



**Prof. Jude Capper**

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# The role of youngstock in sustainability



**27<sup>th</sup> July 2022**

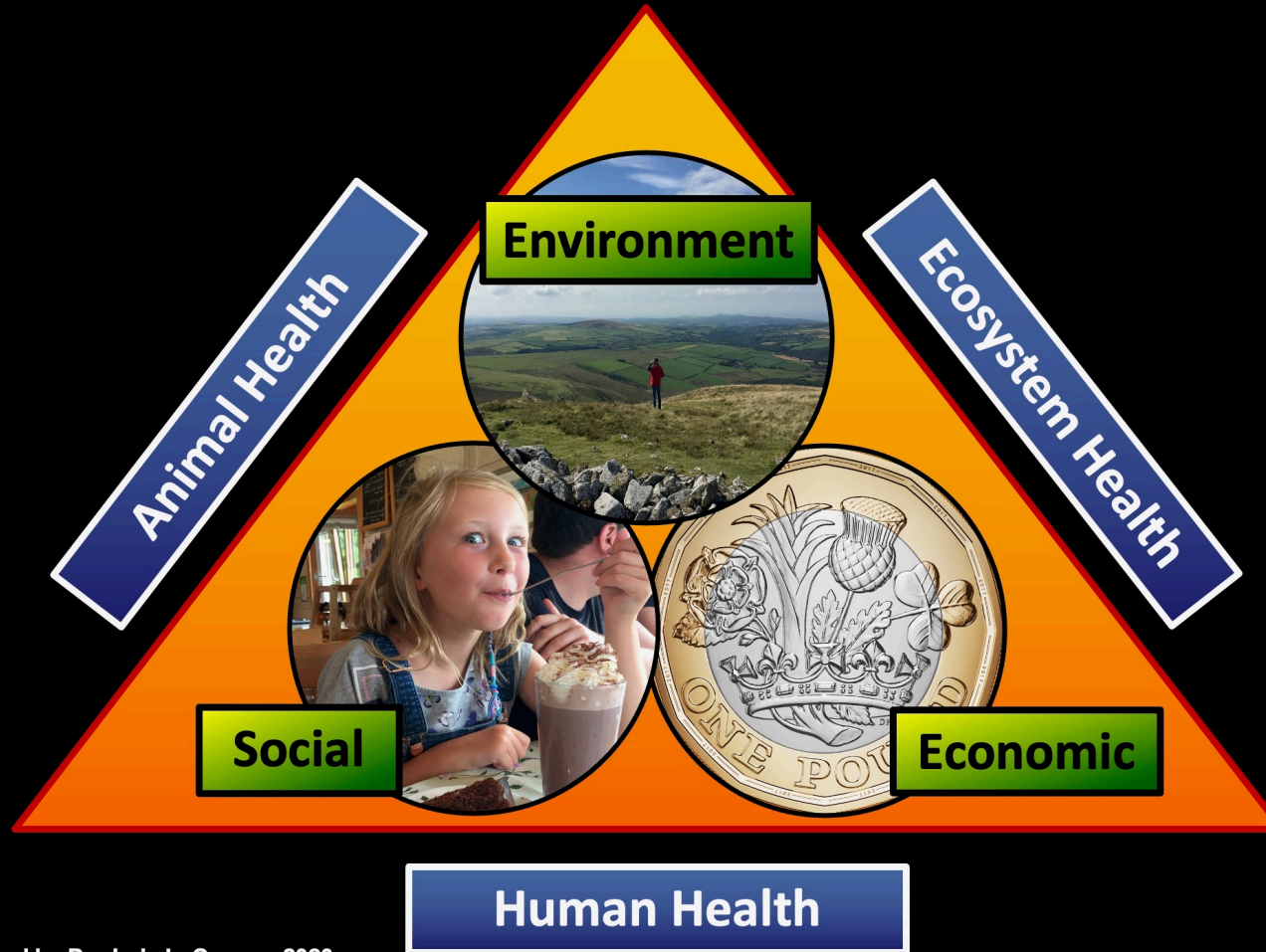
Source: Dr. Jude L. Capper, 2022

