

School Eco-Club Climate Repair Activity: Eating a Low Carbon Diet

AIM: Produce a School Dinner Menu showing the Carbon Footprint of each Meal

BACKGROUND

The carbon footprint (a number that represents the harmful gases which go into the atmosphere) associated with the food you eat, depends on how the food is produced, processed, transported and packaged. In 2010 Mike Berners-Lee in his book 'How Bad are Bananas?' explored the carbon footprint of some common foods. More recently, a team at Oxford University calculated the carbon footprints of a range of foods which the BBC used to produce a 'Climate Change Food Calculator' for people to explore the carbon footprint of their diets (see <https://www.bbc.co.uk/news/science-environment-46459714>).

ACTIVITY

A set of charts which illustrate the carbon footprints of different foods has been provided with this activity along with a quiz sheet. Display the charts around the classroom and then provide each student with a quiz sheet to complete. The students will have to look at each chart in order to find the carbon cost of a portion of food for a range of foods listed on their quiz sheet.

Allocate students a dish from the school menu. The students need to identify the key ingredients of the dish and then use information from their completed quiz sheet, or through accessing <https://www.bbc.co.uk/news/science-environment-46459714>, to estimate the carbon footprint of the dish.

Finally, the students should create a new version of the school menu which includes the carbon footprint of each meal.

Discuss the students' findings:

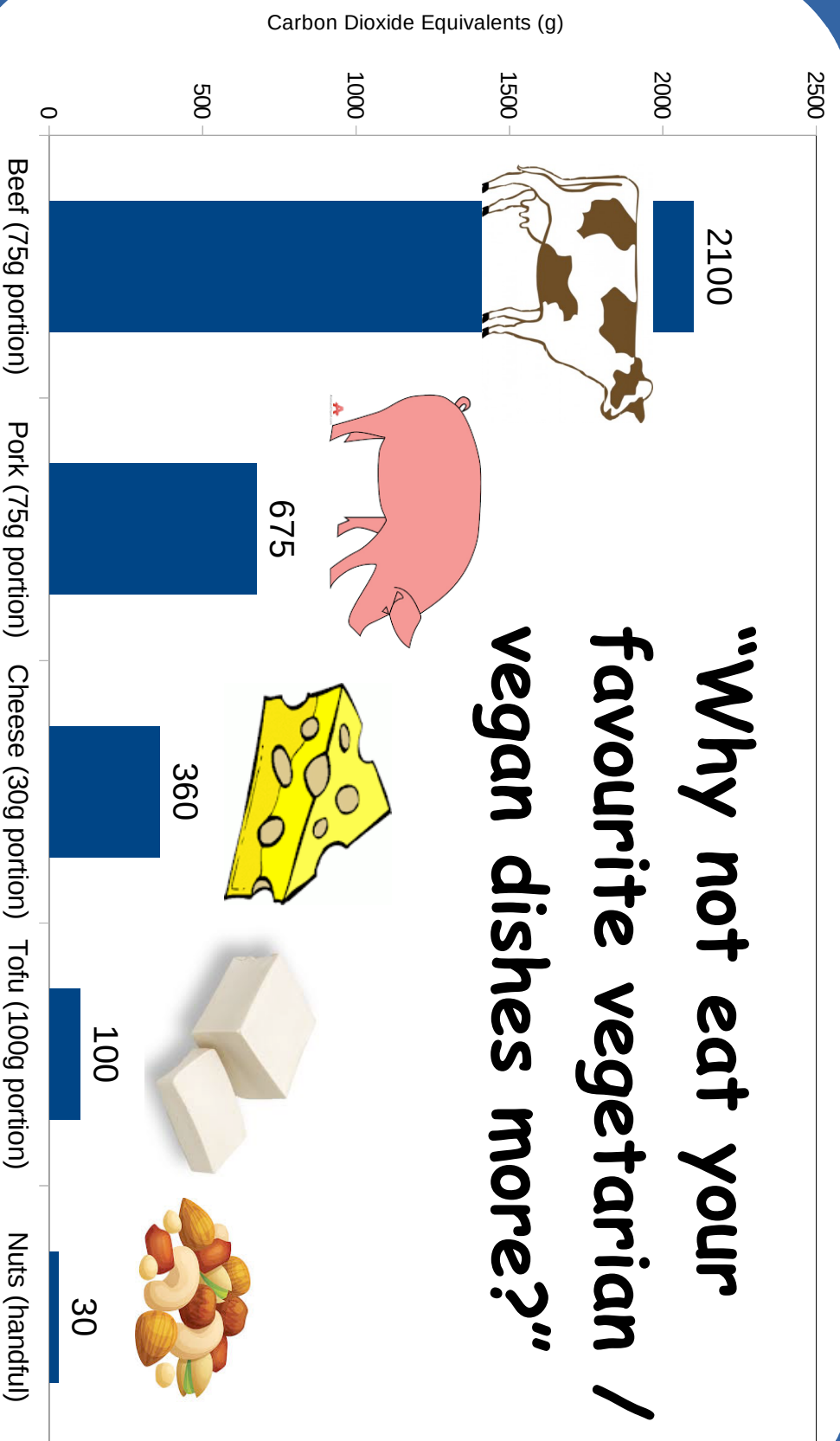
- Are the results what the students would have expected?
- Are any of the students considering opting for different menu choices after this activity?
- Do the students have ideas they would like to share with the school caterer on how they could change their menu options to reduce the carbon footprint of school lunches.

POSSIBLE EXTENSION ACTIVITIES

- Ask the students to write a letter to the school caterer explaining what they have learned about the carbon footprint of the school lunch menu and possibly making suggestions on how the carbon footprint of this menu could be lowered.
- Try out some new vegetarian dishes, perhaps even making them in Food Technology, and consider proposing the most popular as future school lunch menu options.
- The charts for the quiz were initially produced for a Letchworth Festival event. Review these charts. Are they easy to interpret? Do they give a clear message? Then choose and present a set of data from the BBC 'Climate Change Food Calculator' on a poster in a way that you think will help people learn how to reduce the carbon in their diet.
- Discuss why the calculated carbon footprint of any particular kind of food can vary.

