



# Mushroom Sustainability

**Today**, consumers are beginning to use one more guideline to determine how to spend their food dollars: sustainability. The public is increasingly curious about where and how their food is produced and what impact it has on the environment. And for good reason. The world's population is rapidly expanding, and it's estimated there will be over 9 billion people on the planet by 2050.<sup>1</sup>

The lines between health and sustainability are beginning to blur. A healthy diet should include food choices that respect future accessibility to nutritious food and overall global health. As food and nutrition experts, you can lead the charge to educate the public on the importance of making sustainable and healthy food choices and guide your clients how to promote sustainability using their own forks.

## 5 Ways to Eat More Sustainably

### 1. Choose a variety of plant-based foods.

The higher the demand for fruits and vegetables, the higher the supply and the more diversified the farm landscape. Plant-based choices are beneficial not only for health but also for the environment. Encourage your clients to add an extra serving of vegetables, like mushrooms, to their day or try one meatless dinner each week.

### 2. Look for local.

Local foods found at your farmers market or grocery store tend to be fresher, more flavorful, more nutritious and, oftentimes, more cost efficient. Plus, spending food dollars on local produce helps to support smaller farmers and your community. Educate your clients on the vast benefits of eating locally.

### 3. Reduce meat consumption with The Blend™.

The 2020-2025 Dietary Guidelines for Americans encourage healthy eating patterns that are low in saturated fat and sodium, and high in a variety of vegetables. For clients interested in reducing meat consumption, encourage them to try The Blend™, a nutritious and sustainable option that replaces a portion of meat with mushrooms to improve the flavor and nutrition of favorite recipes like burgers, meatballs and tacos.<sup>2</sup>

### 4. Eat Mindfully.

In the U.S., food waste is estimated at one third of the food supply. This waste generates greenhouse gases that negatively impact the environment.<sup>3</sup> Give your clients suggestions on how to reduce food waste like repurposing or freezing leftovers or eating more mindfully. By slowly savoring food and tuning into feelings of hunger and fullness, your clients may realize they can refine their portion sizes and purchase less. Mindful eating can also help clients honor their food, where it came from and the people who produced it, cultivating gratitude and appreciation for our food system and the environment.



## 5. Choose Mushrooms.

The mighty mushroom is not only healthy on the plate, it's also gentle on the planet, according to a new study measuring the water, energy and carbon emissions required to grow and harvest fresh mushrooms in the United States. [The Mushroom Sustainability Story: Water, Energy and Climate Environmental Metrics 2017](#) study is the result of a two-year initiative to document mushroom production environment metrics at 21 facilities nationwide that are responsible for one-third of the U.S. fresh mushroom crop.

Researchers collected data for all steps of the mushroom production process, including composting, spawning, casing and pinning, and harvesting. The study finds production of a pound of mushrooms requires only 1.8 gallons of water and 1.0 kilowatt hour of energy, and generates only .7 pounds of CO<sub>2</sub> equivalent emissions. In addition, the annual average yield of mushrooms is 7.1 pounds per square foot, meaning up to 1 million pounds of mushrooms can be produced on just one acre.<sup>4</sup>



**INTERESTED IN LEARNING MORE ABOUT THE MUSHROOM SUSTAINABILITY STORY STUDY?**  
READ THE KEY FINDINGS BELOW THAT SUPPORT MUSHROOMS BEING ONE OF THE MOST SUSTAINABLE FOODS AROUND.

### Water Required is A Fraction Compared To Other Foods<sup>4</sup>

The study calculated the overall water footprint per pound of production by collecting information on fresh water applied, precipitation and water embedded in the composting ingredients. The 1.8 gallons of water required to produce a pound of mushrooms is a fraction of water inputs required for many other foods.

