

**Dr. Jude Capper**

**@bovidiva**



**Positively  
sustainable –  
how do we  
communicate  
the benefits of  
dairy farming?**

*Demeter Discussion  
Group*

*21<sup>st</sup> January 2022*

Source: Dr. Jude L. Capper, 2022

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s

There is no definitive sustainable protein system – but every system can be sustainable

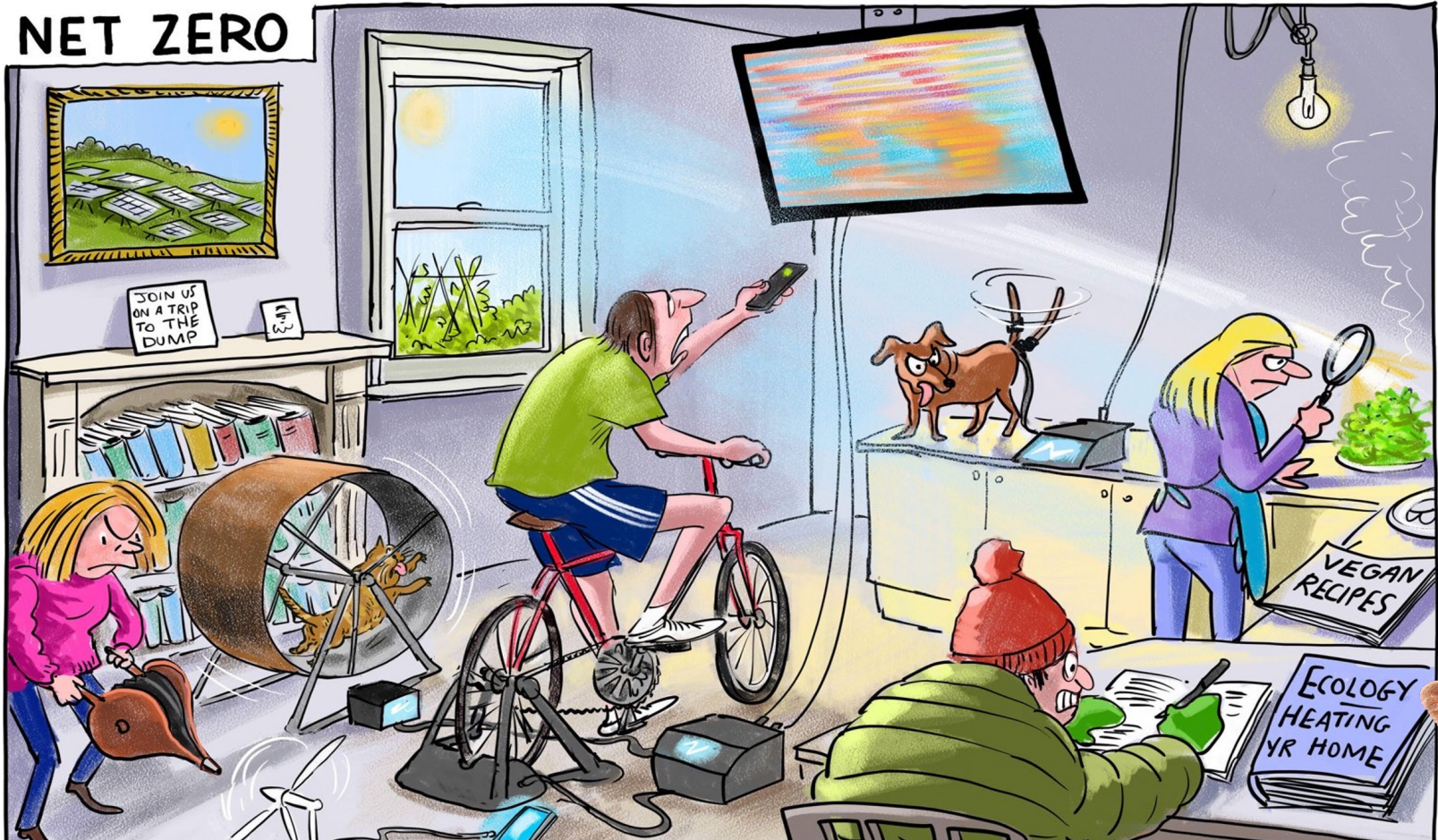
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Source: Created and photos by Dr. Jude L. Capper, 2020

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# Net Zero is a clear priority



Source: Created by Dr. Jude L. Capper, 2021. Cartoon from: <https://twitter.com/Caroon4sale/status/1384537729460056067?s=20>

