

GREAT DECISIONS

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HIGH SCHOOL

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TEACHERS:
CHECK OUT
THE BACK PAGE

SUSTAINABLE FOOD SYSTEMS

**CLIMATE
CONCERNS**

**WHY WE
WASTE**

**FIGHTING
BACK**

**HOW TO
WASTE
LESS**



BY LIZA SCHOENFEIN



WHAT DOES FOOD HAVE TO DO WITH CLIMATE CHANGE?

Composting is a way of recycling wasted food into a material that enriches the soil and helps crops grow. However, according to the US Environmental Protection Agency, only about 5 percent of food waste gets composted.

When you think about the causes of climate change, what are the first things that come to mind? Most discussion of this topic in the media tends to focus on the use of **fossil fuels**—things like [gas-powered cars](#), air travel, and coal-burning power plants. But here are a couple of facts worth noting: First, if every American reduced the amount of meat they eat by just 50 percent in 2025, it would slash **greenhouse gas** emissions as much as [grounding all domestic](#)

[flights for a year](#). And second, if the US reduced its total food waste by half, it would have about the same effect as taking more than [15 million cars off the road](#). In other words, the food we eat (and don't eat) can have a huge effect on climate change.

“The global food system, from production through to consumption, emits around one-third of total annual greenhouse gas emissions,” according to a study by the United Nations (UN) [Food and Agriculture Organization](#) (FAO).

“Food waste causes approximately half of this.” That’s more than a [billion tons](#)—and a trillion dollars worth—of food each year.

The good news? This is one area of the fight against climate change where individuals can make a big difference. In fact, the top two most effective solutions for reducing heat-trapping gasses in the atmosphere are reducing food waste and eating a plant-rich diet, according to [Project Drawdown](#), a leading resource for global climate solutions. And the

UN study backs that up: “Halving meat consumption and halving food loss and waste generation would result in a 43 percent reduction in global food waste emissions,” according to a [Carbon Brief report](#) on the study.

WHY IT MATTERS

Carbon dioxide (CO₂) and methane (CH₄) are among the gasses that trap heat in the atmosphere, which is why they’re referred to as greenhouse gasses. CO₂—created in large part by burning fossil fuels—is removed from the atmosphere by trees, grasslands, and other foliage as part of a natural cycle called **carbon sequestration**. That’s why **deforestation**—whether by land development, farming, or pasturing animals—plays such a detrimental role in the climate crisis. If there aren’t enough plants to capture and store CO₂, the gas remains in the atmosphere, where it further warms the planet.

Methane is created by fuel production, by livestock (cows, sheep, and other plant-eating mammals known as **ruminants**, which burp an alarming amount of CH₄), and by decaying organic matter in landfills—[particularly wasted food](#). Landfilled food waste is responsible for more methane emissions than other landfilled materials because it [degrades more quickly](#). It’s also “[28 times as potent as CO₂](#) at trapping heat in the atmosphere,” according to the EPA, which notes that food waste is responsible for [58% of CH₄ emissions](#) from municipal landfills.

But greenhouse gasses aren’t

the only problem. Uneaten food doesn’t just create greenhouse gases. It also squanders vital natural resources, including water, land, and the energy used for the food’s production, refrigeration, and transport. And for a growing global population where [one in eleven people is food insecure](#), there’s also a critical socioeconomic impact. In the US, where we toss out an estimated [400 pounds of food per person per year](#), [12.8 percent](#) of the population doesn’t have enough to eat.

“One in eight Americans are food insecure and at the same time up to 40 percent of food in our country is wasted,” says [Anya Obrez](#) of the National Resources Defense Council (NRDC). “We have a significant opportunity to redistribute this food and ensure it gets to peoples’ plates instead of sending it to landfills and incinerators.”

In fact, if just a third of the food that we throw out was given to people in need, “it would more

than cover unmet food needs across the country,” according to an NRDC [report](#).

FOOD WASTE FACTS

Americans throw out more than one-third of the food they buy, which adds up to a whopping 19 million metric tons. And the more people in a country, the more food is being thrown away. In China, the world’s most populous country, which has about four times as many people as the US, 91 million metric tons of food gets thrown away each year. It might seem logical to put the blame for all that waste on food service industries, supermarkets, and corporations, but that finger would be pointing in the wrong direction.