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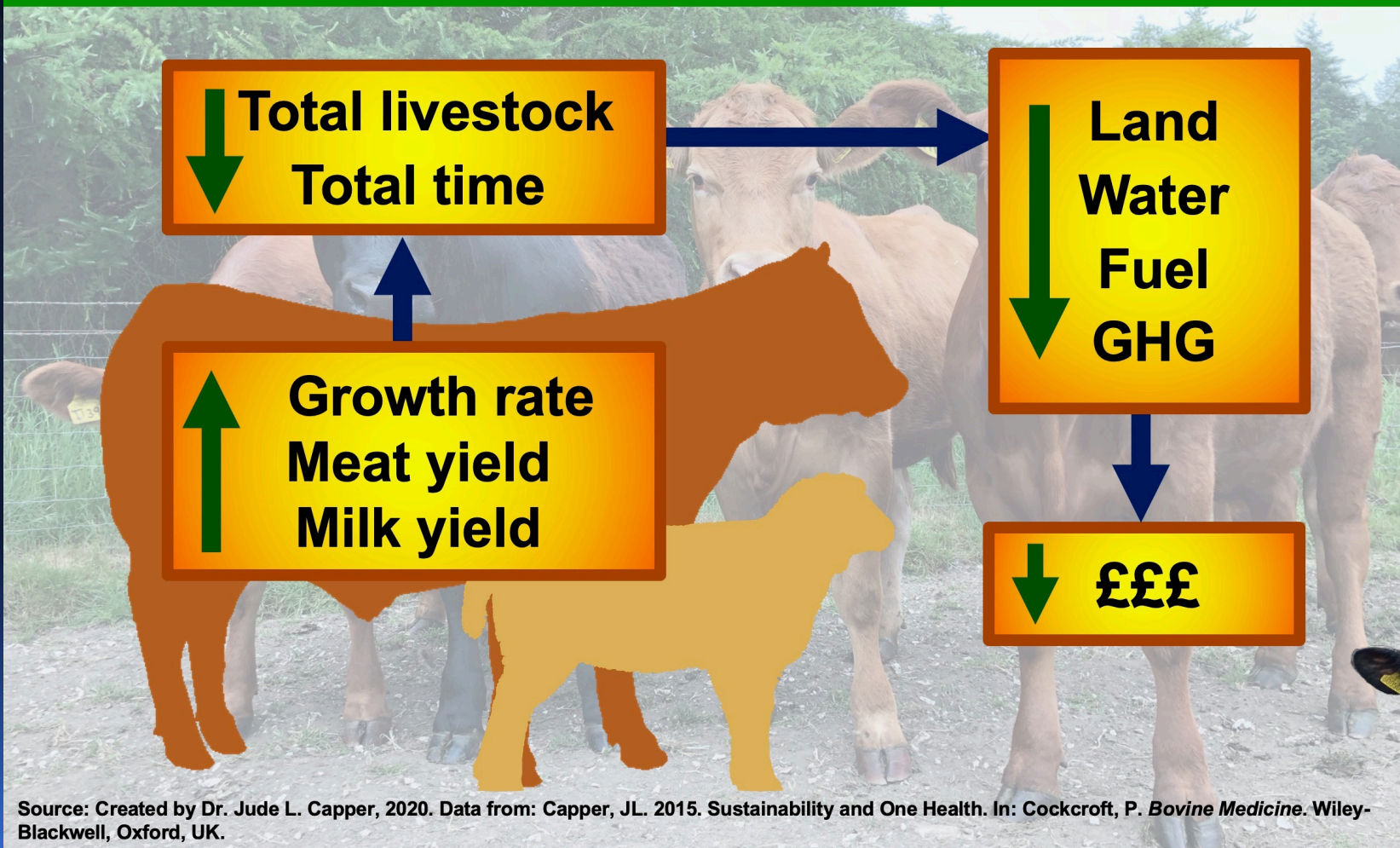
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# Improving animal productivity reduces the environmental impact of milk and meat



