



# The Sustainability Index

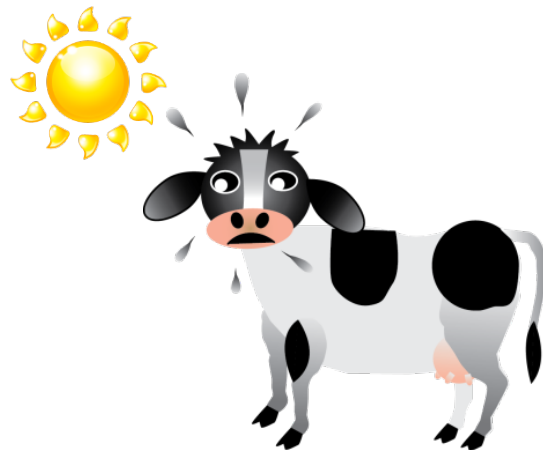
Thuy Nguyen & Tim Jelbart

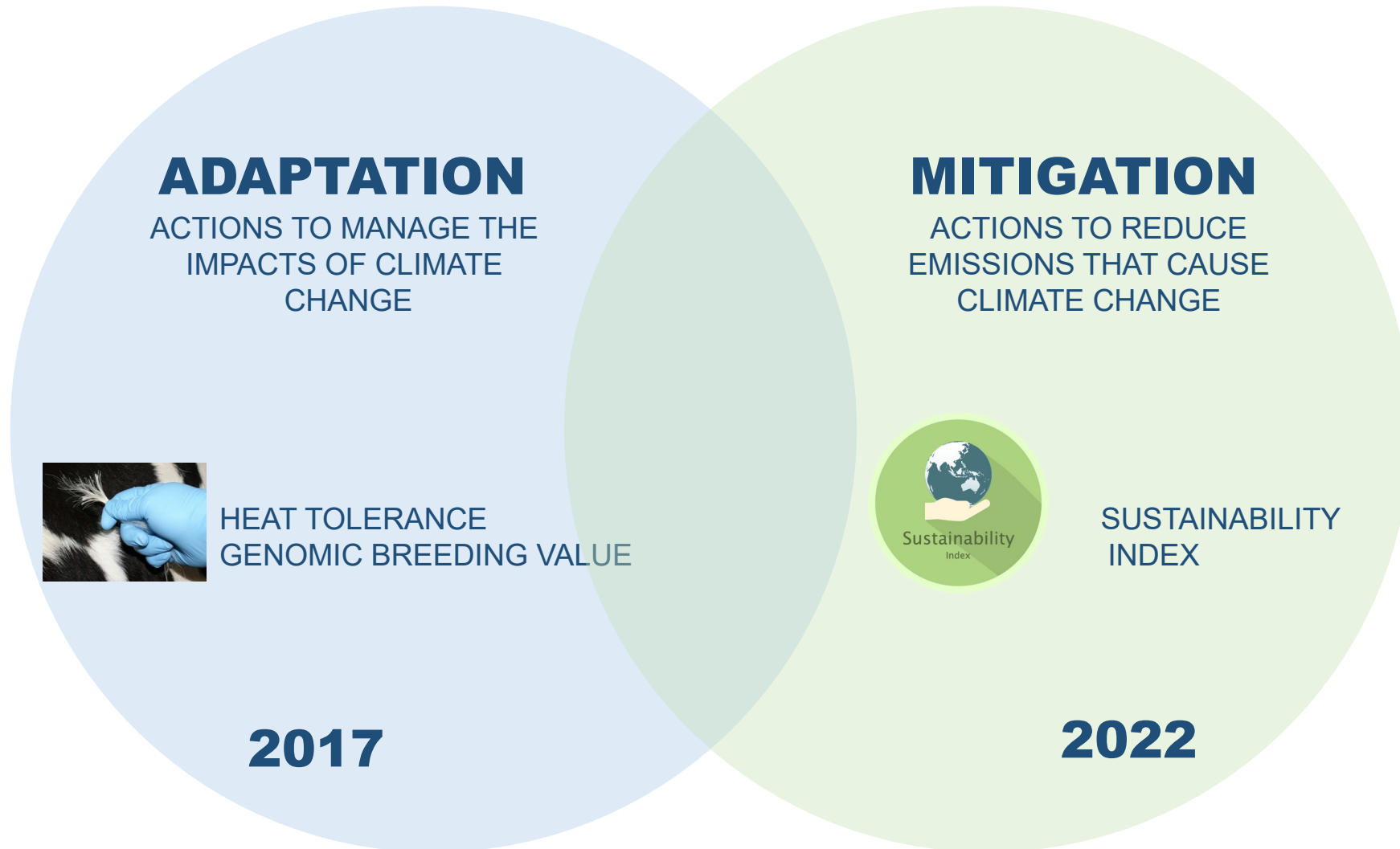


# A few questions...



**SPEAKER PAPERS** THUY NGUYEN







**30%**

Reduction in emissions intensity at farms by 2030

# Goals

2030 Goals

- 8 Improving land management
- 9 Increasing water use efficiency
- 10 Reducing GHG emissions intensity
- 11 Reducing waste

