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Professional Education Series

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Beyond Impossible: The What, Why, and How of Implementing Plant-Centric Meals

TODAY'S AGENDA:

- Introduction & Housekeeping
- Speaker Introduction
- Presentation
- Q&A
- Closing

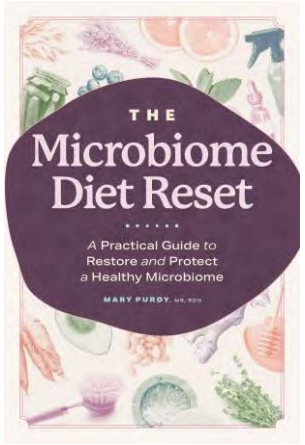
WEBINAR HOST:

Keith Hine, MS, RD
VP of Healthcare, Sports & Professional Education
Orgain, LLC

WEBINAR PRESENTER:

Mary Purdy, MS, RDN
Integrative Eco-Dietitian and Nutrition Educator

DISCLOSURES & AFFILIATIONS OF PRESENTER: MARY PURDY, MS, RDN, INTEGRATIVE "ECO-DIETITIAN"



PLANETARY HEALTH COLLECTIVE

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AIHM
ACADEMY OF INTEGRATIVE HEALTH & MEDICINE

INTEGRATIVE AND FUNCTIONAL NUTRITION ACADEMY™

BIG BOLD HEALTH

Adjunct Faculty at Culinary Institute of America

Faculty with The Academy of Integrative Health and Medicine (AIHM) & "Integrative and Functional Nutrition Academy" (IFNA)

Nutrition and Sustainability Advisor, Big Bold Health

Steering Committee Member: Planetary Health Collective

Governing Council Member: Coalition for Organic and Regenerative Agriculture

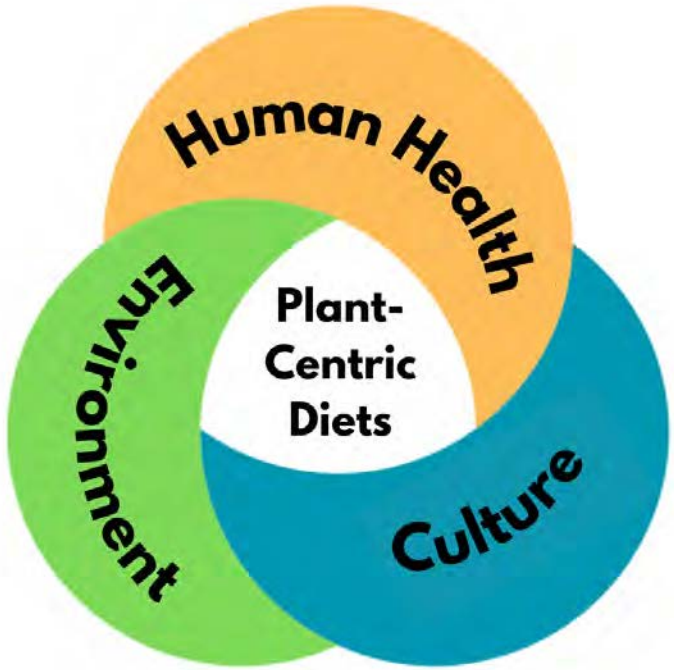
Host, "The Good Clean Nutrition Podcast" Orgain

Former Host of The Podcast "The Nutrition Show"

Author: "The Microbiome Diet Reset"

Consultant, Daily Harvest, Non-GMO Project. Nutrient Density Alliance

LEARNING OBJECTIVES

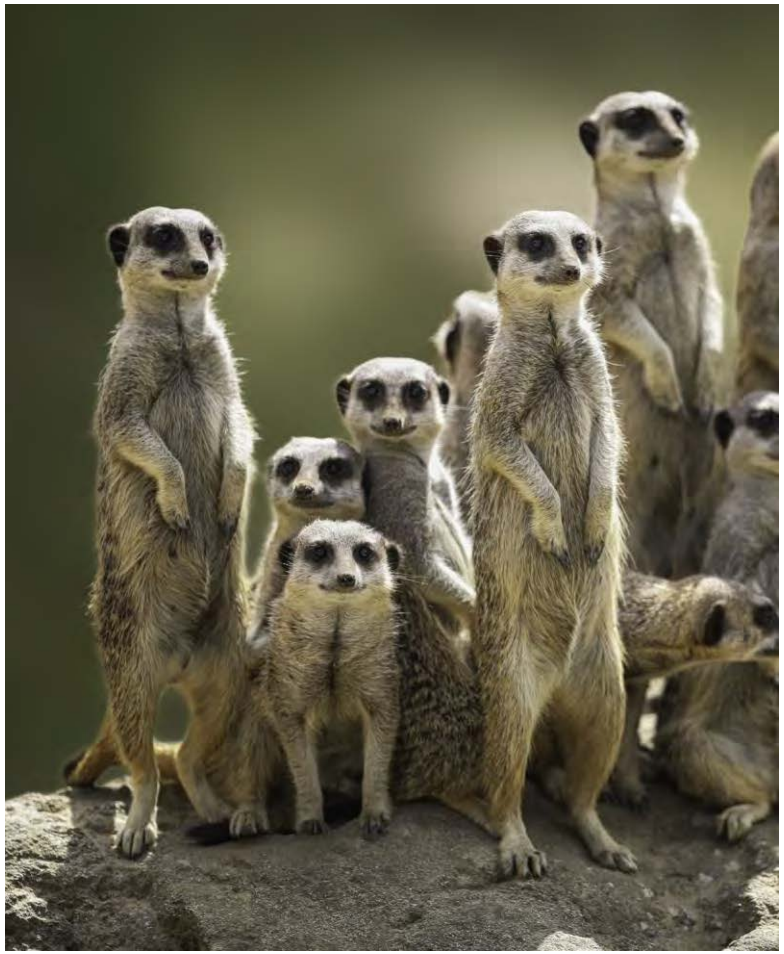


Describe the current state of plant-centric trends, eating patterns, campaigns and demands

Explain the health and environmental benefits of plant-based proteins

Develop nutritionally sound plant-centric meals, menus and meal plans that promote health and disease management and meet client's/patient's needs.

CONTEXT OF THIS PRESENTATION ABOUT PLANT-CENTRIC DIETS



- Human Health
- Biodiversity Loss
- Climate Crisis
- Soil Health
- Culture
- Accessibility/Affordability
- What does the evidence say?

WHAT THIS PRESENTATION IS NOT:

- **About bashing meat/deep dive into industrial animal agriculture**
  - Cultural context
  - Animal protein: potentially necessary to improve micronutrient inadequacies in many low- and middle-income countries (1)
- Recommending highly processed plant-based/centric foods/meals
- Covering/evaluating every single vegetarian/alternative protein/plant-based food, plant-based milks & non-dairy desserts
- Suggesting that the world go vegan

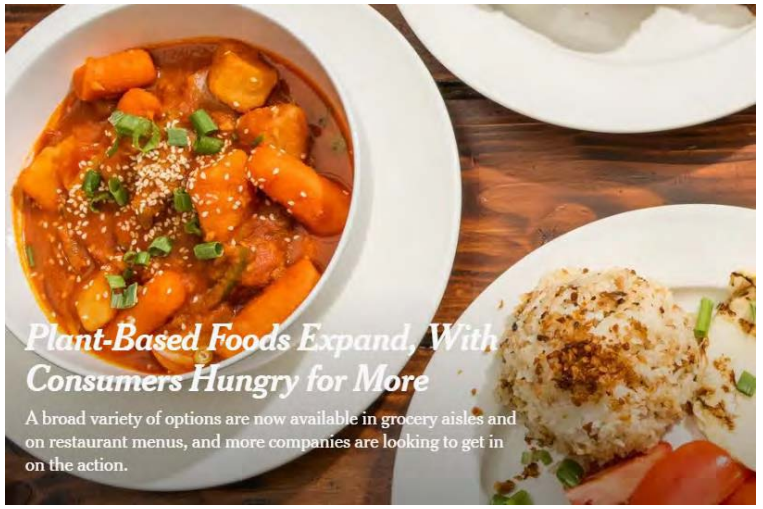
Biesbroek S, Kok FJ, Tufford AR, et al. **Toward healthy and sustainable diets for the 21st century: Importance of sociocultural and economic considerations**. *Proc Natl Acad Sci U S A*. 2023;120(26):e2219272120

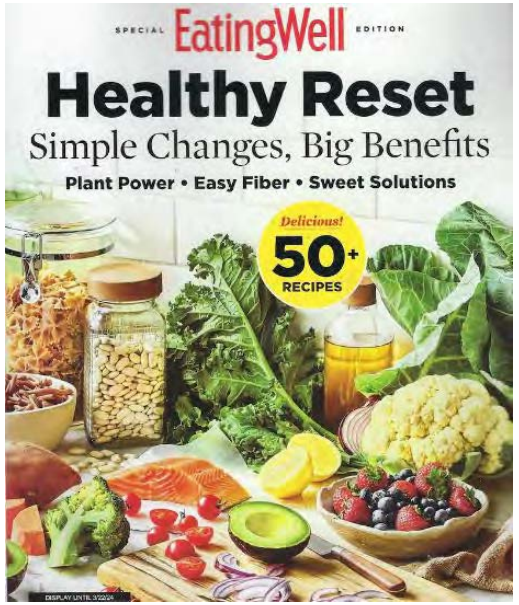
WHAT THIS PRESENTATION IS:

- A chance to learn about the current trends around plant-centric eating
- Showcase current and relevant headlines
- Making the case for the need to increase minimally processed plants/plant protein on plates for the health of people and planet
- Provide information and tools to set you up for better health and environmental stewardship

- Growing demand for plant-based proteins
- 10% of the population is vegan/vegetarian (1)
- More than half **(52%)** of U.S. consumers are eating more plant-based foods and they believe it makes them feel healthier (2)
- Sales of plant-based foods grew 53 % in 2021/2022 (2)
- 1/10 of Americans get recommended serving of veggies daily (3)
- Environment, climate, and health = motivators of several healthy dietary choices (fruits and vegetables, and plant proteins) in US adults with lower incomes. (4)

1. U.S. retail market insights for the plant-based industry. The Good Food institute Website. https://gfi.org/marketresearch/ Accessed Dec 2023.
2. Growing demand for plant-based proteins. Nielsen IQ Website. https://nielseniq.com/global/en/insights/analysis/2021/examining-shopper-trends-in-plant-based-proteins-accelerating-growth-across-mainstream-channels/ Published 09/2021. Accessed Dec 2023
3. Lee SH, Moore LV, Park S, Harris DM, Blanck HM. Adults Meeting Fruit and Vegetable Intake Recommendations — United States, 2019. MMWR Morb Mortal Wkly Rep 2022;71:1–9.
4. Slotnick, M et al. Environmental-, Climate-, and Health-Related Dietary Motivations Are Associated With Higher Diet Quality in a National Sample of US Adults With Lower Incomes. JAND. Published:December 01, 2023





Growing calls for plant-based diets

"Transforming food systems is…essential, by ***shifting towards healthier, diversified and more plant-based diets."***

- **DR TEDROS ADHANOM GHEBREYESUS**

Director-General of the World Health Organization

nutrients

MDPI

utrients. 2022 Apr; 14(8): 1614.
ublished online 2022 Apr 13. doi: 10.3390/nu14081614

lant-Based Dietary Patterns for Human and Planetary Health

"Transitioning to **plant-based diets (PBDs)** has the potential to reduce diet-related land use by 76%, diet-related greenhouse gas emissions by 49%, eutrophication by 49%, and green and blue water use by 21% and 14%, respectively, whilst garnering **substantial health co-benefits.**"

Adoption of the 'planetary health diet' has different impacts on countries' GHG emissions

August 13, 2020 | *Nature Food*

"Overall, the adoption of a healthy, **plant-based diet** around the world would significantly reduce greenhouse gas emissions, and improve health."

nature food

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nature > nature food > articles > article

Article | Published: 10 January 2022

Dietary change in high-income nations alone can lead to substantial double climate dividend

"A **dietary shift from animal-based foods to plant-based foods in high-income nations** could reduce greenhouse gas emissions from direct agricultural production and increase carbon sequestration if resulting spared land was restored to its antecedent natural vegetation."

