UNIVERSITY OF CAMBRIDGE
INSTITUTE FOR SUSTAINABILITY LEADERSHIP

UNIVERSITY OF CAMBRIDGE
Department of Zoology

NERC SCIENCE OF THE ENVIRONMENT

The steaks are high: how can cafeterias reduce their environmental footprint?

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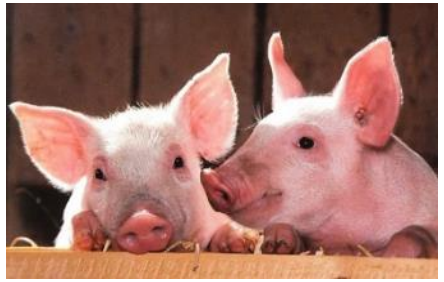
Catering Advisory Group, 30th March 2021

Why is reducing meat and dairy consumption important?

- Livestock farming is a leading cause of habitat loss, climate change and biodiversity loss
  - Inefficient to feed e.g. soy to livestock to people.
  - Cows and sheep: release methane (very powerful greenhouse gas) and use a large amount of land.
- Food miles: only 6% of food's carbon footprint
  - What you eat matters more than where it came from



Poore and Nemecek (2018) *Science*; Machovina et al (2015) *Science of the Total Environment*

What does a global sustainable diet look like?

Source: EAT-Lancet Commission BBC

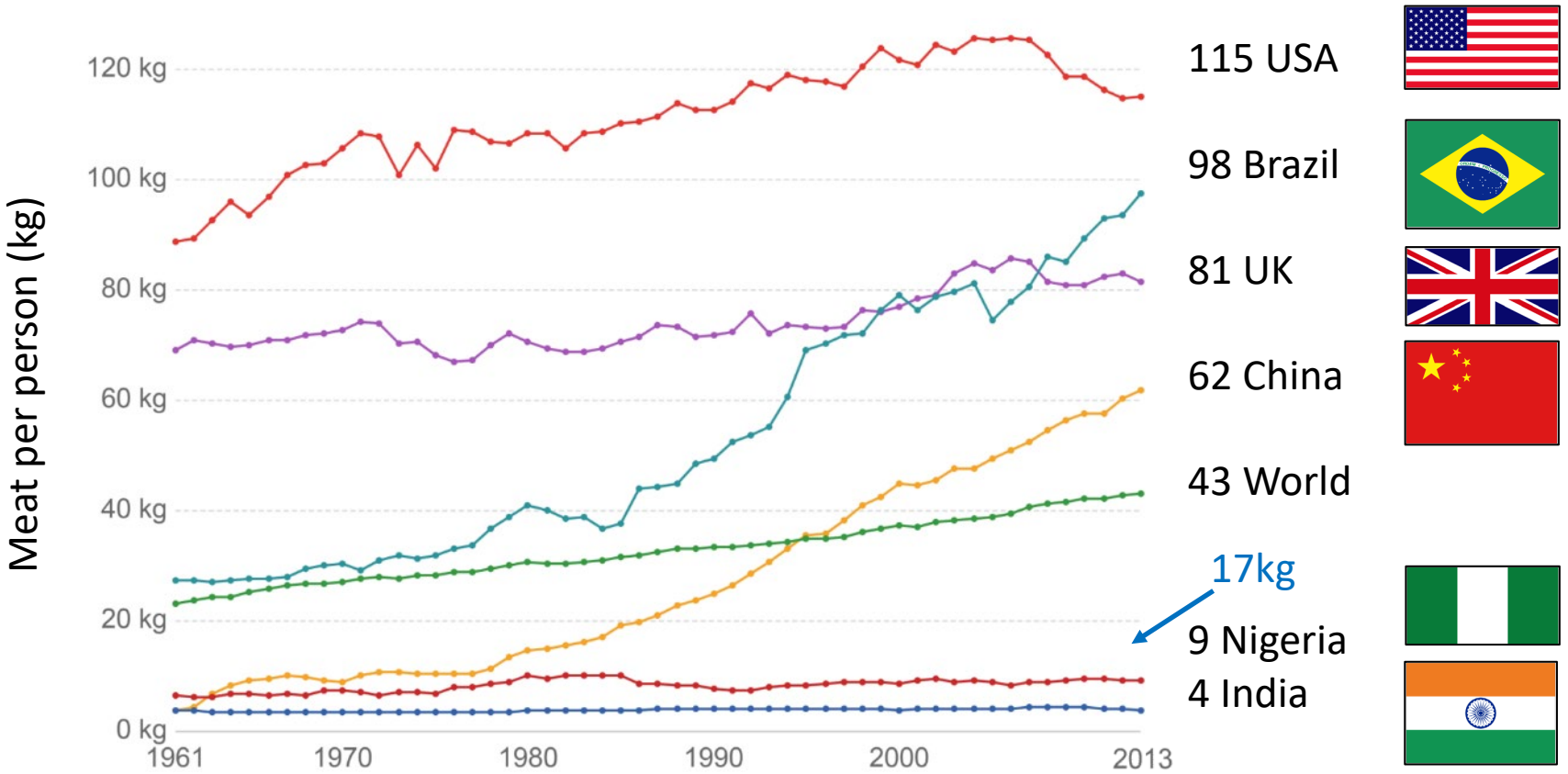
Per week:

