

# Milk v. Wildlife: The Environmental Cost of Dairy

American consumption of dairy has devastating environmental consequences, including polluted water, substantial greenhouse gas emissions and degraded land and habitat. Have a positive impact on wildlife and the planet by consuming less dairy.

Extinction Facts	
Serving Size 8 fl. oz. 2% Milk	
Greenhouse Gases	1.0 lb. CO <sub>2</sub> e
Habitat Loss	12.8 ft. <sup>2</sup>
Water Use	23.8 gal.
Manure	0.8 lbs.

Dairy is big business in the United States: In 2015, 9,317,000 U.S. dairy cows produced more than 208 billion pounds of milk.<sup>1</sup>

Americans consume more processed dairy products, such as cheese and yogurt, than ever before. Per capita cheese availability has more than doubled since the 1970s, and Americans now eat 36 pounds of cheese every year, in addition to 22.8 pounds of frozen dairy desserts, 14.9 pounds of yogurt and 5.5 pounds of butter per person.<sup>2</sup>

Consider that it takes nearly 9 pounds of milk to make one pound of cheese<sup>3</sup> – this helps explain why per capita dairy consumption of fluid milk equivalents increased from 539 pounds of fluid milk per year in 1975 to 614 pounds (about 9,141 cups of milk) in 2014.<sup>4</sup>

Skipping one glass of milk per week for a year saves **1,238 gallons** of water – enough water to fill almost 10 full-size refrigerators.\*

Just accounting for direct fluid milk consumption, Americans drink about 296 cups per capita of fluid milk each year. This dietary choice has a big impact on the planet – adding up to an annual per-person cost of approximately **296 pounds of carbon dioxide equivalents (CO<sub>2</sub>e)<sup>5</sup>, 3789 ft<sup>2</sup> habitat, 7045 gallons of water and 237 pounds of manure.**

## Cows and Climate Change

The global livestock industry contributes about 14.5 percent of total anthropogenic greenhouse gas (GHG) emissions.<sup>6</sup> Milk production alone contributes 2.9 percent of all human-induced GHG emissions.<sup>7</sup> GHGs are emitted throughout the chain of milk production: in the manufacture and application of fertilizers to crops, land deforestation for raising feed crops and livestock, methane production from cows' digestive processes, and the burning of fossil fuels for processing milk.<sup>8</sup>

Methane, a GHG 86 times more potent than carbon dioxide over a 20-year period, is the largest contributor to total GHG emissions from the dairy sector, contributing over half of dairy production's total emissions.<sup>9</sup>

## Water, Pollution and Manure

Dairy cattle are responsible for 19 percent of the global water footprint of animal agriculture.<sup>10</sup> In general, about 98 percent of an animal product's water footprint is related to water use for feed crops.<sup>11</sup> For dairy cattle, water also goes into hydrating the cows, cleaning barns and dairy equipment and processing milk into other products.

Water is also polluted in the process of creating dairy products, from the pesticides and fertilizers used on feed crops to runoff manure at agricultural facilities. A single dairy cow produces 106 to 150 pounds of manure every single day.<sup>12</sup> A dairy of just 200 cows produces as much nitrogen sewage as a town of 5,000-10,000 people.<sup>13</sup> The largest U.S. dairies have more than 15,000 cows.<sup>14</sup> Under these conditions, pollution control becomes increasingly difficult. Manure

stored in open-air lagoons pollutes drinking water with deadly pathogens, antibiotics and hormones, creates toxic aquatic “dead-zones” due to excess nutrients, and threatens the water resources necessary for wildlife to survive.<sup>15</sup> Like many species, the Higgins eye pearly mussel, for instance, depends on the availability of clean water. But agricultural pollution runoff and diversion of rivers are driving this endangered species to extinction by degrading its aquatic habitat in the Great Lakes region.<sup>16</sup>

