

The U.S. Dairy Industry is Part of the Solution to Climate Warming



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Dairy cows and the plants they eat are part of the natural cycle which can contribute to a global cooling effect, when managed as such. Through the process of photosynthesis, plants use carbon dioxide from the atmosphere as a carbon source for the synthesis of cellulose (fiber) and starches. Dairy and beef cows, along with other ruminant animals, are the only animals that can use cellulose and convert it into food for humans. In the process of consuming plants, methane is produced in the rumen as cellulose is digested and through the storage of manure. Methane is released into the atmosphere and then broken down and converted back to carbon dioxide that plants can use, completing the natural cycle. Thus, methane should be known as recycled carbon that is part of a natural cycle. If we can decrease the amount of methane produced with the use of certain feed additives, continued improvements in cow-based feed efficiency, and alternative manure management practices, dairy cows actually can help reduce the amount of carbon dioxide in the atmosphere and contribute to reducing global warming.

Methane produced by cows is a greenhouse gas, but it acts differently than carbon resulting from the burning of fossil fuels. Besides ruminants, methane comes from fossil fuel extractions and wetlands. Methane is a short-lived climate pollutant that is part of a natural cycle between plants and ruminant animals. It is considered a flow gas once emitted, it is destroyed in the atmosphere. Methane stays in the atmosphere for just 10 years versus 1000 years for carbon dioxide resulting from the burning of fossil fuels. The carbon dioxide from fossil fuels are called stack gases since the emissions today are added to those previously emitted and are not part of an on-going cycle.

Here are some facts regarding the contribution of agriculture to greenhouse gas emissions (Mitloehner and US EPA data).

1. The carbon footprint of a glass of milk has decreased by 67% over the past 70 years with the reduction of the number of cows in the US and increases in productivity.
2. In 2017, the US accounted for ~12% of the total greenhouse gas emissions in the world (49 Gt CO₂ equivalents) where US animal agriculture accounted for 0.5% and US crops accounted for 0.6% of world's total emissions and US fossil fuel combustion emissions account for the remaining 11%.
3. In the US, 28% of greenhouse gasses comes from the transportation sector, 28% from electricity generation, 22% from industry (mainly cement industry), 9% from agriculture (4% from animal ag, remainder from plant ag), 6 % commercial, and 5% residential sources.
4. The forestry and agricultural industries are in a unique position as they can act as both carbon sinks and generators.
5. The North American dairy industry has the lowest carbon footprint in the world with most of this contributed by Mexico. West and South Asia and Africa have the largest footprint due to their larger numbers of ruminants, high fiber diets, and lower productivity per animal.
6. In the US, the dairy industry contributes 1.2% directly to the greenhouse sector and 2.2% from beef cattle. However, the largest contribution (~80%) is from fossil fuel emissions.

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