



# Food for a Healthier Planet: Expert Panel on Sustainability and Nutrition

May 24, 2022

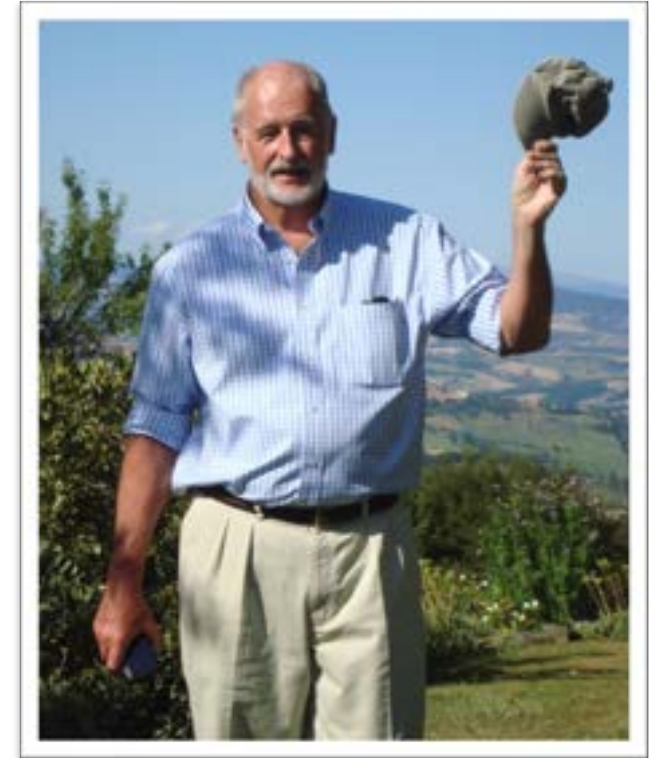
# About Oldways



- Nutrition nonprofit founded in 1990
- **Mission:** To inspire people to embrace the healthy and sustainable joys of the old ways of cooking and eating
- Visit us online at [oldwayspt.org](http://oldwayspt.org)

# Supporting Sustainable Diets Through the Decades

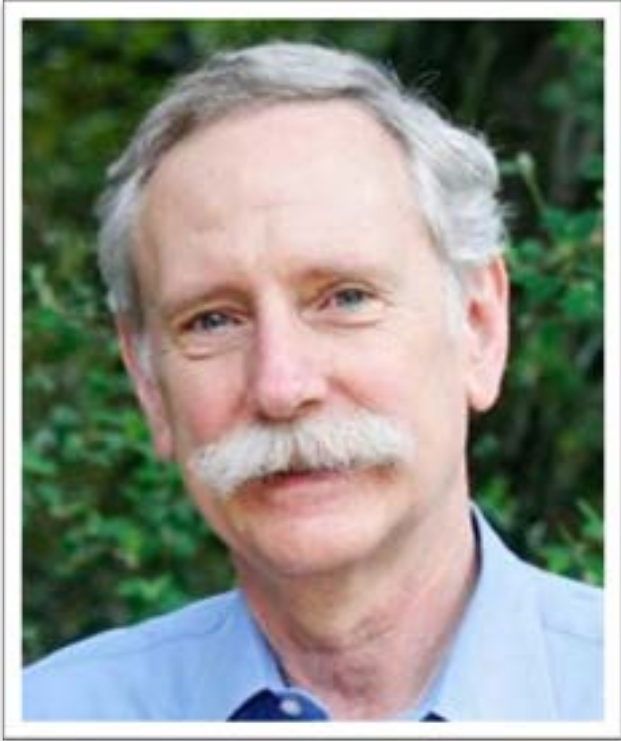
- **1993:** Oldways founded the Chefs Collaborative
  - *Network 1,000+ of America's most influential chefs working to advance sustainable food choices for the next century*
- **1996:** Oldways organized conference on sustainable diets in collaboration with the United Nations
- **1990s & early 2000s:** Creation of diverse heritage diet Pyramids that highlight sustainable, cultural models of healthy eating
- **TODAY:** Promoting sustainable diets through educational webinars for health professionals, blogs, and social media



# Housekeeping

- Attendees will receive an email within ONE WEEK with **CPEU certificate, slides, and recording**
- Visit **oldwayspt.org/CPEU** to register for upcoming webinars or view recordings of previous webinars
- Please submit any questions using the CHAT function in Zoom

# Today's Speakers



**Walter Willett, MD, DrPH**



**Sharon Palmer, MS, RDN**





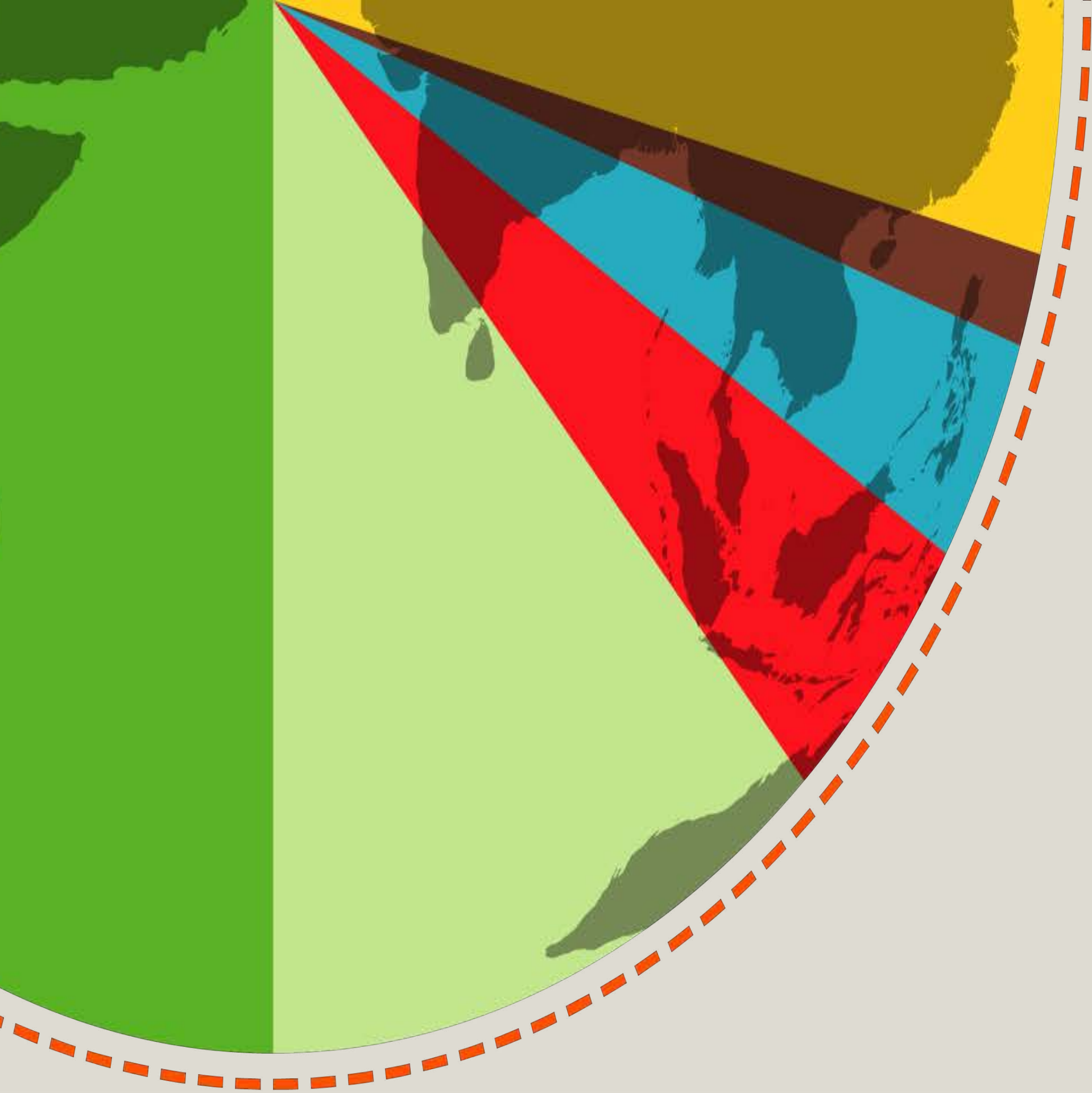
Can we feed the world a diet that is both healthy  
and sustainable?

***Walter C. Willett, MD, DrPH***

*Department of Nutrition*

*Harvard T. H. Chan School of Public Health*

May 24, 2022



The EAT-Lancet Commission on  
Healthy Diets From  
Sustainable Food Systems

# Food Planet Health

<https://eatforum.org/eat-lancet-commission/>

## EAT/Lancet Commission

***The Challenge:*** How to feed 9.8 billion people in 2050 a diet that is healthy and sustainable

<https://www.thelancet.com/commissions/EAT>



# The scale of the challenge



**2 billion** people lack key micronutrients like iron and vitamin A



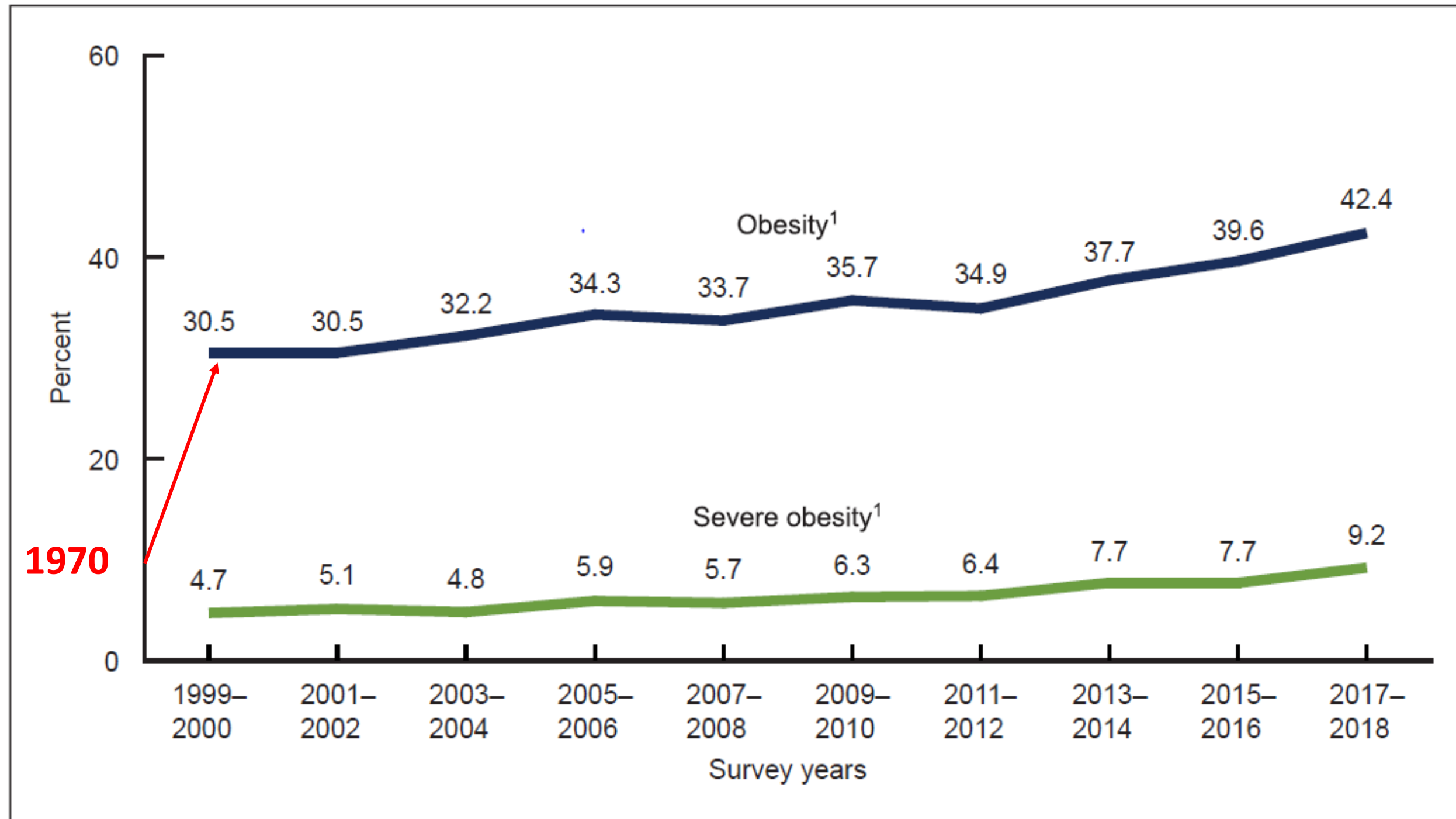
**155 million** children are stunted



**2 billion** adults are overweight or obese



Figure 4. Trends in age-adjusted obesity and severe obesity prevalence among adults aged 20 and over: United States, 1999–2000 through 2017–2018

