

Economic values and fertility evaluations

01 July 2009

Economic values

- Milk price currently 30 c/l in EBI
 - Long term?
- Updating of costs of production
- Cow weight costs currently calculated outside the bio-economic model
 - Build into the model
- Work on-going on linking to a processor model

Use of insemination data – Objective

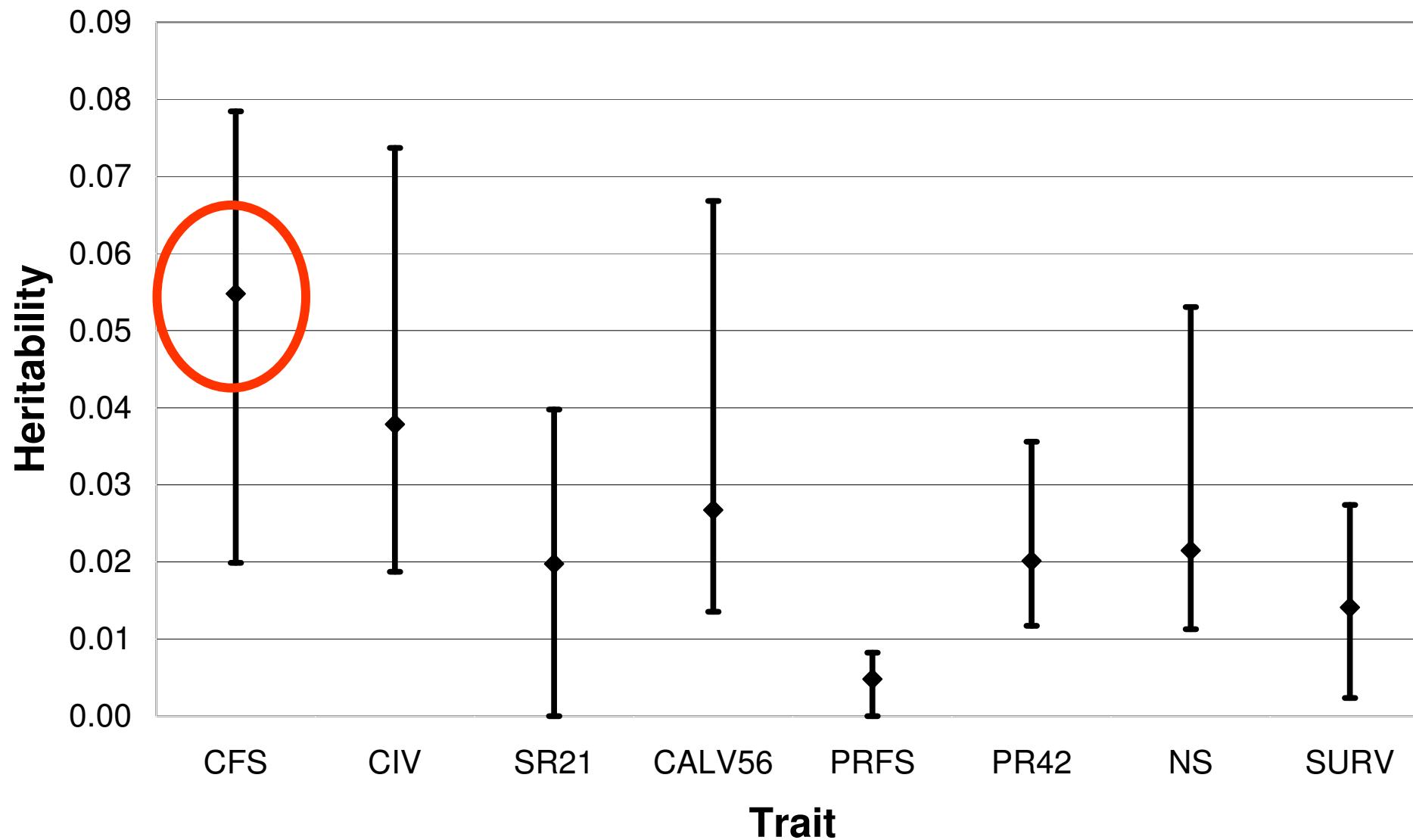
- To predict genetic merit for calving interval earlier using more biologically suitable traits like calving to first service interval
- Increase the number of lactations in the evaluations
- To evaluate other potential fertility traits for Ireland
- To more objectively evaluate sire fertility and technician performance

Use of insemination data

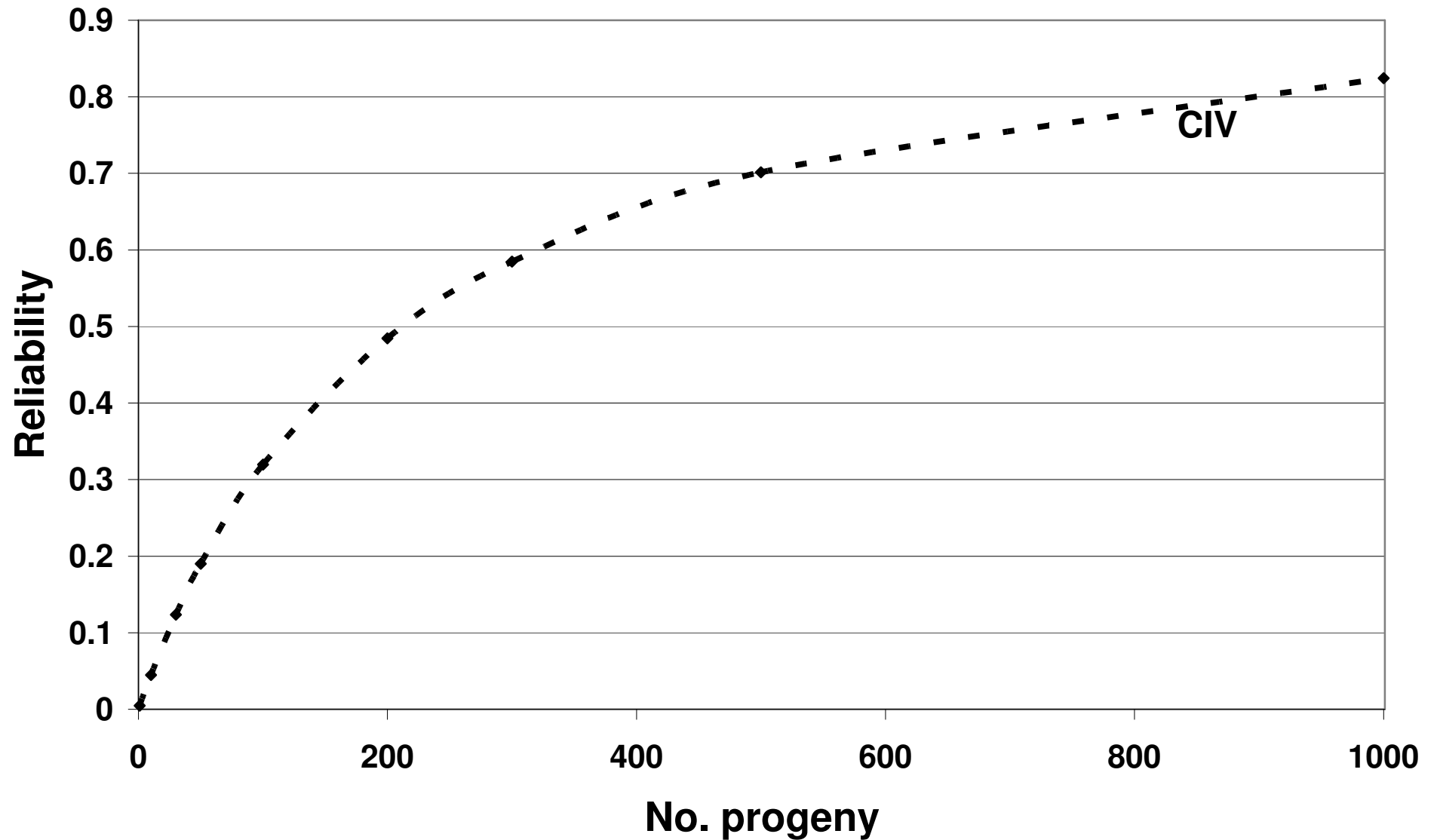
- Analysis using data pre-2009
- Some genetic correlations difficult to estimate
 - Lack of data??
- Now:
 - >2 million AI inseminations
 - >200k natural matings
 - 400k pregnancy diagnosis
- Integrate dairy and beef evaluations