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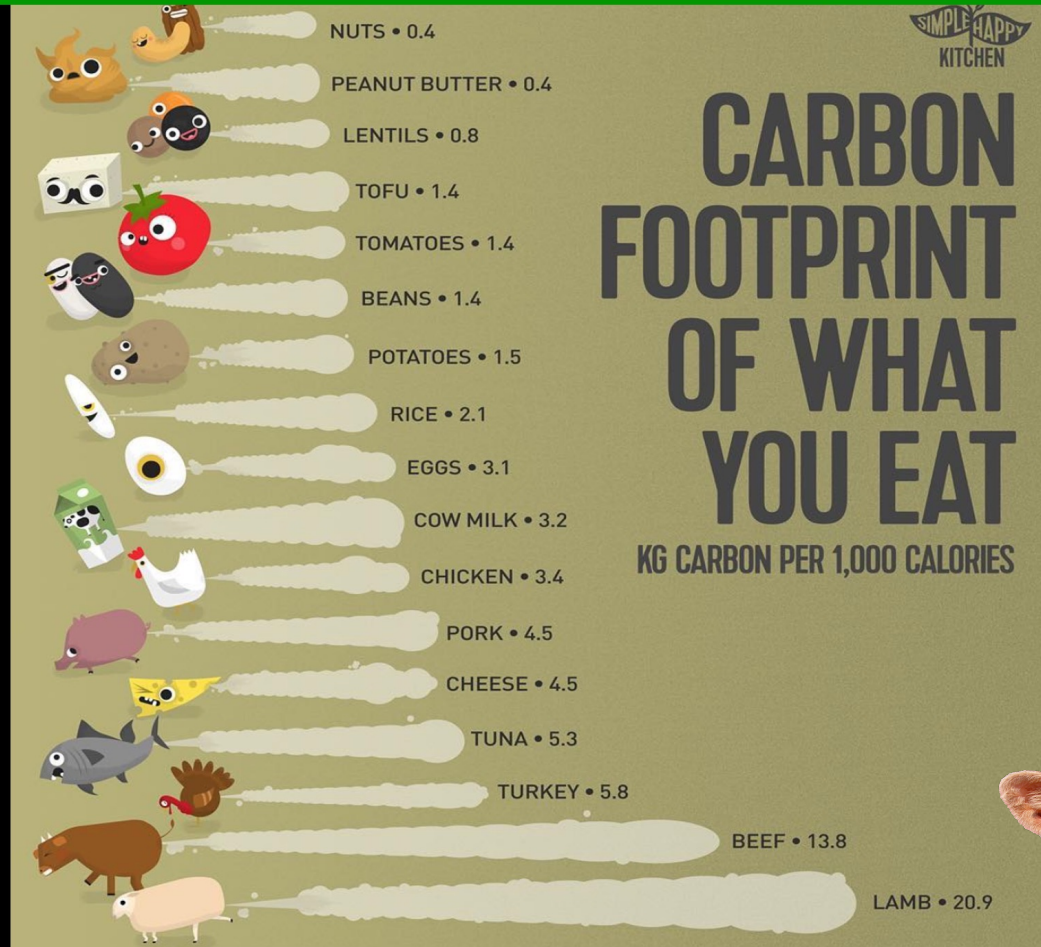
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B

# Global averages are meaningless

The carbon footprints of the foods we eat vary considerably – global average figures are inappropriate when food production is regional



Source: Created by Dr. Jude L. Capper, 2020, infographic from: [https://www.instagram.com/simple\\_happy\\_kitchen/](https://www.instagram.com/simple_happy_kitchen/)

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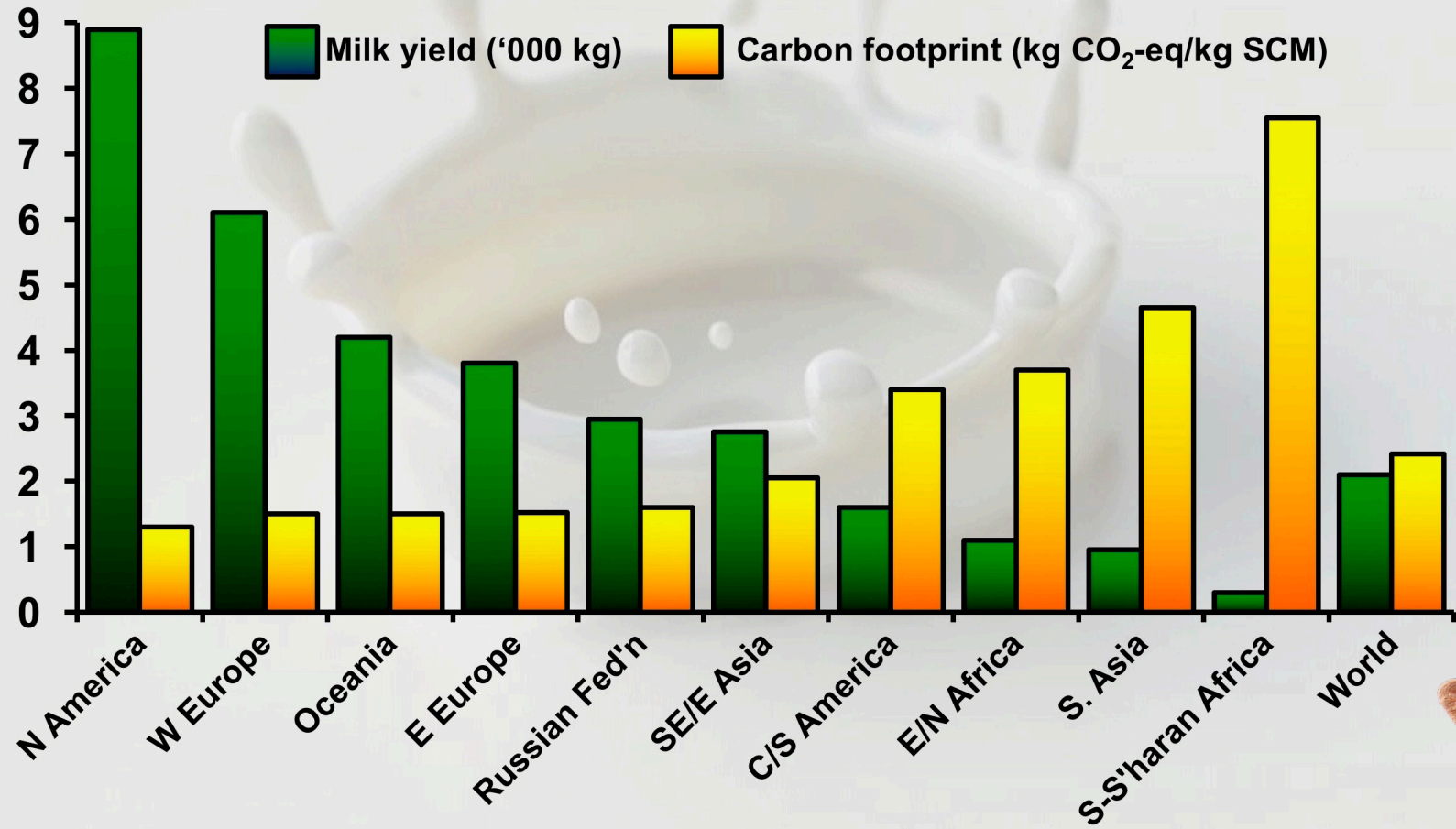


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DS

# A negative correlation exists between milk yield and carbon emissions



Source: Created by Dr. Jude L. Capper, 2016; data from: FAO (2010) Greenhouse Gas Emissions from the Dairy Sector. FAO, Rome, Italy.

