

Choose Plant-based Foods - Carefully - to Reduce Climate Change

Plant-based foods such as Impossible burgers and soy milk are clearly better for the environment than beef or cow's milk. Even among plant-based foods, though, there are differences in their environmental impact. Choosing the right ones can do more to help save the planet.

Plant-based Foods are Better for the Planet

The range of plant-based foods has continued to expand, and demand is growing. Around the world, according to the Good Food Institute (GFI), more than 800 companies either primarily focus on plant-based foods or have a business unit focused on such products. A multitude of research shows that these plant-based foods are better for the planet than animal alternatives.

The reason is that they use less land and water while producing fewer greenhouse gas (GHG) emissions. Transitioning toward plant-based diets could reduce global food-related greenhouse gas emissions by between 29 percent and 70 percent, according to a study led by University of Oxford researcher Martin Springmann. More specifically, the UK National Food Strategy said that plant-based proteins such as soy, lentils and chickpeas produce about 70 times less GHG emissions than beef.

Growing plants also takes much less land than raising animals. Animal agriculture takes up 77 percent of all agricultural land on earth, according to GFI, despite supplying only 17 percent of humanity's food supply.

On the plant-based meat front, according to the GFI, "even after accounting for the processing required to turn plants into plant-based meat, every study to date finds that replacing conventional meat with plant-based meat substantially reduces every environmental impact measured." A 2020 study published in *Frontiers in Sustainable Food Systems*, for instance, showed that plant-based meats use 41 percent less land than fish farming, 77 percent less land than poultry and 98 percent less land than beef. And at a time of increasing scarce water, Centre for Biological Diversity director Stephanie Feldstein told Reader's Digest that "the most popular plant-based alternatives, Beyond and Impossible burgers, reduce water use by 87 percent to 99 percent."

Research shows similar results for milk. Cow's milk causes around three times as much greenhouse gas emissions, according to Our World in Data, and uses around ten times as much land. A study at Oxford University shows that producing cow's milk uses at least three times as much water as producing plant-based milk.

To mitigate climate change, then, shifting to plant-based foods is indeed essential. New York University assistant professor Matthew Hayek and Harvard Law School policy fellow Jan Dutkiewicz wrote in *Vox* that even if we reduce energy emissions down to zero, demand for meat and dairy alone could make us exceed critical levels of global warming. "That makes shifting diets away from (animal) meat a critical tool in preventing global temperatures from rising above 1.5°C or 2°C by 2100."

Not all Plant-based Foods are the Same

While virtually all plant-based foods are better for the planet than animal alternatives, companies use a variety of plants to produce them. The climate impacts of those different plants vary significantly.

As Impactful Ninja writer Quynh Nguyen noted, soybeans, a key ingredient for Impossible burgers, are one of the least sustainable plant-based foods because of their extensive land usage. Soy is also often produced in intensive monoculture forms that devastate ecosystems such as the Amazon rainforest.

If it comes down to a Beyond Burger or a bean burger, University of Oxford environmental scientist Marco Springmann told Popular Science, Beyond has a massively greater negative environmental impact – even though its main ingredient is peas.

One solution, according to social movement platform Global Citizen, is to replace meat with tempeh or seitan. These meat alternatives work well because they absorb other flavours, have the chewy textures people crave and contain high levels of protein. Tempeh is made from fermented beans and seitan from wheat gluten. Bean, lentil and mushroom burgers are also good alternatives because crops like beans and lentils improve the health of soil and use far less water and land than livestock. And there are other advantages to these ingredients too. As New York Times writer Tejal Rao wrote, “patties made with black beans, tofu, mushrooms or a combination are infinitely more delicious than (other) plant-based meat substitutes.”

There are differences among milks, too. Whereas a litre of soy milk requires 297 litres of water to produce and creates 0.975 kilograms of carbon dioxide (CO₂) emissions, according to the Climate School at Columbia University, producing a litre of oat milk requires 48 litres of water and creates 0.90 kilograms of CO₂ emissions. That said, the choice is complicated. While all non-dairy milks are much better for the environment than cow’s milk because they use less land and water while generating less greenhouse gases, almond milk produces the lowest greenhouse gas emissions yet it requires the more water than any other vegan milk. Soy milk uses the least water, with only slightly higher emissions.

Become a Climatarian

Becoming a vegetarian or vegan can be a straightforward process of simply choosing plant-based meat, eggs, dairy and other foods. Becoming a climatarian who eats plant-based foods and also takes climate change into account may require more challenging choices than one might expect. The ingredients in plant-based foods do matter.

Regardless of what you choose, though, eating plant-based foods is a more sustainable choice that can improve the well-being of the planet by reducing CO₂ emissions, land use and water use. A variety of digital health companies and non-profits have meal plans and recipes, which helps with making the right choices.

Still, shifting to a true climatarian lifestyle may lead one beyond just looking for plant-based foods and towards choosing ones that have fewer negative effects on climate change. Being careful, reading labels to find the ingredients on plant-based foods and selecting the right ones can have a huge impact.