Eggs and chicken instead of beef reap major climate gains

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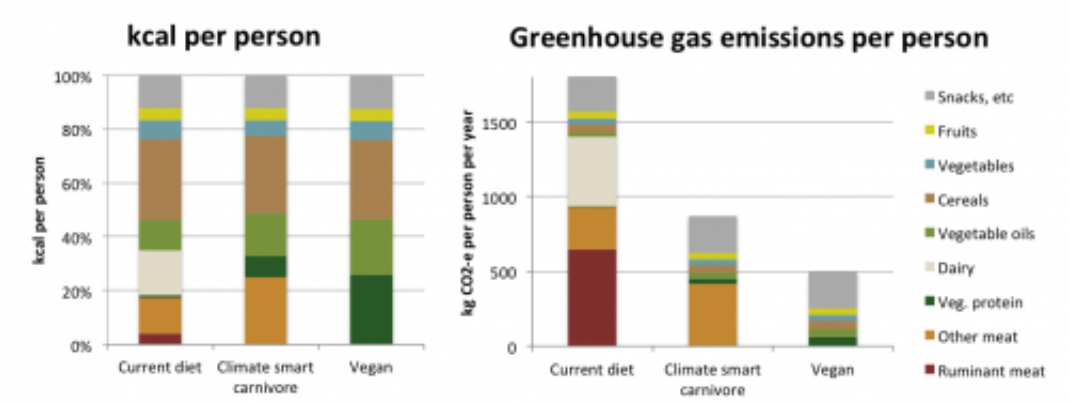

Energy intake and greenhouse gas emissions for different food types, and aggregate effects for different diets. The “current diet” refers to the average for Sweden. Smallest climate impacts are caused by the vegan diet, which consists entirely of non-livestock food. However, the major gain comes from reduced consumption of ruminants (beef and dairy). According to a previous study from Chalmers University of Technology, each person on earth can emit an average maximum of 2000 kg of carbon dioxide equivalents (CO2-e) annually by 2050, if we are to meet the 2 degrees target for the warming of the earth's average temperature. Credit: David Bryngelsson

Beef on our plates is one of the biggest climate villains, but that does not mean we have to adopt a vegan diet to reach climate goals. Research results from Chalmers University of Technology show that adopting a diet in which the protein derives from poultry is a smart and inexpensive way to reduce our impact on the climate.

Over the past 20 years, Europeans have increased their per capita consumption of beef by over 50 per cent. They have still not caught up with the U.S., but the trend all over the world is the same: an increasing number of people are eating an increasing amount of beef. This is a trend that runs counter to the goal of limiting the temperature increase to 2 degrees Celsius.

"Cattle ranching is already responsible for 15 per cent of the greenhouse gas emissions that humans cause. The diet we are accustomed to in wealthy countries is not consistent with our climate goals," says Chalmers researcher David Bryngelsson, who recently presented his doctoral thesis on land use, food related greenhouse gas emissions, and climate change.

Amongst other things, he has investigated various future scenarios to determine how the climate would be impacted if humans were to change their diet. People may have heard that that a vegetable diet results in less greenhouse gases. But David Bryngelsson's research shows that we can continue eating animal protein and still make a major contribution to the climate – if we replace beef with poultry and eggs, and cut down on our consumption of milk and cheese.

"Even people who eat an extremely protein-rich LCHF diet with chicken as the base make a greater contribution to the environment than vegetarians who consume a great deal of dairy products".

There might be ethical objections to the current chicken industry, but David Bryngelsson believes that climate gains will prevail even with more animal-friendly production methods (read more below).

Technical improvements in the production chain can to a certain extent also reduce the food industry's climate impact, but cattle are still the biggest problem. It is difficult to change the fact that they need a lot of

feed and that they release methane as they ruminate. Furthermore, forests are being devastated to make room for the increasing number of cattle, which also impacts the climate.

"Changing our consumption is the most effective way to reduce the impact food has on the climate, and my studies show that it would also make it much less expensive to reach climate goals on a global level compared to merely making changes in the energy and transport sector."

"Since around 70 per cent of all agricultural land is currently used to raise cattle, converting to a more energy-efficient diet of poultry would free up land for cultivation of for example bioenergy", says David Bryngelsson, who has also studied that possibility.

"It has been claimed that we can cultivate bioenergy on previously unutilised, less fertile land. My models, however, show that this would result in a poorly functioning market, where land owners ultimately earn more by planting bioenergy crops on their prime land instead of using it for our crucial vegetables as is currently the case. We quite simply have to accept that cultivation of bioenergy will compete with food production for prime farming land."

David Bryngelsson's studies show that a vegan diet is still the most climate-friendly, since plant based food is more efficiently produced than livestock based, but the greatest gains are to be had by discontinuing products from cattle. The benefits to the climate when moving away from a poultry diet to a vegan diet are relatively minor compared to moving away from cattle to poultry.

"We have done our calculations based on a diet similar to the one most of us eat today, but which is still greatly beneficial to the climate. You could say that chicken is like an electrical car – it is a better alternative, yet still very similar to what we are accustomed to. And greater demand

for alternative products such as vegan cheese will drive a development where they become even tastier. Poultry meat based meatballs already taste like traditional ready-made beef meatballs."

How large of a space domesticated poultry has to move around in does not impact greenhouse gas emissions to any great extent; rather, the issue pertains more to cost. For example, if chickens are given a space that is five times larger, the space is still small in relation to the space required for feed production and will probably not noticeably affect the chickens' impact on the environment.

The difference between chicken and beef as regards area requirements and greenhouse gas emissions is so great that there is no doubt that the chicken leaves a smaller carbon footprint regardless of production method. This is because a hen can have around 150 chicks per year as compared to a cow that can give birth to not quite one calf per year, and because chicks grow extremely quickly and thus absorb a significantly greater proportion of their feed. Furthermore, cows belch large amounts of methane while chewing on their cud, which is something chickens do not do.

Intensity of emissions is basically the same for eggs and chicken meat. Eggs are thus also climate smart compared to beef and dairy products.

Provided by Chalmers University of Technology