Greenhouse Gases Associated With Proteins

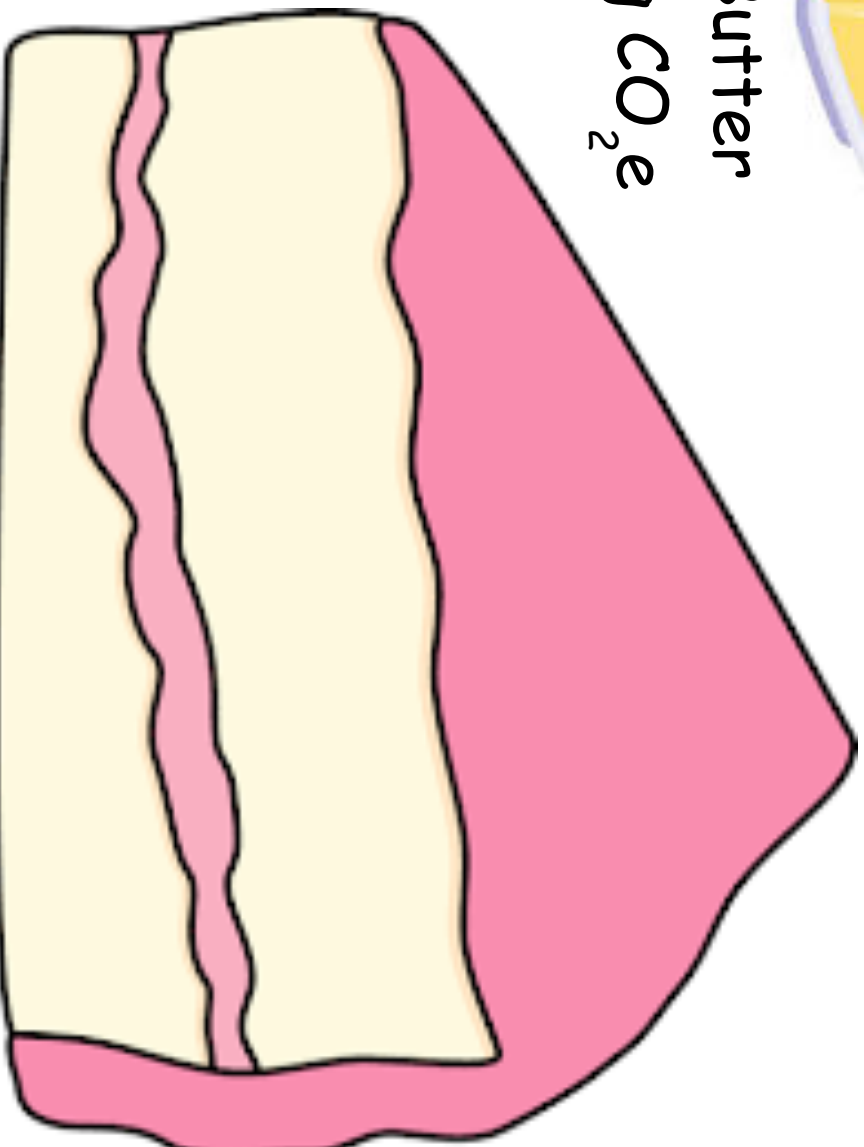
"Why not eat your favourite vegetarian / vegan dishes more?"



