

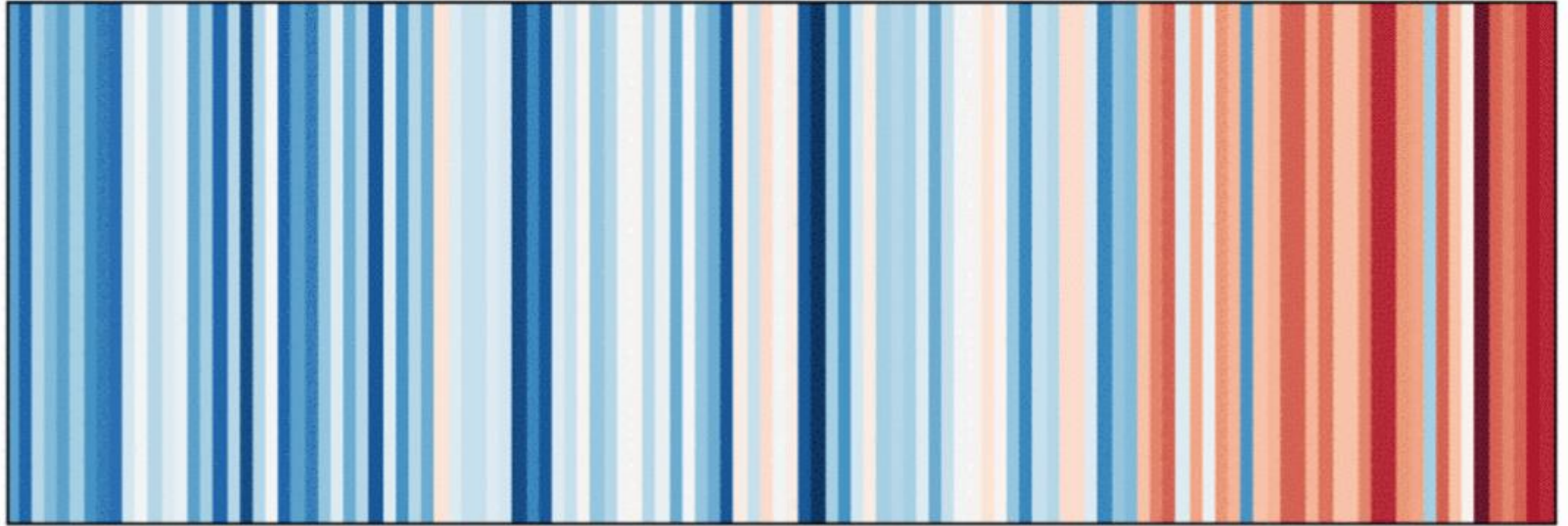
# Voeding & Klimaat

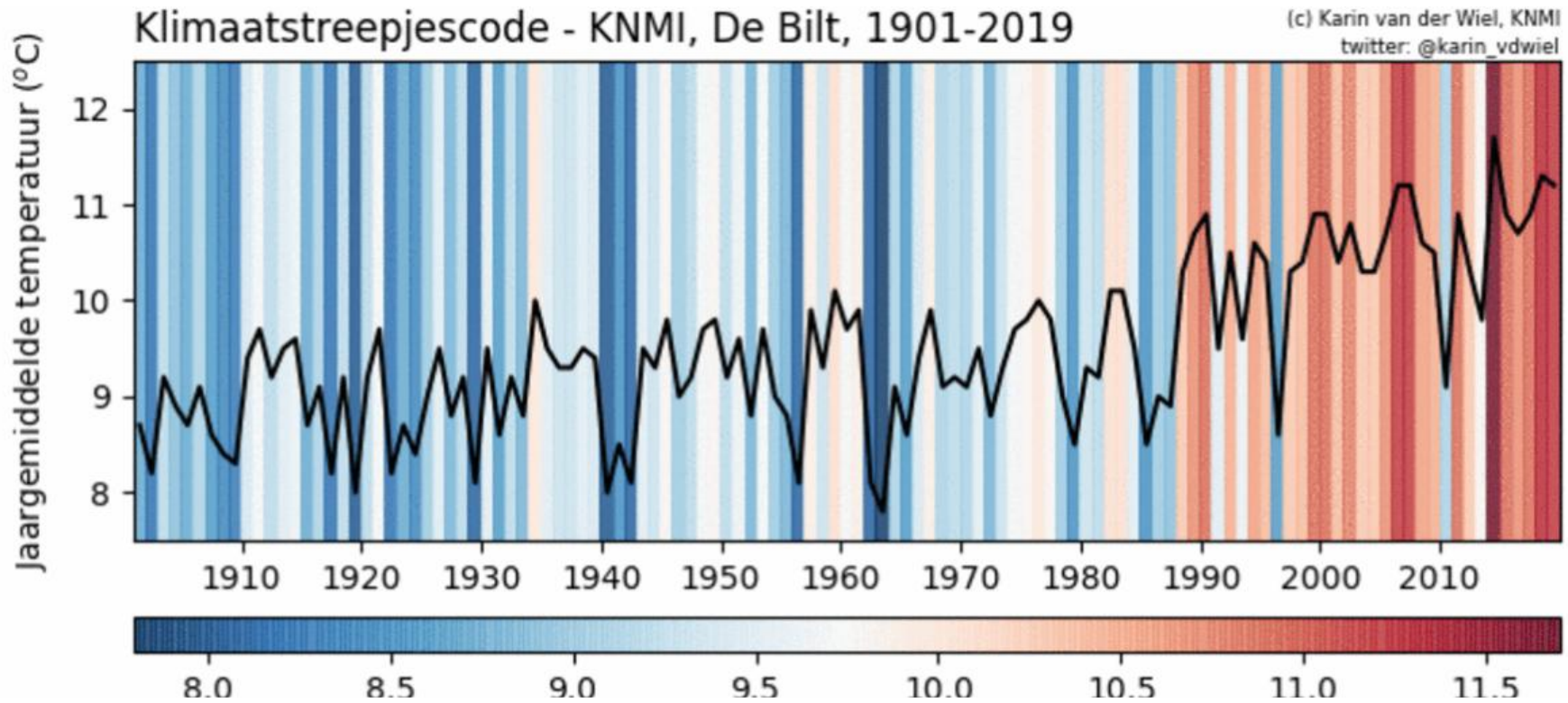
## Webinar 7 februari 2022

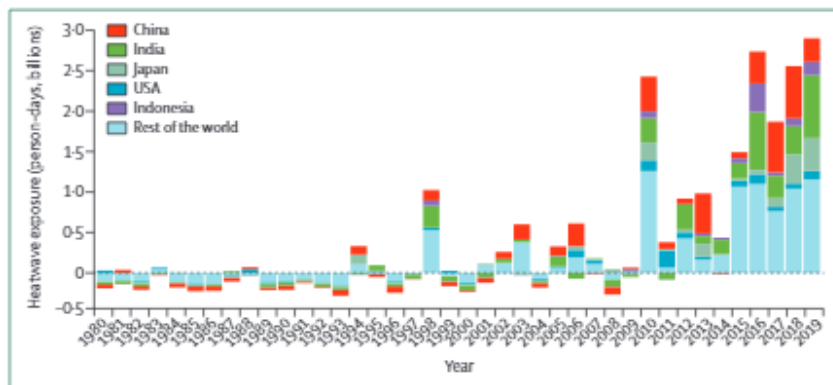
Marjolijn Duijvestein  
Maag-darm-leverarts

---

Radboudumc

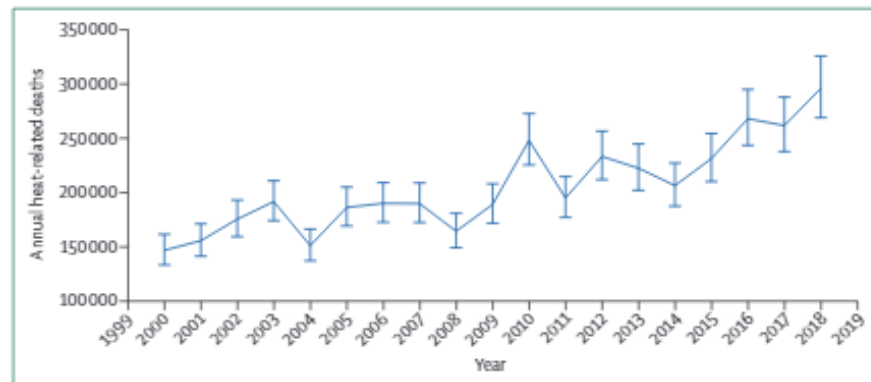






**Figure 1:** Change in days of heatwave exposure relative to the 1986-2005 baseline in people older than 65 years

The dotted line at 0 represents baseline.



**Figure 2:** Global heat-related mortality for populations older than 65 years

The error bars were calculated on the basis of the uncertainty range of the exposure-response function, as described by Honda and colleagues.<sup>25</sup>

---

# Klimaatverandering en gezondheid

**Klimaatverandering is de grootste uitdaging van de 21<sup>e</sup> eeuw**

## **Bedreiging voor globale gezondheid**

- Ondermijnt vooruitgang laatste 50 jaar (public health)
- 2012 raming: 12.6 miljoen doden (23%) door factoren die beïnvloed zijn door de klimaatverandering

