Benton County: Final Overview of Nitrate Levels in Private Wells (2013-2016)

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.

Benton County Final Highlights

- Number of townships with 10% of wells at or over the HRL : **1**
- **30** (6%) wells were removed from initial data set.

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 the Benton Soil and Water Conservation District worked together to select townships and implement the nitrate testing project. The following townships were selected: **Langola, Maywood, Watab, and Minden**. The initial sampling in Benton County started in 2013 and follow-up sampling ended in 2016 in all but one township. Follow-up sampling in Minden Township will be completed in 2017.

Results

Two datasets are used to evaluate nitrate. The initial well dataset contains 502* wells; the final dataset contains 472 wells. Wells that had nitrate-nitrogen results over 5 mg/L were removed from the initial dataset if a non-fertilizer source or well problem was identified, to form the final well dataset. A total of 30 wells (6%) were removed. The results from the initial and final well datasets are summarized in the table below.

In Langola Township, more than 10% of the wells were at or over the Health Risk Limit (HRL) of 10 mg/L of nitrate-nitrogen (map below). The percent of wells at or over the Health Risk Limit in each township ranged from 1.6% to 14.4% percent. The Benton County Final Report will be available on the MDA website: www.mda.state.mn.us/townshiptesting.

Table: Benton County Private Well Nitrate Results, 2013-2016.

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
Langola	101	14.9%	97	14.4%
Maywood	75	1.3%	64	1.6%
Watab	326	8.6%	311	8.4%
Total	**502**	**8.8%**	**472**	**8.7%**
Minden	232	6.9%	*In progress*	

**All well types included.*

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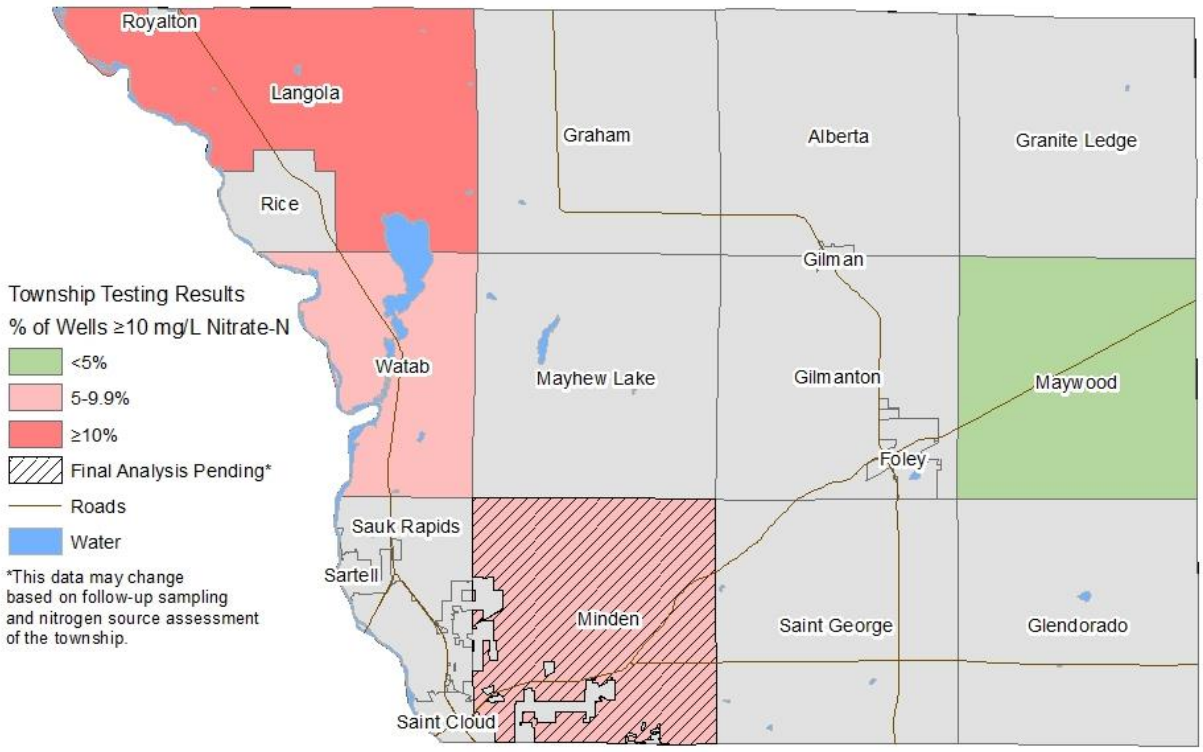
Figure: Benton County Final Well Dataset Map, 2017.



Next steps

The MDA uses the final well dataset to determine if additional action is needed, 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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