

More veg, less dairy

Freiburg researchers have studied how changing their diet could influence the ecological footprint of Germans.

Natural resources for food are increasingly scarce around the world. Various political initiatives aim to reduce the ecological footprint of our food consumption over the coming years and help us avoid food waste. Working with colleagues, Hanna Helander from the Chair of Societal Transition and Circular Economy has investigated the environmental impact of different diets and how they relate to the avoidance of waste here in Germany. Her results show that switching to a plant-based diet could significantly reduce the ecological footprint in Germany. Her study has been published in the journal *Environmental Research Letters*.

The Federal Republic of Germany has set itself the goal of halving food waste in distribution and consumption by 2030. In their analysis the researchers looked at three scenarios for a nutritionally healthy plant-based diet and compared them. Firstly, they evaluated the recommendation of the German Nutrition Association which includes consumption of meat. Secondly, they studied the proposal of the EAT Lancet Commission for a diet that does not exceed the Earth's limits, and still allows a little meat. The EAT Lancet Commission is an association of 37 scientists from around the world, who research how a future population of ten billion people can eat healthily and yet within the ecological resources of the Earth. Thirdly, Helander and her colleagues looked at a vegetarian version of the EAT Lancet diet.

Using an algorithmic model for food and agriculture, the team calculated the footprints for the biomass, farmland and 'blue water' needs of the global supply chain for each diet. 'Blue water' is the water used in industry and in domestic consumption for artificial irrigation or to manufacture products.

The results show that a reduced-dairy vegetarian diet is especially effective in shrinking the biomass footprint by up to 61 percent and the farmland footprint by up to 48 percent. Halving food waste would cut biomass and farmland footprints by 11 percent and 15 percent respectively. "Although a vegetarian diet can reduce the land used for food production by almost half, the influence on blue water is sadly very small. To decrease consumption of this it would be more helpful to reduce food waste," says Helander.

A vegetarian diet alone isn't the answer – on the contrary: the study shows that despite a smaller footprint a plant-based diet can even lead to more food waste, because it increases consumption of products that generate a greater proportion of food waste – for example potatoes, beetroot or cereals. "Political strategies that aim to minimize both the footprint of food consumption and food waste could be antithetical," Hanna Helander sums up. "Greater resource efficiency would best be attained by making maximum use of potential for reduction of every available strategy at the same time as taking the interactions of different strategies into account."

Press release

30-Apr-2021

Source: University of Freiburg

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