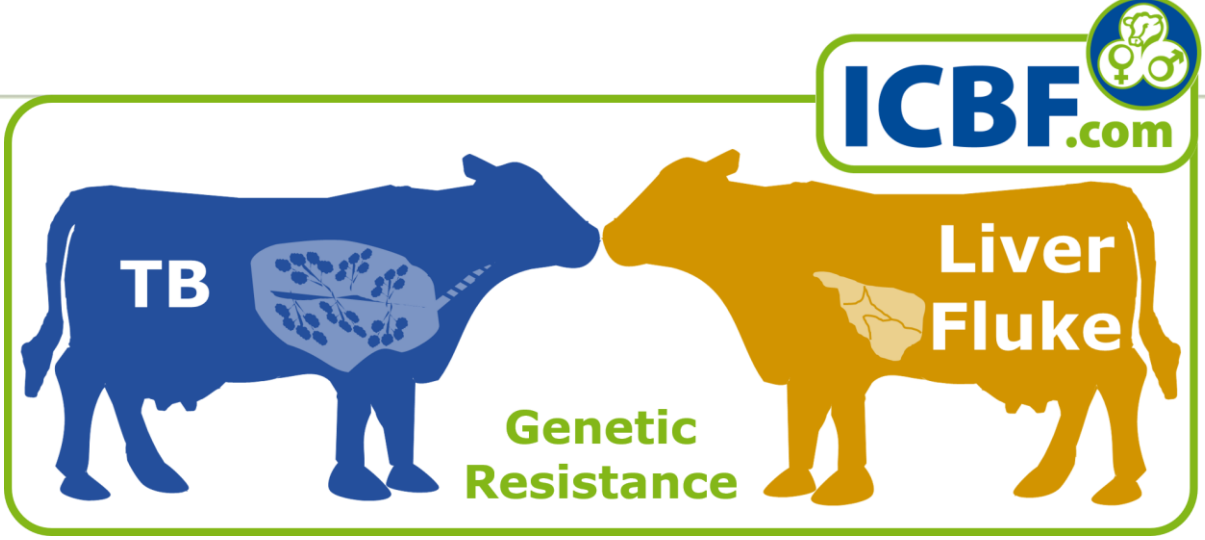


Breeding for Tuberculosis and Liver Fluke Resistance

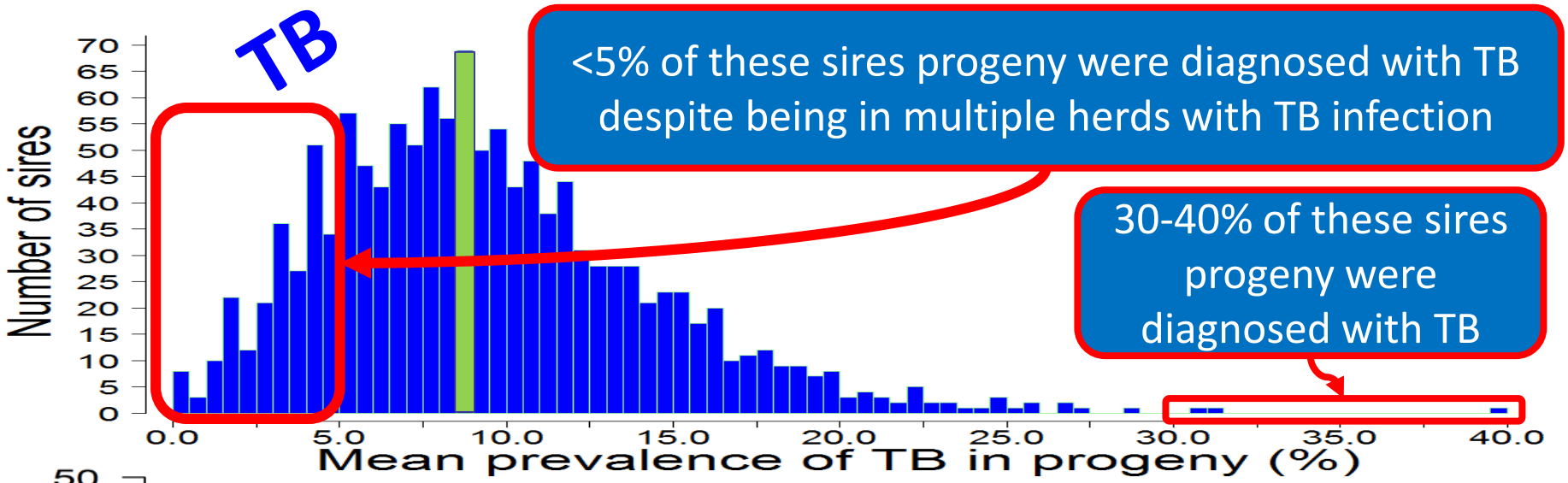


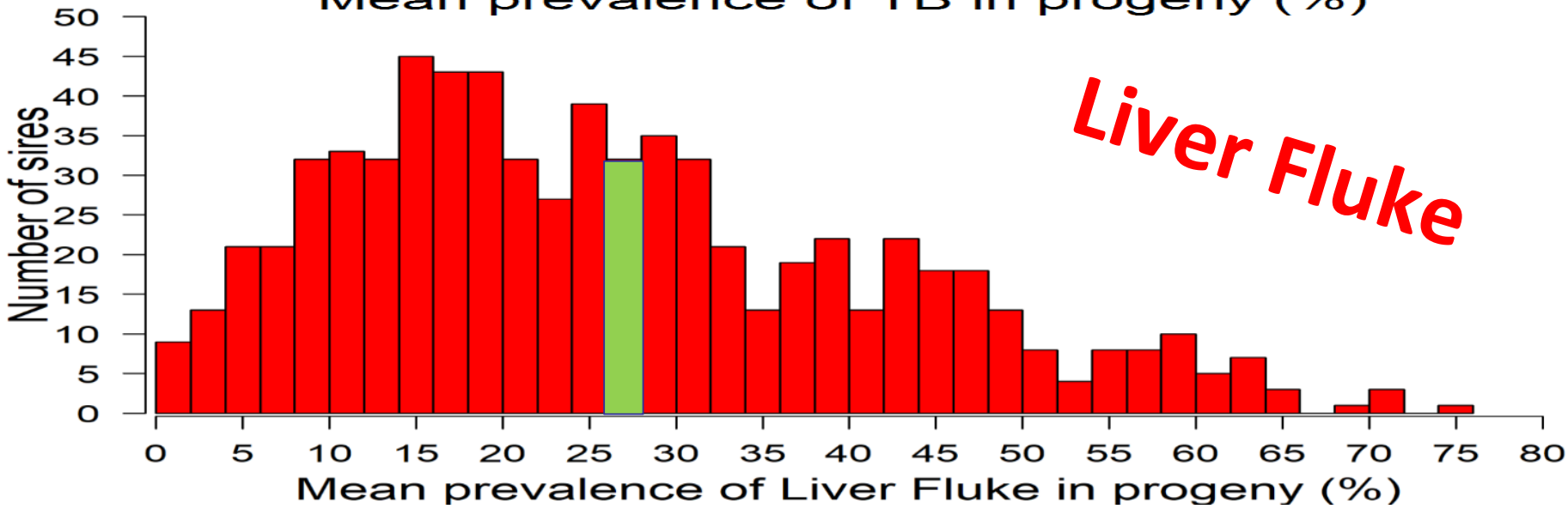
Siobhán Ring

Irish Angus Meeting, 7th February 2019

Department of
Agriculture,
Food and the Marine
An Roinn
Talmhaíochta,
Bia agus Mara

Observing genetic variation

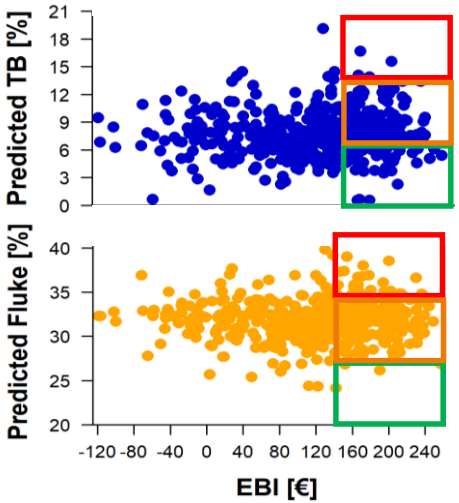




Breeding more resistant cattle

