



BENEFITS OF A MEATLESS DAY FOR CLIMATE AND WATER

Meatless Monday began in 2003 with a simple message: “One day a week, cut out meat.” Since then, the public health campaign has grown into a global movement and has sparked civic engagement and participation by restaurants, hospitals, schools, and institutions in more than 40 countries — as well as by individuals who want to make a difference. Today, Meatless Monday remains committed to reducing meat consumption by 15 percent — for individual health and the health of our planet.

Our food choices have an impact on climate change. Because some agricultural practices produce more greenhouse gases than others, some diets are more climate-friendly than others. Animal foods play an important role in nutrition, particularly

for young children, but they tend to have a much larger climate footprint than plant foods. Meatless Monday is an established strategy to achieve more climate-friendly eating behaviors.

A 2020 study by the Johns Hopkins Center for a Livable Future (CLF), “Country-specific dietary shifts to mitigate climate and water crises,”¹¹ measured the climate and freshwater impacts of nine healthy (i.e., nutritionally viable) diets in 140 countries and compared them to the typical consumption patterns in those countries. One of those diets included a healthy meatless day, similar to that promoted by the Meatless Monday campaign. This brief highlights the environmental benefits of a healthy meatless day around the world.

A GLOBAL PERSPECTIVE

What is the global impact of a meatless day?

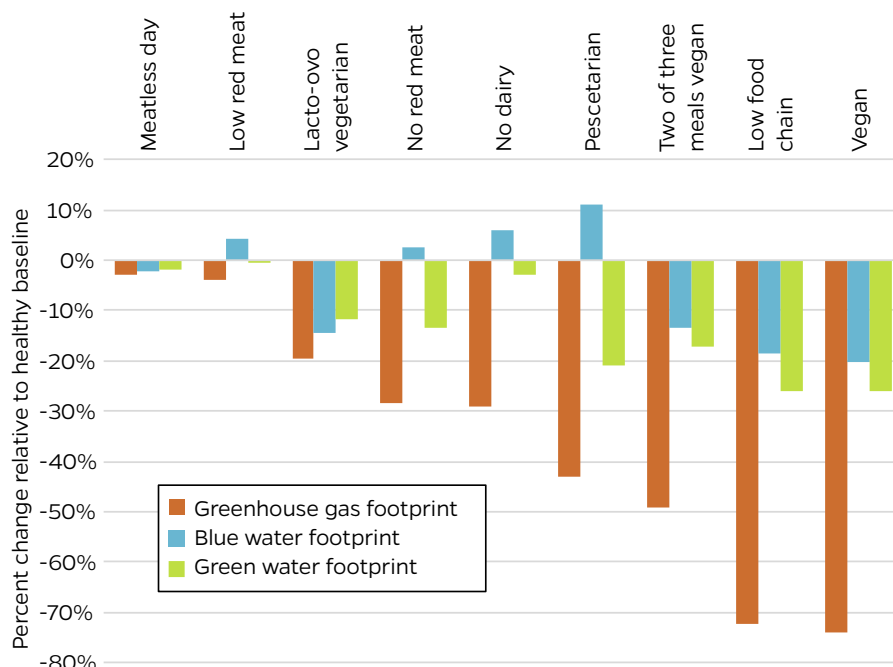
Figure 1 illustrates the potential net positive impact of shifting from typical healthy diets (“healthy baseline”) to various healthy plant-forward diets. The results shown in this figure are averaged over the 140 study countries.

Starting from a healthy diet, if everyone in the 140 study countries replaced meat and fish with other protein sources for one day a week, they could reduce global diet-related greenhouse gas emissions by an estimated 267 megatons per year.

This is equivalent to the annual climate impact of 251 coal-fired power plants. The annual blue water (freshwater used for irrigation) savings would be 17 trillion liters — almost equivalent to the volume of water in Oregon’s Crater Lake, the deepest lake in the United States at more than 1,100 feet on average.