## **Geen zichtbaar probleem**

- 80% van de impact zichtbaar in ontwikkelingslanden
- Disproportionele impact op populaties die minst bijdragen aan probleem

# Klimaatverandering en gezondheid

Klimaatverandering en snel veranderende ecosystemen

→ stijgende temperatuur, extreem weer, verspreiding van infectieziekten

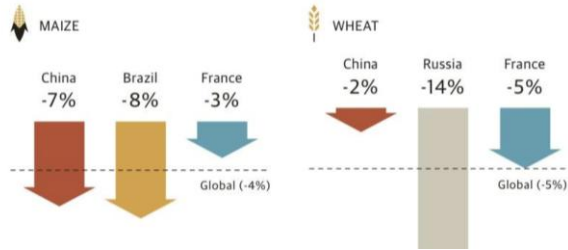
→ basiscondities gezond leven: luchtkwaliteit, voedselproductie, drinkwater



## Climate change, food and farming: 2010s

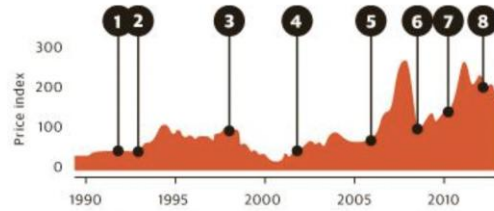
### It is affecting crop yields

Maize and wheat yields show climate impacts



### It is putting up prices

Seasonal climate extremes and the food price index



1. Australia wheat. 2. US maize. 3. Russia wheat. 4. US wheat, India soy, Australia wheat. 5. Australia wheat. 6. Argentina maize, soy. 7. Russia wheat. 8. US maize.

SOURCE: FAO, 2014



### Poor people are worst affected

How much of their income do poor people spend on food?



