

# Evaluation of production efficiencies among primiparous suckler cows of diverse genotype at pasture

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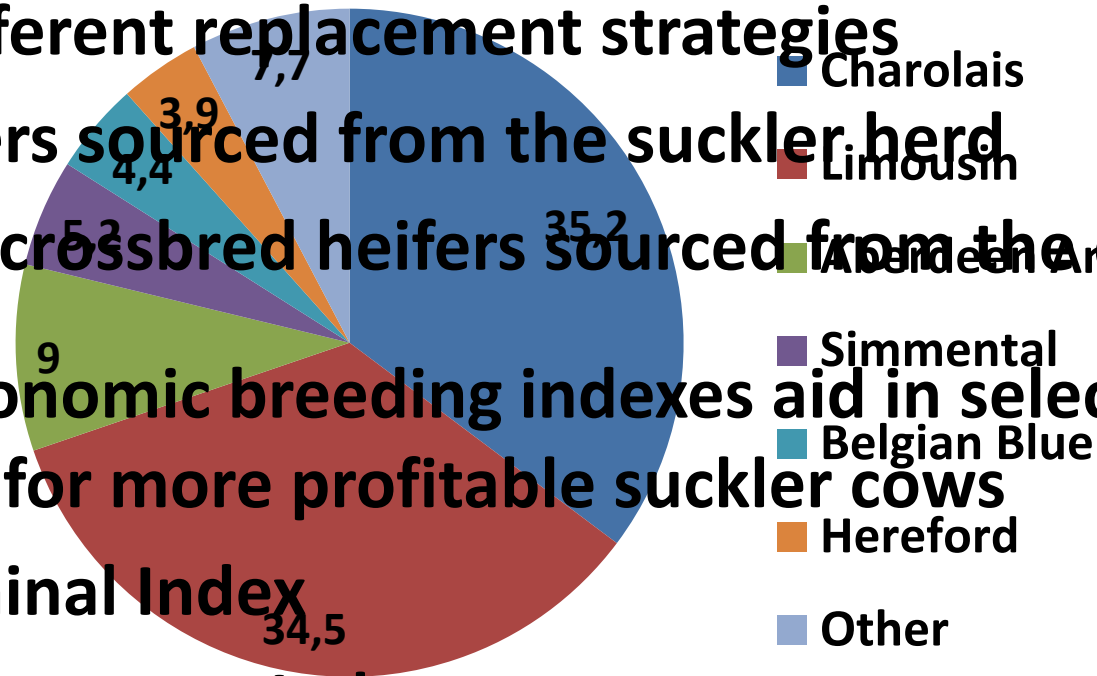
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# Background

- Beef suckler cows comprise half (1.1 m) of the national cow population (CSO, 2016)
- Two different replacement strategies
  - Heifers sourced from the suckler herd
  - Beef crossbred heifers sourced from the dairy herd
- New economic breeding indexes aid in selection process for more profitable suckler cows
  - Terminal Index
  - Replacement Index



# Replacement Index

# Terminal Index

Identification of animals suitable for breeding or selecting replacement

	Relative weighting (%)
Calving traits	16
Feed intake	18
Beef traits	21
Maternal milk	18
Female fertility	23
Docility	4