“The largest source of food waste is people in their own homes, who waste more than grocery stores, restaurants or any other single part of the supply chain,” according to a [report](#) called *Food Wastage*

THE DEBATE

SHOULD CITIES REQUIRE RESIDENTS TO COMPOST?

YES

- ✓ It’s just as easy to put food waste into a compost bin as it is to throw it in the garbage.
- ✓ The largest source of food waste is people in their own homes.
- ✓ Some cities have already seen success with these programs.

NO

- ✗ It will cost taxpayers too much for cities to offer separate bins and pickup services.
- ✗ Most people will keep throwing food in the trash anyway.
- ✗ It’s too hard to enforce the rule.





Nati Harnik/AP Image

Studies show that meat and dairy farming account for around 14.5% of greenhouse gas emissions, and beef has a bigger impact on the climate than any other foods, including other kinds of meat.

Footprint from the UN Food and Agriculture Organization.

Over 35 percent of what’s thrown away is fruit and vegetables, partly because people toss so much less-than-perfect produce and because produce in general is quick to spoil. (Next in line are prepared foods, followed by dairy and eggs.) Meat and seafood account for just 10 percent of wasted grub, but their environmental impacts are far more severe. One recent [study](#) indicates that burps (and, to a lesser extent, farts) from meat and dairy cows release about as much methane as the oil and gas industry.

Add to that the fact that cattle

need grassland to feed on, which leads to trees being chopped down. Plus, those bovines have to eat, and the crops that become their feed are usually treated with chemical fertilizer. Both the fertilizer and the animals’ manure release another greenhouse gas, nitrous oxide.

The crops that make up a plant-rich diet also contribute to climate change, but they use fewer resources and release fewer greenhouse gases. According to a [study](#) published in the journal *Nature* that looked at fifty years worth of research, “emissions per gram of protein for beef and lamb are about 250 times those of legumes,” and “twenty servings of vegetables

have fewer greenhouse gas emissions than one serving of beef.”

WHAT’S BEING DONE?

Recent efforts have been put in place to make restaurants, caterers, food retailers, and other parts of the food service industry less wasteful by making it easier for them to donate unused food. One reason they weren’t doing it in the past is because they were afraid of facing legal issues if someone who ate it got sick. The [Food Donation and Improvement Act](#), which President Joe Biden signed into law in 2021, helps protect those who donate—and those who help store and distribute the food.

There is no shortage of other initiatives, both domestic and international, from government-led programs and policies to nonprofit organizations and the UN, many of whom are working together toward the common goal of protecting our shared environment.

In 2015, the UN Department of Economic and Social Affairs developed the [2030 Agenda for Sustainable Development](#), a road-map that includes seventeen goals, including one that aims to reduce food waste by 50 percent by 2030. In September 2024, world leaders met at the UN to reaffirm the goals and create the [Pact for the Future](#), an agreement “to bolster global cooperation and adapt to current challenges effectively for the benefit of all and for future generations.”

Also in 2015, the USDA and EPA formed the [US Food Loss & Waste 2030 Champions](#) to encourage American businesses and organizations to come together to help achieve that shared goal of reducing food waste by half by 2030. Annual “milestone reports” record the progress of participants across the food **supply chain**.

Organizations including [ReFED](#), [World Wildlife Fund](#) (WWF), and Pacific Coast Collaborative are also working toward the goal of cutting the nation’s food loss and waste in half by 2030. [RefED Action Engine](#) has seven solutions it estimates could reduce food waste by 21 million tons each year. The WWF and ReFED, along with NRDC and the [Harvard Food Law Policy Clinic](#), also created the [US Food Waste Pact](#), a voluntary

THE DEBATE

SHOULD SCHOOLS SERVE MEATLESS LUNCHES?

YES	NO
✓ The climate impact of meat is much higher than plant-based foods.	✗ Kids should have the freedom to make their own choices.
✓ Raising livestock causes deforestation.	✗ Meat is the most reliable source of certain nutrients, including iron, vitamin B12, and protein.
✓ Eating more plant-based meals is good for our health.	✗ It would be harder for schools to plan a varied menu.

agreement among food producers, manufacturers, and retailers to help them work together by identifying, measuring, and achieving specific targets in the common objective of reducing food waste across the country.

WHAT YOU CAN DO

“On average, an American consumer wastes twenty pounds

of food each month,” says Obrez of the NRDC. “There are small steps you can do in your daily lives—from the grocery store to the kitchen—that can make a big difference.”

