



An overview of updates and modifications to the Irish suckler beef breeding indexes

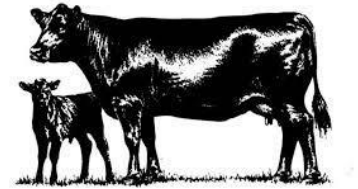
Paul Crosson
Teagasc Grange

2023 Teagasc Beef Conference: Improving our Beef Sectors Green Credentials
21 November 2023

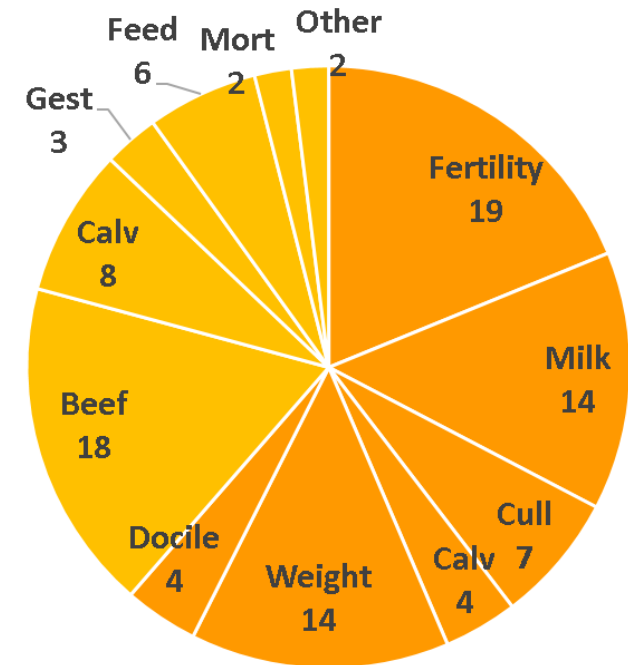


What are breeding indexes

- A value that is assigned to all breeding beef animals, bulls and cows
- Indicates the expected profit generated from the progeny of that animals relative to the 'average'
- Combines traits that are important in beef cattle
- Helps farmers to select bulls and cows to breed from
- **Terminal Index** – expected profit of finishing progeny
- **Replacement Index** – expected profit of female progeny when raised to be suckler cows

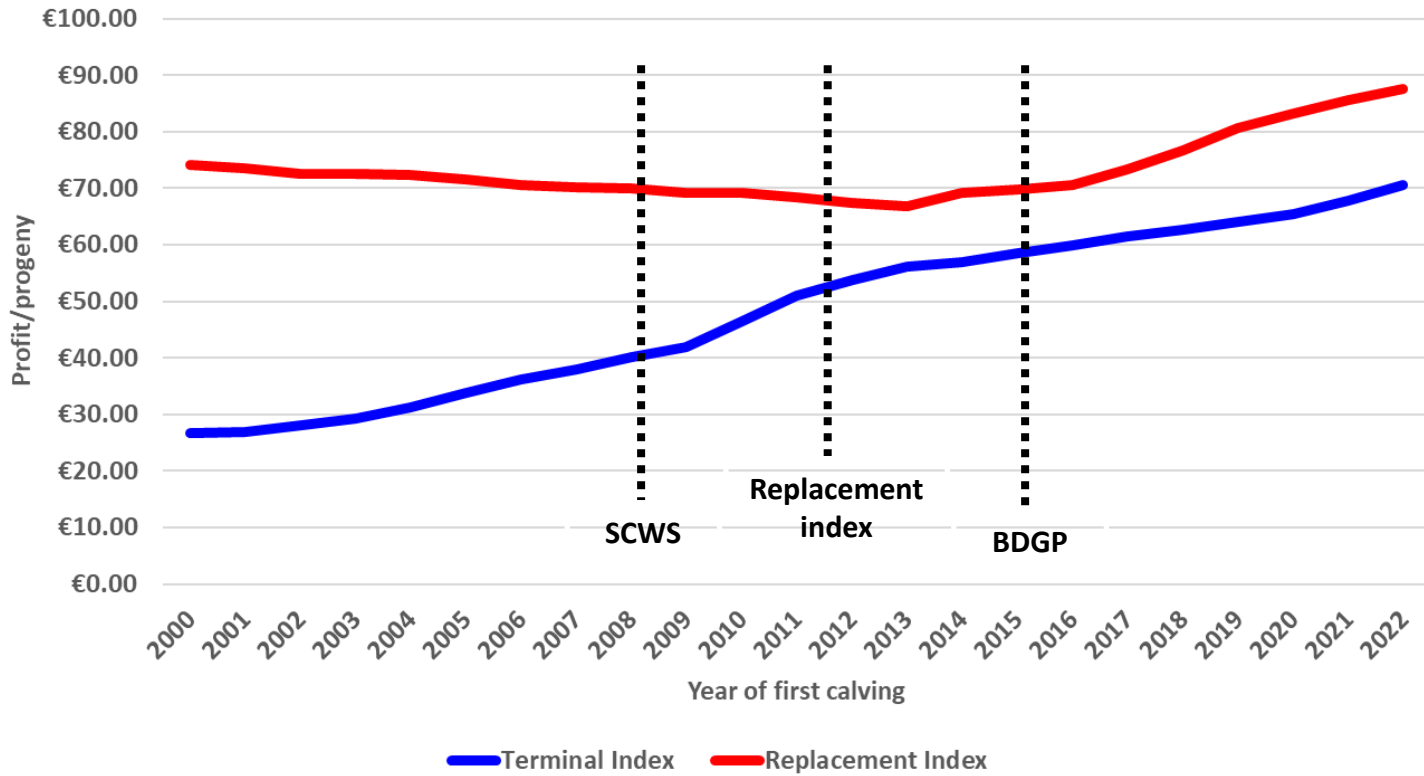


Replacement Index



Suckler beef indexes: a timeline of progress

Genetic Trends for Replacement and Terminal Index based on 1st calving suckler beef females