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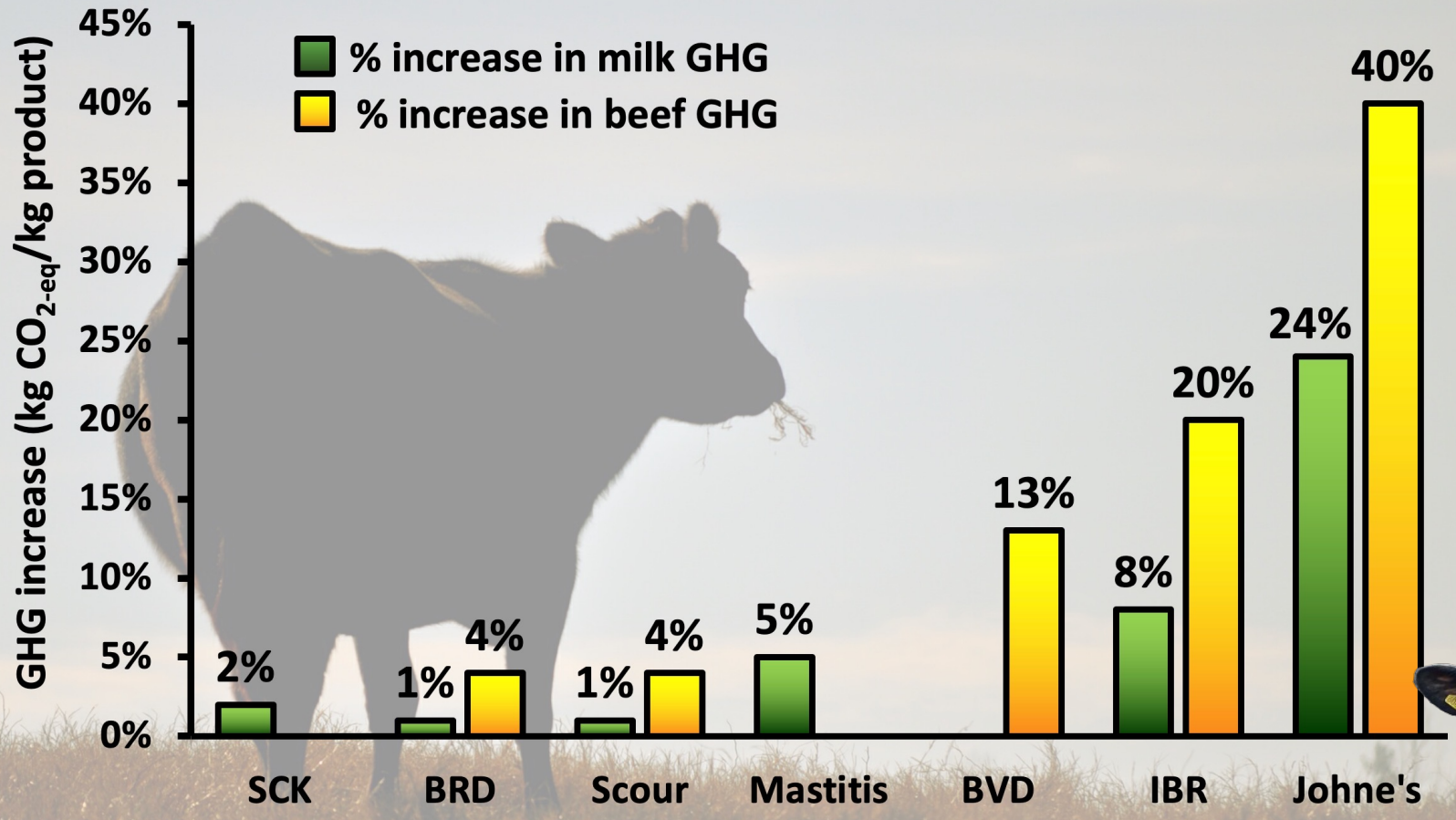
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Source: Created by Dr. Jude L. Capper, 2020. Data from: World Organization for Animal Health. 2008. <http://www.oie.int/for-the-media/editorials/detail/article/feeding-the-world-better-by-controlling-animal-diseases>

