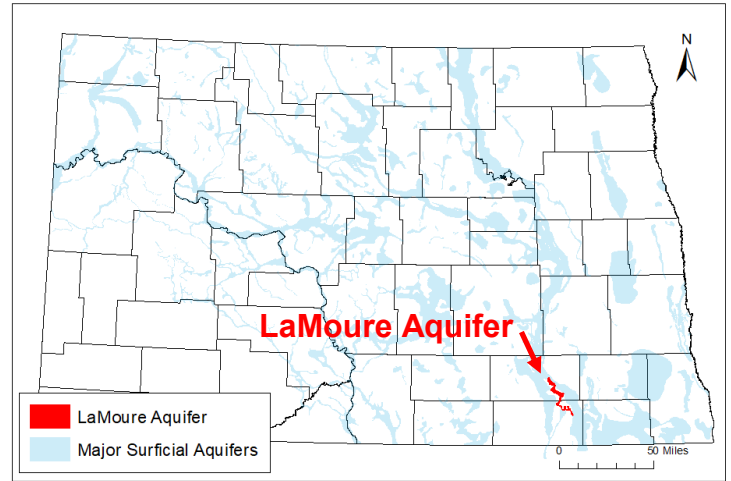


LaMoure Aquifer

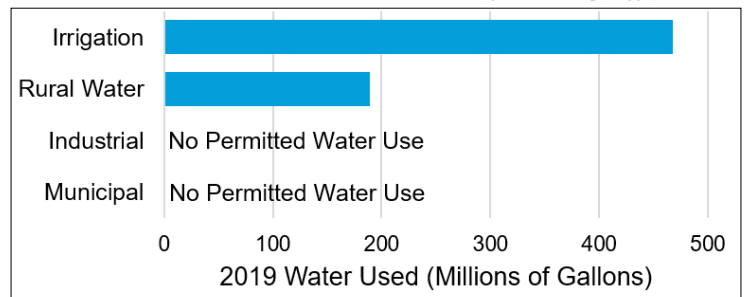
Dickey and LaMoure Counties

Aquifer At-a-Glance	
Area	46.5 square miles
Aquifer Type	Unconfined Surficial
Major Land Uses over Aquifer (percentage of aquifer area covered in 2017) ¹	Crops (59%) Grassland/Pasture (22%)
Depth to Water (2020)*	0-32 feet
Total Unique Wells Sampled	21
Wells Sampled in 2020	14
Samples Collected in 2020	22
Years Sampled	1995, 2000, 2005, 2010, 2015, 2020

*Depths to water may vary seasonally, year to year, and across the aquifer



2019 LaMoure aquifer permitted water use (from North Dakota State Water Commission (swc.nd.gov))↓



- Aquifer materials consist of sands and gravels deposited by streams moving meltwater away from glaciers during the last ice age and by the current and older versions of the James River. Some silt and clay is interspersed among the aquifer materials.²
- The aquifer ranges from 0-98 feet thick and averages about 46 feet thick.²
- Domestic and irrigation wells are common in the aquifer. Commercial, industrial, and stock wells are also installed in the aquifer.
- The Southeast Water Users District rural water system draws water from the aquifer.
- In North Dakota, permits are required to withdraw large quantities of groundwater. In 2019, 657 million gallons of permitted water were drawn from the aquifer; irrigation use consumed the largest quantity of water. For more information on water use and permits, contact the North Dakota State Water Commission (swc.nd.gov).

About the Agricultural Groundwater Monitoring Program

- The North Dakota Department of Environmental Quality monitors a network of wells in approximately 50 surficial aquifers that are at elevated risk of agricultural contamination.
- Aquifers are sampled on a 5-year rotation.
- Monitoring began in 1992.
- The vast majority of these aquifers are located in central and eastern North Dakota.
- Water is tested for 21 general chemistry parameters, eight trace metals, and 64 pesticides.

References

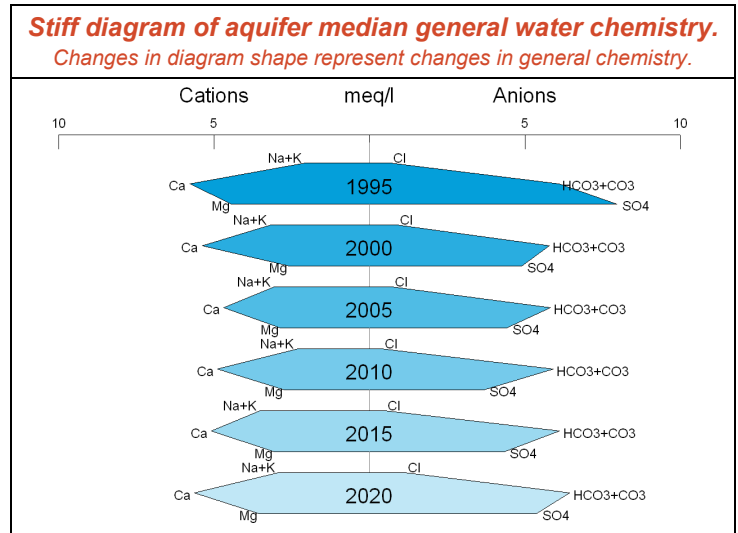
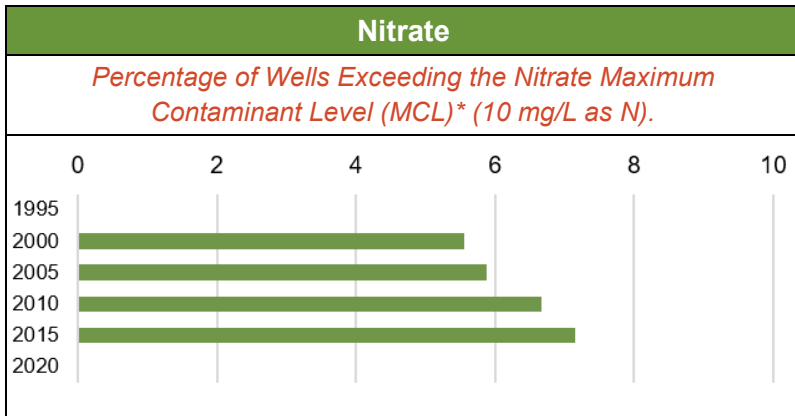
(1) US Department of Agriculture, 2017, National Agricultural Statistics Service Cropland Data Layer.
 (2) Armstrong, C.A., 1980, Ground-Water Resources of Dickey and LaMoure Counties, North Dakota, North Dakota State Water Commission County Ground-Water Studies 28-Part 3, North Dakota Geological Survey Bulletin 70.

