



# Australian Genetic Indices and Red Breeds trends

Tuesday 26<sup>th</sup> March 2019

Peter Williams - DataGene

# Our IRDBF Conference hosts :-



Both our IRDBF  
Conference  
hosts enjoy a  
fine red

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# Conference delegates : WARNING



# Burning Ring of Fire - by Erik Thompson

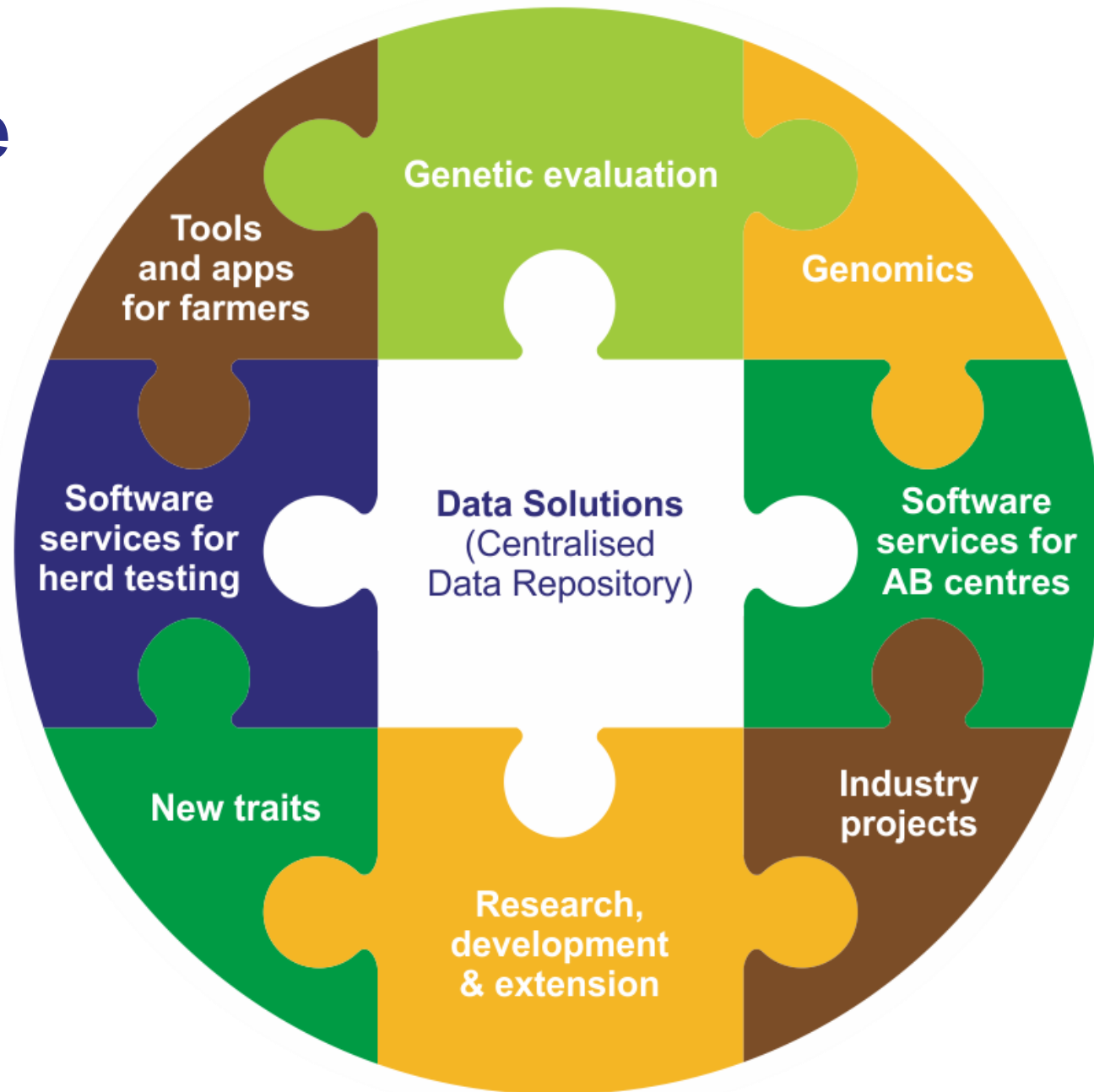
EVACUATE - EVACUATE - EVACUATE





# Session Overview

- Introduction to our ABVs - Australian Breeding Values
- ABVs at work
- Australian Indices - BPI HWI TWI
- Do they really work ? - how we showed that they really do work
- Red Breeds ABV trends
  - BPI
  - Health & Fertility
  - Type

# DataGene

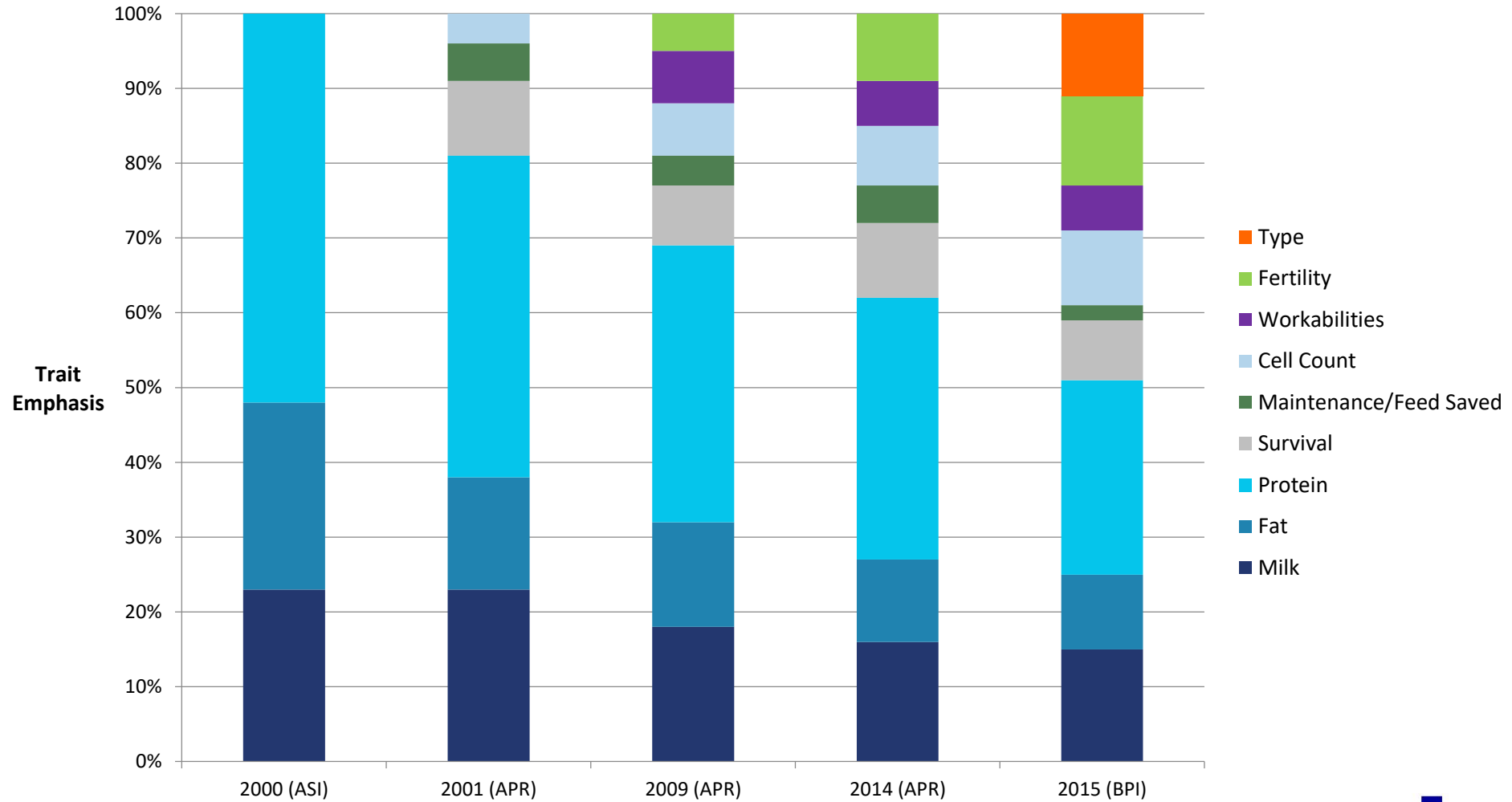


# ABVs available for almost 40 traits

Production Feed Saved	Type Traits	Management Traits
Kg % fat and protein L milk Kg feed saved	 100 SD5	 100
<b>Eg. Protein ABV of 40 kg</b> This animal is 40kg greater for protein than average. The average is 0.	<b>Eg. Overall Type ABV of 105</b> This animal is 1 standard deviation above average for overall type. The average is 100.	<b>Eg. Daughter Fertility ABV of 103.</b> This animal is 3% greater than average for fertility. The average is 100.



