



'Elderberry Galahad' (EBY) pictured recently in Dovea Genetics AI Centre with (left to right): Denis Brereton, Tony Cantwell, Conor O'Meara, Andy Bourke & Michael Kiely.

EBY & ZAG - Taking progeny testing to the limit

'Elderberry Galahad' was born on the 26 of September 2011 and was purchased and began his progeny testing with 'Dovea Genetics' in 2012. His successful AI career has coincided with the growth of the ICBF database over the years. He has sired nearly 80,000 calves in the ICBF database to-date. He is a great example of just how wide reaching the database has become in terms of the volume and variety of traits recorded on a bull's progeny. His longevity is a testament to the demand for his straws due to the quality of his progeny combined with his own good health and great care in Dovea. Another Limousin AI bull, of the same age, 'Castleview Gazelle' (ZAG) is another great example of the power of the database. He has 120,000 calves registered on the ICBF database. For living beef AI Bulls such as 'EBY' and 'ZAG' to have amassed so many progeny test records would be unrivalled worldwide.



Castleview Gazelle (ZAG) has 120,000 progeny in the ICBF database



Elderberry Galahad (EBY) – as a young Testbull

EBY - ICBF Database Data Summary - March 2023			
Trait	Records	Trait	Records
Progeny	78,096	Milk (Daughters progeny daily gain)	2,061
Calving Ease Records	32,175	Daughter Calving Interval	9,446
Gestation Length	17,678	Daughter Survival	11,164
Birth Size	25,242	Cow Liveweight	2,811
Birth Weight	692	Cow Docility	114
Carcass Weight, Conf & Fat	35,286	Cull Cow Weight	945
Live weights	48,453	TB	1,032
Linear Score Records	176	Liver Fluke	1,014
Docility	14,196	Feed Intake	12
Heifer Calving ability	3,418	Methane	8
Cow Calving ability	6,178	Meat Eating Quality	56

ICBF has also included data from the UK Limousin evaluation system on EBY. He has sired 116 pedigree animals in the UK. ICBF routinely includes foreign breeding values on bulls where available – particularly from the UK and France.

Other living Beef AI Bulls who are also good examples at showing just how effective the ICBF database has become at recording large volumes of important data are listed below:

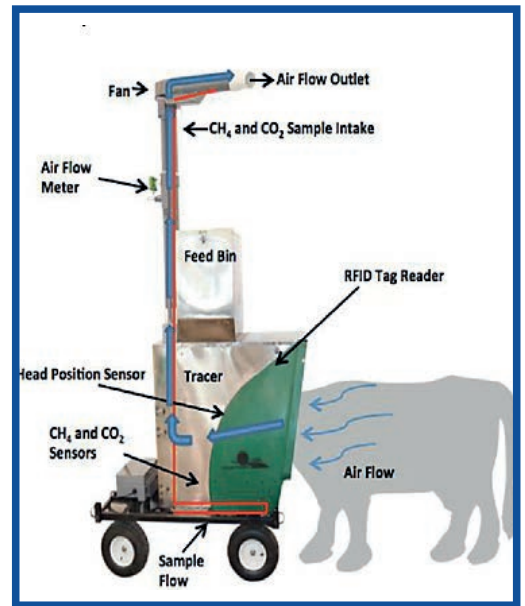
Top 10 Living Beef AI Bulls - number of progeny in the ICBF Database

Code	Name	Breed	Calves
ZAG	Castleview Gazelle	Limousin	121009
EBY	Elderberry Galahad	Limousin	78133
AA4089	Intelagri Matteo ET	Angus	47481
LM2014	Ewdenvale Ivor	Limousin	39890
LM4217	Moondharrig Knell	Limousin	36439
CH4321	Lapon	Charolais	22410
HE4105	Connmelvin Ollie	Hereford	18185
AA2163	Liss Brendan P465	Angus	17567
AA2259	Portauns Volcano P643	Angus	15618
HE5346	Fisher 1 Profile P456	Hereford	15464

Tully – leading the breeding solution on methane emissions

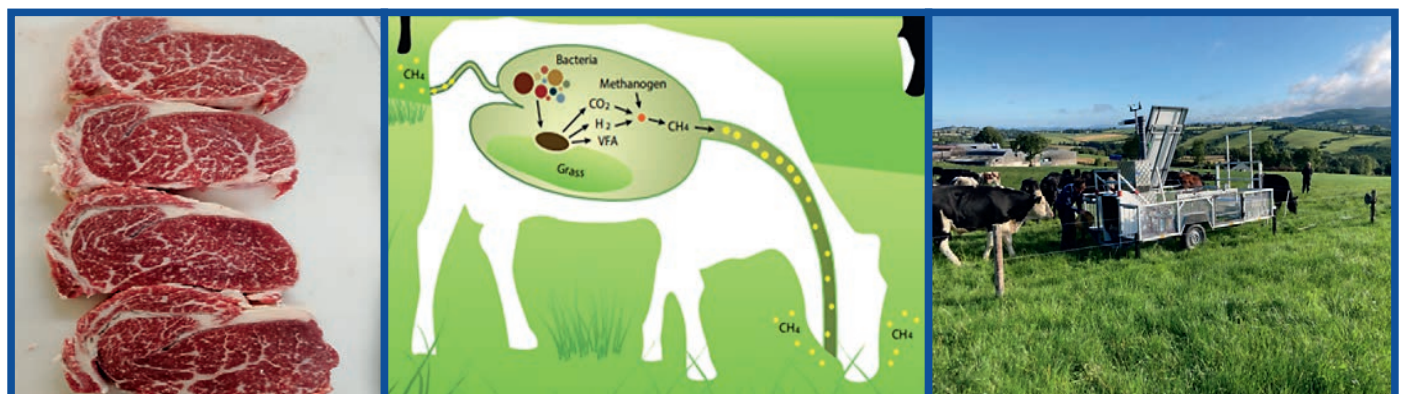
As we know data is collected on progeny test cattle at Tully on traits used in Euro-Star indexes such as feed intake and growth rate. However, new difficult to measure traits such as meat-eating quality and GHG (Greenhouse Gas) emissions are also evaluated.

Methane data is captured using a Greenfeed system (pictured). Animals are enticed to use the system with small amounts of meal that drops at set intervals. The animal is then identified by the Greenfeed machine through its RFID tag. As the animal consumes the feed, the air surrounding the animal's head, including that of which is exhaled is extracted via a fan. It is then passed by sensors and a value for each animal's methane emissions are determined.



Superb initial results

- 700 animals are finished at the Tully Test Centre annually (bulls, steers & heifers).
- All progeny are by AI Sires and are DNA verified.
- 60% of the animals are from dairy dams and the remainder are out of suckler dams.
- Methane data collected on animals from the same breed is showing a variation of 17% variation per kilo of live-weight produced. Since late 2018 data has been collected on 1600 animals to-date, comprising of bulls, steers and heifers across a wide range of breeds.
- Greenfeed trailers are also now being used to collect methane data at grass.
- Meat quality work is continuing to record valuable sensory and meat yield data (in conjunction with MTI): Ph Decline, Colour of the Loin, Ultrasound and visual marbling data.



Terminal index av. (steers)	Number of progeny	Final live-weight (kg)	Average daily gain (kg)	DMI/day (kg)	Carcass weight (kg)	Kill-out %	Methane (g) (317 suckler steers)
5 Star (€142)	170	650	1.33	11.47	374	57.5	218
4 Star (€118)	215	658	1.41	12.3	372	56.5	240
3 Star (€94)	230	663	1.4	14.26	366	55.2	248
2 Star (€64)	154	661	1.46	13.83	360	54.5	255
1 Star (€32)	72	644	1.4	15.04	346	53.7	254

841 Suckler bred steers that went through Tully were analyzed at the end of their trial period for the various traits including methane. They were divided up based on their star ratings at the start of the trial. The star rating system was found to have ranked the animals in line with how they then performed.

There was a €1.15/day difference in feed costs and €140 in carcass value in favour of the 5 star terminal index steers over the 1 star terminal index steers. These trends are similar for suckler bred heifers and bulls.

Methane Evaluations – A world 1st

Methane production from cattle digestion results in the loss of 6% to 10% of gross energy intake in cattle and globally is the single most significant source of anthropogenic methane (CH₄) emissions. Reducing CH₄ emissions, therefore, not only improves the environmental sustainability but also the efficiency of both dairy and beef cattle production systems.

Since 2018, methane records from over 1,600 animals have been collected in Tully, in conjunction with funding from RumenPredict, MASTER and GreenBreed projects. These animals have a wealth of phenotypic data available, including liveweights, ultrasound muscle measurements, feed intake, carcass weight, conformation, fat and the added benefit of being genotyped and sire verified.

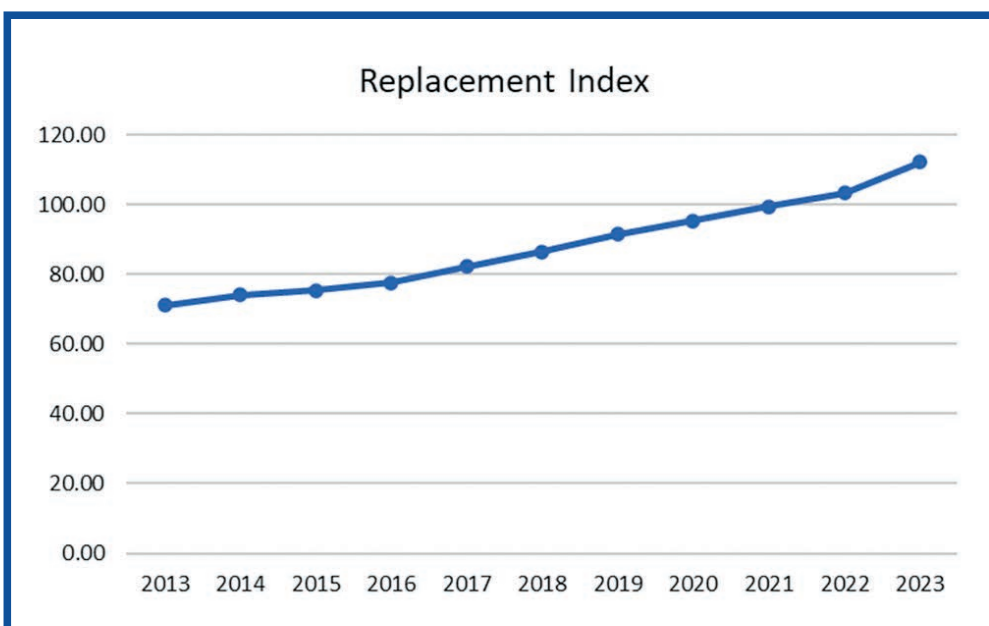
The culmination of this work is that, in April 2023, ICBF will be the first country in the world to publish gross enteric methane evaluations on AI Sires that have had progeny through Tully.