World Health Organization

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Home / Publications / Overview / Sustainable healthy diets: guiding principles

Sustainable healthy diets: guiding principles

*"Global adoption of a **low-meat diet that meets nutritional recommendations for fruits, vegetables,** and caloric requirements is estimated to reduce diet-related GHGs by nearly 50 percent, and premature mortality by nearly 20 percent. "*

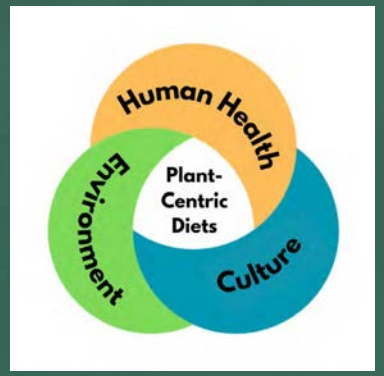
The UN Conference on Climate Change (COP28) Dec 2023:

- Shifting dietary patterns as a solution for the health and climate crisis. (1)
- Current food system characterized by processed food and high meat production responsible for non-communicable diseases, & main drivers of climate change, biodiversity loss, and the depletion of natural resources. (1)
- Plant based food served

"Plant-based diets require less land and fertilisers, reduce energy use and increase our resilience to the current multi-crises: food, energy, climate. Freeing up land to restore habitats would help tackle the climate and biodiversity crises." (2)

COP28 (WHO Pavilion): Healthy and sustainable diets for nurturing people and planet
Website and conference session recording. https://www.unnutrition.org/events/cop28-who-pavilion-healthy-and-sustainable-diets-nurturing-people-and-planet Published Dec 10th 2023. Accessed Jan 2024.
Scientists provide recipe to halve Nitrogen pollution from food production. UNECE Website.
https://unece.org/climate-change/press/scientists-provide-recipe-halve-nitrogen-pollution-food-production Published 20 December 2023. Accessed Jan 2024

CHAPTER ONE: THE **WHAT** OF PLANT-CENTRIC MEALS



TERMINOLOGY:
USUALLY USED TO DESCRIBE FOOD THAT COMES MOSTLY FROM PLANTS

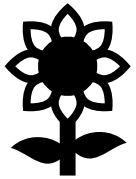
Plant-based meals 

 Plant-forward meals

Planetary-Health meals

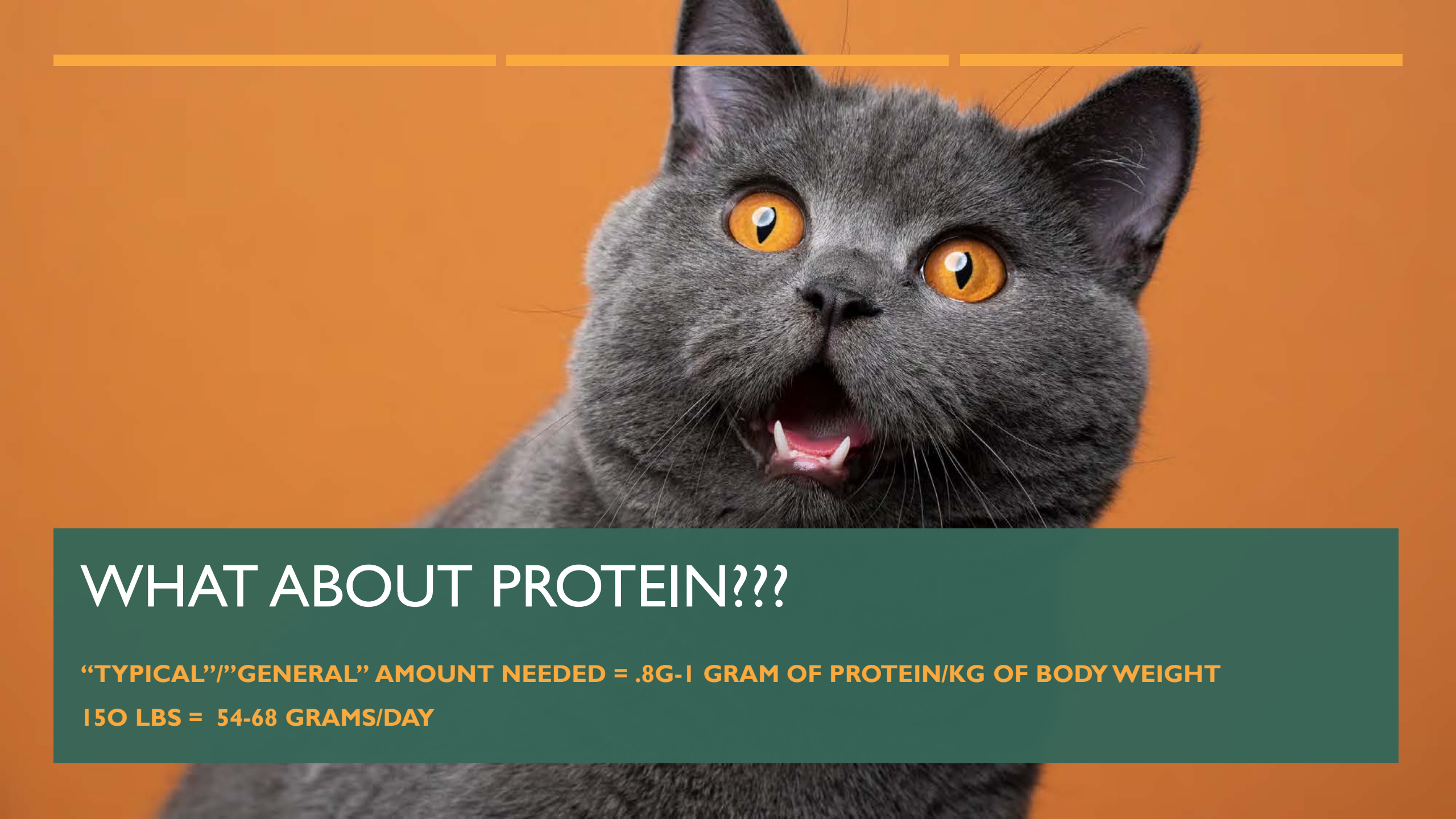
Plant-rich meals

Climate-smart meals 

Flexitarian meals 

Plant-centric meals

"DEFINITION:" An approach to eating with a focus on nutrient-rich plant-based foods where the "center" or "base" of the plate consists of a variety of minimally processed foods like fruits, vegetables, legumes, and grains and less focus on animal or seafood ingredients.

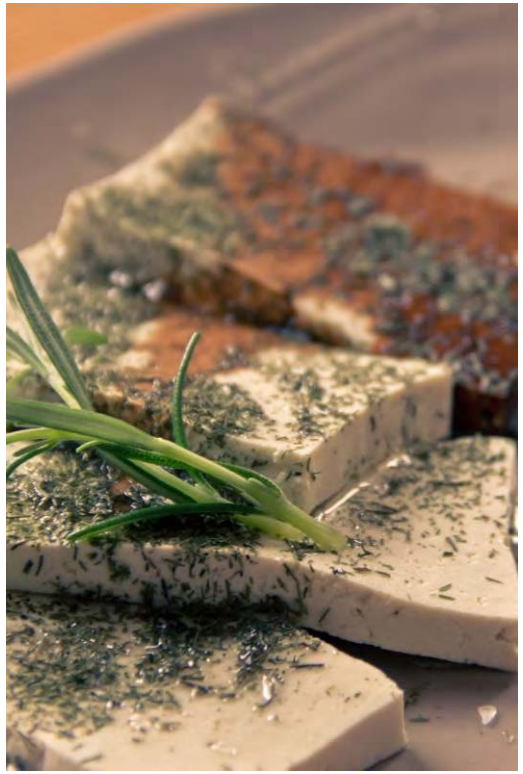


WHAT ABOUT PROTEIN???

