



Science

Would you go vegan to save the planet? Researchers say it might be our best option

ABC Science By environment reporter [Nick Kilvert](#)

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[Even the most efficient livestock is more costly than cropping, researchers say.](#) (Getty Images: Wayne Hutchinson)

Would you give up animal products to save the planet? No more meat, dairy, leather, cheese. Cheese?

To a lot of people, that idea sounds like the end of the world — bacon is, after all, objectively delicious — but our options may be growing thin.

Key points:

With the global population predicted to tip the scales at 10 billion by 2060, in a paper published in [Science](#) today researchers have analysed the environmental impacts caused by our food production and consumption.

The idea behind the study was to help inform food producers and consumers on better ways to reduce their impact on the planet.

They looked at the land-use area needed for each crop or livestock from over 38,000 farms, as well as the production of greenhouse-gas emissions, nutrient build-up, land acidification, and freshwater use.

They took their data from 570 previously published papers containing food life-cycle analyses, which measure how much of the above parameters a crop produces, between being planted and arriving on the supermarket shelf.

Firstly, the results showed huge variations in impact within the same crops and livestock.

For instance, the worst 10 per cent of beef production produces 12 times more greenhouse gas and requires 50 times more land to produce 100 grams of protein, compared to the best 10 per cent of beef production.

The trend was the same among the major crops — wheat, maize, and rice. The best growing practices achieved the same yield with about a third of the impact.

But, there was an even more inescapable trend to the data: even the best managed livestock can't produce the equivalent amount of protein as the worst managed vegetable crop, without causing a bigger environmental impact.

- Even well-managed meat production has a greater environmental impact than vegetables, study finds
- We could cut our agricultural land use by 76 per cent, if we got rid of meat
- Getting rid of the worst producers would make a substantial difference

Where's the beef?



[Do we have to choose between eating meat and the future of the planet?](#) (Supplied: NASA)

The researchers then explored the data under an unthinkable hypothetical scenario — a vegan world.

They replaced meat-derived protein with the equivalent from plant crops, and analysed the same impact-parameters.

The results were startlingly good for the environment, and potentially devastating for carnivores, according to study co-author Joseph Poore, from Oxford University.

"We reduced land use by 3.1 billion hectares — 76 per cent," Mr Poore said.

Overall, they estimated a vegan world would produce 49 per cent less food-based greenhouse gas emissions, 50 per cent less acidification on land, 49 per cent less eutrophication, and would use 19 per cent less water to meet our food-energy demands.

One of the highest sources of greenhouse gases in beef production comes from the use of fertilisers, said [Dr Matthew Harrison](#), who was not involved in the study.

"You get quite a bit [of emissions] with nitrous oxide, which is from nitrogenous fertilizers that you spread on the ground for your pastures," Dr Harrison told the ABC earlier this year.

"If one carbon-dioxide molecule makes up one unit of warming ... nitrous oxide makes up about 210 units."



[Beef production often releases high levels of nitrous oxide.](#) (ABC Rural)

For some, choosing between the future of the planet and a future without hamburgers or lamb korma is like being asked to pick a favourite child — a choice we should never be forced to make.

