Breeding strategies to reducing methane emissions from ruminants

Donagh Berry

Teagasc

Donagh.berry@teagasc.ie

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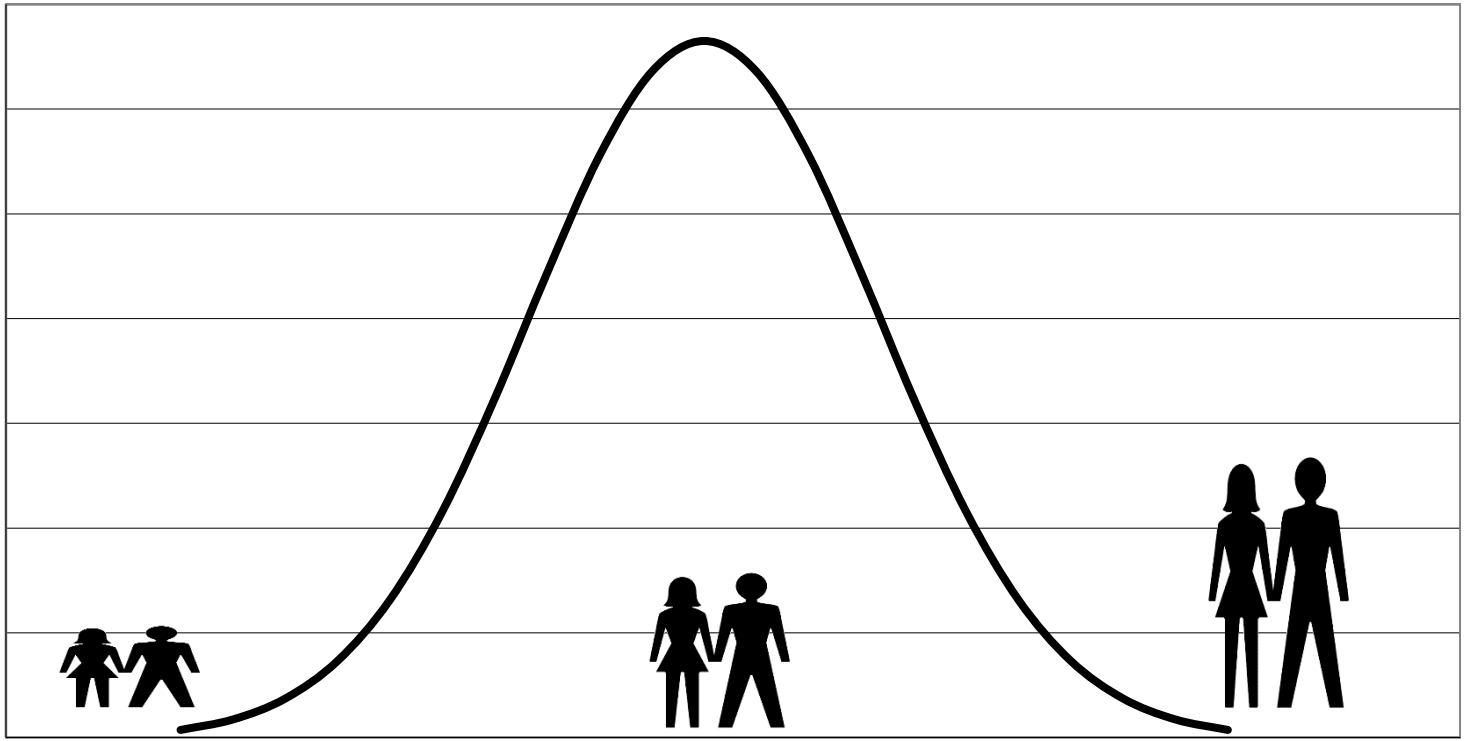
Agriculture and Food Development Authority