- Genetics is responsible for some of the on-farm prevalence of TB & fluke! ...Also, responsible for some resistance
- TB reactors: **26%** more prevalent in worst Vs best genetic merit
- Liver fluke: **17%** more prevalent in worst Vs best genetic merit

Optimum use of breeding values



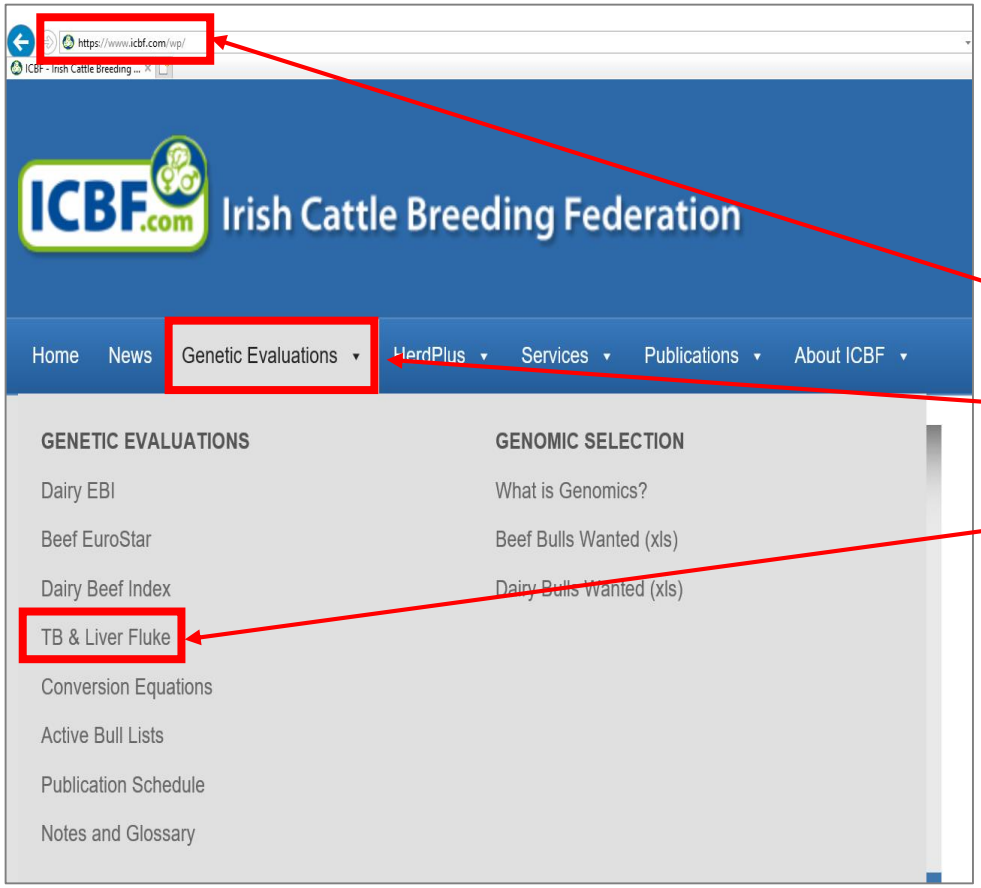
Traffic light system for using TB and liver fluke resistance breeding values

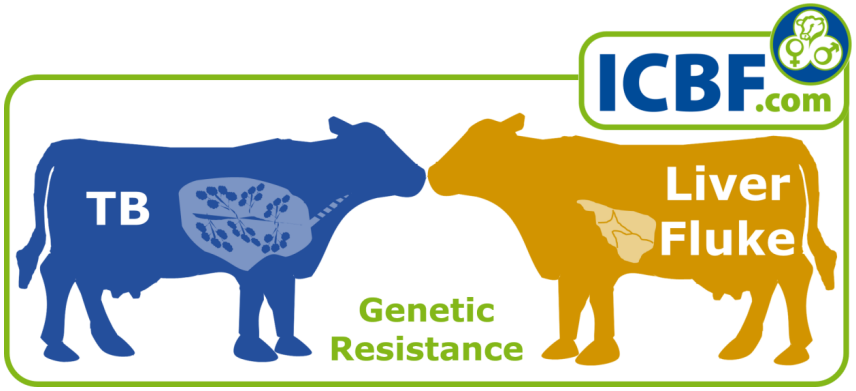
⇒Highest overall index bulls with highest predicted prevalence of infection

