

# Developing a Large Scale Data Platform



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# BIG DATA

## Coming from many sources

- NIR, Hyperspectral
- Vision systems, FLIR
- CT, DEXA
- Whole genome sequencing



Too much DATA  
Need to identify the useful core

## Needed for Genomic application

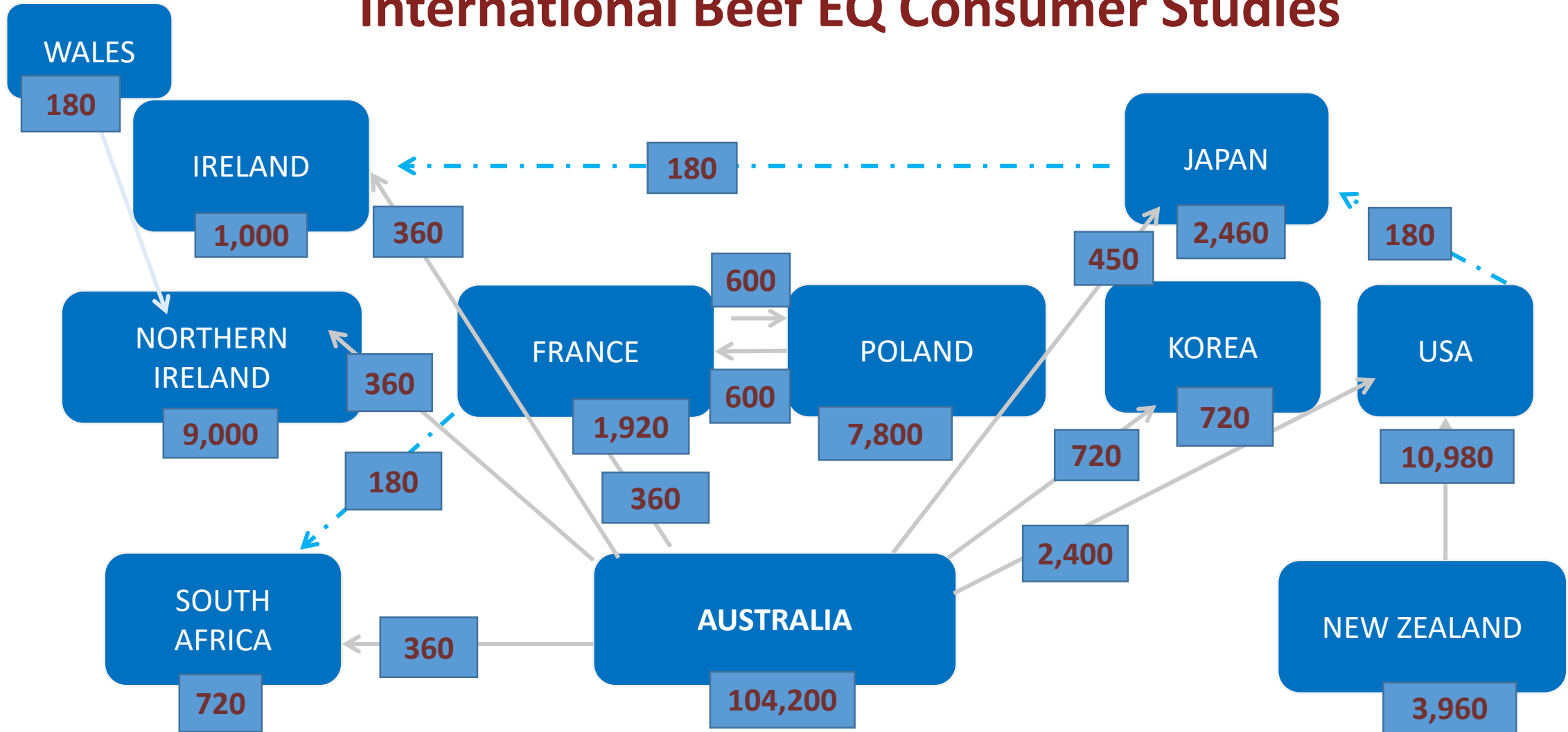
- Phenotypic data
  - Fertility, growth, yield, marbling
  - Eating quality