# Indices evolve over time



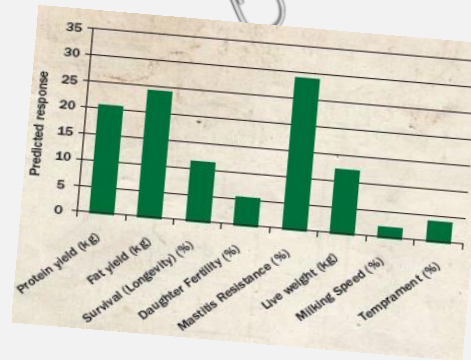
# National Breeding Objective Review

Your herd.  
Your asset.  
Your future.  
**Have your say.**

Task Force Established



Farm Walk - Survey



Scientific Review



April 2015

Summer 2014

## NBO Task Force Established

Includes representatives from RDP's, ADF, breed societies, AB industry, DA, scientists and ADHIS

Autumn 2014

## Industry Engagement

through Australia's Longest Farmwalk and the National Breeding Objective Survey

Winter 2014

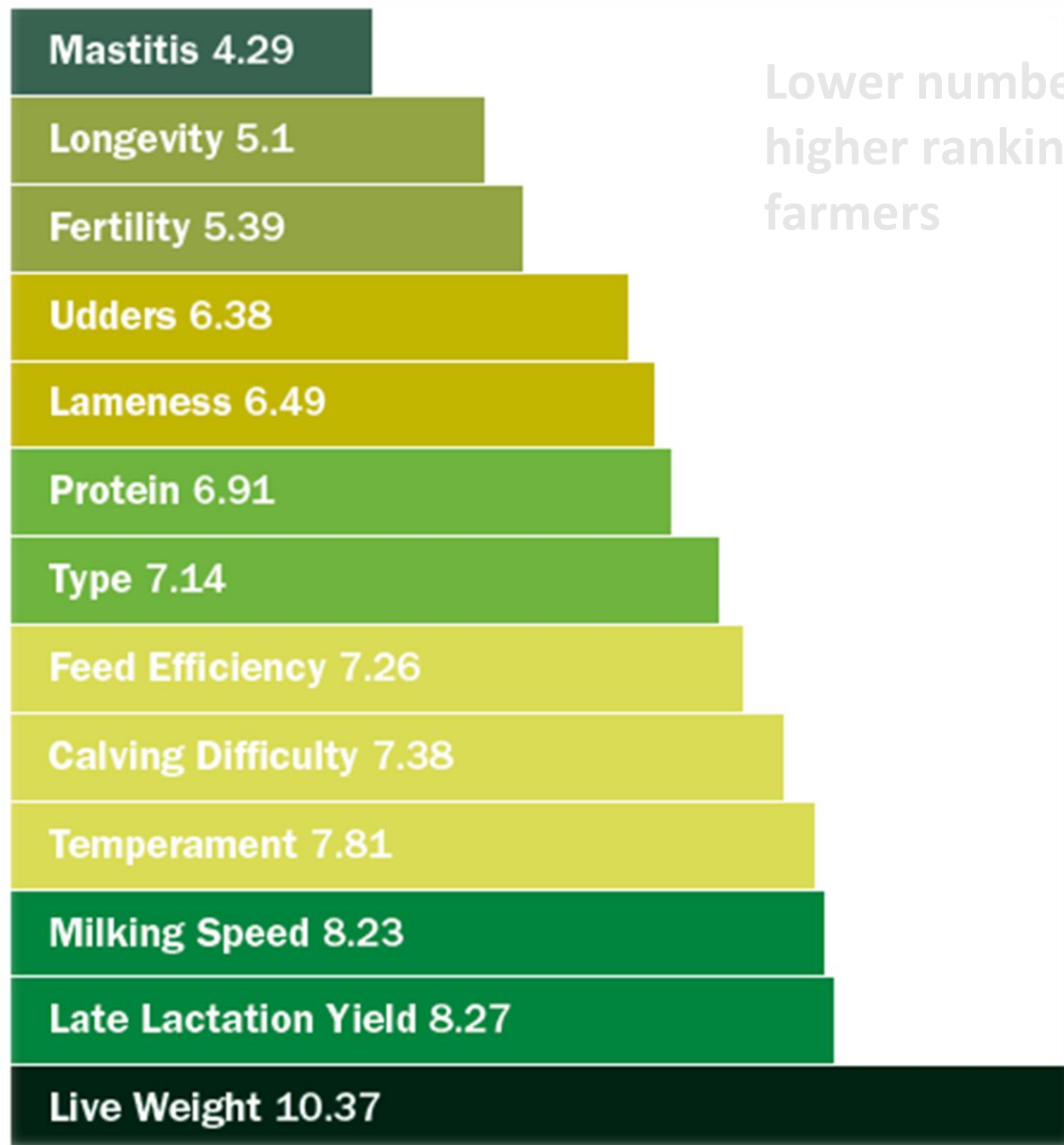
## Second Round Meetings

Options prepared based on the latest economics, preferences and genetic principals. Second round of regional activity.

2015

## New Index (Indices) Announced

and ready for roll out April 2015



Lower number –  
higher ranking by  
farmers

# Science + Farmers + Industry = Success



Farmer input



Scientific review

Bio-economic model



More profitable herds

# *Introducing the New Indices*

## **Balanced Performance Index (BPI)**

- Economic index
- Blends production, type and health traits for maximum profit
- In line with farmer preferences



