

A low-carbon diet for a healthy planet

To meet greenhouse gas emissions goals for 2050, we'll need to change our eating habits, researcher Zak Accuardi explains

BY EMILY GREEN
STAFF WRITER

If you want to significantly reduce your carbon footprint, it might be time to rethink your diet.

Agriculture is responsible for enormous quantities of greenhouse gases. Livestock production alone accounts for 15 percent of all human-produced emissions globally, according to the U.N.

But not all foods are carbon-emitting equals. By making informed choices at the grocery store, you can reel in your personal contributions to our planet's rapidly changing climate.

Zak Accuardi recently completed a fellowship at Project Drawdown, where he focused on the impact of dietary choices on climate change.

Project Drawdown is a California-based coalition of more than 200 researchers, scientists, policymakers, students, activists and business leaders from around the world, assembled to research technological and social solutions to climate change.

"Climate scientists have done a really good job of highlighting what will happen if we don't act to reduce our emissions," Accuardi said. "But nobody has done a systematic accounting of what could happen if we use all of the knowledge we already have to apply technologies and policies – and individual behavior changes – that we know will have some kind of an impact."

This is a gap Project Drawdown intends to fill by disseminating research such as Accuardi's to communities around the world.

Accuardi is a Portland native who specializes in sustainable urban development. He earned his undergraduate degree in environmental engineering from Columbia University and his master's in technology and policy from Massachusetts Institute of Technology, and he's served as a consultant to World Bank – not a bad resume for a 26-year-old. Today he's a research analyst at TransitCenter in New York City.

Accuardi pored over available data on various foods to determine how they rank in

terms of greenhouse gas emissions. He not only examined emissions from an item's production, but also from processing, cleaning and transporting, and even whether or not it was refrigerated at the grocery store.

"All those activities have an environmental impact that we need to understand in order to fully account for the impact that food has on the environment," he said.

During an interview with Street Roots, Accuardi explained what a low-carbon diet looks like, what foods have the greatest impact on climate change, and innovations taking place in agriculture that might help us keep some of our favorite foods on the menu.

Emily Green: *How much of an impact does our diet have on climate change?*

Zak Accuardi:

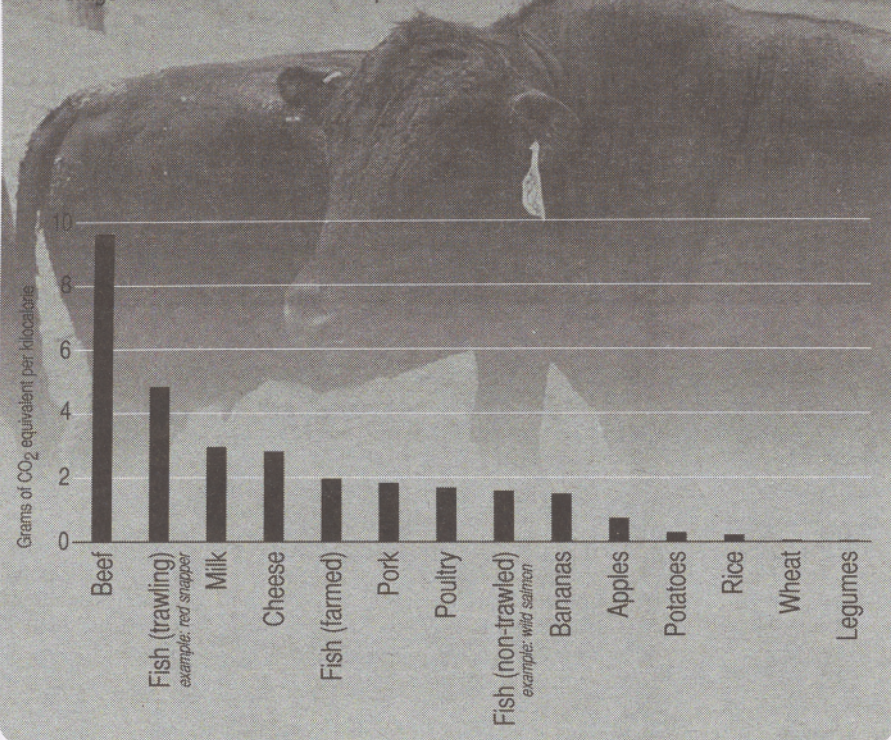
Estimates vary, but from the Intergovernmental Panel on Climate Change data, which is the leading authority on climate science, roughly 20 percent of our total greenhouse gas emissions come from either agriculture or livestock production and the changes in land use, which is often shorthand for deforestation. Twenty percent may or may not sound like a lot, but that's more than the entirety of the transportation sector – so cars and airplanes and freight transportation and boats. That's more than the entirety of the building sector, so all of the electricity and heating that

we use in buildings, and that's nearly as much as the entirety of the industrial sector – so everything that we make.

The 20 percent number, I find to be interesting, because a commonly articulated emissions reduction goal is that we need to reduce 80 percent of global emissions by the year 2050, so to me, this demonstrates that some very substantial behavior change will be necessary because even if we achieve complete carbon neutrality in every other sector – in electricity, building, heating, industrial energy use, transportation, fuel – if we're able to completely eliminate the emissions from all those sectors, we would still have to reduce our greenhouse gas

WHAT IS YOUR FAVORITE FOODS' CARBON FOOTPRINT?

Average relative carbon emissions per kilocalorie:



SOURCE: ZAK ACCUARDI

emissions from agriculture just by virtue of the fact that population in the world is going to continue to grow between now and 2050.

Some of the reductions we need to achieve will be possible by changing agricultural practices and livestock production practices, but that only gets us so far. I don't think anyone believes that we can achieve complete carbon neutrality in all of those sectors by 2050, so it's clear that we will need to make some substantial changes in our personal lives around diet.

E.G.: *Were there any particular countries whose diets were creating more carbon emissions than others?*

Z.A.: Absolutely. The tendency is wealthier countries tend to create higher emissions, and in part that's because affluence correlates with increased consumption of food products like beef, which is among the highest emissions producing. There are exceptions to that. Some regions have fundamentally different food availabilities, and many people are not even able to access sufficient nutrition to maintain their own personal health – the implications being it can be harder to compare countries side by side, because if you wanted to compare the U.S. with Ghana, for example, then you're looking at completely different context, completely different agricultural systems, totally different traditions around food and what is eaten.

E.G.: *Are there any countries where cultural aspects might make encouraging a lower carbon diet more of a challenge?*

Z.A.: It can go in both directions. For

example, one of the questions I had was: What is the existing adoption rate of vegetarianism or veganism internationally? And I mostly found there is very little data on that question, if any, that's really reliable. To the extent that I found anything, it was that India has, perhaps by far, the highest incidence of vegetarianism, and that's for cultural and religious reasons, and yet at the same time, India is one of the countries that the Food and Agriculture Organization of the U.N. projects to increase its meat consumption most dramatically over time. I think that's because in India – and the same would be true in China and other rapidly developing countries – as they get more wealthy, they are projected to increase their meat consumption.

E.G.: *I was surprised by how much more emissions come from beef than anything else. Can you explain how beef is creating so much greenhouse gas?*

Z.A.: Beef and lamb are ruminant animals, which is the technical term for multiple stomachs. And they, alongside sheep and goats, need to eat a lot more raw feed in order to gain an equivalent amount of body mass, and end up producing a lot more methane and manure as a result. They don't process the food that they eat very efficiently in the first place, and that biological food processing is the reason they produce so much methane. So any country that has high beef or lamb consumption is going to tend to have a higher emissions share.

E.G.: *What's the main source of emissions when it comes to cows? Is it all the land*

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