This project is a major step forward in helping Ireland meet its greenhouse gas reduction targets.

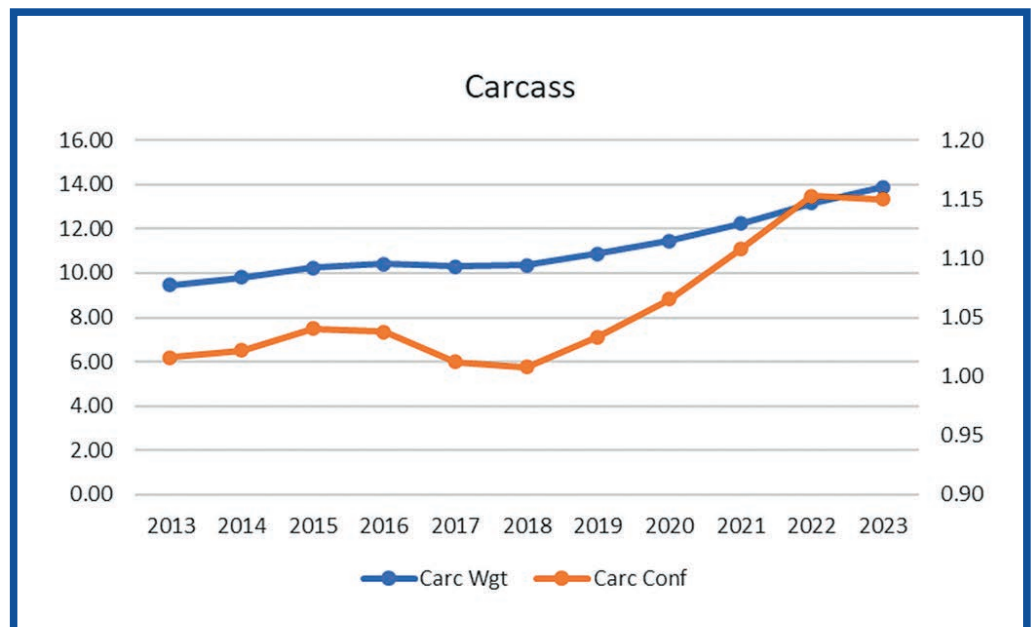
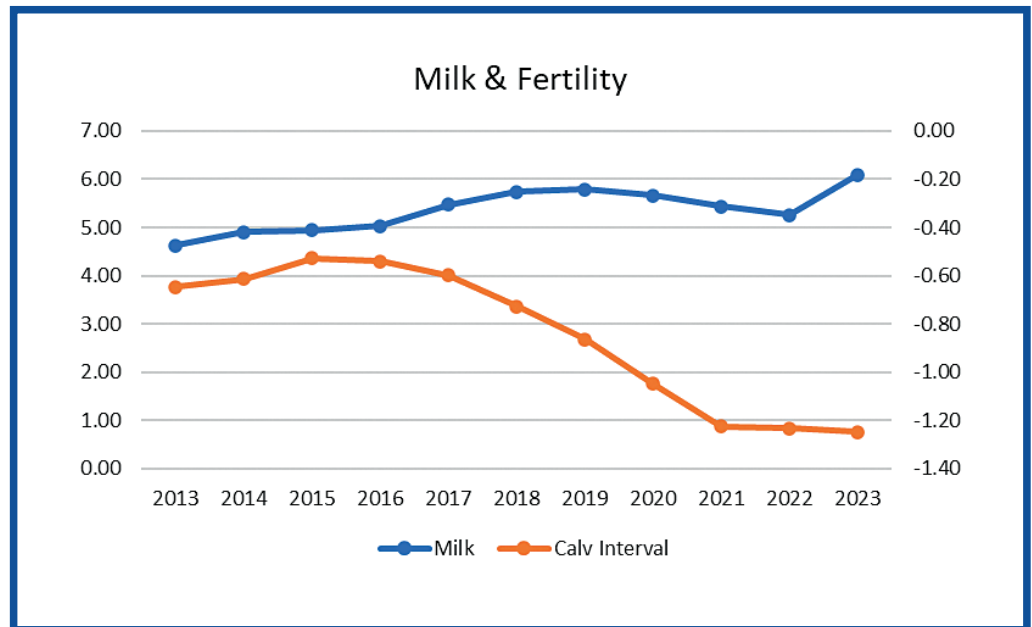
Genetic Gain

€uro-Stars, genotyping, BDGP, SCEP etc are all important bolts in our national breeding machine. These breeding indexes and schemes all have the same simple objective and that is to move the national herd in a certain direction for certain traits i.e. to increase the number of animals with favourable genes for these traits and decrease those who are pulling in the wrong direction.

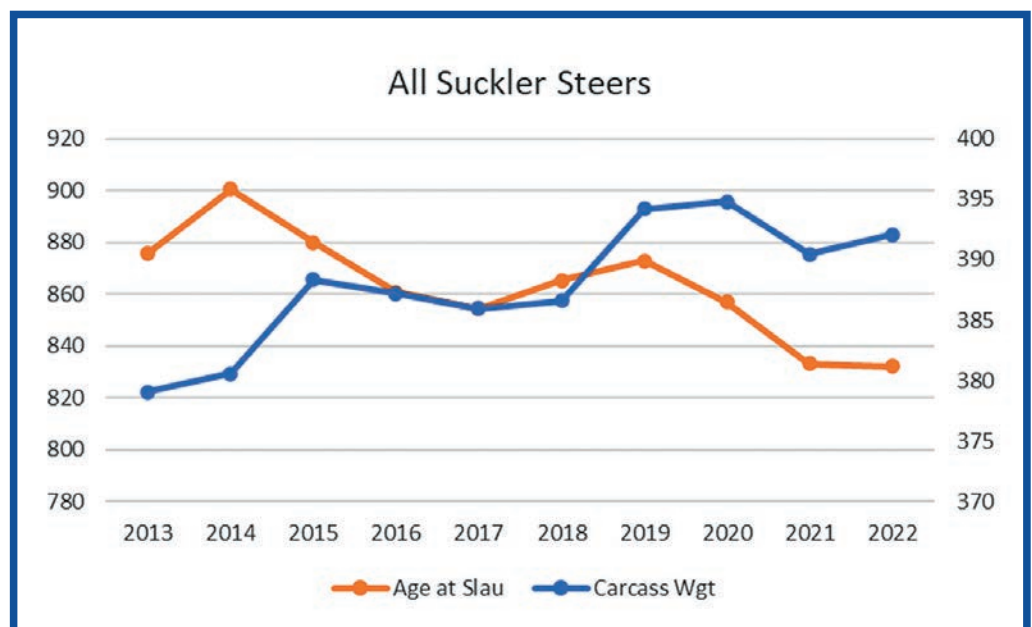
Like any national initiatives they have their supporters and detractors who have very valid questions and concerns. So, a very fair question to ask is have these breeding initiatives worked? To answer this question you have to see what trends animals are showing nationally. You need to see if they are getting naturally better for the traits that you are giving them higher €uro-Star index figures for. The following graphs show that the cattle breeding initiatives in Ireland are delivering real actual genetic improvements in animals in farms nationwide.



The 'Replacement Index' values of 1st calved heifers into the national suckler herd every year has been steadily improving.



Maternal & Terminal traits improving together.



- Euro-Stars have not reduced the quality of animals coming out of our suckler herds.
- 2013-2022 slaughter data:
 - Increase of 13kg in carcass weight.
 - 44 days younger age of slaughter.
 - Conformation 'R=' throughout.

Cow Rep Index Star-rating	2020			2021			2022		
	200-day wean weight	Cow weight	Weaning Efficiency %	200-day wean weight	Cow weight	Weaning Efficiency %	200-day wean weight	Cow weight	Weaning Efficiency %
1	290	656	44	288	650	44	291	654	44
2	291	645	45	289	644	45	292	647	45
3	292	639	46	290	639	45	294	642	46
4	293	634	46	291	636	46	295	639	46
5	296	629	47	293	631	46	297	635	47
Diff	6	-27	3	5	-19	2	6	-19	3

- Suckler Cow data collected through the BEEP-S programme.
- 5 Star cows are consistently lighter with heavier calves leading to higher weaning efficiencies

Gene Ireland

The Background

- The Gene Ireland Beef and Dairy Beef progeny test program is a joint initiative between:
 - Pedigree Breeders
 - Commercial Farmers
 - Breed Societies
 - AI Companies
 - DAFM
 - ICBF

The aim of the program is to efficiently progeny test beef bulls to the highest possible standards. The unique aspect of the Gene Ireland progeny test system is that semen from all of the bulls, owned by the 3 AI program partners (Dovea Genetics, Eurogene AI & NCBC (Munster Bovine & Progressive Genetics)) is offered to participating herds from the same catalogue at the same time.

This means that large groups of progeny from several Youngbulls from various breeds and owned by different AI Companies are reared together in commercial Irish beef herds. This allows ICBF to analyze a very informative dataset, comparing progeny from one bull with another for all of the important traits affecting profitability from calving through to slaughter.

The nature in which the bull’s semen is distributed and the range of data recorded on their calves makes Gene Ireland an internationally recognized evaluation program in terms of the levels of ‘reliability %’ that it is able to achieve for so many traits in actual commercial farm situations.

ICBF also purchases, genotypes, rears and slaughter’s a sample of progeny from every bull at it’s progeny test Centre in Tully Co.Kildare. At this Centre, traits that are hard or impossible to measure on a bull’s progeny in the field such as feed efficiency, water consumption, methane emission, marbling and meat eating quality are measured.

