IRISH HOLSTEIN FRIESIAN ASSOCIATION

Irish Holstein Friesian Association Breeding Programme

Approved By IHFA Board on 26th January 2024

Table of Contents:

- INTRODUCTION 2
- NAME OF THE BREED 2
- AIMS OF THE BREEDING PROGRAMME 2
- CHARACTERISTICS OF THE BREED 3
- INFORMATION ON THE GEOGRAPHICAL TERRITORY 3
- THE SYSTEM FOR IDENTIFYING BREEDING ANIMALS 3
- PROCEDURES AND CONTROLS FOR ENTRY OF ANIMALS INTO THE HERDBOOK FOR ANIMALS BORN IN IRELAND 4
- PROCEDURES FOR ANIMAL ENTRY FOR IMPORTED ANIMALS / EMBRYOS / OVA / SEMEN 7
- CLONED ANIMALS 7
- GENE EDITING 8
- GENERAL RULES ON ENTRY OF ANIMALS INTO THE BREEDING BOOK WITH THE ASSOCIATION 8
- OWNERSHIP OF ANIMALS 9
- CHANGE IN OWNERSHIP 9
- SYSTEM FOR RECORDING PEDIGREES 9
- DIVISION OF THE BREEDING BOOK 9
- SELECTION AND BREEDING OBJECTIVES OF THE BREEDING PROGRAMME 12
- PERFORMANCE TESTING AND GENETIC EVALUATION 13
- GENETIC EVALUATIONS 16
- GENOMICS 17
- COMMUNICATION AND USE OF PERFORMANCE TESTING AND GENETIC EVALUATIONS RESULTS 18
- OUTSOURCE OF SPECIFIC TECHNICAL ACTIVITIES. 18
- DEROGATIONS PROVIDED FOR IN ARTICLE 31(1) 19
- ZOOTECHNICAL CERTIFICATES/HERDBOOK CERTIFICATES 19

INTRODUCTION:

The Irish Holstein Friesian Association is a company limited by guarantee with charitable status.

IHFA is recognised by the Department of Agriculture, Food & the Marine as a breed society in accordance with Regulation (EU) 2016/10121[1] and approved to operate a breeding programme for the Holstein Friesian breed.

The IHFA is responsible for the validity and upkeep of the herdbook of Holstein Friesian cattle in Ireland.

The Herdbook of the Irish Holstein Friesian Association (the Association) shall include: a) Particulars of the pedigree and performance of pedigree Holstein Friesian animals, which are eligible to be entered therein. b) Such other information as the Board of the Association may from time to time decide.

NAME OF THE BREED

Holstein Friesian which consists of Pure Holstein, Pure Friesian and crosses of either.

AIMS OF THE BREEDING PROGRAMME

IHFA aims are to improve the breeding of pedigree Holstein Friesian cattle by encouraging breeders to adopt modern scientific methods to enhance genetic gain and improve conformation standards suitable to twenty first century dairy expansion.

IHFA aims to expand and enhance pedigree registrations by giving direction to the development and promotion of the breed in Ireland through its many events and services.

IHFA aims to continue its open herdbook policy where new breeders are welcome to join and avail of its grade-up service, whereby commercial dairy cows can be graded to full pedigree with registered traceability. This herdbook service expands the wide genetic diversity within the breed.

IHFA mission is that breeders' farming systems are sustainable and in harmony with the environment, production systems that are efficient and profitable to continue the family farm into the future.

The system is principally based on maximum utilization of grazed grass and grass silage with varying supplementation as necessary to augment output from efficient long- life cows, producing wholesome food with cow wellbeing as the cornerstone.

[1] [1] *REGULATION (EU) 2016/1012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2016 on Zootechnical and genealogical conditions for the breeding, trade in and entry into the Union of purebred breeding animals, hybrid breeding pigs and the germinal prod- ucts thereof and amending Regulation (EU) No 652/2014, Council Directives 89/608/EEC and 90/425/EEC and repealing certain acts in the area of animal breeding ('Animal Breeding Regulation')*

CHARACTERISTICS OF THE BREED

The Holstein Friesian cow is a dairy or dual-purpose animal with the ability to produce a large quantity of quality milk.

They have distinctive colour markings, usually black and white or red and white in colour, typically exhibiting a distinct pattern. Some may be totally black coat colouring with little white or none, some may have a white stripe along the top line.

On rare occasions some have both black and red colouring with white. 'Red Black' which may revert to Black when mature. Red factor causes this unique colouring.

'Blue' is also a known colour. This colour is produced by white hairs mixed with the black hairs giving the cow a blueish or greyish tint. This colouring is also known as 'Blue Roan' in some farm circles.