AH

# 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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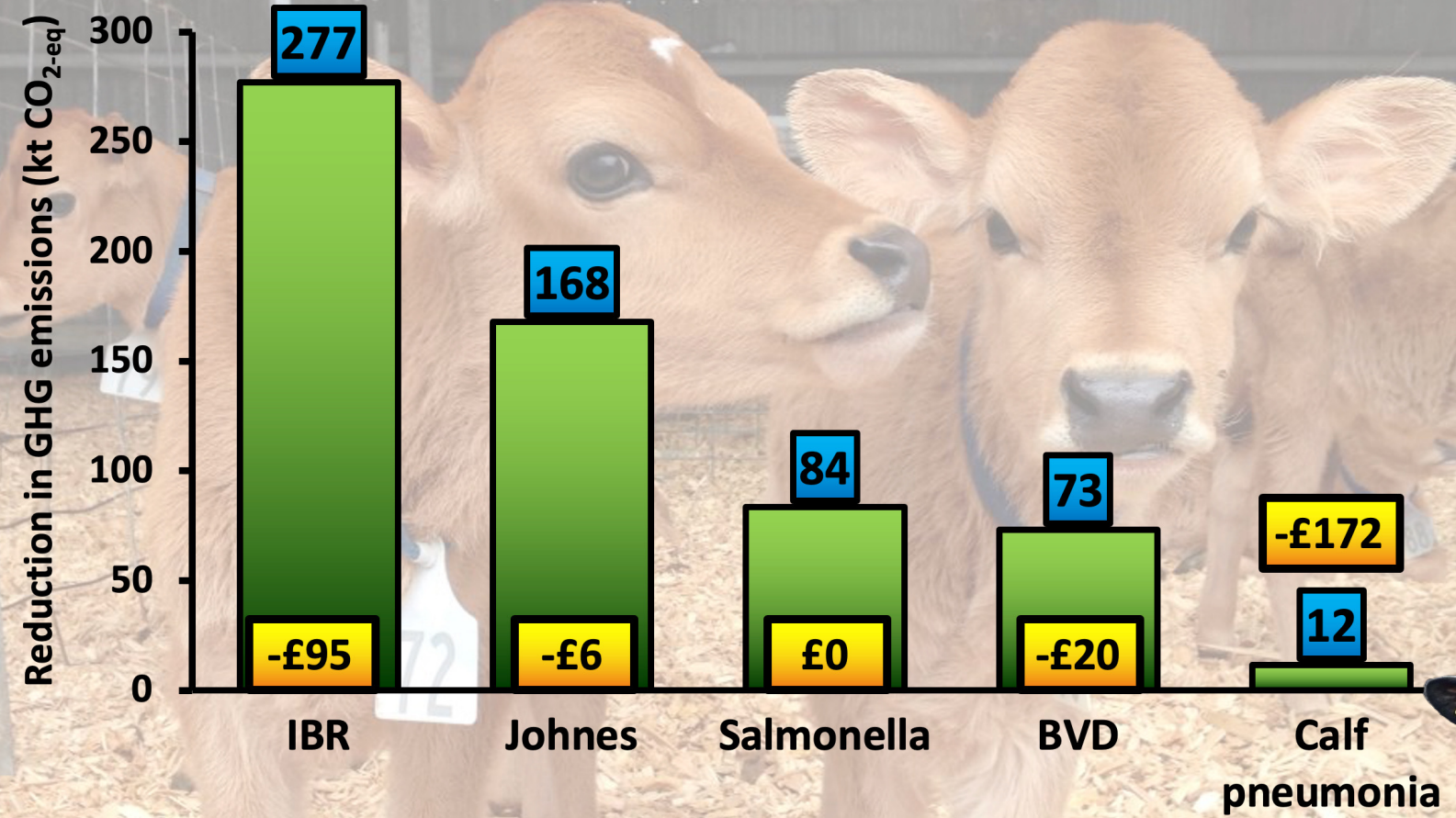


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# Vaccination against endemic disease reduces GHG emissions and is cost-effective



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, Helsby, UK.

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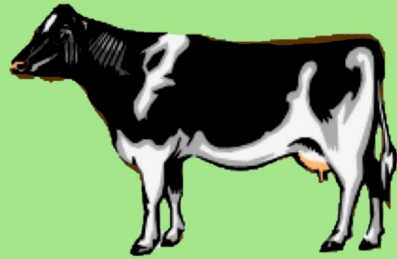
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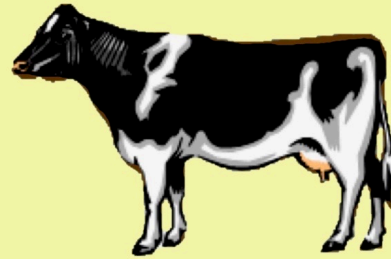
# Dairy heifer losses are significant in UK herds

