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Cream of the
crop – how
do we keep
UK dairying at
the top of the
sustainability
league?

6th December 2022

Source: Jude L. Capper, 2022

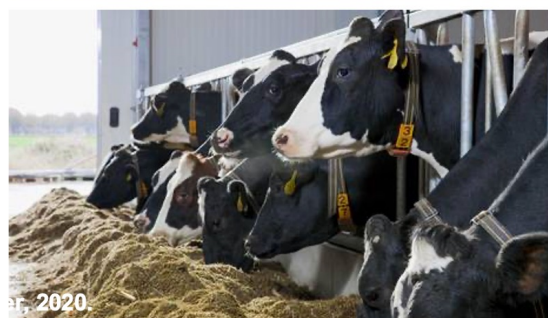
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s

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

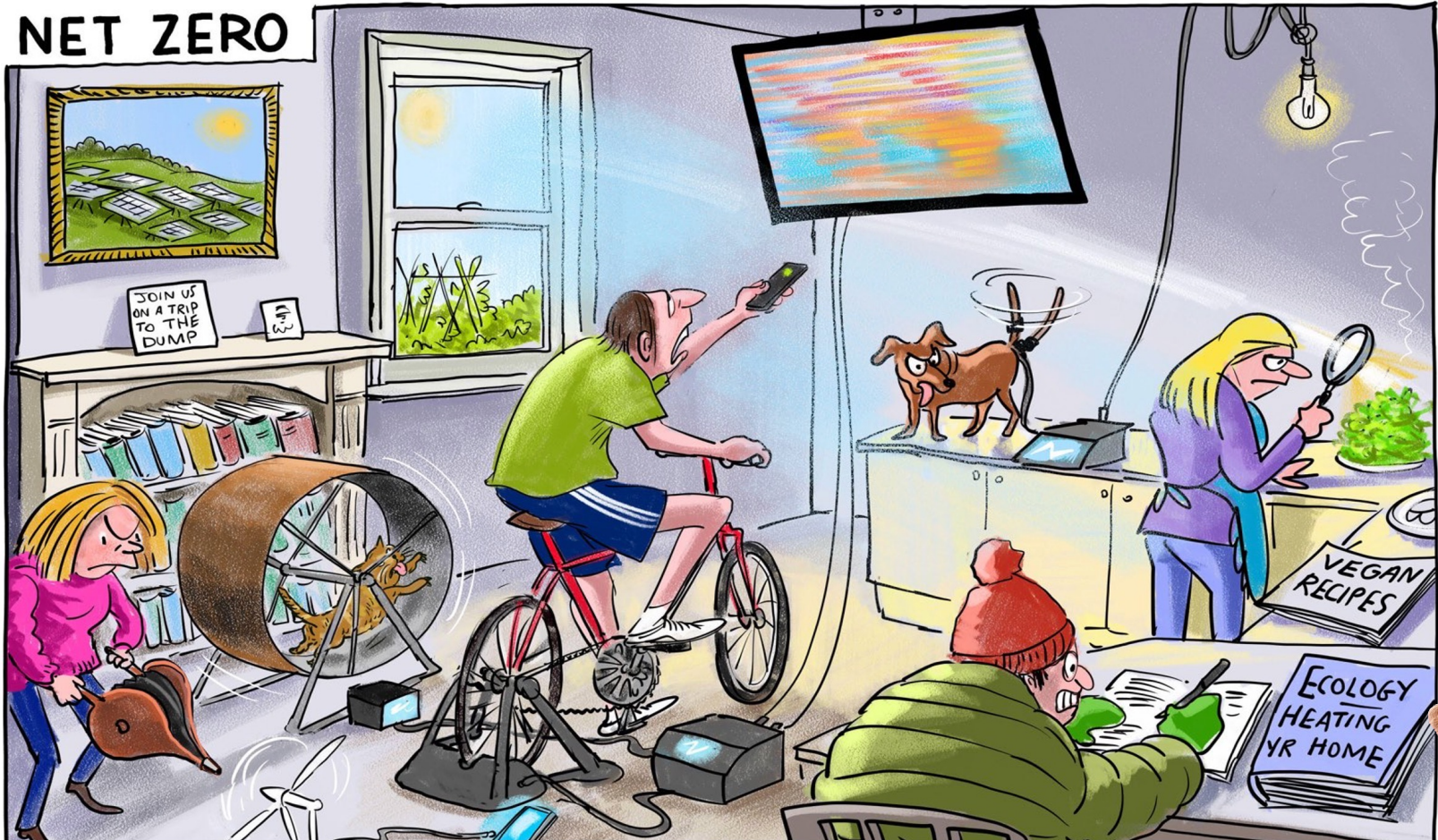
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Source: Created and photos by Dr. Jude L. Capper, 2020

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Net Zero is a clear priority



Source: Created by Dr. Jude L. Capper, 2021. Cartoon from: <https://twitter.com/Cartoon4sale/status/1384537729460056067?s=20>

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s

Retailers face challenge of meeting net zero commitments

50% reduction in food-related GHG emissions by 2030 is possible, but only if we take

URGENT ACTION

wrap.org.uk/GHGPathway



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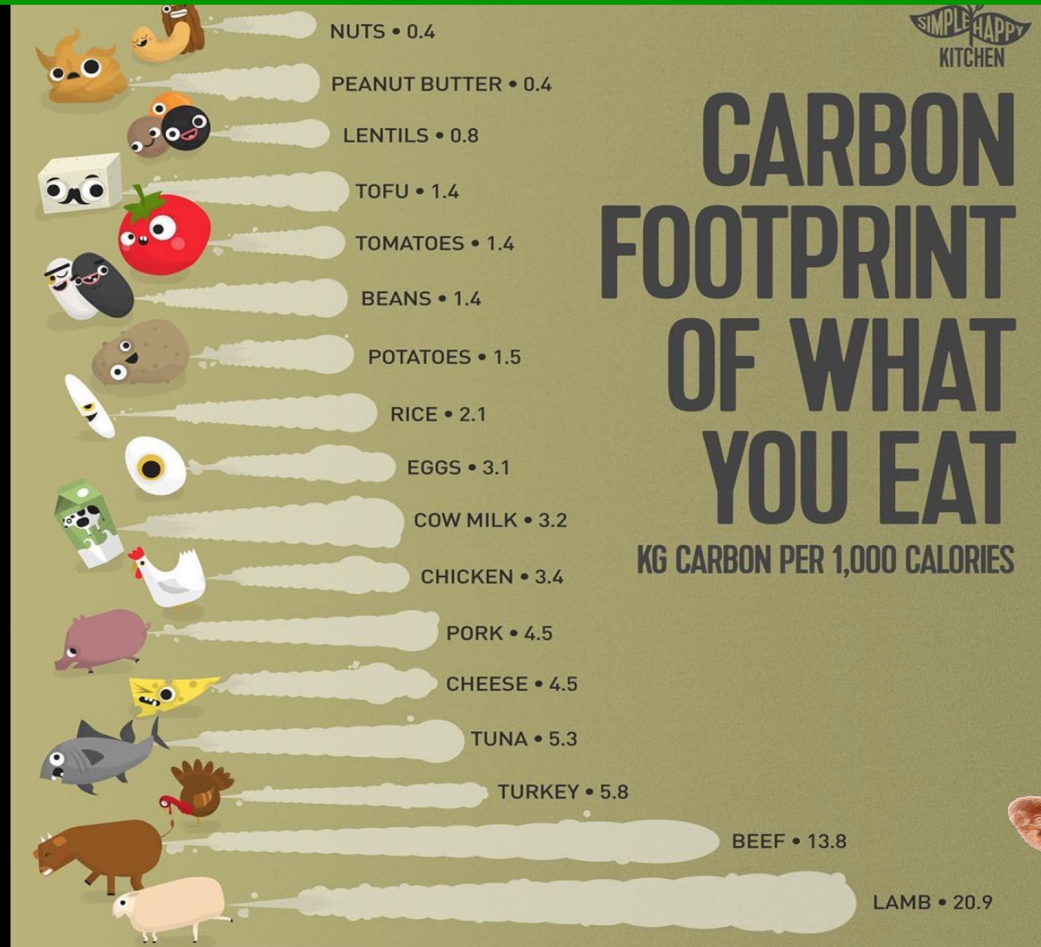
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Source: Created by Dr. Jude L. Capper, 2021. Infographic from: https://wrap.org.uk/sites/default/files/2021-10/WRAP_UK_food%20systems_GHG_Report_TWITTER_Urgent%20action.jpg?itok=8txblEnz