Test Herd Benefits

- Participating Commercial farmers have access to a wide range of the highest indexed new young beef bulls in Irish AI from a range of AI Companies.
- The same straw price of €7/straw applies to all the bulls.
- Straws delivered to your own tank or the technician of your choosing.
- These bulls will greatly help Commercial farmers progress towards meeting their scheme targets e.g. SCEP
- Potentially sell progeny back to ICBF for progeny testing at Tully.
- Freedom to choose whatever combination of bulls & breeds that you require from the catalogue.

Gene Ireland Beef Youngbulls - Spring 2023 (March Evals)										
Test Type	AI Code	Name	Breed	Birth Date	Dairy Beef		Replacement		Terminal	
					Index	Rel %	Index	Rel %	Index	Rel %
Dairy Beef	AA8778	Lemonfield Uxas	AA	20-Mar-21	€176	47	€124	41	€100	43
Dairy Beef	AA7098	Topbos Leading Edge L292	AA	07-Aug-15	€162	41	€133	36	€77	38
Dairy Beef	AA8640	Rawburn Poncho X478	AA	04-Apr-21	€156	42	€144	37	€94	40
Dairy Beef	AA8766	Kenny's Creek Pinnacle P481	AA	16-Aug-18	€156	39	€96	33	€75	35
Dairy Beef	AA8472	Tubridmore Twomey ET	AA	15-Aug-20	€151	46	€99	43	€86	46
Dairy Beef	AA9025	De Crob Conviction	AA	21-Dec-18	€151	39	€134	35	€69	37
Dairy Beef	AA8769	Lawsons Miraculous Q44	AA	06-Mar-19	€146	41	€95	34	€66	36
Dairy Beef	AA9223	Quaker Hill Rock Star 9In7	AA	06-Sep-19	€146	37	€103	33	€79	35
Dairy Beef	AA8508	Drumhill Lord Highway V271	AA	24-Apr-19	€137	43	€133	39	€92	42
Dairy Beef	AA8718	VB Redbuck	AA	21-Jan-20	€135	37	€100	33	€76	35
Dairy Beef	AA8721	VB Robert	AA	28-Jan-20	€134	40	€119	35	€75	37
Dairy Beef	AA8628	Glenbrae Red Mr Kayo W825	AA	15-Apr-20	€127	40	€118	36	€76	39
Dairy Beef	AU2365	Calverstown Koala	AU	31-Jan-15	€161	82	€150	80	€120	87
Dairy Beef	AU2155	Slaneymill Jack 687	AU	19-Mar-14	€151	82	€171	82	€112	88
Dairy Beef	BB8484	Knockagh Jubilant	BB	04-Dec-14	€147	40	€125	37	€155	40
Dairy Beef	BB7440	Tic P	BB	04-Apr-19	€136	54	€95	39	€152	45
Dairy Beef	BB8496	Stef VD Blomsteeg	BB	13-Oct-18	€117	37	€83	34	€125	36
Dairy Beef	BB8283	Villablues Oxo ET	BB	22-Mar-20	€82	48	€69	43	€129	47
Dairy Beef	BB9214	Gaggin Proper	BB	11-Apr-21	€73	53	€110	49	€159	51
Dairy Beef	CH8685	Dalas DH V	CH	10-Mar-17	€109	40	€72	38	€130	41
Dairy Beef	HE8784	Kingsgrovepoll 1 Norstar 10	HE	02-Jul-21	€136	55	€154	47	€92	52
Dairy Beef	HE8547	Chestnutpoll 1 Star 45	HE	09-Sep-20	€135	53	€89	49	€86	51
Dairy Beef	HE8511	Intelagri 1 Gold Rush ET	HE	20-May-20	€128	51	€105	45	€81	48
Dairy Beef	HE8956	VB Wandil	HE	10-Jan-19	€108	37	€89	33	€56	35
Dairy Beef	HE9058	Danny FM Ze Chribske	HE	04-Apr-17	€86	37	€62	33	€34	35
Dairy Beef	LM7404	Gaggin Power ET	LM	04-Aug-19	€181	60	€171	53	€166	57
Dairy Beef	LM7641	Brackan Ruben	LM	10-May-20	€180	51	€185	46	€191	52
Dairy Beef	LM7077	Carrowreagh Pablo	LM	03-Sep-19	€155	65	€156	53	€162	62
Dairy Beef	LM7719	Townleyhall Rupert	LM	24-Apr-20	€153	52	€136	46	€138	51
Dairy Beef	LM3719	Creggpark Pat	LM	03-Dec-19	€148	60	€154	52	€160	59
Dairy Beef	LM8286	Rutland Reuben	LM	05-Sep-20	€144	50	€150	50	€130	51
Dairy Beef	LM7959	Patriot	LM	30-Aug-19	€129	42	€126	37	€141	42
Dairy Beef	PI4566	Sandymount Nordic	PI	19-May-16	€51	76	€114	61	€97	80
Replacement	LM8259	Keltic Rembrandt	LM	25-Oct-20	€113	51	€134	48	€150	53
Replacement	LM8616	Lisna Sir	LM	01-Jan-21	€140	48	€129	44	€148	48
Replacement	SI8520	Portroyal Mr Bull PP	SI	04-Mar-20	€100	44	€159	41	€84	44
Replacement	SI8121	Epik Agrochyt P	SI	01-Aug-18	€51	49	€149	47	€103	48
Terminal	CH8535	Tullyvillage Shane	CH	06-Apr-21	€39	49	€45	49	€157	50
Terminal	CH8334	Corbaun Rory	CH	12-Jun-20	€46	48	€114	48	€152	50
Terminal	CH8571	Recif	CH	27-Sep-20	€84	40	€102	38	€135	41
Terminal	LM8622	Ardlea Rigby ET	LM	24-Dec-20	€114	47	€103	44	€167	48
Terminal	LM7713	Birchpark Rufus	LM	29-Jun-20	€110	50	€110	46	€160	50
Terminal	LM8619	Castleview Reece	LM	22-Oct-20	€111	51	€111	50	€152	53
Terminal	LM8625	Ardlea Rolex	LM	18-Nov-20	€126	47	€114	45	€150	48

Bulls above are in the Spring 2023 Dairy Beef & Beef Gene Ireland progeny test program. Owned by the Gene Ireland program partners (NCBC, Dovea Genetics and Eurogene AI). GI Linkage bulls also included. Bulls are ranked within breed by their main progeny test index.



Lemonfield Uxas (AA8778)
Eurogene AI Services
Mar'23 DBI: €176 (47%)



Chestnutpoll 1 Star 45 (HE8547)
Dovea Genetics
Mar'23 DBI: €135 (53%)



Kingsgrovepoll 1 Norstar 10 (HE8784)
Eurogene AI Services
Mar'23 DBI: €136 (55%)



Gaggin Power ET (LM7404)
Eurogene AI Services
Mar'23 DBI: €181 (60%)



Carrowreagh Pablo (LM7077)
Dovea Genetics/ILCS
Mar'23 DBI: €155 (65%)



Keltic Rembrandt (LM8259)
NCBC
Mar'23 Repl: €134 (48%)



Tic P (BB7440)
NCBC
Mar'23 DBI: €136 (54%)



Tullyvillage Shane (CH8535)
Dovea Genetics
Mar'23 Term: €157 (50%)



Portroyal MrBull PP(SI8520)
NCBC
Mar'23 Repl: €159 (41%)

GI Linkage Bulls

ICBF includes semen from certain International Beef AI Sires in the Gene Ireland progeny test program every year. They are called 'GI Linkage' bulls so as to create strong linkages between the ICBF evaluation system and evaluation systems elsewhere around the world.

There are many benefits to this work:

- We can link in with foreign breeding programs which increases the number of new high indexed AI bulls available here.
- The 'GI Linkage' bulls allow outcross genetics from a different pedigree population to be used by pedigree breeders here.
- It creates the possibility for an Irish born son of a 'GI Linkage' bull to be purchased by an Irish AI Company.

- The ‘GI Linkage’ bull himself could also be taken on by an Irish AI Company thus increasing the spread of those profitable genes through the Irish population.
- It is an advantage to Irish AI Companies when they are exporting semen in terms of comparing bulls against each other.
- It contributes to the calculation of International Beef Evaluations which is co - ordinated by Interbeef.

Nordic - Irish Linkup

ICBF has included 3 Viking Genetics beef bulls as ‘GI Linkage’ bulls in the Gene Ireland progeny test program in 2023. Progeny of these bulls will be evaluated for the full range of traits in Tully including methane emissions. Viking Genetics via the ‘Seges’ ‘FutureBeefCross’ trial in Denmark will also be measuring the dairy beef progeny of these bulls for eating quality, feed efficiency and methane emissions. So their inclusion in Gene Ireland allows their methane emissions results to be cross referenced in 2 different Countries.



VB Wandil (HE8956)
Mar’23 DBI: €108 (37%)



VB Robert (AA8721)
Mar’23 DBI: €134 (40%)



VB Redbuck (AA8718)
Mar’23 DBI: €135 (37%)

ICBF also facilitated the inclusion of Angus AI Sires from Ireland in the project. Eurogene AI (Viking Genetics distributor in Ireland) have sent over semen from 4 of their Angus Bulls: Gabriel Mossy, Gabriel Pete, Steil Picasso 360, Rawburn Jumbo Eric and Woodvale Network R854.

Genetics Australia

3 Australian Angus bulls are being used in Gene Ireland in 2023 so as to provide linkages between our evaluation systems. The bulls are owned by ‘Genetics Australia’ and one of the bull’s, ‘Kenny’s Creek Pinnacle P481’, is also being used by ‘Meat & Livestock Australia’ and ‘BLNZ’ (Beef and Lamb New Zealand) in their methane emissions trials. So, like the Danish trial, the results of his progeny down under can be compared with how his progeny perform in Tully thus allowing our trials to be validated against each other.



Kenny’s Creek Pinnacle P481 (AA8766)
Mar’23 DBI: €156 (39%)



Topbos Leading Edge L292 (AA7098)
Mar’23 DBI: €162 (41%)



Lawsons Miraculous Q44 (AA8769)
Mar’23 DBI: €146 (41%)

These Australian bulls are also highly significant for providing linkages on marbling and meat eating quality traits as they are all highly rated for these traits in Australia.

‘Lawsons Miraculous Q44’ for example has the highest EMA (Eye Muscle Area) breeding value in the Angus breed in Australia.

These bull’s join the growing list of other ‘Genetics Australia’ bulls which are also being progeny tested through Gene Ireland.



