

Township Testing Program Update-June 2019

The Minnesota Department of Agriculture (MDA) conducted a major revision of the Nitrogen Fertilizer Management Plan (NFMP) in March of 2015. The plan calls for an assessment of nitrate conditions at the township scale. The 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. More than 70,000 private well owners will be offered nitrate testing in over 300 townships by 2019 (Figure 1).

How does it work?

The MDA works with local partners such as counties and soil and water conservation districts (SWCDs) to coordinate private well nitrate testing using Clean Water Funds. The map in Figure 1 serves as a starting point for planning sample locations and is modified based on local expertise from the counties or SWCDs.

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

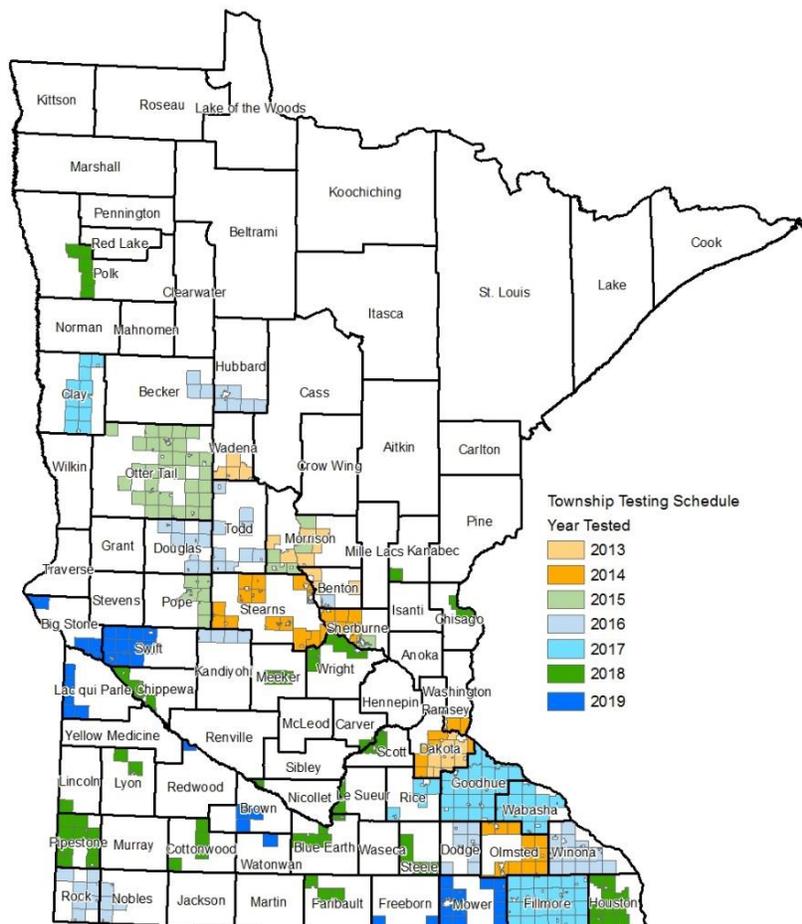
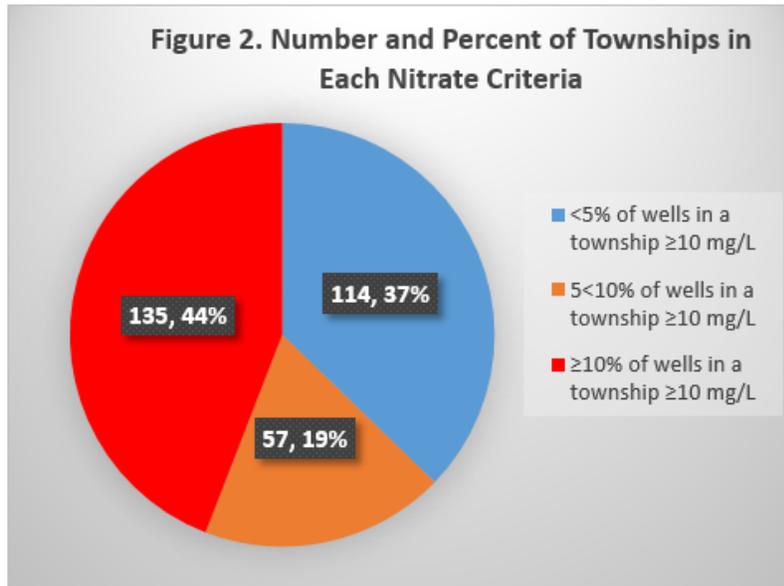


Figure 1. Township Testing Schedule

nitrate and to see the condition of the well. A well with construction problems may be more susceptible to contamination. It is common for the TTP to sample 50 to 150 wells per township.