Based on a cow's performance

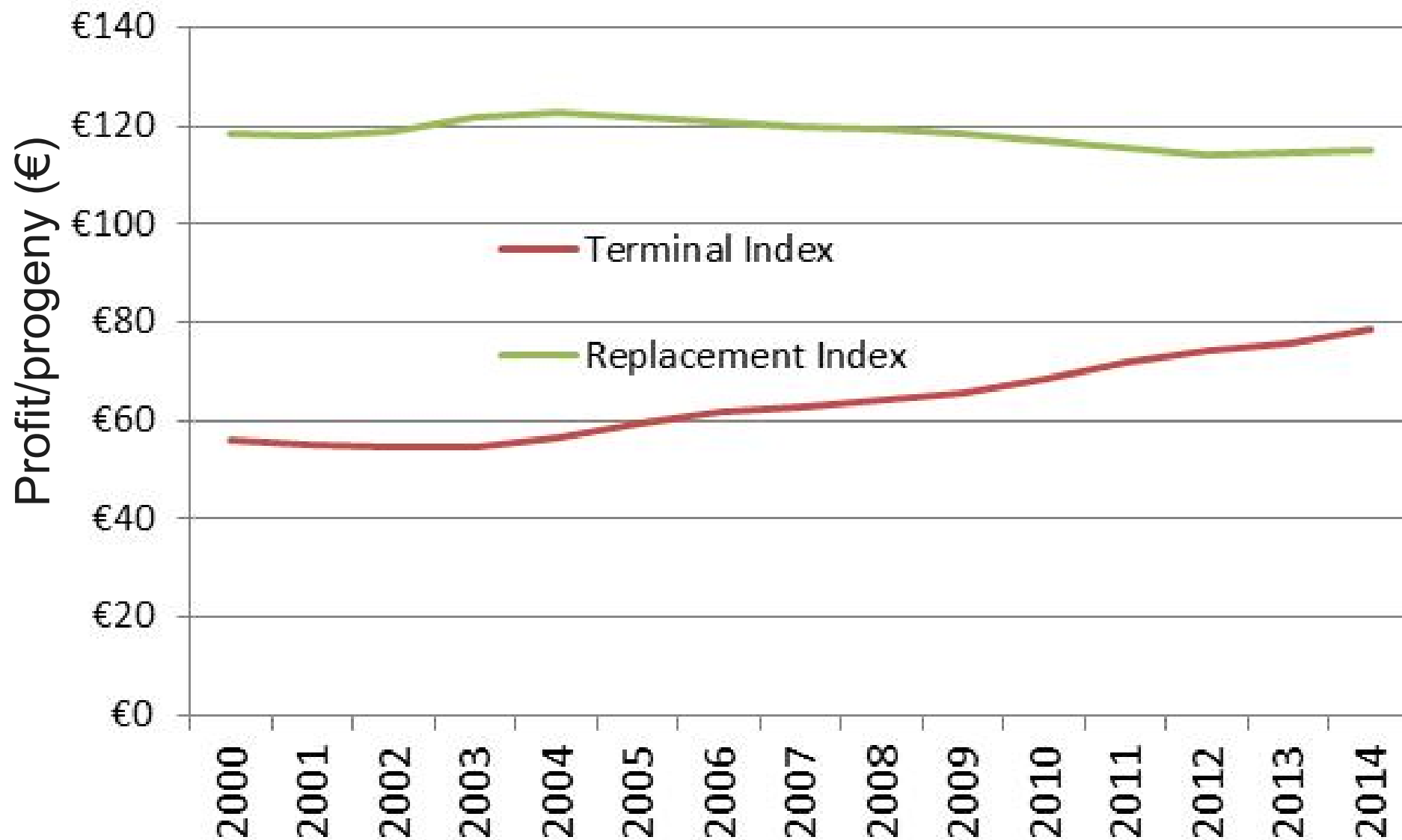
## Terminal

	Relative weighting (%)
Calving traits	25
Beef traits	72
Docility	3

Identification of animals suitable to breed cattle for slaughter, or sale as weanlings/store cattle.