Results of previous analysis

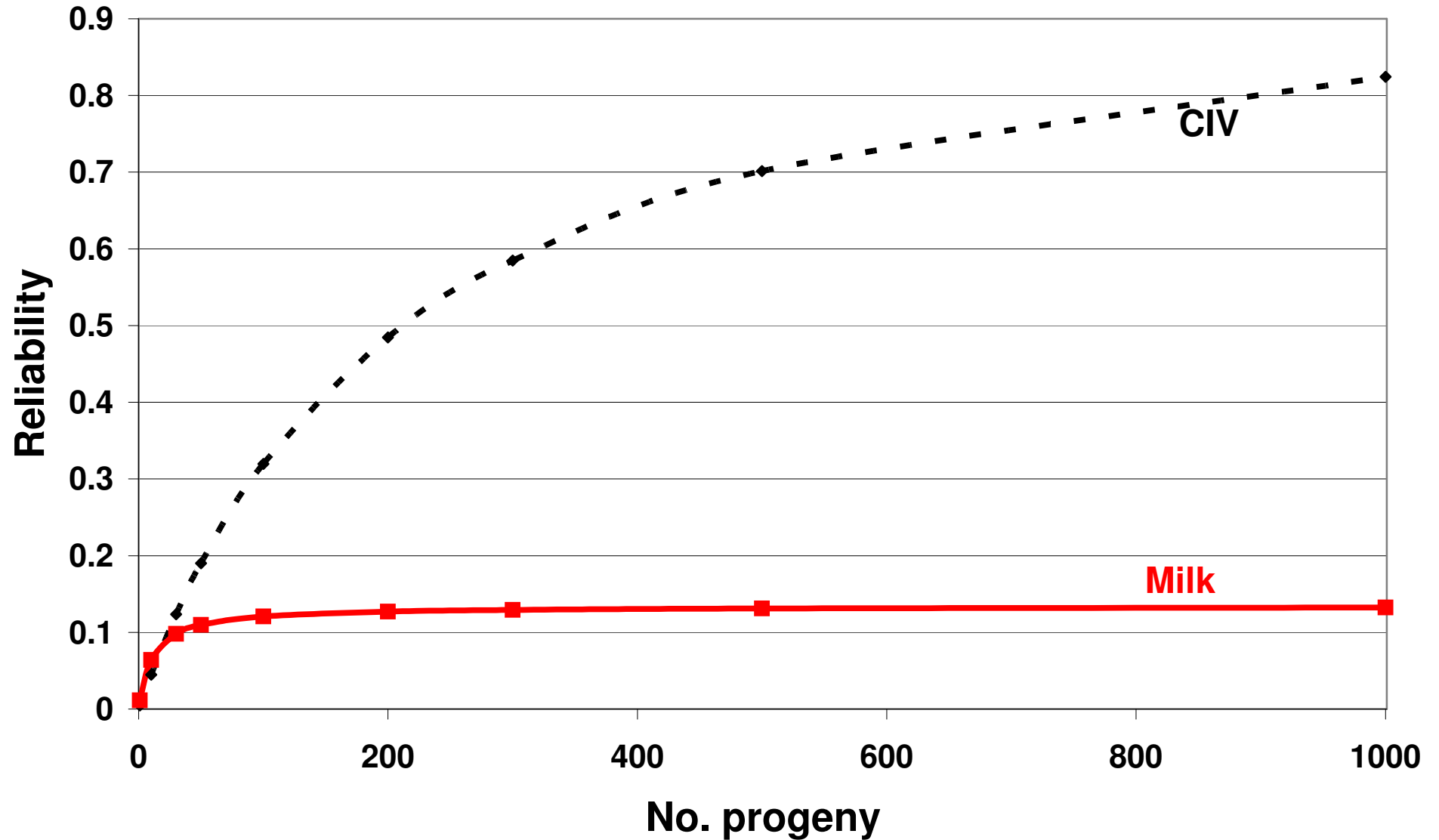
Heritability - variation



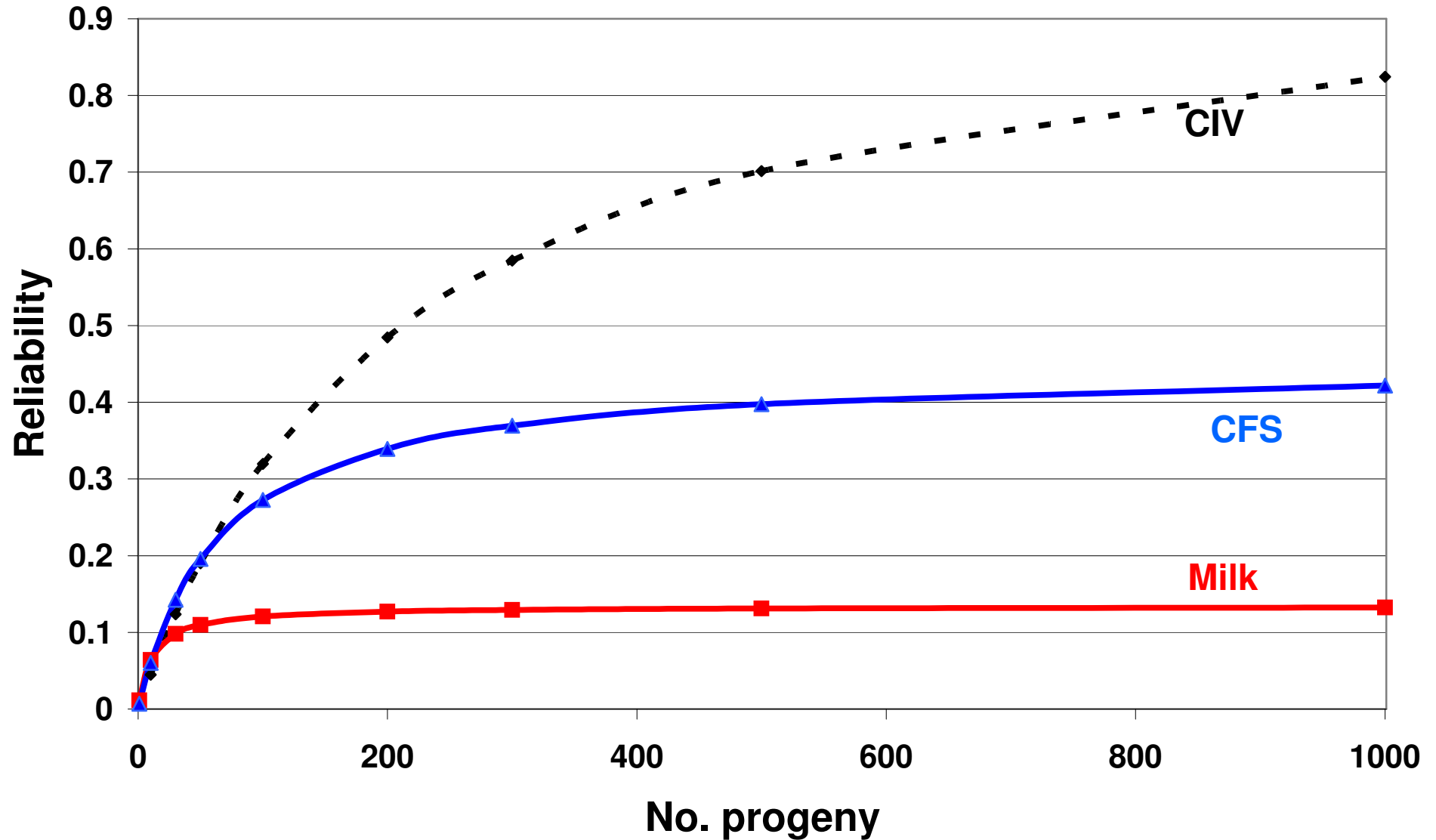
Reliability of calving interval



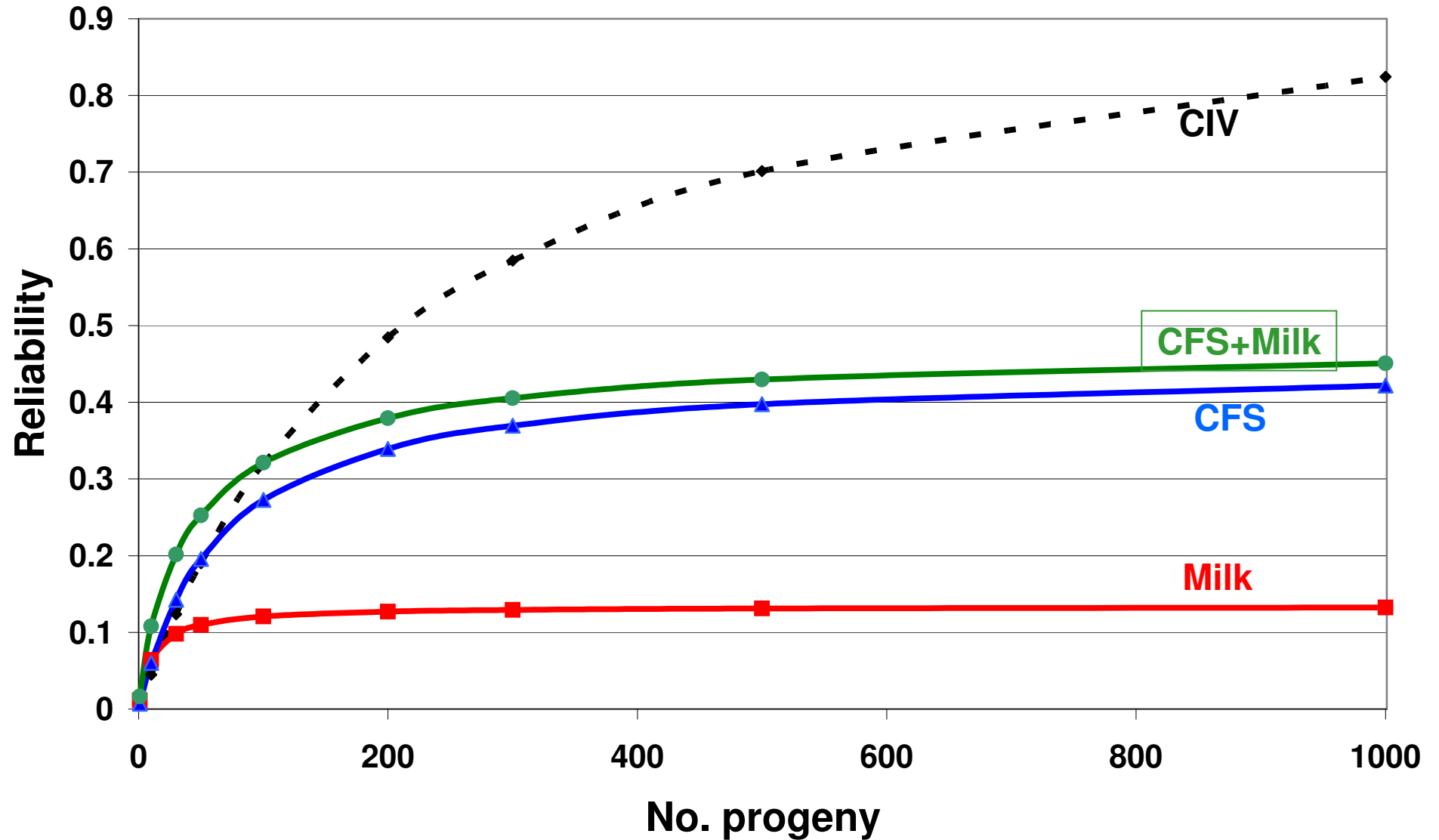
Reliability of calving interval



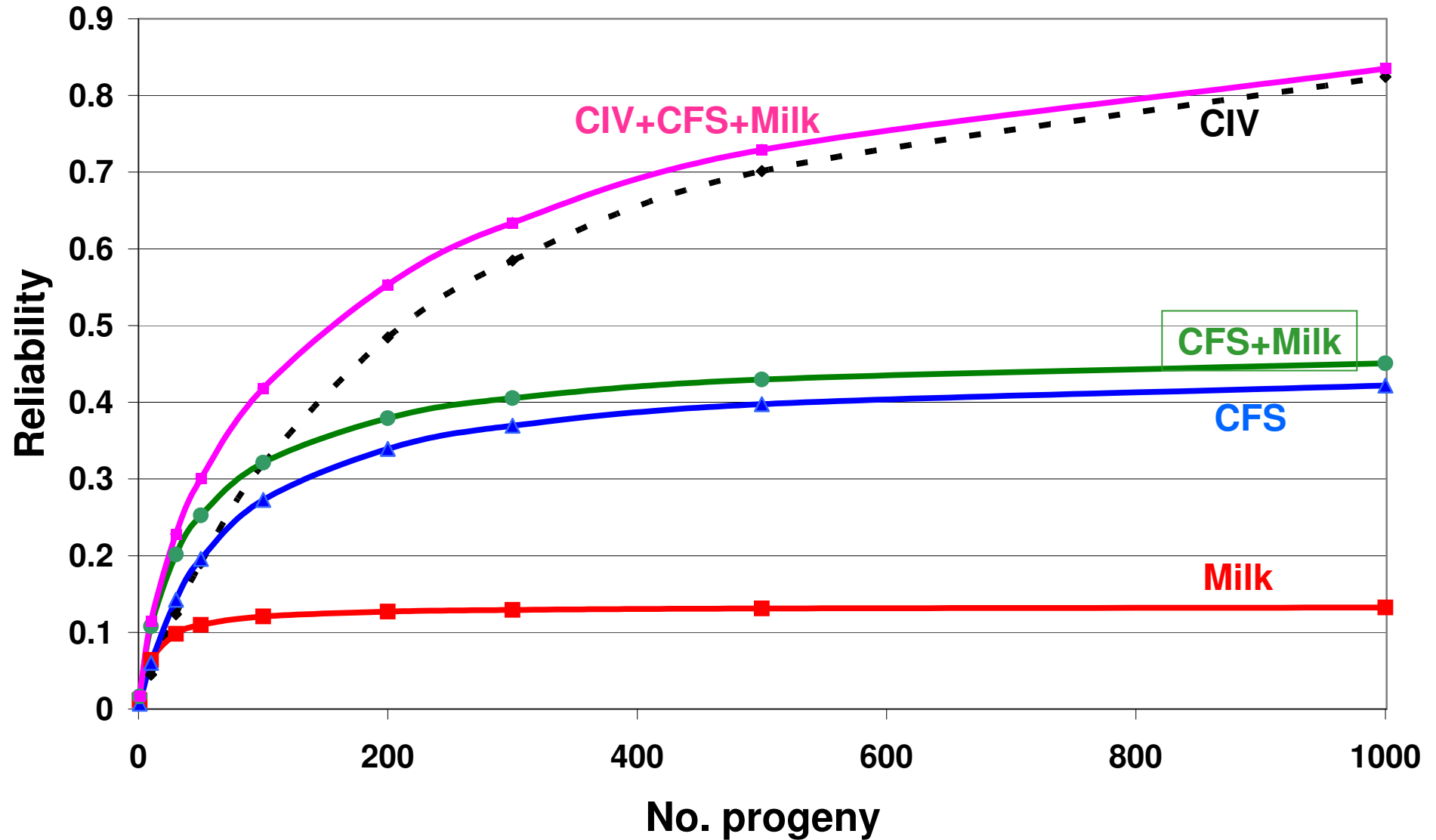
Reliability of calving interval



Reliability of calving interval



Reliability of calving interval



Preliminary results

- Calving to first service appears to be a suitable predictor of genetic merit for calving interval
- Aim to have test run available in August 2009

Revision of the beef component in the EBI

N. McHugh, P.R. Amer, A.G. Fahey,
R.D. Evans & D.P. Berry



Motivation - Dairy

- Beef sub index added to dairy EBI in 2005
- Abolishment of milk quotas - drop calf price may become more important???
- Need to be proactive

Overall Objectives

- To investigate the potential use of data from livestock marts and herds in a national breeding program

Materials & methods

- > 3.8 million mart records
- 800,000 on farm weightings
- Data divided into:
 - Calves
 - Weanlings
 - Post-weanlings
 - Cows