A Meatless Monday can range from lacto-ovo to vegan, depending on participants’ preferences, but in the study the meatless-day diet referred to a lacto-ovo regimen. Figure 1 shows the benefits of that type of meatless day. The actual benefits of Meatless Monday are likely far greater than those shown for the meatless-day diet, as studies suggest that people who forgo meat one day a week are more likely to also eat fewer animal foods on other days of the week.²²

Figure 1: Per-person impact of shifting from a healthy baseline to healthy plant-forward diets, averaged over the 140 study countries



COMPARING THE CLIMATE IMPACT OF A MEATLESS DAY IN HIGH-INCOME COUNTRIES AND LOW- AND MIDDLE-INCOME COUNTRIES

Sustainable diets must be nutritionally viable

The study modeled impacts in not only high-income countries, where overnutrition is prevalent, but also in low- and middle-income countries, many of which have widespread undernutrition. For a diet to be sustainable, it must be nutritious as well as ecologically sound. For this reason, the study modeled the impacts of healthy diets. This meant adjusting calorie and protein intake to levels recommended by the World Health Organization and United Nations Food and Agriculture Organization. In some countries, especially low- and middle-income countries, the adjustments required adding more calories and protein, while in other countries, especially in high-income countries, reductions were needed.

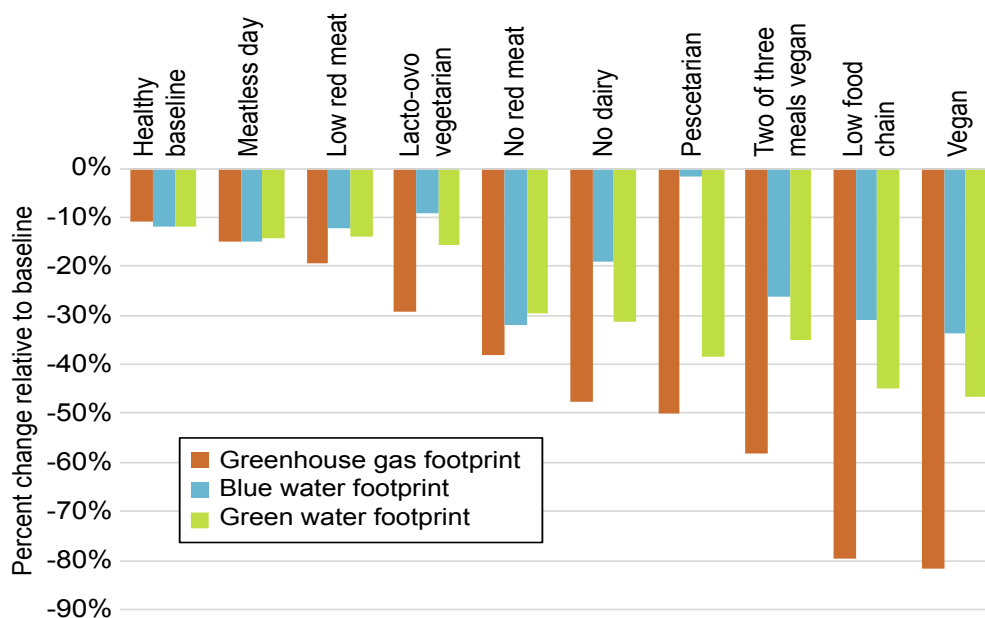
What is the impact of a healthy meatless day in high-income countries?

According to the CLF study, the environmental impacts of following a healthy meatless day varied by country. The per-person impacts were greatest in high-income countries, where people often consume much more animal protein than they need.

Figure 2 shows how much a person’s diet-related climate and freshwater impact changes when they shift from the typical consumption pattern in their country (“baseline”) to various healthy plant-forward diets. The results shown in this figure are averaged over the 77 high-income countries² included in the study.

On average, following a healthy meatless day in high-income countries reduced annual greenhouse gas emissions by an estimated 304 kilograms per

Figure 2: Averaged across 77 high-income countries, per-person footprints were reduced – compared to typical diets (baseline) – by anywhere from 10 to 80 percent with a shift toward plant-forward diets.



person. This is equivalent to the climate benefit of burning 332 fewer pounds of coal or using 34 fewer gallons of gasoline. A healthy meatless day in those countries also saved an estimated 18,335 liters of blue water (freshwater used for irrigation) per person per year, equivalent to the amount of water used if someone took a shower for 38 hours.

What is the global impact of shifting to a healthy meatless day in low- and middle-income countries?

In many low- and middle-income countries, particularly some of the most populous countries such as India and Indonesia, baseline diets are deficient in protein and/or calories. In these countries, eating more animal-sourced foods can help meet essential protein goals, especially for children under two years of age. Providing the additional nutrients needed by these populations would require increased food production, and thus a larger climate and water footprint.