## **Health Weighted Index (HWI)**

- Fast track fertility, mastitis resistance and feed saved

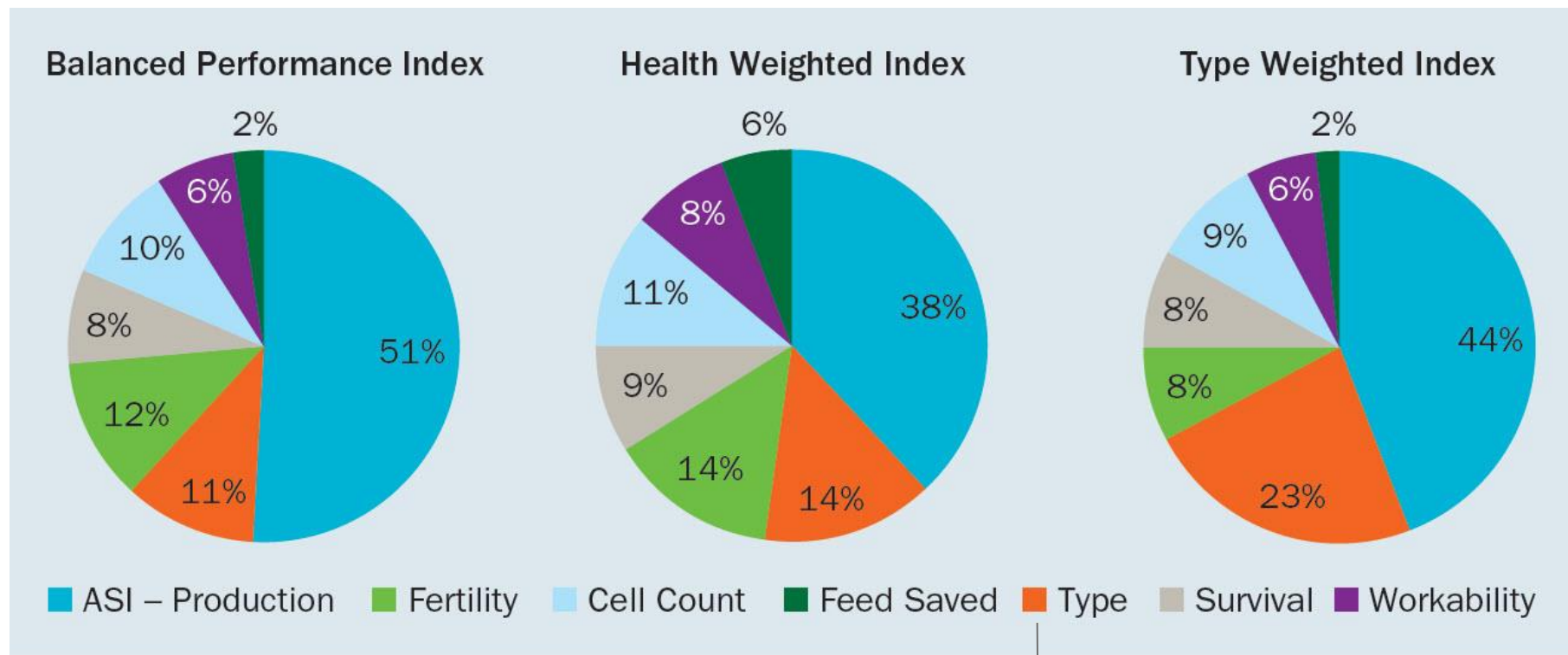


## **Type Weighted Index (TWI)**

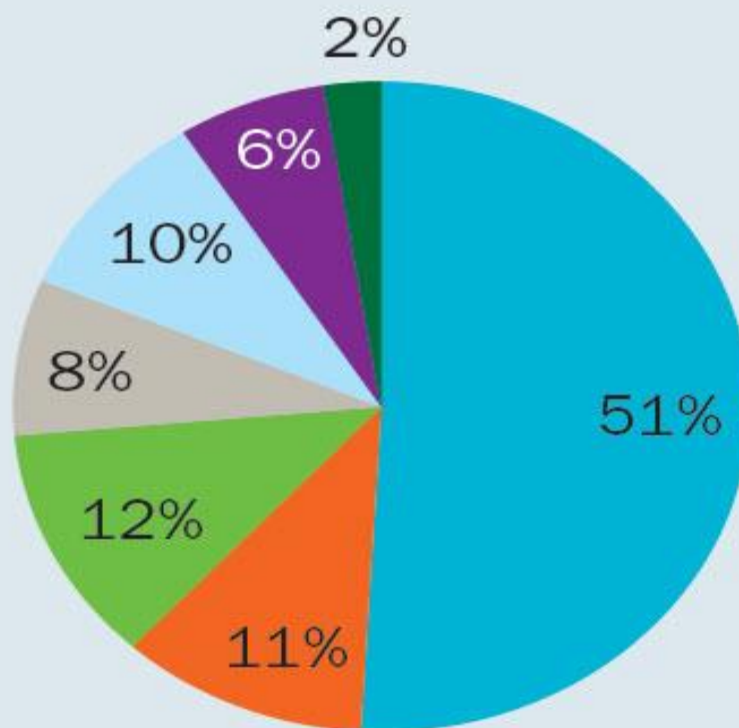
- Fast track type







## Balanced Performance Index



■ ASI - Production    ■ Fertility

■ Cell Count    ■ Feed Saved    ■ Type

■ Survival    ■ Workability

*Are high BPI cows  
less likely to last in  
some feeding  
systems?*

*Do genetics really  
matter in all feeding  
systems?*

*Is semen from high  
BPI bulls a wise  
economic decision  
for my farm?*

*Do I need to feed high rates  
of supplements to benefit  
from high BPI bulls?*





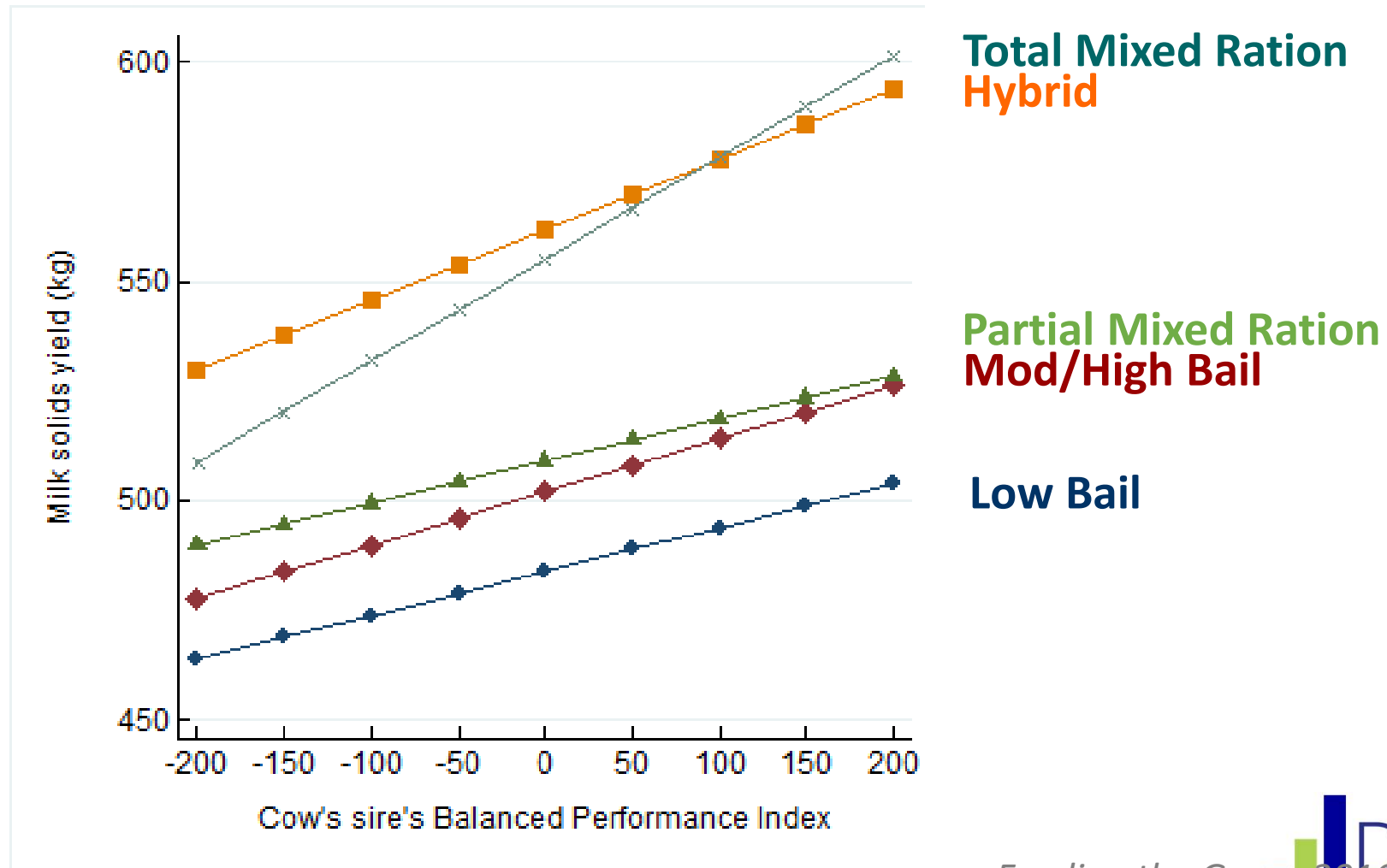
# The five main feeding systems



<b>Low bail</b>	Grazed pasture 0-1 tonne concentrate
<b>Moderate – High bail</b>	Grazed pasture 1 plus tonnes of concentrate
<b>Partial mixed ration</b>	Grazed pasture PMR fed on feedpad
<b>Hybrid</b>	PMR fed on feedpad 3+ mths with no pasture access
<b>Total mixed ration</b>	No pasture. Cows fed TMR

