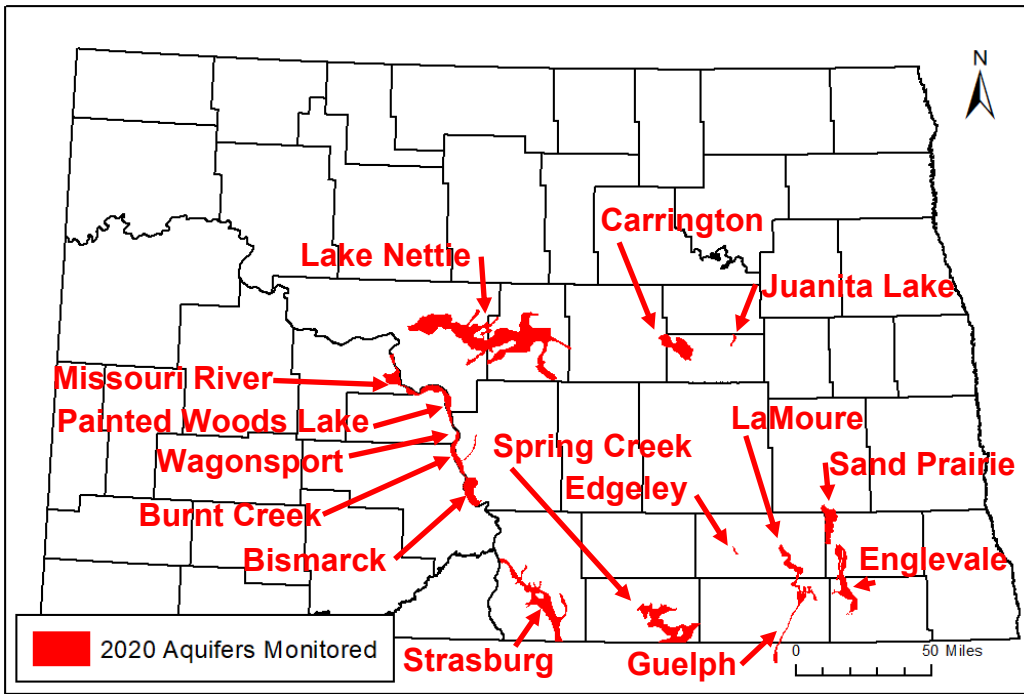


# 2020 Agricultural Chemical Detections Summary Report

## For the Agricultural Groundwater Monitoring Program

### Surficial Aquifers Monitored in 2020



### 2020 Overview

Sampling Summary
154 total wells were sampled across 15 aquifers.
Pesticides
Pesticides were detected in 18 of 154 wells sampled, with four wells having two different pesticide analytes detected. All detected pesticide detections were below the Prevention Action Levels established for specific pesticides. Consequently, the regulatory portion of the Pesticide State Management Plan was not engaged.
Nitrate
The nitrate Maximum Contaminant Level was exceeded in 13 of 154 wells sampled.

### About the Agricultural Groundwater Monitoring Program

The North Dakota Department of Environmental Quality monitors a network of wells in approximately 50 surficial (glacial drift) aquifers that are at elevated risk of contamination from the application of agricultural chemicals. The program was initiated in 1992 to monitor groundwater quality in vulnerable aquifers. Aquifers are sampled on a 5-year rotation. Groundwater is tested for 21 general chemistry parameters, eight trace metals, and 64 pesticides and pesticide degradates.

### North Dakota Pesticide State Management Plan (PSMP)

The North Dakota Pesticide State Management Plan (PSMP) was established to prevent water degradation by pesticides while protecting the beneficial use of pesticides. The plan set two thresholds that activate the regulatory portion of the plan and trigger voluntary and involuntary actions to prevent further contamination if a pesticide is detected at concentrations above the thresholds. The lower threshold is the **Preventative Action Level (PAL)**. This threshold is set at 25% of the pesticide's **Maximum Contaminant Level (MCL)** or lifetime **Health Advisory Level (HAL)** and exceedances may result in voluntary or involuntary preventative actions. The upper threshold is the pesticide's MCL or HAL and exceedances result in involuntary restrictive actions.

### MCLs and HALs
















Maximum Contaminant Levels are the maximum concentration of a contaminant allowed in public drinking water systems to limit the toxic and/or carcinogenic (cancer-causing) effects of that contaminant. Health Advisory Levels are non-enforceable guidelines that provide maximum concentrations of a contaminant that can be consumed over a period of days or a lifetime that above which exposure may have adverse health effects. Values for MCLs and HALs are set by the United States Environmental Protection Agency. Although private wells are not regulated by MCLs or HALs, they still provide good guidelines for drinking groundwater.