The Sustainability Index enables dairy farmers to fast track breeding for reduced GHG emissions intensity.



Increasing genetic merit is one of most cost-effective strategies for reducing GHG emissions (Teagasc 2019)

It complements a range of on-farm management practices to reduce emissions.



# Gross emissions



Tonnes of carbon emitted from your herd  
(Total carbon = Gross measure)

Reduction achieved by:

- Fewer cows
- Smaller cows
- Lower producing cows
- More fertile cows

# Emissions intensity



Tonnes of carbon emitted from your herd  
divided by product produced  
(Efficiency measure)

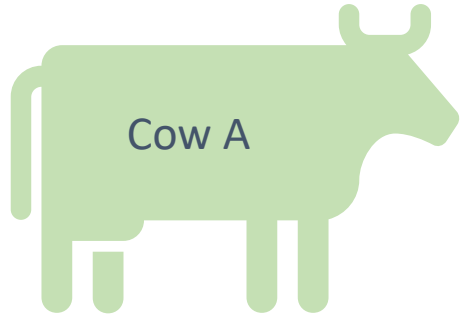
Reduction achieved by:

- Higher per cow production  
& greater carbon efficiency  
(More milk per tonne of carbon)

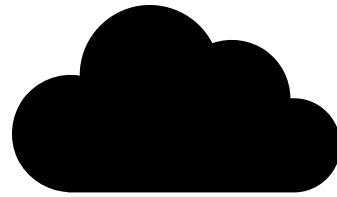
## Gross cow emissions

## Protein

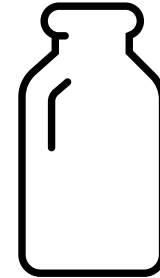
## Emissions intensity



Cow A

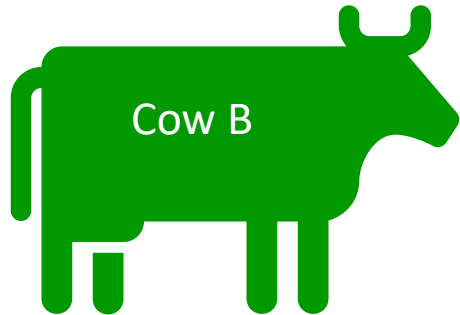


20 tonnes of carbon

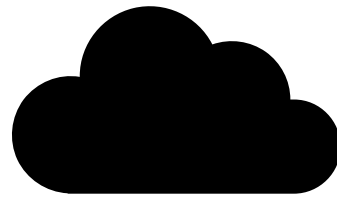


1 tonne of protein

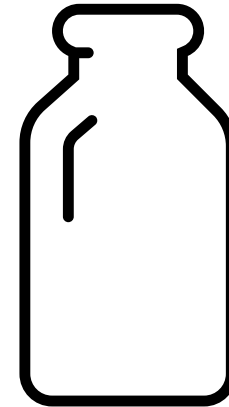
$$20/1 = 20$$