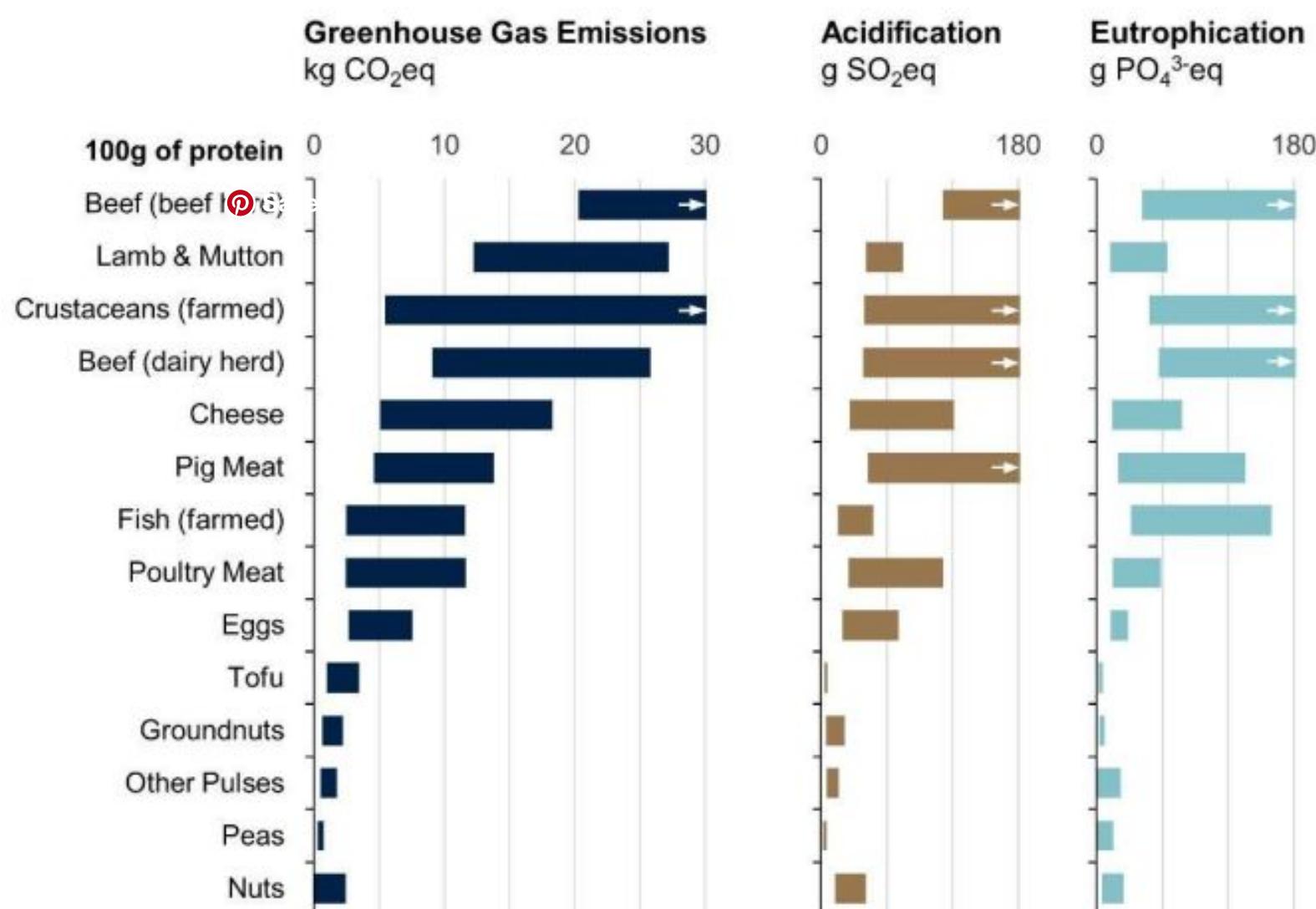
But although the optimal scenario for our children's future seems to be one in which we all forgo the sins of the pan-fried flesh, this dark cloud has a silver lining.

Remember they found huge variation in the environmental impacts between farms producing the same crop?

Well, they found that if they removed the worst 50 per cent of those meat producers, and replaced them with vegetable crops, we'd get a long way toward achieving the benefits of vegan world, without the associated anaemia risk.

Yes, we'd have to cut our meat consumption by about half. But given that Australia is among the top meat-eating countries in the world, this sounds like a manageable compromise.

Can we have our steak and eat it too?



[The researchers found that land use could be cut by 76 per cent if we switched to plant-based diets.](#) (Supplied: Joseph Poore)

Australian men — perhaps as a hangover from the "feed the man meat" campaign of the '70s — already overdo it, according to Dr Rosemary Stanton from the University of New South Wales (UNSW), who wasn't involved in the study.

"There are some men who think the size of the steak reflects their masculinity," she said.

"For large amounts of red meat, the WHO says there's increased risk of bowel cancer. And Australia has one of the highest instances of bowel cancer in the world."

The problem isn't just eating lots of red meat, but that we eat it in place of vegetables and nuts and grains, she said.

Either way you look at it, we need to reduce our meat consumption to ensure a healthier future, according to Mr Poore.

"In any scenario we'd have to have a reduction in meat certainly," Mr Poore said.

What the researchers recommend from their findings is an "integrated mitigation framework", using digital technology to monitor and improve farming practices.

Food producers would use the digital tools to monitor their own impacts, and these would be checked alongside environmental-target indicators set by policy-makers.

Given their research found huge differences in impacts between farms producing the same crop in close proximity to one another, they also argue that the framework needs to improve communication between producers.

Incentives in the form of tax breaks or credit would need to drive the improvement of indicators, and the impacts from each producer would need to be communicated through the supply chain, so that consumers can make informed decisions about the produce they buy.

Improving the decisions we make about producing and consuming food today, may mean we can have our steak and eat it too.



GIPHY: [You don't win friends with salad](#)

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