

Dataset confirms that a vegan diet is dramatically better across a range of environmental measures

July 24 2023



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Researchers have linked dietary data from over 55,000 individuals with data on the environmental impacts of the foods they eat. The team, from

the Livestock, Environment and People (LEAP) project at the University of Oxford, found that the dietary impacts of vegans were around a third of those of high meat eaters. They also saw a 30% difference between high- and low-meat diets for most of the measures of environmental harm.

Individuals classified themselves as vegan, vegetarian, pescetarian or [meat](#) eaters. Data on the environmental impact of their diets was assessed in relation to greenhouse gas emissions, land use, [water use](#), water pollution risk and biodiversity loss.

The team also took into account the variation in environmental impact based on how and where food is produced, including this variation in their results. This is important as it ensures that the results are based on all the available data about the environmental impact of foods, as opposed to focusing on specific food production methods which can obscure the relationship between animal-based food consumption and environmental impact,

Despite substantial variation according to where and how food was produced, the relationship between environmental impact and animal-based food consumption is clear and the authors argue this should prompt policy actions to reduce [meat production](#) and consumption. The paper is published in *Nature Food*.

The impact of the food we eat on the environment is well established. In 2015 the direct and indirect greenhouse gas emissions of the global food system was around a third of total emissions for that year.

The food system is estimated to be responsible for 70% of the world's freshwater use and 78% of freshwater pollution. Around three quarters of ice-free land area of the planet has been affected by human use, primarily for agriculture and land use change such as deforestation is a

major source of biodiversity loss.

Lead author, Professor Peter Scarborough, of the Nuffield Department of Primary Care Health Sciences at Oxford University, says, "Our dietary choices have a big impact on the planet. Cherry-picking data on high impact plant-based food or low impact meat can obscure the clear relationship between animal-based foods and the environment."

"Our results, which use data from over 38,000 farms in over 100 countries, show that high meat diets have the biggest impact for many important environmental indicators, including climate change and biodiversity loss. Cutting down the amount of meat and dairy in your diet can make a big difference to your dietary footprint."

Past research has shown that plant-based diets are substantially lower than meat-based when it comes to environmental measures such as greenhouse gas emissions, land use and water use, and that reducing meat intake tends to be healthier. They have generally made assumptions about people's food intake and have not taken into account variation in environmental impact depending on where and how food is sourced and produced.

Professor Scarborough and the team looked at the way people actually eat, taking data from a sample of 55,000 UK individuals who filled out a food frequency questionnaire. They connected this to databases that estimate the environmental impacts of multi-ingredient and commonly consumed foods. Using a dataset of the environmental impact of food production systems, they were able to incorporate variation in where food is from and how it is produced.

All five environmental impacts were associated with the amount of animal-based food consumed. The impacts of vegans were a quarter of those of high meat eaters for [greenhouse gas emissions](#), and [land use](#),

just 27% of the impacts for water pollution, 46% for water use and 34% for biodiversity.

At least 30% differences were found between low and high meat eaters for most of the indicators.

The study expands on past work, underlining that vegan and [vegetarian diets](#) have much lower [environmental impact](#) than fish and meat consumption. The region of origin and methods of food production do not obscure the differences between [diet](#) groups and should not be a barrier to policy actions aimed at reducing animal-based food consumption.

More information: Peter Scarborough et al, Vegans, vegetarians, fish-eaters and meat-eaters in the UK show discrepant environmental impacts, *Nature Food* (2023). [DOI: 10.1038/s43016-023-00795-w](https://doi.org/10.1038/s43016-023-00795-w)

Provided by University of Oxford

Citation: Dataset confirms that a vegan diet is dramatically better across a range of environmental measures (2023, July 24) retrieved 27 April 2024 from <https://phys.org/news/2023-07-dataset-vegan-diet-range-environmental.html>

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