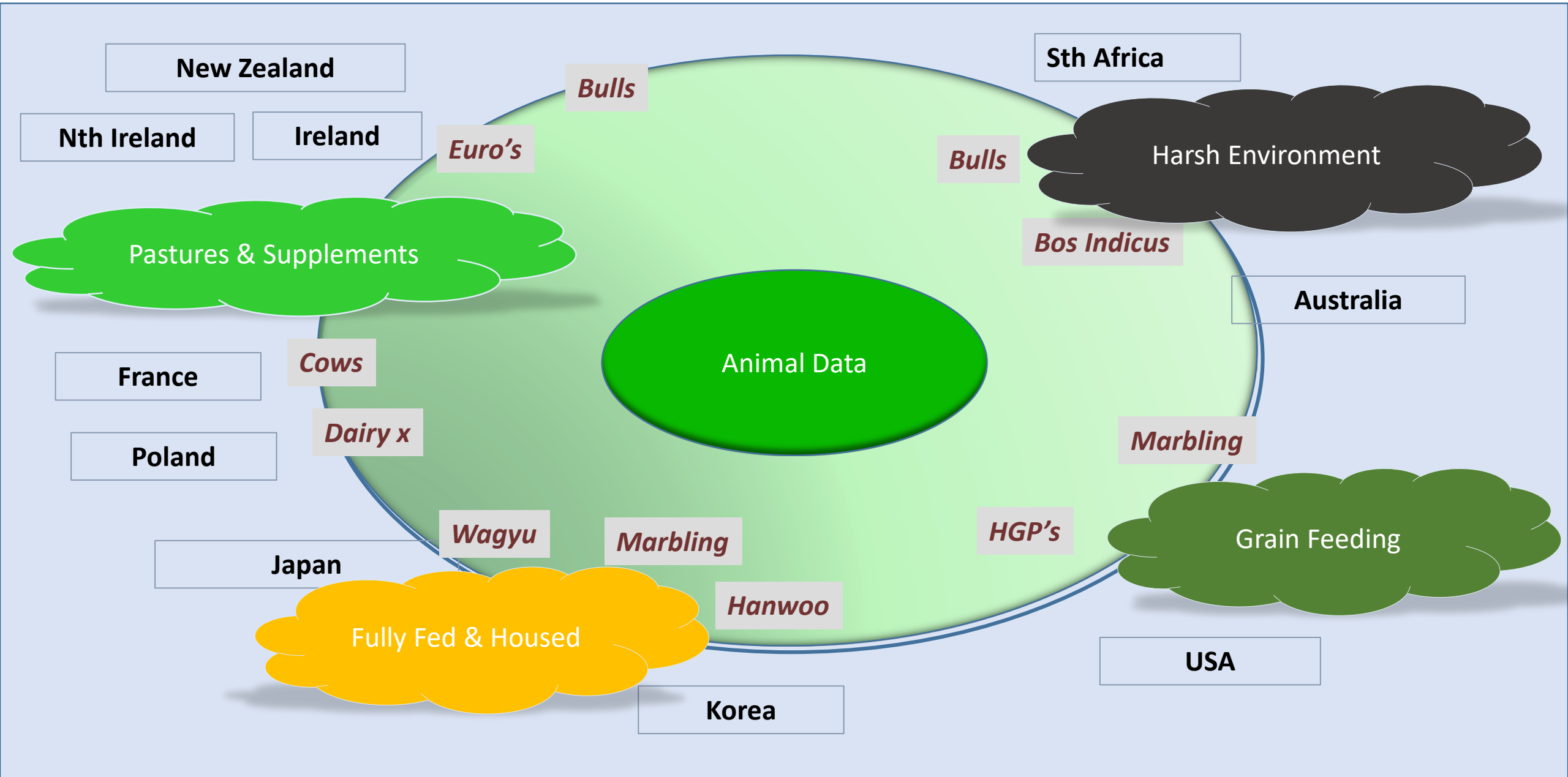
Data intensive & much more needed

# WHAT DATA DO WE HAVE on EQ?