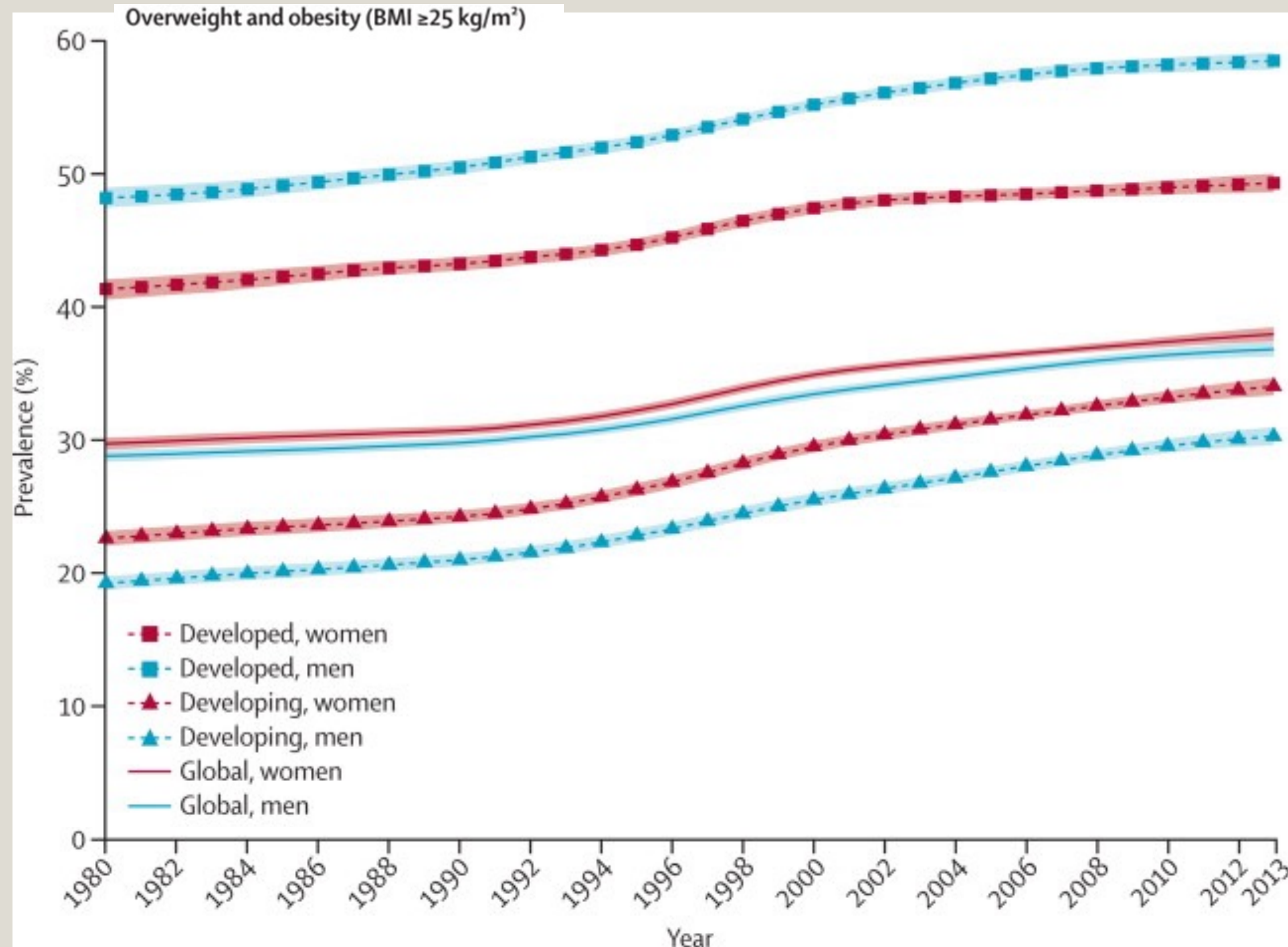


<sup>1</sup>Significant linear trend.

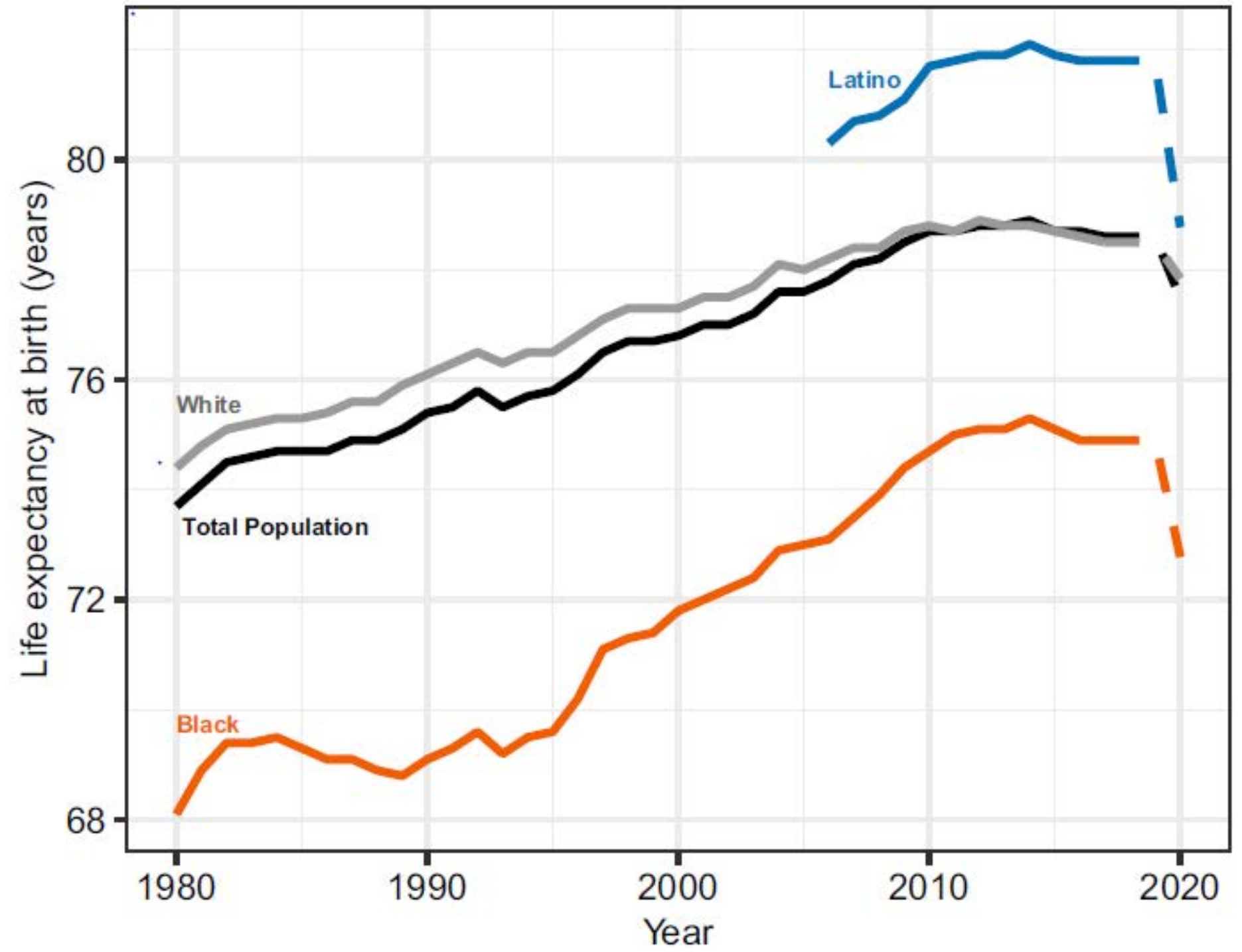
NOTES: Estimates were age adjusted by the direct method to the 2000 U.S. Census population using the age groups 20–39, 40–59, and 60 and over. Access data table for Figure 4 at: [https://www.cdc.gov/nchs/data/databriefs/db360\\_tables-508.pdf#4](https://www.cdc.gov/nchs/data/databriefs/db360_tables-508.pdf#4).

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2018.