"TYPICAL"/"GENERAL" AMOUNT NEEDED = .8G-1 GRAM OF PROTEIN/KG OF BODY WEIGHT

150 LBS = 54-68 GRAMS/DAY

PROTEIN SOURCES: THE USUAL SUSPECTS



- 1 cup beans/lentils = 15-18 grams
- ¼ cup nuts = 4-7 grams
- 3 T seeds (flax/chia/hemp) = approx. 10grams
- 3 ounces tofu = ~10 grams
- 1 cup edamame = 15 grams
- 3 oz tempeh = ~21 grams
- All foods have a little

BEANS AND LENTILS GALORE

- Chickpeas
- Black beans,
- Cannellini beans,
- Pinto beans
- Navy beans,
- Great northern beans
- Cranberry beans
- Fava beans
- Adzuki beans
- Mung beans
- Black Eyed Peas
- Anasazi beans
- Kidney beans

- **Brown Lentils**
- **Green Lentils**
- **Black Lentils (Beluga)**
- **French Green Lentils**
- **Red Lentils**
- **Yellow Lentils.**

CULTURAL CONNECTIONS

- Black beans
  - Cuban
- Dal (lentils)
  - Indian
- Berbere Bean Stew
  - Ethiopian
- Adzuki/Mung beans
  - Japanese/Phillipino
- Mashed Fava Beans
  - Middle Eastern
- Tempeh Kecap (stir fry)
  - Indonesian

GRAINS/ "PSEUDOCEREALS"

- **½ C Grains: about 2-5 grams**
  - ½ cup Millet = 3 grams
  - ½ cup Whole wheat pasta = 3 grams
  - ½ cup Buckwheat = 3 grams
  - ½ cup Wild rice = 3 grams
  - ½ cup Quinoa = 4 grams
  - ½ cup Teff = 5 grams
  - ½ cup Amaranth = 5 grams
- **Sprouted grains can contain more**
  - 1 sprouted tortilla = 5 gram/protein

OTHER PROTEIN SOURCES (LESS WHOLE –FOODS BASED)

Protein Powders

10-25 grams/serving

- Soy
- Rice
- Hemp
- Pea protein
- Pumpkin Seed
- Combination
- Sprouted grains and beans

Protein-based foods

10-20 grams/serving

- Chickpea pastas
- Lentil pastas
- Bean flours

Protein Bars

5-20 grams

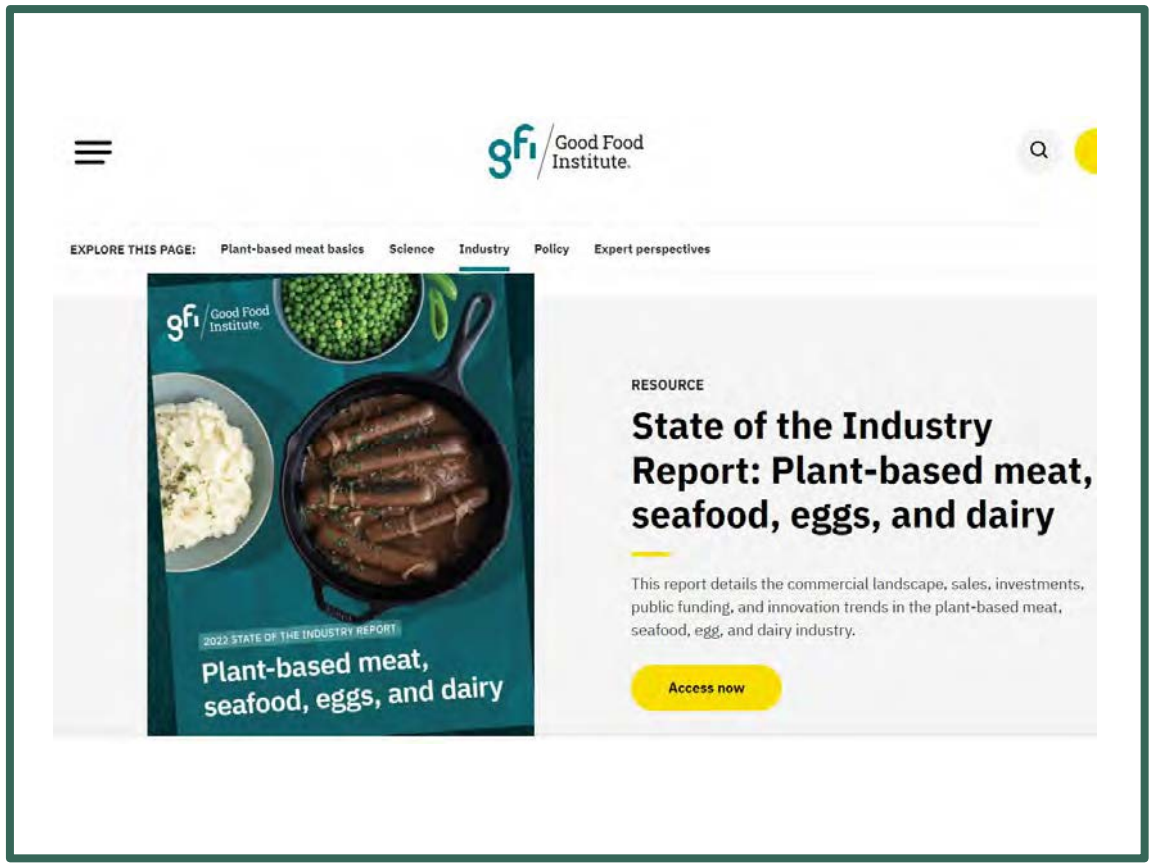
- Nut/seed based
- Soy protein isolate
- Some more processed than others

PROTEIN SOURCES: THE UNUSUAL SUSPECTS

Photo credit: Love and Lemons
https://www.loveandlemons.com/jackfruit/

- 3 T Nutritional yeast: = ~9-10 grams
- 1 T Spirulina = 4 grams of protein
- **More Processed: Alternative Proteins**
  - 2 oz Seitan (vital wheat gluten) = 14 grams
  - 2 oz Mycoproteins = ~10 grams
    - Made from fermenting fungus

- **Confusion/Misrepresentation of protein sources**
  - 1 cup Avocado = ~ 3 grams
  - 1 cup Jackfruit = ~ 3 grams
  - ½ c Vegetables: = about 2 grams
  - 1 Medium Portabello mushroom = ~ .3 grams
  - Fruit: negligible



- **Plant based meat Protein**

- **Burgers:** 20 grams (pea protein) (soy protein isolate/concentrate)
- **Sausage:** 7 grams/2 oz
- **Chicken Tenders** 11 grams/4 oz

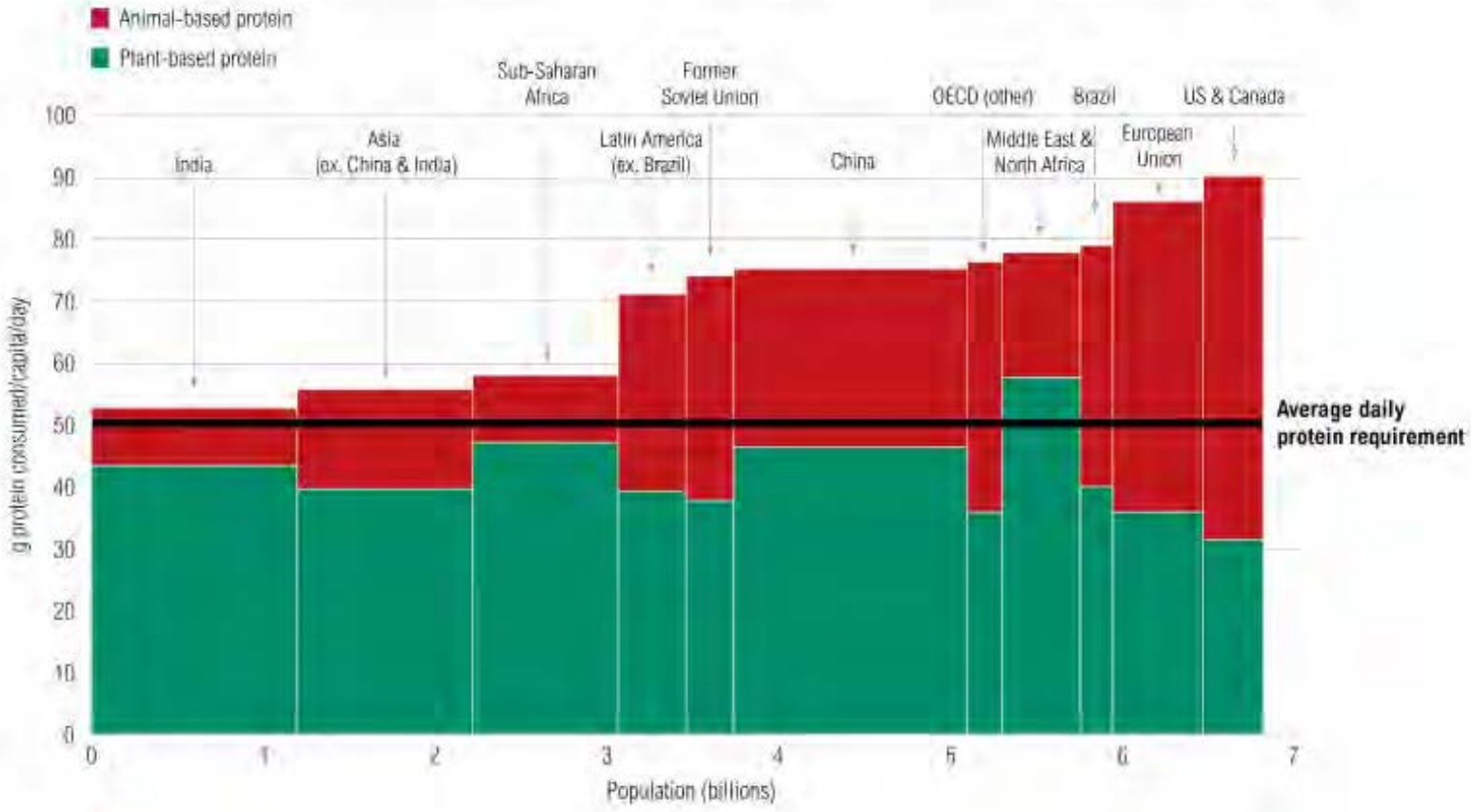
https://faq.impossiblefoods.com/hc/en-us/articles/15000110670 82
https://gfi.org/plant-based/

CONFUSION/CONSIDERATION

- **"Complete proteins" – True?**
  - Hemp, Buckwheat, chia seeds, quinoa, soy
- **Consuming a varied vegetarian diet** allows for complementation of essential amino acids from different plant foods (1)
- **Protein digestibility** of cereals, legumes, nuts, and seeds may be improved by soaking, sprouting, cooking, and, especially, pressure cooking
- **Higher protein needs may be necessary if diet is mostly plant-based**
  - Study recommendation is 1.0g/kg/d (vs. 0.8g/kg/d) (2)
- Vegetarian diet has been associated with decreased bone mineral mass and impaired ability to build lean body mass in older adults

1. Gropper SS, Smith, JL, Carr, TP. *Advanced nutrition and human metabolism* (7th ed.). Belmont, CA: Cengage; 2017, 233.
2. Kniskern, MA, Johnston, CS. (2011) Protein dietary reference intakes may be inadequate for vegetarians if low amounts of animal protein are consumed