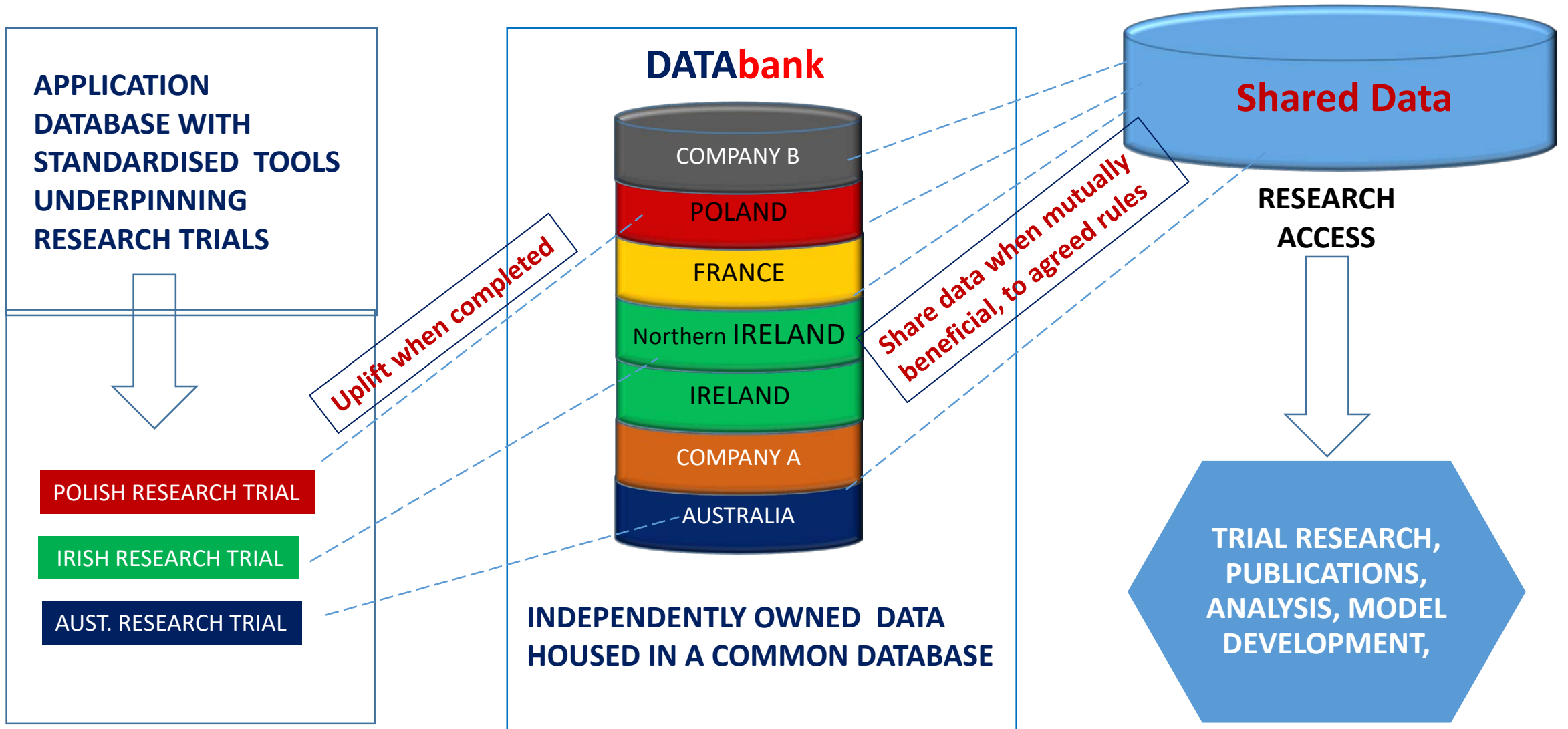
## International Beef EQ Consumer Studies



