Cattle Breeding Using Millions of Records from Commercial Cattle: An Irish Perspective

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BIF, Dec 2023 Donagh.berry@teagasc.ie



Dairy Industry

- 1.6 million dairy cows
- 18,000 Herds
- Avg herd size: 80 cows
- ~93% Holstein-Friesian
- Seasonal grass based
- Export 90% milk
- Economic Breeding Index
- Dairy-beef index



Beef Industry

- 0.91 million beef cows
- 100,000 Herds
- Avg herd size: 40 cattle
- Continental Crossbreds
- Seasonal grass based
- Export 90% beef
- Replacement Index
- Terminal Index

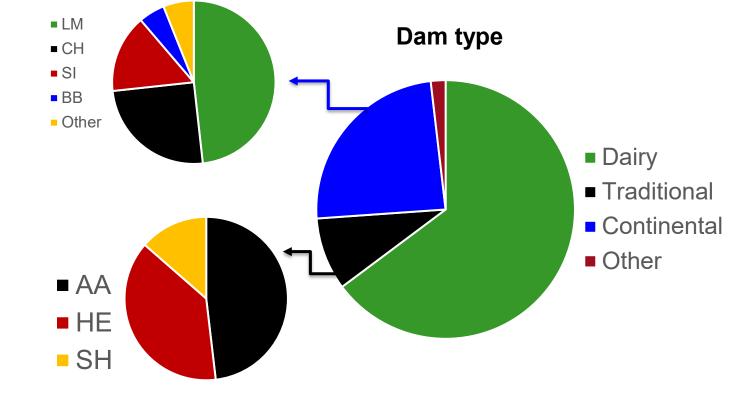


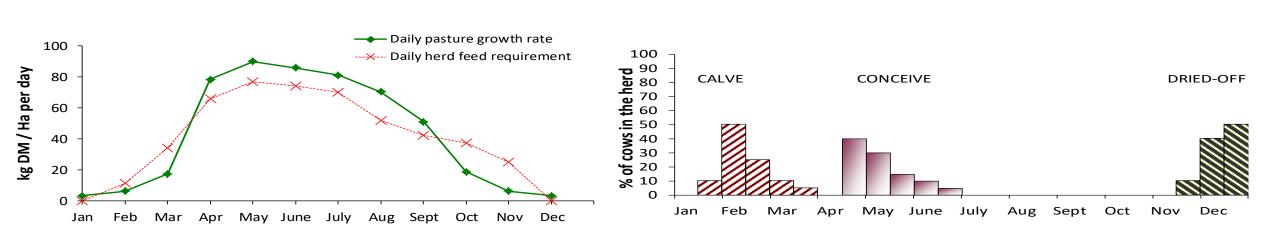
Sheep Industry

- 2.6 million ewes
- 13,000 Herds
- Avg herd size: 133 ewes
- Crossbred
- Seasonal grass based
- Export 70% sheep meat
- Replacement Index
- Terminal Index

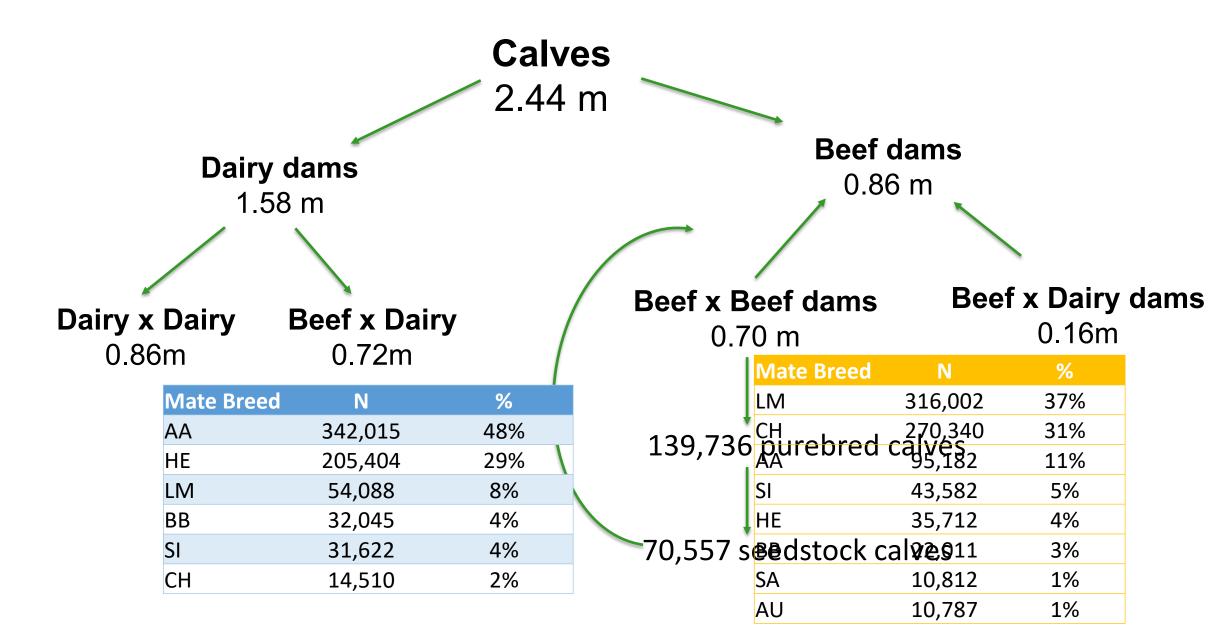
Irish beef industry

• 6.5 million cattle





Irish cattle population (2022)



Why across breed evaluation?

- 1. Genetic (\rightarrow phenotypic) evaluations for commercial (crossbred) cattle
 - All animals!!
 - Crossbred (dairy) calves
- 2. Compare alternative breeds choose the best bull and not the best bull per breed
- 3. Simple one evaluation for each bull one breeding objective
- 4. Facilitates crossbreeding programs
- 5. Exploits crossbred data
- 6. Increased accuracy of selection and selection intensity \rightarrow genetic gain
- 7. Less GxE effect (i.e., more robust)
- Downsides
 - Political....
 - Assumes genetic correlations the same across breeds/environments

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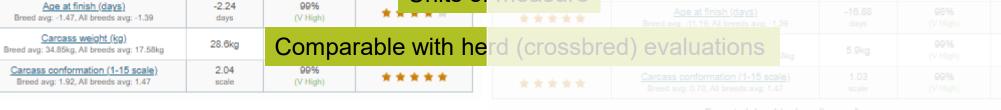
Level playing field

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Star Rating (within Charolais breed)	Economic Indexes	Purpose	€uro value	Index reliability	Star Rating (across all beef breeds)
****	Replacement (per daughter lactation)	To breed future cows for the suckler herd	- €85	98% (V High)	★☆☆☆☆
****	Terminal	To breed beef animals from the suckler herd that are destined for finishing	€85	96% (V High)	*****
****	Dairy Beef	To breed beef animals from the dairy herd that are destined for finishing	-€121	95% (V High)	****

* * * * *

	Calving Difficulty (births requring c	onsiderable assista	nce; % 3 & 4)			www.icbf.co	om		
	When Mated With:		Value	Reliability					
	Beef Heifers Breed avg: 10.28%, All breeds avg: 7.68%		16.6%	98% (V High)					
	Beef Cows Breed avg: 4.92%, All breeds avg: 3.60%		7.5	Vithin & acro	oss breed st	Ars d avg: 1.90%, All breeds avg: 3.60%		1.0%	
Star Rating (within Charolals breed)	Key profit traits	Index value	Trait reliability	Star Rating (across all beef breeds)					
	Expected progen	y performance							
★★官官官	Gestation (days) Breed avg: 2.70, All breeds avg: 2.54	3.05 days	99% (V High)	★★ 官官官					
****	Docility (1-5 scale) Breed avg: 0.04, All breeds avg: 0.02	0.08 scale	99% (V High)	* Units of	measure				
****	Age at finish (days) Breed avg: -1.47, All breeds avg: -1.39	-2.24 days	99% (V High)		measure				



What's needed

• Technical

-data, pedigree, computing resources....
- Good genetic/breed diversity within contemporary groups
- Breed composition information (genotypes)
- Strong genetic correlations between the same trait in different breeds (and crossbreds)
- Political
 - Industry buy-in
 - Common way of displaying
 - Standardisation of trait definition (ideally)

Factors contributing to "success"



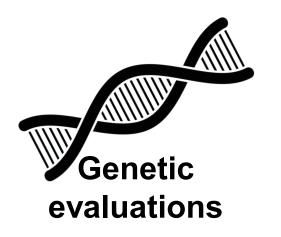
Infrastructure



Goal

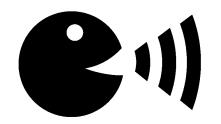


Recording









Single voice



Factors contributing to "success"



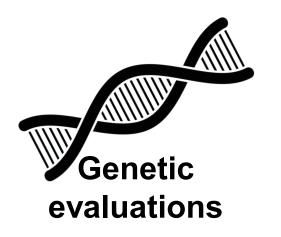
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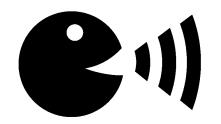


Recording









Single voice



Row develops in pedigree breeders council over ICBF changes

Adam Woods has news of escalating tensions between the Irish Aberdeen Angus Association and the pedigree breeders council.



