



Prof. Jude Capper

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One Health and Big Data: The Sustainability Perspective

9th June 2022

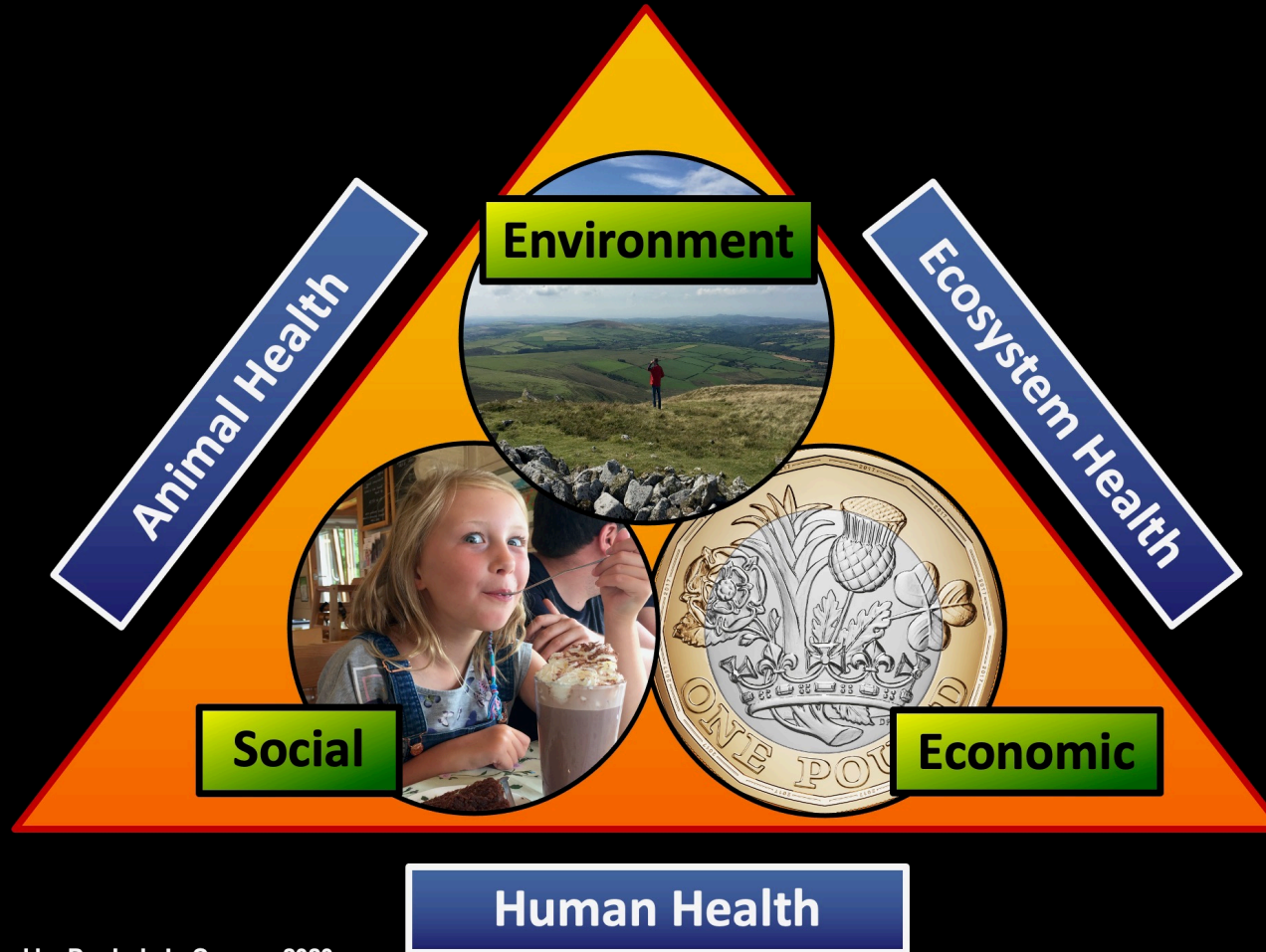
Source: Dr. Jude L. Capper, 2022

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S

Sustainability comprises three pillars, all under the umbrella of One Health