# Changes in Prevalence of Overweight/Obesity from 1980 to 2012



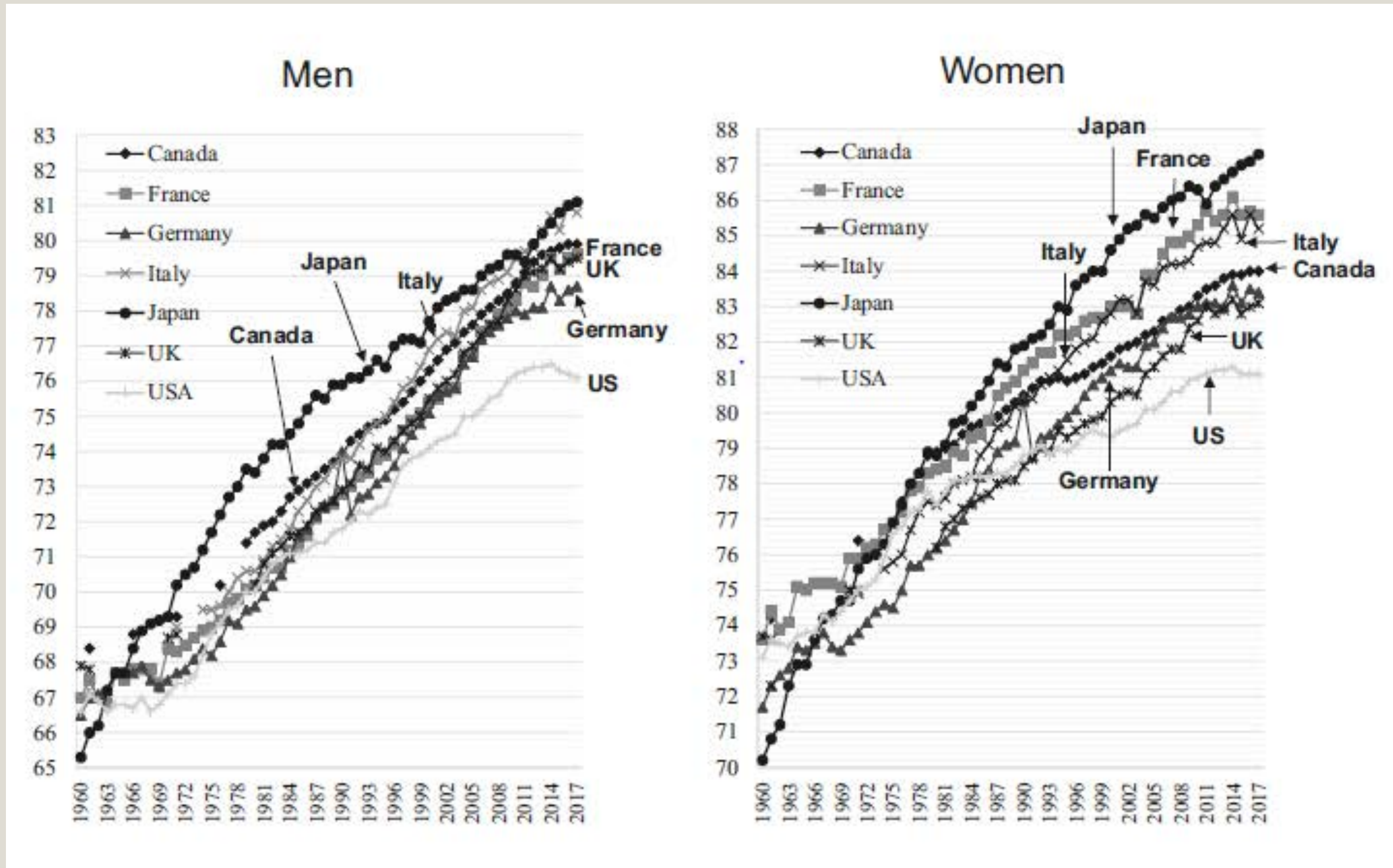
# Effect of COVID on life expectancy



— Total Population — Latino — White — Black  
— Observed — Projected



# Annual trends of life expectancy at birth (years) in selected countries

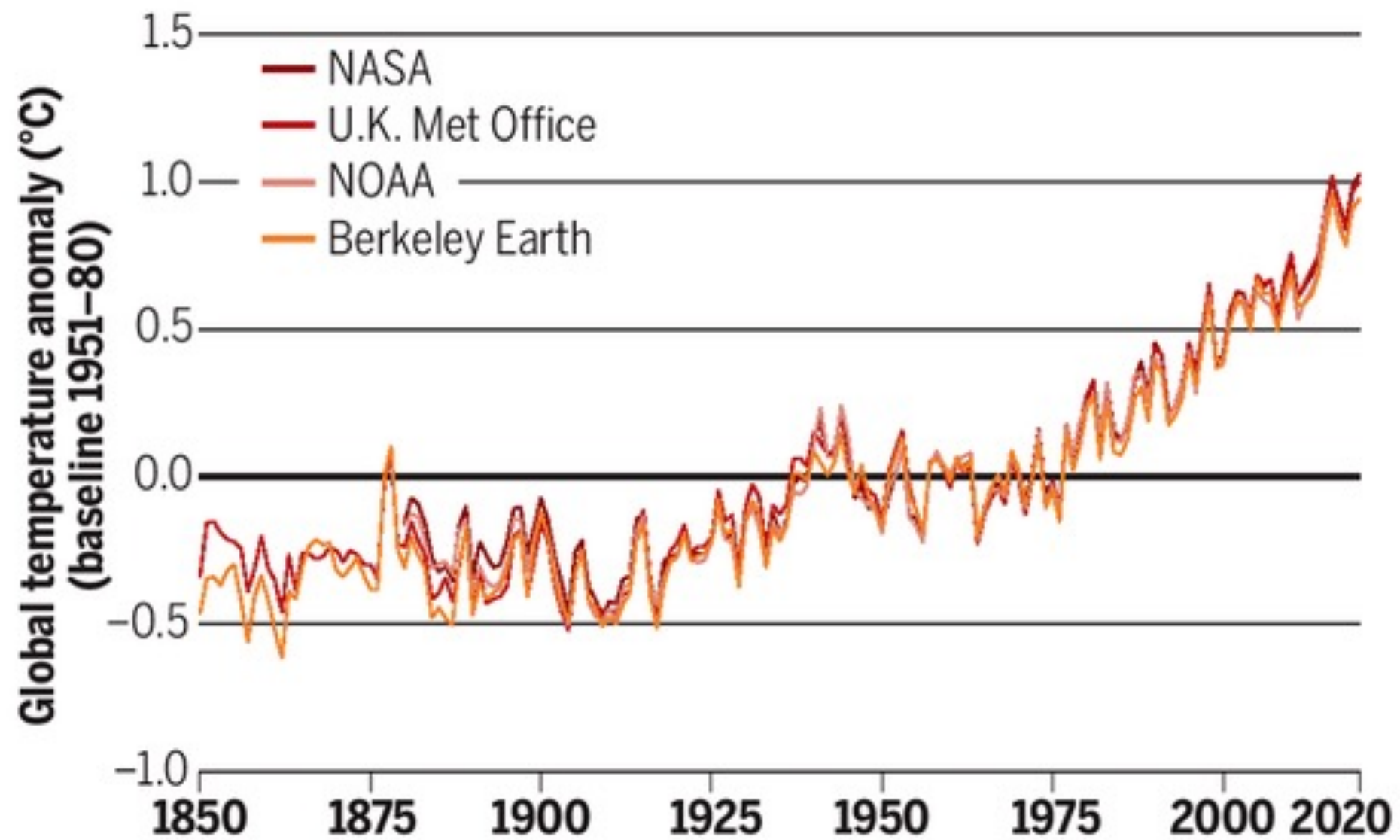


: (Tsugane S, Eur J Clin Nutr 2020)



## Turning up the heat

Temperatures in 2020 tied 2016's record levels. They were about  $1^{\circ}\text{C}$  above a 1951–80 average, or  $1.25^{\circ}\text{C}$  hotter than preindustrial levels.



# EAT-Lancet Commission Approach

**Define a healthy reference diet** using the best available evidence

(controlled feeding studies, long-term cohort studies, randomized trials).

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**Define planetary boundaries** for 6 key environmental systems and processes (GHG, cropland use, water use, nitrogen and phosphorus application, extinction rate).

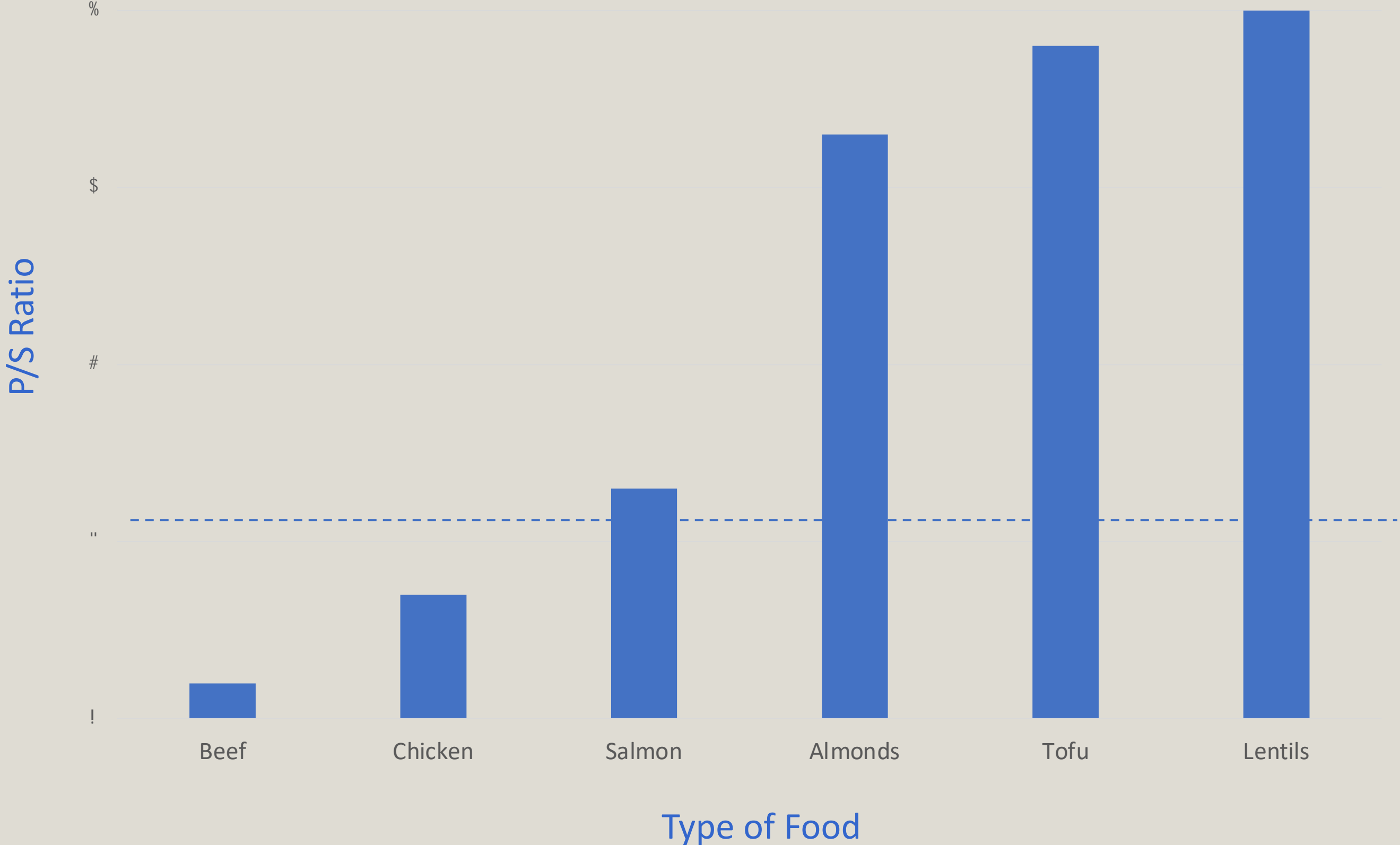
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**Apply a global food systems modeling framework** to analyze what combinations of readily implementable measures are needed to stay within food production boundaries while still delivering healthy diets by 2050.

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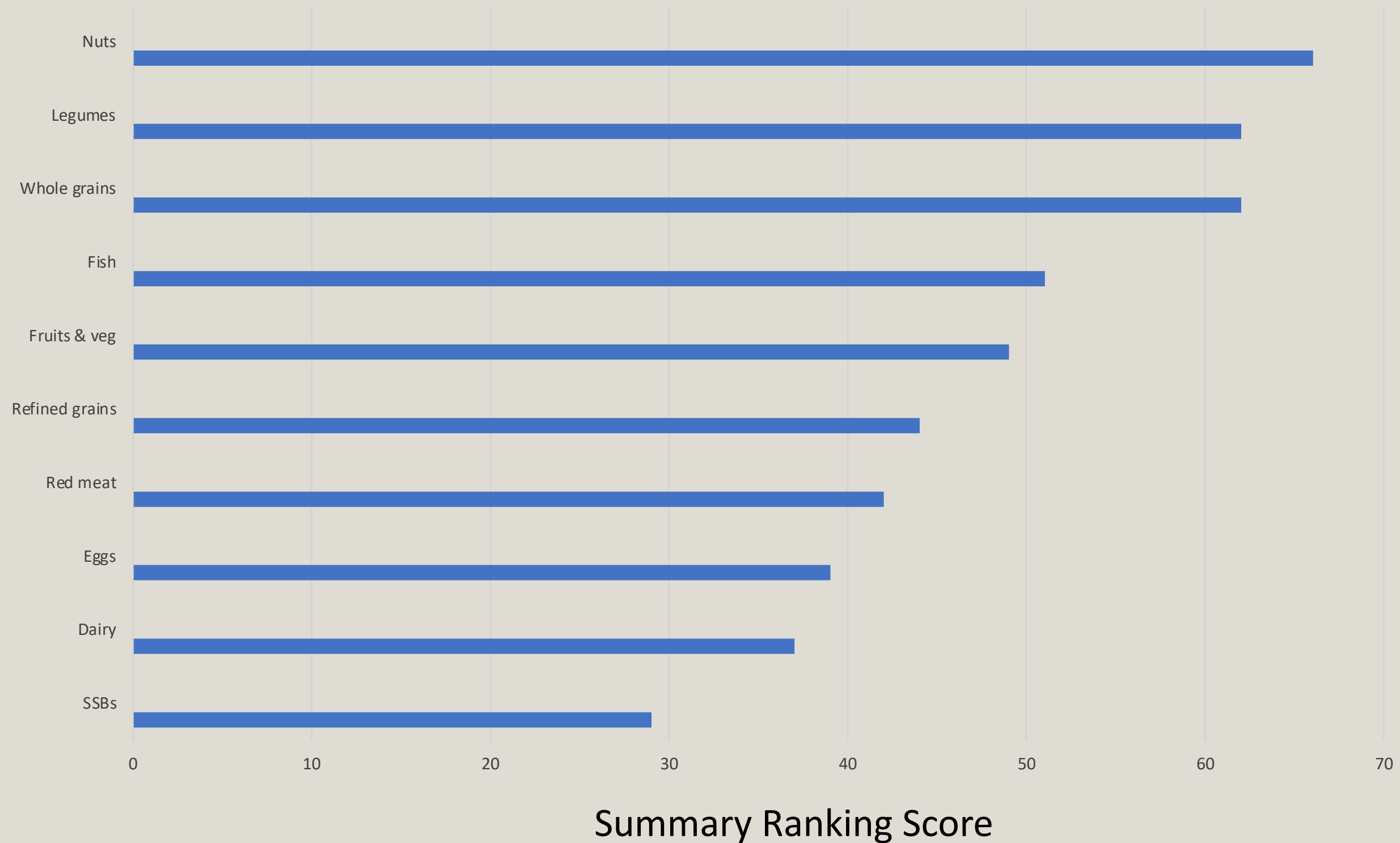
**Outline Strategies** to achieve the changes needed to meet the goal of healthy diets from sustainable food systems for all by 2050.