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/

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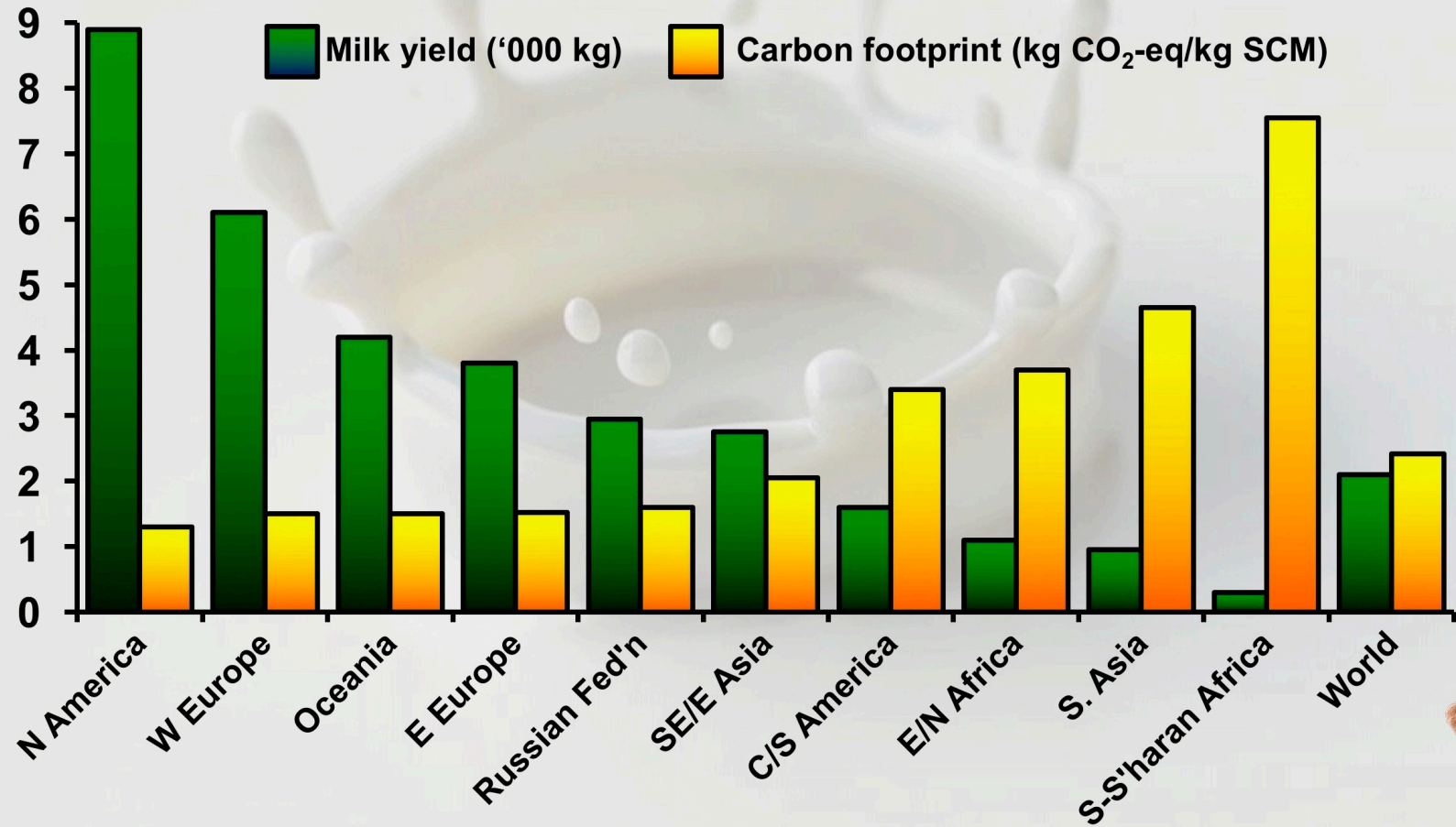


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A negative correlation exists between milk yield and carbon emissions



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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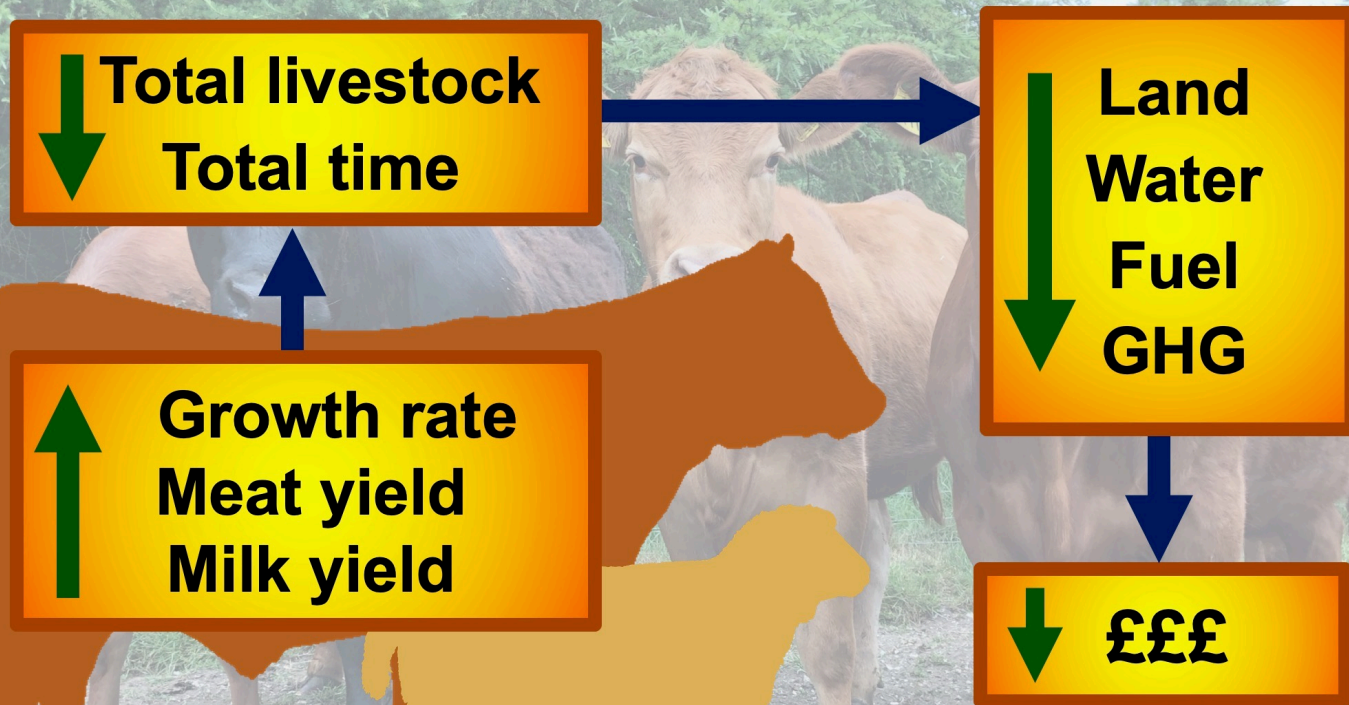
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B