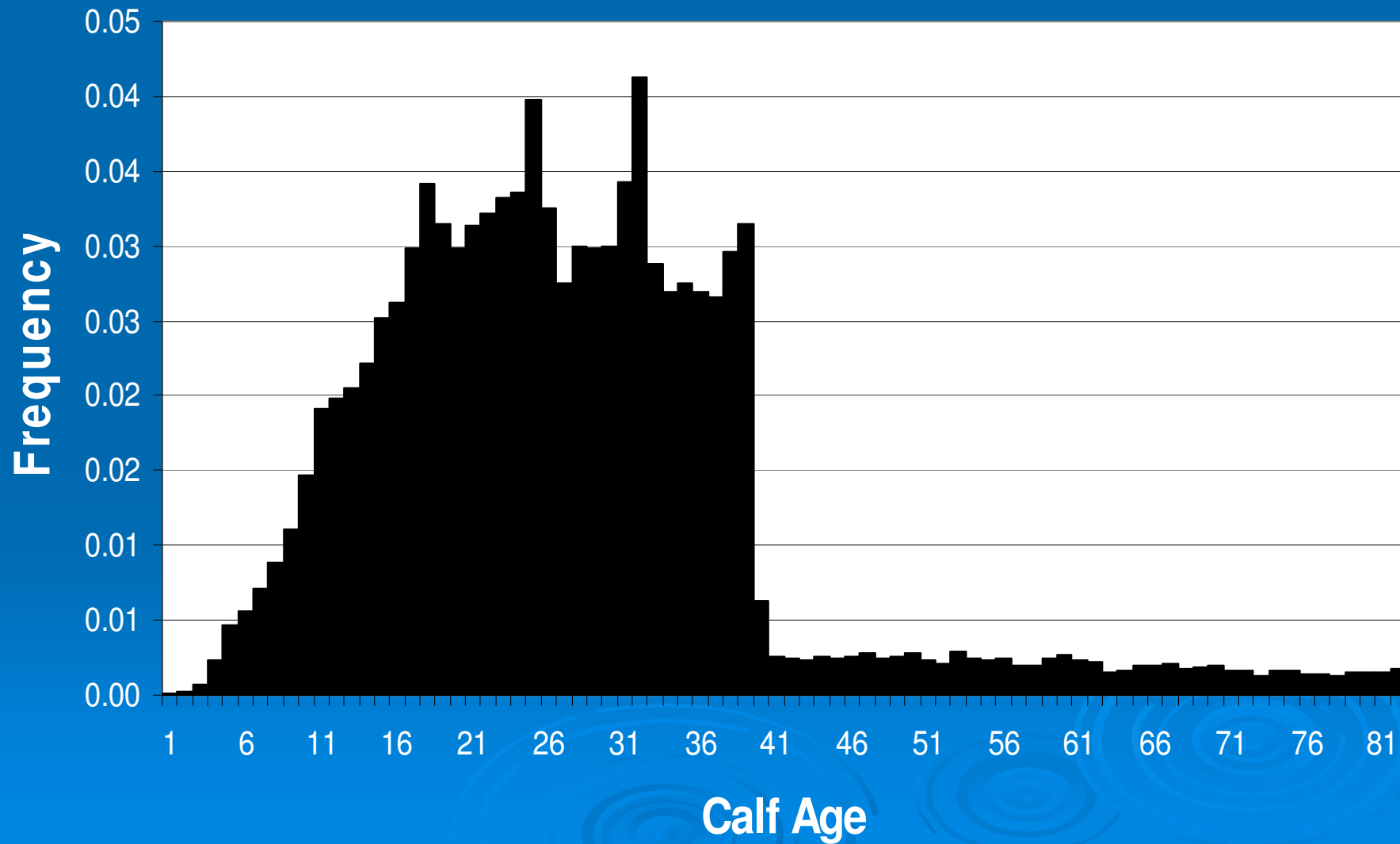
Calves



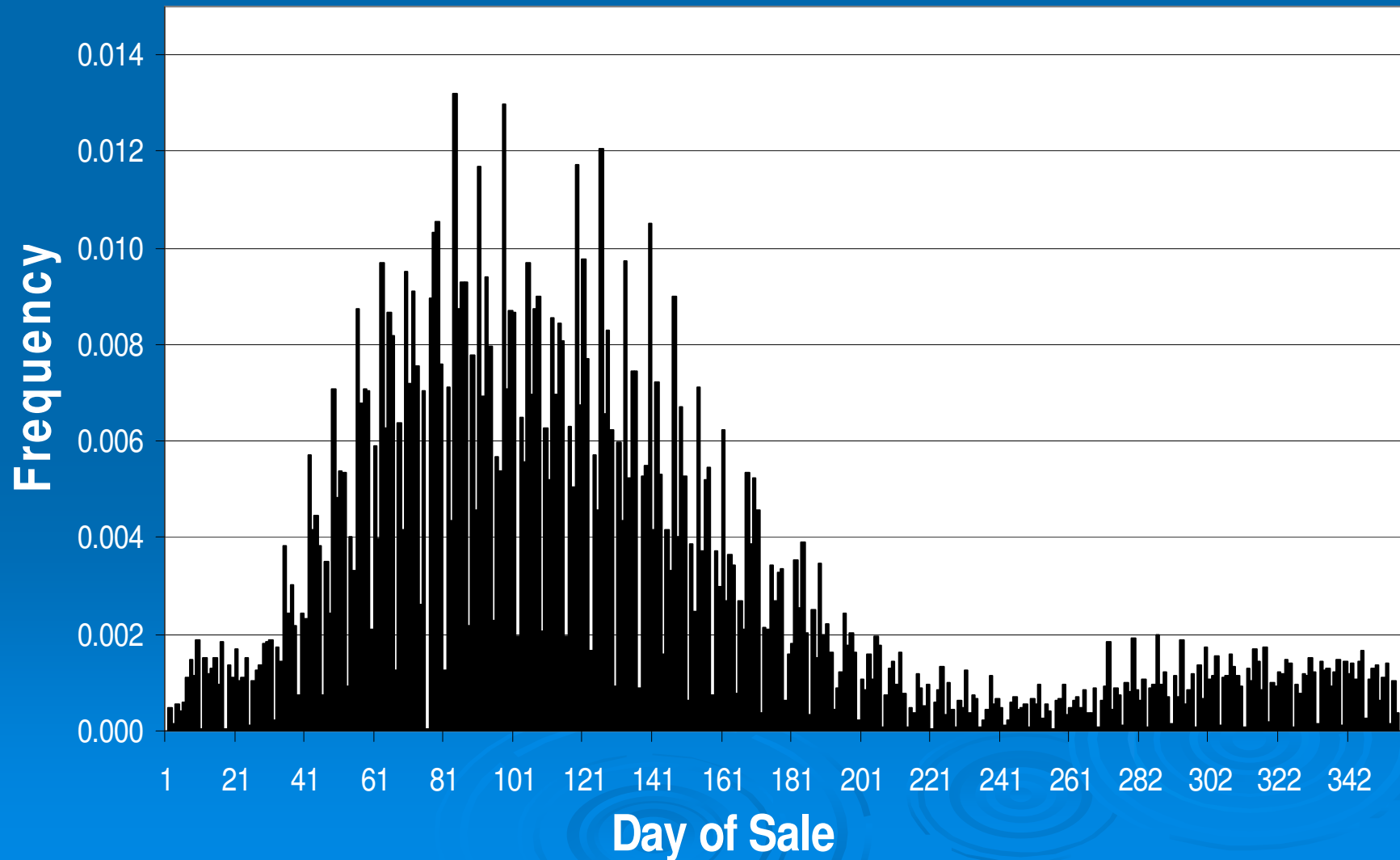
Calves

- Only dairy animals
- Age 2 – 84 days
- Subdivided into 3 age categories
- Price
 - €2- 450
- Weight not available