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

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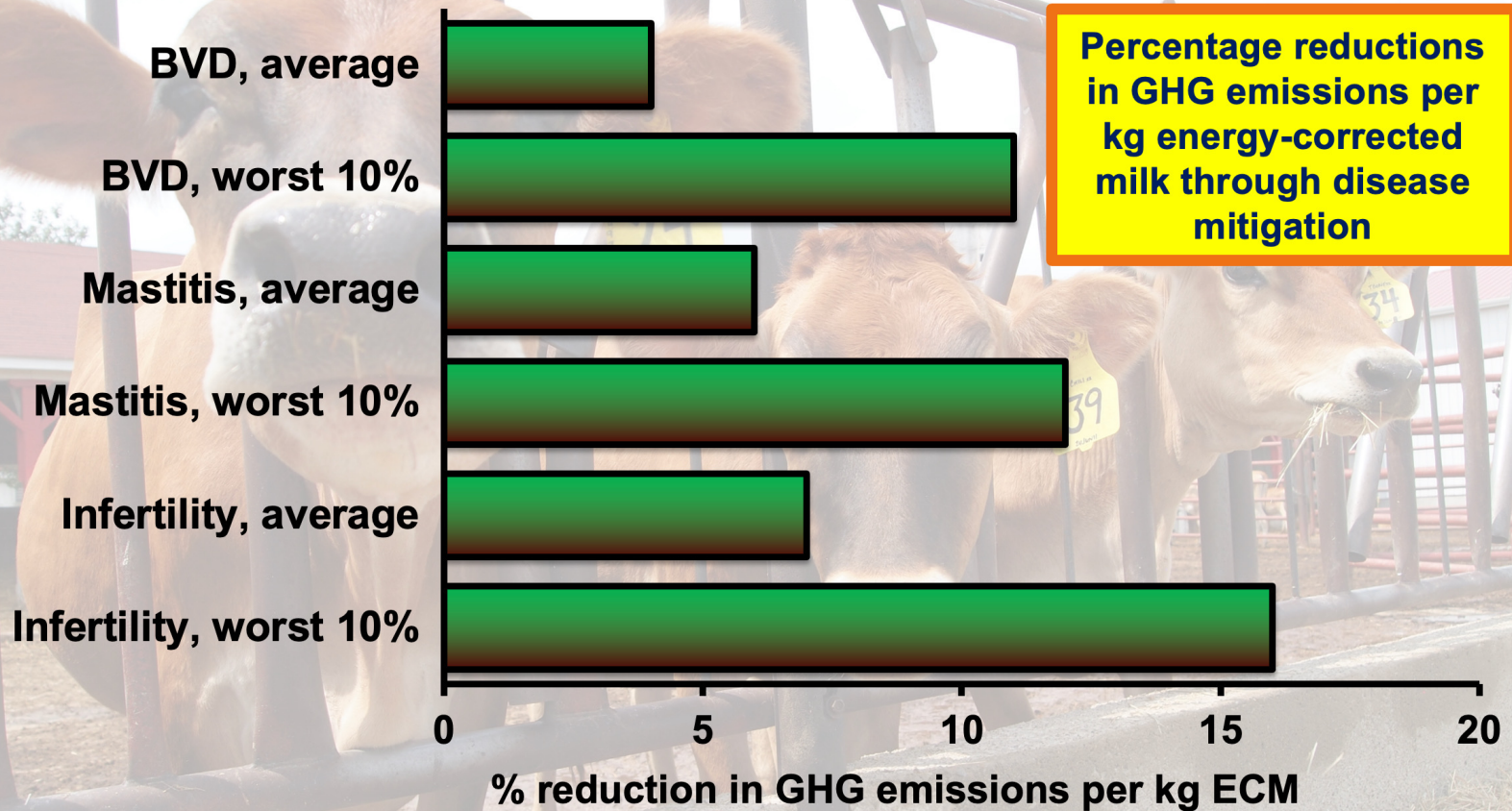
Source: Created by Dr. Jude L. Capper, 2020. Data from: World Organization for Animal Health. 2008. <http://www.oie.int/for-the-media/editorials/detail/article/feeding-the-world-better-by-controlling-animal-diseases>

