

Is a Vegetarian Diet the Most Sustainable?

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Overview

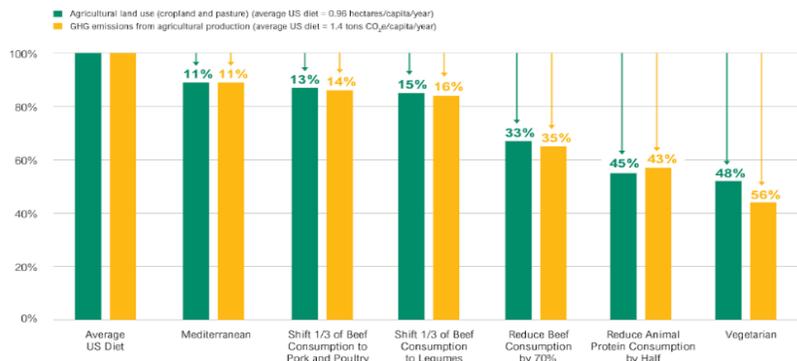
The level of sustainability is defined as the ability of the diet to satisfy the demands placed on the environment while simultaneously minimizing stress on the environment via agricultural processes.

When considering the sustainability of various diets, vegetarianism is the most sustainable because it excludes red meat, poultry and seafood. When animal products are eaten, there is energy transferred from plants to the animal then from the animal to humans. Meanwhile, consuming plants only involves an energy transfer from plants to humans. The number of energy transfers involved in a diet should be considered because there is an amount of energy lost with each transfer through the food chain; *fewer transfers of energy results in more efficient energy consumption and assimilation*. This diet also *reduces both greenhouse gas emissions related to agricultural production and the amount of land used for agriculture*.²

The Standard American diet includes extremely high amounts of animal-based and processed foods. This diet is based on unsustainable and inefficient agricultural processes. These production methods utilize valuable resources and the continuation of these practices would have negative repercussions on the environment.¹

The Mediterranean diet is known to be a more sustainable alternative to the standard American diet due to its decreased consumption of meat-based products and increased reliance on plant-based agriculture. This diet is also a more gradual shift away from a meat-based diet as compared to vegetarianism. However, a vegetarian diet is the most efficient, sustainable diet and utilizes less resources such as energy, land, and water.³

Shifting High Consumers' Diets Can Greatly Reduce Per Person Land Use and GHG Emissions



Evidence

The figure to the left demonstrates how different diets reduce the agricultural land usage (green) and greenhouse gas emissions from agricultural production (yellow) compared to the average US diet. A *Mediterranean diet shows only a 11% decrease in both* when compared to the Standard American Diet; however, *vegetarianism results in a 48% decrease of agricultural land usage and a 56% decrease in greenhouse gas emissions*.²

Arguments against Vegetarianism

Humans do not have four stomachs, a sufficient ability to break down cellulose, or the sort of complex intestinal tracts most leaf-eaters possess. Second, our teeth are designed to handle both meat and non-meat diets.¹

Tofu is normally substituted for meat in a vegetarian diet. Unfortunately, the quantities of land needed to make tofu are greater, the treatment and harvesting of the soya involves more fossil fuels, and the product often must be shipped great distances for distribution.¹

However, a vegetarian diet does not require the inclusion of tofu; therefore, the *benefits of reducing agricultural land and greenhouse gas emissions, as well as the energy efficiency of vegetarianism, outweigh the evolutionary disadvantages listed above*.

Compared to a Mediterranean Diet...

A Mediterranean diet involves high amounts of plant-based food, moderate amounts of fish/poultry and dairy, and sparse amounts of red meats. Meals are not centered around animal products, but rather complemented with small portions.³ Reduced meat and fish consumption results in an 11% decrease in agricultural land usage and greenhouse gas emissions.² *Limited animal-based food sources in this diet results in greater sustainability and less environmental stress* as the demand for animal-based foods decreases.

While the Mediterranean diet does decrease greenhouse gas emissions from agricultural production and land usage, the inclusion of meats and fish *does not reduce these two factors as much as a vegetarianism*. Also, heavy reliance on seafood could result in overexploitation of fish.³

Compared to the Standard American Diet...

30% of US land is used to raise livestock and the amount of grains fed to livestock could feed about 840 million people who follow a plant-based diet.¹ The exploitation of land and resources identifies this diet as very unsustainable for the environment.

Each American eats about twice as much protein as the recommended daily intake. Overconsumption of meat is therefore a large factor affecting sustainability.¹

Also, beef consumption is the most inefficient way to acquire calories and energy, yet is the most consumed animal product.¹ In order to lessen the number of energy transfers, *eating more food from organisms lower on the food chain, like plant-based product, would result in greater nutrient digestion and energy utilization*.

¹Pimentel, David. "Sustainability of Meat-Based and Plant-Based Diets and the Environment." *The American Journal of Clinical Nutrition*, The American Journal of Clinical Nutrition, 1 Sept. 2003, ajcn.nutrition.org/content/78/3/660S.full.

²Waite, Richard. "Sustainable Diets: What You Need to Know in 12 Charts." *Sustainable Diets: What You Need to Know in 12 Charts | World Resources Institute*, World Resources Institute, Apr. 2016, www.wri.org/blog/2016/04/sustainable-diets-what-you-need-know-12-charts

³Dernini, Sandro. "Mediterranean Diet: From a Healthy Diet to a Sustainable Dietary Pattern." *Frontiers in Nutrition*, Frontiers Media S.A., 2015,