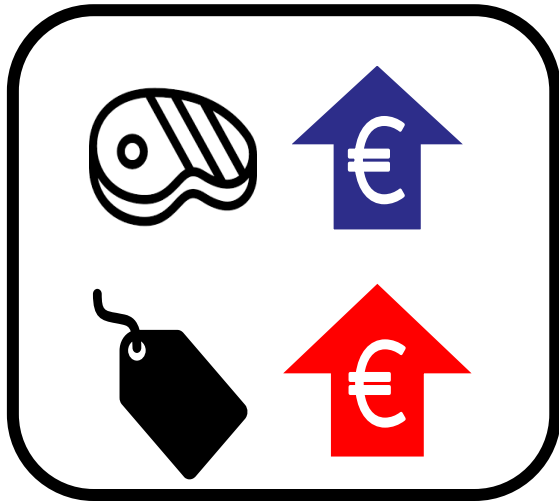
Terminal
€71
Replacement
€88

Genetic gain
€2 per year

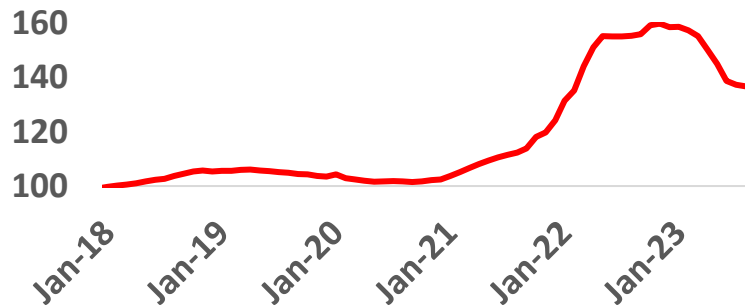
Beef output
↑21%

Eurostars selecting for more profitable & efficient animals for Irish beef farmers!

Why change?



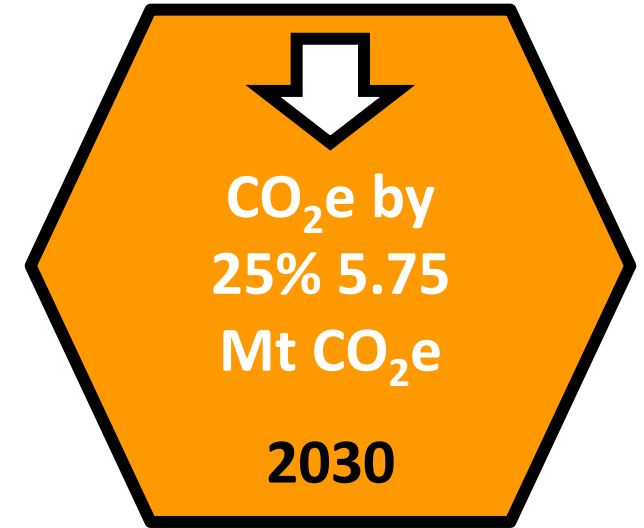
Market price changes



Source: CSO



New traits, methods and technology



Policy changes

Tax on farming emissions vital to Denmark's climate targets, says government adviser

 Agriland

Carbon farming: Floor price needed to incentivise trading

Main updates and objectives

➤ Reduce the cost of producing beef cattle

- ✓ Cow size
- ✓ Finishing age
- ✓ Fertility



2015	2022
€1094	€1546

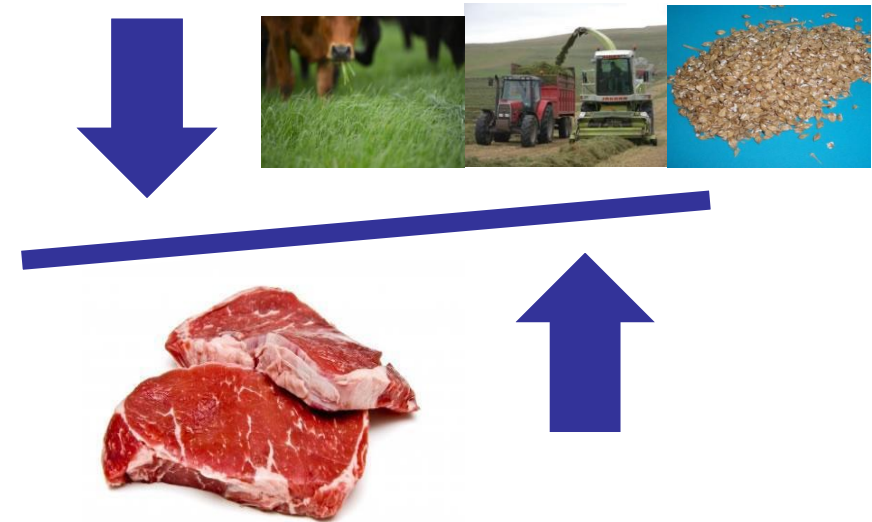
Teagasc NFS: Total cost per cow unit for suckling farms

- ✓ Fewer difficult calvings

➤ Increase value of output

- ✓ Higher live weight performance
- ✓ Fertility also key for output

➤ Further reduce GHG emissions



Carbon in the breeding indexes

➤ Deployed in EBI (dairy) and DBI (dairy-beef) in 2023

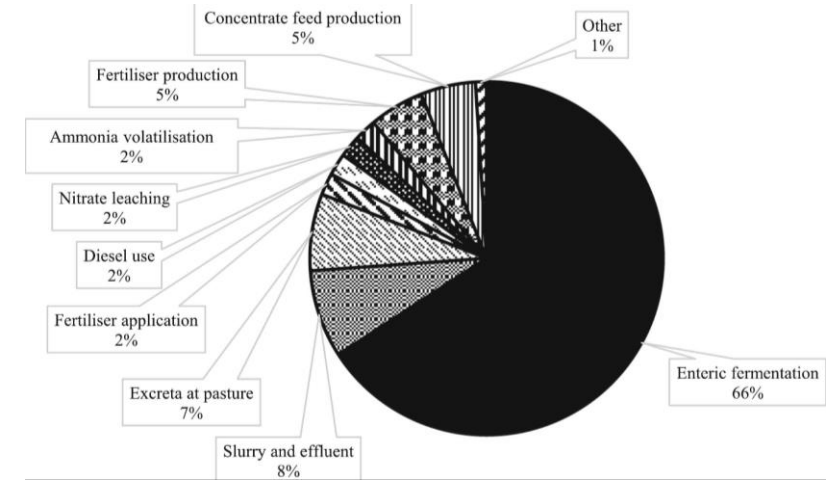
➤ Absolute carbon emissions

✓ Framework to deploy methane gEBVs

✓ Assumed carbon price; €80/t

➤ Example: age at first calving

✓ All else being equal, earlier first calving age → less carbon (plus lower costs)



