

MORE PLANTS, MOSTLY LEAVES (LESS ANIMAL PROTEIN)

This document includes the consensus and reliable facts and figures associated with the Principle 1 of the Manifesto for the Evolution of Food.

POSITIVE FACT

Did you know that drinking or eating wheatgrass helps your blood retain more oxygen and at the same time detoxifies the body? Wheatgrass is commonly referred to as “green blood” or “blood builder” due to the fact that it’s 70% composed of Chlorophyll, a molecule that bears close resemblance to hemoglobin, a key protein found in our blood that’s responsible for oxygenating our bodies.¹



THE WORLD

ANIMAL PROTEIN AND LIFE EXPECTANCY: A 2017 study published in JAMA showed that consuming just 3% less animal protein and replacing it with plant protein was associated with up to a 19% lower risk of death from any cause.²

MORE EFFICIENT FOOD PRODUCTION: A 2018 PNAS study found that replacing each of the animal-food categories in the United States (beef, pork, dairy, poultry, and eggs) with plant-based food can produce two-fold to 20-fold more nutritionally similar food per unit cropland.³

DIETS AND DIABETES: A study comparing the health impacts of the global omnivorous diet with those reported for traditional mediterranean, pescatarian and vegetarian diets showed that the adoption of the latter diets could reduce incidence of type II diabetes by about 25%, cancer by about 10% and death from heart disease by about 20% relative to the omnivore diet.⁴

LAND USE: 23% of global agricultural land is used for plant-based food production that provide us with 83% of our calorie intake or and 63% of our protein intake. The remaining 77% of agricultural land is used to produce meat and dairy products (this includes pastures for both livestock and their food needs) that account for 17% of our calorie intake and 37% of our protein intake.

CANCER PREVENTION: Because of their high content of antioxidants, green leafy vegetables may be one of the best cancer-preventing foods. Studies have shown that eating 2 to 3 servings of green leafy vegetables per week may lower the risk of stomach, breast and skin cancer. These same antioxidants have also been proven to decrease the risk of heart disease.⁵

BALANCED DIETS: Adding more green vegetables to a balanced diet increases the intake of dietary fiber which, in turn, regulates the digestive system and aids in bowel health and weight management. These properties are particularly advantageous for those with type-2 diabetes.⁶

CARDIOVASCULAR DISEASES: Epidemiological prospective studies show that higher intakes of antioxidant-rich fruits, vegetables, and legumes are associated with a lower risk of chronic cardiovascular diseases, cancer, and deaths from all causes. But

anti-oxidant supplements alone don't do the trick. It must be in conjunction with the unique set of minerals, fiber, and other substances found naturally in fruits, vegetables, and whole grains.⁷

WHEATGRASS: The most remarkable feature of the wheatgrass juice is its high chlorophyll content. Chlorophyll bears structural similarity to hemoglobin and has been found to regenerate or act as a substitute of hemoglobin in hemoglobin-deficiency conditions. This might be the reason behind the utility of wheatgrass in clinical conditions like thalassemia and hemolytic anemia.⁸

PLANT BASED OMEGA-3: Healthy omega-3 fats found in leafy green plants may turn out to be the most important reason for eating leafy greens. Most people associate omega-3 fatty acids with fish, but fish get them from green plants (specifically algae), which is where they all originate. Plant leaves produce these essential fatty acids ("essential" because our bodies can't produce them on their own) as part of photosynthesis. Omega-3s appear to play an important role in neurological development and processing, the permeability of cell walls, the metabolism of glucose and the calming of inflammation.⁹

OMEGA-3 AND HEART DISEASE: Several studies show that Omega-3 fatty acids may have significant benefits in lowering the risk of heart disease and also protect against depression, dementia, cancer, and arthritis. Omega-3 fatty acids are found in higher amounts in spinach, collard greens, broccoli, edamame and other green vegetables.^{10,11}

FAT STORAGE: But the ratio between omega-3s and omega-6s may matter more than the absolute quantity of either fat. Thus too much omega-6 may be just as much a problem as too little omega-3. The two lipids compete with each other for the attention of important enzymes with omega-6, largely found in seeds, resulting in fat storage.¹²

UNBALANCED FAT INTAKE: Although a 3:1 omega-6/omega-3 fatty acid ratio is recommended, the typical American diet has a 25:1 ratio.¹³ Before the widespread introduction of seed oils at the turn of the last century, it was closer to 1 to 1.¹⁴