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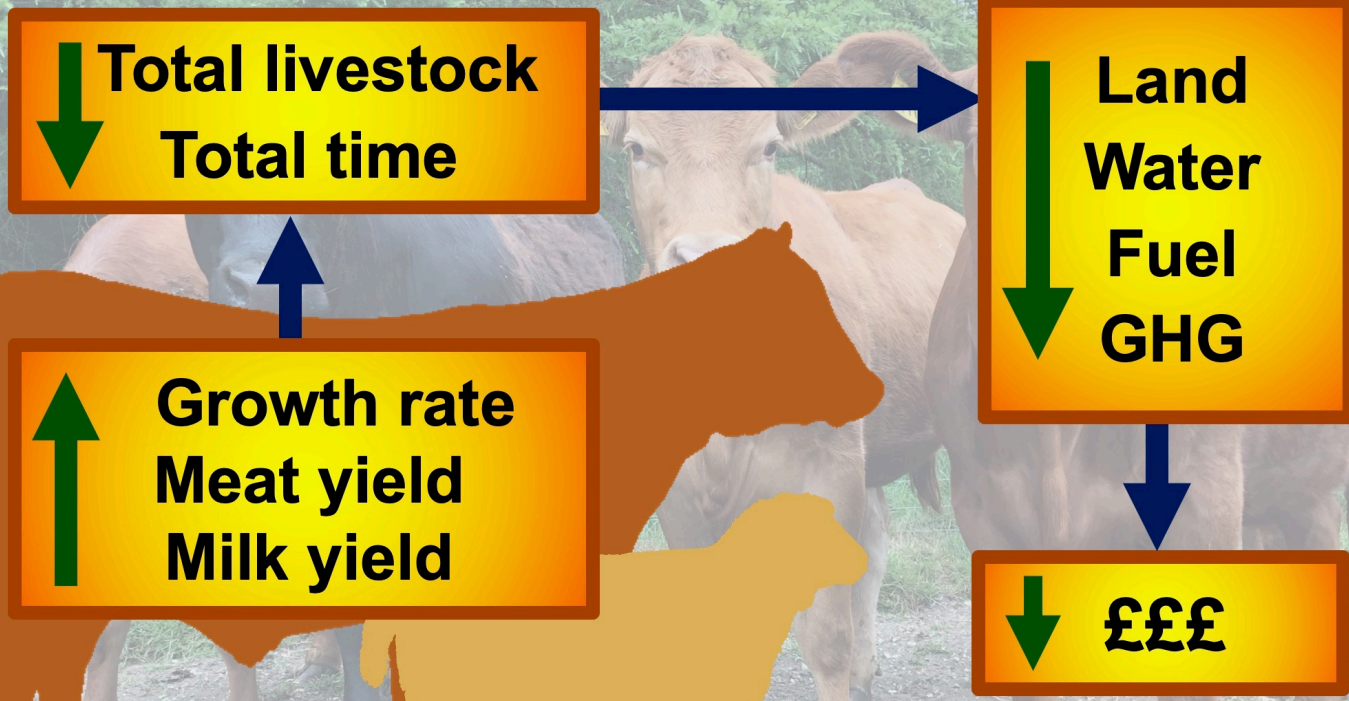


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# Improving animal productivity reduces the environmental impact of milk and meat



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Source: Created by Dr. Jude L. Capper, 2020. Data from: Capper, JL. 2015. Sustainability and One Health. In: Cockcroft, P. *Bovine Medicine*. Wiley-Blackwell, Oxford, UK.

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What could global dairying look like if we improved health, nutrition and genetics?

Global average yield

**2,577**  
**kg**

UK average yield

**8,140**  
**kg**

Dairy cows

**-181**  
**million**

**If all dairy cattle had UK yields, global milk supply could be maintained using 181 million fewer cows (69%).**

**At US average yields, 200 million fewer cows (75%)**

Source: Created by Dr. Jude L. Capper, 2020. Data from: FAOSTAT (2020) <http://www.fao.org/faostat/en/>

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D

# Improving key performance indicators reduces environmental impact and economic cost

- Nutrition**
- Reproduction**
- Lameness**
- Mastitis**
- Metabolic disease**
- Infectious disease**
- Dry period length**
- Age at first calving**
- Antibiotic residues**
- Feed wastage**
- Pasture management**



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Source: Created by Dr. Jude L. Capper, 2020



AH

Disease losses are significant and preventable, but the sustainability impacts aren't quantified



At the worldwide level, average losses due to animal diseases are more than 20% (OIE, 2008)

Source: Created by Dr. Jude L. Capper, 2020. Data from: World Organization for Animal Health. 2008. <http://www.oie.int/for-the-media/editorials/detail/article/feeding-the-world-better-by-controlling-animal-diseases>