# Environmental & Genetic Variation



# Agreed Concept For Global EQ Data Collaboration

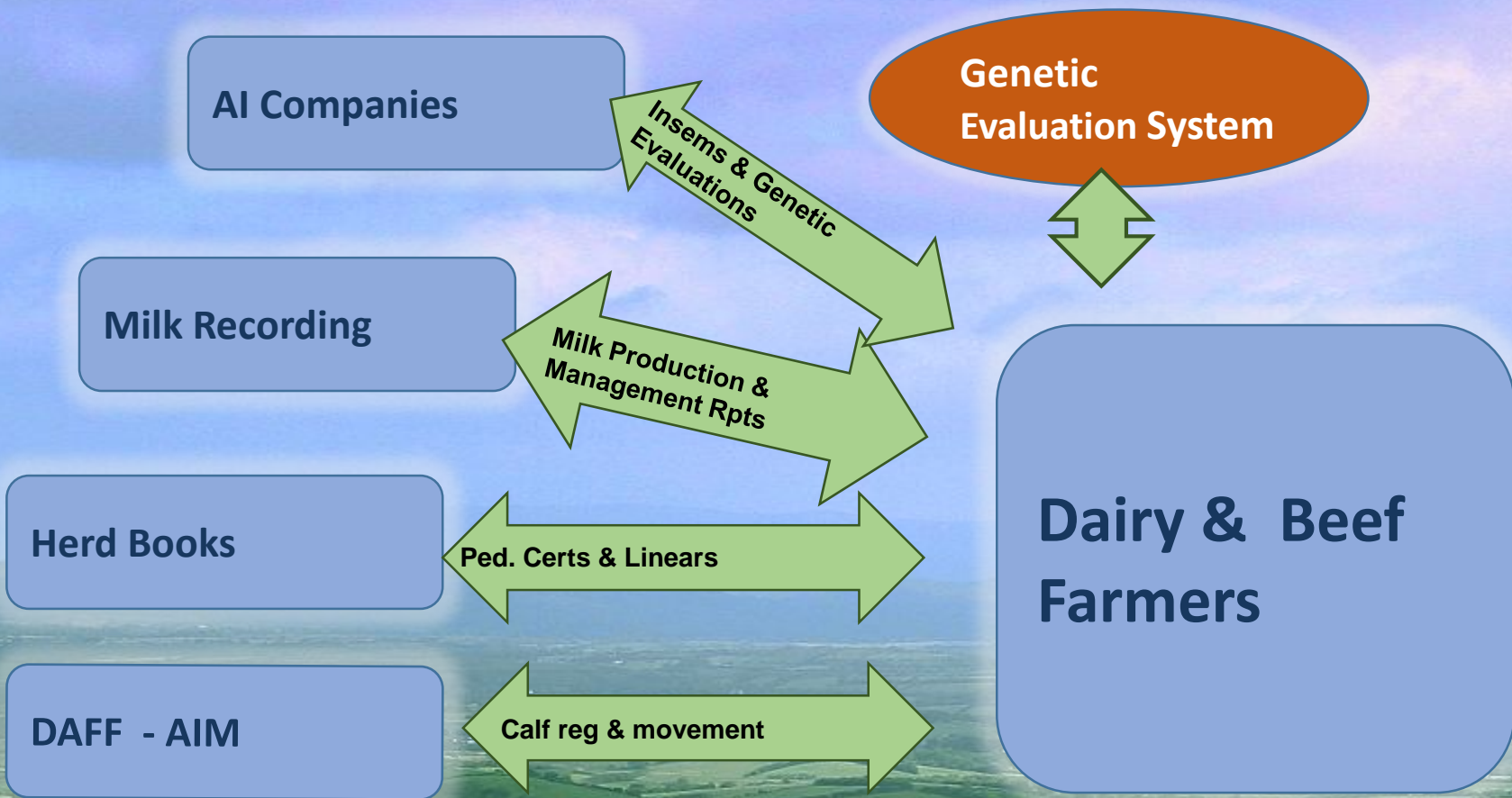


# What Phenotypic data exists?

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- MSA - All with EQ, Very limited phenotypic data
- USDA MARC - Outstanding phenotypic data, No EQ data
- ICBF - All Irish Beef & Dairy cattle, No EQ