- 525g beans and legumes
- 350g nuts
- 85g red meat
  ~1.5 sausages
- 200g of chicken
  ~2 portions
- 200g of fish
- 7 glasses of milk

15.5kg of meat per person per year (~17kg to account for food waste)

EAT-Lancet report (2019)

How much meat do we actually eat?



- Globally, 1961 to 2013:
  - Meat per person, 23kg to 43kg
  - Population, 3 billion to 7 billion

https://ourworldindata.org/meat-and-seafood-production-consumption ; FAO data

Caterers are important policy makers

How can cafeterias reduce their environmental footprint and produce delicious, affordable and healthy food?

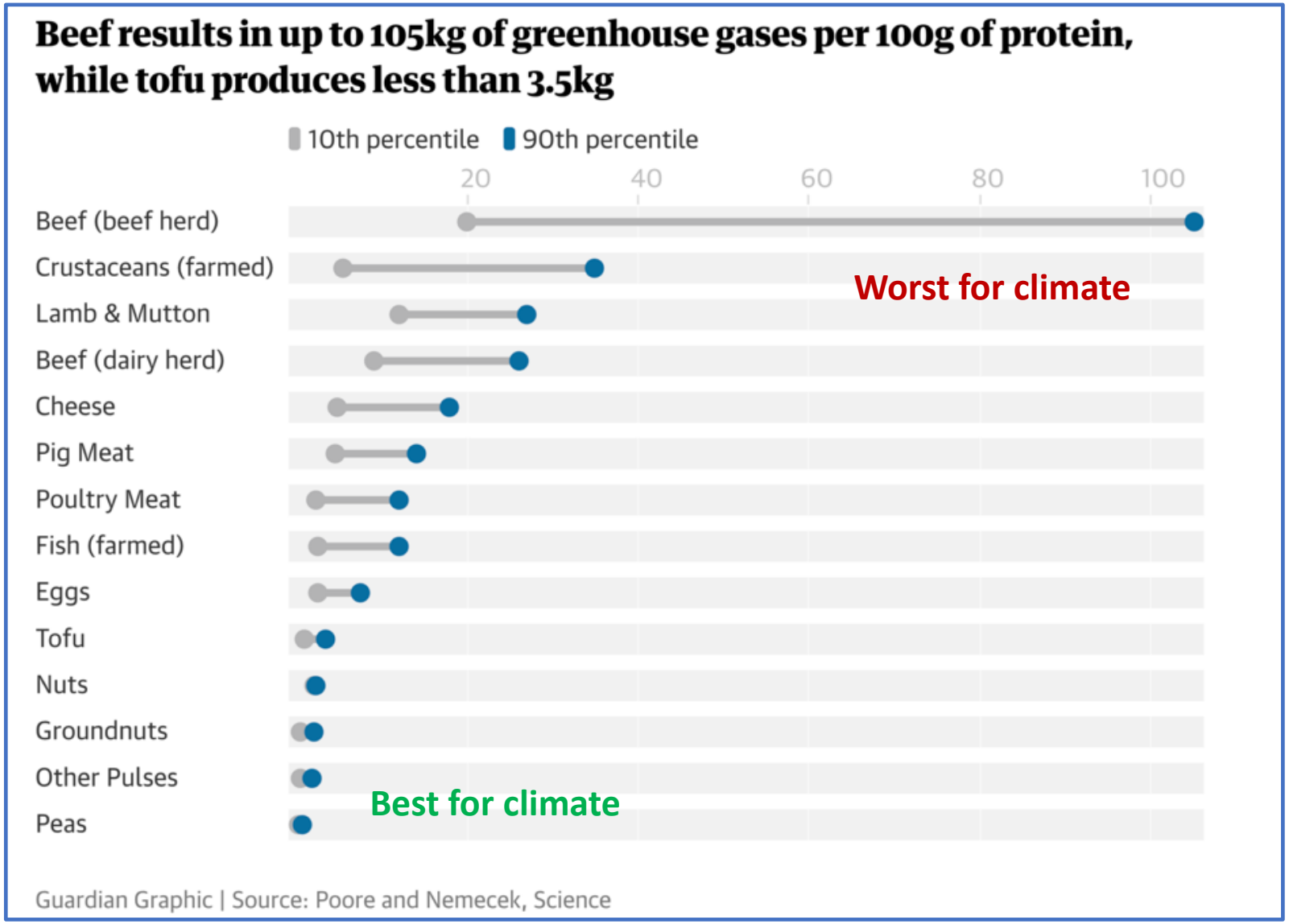
Jack Monroe @BootstrapCook ; Meera Sodha @meerasodha ; Kate Taylor https://cookieandkate.com/

