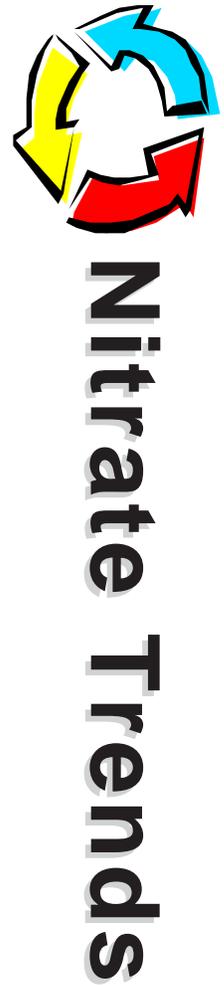


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# IOWA FACT SHEET

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**Q. What is nitrate?**

**A.** Nitrate is a naturally occurring form of nitrogen and is an integral part of the nitrogen cycle in our environment. Nitrate forms from fertilizers, decaying plants, manure and other organic residues. Plants use nitrate and ammonia, but sometimes rain can move this nutrient into shallow groundwater or through tiles to surface water bodies.

**Q. Where does nitrate concentration data come from?**

**A.** The Safe Drinking Water Act requires periodic nitrate monitoring by water utilities. In Iowa, public drinking water supplies are monitored at least quarterly, but may be monitored daily if nitrate levels warrant.

In addition to drinking water monitoring, ongoing systematic ambient water quality monitoring is conducted by the Iowa Department of Natural Resources and the U.S. Geological Survey Bureau.

**Q. What has been the nitrate concentration trend in Iowa?**

**A.** In Iowa, monitoring data indicates an upward trend in some drinking water supplies. In the past decade, nitrate levels have nearly doubled in surface water sources such as the Raccoon and Cedar Rivers and groundwater sources like those supplying Cedar Falls. Data for other surface water sources like the South Skunk River near Ames shows a downward trend. The Cedar Creek near Oakland Mills, Chariton River near Centerville, and the East Nishnabotna River near Shenandoah all have nearly flat trend lines.

**Q. Are there seasonal variations of in-stream nitrate concentration?**

**A.** In Iowa, the Cedar River, Raccoon River, and Des Moines River show very similar trends throughout the year. Generally, nitrate concentrations increase from January to July then decrease from July through September.

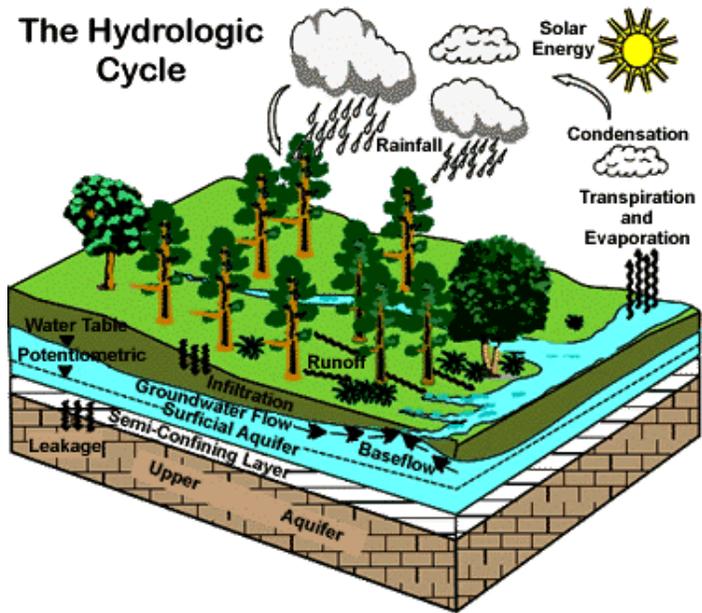
**Q. What factors affect the level of nitrate in surface and ground waters?**

Rainfall	During dry periods, there is relatively little movement (loss) of nitrate from the soil but may increase dramatically after the first major rain event. High nitrate levels seen in some surface waters during the spring are generally attributable to increased rain fall events.
Landcover Land-use	The denser the landcover the less movement of nitrate. Grassy or forested areas are less susceptible to nitrate loss than less densely vegetated soils. Consequently, cropland is more prone to run-off (nitrate loss) from soil organic matter mineralization due to tillage prior to plant growth in the spring and after the fall harvest.
Temperature	Soil temperature should be approximately 50° and declining before anhydrous ammonia is applied. Anhydrous ammonia placed in warm soil can convert to a mobile nitrate concentration and be lost. Warmer temperatures in soil and water increases biological growth and decreases nitrate concentrations.

**Q. What about testing of private water systems and is there any trend information on these systems?**

**A.** Monitoring of private wells is not required. Individuals are encouraged to test their well water every one to two years. Your county sanitarian provides nitrate and bacteria analyses free of charge through Iowa’s Grants to Counties Program. Well placement and construction are the key factors to a well’s susceptibility to contaminants.

The table below shows the number of nitrate levels over the *Maximum Contaminant Level (MCL)\** in private well water testing samples submitted to the University Hygienic Laboratory.



Year	2000	1999	1998	1997	1996	1995	1994
Over the MCL*	824	1028	993	1101	993	996	1145
Total Tested	6857	8215	8407	8862	8683	8250	8807
Percent of Total	12.0	12.5	11.8	12.4	11.4	12.1	13.0

\* Maximum Contaminant Level (MCL) – The Environmental Protection Agency (EPA), based on the best available treatment technology, establishes the highest level of a contaminant allowed in drinking water. This level is the MCL. This is the level below which there are no known or expected risks to human health. The MCL for nitrates is 10 mg/l (milligrams per liter or parts of a contaminant per million parts of water.)

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