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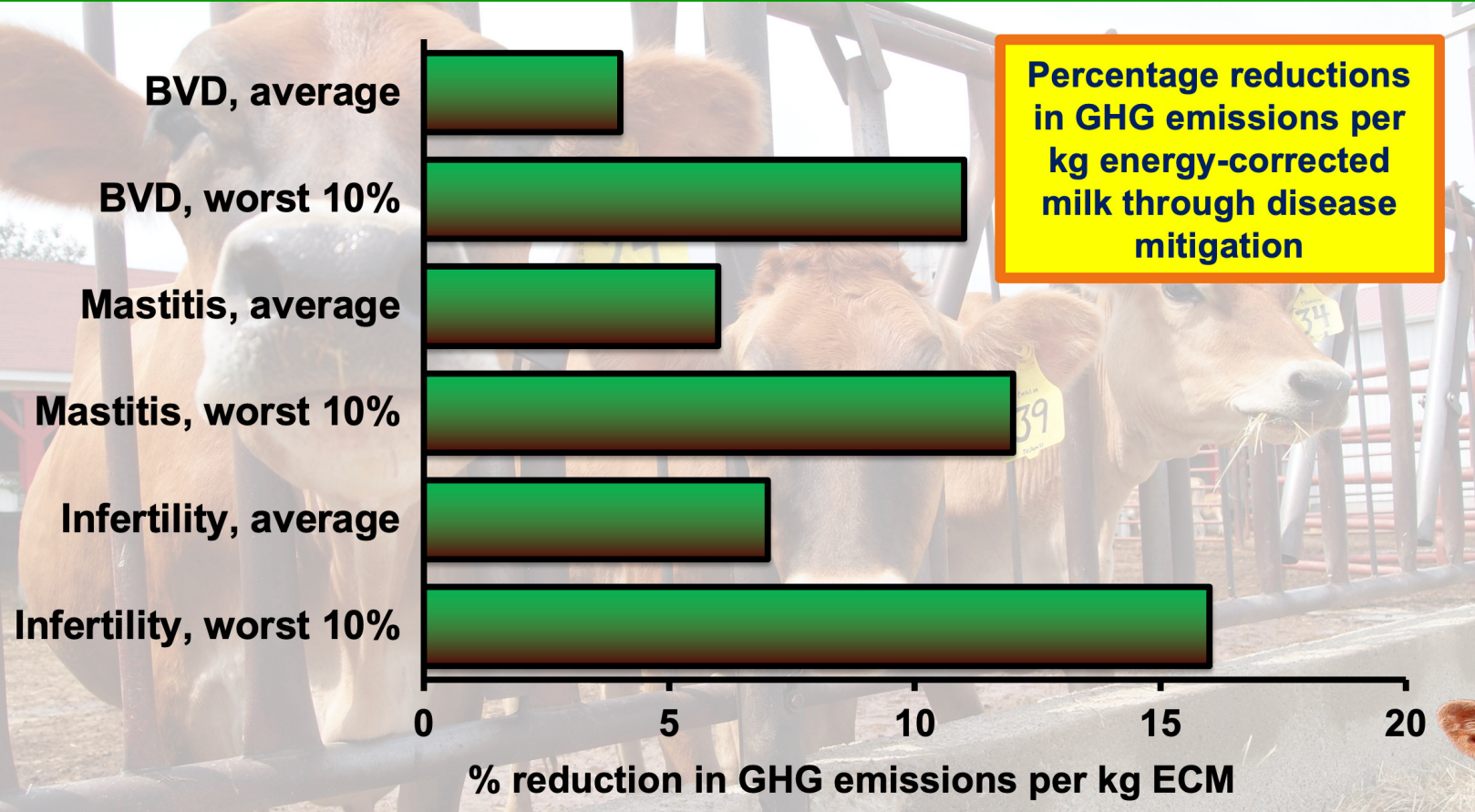


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# GHG emissions could be cut significantly by mitigating dairy diseases - UK



Source: Created by Dr. Jude L. Capper, 2021. Data from: Statham et al. 2021. Dairy Cattle Health and Greenhouse Gas Emissions Pilot Study: Chile, Kenya and the UK. Available from: <https://dairysustainabilityframework.org/wp-content/uploads/2020/10/Dairy-Cattle-Health-and-GHG-Emissions-Pilot-Study-Report.pdf>

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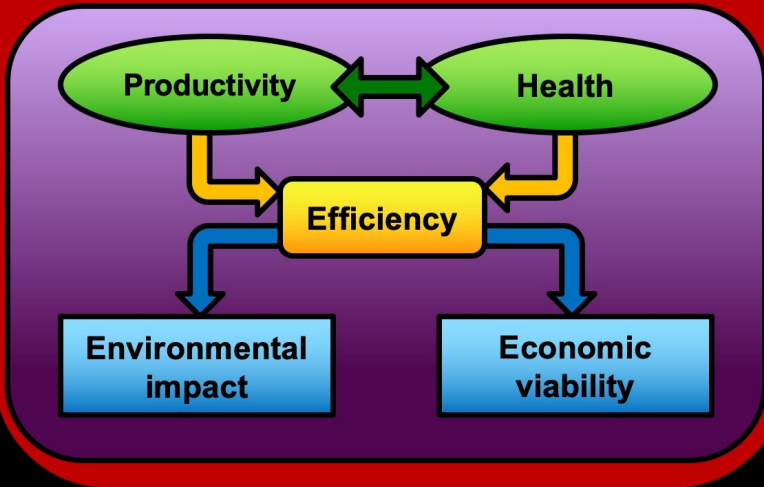
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# Social acceptability and consumer trust are vital for sustainable livestock production

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## Social Acceptability



## Sustainability



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Source: Created by Dr. Jude L. Capper, 2020.

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Is the rise in plant-based food sales related to consumer demand?



Lockdown preparations in local food hall indicate that dairy may be a priority for many panic-buyers

Source: Created and photo by Dr. Jude L. Capper, 2020.

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Do 582,538 Veganuary participants amount to more than a hill of beans?