Suckler farmers have their say on ICBF indexes

Mara Woods has the residts of an trick farmers Journal farmer intervention and providents were and

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provide from the property sectors and A tempted poly-off-actions rearPressure mounts on **ICBF** to row back on index

ADAM WOODS

changes

Saturday 9 December 2023

BEEF AND SUCKLER EDITOR

drop in their herds.

SCEP requirements."

awoods/Harmers/purnal.ie

Pressure is mounting this week on the Irish Cattle Breeding Federation (ICBF) to row back on some of the changes made to the terminal and replacement suckler indexes last week. The changes went live on 28

This week, however, ICSA November, with many farmers president Dermot Kelleher only realising this week how said: "Many of our members they affect their herds. The have grave concerns about their future in SCEP and these Simmental and Belgian Blue breeds have been hit hardest concerns will have to be adand many suckler farmers with dressed." Belgian Blue or Simmental

The Irish Simmental Cattle breeding in their cows have Society has urged its members seen individual cow's indexes to contact TDs and senators to express their discontent at the The Roscommon IFA county index changes.

be minimal.

executive has sent a motion of Irish Simmental Cattle Socino confidence in the IFA memety secretary, Peadar Glennon, bers on the ICBF board to be said: "Feedback received from discussed at the next national both commercial suckler farmcouncil meeting of the IFA. ers and pedigree breeders is Speaking to the Irish Farmers highlighting how the value of Journal, Roscommon IFA chair their herds has been decimated Pat Leonard said: "We are calland will no doubt affect their ing on the four IFA nominees future viability.

sion took place between the

IFA livestock committee and

ICBF CEO Seán Coughlan at

its committee meeting on

Wednesday. The ICSA, having

originally met ICBF before the

changes were implemented,

were assured by ICBF at that

meeting that changes would

on the ICBF board to resign "Our analysis indicates that their positions unless changthe model on which these es are made to the indexes or latest evaluations is based is flawed and that oversight ap-The Irish Farmers Journal pears to be missing. A reverunderstands that other IFA sal to the evaluations in place county executives are conprior to 28 November as an interim solution must take place, templating a similar approach to force changes. It is followed by an independent understood a heated discus- audit of ICBF evaluations."

Not all plain sailing?!?

Pedigree breeders disappointed with 'silence' of the ICBF board members

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Farm organisation reaction to index change

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whether is the little strength of the

Manufacture and the state

will have all the particles a 'ICBF trying to wreak havoc with sucklers'

Adam Woods takes a look at some of the farmer comments on this work's faitner surrow

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Factors contributing to success



Infrastructure



Goal



Recording









Single voice

Identification system

- A single unique life-long identification
- Compulsory to record
 - Dam ID
 - Gender
 - All births
 - All deaths
 - All inter-location movements





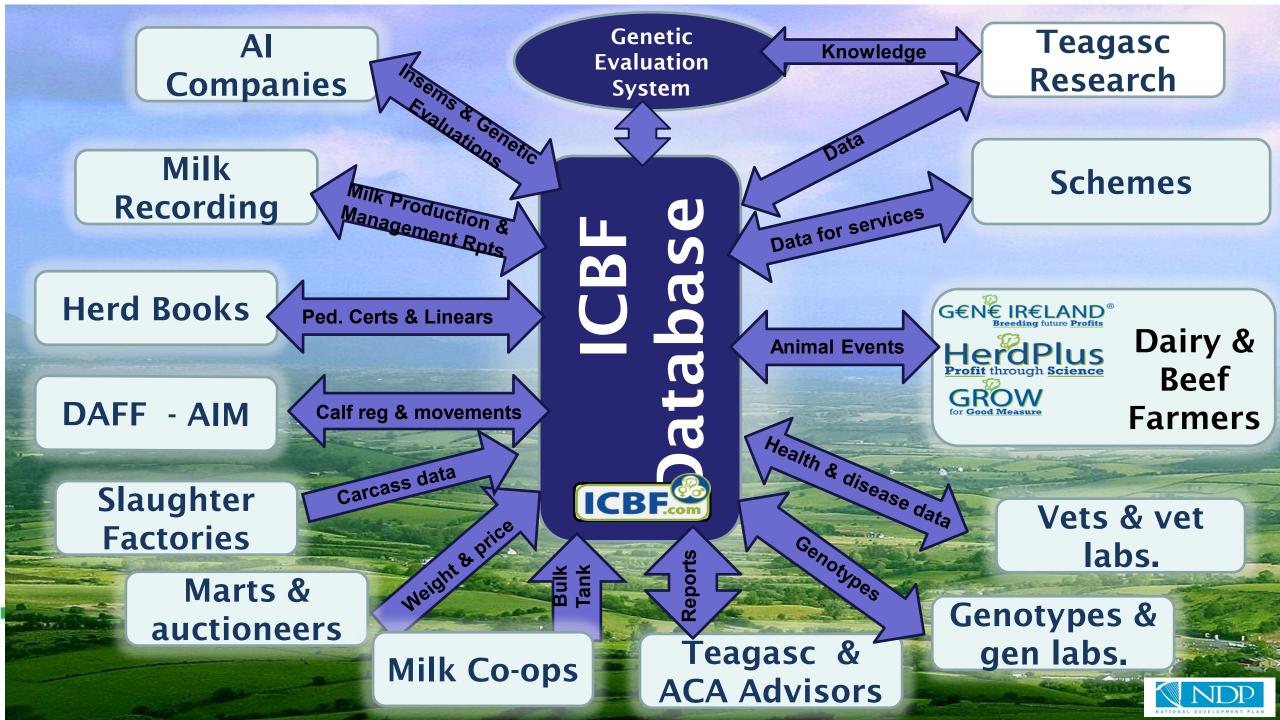
Irish Cattle Breeding Federation

- Co-operative established in 2000
- 80 staff servicing 100,000 farmers

Organisation	Share %	Members
Farm organisations	46	6
Al services	18	3
Milk recording	18	3
HerdBooks	18	3
Dept Agric	0	1

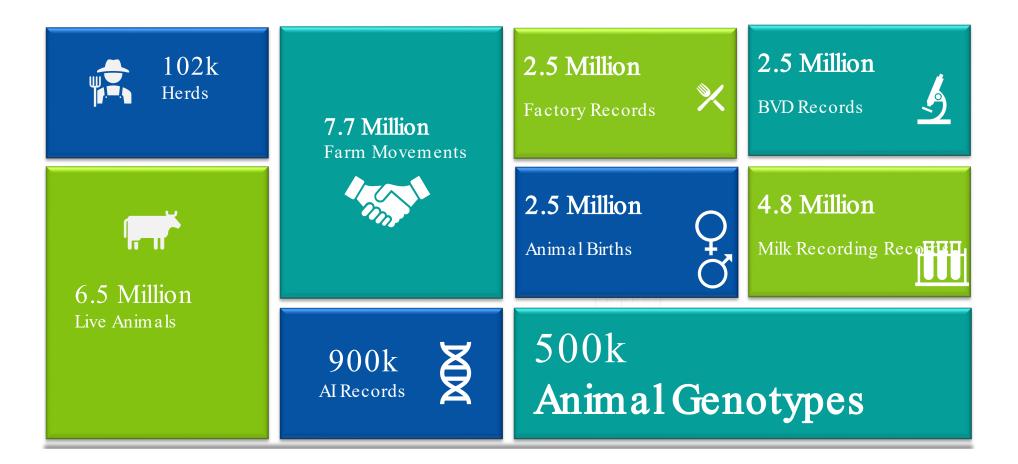
- Objective ensure the next generation of animals are better than the previous
- Independent genetic evaluations for farmers & industry
- Data sharing for a common good
 - ICBF do not own animals
 - No conflict of interest





