

Douglas County: Overview of Nitrate Levels in Private Wells (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 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.

Douglas County Highlights

- # of Vulnerable Townships Tested: 9
- Households Receiving Kits: 4,798
- # of Wells Tested: 1,864
- % of Wells Over the Health Standard: 1.7 %

The MDA and the Douglas Soil and Water Conservation District worked together to select townships and implement the nitrate testing project. The following townships were selected: **Alexandria, Belle River, Carlos, Hudson, Ida, Leaf Valley, Millerville, Orange, and Spruce Hill**. The initial sampling in Douglas County started in 2016 and follow-up sampling is scheduled for 2017.

Results

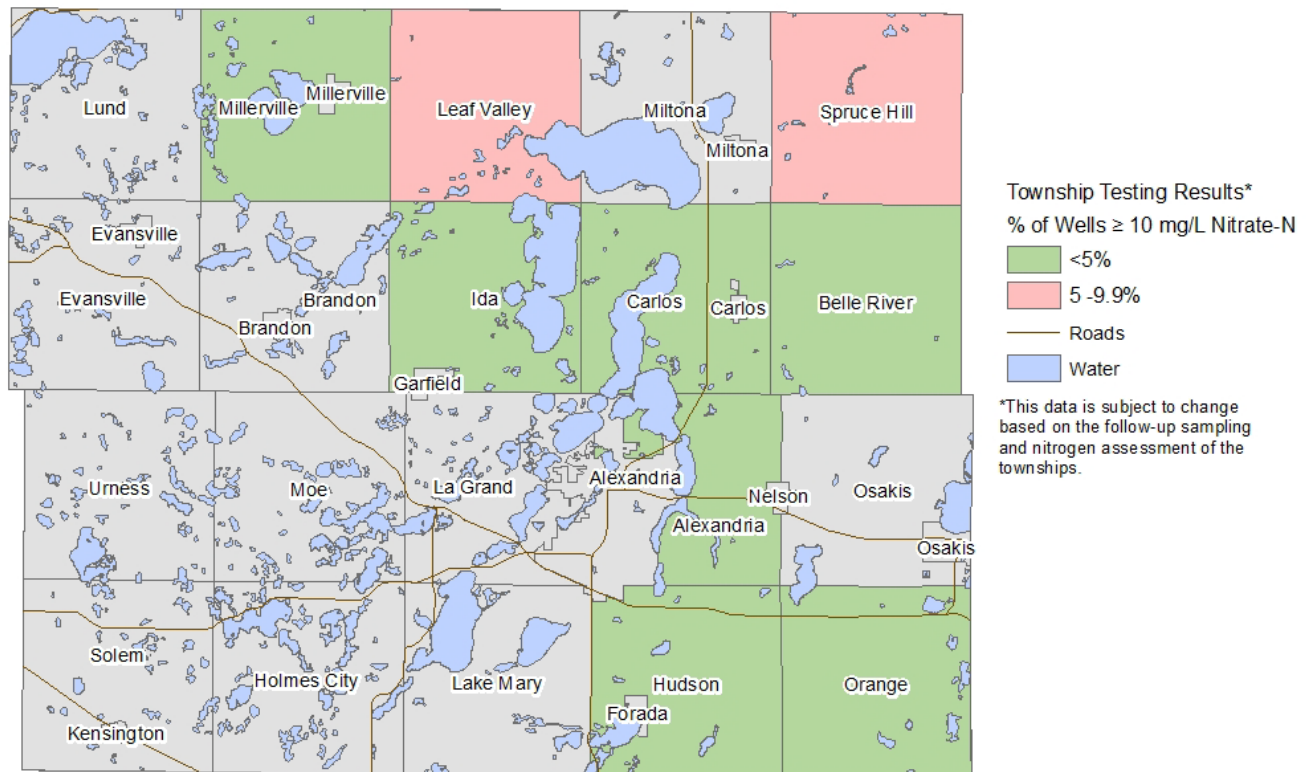
The initial well dataset contains all wells tested (1,864) regardless of well construction issues and sources of nitrate. The Health Standard for nitrate-N in drinking water is 10 mg/L. The results from the initial well dataset are summarized in the table and map below.

Table: Douglas County Initial Well Dataset Results, 2016.

| Township | Number of Wells Tested | Min | Max | Mean | Median | Percent of Wells ≥10 mg/L |
|--------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| | | Nitrate-N mg/L or PPM | Nitrate-N mg/L or PPM | Nitrate-N mg/L or PPM | Nitrate-N mg/L or PPM | |
| Alexandria | 434 | <0.03 | 7.1 | 0.12 | <0.03 | 0.0% |
| Belle River | 43 | <0.03 | 11.2 | 1.37 | <0.03 | 4.7% |
| Carlos | 467 | <0.03 | 22.9 | 0.50 | <0.03 | 1.5% |
| Hudson | 177 | <0.03 | 14.4 | 0.73 | <0.03 | 1.1% |
| Ida | 385 | <0.03 | 28.6 | 0.63 | <0.03 | 1.3% |
| Leaf Valley | 151 | <0.03 | 22.8 | 1.48 | <0.03 | 5.3% |
| Millerville | 89 | <0.03 | 24.8 | 0.94 | <0.03 | 3.4% |
| Orange | 47 | <0.03 | 0.3 | 0.01 | <0.03 | 0.0% |
| Spruce Hill | 71 | <0.03 | 18.4 | 1.03 | <0.03 | 5.6% |
| Total | 1864* | <0.03 | 28.6 | 0.587 | <0.03 | 1.7% |

*All well types included.

Figure: Douglas County Initial Well Dataset Map, 2016.



Next Steps

Once the follow-up sampling is completed, the MDA conducts an analysis of the results and prepares a final report for each county (visit www.mda.state.mn.us/townshiptesting). The Douglas County Final Report will be available in 2018.

The MDA uses the final results to determine if additional action is needed, as described in the Minnesota Nitrogen Fertilizer Management Plan (NFMP). Find more information about the NFMP on the MDA website at www.mda.state.mn.us/nfmp.

Funding Acknowledgement

Funding for this project is provided by the Clean Water, Land and Legacy Amendment