**JOIN THE  
NEW YEAR'S  
REVOLUTION**



- Slightly smaller than the population of Sheffield
- If all participants were UK-based they would comprise <1% of the UK population
- Average of 2,787 per participating country
- 62% of participants already vegan, vegetarian or pescatarian

Source: Created by Dr. Jude L. Capper, 2021. Information from: <https://veganuary.com/>

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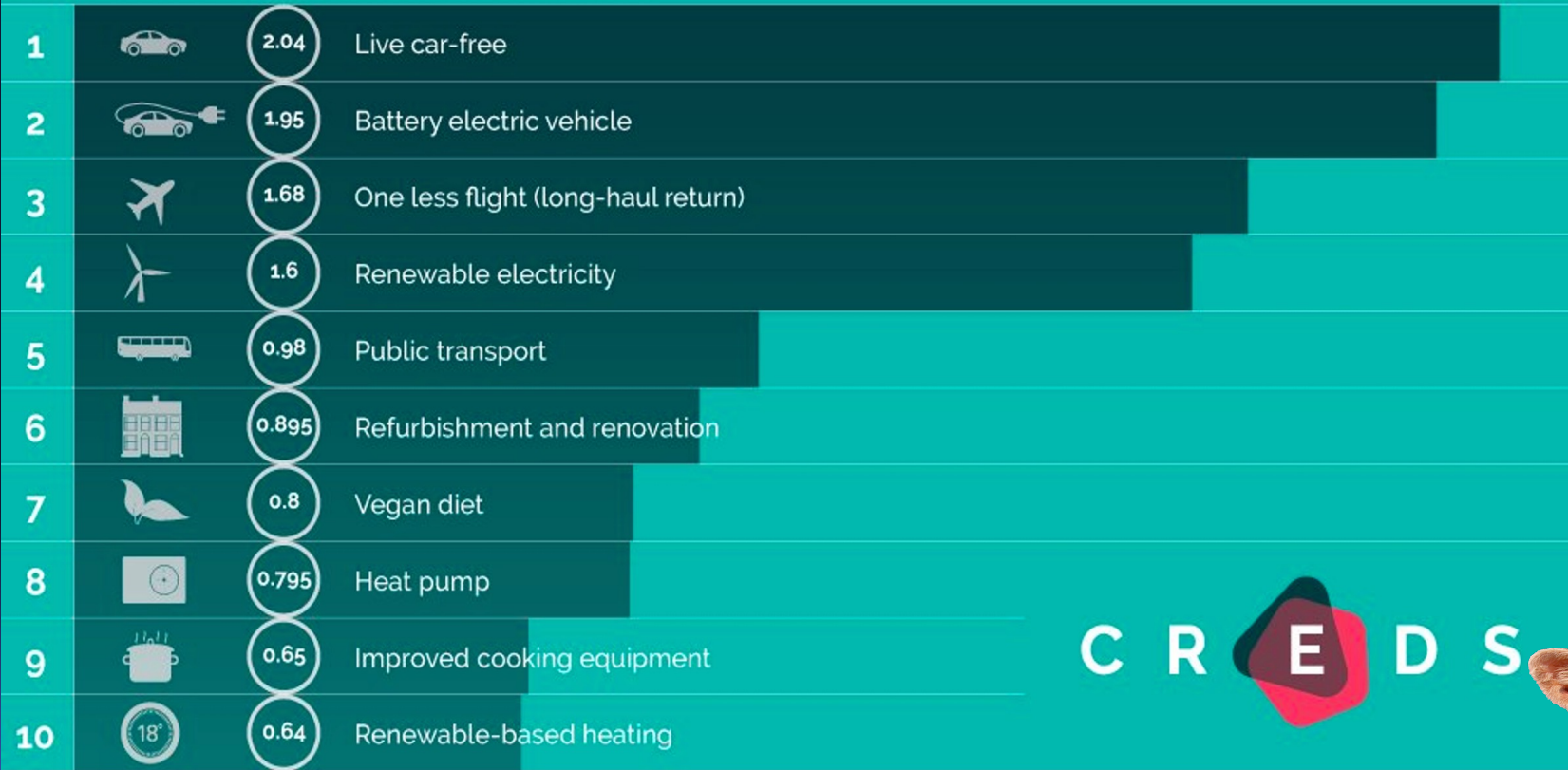
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CV

# New CREDS report puts transport, energy and food choices into context

## Top 10 options for reducing your carbon footprint



Source: Created by Dr. Jude L. Capper, 2020. . Infographic adapted from Centre for Research into Energy Demand Solutions (2020). Available at: [https://twitter.com/CREDS\\_UK/status/1262984570175176704?s=20](https://twitter.com/CREDS_UK/status/1262984570175176704?s=20)