# Ratio of Polyunsaturated Fat to Saturated Fat (P/S Ratio) for Major Protein Sources

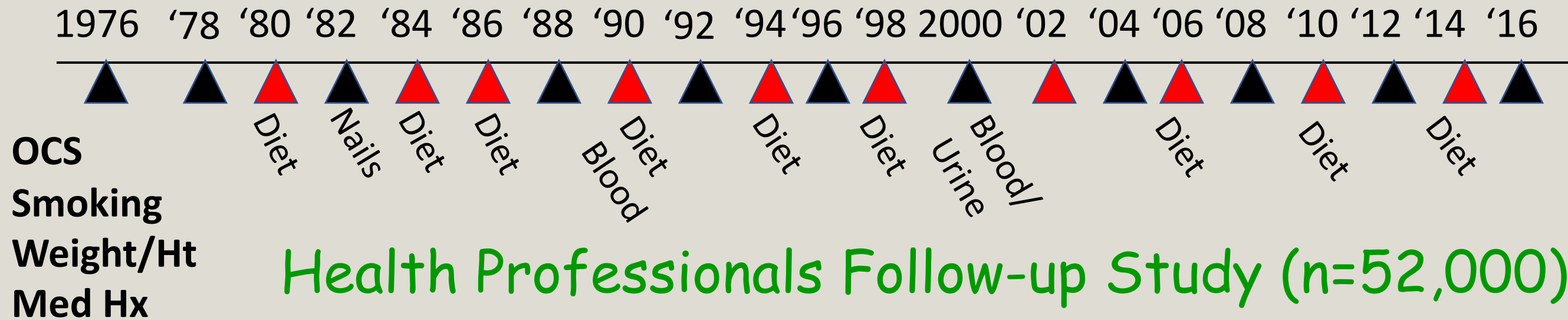


14.076

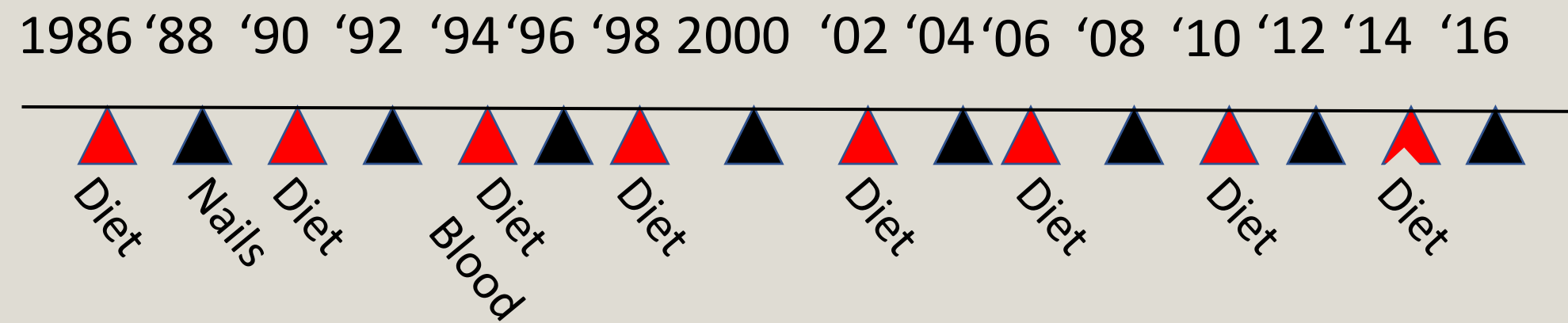
# Network meta-analysis of 66 randomized trials of food group effects on risk factors for cardiometabolic disease (LDL-C, TG, TC, HDL-C, FG, HbA1c, HOMA-IR, SBP, DBP, CRP)



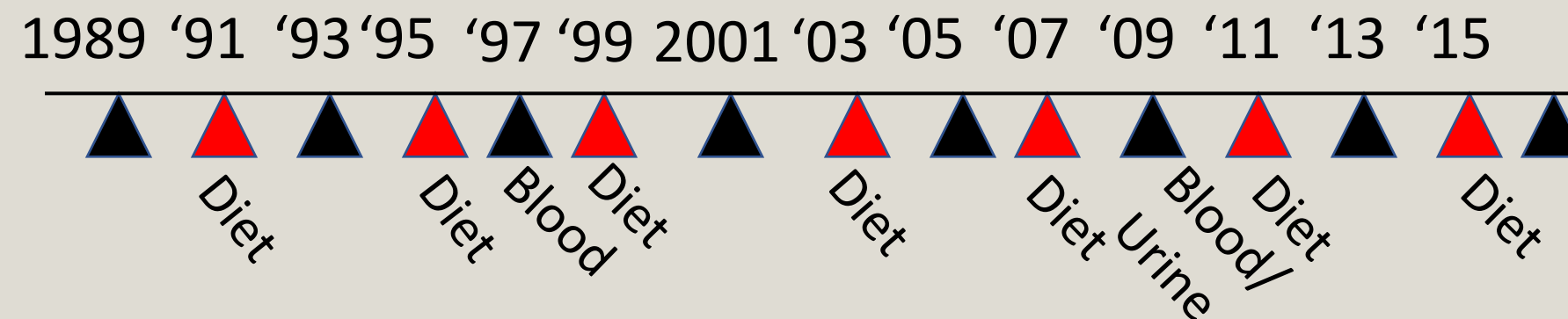
# Nurses' Health Study (n=121,700)



# Health Professionals Follow-up Study (n=52,000)



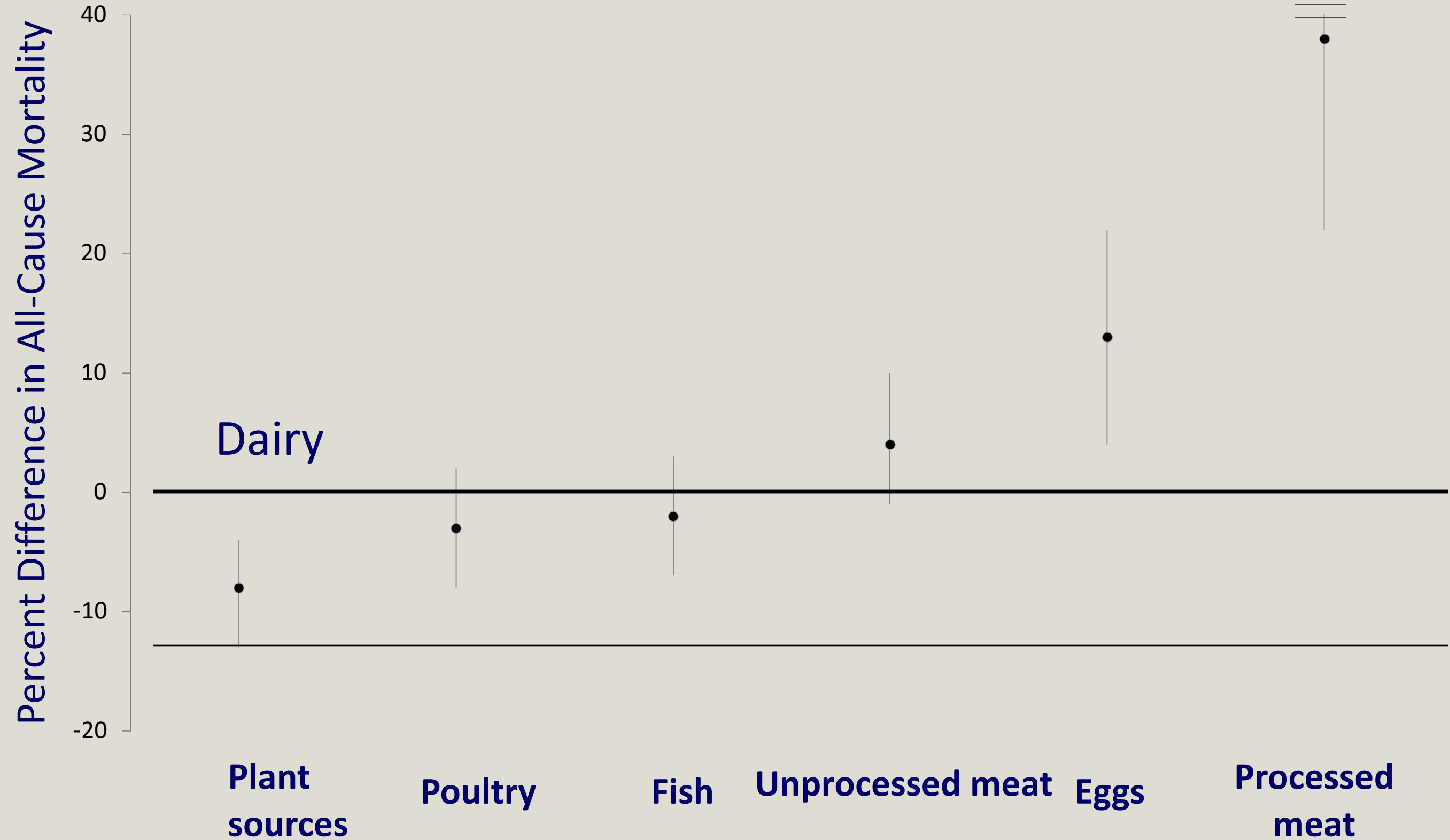
# Nurses' Health Study II (n=116,000)



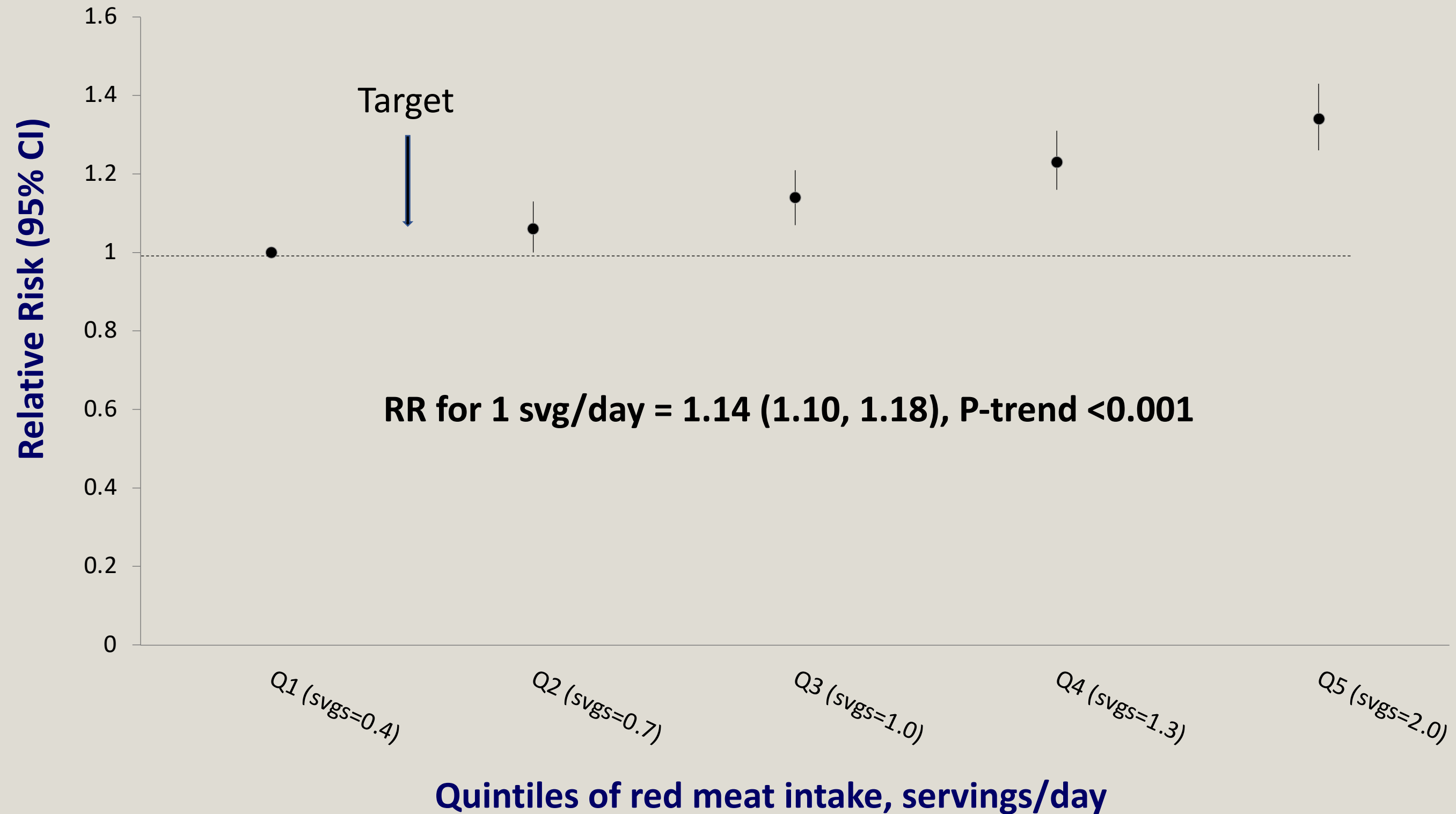
**Investigators:** Frank Speizer, Bernie Rosner, Meir Stampfer, Graham Colditz, David Hunter, JoAnn Manson, Eric Rimm, Edward Giovannucci, Alberto Ascherio, Gary Curhan, Charles Fuchs, Michelle Holmes, Donna Spiegelman, Frank Hu, Heather Eliassen, Lorelei Mucci, Jae Hee Kang, Andy Chan, Qi Sun, +