### Tropical regions are most vulnerable

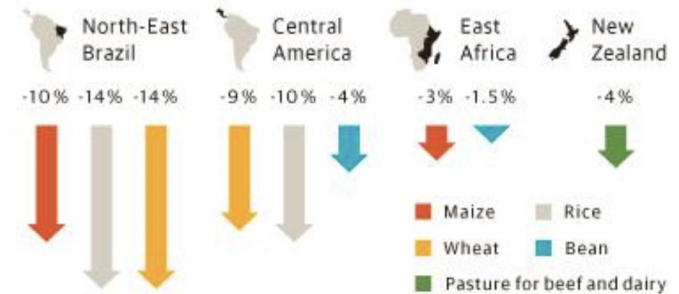
Percentage of people undernourished (2011-13):



## Climate change, food and farming: 2030s

In the 2030s, climate change will affect food and farming more strongly, particularly small-scale producers in poor countries

### Crop and pasture yields are likely to decline in many places



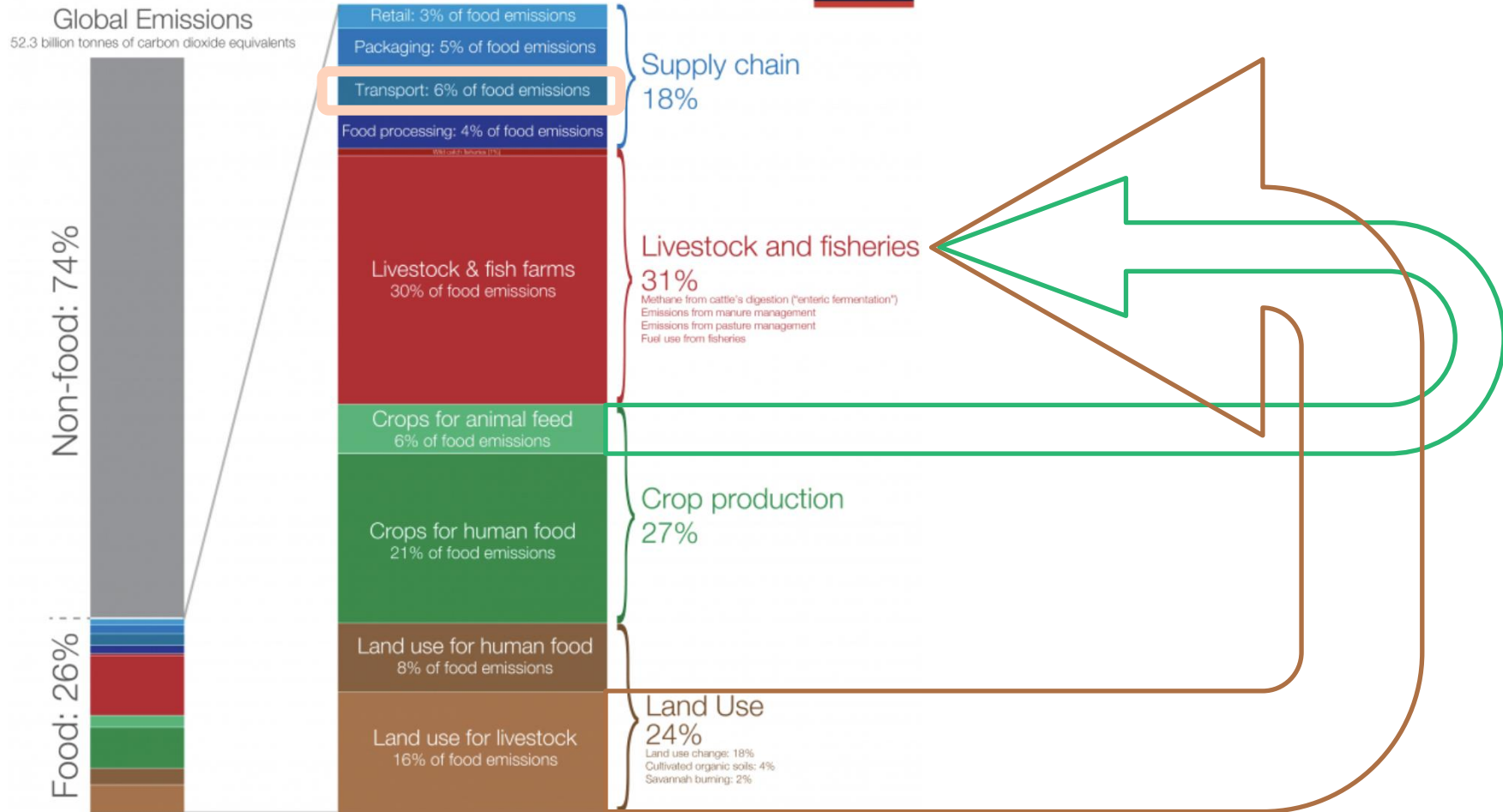
SOURCE: ECLAC, 2009; Lobell et al. 2008; Thornton et al. 2010; Wratt, et al. 2008





# Global greenhouse gas emissions from food production

Our World  
in Data



Data source: Joseph Poore & Thomas Nemecek (2018). Reducing food's environmental impacts through producers and consumers. Published in Science.

OurWorldinData.org - Research and data to make progress against the world's largest problems.

