

Dr. Jude Capper

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Sustainability and Vaccination

Dr. Jude L. Capper

23rd June 2021

Source: Dr. Jude L. Capper, 2021

NOAH Vaccine Roundtable



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Impacts of disease on maintaining livestock production

Reduced milk/meat yield = need more animals

Increased mortality = need more animals

Failure to wean = need more animals

Failure to conceive = need more time

Reduced growth rates = need more time

Greater resource use
Higher economic cost

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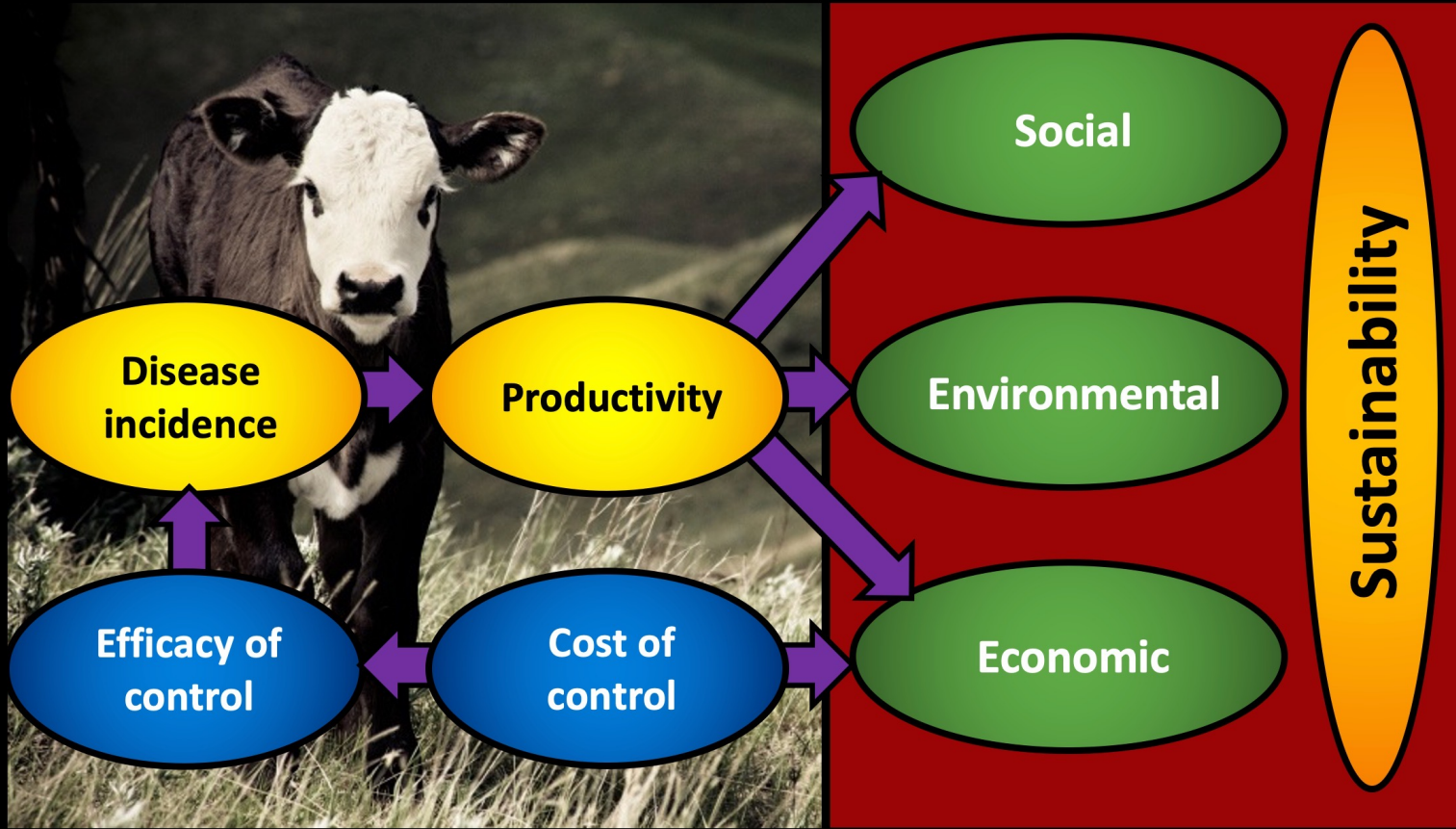
Source: Created by Dr. Jude L. Capper, 2020. More information available at: <https://www.msd-animal-health-hub.co.uk/TimeToVaccinate>