Greenhouse Gases in Baking



500g Butter
=4700g CO_2e

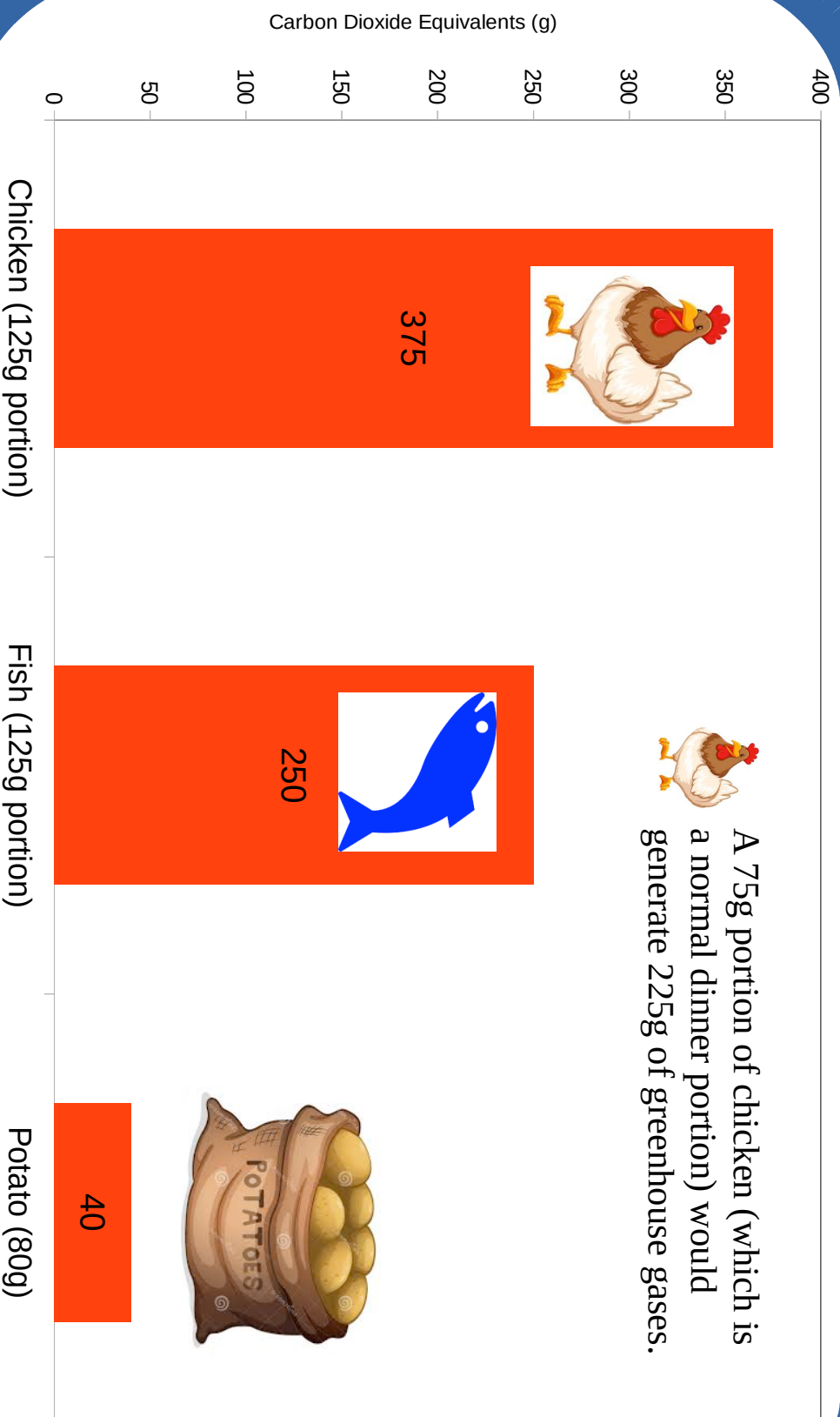


500g Margarine
=550g CO_2e

500g Dairy Free
Margarine =
330g CO_2e



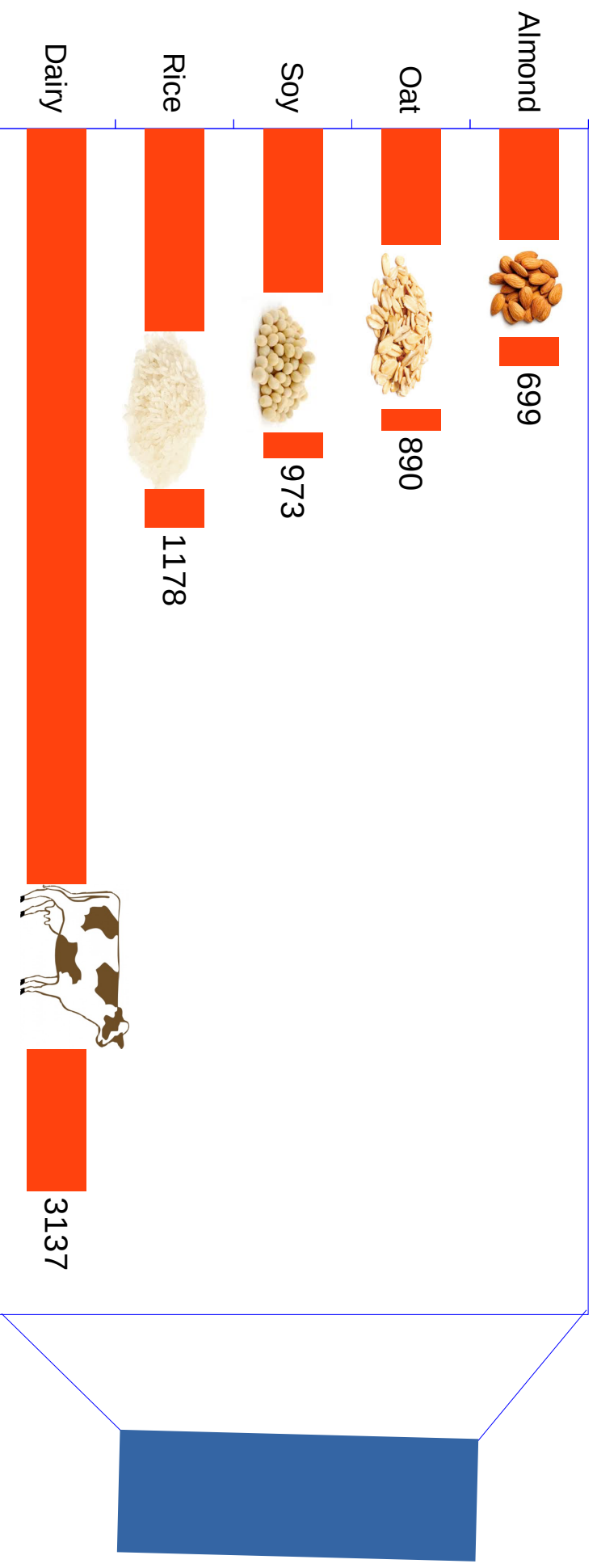
Comparing Meal Choices By Their Carbon Cost



