

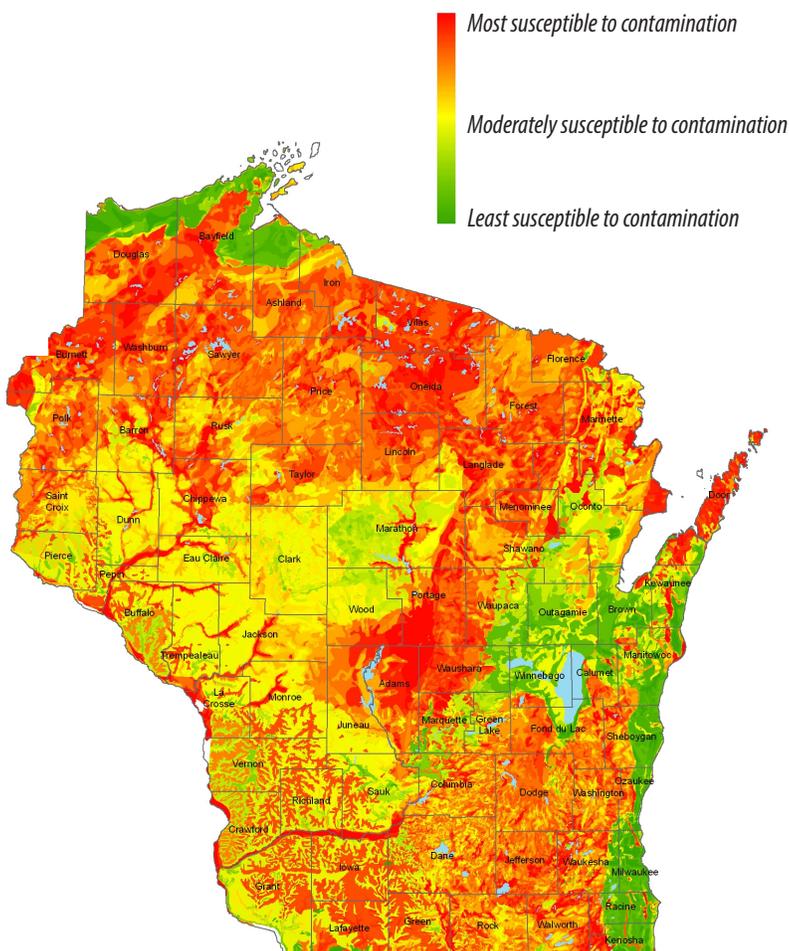


Nutrient Management Planning's Role in Groundwater Protection

Preserving and enhancing the quality of Wisconsin's water resources is a high priority of the citizens of Wisconsin and the Department of Agriculture, Trade and Consumer Protection. DATCP's rule (ATCP 50) includes the provisions of the NRCS 590 Nutrient Management standard which contains significant requirements for the protection of both surface and groundwater.

Survey work conducted in Wisconsin presents convincing evidence that "nutrient management plans can influence N and P application rates and reduce the threat of non-point sources of pollution" (Shepard, 2005). A Wisconsin study on silt loam soils showed that applying N only to the crop's need, as required by the 590 standard, resulted in N concentrations that complied with the health standard (Norman, 2003). Increasing the cropland acreage following a nutrient management plan is therefore expected to significantly reduce negative impacts to the state's valuable water resources.

Groundwater Contamination Susceptibility of Soils in Wisconsin



"590" Groundwater Protection Features

UW Soil Fertility Recommendations:

- ✓ Nutrient recommendations are designed for maximum economic return, not maximum yield.
- ✓ Following the nitrogen recommendations reduces groundwater impacts resulting from over-application.

Nutrient Application Prohibitions:

- ✓ Nutrient application is prohibited within 50 feet of wells.
- ✓ Nutrients must be incorporated within 200 feet upslope of sinkholes, gravel and sand pits, wells, tile inlets, bedrock at the surface and between 50-200 feet upslope of wells.

Sensitive Soils Restrictions:

- ✓ Sensitive soils include highly permeable soils, soils with < 20 inches to apparent bedrock, and soils with < 12 inches to apparent water table.
- ✓ No fall application of commercial nitrogen (N).

On irrigated fields:

- ✓ Split N applications, applying the majority of N after crop establishment, or
- ✓ Use a nitrification inhibitor with ammonium forms of N.

Manure-N restrictions:

- ✓ When manure is fall applied and soil temperatures are >50° F:
Use a nitrification inhibitor with liquid manure and limit rate to 120 lb N/acre, **or**
Apply after Sept. 15 and limit rate to 90 lb N/acre, **or**
Apply to perennial or fall-seeded crops and limit rate to 120 lb N/acre or crop N need, whichever is less.
- ✓ When manure is fall applied and soil temperatures are <50° F, limit application rate to 120 lb N/acre or the crop's N need, whichever is less.

Norman, J. M. (2003). "Agrochemical Leaching from Sub-Optimal, Optimal and Excessive Manure-N Fertilization of Corn Agroecosystems." Final Report to the WI Dept of Agriculture, Trade and Consumer Protection.

Shepard, R. (2005). Nutrient management planning: Is it the answer to better management? *J. Soil Water Conserv.* 60:171-176.

Percentage of Nitrate Samples Exceeding the Health Standard

3/20/2014

