# Sustainable Diets

Quorn™ NUTRITION

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# Our current diets

Can be suboptimal for our health...

1

Can be bad for our planet...

**1.5°C**

**By 2050**

2

Our food system contributes up to

**30%**

**GHG**

3

## Aiming for a more sustainable diet can be a win-win

# Our global food systems

Each stage of the food system has environmental waste...

**85% of fisheries overfished**[4]

**Leading cause of deforestation**[6]

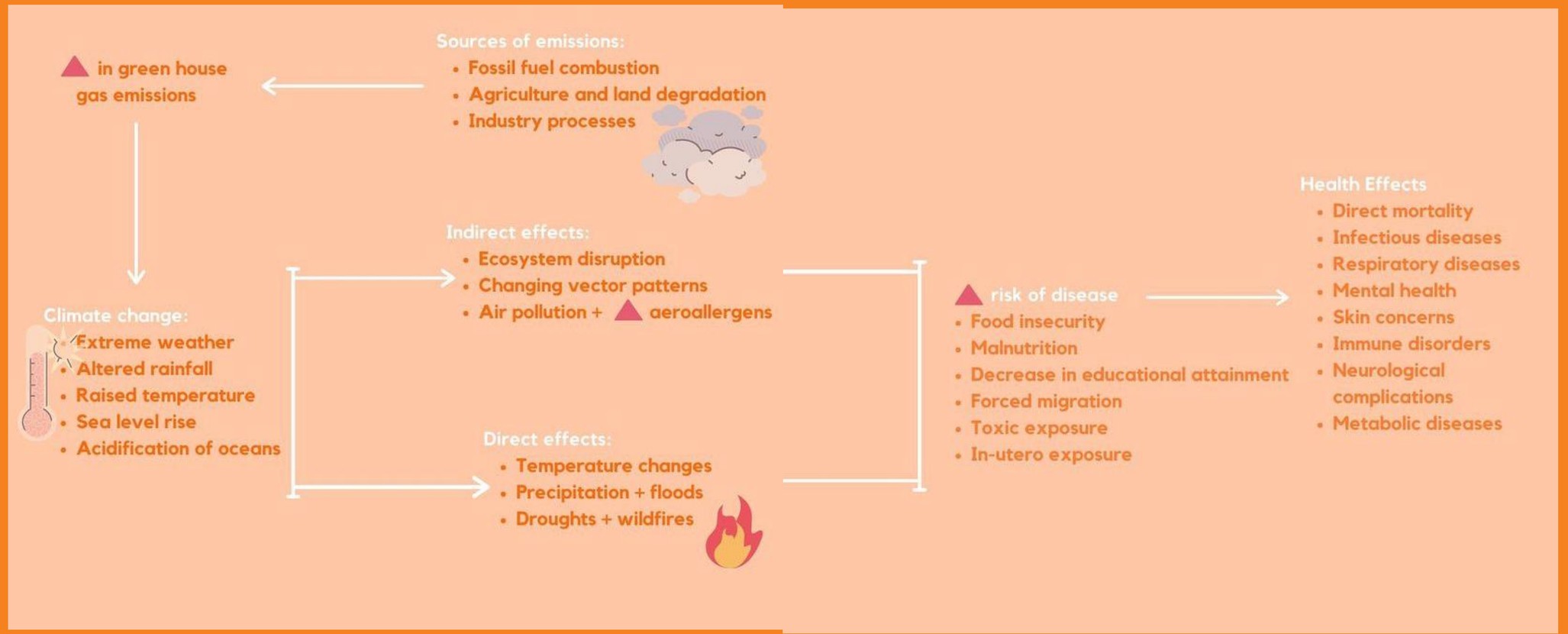
**70% of water use**[6]

**Up to 30% of total GHG**[5]

**10 million tonnes wasted**[7]

**50% of marine verterbrae population remaining**[8]

# The effect on future generations




[9] Hellden et al (2021)

# What is a sustainable diet?

- Economic
- Social
- Environment

**FAO definition:**

*"Sustainable Diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations"*

[10] FAO Dietary Guidelines and Sustainability (2010)

# How can we measure sustainability

The average quantity of GHGs emitted and land & water use to produce 100g of protein from animal and plant foods.