Lawson's Momentous M518 (AA7422)
Mar'23 DBI: €146 (52%)



Warrawee Patrol P29 (AA7095)
Mar'23 DBI: €201 (55%)



Charnelle Panama (P) (CH7056)
Mar'23 DBI: €78 (42%)



Wirruna Paton P048 (HE7281)
Mar'23 DBI: €112 (48%)

Examples of other ‘GI Linkage’ bulls which have been put on test and created links to foreign evaluation systems are:



Quaker Hill Rock Star 9In7 (AA9223)
(Semex - Canada)
Mar'23 DBI: €146 (37%)



Dalas DH V (CH8685)
(Natural - Czech Rep)
Mar'23 DBI: €109 (40%)



Danny FM (HE9058)
(Natural - Czech Rep)
Mar'23 DBI: €86 (37%)



De Crob Conviction (AA9025)
(KI-Kampen - Netherlands)
Mar'23 DBI: €151 (39%)



Lightning Total (AA7821)
(Aberekin - Spain)
Mar'23 DBI: €154 (42%)



Haltere (SA7044)
(Synetics - France)
Mar'23 DBI: €112 (54%)

Limited straws from all of these featured ‘GI Linkage’ bulls and many more are available from ICBF for pedigree use.

GI Linkage Graduates

One of the benefits of bringing in an initial batch of straws of a ‘GI Linkage’ bull is that an Irish AI Company can then take on the bull and market him themselves. Those profitable genes being spread even further as well as increasing the chances of a pedigree son standing in an Irish AI Centre adds great value to the ‘GI Linkage’ section of Gene Ireland.

The French Charolais ‘Love P’ and French limousin ‘Nebbiolo’ are two recent bulls which have been taken on by Irish AI Centres having been initially identified as ‘GI Linkage’ bulls by ICBF based on their genomic index figures here.

Love P

‘Love P’ (CH5626) was born in 2015 and genotyped by ICBF as a young bull in 2018. He is owned by the French breeding company ‘Synetics’. His genomic evaluations ranked him high enough on the ‘Replacement’ index to be included in the 2018 progeny test panel. He has shown himself to be very easy calved (Beef cows calving Diff:3.9%) while still having excellent carcass performance. His 53 progeny slaughtered to-date outperformed their herdmates:

Date of Evaluation	Carcass Weight (kg)		Conformation (EUROP scale)		Fat (1-5 scale)	
	Progeny	Herd Mates	Progeny	Herd Mates	Progeny	Herd Mates
Mar 2023	390	370	U-	R+	3	3

His progeny were also finished several weeks ahead of their herdmates. This all tallies with how he performed in his progeny test in France where he was found to be easy calving (108) but yet have excellent growth (110). His daughters in France had good milk production (113) so as his Irish daughters come through here we would expect them to also do well maternally. Dovea Genetics have now taken on ‘Love P’ to import more semen of and market him alongside their range of Charolais bulls.



Nebbiolo

Nebbiolo (LM3713) is a French Limousin bull that is owned by ‘Crealm’ in France. He was born in a herd in the small village of La Chapelle Saint Martial in Department of Creuse in the Limousin area. He had a birthweight of 45kgs and had good growth rates on farm which allowed him to be selected for the Lanaud performance test station from where the AI Company ‘Crealm’ then selected him as a young

Testbull. Like ‘Love P’, he was genotyped by ICBF as a young bull, before he had many progeny on the ground in France. He is now just completing a very detailed progeny test program in France which focusses on his daughters, called Moussours, and they have done very well in that progeny test. He was found in France to be very easy calving and his daughters have exceptional docility, fertility, calving ability and milk production. He will be a qualified maternal bull next August and his semen will then be sexed. From his semen that went out through Gene Ireland here in 2021 his calves were found to be easily calved with good docility and their growth and weight data have also mirrored their siblings in France in terms of excellent results.

On the Active Beef bull lists here he ranks in the top 10 in the Limousin breed for all 3 indices. NCBC has now taken on the marketing of ‘Nebbiolo’ as well as several other ‘GI Linkage’ bulls.

GI Linkage Bulls sold by Irish AI Companies

Bull Details			Replacement			Terminal			Dairy Beef			International AI	Irish AI Company
AI Code	Animal Name	Breed	Index	Rel	Stars (Across)	Index	Rel	Stars (Across)	Index	Rel	Stars (Across)	Company	
CH5626	LOVE P	CH	€153	63	5	€157	81	5	€113	73	5	Synetics - France	Dovea Genetics
CH8112	MESSMER	CH	€171	50	5	€173	62	5	€118	55	5	Synetics - France	NCBC
LM3713	NEBBIOLO	LM	€173	54	5	€181	65	5	€141	63	5	Crealim - France	NCBC
LM4872	JYM	LM	€116	54	4	€151	82	5	€119	78	5	Crealim - France	NCBC
LM8109	PERCY	LM	€149	42	5	€148	46	5	€118	46	5	Synetics - France	NCBC
LM7599	MOEBIUS	LM	€132	48	5	€168	56	5	€160	52	5	Crealim - France	NCBC
SI8121	EPIK AGROCHYT P	SI	€149	47	5	€103	48	3	€51	49	1	Natural - Czech Rep.	NCBC



Messmer (CH8112)



Jym (LM4872)



Percy (LM8109)



Moebius (LM7599)



Epik Agrochyt P (SI8121)

In France there are 220,000 Charolais cows in performance recording and 100,000 are registered in the herdbook. There are about 700,000 Limousin cows in France and 65,000 of them are pedigree registered. To be creating strong links via progeny tested bulls with such pedigree populations allows for the identification of superior bulls which can be excellent ‘Sires of Sons’ for Ireland. Another big benefit is that it allows for outcross genetics to be brought in whilst not pulling back genetic gain.

ICBF Active Bull Lists – Spring 2023

The Active Beef Bull Lists show the highest ranked Beef AI Sires on the 'Replacement', 'Terminal' and 'Dairy Beef' indices that have semen widely available, based on the March 2023 genetic evaluations computed by ICBF.

The criteria for making the list are as follows:

- Bull is Genotyped
- Reliability % for their main index is at least 50%
- Reliability of 'Calving Difficulty' of at least 50% (based on 17% heifer rel % and 83% cow rel%).
- Bull must also have calves in his calving survey evaluation.

Gene Ireland

A 'Yes' in this column indicates that the bull was progeny tested through the Gene Ireland maternal progeny test programme. This is a programme where ICBF contacts beef farmers and coordinates the distribution of the semen and collection of data on those bulls daughters. This programme results in bull's receiving extremely accurate evaluations without excessive amounts of semen having to be dispatched while they are still genetically unproven.

Understand the terminology

1. **Bull Details:** Rank, AI Code, Name, Breed, Gene Irl.
2. **Replacement or Terminal Index:** This is the overall single figure profit index that each bull has. A Bull with a Replacement Index of €200 is expected to sire daughters that are €200 more profitable than the average Irish suckler cow. Likewise, for the 'Terminal Index', it is an indication of how profitable a bull's progeny will be when slaughtered.
3. **Dairy Beef Index (DBI):** The Dairy Beef Index (DBI) ranks beef bulls, for use in the dairy herd, according to their genetic merit for a range of calving performance and carcass performance traits. The overall DBI is expressed in euros (€). Each €1 increase in DBI 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. For example, a beef bull with a DBI of €100 is expected to produce calves born to dairy cows that will generate €100 more profit compared to progeny sired by the average Holstein-Friesian bull. Therefore, higher DBI bulls generate more profitable progeny.
4. **Reliability %:** This figure is an indication as to how confident ICBF can be about the genetic evaluations for a particular bull. Progeny of a bull having data recorded on them (calving survey, weights etc) alongside lots of other animals, across large numbers of herds is what increases a bull's reliability % figure. The 'reliability %' figures for AI Sires is generally higher than that of Stockbulls due to the large number of calves across many herds that they would sire.
5. **Stars Across & Within:** This shows the percentile ranking of the bulls index when compared across other breeds and also within their own breed (5 stars: top 20%, 1 star: bottom 20%).
6. **Semen Details;** Availability, Price, and supplier details of each bull are included.

€uro-Stars

The actual €uro-Stars just make the €uro Index values visually easy to understand. The €uro-Stars show where the animal's genetic index ranks (top 20%, bottom 20% etc).

Euro-Star Rankings		
★★★★★	5 Stars	Genetic Index is in the top 20%
★★★★	4 Stars	Genetic Index is in the top 40%
★★★	3 Stars	Average Genetic Index
★★	2 Stars	Genetic Index is in the bottom 40%
★	1 Star	Genetic Index is in the bottom 20%

Improvements to the DBI

Updated economic values: Economic Values were updated to reflect the price paid for cattle in recent years. This has resulted in higher economic values being applied to carcass traits in the DBI.

New Trait: Age at Slaughter: Due to new research in Teagasc, the DBI now includes an age at slaughter trait which identifies sires that will have progeny ready for slaughter at a younger age. Age at slaughter is included in the updated DBI at a cost of €1.35/day, which represents the average cost of keeping animal across the year.

New Trait: 'In-Spec': A new composite 'in-spec' trait was introduced with the aim of identifying progeny that conform to desired factory specifications for carcass weight (280 to 380 kg), conformation (0= and better), and fat (2+ to 4=). Cattle that do not meet desired specifications are penalised in the factory and the DBI now reflects those penalties.

Inclusion of a Carbon Sub-Index

Carbon emissions from the dairy and beef herd is a major concern. Although carbon is not a direct economic cost for farmers today, it is likely farmers will be charged for carbon in the future so the inclusion of a carbon component in the DBI will breed an animal with a lower carbon footprint. The Agri Sector has been set a target of reducing emissions by 25% (5.75 Mt CO₂e) by 2030. Genetics has been tasked with reducing this figure by 1.2Mt of CO₂e and the inclusion of a new Carbon Sub-Index into the DBI is imperative to achieving this target.

Carbon is being included by assessing the impact that each trait has on 'carbon' production. The carbon value is assessed as the change in total emissions per unit change in the trait of interest holding all other traits constant. Traits that increase feed intake – increase emissions and hence, are penalised in the Carbon SI. Traits that reduce feed intake or change diet reduce emissions and hence, are rewarded in the Carbon SI. Total carbon value is converted to an economic value by a price per tonne of carbon; this has been set at €80/tonne.

