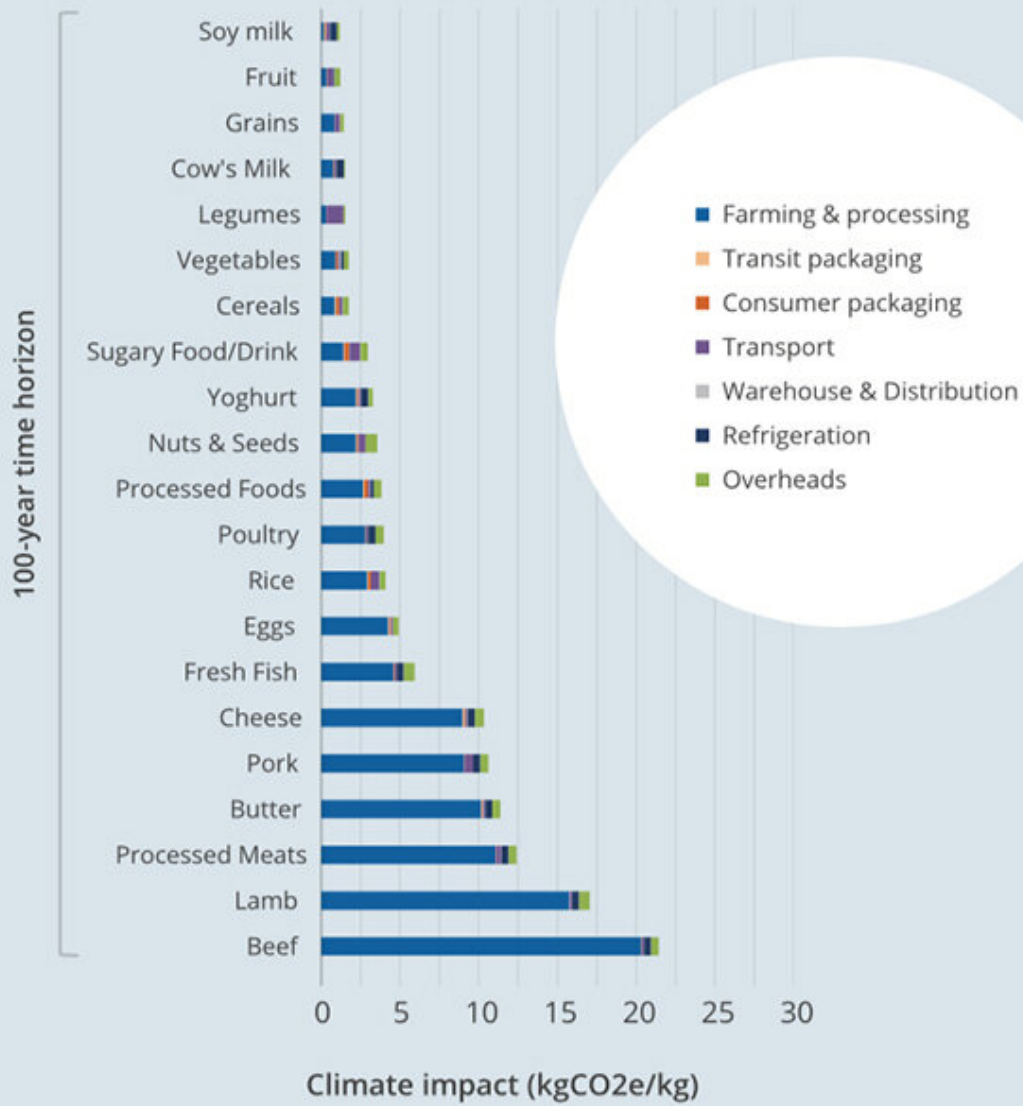


Climate-friendly food choices protect the planet, promote health, reduce health costs

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New Zealand Food Emissions Database



Credit: University of Otago

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Increased uptake of plant-based diets in New Zealand could substantially reduce greenhouse gas emissions while greatly improving population health and saving the healthcare system billions of dollars in the coming decades, according to a new University of Otago study.