1. Serve fewer meals with beef, lamb and shrimp

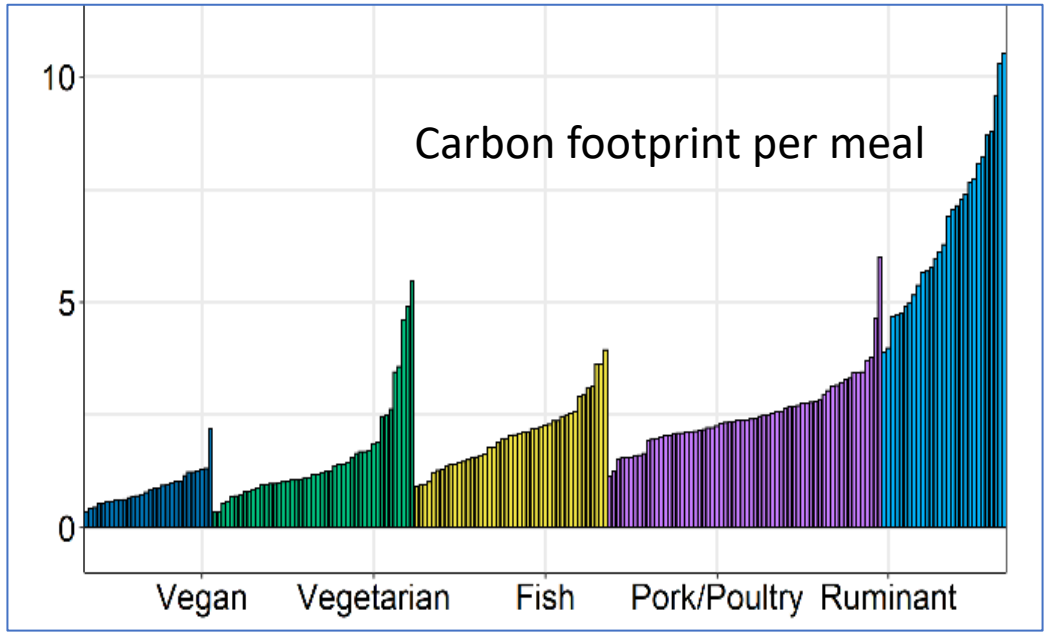
Cows, sheep and shrimp

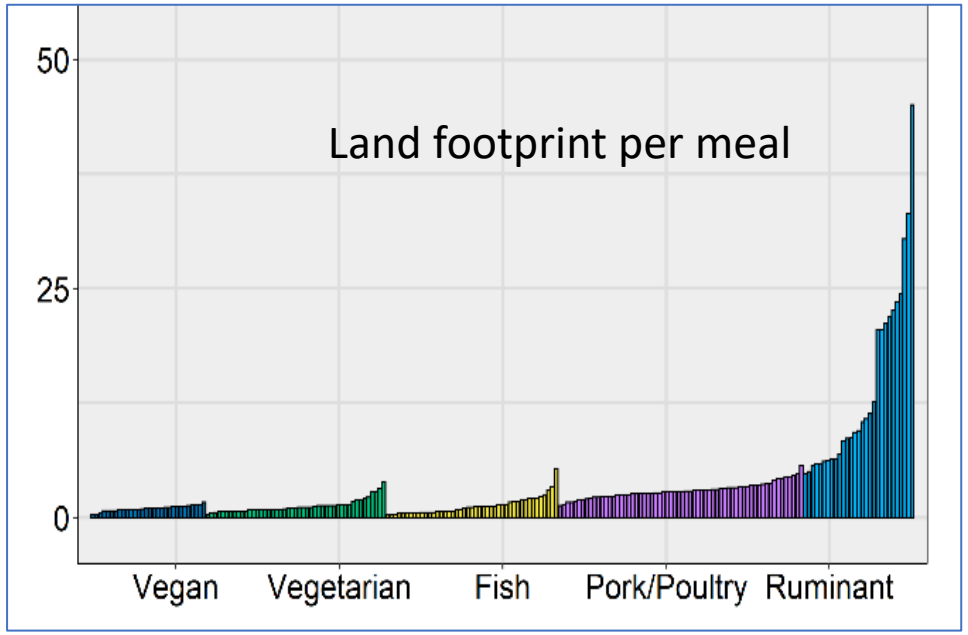
Pigs, poultry, fish

Tofu, beans, nuts



2) Smaller meat and dairy portions in recipes





- 216 cafeteria recipes