Source: How Bad are Bananas, Mike Berner-Lee

Greenhouse Gases In A Litre of Milk

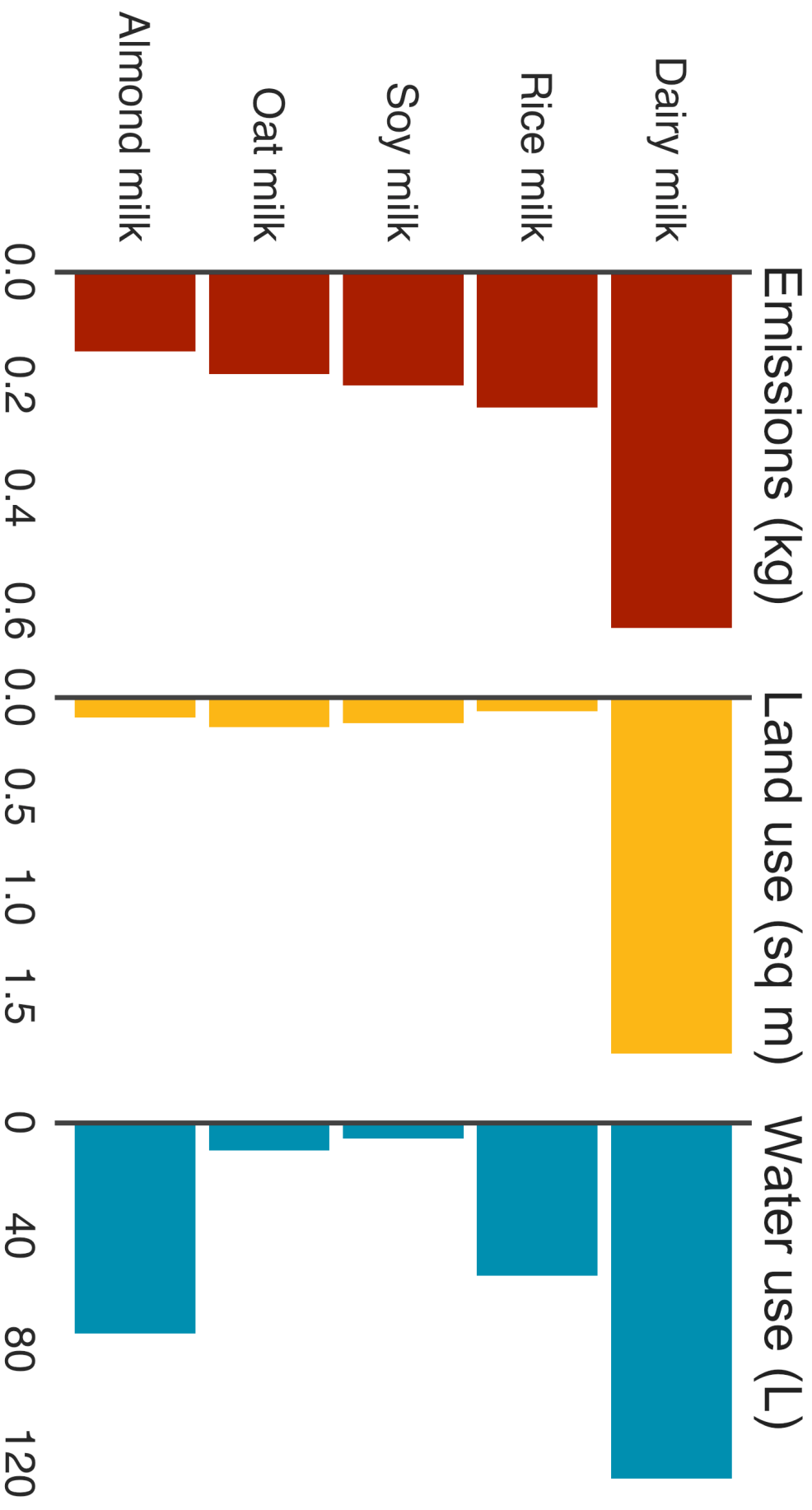
Carbon dioxide equivalents (g)



Source: BBC website. Climate change food calculator: What's your diet's carbon footprint?

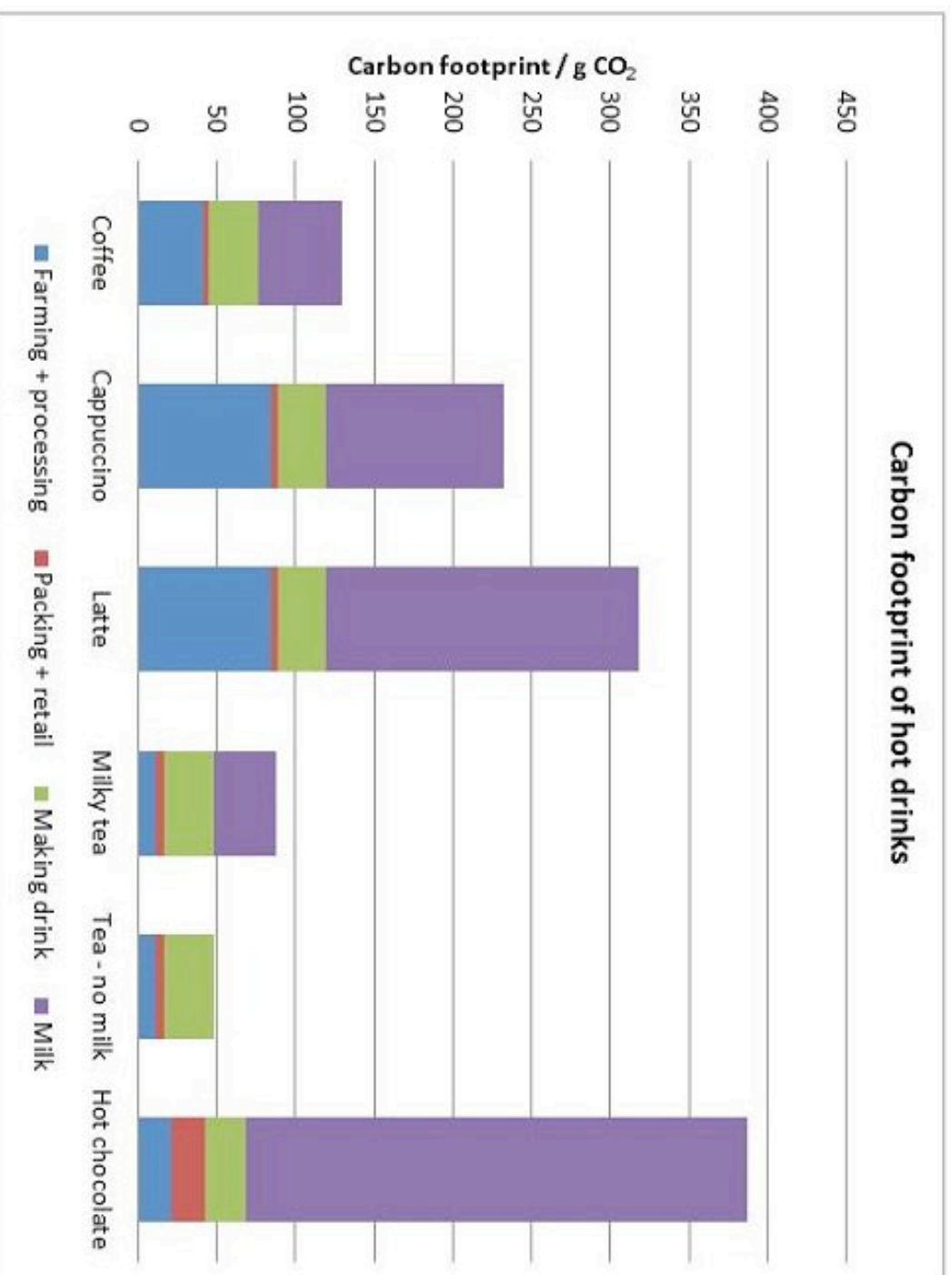
Which milk should I choose?

