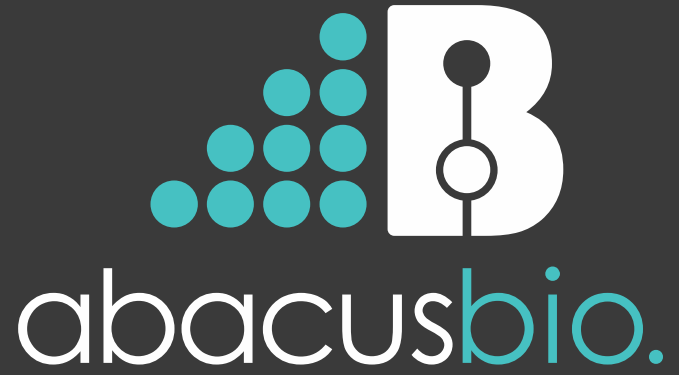




Economic Selection Indexes: Texel Breeding Program

Caeli Richardson

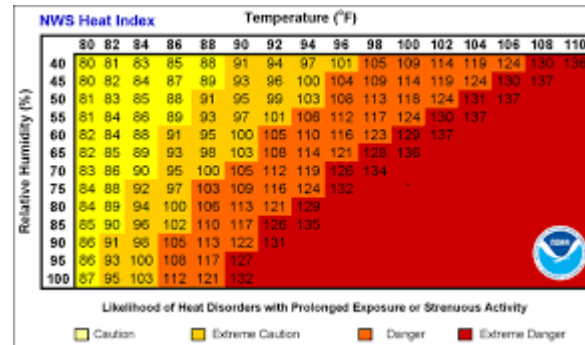
Global Indexes



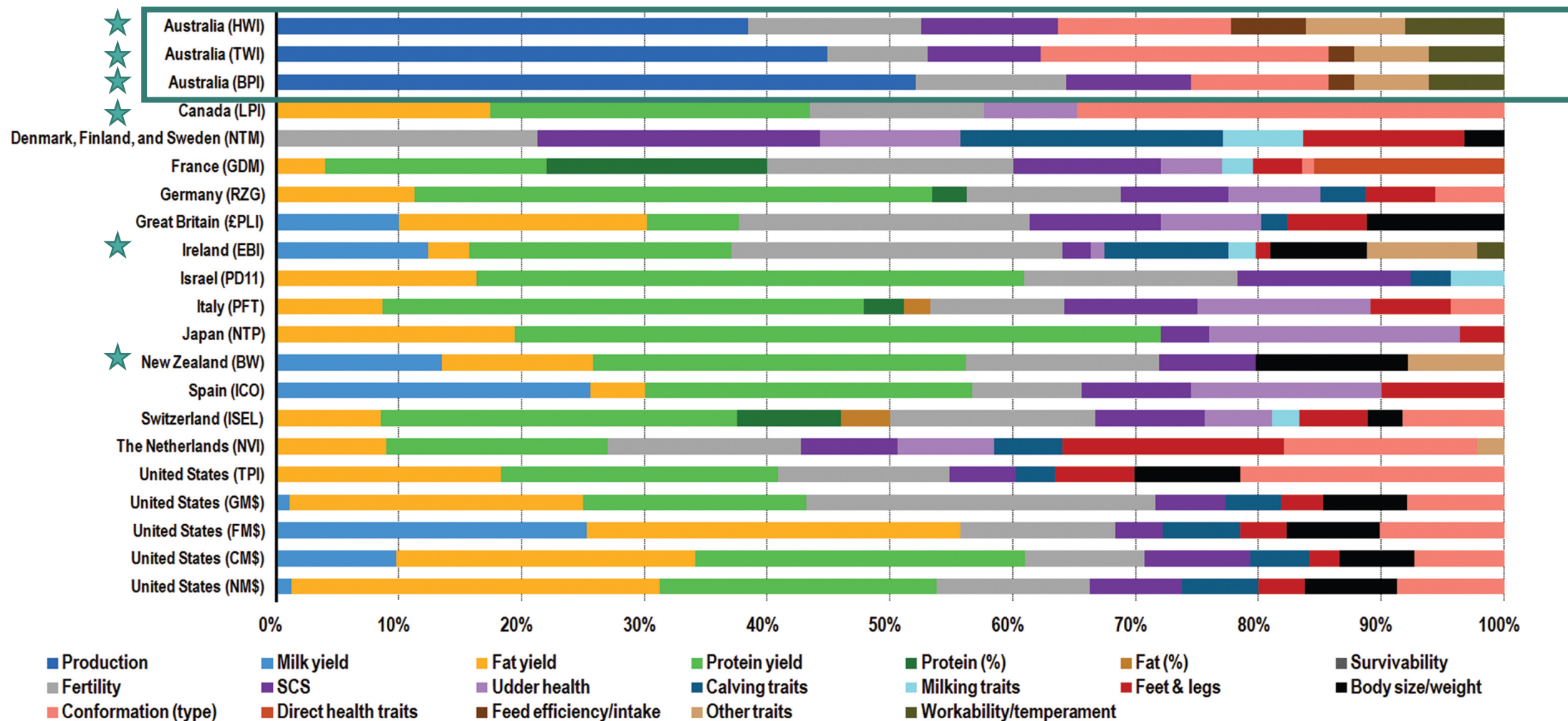
GLOBAL DESTINATION SUSTAINABILITY INDEX

/GDS-INDEX TOP 10

#	DESTINATION	2019 SCORE	CHANGE
1	GOTHENBURG	89.6	●
2	COPENHAGEN	88.0	●
3	ZURICH	84.6	▲
4	GLASGOW	78.5	▲
5	AALBORG	76.2	▲
6	REYKJAVIK	75.8	●
7	MALMÖ	75.6	●
8	SYDNEY	74.9	▲
9	UPPSALA	74.3	▲
10	MELBOURNE	74.3	●



Global Dairy Selection Indexes



Economic Breeding Objective

- Create an economic-based index
- Balanced portfolio of profit traits
- Meaningful units for farmers & industry

Actions

Outcomes



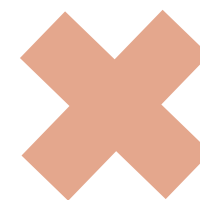
- Competitive advantage for end users
- Genetic merit measured in £
- Increased understanding/ adoption
- Faster rate of genetic gain in £

Economic Model Approach

Index
Score



Economic
Weight



Estimate
Breeding
Value

Express in terms of benefit to the *commercial* farmer

Each animal receives 1 overall score per index (can also have sub-indexes)

e.g.