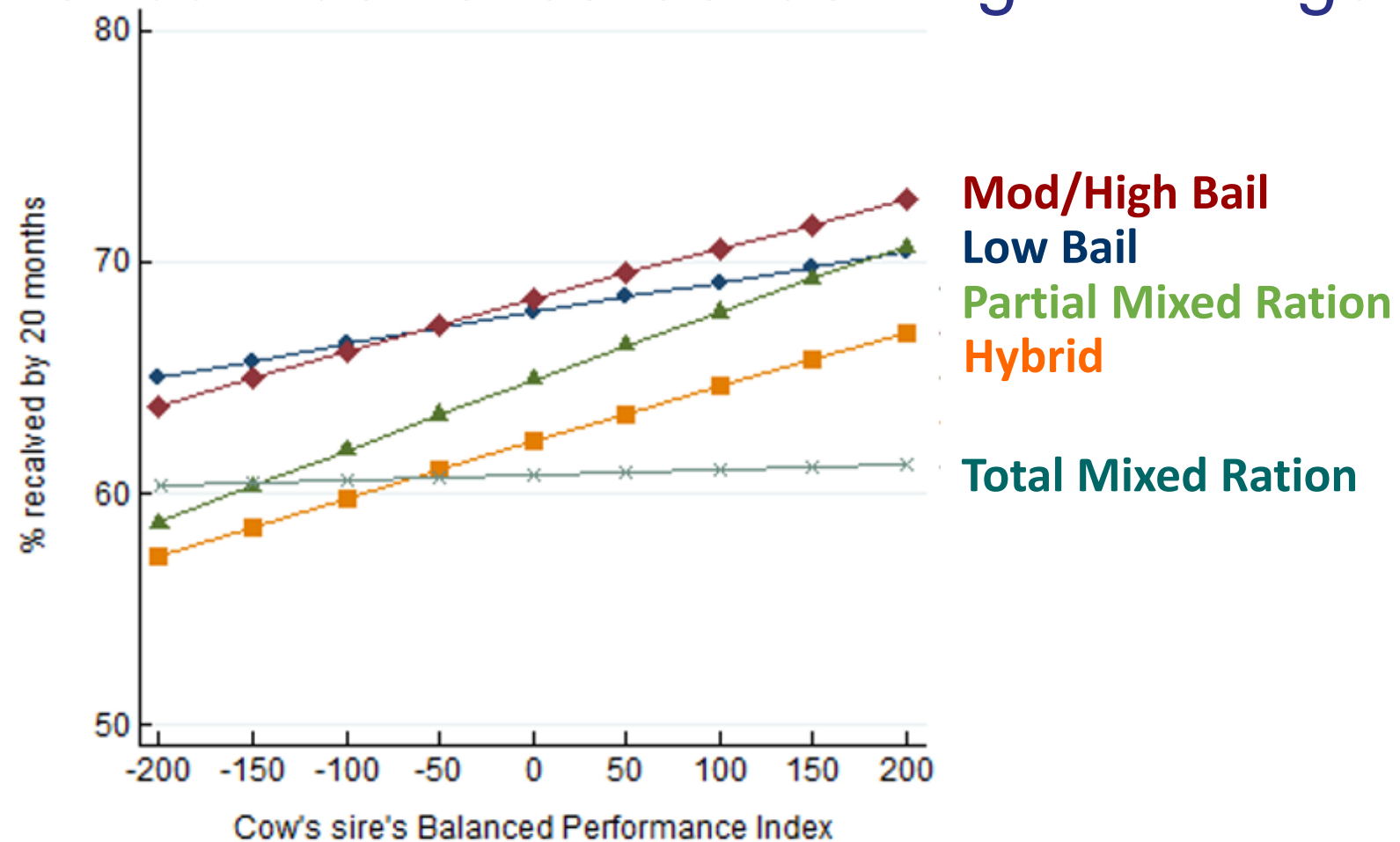


In all feeding systems, the daughters of high Balanced Performance Index sires produce more milk solids





In all feeding systems, the daughters of high Balanced Performance Index sires last as long – or longer