Genotype Data Sets Genotype Records 160,123,147,748 ~<u>3.0</u> Million Genotypes in the ICBF database 155,141,778,776 139,624,704,528 62,700,000,000 120,337,000,000 18,300,000,000 111,000,000,000 8,600,000,000 1,800,000,000 95,000,000,000 FRESEE Jan-15 Mar-16 Mar-18 Aug-19 Mar-20 Jan-21 Jan-22 Oct-22 Mar-23

ICBF annual statistics



Factors contributing to success



Infrastructure



Goal



Recording



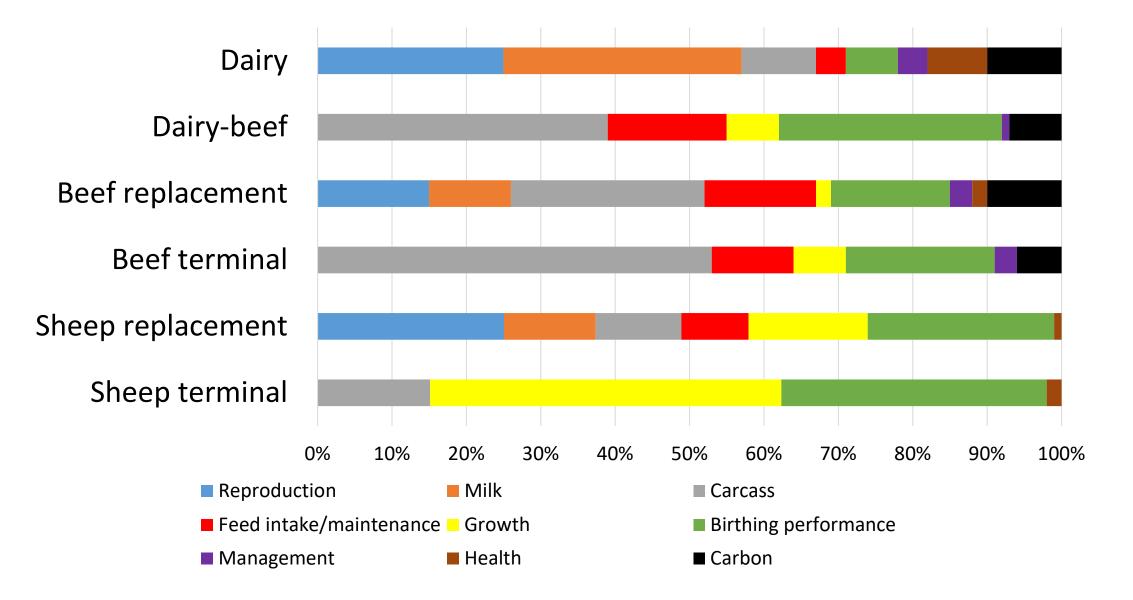






Single voice

National breeding goals



Level playing field





Star Rating (within Charolaia breed)	Economic Indexes	Purpose	€uro value	Index reliability	Star Rating (across all beef breeds)	Star Rating (within Angus breed)	Economic Indexes	Purpose	€uro value	Index reliability	Star Rating (across all beef breeds)
****	Replacement (per daughter lactation)	To breed future cows for the suckler herd	- €85	98% (V High)	★☆☆☆☆	*****	Replacement (per daughter lactation)	To breed future cows for the suckler herd	€128	90% (V High)	****
****	<u>Terminal</u>	To breed beef animals from the suckler herd that are destined for finishing	€85	96% (V High)	*****	****	Terminal	To breed beef animals from the suckler herd that are destined for finishing	€94	90% (V High)	*****
****	Dairy Beef	To breed beef animals from the dairy herd that are destined for finishing	-€121	95% (V High)	★市市市市	****	Dairy Beef	To breed beef animals from the dairy herd that are destined for finishing	€156	91% (V High)	****

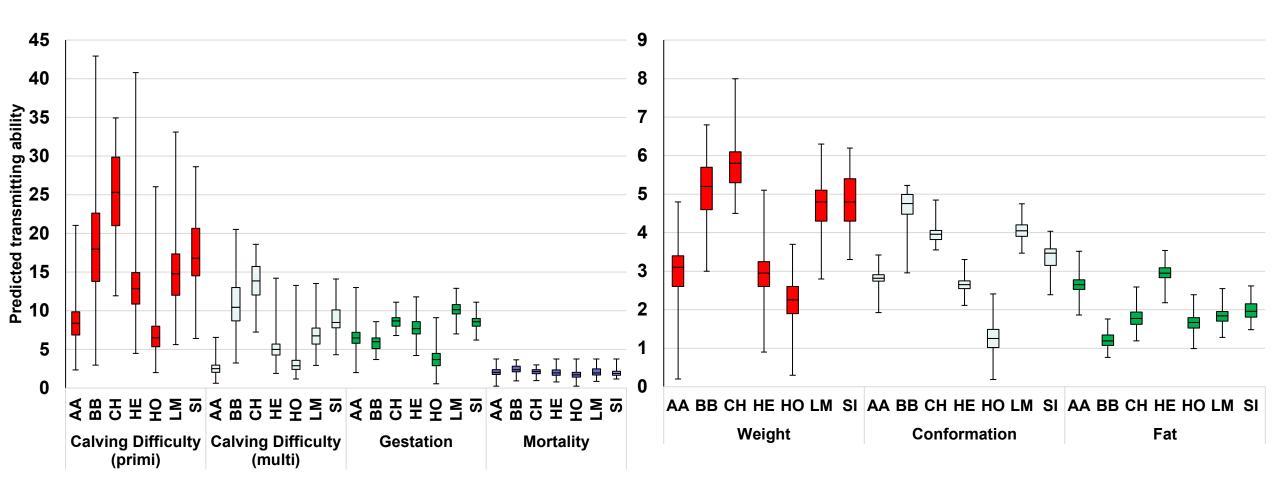
Calving Difficulty (births requring considerable assistance; % 3 & 4)				
When Mated With:	Value	Reliability		
Beef Heifers Breed avg: 10.28%, All breeds avg: 7.68%	16.6%	98% (V High)		
Beef Cows Breed avg: 4.92%, All breeds avg: 3.60%	7.5%	99% (V High)		

Star Rating (within Charolais breed)	Key profit traits	Index value	Trait reliability	Star Rating (across all beef breeds)				
Expected progeny performance								
****	Gestation (days) Breed avg: 2.70, All breeds avg: 2.54	3.05 days	99% (V High)	*****				
****	Docility (1-5 scale) Breed avg: 0.04, All breeds avg: 0.02	0.08 scale	99% (V High)	****				
****	Age at finish (days) Breed avg: -1.47, All breeds avg: -1.39	-2.24 days	99% (V High)	****				
★市市市市	Carcass weight (kg) Breed avg: 34.85kg, All breeds avg: 17.58kg	28.6kg	99% (V High)	****				
****	Carcass conformation (1-15 scale) Breed avg: 1.92, All breeds avg: 1.47	2.04 scale	99% (V High)	****				

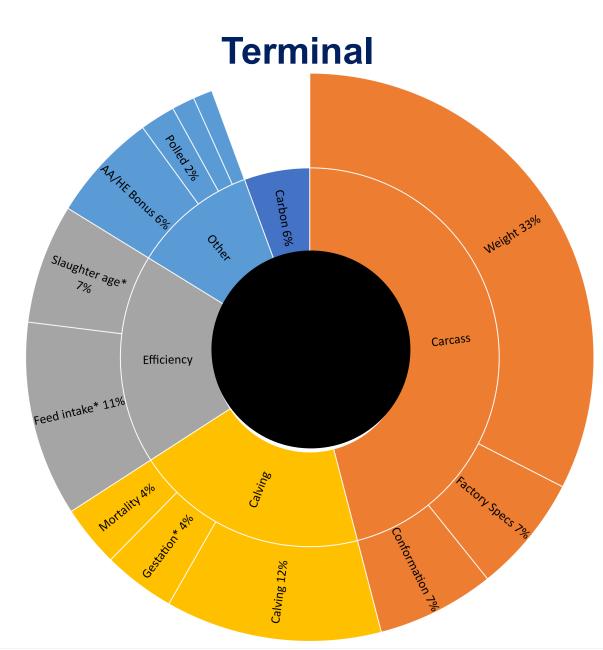
Calving Difficulty (births requring considerable assistance; % 3 & 4)					
When Mated With:	Value	Reliability			
Beef Heifers Breed avg: 4.60%, All breeds avg: 7.68%	3.1%	98% (V High)			
Breed avg: 1.90%, All breeds avg: 3.60%	1.0%	96% (V High)			