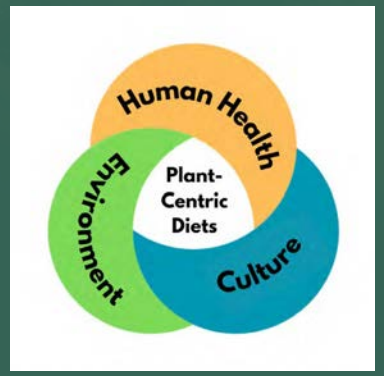
People Are Eating More Protein than They Need—Especially in Wealthy Regions



wri.org/shiftingdiets

WORLD RESOURCES INSTITUTE

CHAPTER TWO: THE **WHY** OF PLANT-CENTRIC MEALS



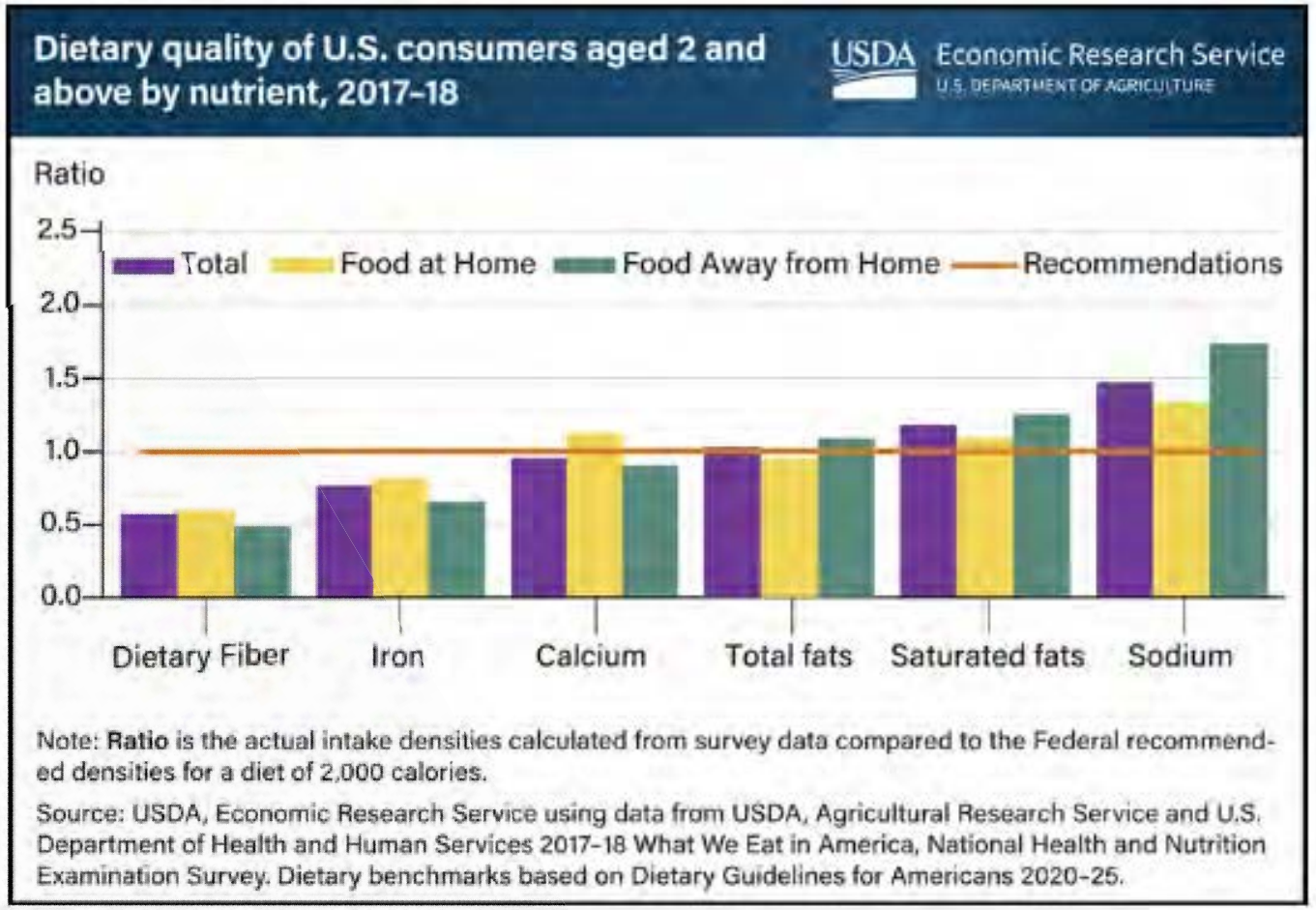
DIET-RELATED NON-COMMUNICABLE DISEASES IN US

- **1 in 2 Americans has pre-diabetes or diabetes** (1)
  - 1 in 4 teens has prediabetes
  - 21k new cases of diabetes weekly
- **1 in 15 are metabolically healthy** (2)
  - 1 in 6 teens has fatty liver disease
- **1 in 2 have a lifetime risk of cancer** (2)
- **Poor nutrition is responsible for:** (3)
  - 10K US deaths weekly
  - Almost half of all deaths related to poor cardiometabolic health

- Diets are lacking in fiber, minerals potassium, magnesium, healthy fats, polyphenols
- Diets are high in sodium, unhealthy fats, sugar.
- 1 in 10 meets recommendations for vegetables (4)
- ~60+ % calories come from ultra-processed foods (5)
- 70-85% of protein comes from animal sources (6)

1. National Diabetes Statistics Report. CDC Website. https://www.cdc.gov/diabetes/data/statistics-report/index.html. Accessed January 2024
2. US Burden of Disease Collaborators; The State of US Health, 1990-2016: Burden of Diseases, Injuries, and Risk Factors Among US States. JAMA. 2018 Apr 10;319(14):1444-1472.
3. President's Council of Advisors on Science and Technology (PCAST) Meeting/Website publication. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.whitehouse.gov/wp-content/uploads/2023/07/Meeting-Minutes_PCAST-Public-Meeting_5-18_19-2023_FINAL.pdf. Published May 18-19, 2023. Accessed January 2024
4. Only 1 in 10 Adults Get Enough Fruits or Vegetables. CDC Website. https://www.cdc.gov/nccdphp/dnpao/division-information/media-tools/adults-fruits-vegetables.html Accessed January 2024
5. Chen, X., Fang, J., Nie, J., Qiu, P., Wang, F., Wang, H., Yang, H., Zhang, Z., & Zhao, Q. Consumption of ultra-processed foods and health outcomes: a systematic review of epidemiological studies. 2020, August 20) Nutrition Journal, 19(86).
6. Gardner CD, et al.. Maximizing the intersection of human health and the health of the environment with regard to the amount and type of protein produced and consumed in the United States. Nutr Rev. 2019 Apr 1;77(4):197-215.

Nutrient intakes by U.S. consumers differ from Federal recommendations



Related Data

Food Consumption and Nutrient Intakes

Related Reports

Dietary Quality by Food Source and Demographics in the United States, 1977–2018

The goal or limit

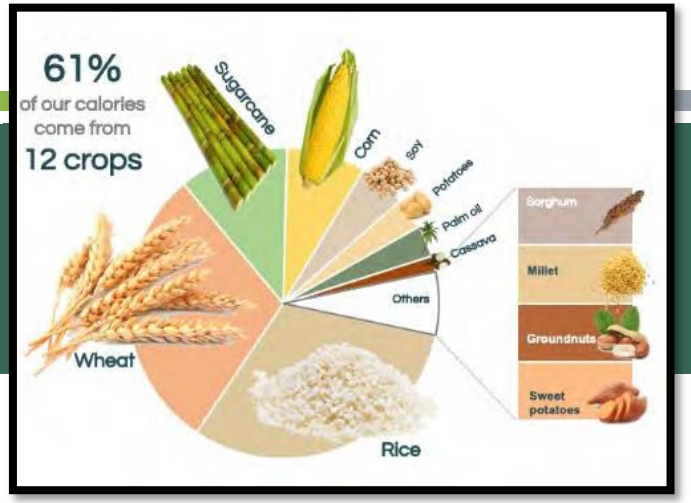
Dietary Intakes Compared to Recommendations: Percent of the U.S. Population Ages 1 and Older Who Are Below and At or Above Each Dietary Goal

***NOTE:** Recommended daily intake of whole grains is to be at lea half of total grain consumptio nd the limit for refined grains is to be no more than half of total grain consumption.

Data Source: Analysis of What We Eat in America, NHANES 2013-2016, ages 1 and older, 2 days dietary intake data, weighted. *Recommended Intake Ranges*: Healthy U.S.-Style Dietary Patterns (see ***Appendix 3***).

https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf

CURRENT STATISTICS



- 12 plants and 5 animals make up 75% of our calories (1)
- 50% of our calories come from just three sources: rice, corn, and wheat. (1)
- Since the 1900s, some 75% of plant genetic diversity has been lost and replaced by genetically uniform, high-yielding varieties. (2)
- There are over 30,000 edible species

- Meat consumption increased by 500% between 1992 and 2016
- The average American consumes about ~200 lbs of meat a year
- The Eat-Lancet Commission recommends people consume no more than 34lbs of meat a year.

1. Food and agriculture data. Food and Agriculture Organization (FAO) website. https://www.fao.org/faostat/en/#home Accessed Jan 2024
2. WHAT IS AGROBIODIVERSITY? Food and Agriculture Organization (FAO) website. https://www.fao.org/3/y5956e/Y5956E03.htm#:~:text Accessed Jan 2023
3. Waiter, R.. 2018 Will See High Meat Consumption in the U.S., but the American Diet is Shifting. WRIT WEbsite: https://www.wri.org/insights/2018-will-see-high-meat-consumption-us-american-diet-shifting. Published Jan 2018. Accessed Jan 2024.

PLANT-CENTRIC DIETS & MANY HEALTH BENEFITS

- Heart Health (1, 2)
- Blood sugar balance (3)
- Cancer protection (4)
- Digestive/Microbiome health (5)
- Parkinson's Disease (6)
- Immune/longevity benefits from flavonoids (7, 8)

"Replacing one serving per day of processed meats, like hot dogs, sausage, deli meats or bacon, with a serving of whole grains, nuts or beans was associated with a **23 to 36 percent lower risk of cardiovascular issues,** including stroke, heart attack and coronary heart disease. (1)

"**Vegetarian and vegan diets were associated with reduced concentrations of total cholesterol, low-density lipoprotein cholesterol, and apolipoprotein B**" (2)