Improving animal productivity reduces the environmental impact of milk and meat



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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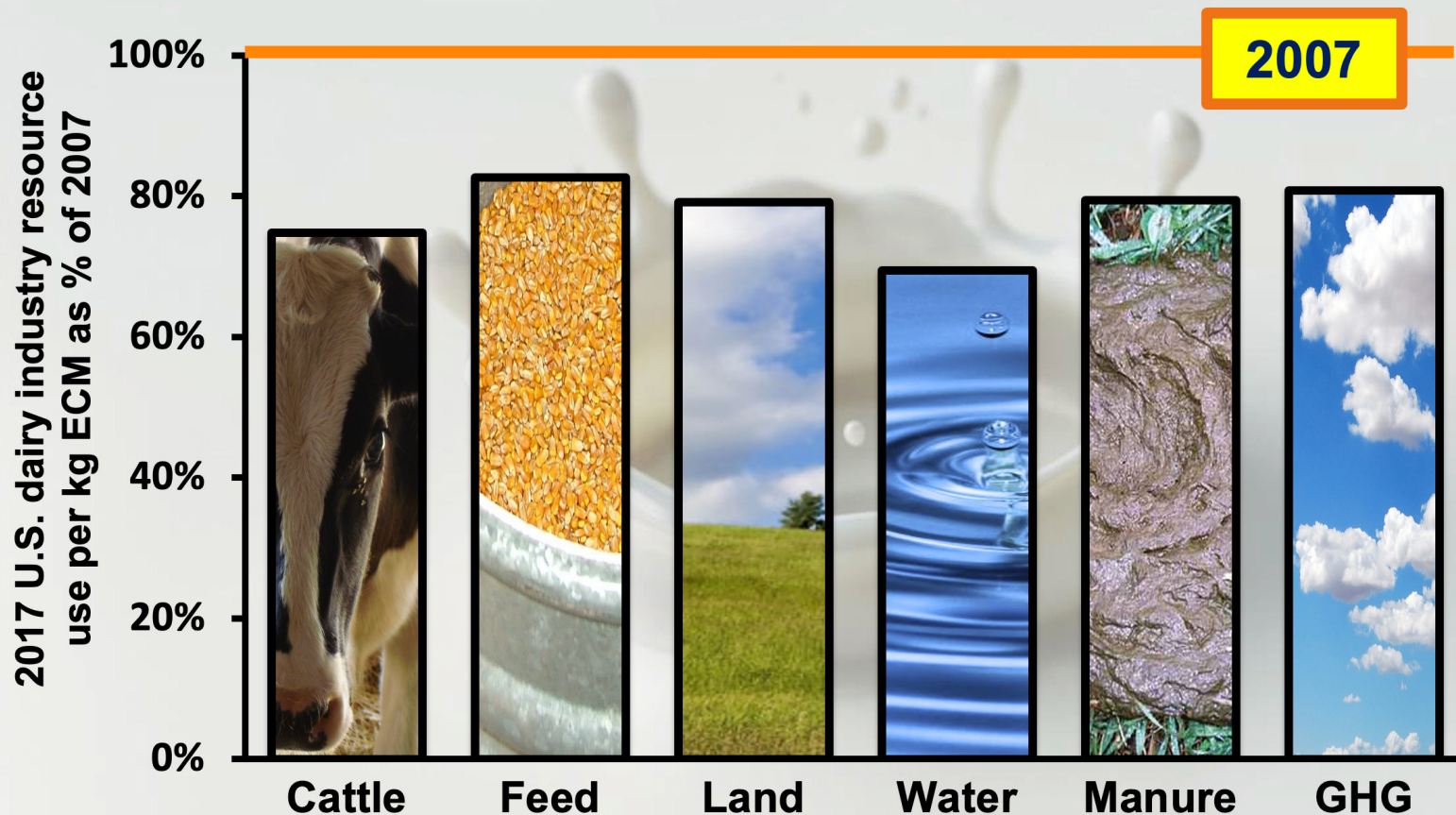


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D

U.S. dairy producers cut greenhouse gas emissions by 19% between 2007-2017



Source: Created by Dr. Jude L. Capper, 2021. Data from: Capper, J. L. and Cady, R. A. 2019. The effects of improved performance in the U.S. dairy cattle industry on environmental impacts between 2007 and 2017. *Journal of Animal Science*. <https://doi.org/10.1093/jas/skz291>

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D

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

What about smallholders?



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Source: Created by Dr. Jude L. Capper, 2021. Photo attribution: Mullokkaran, CC BY-SA 3.0 <<https://creativecommons.org/licenses/by-sa/3.0/>>, via Wikimedia Commons

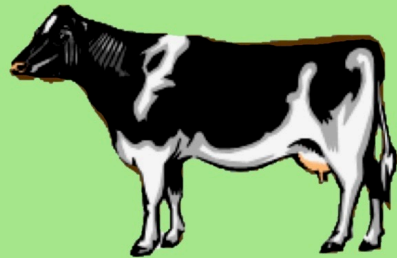
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DS

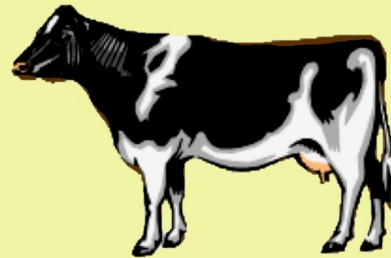
Dairy heifer losses are significant in UK herds

Birth



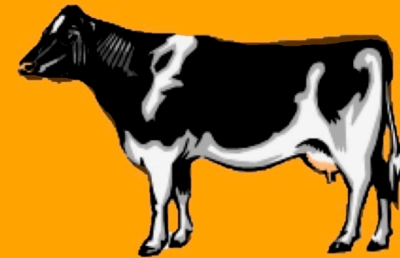
**100 heifers
are born**

Calving



**81 heifers
enter herd**

100 d lactation



**77 survive
past 100 days**

**Each heifer requires 6,118 kg feed DM to rear it
from birth to calving**

Source: Created by Dr. Jude L. Capper, 2017. Data from Wathes et al. (2008) Factors affecting heifer survival and fertility on commercial dairy farms. *Animal*; Hanks and Kossaibati (2016) Key performance indicators for the UK national dairy herd. University of Reading, Reading, UK.

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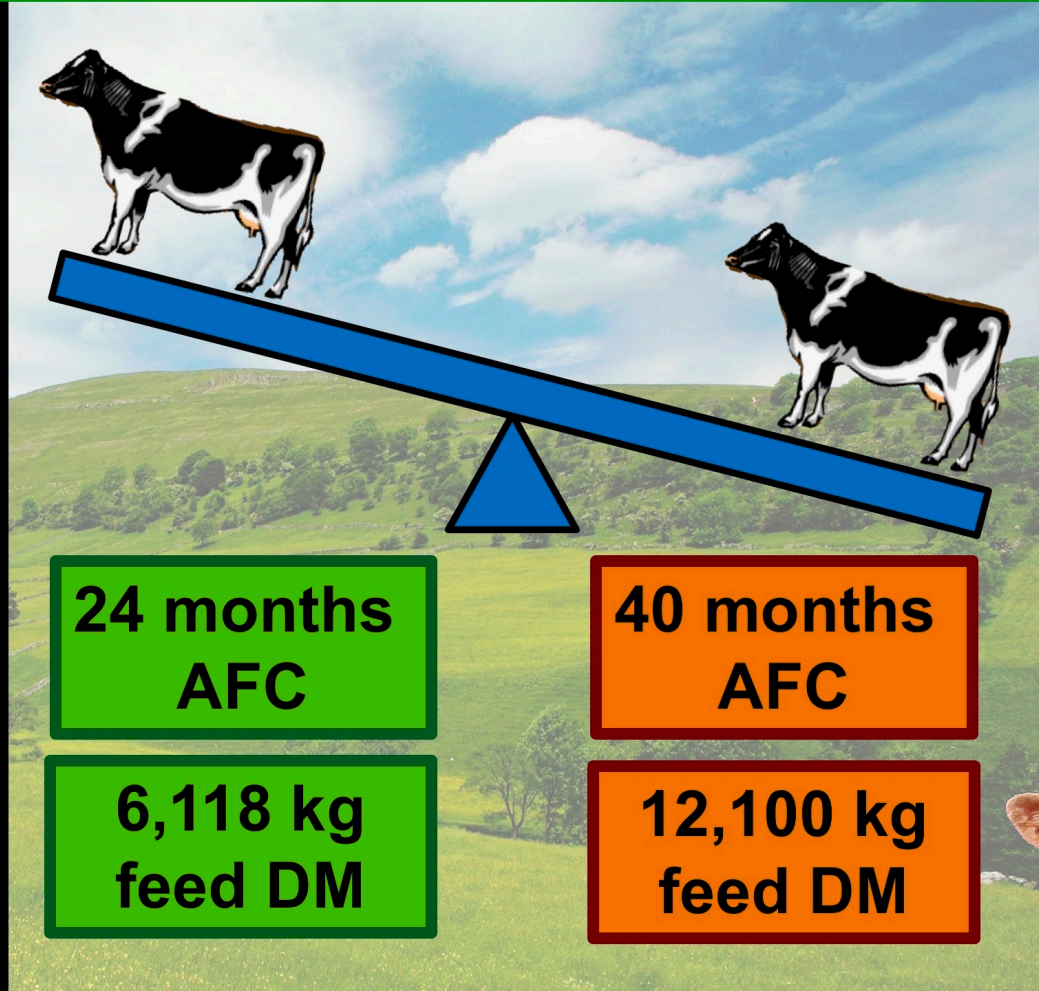