Star Rating (within Angus breed)	Key profit traits	Index value	Trait reliability	Star Rating (across all beef breeds)
	Expected progeny	performance		
****	Gestation (days) Breed avg: -0.38, All breeds avg: 2.54	-1.92 days	99% (V High)	****
****	Docility (1-5 scale) Breed avg: 0.01, All breeds avg: 0.02	0.06 scale	98% (V High)	****
****	Age at finish (days) Breed avg: -11.19, All breeds avg: -1.39	-16.88 days	98% (V High)	****
****	Carcass weight (kg) Breed avg: 6.98kg, All breeds avg: 17.58kg	5.9kg	99% (V High)	★市市市市
****	Carcass conformation (1-15 scale) Breed avg: 0.70, All breeds avg: 1.47	1.03 scale	99% (V High)	★★☆☆☆

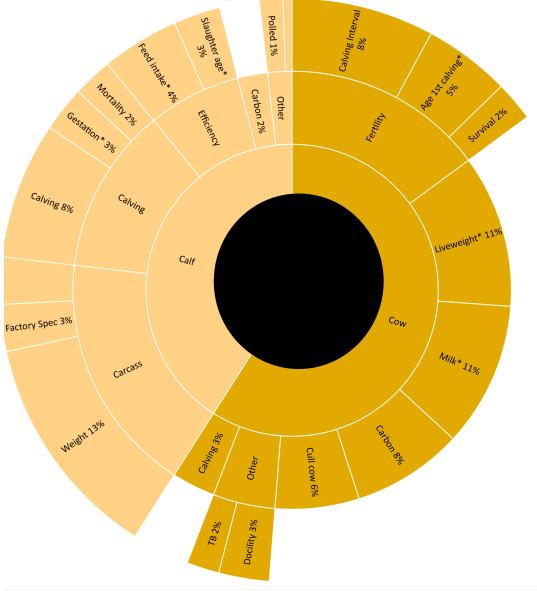
Exploitation of within-breed & across breed variability



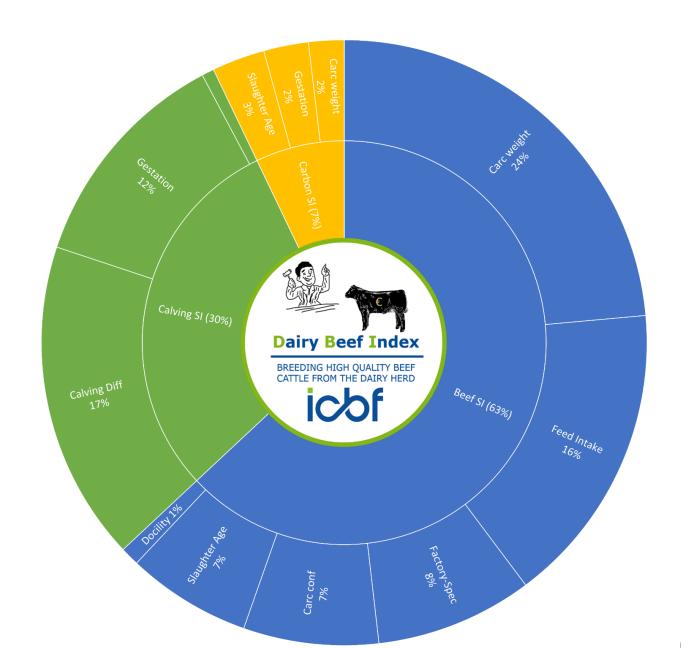
Beef national breeding objectives



Replacement



Dairy-Beef national index



Carbon in the breeding indexes

- Absolute carbon emissions
 - Framework to deploy methane genetic evaluations
 - Assumed carbon price; €80/t
- Example: age at slaughter
 - All else being equal, earlier slaughter \rightarrow less carbon + plus lower costs

Production economic value	Carbon	Carbon economic value	Combined economic value
€/d	Output (kg/d)	(€/d)	(€/d)
-1.35	+5.40	-0.43	-1.78

Factors contributing to success



Infrastructure







Recording







Integration

Single voice

Data recording schemes Suckler cow efficiency programme

Provides support to beef farmers to improve the environmental sustainability of the national beef herd





Dairy Beef Welfare Scheme

To facilitate further the integration of the dairy and beef sectors by providing support for farmers who are rearing progeny from the dairy herd

- Payments
 - €20 per calf up to 50 calves
- Conditions
 - Calves from a beef sire born to a dairy dam or a dairy male
 - >12 weeks of age
 - Weight the animal once





Data recording schemes National Beef Welfare Scheme

Enhance animal health and husbandry on beef farms while increasing efficiency

- Payments
 - €120-€300 per herd depending on size for IBR
 - €35/hd for concentrate feeding (up to 40 calves)
- Conditions
 - IBR testing
 - Feeding of concentrates 4 weeks prior to 2 weeks post weaning





Producer v professional - subjective measures

Animal (2012), 6:9, pp 1389–1397 © The Animal Consortium 2012 doi:10.1017/S1751731112000705



Genetic relationships between carcass cut weights predicted from video image analysis and other performance traits in cattle

T. Pabiou^{1,2†}, W. F. Fikse², P. R. Amer³, A. R. Cromie¹, A. Näsholm² and D. P. Berrv⁴

Table 3 Genetic correlations (standard errors in brackets) between carcass cut weights (kg - at constant carcass weight) and carcass value ($\mathcal{E} - at$ constant live weight), auction prices for calves (\mathcal{E}), weanlings ($\mathcal{E} - at$ constant live weight) and post-weanlings ($\mathcal{E} - at$ constant live weight), live weight (kg) and weanling quality (score 1 to 5)

Trait	Total meat weight	Total fat weight	Total bone weight	Lower value cuts weight	Medium value cuts weight	High value cuts weight	Very high value cuts weight
Carcass value	0.45 (0.03)	-0.38 (0.05)	-0.72 (0.03)	0.38 (0.05)	0.35 (0.04)	0.52 (0.03)	0.69 (0.03)
Calves auction price	0.26 (0.07)	-0.23 (0.09)	-0.35 (0.07)	0.45 (0.08)	0.38 (0.07)	0.34 (0.07)	0.38 (0.07)
Weanling auction price	0.49 (0.11)	-0.39 (0.16)	-0.45 (0.13)	0.41 (0.14)	0.66 (0.10)	0.37 (0.11)	0.55 (0.12)
Post-weanling auction price	0.68 (0.08)	-0.67 (0.12)	-0.32 (0.13)	0.61 (0.11)	0.50 (0.11)	0.65 (0.08)	0.67 (0.10)
Live weight at weaning							
Direct	-0.13 (0.10)	-0.10 (0.14)	0.10 (0.12)	-0.03 (0.12)	-0.34 (0.11)	-0.07 (0.10)	0.01 (0.12)
Maternal	-0.01 (0.11)	-0.13 (0.15)	0.10 (0.13)	-0.16 (0.13)	0.07 (0.12)	-0.01 (0.11)	-0.01 (0.13)
Live weight at post-weaning	0.08 (0.08)	-0.12(0.12)	0.09 (0.09)	-0.07 (0.10)	0.14 (0.08)	0.04 (0.08)	-0.02 (0.10)
Weanling quality	0.39 (0.08)	-0.31 (0.12)	-0.30 (0.10)	0.33 (0.10)	0.12 (0.09)	0.28 (0.08)	0.49 (0.09)

Table 4 Genetic correlations (standard errors in brackets) between carcass cut weights (kg – at constant carcass weight) and linear traits recorded at weaning and post-weaning age (scores 1 to 10/15)