Production economic value €/d	Carbon Output (kg/d)	Economic value (€/d)	Combined economic value (€/d)
-1.76	+1.40	-0.11	-1.87

Reducing costs – lower feed demand



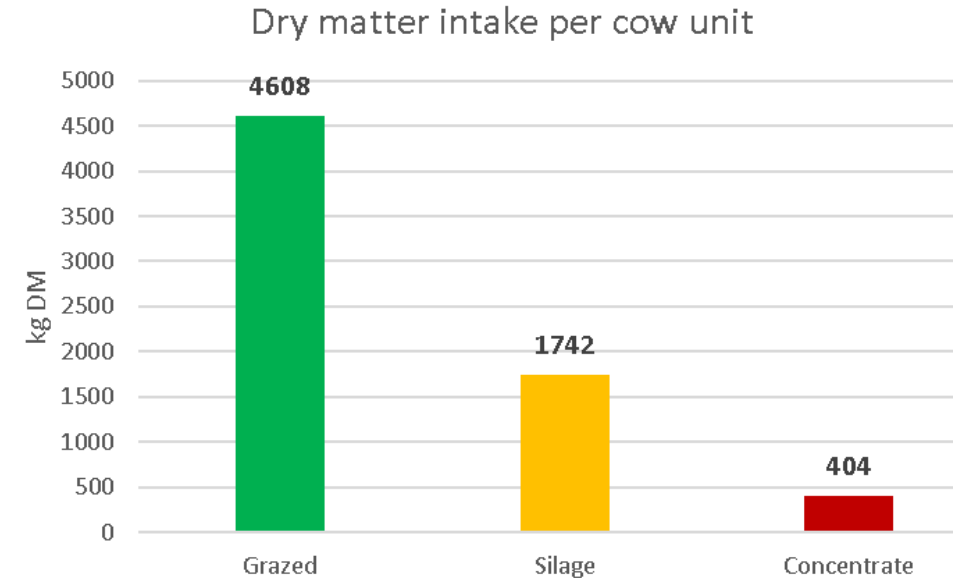
➤ Feed contribution

- ✓ Grazed pasture, 68%
- ✓ Grass silage 26%
- ✓ Concentrates 6%

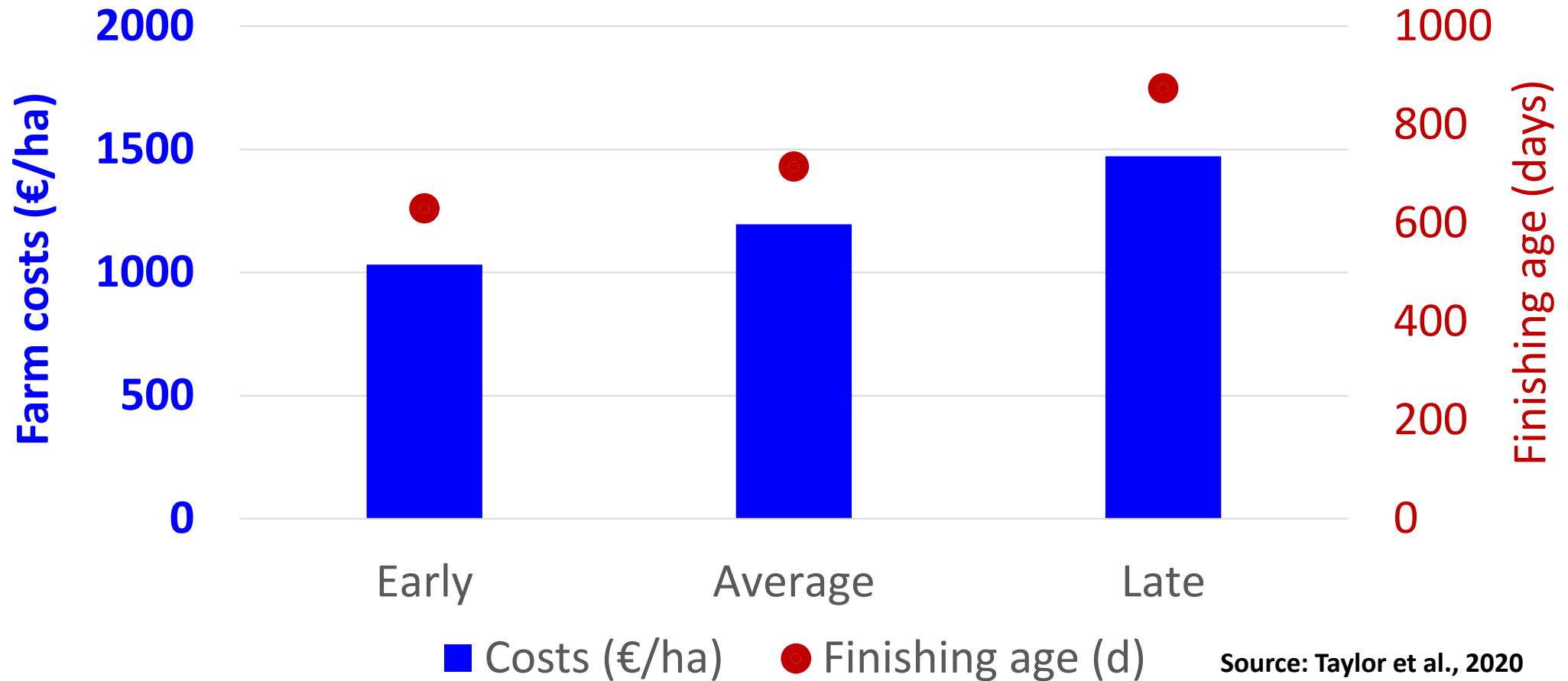
➤ Average cost of feeding

- ✓ Cow, 13 c/kg DM
- ✓ Calf to finish, 18 c/kg DM