1. Neuenschwander, M., Stadelmaier, J., Eble, J. *et al.* Substitution of animal-based with plant-based foods on cardiometabolic health and all-cause mortality: a systematic review and meta-analysis of prospective studies. *BMC Med* **21**, 404 (2023). https://doi.org/10.1186/s12916-023-03(1
2. Caroline A Koch, Emilie W Kjeldsen, Ruth Frikke-Schmidt, Vegetarian or vegan diets and blood lipids: a meta-analysis of randomized trials, *European Heart Journal*, Volume 44, Issue 28, 21 July 2023, Pages 2609–2622, https://doi.org/10.1093/eurheartj/ehad211
3. Gibbs J, Cappuccio FP. Plant-Based Dietary Patterns for Human and Planetary Health. Nutrients. 2022;14(8):1614. Published 2022 Apr 13. doi:10.3390/nu14081614
4. Karavasiloglou et al., **Adherence to the EAT-Lancet reference diet is associated with a reduced risk of incident cancer and all-cause mortality in UK adults**, *One Earth* (2023), https://doi.org/10.1016/j.oneear.2023.11.002
5. Hills RD Jr, Pontefract BA, Mishcon HR, Black CA, Sutton SC, Theberge CR. Gut Microbiome: Profound Implications for Diet and Disease. Nutrients. 2019;11(7):1613. Published 2019 Jul 16.
6. Anna Tresserra-Rimbau PhD,Plant-Based Dietary Patterns and Parkinson's Disease: A Prospective Analysis of the UK Biobank. Movement Disorders. Volume38, Issue11. November 2023. Pages 1994-2004
7. Yao J, Zhang Y, Wang XZ, et al. **Flavonoids for Treating Viral Acute Respiratory Tract Infections: A Systematic Review and Meta-Analysis of 30 Randomized Controlled Trials**. *Front Public Health*. 2022;10:814669. Published 2022 Feb 16. doi:10.3389/fpubh.2022.814669 https://pubmed.ncbi.nlm.nih.gov/35252093/
8. Ahuja, S.K., Manoharan, M.S., Lee, G.C. *et al.* Immune resilience despite inflammatory stress promotes longevity and favorable health outcomes including resistance to infection. *Nat Commun* **14**, 3286 (2023). https://doi.org/10.1038/s41467-023-38238-6

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J Food Sci Technol. 2017 Mar; 54(4): 858–870. PMCID: PMC5336453

Published online 2016 Nov 21. PMID: 28303037

doi: 10.1007/s13197-016-2391-9

Bioactive constituents in pulses and their health benefits

CMAJ

Medical knowledge that matters

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CMAJ May 13, 2014 vol. 186 no. 8 First published April 7, 2014, doi: 10.1503/cmaj.131727

Research

Effect of dietary pulse intake on established therapeutic lipid targets for cardiovascular risk reduction: a systematic review and meta-analysis of randomized controlled trials

MANY STUDIES SHOW BENEFITS OF PULSES (BEANS, LENTILS)

- Improved glycemic profile
- Reduction in hypertension
- Improvement in body weight
- Associated with decreased heart disease
- Antioxidant Benefits
- Reduced Inflammation
- Beneficial to gut microbiome

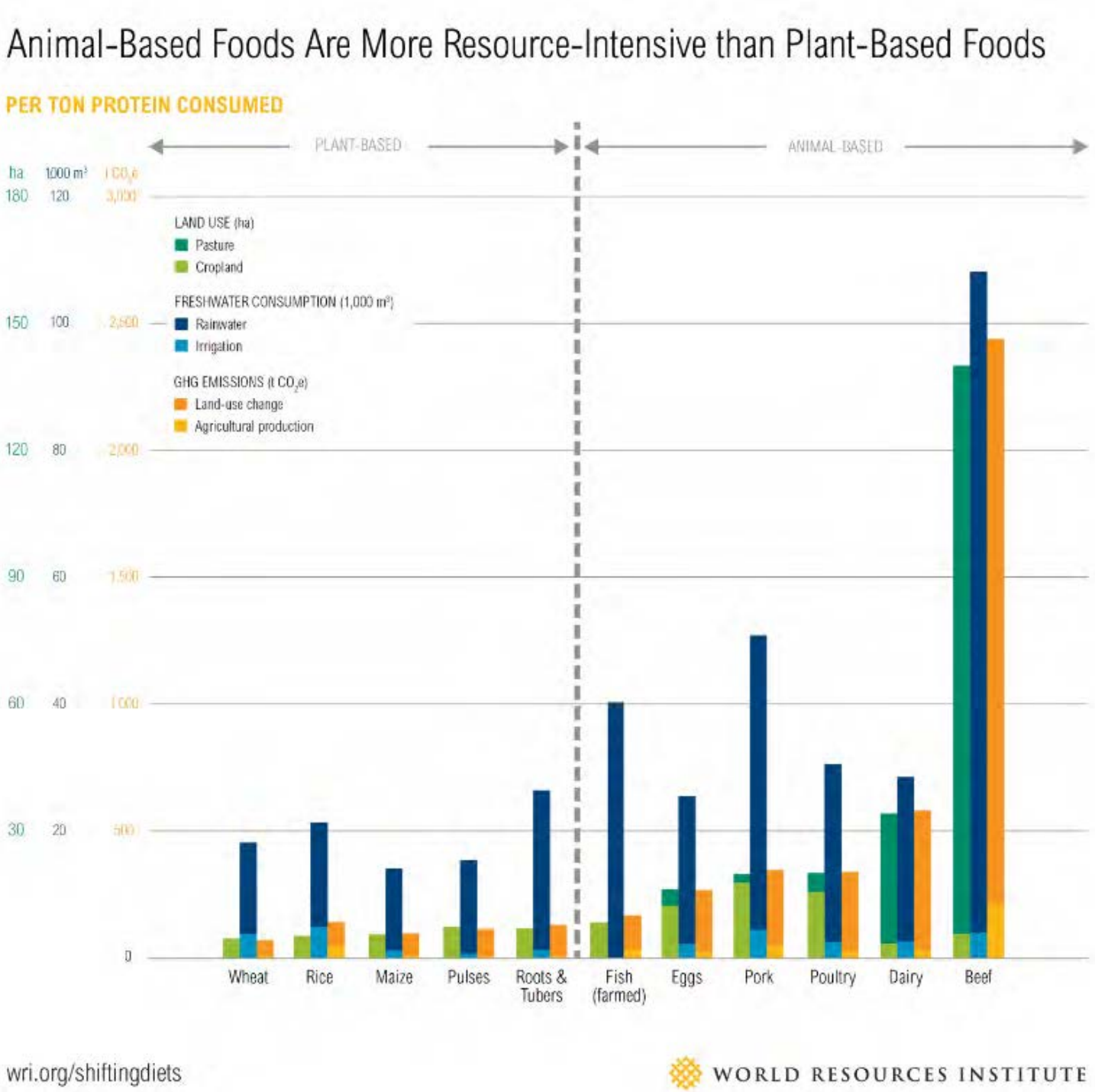
Effect of non-oil-seed pulses on glycaemic control: a systematic review and meta-analysis of randomised controlled experimental trials in people with and without diabetes

1. Ha, V, 2014, 2. Sievenpiper JL, Kendall CWC, Esfahani A, et al. Effect of non-oil-seed , 3. Singh B, Singh JP, Shevkani K, Singh N, Kaur A, 2017

PLANT-CENTRIC DIETS & THEIR MANY ENVIRONMENTAL BENEFITS

- Use fewer resources (including land) (1)
- Use less energy (1)
- Use less water (1)
- Use less fertilizer (3)
- Emit fewer greenhouse gases (GHG)
  - One of the biggest impacts on GHG emissions in the food system could be mitigated by shifting to plant-rich diets
- Fewer negative effects on the environment (2)
- Beneficial for biodiversity (2)
- Beans fix nitrogen – healthy for soil/reduce need for synthetic fertilizer

1. Craig WJ, Mangels AR, Fresán U, Marsh K, Miles FL, Saunders AV, Haddad EH, Heskey CE, Johnston P, Larson-Meyer E, Orlich M. **The Safe and Effective Use of Plant-Based Diets with Guidelines for Health Professionals.** Nutrients. 2021 Nov 19;13(11):4144.
2. Gibbs J, Cappuccio FP. Plant-Based Dietary Patterns for Human and Planetary Health. Nutrients. 2022;14(8):1614. Published 2022 Apr 13. doi:10.3390/nu14081614
3. **Scientists provide recipe to halve Nitrogen pollution from food production. UNECE Website.** https://unece.org/climate-change/press/scientists-provide-recipe-halve-nitrogen-pollution-food-production Published 20 December 2023. Accessed Jan 2024



Even cutting meat by 50% can reduce greenhouse gas emissions by 40% (1,2)

Meet people where they are at ☺

It may depend on access and culture.

1. Behrens, P., J.C. Kiefte-de Jong, T. Bosker, J.F.D. Rodrigues, A. de Koning, and A. Tukker. 2017. Evaluating the environmental impacts of dietary recommendations. Proceedings of the National Academy of Sciences. 114 (51).
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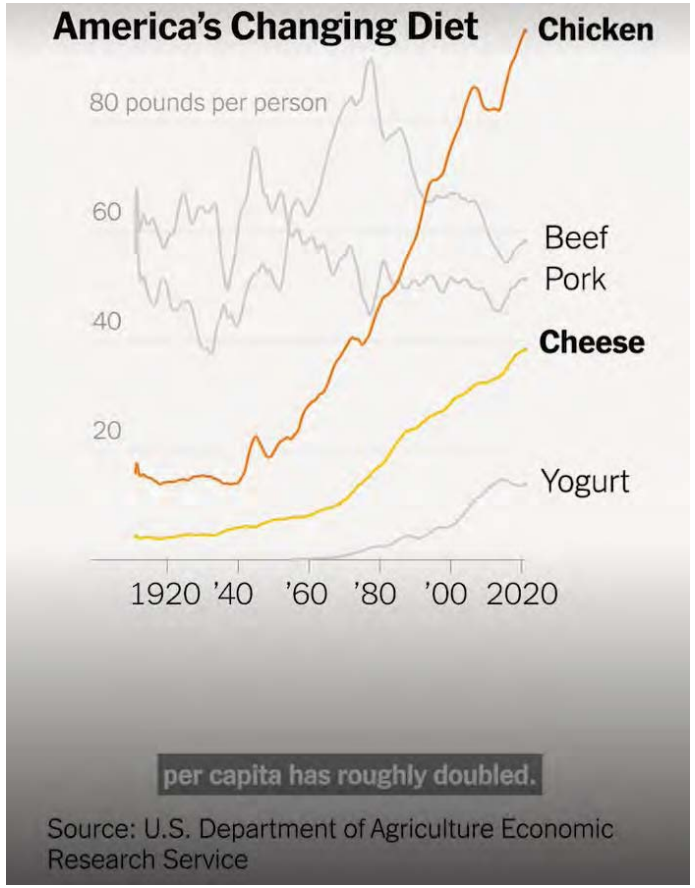
The New York Times

America is draining its precious groundwater to make more chicken wings and pizza.