Environmental impact of one glass (200ml) of different milks



Source: Poore & Nemecek (2018), Science. Additional calculations, J. Poore

Greenhouse Gases Per Cup



White Tea

87g



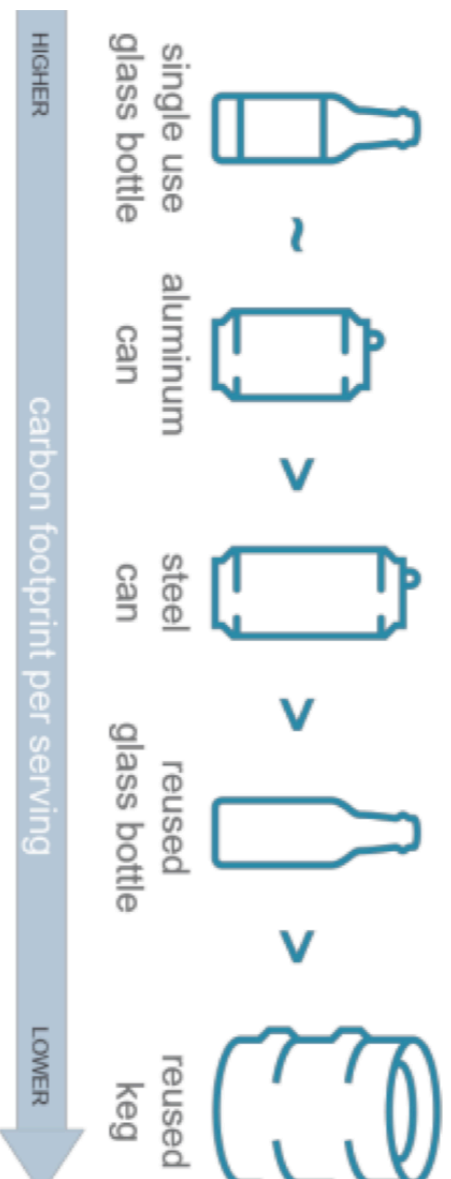
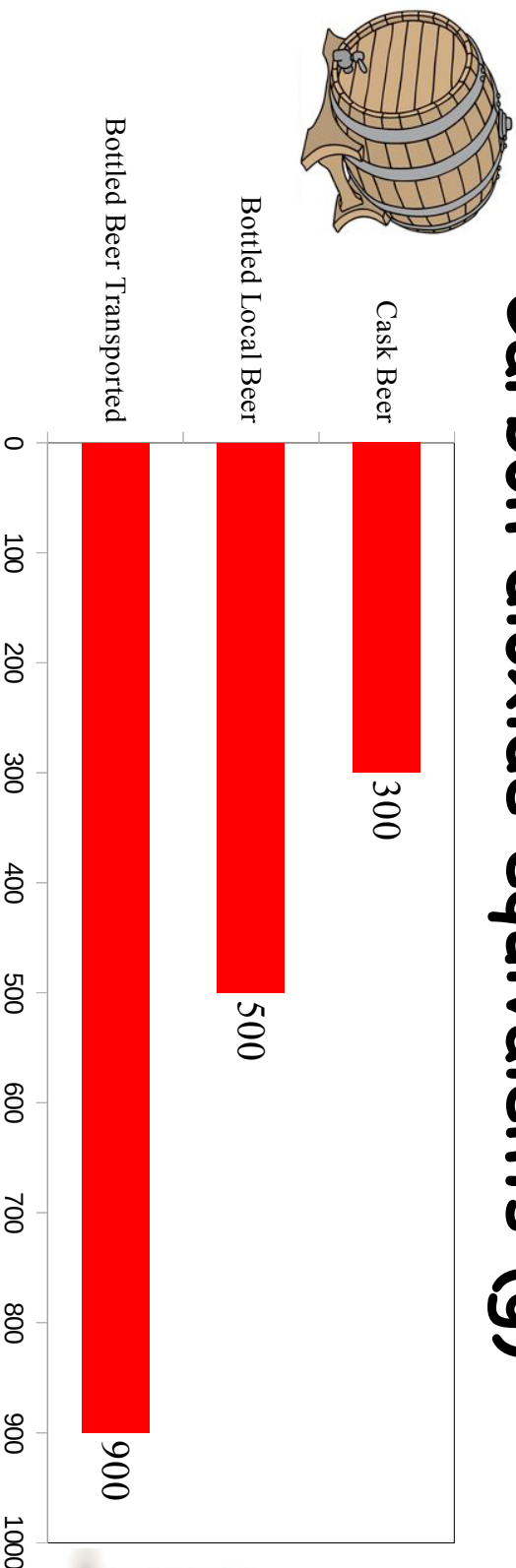
White Coffee