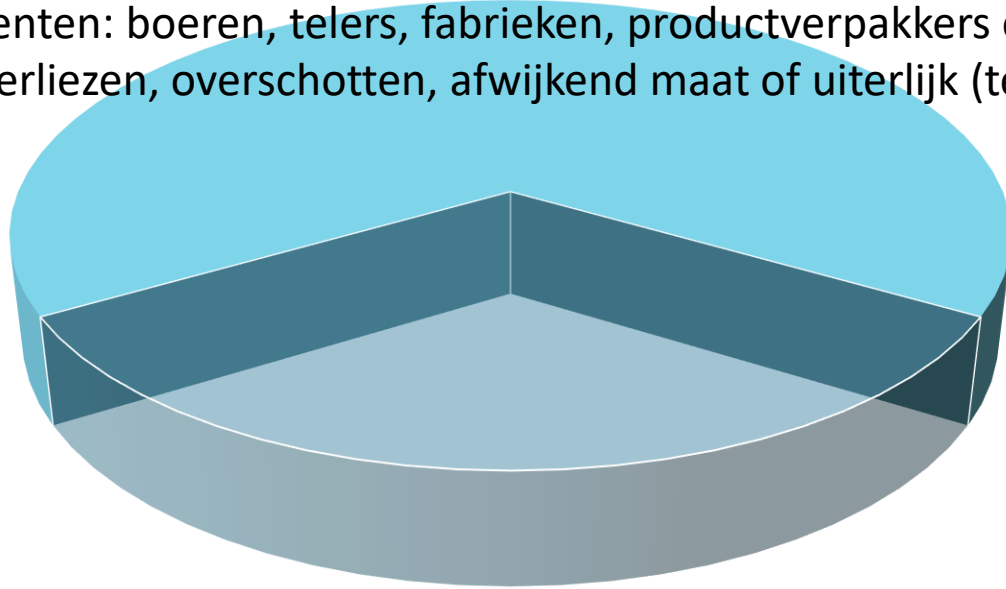
Licensed under CC-BY by the author Hannah Ritchie.



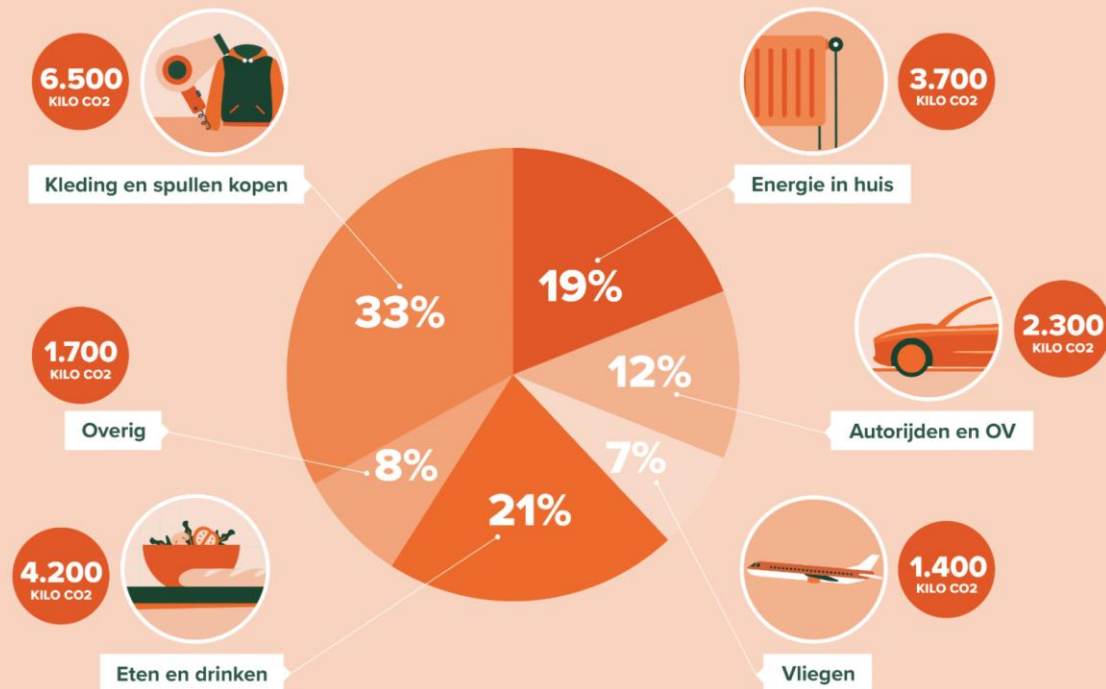
---

# 1/3 van voedselketen bereikt de winkel niet (8% van totale uitstoot)

Bij wie? Producenten: boeren, telers, fabrieken, productverpakkers en tussenhandelaren  
Waarom? Oogstverliezen, overschotten, afwijkend maat of uiterlijk (te hoge kwaliteitseisen)



# WAT VERORZAAKT DE MEESTE CO2-UITSTOOT? CO2-UITSTOOT VAN EEN NEDERLANDS HUISHOUDEN



Een Nederlands huishouden (2.2 personen) stoot gemiddeld 20.000 kilo CO2 uit per jaar. In de categorie 'Overig' valt bijvoorbeeld de bouw van huizen, wegen en vervoermiddelen.

# DIT **BESPAREN** WE JAARLIJKS DOOR WERELDWIJD

## GEEN VOEDSEL TE VERSPILLEN:



**1,4** miljard  
**hectare land**

een gebied dat **groter**  
is dan heel **Europa**



**250** km<sup>3</sup>  
**water**

**50x** de inhoud van  
het **IJsselmeer**



**voldoende**  
**voedsel**

**1,26** voor  
**miljard**  
**mensen** voor  
**één jaar**



**15%**  
directe uitstoot  
uit de keten

productie-distributie-  
consumptie

**85%**  
indirecte uitstoot

door minder ontbossing en  
meer biodiversiteit



**SAMEN TEGEN**  
**VOEDSELVERSPILLING**

Kromkommer waste?

Uit Spanje of de Nederlandse kas?



In plastic verpakt?

Voedingswaarde?