Cow B



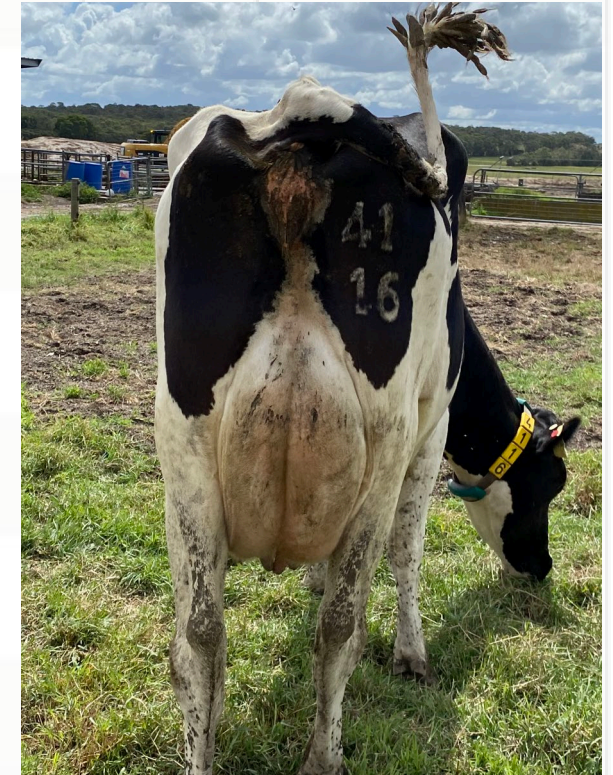
20 tonnes of carbon



1.5 tonnes of protein

$$20/1.5 = 13.3$$

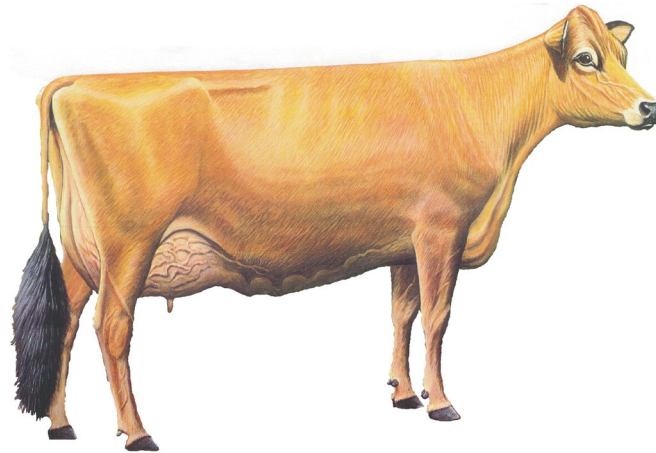




# Has the BPI contributed to the reduction in emissions intensity? (2015 – 2022)



**-1.3%**



**-1.4%**

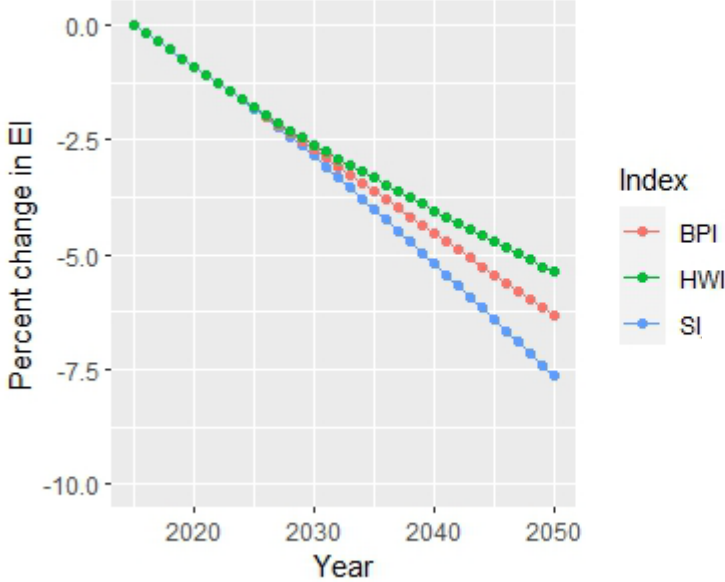


**-0.8%**

# Why another index?



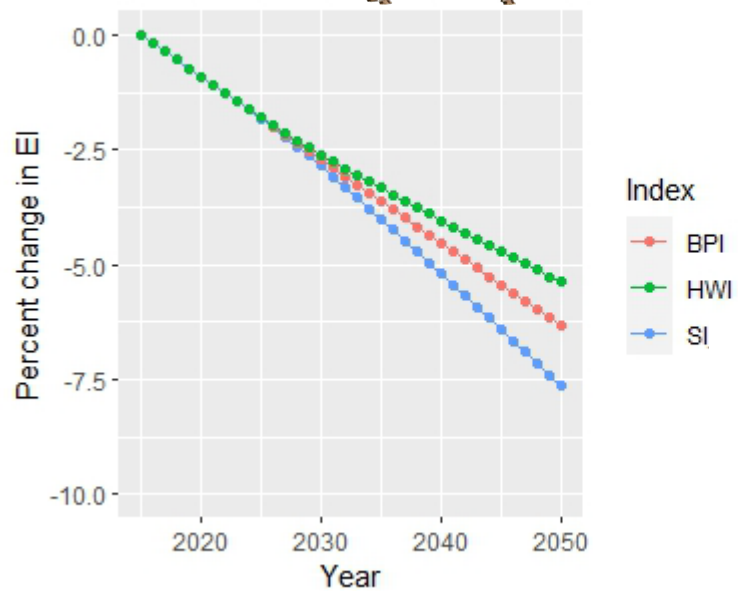
a. Holstein



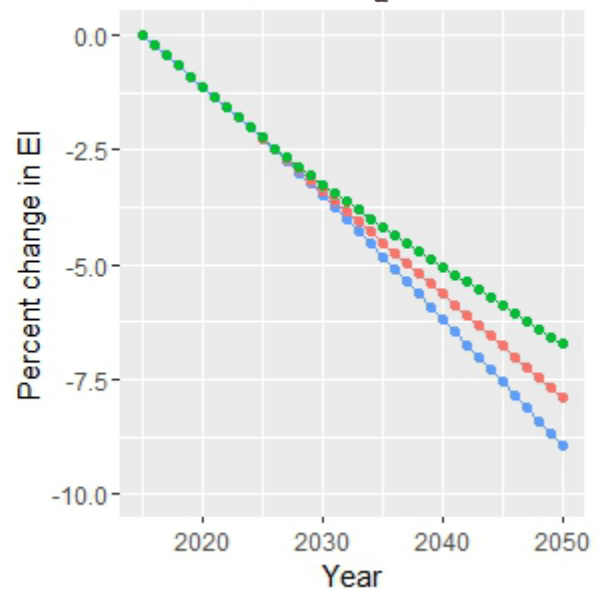
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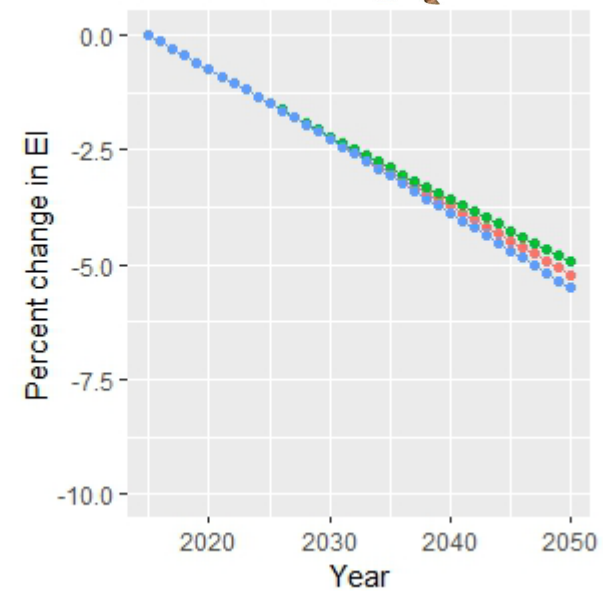
a. Holstein