**Birth**



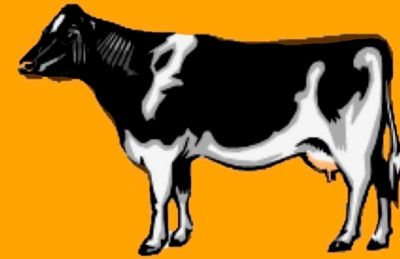
**100 heifers  
are born**

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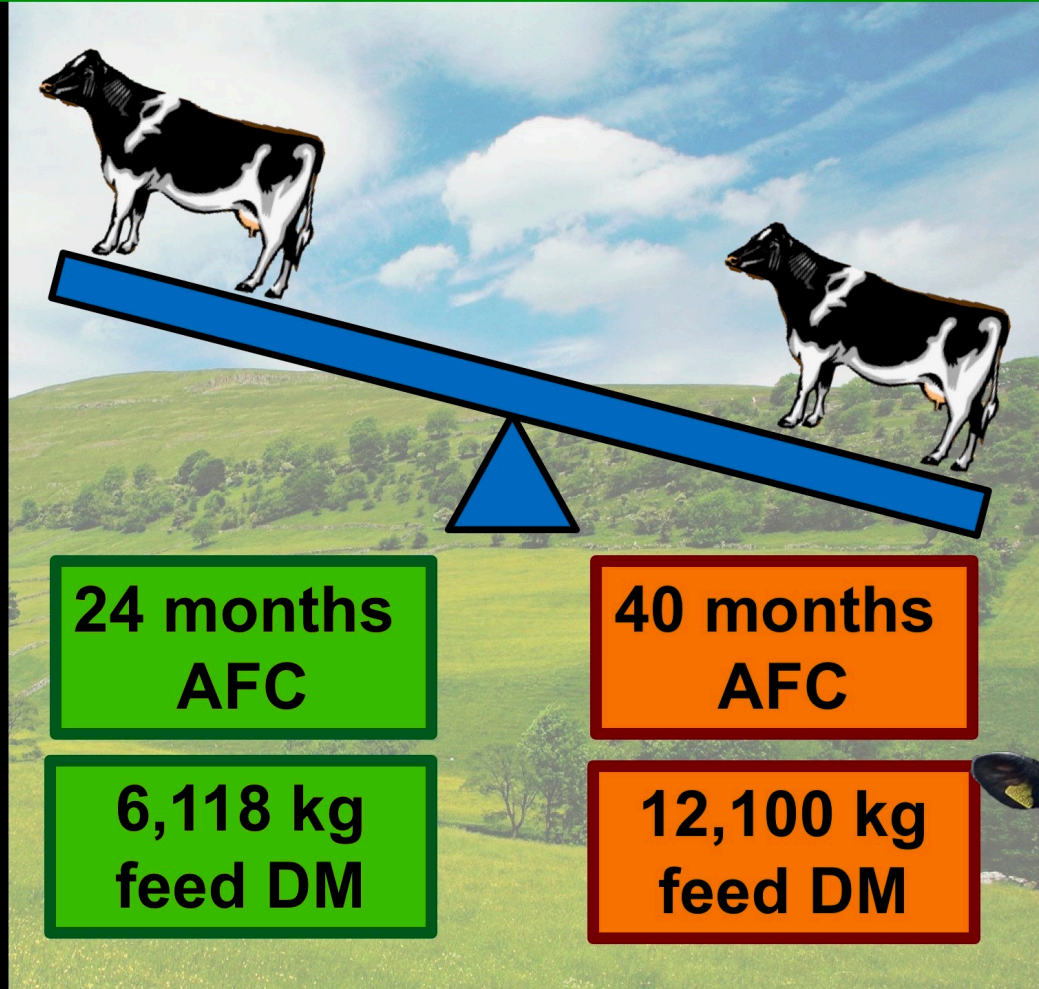
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# Age doesn't matter – unless you're a heifer

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



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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# Do we believe all that we read/see?



**TRACEY ALISON**  
@TRACEYALISON1

Follow



This calf is about to be killed with a bolt gun.  
Give a [redacted] & go #vegan



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Source: Created by Dr. Jude L. Capper, 2019. Screenshot from Twitter.

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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



0:02

- 1:16:25

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

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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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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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# Showing that we are making industry-wide positive changes will improve consumer trust

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Source: Created by Dr. Jude L. Capper, 2019. Screenshot from Instagram.



ciwf • Follow  
United Kingdom



ciwf Is there such thing as too cute? We think we might have found it... 🥰 🐄

In case you've missed it, we also wanted to share some good news. In the UK @morrison's are making moves to stop male dairy calves being killed at birth, and to stop them being exported from the UK too. Instead they will be making sure that they are raised in the UK in higher welfare conditions. We believe that once born all farm animals should be able to have a life worth living, so steps like these are really important and help to reduce suffering.