Professionally	Maturity group	Trait	Total meat weight	Total fat weight	Total bone weight	Lower value cuts weight	Medium value cuts weight	High value cuts weight	Very high value cuts weight
J	Weaning	Height at withers	-0.25 (0.11)	0.08 (0.17)	0.68 (0.10)	0.09 (0.14)	-0.58 (0.11)	-0.09 (0.12)	-0.06 (0.14)
scored	-	Length of back	-0.22 (0.12)	0.23 (0.17)	0.51 (0.13)	-0.12 (0.15)	-0.51 (0.12)	-0.09 (0.13)	-0.10 (0.15)
3001EU		Length of pelvis	-0.26 (0.15)	0.02 (0.21)	0.44 (0.17)	-0.28 (0.18)	-0.56 (0.14)	-0.20 (0.15)	-0.20 (0.18)
		Width at withers	0.32 (0.14)	-0.34 (0.20)	-0.28 (0.17)	0.44 (0.16)	-0.38 (0.15)	0.25 (0.15)	0.63 (0.14)
h ² =0.24-0.26		Width behind withers	0.13 (0.13)	-0.17 (0.19)	-0.37 (0.16)	0.18 (0.16)	-0.33 (0.14)	0.10 (0.13)	0.43 (0.15)
11 - 0.2 + 0.20		Loin development	0.29 (0.15)	-0.11 (0.21)	-0.46 (0.17)	0.26 (0.17)	-0.47 (0.15)	0.09 (0.15)	0.50 (0.15)
		Hindquarter development	0.42 (0.10)	-0.28 (0.16)	-0.41 (0.12)	0.32 (0.13)	-0.06 (0.12)	0.38 (0.11)	0.46 (0.12)

Farmer scored h²=0.32

Contribution of producer recorded traits to breeding indexes

		Total recorded by			
Index	Subjective	producers			
Terminal	12%	20%			
Replacement	25%	43%			
Dairy-beef	18%	32%			

Use	Subjective	Recorded				
Goal	Dystocia, docility	Fertility, gestation, mortality				
Predictor	Milkability, calf quality, birth size	Weights				

Factors contributing to success



Infrastructure







Recording

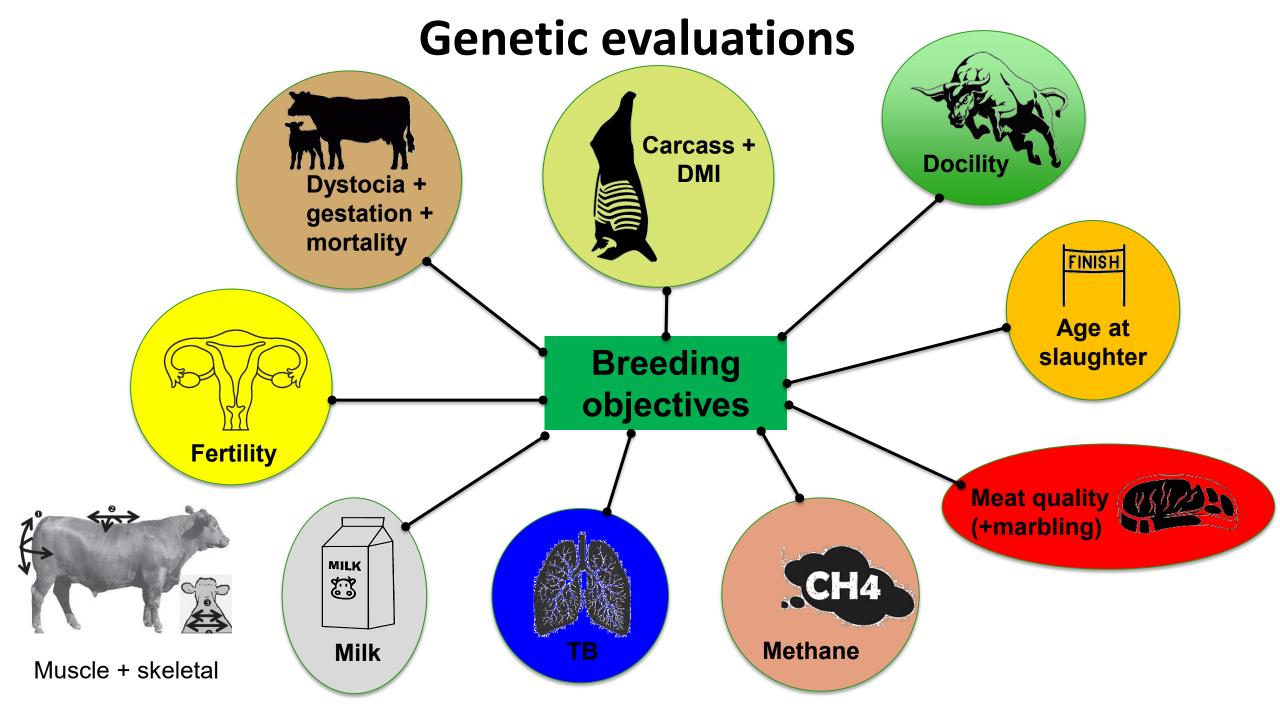


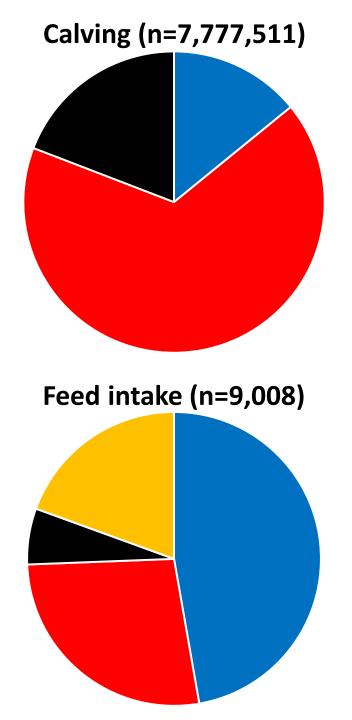






Single voice



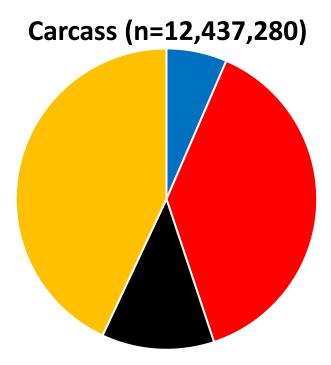


Data

Purebred Beef

- Beef x Beef crossbred
- Beef x dairy
- Dairy x dairy





Fertility (n=8,094,732)

Models – calving performance

Trait	Heterosis	Dam/cow age (*parity)	Sex (*age)	Twin	Birth year	HYS	(Dam)PE	Direct genetic	Maternal Genetic
Calving		(parto) /						Benetic	
Dairy heifer	Х	x	Х		Х	Х		Х	x
Dairy cow	х	Х	Х		Х	Х	Х	Х	x
Beef Heifer	х	Х	Х		Х	Х		Х	x
Beef cow	х	х	х		Х	Х	Х	Х	Х
Birth size	х	Х	Х		Х	Х	Х	Х	Х
Birth wt	x	x	x		Х	Х	Х	Х	X
International direct								Х	
International materna	d.								X
Gestation & mortality	mort								
Calving diff	х	X	Х		Х	Х	Х	Х	X
Calf mortality	Х	Х	Х		Х	Х	Х	Х	X
Gestation	х	X	х		Х	Х	Х	Х	X
Wt 1-10 d	X	Х	Х	Х	Х	Х	Х	Х	X
Wt 150-250 d	Х	Х	х	Х	Х	Х	Х	Х	Х
Wt 250-350 d	Х	Х	x	Х	Х	Х	Х	Х	X
Carc wt	Х	Х	x	Х	Х	x2	Х	Х	
International direct								Х	
International materna	d i								Х

Genetic correlations – calving performance

	Dairy Heifer	Dairy cow	Beef Heifer	Beef Cow	Birth size	Birth wt	Dairy Heifer	Dairy Cow	Beef Heifer	Beef Cow	Birth size	Birth weight
Trait	direct	direct	direct	direct	direct	direct	maternal	maternal	maternal	maternal	maternal	maternal
Dairy Heifer (d)	0.16											
Dairy Cow	0.91	0.08										
(d) Beef			0.47									
Heifer (d) Beef Cow	0.80	0.78	0.17									
(d) Birth size	0.62	0.59	0.94	0.15								
(d)	0.82	0.74	0.88	0.85	0.24							
Birth wt (d)	0.63	0.64	0.64	0.62	0.52	0.41						
Dairy Heifer (m)	-0.07	-0.22	-0.02	-0.29	-0.43	-0.16	0.04					
Dairy Cow (m)	0.24	-0.07	-0.38	-0.41	-0.15	-0.16	0.76	0.02				
Beef Heifer (m)	-0.62	-0.21	-0.26	-0.23	-0.25	-0.25	0.39	0.75	0.09			
Beef Cow (m)	0.27	-0.36	-0.04	0.01	-0.76	-0.12	0.57	0.73	0.97	0.08		
Birth size (m)	-0.38	-0.52	-0.49	-0.64	-0.39	-0.31	0.34	0.82	0.66	0.81	0.05	
Birth wt (m)	-0.06	-0.42	-0.16	-0.4	-0.31	-0.48	0.61	0.67	0.56	0.38	0.54	0.09