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More data is needed to quantify the impacts of disease on sustainability

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Source: Created by Dr. Jude L. Capper, 2020. More information available at: <https://www.msd-animal-health-hub.co.uk/TimeToVaccinate>

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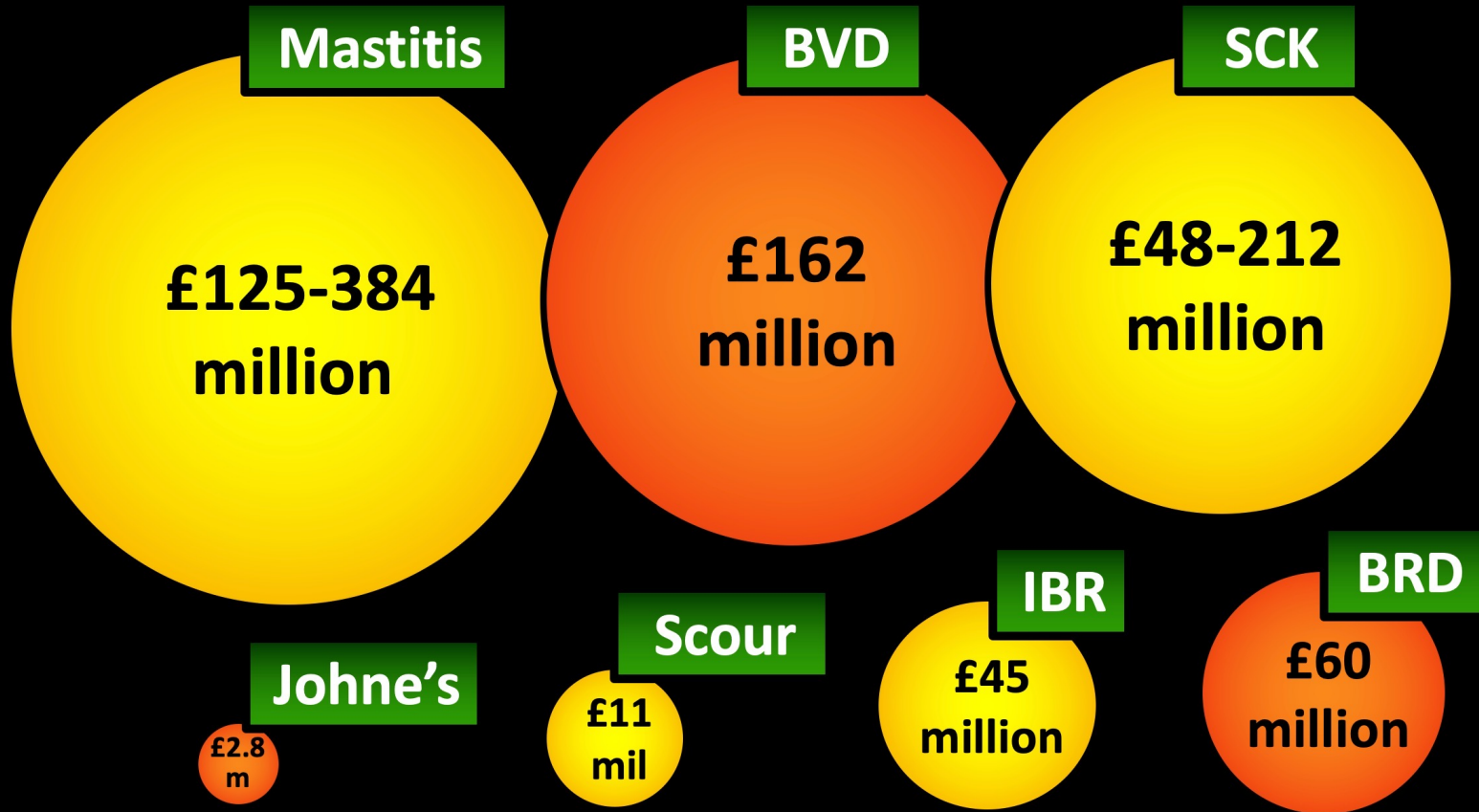
Impacts of cattle disease on economic cost at the industry level