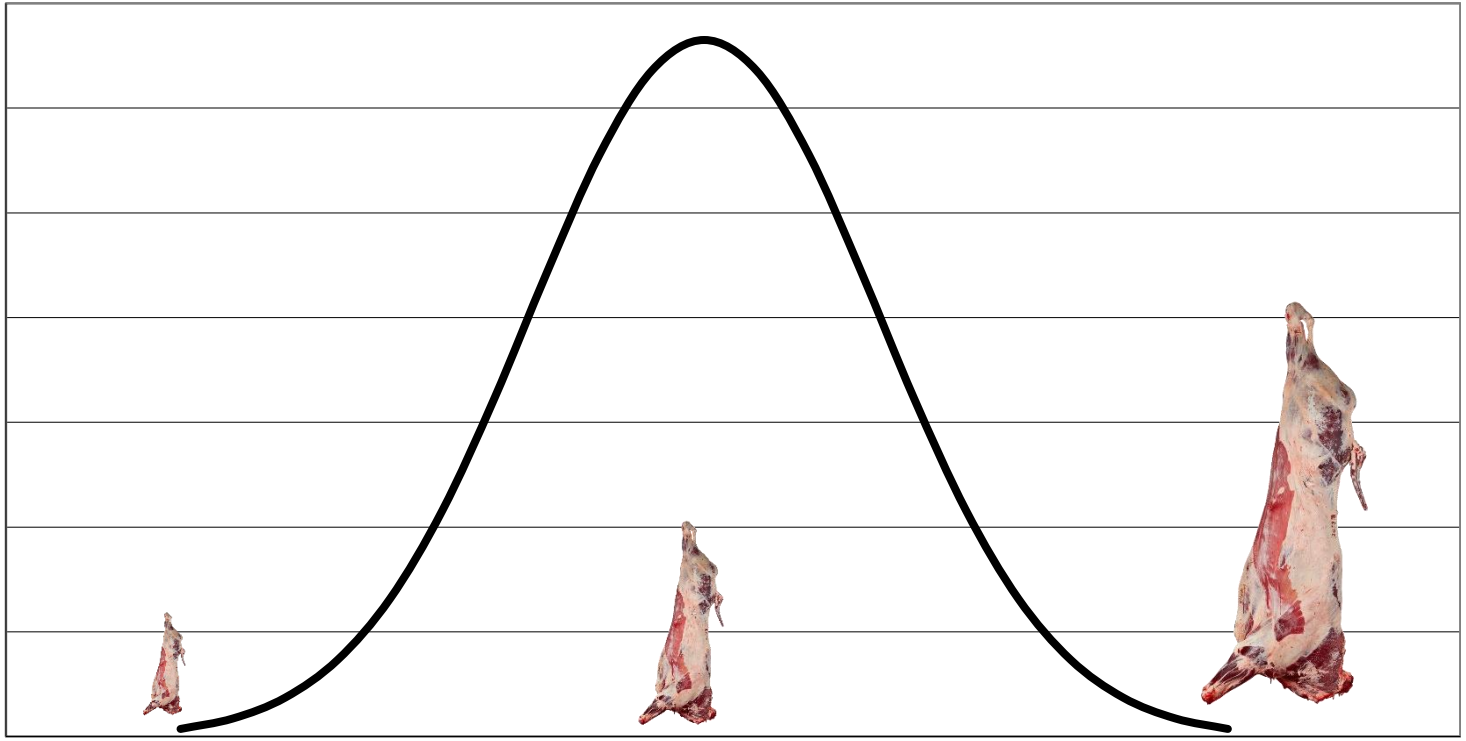
Research Insights Webinar Series

Harnessing the power of breeding…..

Fundamentals of breeding



Fundamentals of breeding