### Keeping Co<sub>2</sub> Emissions and Energy Footprint in Check<sup>4</sup>

To determine the 1.0 kilowatt hours (kWh) energy usage per pound of mushrooms, researchers calculated energy consumed during harvest by converting fuel use by type into kWh, then combined with kWh of electricity use. CO<sub>2</sub> equivalent emissions were calculated by tracking total emissions from electricity and fuel used for composting equipment and growing operations e.g., equipment, heating, cooling, etc.

### Mushrooms' Small Growing Space Conserves Soil, Nets High Yields<sup>4</sup>

The study calculated the average yield per square foot by measuring more than 42,000 square feet of mushroom production area. Each year, growers are able to produce millions of pounds of mushrooms on just a few acres of land. In addition, the soil used to produce mushrooms is made of composted materials. After mushrooms are harvested, the soil is recycled for multiple uses, including potting soil. The 7.1 pounds of mushroom yield per square foot is achieved in part because mushroom beds are stacked vertically in growing facilities, allowing a high volume of mushrooms to be grown in a relatively small space.

### How Fresh Mushrooms are Grown

Last year, U.S. growers produced more than 946 million pounds of fresh mushrooms. Mushrooms' growing process is one of the most unique stories in agriculture. For example, mushroom production is naturally sustainable, as inputs to the composting process are primarily recycled materials and agricultural byproducts. Mushrooms are grown indoors on a year-round cycle.



To produce most varieties, growers mix mushroom spawn with composted organic materials that is then transferred to several hundred beds or trays. A casing made of peat moss is spread over the bed to hold in moisture. During this pinning stage, pins of mushrooms push through the casing. Mushrooms are ultimately harvested by hand throughout this 16- to 35-day cycle.

## 5 Ways to Add Mushrooms to Your Plate

Eating sustainably with mushrooms has never been easier. Thanks to mushrooms' versatility, you can eat healthy and be gentle on the planet for breakfast, lunch and dinner. Help your clients learn how they can add mushrooms to their diet.

1. Add mushrooms to your morning egg scramble for a boost of umami flavor.
2. Take your toast to the next level with mushroom toast for a snack. It's as simple as it sounds: sautéed mushrooms + herbs + toast.
3. Make a burger with The Blend! Replace 30% of meat with mushrooms for a moist burger that's lower in calories, saturated fat and sodium.<sup>4</sup>
4. Try mushroom fajitas! Use slices of sautéed portabella mushrooms to add meaty texture and flavor to the dish.
5. Make a mushroom Bolognese! Chop mushrooms finely to match the consistency of ground beef and add to tomato sauce for a satisfying pasta dish.



**FOR MORE DETAILED INFORMATION, THE MUSHROOM COUNCIL® PROVIDES AN OVERVIEW OF THE MUSHROOM GROWING PROCESS, AS WELL AS THE NUANCES FOR GROWING SOME OF THE MORE POPULAR VARIETIES.**



<sup>1</sup> Food and Agriculture Organization of the United Nations. Dietary Guidelines and Sustainability. <https://www.fao.org/nutrition/education/food-dietary-guidelines/background/sustainable-dietary-guidelines/en/>

<sup>2</sup> Myrdal, A., Mills, K., Wong, T., Drescher, G., Lee, S., Sirimuangmoon, C., Schaefer, S., Langstaff, S., Minor, B. and Guinard, J. 2014. "Flavor-enhancing properties of mushrooms in meat-based dishes in which sodium has been reduced and meat has been partially substituted with mushrooms." Journal of Food Science, 79: S1795-S1804 <https://pubmed.ncbi.nlm.nih.gov/25124478/>

<sup>3</sup> Buzby, P. by J. (2022, January 24). Food waste and its links to greenhouse gases and climate change. USDA. Retrieved January 27, 2023, from <https://www.usda.gov/media/blog/2022/01/24/food-waste-and-its-links-greenhouse-gases-and-climate-change>

<sup>4</sup> The Mushroom Sustainability Story: Water, Energy, and Climate Environmental Metrics, 2017 Report. <https://www.mushroomcouncil.com/wp-content/uploads/2017/12/Mushroom-Sustainability-Story-2017.pdf>

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