# Food footprint




Diner > Gerechten

## Broodje hamburger met friet

 4.33 kg CO<sub>2</sub>eq \*

 46.54 L water \*\*

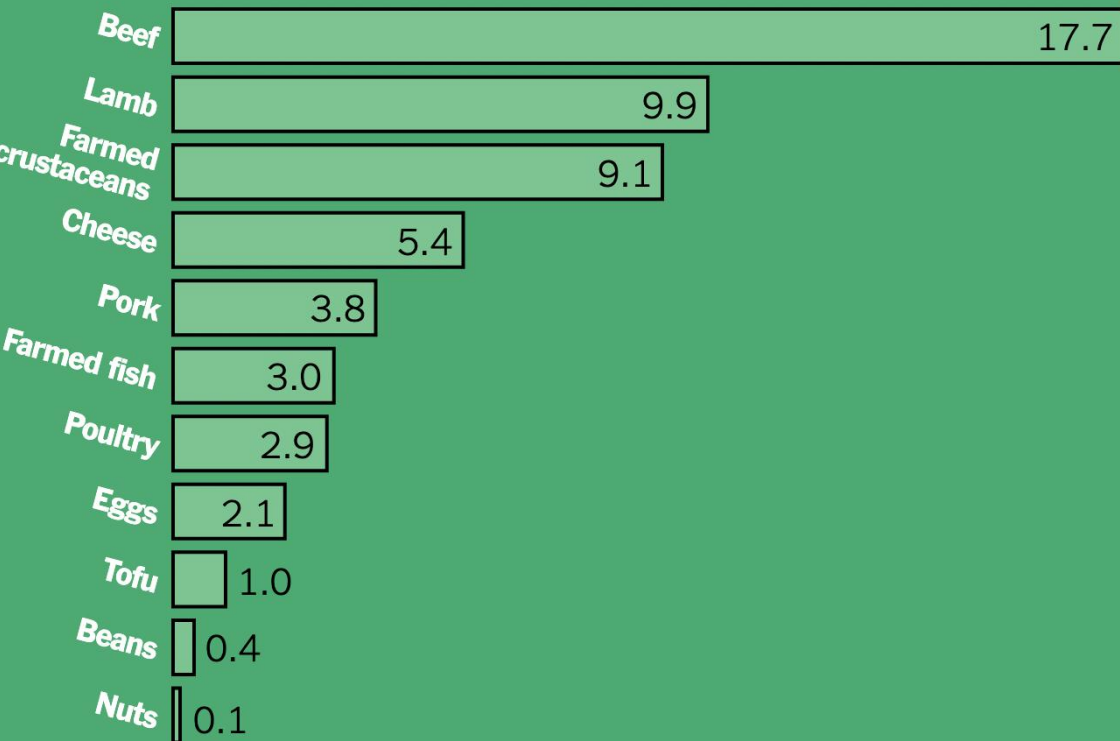
 2.21 m<sup>2</sup>\*jaar \*

(5 sterren = goed, 1 ster = slecht, t.o.v. andere gerechten op deze site)

- 1-persoons portie in een gerecht voor 4 personen
- **Data:** gemiddelde producten Nederlandse markt (RIVM)  
*let op: kan (sterk) verschillen per seizoen / land van herkomst*
- Ingrediënten: Witte bol (hard) (50 gram), Hamburger (100 gram), Tomaat (30 gram), Ui (rauw) (10 gram), Komkommer (20 gram), Sla (20 gram), Friet (150 gram), Mayonaise (30 gram).

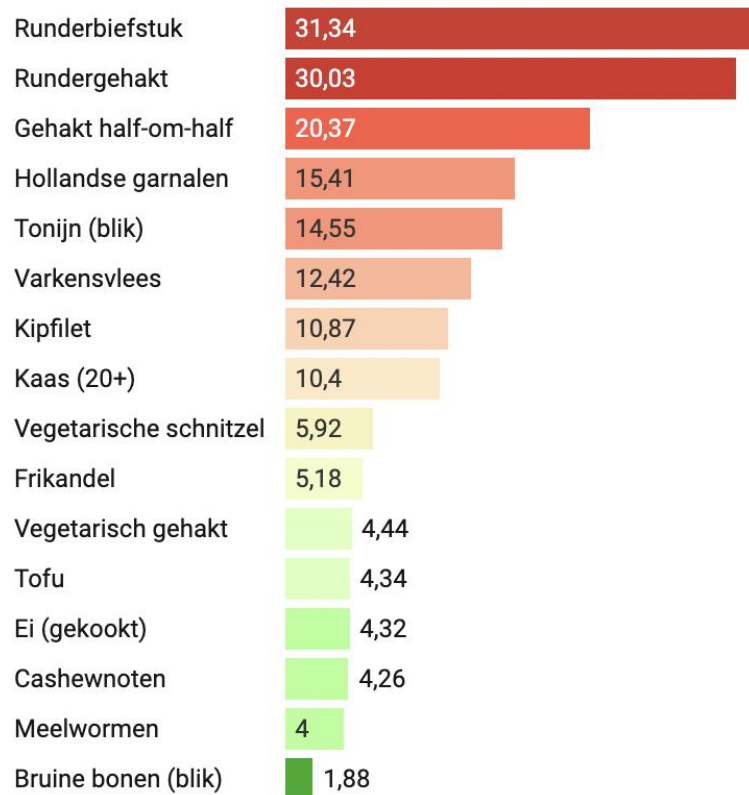
## Holy Cow!