DS

Age doesn't matter – unless you're a heifer

Calving a heifer at 40 months of age requires an extra 5,982 kg feed DM. Inefficiency increases resource use and GHG emissions.

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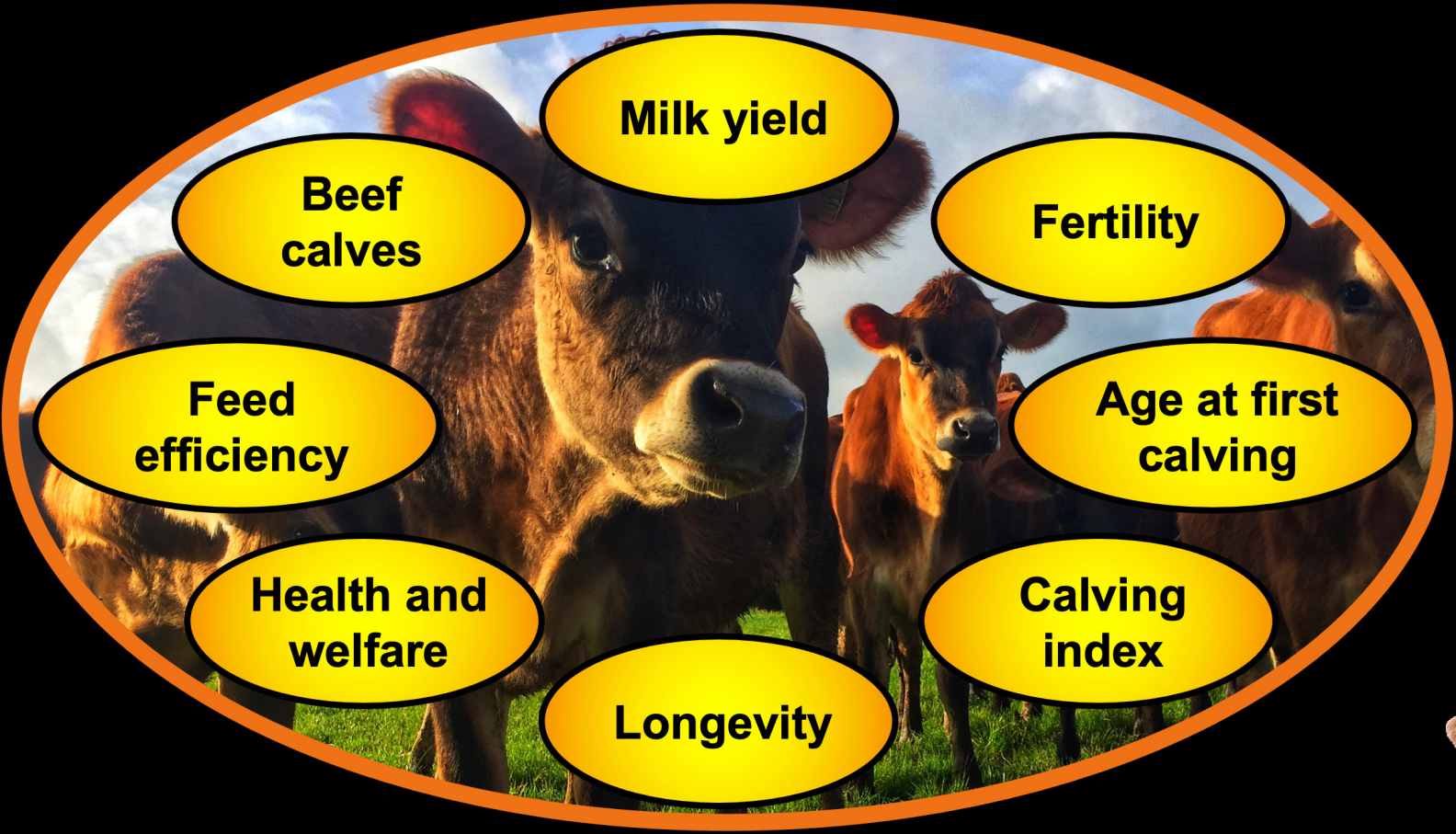
Source: Created by Dr. Jude L. Capper, 2017. Based on analysis of feed use to 24 months or 40 months at DMI = 3% of bodyweight from 24-40 months.

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D

Improving performance indicators reduces GHG emissions...but how do they compare?



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Source: Created by Dr. Jude L. Capper, 2021



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)

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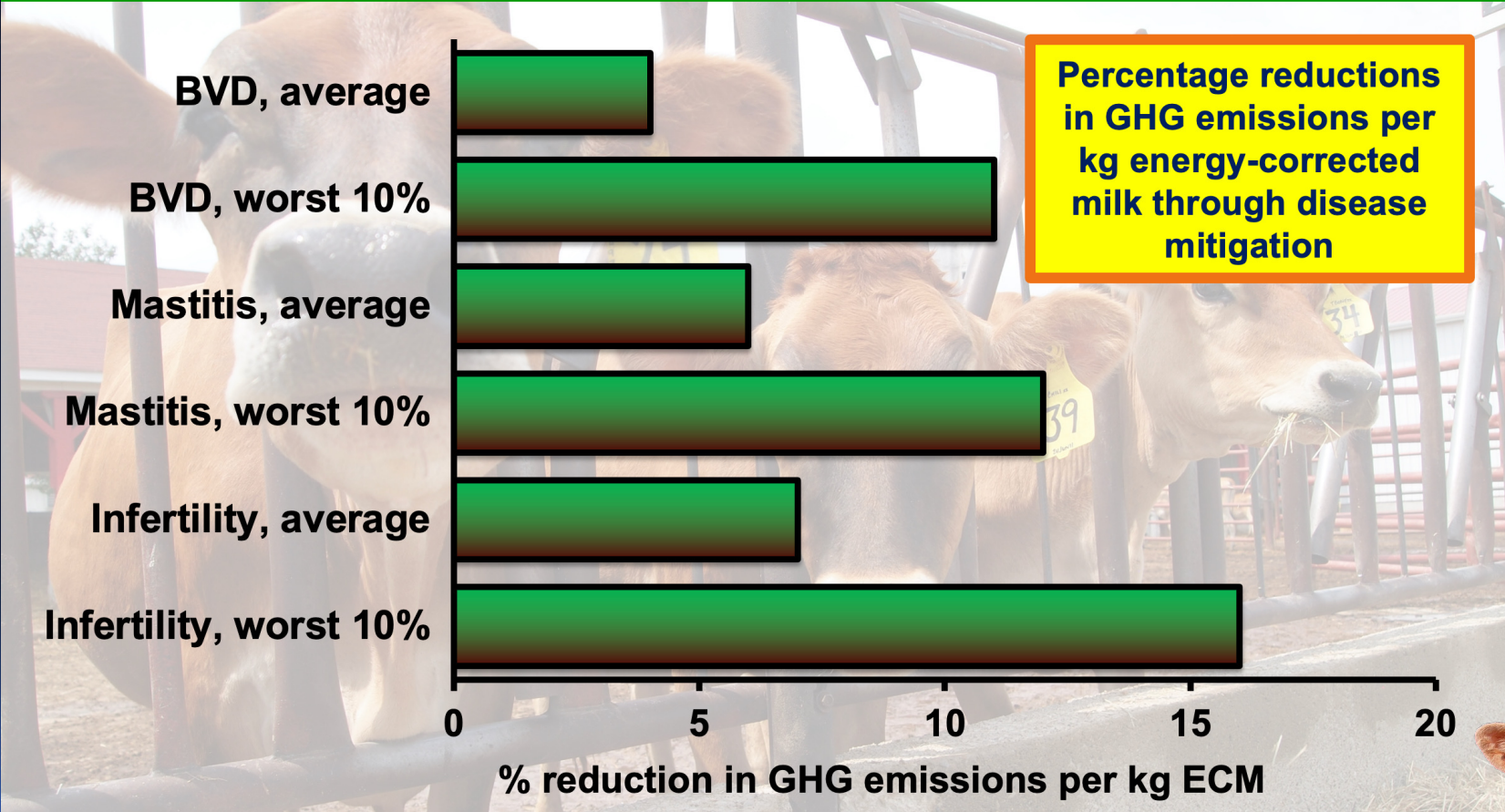
Source: Created by Dr. Jude L. Capper, 2020. Data from: World Organization for Animal Health. 2008. <http://www.oie.int/for-the-media/editorials/detail/article/feeding-the-world-better-by-controlling-animal-diseases>