- Beef and lamb (ruminant): largest footprints
- Meals with smaller meat and dairy portions: smaller footprints
- Public sector catering: 20% less meat

Doherty, Ewen, Balmford and Garnett (in prep)

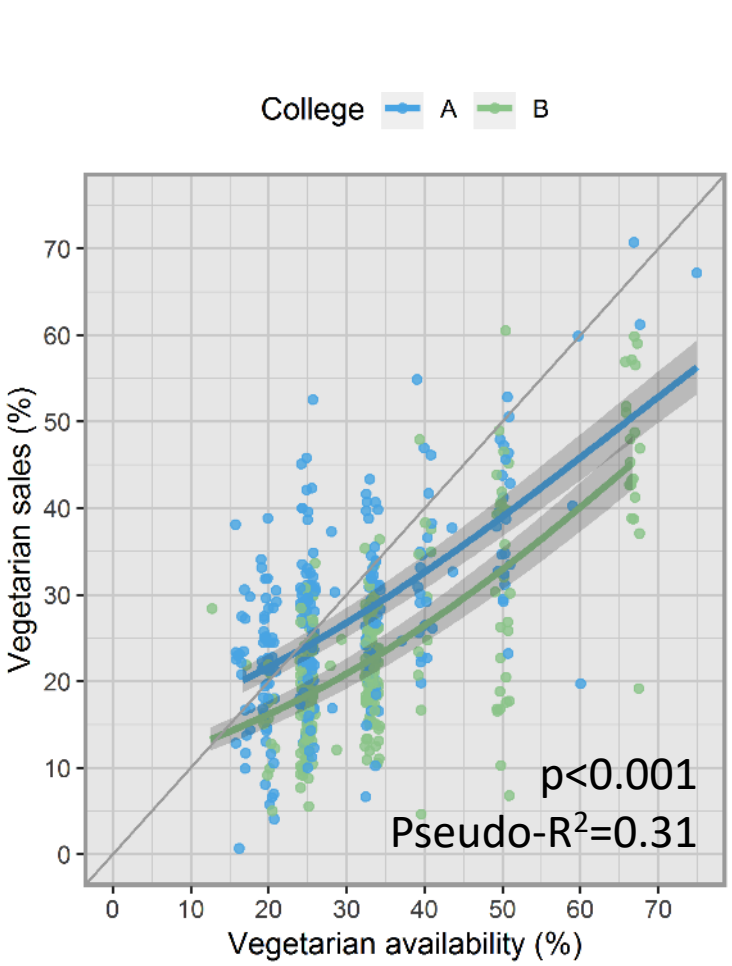
3) Serve more vegetarian and vegan options