Water Chemistry

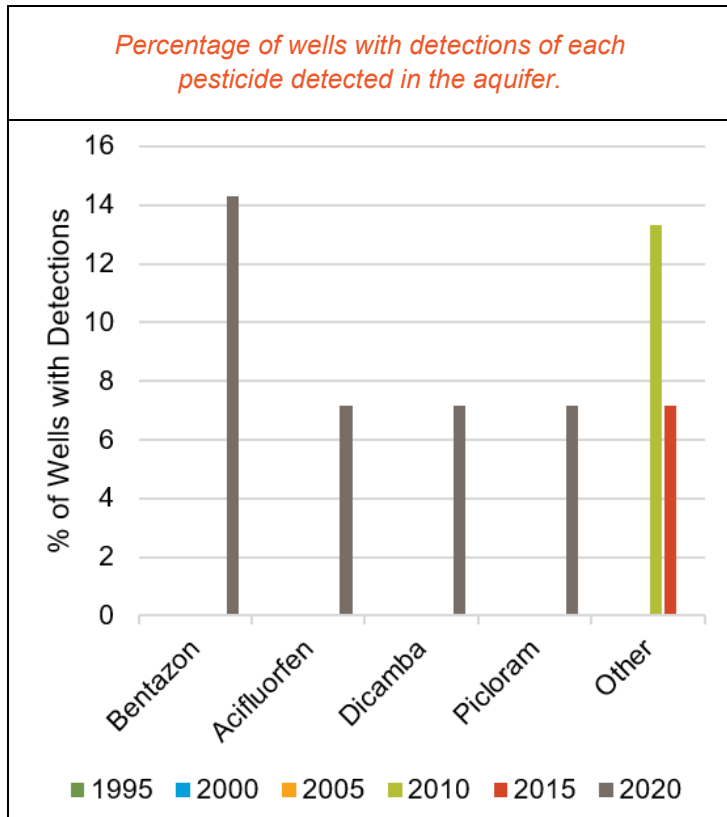
Is Aquifer Water High in...?	Analyte	Result	2020 Median Concentration	Potential Effects
	Arsenic	Locally	0.008 mg/L	Skin or circulatory system damage, increased cancer risk
	Iron	YES	2.43 mg/L	Metallic taste/odor, discoloration of surfaces
	Manganese	YES	0.87 mg/L	
	Sodium	NO	64.0 mg/L	Taste, people with certain health conditions may need to limit intake
	Sulfate	YES	258 mg/L	Taste/odor, laxative effect for people not used to the water

For more information about Maximum Contaminant Levels (MCLs), health effects, and treatment options for these contaminants and more, see the NDDEQ's fact sheets (deq.nd.gov/wq/1_Groundwater) or visit the US EPA website (epa.gov/ground-water-and-drinking-water).

Dominant Water Type	Water Hardness
Calcium-Bicarbonate	Very Hard



Pesticides



State Pesticide Management Plan

Agricultural Groundwater Monitoring Program aquifers are monitored as a part of the State Pesticide Management Plan. A Prevention Action Level (PAL) threshold of 25% of the pesticide's Maximum Contaminant Level (MCL)* or Health Advisory Level (HAL) is used to identify whether action is needed to prevent further contamination.

Prevention Action Level Exceedances	None
MCL or HAL Exceedances	None

Number of Unique Wells with Pesticide Detections since 1995: **7** of 21 Total Wells

2020 Pesticide Detections

Bentazon	2 Wells	Herbicide applied to crops
Acifluorfen	1 Well	Herbicide applied to crops
Dicamba	1 Well	Herbicide applied to crops
Picloram	1 Well	Herbicide applied to crops and roads/rights-of-way

*Note that MCLs are for public drinking water systems; private wells are not regulated in North Dakota. MCLs still provide guidelines for drinking groundwater.

Feel free to use this information, but please credit the North Dakota Department of Environmental Quality.