INFORMATION ON THE GEOGRAPHICAL TERRITORY

Republic of Ireland

THE SYSTEM FOR IDENTIFYING BREEDING ANIMALS

(a) Each animal shall be uniquely identified at birth with the National Bovine Identification number (DAFM AIM system) displayed on an ear tag.

(b) In addition to the National Bovine Identification number each animal must have a name. This name shall not be altered after being registered in the Association's Herdbook except under such special circumstances as the Board of the Association may direct.

(c) Red and White calves must carry the word 'RED' as the last word in the name i.e., Prefix / name(s)/Red.

(d) If a Red and White calf is registered as above, but subsequently turns black and white, 'RB', denoting 'RED/ BLACK', will be substituted for the word 'RED'.

(e) Calves born by embryo transfer will carry the suffix 'ET'

(f) There is a 30 character limitation including spaces.

PROCEDURES AND CONTROLS FOR ENTRY OF ANIMALS INTO THE HERDBOOK FOR ANIMALS BORN IN IRELAND

a) A breeder shall be entitled to tender for entry in the Association's Herdbook, under, and subject to, the conditions contained in this breeding programme, entries of animals belonging to such breeder either alone or jointly with any other person.

b) The Association shall be entitled either before or after the entry of any animal in the Association's Herdbook to make such enquiries or investigations with respect to the animal, (including the inspection by any of its officers or agents of the animal or its parents or progeny or any records maintained by breeders), as the Board of the Association shall consider reasonable in the interests of the Association, with the object of ensuring the accuracy of the Association's Herdbook and any entries therein.

c) On the entry of an animal in the Association's Herdbook, the Association shall issue to the breeder requesting such entry a zootechnical certificate incorporating its pedigree extended to a maximum of three generations in respect of such animal. Note: A subsequent zootechnical certificate with updated pedigree and performance information may be issued on payment of a re-issue fee and return of the original zootechnical certificate.

d) The birth of every calf whose entry is desired to be registered in the Association's Herdbook shall be notified to the Association by the owner or his representative within 27 days from the date of birth of the calf. The procedure(s) for registering calves are:

   I. Notification of the birth through Animal Events or on the ICBF Animal Event (AE) form duly completed giving details of date of birth, sex, ear tag number, dam, sire and name of calf to be forwarded to ICBF database for entry in the Association's Herdbook.

   II. Any other alternative procedure or means of registration approved or directed by the Board of the Association from time to time.

e) Notifications/registrations submitted after the 27-day period may be subject to parentage verification spot- checks.

f) All male calves submitted for registration will be subject to genomic testing plus sire and dam verification. Donor males used for collection of semen will require sire and dam verification.

g) A full Parentage random check of one in every 300 female calves is required. A full parentage check is mandatory for all male and female embryo calves and all male twins submitted for registration as well as any animal that may for whatever reason not be part of the random check system.

h) The cost of the full Parentage random check for 1 In every 300 females will be borne by the Association. All other DNA testing as outlined in these rules will be paid by the breeder. The Association reserves the right to request the breeder to do additional DNA testing at his / her own expense if thought necessary by the Board.

i) Field staff may visit to take hair samples for DNA testing (breeder will incur the cost of the DNA test) where issues of parentage arise.

j) The official Department of Agriculture, Food and the Marine ear tag shall be the accepted means of unique identification of every calf in the Herdbook.

k) Where the sire and dam of a calf were not in the same ownership at the time of service or insemination, a properly authorised service or insemination certification verifying this service or insemination may be submitted when the calf is tendered for registration where requested.

l) The fact of an animal being twin, or otherwise one of a multiple birth, shall be notified to the Association through Animal Events or on the Animal Events sheet or any other means of registration notification being used, stating the sex of the other twin, or other calves, and which shall be noted in the Association's Herdbook against the registration entry of such animal.

m) A calf born by embryo transfer will carry the suffix 'ET' and may be registered in the normal way and with the prefix of the owner subject to the following conditions:

n) The collection and transfer of embryos shall be carried out by an operator and at an Embryo Transfer Station approved by DAFM.

o) Upon each collection of embryos:

I. An embryo collection certificate (form ET1) must be fully completed in triplicate by the embryo transfer unit, one copy to be retained by the unit, one to be retained by the owner of the donor female and one to be submitted to the Association.

II. If the donor female was artificially inseminated, or served naturally by a bull/bulls not owned by the owner of the donor female, the relevant insemination or service certificate(s) must accompany the embryo collection certificate.

III. The donor dam must have a DNA profile, hairs to be collected at time of flushing and have undergone performance testing or genetic evaluation.