⇒Highest overall index bulls with average predicted prevalence of infection

⇒Highest overall index bulls with lowest predicted prevalence of infection

More info…





1. Log on to www.icbf.com
2. Press ‘Genetic Evaluations’
3. Press ‘TB & Liver Fluke’
4. Download the proofs by selecting from the available options

Dairy Beef Index

BREEDING HIGH QUALITY BEEF CATTLE FROM THE DAIRY HERD

ICBF.com

The Dairy Beef Index



Siobhán Ring

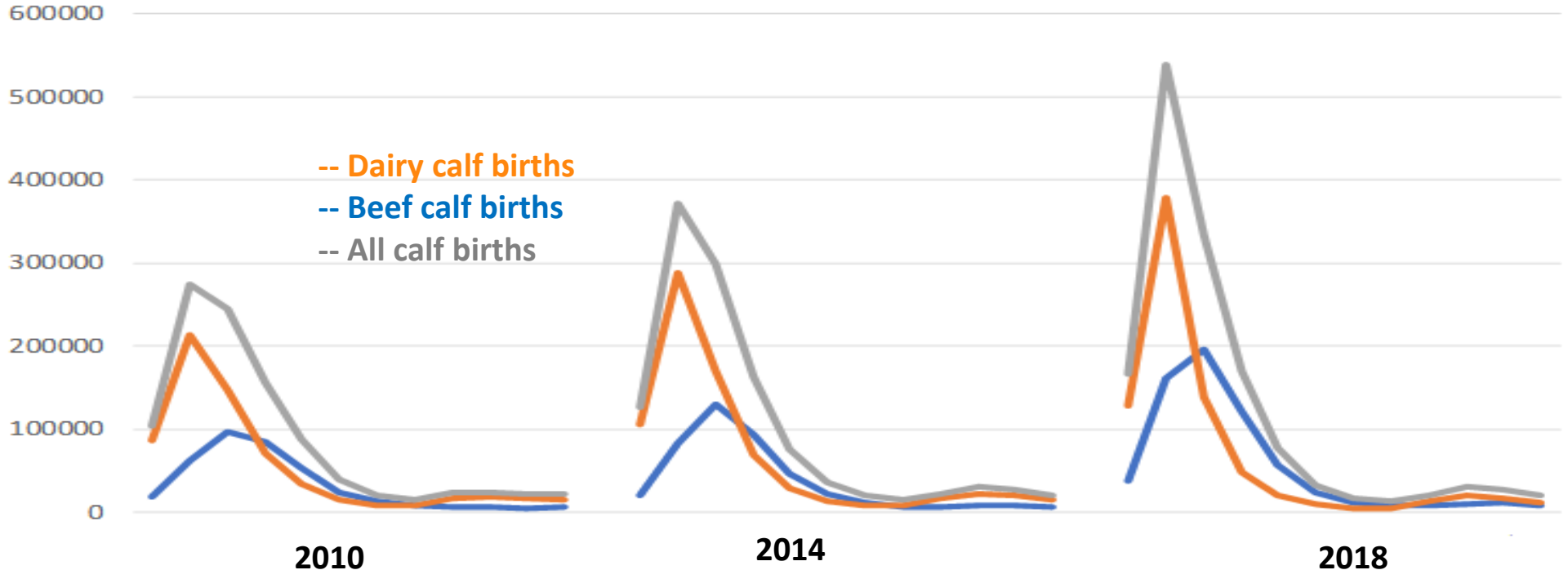
Irish Angus Meeting, 7th February 2019

Department of Agriculture, Food and the Marine

An Roinn Talmhaíochta, Bia agus Mara

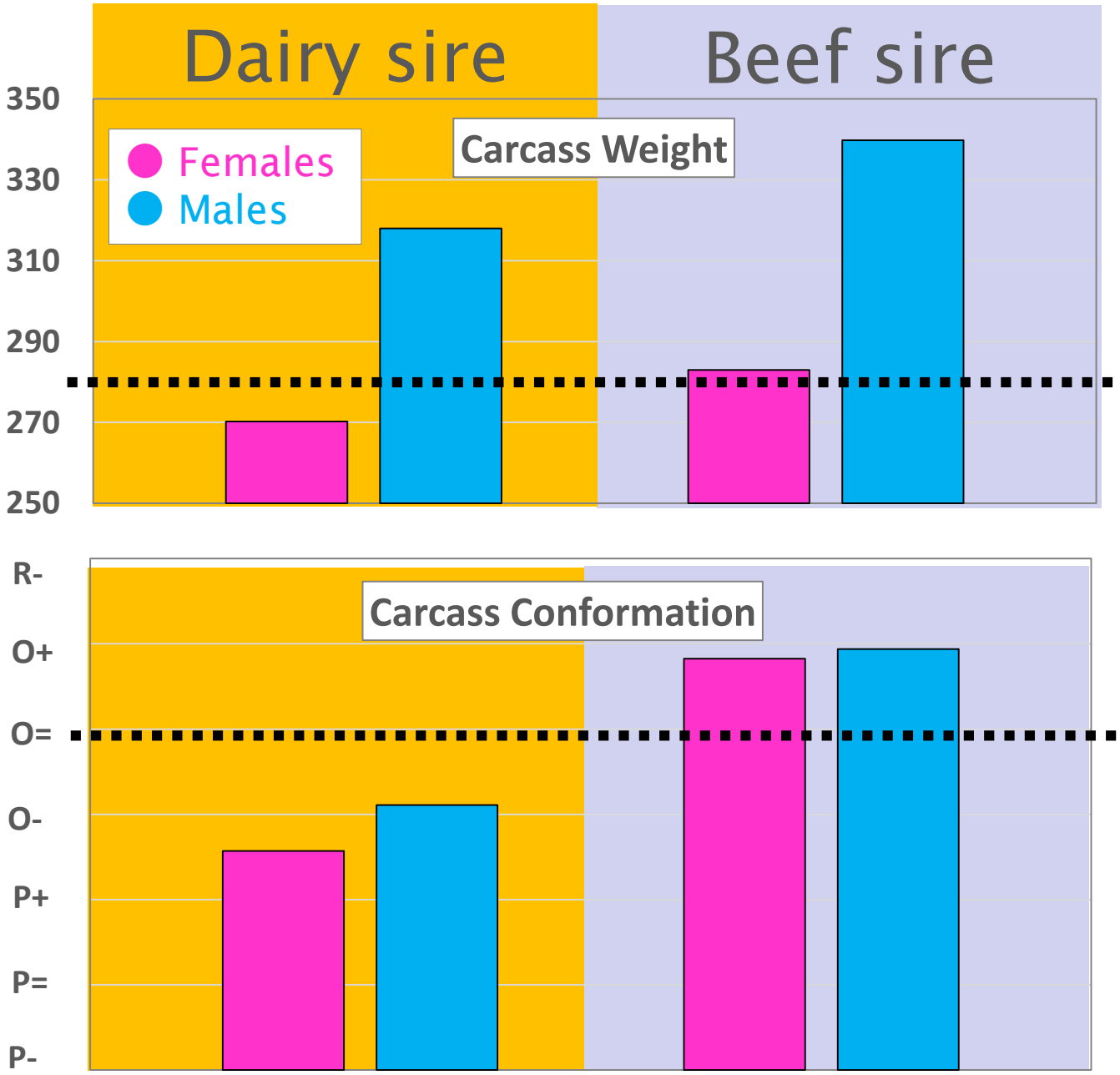
Motivation for a Dairy Beef Index

- Births from dairy herd increasing (+414 k)
- 72% more beef*dairy births (+275 k), & increased peak
- Focus on easy calving & short gestation beef
  - Carcass quality at risk
- Calves from dairy herd not meeting factory spec
  - Animal value & sector sustainability



Performance of dairy bred beef

- Avg. dairy*dairy not hitting weight or carcass spec
- Avg. dairy*beef female just hitting weight spec
- 50% progeny above and below bar



Out of spec: dairy bred beef