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DS

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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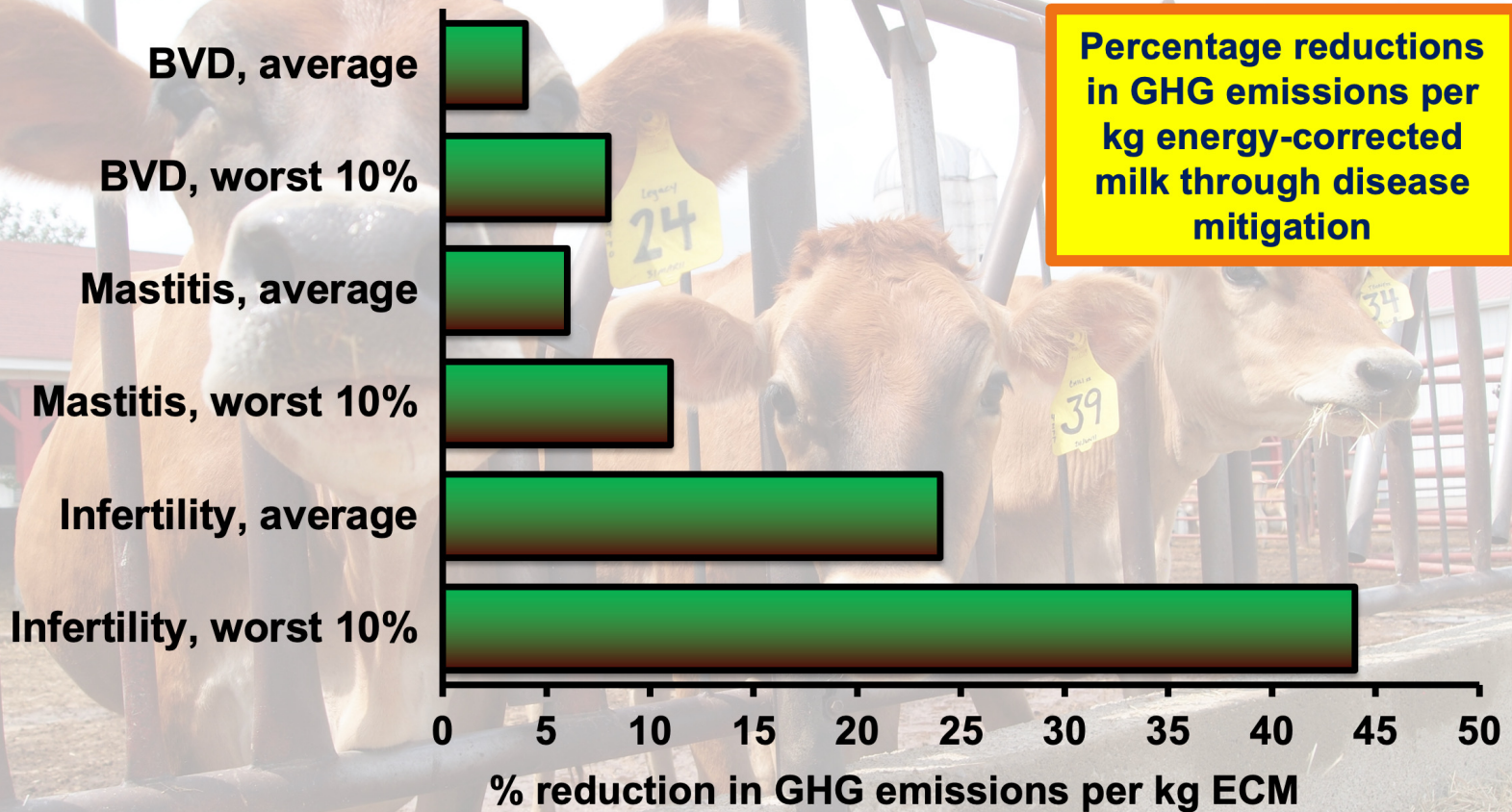


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GHG emissions could be cut significantly by mitigating dairy diseases - Kenya



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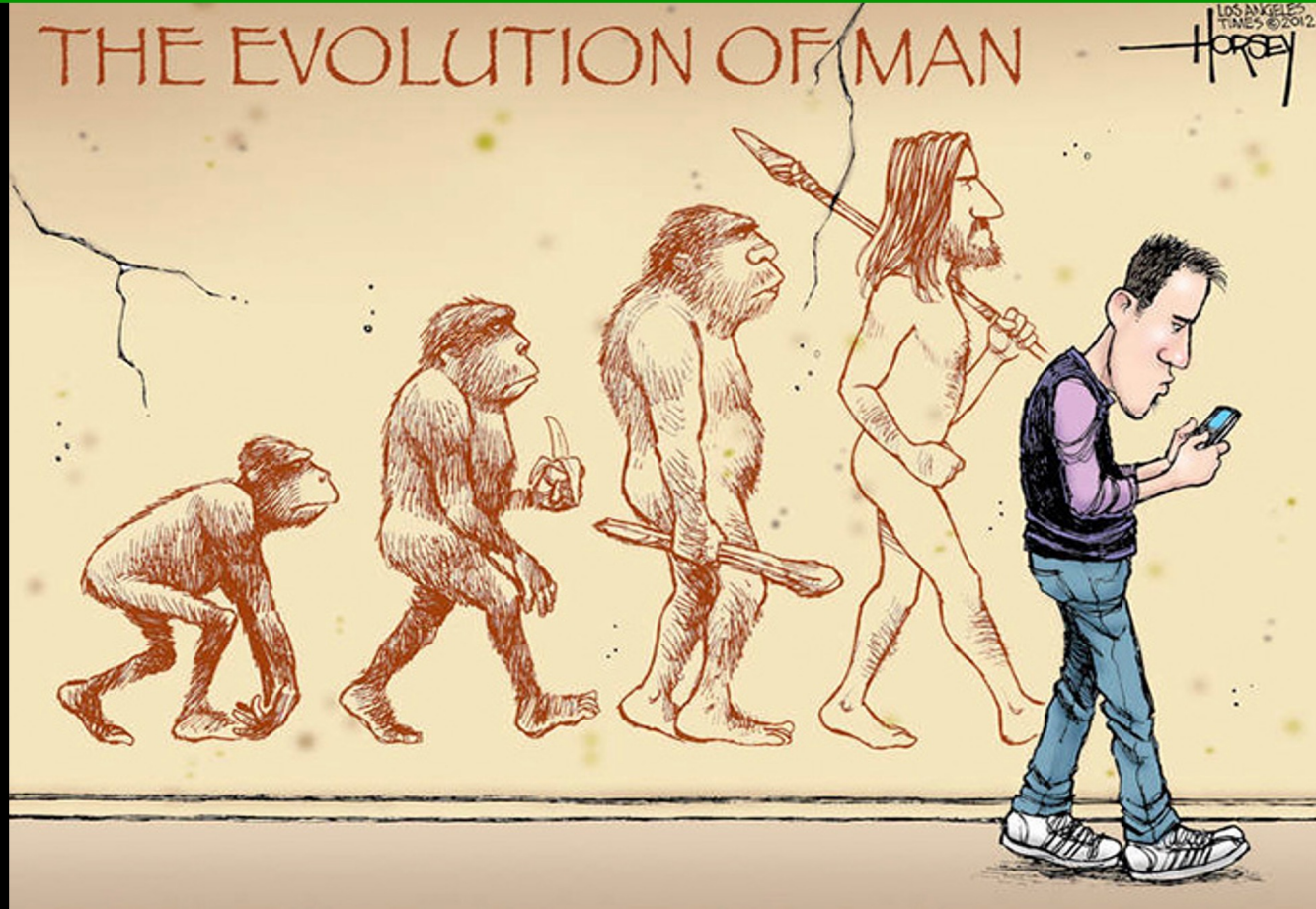
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Source: Created by Dr. Jude L. Capper, 2021. Data from: Statham et al. 2021. Dairy Cattle Health and Greenhouse Gas Emissions Pilot Study: Chile, Kenya and the UK. Available from: <https://dairysustainabilityframework.org/wp-content/uploads/2020/10/Dairy-Cattle-Health-and-GHG-Emissions-Pilot-Study-Report.pdf>