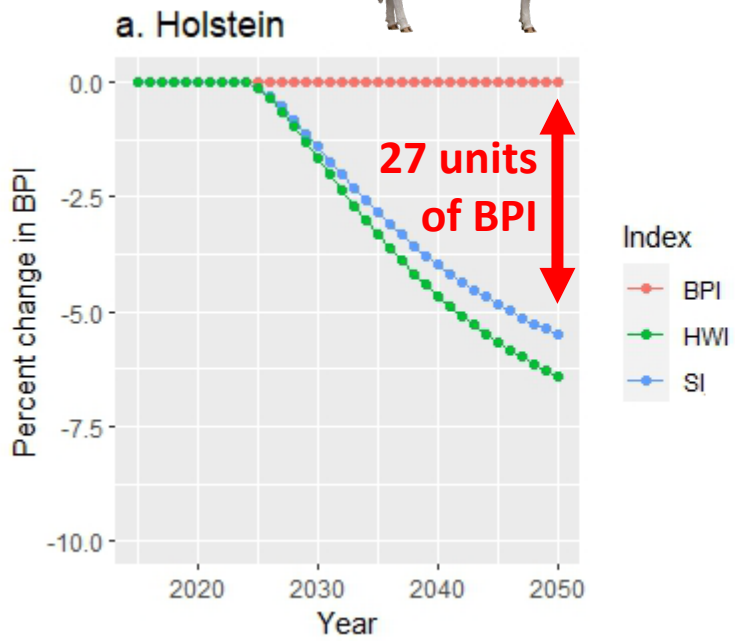
b. Jersey



c. Red breeds



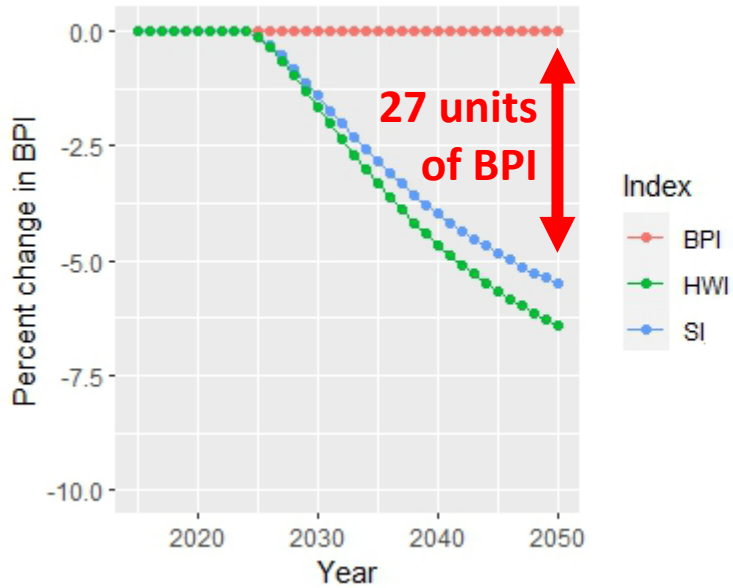
# Do we sacrifice anything?



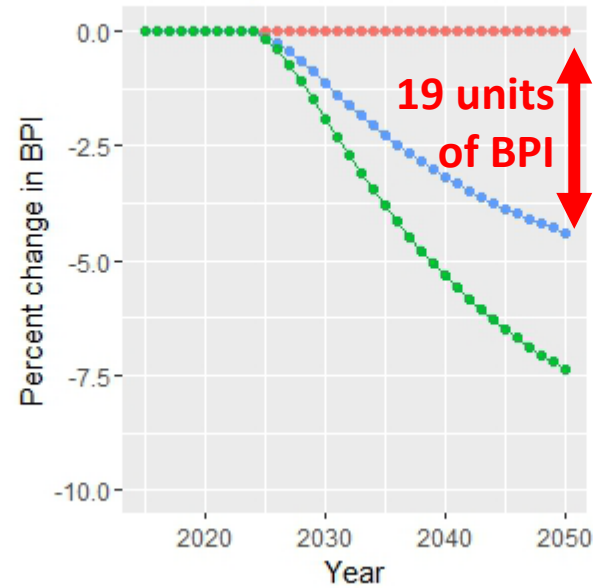
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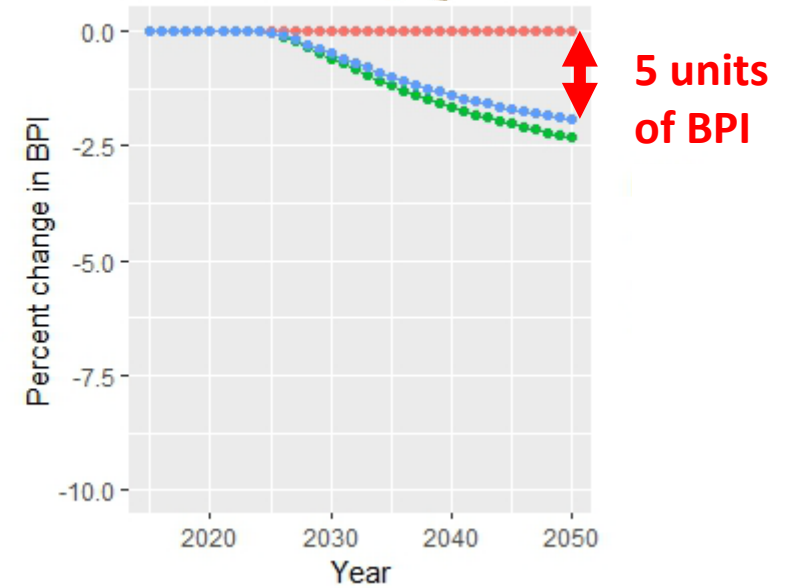
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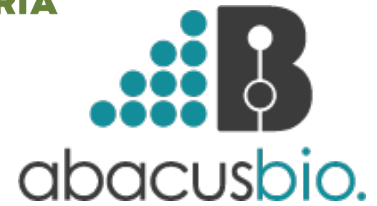
# Take home messages...

- Genetics has a well-established role to play in sustainability internationally
- High correlation between BPI and the Sustainability Index
- Sustainability Index fast track the reduction in methane emissions intensity
- We have already made progress with BPI
- Use genetics in conjunction with other on-farm management to reduce overall emissions.

# Acknowledgements



Dr. Caeli Richardson



Breed societies  
Genomic service providers  
Bull companies