The average greenhouse gas impact (in kilograms of CO<sub>2</sub>) of getting 50 grams of



## CO<sub>2</sub>eq uitstoot per kg product

Getallen in kg CO<sub>2</sub>-equivalenten, gebaseerd op het gemiddelde aanbod van de producten op de Nederlandse markt





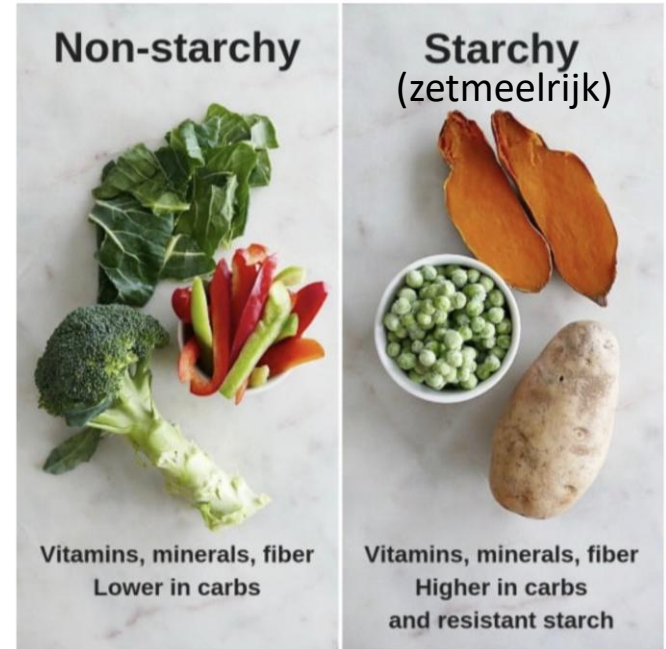
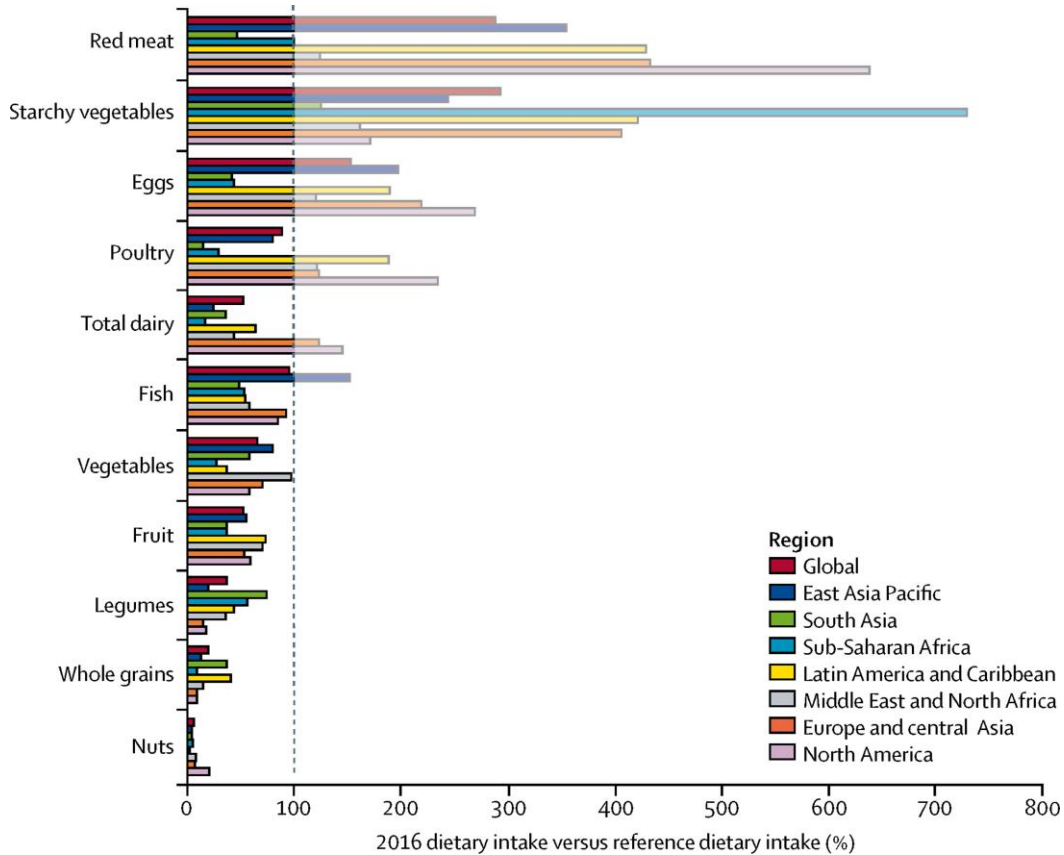
---

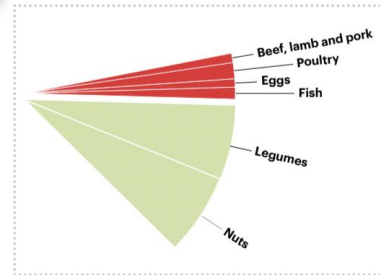
**The EAT-Lancet Commission on Food, Planet, Health brought together 37 world-leading scientists from across the globe to answer this question:  
Can we feed a future population of 10 billion people a healthy diet within planetary boundaries?**

The answer is yes, but it will be impossible without transforming eating habits, improving food production and reducing food waste.