Sire breed	*Number of sires*	*Number of progeny*	*Progeny not meeting carcass weight spec (280 kg)*	*Progeny not meeting carcass conformation spec (O=)*
Aberdeen Angus	35	2,309	32%	12%
Belgian Blue	29	2,405	8%	2%
Hereford	31	1,251	27%	17%
Limousin	25	4,834	10%	1%
Friesian	117	2,066	26%	51%
Holstein	509	957	31%	74%
Jersey	50	244	66%	84%
Norwegian Red	10	168	29%	62%

Need a Dairy Beef Index that..

- Balanced between calving ease and carcass merit
- Scientifically sound, robust & defendable
- Facilitates identification of beef bulls suitable for dairy heifers
- Incentivises beef breeders to target dairy industry as a market
- Incentivises beef breeders targeting dairy farmers to record appropriate traits accurately

What is the Dairy Beef Index?

- Breeding goal for dairy and beef farmers
- Promote high quality beef cattle bred from the dairy herd

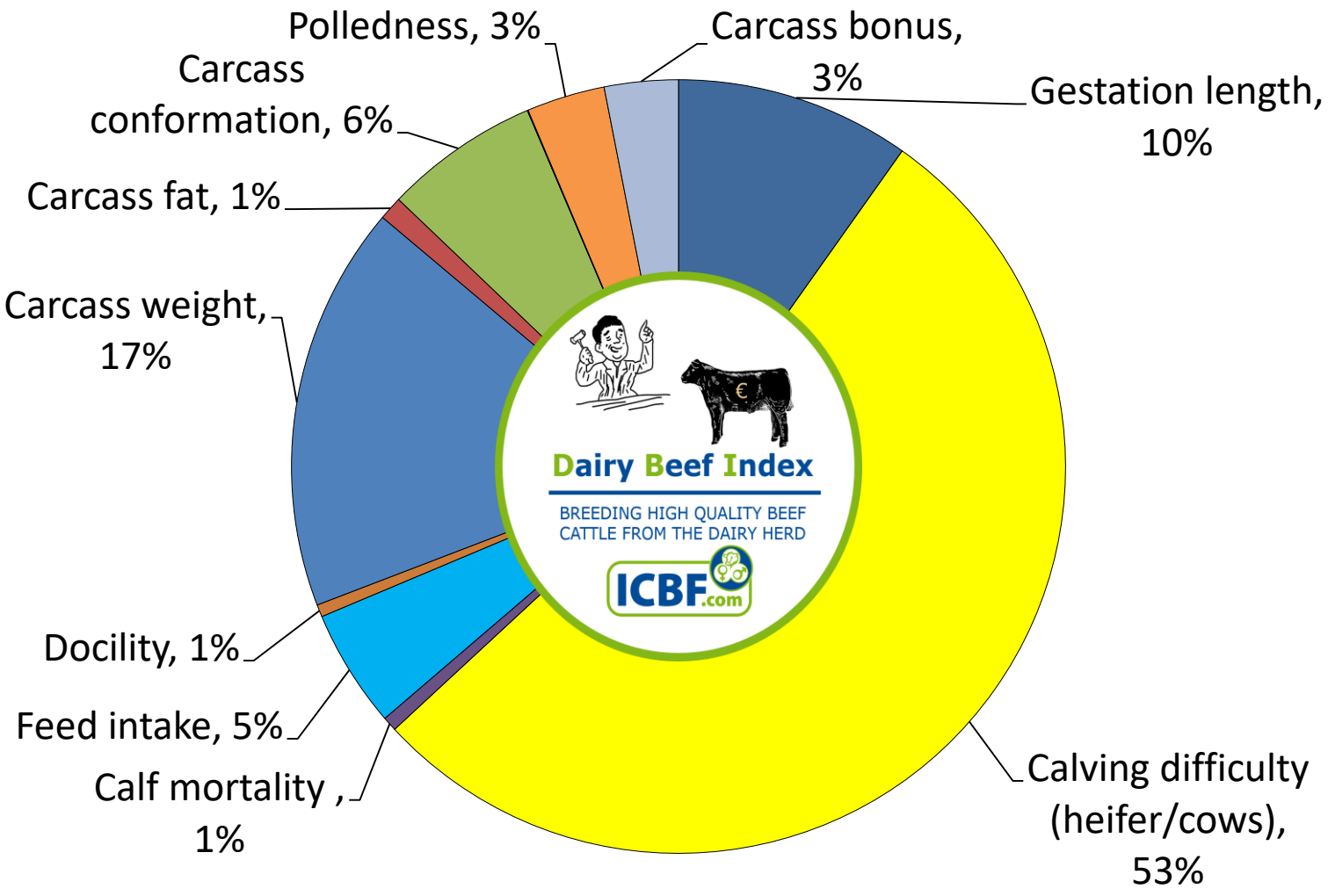
Benefits

1) Identifies easy calving & short gestation beef bulls with high carcass merit
2) Progeny are more saleable as calves & profitable at slaughter
3) Minimal consequences on dairy cow calving difficulty or gestation
    - Knock-on effects on cow fertility, milk production, & health

What does the Dairy Beef Index select for?