Traits included in the DBI Carbon Sub Index are

1. Gestation,
2. Carcass weight,
3. Age at Slaughter

Animals that have a genetically short gestation length, produce lighter carcasses and those that finish earlier in life benefit the most from these changes.

Beef Active Bulls (Replacement) (Printed 28/03/23)

Animal Details					Replacement				Semen Details			
Rank	Code	Bull Name	Breed	GI	Index	Rel %	Stars Within	Stars Across	Avail	Beef Calv Recs	Price	Supplier
1	SA4604	Knottown Roy	SA	Yes	€246	83	5	5	High	2619	€12	NCBC
2	CH2303	Newhouse Bigal	CH	No	€224	63	5	5	Low	62	€99	Elite Ped Gen
3	AU4683	Turloughmore Magnificent	AU	Yes	€217	73	5	5	Medium	955	€12	NCBC
4	LM4471	Tomschoice Lexicon	LM	No	€215	65	5	5	Medium	583	€20	WWS Irl
5	AA8232	Carrigroe Real Mccoy	AA	No	€209	52	5	5	High	5	€20	Eurogene
6	SA2189	Ulsan	SA	No	€203	94	5	5	High	2490	€20	Dovea
7	AA4743	Kealkil Prime Lad	AA	No	€202	72	5	5	High	517	€12	Dovea
8	AA7485	Prohurst Eoghan W759	AA	Yes	€200	51	5	5	High	70	€14	NCBC
9	SI4950	Derreen Jack	SI	No	€200	62	5	5	High	291	€10	Bova
10	SI2152	Curaheen Earp	SI	Yes	€197	98	5	5	High	8309	€14	NCBC
11	VTA	Vaillant	SA	No	€194	91	5	5	High	382	€14	Bova
12	SI4147	Curaheen Gunshot P	SI	No	€191	92	5	5	High	2471	€12	Dovea
13	SI2469	Lisnacran Fift Cent	SI	Yes	€190	97	5	5	Medium	7019	€12	NCBC
14	CH6271	Whitecliffe Orwell	CH	No	€189	56	5	5	High	372	€14	Eurogene
15	AA4632	Sallowglen Jamie T771	AA	No	€188	66	5	5	High	112	€12	NCBC
16	AU4460	Dauphin	AU	No	€188	72	5	5	High	203	€12	Dovea
17	AU4836	Turloughmore Majestic	AU	Yes	€187	63	5	5	High	203	€11	Eurogene
18	AU5506	Whitestown Leyland Et	AU	Yes	€183	61	5	5	High	109	€11	Eurogene
19	SI4657	Coose Jericho P	SI	No	€181	64	5	5	High	340	€16	Eurogene
20	AA4752	Dalriada Red Perfection	AA	No	€178	66	5	5	High	284	€10	Bova
21	LM5611	Tomschoice Nation	LM	No	€177	54	5	5	Medium	173	€18	NCBC
22	AA5094	Fordel Lockdown P827	AA	No	€177	54	5	5	Low	34	€80	Bullbank
23	AA4089	Intelagri Matteo E.T. (Et)	AA	Yes	€176	86	5	5	High	3485	€14	NCBC
24	AU6286	Johnstown Nelson 1039	AU	No	€175	52	5	5	High	87	€12	Dovea
25	LM4351	Grenache	LM	Yes	€174	77	5	5	Low	520	€25	NCBC
26	AA7188	Kealkil Stockman	AA	No	€173	51	5	5	High	3	€12	Dovea
27	SA4461	Spiddal Pat	SA	Yes	€173	79	3	5	Medium	555	€10	NCBC
28	LM3713	Nebbiolo	LM	Yes	€173	54	5	5	High	139	€12	NCBC
29	LM7404	Gaggin Power Et	LM	Yes	€171	53	5	5	High	8	€12	Eurogene
30	SI4350	Rubyjen Here'S Johnny	SI	Yes	€171	75	5	5	High	202	€10	NCBC
31	AA4303	Lisduff Red Pepper R368	AA	No	€168	78	5	5	High	861	€12	Dovea
32	WZG	Westellen Diego M734	AA	No	€166	92	5	5	High	1788	€10	Bova
33	AA4092	Rawburn Jagger Eric R094	AA	No	€165	63	5	5	High	56	€55	Elite Ped Gen
34	LM5443	Brooklands Marco	LM	No	€164	65	5	5	High	1694	€12	Dovea
35	SI4250	Lis-Na-Ri Gucci	SI	Yes	€164	83	4	5	Medium	1375	€12	NCBC
36	LM2014	Ewdenvale Ivor	LM	Yes	€164	96	5	5	High	15959	€12	Dovea
37	LM4217	Moondharrig Knell	LM	Yes	€163	91	5	5	High	15884	€12	NCBC
38	SI6226	Coose Kingston Pp	SI	No	€162	53	4	5	High	32	€10	Bova
39	SA6346	Hibou	SA	No	€161	51	3	5	Medium	24	€26	NCBC
40	CH2332	Blelack Immaculate	CH	No	€160	56	5	5	High	41	€50	Elite Ped Gen
41	LM5572	Hourra	LM	No	€159	56	5	5	Low	4	€13	WWS Irl
42	SA4277	Filo	SA	No	€159	50	3	5	High	9	€30	NCBC
43	SI4618	Omorga Isaac 17	SI	No	€159	61	4	5	High	60	€11	Eurogene
44	AA4821	Deelish Panache	AA	Yes	€158	58	5	5	High	30	€11	Eurogene
45	ZLL	Lanigan Red Deep Canyon Et	AA	No	€157	96	5	5	Low	1890	€30	Bova
46	AA6331	Deelish Shotgun	AA	Yes	€157	58	5	5	Medium	144	€14	NCBC
47	LM7077	Carrowreagh Pablo	LM	Yes	€156	53	5	5	High	21	€12	Dovea
48	JSS	Usse	LM	No	€156	87	5	5	High	1568	€15	Eurogene
49	SI4083	Clonagh Frosty King Et	SI	Yes	€154	92	4	5	Medium	2469	€12	NCBC
50	CH4202	Tombapik	CH	No	€154	88	5	5	High	617	€30	Dovea

Beef Active Bulls (Terminal) (Printed 28/03/23)

Animal Details					Terminal				Semen Details			
Rank	Code	Bull Name	Breed	GI	Index	Rel %	Stars Within	Stars Across	Avail	Beef Calv Recs	Price	Supplier
1	LM8667	Aughalion Prince Et	LM	No	€211	52	5.0	5.0	Medium	1	40	Elite Ped Gen
2	CH6298	Hamel	CH	No	€191	66	5.0	5.0	High	31	38	NCBC
3	LM7641	Brackan Ruben	LM	Yes	€191	52	5.0	5.0	Medium	2	10	Dunmasc
4	RGG	Giga Du Bois Remont	BB	No	€188	91	5.0	5.0	High	1025	10	Dovea
5	LM4598	Ampertaine Magnum	LM	No	€184	69	5.0	5.0	High	58	25	Elite Ped Gen
6	LM4366	Gstaad	LM	No	€183	80	5.0	5.0	High	116	18	Eurogene
7	LM7434	Io	LM	No	€182	63	5.0	5.0	High	3	30	NCBC
8	LM3713	Nebbiolo	LM	Yes	€181	65	5.0	5.0	High	139	12	NCBC
9	BB5815	Kilcombe Locky Et	BB	No	€179	66	5.0	5.0	High	137	10	Dovea
10	CH6271	Whitecliffe Orwell	CH	No	€179	72	5.0	5.0	High	372	14	Eurogene
11	LM5052	Fuschia	LM	No	€176	71	5.0	5.0	High	60	50	Elite Ped Gen
12	CH8565	Balthayock Musketeer	CH	No	€175	50	5.0	5.0	Medium	46	30	Bullbank
13	LM5154	Ampertaine Majestic	LM	No	€174	70	5.0	5.0	Medium	107	65	WWS Irl
14	CH7473	Clenagh Picasso Et	CH	No	€173	56	5.0	5.0	Medium	29	12	Dunmasc
15	LM4471	Tomschoice Lexicon	LM	No	€173	84	5.0	5.0	Medium	583	20	WWS Irl
16	LM4607	Whinfallpark Lomu	LM	No	€173	63	5.0	5.0	High	35	40	Elite Ped Gen
17	CH6121	Merlin P	CH	No	€172	56	5.0	5.0	High	1	38	NCBC
18	HJD	Hideal	CH	No	€172	90	5.0	5.0	High	3598	30	Bova
19	CH2303	Newhouse Bigal	CH	No	€171	73	5.0	5.0	Low	62	99	Elite Ped Gen
20	BB6865	Villablues Nixon Et	BB	Yes	€170	61	5.0	5.0	Low	18	10	NCBC
21	LM4377	Whiskey Infinity	LM	No	€170	61	5.0	5.0	Medium	57	12	Bullbank
22	CH8262	Grangwood Royal Oak Et	CH	Yes	€166	54	5.0	5.0	Medium	2	12	NCBC
23	LM7404	Gaggin Power Et	LM	Yes	€166	57	5.0	5.0	High	8	12	Eurogene
24	CH4159	Knockmoyle10 Loki Et	CH	No	€166	93	5.0	5.0	High	9215	15	Dovea
25	CPW	Carillon Du Pont De Messe	BB	No	€165	90	5.0	5.0	Low	756	12	Bova
26	LM6529	Claddagh Mccabe (Et)	LM	No	€165	62	5.0	5.0	High	188	30	Dovea
27	LM4407	Tweeddale Lennox	LM	No	€164	75	5.0	5.0	Low	245	18	NCBC
28	BB4493	Newpole Lancelot Et	BB	No	€164	57	5.0	5.0	High	9	16	NCBC
29	CH2216	First	CH	No	€164	86	5.0	5.0	Medium	205	38	NCBC
30	PT2165	Gainsbarre	PT	No	€163	74	5.0	5.0	High	160	12	Dovea
31	KZG	Kilmore Gie	BB	No	€162	78	4.0	5.0	High	127	17	Dunmasc
32	LM7077	Carrowreagh Pablo	LM	Yes	€162	62	5.0	5.0	High	21	12	Dovea
33	LM4330	Meelickaduff Lamborghini	LM	No	€161	79	5.0	5.0	High	108	10	Dunmasc
34	LM8031	Ampertaine Jackpot	LM	No	€160	50	5.0	5.0	Medium	3	30	Bullbank
35	LM3719	Creggpark Pat	LM	Yes	€160	59	5.0	5.0	High	2	10	Dovea
36	LM7713	Birchpark Rufus	LM	Yes	€160	50	5.0	5.0	High	2	12	Dovea
37	BB2146	Maillon De Waleffes	BB	No	€160	75	4.0	5.0	High	56	15	Dovea
38	LM7428	Hector Gd	LM	No	€160	50	5.0	5.0	High	16	25	NCBC
39	CH2332	Blelack Immaculate	CH	No	€159	66	5.0	5.0	High	41	50	Elite Ped Gen
40	LM7455	Carrickmore Pocket Rocket Et	LM	No	€159	54	5.0	5.0	High	9	55	NCBC
41	BB5367	Mats Van Terbeck	BB	No	€159	53	4.0	5.0	High	57	10	Dovea
42	CH7830	Magique	CH	No	€159	57	5.0	5.0	High	1	30	Dovea
43	LM4851	Garnedd Nelson	LM	No	€158	67	5.0	5.0	High	48	10	Dovea
44	CH4321	Lapon	CH	Yes	€158	94	5.0	5.0	High	9022	12	NCBC
45	OHB	Boherard Hurricane Et	BB	No	€158	89	4.0	5.0	High	746	10	Dovea
46	LM7263	Kiltoal Pearse Et	LM	No	€157	54	5.0	5.0	High	3	99	Elite Ped Gen
47	LM5443	Brooklands Marco	LM	No	€157	87	5.0	5.0	High	1694	12	Dovea
48	CH5626	Love P	CH	Yes	€157	81	5.0	5.0	High	102	12	Dovea
49	BA4283	Faust	BA	No	€157	57	5.0	5.0	High	10	28	NCBC
50	SNZ	Sylvaner	CH	No	€156	82	5.0	5.0	High	35	38	NCBC