➤ Cow size, finishing age, intake EBVs and fertility components

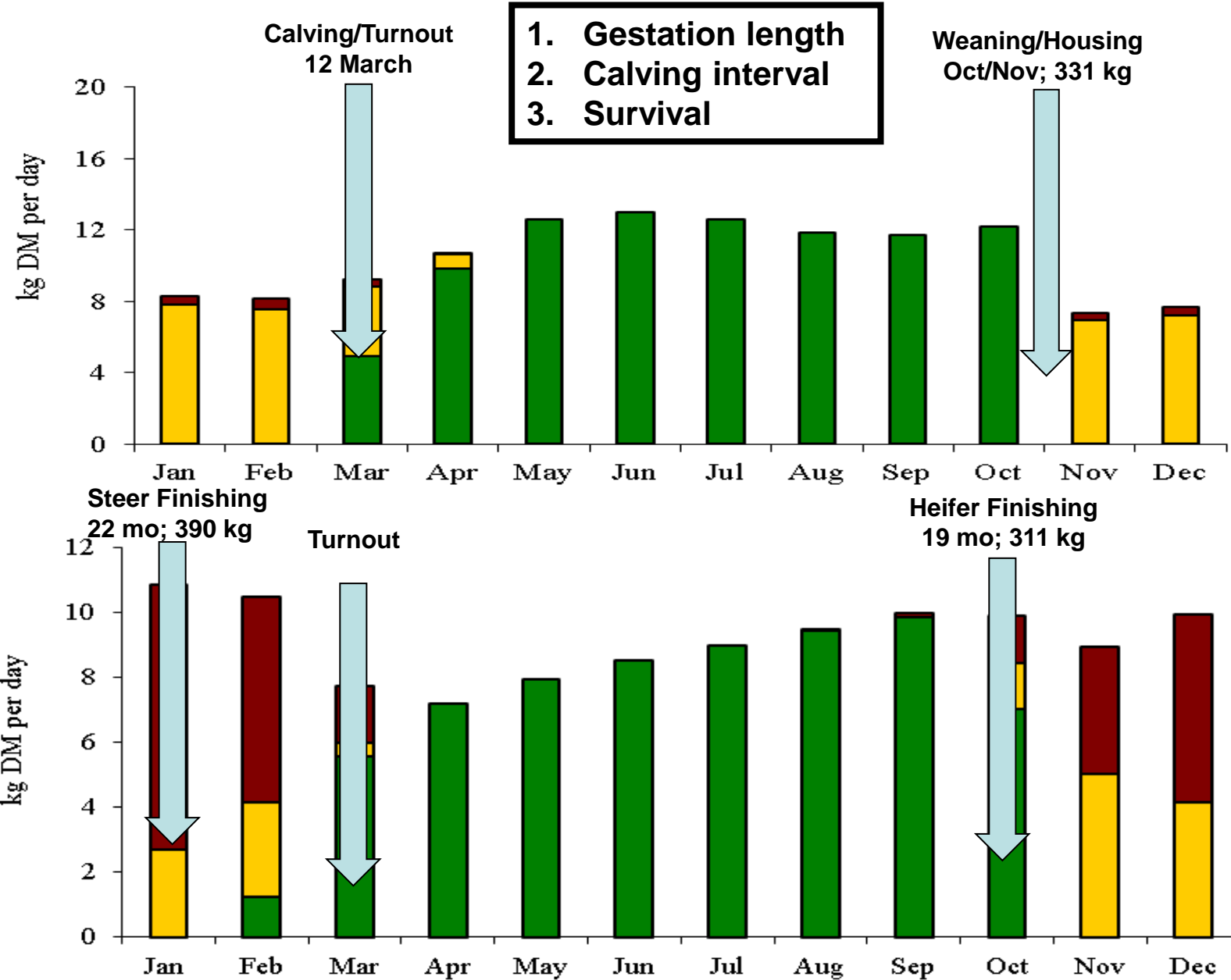


Reducing costs – finishing age



Analysis based on farms in the Teagasc/IFJ BETTER Farm Programme

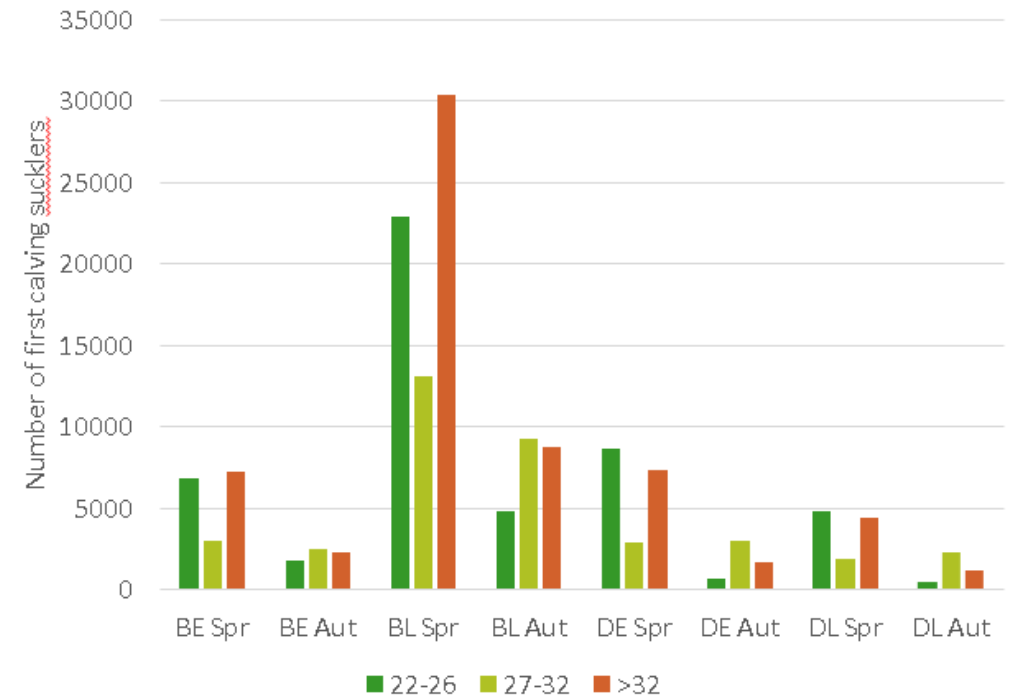
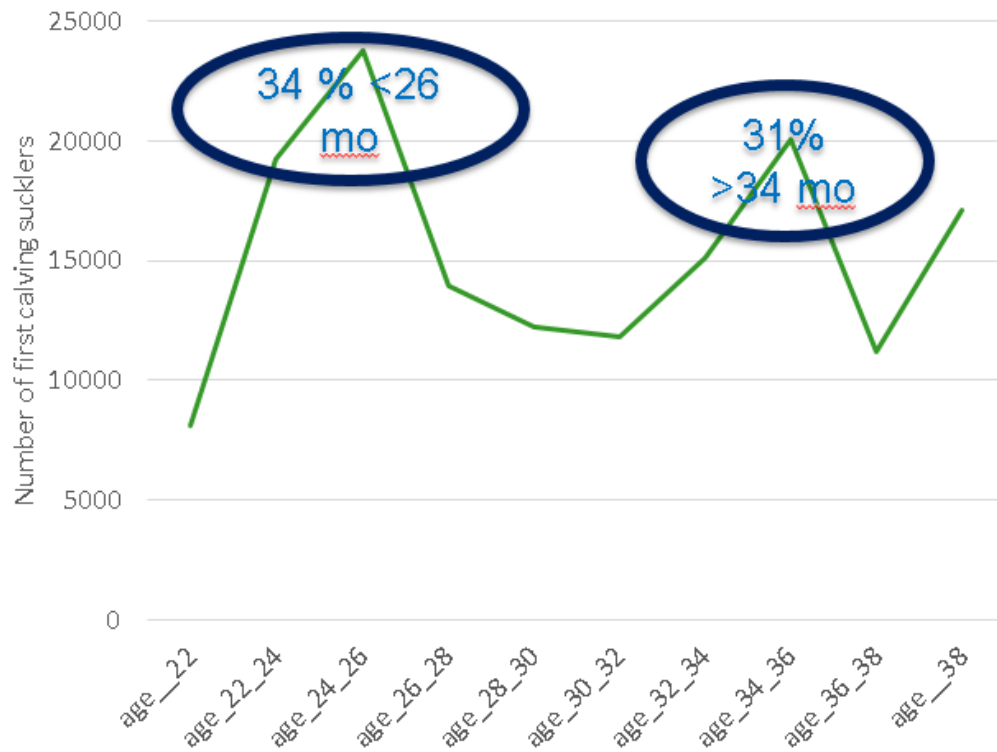
Reducing costs - fertility



Reducing costs – earlier first calving age

➤ Comparison of 24 and 36 months of age at first calving