129g

Source: <https://steenbergs.co.uk/blog/whats-the-carbon-footprint-of-your-cuppa>

Greenhouse Gases Per Pint of Beer

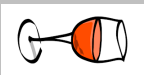
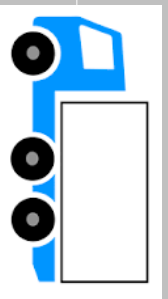
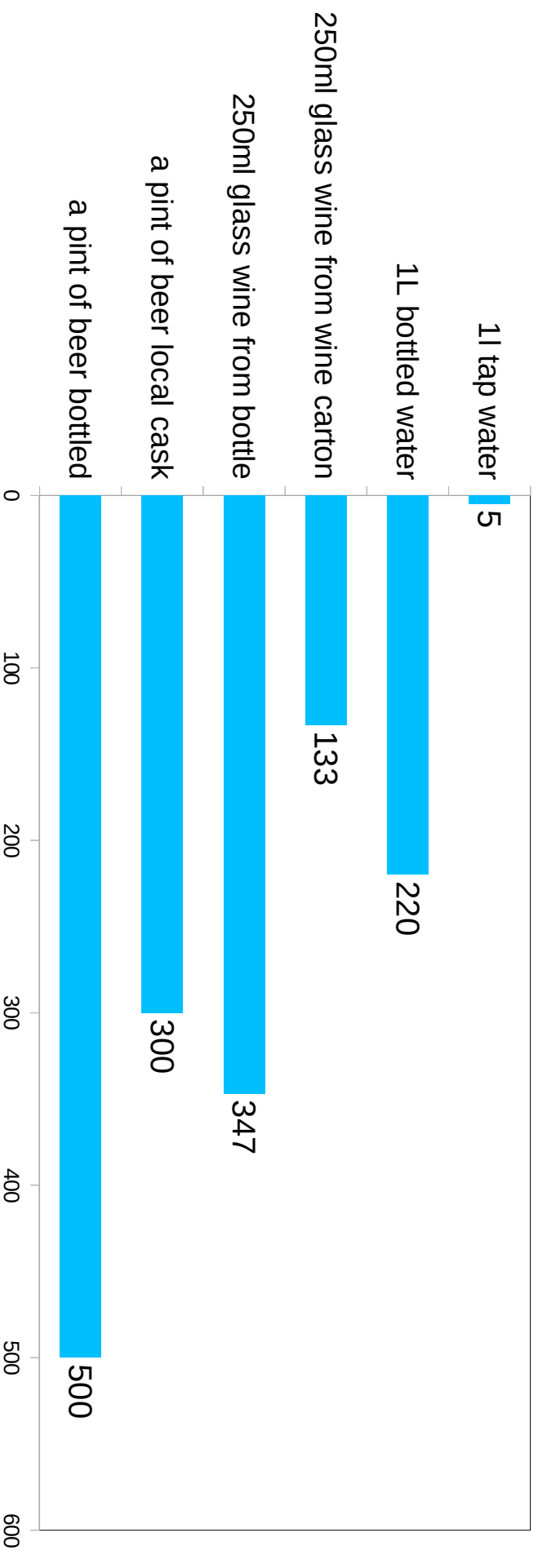
Carbon dioxide equivalents (g)



Source: How Bad are Bananas, Mike Berner-Lee

Greenhouse Gases Associated with Cold Drinks

Carbon dioxide equivalents (g)



Bottled wine transported
1000s miles add about
153g of extra CO₂e



Bottled water transported
600 road miles adds 210g
of extra CO₂e



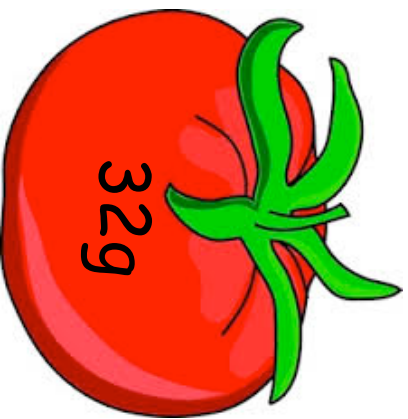
A heavy pint beer bottle
extensively transported can
add 400g of extra CO₂e

Source: How Bad are Bananas, Mike Berner-Lee

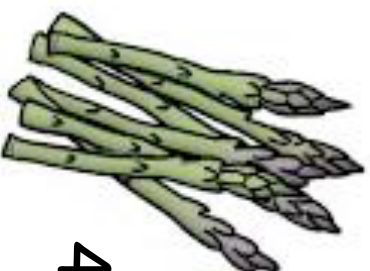
Greenhouse Gases associated with Vegetable Portion (80g) Carbon dioxide equivalents (g)