To help people reduce food waste at home, the NRDC launched a national campaign called [Save the Food](#), which provides practical tips and tools



Studies show that Americans eat around three burgers per week. If each person ate one less burger per week, it would lower greenhouse gas emissions the same as removing 12 million cars from the road.



Jim West/Alamy Images

Many communities offer local programs where people can donate or compost unwanted food.

for minimizing waste and making the most of what you have. Here are a few you can try for yourself:

Make a List

The best way to make sure your household isn't going to end up tossing 40 percent of your groceries is to start with a list rather than impulse buying at the supermarket. Think about what your family actually consumes every week and what you end up tossing, then make a commitment to buy less of the latter or figure out together how to use it up.

Rethink Sell-by Dates

“Many consumers look at a container of food, see that the date on the package has passed,

and decide to trash it rather than risk getting sick,” says Obrez. “However, food safety is not what so-called ‘expiration dates’ are

usually conveying.”

“Use by,” “best by,” and “sell by” all mean different things—and not one of those terms is

THE DEBATE

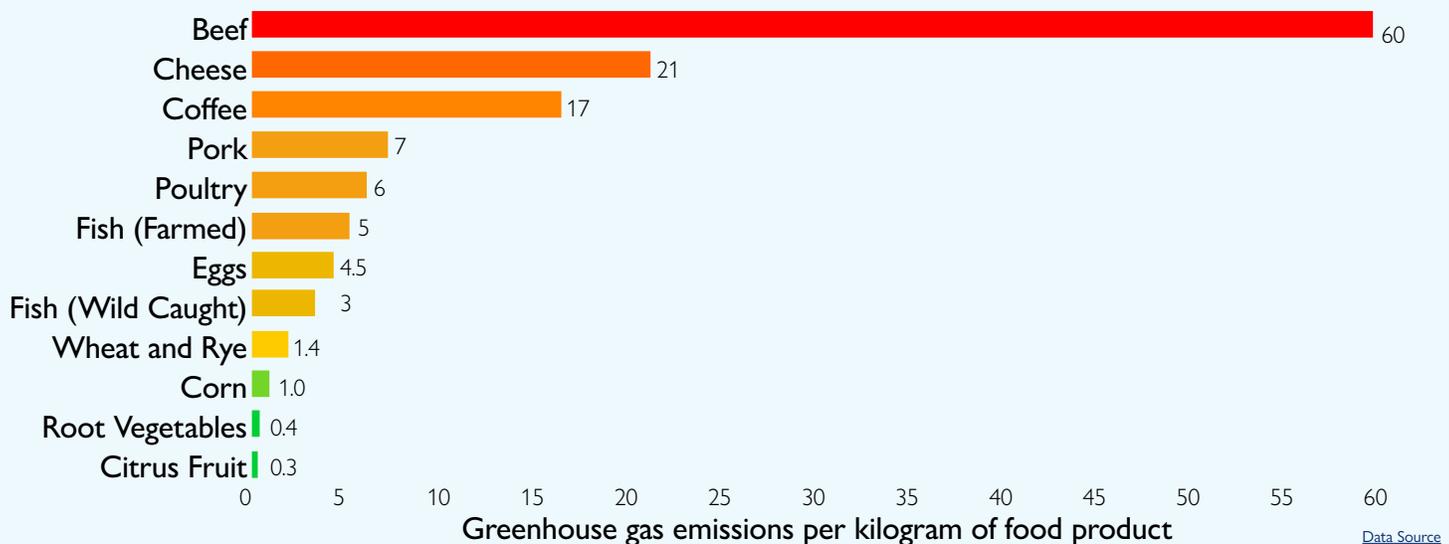
SHOULD GOVERNMENTS PASS MORE LAWS TO REDUCE FOOD WASTE?

<p>YES</p> <ul style="list-style-type: none"> ✓ Legislation is an effective way to create widespread changes such as better food labeling. ✓ Companies and individuals are more likely to comply with laws than with guidelines or suggestions. ✓ Climate change is the most pressing issue of our time, so politicians should focus on it. 	<p>NO</p> <ul style="list-style-type: none"> ✗ What we do in our homes and private businesses should be up to us. ✗ Laws to reduce food waste will be too hard to enforce. ✗ Politicians should on bigger problems such as corporate waste and fossil fuel emissions.
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Igor Normann/Shutterstock

FOOD GREENHOUSE GAS EMISSIONS ACROSS THE SUPPLY CHAIN



considered a “safety date,” according to the [USDA](#) (except in the case of baby formula). “Use by” is when the manufacturer thinks a food’s quality may start declining. “Best by” indicates when the food is at its peak. And “sell by” is when stores are supposed to take the item off the shelf. So before you decide to toss an “expired” box or can of perfectly good food, give the contents a look and a sniff, then use your best judgment—with help from [this chart](#).