439 likes

1 DAY AGO



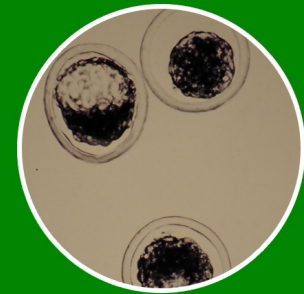
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# Moving sustainable genetics forwards



**Appropriate  
breeding  
goals**



**Technology  
adoption**



**Supply  
chain  
feedback**



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Source: Created by Dr. Jude L. Capper, 2022.

D

# Sexed semen sustainability benefits



Rate of genetic gain



Reduced dystocia



Improved calf welfare



Greater cross-breeding opportunities



Reduced GHG emissions from beef cattle



Heiferette production systems?



Improved profitability – given adequate fertility

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Source: Created by Dr. Jude L. Capper, 2022. Data from: Balzani et al. (2021) doi: 10.3389/fvets.2020.623128; Holden and Butler (2018) doi:10.1017/S1751731118000721

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# Sexed semen – beef environmental responsibility 1



**Modelling effects of sexed semen and moving from 50:50 to 78:22 dairy:suckler beef in Ireland**



**Economic value of dairy beef to the industry improved by 60.4%**



**GHG emissions per tonne beef reduced by 24.6% assuming dairy herd expands to maintain supply**



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Source: Created by Dr. Jude L. Capper, 2022. Data from: Holden and Butler (2018) doi:10.1017/S1751731118000721



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## Sexed semen – beef environmental responsibility 2



**Modelling effects of using sexed semen on medium and large Scottish dairy farms**



**Farm gross margin increased by ~1.0%, cost-effectiveness = -€15 - €7/tonne CO<sub>2</sub>e**



**GHG emissions per tonne milk reduced by 9.5-11.6% assuming dairy beef replaces sucklers**



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Source: Created by Dr. Jude L. Capper, 2022. Data from: Eory et al. (2014) German Journal of Agricultural Economics, 63:133-142.

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## GHG benefits of dairy-beef now recognized – sucklers will need to demonstrate benefits

**Annual requirements of one suckler cow:**

- 3,954 kg feed DM
- 20,047 litres water
- 2,459 kg CO<sub>2</sub>

**Need to justify these impacts vs. beef from dairy.**

Source: Created by Dr. Jude L. Capper, 2021. Calculation based on feed and water requirements of one Angus cow weighing 544 kg producing 7.8 kg of milk per day, with calf weaned at 207 days of age.



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# Can we grow human food crops everywhere?

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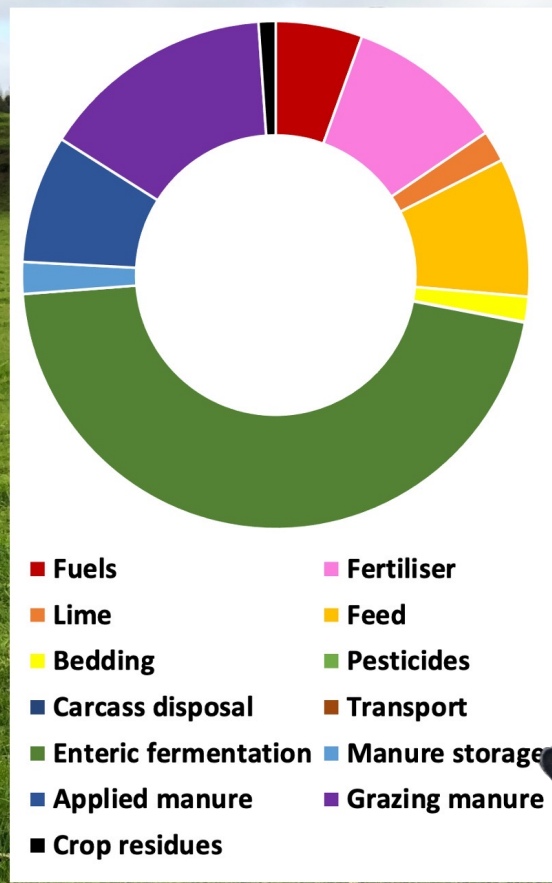
Source: Created by Dr. Jude L. Capper, 2021