Beef Active Bulls (Dairy Beef Index) (Printed 28/03/23)

Animal Details					DBI Summary		Progeny Records		Semen Details		
Rank	Code	Bull Name	Breed	GI	DBI	DBI Rel%	Dairy Calv Diff	Carc. Wt.	Supplier	Avail	Price
1	AA4743	KEALKIL PRIME LAD	AA	No	€180	94	2993	504	Dovea	High	12
2	AU4460	DAUPHIN	AU	No	€178	87	365	344	Dovea	High	12
3	AA4089	INTELAGRI MATTEO E.T. (ET)	AA	Yes	€173	95	17493	7660	NCBC	High	14
4	AA4752	DALRIADA RED PERFECTION	AA	No	€171	85	194	184	Bova AI	High	10
5	DPZ	DESPAGNOU	AU	No	€168	87	247	290	Bova AI	High	10
6	SA2189	ULSAN	SA	No	€167	88	324	2035	Dovea	High	20
7	AA4818	GABRIEL PETE 2074	AA	Yes	€166	92	2490	241	Eurogene	High	11
8	AA4631	GABRIEL PAT 1949	AA	No	€164	91	2603	760	NCBC	High	12
9	AA4088	INTELAGRI MAVERICK E.T. (ET)	AA	No	€163	94	14155	6238	NCBC	High	14
10	LM2014	EWDENVALE IVOR	LM	Yes	€162	96	4251	9209	Dovea	High	12
11	AA4639	HW ADONNIS T243	AA	Yes	€161	90	634	393	NCBC	Medium	14
12	AU4683	TURLOUGHMORE MAGNIFICENT	AU	Yes	€160	91	3247	757	NCBC	Medium	12
13	AA6331	DEELISH SHOTGUN	AA	Yes	€158	77	694	6	NCBC	Medium	14
14	AU5262	BISON	AU	No	€158	88	343	382	Dovea	High	10
15	ZEP	HAWKLEY RED ZEPPELIN N659	AA	No	€158	91	1840	1573	Dovea	High	12
16	AA4235	GABRIEL MOSSY 1727	AA	No	€156	93	5042	2681	Eurogene	High	11
17	AU4627	MADISON	AU	No	€156	85	251	204	Dovea	High	12
18	KYA	CORNAMUCKLA LORD HARDY K222	AA	No	€156	96	53653	66703	NCBC	High	12
19	AU2470	CESAR	AU	No	€155	86	275	312	Eurogene	High	14
20	AA5310	GABRIEL POUNDMAN	AA	Yes	€154	92	825	366	NCBC	High	8
21	PT2165	GAINSBARRE	PT	No	€154	73	117	15	Dovea	High	12
22	AA6682	HW LORD HORATIO V538	AA	Yes	€153	67	908	0	NCBC	High	14
23	WZG	WESTELLEN DIEGO M734	AA	No	€151	92	1840	2793	Bova AI	High	10
24	HE5455	BARWISE 1 RICOCHET	HE	Yes	€150	89	789	157	NCBC	High	10
25	LM5443	BROOKLANDS MARCO	LM	No	€150	85	276	97	Dovea	High	12
26	AA4303	LISDUFF RED PEPPER R368	AA	No	€149	91	724	673	Dovea	High	12
27	JZJ	CAIRNMOR JAMESON	AA	Yes	€149	93	5301	5745	Dovea	High	10
28	SA4604	KNOTTOWN ROY	SA	Yes	€148	92	334	908	NCBC	High	12
29	AA4632	SALLOWGLEN JAMIE T771	AA	No	€147	90	1049	585	NCBC	High	12
30	HE5346	FISHER 1 PROFILE P456	HE	Yes	€146	91	6346	408	NCBC	High	12
31	ZLL	LANIGAN RED DEEP CANYON ET	AA	No	€146	94	282	1964	Bova AI	Low	30
32	AU6685	MOUNTCAIN ONDEE	AU	Yes	€145	67	484	0	NCBC	High	10
33	HE4298	FABB 1 NUTCRACKER	HE	No	€143	92	7160	4346	NCBC	High	10
34	AA4640	HW FARGHAL T516	AA	Yes	€141	92	4860	1684	NCBC	High	12
35	AA4878	LAHEENS PIERRE	AA	Yes	€139	87	373	109	Eurogene	High	12
36	AA5280	COOLRAIN PATRIARCH	AA	Yes	€139	92	2148	583	NCBC	High	12
37	EBY	ELDERBERRY GALAHAD	LM	No	€136	94	9628	32779	Dovea	High	15
38	AA4442	DILLON NEW HOLLAND	AA	No	€135	84	135	143	BOS	Medium	30
39	AA4638	KEIRSBEATH KARMA S539	AA	No	€135	86	544	161	Dovea	High	12
40	ZLT	BIRCHES LITTLEMAN L923	AA	No	€135	95	9176	14516	Dovea	High	12
41	AA2123	CHRISTON ELTON P623	AA	No	€134	94	9357	9646	NCBC	High	10
42	AA4633	SWANKY N257 HARDY	AA	No	€134	88	363	230	NCBC	Low	10
43	BB6202	CROFTSEND MAJOR	BB	No	€133	60	119	0	NCBC	High	16
44	AA4821	DEELISH PANACHE	AA	Yes	€132	87	395	134	Eurogene	High	11
45	LM2010	RAFFERTYS IMMANUEL	LM	Yes	€132	86	132	1083	Dovea	High	10
46	AA2037	BOVA LORD BONANZA N266 (ET)	AA	No	€131	91	659	981	Bova AI	High	15
47	AA2301	DUIBHGIOLLA LUIGI	AA	No	€131	92	1894	1375	Dovea	High	12
48	AA2370	KEALKIL LORD JUSTY P440	AA	No	€131	85	208	198	Dovea	High	12
49	AA4305	LISDUFF LEONARDO S387	AA	No	€131	85	189	201	Dovea	High	12
50	LM4184	LOYAL	LM	No	€131	87	254	1580	Bova AI	High	10

More Euro – Star details on these and all of the other available AI Bulls is available at www.icbf.com

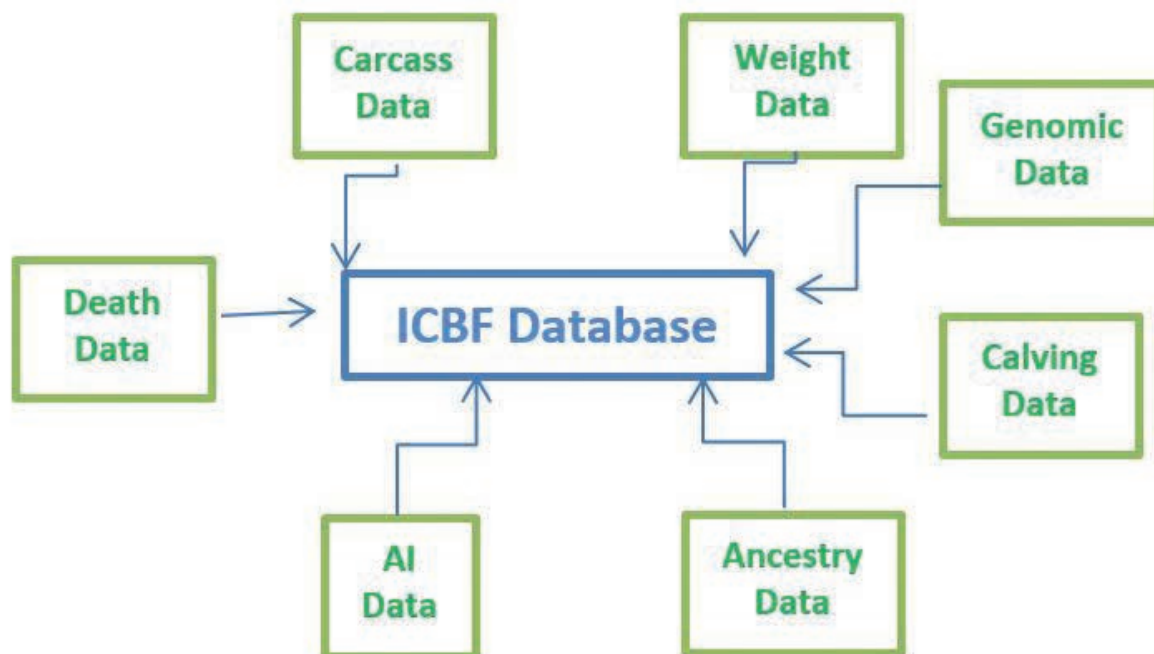


Frequently asked Questions & Answers

The aim of this section is to provide answers to some of the most frequently asked questions around the Euro-Stars that ICBF produces.