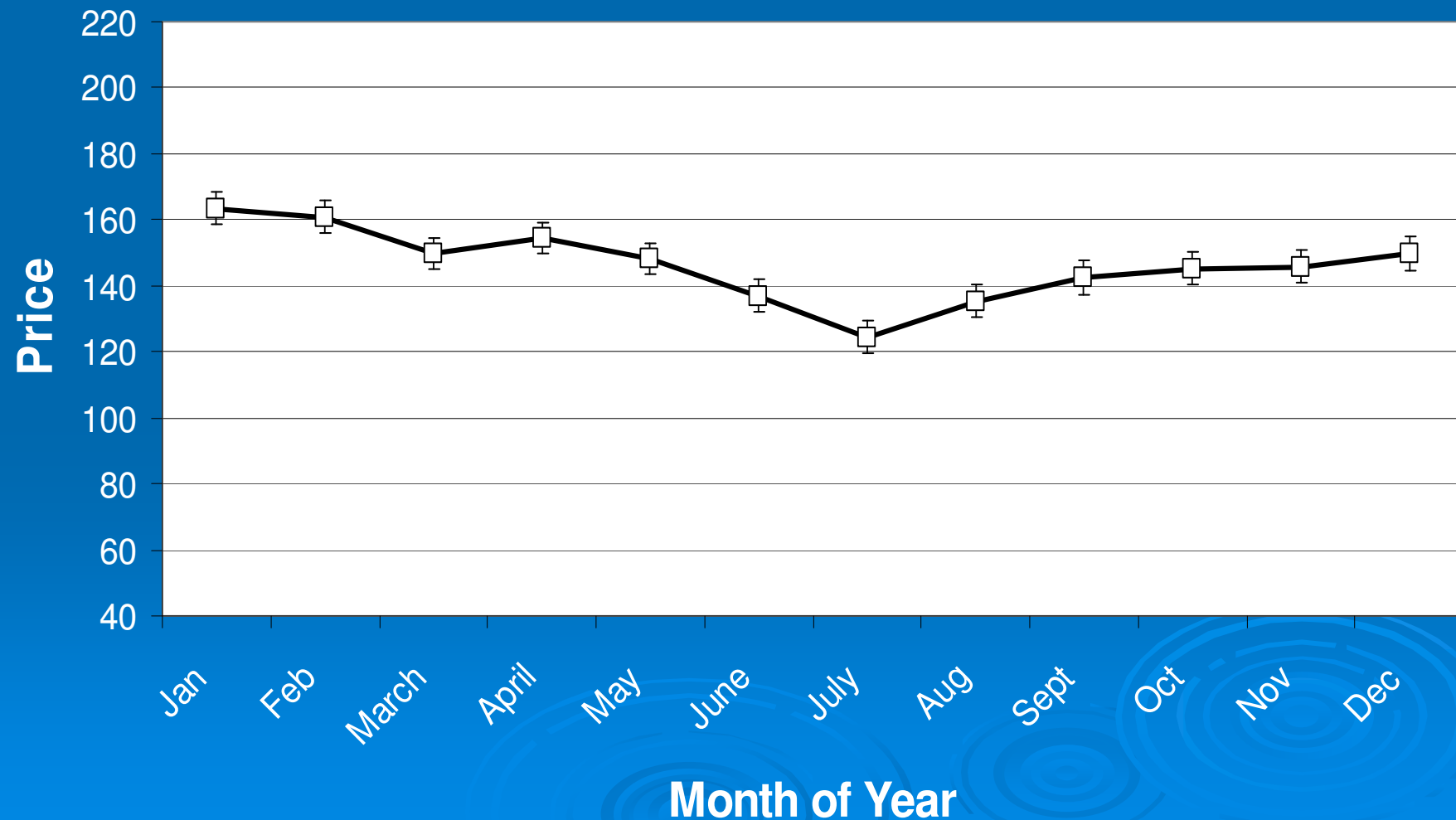
Calf Age



Day of Sale



Mean Price for Calves across months



Results Calves

Breed	Male	Females
Fr	€158	
HO	€138	
HO x LM	€197	€151
HO x SI	€226	€180
HO x AA	€171	€126
HO x BB	€258	€213

Results - Heritability estimates

- Heritability 0.32
- Correlations
 - Female vs. males 0.57
 - Across age groups ~0.70

