



**Beans
is How**

The Brilliance of Beans



Introduction

Beans is How is a campaign on a mission to double global bean consumption by 2028.

Why? Quite simply, beans can help us fix the future.

Beans and other pulses are a simple, convenient food choice that is kind to our bodies, the planet, and our wallets. They're for everyone, not just for vegetarians or those on a budget.

Beans are part of the pulse family which are the dry, edible seeds of non-oilseed legumes and encompass dry beans, dry peas, chickpeas, lentils, cowpeas, and several other varieties. They grow in pods and come in a large diversity of shapes, sizes and colors.

"The Brilliance of Beans" outlines the important contributions beans and other pulses make to advancing the well-being of people and planet while promoting sustainable prosperity.

Everyone, everywhere has a role to play in helping to inspire people to eat more beans. Together we can transform the food system and help people shift towards healthier, sustainable diets, one bean meal at a time.



Global Challenges

Beans are a simple, affordable solution to our global health, climate and cost of living challenges.

Hunger and malnutrition crisis:

- 2.4 billion, or almost 30% of the world's population, did not have constant access to food in 2022 ([SOFI 2023](#)).
- An estimated 735 million people faced hunger and 148 million children under age 5 were stunted due to malnutrition in 2022 ([SOFI 2023](#)).
- 1 in 8 people are living with obesity globally, more than double the amount of adults and quadruple the amount of adolescents since 1990 ([WHO](#)). If this trend continues, the majority of the global population, or 4 billion people, will be living either overweight or with obesity by 2035 ([worldobesity.org](#)).

Affordability and food security crisis:

- In 2022, an estimated 71 million people were living in poverty due to rising food and energy costs ([UNDP](#)).
- Inequalities are increasing: 23 million more people lived in extreme poverty and 123 million more suffered from hunger in 2022 compared to 2019, widening the gap in per capita income growth between the poorest and richest countries ([SDG Report 2024](#)).

Climate and biodiversity crisis:

- 2023 was the warmest year on record, with global temperatures approaching the critical 1.5°C threshold ([SDG Report 2024](#)).
- An estimated one-third of all food is wasted ([FAO](#)), and one-third of greenhouse gas emissions come from agriculture ([FAO](#)).
- Current agricultural practices can cause resource depletion, including 80% of deforestation and 70% of freshwater withdrawals ([UN Land Report 2022](#)). Food production and consumption is linked to 60% of biodiversity loss ([WWF UK](#)).
- Food loss and waste at the supply chain and consumer levels are responsible for 6% of total global emissions ([Our World in Data](#)).



People

Pulses - including beans, lentils, chickpeas - are good for people's health.

Beans are nutrient-dense, providing one of the best natural sources of dietary fibre and a rich source of protein and complex carbohydrates, with a low glycemic index. Beans are very low in fat and contain no cholesterol. They are also rich in vitamins and minerals, including potassium, iron, and B vitamins like folate ([Hall & Cassandra, 2017](#)).

Beans are packed with plant protein. You may have heard that beans are an “incomplete protein”; however, actually beans contain all of the amino acids ([Katz et al., 2019](#)) - they are just relatively low in some of them. Eating a diverse, healthy diet, for instance by complementing beans with grains, will provide adequate amounts of all the amino acids ([Bouchard et al., 2022](#)). Also, these foods do not need to be eaten during the same meal, just as part of an overall dietary pattern.

Beans are associated with numerous health benefits, such as healthy weight maintenance, gut health, and the reduction of the risk for several chronic diseases, including type 2 diabetes, cardiovascular disease and cancers like colorectal cancer ([Didinger & Thompson, 2022](#)).

Not only does chronic disease prevention improve the healthspan (i.e., years of the lifespan for which a person is healthy), but it also brings significant co-benefits for healthcare and societal cost savings ([Abdullah et al., 2017](#)). Therefore, the health benefits associated with beans can also result in important economic benefits.



Planet

Beans and other pulses are known for providing numerous environmental benefits, ranging from improving soil health to reducing greenhouse gas emissions.

Beans can fix atmospheric nitrogen - through a symbiotic relationship with soil bacteria - thereby converting this nitrogen into a form usable by plants. This reduces the need for synthetic nitrogen fertilizers, helping save farmers money and reducing the negative environmental impacts associated with fertilizer production and overapplication, such as runoff into water systems and contribution to climate change through greenhouse gas emissions ([Peoples et al., 2019](#)).

Including beans in crop rotation can benefit soil health and also help improve biodiversity, providing a food source for pollinators ([Peoples et al., 2019](#)).

Pulses generally require much less water to produce than other sources of protein ([Our World in Data, 2018](#)). Pulses demonstrate key climate adaptations, such as tolerance for challenging growing conditions. For example, cowpeas and tepary beans are recognized for drought- and heat-tolerant traits ([Foyer et al., 2016](#)).

Beans have a long shelf-life and can be stored dry, canned, jarred, in pouches, frozen and in flour form. This can help reduce food waste and the associated climate impacts.