- +£12 Terminal index
- +£15 Maternal Index

Change in profit from a 1-unit increase in trait

Economic model:

Represents average production system. Based on industry-specific inputs & assumptions.

Provided through genetic evaluation center

Calculating Economic Weights



=



-



PROFIT
(Economic Value)

REVENUE

COST

Apply *Discount Genetic Expression* to account for expression across time & generations

Example: Texel Sheep Society



Texel Economic-driven Indexes



Terminal Index (£)

- Focused on improving end product
- Weighted strongly for meat production

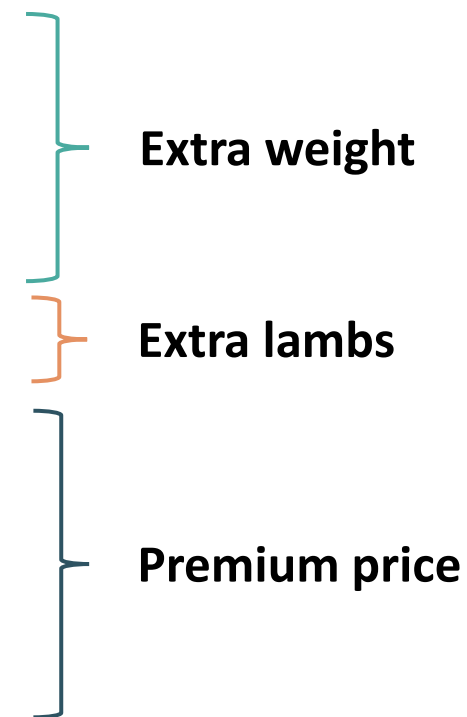


Maternal Index (£)

- Focused on improving replacements
- Includes ewe traits and meat traits

Valuing Target Traits

Sub-index	Trait list
Growth	Scan weight
	8-week weight
	Maternal ability
Lambing	Lambing ease direct
Carcass Quality	Lean weight
	Fat weight
	IMF



Additional revenue
+
Account for costs
+
Avoid double counting

Economic Value: Scan Weight

- **Economic value = £1.96/kg Scan weight**
 - Scenario 1: Finish heavier at same age
 - Late season lamb (Nov – May)