### Little Land Left for Wildlife

Raising cattle is a highly land-intensive process. Livestock and the crops used to grow their feed occupy almost one-third of the earth’s entire land surface.<sup>17</sup> The cattle industry has caused deforestation,

American consumption of fluid milk uses **43,475 square miles** of land – roughly equal to the land area of Virginia (the 35th largest state in the country).

overgrazing, erosion and soil compaction throughout the United States and the world.<sup>18</sup> This conversion and destruction of land represents a major threat to biodiversity and wildlife. The San Joaquin kit fox, once abundant in the grasslands and wetlands of California’s San Joaquin Valley, is now one of the most endangered animals in the state due to habitat loss and pesticide runoff from the many dairy and other animal agriculture facilities in the region.<sup>19, 20</sup> The southwestern willow flycatcher, a songbird, also has critical habitat in areas of the United States with high dairy facility density; livestock grazing, dams, water withdrawal and sprawling development have consumed more than 90 percent of the bird’s habitat.<sup>21</sup>



## Take Extinction Off Your Plate

a project of the Center for Biological Diversity

The American thirst for milk (consumed in its fluid form) produces **95 billion lb. CO<sub>2</sub>e emissions per year** – the equivalent of 9.2 million cars.

### Tips for a Wildlife-friendly Diet

Every meal is an opportunity to help protect wildlife by consuming less milk and other dairy products.

- Choose plant-based milks, cheeses, desserts and yogurts. From soy, almond, hemp and rice milks to cashew cheeses and coconut yogurts, the [variety of Earth-friendly alternatives](#) is constantly growing.
- Replace dairy-based dishes with other creamy and delicious alternatives, such as [cauliflower pasta Alfredo](#), [plant-based cheesecake](#) and [cashew cream mac 'n cheese](#).

1. USDA. “U.S. milk production (quarterly).” [Dairy Data](#).
2. USDA. “Dairy products: Per capita consumption, United States (Annual).” [Dairy Data](#).
3. Hamerschlag, Kari. “Meat Eater’s Guide: Methodology.” EWG.
4. USDA. “Dairy products: Per capita consumption, United States (Annual).” [Dairy Data](#).
5. CO<sub>2</sub>e calculated using following global warming potentials (GWP) (i.e. warming effect relative to CO<sub>2</sub> over 100-year period): N<sub>2</sub>O: 298, CH<sub>4</sub>: 25, hydrofluorocarbons: 1,430 (Hamerschlag, 6)
6. Food and Agriculture Organization of the United Nations. “Tackling Climate Change Through Livestock.” 2013.
7. Ibid.
8. FAO. “Greenhouse Gas Emissions from the Dairy Sector: A Life Cycle Assessment.”
9. Ibid.
10. Hoekstra, Arjen Y. “The hidden water resource use behind meat and dairy.” *Animal Frontiers*. April 2012.
11. Hoekstra, Arjen Y. “The hidden water resource use behind meat and dairy.” *Animal Frontiers*. April 2012.
12. EPA. “Technical Support Document for Manure Management Systems...” 4 February 2009. Page 18, Table A-2.
13. USDA. “Animal Manure Management. RCA Issue Brief #7 December 1995.”
14. Grossman, Elizabeth. “As Dairy Farms Grow Bigger, New Concerns About Pollution.” *Yale, Environment* 360. 27 May 2014.
15. Ibid.
16. U.S. Fish & Wildlife Services. “Higgins Eye Pearlymussel.”
17. Food and Agriculture Organization of the United Nations. “Livestock a major threat to environment.” 29 November 2006.
18. Food and Agriculture Organization of the United Nations. “Livestock a major threat to environment.” 29 November 2006.
19. Center for Biological Diversity. “San Joaquin Kit Fox.”
20. Food and Water Watch. “Factory Farm Map.”
21. Center for Biological Diversity. “Southwestern Willow Flycatcher.”

\* Assuming an average refrigerator size of ~17 cubic feet.