Based on the progeny's performance

# National Genetic Trends



ICBF, 2014

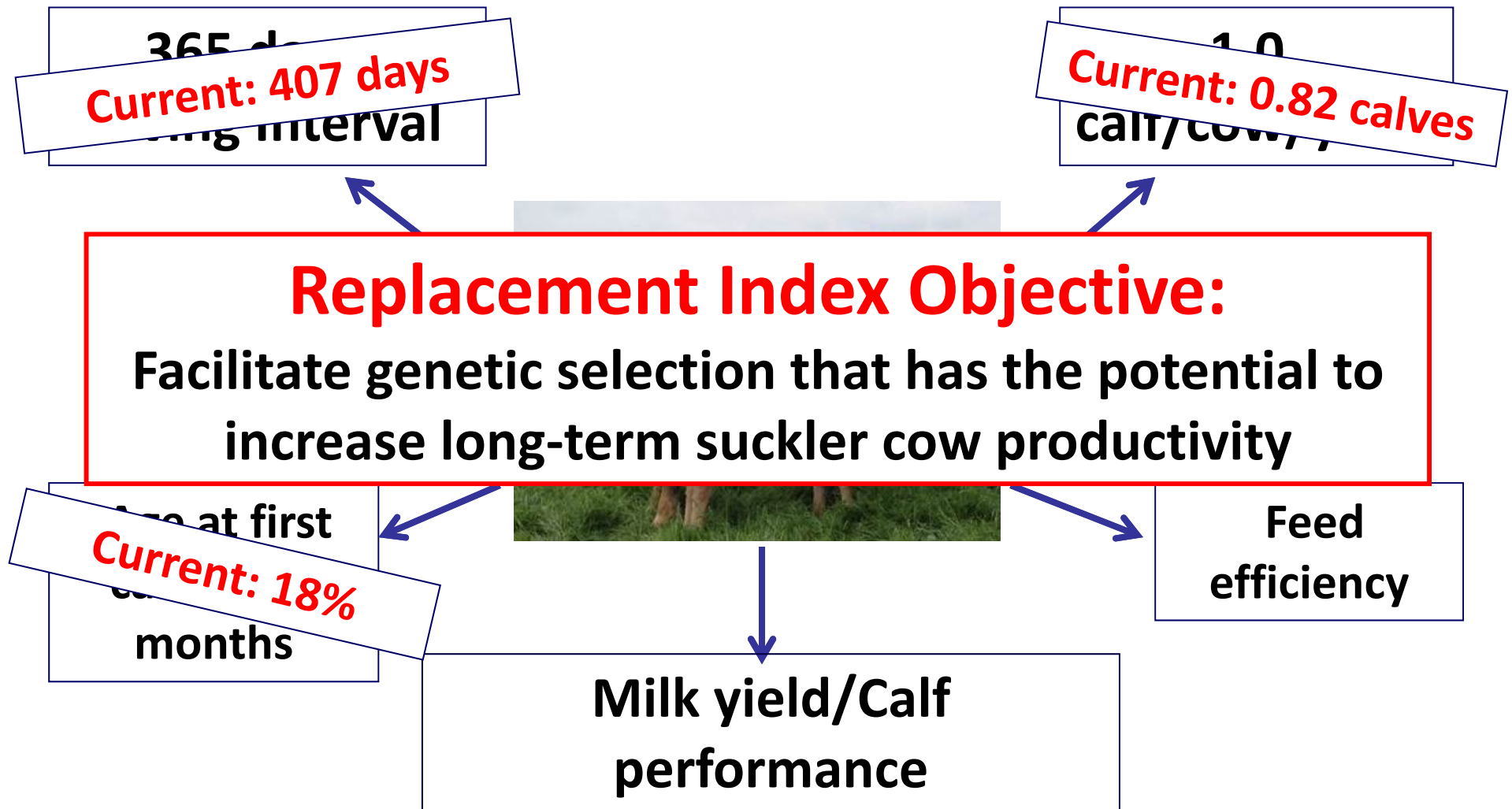
# Replacement Index

Identification of animals suitable for breeding or selecting replacements

- Based on a cows performance per calving

	Relative weighting (%)
Calving traits	16
Feed intake	18
Beef traits	21
Maternal milk	18
Female fertility	23
Docility	4

# Drivers of Profitability



# Experimental Overview

Maternal Herd established 2013

Two diverse genotypes

- A. high genetic merit animals
- B. low genetic merit animals



Replacement strategy

- 1. cows sourced from the suckler herd
- 2. beef crossbred cows sourced from the dairy herd



# Divergence in Index

Heifers sourced were sired by AA and LM bulls only

- High Replacement Index (€119)
- Low Replacement Index (€50)

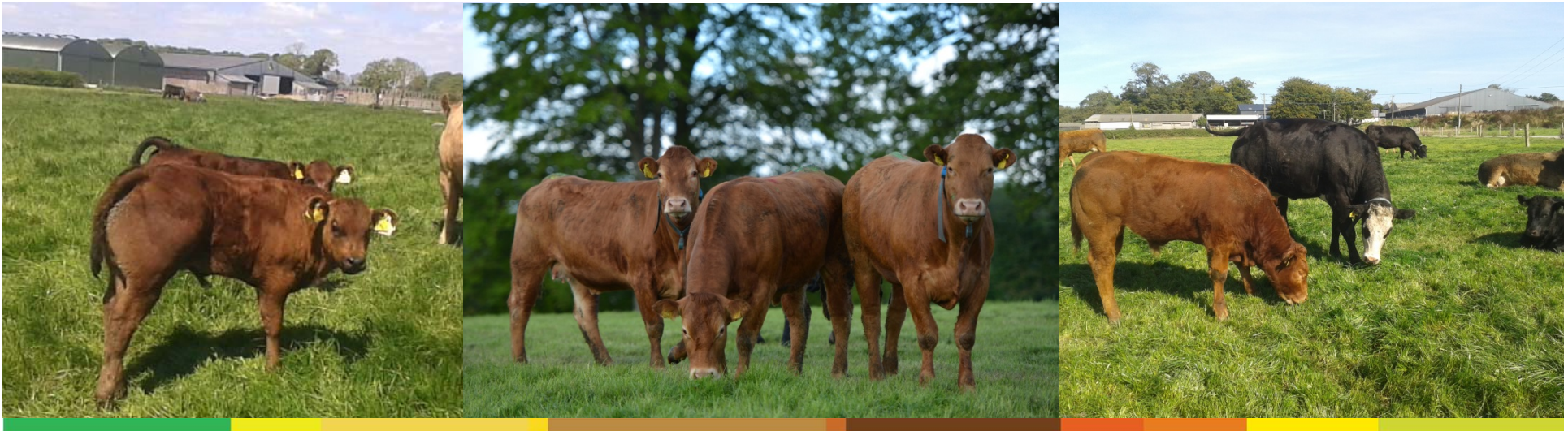


	High	Low
Cow traits (€)	84	50
Progeny traits (€)	35	50
<b>Replacement Index (€)</b>	<b>119</b>	<b>50</b>