Models – milk, fertility, docility

			m/cow						Direct	Maternal
Trait	Het	Rec age	(*parity) Parity	Sex (*age)	Twin	Scorer	HYS	(Dam)PE	genetic	Genetic
Milk yield										
Milk score	Х		Х				х	х	Х	
Wt 50-150 d	Х		Х	X	х		x2		Х	X
Wt 150-250 d	Х		Х	x	х		x2		Х	x
Wt 250-350 d	Х		х	Х	х		x2		Х	x
Carc wt	Х			Х			Х		Х	
International									Х	
Fertility										
Age 1st Calv	Х	Х					Х		Х	
Calving interval	Х	Х	х				Х	Х	Х	
Survival	Х	Х	Х				Х	Х	Х	
Dystocia	Х	Х	х	Х	Х		Х	Х	Х	
Carc wt	Х	Х		Х			Х		Х	
Carc fat	Х	Х		Х			Х		Х	
Docility										
Farmer wean scored	Х	х	х	х			х		х	
Professional scored	Х	х		x		Х	х		x	
Farmer cow scored	Х	x	x x				х	Х	X	

Models – carcass

		Dam/cow age	Dairy	Stage of					Direct
Trait	Heterosis	(*parity)	dam		Sex (*age)	Twin Score	r HYS	PE	genetic
Calf quality	Х	X	Х		ха	Х	х	х	Х
Calf price	х	х	х		ха	Х	х	Х	х
Weanling price	Х	Х	Х		ха	Х	Х	Х	х
Post-wean price	х	Х	Х		ха	Х	х	Х	х
Muscle score	Х	х	х		Х	x x	х	Х	х
Carc conformation	Х	Х	Х		Х	Х	x2		Х
Cow conformation	Х		Х				x2		х
Wt 150-250 d	х		Х		Х	Х		Х	х
Wt 250-350 d	х	х	х		Х	Х		Х	х
Wt 350-450 d	х	Х	х		Х	Х		Х	х
Wt 450-550 d	х	х	Х		Х	Х		Х	х
Wt 550-700 d	х	Х	Х		Х	Х		Х	х
Cow live wt	Х	X		Х				Х	х
Skeletal	Х	Х	Х		Х	x x		Х	x
Carc wt	Х	Х	Х		Х	Х	x2	Х	x
Cull carc wt	x		Х				x2		x
skel=	Х	Х	Х			Х	х	Х	x
DMI	Х	Х	Х			Х	х		Х
Carc fat	Х	Х	х			Х	x2	Х	x
International evaluations									х

Factors contributing to success



Infrastructure



Goal



Recording

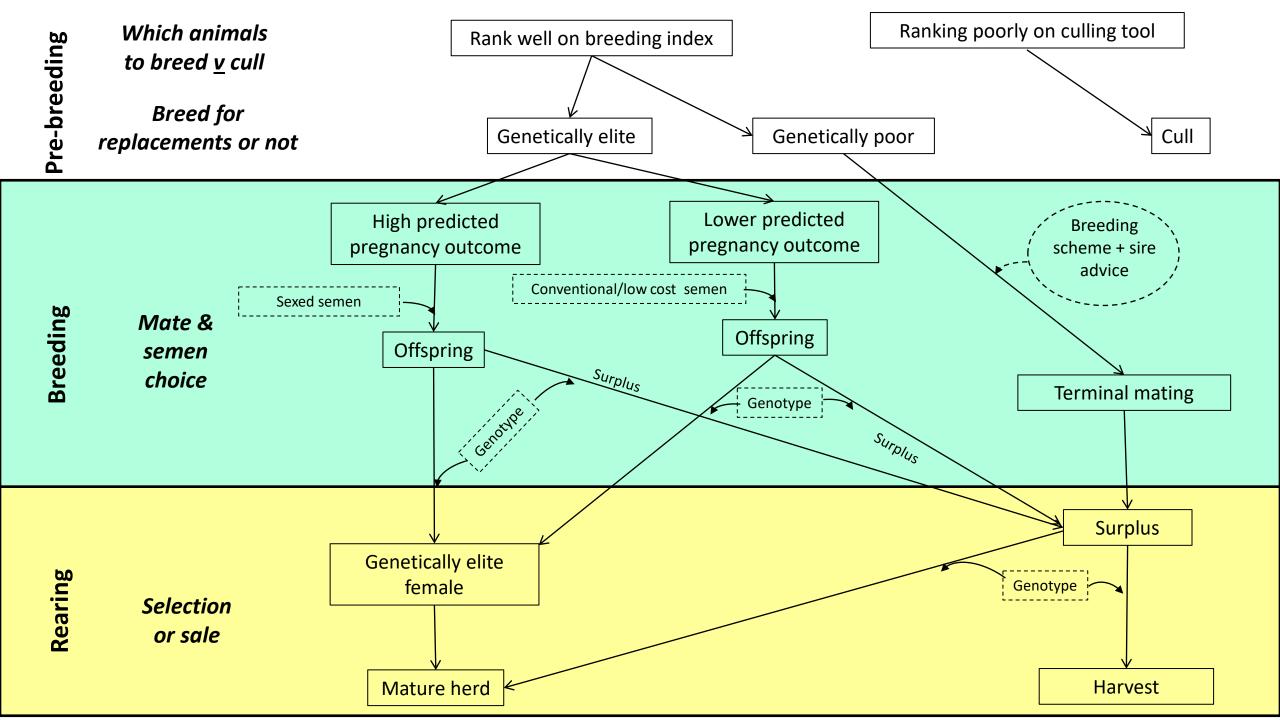






C1)

Single voice



Commercial herd profile (crossbred cows & cattle)

Beef Euro-Star Profile All animals that have a Euro Star Index. Additional Breeding Values are available in the Excel file.

ov 2023 Evaluation



Showing 1 to 6 of 6 entries

Hide filters 🗢 Excel PDF Print

			From Date		From				From											
Jumbo Animal Number I	Breed 🖡		: V	_	Dam	Sire	GenomicE													
		(To Date		То		l		То											

	Animal Details							F	Replacement	Index		Terminal I	ndex		Dairy Bee	findex		Dairy Beef Ir	dex
Jumbo ^	Animal Number 🔺 Breed	~ Birth Dat	e 🔺 Sex 🗛 Cal	ivinga 🗠	Dam	^ Sire ^	Genomic Eval	Index € ^	Euro-Star Within Breed	Euro-Star Across Breed	^ Index € ^	Euro-Star Within Breed	Across B	~		Euro-Star Across Breed	, Index , €	Euro-Star Within Breed	Euro-Star Across Breed
361	372222043310361	BB (50%) HE (22%)	07-APR-19	F	2	IE151675510727	c	DY	Yes	94		**							
1539	372216258471539	AA (44%) HO (34%)	05-FEB-20	F	2	372216258481399	MISSI	NG SIRE	No	132		**	***						
1582	372216258411582	AA (44%) HO (41%)	18-FEB-20	F	2	372216258481341	MISSI	NG SIRE	No	137		**	***						
1736	372216258461736	AA (44%) HO (38%)	02-FEB-22	F	0	372216258461604	MISSI	NG SIRE	No										
1760	372216258461760	AA (44%) HO (41%)	12-FEB-22	F	0	372216258451529	MISSI	NG SIRE	Yes	177		**	***						
50373	372222043350373	AA (72%) HO (22%)	21-JUL-23	м	0	372216258411582	z	ΈP	No	142		**	***	28		*****	117		****