Lead researcher and Otago medical student Jono Drew explains the global food system is driving both the [climate crisis](#) and the growing burden of common chronic diseases like cardiovascular disease, diabetes, and cancer.

"International research has highlighted the climate and [health](#) co-benefits that arise from consuming a diet that is rich in [plant foods](#) like vegetables, fruits, whole grains and legumes. We wanted to understand if this holds true here in New Zealand, and to tease out which eating patterns could offer the greatest co-benefits in this context."

The research team developed a New Zealand-specific food emissions database that, in estimating greenhouse gas emissions arising from foods commonly consumed in New Zealand, considers important parts of the 'lifecycle' of each food, including farming and processing, transportation, packaging, warehouse and distribution, refrigeration needs, and supermarket overheads. Using their database, the team was then able to model climate, health, and health system cost impacts stemming from a range of dietary scenarios.

Senior author Dr. Alex Macmillan, Senior Lecturer in Environmental Health, says results from the study show that [greenhouse gas emissions](#) vary considerably between different foods in New Zealand. As a general rule, the climate impact of animal-based foods, particularly red and processed meats, tends to be substantially higher than that of whole plant-based foods, including vegetables, fruits, legumes, and whole grains.

"Fortunately, foods that are health-promoting tend also to be those that

are climate friendly. Conversely, certain foods that carry known health risks are particularly climate-polluting. Red and processed meat intake, for instance, is associated with an increased risk of [cardiovascular disease](#), type-2 diabetes and certain cancers," Dr. Macmillan says.

The research ultimately shows that a population-level dietary shift could, depending on the extent of changes made, offer diet-related emissions savings of between 4 to 42 per cent annually, along with health gains of between 1.0 to 1.5 million quality-adjusted life-years (a single quality-adjusted life-year is equal to one year of optimal health) and cost savings to the health system of NZD \$14 to \$20 billion over the lifetime of the current New Zealand population.

Mr Drew says the analysis reveals emissions savings equivalent to a 59 per cent reduction in New Zealand's annual light passenger vehicle emissions could be possible if New Zealand adults consumed an exclusively plant-based diet and avoided wasting food unnecessarily.

"All of our scenarios were designed to meet New Zealand's dietary guidelines. We began with a baseline scenario where we looked at minimal dietary changes required, relative to what New Zealanders are consuming now, to meet the guidelines. These changes included increased intake of vegetables, fruits, whole grains and milk, along with decreased intake of highly processed foods. From there, we tailored our dietary scenarios to be progressively more plant-based- that is, substituting animal-based foods with plant-based alternatives.

"We thought it was important to show what was possible if people were willing to make changes to their eating pattern, and what would be possible if our entire population made a significant shift in that same direction," Mr Drew says.

"As our modelled dietary scenarios became increasingly plant-based and

therefore more climate-friendly, we found that associated population-level health gains and healthcare cost savings tended also to increase. A scenario that replaced all meat, seafood, eggs, and dairy products with plant-based alternatives, and that also required people to cut out all unnecessary household food waste, was found to offer the greatest benefit across all three of these parameters," he says.

Mr Drew says this is exciting because we can now better understand what it means to promote a climate-friendly eating pattern in the New Zealand context. "Essentially, the message is highly comparable to that being delivered in other countries already, and we should be rapidly looking for ways to effectively support our population in making eating pattern changes."

The researchers argue that these findings should prompt national policy action, including revising the New Zealand [dietary guidelines](#) to include messaging on climate-friendly food choices. They also advocate for the implementation of other policy tools, such as pricing strategies, labeling schemes, and food procurement guidelines for public institutions.

"Well-designed public policy is needed worldwide to support the creation of a global [food](#) system that no longer exacerbates the climate crisis, nor the burden of non-communicable disease," Mr Drew says.

More information: Jonathan Drew et al, Healthy and Climate-Friendly Eating Patterns in the New Zealand Context, *Environmental Health Perspectives* (2020). [DOI: 10.1289/EHP5996](https://doi.org/10.1289/EHP5996)

Provided by University of Otago

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