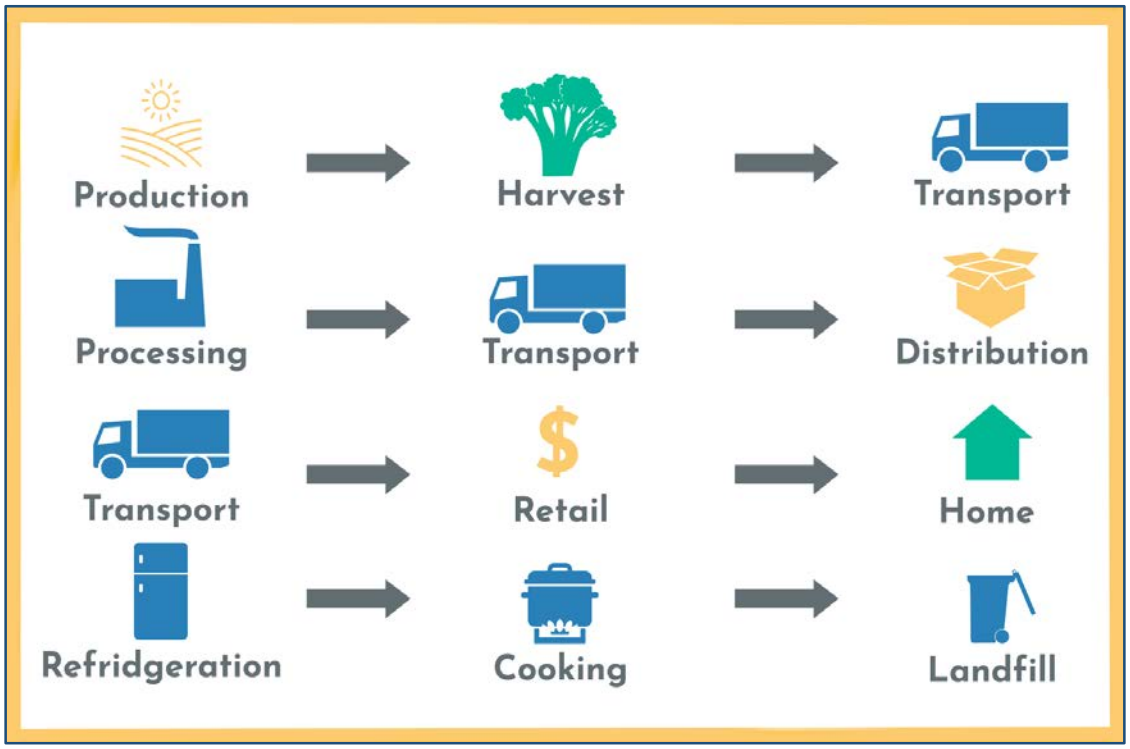
HEALTHY & SUSTAINABLE DIETS - Mindful Climate Action

What you eat affects two things: your health AND the health of the planet. In this unit, we discuss the greenhouse gas emissions that accompany our food choices.

When we talk about the carbon footprints of food items, the most important thing to keep in mind is how the item was produced. Although the distance it traveled to get to you ("food miles") seems important, unless the food came via air freight, the food miles contribute only a small amount to the carbon footprint.

To understand how carbon footprints work, let's consider frozen broccoli in a grocery store. Where did this broccoli originate? Most likely it was grown and harvested on a farm, transported via a truck to a processing center, and then sent to a distribution center near you. The series of steps involved in food production, transport, and purchase is called the FOOD SUPPLY CHAIN.



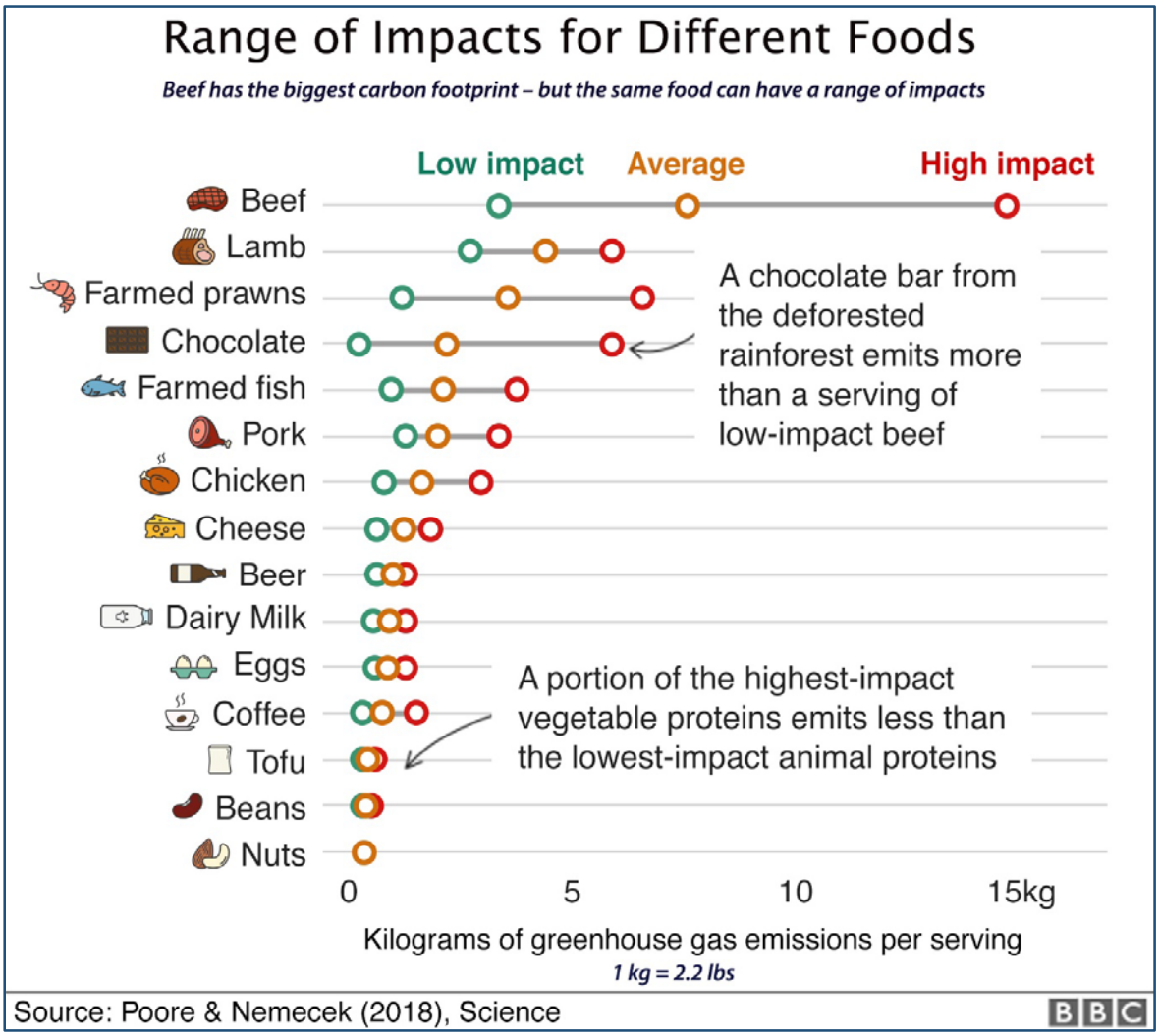
Food supply chains are complicated! Here are three things to remember about them:

1) Food supply chains can have a lot of steps. If you grow your own food or buy it from a local farmer, you cut some of these steps.
2) Greenhouse gases, (carbon dioxide, methane, and nitrous oxide) are produced at each step.
3) The amount of greenhouse gases produced is different for different foods. In fact, the amount may even be different for the same food at different times of the year.

If you do the supply chain math for different foods, you will discover some trends. First, plant-based diets usually have the lowest greenhouse gas emissions. Second, red-meat in a diet pushes the emissions to the

highest levels. And third, dairy products such as milk or cheese also push up the emissions, because these products originate from animals such as cows or goats.

Food supply chain math suggests that **you can lower your carbon footprint by eating less meat**. No need to become a vegetarian. Just eat more plants – fruits, vegetables, and whole grains. Mix and match. This is healthier for your body too. When you do eat meat, eat less beef and lamb. For example, you might select chicken, turkey or pork. Beef has the biggest carbon footprint, but where and how your food is produced is important, as the same food can have huge differences in environmental impact. Below is a graphic that illustrates the relative carbon footprint of different foods and the range of impacts for each food.



https://www.bbc.com/news/science-environment-46459714

The U.S. Environmental Protection Agency (EPA) publishes an annual report called the Inventory of U.S. Greenhouse Gas Emissions and Sinks. Data from the 2016 EPA report reveal that two greenhouse gases dominated agricultural emissions: nitrous oxide (54%) and methane (45%). Carbon dioxide, the greenhouse gas from fuel combustion in vehicles (think "food miles"), was much lower. Why? Nearly all of the emissions in food production (95%) come from three processes: agricultural soil management, fermentation in the guts of domesticated animals, and manure management.

Agricultural soil management releases nitrous oxide from the soil into the atmosphere through activities such as fertilizer application and other agricultural practices that increase nitrogen availability in the soil. All plant-based and animal-based products are associated with these emissions. Supporting agricultural research into efficient fertilizer use and soil biology can help reduce this.

Gut fermentation is a normal digestive process in some animals, including cows, sheep, and goats. During digestion, microbes resident in the animal's digestive system ferment the food eaten by the animal. Food products from cows, sheep, and goats all contribute to methane emissions. In 2016, beef cattle and dairy cattle accounted for 71% and 25% of methane emissions, respectively.

Manure management refers to capture, storage, treatment, and utilization of animal manure in an environmentally sustainable manner. All animal-based food products involve manure and contribute to methane and nitrous oxide emissions. The processes by which these emissions arise are complex. Solutions are not simple: a change in an agricultural system can sometimes have unintended consequences.

Again, you can reduce these emissions by choosing to eat more plant-based products. According to Project Drawdown[1], business-as-usual emissions could be reduced by 63 percent for a vegetarian diet. In addition, Project Drawdown showed an annual $1 trillion savings in annual health-care costs and lost productivity!

Along with modifying our diets, we need to reduce our food waste. Project Drawdown ranked the top 100 actions by their potential to slow climate change. Eliminating food waste and shifting toward a plant-based diet rank 3rd and 4th on the list! And since everyone eats, everyone can make a difference. Shifting diets to plant-based foods and eliminating food waste are "low-hanging fruit" toward reducing carbon footprint.

The Mindful Climate Action (MCA) project has developed a new eco-impact calculator to measure food-related greenhouse gas emissions. Pairing the U.S. Department of Agriculture NHANES database with environmental impact records, MCA will be able to calculate food-related carbon footprint. MCA participants will fill out a Dietary Assessment Tool prior to the mindfulness course and once each season during the following year.

Food-related choices have the greatest potential for individuals to improve personal and planetary health. Consuming less red and processed meats will decrease your risk of heart disease and certain cancers. The same diet that protects your heart also protects the planet. With all the abundant food options in the United States, it's easy to find foods that are both good for your health and for the health of the planet.

FOR MORE INFORMATION, PLEASE VISIT https://www.fammed.wisc.edu/mca/

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[1] https://www.drawdown.org/solutions/food/plant-rich-diet