- ✓ Increase in feed demand and land area farmed



Reducing costs & maintaining output

- fewer difficult calvings



Labour



Vet



Subsequent performance

Increase value of output

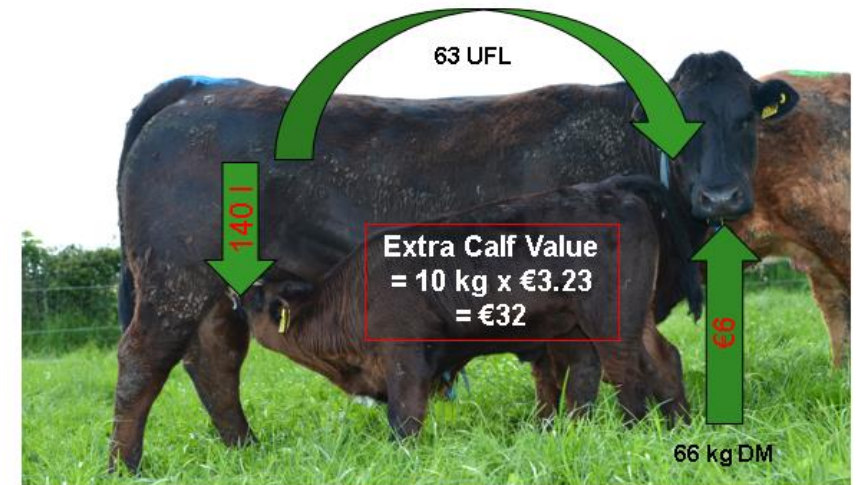
➤ Live weight performance

- ✓ Each kg increase in carcass weight, €4.68



➤ Weaning weight performance ('milk' effect)

- ✓ Value of the calf at weaning
- ✓ Cost of milk
- ✓ Heavier weanlings to finish