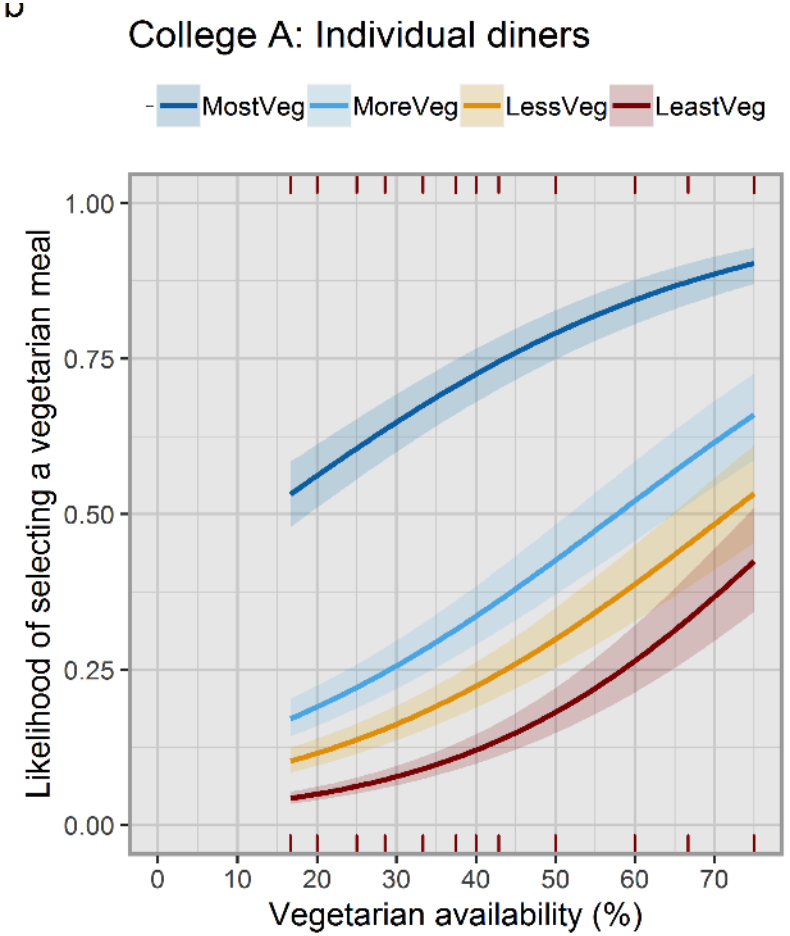
- Conducted a study in college cafeterias
- Cafeteria example menu
  - Varied number of total options and vegetarian options

Option	Monday lunch	Tuesday lunch	Wednesday lunch	Thursday lunch	Friday lunch
1	VEGETARIAN	VEGETARIAN	VEGETARIAN	VEGETARIAN	VEGETARIAN
2	VEGETARIAN	MEAT/FISH	VEGETARIAN	MEAT/FISH	MEAT/FISH
3	MEAT/FISH		MEAT/FISH	MEAT/FISH	MEAT/FISH
4			MEAT/FISH	MEAT/FISH	
Vegetarian availability	**67% (2 in 3)**	**50% (1 in 2)**	**50% (2 in 4)**	**25% (1 in 4)**	**33% (1 in 3)**