# Differences in all-cause mortality for major protein sources vs dairy (for 3% of energy from protein) (recalculated from Song M et al. JAMA Intern Med 2016)



# Relation of red meat to risk of Type 2 diabetes in NHS, NHSII, and HPFS (204,156 men and women, 13,759 incident cases)



\*Servings are average for 3 cohorts, considering 85 g/svg (3%)

\*\*N.B. Intake of red meat in “optimal diet” = 19 g/day (Micha R et al. PLoS One 2017)

# Scientific Targets for Healthy Diets (2500 Kcal/day)

Food group	Food subgroup	Reference diet (g/day)	Possible ranges (g/day)
Whole Grains	All grains	232	0 to 60% of energy
Tubers/Starchy Vegetables	Potatoes, cassava	50	0 to 100
Vegetables	All vegetables	300	200 to 600
Fruits	All Fruits	200	100 to 300
Dairy Foods	<u>Dairy Foods</u>	250	0 to 500
Protein Sources	Beef, lamb, pork	14	0 to 28
	Chicken, other poultry	29	0 to 58
	Eggs	13	0 to 25
	Fish	28	0 to 100
	Dry beans, lentils, peas	50	0 to 100
	Soy	25	0 to 50
	Nuts	50	0 to 75
Added fats	Unsaturated oils	40	20-80
	Saturated oils	12	0 to 7
Added sugars	All sweeteners	31	0 to 31

**1 glass of milk  
or equivalent**

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	Eggs	13	0 to 25
	Fish	28	0 to 100
	Dry beans, lentils, peas	50	0 to 100
	Soy	25	0 to 50
	Nuts	50	0 to 75
Added fats	Unsaturated oils	40	20-80
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**1 hamburger per week**

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**2 servings per week**



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**About 2 eggs  
per week**

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**2-3 servings per day**

**1-2 servings per day**

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Added fats	<u>Unsaturated oils</u>	40	20-80
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**Total fat  
about 35%E**

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**< one 12-oz  
soda**



# Planetary Health Diet Bottom Line (Flexitarian)

Servings/Day of Animal Source Foods (Optional)

**1**

**Dairy**

**+**

**1**

**Other**

(fish, poultry, eggs, red meat)



**Base: Nuts, soy, beans, fruit,  
vegetables, whole grains, plant oils**



# Nutrient Composition of Healthy Reference Diet (Daily Values)

Total calories	2500 Kcal
Protein	90 g
Protein	14%E
Total fat	106 g
Total fat	38%E
Carbohydrate	317 g
Carbohydrate	51%E
Calcium	718 mg
Iron	20 mg
Magnesium	733 mg
Potassium	4101 mg
Zinc	14 mg
Vitamin C	129 mg
Vitamin B <sub>1</sub>	2.4 mg
Vitamin B <sub>2</sub>	1.7 mg
Niacin	26 mg

Vitamin B <sub>6</sub>	2.8 mg
Folate	741 mcg
Vitamin B <sub>12</sub>	2.3 mcg
Beta-carotene	9858 IU
Retinol equivalents	1068
Vitamin D	195 IU
Saturated fat	23 g
Saturated fat	8%E
Mono fat	45 g
Mono fat	16%E
Polyunsaturated fat	31 g
Polyunsaturated fat	11%E
ALA	2.5 g
ALA	1%E
EPA & DHA	200 mg
Cholesterol	125 mg

\*

\*Supplement needed if animal foods are lower

# Reality Check: Protein Sources in Traditional Mediterranean Diet

## ***Total of red meat plus poultry:***

**Greek men living in Crete in 1960s:  
35 grams per day**

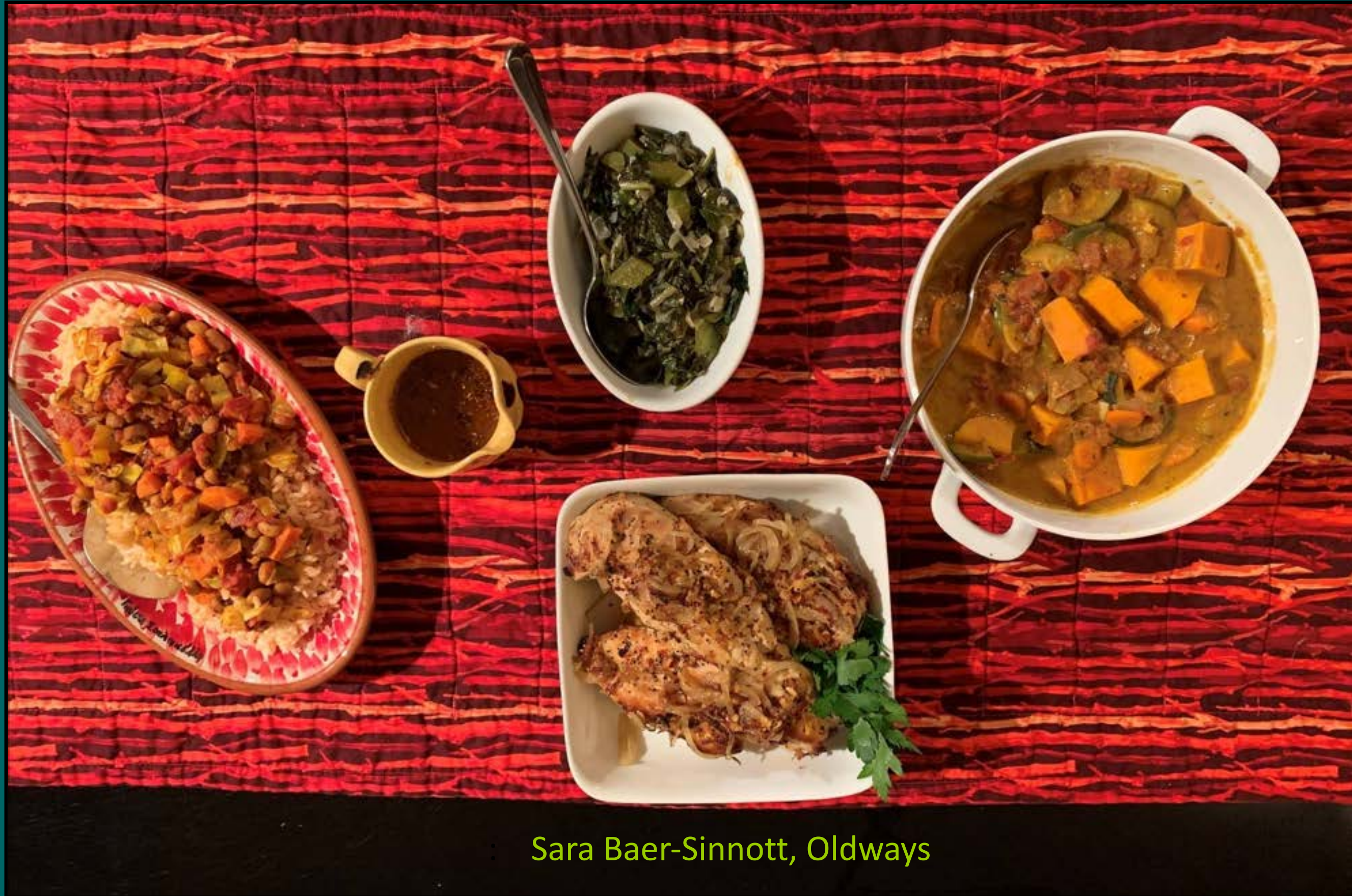
*(Willett WC et al. Am J Clin Nutr 1995)*