¹ https://www.researchgate.net/publication/42637352_Multitude_potential_of_Wheatgrass_Juice_Green_Blood_An_overview

² <https://www.health.harvard.edu/blog/eat-more-plants-fewer-animals-2018112915198>

³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5899434/>

⁴ <https://ourworld.unu.edu/en/new-research-says-plant-based-diet-best-for-planet-and-people>

⁵ <https://www.ars.usda.gov/plains-area/gfnd/gfhnrc/docs/news-2013/dark-green-leafy-vegetables/>

⁶ <https://www.ars.usda.gov/plains-area/gfnd/gfhnrc/docs/news-2013/dark-green-leafy-vegetables/>

⁷ <https://www.hsph.harvard.edu/nutritionsource/antioxidants/>

⁸ https://www.researchgate.net/publication/42637352_Multitude_potential_of_Wheatgrass_Juice_Green_Blood_An_overview

⁹ <https://www.nytimes.com/2007/01/28/magazine/28nutritionism.t.html>

¹⁰ https://www.onhealth.com/content/1/omega_3_foods

¹¹ <https://www.healthline.com/nutrition/17-health-benefits-of-omega-3#section13>

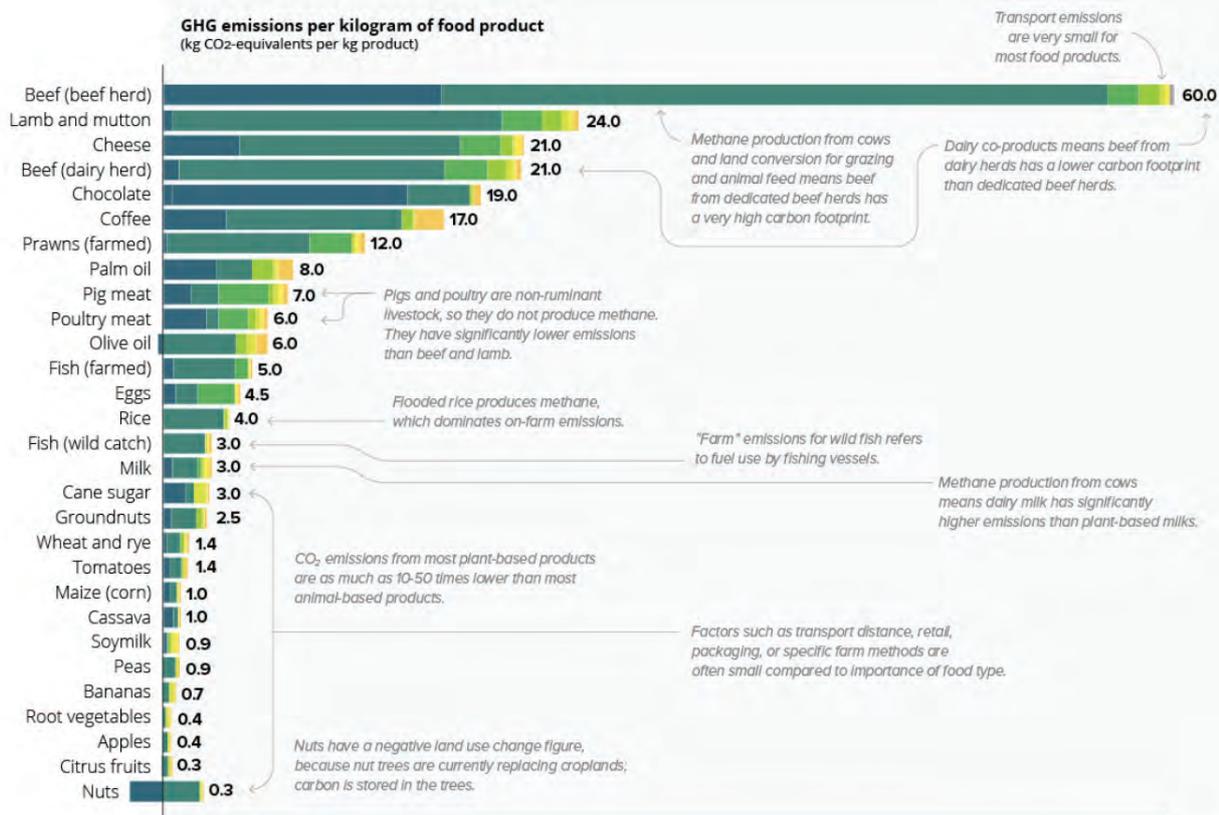
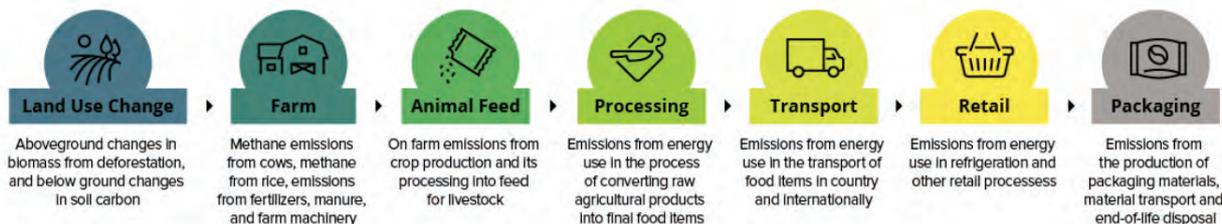
¹² https://www.onhealth.com/content/1/omega_3_foods