IV. If the service bull(s) is/are not already blood typed or DNA typed, application for DNA typing to be carried out must be made to the Association at the time of embryo collection.

p) If any embryo is sold or transferred to other ownership by the owner of the donor female, either unfrozen, frozen or in a recipient female even if the recipient female remains the property of the breeder, a form ET2 must be completed giving the new owner's details and submitted to the Association.

q) If at one and the same time more than one embryo is transferred to a recipient those embryos must be from one and the same collection.

r) A breeder wishing to breed a donor cow to more than one bull at any heat period must notify the Association. All calves, male and female born as a result of embryo transfer must be fully parentage checked by DNA type or Genomics

s) The breeder notifying the birth of a calf resulting from an embryo transfer must:

I. Insert the letters 'ET' as a suffix to the calf 's name on the birth notification form.

II. The unique ET 1 form number (not the collection reference number) must be quoted in the appropriate place on the birth form.

III. A calf born as a result of embryo transfer must be fully parentage checked by DNA type. On receipt of the birth form the Association will dispatch the hair sample pack(s) to the member.

IV. In the case of embryos imported into Ireland the breeder must submit:

A) zootechnical certificate for trade in embryos of purebred breeding animals.

B) DNA profile or Genomic SNPs or blood type certificates for both sire and dam.

V. Birth forms must be submitted as described in (vi) (a) and (vi) (b) except that the collection reference number from the country of origin must be quoted on the birth form.

t) A pedigree calf whose birth has not been notified to the Association within 27 days from the date thereof as required by Rule 7(h) may, if otherwise eligible, still be entered in the Association's Herdbook within 60 days from the date of such birth upon payment of a late notification fee as from time to time laid down by the Board of the Association. A parentage check may be required for the registration of calves over 60 days of age (and payment of the prescribed fee(s) (if applicable).

PROCEDURES FOR ANIMAL ENTRY FOR IMPORTED ANIMALS / EMBRYOS / OVA / SEMEN

In the case of a live female or male, semen, ova or embryos imported from outside the Republic of Ireland, the breeder who owns that animal, semen, ova or embryos must submit the relevant zootechnical certificate, in order to enter ancestry to herdbook, and a DNA profile or Genomic SNP or blood type certificate from the country of origin (or from Ireland if no DNA type test is carried out in the country of origin), in accordance with the legislation in force.

Imported LIVE ANIMALS shall be entered in the Association's Herdbook and will retain the herdbook name and number from the country of origin. In addition, animals from third countries will require an Irish EID tag on arrival which will be carried out by the relevant veterinary office.

CLONED ANIMALS

Cloned animals and the descendants of clones in the case of a live female or male, semen, ova or embryos imported from outside the Republic of Ireland will not be acceptable for entry in the herdbook. A cloned animal is abbreviated as follows; Cloned animal Canada = ETA. Cloned animal USA = ETN.

GENE EDITING

Gene Edited animals and the descendants of Gene Edited animals in the case of a live female or male, semen, ova or embryos imported from outside the Republic of Ireland will not be acceptable for entry in the herdbook.

A Gene Edited animal is abbreviated as follows according to WHFF standard: GEC or GET.

GENERAL RULES ON ENTRY OF ANIMALS INTO THE BREEDING BOOK WITH THE ASSOCIATION

a) The fee(s) for entry of an animal in the Herdbook shall be that as laid down by the Board of the Association from time to time.

b) Payment for entry of an animal in the Herdbook is due immediately upon acceptance of the application for entry in the Herdbook.

c) Entries in the Herdbook will not be accepted unless payment(s) conform to one of the methods described in the Rules of Procedure.

d) Any fine or fines which has or shall become payable by a breeders under the breeding programme of the Association in respect of any animal shall be additional to the fees payable and unless and, except in so far as in any special case the Board of the Association shall otherwise expressly resolve and determine, no entry shall be made in the Association's Herdbook in respect of any animal unless and until any such fine or fines as aforesaid which may have been payable in respect of such animal shall have been duly paid and discharged.

e) The Board of the Association may at any time cancel or alter or amend, as may be necessary, the entry of an animal in the Association's Herdbook which shall be found to contain any false or inaccurate particulars or statement or to have been made on the faith of any false or inaccurate particulars or statement given or made to the Association. On the cancellation, alteration or amendment of the entry of any animal in the Association's Herdbook the Zootechnical Certificate issued by the Association in respect of such animal shall be delivered up to the Association and be cancelled, altered, amended or replaced.

f) In the event where a breeder identifies an error in relation to an animal entered in the herdbook they should make this known to the Association's secretary in order for the matter to be dealt with appropriately.