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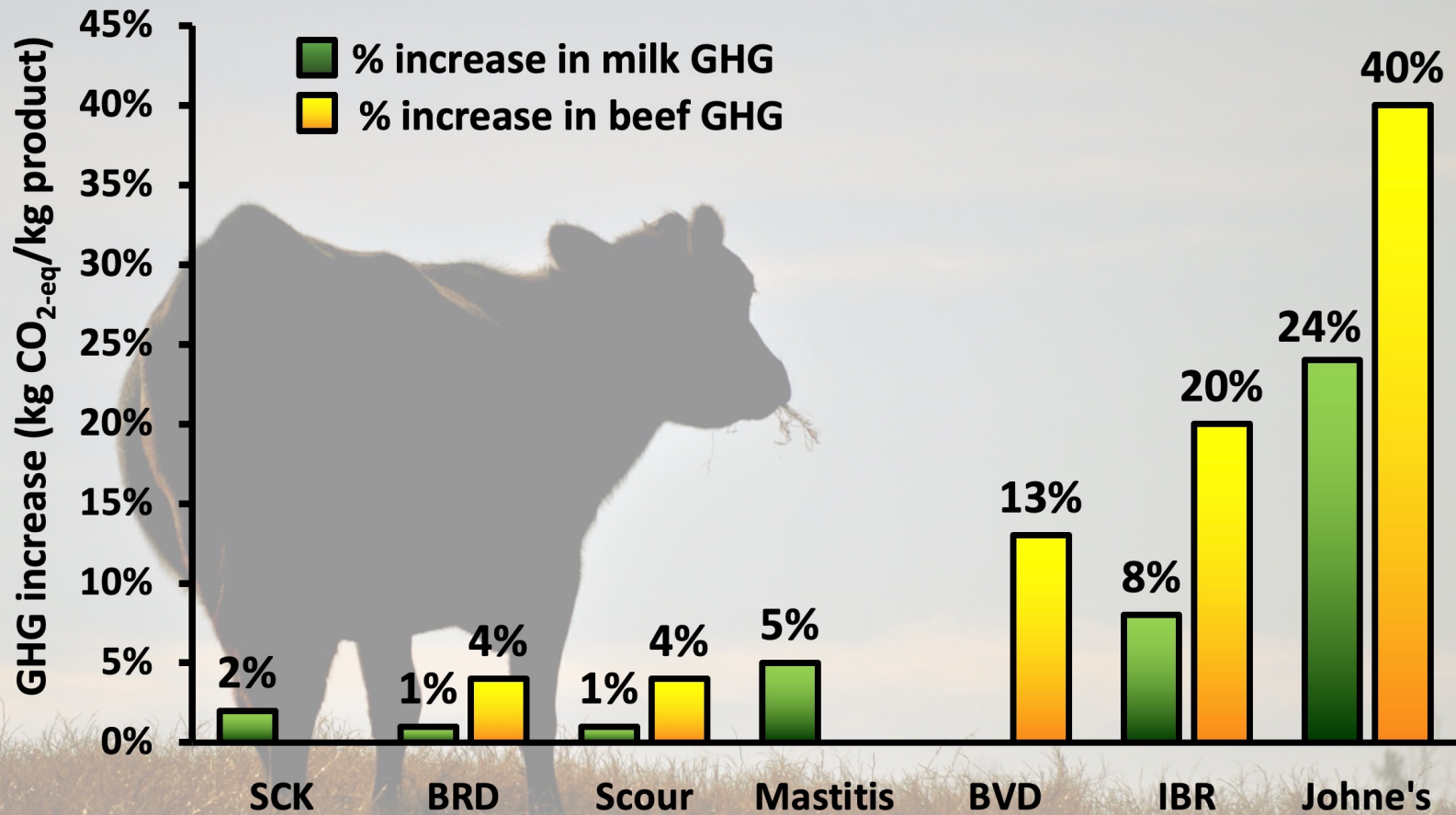