# IMPROVING HERDS



ImProving Herds an Australian dairy initiative

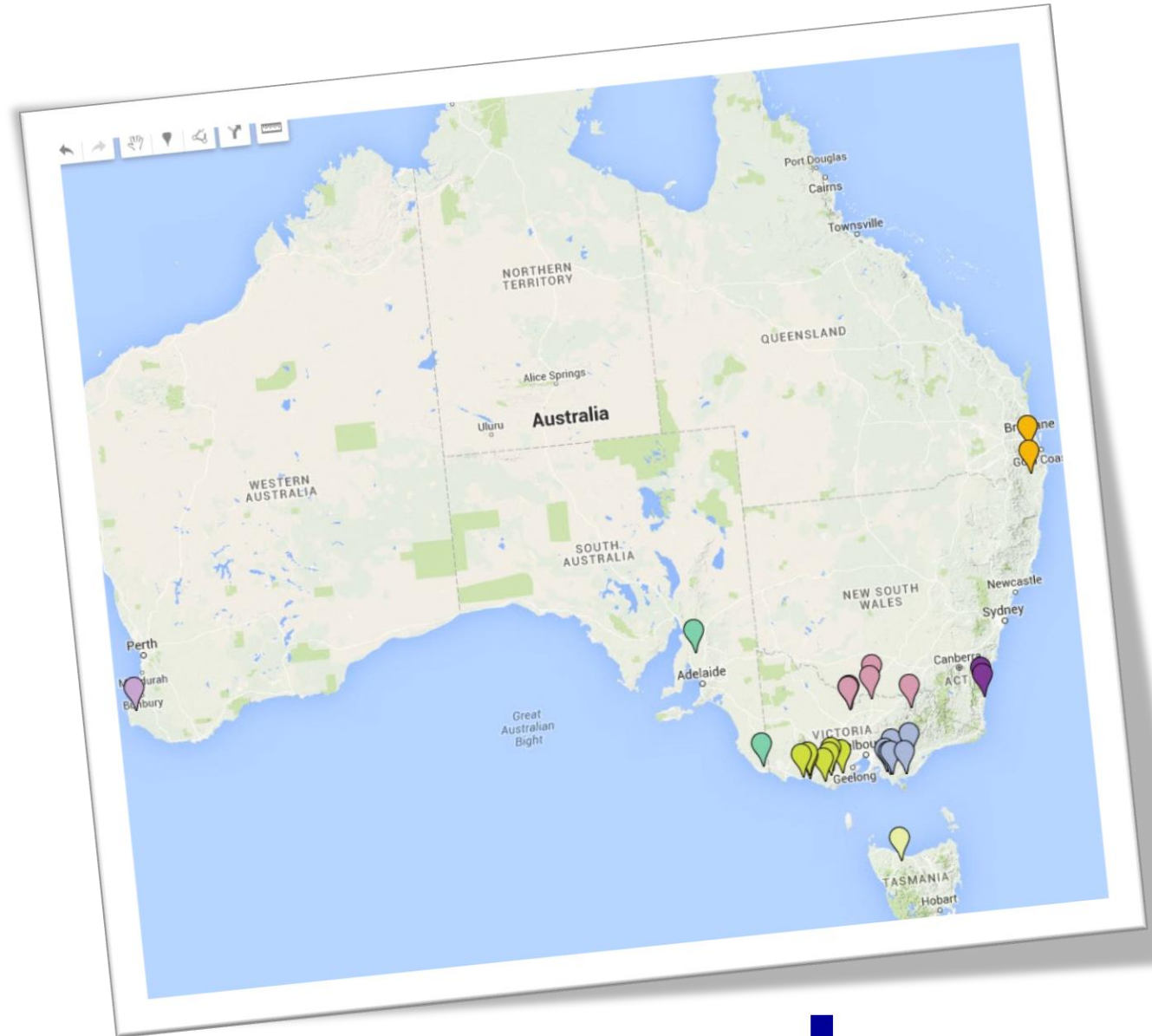


# Herd decisions made easy

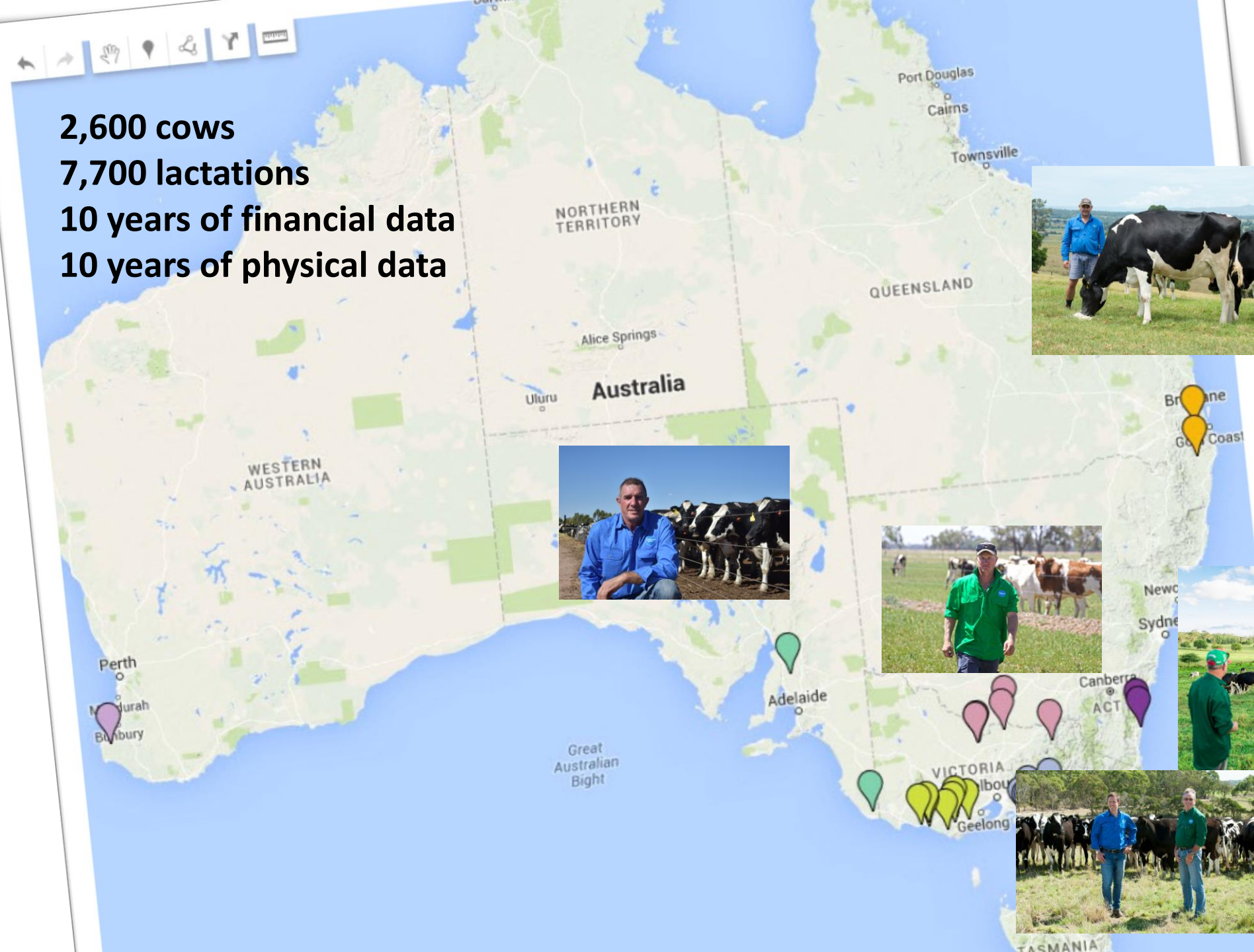
- Improving Herds is a demonstration project initiated by Gardiner Dairy Foundation with \$1.5m of funding in 2014 with a view to accelerate the rate of genetic gain in dairy cows and drive farm business profitability.
- Was to demonstrate that selecting both bulls and cows based on BPI was generating more \$ income over feed costs in the resultant progeny
- Together, we offer a wealth of collaboration, science and understanding to the project

# Genetic Focus Farms in every region

- 27 Genetic Focus Farms
- Each farm
  - Herd records
  - Genomic testing on heifers
  - Financial data



**2,600 cows**  
**7,700 lactations**  
**10 years of financial data**  
**10 years of physical data**

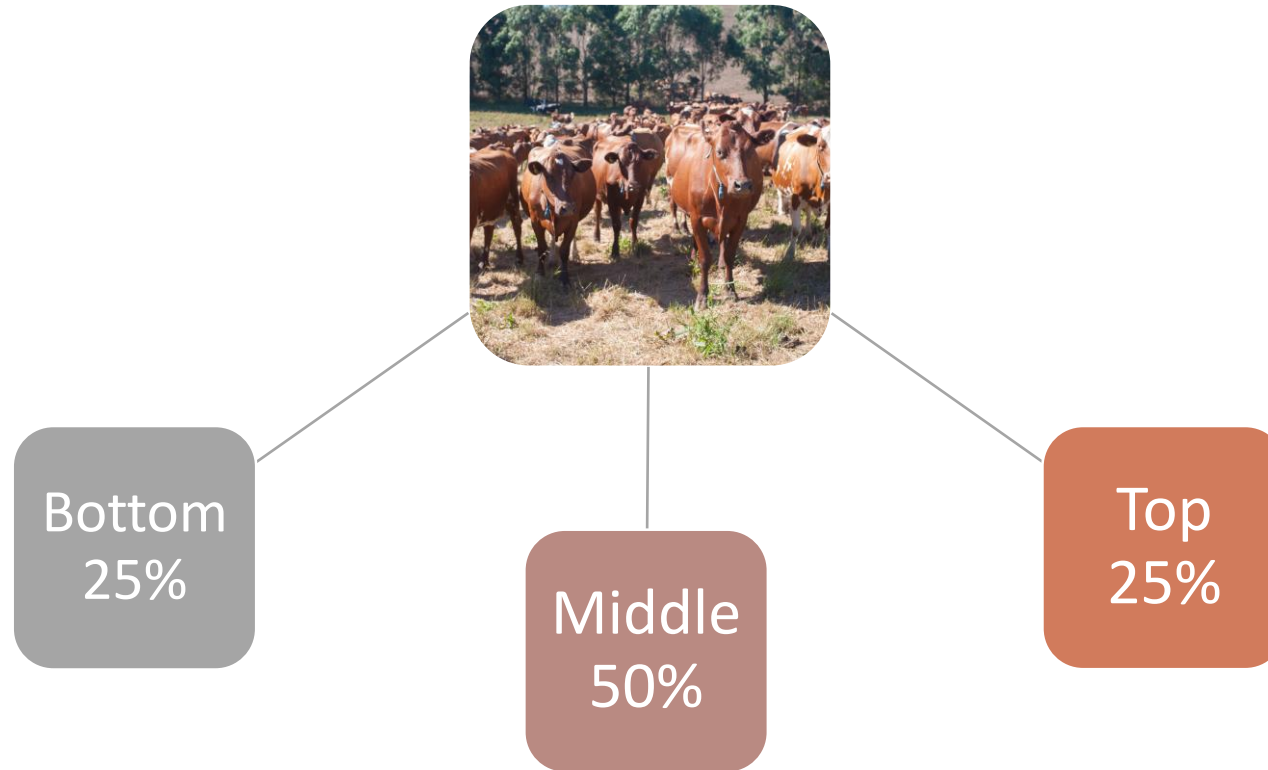




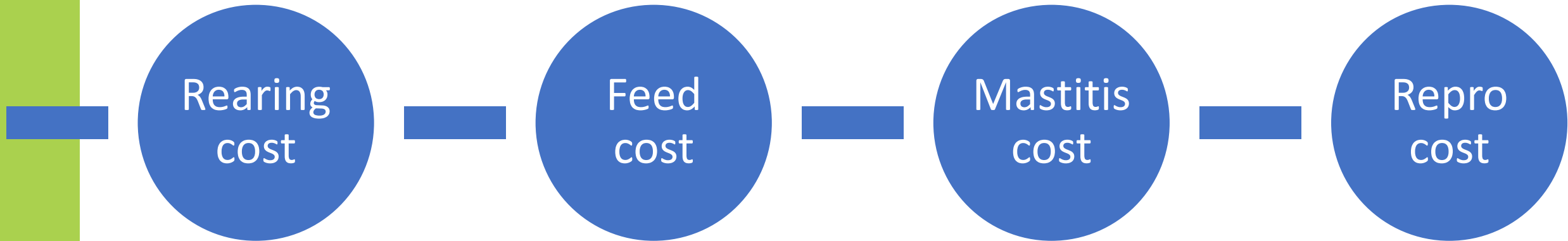
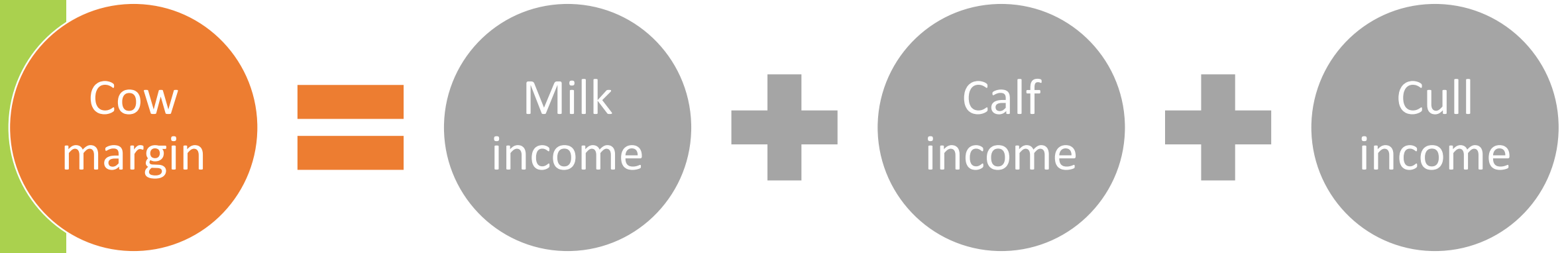
# Split herd economic analysis