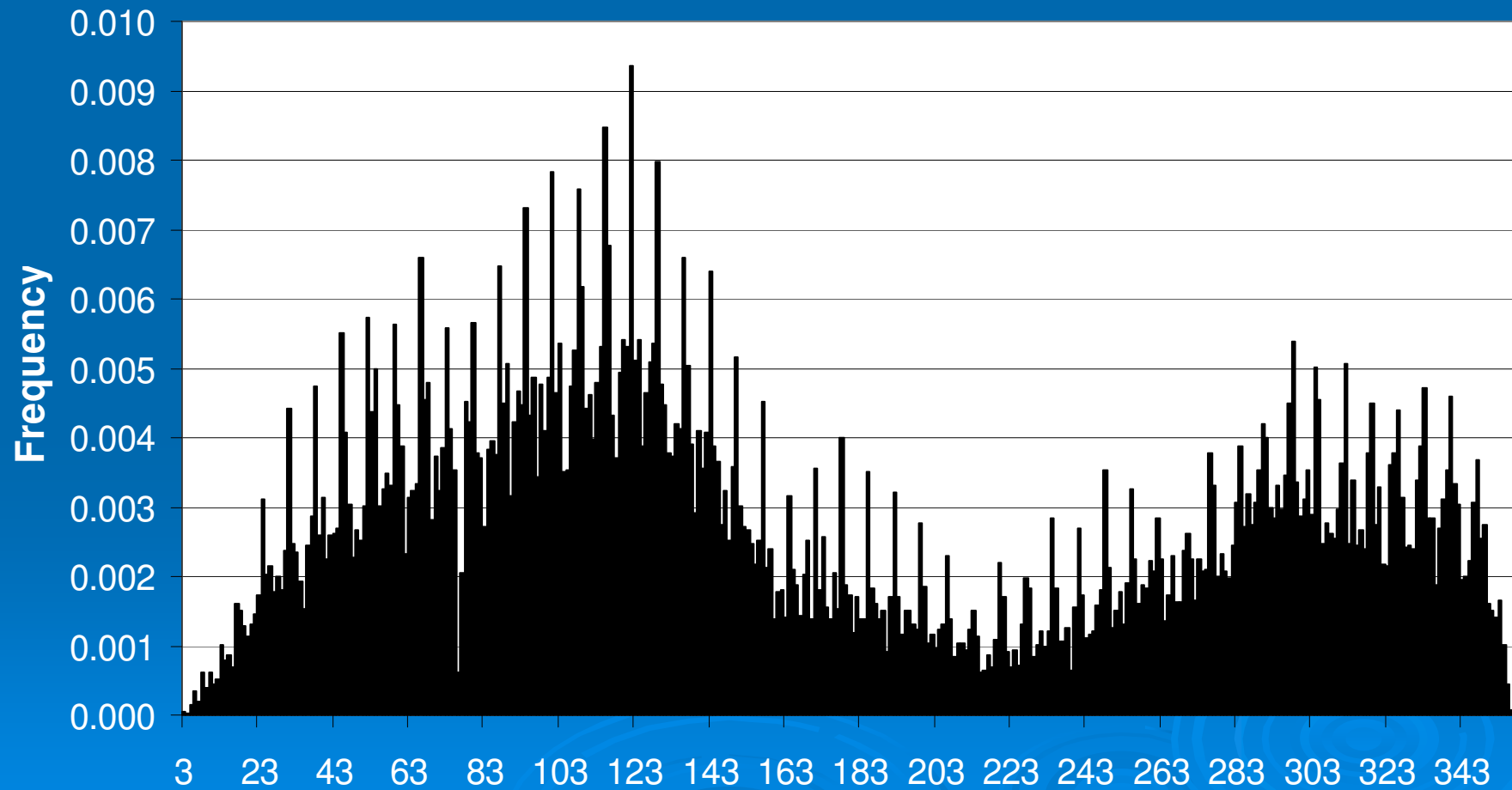
Cows



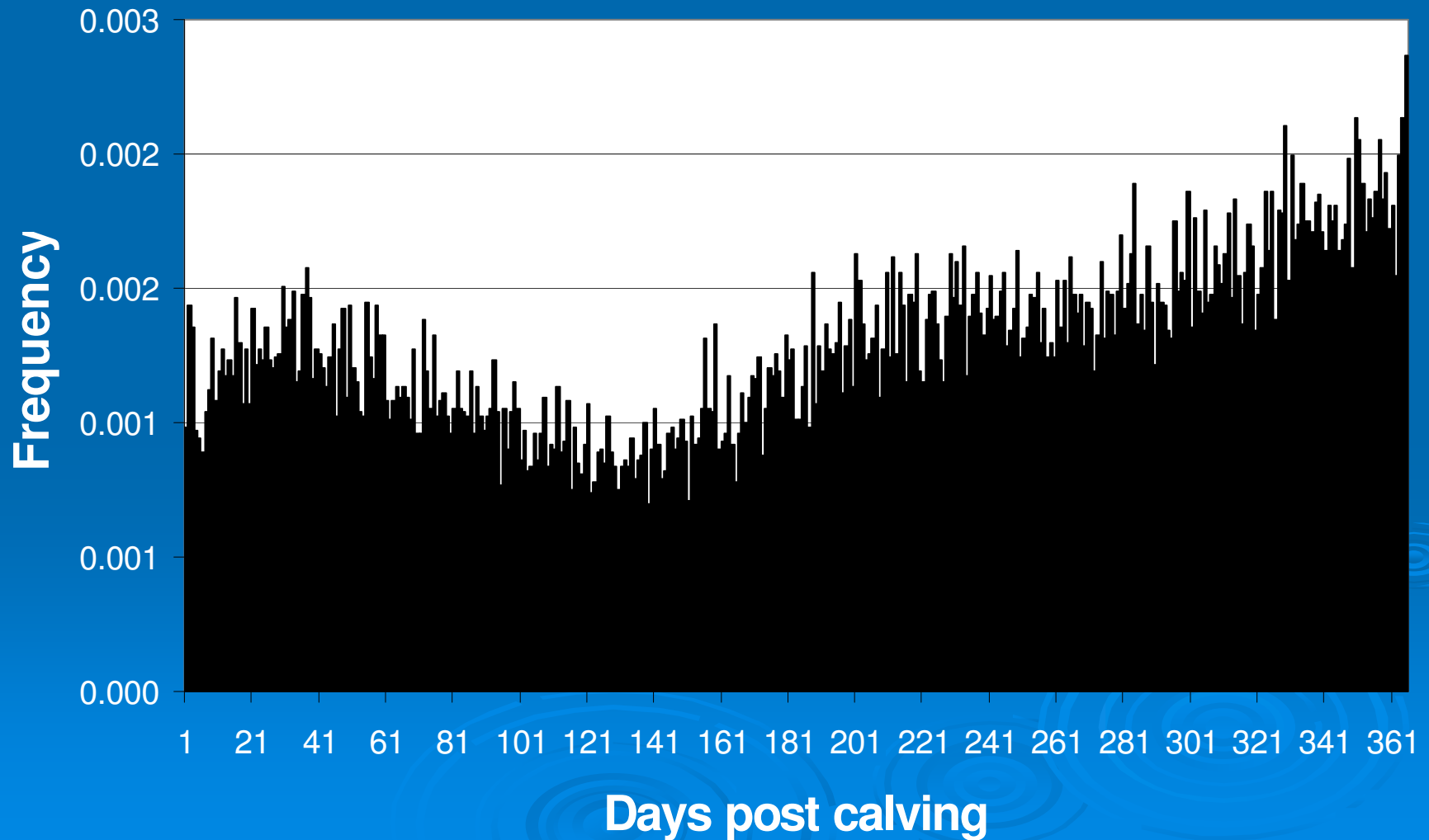
Cows

- 1 calving record and or >30 months
- Lactations 1- 10
- Price
 - €100-1500
- Weight
 - 300-1000 kg
- Incl cows in calf, cows slaughtered post sale, and cows used for replacements