**EAT-Lancet reference diet:  
43 grams per day**





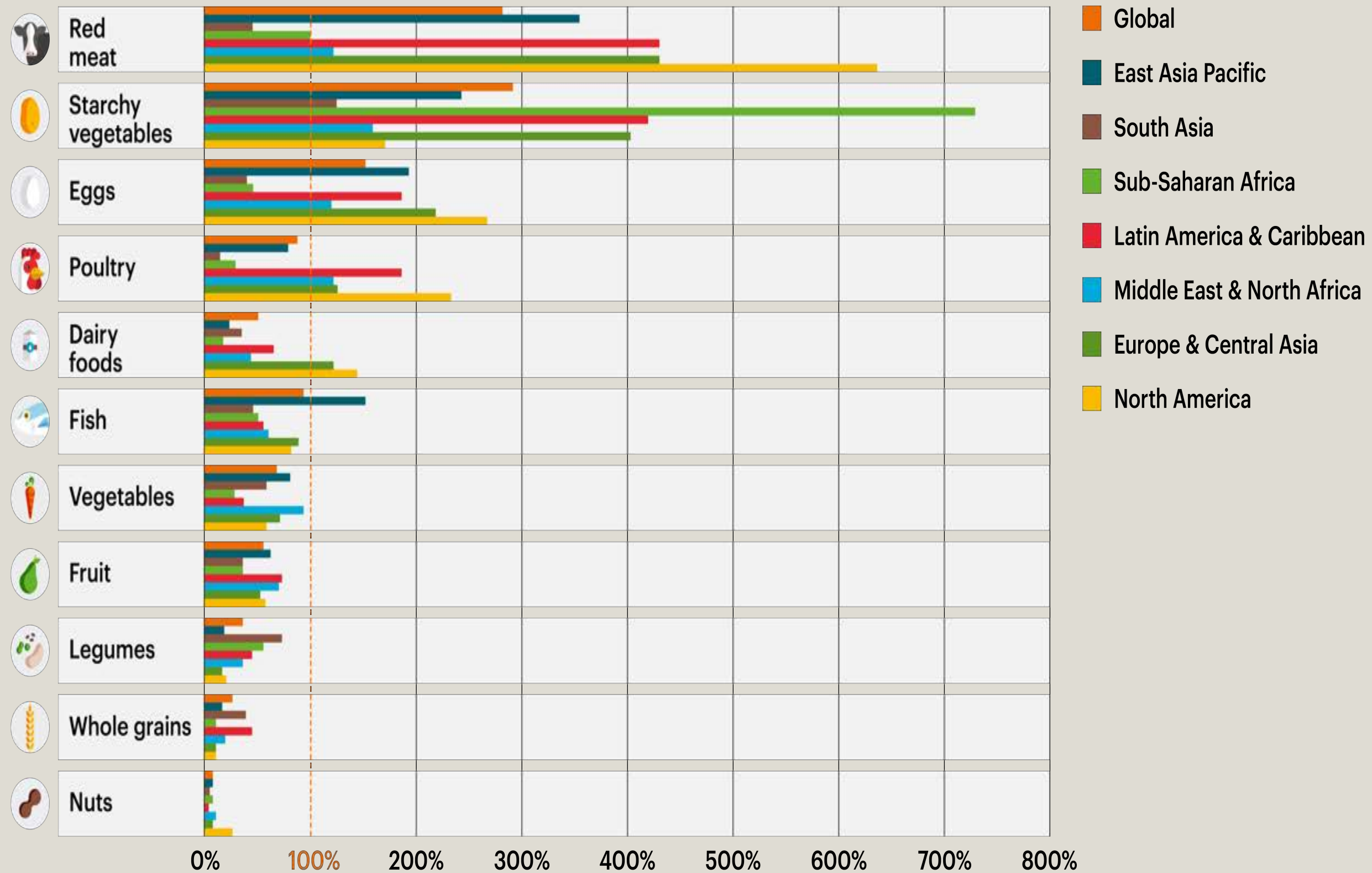




Sara Baer-Sinnott, Oldways



# Current Intakes vs Planetary Health Diet

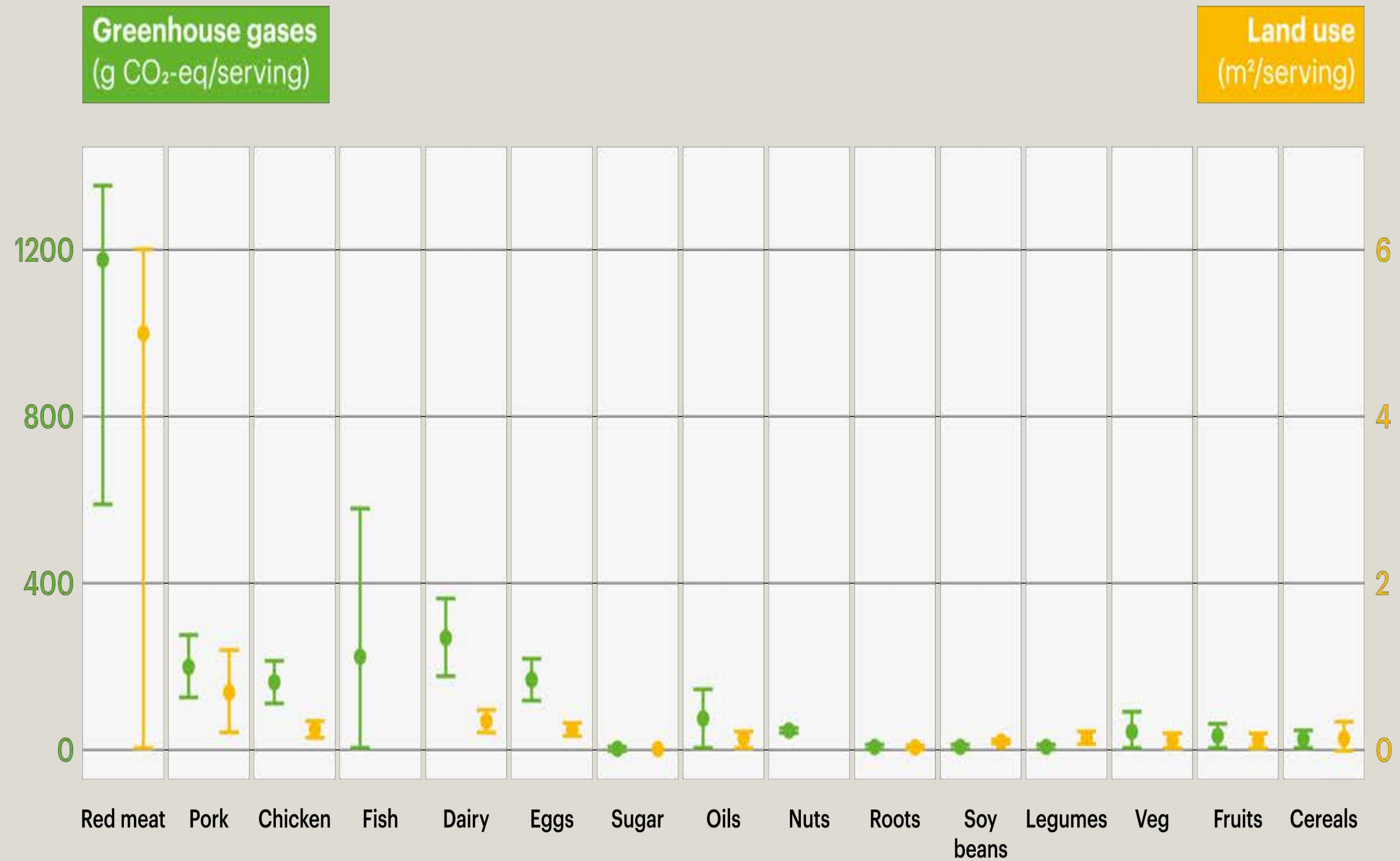




# Substantial Health Benefits



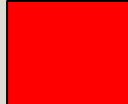



<b>Approach 1</b> Comparative Risk	<b>19%</b>	or	<b>11.1 million</b> adult deaths per year
<b>Approach 2</b> Global Burden of Disease	<b>22.4%</b>	or	<b>10.8 million</b> adult deaths per year
<b>Approach 3</b> Empirical Disease Risk	<b>23.6%</b>	or	<b>11.6 million</b> adult deaths per year

# Environmental Effects per Serving of Food Produced



# Scenarios for Control of Green House Gas Emission

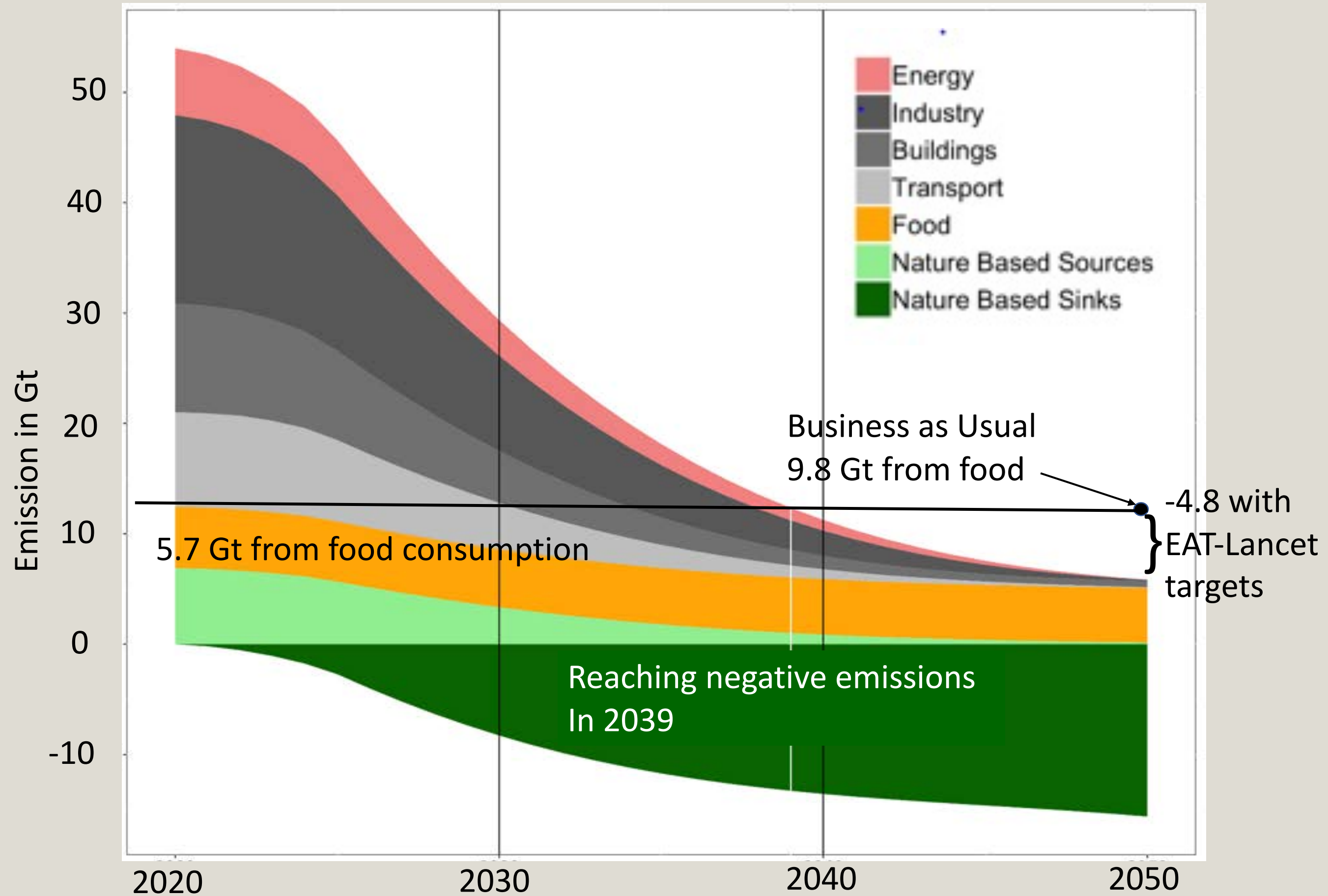
## Estimated Green House Gas Emissions (Gty)

Food Production Boundary	5.0	
Baseline 2010	5.2	
Business as Usual, 2050	9.8	
Adopt Planetary Diet Targets	5.0	
+ production improvement	4.4	
+ 50% waste reduction	4.0	

**Feeding 10 billion people a healthy diet within safe planetary boundaries is possible and will improve the health and well being of billions of people. This could allow us to pass onto our children a viable planet.**



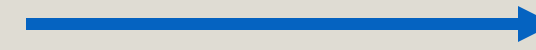
# GHG Emissions: IPCC Path to less than 2° C Increase



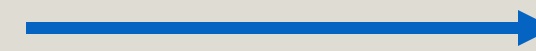


# National Disease Prevention and Health Promotion Initiative

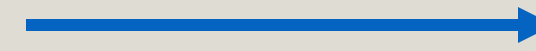
Schools



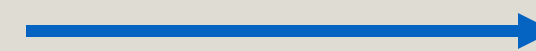
Health Care Providers



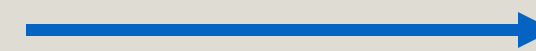
Work Sites



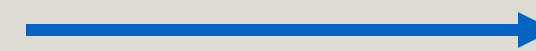
Media



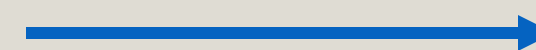
Physical Environment



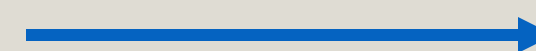
Food Environment



Monitoring & Evaluation



Economic Analysis/Policy



**Vision: Healthy Choices Are Easy Choices for All**

[www.neconinfo.org](http://www.neconinfo.org)

# Physicians can help promote healthy eating

1. Practice healthy eating themselves
2. Track patient's BMI and weight change since age 20
3. Assess patient's diet, even if crudely
4. Develop and offer a simple menu of options for weight control and improvement in diet quality
5. Engage directly in dietary enhancement with patients
6. Take advantage of teachable moments
7. Consider expanding your influence, in your institution or beyond
8. Avoid nihilism about dietary change



# Putting Sustainable Diets into Practice



Sharon Palmer, MSFS, RDN



# Eating for Health, and the Planet

- Today, we think beyond our own health to planet. How can you think about nutrition if there is not enough healthful food available in the future?
- Sustainable Food System: Produced using techniques protect environment, public health, communities, animals; providing safe, reliable food supply for future generations according to their cultural dietary preference.
- What you put on your plate can be single most significant thing you can do in your lifetime to reduce environmental footprint.