# Compared high and low BPI cows within a herd



**Difference between top and bottom 25% of cows**



**\$300 extra milk  
income over feed  
costs per cow per  
year for the life of  
the animal**

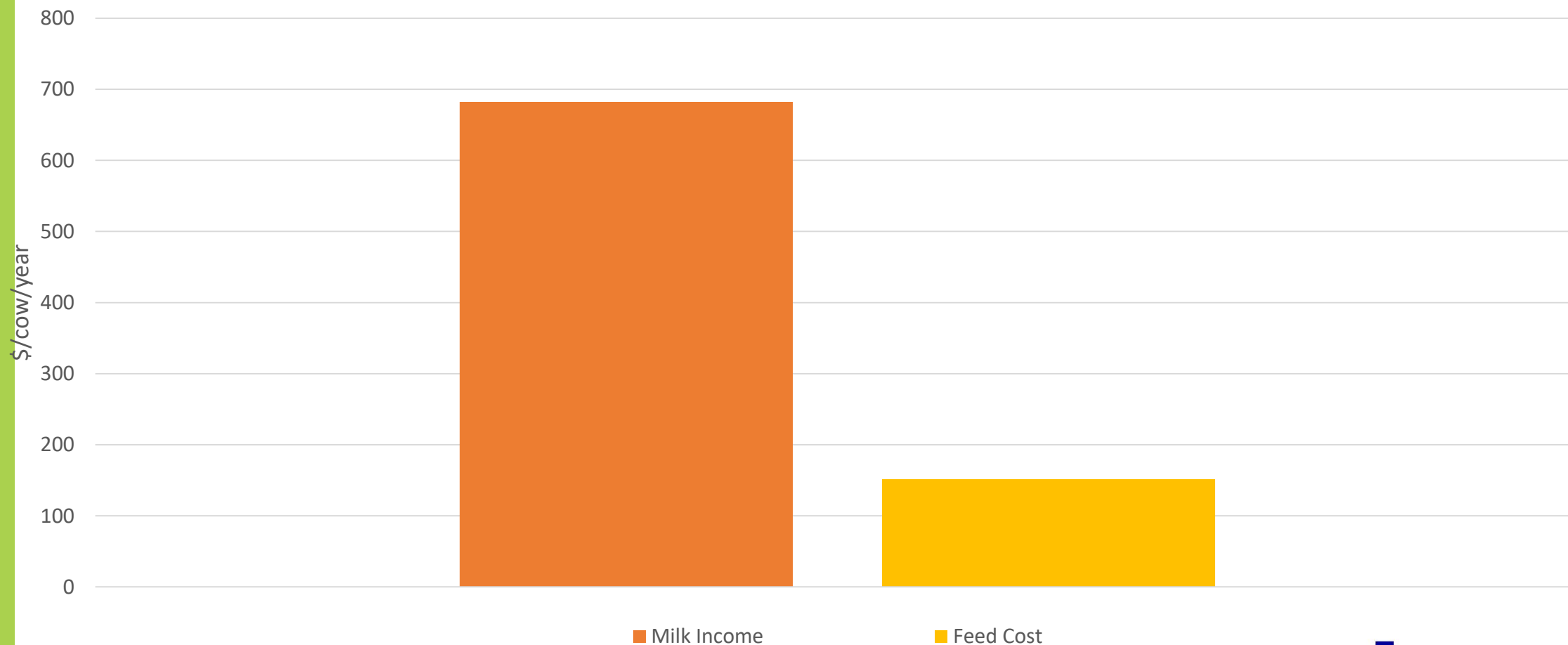


# Graeme and Michele Hamilton

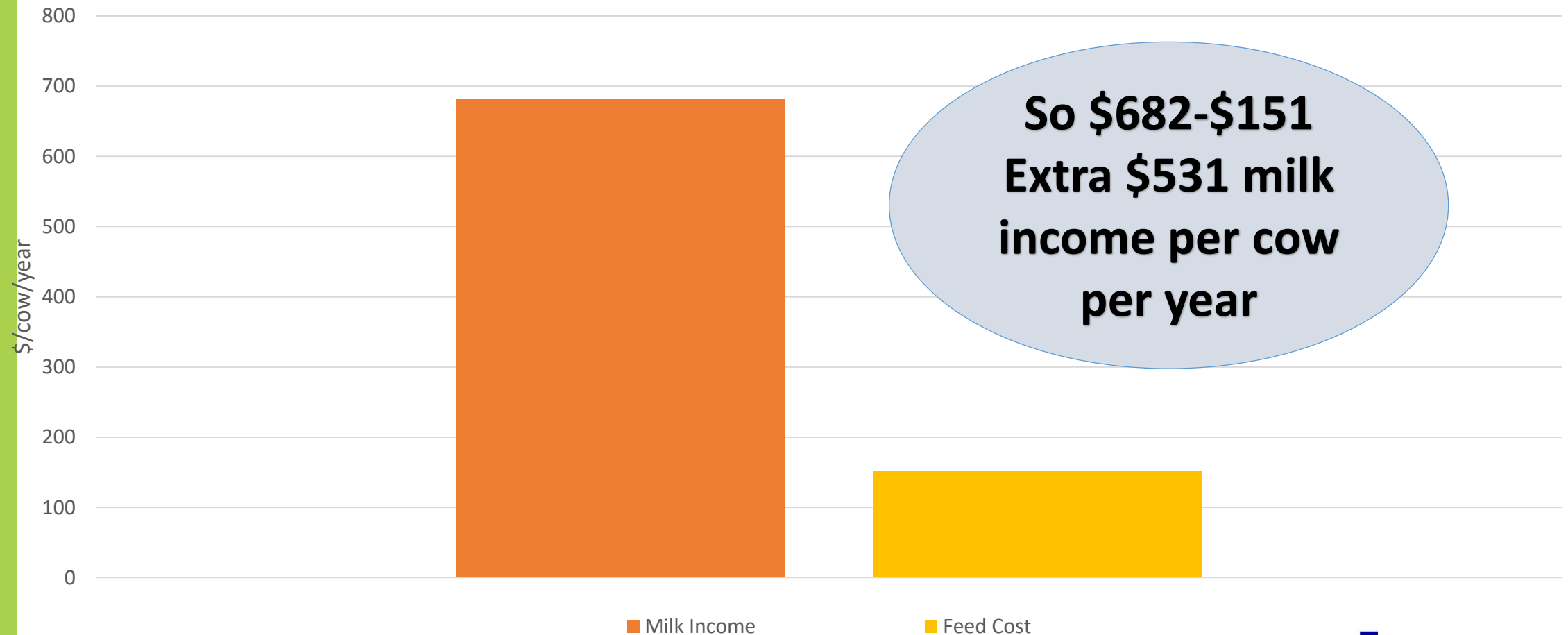




# Milk income over feed costs



# Milk income over feed costs



# What about health, fertility, components?

## Components

	High BPI cows
Milk (L)	1323 more L/cow/year
Fat (kg)	60 more kg/cow/year
Protein (kg)	61 more kg/cow/year
Fat (%)	0.17% more/cow/year
Protein (%)	0.16% more/cow/year