Herd profile

Animal Details		Р		•	ole to b		Star Rating (within Charolais breed))aughtei	Renlacen		naits	Star Rating (across all beef breeds)	
			<mark>ger</mark>	netic ev	tic evaluation			Replacement (per daughter lactation)	To breed future cows for the suckler herd	- €85	98% (V High)	(across all beet breeds)	
Jumbo	Gestation	Mortality	Feed	Carcass Weight	Carcass Conformat	Age 1 Calvir	*****	Terminal	To breed beef animals from the suckler herd tha are destined for finishing	600	98% (V High)	*****	-)
(days	(days)	(%)	Intake (kg)	(kg) (kg)	(kg) ion (1-15)		****	<u>Dairy Beef</u>	To breed beef animals from the dairy herd that are destined for finishing	-€121	95% (V High)	****	g)
								Calving Diff	culty (births requring consi	derable assistan	ce; % 3 & 4)		
361	-1.08	0.07	-0.22	15	1.42	17.6		Be	Mated With: ef Heifers %, All breeds avg: 7.68%		Value 16.6%	Reliability 98% (V High)	
								Breed avg: 4.92	eef Cows %, All breeds avg: 3.60%		7.5%	99% (V High)	_
1539	-0.77	-0.17	0.10	-1.0	0.04	-14.	Star Rating (within Charolais breed)	Кеу	profit traits	Index value	Trait reliability	Star Rating (across all beef breeds)	
									Expected progeny pe	rformance			
4500		0.40	0.10				*****	Ges Breed avg: 2.1	ation (days) '0, All breeds avg: 2.54	3.05 days	99% (V High)	****	
1582	-1.12	-0.18	0.18	0.8	0.06	-14.3	****		t <u>y (1-5 scale)</u>)4, All breeds avg: 0.02	0.08 scale	99% (V High)	****	
							****	Age a Breed avg: -1.4	t finish (days) I7, All breeds avg: -1.39	-2.24 days	99% (V High)	****	_
1736	-0.50	-0.12	0.11	0.0	0.04	-12.4	****	Carca Breed avg: 34.85	ss weight (kg) ig, All breeds avg: 17.58kg	28.6kg	99% (V High)	****	
1/30	-0.50	-0.12	0.11	0.0	0.04	-12.4	*****		2, All breeds avg: 1.47	2.04 scale	99% (V High)	****	
1760	-1.45	-0.59	0.24	-3.0	0.01	-16.	5 7.	49	15.4	-7.48	8	12.8	

Major genes

372222043310361			x
Animal Number:	372222043310361	Genotype Received:	01-OCT-23
Animal Name:		Call Rate:	.984987 🥑
Breed:	BB	Chip Type:	IDBV5 🥑
Birth Date:	07-APR-19	Genotype Valid:	Yes 🥑
Death Date:			
Sire:	ODY		
Dam:	IE151675510727		

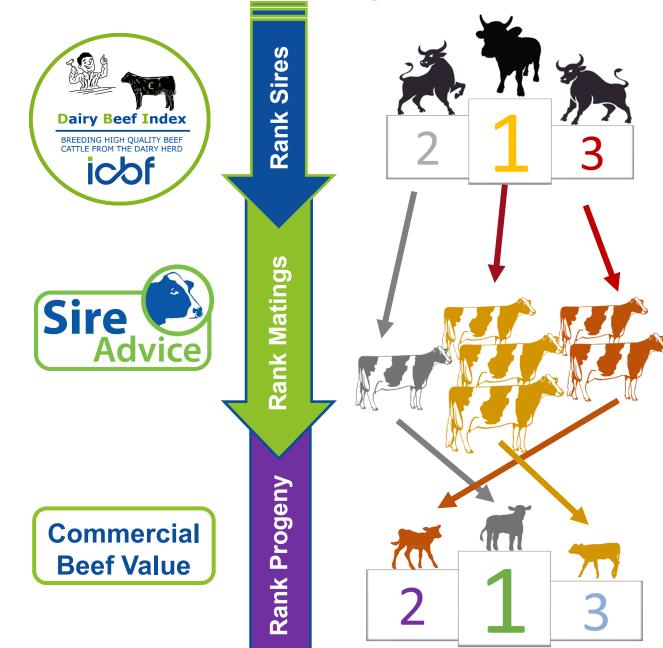
Show 10 🗸 rows. Showing 1 to 10 o	of 10 entries	First Previous 1 Ne	xt Last Hide filters	φ Excel PDF Print
Major Gene	Type 🗸 🗸	Code	Quality Check 🗸 🗸	Result 🗸
Major Gene 🔹 🔨	Туре ~	Code ^	Quality Check 🔷 🔺	Result ^
Myostatin C313Y	Meat	MYO_C313Y	PASS	NO COPY
Myostatin D182N	Meat	MYO_D182N	PASS	NO COPY
Myostatin E226X	Meat	MYO_E226X	PASS	NO COPY
Myostatin F94L	Meat	MYO_F94L	PASS	NO COPY
Myostatin L64P	Meat	MYO_L64P	PASS	NO COPY
Myostatin NT419	Meat	MYO_NT419	PASS	NO COPY
Myostatin NT821DEL11	Meat	MYO_NT821	PASS	SINGLE COPY
Polled Celtic	Beneficial	POLL_C	PASS	NO COPY
Myostatin Q204X	Meat	MYO_Q204X	PASS	NO COPY
Myostatin S105C	Meat	MYO_S105C	PASS	NO COPY
Showing 1 to 10 of 10 entries			First	Previous 1 Next Last

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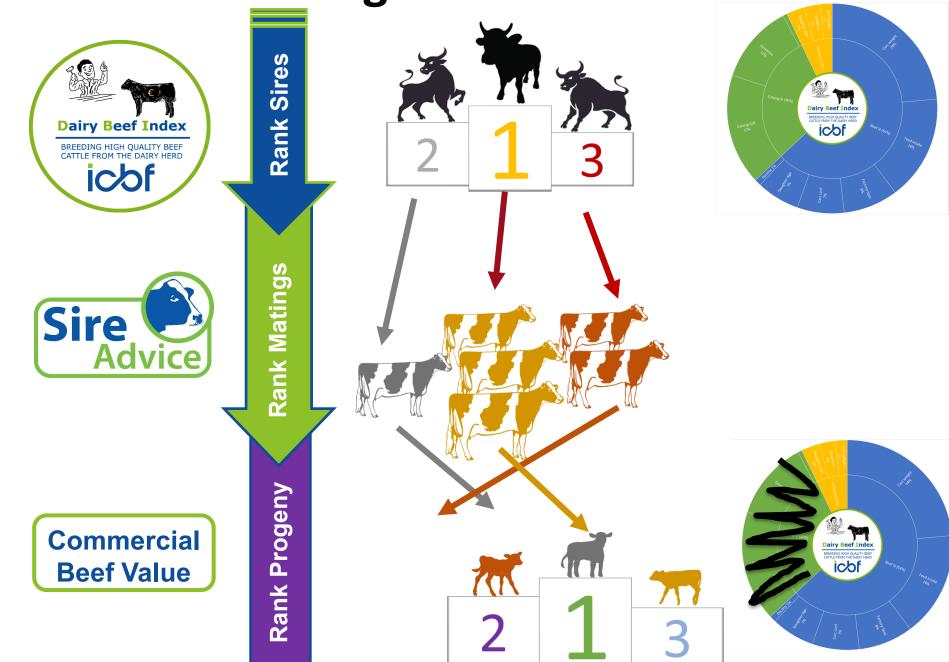
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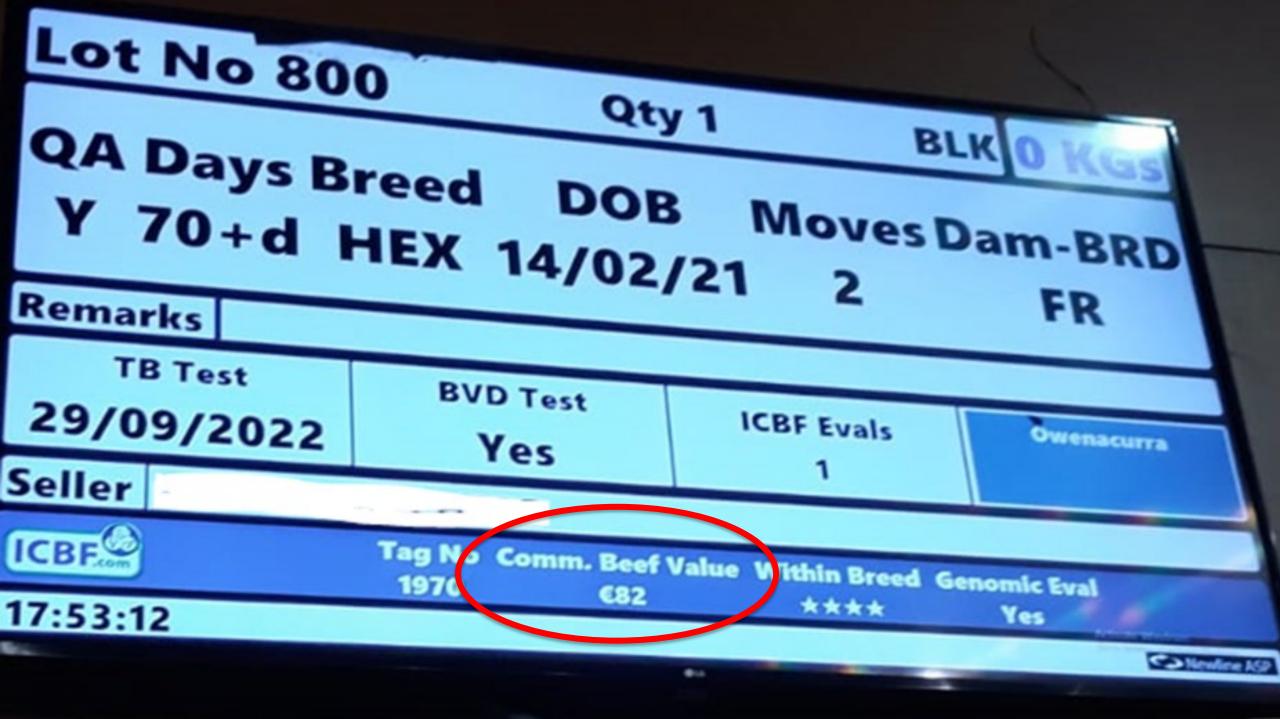
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Vertical integration