- High € values for calving sub-index (64% of DBI)
  - Shorter gestation lengths
  - Easy calving
  - Less calf mortality
- High € values for beef sub-index (36% of DBI)
  - Less feed consumption
  - High carcass weight & conformation
  - Low carcass fat
  - Meet factory spec. for weight & conformation
- Each €1 increase in Dairy Beef Index can be interpreted as a €1 expected increase in profit for that bull's progeny compared to progeny born to the average Holstein-Friesian bull

Relative emphasis



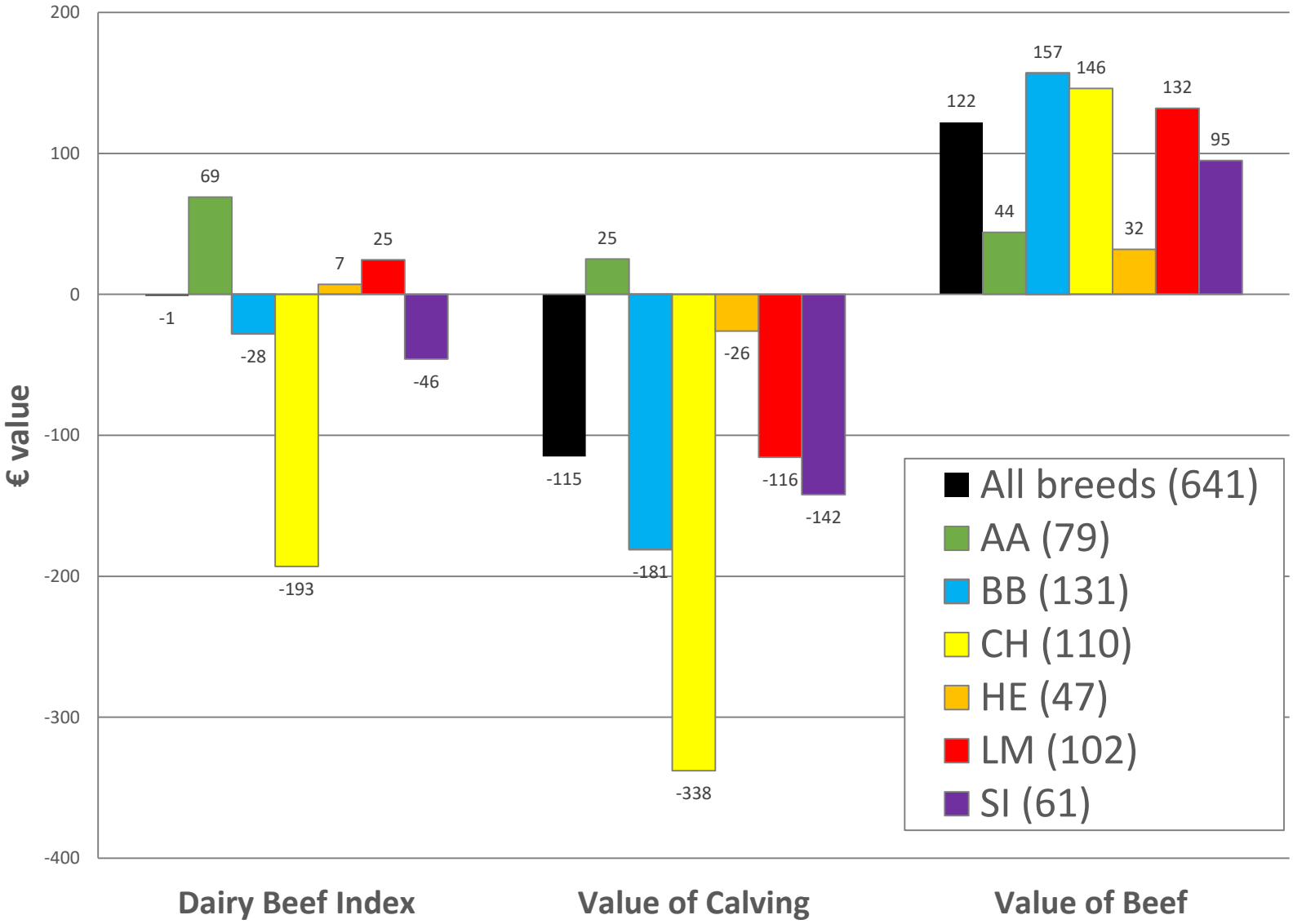
Progeny performance comparison

Bull	Top beef AI bulls on DBI€	Most used beef AI bulls	Difference between progeny	Value of difference on-farm	Overall value of using the top bulls over the most used bulls
DBI (€)	100	43	€57 higher DBI		
VALUE TO DAIRY FARMER					
Gestation length (days)	284	283	1 day longer gestation	-€7.47	**Value to dairy farmer → €9.67**
Calving difficulty on dairy heifers (%)	9	8	Assist an extra 1% of heifers at calving	-€6.44	
Calving difficulty on dairy cows (%)	3	4	Assist 1% fewer cows at calving	€5.58	
Calf mortality (%)	2	2	No difference in calf mortality	-	
Calf price (€)	242	224	€18 higher calf price	€18.00	
VALUE TO FINISHER					
Carcass weight (kg)	330	313	17 kg heavier carcass	QPS grid payment & base of €3.82, & incl. QA	**Value to finisher → €104.54**
Carcass conformation	R-	O+	1 conformation grade better		
Carcass fat	4-	4-	No difference in carcass fat		