## Health events? Fertility? Longevity?

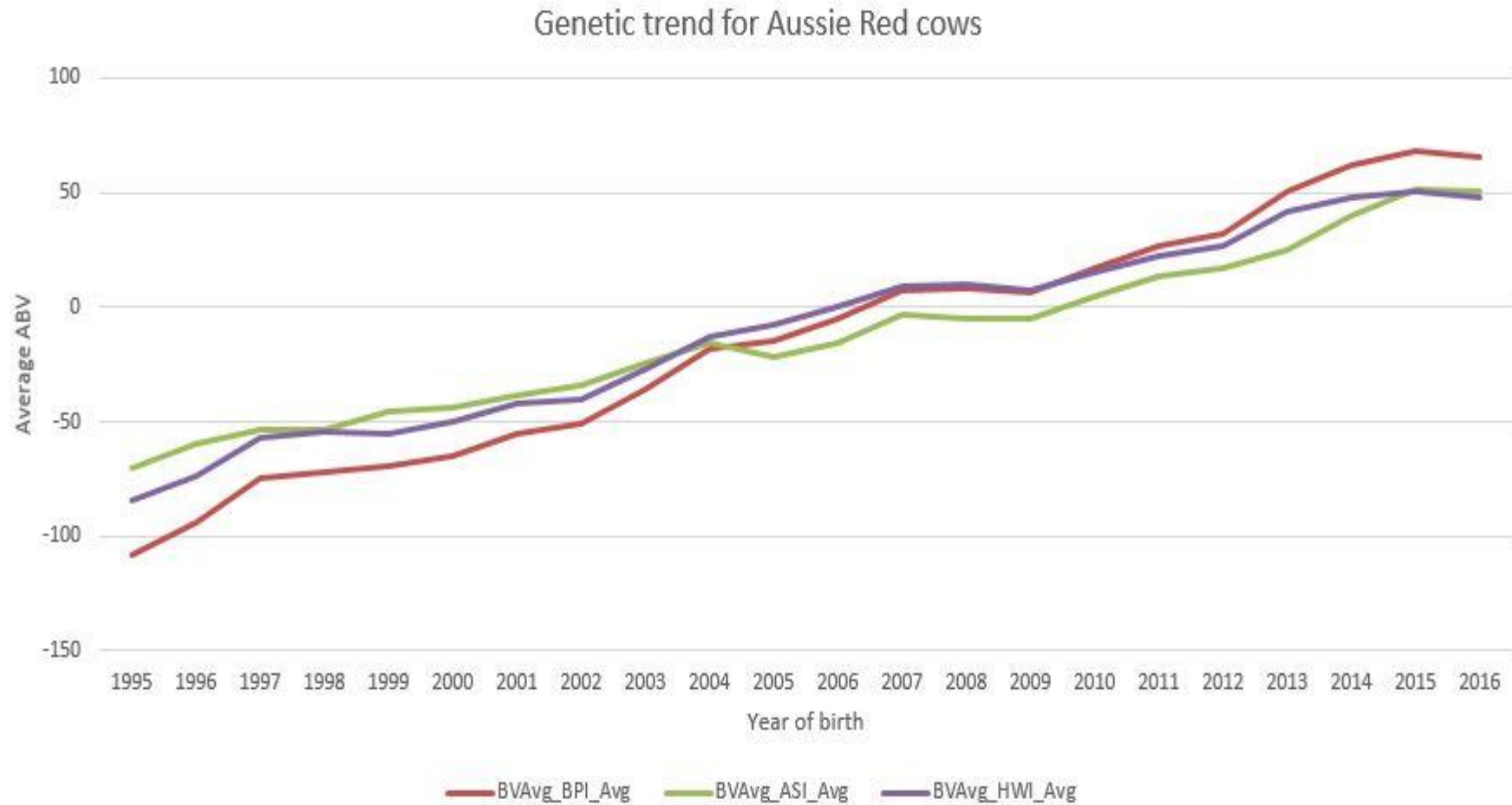
- Health – no difference
- Fertility – no difference
- Longevity – high BPI cows lasted 11 months longer in the herd

# What did we learn from these projects ?

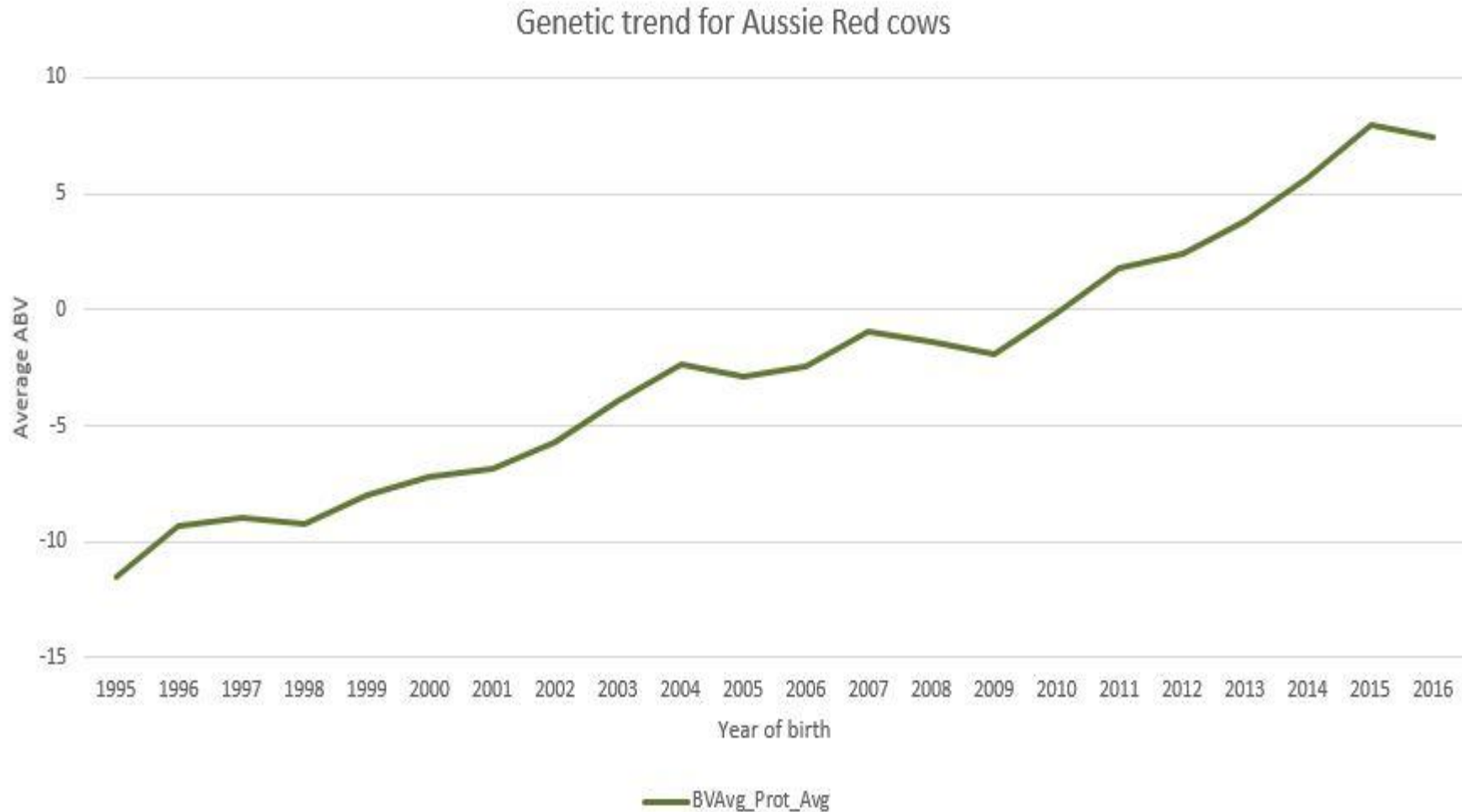
- BPI, HWI and TWI predict profitable cows for the Australian environment
- We have shown that our Indices work across all Australian Feed systems and the high Index cows produce more milk income over feed costs and last as long or longer than their herd mates
- Unique characteristics of our ABVs ?.
  - They are suited to meet the needs of our Australian conditions
  - We have proved that they do actually work in practise
  - Show me the difference and prove it - we have .....