It is incumbent upon those in high-income countries to reduce their climate and freshwater impacts so that low- and middle-income countries can achieve adequate nutrition while the global climate burden is still being reduced. As we see in Figure 2, high-income countries can use strategies such as Meatless Monday to make dramatic, positive changes and provide room for low-income countries to become better nourished while also adopting climate-friendly eating behaviors.

In countries where undernutrition is widespread, campaigns such as Meatless Monday can play an important role in emphasizing nutritious and sustainable food choices.

CASE STUDIES FROM AROUND THE WORLD

WHAT IS THE IMPACT OF ONE PERSON DOING ONE MEATLESS DAY PER WEEK IN DIFFERENT COUNTRIES?

The environmental benefits of replacing meat and fish with other protein sources for one day a week for a year vary by country. Why? There are several factors, including: differences in typical dietary patterns, the foods that people use as substitutes for meat and fish, where the food in that country comes from, and how it is produced.

Figure 3 shows the reduction in greenhouse gas emissions achieved by people in 12 different countries by forgoing meat and fish once a week. Figure 4 shows the conservation of blue water from a meatless day. (These figures presume that on the meatless day, the person adopts a vegetarian diet that includes eggs and dairy.)

As we can see from the figures, switching to a vegetarian diet one day a week can significantly reduce the climate footprint in many countries. Meatless Monday can play a role in achieving that positive impact. For instance, if a person in Denmark were to observe a meatless day once a week for a year, it would reduce their greenhouse gas emissions by 107 kilograms, comparable to reducing yearly mileage by 262 miles in a typical US passenger vehicle. If a person in Chile were to do the same, it would reduce their annual greenhouse gas emissions by 360 kilograms, comparable to reducing yearly mileage by 880 miles.

Figure 3: Climate impact of one person following a meatless day

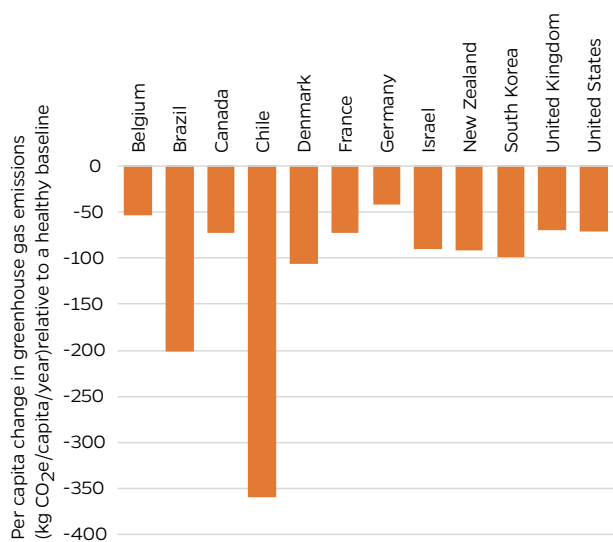
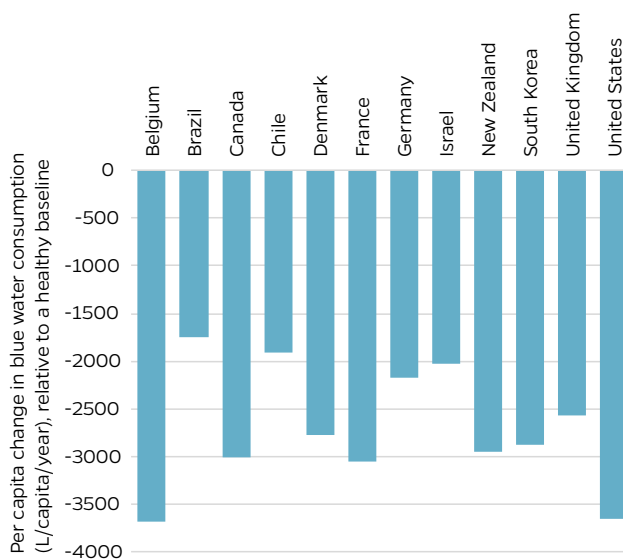


Figure 4: Freshwater impact of one person following a meatless day



What would be the impact if everyone in these countries followed a healthy meatless day each week?