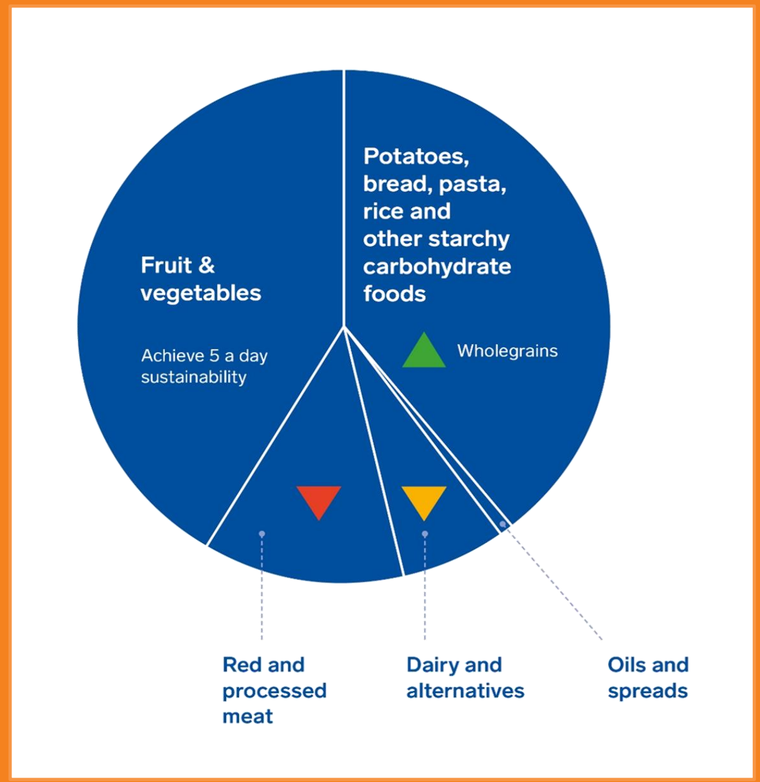
These are average values based on a combination of data sets from around the world therefore there will be significant variability depending on country of origin and production practices.

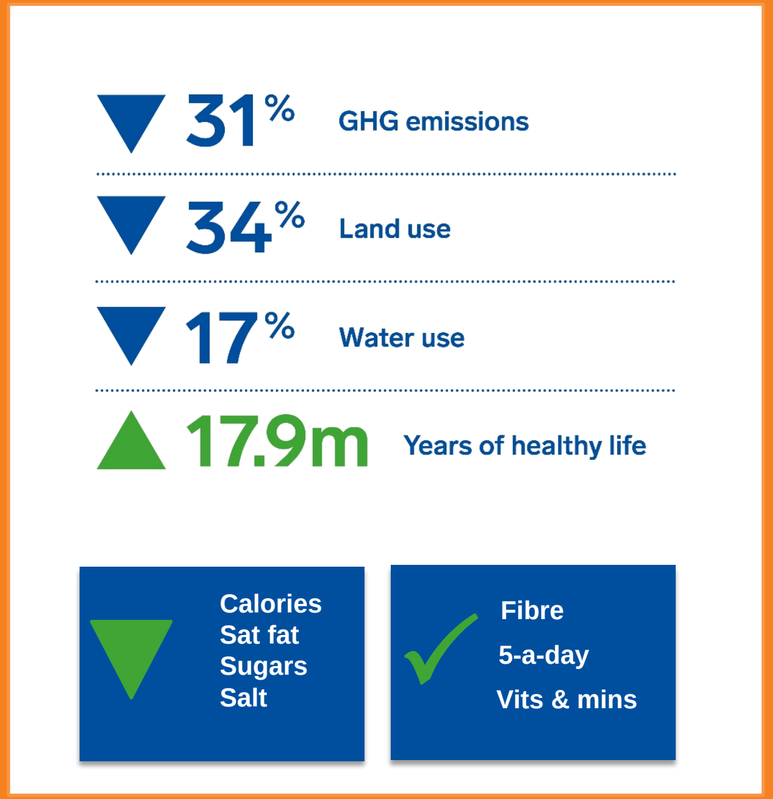
| | GHGe as kg $CO_2$ eq per 100g of protein | Land use m2 per 100g of protein | Stress weighted water use 1000s litres per 100g of protein |
|---|---|---|---|
| Nuts | 0.3 | 7.9 | 140.8 |
| Peas | 0.4 | 3.4 | 12.6 |
| Beans | 0.8 | 7.3 | 10.5 |
| Peanuts | 1.2 | 3.5 | 23.6 |
| Tofu | 2 | 2.2 | 3.2 |
| 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 |

[11] BDA One Blue Dot (2019)

# BDA One Blue Dot

Launched in 2018, it aims to ensure **that dietary guidance is synonymous** with **health and sustainable eating** for all groups and individuals. It enables health professionals to act now to make the essential dietary changes needed to ensure the future security of the planet.