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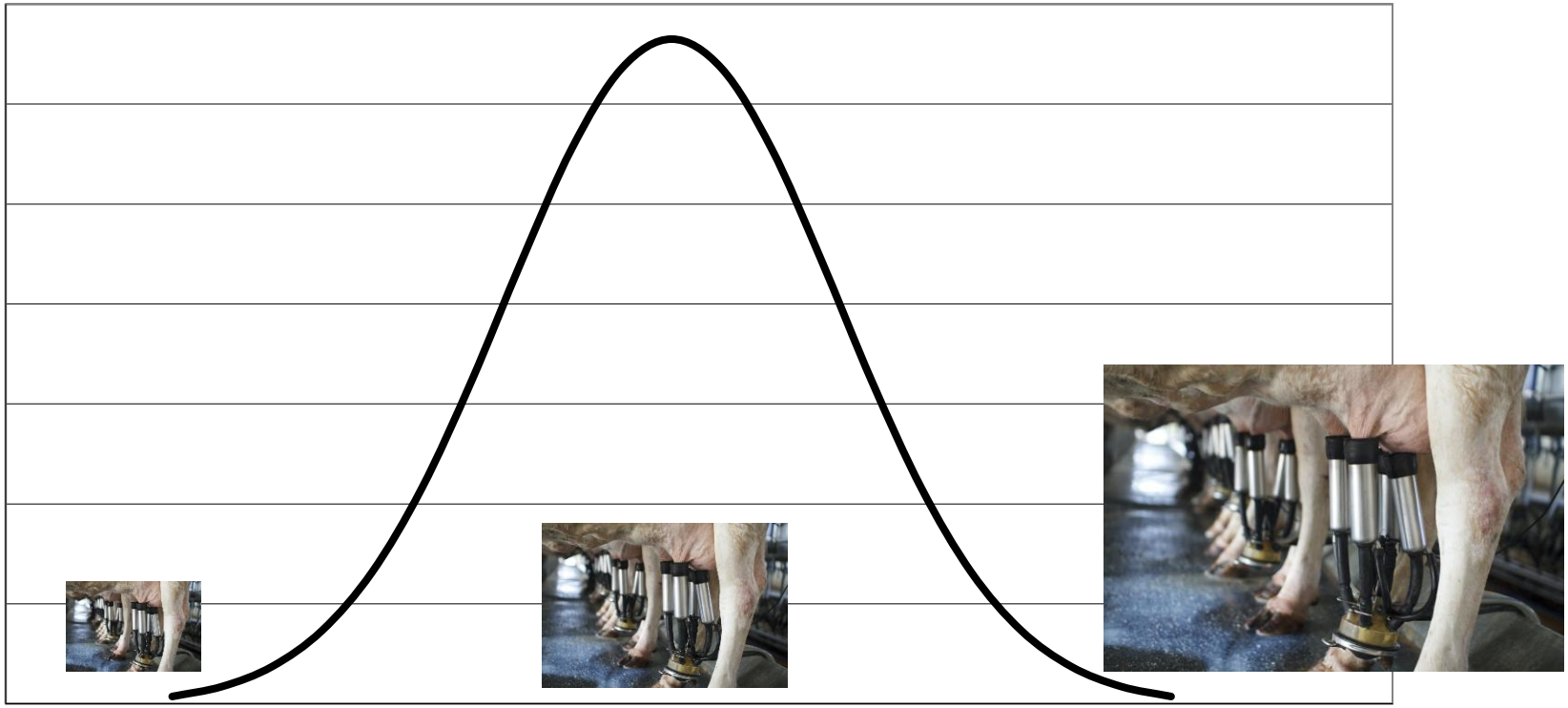
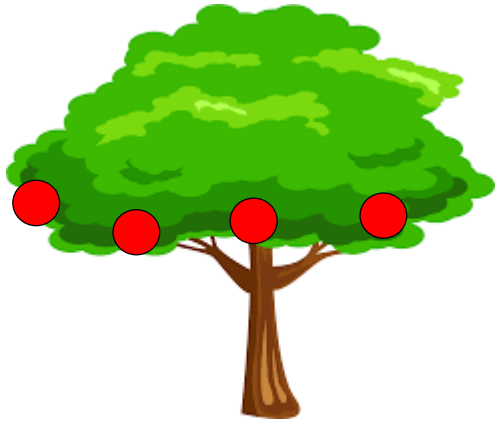
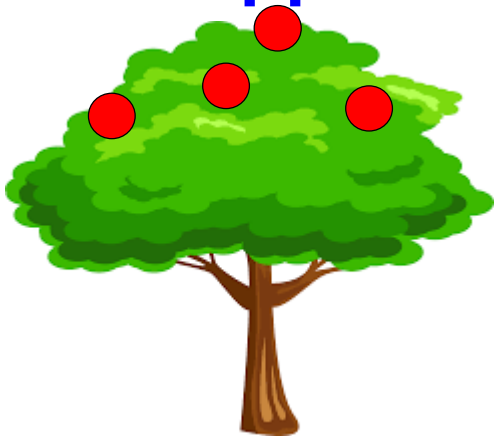