Results

As of February 2019, 306 vulnerable townships from 42 counties participated in the TTP from 2013 to 2018 (Figure 2). In the 306 townships tested, 135 (44%) have 10% or more of the wells over the Health Risk Limit (HRL) for Nitrate-N. In contrast, it was determined that in 114 townships less than 5% of the wells were over the HRL for Nitrate-N.



Overall, 9.2% (2,844) of the 30,769 wells exceeded the HRL for Nitrate-N (Table 1). Figure 3 shows the percentage of wells over the HRL for each township during the initial sampling, regardless of nitrate source, well construction or number of wells tested. These results have yet to be analyzed for possible non-fertilizer sources, or well construction, so the final percentage of wells over the HRL may change based on follow-up sampling and site visits.

Table 1. Townships Tested 2013-2018

Total Wells	<3	3<10	≥ 10	≥ 10
	Nitrate-Nitrogen mg/L or parts per million (ppm)			
	Number of Wells			Percent
30,769	23,627	4,298	2,844	9.2%

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. In Figure 4, townships with hash lines represent initial testing results (first year) and townships without hash lines are final. Final results are determined using two rounds of sampling and a process to remove wells with construction concerns, insufficient construction information and those near potential non-fertilizer sources of nitrate. Final results only include wells that are potentially impacted by applied commercial fertilizer, while initial results represent private well drinking water. Detailed sampling results are available at: www.mda.state.mn.us/townshiptesting.

The MDA uses the final results to determine if additional action is warranted, 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.