Summer



32g



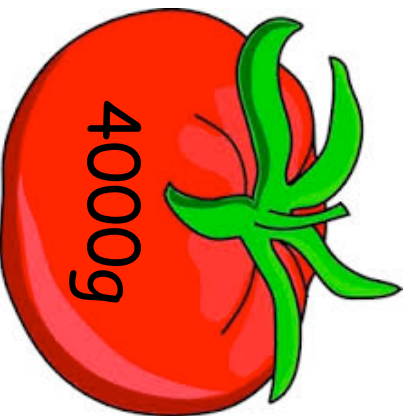
40g



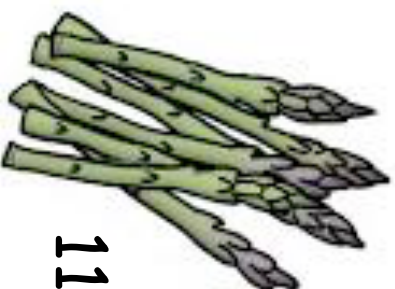
20-24g



Winter



4000g

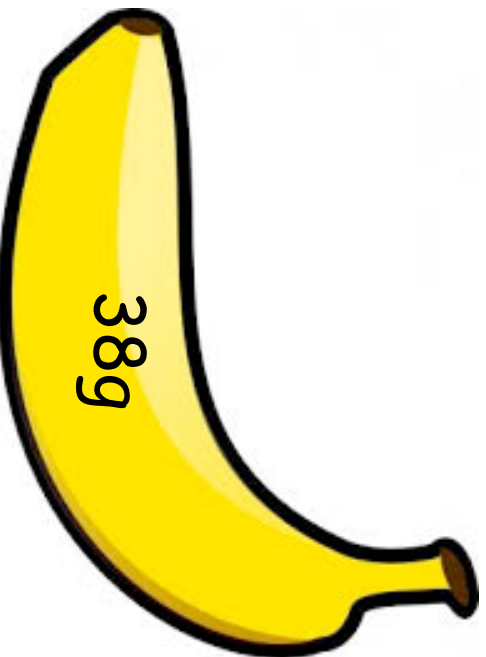
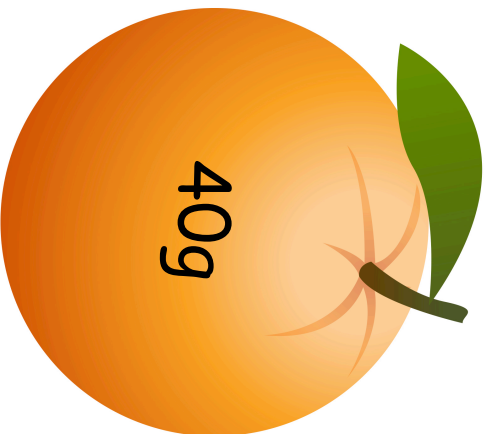


1120g

From UK
hothouse

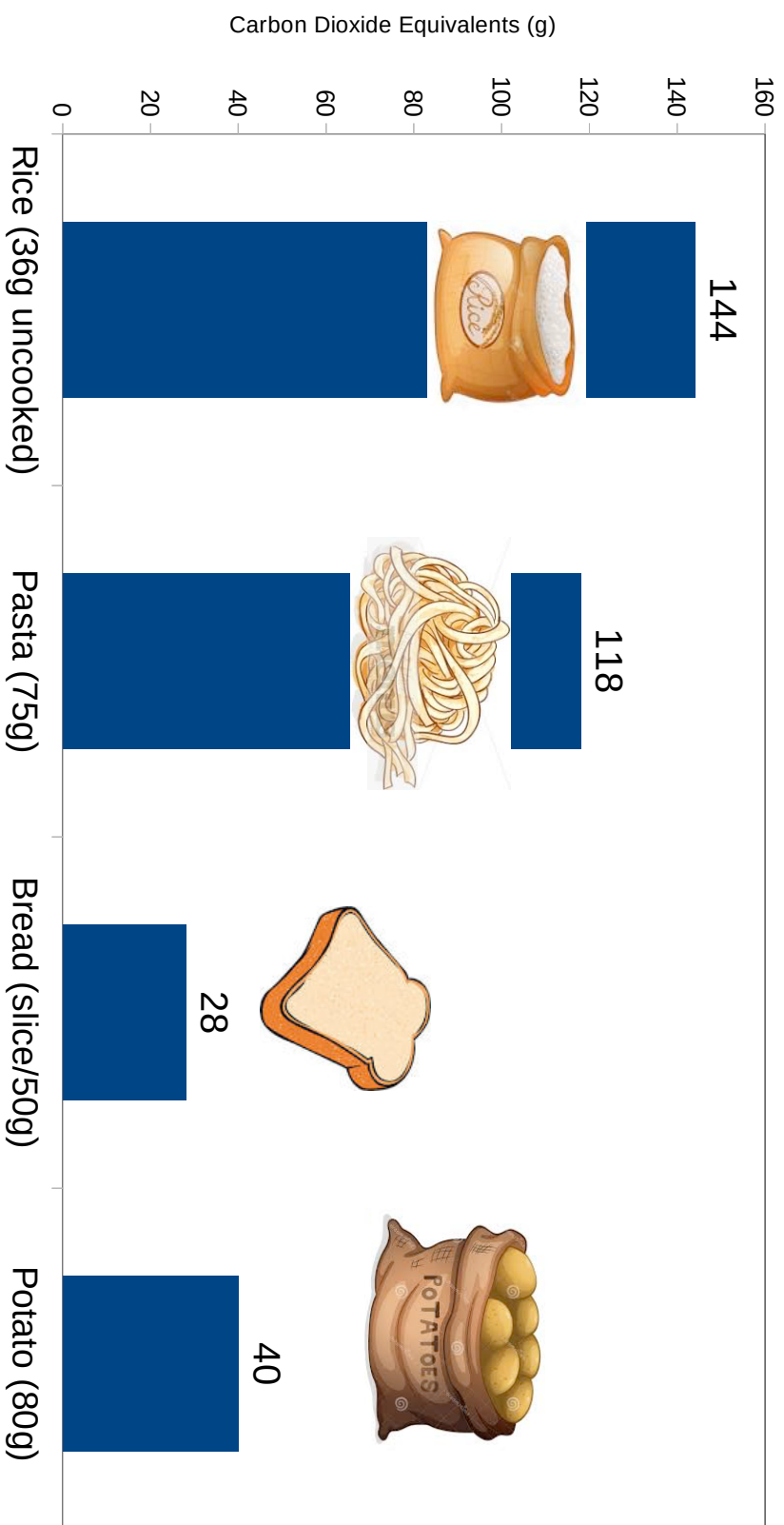
Air-Freighted

Greenhouse Gases associated with Fruit Portion (80g) Carbon dioxide equivalents (g)



Winter strawberries come from hot houses or are air freighted. Bananas, Oranges and Apples can all be transported by boat.