1 | How can ICBF evaluate my animals when they have never even seen them?

Ans: You will have recorded a certain amount of information on your own animals e.g. Calf Registration data etc. However, your cattle will also have had data recorded on them elsewhere e.g. marts weights, all of which will have been stored in the ICBF database. So, even without having actually seen your cattle, ICBF is able to give your animals ratings based on the data that is stored in their database.



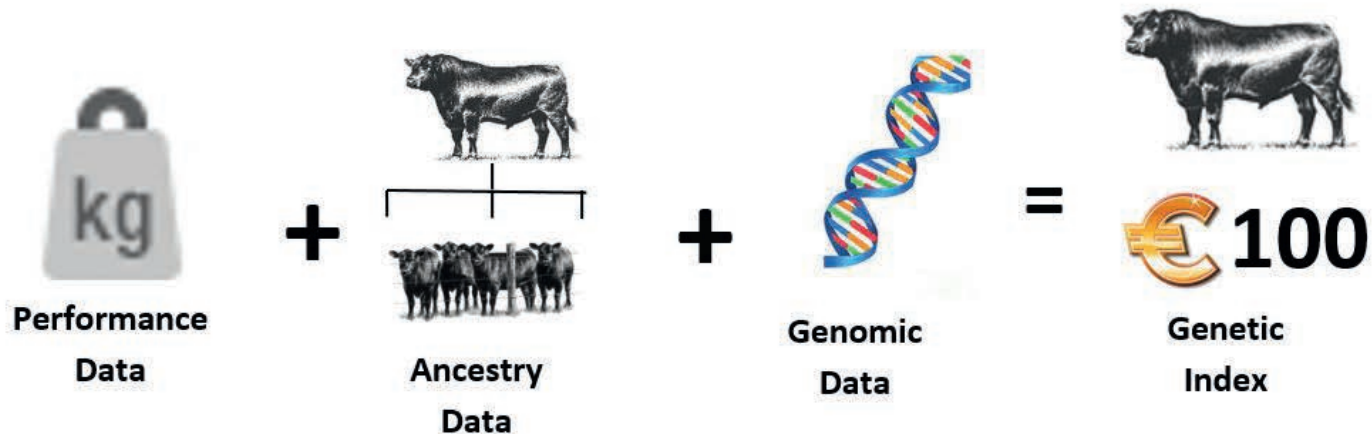
2 | What is reliability %?

Reliability % - Explained			
Reliability % Range	Comment	Bull Type	Explanation
0-20%	Low	Young Bull	Euro-Stars mostly based on those of the animal's Parents & Grandparents.
20-50%	Low-Medium	Young Bull	Euro-Stars influenced by data recorded on the animal (Liveweight, Milk Score etc).
50-90%	Medium-High	AI Sire/Stockbull	Euro-Stars increasingly affected by the performances of an animal's offspring.
> 90%	High	AI Sire	Euro-Stars dominated by the performances of an animal's offspring.

Reliability % is an indication as to how confident ICBF can be about the genetic index for a particular animal. Lots of progeny performance recorded (weighed etc) alongside lots of other animals, across large numbers of herds is what increases a Animal's reliability % figure.

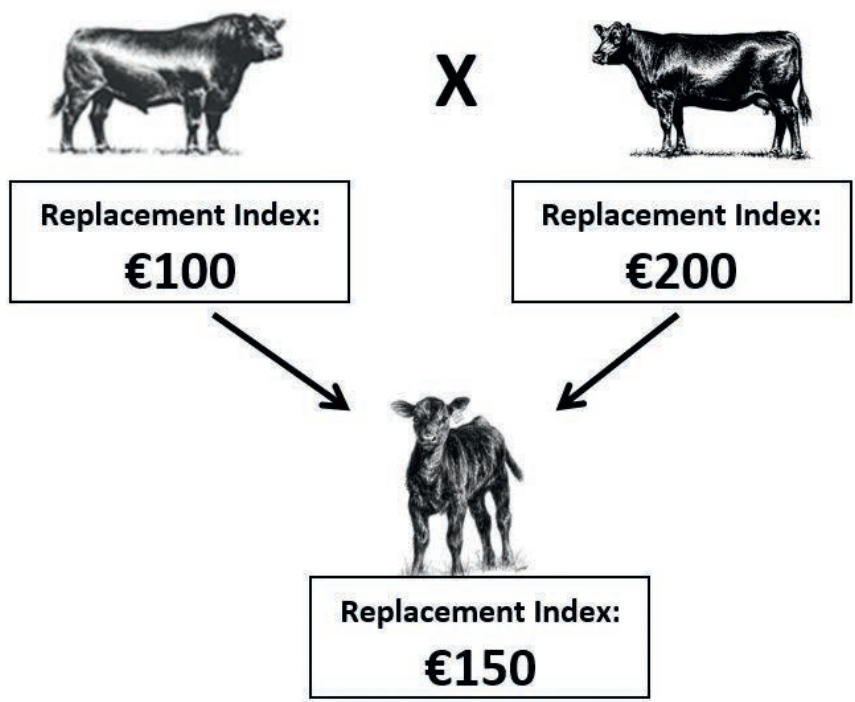
3 | What is a Genetic Index?

Ans: A Genetic Index is the end result of a series of routine steps known as a ‘Genetic Evaluation Run’. For example, for a Stockbull, a genetic evaluation run will identify all of the calves of a Bull and compare their performance records to those of the other animals reared alongside them in the same herd. Any Genomic (DNA) data together with records from relatives of the bull is also included. Some traits have more of an impact than others on the resulting index, simply because they are more valuable e.g. ‘Liveweight’ is a more valuable trait than ‘Coat Colour’.



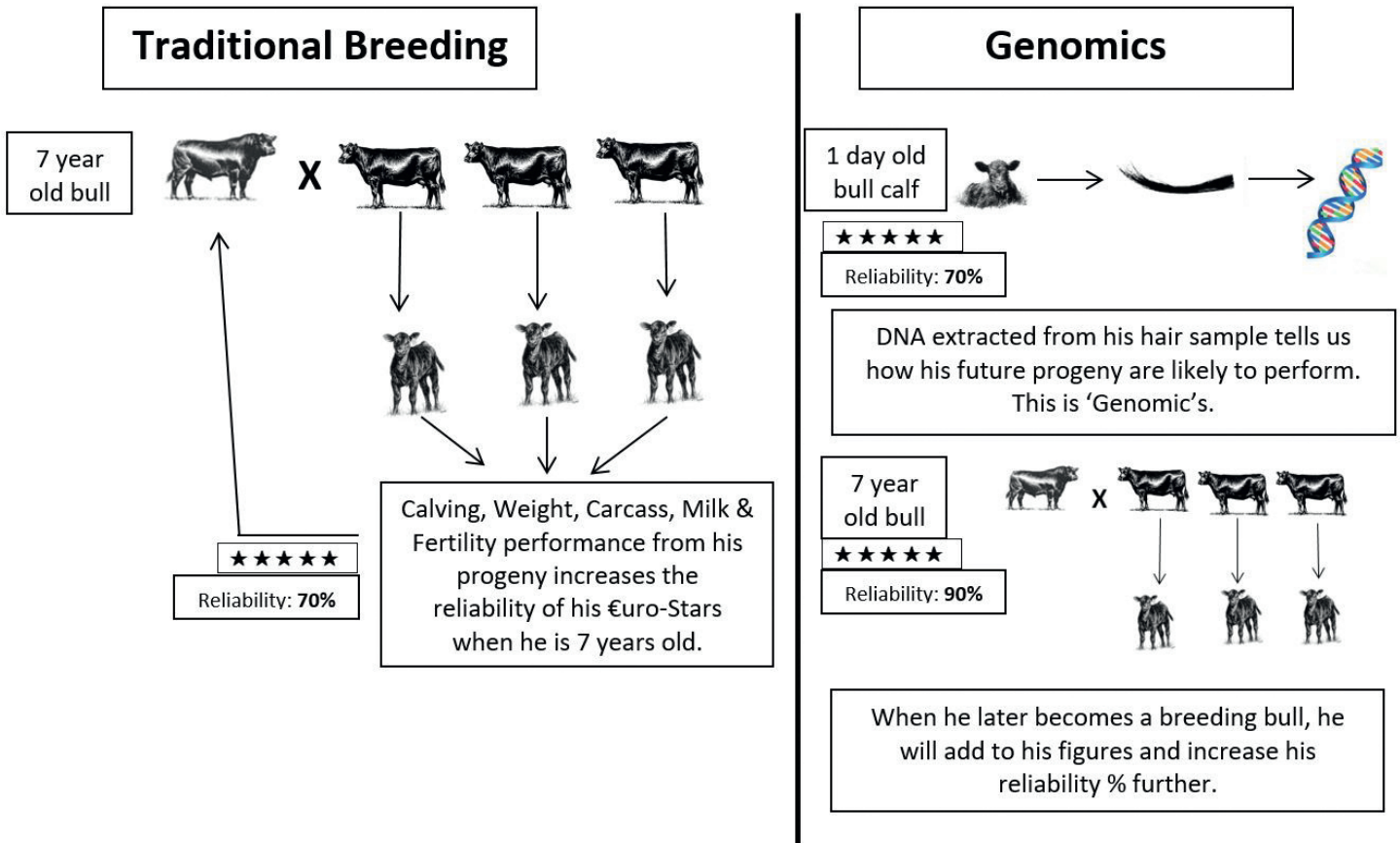
The Genetic Index is expressed in Euro’s as the goal of this process is to estimate how profitable an animal is for breeding. When mated, a Bull or cow will only ever transmit half of their genes to the resulting calf.

Example: A Bull with a Replacement Index of €100, if mated to a cow with an index of €200, is expected to sire a daughter with a ‘Replacement Index’ of €150 ($€100 + €200 / 2 = €150$). This means that she will be €150 more profitable than the average Irish suckler cow.



4 | What is Genomics?