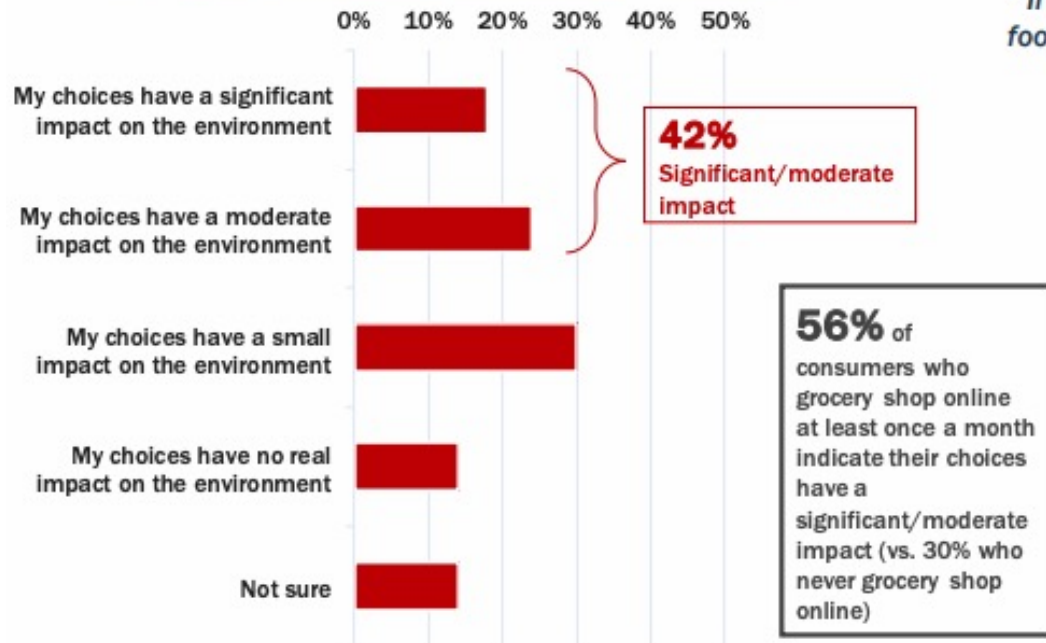
*Gado-Gado, Indonesian Tempeh Salad, Sharon Palmer*

# Good News! People Want to Eat Sustainably...

## Over 4 in 10 believe their individual food and beverage choices impact the environment

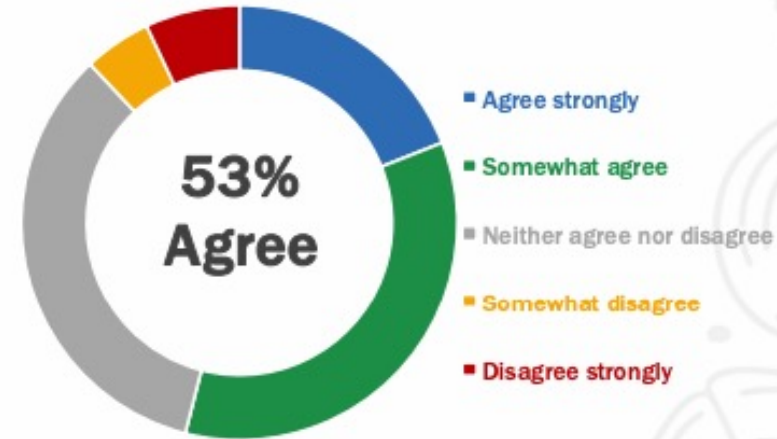
Half of Americans also agree that if it were easier to understand the actual impact of their choices, it would have a greater influence

### Impact of Individual Choices on Environment



### Agreement with Environmental Impact Statement

"If it was easier to understand the actual environmental impact of my food choices, it would have a greater influence on the choices I make."



But They Don't Know How

Q8. To what degree do you believe your individual choices about food and beverage purchases impact the environment? (n=1,014)  
 Q9. Do you agree or disagree with the following statement? (n=1,014)



# Western Diet and the Environment

- Over past 50 years, vast changes in agricultural system and dietary patterns.
- Alterations in our food system made direct contribution toward development of the foods part of Western diet.
- Western diet—high in sat fat, sugars, sodium, low in nutrients—made direct impact on communities and environment.
- Trio of negative effects: human health, environment, and agriculture.



*Food for one day truck driver in Illinois; one week for Revis family North Carolina (\$341.98), DALuisio & Menzel, 2007*

# Lower Biodiversity in Diet Patterns



*Farmers Market, South Tyrol, Italy*

- Traditional diets rely on biodiversity; Western diets rely on lower variety of foods.
- 75% of world's food comes from 12 plant species, fewer than 5 animal species; yet we could consume 10,000 plants species, 2,500 animal species, greater diversity of fungi, algae.
- Agricultural methods increase use of fossil fuels, increase GHGe, speed up land-use conversion.
- Climate change impacting seafood (less omega 3s), crops (more carbohydrates), and human metabolic processes to contribute to insulin resistance (Mejia et al., 2018).





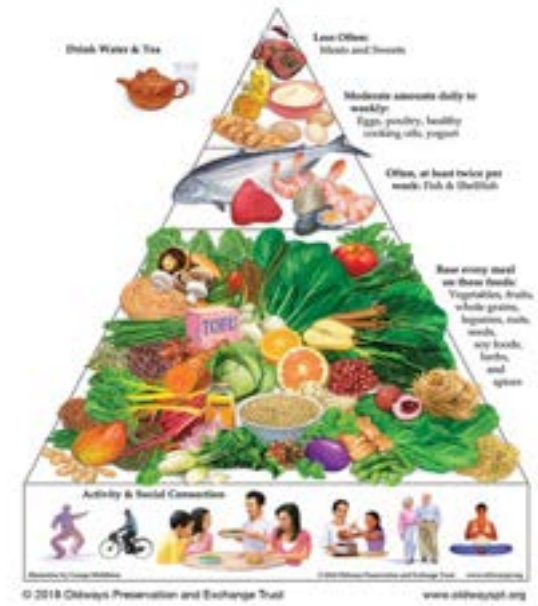
# Traditional, Healthful Dietary Patterns



**African Heritage Diet Pyramid**



**Asian Diet Pyramid**



# Environmental Footprint of Diets

<b>Pressure Indicators</b>	<b>European Dietary Pattern</b>	<b>Mediterranean Dietary Pattern</b>	<b>Western Dietary Pattern</b>
Land Use (m <sup>2</sup> /capita/day)	25.11	14.80	33.15
Water Use (L/capita/day)	1319.090	1079.965	1105.437
GHG Emissions (kg CO <sub>2</sub> eq/capita/day)	7.59	4.88	9.08
Eutrophication potential (gPO <sub>4</sub> eq/capita/day)	55.85	35.50	51.60



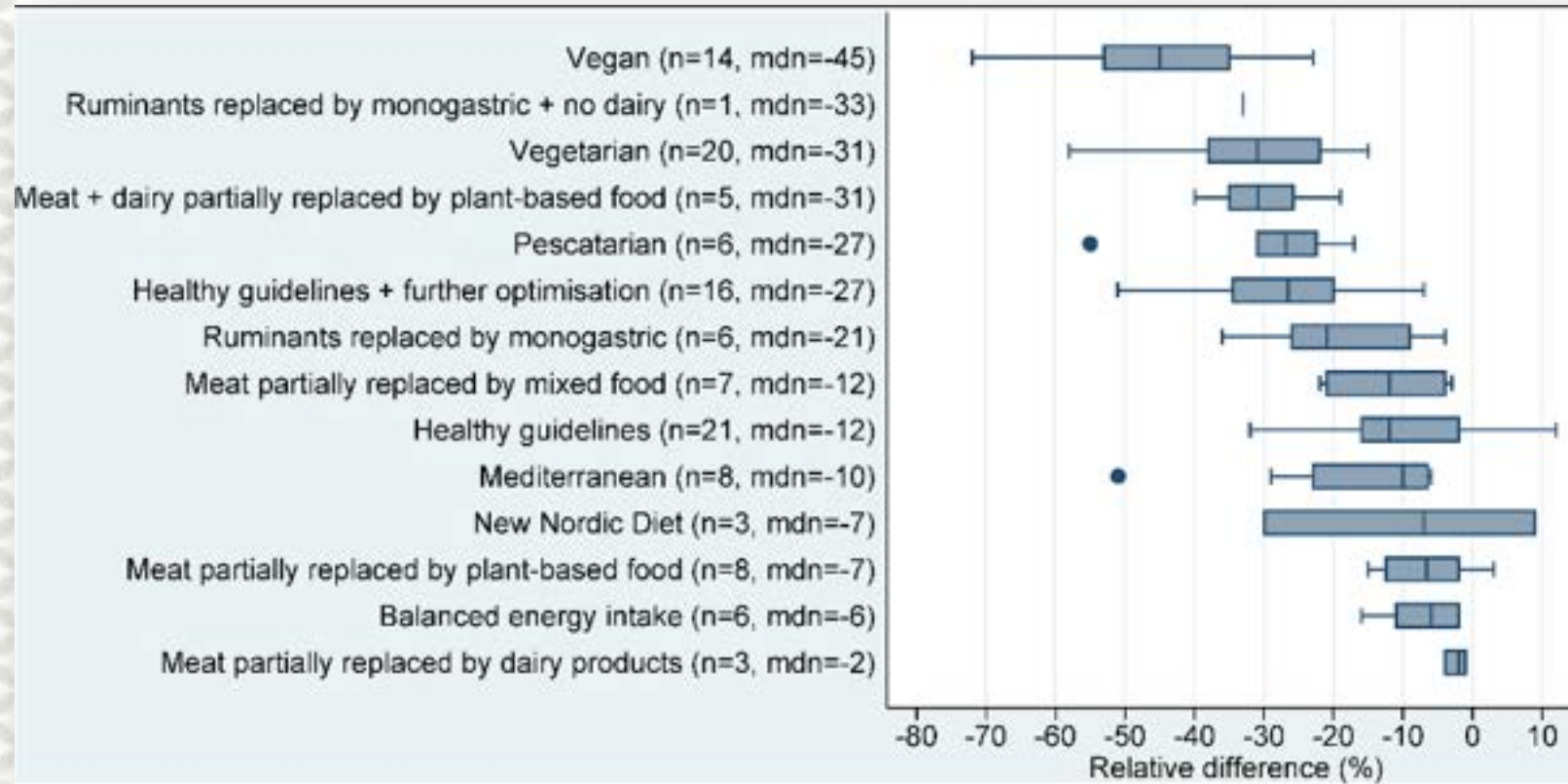
# Environmental Footprint of Diets

Group	Product	(m <sup>3</sup> /kg)	(L/kg)	(kg CO <sub>2</sub> eq/kg)	Potential (gPO <sub>4</sub> eq/kg)
Meat	Pork meat	17.36	1796.00	7.00	76.38
	Beef meat	326.21	1451.00	60.00	301.41
	Poultry meat	12.22	660.00	6.00	48.70
Fish	Fish (farmed)	8.41	3691.00	5.00	235.12
Dairy	Milk	8.95	628.00	3.00	10.65
	Cheese	87.79	5605.00	21.00	98.37
	Butter	2.74	4300.00	11.00	124.50
Eggs	Eggs	6.27	578.00	4.50	21.76
Cereal-based products	Bread	3.85	648.00	1.40	7.16
	Pasta	3.85	648.00	1.40	7.16
	Rice	2.80	2248.00	4.00	35.07
Sugar	Sugar	2.04	620.00	3.00	16.92
Oils	Olive oil	26.31	2142.00	6.00	37.26
	Other oils	10.30	416.75	7.00	23.05

# Environmental Footprint of Diets

Potatoes	0.88	59.00	2.90	
Tomatoes	0.80	370.00	1.40	
Onions	0.39	14.00	1.20	
Other Vegetables	0.38	103.00	1.00	
Legumes	8.58	327.33	0.70	
Apples	0.63	180.00	0.40	
Oranges	0.86	83.00	0.30	
Bananas	1.93	115.00	0.70	
Other Fruits	0.89	154.00	0.50	
Nuts	12.96	4134.00	0.30	