OWNERSHIP OF ANIMALS

Save as herein otherwise provided the Association shall be entitled to treat a person registered as a breeder as the absolute owner of any herd or animals registered in such Breeder's herd. Accordingly, the Association shall not, except as ordered by a Court of Competent Jurisdiction or by Statute required, be bound to recognise any equitable or other claim to, or interest in, any such herd or animals on the part of any other person.

CHANGE IN OWNERSHIP

The following rules shall apply to the sale/transfer of any animal whose entry has been entered in the Association's Herdbook:

a) The Board of the Association will accept such evidence of change of ownership as may be considered satisfactory or required in order that the prefix or name of the bona fide owner may be noted in the records of the Association.

b) The transfer of ownership is updated electronically through the AIMS movement system on the database. The new owner can request an updated zootechnical certificate from the Association - contact details will be available or at point of sale.

SYSTEM FOR RECORDING PEDIGREES

The database 'Taurus' is used to record Pedigrees. It is an electronic system for recording & maintaining pedigree of breeding animals entered into the herd book. The following information is available for each animal recorded Animal Tag, Animal name, Breed, Sex, DOB, Country of birth, Section of herd book, grade, name and address of the breeder and owner if different, EBI, results of performance testing and date, three generation ancestry, Classification score,

There also exists a paper-based registration recording system & data entry facility through Animal Events books & help desk call centre.

DIVISION OF THE BREEDING BOOK

The Herdbook shall have a Main Section and a Supplementary Section for Males and Females

Main Section

To qualify for entry in the Main Section of the Herdbook an animal shall:

i) Be descended from parents and grandparents entered in the Main Section of a Herdbook of the same breed as the animal being entered.

ii) Be identified at birth according to Union health law and the rules of this breeding programme; and

iii) Have a pedigree established in accordance with the rules set out in this breeding programme

iv) In the case of trade in or entry into the Union of an animal and where that animal is intended to be entered or registered for entry in the breeding book, that animal shall be accompanied by an Zootechnical certificate

v) where an animal is produced from a germinal product which is traded or which entered into the Union and where that animal is intended to be entered or registered for entry in the herdbook that germinal product shall be accompanied by a Zootechnical certificate

Supplementary Section

The Herdbook provides for a grading-up programme for females, which is accommodated by the Supplementary Section. The Herdbook provides two categories in the Supplementary Section, one for male animals and one for female animals.

MALE SUPPLEMENTARY SECTION

The Male Supplementary Section consists of a single class for male animals which do not meet the criteria to enter the Main Section but who satisfy the criteria below. To qualify for recording in the Male Supplementary Section of the Herdbook an animal shall:

i) be identified in accordance with Union health law and the rules of the Association,

ii) be judged to conform to the characteristics of the breed by visual inspection by an IHFA field officer or a person nominated by the Association

iii) be descended from either Holstein, Friesian or Holstein/Friesian sire, whose ancestry has to be recorded in a breeding book of the breed.

iv) the male animal must have

a) three generations of recorded ancestry; who may or may not have been entered in a breeding book of the breed

b) have parentage whose sire has been verified by DNA analysis to be descended from officially milk recorded and genetically evaluated ancestors and

c) have genetic evaluation information available.

Males recorded in this class will be given the notation “SRM”.

NOTE: animals recorded in the Male Supplementary Section cannot progress in or grade up from the Supplementary Section.

FEMALE SUPPLEMENTARY SECTION

A female, which does not qualify for entry in the Main Section of the Herdbook, may be recorded in a Female Supplementary Section of the Herdbook subject to the conditions set out below. Breeders should contact the secretary for further details to request their animals to be recorded in the Supplementary Section. The Female Supplementary Section shall be divided into two sections: Section A and Section B.

To qualify for recording in Section A of the Female Supplementary Section of the Herdbook an animal shall:

i) be identified (or have been identified) in accordance with Union animal health law and the rules of the Association;

ii) be judged to conform to the characteristics of the breed by visual inspection by an IHFA field officer or a person nominated by the Association

iii) be officially milk recorded or be descended from officially milk recorded ancestors and

iv) be descended from either a Main or Supplementary Section Holstein/Friesian sire or a sire of the Holstein/ Friesian breed, who may or may not have been entered in the Irish Holstein Friesian Association herdbook.

Where an animal’s ancestry was obtained from cross breeding as evidenced by the records on the National database; the said animal must be a typical representative of the Holstein, Friesian or Holstein Friesian breed with no obvious signs of cross breeding and have the potential to achieve breed performance standards as adjudicated from its records.