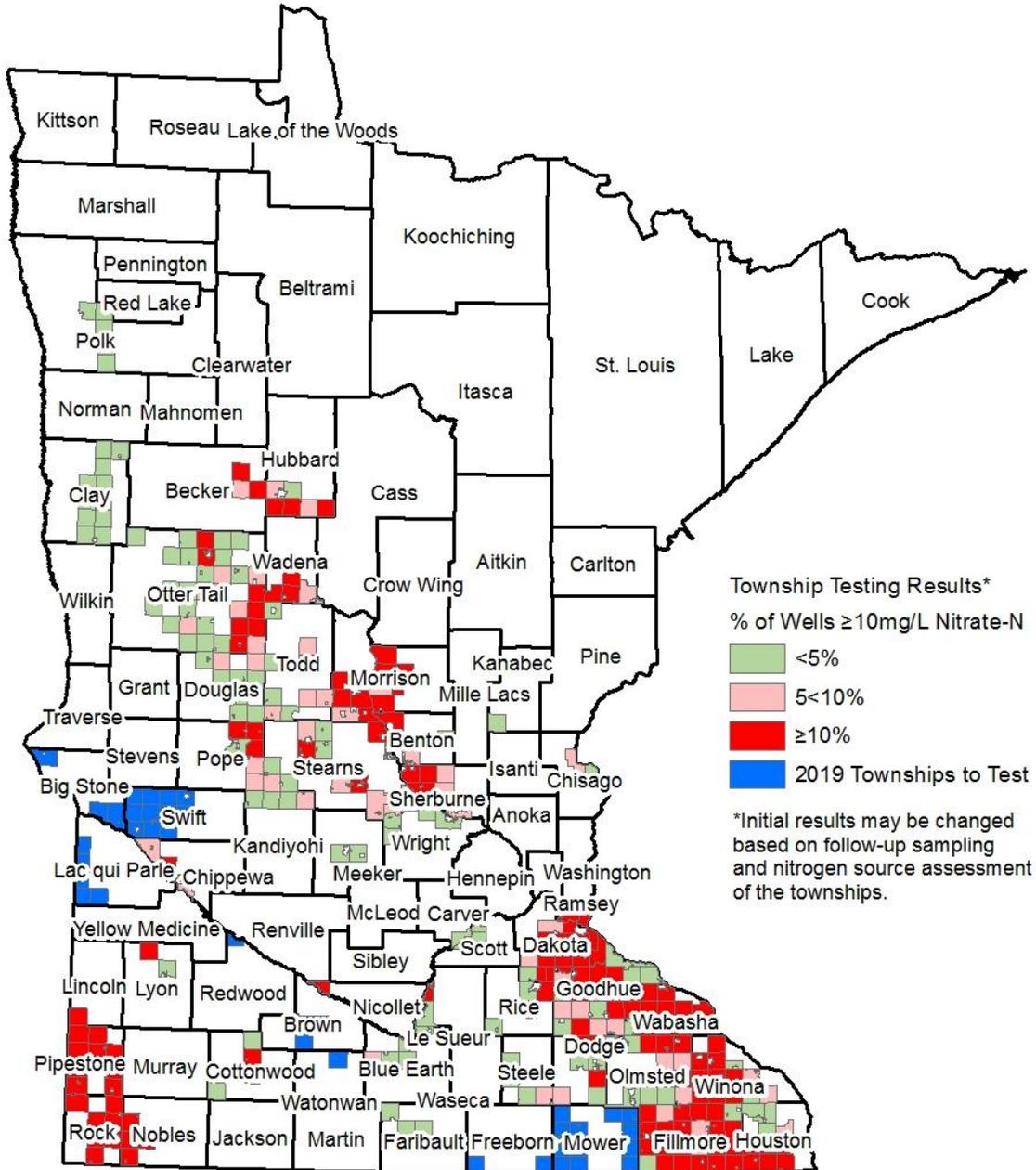


Figure 3. Initial Testing Results 2013-2018.

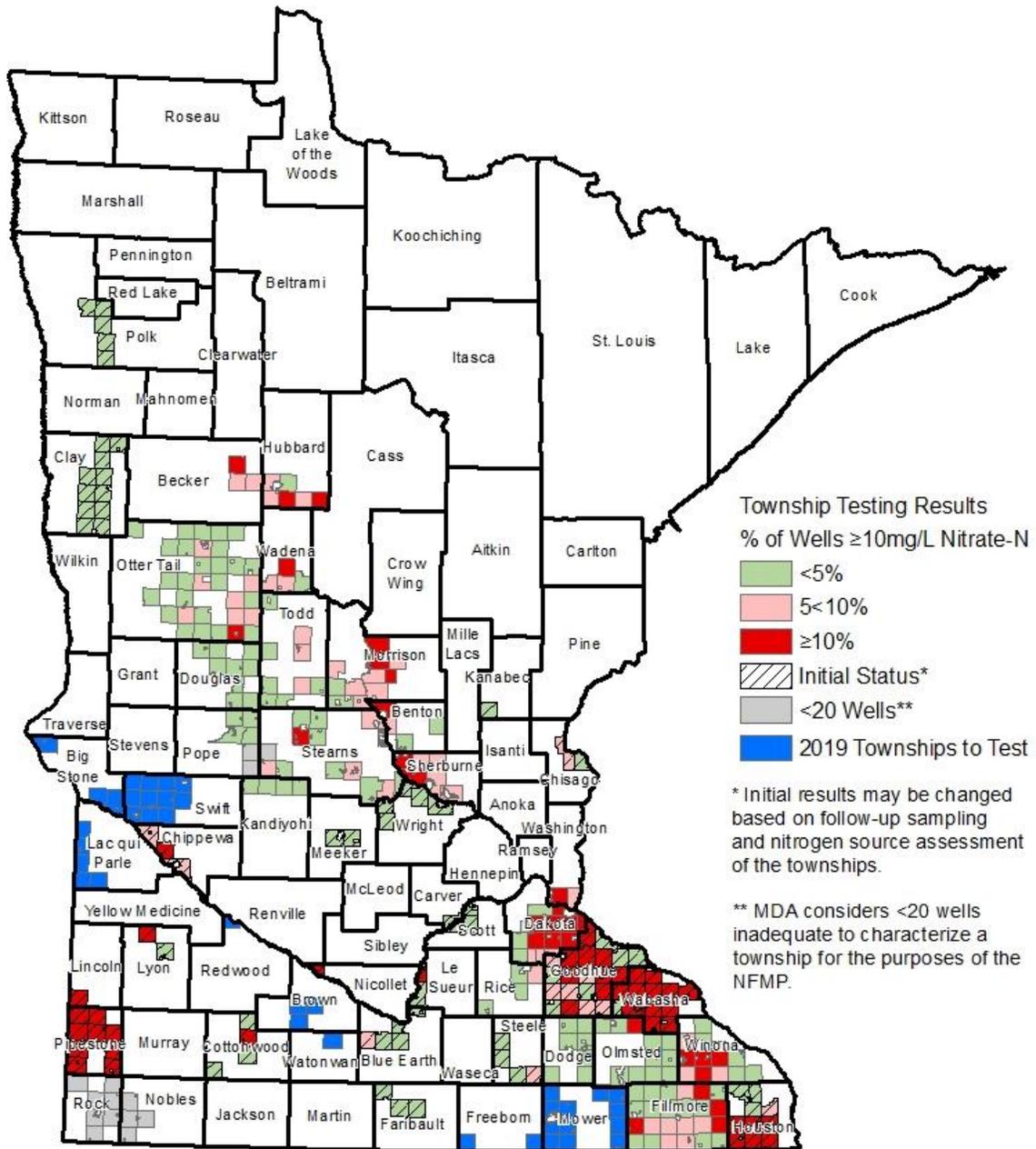


Figure 4. Combined Final and Initial Testing Results, 2013-2018.