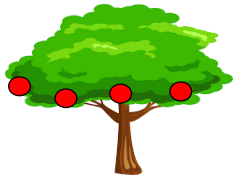
Two-pronged approach

Indirect approach

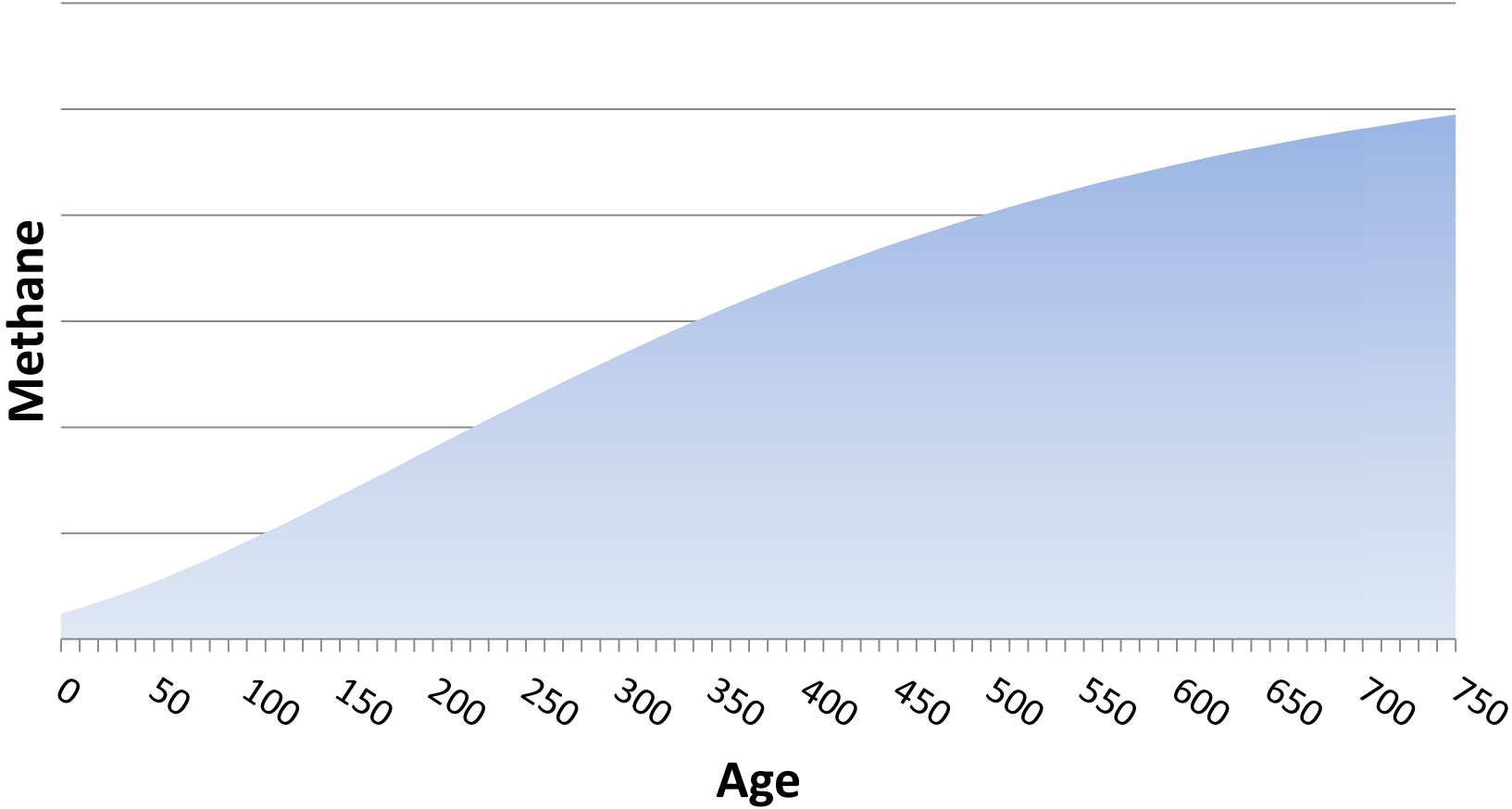