TRANSITIONING TO PLANT-CENTRIC DIETS (IN DEVELOPED/HIGH INCOME COUNTRIES) HAS THE POTENTIAL TO

- Reduce Diet-related land use by 76% (1)
- Reduce Diet-related greenhouse gas emissions by 49%, (1,2)
- Reduce Eutrophication by 49% (1)
- Reduce Green and blue water use by 21% and 14%, respectively (1)
- Provide substantial health co-benefits. (1,2)
- Support biodiversity which is key for food security (1)

- Even the least sustainable vegetables and grains cause less environmental harm than the lowest impact meat and dairy products. (1)

1. Gibbs J, Cappuccio FP. Plant-Based Dietary Patterns for Human and Planetary Health. Nutrients. 2022;14(8):1614. Published 2022 Apr 13. doi:10.3390/nu14081614
2. Food Systems Account For at Least 15% of All Fossil Fuels. Global Alliance for the Future of Food Website. https://story.futureoffood.org/power-shift/ Published November 2023. Accessed Dec 2023

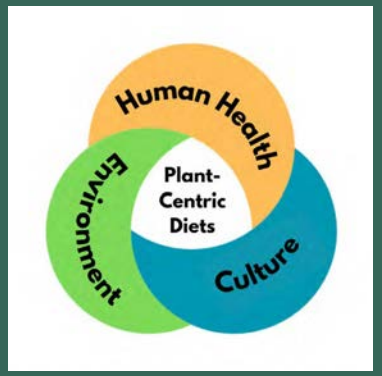
BENEFITS OF PLANT FOODS GROWN LOCALLY WITHOUT OR WITH FEWER CHEMICALS (1,2)

(When accessible/If affordable)

- Potential for increased nutrient-richness/nutrient density of plants
- Less harm to and benefits for the environment
- Less harm/exposure to growers/farmworkers
- Preserved biodiversity
- Fewer greenhouse gas emissions

1. Hurtado-Barroso, S., Tresserra-Rimbau, A., Vallverdú-Queralt, A., & Lamuela- Raventós, R. M. (2019). **Organic food and the impact on human health.** Critical Reviews in Food Science and Nutrition, 59(4), 704–714.
2. Brooke, L; Johnson, A. **Grow Organic: The Climate, Health, and Economic Case for Expanding Organic Agriculture** Natural Resources Defense Council published in partnership with the Swette Center for Sustainable Food Systems at Arizona State University and Californians for Pesticide Reform. Website. Published October 27, 2022. Accessed January 2023.1.

CHAPTER THREE: THE **HOW** OF PLANT-CENTRIC MEALS



GET EXCITED AND GET OTHERS EXCITED!

BARRIERS TO IMPLEMENT PLANT-CENTRIC DIETS AND PLANT-BASED PROTEINS?

- Familiarity/Norms
- Identity
- Social bonding
- Taste
- Availability
- Prep/cooking skills
- Time
- Confusion
- Fear/Emotions
- Digestion
- Pleasure

- Finances (***What*** is inexpensive?)
- Access
- Culture/heritage

Kenny TA, Woodside JV, Perry IJ, Harrington JM. Consumer attitudes and behaviors toward more sustainable diets: a scoping review. Nutr Rev. 2023 Nov 10;81(12):1665-1679

SENSITIVITY AND ACCEPTANCE OF OMNIVORES IS KEY

- Place for animal - based protein in the diet
- Traditional, cultural, spiritual connection
- Improved satiety and absorption for some
- Necessary for certain individuals
- May be what's accessible
- Work with the person and their goals.

WITH INDIVIDUAL PATIENTS/COMMUNITY

- Start slow, go easy
- Add IN
- Add beans/lentils/veg/nuts/seeds to dishes **they already enjoy**
- Diversify diet! Many foods may already be **familiar/part of culture**
- Ask **them** what are **realistic ways** to center plant foods
- Get them in the **kitchen** and **connected** to meals, foods, recipes from their family/heritage
- Combine the less familiar/less frequently consumed WITH the familiar/more frequently consumed
- **Look at menus** together
- Be mindful of too **many processed/ultra-processed plant-centric meals**

MEET PROTEIN NEEDS/CONCERNS

- Divide typical weight in pounds by 2.2 to get weight in kilograms. .8-1 g protein/Kg
- **Example: 150 lbs** = 68 kg, so approximate daily protein need = 54-68 grams/day
- OR multiply weight in lbs by .4 -.5 = 60-75g/day
- Depends on health & activity level
- Vegetarians 1g/protein/kg

- **Protein & satiety:**
  - 15-20 grams/meal + higher fiber meals
  - N = 1
  - Encourage THEM to experiment with how much and which proteins or protein combinations make them feel best

BRANCH OUT!

"HAVE YOU EVER TRIED….?"

- Fruit/veg
- Nuts/seeds
- Grains/beans
- Herbs/spices
- Have seasonal and local foods on your walls/website etc
- *Exploration and Adventure! (New food are FUN)*
- Preserving/Tapping into many traditional/indigenous foods

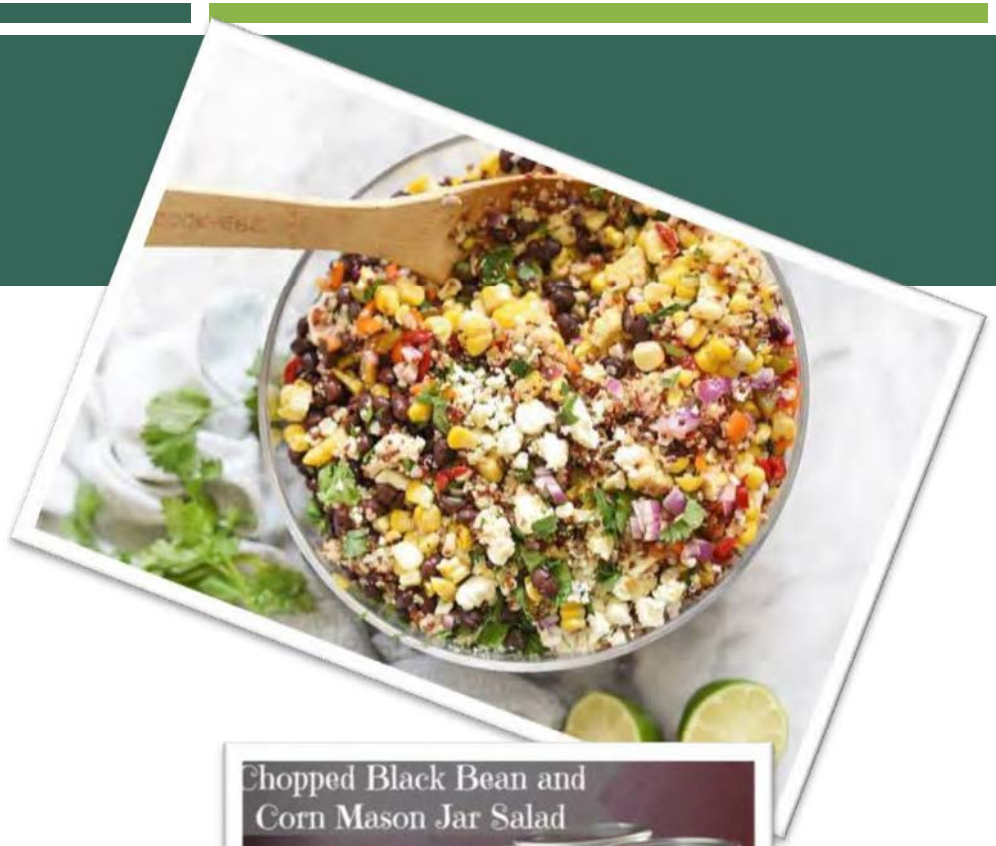
FUN FLAVORS HELP WITH TRANSITION

- **Herbs**
  - Cilantro, mint, rosemary, fenugreek
- **Spices**
  - Smoked Paprika
  - Sumac
  - Berbere
- Garlic
- Onions
- Ginger
- Spicy Peppers
- Toast nuts

- Lemon juice
- Vinegars
- Cooking oils
  - Toasted Sesame
  - Coconut
- Mustards
- Condiments
- Pre-made sauces
- ***What do they like?***

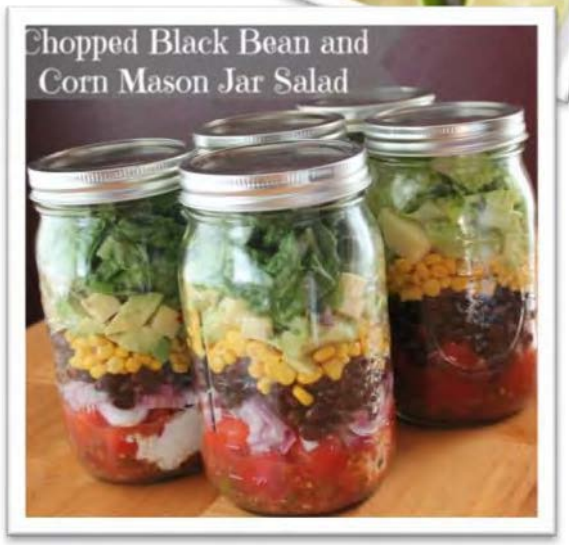
SUGGEST RECIPES AND DISHES THAT LOOK, TASTE, SOUND DELICIOUS AND ARE CULTURALLY RELEVANT

IDEAS IF ASKED



Breakfast

1. Tofu veggie scramble
2. "Biodiversity smoothie"
    1. Tofu/beans in smoothie
3. "Farmers hash"
4. Tortilla with beans/veg
5. PB yogurts with nuts/seeds
6. Nuts and seeds in oatmeal/grains
7. Chia seed pudding with fruit
8. Chickpea oatmeal
9. Soup!



Lunches & Dinners:

1. Black bean & veggie soup
2. Beans/lentils on a salad
3. Bean burrito with veggies
4. Bean and grain bowl
5. Hummus sandwich
6. Curries with vegetables/tofu/beans
7. Morroccan chickpea stews
8. Tempeh/Tofu stir fry
9. Poke bowl with chick peas/veggies/seaweed

Desserts!