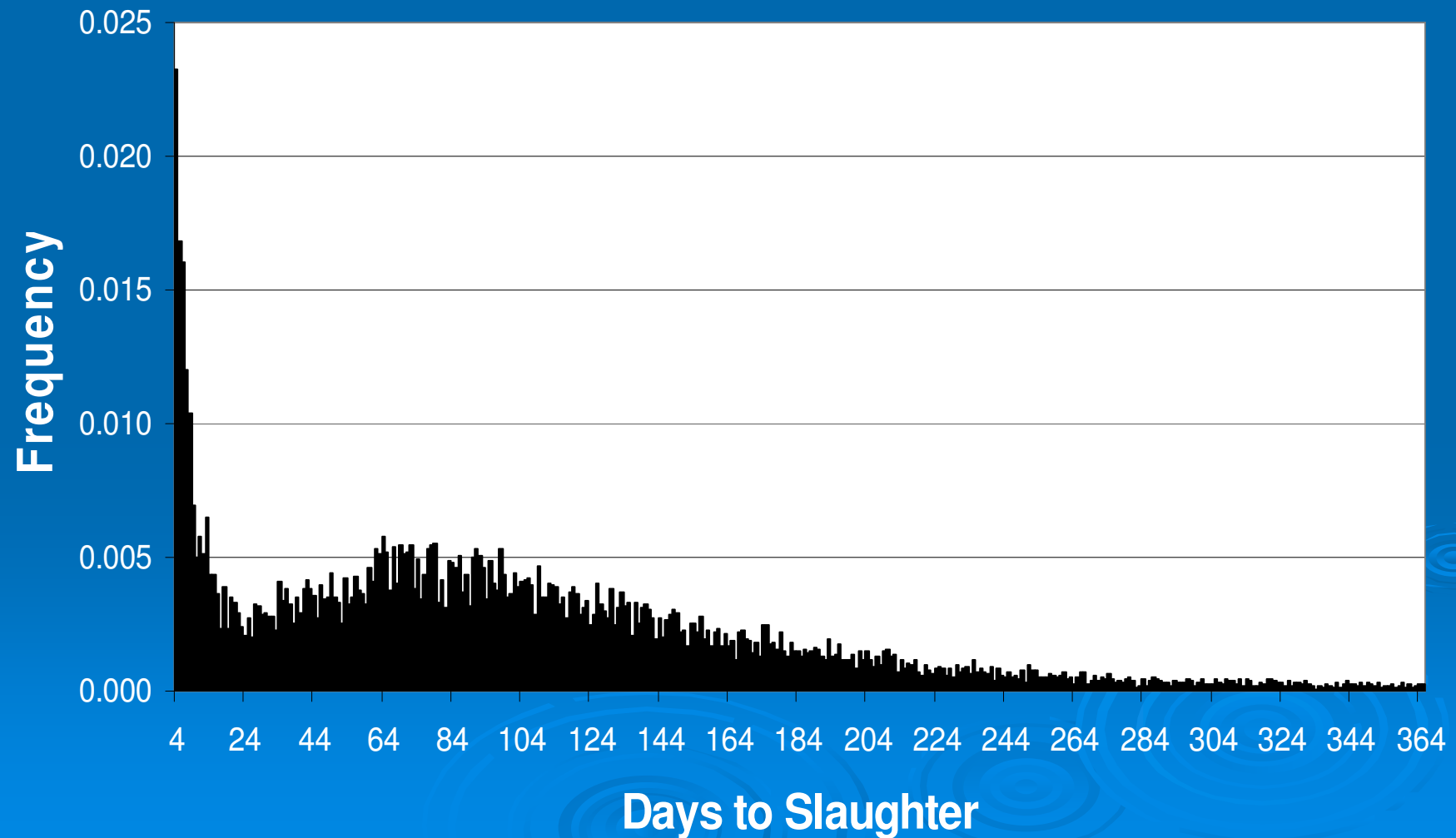
Day of Sale across the year



Days post calving at sale



Days to slaughter from sale



Results - Heritability estimates

➤ Heritability

- Price 0.07
- Weight 0.26

➤ Correlations across ages

- Weight 0.80
- Price 0.91
- Price & weight ~ 0.50

Economics



Current Beef Sub-Index

Carcass weight

Carcass conformation

Carcass fat

Cull cow weight

Beef Sub-Index – Cow

Cull cow weight

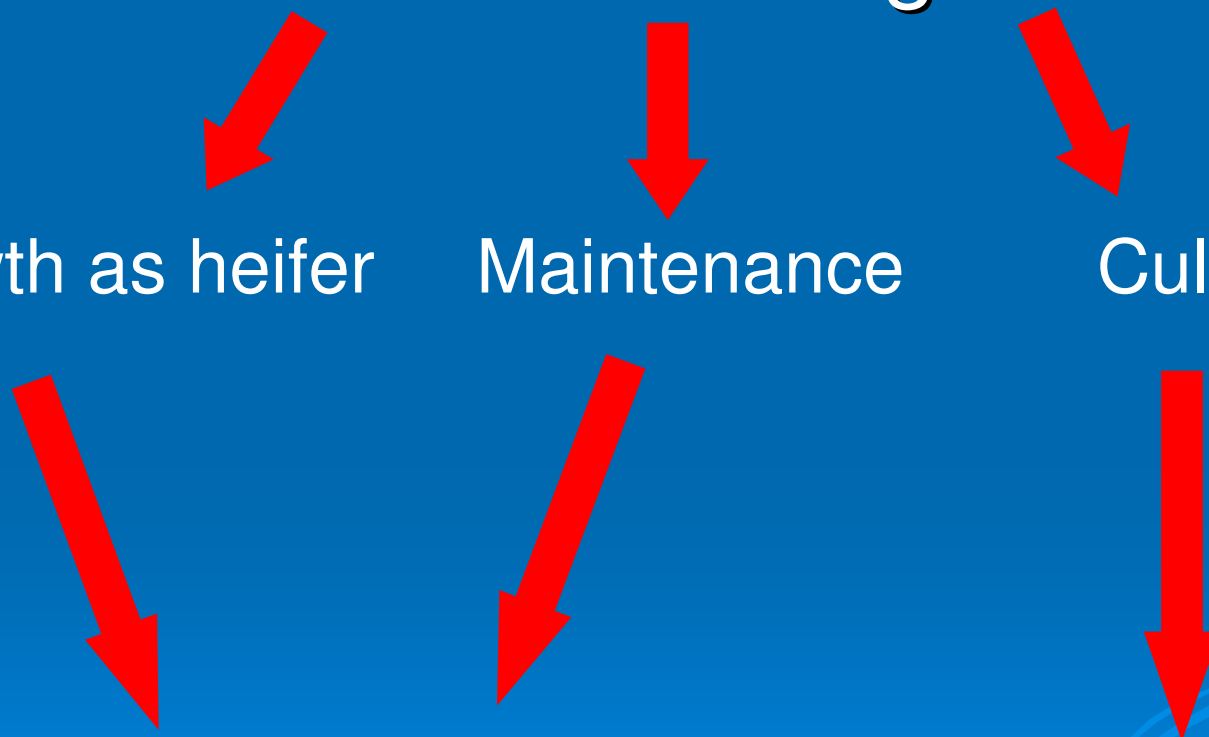
Growth as heifer

Maintenance

Cull weight

Efficiency

Cow value



Beef Sub-Index – Calf

Carcass weight