Direct approach





Indirect approach



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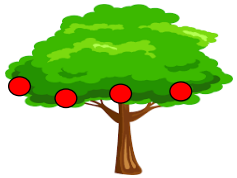
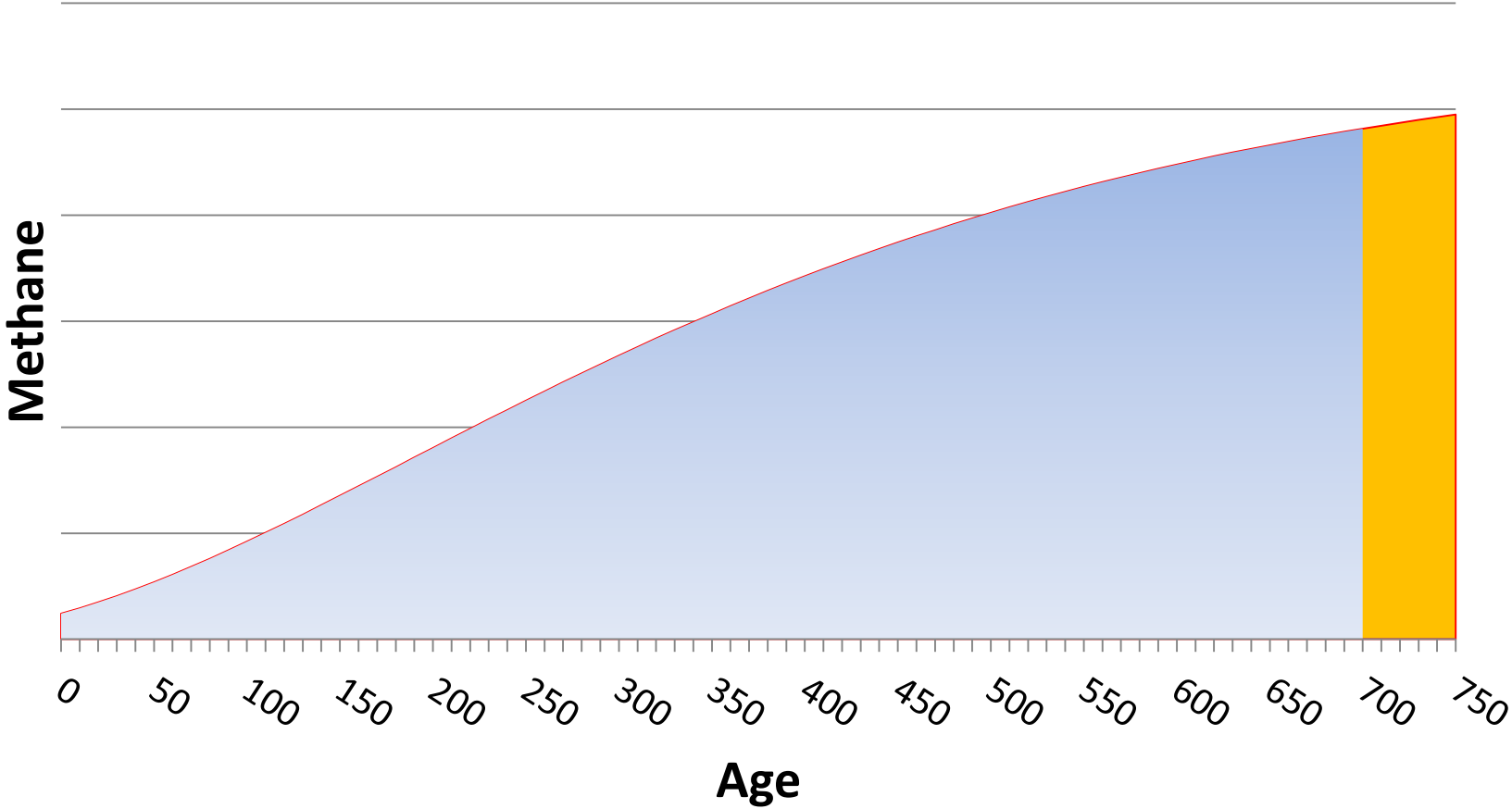
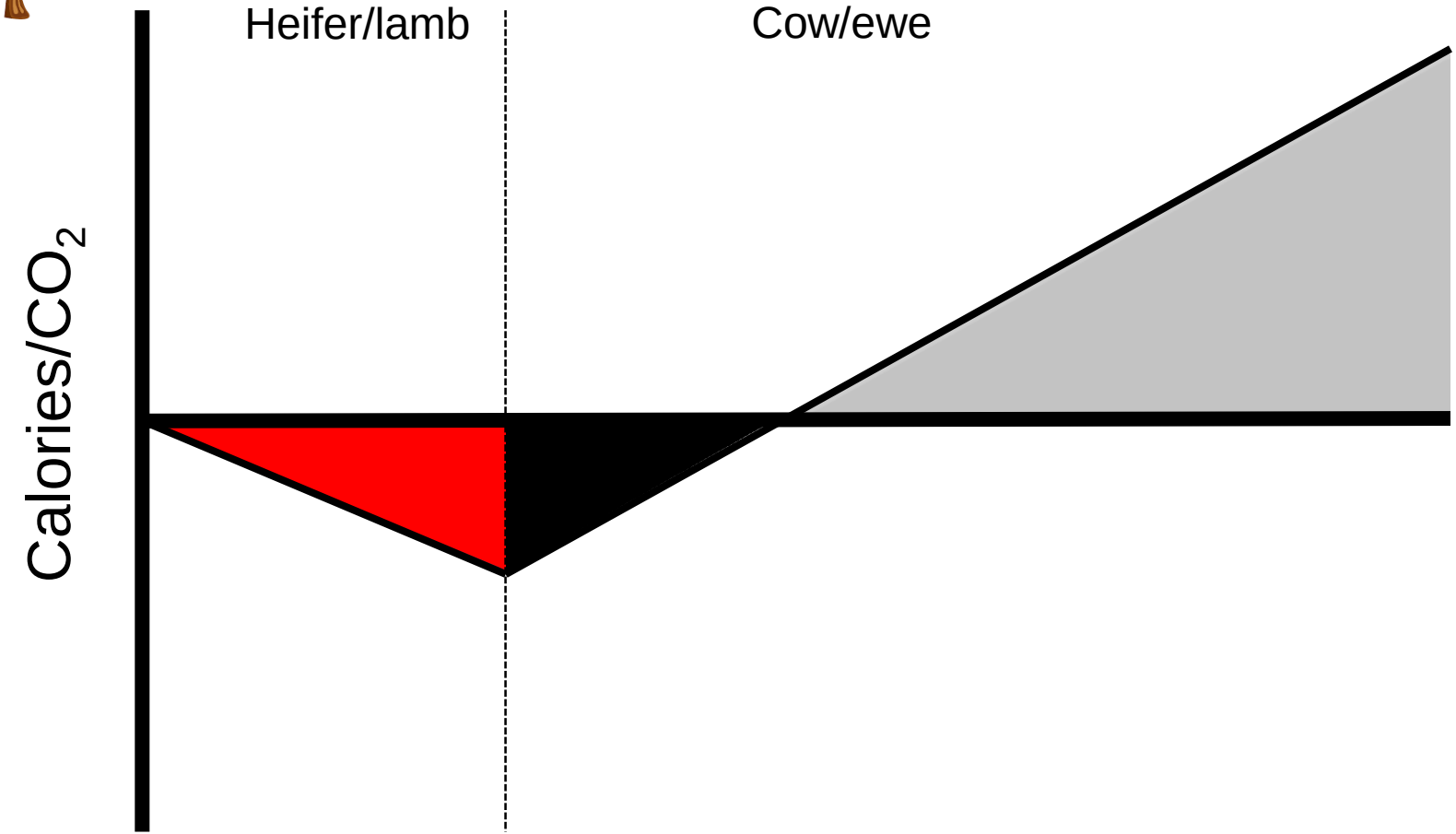
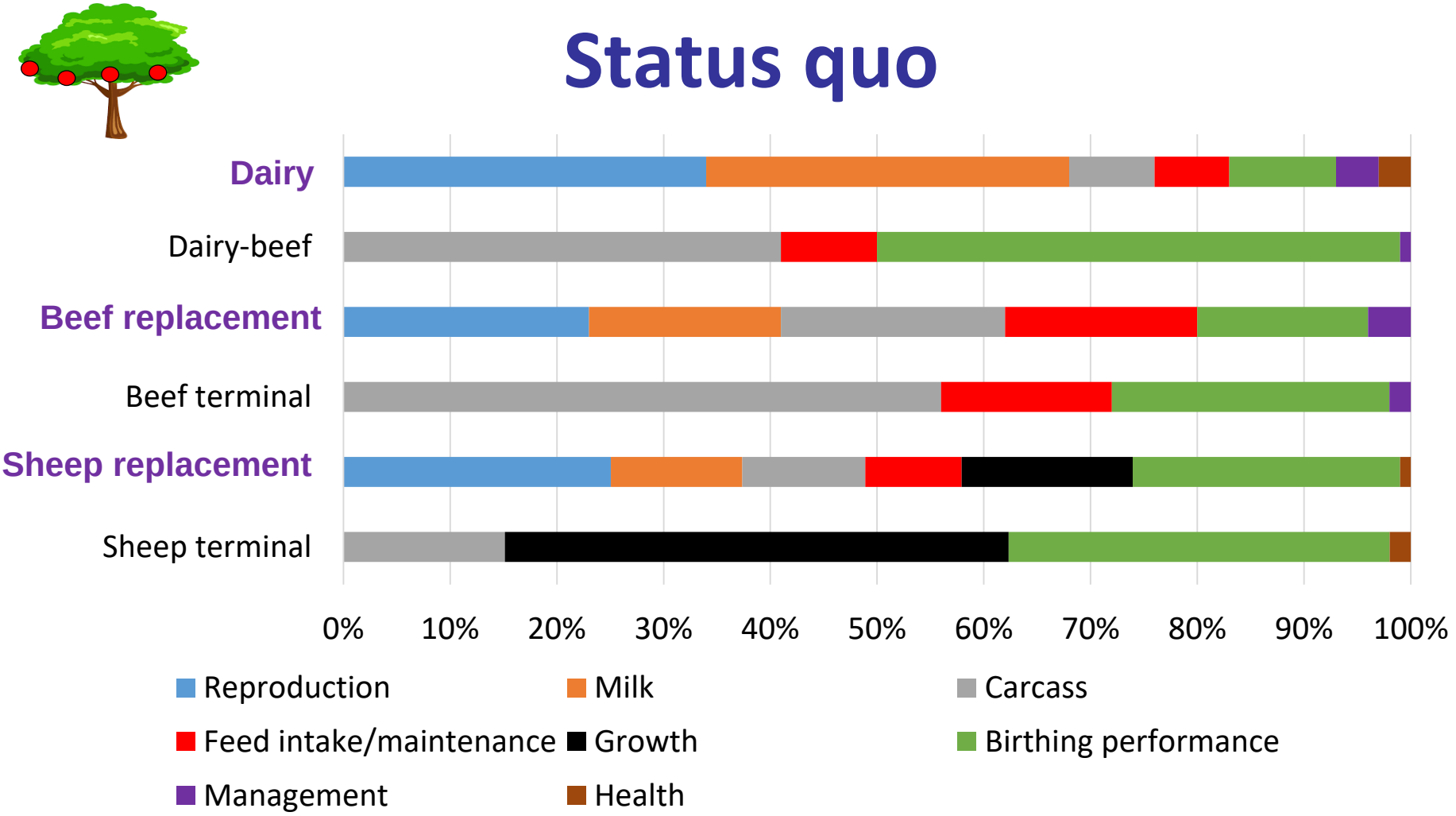