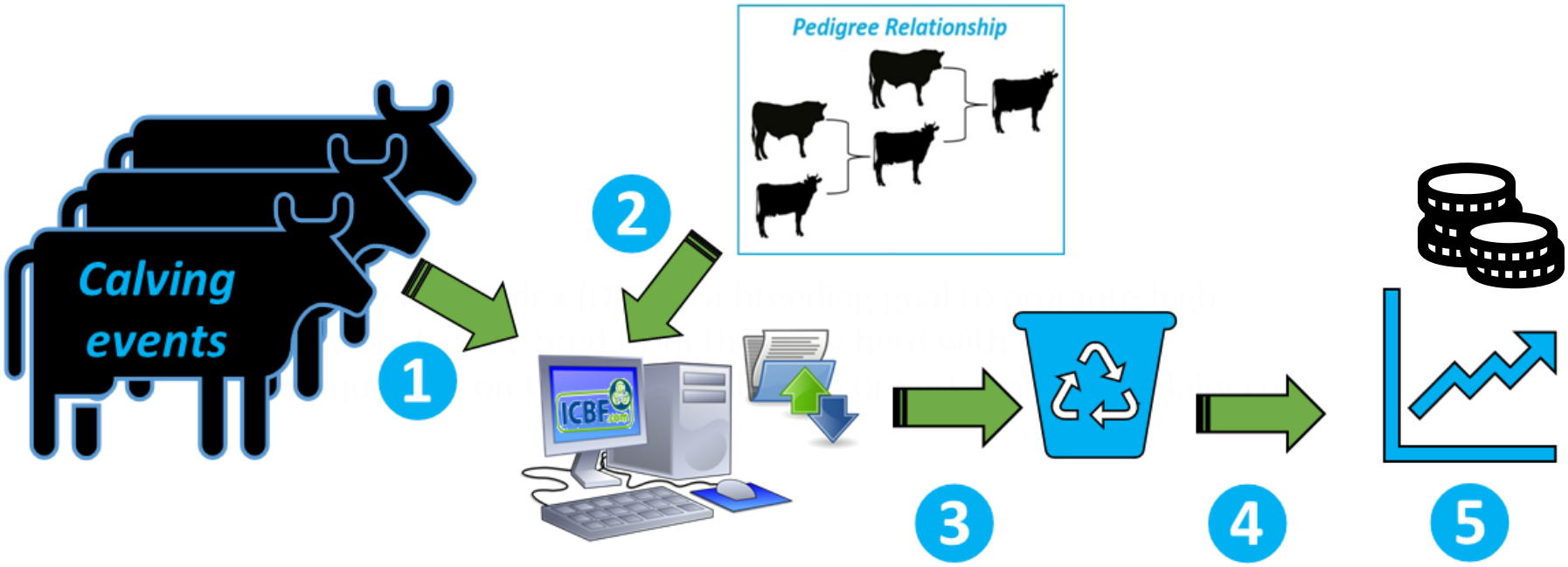
Overall value → €114.21

- Difference from DBI expectation most likely from feed intake, out of spec etc.

DBI breakdown: beef active AI bulls



New calving evaluations



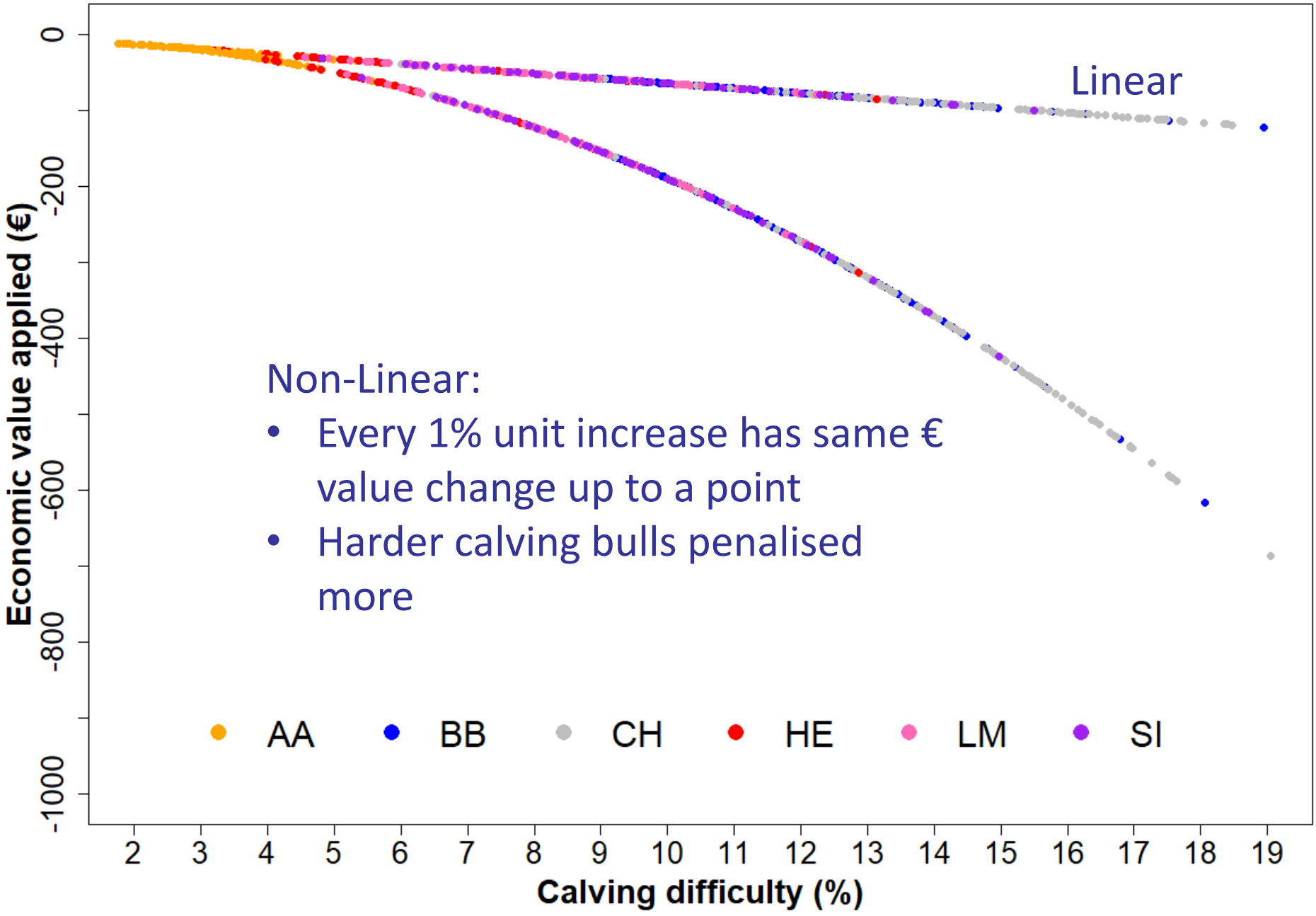
1. Additional traits considered (birth weight and birth size)
2. Stricter editing criteria uses only the most informative data
3. Updated economic values
4. Output = % progeny expected to require considerable assistance when born to 1) dairy heifers, and separately 2) dairy cows