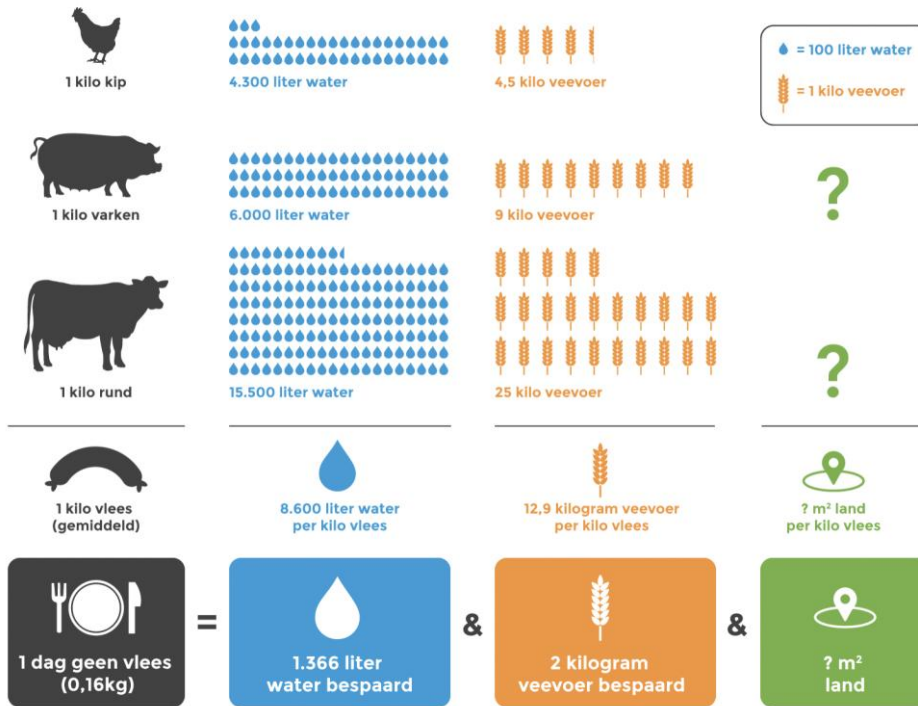
The *EAT-Lancet* report is the first full scientific review of what constitutes a healthy diet from a sustainable food system, and which actions can support and speed up food system transformation.





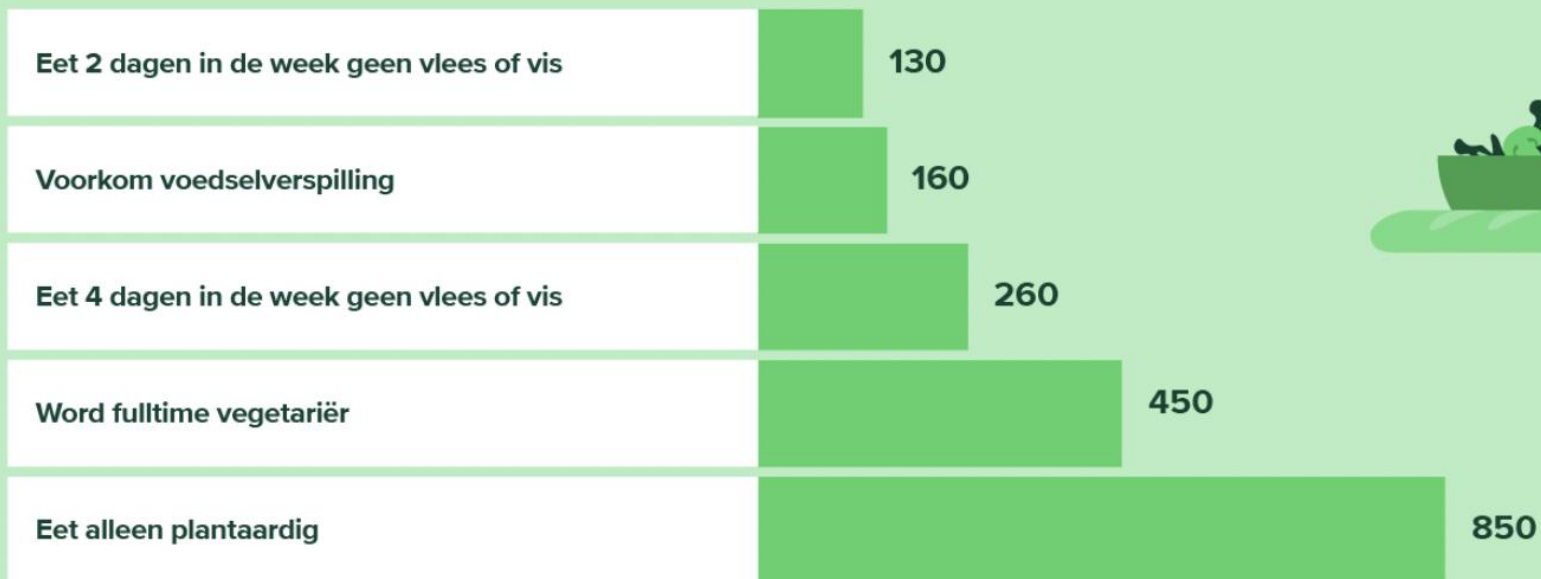


# De impact van minder vlees eten

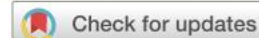


# KLIMAATKLAPPERS: BEWUST ETEN EN DRINKEN

Kilo CO2 besparing per jaar



De gemiddelde jaarlijkse CO2-uitstoot van een Nederlands huishouden is 20.000 kilo.