Value of carcass



- Feed costs for additional growth

Example: Scan Weight

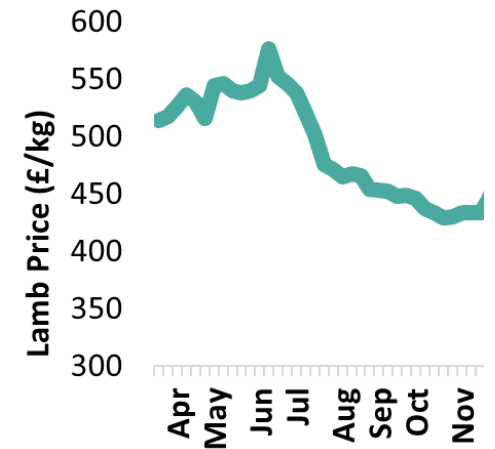
- **Economic value = £1.96/kg Scan weight**
 - Scenario 2: Finish earlier at same carcass weight
 - Early and mid season (Jun – Oct)



Value of carcass



- Feed costs for additional growth



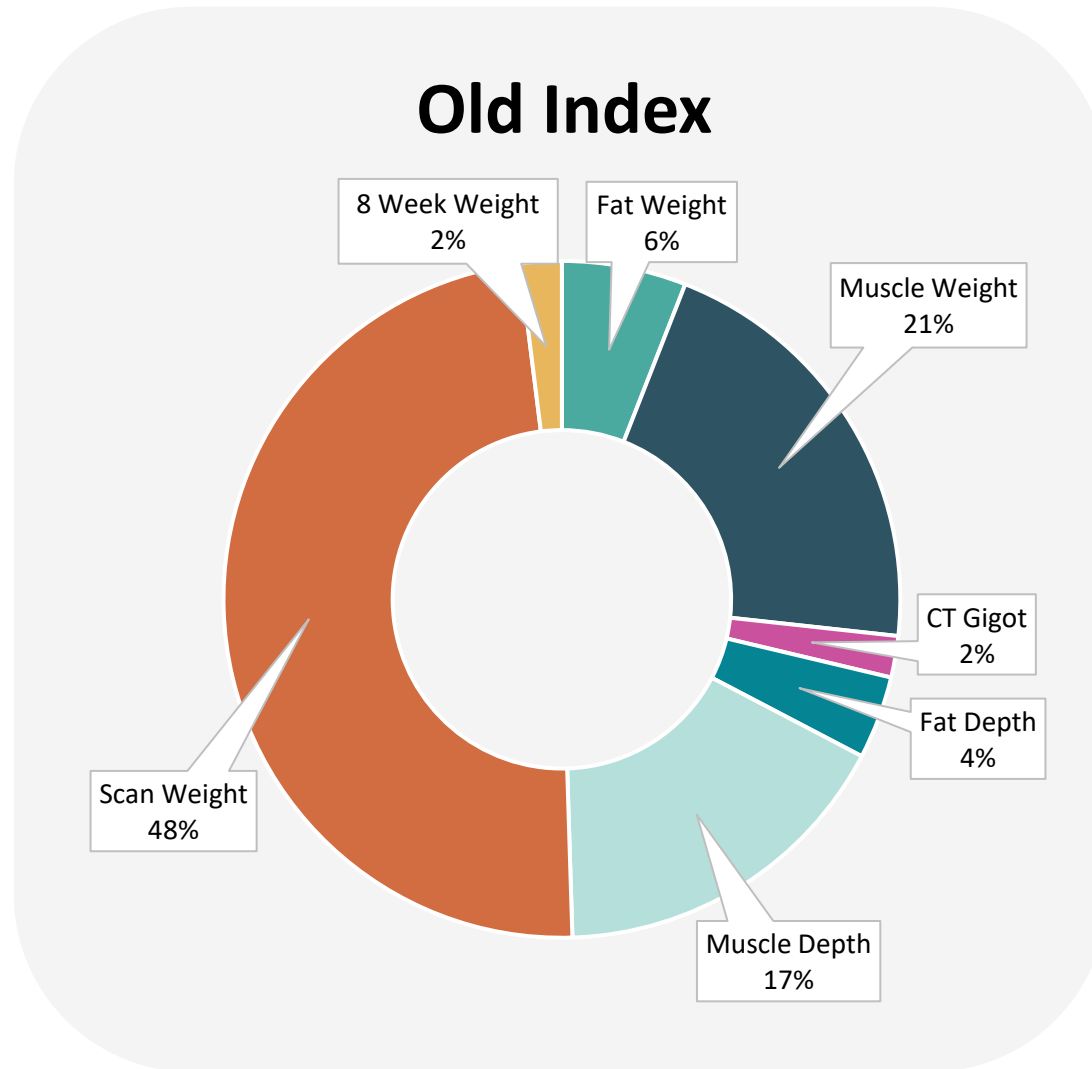
+ Price drift

Double Counting

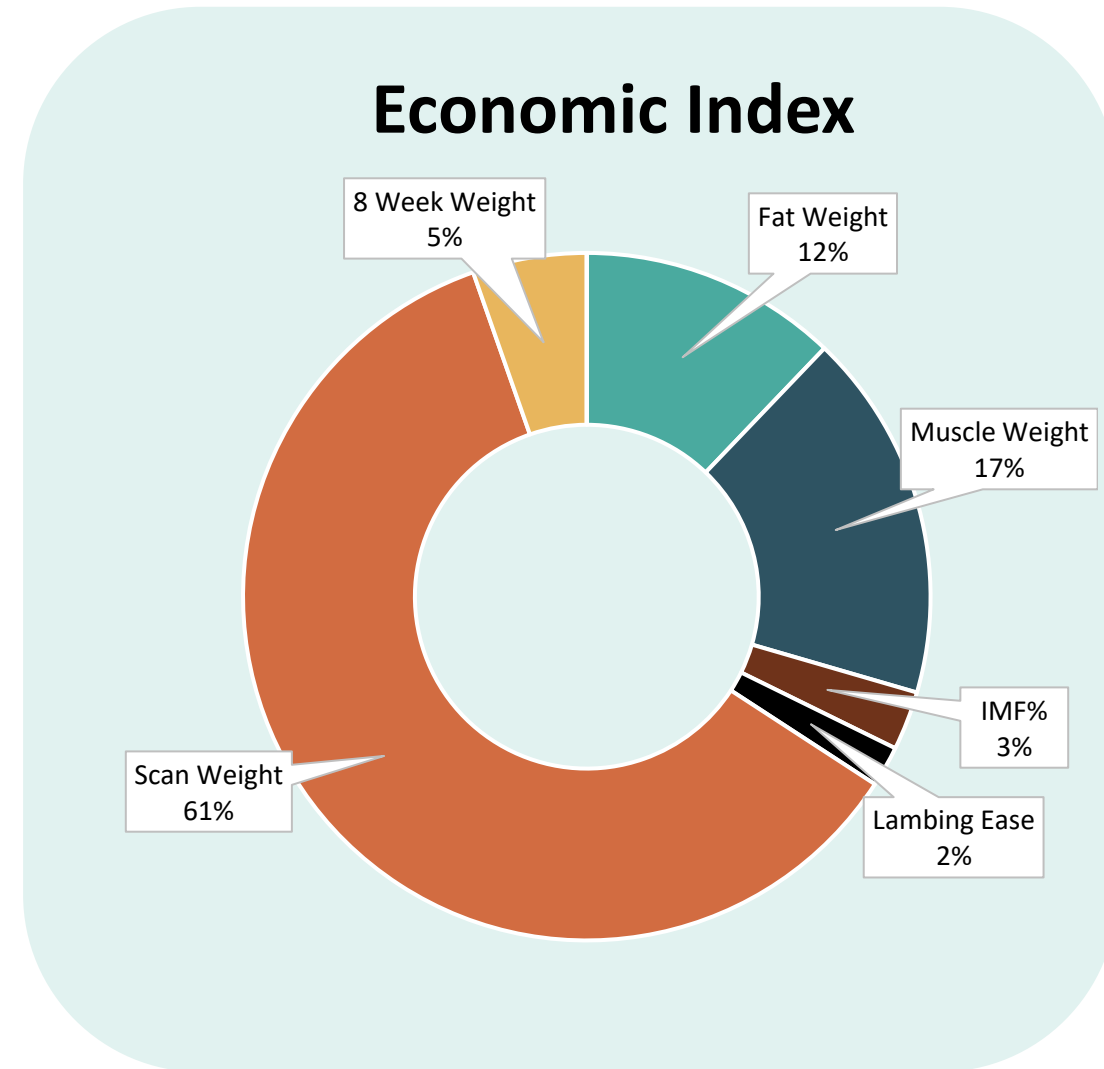
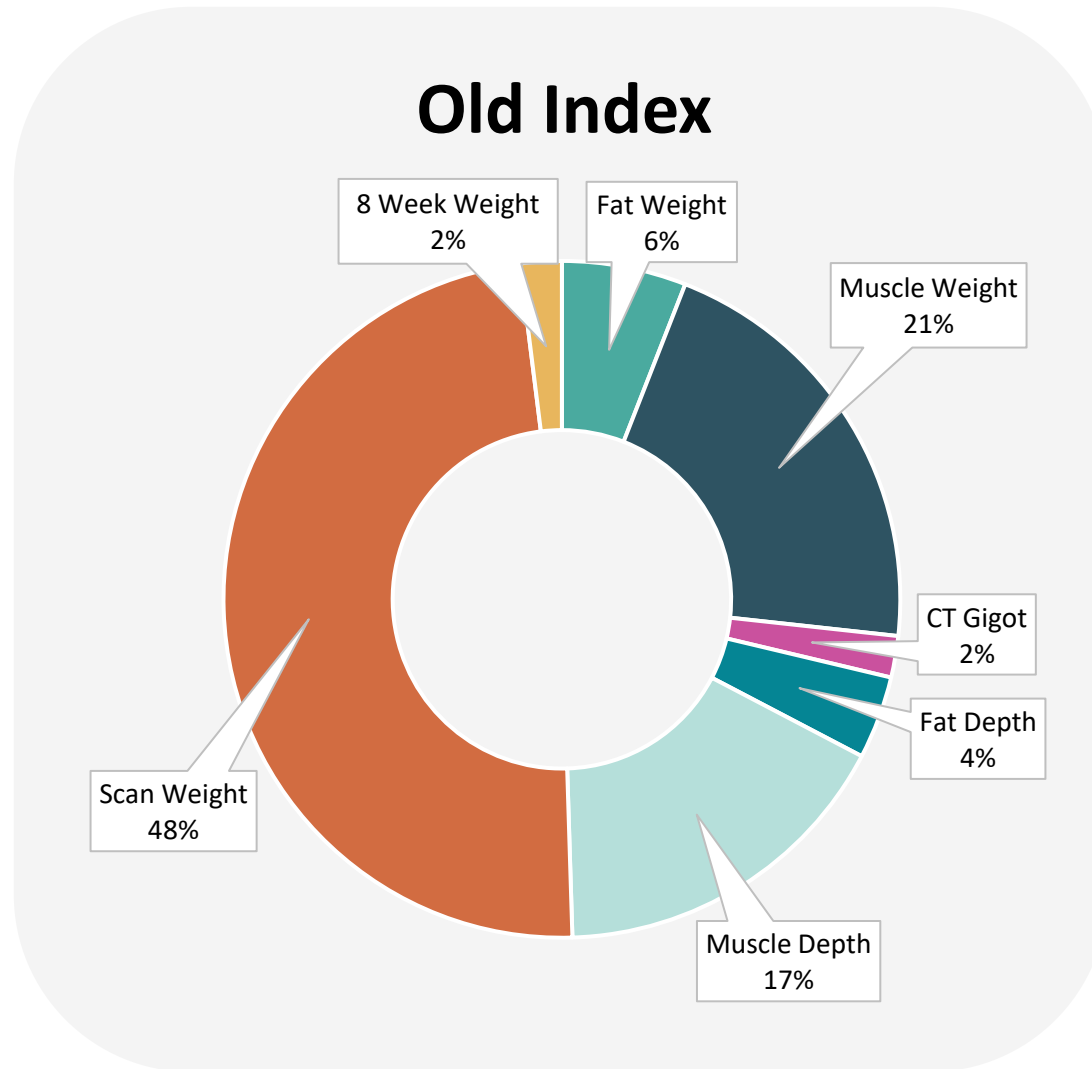
- Previously over-estimated the value of carcass quality traits (e.g. muscle **WEIGHT** and **DEPTH**)
 - Farmer benefit (payment) ~~≠~~ emphasis traits received
- Future £ indexes removed all double counting
- Aligned scale of economic return (with scale of breeding value)
- Double Counting Example
- Either get paid annual salary OR hourly rate
 - Trait 1: income = £40,000/year
 - Trait 2: wage = £19.23/hour (also £40,000/year)
- Can't count both traits because it's one or the other (not both)
 - Can include 3rd trait for hours/year



Terminal Index Relative Emphasis



Terminal Index Relative Emphasis



Main Takeaways

- New economic-based indexes available to Texel farmers
 - Represents the expected additional profit per lamb
 - **Terminal** = improving end product
 - **Maternal** = improving replacements (and some meat traits)
- Competitive advantage for end users
 - Increased understanding and adoption
 - Faster rate of genetic gain in £
- New indexes will result in addition **£1.2 million** in industry profit



*Special thanks to the AbacusBio team
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Partners:



*Make a difference to food production
internationally using science & technology*

More questions?

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