

Fillmore 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 (TTP). 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 site 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.

Fillmore County Final Highlights

- Number of townships with 10% of wells over the HRL : 4
- 407 (28%) wells removed from initial dataset.

The MDA and Fillmore Soil and Water Conservation District (SWCD) worked together to select townships and implement the nitrate testing project. Because of the complexity of the karst geology in Fillmore County, all townships were included in the testing. The initial sampling in Fillmore County started in 2017 and follow-up sampling ended in 2018.

Results

Two datasets, “Initial” and “Final”, are used to evaluate nitrate in private wells. The initial dataset represents private well drinking water regardless of the potential source of nitrate. The final database was formed through an assessment process to evaluate wells. In the assessment, wells that had nitrate-nitrogen results over 5 mg/L were removed from the initial dataset to form the final dataset if a potential non-fertilizer source or well problem was identified, there was insufficient information on the construction or condition of the well, or for other reasons which are outlined in the full report (see Appendix E for details). The final dataset represents wells with nitrate attributed to the use of fertilizer. The initial dataset for Fillmore County contains 1,477 wells; the final dataset contains 1,070 wells. A total of 407 wells (28%) were removed.

The results from the initial and final well datasets are summarized in the following table and figures. In the initial dataset 19 townships had more than 10% of the wells over the Health Risk Limit of 10 mg/L of nitrate-nitrogen (see map). However, in the final dataset 4 of the townships had more than 10%. The final percent of wells over the Health Risk Limit in each township ranged from 0% to 23.3%. The Fillmore County Final Report is available on the MDA website in 2019: www.mda.state.mn.us/townshiptesting.

Next steps

The MDA uses the TTP data and assessment process and prioritization guidelines in the Minnesota Nitrogen Fertilizer Management Plan (NFMP) to determine next steps. It is MDA’s intent to implement the voluntary aspects of the NFMP in townships with elevated nitrate with the highest priority placed on areas with high sampling results. Find more information about the NFMP on the MDA website at www.mda.state.mn.us/nfmp.

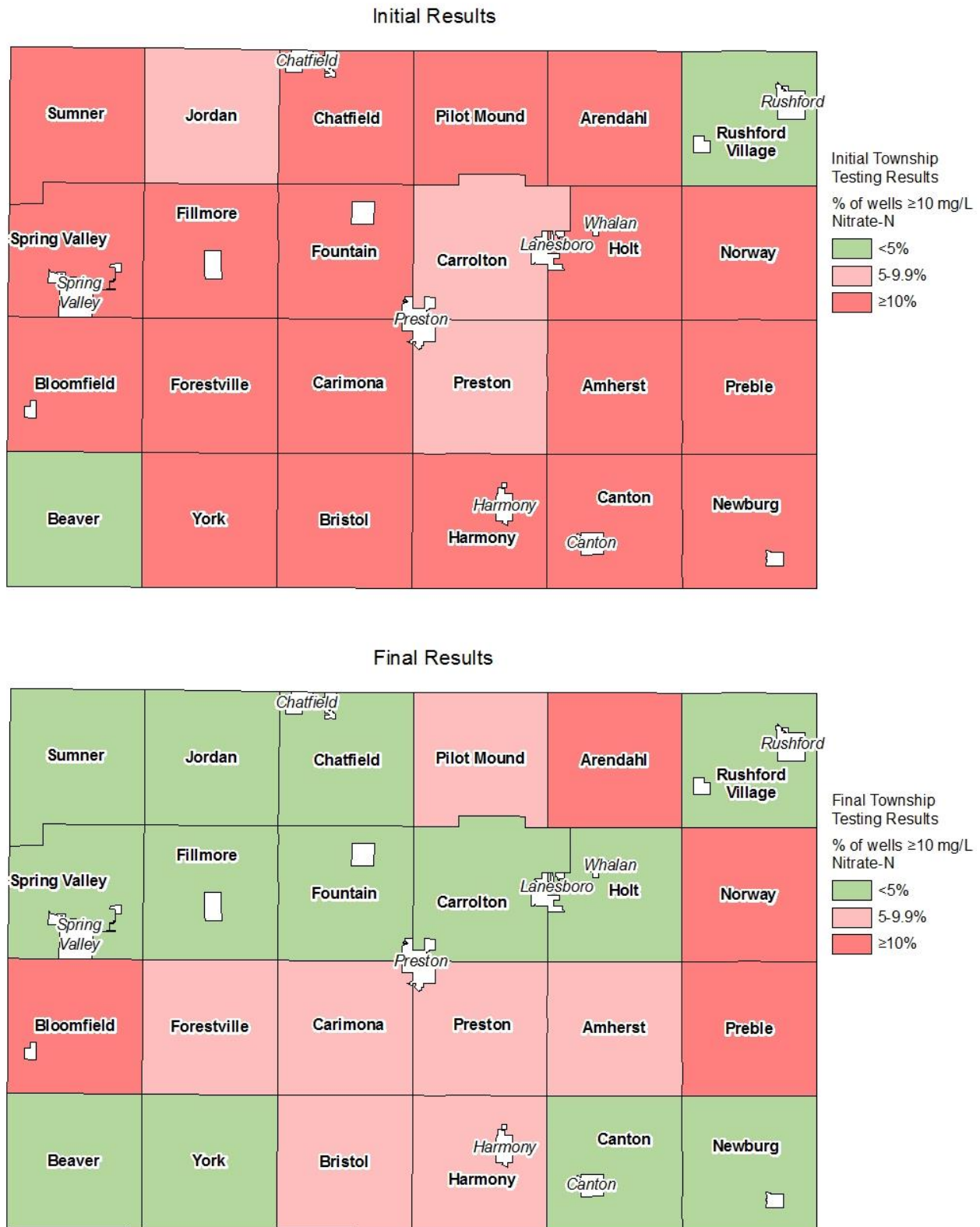
Funding for this project is provided by the Clean Water, Land and Legacy Amendment

Table: Fillmore County Private Well Nitrate Results.

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
Amherst	63	23.8%	42	7.1%
Arendahl	60	26.7%	43	11.6%
Beaver	46	4.3%	42	0.0%
Bloomfield	54	33.3%	31	12.9%
Bristol	57	22.8%	38	7.9%
Canton	56	10.7%	39	2.6%
Carimona	54	13.0%	45	6.7%
Carrolton	76	9.2%	63	1.6%
Chatfield	87	10.3%	65	3.1%
Fillmore	65	12.3%	50	2.0%
Forestville	67	16.4%	49	8.2%
Fountain	39	20.5%	27	0.0%
Harmony	42	28.6%	26	7.7%
Holt	50	18.0%	32	0.0%
Jordan	53	5.7%	45	2.2%
Newburg	78	20.5%	45	4.4%
Norway	44	25.0%	29	10.3%
Pilot Mound	61	24.6%	42	9.5%
Preble	44	38.6%	30	23.3%
Preston	54	7.4%	40	5.0%
Rushford Village	128	3.1%	117	0.9%
Spring Valley	85	12.9%	61	4.9%
Sumner	48	16.7%	36	2.8%
York	66	30.3%	33	3.0%
Total	1,477	16.9%	1,070	5.0%

* All well types included.

Figure: Fillmore County Initial and Final Well Dataset Map.



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