1. Black bean brownies
2. Forbidden Black rice pudding
3. Chickpea cookie dough
4. "Energy" nut and dried fruit balls

PROVIDE SOLUTIONS

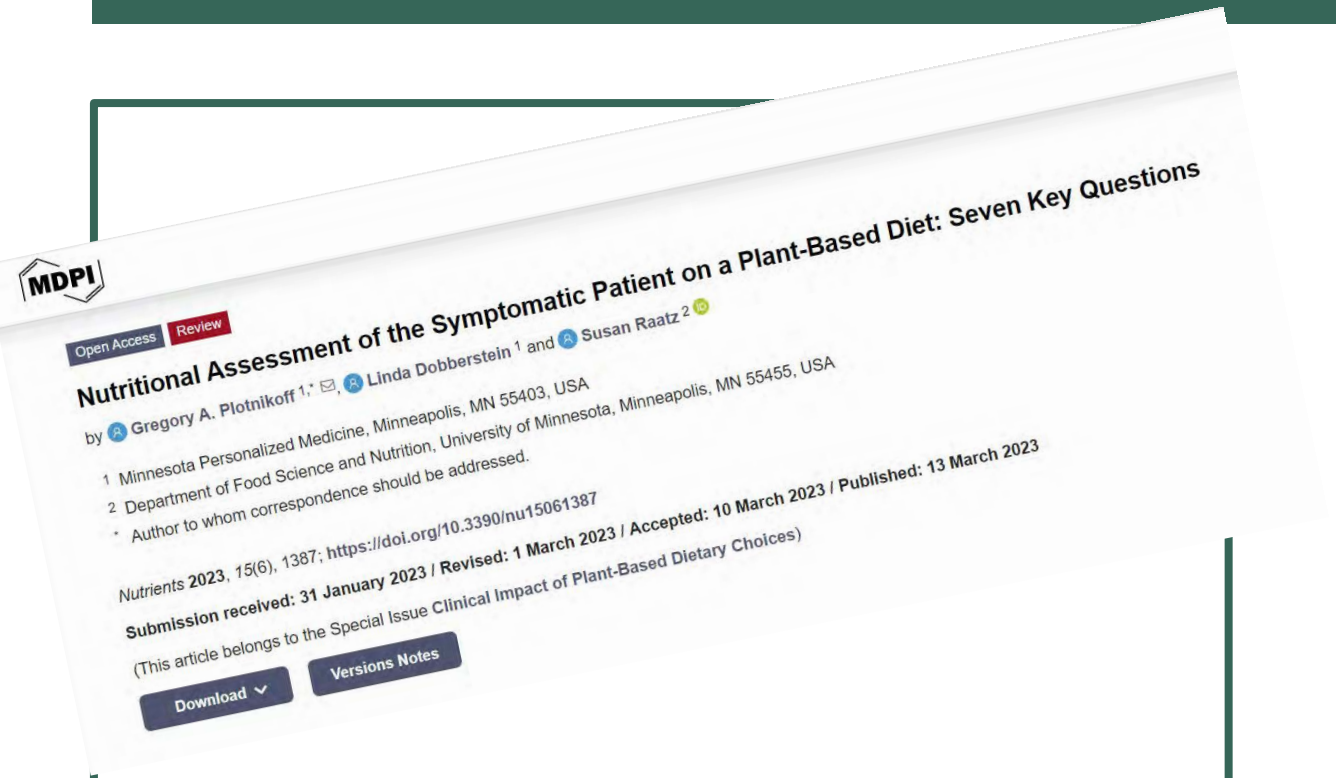
Digestibility of beans etc

- Start small
- Soak
- Cook with kombu
- Cook with cumin
- Add in other carminatives
  - Parsley, ginger, mint

Missing meat

- Combine meat with plant-based proteins
- Use meat as flavor agent
- Mushroom/soy sauce etc for umami
- Ask about connection to meat
- Discuss and educate on plant-based meats
- Try products with a meaty flavor/texture/look
- Have SOME meat!

POTENTIAL NUTRIENTS OF CONCERN



MDPI

Open Access Review

Nutritional Assessment of the Symptomatic Patient on a Plant-Based Diet: Seven Key Questions

by Gregory A. Plotnikoff [1,*], Linda Dobberstein [1] and Susan Raatz [2]

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Nutrients **2023**, *15*(6), 1387; **https://doi.org/10.3390/nu15061387**

Submission received: 31 January 2023 / Revised: 1 March 2023 / Accepted: 10 March 2023 / Published: 13 March 2023

(This article belongs to the Special Issue Clinical Impact of Plant-Based Dietary Choices)

Download Versions Notes

- **Vitamin B12, calcium, vitamin D, iron, zinc, and omega-3 fats**
  - (Less of an issue when some animal/marine based protein included)
- **Be mindful of highly processed versions of plant-based foods**
  - An option but should not make up the entirety of diet
- **Questions to ask patient**
  - What Is Your Preferred Source of Vitamin B12/Iron/Omega 3/calcium/zinc/Vitamin D

Plotnikoff GA, Dobberstein L, Raatz S. Nutritional Assessment of the Symptomatic Patient on a Plant-Based Diet: Seven Key Questions. Nutrients. 2023 Mar 13;15(6):1387.

FOOD SOURCES

IRON

- Chickpeas/Lentils
- Black beans
- Dulse seaweed
- Dried fruits
- **Grains:** quinoa, millet, teff,
- Spirulina
- Dark leafy greens
- Molasses
- With Vitamin C source

CALCIUM

- Collard greens
- Bok choy
- Tofu
- Sesame seeds
- Seaweed
- Nettles
- Black eyed peas

ZINC

- Quinoa
- Sunflower seeds
- Pumpkin seeds
- Sesame seeds

ASSESSING ANY POTENTIAL ISSUES

- Energy
- Mood
- Inflammatory issues
- Immunity
- Bone health
- Blood labs
  - Measuring only a serum B12 level has poor sensitivity for identifying early insufficiency (1)
    - Methylmalonic Acid (MMA) or homocysteine more an indicator

1. Plotnikoff GA, Dobberstein L, Raatz S. Nutritional Assessment of the Symptomatic Patient on a Plant-Based Diet: Seven Key Questions. Nutrients. 2023 Mar 13;15(6):1387. doi: 10.3390/nu15061387. PMID: 36986117; PMCID: PMC10056340

The principles of the EAT-Lancet diet include:

•**Plant-based. F**ruits, vegetables, whole grains, legumes, nuts, and seeds. are the foundation of the diet and should comprise a significant portion of daily food intake

•**Reduced red meat and sugar.** (such as beef and pork) and added sugar consumption. This is due to the environmental impact of meat production and the health risks associated with excessive meat and sugar consumption.

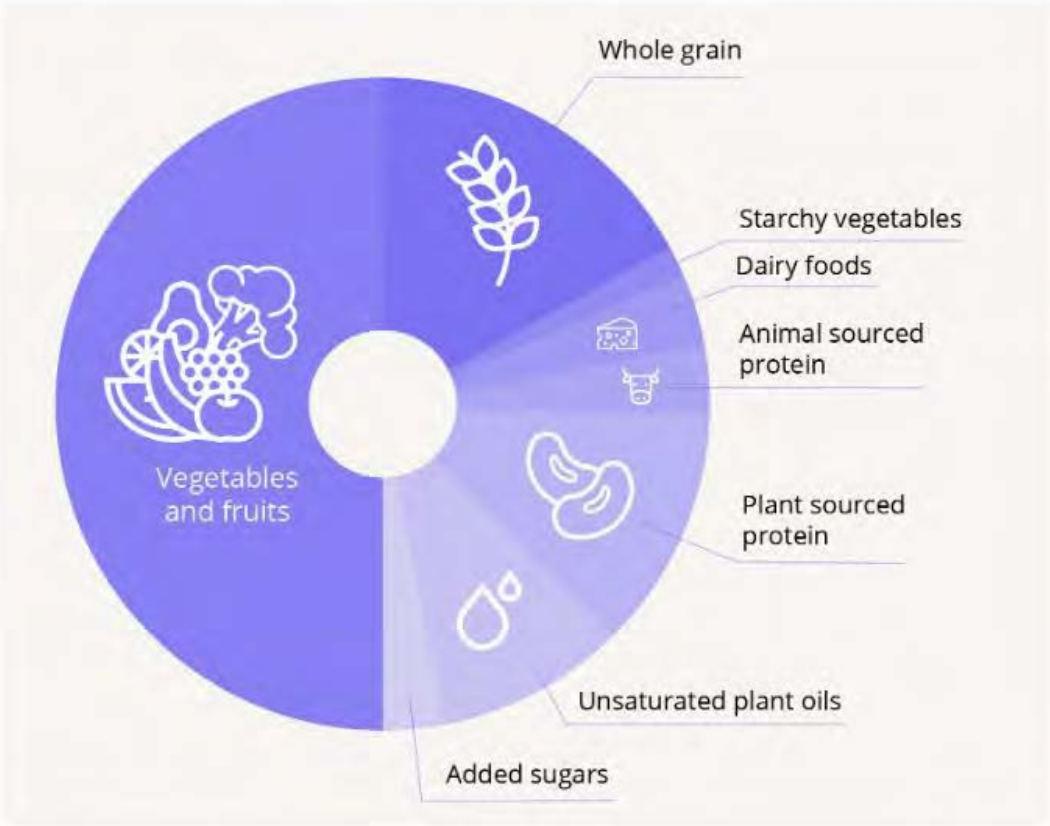
•**Moderate animal-source foods.** The diet includes moderate amounts of animal-source foods, such as dairy, seafood, and poultry. These foods can provide important nutrients like calcium, vitamin D, omega-3 fatty acids, and high-quality proteins.

•**Nutritional adequacy.** The EAT-Lancet diet aims to provide all essential nutrients required for optimal health.

•**Environmental sustainability.** EAT-Lancet strives to reduce the environmental impact of food production by promoting sustainable agricultural practices.

A typical EAT-Lancet plate

Here is an example of the EAT-Lancet plate:



You can see the discernible difference between this plate and the food pyramid you might be used to seeing. There is a **greater emphasis on fruits, vegetables, and plant proteins** and much less emphasis on animal products like meat and dairy. Based on

INSTITUTIONAL CHANGES: GENERAL GUIDANCE

- Make sure it tastes/sounds/smells/look delicious
- DON'T USE "MEAT-FREE" "Meat-free" means less of what meat eaters like
- DON'T USE "VEGAN" - "Vegan" means "different from me"
- DON'T USE "VEGETARIAN" - "Vegetarian" means "healthy – but unsatisfying – food"
- DON'T USE "HEALTHY RESTRICTIVE" LANGUAGE - "Healthy restrictive" language like "low fat" has low appeal

Wise J, Vennard D. It's All in a Name: How to Boost the Sales of Plant-Based Menu Items. World Resources Institute. Published February 5, 2019. Accessed Dec 2023 https://www.wri.org/insights/its-all-name-how-boost-sales-plant-based-menu-items

HEALTH CARE/HOSPITAL EXAMPLE: "NYC HEALTH + HOSPITALS"

NYC Health + Hospitals Now Serving Culturally-Diverse Plant-Based Meals As Primary Dinner Option for Inpatients at All of Its 11 Public Hospitals

NYC Health + Hospitals/Bellevue, Harlem, and South Brooklyn Health join the system's other acute care sites offering tasty, healthy, meals to promote positive health outcomes