Pesticides						Nitrate (as N)	
Analyte	Number of Wells with Detections	Wells with PAL Exceedances	Maximum Concentration Detected (µg/L)	MCL/ HAL*	Percent of MCL/ HAL	Wells With MCL (10 mg/L) Exceedances	Maximum Concentration Detected (mg/L)
<b>Bismarck Aquifer (6 Wells Sampled)</b>							
2,4-D	1	0	0.85	70	1.2%	0	0.14
Picloram	1	0	0.30	500	0.1%		
<b>Burnt Creek Aquifer (2 Wells Sampled)</b>							
No Pesticide Detections						0	0.07
<b>Carrington Aquifer (17 Wells Sampled)</b>							
Dicamba	1	0	2.5	4000*	0.1%	0	0.57
Picloram	3	0	0.84	500	0.2%		
<b>Edgeley Aquifer (6 Wells Sampled)</b>							
No Pesticide Detections						0	< 0.03
<b>Englevale Aquifer (30 Wells Sampled)</b>							
2,4-D	1	0	0.14	70	0.2%	5	3435 (Decreasing concentration throughout year)
Acifluorfen	1	-	0.13	NE	-		
Bentazon	1	0	0.27	200*	0.1%		
Picloram	2	0	0.30	500	0.1%		
<b>Guelph Aquifer (7 Wells Sampled)</b>							
No Pesticide Detections						0	3.69
<b>Juanita Lake Aquifer (4 Wells Sampled)</b>							
No Pesticide Detections						0	8.12
<b>Lake Nettie Aquifer (32 Wells Sampled)</b>							
Picloram	1	0	0.42	500	0.1%	4	39.6
<b>LaMoure Aquifer (14 Wells Sampled)</b>							
Acifluorfen	1	-	0.12	NE	-	0	< 0.03
Bentazon	2	0	2.12	200*	1.1%		
Dicamba	1	0	0.34	4000*	0.0%		
Picloram	1	0	0.14	500	0.0%		
<b>Missouri River Aquifer (8 Wells Sampled)</b>							
No Pesticide Detections						0	0.20
<b>Painted Woods Lake Aquifer (3 Wells Sampled)</b>							
No Pesticide Detections						0	0.98
<b>Sand Prairie Aquifer (17 Wells Sampled)</b>							
Picloram	5	0	1.07	500	0.2%	3	19.8
<b>Spring Creek Aquifer (3 Wells Sampled)</b>							
No Pesticide Detections						1	37.5
<b>Strasburg Aquifer (3 Wells Sampled)</b>							
No Pesticide Detections						0	< 0.03
<b>Wagonsport Aquifer (2 Wells Sampled)</b>							
No Pesticide Detections						0	< 0.03
















MCL = Maximum Contaminant Level, HAL = Health Advisory Level, PAL = Prevention Action Level (25% of MCL/HAL), NE = Not Established, \* = HAL value  
µg/L = Micrograms per Liter, mg/L = Milligrams per Liter

Notes: One well may have multiple pesticide analytes detected that are listed individually. Pesticide detections are concentrations measured above the laboratory minimum reporting limit.

## 2020 Detected Pesticide Information

<b>2,4-D</b>				Trade Names: 2,4-D, Curtail			
Type: 	Use: 	MCL: 70 µg/L		Controls: 			
		PAL: 17.5 µg/L					
Applied to: Lawns, pasture, corn, soybeans, wheat, vegetables, other crops							
Notes:							
<b>Acifluorfen</b>				Trade Names: Blazer, Storm			
Type: 	Use: 	MCL/HAL: NE		Controls: 			
		PAL: NE					
Applied to: Soybeans, vegetable and fruit crops							
Notes:							
<b>Bentazon</b>				Trade Names: Basagran, Rezult B, Storm			
Type: 	Use: 	HAL: 200 µg/L		Controls: 			
		PAL: 50 µg/L					
Applied to: Soybeans, vegetables							
Notes:							
<b>Dicamba</b>				Trade Names: Banvel, Clarity, Diablo, Oracle, Rifle, Sterling Blue, Vanquish, Vision			
Type: 	Use: 	MCL: 4000 µg/L		Controls: 			
		PAL: 1000 µg/L					
Applied to: Turf, pasture, corn, soybeans, wheat, other crops							
Notes:							
<b>Picloram</b>				Trade Names: Tordon			
Type: 	Use: 	MCL: 500 µg/L		Controls: 			
		PAL: 125 µg/L					
Applied to: Road ditches and other rights-of-way, pasture							
Notes:							

**Key:**

Pesticide Type		Use Restrictions		Controls			
	Fungicide		Not Restricted in North Dakota		Broadleaf Weeds		Insects
	Herbicide		Restricted Use		Woody Plants		Mites
	Insecticide		Not Registered		Grasses		Fungi
	Degradate		Banned in the United States		Weeds (General)		

Listed trade names are not a comprehensive list. Listing of any trade names does not imply endorsement of the product.

Listed pesticide uses are non-exhaustive and largely based on historical use in North Dakota. This information is not to be used in place of advice from a licensed pesticide vendor. Use restrictions are subject to change.

Pesticide information data from the United States Environmental Protection Agency, United States Geological Survey, North Dakota Department of Agriculture, and the National Library of Medicine PubChem database.

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