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We've got the technology –
now we need to use it to its potential



Source: Created by Dr. Jude L. Capper, 2021. Cartoon from: https://static.boredpanda.com/blog/wp-content/uploads/2016/02/funny-satirical-evolution-charles-darwin-day-251_700.jpg

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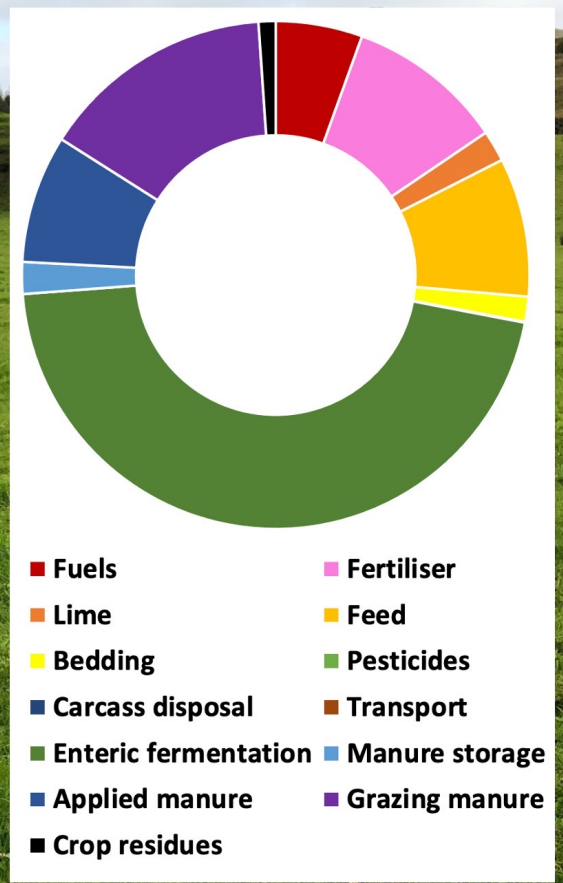


S

Standard footprinting tool urgently needed across the industry



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Source: Created by Dr. Jude L. Capper, 2021. Example carbon footprint results based on a beef finishing farm.

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Our biggest challenge is to keep meat and dairy in the diets of future food purchasers

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Source: Created by and photo from Dr. Jude L. Capper, 2021.

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

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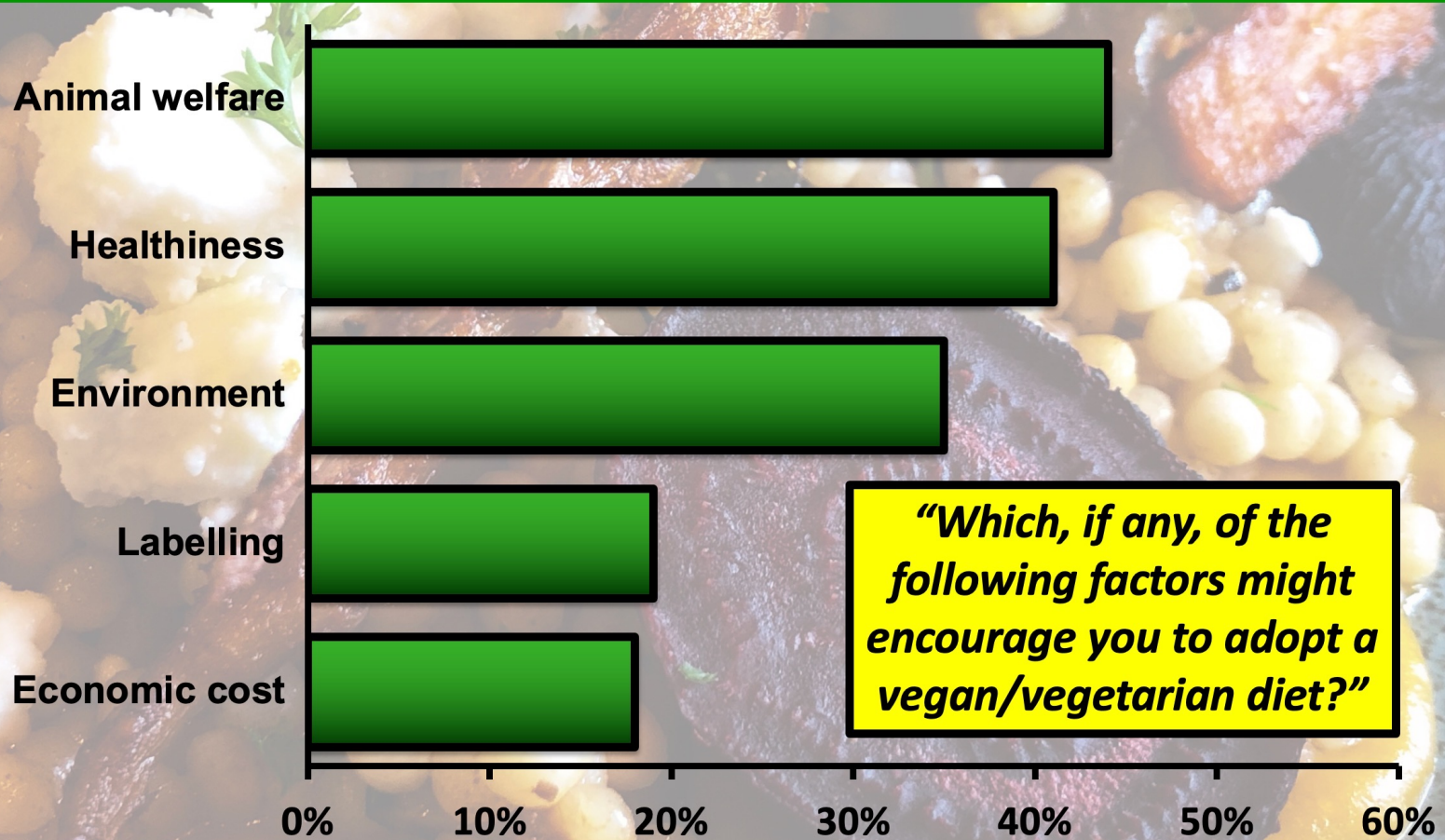
Source: Created by Dr. Jude L. Capper, 2020. Information from: YouGov (2019) Is the future of food flexitarian?
<https://yougov.co.uk/topics/resources/articles-reports/2019/03/18/future-food-flexitarian>

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



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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Has choosing dairy become a controversial issue?