BDA One Blue Dot (2019)

# 9-point plan

ONE BLUE DOT®

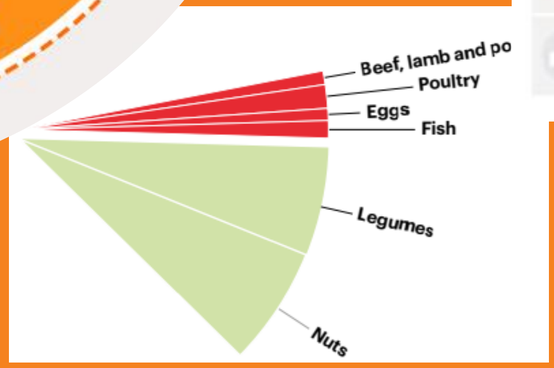
| | | |
|---|---|---|
| **Red meat** | Red meat <70g/pppd or <350g-500g pppw (cooked weight). ▼ | Processed meats. ✕ |
| **Plant proteins** | Prioritise beans and lentils, soya (beans, mince, nuts, tofu), mycoprotein (Quorn™), nuts and seeds. ▲ | |
| **Fish** | From sustainable sources and follow oily fish recommendations. | |
| **Dairy** | Moderate dairy consumption. Use calcium fortified plant-based alternatives where needed. ▼ | |
| **Potatoes, bread, pasta, rice and other starchy carbohydrate foods** | Recommend wholegrain. Recommend tubers such as potatoes. ▲ | |

| | | |
|---|---|---|
| **Fruit and vegetables** | Seasonal + locally produced vegetables/fruit or use tinned/ frozen. ▲ | Air freighted, pre-packed and prepared fruit and vegetables. ▼ |
| **Portion control** | Animal proteins ▼<br>Dairy produce ▼ | High Fat, Sugar and Salt (HFSS) foods ✕ |
| **Hydration** | Tap water and unsweetened tea or coffee over soft drinks. ▲ | |
| **Reduce food waste** | Especially perishable fruit and vegetables. ▼ | Any food waste should be recycled. ▲ |

✕ Avoid ▼ Reduce ▼ Moderate ▲ Increase

[11] BDA One Blue Dot (2019)

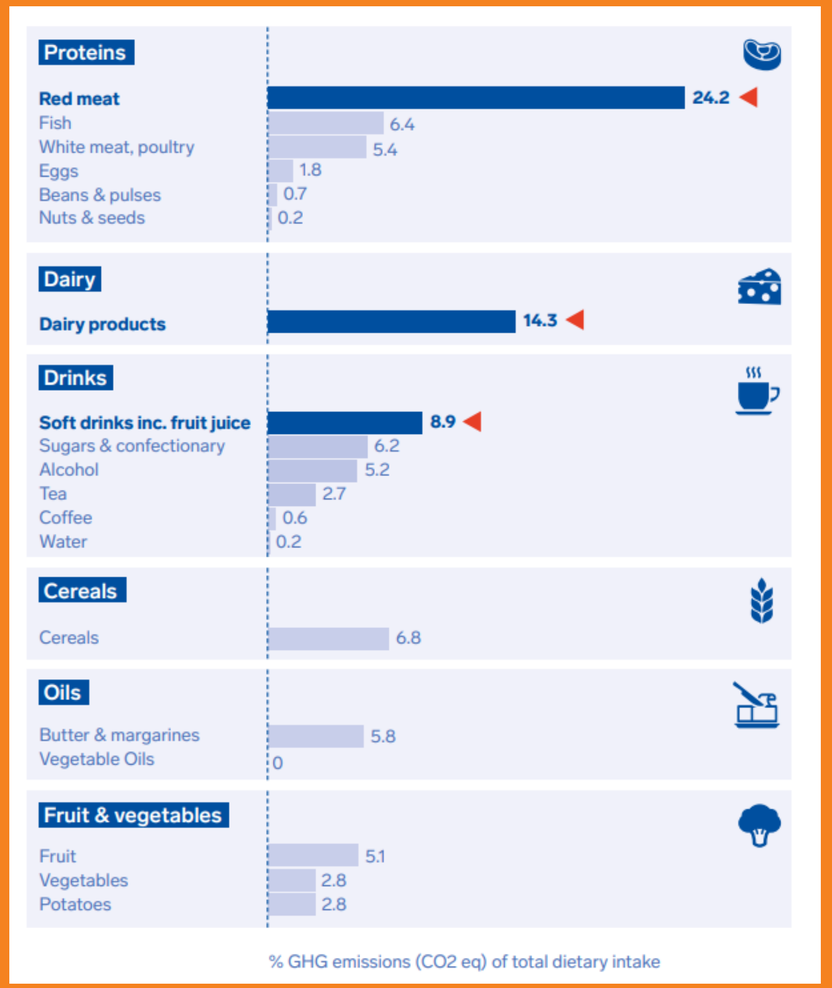
# EAT Lancet (2019)