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# Standard footprinting tool urgently needed across the industry



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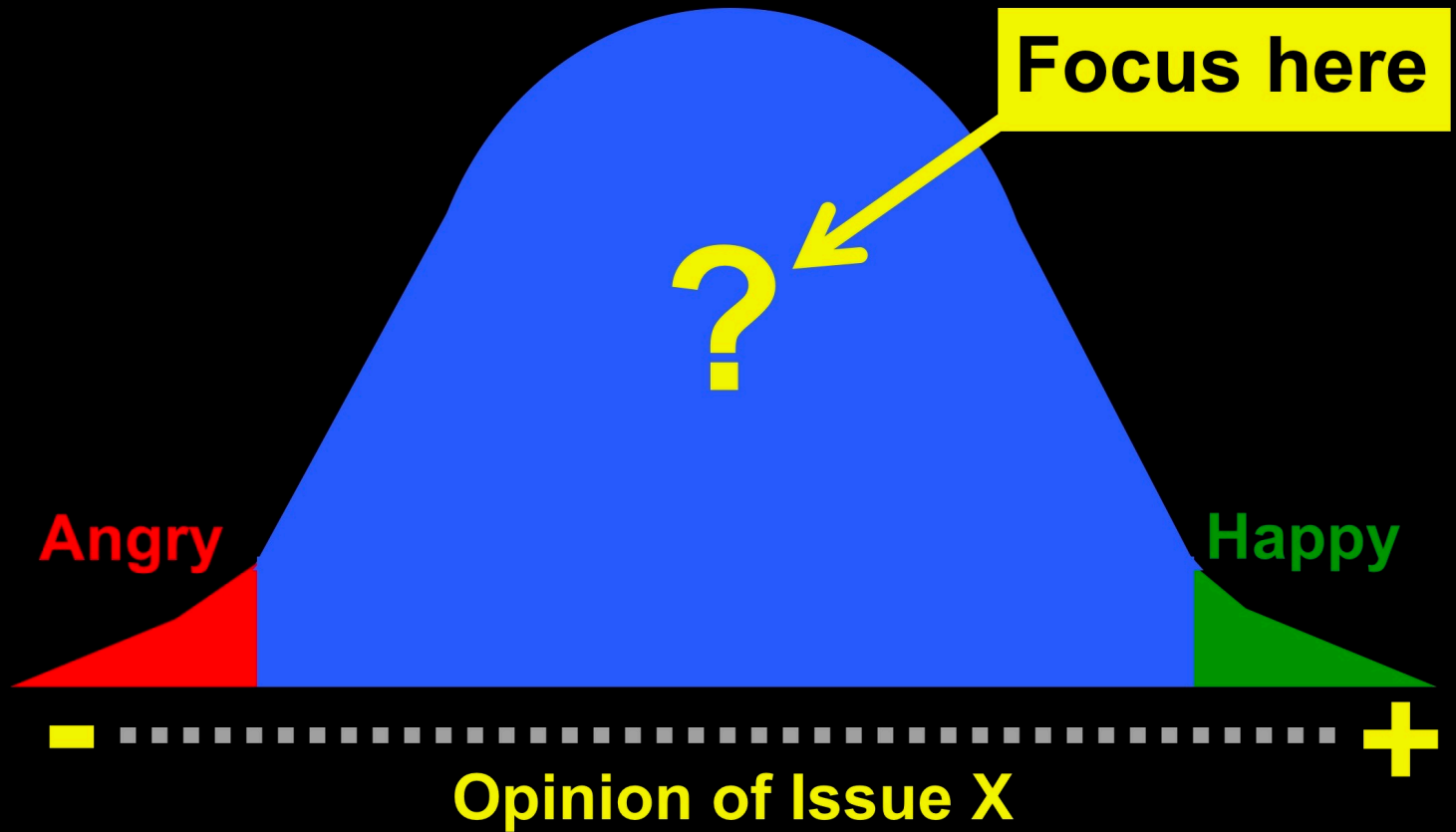
Source: Created by Dr. Jude L. Capper, 2021. Example carbon footprint results based on a beef finishing farm.

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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*.

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# Thank you!

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<http://bovidiva.com/presentationlinks>

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## Questions?



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