Economics of higher weaning weight = $(32 - 6) / 10 = €2.61/\text{kg}$

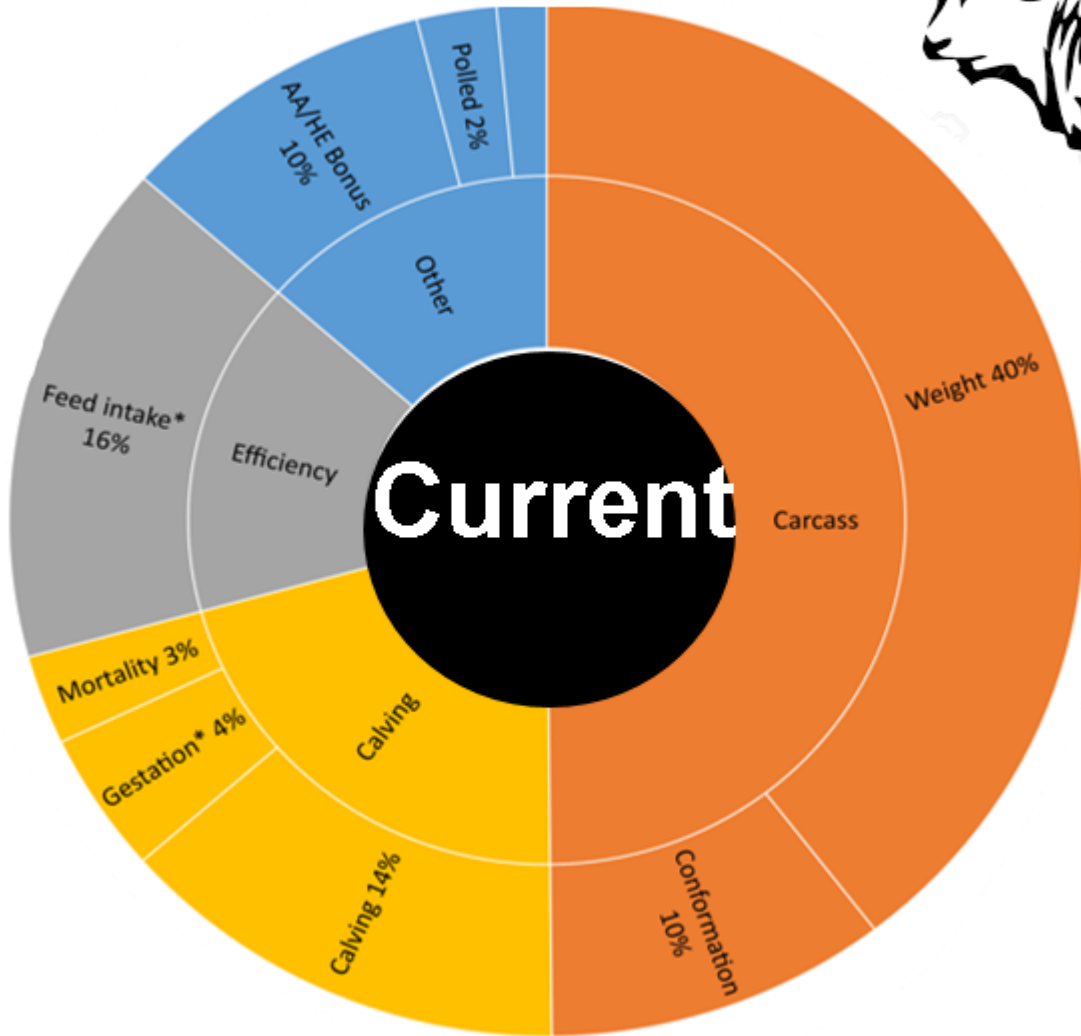
➤ Fertility

- ✓ National average calving interval currently 390 days