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“The dairy industry is more cruel and horrible than the meat industry... dairy is truly a pleasure and I really feel guilty.”

Victoria Coren Mitchell

Source: Created by Dr. Jude L. Capper, 2019.
Screenshot from Apple Podcasts app, photo from:
<https://www.radiotimes.com/>



OFF MENU



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- 1:16:25

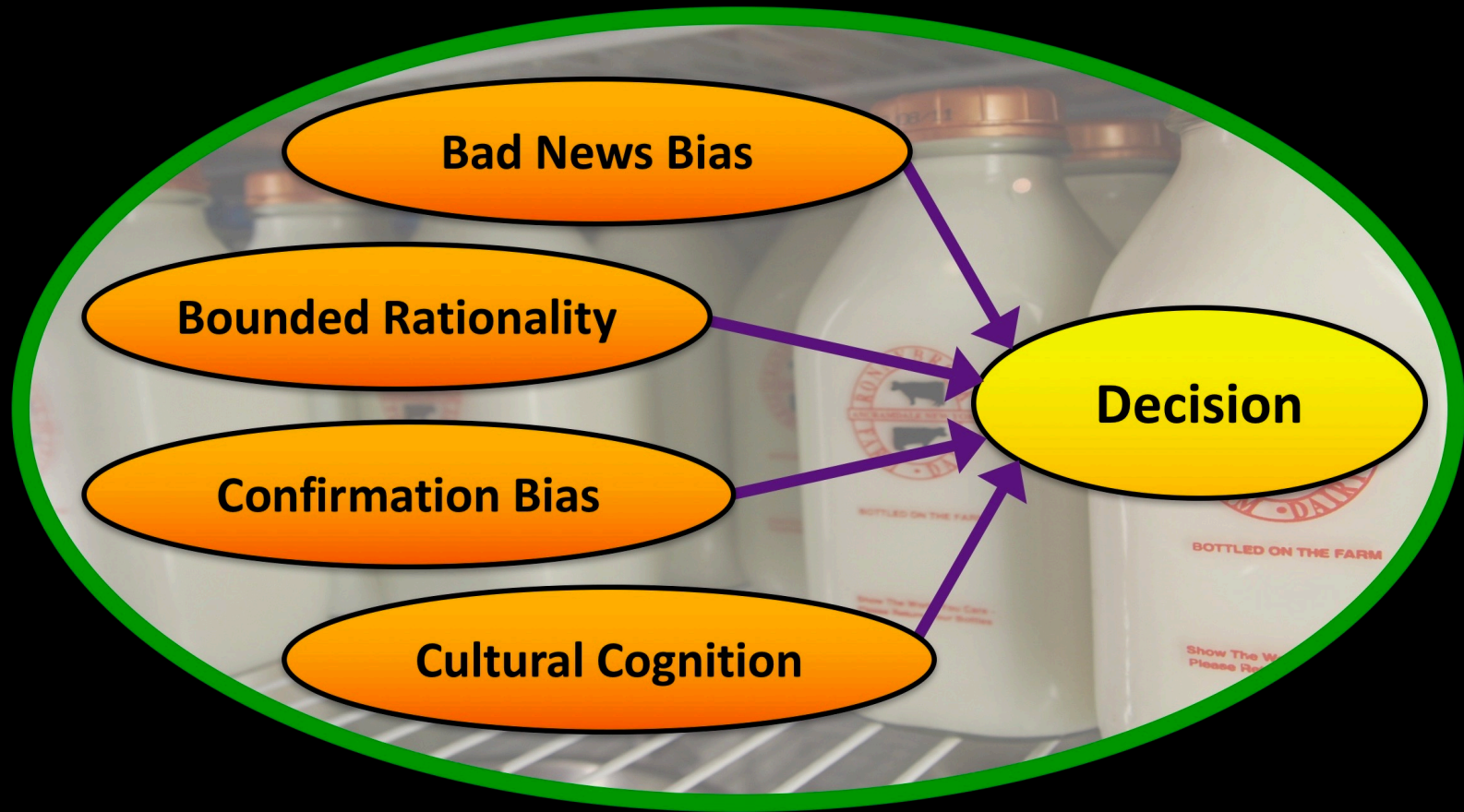
Ep 17: Victoria Coren Mitchell E
Off Menu with Ed Gamble and James A

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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*.

DS

Bad news bias – we need five positive news items to overcome each negative article

MailOnline

Viewers' outrage over harrowing scenes of day-old calves being lined up and shot DEAD just because they're male

- Three Jersey calves were filmed being killed on the Channel 4 programme featuring farmer Jimmy Doherty
- Nearly 60 people complained about the graphic scenes aired at 9.30pm on Tuesday

By PAUL REVOIR FOR MAILONLINE

PUBLISHED: 23:29, 30 May 2012 | UPDATED: 10:55, 31 May 2012



1.1k
View comments

Harrowing scenes of newly-born dairy calves being lined up and shot dead simply because they are male have left television viewers sickened.

The images of three Jersey calves being killed were filmed to highlight the grim reality of the dairy industry.

When talking to consumers, it's impossible to justify killing male dairy calves on the basis of economic cost.

Source: Created by Dr. Jude L. Capper, 2019. Article from: <http://www.dailymail.co.uk/news/article-2152402/Viewers-outrage-harrowing-scenes-day-old-calves-shot.html>

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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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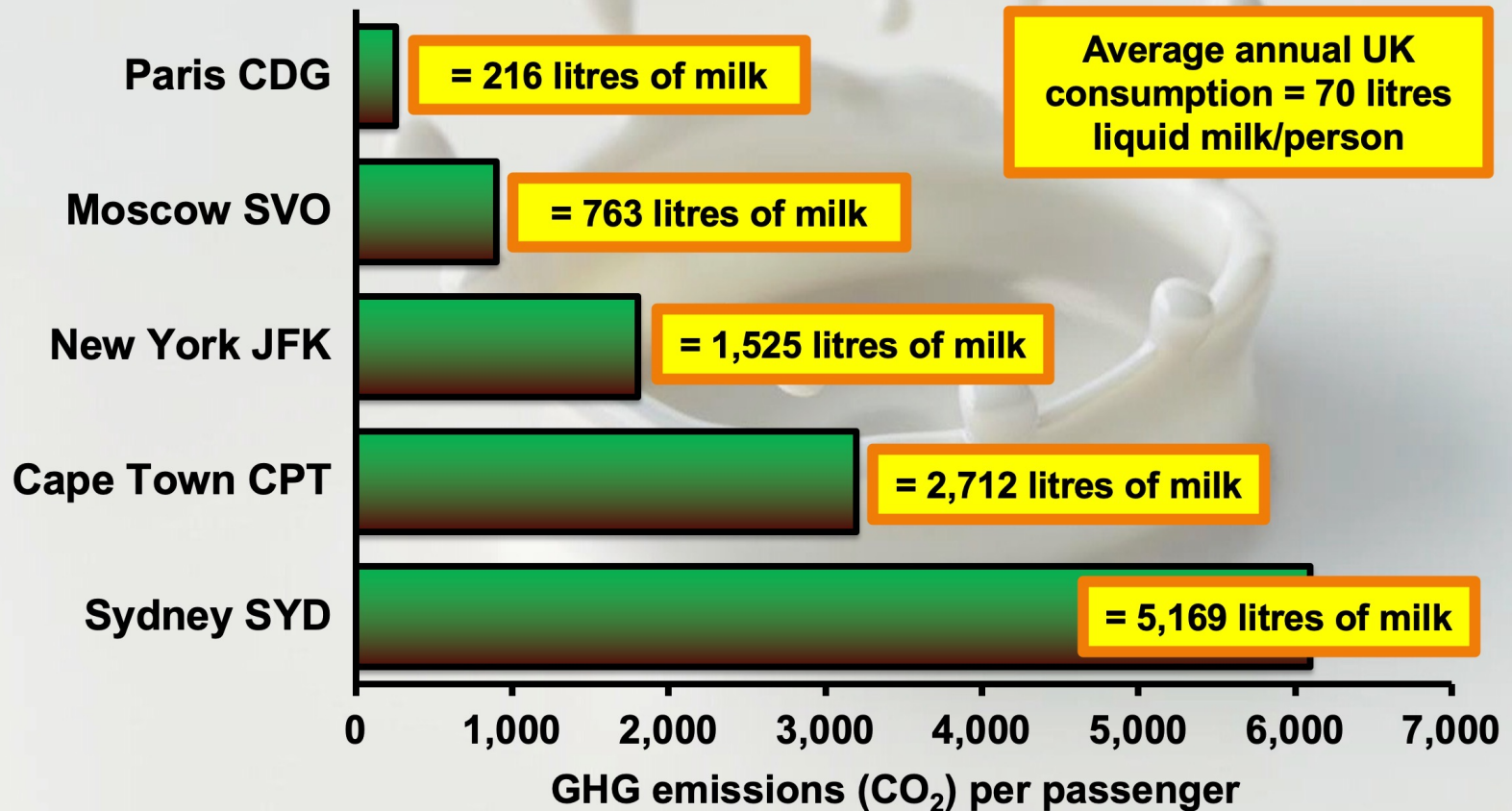