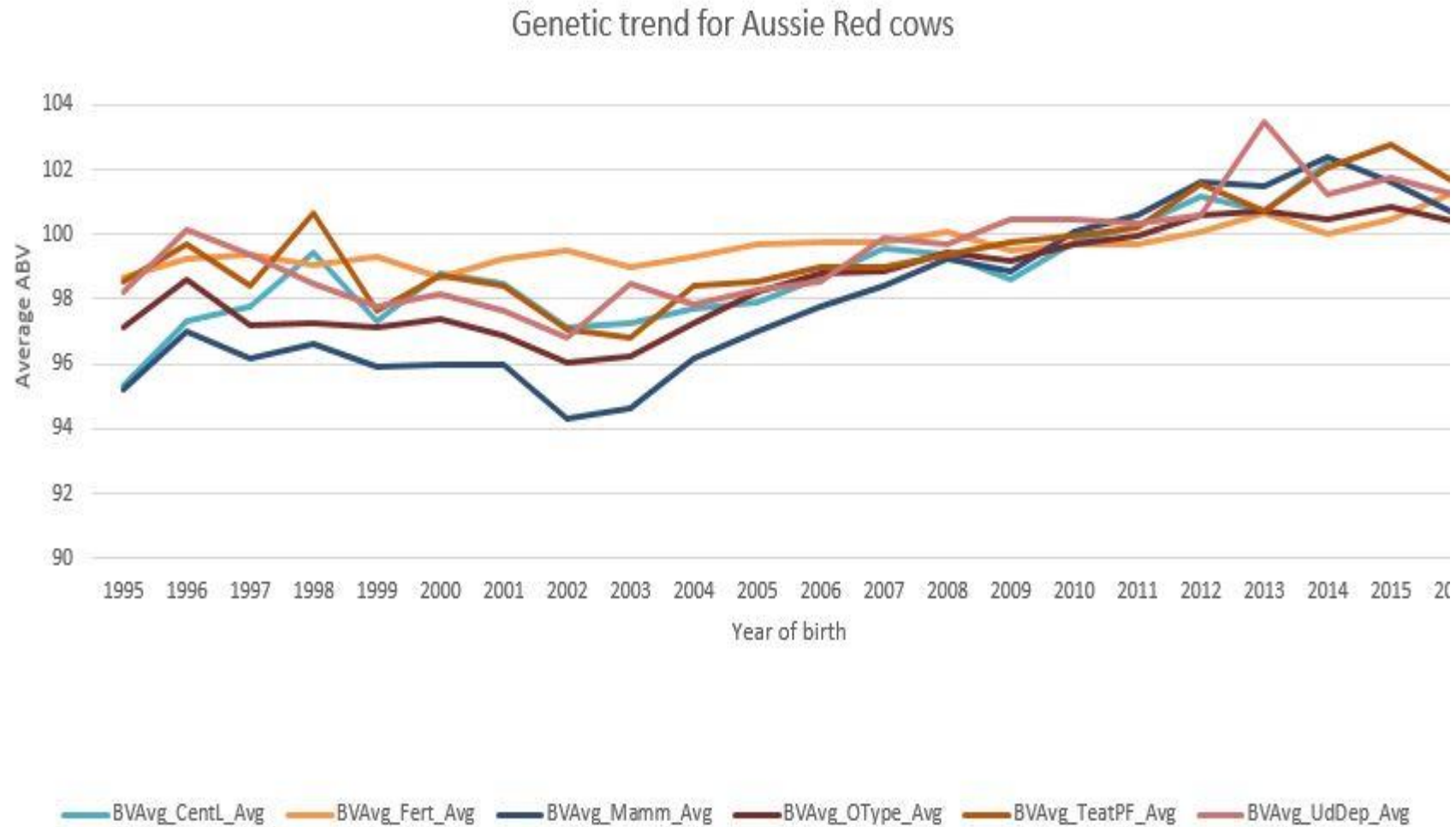
# Aust Red Cow trends for BPI HWI TWI



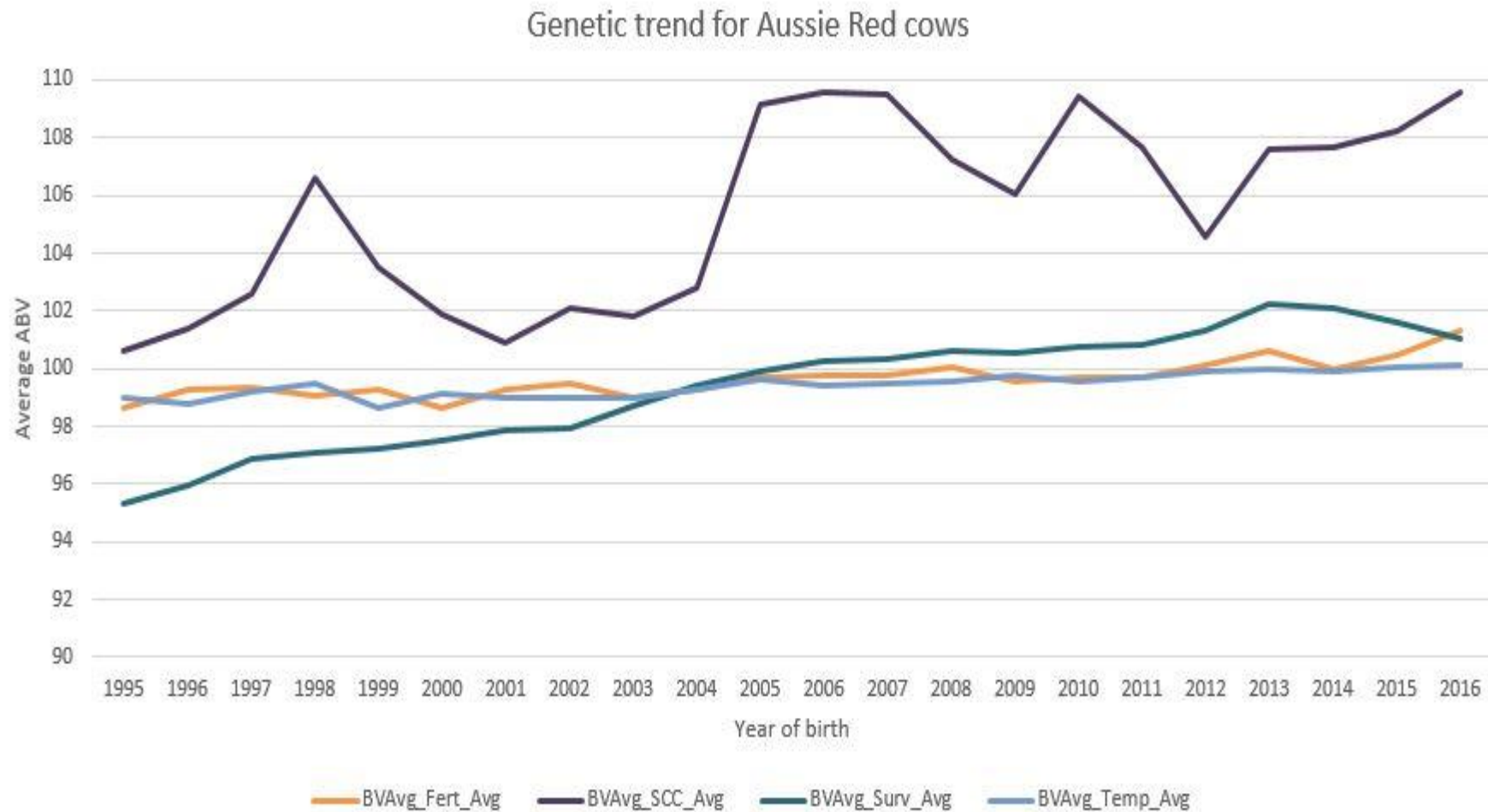
# Red Cow trend for Protein ABV



# Red Cow trends for Type ABVs



# Red Cow trends for Management ABVs





# Red Breeds suggestions :-

- Celebrate your Red Breeds diversity
- Avoid pushing Red Breeds cows to trait extremes
  - Stature - not too tall
  - Type - not fancy but focussed on functional long lasting cows
- You need to be an alternative \$ profitable choice to other breeds
- Encourage cross breeding options = growth area for the breed
- Encourage global participation in your Red Breeds programs

Thank you