Source: Created by Dr. Jude L. Capper, 2020. More information available at: <https://www.msd-animal-health-hub.co.uk/TimeToVaccinate>



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Impacts of disease on greenhouse gas emissions per unit of beef or milk



Source: Created by Dr. Jude L. Capper, 2020. More information available at: <https://www.msd-animal-health-hub.co.uk/TimeToVaccinate>

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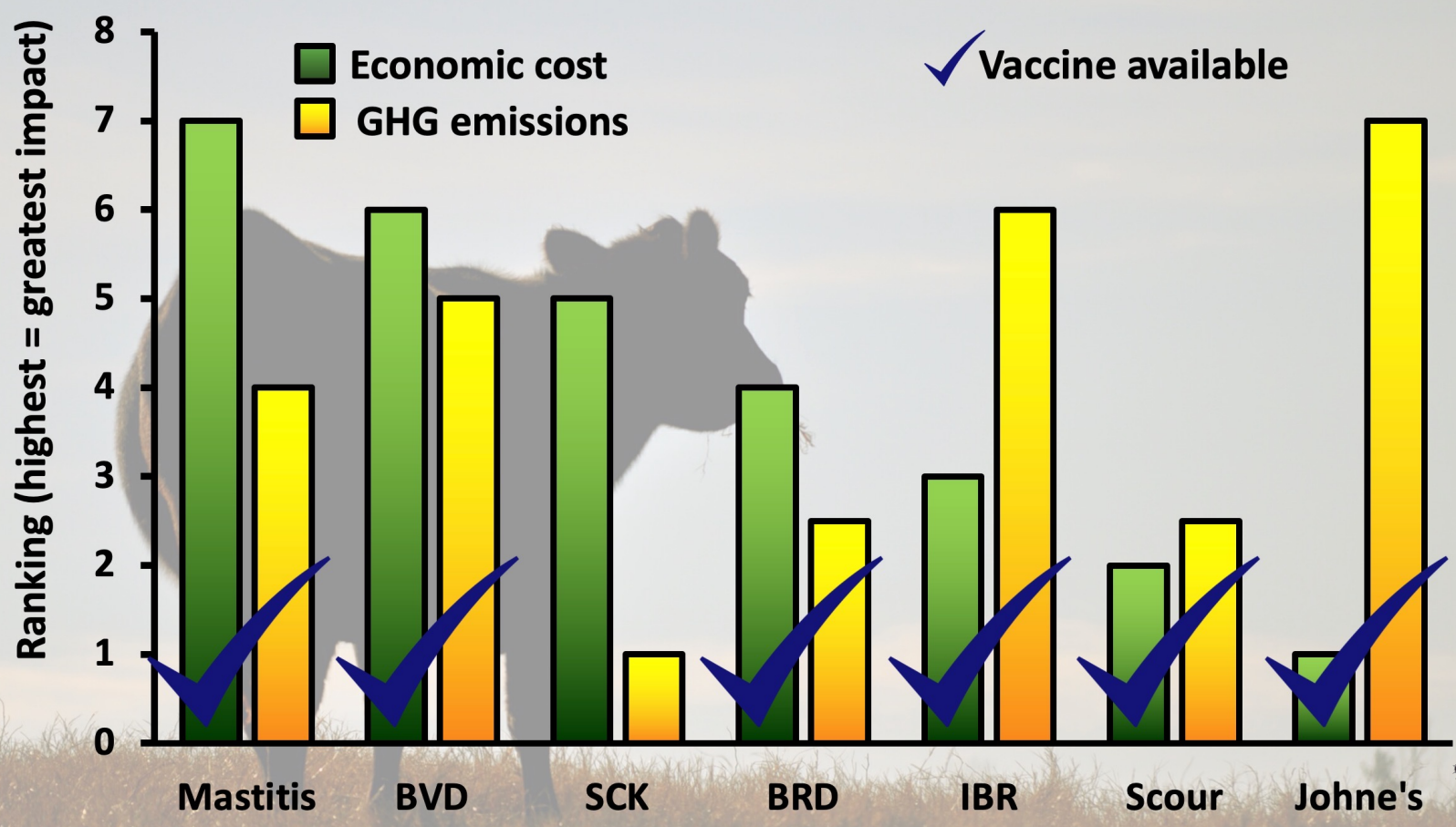
Harper Adams University