Source: Created by Dr. Jude L. Capper, 2020. Infographic from HCC (2020): <https://meatpromotion.wales/en/news-industry-info/download>

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CV

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, and on a carbon footprint per litre of milk of 1.18 kg CO₂-eq (under GWP100) from AHDB: https://dairy.ahdb.org.uk/non_umbraco/download.aspx?media=17338

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

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



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

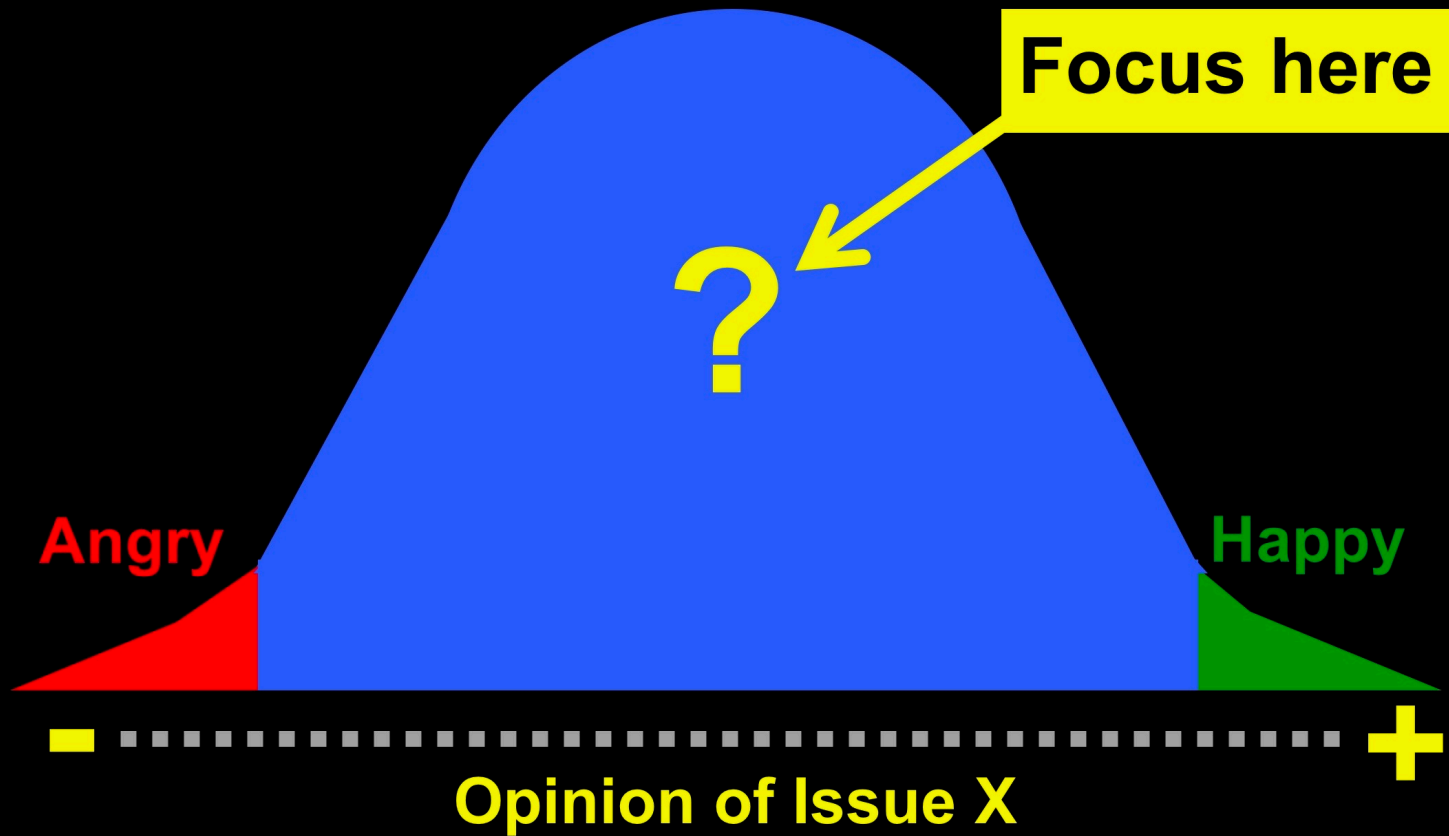


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We need to communicate with consumers who don't yet have fixed opinions of agriculture



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Source: Created by Dr. Jude L. Capper, 2017

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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*.

s

You don't have to be the biggest,
you do need to do your best

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Source: Created by Dr. Jude L. Capper, 2021.

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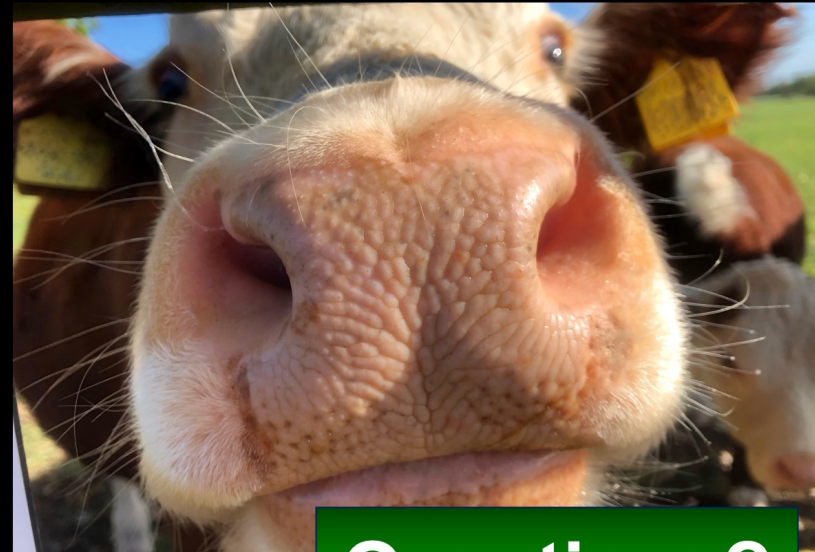
Thank you!

jude@livestocksustainability.com

<http://bovidiva.com/presentationlinks>

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Questions?



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Source: Created by Dr. Jude L. Capper, 2022. Cartoon from: <http://snipurl.com/methanecartoon>