Beans can help mitigate climate change because bean production results in much lower greenhouse gas emissions than other sources of protein ([Peoples et al., 2019](#)).



Prosperity

Beans play a critical role in improved nutrition security in populations around the world, and their versatility creates numerous market opportunities.

Beans have been grown in countries around the world for millennia, simultaneously making them culturally responsive and providing opportunities to develop a wide range of bean-centric dishes and innovative products.

The diversity and culinary versatility of beans allows them to be used in meals, snacks, desserts, sauces, spreads, beverages and more, thereby providing business opportunities.

There is incredible natural genetic diversity in beans. Additionally, new bean varieties are being bred using traditional plant breeding methods, with goals such as faster cooking times, increased tolerance to challenging conditions like heat and drought, and improved vitamin and mineral content and bioavailability.

Many people depend on beans for their livelihood and as a primary staple and important source of protein in their diets. In regions such as sub-Saharan Africa, beans are cultivated mainly by women, empowering them to provide nutrition for their families and creating a potential income source ([Buruchara et al., 2021](#)).

Beans and other pulses are economically accessible, which contributes to improved food and nutrition security. However, prices may be higher than for cereal grains ([Joshi & Rao, 2017](#)), which can cause them to be less economically accessible to those with limited financial resources. This is both a challenge and an opportunity - if production of beans increases, the availability and cost of beans could decrease, making them more accessible.



Getting more #beansonthemenu

Despite their myriad benefits, global bean consumption is low and we need your help to ensure there are #beansonthemenu.

Getting started:

- Add cooked beans, chickpeas, lentils, and other pulses on top of salads, into soups or in casseroles. You can also puree them to obtain a creamy texture or spread.
- Make beans the star of the plate! The amount of pre-cooked beans and bean-based products on the market is increasing. Try using pulse-based pastas and flours such as lentil pasta or chickpea flour. You can start gradually adding beans in traditional dishes in lieu of animal proteins, rice or pasta.
- Dry beans cooked in the home and canned beans provide similar nutrition and health benefits. There are many options on the market for low sodium or low sugar canned beans. If you are concerned about sodium, discarding the liquid and rinsing has been found to eliminate up to 36-41% of sodium ([Duyff, Jones & Mount, 2011](#)).
- Worried about flatulence? Research suggests that many people may not even experience more flatulence, and those who do often adapt to the healthy, higher fibre levels within a couple weeks ([Winham & Hutchins, 2011](#)). Tips to reduce flatulence include adding beans to your diet slowly and continuing to eat beans on a regular basis. If you are cooking dry beans in the home, it may help to soak them overnight, discard the soaking water, and cook in fresh water. Also, if one type of pulse does not agree with you, try other types as your body may react differently.
- Support local eateries that have #beansonthemenu and share about it the incredible benefits of beans, as well as the delicious bean-based dishes!

Cooking your own beans:

- Don't shy away from adding spices, herbs, onions, and other seasonings according to your personal preferences and recommended diet plans.
- There are a variety of ways to cook dry beans that can fit within different lifestyles, such as using a pressure cooker — which can drastically speed up cooking times — a slow cooker, or stovetop.
- To reduce dry bean cooking time, use fresher beans, soak overnight, add salt to the soaking or cooking water and wait to add acidic ingredients until the beans are cooked through. Canned beans are a great option if preparation time is limited.
- Freeze extra cooked beans to have them ready to use anytime.



Acknowledgments

“The Brilliance of Beans” was written by Dr. Chelsea Didinger for Beans is How and edited by Kristin Gutekunst. It includes contributions from Alyson Greenhalgh-Ball, Emily Mbelenga, Paul Newnham, and the Bean Science and Innovation Advisory Council. Graphic design was provided by Ceanne Thompson-Deane.

Beans is How

Mobilized by the SDG2 Advocacy Hub, Beans is How is on a mission to double global bean consumption by 2028. The campaign convenes a global coalition of partners to champion the value of beans globally, making beans and other pulses visible, accessible, exciting and desirable.

For more information about Beans is How, please visit www.beansishow.org and follow on Instagram and X via @beansishow #beansonthemenu.