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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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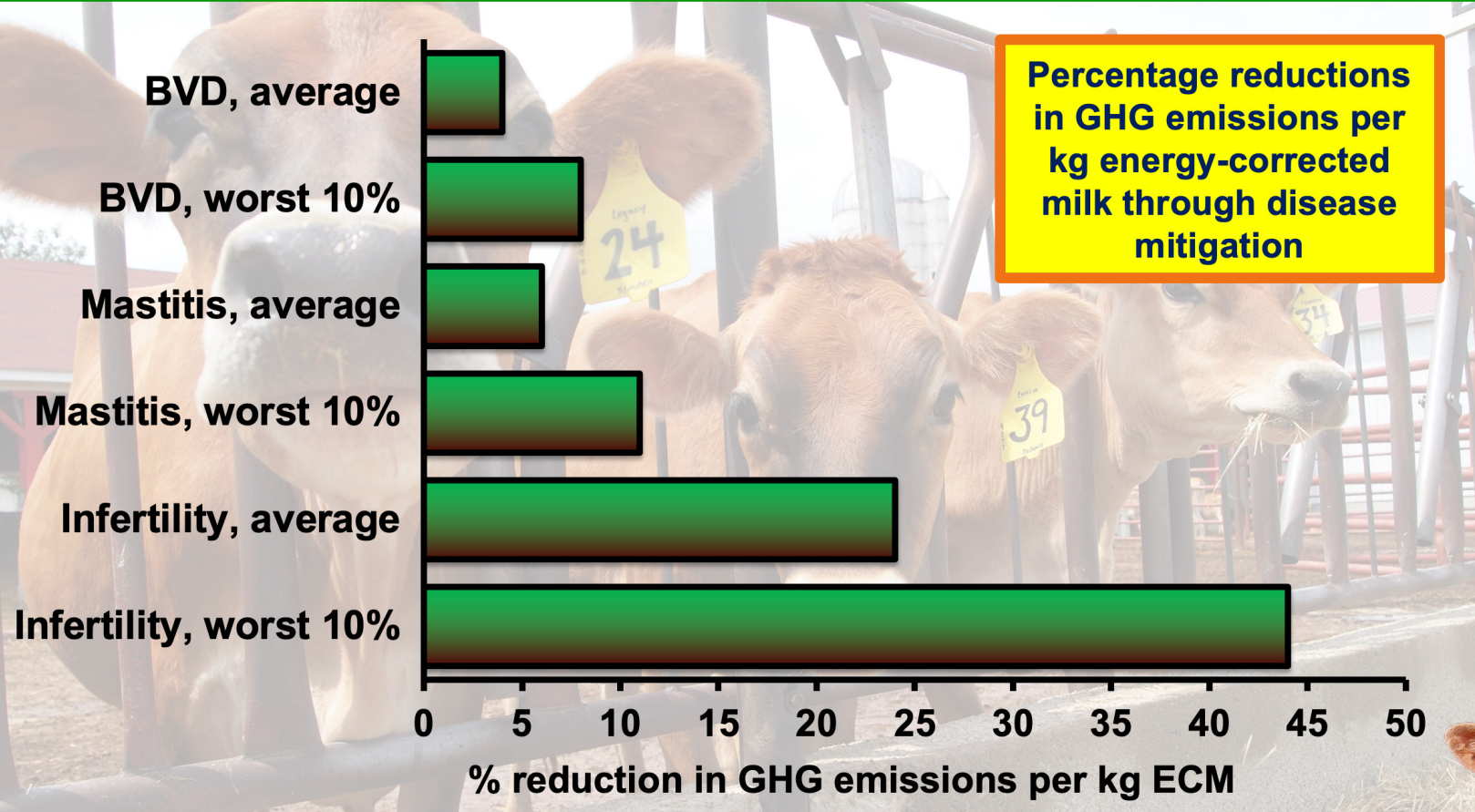


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DS

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



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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Harper Adams University

D

What are the milk, meat and greenhouse gas implications of global dairy cow mortality?



Annual milk yield
4,500
kg

Milk lost if cow dies
8,537
kg

Meat lost if cow dies
430
kg CW

Extra GHG emissions
3,751
kg
CO₂e

Source: Created by Dr. Jude L. Capper, 2021. Calculated as an example based on a 4,500 kg annual milk yield, 26 mo age at first calving, 14 mo calving interval, 248 kg carcass weight, 0.69 live calves born/yr, 0.50 calves reared for beef, and average of 1,731 kg CO₂e GHG emissions per heifer/yr.



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B

Sustainability indices will be increasingly present on meat labels in future

Beef (animal-based) patty

Nutritional value*

Serving size: 227 g (8 oz) steak

78%

Pure beef protein
- contains no
lab-based
ingredients!

Sustainability index



Carbon footprint (under GWP*)



