

Rice County: Final Overview of Nitrate Levels in Private Wells (2017-2018)

The Minnesota Department of Agriculture (MDA) determines current nitrate-nitrogen concentrations in private wells, on a township scale, through the Township Testing Program. The MDA has identified townships throughout the state that are vulnerable to groundwater contamination and have significant row crop production. The MDA plans to offer nitrate testing to more than 70,000 private well owners in over 300 townships by 2019.

Each selected township is offered testing in two steps, the “initial” sampling and the “follow-up” sampling. In the initial sampling, all township homeowners using private wells are sent a nitrate test kit. If nitrate is detected in their initial sample, the homeowner is offered a follow-up nitrate test, pesticide test and well site visit. Trained MDA staff visit willing homeowners to resample the well and then conduct a site assessment. The assessment helps to identify possible non-fertilizer sources of nitrate and to see the condition of the well. A well with construction problems may be more susceptible to contamination.

The MDA and Rice Soil and Water Conservation District (SWCD) worked together to select townships and implement the nitrate testing project. The following townships were selected: **Bridgewater, Cannon City, Morristown, and Northfield**. The initial sampling in Rice County started in 2017 and follow-up sampling ended in 2018.

Results

Two datasets are used to evaluate nitrate. The initial well dataset contains 478 wells; the final dataset contains 428 wells. Wells that had nitrate-nitrogen results over 5 mg/L were removed from the initial dataset if a potential non-fertilizer source or well problem was identified, if there was insufficient information on the condition of the well, or for other reasons which are outlined in the full report, to form the final well dataset. A total of 50 wells (10%) were removed. The results from the initial and final well datasets are summarized in the table below.

None of the Townships had more than 10% of the wells over the Health Risk Limit of 10 mg/L of nitrate-nitrogen (map below). The percent of wells over the Health Risk Limit in each township ranged from 0.0% to 5.1%. The Rice County Final Report will be available on the MDA website in 2019:

www.mda.state.mn.us/townshiptesting.

Next steps

The MDA uses the final well dataset to determine if additional action is warranted, as described in the Minnesota Nitrogen Fertilizer Management Plan (NFMP). The MDA uses the assessment process and prioritization guidelines in the NFMP to determine next steps. Find more information about the NFMP on the MDA website at www.mda.state.mn.us/nfmp.

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Table: Rice County Private Well Nitrate Results, 2019.

Township	Initial Well Dataset		Final Well Dataset	
	Total Wells*	Percent of Wells ≥ 10 mg/L Nitrate-Nitrogen	Total Wells	Percent of Wells ≥ 10 mg/L Nitrate-Nitrogen
Bridgewater	189	2.6%	177	1.1%
Cannon City	113	0.9%	107	0.0%
Morristown	68	4.4%	65	1.5%
Northfield	108	16.7%	79	5.1%
Total	478	5.6%	428	1.6%

* All well types included.

Figure: Rice County Final Well Dataset Map, 2019.