References

- Abdullah, Mohammad MH, et al. "Canadian potential healthcare and societal cost savings from consumption of pulses: A cost-of-illness analysis." *Nutrients* 9.7 (2017): 793. (<https://www.mdpi.com/2072-6643/9/7/793>)
- Bouchard J, Malalgoda M, Storsley J, Malunga L, Netticadan T, Thandapilly SJ. "Health Benefits of Cereal Grain- and Pulse-Derived Proteins." *Molecules*. 2022 Jun 10;27(12):3746. doi: 10.3390/molecules27123746. PMID: 35744874; PMCID: PMC9229611. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9229611/>)
- Buruchara, Robin A., et al. "PABRA means partnership: Transforming agriculture in Africa together." (2021). (<https://cgspace.cgiar.org/handle/10568/113037>)
- Carbon Brief. "UN land report: Five key takeaways for climate change, food systems and nature loss." 2022. (<https://www.carbonbrief.org/un-land-report-five-key-takeaways-for-climate-change-food-systems-and-nature-loss/>)
- Didinger, Chelsea, and Henry J. Thompson. "The role of pulses in improving human health: A review." *Legume Science* (2022): e147. (<https://onlinelibrary.wiley.com/doi/full/10.1002/leg3.147>)
- Duyff R., Jones J. and Mount J. 2011. "Sodium Reduction in Canned Beans After Draining, Rinsing." *Journal of Culinary Science & Technology*. 2021 Apr; 9(2):106-112. DOI: 10.1080/15428052.2011.582405. https://www.researchgate.net/publication/233208740_Sodium_Reduction_in_Canned_Beans_After_Draining_Rinsing
- FAO, IFAD, UNICEF, WFP and WHO. 2023. "The State of Food Security and Nutrition in the World 2023." Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum. Rome, FAO. (<https://doi.org/10.4060/cc3017en>)
- FAO. "Food systems account for more than one third of global greenhouse gas emissions." (2021). (<https://www.fao.org/family-farming/detail/en/c/1379538/>)
- FAO. "Global Food Waste and Loss." (2011). (<https://www.fao.org/4/mb060e/mb060e00.htm>).
- Foyer et al. 2016: Foyer, Christine H., et al. "Neglecting legumes has compromised human health and sustainable food production." *Nature plants* 2.8 (2016): 1-10 (<https://www.nature.com/articles/nplants2016112>)
- Hall, Clifford, Cassandra Hillen, and Julie Garden Robinson. "Composition, nutritional value, and health benefits of pulses." *Cereal Chemistry* 94.1 (2017): 11-31. (<https://onlinelibrary.wiley.com/doi/abs/10.1094/CCHEM-03-16-0069-FI>)
- Joshi, P. K., and P. Parthasarathy Rao. "Global pulses scenario: status and outlook." *Annals of the New York Academy of Sciences* 1392.1 (2017): 6-17. (<https://nyaspubs.onlinelibrary.wiley.com/doi/full/10.1111/nyas.13298>)
- Katz, David L., et al. "Perspective: The public health case for modernizing the definition of protein quality." *Advances in Nutrition* 10.5 (2019): 755-764. (<https://www.sciencedirect.com/science/article/pii/S2161831322004276>)
- Our World in Data. Greenhouse gas emissions per 100 g protein. (<https://ourworldindata.org/grapher/ghg-per-protein-poor>)
- Our World in Data. Freshwater withdrawals (<https://ourworldindata.org/grapher/water-per-protein%20poore>)
- Our World in Data. "Food waste is responsible for 6% of global greenhouse gas emissions." (2020). (<https://ourworldindata.org/food-waste-emissions>)
- Our World in Data. "Scarcity-weighted water usage". (<https://ourworldindata.org/grapher/scarcity-water-per-kg-poor>)
- Peoples, Mark B., et al. "The contributions of legumes to reducing the environmental risk of agricultural production." *Agroecosystem diversity*. Academic Press, 2019. 123-143. (<https://www.sciencedirect.com/science/article/abs/pii/B978012811050800008X>)
- Peoples, Mark B., Henrik Hauggaard-Nielsen, and Erik S. Jensen. "The potential environmental benefits and risks derived from legumes in rotations." *Nitrogen fixation in crop production* 52 (2009): 349-385. (<https://access.onlinelibrary.wiley.com/doi/abs/10.2134/agronmonogr52.c13>)
- Stagnari, Fabio, et al. "Multiple benefits of legumes for agriculture sustainability: an overview." *Chemical and Biological Technologies in Agriculture* 4.1 (2017): 1-13. (<https://chembioagro.springeropen.com/articles/10.1186/s40538-016-0085-1>)
- WHO. "Obesity and Overweight." (<https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>).
- Winham, Donna M., and Andrea M. Hutchins. "Perceptions of flatulence from bean consumption among adults in 3 feeding studies." *Nutrition journal* 10 (2011): 1-9. (<https://nutritionj.biomedcentral.com/articles/10.1186/1475-2891-10-128>)
- The World Obesity Foundation. "Economic impact of overweight and obesity to surpass \$4 trillion by 2035." (<https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>)
- UNDP. "Addressing the cost-of-living crisis in developing countries: poverty and vulnerability projections and policy responses." (2022). (<https://www.undp.org/publications/addressing-cost-living-crisis-developing-countries-poverty-and-vulnerability-projections-and-policy-responses>)
- United Nations. "The Sustainable Development Goals Report 2024". (<https://unstats.un.org/sdgs/report/2024/>)

Image Credits:

- Page 2 - OmVed Gardens _ William Hearle - Beans is How Stakeholder Summit
- Page 3 - Bold Bean Co - Queen butter beans
- Page 4 - SDG2 Advocacy Hub _ Charles Kabena - Farmer in Malawi
- Page 5 - Unsplash _ Amol Sonar - Female farmers in India
- Page 6 - Chef Alice Zaslavaky - [Smoky Baked Beans](#)
- Page 7 - OmVed Gardens _ William Hearle - Chef Arthur Potts Dawson



**Beans
is How**