Water footprint



Antibiotic footprint



Community support rating



Farm webcam and sustainability assessment data



*compared to ideal protein



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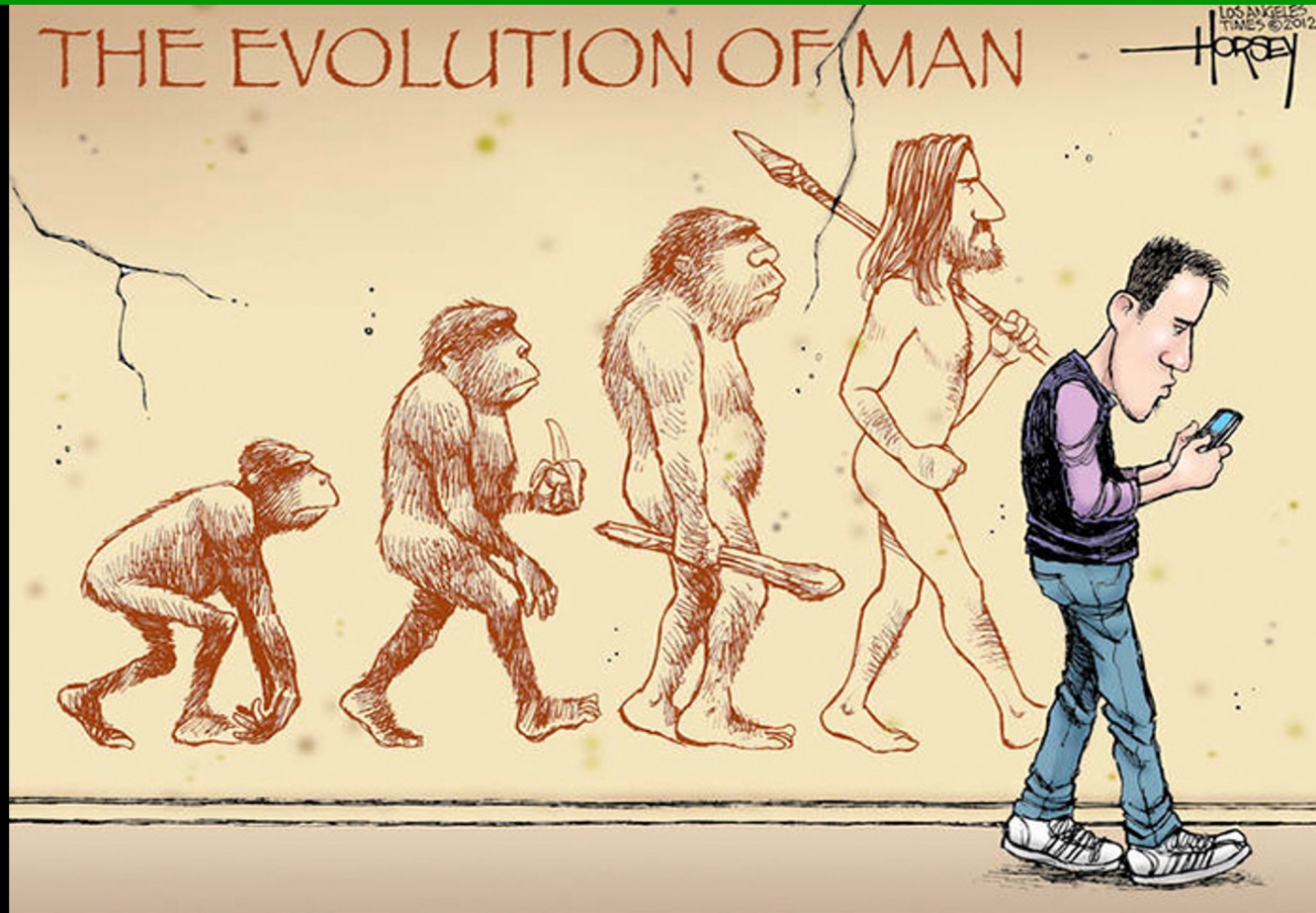
Source: Created by Dr. Jude L. Capper, 2020.

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COM

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



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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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B

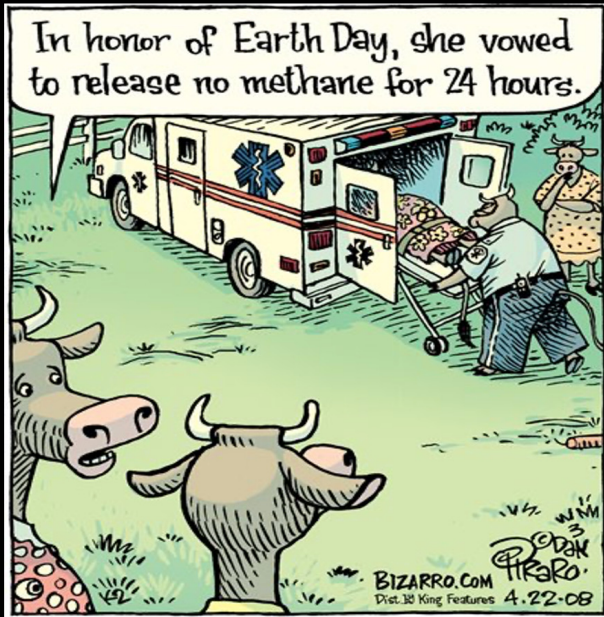
Thank you!

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<http://bovidiva.com/presentationlinks>

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Questions?



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

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