3) Serve more vegetarian and vegan options

- Doubling veg availability 25% to 50%: **~70% increase** in vegetarian sales
- Even meat lovers pick vegetarian options when there are plenty
- Overall sales remained about constant





Garnett, Balmford, Sandbrook, Pilling and Marteau (2019) *PNAS*
https://www.cam.ac.uk/vegnudge

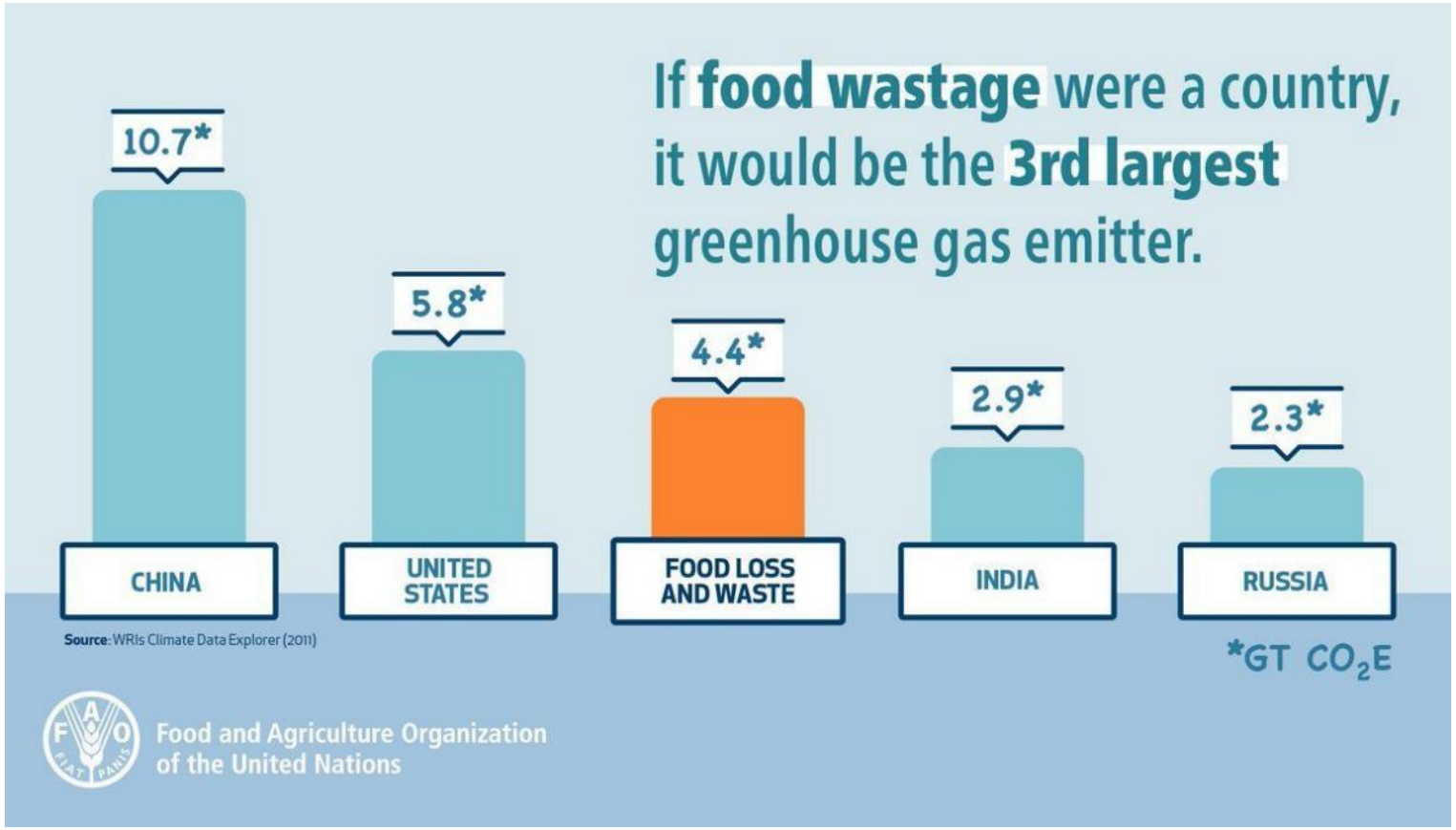
4) Tastier vegan and vegetarian options

- UK: often lack of knowledge of vegan cuisine
- Diners are more likely to choose appealing vegetarian options
- Cambridge: chefs had vegan cookery classes from Jenny Chandler (organized by Humane Society International).
- Oxford colleges ranked by vegetarian quality
    - *"Our new chef and his team are brilliant in cooking vegan food and they are very understanding and friendly."*
    - *"Always has at least 2 different veggie options and they're generally really varied!"*

http://www.jennychandler.co.uk ; Campbell-Arvai et al (2014) *Environment and Behavior;* http://www.veggienorringtontable.com/anonymised-comments

5) Reduce food waste

- Approximately 1/3 food worldwide is wasted. 1.3 Gt of edible food.



FAO (2013)

Cambridge University's Sustainable Food Policy

Introduced in 2016 by Nick and Paula White.

14 cafeterias (does not include university colleges)

1. Improve vegetarian/vegan choices and actively promote