Keep Food Fresh Longer

Knowing the right way to store fruits and vegetables can extend their life by days or even weeks. A food-preservation “cheat-sheet” like [this](#) one shows which kinds of produce can be stored together, what needs to be separated, whether and how food should be wrapped, and where to keep it to maintain highest quality for the longest period of time.

Donate and Compost

These are two great ways to keep

food out of landfills. If you notice that your pantry is stocked with items no one’s eating, it might be worth asking if you can run them down to a local church or food pantry. And whether you live in a rural, suburban, or urban area, find out how your community is composting and encourage your family to get in on the action. Check out [this article](#) for tips and information.

Get Your School Involved

If your high school doesn’t already have a food-focused conservation club, there’s no better time to start one. Your first priority should be getting a sense of how much food in your cafeteria is going to waste, which can be achieved by conducting a food waste **audit**. To find out how this is done, Obrez recommends a resource from the WWF called [the Food Waste Warrior Toolkit](#). Another good idea is to ask about establishing a community garden where students can help grow food.

USE IT BEFORE YOU LOSE IT

Before throwing food away, ask yourself these two questions:

- 1. Will it freeze?** The freezer is so much more than a place for ice cubes and popsicles. It extends the life of leftovers and anything else that might otherwise go bad before you have a chance to chow it down. [Organized and used properly](#), the freezer makes meal prep easier too, because all sorts of ingredients are right there waiting to be used.
- 2. Will it smoothie, omelet, or soup?** This is the question to ask yourself when you see fruit, vegetables, and other ingredients in the fridge or on the counter starting to look less than fresh. If the answer is yes, pull out that blender, pan, or pot. You know where your next snack is coming from.



Grizelda/ CartoonStock.com

BARGAIN SHOPPING

1. What is this cartoon trying to say? Why do you agree or disagree?
2. How do you think the woman in the cartoon thinks about the sign? Why?
3. How much blame, if any, should grocery stores receive for encouraging people to buy more food?

NOW IT'S YOUR TURN TO MAKE GREAT DECISIONS

1. Why do you think so many people are resistant to reducing how much meat they eat? What could be done to change their minds?
2. What are some things governments and organizations could do to encourage people to waste less food?
3. **YOUR STORY:** What changes has the climate crisis encouraged you to make to your own diet, if any?

KEY WORDS & TERMS

audit	deforestation	ruminants
carbon dioxide	fossil fuels	supply chain
carbon sequestration	greenhouse gas	
compost	methane	



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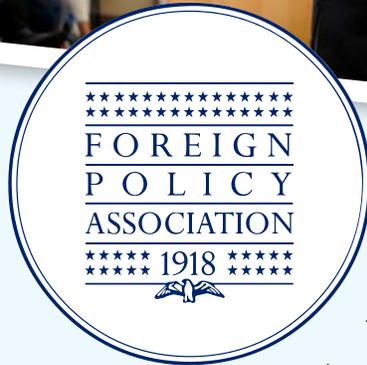
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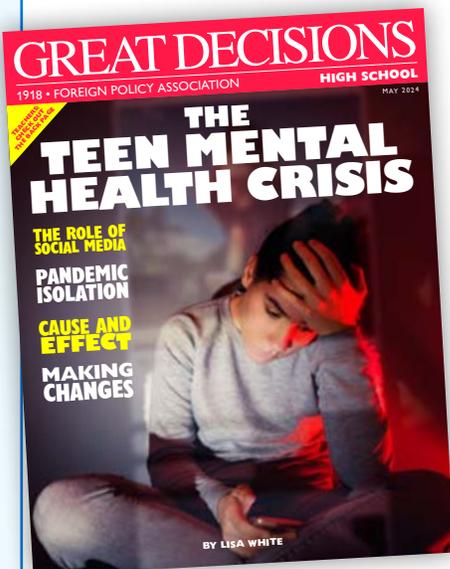


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