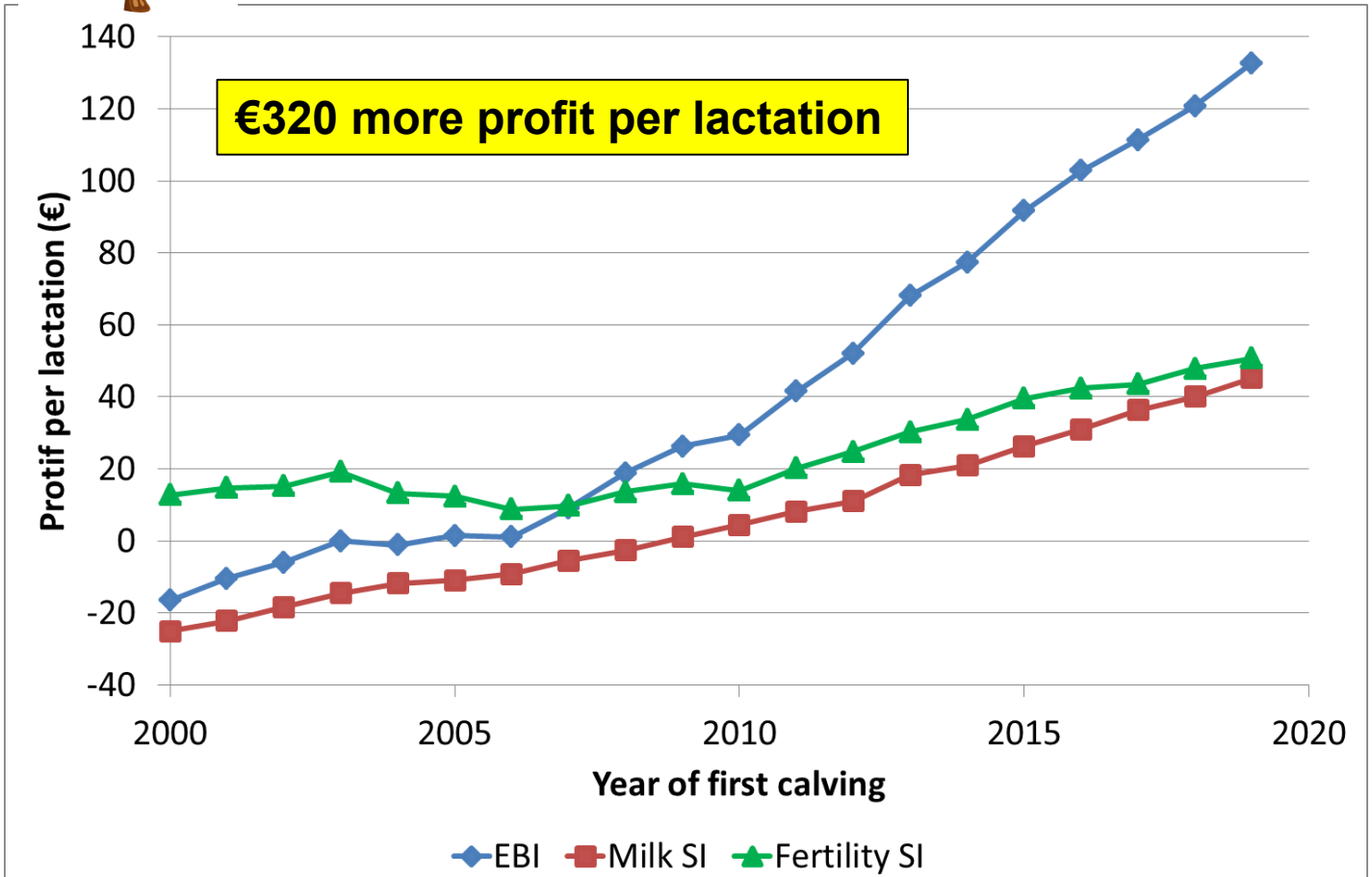
Indirect approach



Status quo


Dairy
Dairy-beef
Beef replacement
Beef terminal
Sheep replacement
Sheep terminal
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Reproduction
Milk
Carcass
Feed intake/maintenance
Growth
Birthing performance
Management
Health

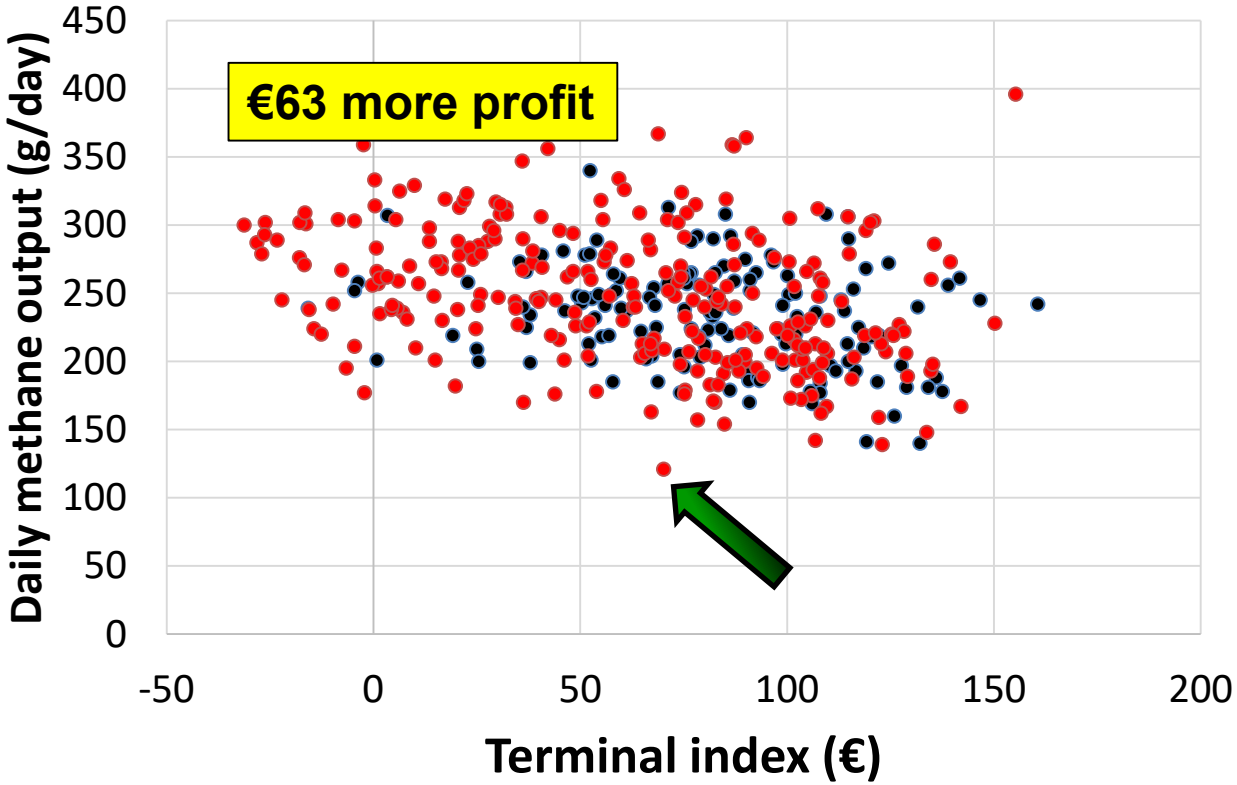
We're currently breeding for lower hoofprint