# Plant-Based Makes a Difference



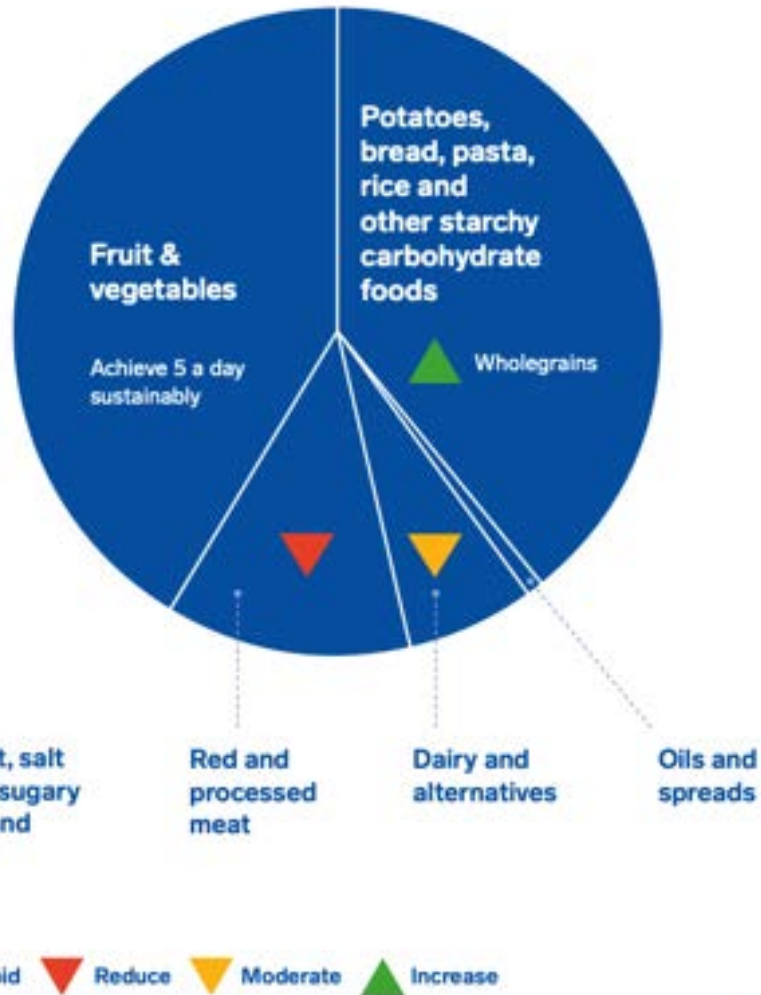
Relative differences in GHGe of sustainable dietary patterns compared to current average diet (Aleksandrowicz et al., 2016).



Pistachio Turmeric Rice Bowl, Sharon Palmer



# Eat Well Plate



▼ 31% GHG emissions

▼ 34% Land use

▼ 17% Water use

▲ 17.9m Years of healthy life

British Dietetic Association, 2018

# One Blue Dot BDA

<b>Red meat</b> 	<b>Red meat</b>  <70g/pppd or <350g-500g pppw (cooked weight).	<b>Processed meats.</b> 	<b>Fruit and vegetables</b> 	<b>Seasonal + locally produced vegetables/fruit or use tinned/frozen.</b> 	<b>Air freighted, pre-packed and prepared fruit and vegetables.</b> 
<b>Plant proteins</b> 	<b>Prioritise beans and lentils, soya (beans, mince, nuts, tofu), mycoprotein (Quorn™), nuts and seeds.</b> 	<b>Portion control</b> 		<b>Animal proteins</b> 	<b>High Fat, Sugar and Salt (HFSS) foods</b> 
<b>Fish</b> 	<b>From sustainable sources and follow oily fish recommendations.</b>		<b>Hydration</b> 	<b>Tap water and unsweetened tea or coffee over soft drinks.</b> 	
<b>Dairy</b> 	<b>Moderate dairy consumption. Use calcium fortified plant-based alternatives where needed.</b> 	<b>Reduce food waste</b> 		<b>Especially perishable fruit and vegetables.</b> 	<b>Any food waste should be recycled.</b> 
<b>Potatoes, bread, pasta, rice and other starchy carbohydrate foods</b> 	<b>Recommend wholegrain. Recommend tubers such as potatoes.</b> 				



# Greener Protein Options

	GHGe as kg CO <sub>2</sub> eq per 100g of protein	Land use m <sup>2</sup> per 100g of protein	Stress weighted water use 1000s litres per 100g of protein
Nuts	0.3	7.9	140.8
Peas	0.4	3.4	12.6
Other pulses	0.8	7.3	10.5
Peanuts	1.2	3.5	23.6
Tofu	2	2.2	3.2
Eggs	4.2	5.7	16.2
Poultry meat	5.7	7.1	8.2
Fish (farmed)	6	3.7	18.2
Pig meat	7.6	11	41.3
Cheese	11	40	81.9
Dairy cattle	17	22	60.7
Shellfish (farmed)	18	2	86.2
Sheep meat	20	185	70.9
Beef meat	50	164	17.4



Easy Instant Pot Black Tepary Beans, Sharon Palmer

Environmental footprint of protein foods using comparison of 100 grams of protein (British Dietetic Association, 2018).



# Sustainable Pulses

- **Low Carbon Footprint:** one of the lowest of any food group.
- **Drought Tolerant:** can grow in harsh environments with lower water use.
- **Natural Fertilizer:** enrich the soil through fixing nitrogen, reducing need for fertilizers.
- **Aids Food Security:** half of production occurs in developing nations.
- **Increases Crop Diversity:** decreasing risks to farmers.
- **Feeding the World:** need 70% increase in agricultural production by 2050.
- **Economical:** 10 cents per serving.  
(Food Policy, 2012)

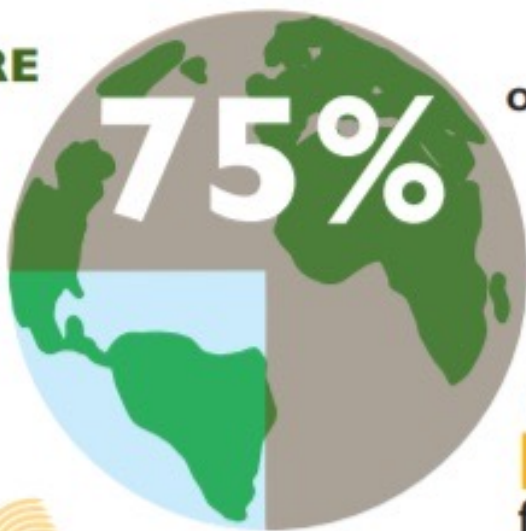


*Fresh chickpeas, farmers market, Crete, Sharon Palmer*

# Sustainable Whole Grains

## WHOLE GRAINS SUPPORT BETTER LAND USE & HEALTHY SOIL

**EATING MORE GRAIN-BASED MEALS  
COULD  
FEED MORE  
PEOPLE  
WITH  
LESS  
LAND.**



of global agricultural land is used for animal products which only supply **17%** of our food (in calories).



## IMPROVE SOIL FERTILITY



Rotating crops with whole grains like barley, oats, rye, and triticale in the off-season can help protect against soil erosion, and also deliver nutrients back to the soil.

[WHOLEGRAINSCOUNCIL.ORG](http://WHOLEGRAINSCOUNCIL.ORG)



# Tips for Plant-Based Eating



**Start the day right.** Go plant-based at breakfast.



**If you eat meat, use it as a seasoning.** Cut down on animal food intake while pushing plants by using meat as a flavoring in dishes instead of main event.



**Join the Meatless Monday bandwagon.**



**Create a plant-based pantry list.** Many plant-based foods like beans and whole grains are shelf-stable, convenient, and economical.



**Shop for plants first.** Instead of planning your menu around meat, plan it around plants.



**Get cooking!** Plan at least one night a week to try a new vegetarian recipe.

# Tips for Plant-Based Eating



**Keep it simple.** Not every meal has to involve cookbooks and cutting boards; it can be as easy as black bean burritos, vegetarian chili, or hummus pita sandwich.



**Dust off your slow-cooker.** Just throw in veggies, herbs, vegetable broth, canned tomatoes, whole grains, and dried beans; then turn the dial on.



**Try global flair.** Some cultures know how to do vegetarian meals right!



**Try plant-based dairy products.** Try more plant-based alternatives for milk, yogurt, and cheese.



**Convert your favorite dishes.** Turn your favorite meat-based recipes veggie for an easy dinner solution.



**Think “yes”.** Don’t dwell on what you can’t have, think about what you can have!



# Targeting Nutritious Foods

- Aim for more healthful, nutritious foods: whole grains, legumes, vegetables, fruits.
- Low-nutrient foods require create. energy to produce, provide few nutrients.
- Using resources for foods with poor nutritional quality is not sustainable.
- Eating more than you need is form of food waste.
- When choosing packaged foods, look for products that feature whole foods from sustainably-sourced, plant-based ingredients.



*Roasted Tempeh Salad, Sharon Palmer*

# Cooking Nutritious Foods



*Cauliflower Chickpea Tacos, Sharon Palmer*

- 33% calories in US diet junk food.
- 90% people say they don't cook (USA Today).
- Average time spent on social media 2 hours per day (Statista).
- Minimize food packaging:
  - 45% landfills filled with food/packaging (EPA)
  - 500 M straws every day
  - 200 B cups/year
  - Ave family eats fast food 150x/yr=1.8 M tons fast food packaging per year (USA Today)



# Stop Food Waste!



*Pack away leftovers to reduce food waste*

- 30-40% of the U.S. food supply is wasted, which has multiple impacts on the planet (USDA).
- Requires efforts from all key stakeholders in food system.
- Daily food waste could fill Rose Bowl.
- \$165 B/year (NRDC, 2012).
- 12% US households food insecure (USDA).
- Land, water, energy, synthetic inputs (fertilizer, pesticides) used to produce food goes to generate food never consumed.
- 1/3 landfill full of food waste, creates GHGE (20% nation's methane).

# Eat Seasonally, Locally

- Food travels 1,500 miles to get to plate (Leopold Center for Sustainable Agriculture).
- Swedish study: Typical Swedish breakfast (apple, bread, butter, cheese, coffee, cream, OJ, sugar) traveled the circumference of the earth (Worldwatch Institute).
- Iowa study: 1 carton of yogurt (milk, sugar, strawberries) traveled 2,211 miles to get to processing plant (Worldwatch Institute).
- Eat seasonally, minimally processed, use preserved foods.
- Support CSAs, farmers markets.



*Produce at Pasadena local farmers market, Sharon Palmer*



# Grow Some of Your Own Food



*In my organic vegetable garden in Ojai, California*

- One of the most sustainable things you can ever do.
- Start with herb pot and move from there.
- Add edible landscaping, plants, shrubs, trees.
- Compost.
- Avoid synthetic inputs.
- Support community gardens.

# Food + Planet Handout

Available for  
download!  
[foodandplanet.org](http://foodandplanet.org)

## Action Steps

Our path towards a sustainable food system

**FOOD +  
PLANET**

Cultivating a Sustainability Revolution

### Consumers & Institutions

- 1 Encourage consumption of a wider diversity of minimally processed grains, legumes, fruits, vegetables, nuts and seeds.
- 2 Promote sustainable protein sources, such as swapping out beef for beans and exploring sustainable seafood choices.
- 3 Reduce levels of food waste within foodservice operations and homes.

### Healthcare Professionals

- 1 Incorporate a sustainable dietary framework that meets your clients' needs and goals, while providing actionable guidance.
- 2 Seek diverse colleagues to provide practices to include all that you serve.
- 3 Keep up with emerging "high tech" and "low tech" solutions, help translate what we know and where there are gaps.
- 4 Develop resources for including sustainability education and messaging in your practice.
- 5 Frame actions and solutions that have tangible impact that are accessible, relevant, and create meaningful benefits for your audience.

### Everyone

- 1 Advocate for a food system that is sustainable, fair, healthy, local and humane supporting human health and planetary boundaries.
- 2 Continue to improve your understanding of sustainable food systems.
- 3 Celebrate cultural traditions and practice cultural humility.

**FOOD + PLANET**

[Hello@FoodandPlanet.org](mailto:Hello@FoodandPlanet.org) | [FoodandPlanet.org](http://FoodandPlanet.org)  

rediscover  goodness  
**OLDWAYS**

# Thank You!

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