



## The Impact of Dairies on Water and Air Quality in California

California produces more dairy products than any other state in the United States. While California's dairy industry produces over 3 billion gallons of milk and generates \$4.5 billion in sales every year, the communities near dairies pay a high price as a result of dairy industries practices, including contaminated drinking water and air pollution.

### Impact of Dairies on Water Quality

The state's 1.4 million dairy cows place a heavy burden on California's public drinking water supplies.<sup>1</sup> According to a 2001 report, "illegal manure waste from dairies is believed to threaten the drinking water of 65 percent of Californians."<sup>2</sup>

The inadequate management of polluted wastewater and manure poses a serious threat to public health and environment. If not properly treated, dairy manure and wastewater can overflow into streams or leech down into the soil and into groundwater - the primary drinking water source for residents throughout California's largest dairy regions .

Minerals and pathogens commonly found in dairy waste that pose a serious threat to public health if they make their way into the drinking water supply include: Nitrates, E-coli, Salmonella, and Cryptosporidium.

- If consumed at elevated levels, *nitrate*-polluted drinking water can impair a small child's ability to supply oxygen to the blood, literally turning the baby's skin blue. This condition, known as "blue baby syndrome," can often lead to death.
- *E-coli* produces a powerful toxin and can cause severe illness. E-coli infection often causes severe bloody diarrhea and abdominal cramps
- *Salmonella* infections can cause diarrhea, fever, and abdominal cramps 12 to 72 hours after infection. The Salmonella infection may spread from the intestines to the blood stream, and then to other body sites and can cause death unless the person is treated promptly with antibiotics. The elderly, infants, and those with impaired immune systems are more likely to have a severe illness.
- *Cryptosporidium* is a parasite found in dairy waste and is one of the most dangerous pathogens. People with weaker immune systems (such as people with HIV, infants, and the elderly) are more vulnerable to contracting the disease cryptosporidiosis.

### Impact of Dairies on Air Quality

The trend towards concentrating large mega dairies in the San Joaquin Valley poses serious threats to the valley's already ailing air quality and public health. Gaseous emissions from livestock waste contribute to particulate and ozone pollution. In addition, dust particulates are emitted into the air from cows moving and disturbing dry soil.

Manure and urine from dairy cattle contains ammonia, reactive organic compounds (ROCs) and methane.

- *Ammonia* evaporates into the atmosphere and combines with nitric acid pollution to form particulate pollution.
- *Reactive Organic Compounds (ROCs)* are chemical gases that react in sunlight and contribute to the formation of smog.
- *Methane* is a potent greenhouse gas that remains in the atmosphere for approximately 9-15 years and is 20 times more effective in trapping atmospheric heat than carbon dioxide.

These gases are precursors in the formation of particulate matter and smog, which are linked to a variety of adverse human health effects, including premature mortality, chronic bronchitis, asthma, and other respiratory ailments.

<sup>1</sup> US EPA Region 9:

[Introduction to Dairy Waste Management](http://www.epa.gov/cgi-bin/epaprintonly.cgi) at [www.epa.gov/cgi-bin/epaprintonly.cgi](http://www.epa.gov/cgi-bin/epaprintonly.cgi)

<sup>2</sup> Natural Resources Defense Council, [Alfalfa: The Thirstiest Crop](#)