ICBF – An Inspirational Model



AI Companies

Genetic Evaluation System

Milk Recording

Herd Books

DAFF - AIM

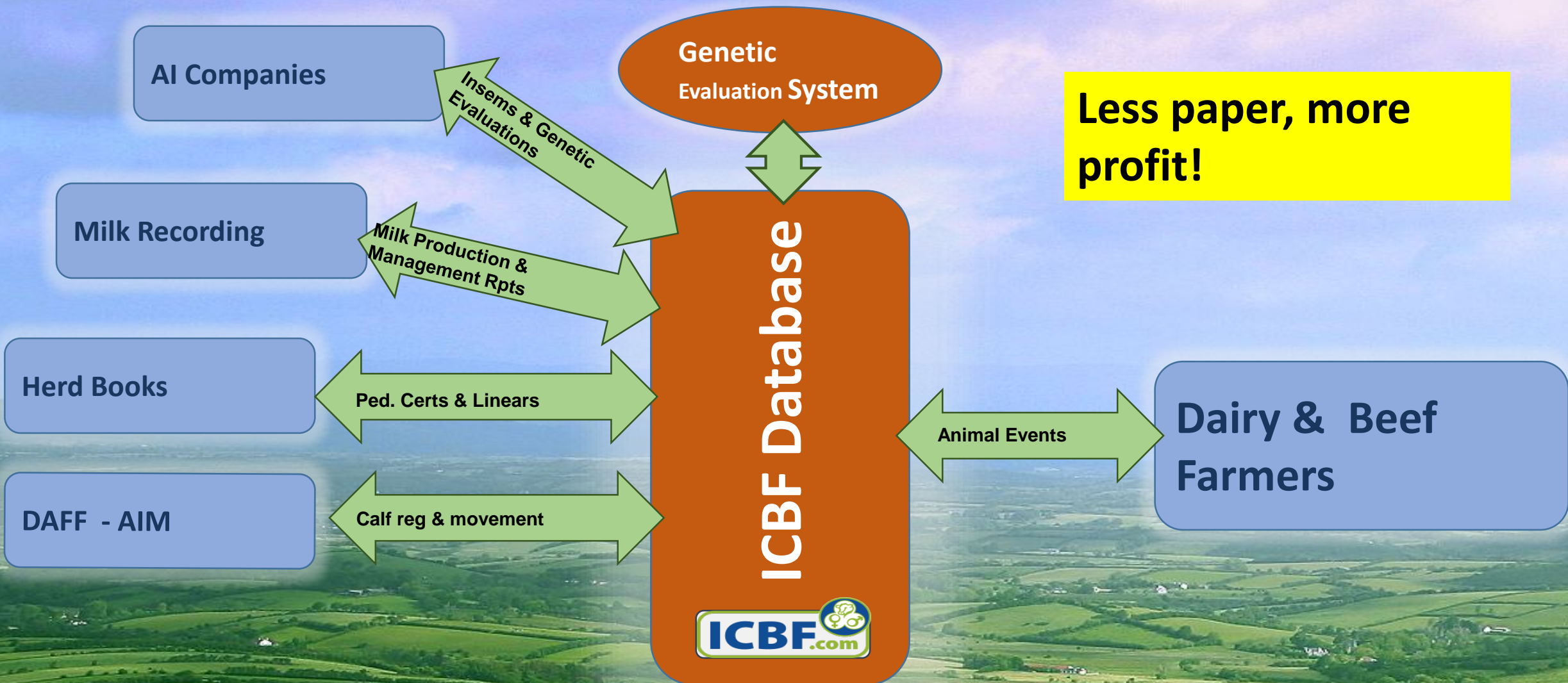
Dairy & Beef Farmers

Insems & Genetic Evaluations

Milk Production & Management Rpts

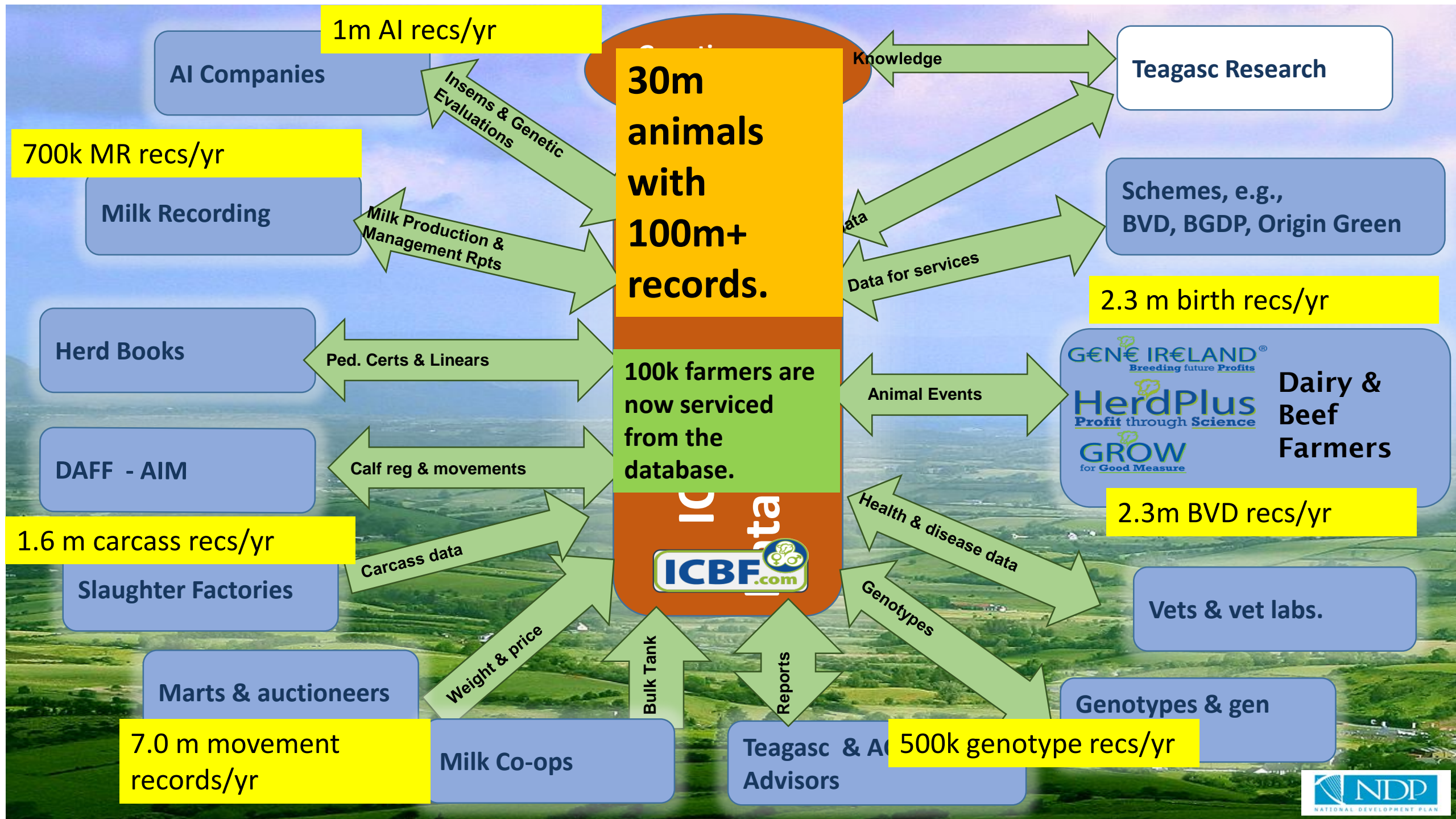
Ped. Certs & Linears

Calf reg & movement



**Less paper, more profit!**





# Where do we stand?

## A trickle down genetic model!

- Breed society dominated structure
- Pedigree augmented by genotyping
- Purebred progeny performance recorded
- 15 mo old bulls sold

**DATA to BREEDPLAN**

**RECORDING DISCONNECT**

- Commercial pure & cross bred progeny
- Carcase including MSA data

**DATA LOST**

Genetic application severely restricted by structure which doesn't access this data