# Dietary change in high-income nations alone can lead to substantial double climate dividend

Zhongxiao Sun <sup>1,2</sup>✉, Laura Scherer <sup>1</sup>, Arnold Tukker<sup>1,3</sup>, Seth A. Spawn-Lee <sup>4,5</sup>, Martin Bruckner <sup>6</sup>, Holly K. Gibbs<sup>4,5</sup> and Paul Behrens <sup>1,7</sup>

**A dietary shift from animal-based foods to plant-based foods in high-income nations could reduce greenhouse gas emissions from direct agricultural production and increase carbon sequestration if resulting spared land was restored to its antecedent natural vegetation. We estimate this double effect by simulating the adoption of the EAT-Lancet planetary health diet by 54 high-income nations representing 68% of global gross domestic product and 17% of population. Our results show that such dietary change could reduce annual agricultural production emissions of high-income nations' diets by 61% while sequestering as much as 98.3 (55.6–143.7) GtCO<sub>2</sub> equivalent, equal to approximately 14 years of current global agricultural emissions until natural vegetation matures. This amount could potentially fulfil high-income nations' future sum of carbon dioxide removal (CDR) obligations under the principle of equal per capita CDR responsibilities. Linking land, food, climate and public health policy will be vital to harnessing the opportunities of a double climate dividend.**

---

# Conclusie

Eet niet te veel,  
ga voedselverspilling tegen

Eet overwegend plantaardig

Eet lokaal, van het seizoen  
en vermijd 'luchtvrachtvoedsel'

Drink bewust



**Barack Obama** ✓ @BarackObama · 23 sep. 2014

"We are the first generation to feel the effect of climate change and the last generation who can do something about it." —President Obama

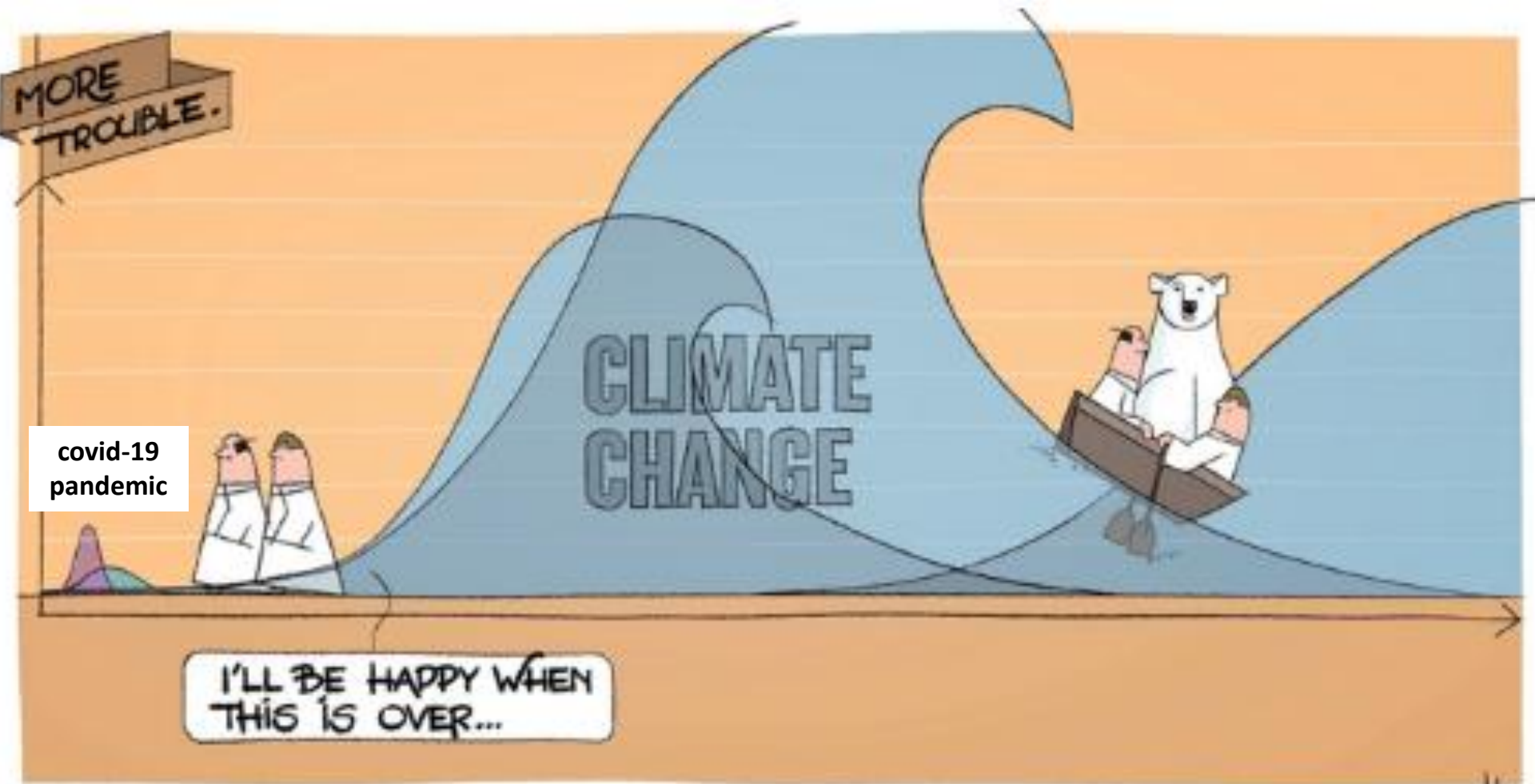
## Meer weten?

- Wetenschap: [www.lancetcountdown.org](http://www.lancetcountdown.org)  
[www.eatforum.org/eat-lancet-commission/](http://www.eatforum.org/eat-lancet-commission/)
- Websites: [www.natuurenmilieu.nl](http://www.natuurenmilieu.nl)  
[www.samentegenvoedselverspilling.nl](http://www.samentegenvoedselverspilling.nl)  
[www.goodfoodclub.nu](http://www.goodfoodclub.nu)  
[www.foodfootprint.nl](http://www.foodfootprint.nl)
- Boeken: Ooit aten we dieren – Roanne van Voorst
- Documentaires: The Game Changers
- Apps: Toogoodtogo



Raf Schoenmaekers  
([instagram.com/statisticallycartoon](https://www.instagram.com/statisticallycartoon))





covid-19  
pandemic

I'LL BE HAPPY WHEN  
THIS IS OVER...