Relationship among cd% traits

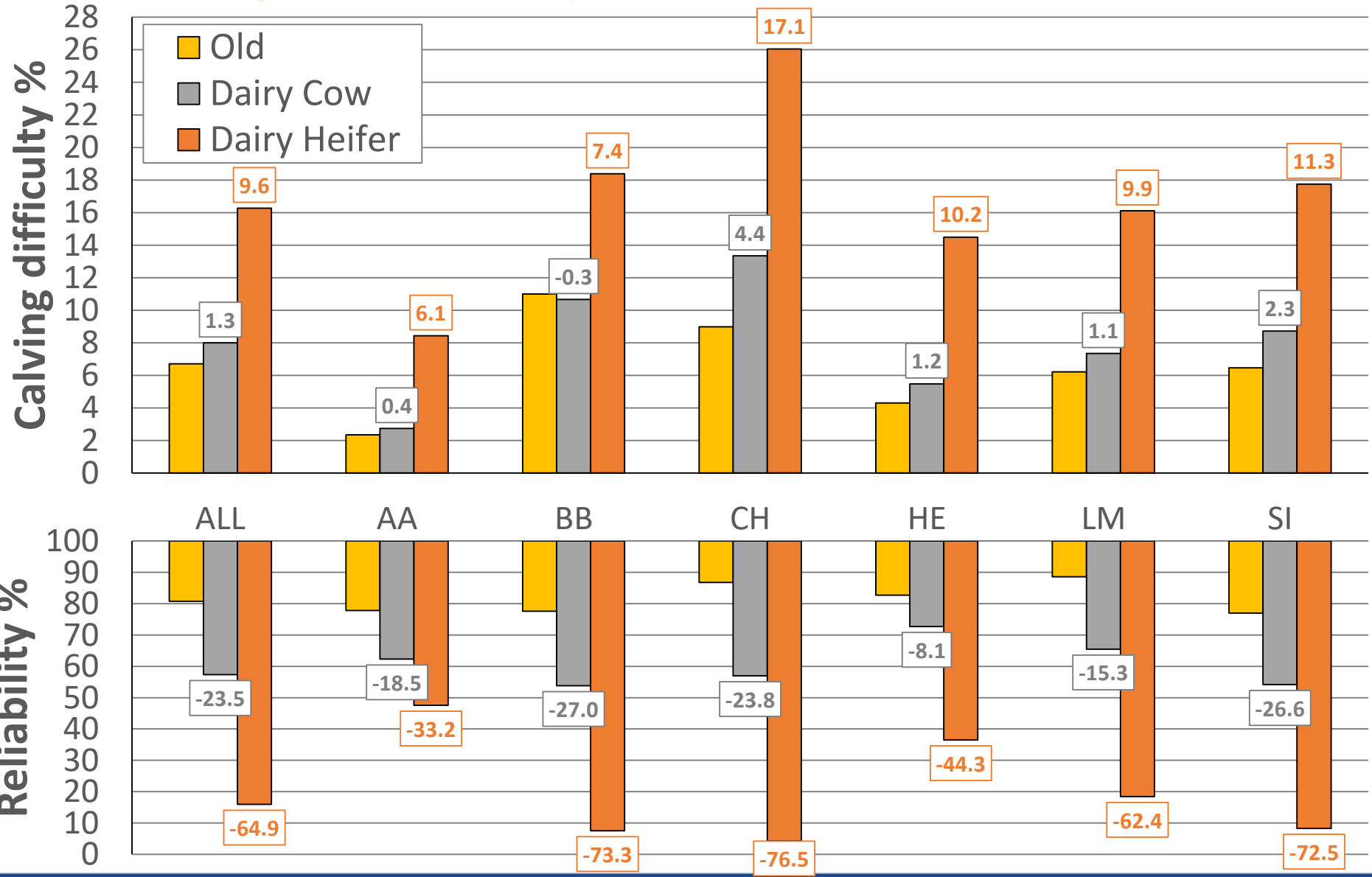
	Dairy heifer cd%	Dairy cow cd%	Beef heifer cd%
Dairy cow cd%	83%		
Beef heifer cd%	64%	61%	
Beef cow cd%	38%	35%	88%

- 62-65% of the variability of calving difficulty in dairy dams is not captured from calving difficulty scores recorded solely from beef cows