# Objectives

**Estimate production and energetic efficiencies among primiparous suckler cows of diverse genotype during mid lactation at pasture**



# Materials and Methods

- **84 primiparous cows + progeny**
  - 52 high index & 32 low index cows
  - 40 beef & 44 dairy crossbred cows
- **Grazing Management**
  - Rotational grazing system
    - Pre & post-grazing height 11.4 (s.d. 1.56) and 4.4 (s.d. 0.74) cm
- Mean calving date 21<sup>st</sup> March
- Cows were turned out to grass early April
- Breeding commenced 29<sup>th</sup> April using terminal AA and LM sires
  - 13 weeks: 6 weeks AI, 7 weeks stock bulls
- Gradual weaning from 20<sup>th</sup> – 27<sup>th</sup> October
- Cows were housed on 3<sup>rd</sup> November – ad libitum grass silage

# Animal Measurements

- Live weight (cow and calf)
- Cow BCS (0-5)
- Milk yield: weigh-suckle-weigh (*McGee et al., 2005*)
  - 120 and 156 days in milk
- Grass Dry Matter Intake (GDMI)
  - n-alkane technique: twice daily bolus for 12 consecutive days – 6 days intake data (*Dillon, 1993*)
  - 126 and 162 days in milk

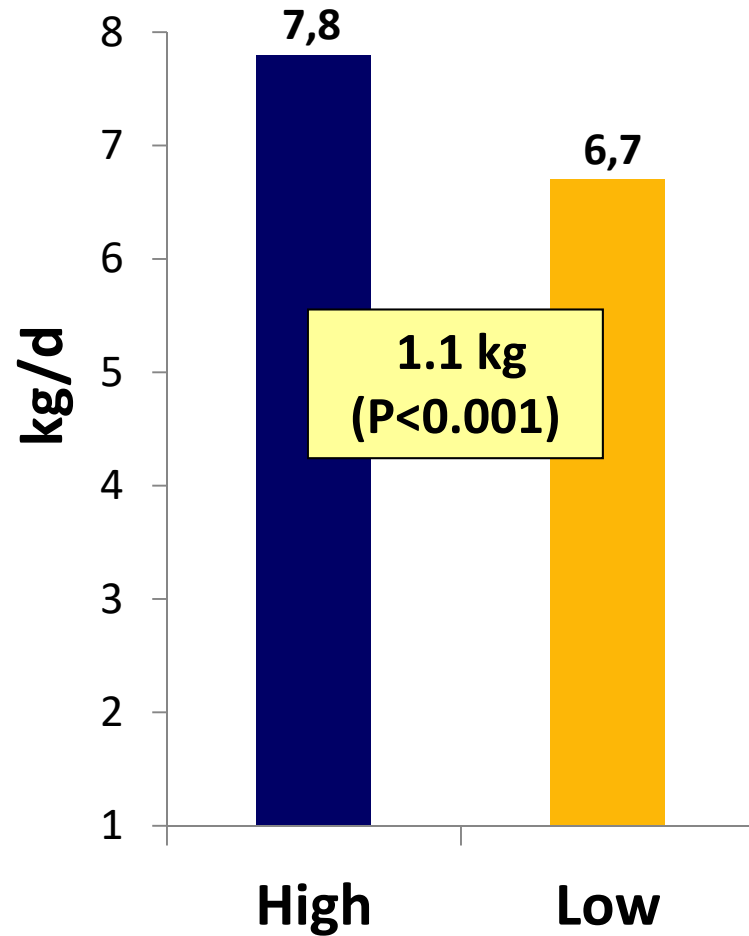
# Statistical Analysis

- Analysis carried out at the cow level
- PROC HP MIXED
- Fixed effects:
  - Cow
    - Genetic merit of the cow
    - Heterosis coefficient
    - Recombination loss
- Sire of the cow was a random effect



# Results

# Milk Yield (kg/d)



# DRY MATTER INTAKE & FEED EFFICIENCY



# Cow Production Efficiency

	<u>Replacement Index</u>			
	High	Low	s.e. <sup>1</sup>	P-value
Live weight (kg)	555	566	7.9	0.2433
GDMI (kg/d)	11.8	12.0	0.31	0.5574
GDMI/100kg BW (kg)	2.20	2.11	0.062	0.2072
Milk Yield/100kg BW (kg)	1.26	1.13	0.054	0.1163
Milk Yield/GDMI (kg)	0.58	0.54	0.025	0.2146
RFI (UFL)	-0.03	0.22	0.260	0.4103

<sup>1</sup> weighted standard error of the mean



# Conclusion

- Results from year one:
  - High index cows produced an additional 1.1 kg/d milk compared to low index cows
  - High index cows had a lower BCS than low index cows
  - No significant differences were found on any other traits investigated
  - Cow LW, GDMI or production efficiency during mid-lactation

# Thank you!