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Relative rankings of cattle diseases on economic cost and GHG emissions



Source: Created by Dr. Jude L. Capper, 2020. More information available at: <https://www.msds-animal-health-hub.co.uk/TimeToVaccinate>

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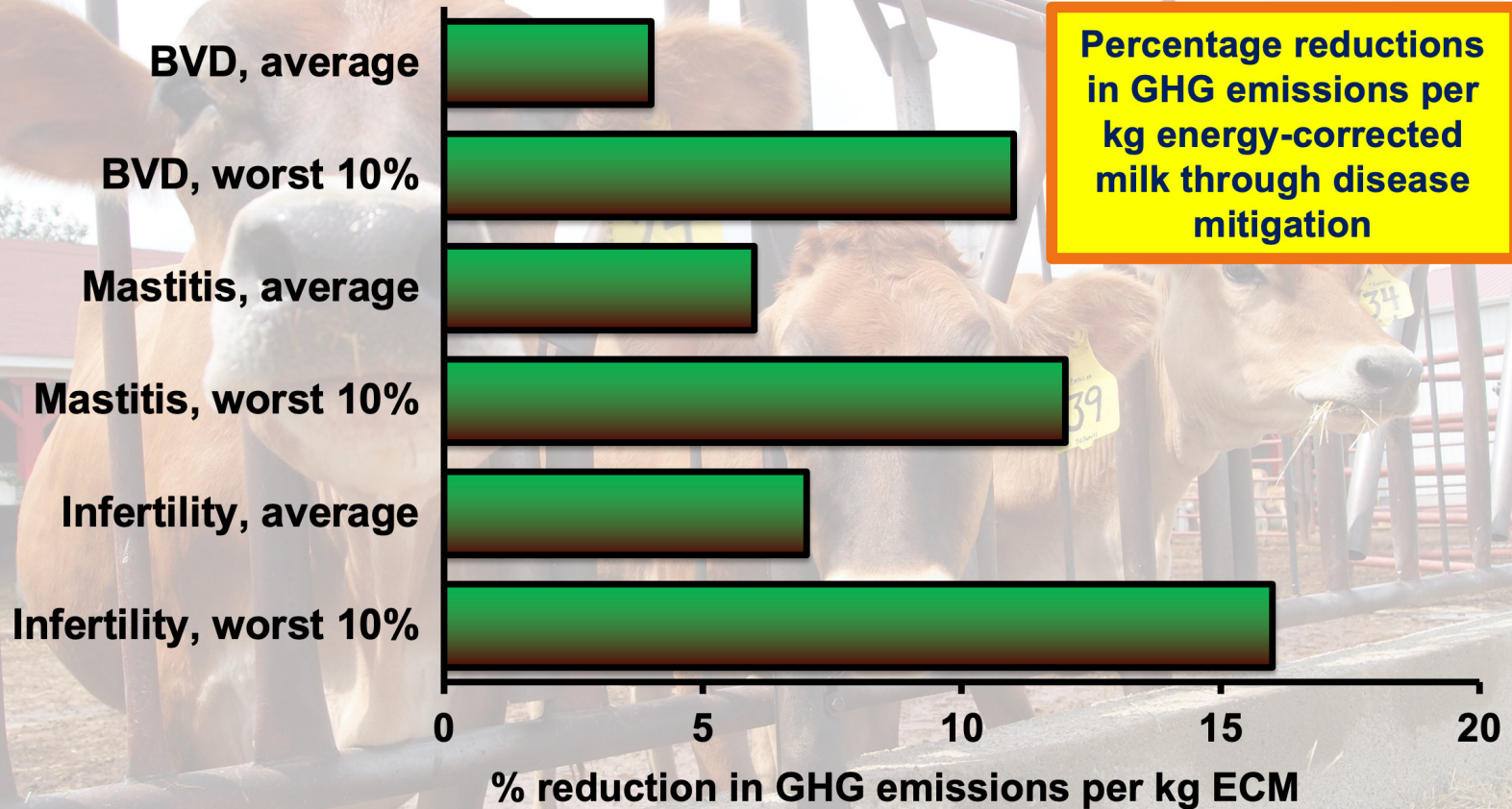