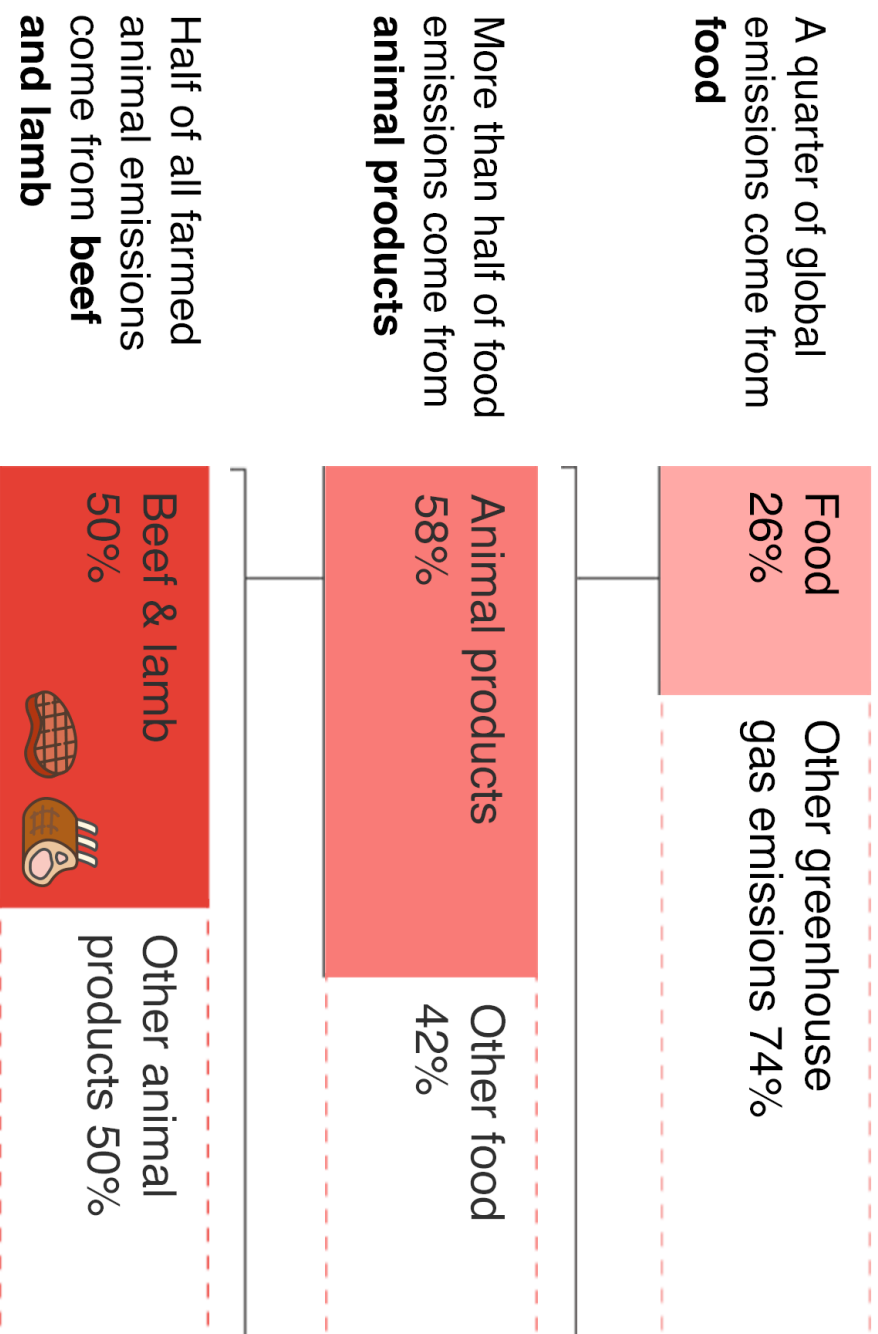
Greenhouse Gases (g) of Carbohydrates



Sources: BBC website. Climate change food calculator: What's your diet's carbon footprint? How Bad are Bananas, Mike Berner-Lee

How much impact does food have?

Proportion of total greenhouse gas emissions from food



Source: Poore & Nemecek (2018), Science

You can reduce your food Carbon Footprint by:

Eliminating waste by eating what you buy	25%
Going vegan	25%
Eating in-season (avoiding hothouses and air freight)	10%
Recycling and avoiding excessive packaging	6%
Reducing supermarket waste (buy items close to sell-by date if you can use and misshapen fruit and vegetables)	2%
Cooking using less energy	5%

"You could comfortably cut down the footprint of your food by 60% and reduce your total footprint by almost 20%."

<https://ourworld.unu.edu/en/uncovering-the-carbon-footprint-of-everything>



My diet is good for the planet, how's yours?



Food Footprint Shopping List

Your mission is to fill in the 'carbon cost' (g carbon dioxide equivalent) for a portion of each of the food items on this shopping list

Item	Carbon	Item	Carbon
Beef (75g)		Potatoes (80g)	
Pork (75g)		Pasta (75g)	
Chicken (75g)		Bread (1 slice/50g)	
Fish (125g)		Rice (36g)	
Cheese (30g)		Dairy Milk (ltr)	
Tofu (100g)		Soy Milk (ltr)	
Nuts (handful)		Almond Milk (ltr)	
Milky Tea (cup)		Milky Coffee (cup)	
Vegan Margarine (500g)		Butter (500g)	
Tap water		Bottled Water (ltr)	
Bottled Beer extensively transported		Wine from bottle (250ml)	
Local Bottled Beer (pt)		Local Cask Beer (pt)	
Summer / Winter Carrot (80g)		1 Orange (80g)	
1 Banana (80g)		1 Apple (80g)	
Strawberries in Summer (80g)		Strawberries in Winter (80g)	
Tomatoes in Summer (80g)		Tomatoes in Winter (80g)	
Asparagus in Summer (80g)		Asparagus in Winter (80g)	