14% improvement in carbon footprint per kg fat+protein corrected yield

Also improved nitrogen use efficiency

We're currently breeding for lower hoofprint



Top 10 bulls v
90th-100th bulls

>½ kg CO_2eq/day
10% reduction

We're currently breeding for lower hoofprint

Sheep Ireland
www.sheep.ie

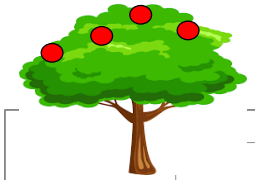
★★★★★

7.87 g per day

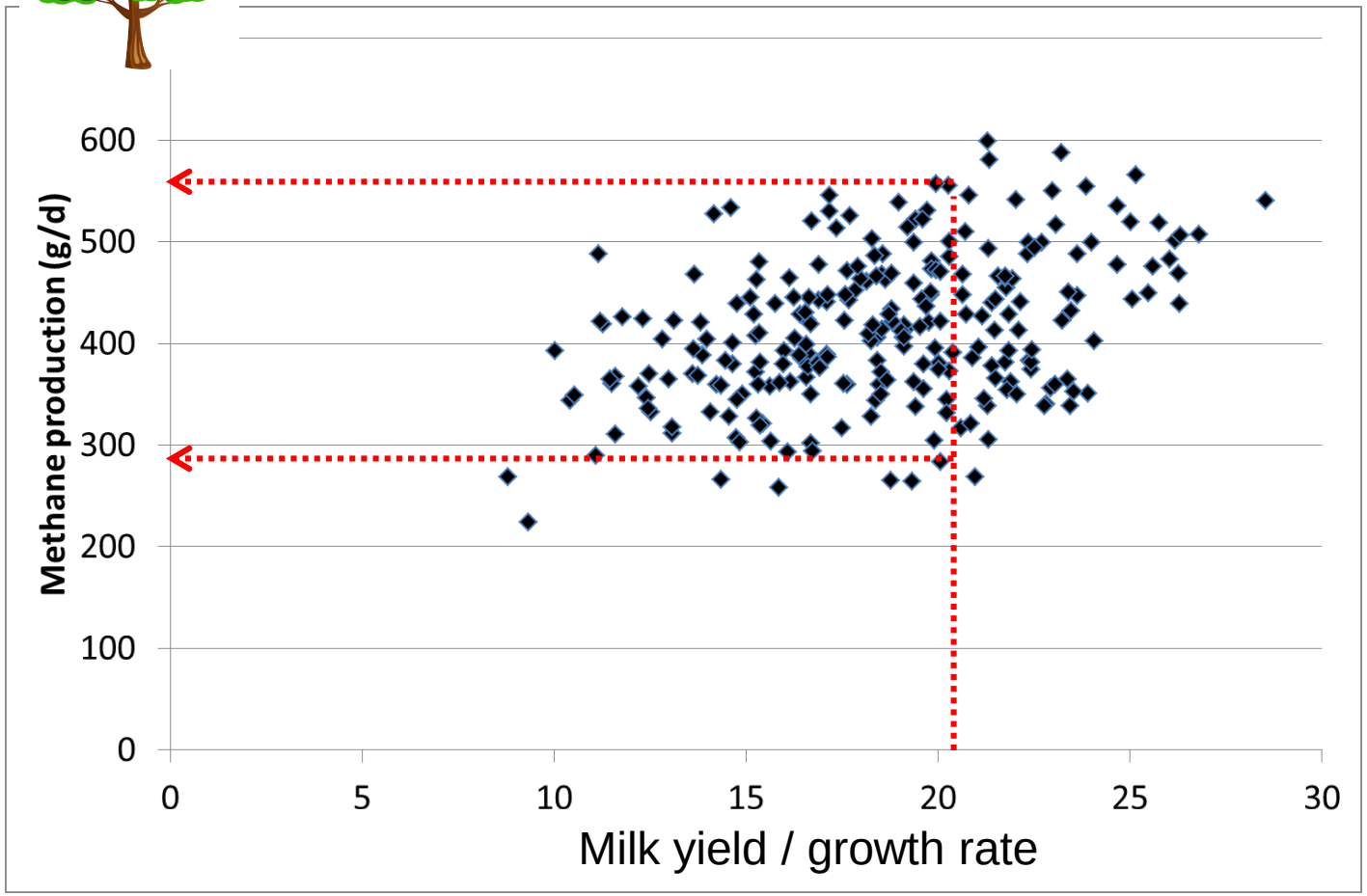
★

8.47 per day

€12/ewe more profit



Can we do better?



What is the variability?

Is it worth chasing?

Measuring methane emissions

Prerequisites for breeding

1. Important
2. Exhibit genetic variability
3. Data availability

Take home message

- Sustainability is key
  - Social sustainability includes profitable sectors
- Massive opportunity to improve the environmental footprint of ruminant livestock
- Breeding is cumulative and permanent
  - And it is <u>not</u> slow!!!!!
- Co-evolution with animal/farm management