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DS

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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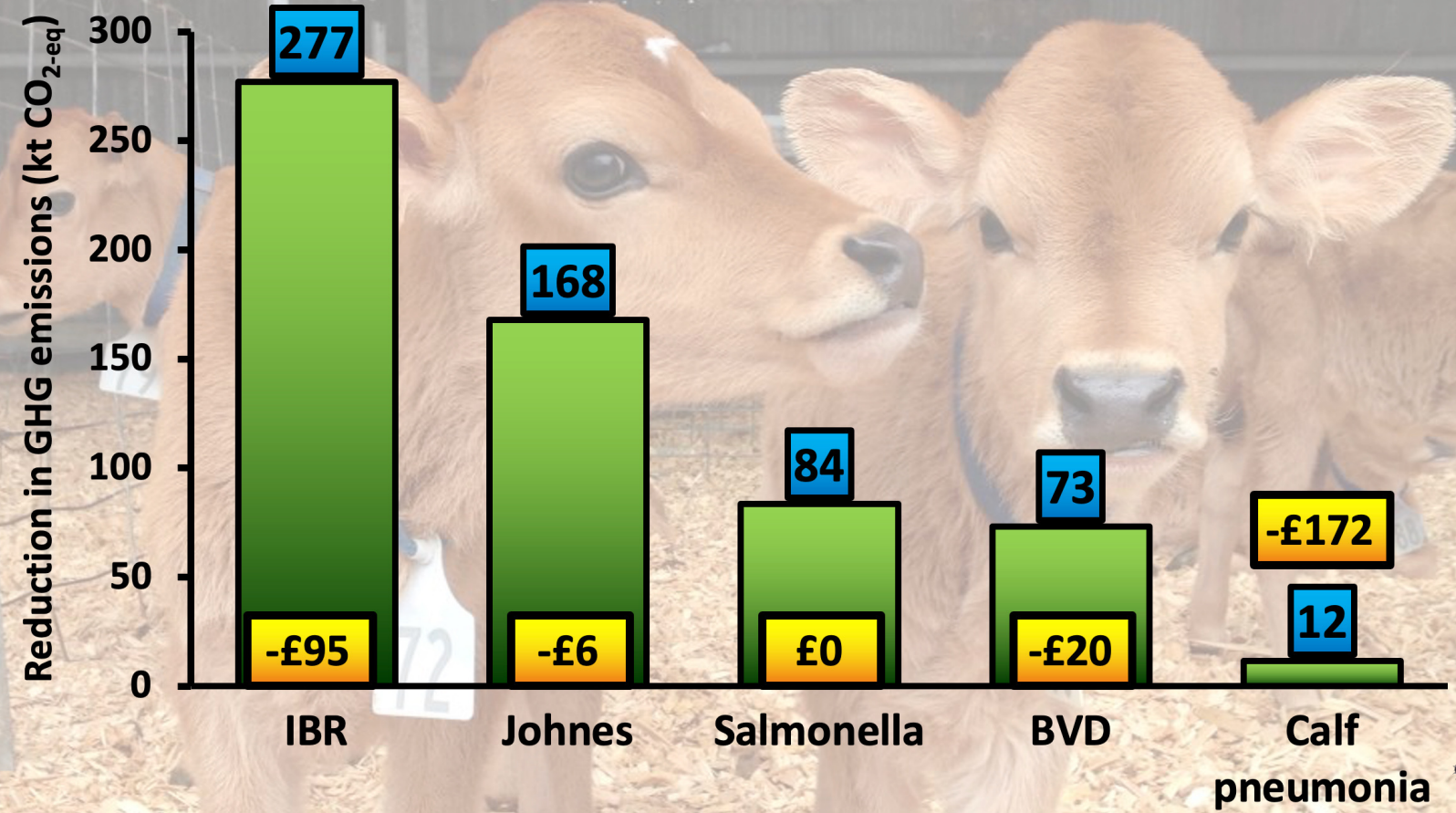


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Vaccination against endemic disease reduces GHG emissions and is cost-effective



Source: Created by Dr. Jude L. Capper, 2020. Data from: ADAS (2015) Study to Model the Impact of Controlling Endemic Cattle Diseases and Conditions on National Cattle Productivity, Agricultural Performance and Greenhouse Gas Emissions. ADAS UK Ltd, Herts, UK.