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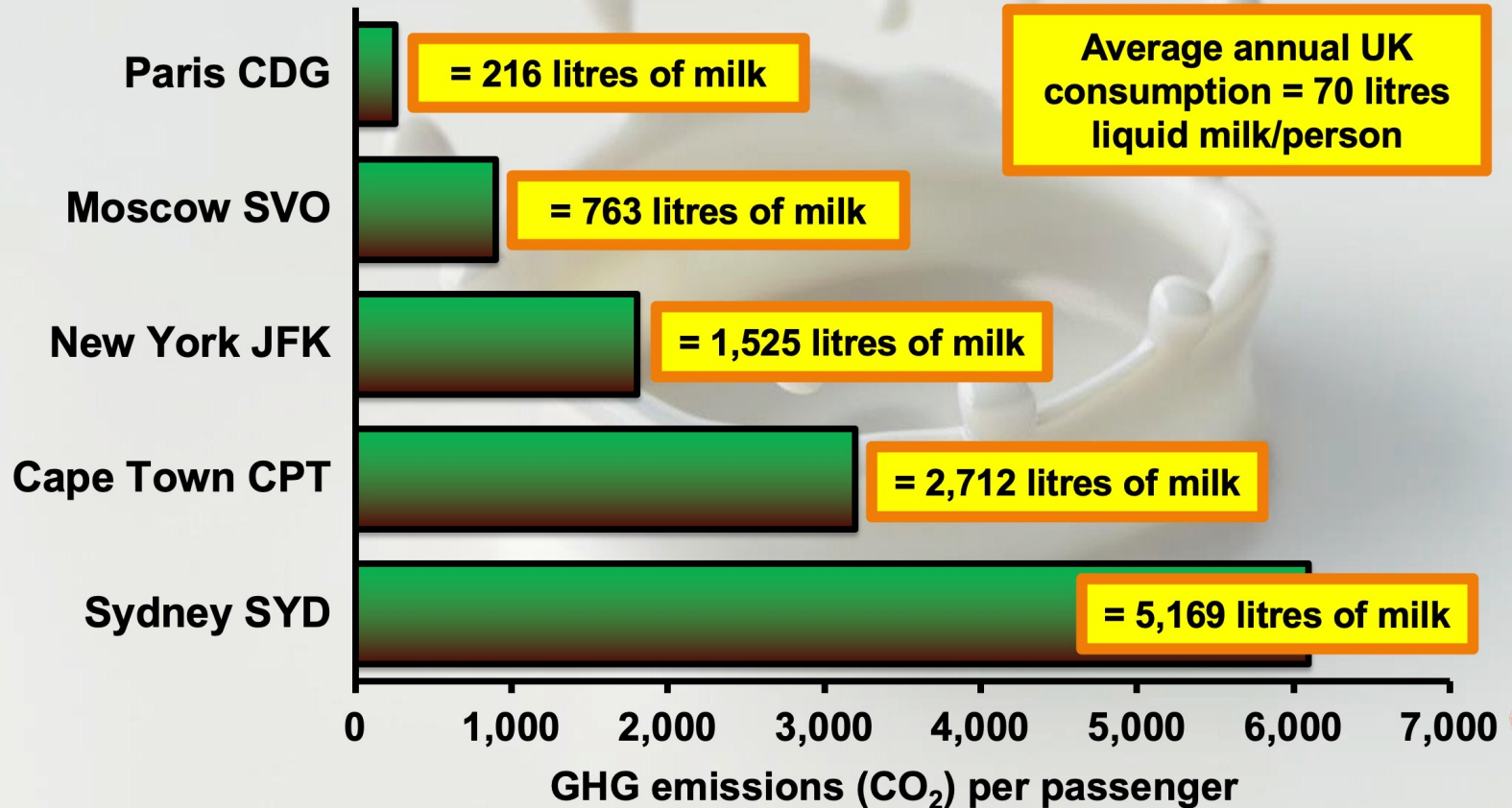


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# International flights emit considerable quantities of carbon compared to dairy production



Source: Created by Dr. Jude L. Capper, 2020. Calculations based on GHG emissions flight data from: [https://co2.myclimate.org/en/flight\\_calculators/new](https://co2.myclimate.org/en/flight_calculators/new), and on a carbon footprint per litre of milk of 1.18 kg CO<sub>2</sub>-eq (under GWP100) from AHDB: [https://dairy.ahdb.org.uk/non\\_umbraco/download.aspx?media=17338](https://dairy.ahdb.org.uk/non_umbraco/download.aspx?media=17338)

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# Guilt is a primary motivator for people considering going vegetarian or vegan

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*"I sometimes feel guilty when consuming meat and dairy products"*

**66% of meat-eaters and flexitarians thinking of giving up meat said "yes" compared to 25% of national population**

No guilt  
34%



Feel guilty  
66%

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Source: Created by Dr. Jude L. Capper, 2020. Information from: YouGov (2019) Is the future of food flexitarian?  
<https://yougov.co.uk/topics/resources/articles-reports/2019/03/18/future-food-flexitarian>



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# Animal welfare and human health are major concerns for people giving up animal products

Animal welfare

Healthiness

Environment

Labelling

Economic cost



Source: Created by Dr. Jude L. Capper, 2020. Information from: YouGov (2019) Is the future of food flexitarian?  
<https://yougov.co.uk/topics/resources/articles-reports/2019/03/18/future-food-flexitarian>