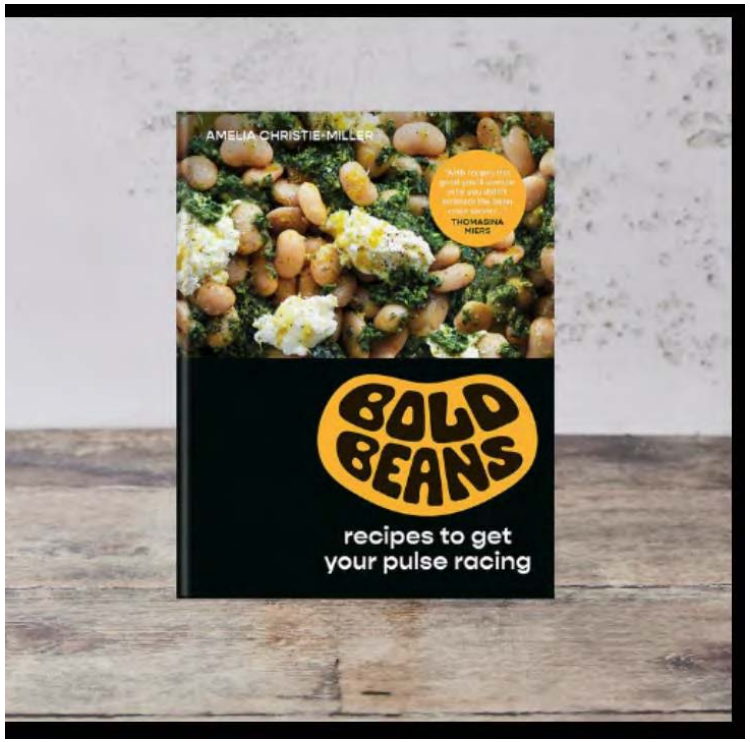
Builds on successful 'Meatless Mondays' program and plant-based primary lunch options introduced this summer

Jan 09, 2023

- Made plant-based foods the default for inpatient meals
- Patient satisfaction rating increased to 90%.
- Reduced food-related carbon emissions by 36% only one year.
- Cost savings of 59 cents per tray.
- **"Plant-based nutrition is a style of cooking and eating** that emphasizes, but is not necessarily limited to, fruits and vegetables, whole grains, legumes, nuts and seeds, plant oils, herbs and spices, and reflects evidence-based principles of health and sustainability."
  - Linked to significantly lower risk of cardiovascular disease, type 2 diabetes, obesity, and certain cancers.
  - Effective treatment of hypertension and hyperlipidemia

https://www.nychealthandhospitals.org/pressrelease/nyc-health-hospitals-now-serving-plant-based-meals-as-primary-dinner-option-for-inpatients-at-all-of-its-11-public-hospitals/

https://alternativefoodnetwork.com/plant-based-diet/episode-41-how-nyc-hospitals-shifted-to-more-plant-based-meals/?mc_cid=d89193b2d6&mc_eid=f719c90ef8

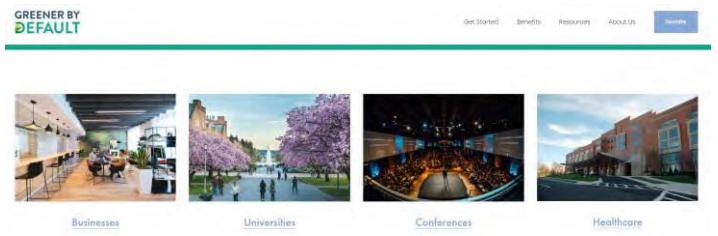


#Beansishow

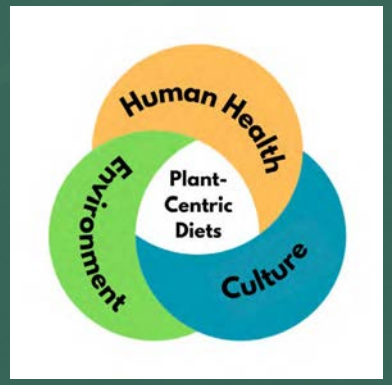
In the future, your diet will be mostly beans | Animated Documentary - BBC

RESOURCES

- **World Resources Institute**
  - Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service
  - https://www.wri.org/research/playbook-guiding-diners-toward-plant-rich-dishes-food-service
- **Food For Climate League**
  - **Serving up Plants by Default**
  - **https://www.foodforclimateleague.org/store/p/serving-up-plants-by-default**
- **Practice Greenhealth/Healthcare without Harm**
  - **Plant Forward Future**
  - https://practicegreenhealth.org/plantforwardfuture
- **Greener by Default**
  - **https://www.foodforclimateleague.org/store/p/serving-up-plants-by-default**



CHAPTER FOUR: "AND BEYOND"



THE ROLE OF MEAT ANALOGUES AND MEAT ALTERNATIVES (PLANT BASED MEATS)

Part of the conversation

In 2021, there was a 43% increase in households buying meat alternatives. (1)

Plant-based cheese sales grew at a rate of 65% over the last two years—over 4 times faster than dairy cheese—led by vegan brands Daiya and Violife. (1)

1. and for plant-based proteins. Nielsen IQ website. https://nielseniq.com/global/en/insights/analysis/2021/examining-shopper-trends-in-plant-based-proteins-accelerating-growth-across-mainstream-channels/ Published Sept 2021. Accessed Jan 2024

MEAT ANALOGUES AND MEAT ALTERNATIVES (PLANT BASED MEATS)


Savory

Nutrition Facts

7 servings per container
Serving size 2oz. (56g)

Calories per serving 130

Amount/serving	% Daily Value*	Amount/serving	% Daily Value*
Total Fat 9g	12%	Total Carbohydrate 5g	2%
Saturated Fat 4g	20%	Dietary Fiber 1g	4%
Trans Fat 0g		Total Sugars 0g	
Cholesterol 0mg	0%	Includes 0g Added Sugars	0%
Sodium 380mg	17%	Protein 7g	12%

Vitamin D 0mcg 0% • Calcium 80mg 6% • Iron 1.4mg 8%
Potassium 210mg 4% • Riboflavin 15% • Niacin 25% • Vitamin B6 10%
Folate 10% • Vitamin B12 50% • Zinc 25%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

HEALTHY?

- Often more fiber than animal proteins (2)
- Phytosterols often present (3)
- Often highly processed (1)
- High in sodium (1)
- High in saturated fat or other refined fats/oils (1)
- Lower in protein/"isolated protein" (1)

ENVIRONMENTALLY FRIENDLY?

- Generally a lower carbon footprint than meat (but 5X footprint of a bean patty) (1, 2)
- Impact on soil/biodiversity/water (1)
  - Growing methods: Use pesticides/fertilizer
  - Impossible burgers: Uses GMO soy (monocultures)
- Packaging/processing

A potential and sometimes helpful option.
OR an on-ramp to more whole foods plant-centric diets!

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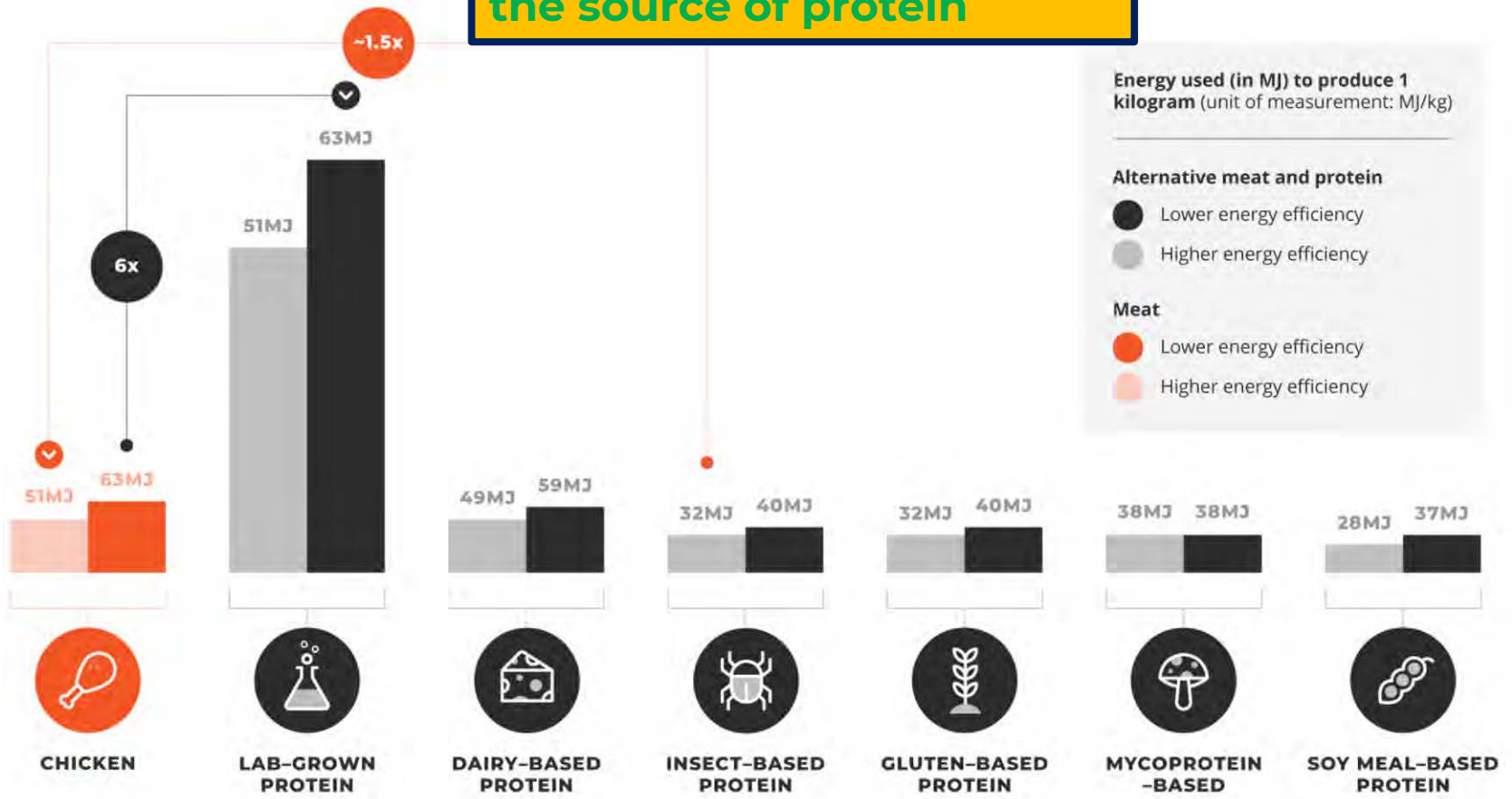
Note: There are different protein amounts in a kg of the source of protein



1. Food Systems Account For at Least 15% of All Fossil Fuels. Global Alliance for the Future of Food Website. https://story.futureoffood.org/power-shift/ Published November 2023. Accessed Dec 2023

/

SYSTEMIC CHANGE: BIGGER PICTURE

POLICY

SUBSIDIES

ADVOCACY

SUMMARY

- Plant centric meals benefit people and planet (soil, biodiversity, traditional crops)
- Diet diversity is key
- Shoot for minimally processed as often as possible
- Taste/sound/look **FANTASTICALLY** delicious
- Ensure sufficient protein
- Co-create/collaborate about ways and how to incorporate more plant-centric meals in diet
- Consider culture, finances, access
- Minimally processed plant centric diet often the most inexpensive options
- Nutritious + Environmentally friendly + less resource intensive

Thank you for joining us today.

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