| | Macronutrient intake grams per day (possible range) | Caloric intake kcal per day |
|---|---|---|
| Whole grains | | |
| Rice, wheat, corn and other | 232 | 811 |
| Tubers or starchy vegetables | | |
| Potatoes and cassava | 50 (0–100) | 39 |
| Vegetables | | |
| All vegetables | 300 (200–600) | 78 |
| Fruits | | |
| All fruits | 200 (100–300) | 126 |
| Dairy foods | | |
| Whole milk or equivalents | 250 (0–500) | 153 |
| Protein sources | | |
| Beef, lamb and pork | 14 (0–28) | 30 |
| Chicken and other poultry | 29 (0–58) | 62 |
| Eggs | 13 (0–25) | 19 |
| Fish | 28 (0–100) | 40 |
| Legumes | 75 (0–100) | 284 |
| Nuts | 50 (0–75) | 291 |
| Added fats | | |
| Unsaturated oils | 40 (20–80) | 354 |
| Saturated oils | 11.8 (0-11.8) | 96 |
| Added sugars | | |
| All sugars | 31 (0–31) | 120 |

[1] EAT Forum, EAT Lancet commission summary report (2019)

# Do I have to go vegan?!




Foods that contribute the most to GHG emissions in the UK diet (% GHG)

**Meat does not need to be omitted but <u>reduced</u>**

[11] BDA One Blue Dot (2019)

# Plant/Fungi Protein

- More rounded nutritional profile
- Current UK protein intakes exceed protein recommendations
- A diet based purely on plants + meeting energy requirements can meet all EAA needs
  - Combinations not needed at every mealtime
  - Nitrogen balanced is achieved over a course of a whole day

## BDA Recommendations:

- Encourage non-animal protein foods daily
- Go meat free several days a week
- Starchy foods / wholegrain cereals: low in protein, but can support overall protein intake as eaten in high quantities

| Canned chickpeas 7g/100g | Brown lentils 9g/100g | Mixed Nuts 7g/30g | Tofu 17g/75g | Mycoprotein (Quorn™) 11g/100g |
|---|---|---|---|---|

[11] BDA One Blue Dot (2019)

# Other nutrients

- Iron – less bioavailable in plant sources so to optimise,
  - Consume high tannin / polyphenol containing foods e.g. tea, coffee, spinach at least 2 hours away from non-haem iron foods.
  - Choose lower phytate options e.g. tubers, canned beans
  - Including some animal protein e.g. fish or chicken may help enhance absorption

| | | | | |
|---|---|---|---|---|
| Fortified Cereal<br>2.8-4.4mg/30g | Wholemeal Bread<br>2mg/2 slices | Tinned prunes<br>1.8mg/80g | Lentils<br>3.3mg/100g | Mixed Nuts<br>0.6-1.9mg/30g |

- Calcium – low intakes in teenagers/women.
  - Switching to fortified plant-based alternatives will not compromise calcium intakes – bioavailability from alternatives same as dairy.
  - Low oxalate calcium rich dark green veg e.g. broccoli and pak choi – double bioavailability compared to dairy.

| | | | | |
|---|---|---|---|---|
| Fortified plant drink<br>240mg/200ml | Broccoli<br>35mg/80g | Silken Tofu<br>105mg/75g | Dried Figs<br>60-70mg/30g | Tahini paste<br>129mg/15g |

- Zinc – meat is a major dietary source
  - Plant sources, with the exception of mycoprotein, are lower in zinc.
  - Optimise by adding sprinkles of seeds and nuts onto cereals, soups and yoghurts + choosing wholemeal / wheatgerm breads