Figures 5 and 6 show the greenhouse gas reductions and blue water conservation for each country if its entire population replaced meat and fish with other protein sources for one day a week. If the entire population of Brazil, for example, were to forgo meat and fish one day a week for a year, this would reduce that country's greenhouse gas emissions by 40 megatons per year. This is equivalent to the annual emissions from 10 coal-fired power plants. Meanwhile, if the entire population of the United States were to do the same, that would save more than a trillion liters of blue water per year. That is equivalent to 43 percent of the water used to irrigate golf courses across the US each year.

As these findings demonstrate, a meatless day, as promoted by the global Meatless Monday campaign, can provide substantial environmental benefits. These impacts can be even greater if the people who forgo meat and fish one day a week also eat fewer animal-sourced foods on other days of the week.²

Summary: Meatless Monday can be a gateway for positive change

Going meatless one day a week is a powerful first step toward addressing climate and freshwater crises. It is not the “end of the road” or a fixed dietary choice, but rather a strategy that may lead consumers to incorporate more plant-based foods and meatless meals throughout the week.

Figure 5: Climate impact of a whole country following a meatless day

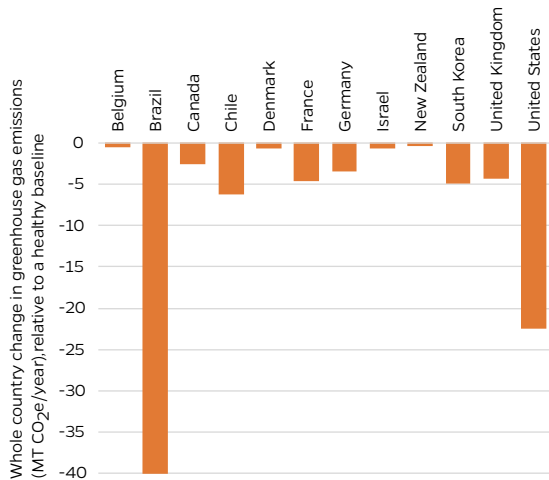
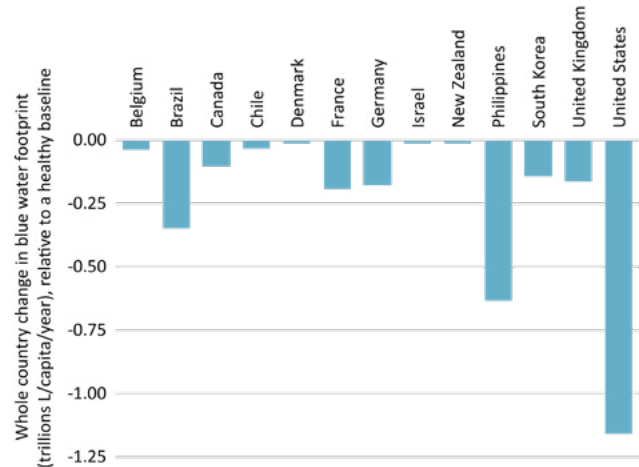


Figure 6: Blue water impact of a whole country following a meatless day



1 Kim BF, Santo RE, Scatterday AP, Fry JP, Synk CM, Cebon SR, Mekonnen MM, Hoekstra AY, de Pee S, Bloem MW, Neff RA, Nachman KE. 2020. Country-specific dietary shifts to mitigate climate and water crises. *Global Environment Change*.

2 Meatless Monday and the Johns Hopkins Center for a Livable Future. 2019. *Meat, Menus and Meatless Monday*

Supplementary info: Country-specific reductions in GHG emissions and blue water footprint associated with shift from healthy diet to healthy meatless day

Country	Per capita reduction in GHG emissions (kg CO2e/year)	Whole country reduction in GHG emissions (kg CO2e/year)	Per capita blue water footprint reduction (L/year)	Whole country blue water footprint reduction (L/year)
Belgium	53	587,772,145	3,676	40,640,185,841
Brazil	201	40,021,461,988	1,745	346,610,698,659
Canada	73	2,545,075,335	3,012	104,920,905,963
Chile	360	6,288,894,009	1,909	33,342,174,379
Denmark	107	597,313,922	2,772	15,517,566,045
France	73	4,641,078,841	3,054	195,279,282,691
Germany	42	3,513,707,201	2,171	179,732,248,400
Israel	90	689,602,512	2,030	15,505,407,084
New Zealand	91	405,989,293	2,942	13,122,793,473
South Korea	99	4,840,424,462	2,880	141,115,003,318
United Kingdom	70	4,393,338,262	2,568	161,836,857,676
United States	71	22,534,271,816	3,651	1,159,177,842,736