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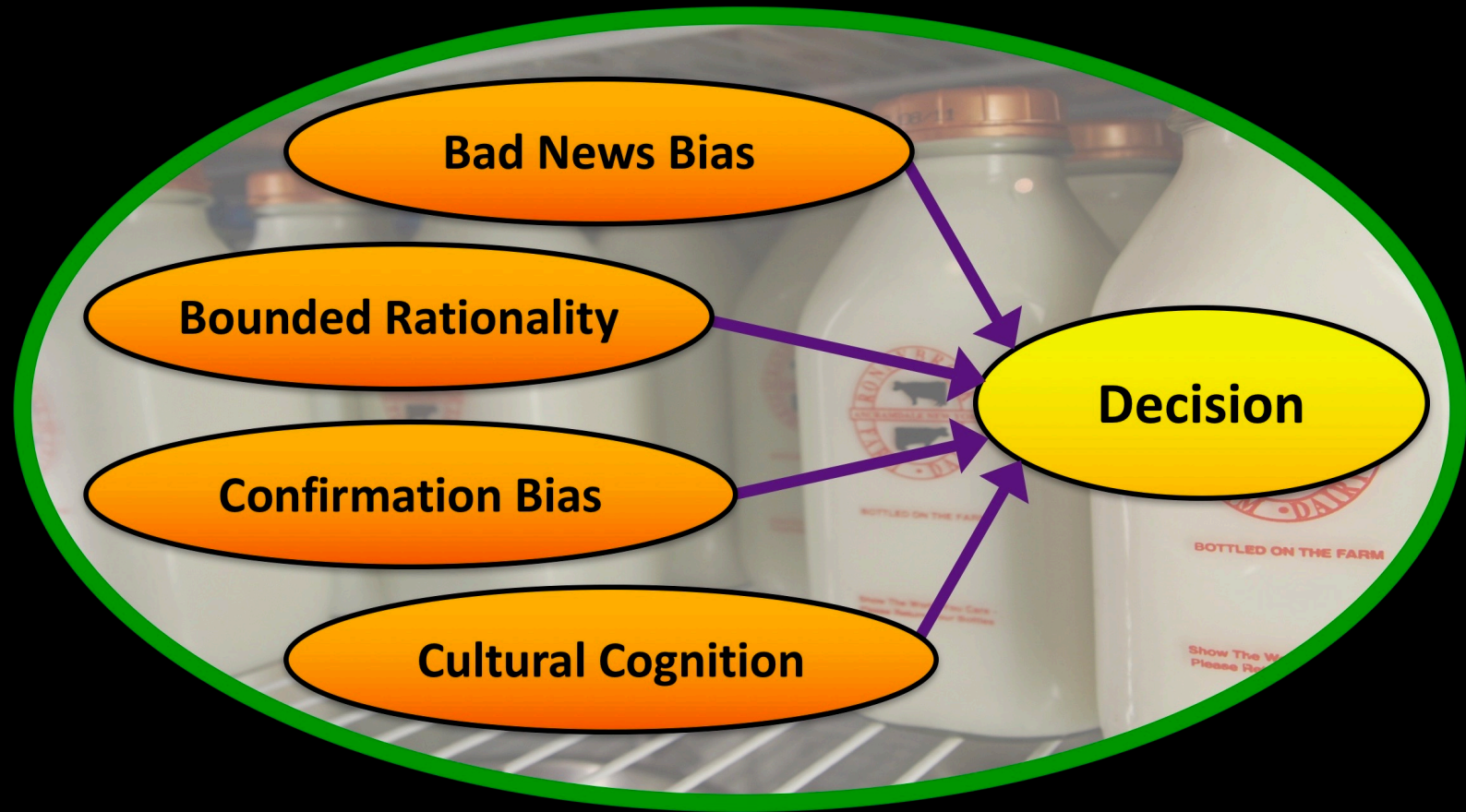


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# Four major processes influence consumer decision-making



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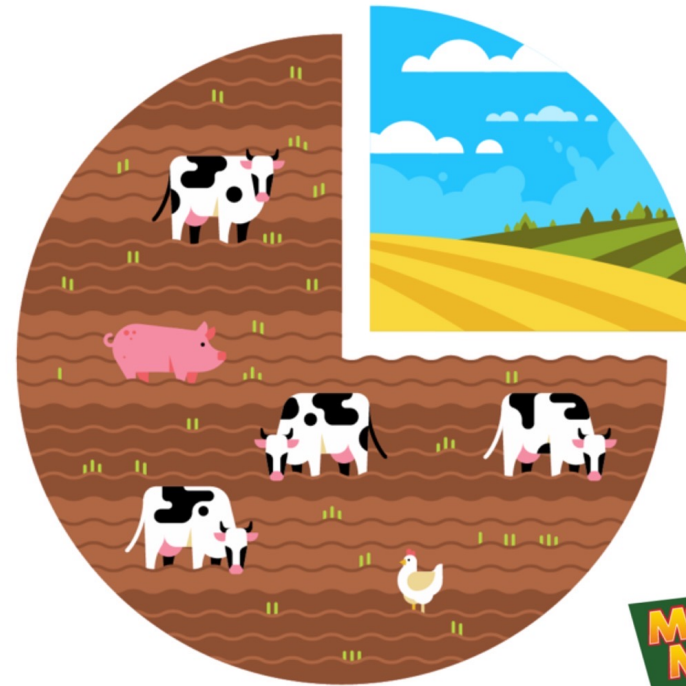
Source: Created by Dr. Jude L. Capper, 2017. Information from: Capper and Yancey (2015). Communicating Animal Science to the General Public. *Animal Frontiers*.

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Bad news bias – need five positive stories to cancel out each negative

We are programmed to believe bad news stories. Tidal wave of factual information needed to overcome them.

LIVESTOCK PRODUCTION USES 75% OF THE EARTH'S AGRICULTURAL LAND.



MEATLESS MONDAY

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Source: Created by Dr. Jude L. Capper, 2020. Infographic from: <https://www.pinterest.co.uk/pin/254383078939543245/>

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65% of UK land is not suitable for growing arable crops



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Source: Created by Dr. Jude L. Capper, 2020. Grazing land includes temporary grass on arable land (6% of total), land used for outdoor pigs or non-agricultural purposes not shown (1.7% of total). Data from DEFRA. 2019. Farming statistics - provisional crop areas, yields and livestock populations at 1 June 2019 – United Kingdom.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/837834/structure-jun2019prov-UK-10oct19.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/837834/structure-jun2019prov-UK-10oct19.pdf)

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# Bounded rationality - we don't have time to research, so need quick, simple explanations

Based on the average UK diet

# 30%

of our protein intake comes from red meat...

...which is vital for our body's growth, maintenance and muscle recovery!