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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>



HfA

Livestock disease = food waste

African swine fever spread into China and East Asia



100-150 million pigs died (30% of Chinese herd)



17-38% increase in world pork prices



Pigmeat losses would have supplied 550-824 million people with their annual pork demand



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Source: Created by Dr. Jude L. Capper, 2021. Economic data from Mason-D'Croz et al. 2020. *Nature Food* 1:221-228. Pigmeat data – J. Capper.



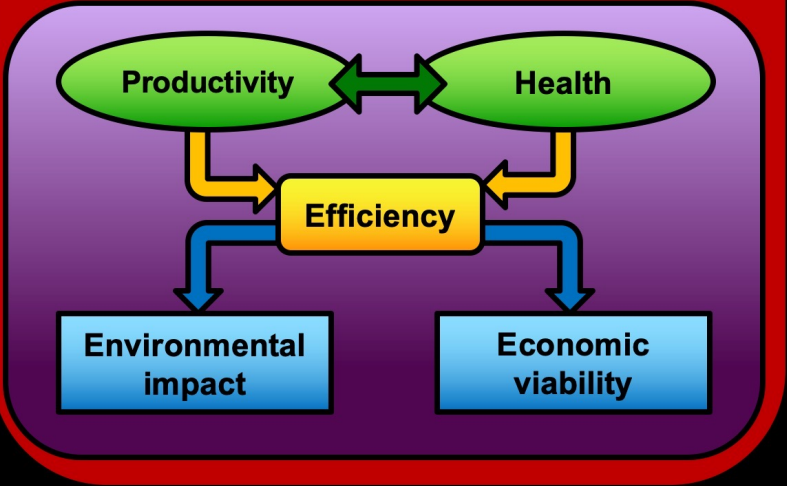
COM

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.

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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How can we improve?



Take a whole-herd, holistic approach



Use on-farm medicines responsibly



Use vaccination where appropriate



Record and benchmark health data



Record performance and economic impacts



Communicate dedication to livestock health

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Source: Created by Dr. Jude L. Capper, 2020. More information available at: <https://www.msd-animal-health-hub.co.uk/TimeToVaccinate>

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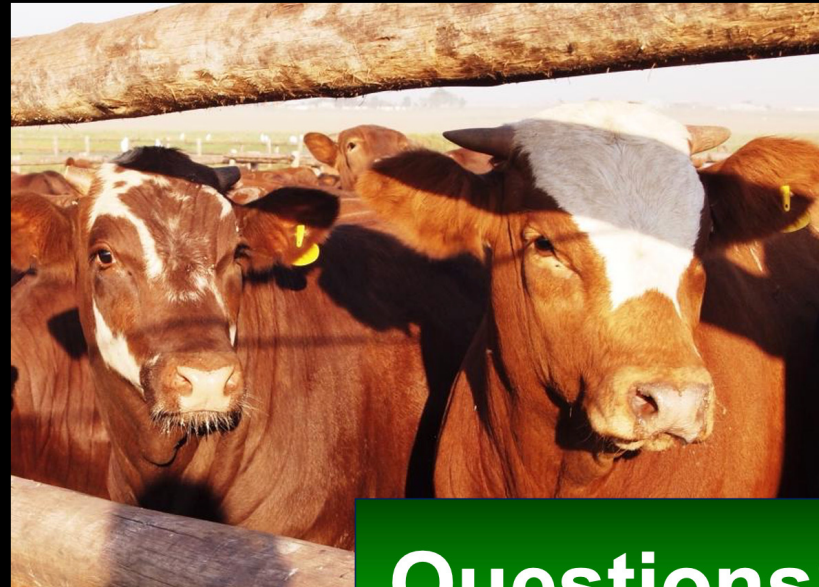


B

Thank you!

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Questions?



Source: Created by Dr. Jude L. Capper, 2021. Cartoon from: <http://RubesCartoons.com>

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