.
[3] All crops listed at the University of Minnesota Extension webpage Crop-Specific Nutrient Needs (https://extension.umn.edu/nutrient-management/crop-specific-needs), or its successor.
[4] Total N rate should also include any AMS or other inorganic fertilizers containing nitrogen.
[5] In addition to legumes and manure, total N rate should also include nitrogen from organic sources with a known nitrogen availability factor (i.e research-based nitrogen availability table or laboratory analysis, including first and second year credits) such as biosolids and industrial by-products.

BMP No	Nitrogen Placement, Timing and Source BMPs for Coarse Textured Soil Types ONLY the purple shaded areas on the map on page 4	Applies to
4A	Use split applications of N fertilizer[6,7].	Corn and edible beans on coarse textured soils
4B	**Acceptable, but less effective:** Spring preplant application of ESN (polymer coated urea)[7,8].	Corn and edible beans on coarse textured soils
4C	**Acceptable, but less effective:** Spring preplant application with a nitrification inhibitor[7,9].	Corn and edible beans on coarse textured soils
5	Use an N stabilizer (N-Serve) on labeled crops when early side-dress is used[10].	Corn and edible beans on coarse textured soils

BMP No	Nitrogen Placement, Timing and Source BMPs for Fine Textured Soil Types ONLY the NON purple shaded areas on the map on page 4	Applies to
6	Spring preplant applications of ammonia and urea or split applications of ammonia, urea, and UAN are highly recommended.	Corn on fine textured soils

Maintaining records of nitrogen fertilizer use is an especially important practice to provide the ability to review the rate of adoption within this DWSMA during the MDA's evaluation of nitrogen fertilizer BMPs. If records are insufficient or not provided, surveyed cropland will be counted as not implementing the published nitrogen fertilizer BMPs. An example record collection form can be found on the St. Peter DWSMA webpage (www.mda.state.mn.us/stpeter-dwsma).

Record Keeping	Applies to
Keep records of nitrogen use, including rates, crediting of nitrogen sources, timing, placement, and source. MDA will provide guidance on record keeping requirements	All agronomic crops on all soils

[6] The MDA will refer to the definition of split application in the companion document "Definition of Terms in the University of Minnesota Nitrogen Fertilizer BMPs". Practices that meet this definition will be considered meeting this BMP. This split application BMP only applies to corn acres that receive commercial nitrogen fertilizer. If manure is the only source of nitrogen, this BMP does not apply.

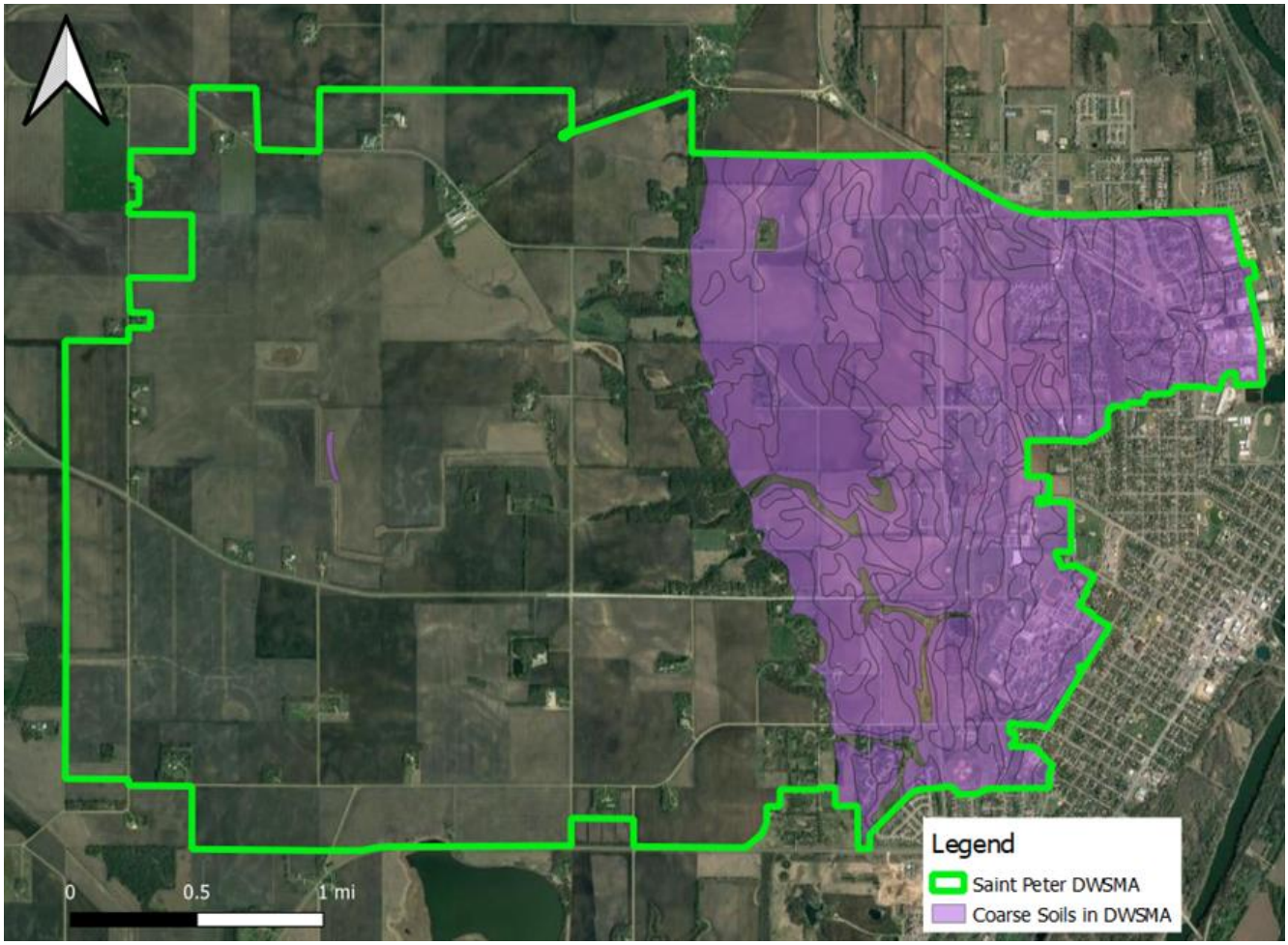
[7] Nitrogen loss modeling indicates that the application timing practices listed in BMP 4A, 4B, and 4C for coarse textured soils provide a similar groundwater protection benefit. The adoption of at least one of the practices listed in 4A, 4B, or 4C is needed to count as having adopted BMP 4.

[8] The MDA will refer to the definition of ESN in the companion document "Definition of Terms in the University of Minnesota Nitrogen Fertilizer BMPs". This definition includes the allowable urea/ESN ratio.

[9] The MDA will refer to the definition of a nitrogen stabilizer in the companion document "Definition of Terms in the University of Minnesota Nitrogen Fertilizer BMPs". Products that meet this definition will be considered to meet this BMP

[10] Early side-dress is before or at V4.

Map of the St. Peter Drinking Water Supply Management Area (DWSMA)



This St. Peter DWSMA Map (https://tinyurl.com/DWSMAstpeter) shows the boundary of the DWSMA. The area within the green outline is where BMPs must be implemented. The purple areas are coarse soils. Where coarse soils are the majority soil type within a field, the BMPs for coarse soils should be followed. Areas that are not identified as having coarse soils should follow the fine textured soil BMPs.