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Source: Created by Dr. Jude L. Capper, 2020. Infographic from HCC (2020): <https://meatpromotion.wales/en/news-industry-info/download>

D

# Drinks vary in nutrient density and greenhouse gas emissions

	Nutrient density	Carbon footprint g CO <sub>2</sub> /100 g drink
Whole milk	53.8	99
Orange juice	17.2	61
Soya juice	7.6	30
Oat juice	1.5	21
Red wine	1.2	204
Soda	0.0	109
Beer	0.0	101
Water	0.0	10

Source: Created by Dr. Jude L. Capper, 2020. Data from: Smedman et al. (2010). Nutrient density to climate impact (NDCI) index of beverages. Food & Nutr. Res.

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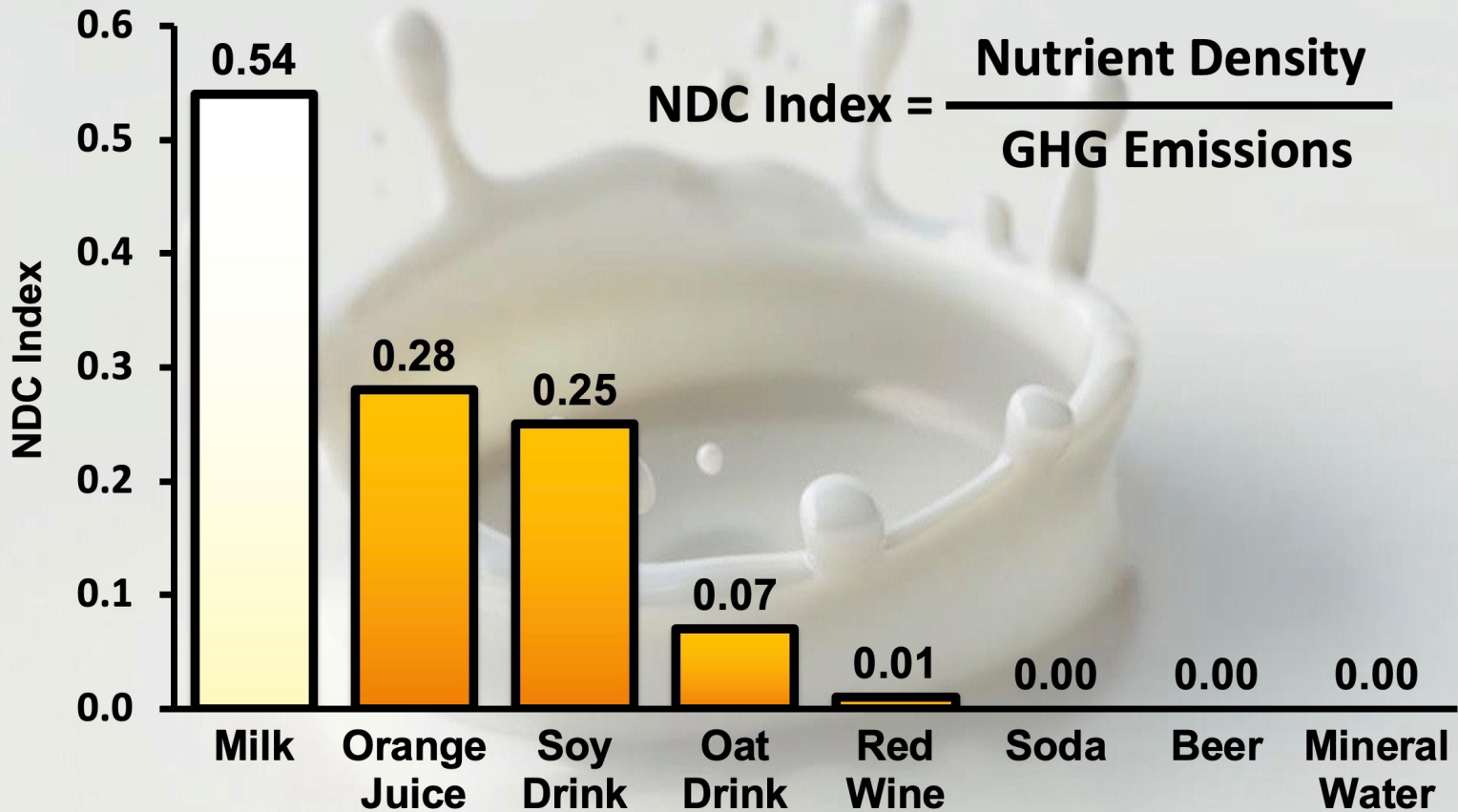


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# Nutrient density should be included when assessing carbon footprint



Source: Created by Dr. Jude L. Capper, 2020. Data from: Smedman et al. (2010). Nutrient density to climate impact (NDCI) index of beverages. Food & Nutr. Res.

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# Confirmation bias – tapping into consumers' inherent beliefs to improve trust

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Consumers may interpret bottle-feeding a calf as caring or cruel, depending on pre-conceived ideas

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Source: Created by Dr. Jude L. Capper, 2020.



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Cultural cognition – we trust people with whom we share values and wish to emulate

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England rugby player credited <3 week recovery from broken leg to drinking 2 pints of milk per day

Source: Created by Dr. Jude L. Capper, 2019. Screenshot from: <http://www.telegraph.co.uk/rugby-union/2017/02/02/england-prop-joe-marler-reveals-secret-behind-hisremarkable/>

The Telegraph

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## Sport | Rugby Union

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### England prop Joe Marler reveals the secret behind his remarkable recovery in time for Six Nations



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## 5 easy tips for positive communication

**Share your values**

**Stay positive, polite and personal**

**Keep it short, simple and see-through**

**Focus on the important**

**Know when to walk away**

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Source: Created by Dr. Jude L. Capper, 2019. Adapted from: Capper and Yancey. 2015. Communicating Animal Science to the General Public. *Animal Frontiers*.



B  
**Thank you!**

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**Questions?**



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Source: Created by Dr. Jude L. Capper, 2020. Cartoon from: <http://RubesCartoons.com>