-> 300 kg weanling = 280 kg weaned output per year, loss of €65/weanling

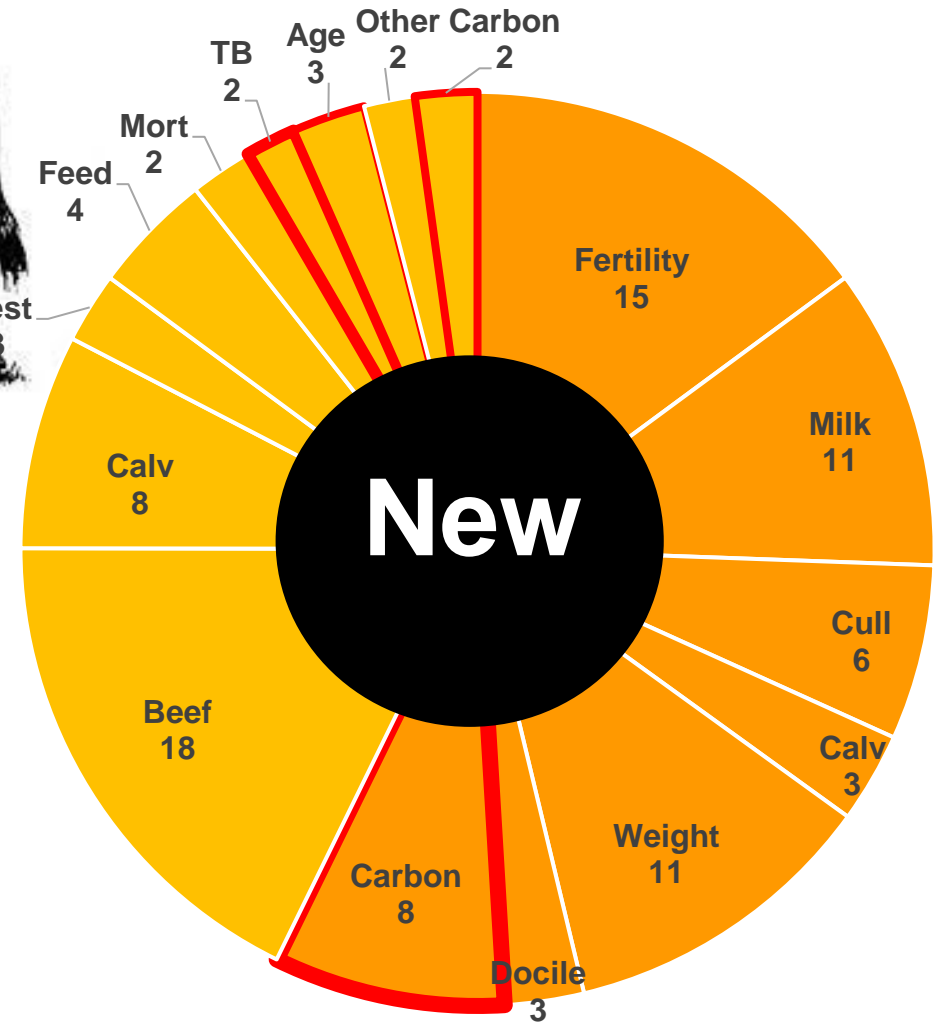
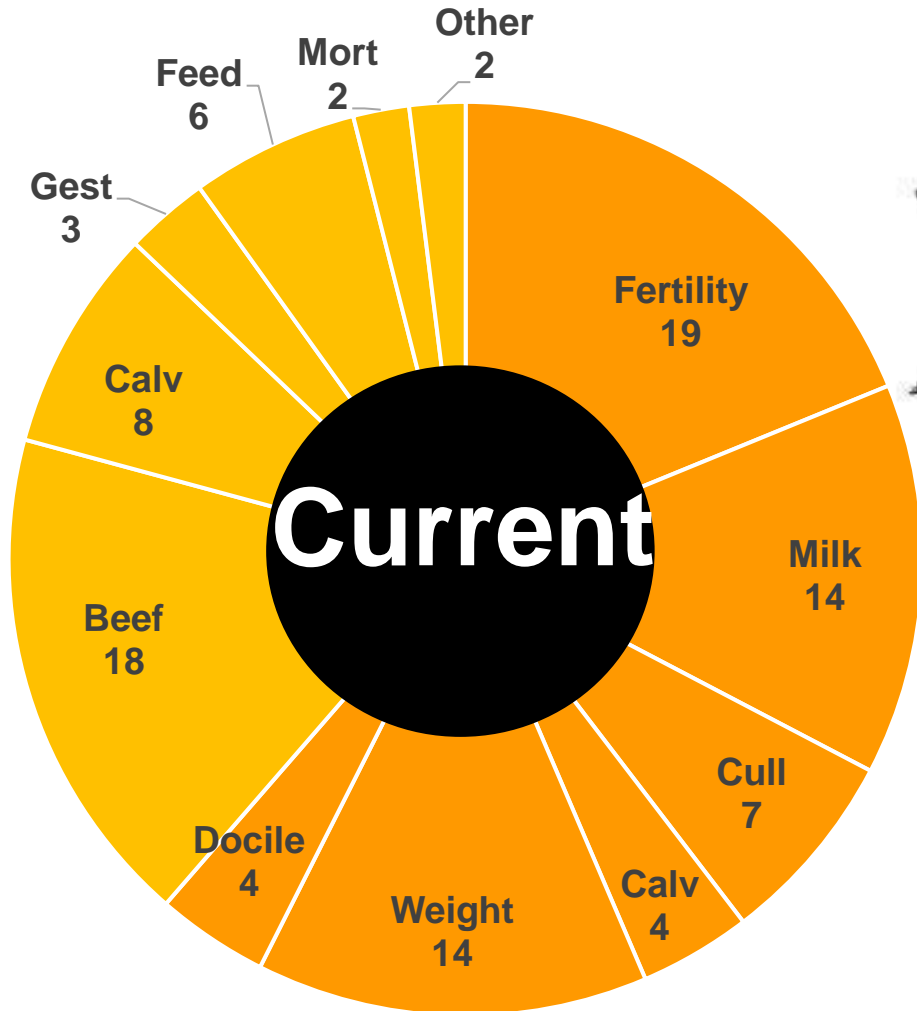
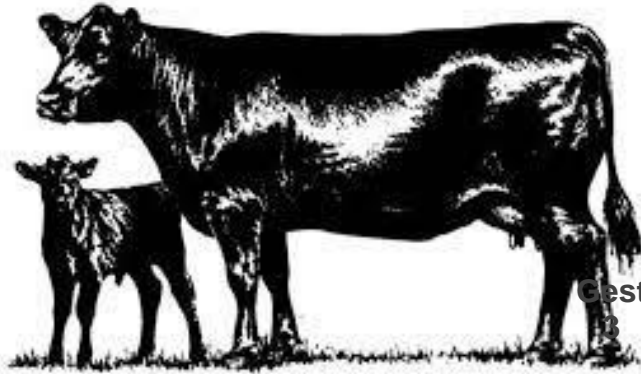
Terminal Index