Ans: Genomics includes the DNA of an animal (from tissue, hair, blood or semen) in addition to other performance data on relatives, in its Euro-Star calculation. *With Traditional Breeding - for an animal's figures to become more accurate, you must wait until it expresses its genes through its progeny. With Genomics - an animal's genes are analysed and more accurate figures calculated at birth.*



Advantages of Genomics:

Higher reliability Euro-Stars: Genotyping increases reliability % figures even before the animal has produced any offspring.

Parentage verification: A genotyped animal can have its Sire & Dam confirmed.

Breed verification: Genotyping will be able to identify an animal's breed makeup.

Genetic diseases: An animal's carrier status for a number of diseases and major genes (e.g. Myostatin) is also possible.

Traceability. Genotyping ensures that from birth there is full traceability of every meat sample directly back to the animal.

5 | How did my pedigree bull get his €uro-Stars?

Ans: The easiest way to understand the process that ICBF follows when producing €uro-Stars is to think of the general process that a cattle judge will go through at a show before picking a winner.

Take a class of bulls for example:

1. All of the bulls in that class will be of a similar age.
2. Particular parts of the animal will be deemed more important by the judge than others e.g. Width of chest v tail length.
3. All the bulls will then be ranked from 1 to last and the rosettes handed out.



Now take the same class of bulls in terms of how their €uro-Star figures are calculated if they were all bred in the same herd.

1. They are firstly assigned to groups depending on their age & sex, so that similar to the showing, they are treated fairly & not compared to animals that are a lot older or younger.
2. Using their genomic, relatives and any progeny data they are compared against each other for traits of economic importance e.g. calving survey, liveweight & docility.
3. The results are then converted into values for each trait and all the traits are added together to make up the overall index e.g. Dairy Beef Index. The ICBF database then stores all of these rankings and breeding values so as over time an increasingly accurate picture as to how a bloodline is performing is built up.

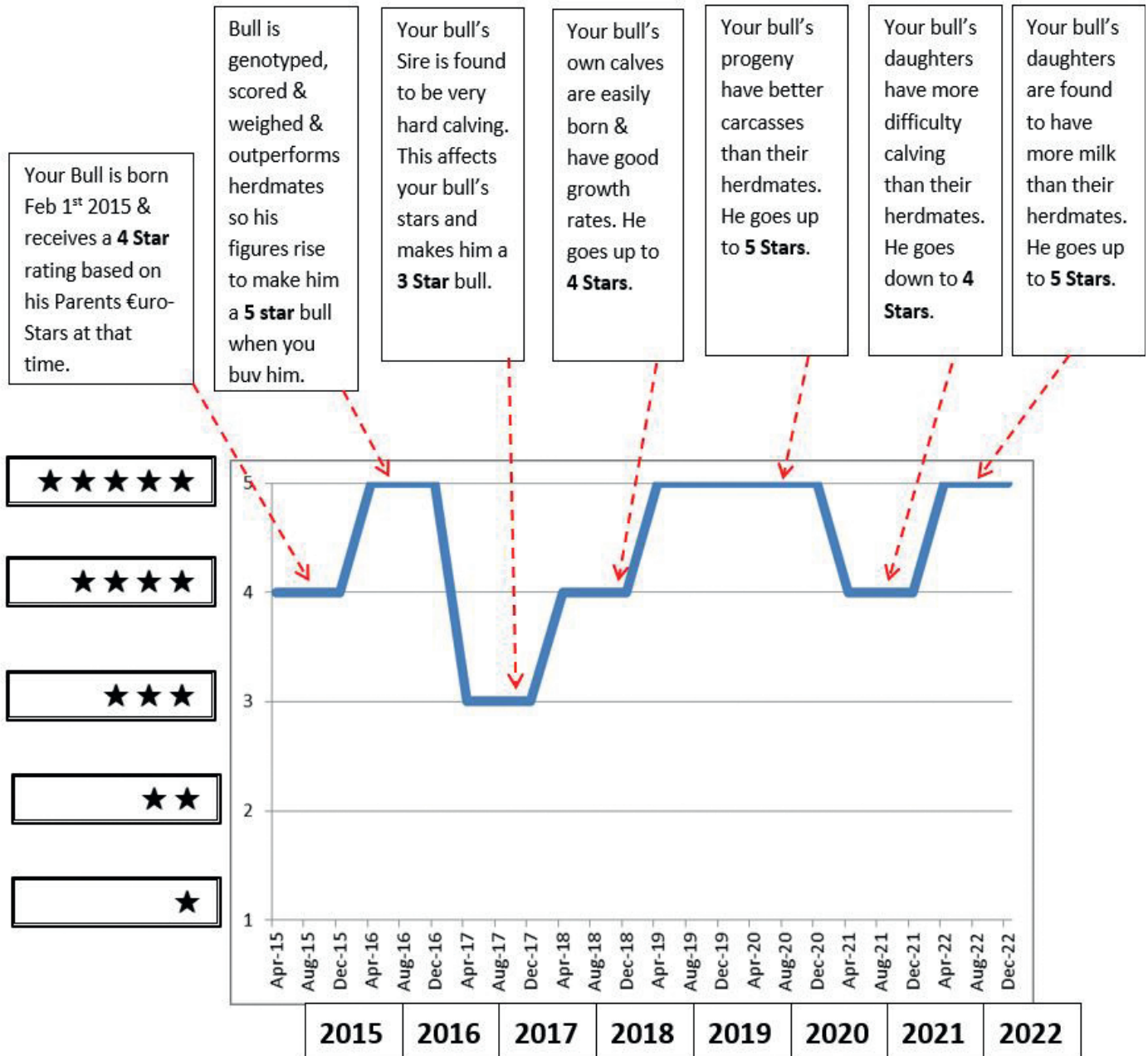


6 | Why do the €uro-Stars of my bull change over time?

Ans: This is probably one of the most common questions about the €uro-Star system. ICBF has a large computer, called a database, which receives information about animals on a daily basis. Data such as calving surveys, weights, carcass records and death dates are sent to ICBF from farmers, weight recorders, Linear Scorers, Marts & Factories etc.

ICBF takes all of this information out of their database 6 times a year and runs it through its genetic evaluation system (as explained in question 1). The new information that will have gone into the ICBF database since the previous run is then reflected in a change to the €uro-Stars of animals connected to that data. It could be that a full brother of your bull has found to be very hard calving in another herd – this will then affect your bull's rating for calving difficulty. So it is crucial to remember that the €uro-Stars of your bull are not just affected by the progeny that he sires on your farm.

The following graphic shows a typical example of how a young pedigree beef bull’s ‘Replacement Index’ Euro-Stars can change over time in Ireland:



Euro-Stars changing are a consequence of having a highly integrated database which is receiving data on animals & their relatives from a wide range of sources. It is only right that the most up to date view of how a bull is breeding is reflected to farmers so as they can make the most accurate decision. If a bull’s figures were only based on a small group of progeny that were weighed and assessed once and his figures were ‘fixed’ forever – this might not be a very fair sample of his genes and may inaccurately set his figures too high or too low.

Constantly adding to a bull’s progeny count allows a bull to fully express his genetic potential. Yes it can be frustrating to see a bull’s figures fall but ultimately we are left with the most accurate picture of how a bull is breeding thus allowing farmers to make the most accurate breeding decision. Genomics will add to this accuracy and result in bull’s figures fluctuating less frequently.


The illustration in diagram 1 shows how a pedigree bull’s Euro-Stars could change over time but the same principles holds true for all animals whereby Euro-Stars change overtime as more data is recorded on animals that are related to each other.

7 | Why does one of my best cows only have 1 star?

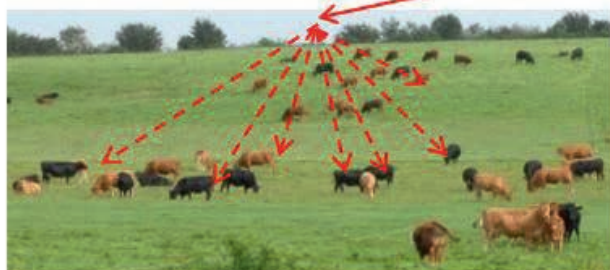
Ans: Similar to the last question about why a bull's figures change, it is again crucial to remember that the €uro-Stars of your cow are not just affected by her performance and the progeny that she has produced in your herd. Her performance is included in her own €uro-Star evaluation, however the performances of all of her half-sisters and other relatives also has a large bearing on her figures.

Example: Your Limousin cow at home, with tag ending '293' is your best suckler cow. She is doing everything that could be asked from a Suckler Cow in terms of her fertility and the quality of calf that she rears, however she is still only a 1 star cow! **The reason for this is due to the poor performance of all of her half-sisters in other herds, which you do not know about.**

The €uro-Star rating that your cow receives is a reflection as to how that entire bloodline is performing. Overall, the daughters of your cow's sire 'Ocean' (OCX) have poor fertility and are producing poor quality cattle. This is reflected in his **1 star** €uro-Star rating and his index of **€-26**. However, even if the majority of daughters of a bull have poor milk & fertility, they can still sire the odd great individual cow.



AI Code	Name	Repl. Index	Rel%
OCX	Ocean	-€26	82%
€uro-Stars (Across Breed)			
★			



Performance Details					€uro-Stars		
Avg. Nbr of Calves	Avg. Age at 1st Calving	Avg. Calving Interval	Calf - Max Wt Gain	Progeny Carcass Grades	Average Repl. Index	Rel %	Across Breed
2	40 mts	432 days	0.85	30R,24O	-€25	60%	★

Performance Details					€uro-Stars		
Nbr of Calves	Age 1st Calving	Avg. Calving Interval	Calf - Max Wt Gain	Progeny Carcass Grades	Repl. Index	Rel %	Across Breed
6	24 mts	363 days	1.35	1E,3U,1R	€32	60%	★



Your best cow '293' is getting credit for her great performance as her index of €32 is far higher than that of her 60 half sisters who only have an average index of -€25. She is nearly into the 2 Star category & when her genomic information is included, her index may then go even higher. Genomics will allow a cow to break further away from what the majority of her bloodline has done and increase her €uro-Stars.

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Our **Why & How**




We exist to benefit our farmers, our agri-food industry and our wider communities

We do this by



science and technology

Developing and applying



to ensure our farmers and our industry

make the most profitable and



sustainable decisions



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