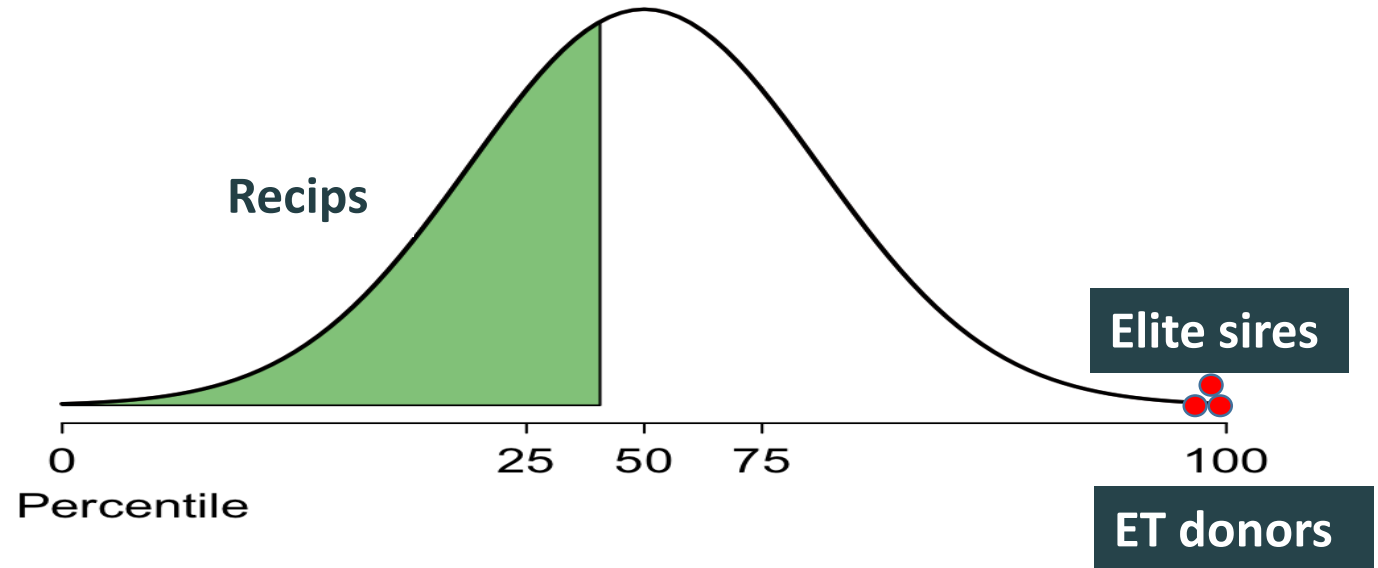
# Some personal experience..

## DAIRY

- 1000 AI bred heifers from 3 Australian states
- Feedlot feeding system
- Low milk & fat cows



**Genetic Limitation**



**Production doubled within 2 generations**

# Some personal experience..

## BEEF

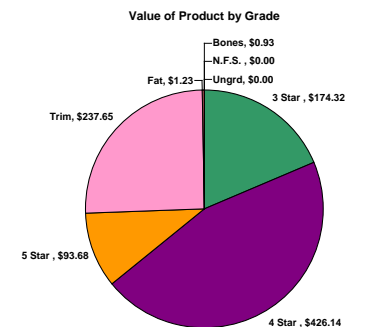
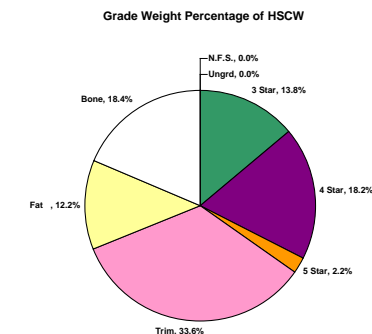


### Charlton Feedlot

- Individual animal records from 1971 – 1990 documented \$200/Hd difference based on growth alone within individual lots

### Polkinghorne's Paddock to Plate Retail Brand 2000 - 2010

- Individual muscle, fat & bone weights on 5,000 carcasses
- Individual muscle EQ score
- Direct VBM payment @ 40% of retail
- \$0.50 to \$1/Kg HSCW difference in carcass values in every mob



# Some personal experience..

## BEEF



### 'MARRINYA' Enterprises

- 500 Breeding cows (2- 10yrs old)
- Rotational 3-way cross - Angus, Shorthorn, Composite
- Single sire joining, birth weighing & ID
- 3 calving seasons – Autumn, Winter, Spring
- Comprehensive data for genetics, DNA, production, carcass & retail value