Change in Relative Emphasis

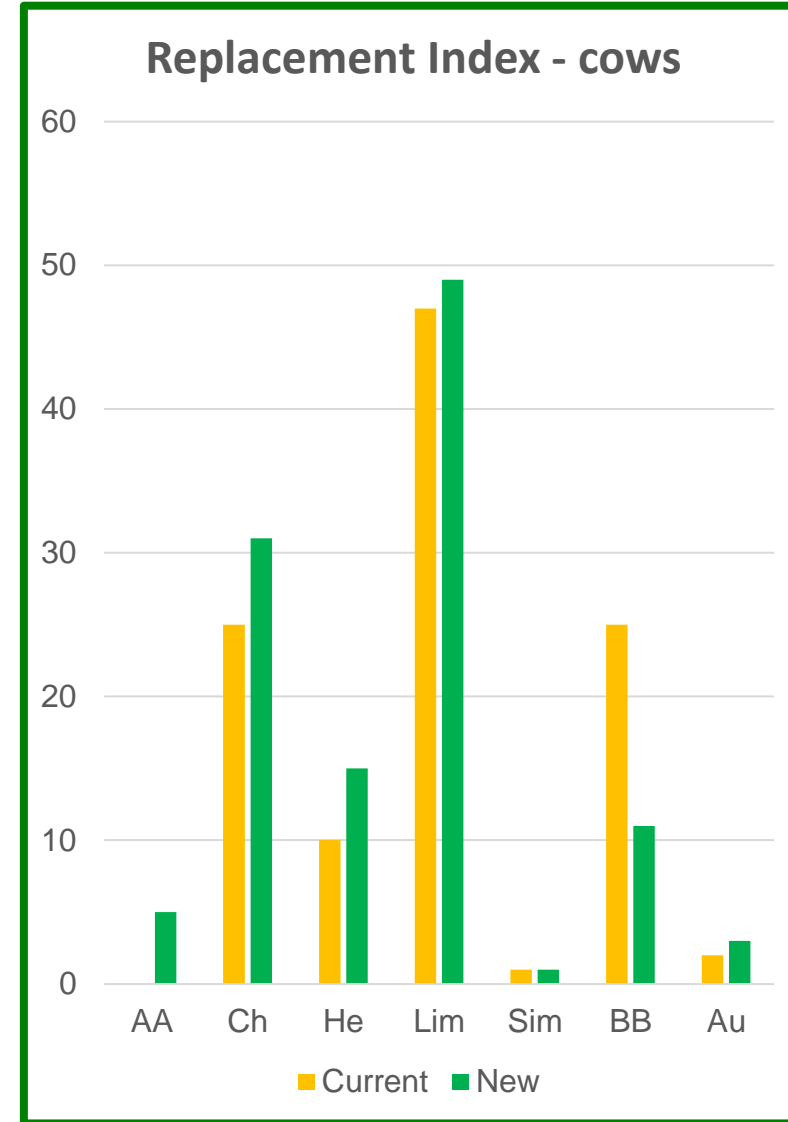
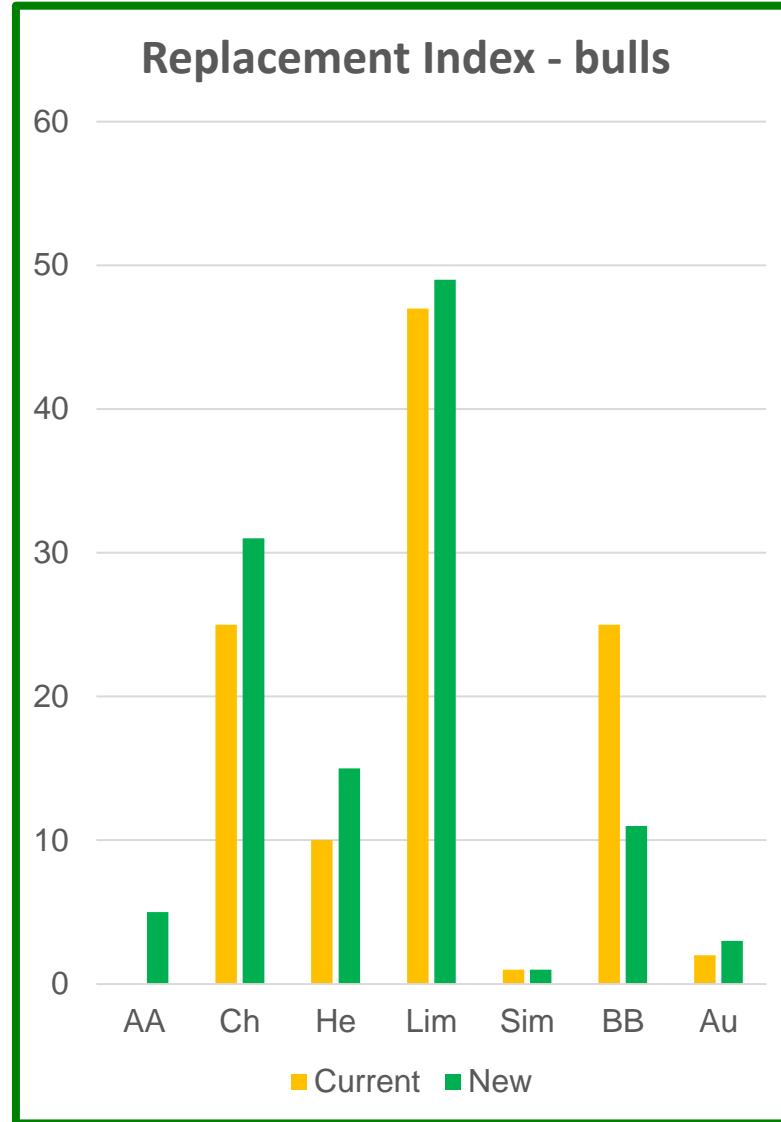
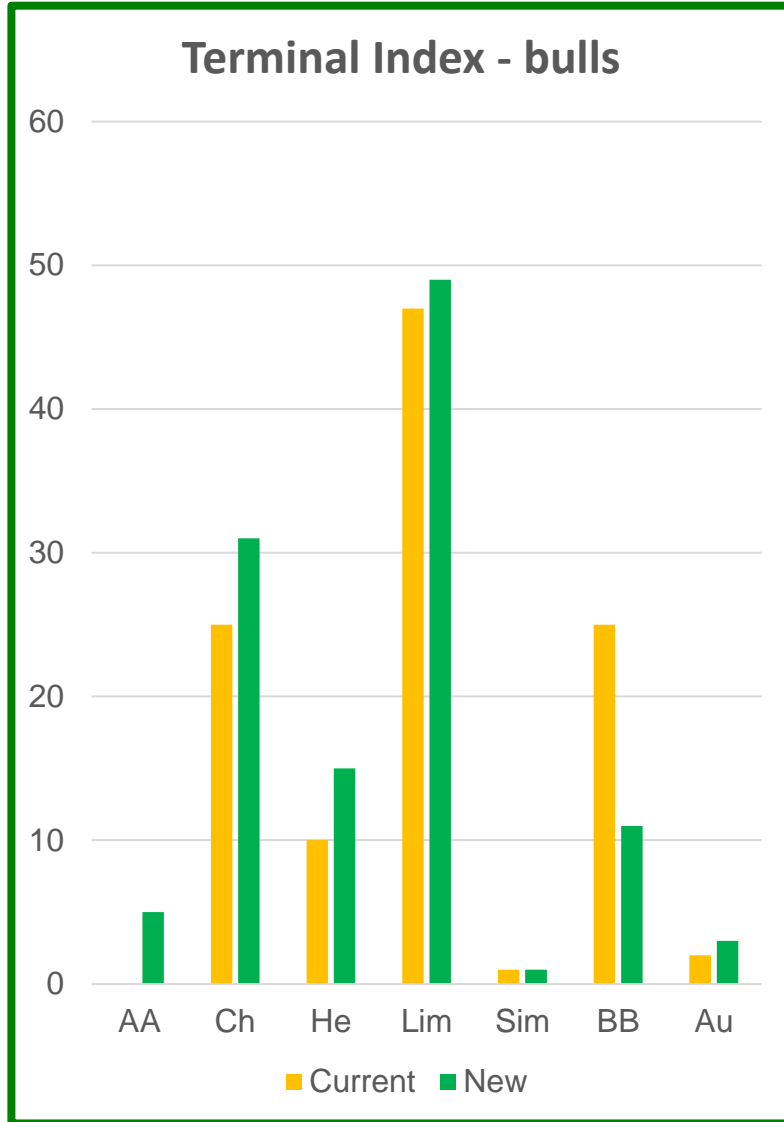


Replacement Index

Change in Relative Emphasis



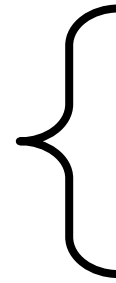
Impact of changes – 4/5 Star bulls and cows



Summary – impact of breeding index changes

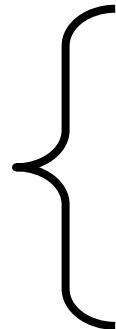
Trait	Direction
Fertility	Better
Calving difficulty	Less
Calf mortality	Less
Gestation length	Shorter
Feed costs	Less
Weaning weight	Heavier
Carcass traits	Better
Docility	Quiet
Polledness	None
Meat eating quality	Breed bonus
Age at finish	Earlier
Tuberculosis	Less

Revenue



- Greater weaned weight
- Heavier and better conformed carcasses with the appropriate fat cover

Cost



- Lower suckler cow and calf costs
- Better fertility and greater use of grazed pasture
- Lower finishing costs