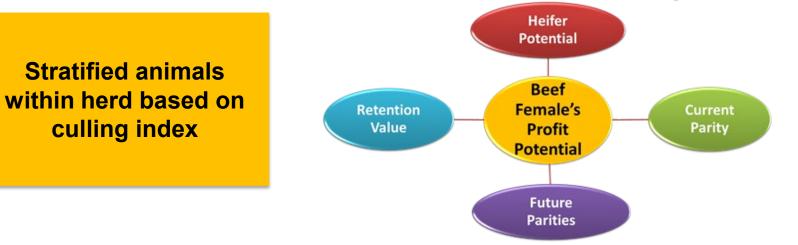


Vertical integration



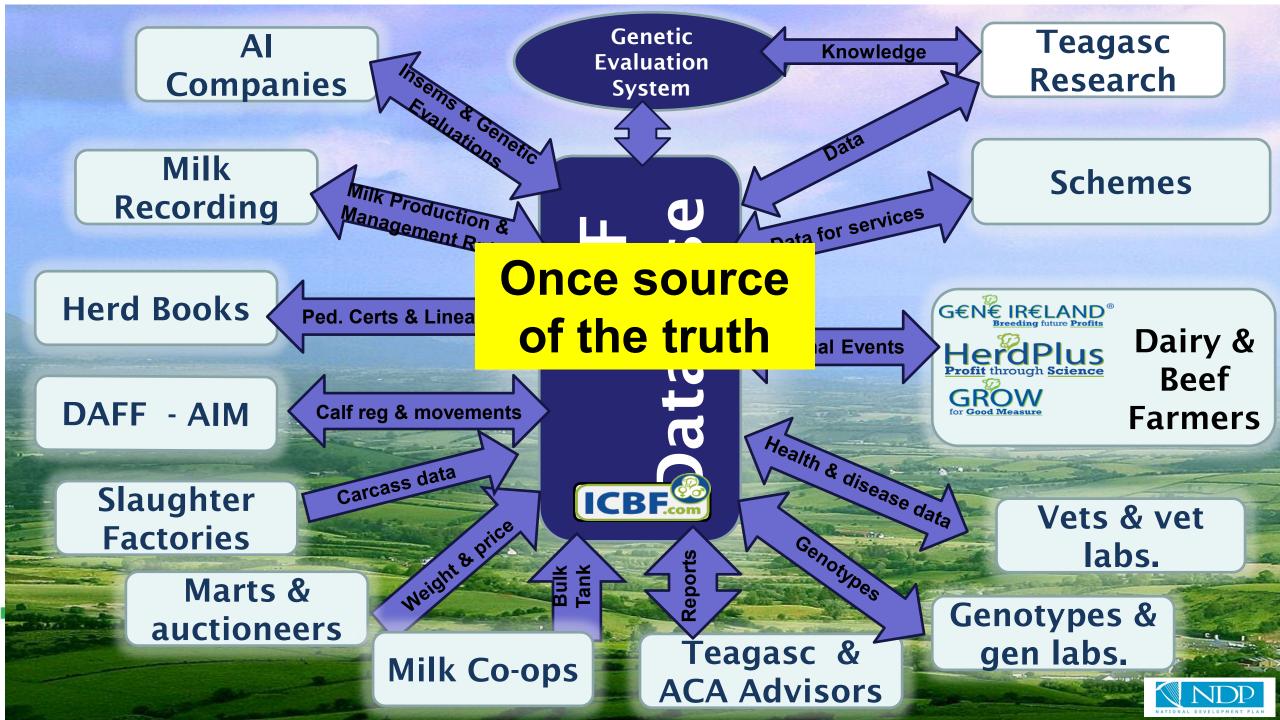


Beef female culling index

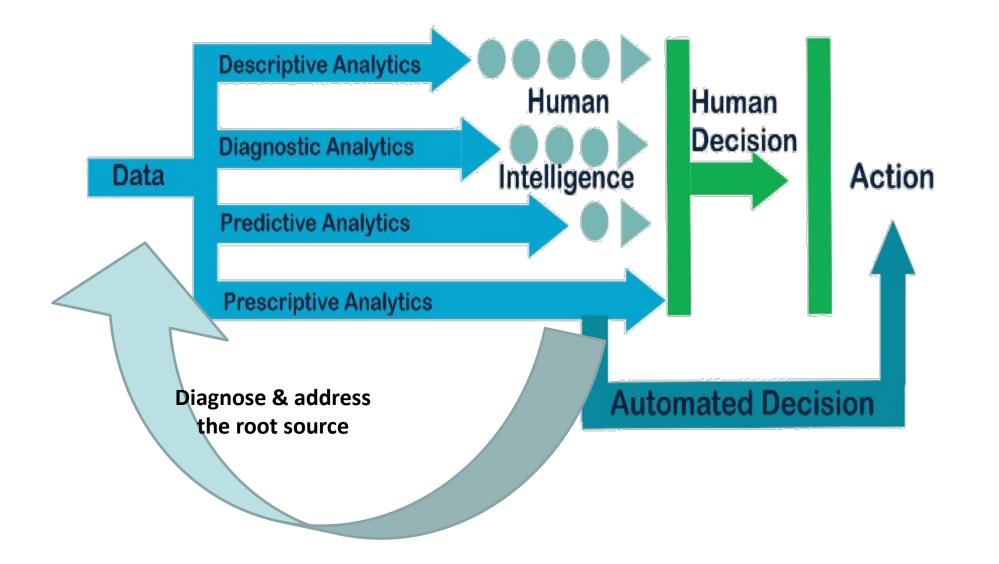


		Тор 25%	50% to 75%	25% to 50%	Bottom 25%
Cows	Calving date	6 th Apr	16 th Apr	28 th Apr	14 th May
traits	Survival (0 to 1)	1.62	1.49	1.33	1.00

	Carcass	Тор 25%	50% to 75%	25% to 50%	Bottom 25%
	Weight (kg)	398.46	398.48	396.61	394.29
Progeny traits	Conformation (Higher is better)	7.19	7.14	7.07	6.94
	Fat (Higher is fatter)	7.94	7.99	8.04	8.04



Decision support \rightarrow decision making



Factors contributing to success



Infrastructure



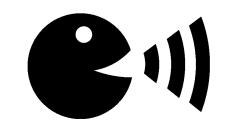
Goal



Recording



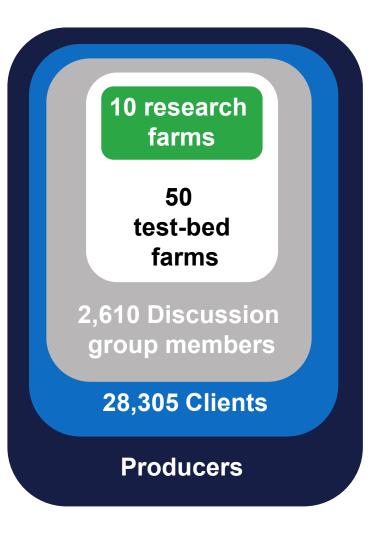




Integration

Single voice

Single voice









Take home message

- Irish model is conditioned to Irish landscape
 - Reproducible elsewhere?
- How provide breeding decisions without estimate of genetic merit for commercial (crossbred) cattle?
- Estimated breeding values → estimated production values

