## AWater Quality

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Focus Area Nutrients and Bacterial Wastes

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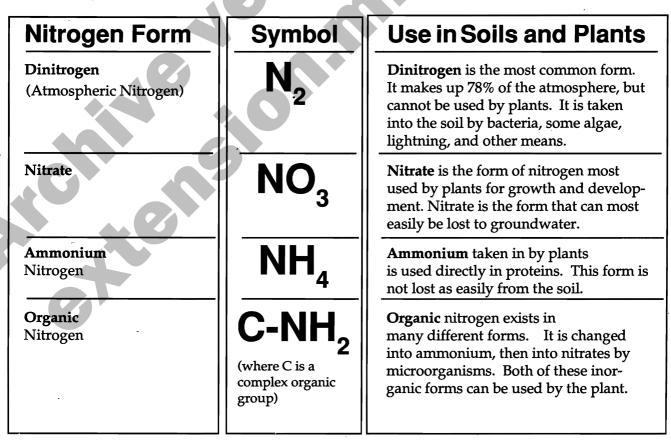
## - Nitrogen in the Environment - Nitrogen's Most Common Forms

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In addition to dinitrogen make up a very high percentage of the total nitrogen found in the soil. However, plants are able to use only very specific inorganic forms of nitrogen. The table shows the most common forms found in the soil, and the most common forms used by plants.

## Impact to Water Quality

Nitrogen becomes a concern to water quality when nitrogen in the soil is converted to the nitrate  $(NO_3)$  form. This is because nitrate is very mobile and easily moves with water. The



concern of nitrates and water quality is generally directed at groundwater. However, nitrates can also enter surface waters such as ponds, streams and rivers. Nitrates in the soil . result from natural biological processes associated with the decomposition of plant residues and organic matter. Nitrates can also come from animal manures and nitrogen fertilizers.

Whether nitrates actually enter groundwater depends on underlying soil and/or bedrock conditions, as well as depth to groundwater. If depth to groundwater is shallow and the underlying soil is sandy, the potential for nitrates to enter groundwater is relatively high. However, if depth to groundwater is deep and the underlying soil is heavy clay, groundwater contamination from nitrates is not likely.

Once nitrates get into the groundwater, the greatest concerns are for infants, less than one year old, and for young and pregnant animals. High levels of nitrates can be toxic to newborns causing *anoxia*, or internal suffocation. Seek alternative water sources if nitrate levels exceed the health standard of 10 ppm nitrate-N. Do *not* boil water to eliminate nitrates. It **increases** nitrate levels, rather than decreases them. The most common symptom of nitrate poisoning in babies is a bluish color to the skin, particularly around the baby's eyes and mouth. These symptoms of nitrate toxicity are commonly referred to as the "blue-baby" syndrome.

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