Updated Economic Values

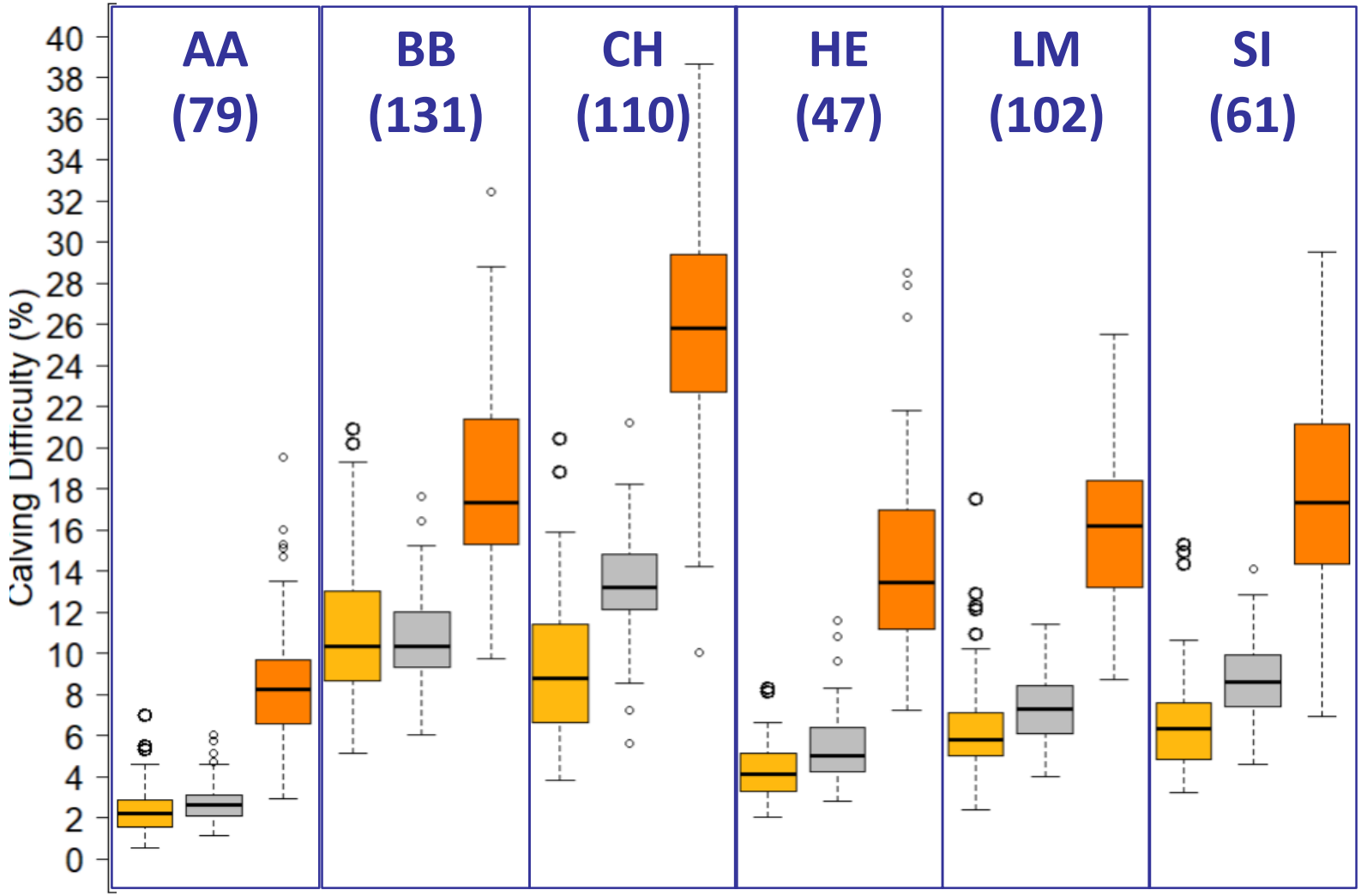


Calving Difficulty of Active Beef AI Bulls

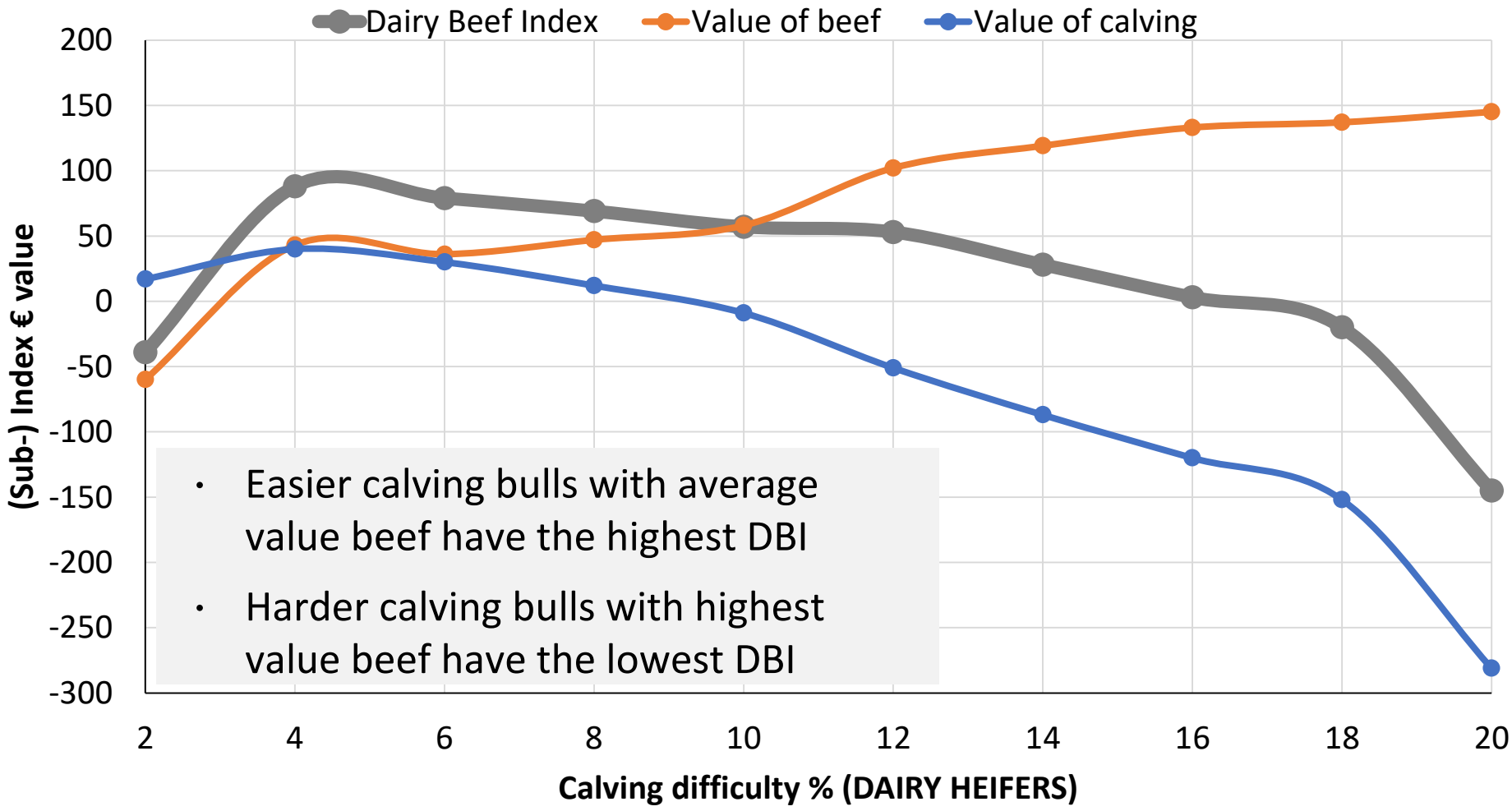


Calving Difficulty Change Across Breeds

Active Beef AI Bulls



Mean (Sub-) Index € value at a given cd% in dairy heifers



Using the Dairy Beef Index

- For 2019, only beef AI bulls with ≥30 progeny in dairy herds
- Advice:
  - Pick beef bulls from the Active Bull List
  - Select a team of bulls
  - Select bulls with the highest Dairy Beef Index € value to maximise overall profitability
  - Also, ok to select bulls with the highest value of calving sub-index

1. Log on to www.icbf.com
2. Press 'Genetic Evaluations'
3. Press 'Dairy Beef Index'
4. Download the proofs by selecting from the available options

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Irish Creamery Milk Suppliers Association

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