¹³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6003211/>

¹⁴ https://www.onhealth.com/content/1/omega_3_foods

FOOD / Greenhouse gas emissions across the supply chain

There is a vast difference in greenhouse gases (GHG) that are produced across various food types.



Note: Greenhouse gas emissions are given as global average values based on data across 38,700 commercially viable farms in 119 countries. Data source: Poore and Nemecek (2018). Reducing food's environmental impacts through producers and consumers. Science. Images sourced from the Noun Project. OurWorldInData.org - Research and data to make progress against the world's largest problems.



PORTUGAL

DOUBLED MEAT CONSUMPTION: Since 1981, meat consumption in Portugal has doubled: from 58 kg per inhabitant to 117 kg in 2018.¹⁵ The World Cancer Research Fund recommends that if you eat red meat, limit consumption to no more than 26 kilos per year.¹⁶

MORE ANIMALS THAN PLANTS: The Portuguese consume more food from animal origin than vegetable origin.¹⁷

LIVESTOCK IN PORTUGAL: At the same time, more than half of Portugal's farmland is used for livestock,¹⁸ resulting in more water use and pollution than other foodstuffs¹⁹ while only providing a small portion of our energy needs.

TOO MUCH ANIMAL PRODUCT INTAKE: Meat, fish and egg consumption accounted for 16% of the average Portuguese calorie intake between 2012

and 2016, according to the latest data series set. This compares with a government recommendation that meat, fish and poultry account for 5% of the average Portuguese calorie intake.^{20, 21}

CARBON EMISSIONS: One less meat portion in a meal per week over a year is equivalent to saving about 500 km of carbon emissions from a car, roughly the equivalent of a roadtrip from Porto to Faro.²²

TOO MANY CALORIES: On average, the Portuguese consume about 1,910 kcal/day (1,635 kcal/day for women and 2,228 kcal/day for men) more than they need. About 10% of this extra energy intake comes from the consumption of cookies, cakes and sweets, essentially food that contributes little to no vitamins, minerals and other important nutrients for our health.²³

¹⁵ <https://www.jornaldenegocios.pt/economia/detalhe/portugueses-nunca-consumiram-tanta-carne-como-em-2018>

¹⁶ <https://www.wcrf.org/dietandcancer/recommendations/limit-red-processed-meat>

¹⁷ Lopes C et al. Inquérito alimentar nacional e de atividade física (IAN-AF) 2015-16. Universidade do Porto; 2017

¹⁸ https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=277088793&PUBLICACOESmodo=2&xlang=en

¹⁹ https://www.apn.org.pt/documentos/ebooks/E-BOOK_SUSTENTABILIDADE.pdf

²⁰ https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=289818234&PUBLICACOESmodo=2&xlang=pt

²¹ <https://www.jornaldenegocios.pt/economia/conjuntura/detalhe/cada-portugues-ingere-muito-mais-calorias-do-que-precisa>

^{22, 23} <https://www.sns.gov.pt/noticias/2019/01/03/alimentacao-mais-saudavel-em-2019/>