Carcass conformation

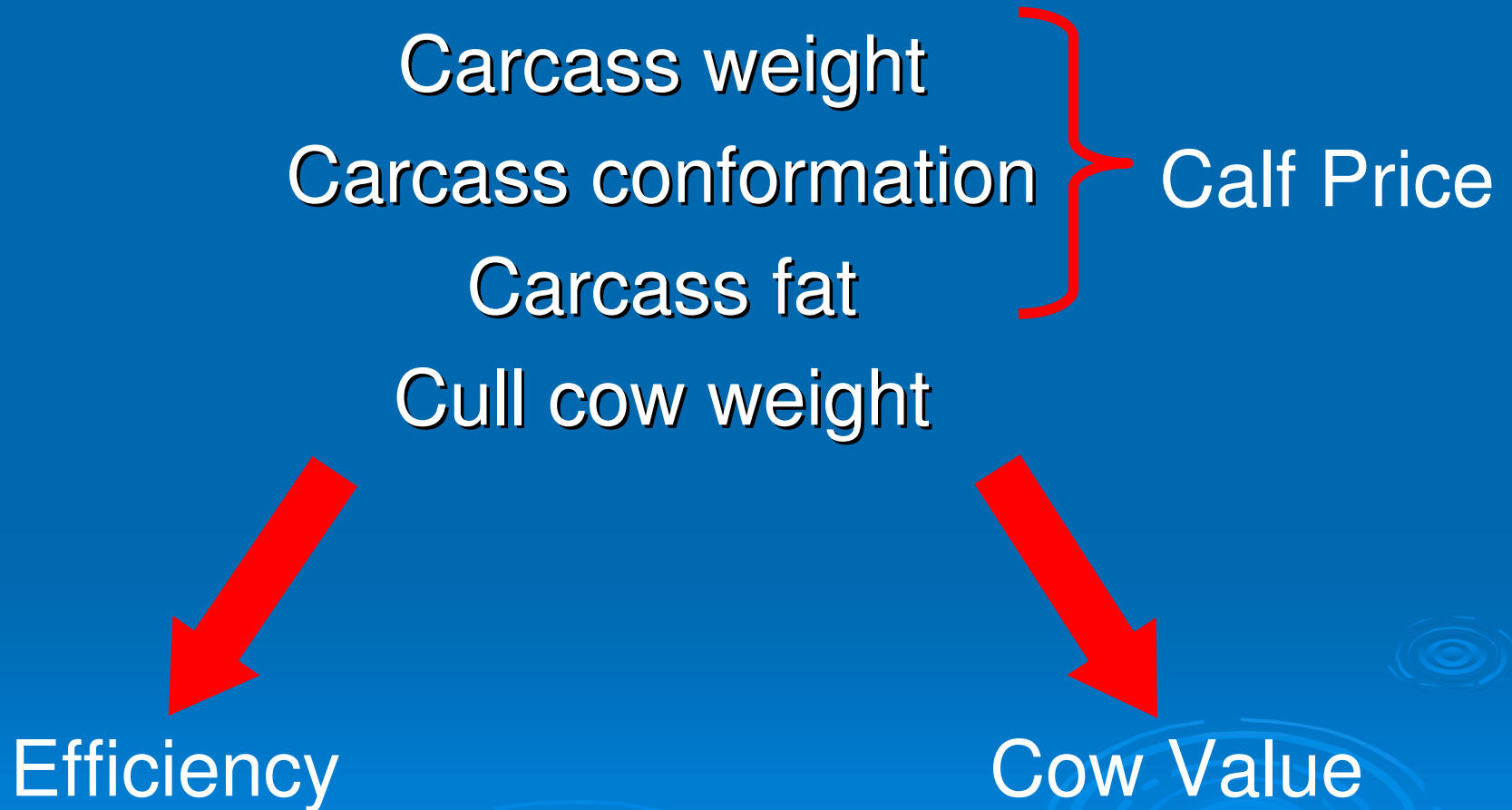
Carcass fat



Calf Price

2004 – 2008

Current Beef Sub-Index



PhD Thesis Chapters

- Potential use of predictor traits
 - Correlate mart data with slaughter and linear score data where available
- Improved statistical modelling
- Genomics
 - QTLs association with growth/price
 - Associations between SNPs in candidate genes and growth/price

Conclusions

- Breeding objective:
 - Important ✓
 - Routinely measured ✓
 - Genetic variation ✓
- Need to integrate into the Genetic Evaluation system
- Test runs available August 2009