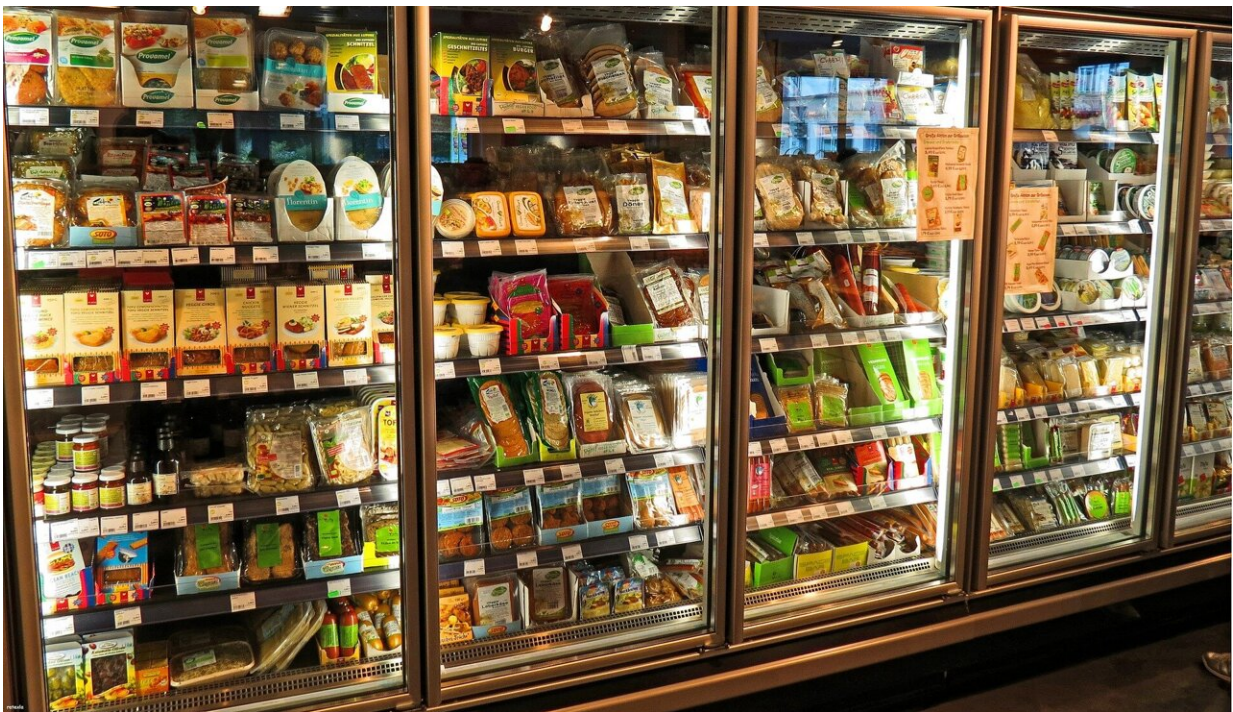


# How plant-based diets not only reduce our carbon footprint, but also increase carbon capture

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Credit: Pixabay/CC0 Public Domain

Almost 100 billion tons of CO<sub>2</sub> could be pulled out of the atmosphere by the end of the century. That is, if high-income countries switch to a plant-based diet. The double carbon profit of returning farmland to its natural state would equal about 14 years' worth of agricultural emissions,

researchers from Leiden University write in Nature Food.

The area needed for animals to graze and grow feed is huge. It takes up about 80% of all [agricultural land](#), or about 35% of the total habitable land in the world. An international research team, led by scientists at Leiden University, calculated that if high-income nations moved away from [animal products](#), much less land would be needed to grow food. Vast areas could then revert to their natural state, with [wild plants](#) and trees drawing carbon from the atmosphere.

"It is perhaps one of the biggest environmental health opportunities out there," said lead author Zhongxiao Sun at the China Agricultural University. "A rapid shift to these diets could really help society stay within environmental limits."

## **No excuse for high-income nations**

The international team investigated how much land could be saved by 54 high-income nations moving to the EAT-Lancet 'planetary diet,' a diet high in plant-based foods that is good for [human health](#).

"We looked at higher income regions because they have plenty of plant-based options for protein and other nutritional needs. In lower-income regions, people consume fewer animal proteins but often rely on them for their health," said Leiden University's Paul Behrens, senior author of the research.

The researchers found that the switch to plant-based diets would reduce annual agricultural production emissions by 61%. Additionally, converting former cropland and pastures to their natural state would remove another 98.3 billion tons of carbon dioxide from the atmosphere by the end of the century. This carbon profit would help significantly to keep the planet from warming more than 1.5 degrees Celsius.

## Carbon is just the beginning

"It's a remarkable opportunity for climate mitigation," Behrens said. "But it would also have massive benefits for [water quality](#), biodiversity, air pollution, and access to nature, to name just a few. There are hundreds of papers showing how important it is for us to be in nature for our health and these changes would open up vast tracts of land for rewilding close to where people live."

"It will be vital that we redirect agricultural subsidies to farmers for biodiversity protection and carbon sequestration. We must look after farming communities to enable this in a just [food](#) transition," said Behrens. "We don't have to be purist about this, even just cutting animal intake would be helpful. Imagine if half of the public in richer regions cut half the animal products in their diets, you're still talking about a massive opportunity in environmental outcomes and public health."

The published article can be found in *Nature Food*.

**More information:** Zhongxiao Sun, Dietary change in high-income nations alone can lead to substantial double climate dividend, *Nature Food* (2022). [DOI: 10.1038/s43016-021-00431-5](https://doi.org/10.1038/s43016-021-00431-5).  
[www.nature.com/articles/s43016-021-00431-5](https://www.nature.com/articles/s43016-021-00431-5)

Provided by Leiden University

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