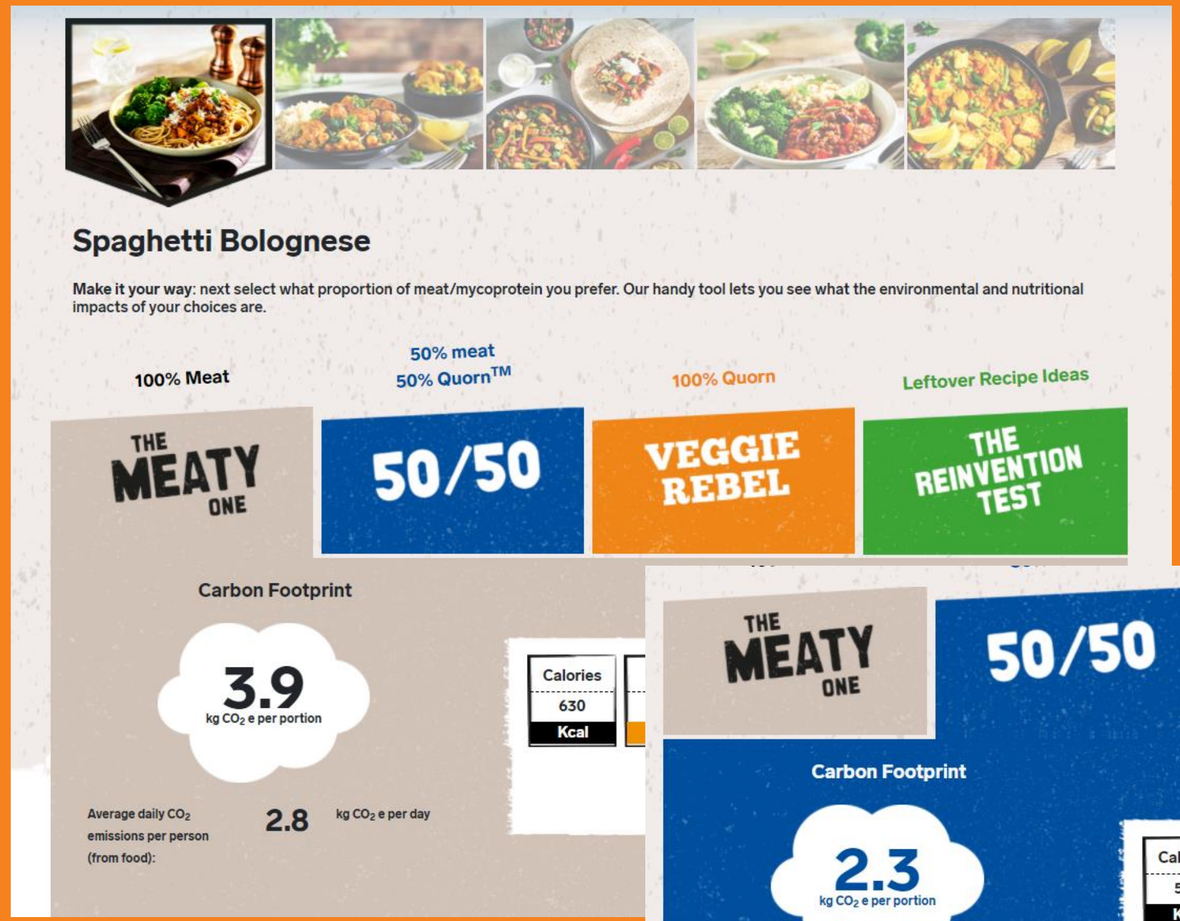
| | | | |
|---|---|---|---|
| Mycoprotein (Quorn™)<br>7mg/100g | Tofu (Firm)<br>1.5mg/75g | Wheatgerm Bread<br>1.8mg/2 slices | Peanut Butter (Thick spread)<br>1.2mg/40g |

- Vitamin B12 – risk of deficiency for meat and dairy free individuals
  - Fortified plant food sources include plant-based drinks, yeast extract and most fortified breakfast cereals.

| | | |
|---|---|---|
| Fortified cereal (30g) with fortified plant drink (150ml)<br>1.1mg | 150g of fortified soya yoghurt<br>0.6mg | Yeast Extract (Marmite)<br>Two toast slices<br>0.6mg |

[11] BDA One Blue Dot (2019)

# Swapping is easy!




[12] BDA Sustaiable Eats (2019)

# Eating a sustainable diet whilst incorporating animal products...