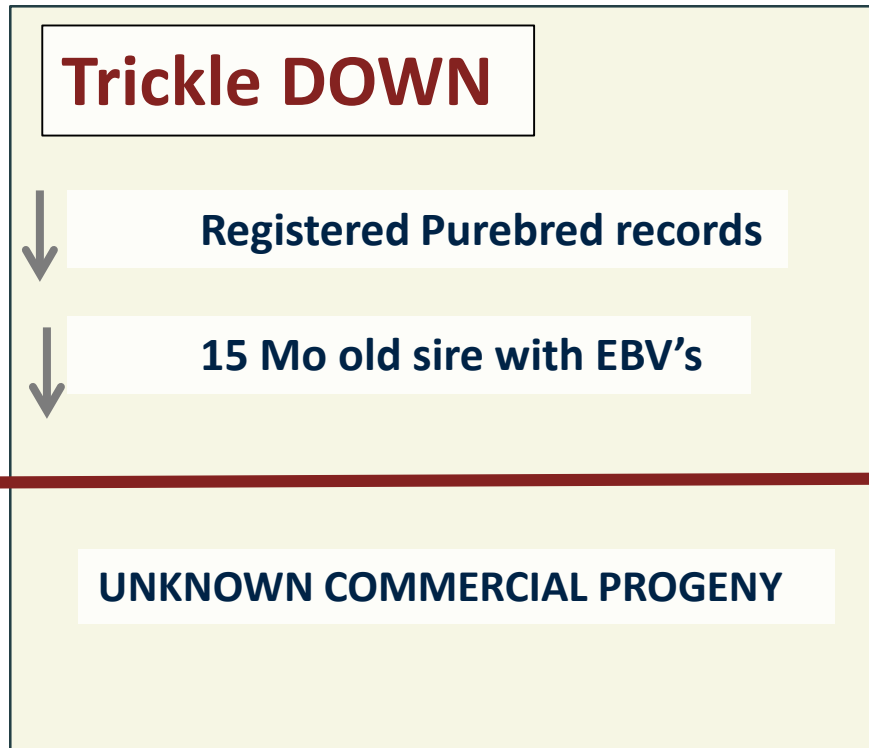
**Which cows should be culled?**  
**Which cows should be ET donors?**  
**Sire Ranking?**

**Absolutely no idea as couldn't access reliable analysis!**

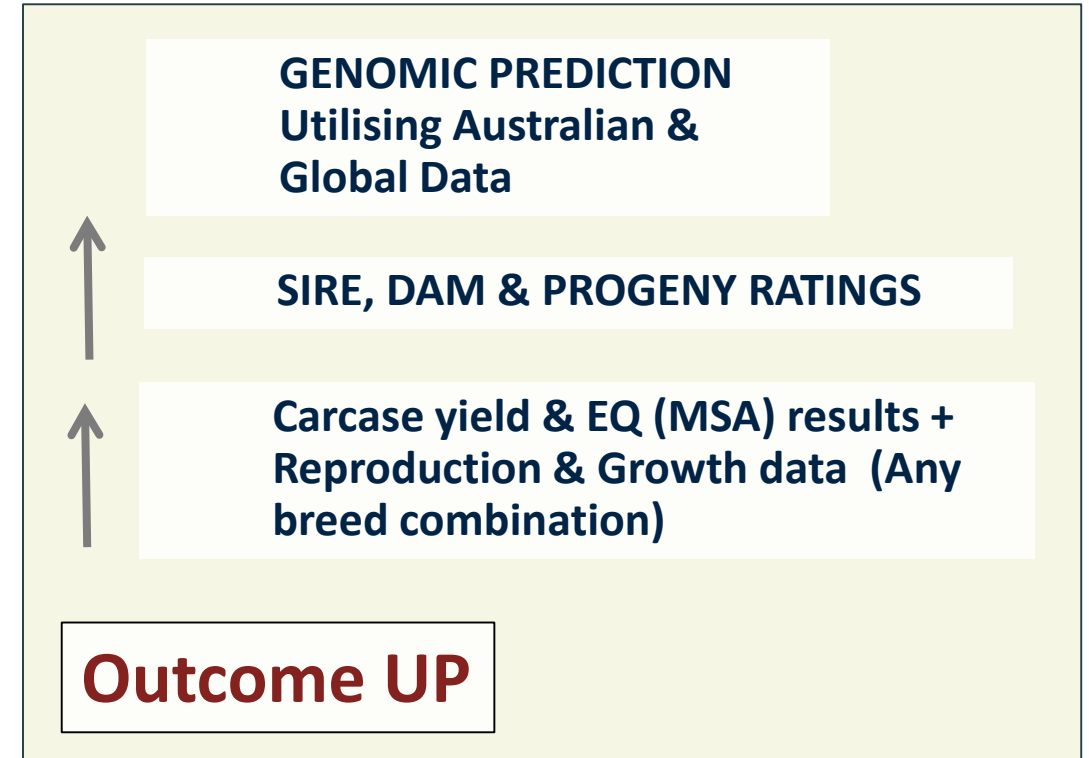
**Current systems fail to evaluate commercial multi-breed cattle**

# The Opportunity

**FROM:**



**TO:**



**The NLGC outcome should be a revolution in cattle industry efficiency & genetic progress enabled by collaborative global data sharing and incentivised by VBM**