2. Removed beef and lamb
3. Only serve sustainably sourced fish
4. Cut food waste

CERTIFIED SUSTAINABLE SEAFOOD MSC www.msc.org

marine conservation society

Sustainable Food Policy impact

- Compared March-May 2015 with March-May 2018 procurement
- Carbon and land footprint per kg food: decreased by 1/3
- 2% increase in gross profits

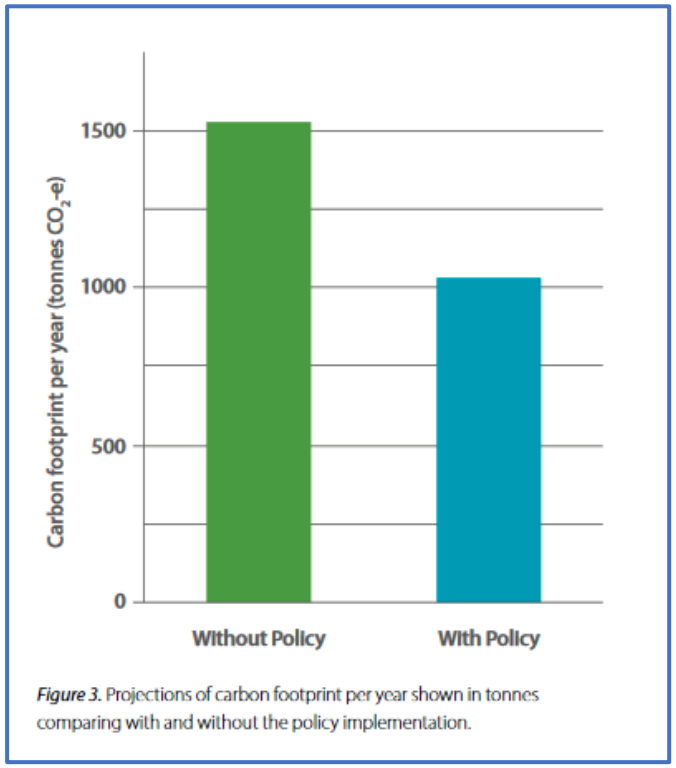


Figure 3. Projections of carbon footprint per year shown in tonnes comparing with and without the policy implementation.

University of Cambridge: Removing meat 'cut carbon emissions'

10 September 2019

Climate change

The University of Cambridge's catering service replaced beef and lamb with plant-based products

Earth Optimism: Reducing an organization's footprint. Interview with Nick White

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Conclusions

- **Shifting to more plant-based diets:** vital in high-income countries to combat climate change and improve human health
- **Caterers are important policy makers for sustainable food**

- **Key actions to reduce environmental footprint:**

1) Smaller meat and dairy quantities portions, particularly beef and lamb
2) Reduce meat options, increase vegetarian and vegan options
3) Chef vegan cookery classes, tastier options
4) Reduce food waste
5) Sustainably sourced fish