The breeder shall give full particulars of the animals to be recorded for Section A. Foundation female animals in this Section shall have the letters ‘ASR’ written after their name on their supplementary certificates.

To qualify for recording in Section B of the Female Supplementary Section of the Herdbook an animal shall

i) be identified (or have been identified) in accordance with Union animal health law and the rules of the Association;

ii) be judged to conform to the characteristics of the breed by visual inspection by an IHFA field officer or a person nominated by the Association

iii) be a female whose dam is recorded in Section A of the Female Supplementary Section of the Herd-book, and whose sire is entered in the Main Section of the Herdbook or in another EU approved herd-book of the Holstein Friesian breed.

Females in this Section shall have the letters 'BSR' written after their name on their supplementary certificates.

UPGRADING OF THE PROGENY OF ANIMALS RECORDED IN THE FEMALE SUPPLEMENTARY SECTIONS TO THE MAIN SECTION

A female animal whose dam (Section B) and maternal grand dam (Section A) are recorded in a Supplementary Section of the Herdbook and whose sire and two grand sires are entered in the Main Section of the Herdbook or of another EU approved herdbook of the breed shall be eligible for entry in the Main Section of the Association's Herdbook.

It is recommended that the grade up process is on a whole-herd basis and that the herd is officially milk recording.

SELECTION AND BREEDING OBJECTIVES OF THE BREEDING PROGRAMME

The breeding objective of the breeding programme is to develop the Holstein Friesian breed to improve production, conformation, health and fertility across its wide gene pool so as to provide seed stock as the most profitable dairy, sustainable animal for the various dairy farming systems as practiced in Ireland.

The breed must continue to provide the full range of genetics to fit the different production systems and aims of our breeders. These broadly fall into the categories of Intensive Grazing, Pure Friesian and High Output but there is a full spectrum between these categories. Other breeding goals will include Polledness, Health & Disease resistance, Low Maintenance, Red coat, Outcross Genetics and Dual Purpose.

Breeders must use all tools at their disposal to maximise genetic gain for their own breeding goals. Key in these is Classification, Milk Recording and Genotyping.

In general, the ideal Holstein Friesian cow will be of medium size, robust cow, functionality correct with a well attached udder and correct feet and legs to ensure longevity and health, calve regularly and produce high value quality milk. The number of lactations, milk yield, amount of fat and protein content and level of SCC of the desirable breeding animal will depend on the milk production system operated on the farm and the current market trends.

Data on these traits is generated and measured in performance recording which is used in genetic evaluations.

Genetic Indexes (EBI) and predicted transmitting abilities (PTA's) for production and conformation traits are available and used as a selection tool to improve the performance efficiency of herds.

These predicted traits include but are not limited to: Milk yield kgs, Fat kgs, Protein kgs, Fat %, Protein % and SCC.

The selection of individual traits by the breeder to optimise performance for his farming system of profitable milk production will encompass sire selection based on genetic evaluation, individual animal performance, conformation, ease of calving and health traits and meeting market requirements.

PERFORMANCE TESTING AND GENETIC EVALUATION

IHFA carries out both performance testing and genetic evaluation for the breed as follows

PERFORMANCE TESTING

The following performance data is collected and transferred to the ICBF database:

- Transfer of IHFA parentage information,
- Transfer by IHFA of conformation and linear scores,
- Transfer of genomic data,
- IHFA members provide insemination data to the ICBF database which is used for fertility evaluations,
- Milk records transferred on behalf of the breeder through the service provider: milk co-ops
- Direct transfer of information by the breeder on calving ease and management traits.

CALVING SURVEY

Each breeder records ancestry and calving data on their calves through the 'Animal Events' recording system. The Calving Survey options are:

1 = Normal Calving,
2 = Some assistance,
3 = Considerable difficulty,
4 = Vet assistance.
'Abortion or 'Calf died at birth may also be recorded.
This data is used in the calculation of calving difficulty of an animal.

MILK RECORDING

All breeders are required to carry out milk recording, a service provided by the milk processing co-ops. The data collected from milk recording includes; milk weight, milk solids and components, somatic cell counts, yield per lactation and overall lifetime yields. Each herd owner receives a monthly milk recording report used to make assessments of performance. Data from the milk records is centralised with the ICBF database and populates the zootechnical certificate.

This data accumulates over generations which is used as a benchmark of performance and is also used to select for improvements in milk solids yield and components over time. The herd trend in milk solids, milk weight is used to demonstrate improvements over time. Gold and Diamond award abbreviated as GLD/DMD on the zootechnical certificate is a standard of achievement set by IHFA awarded when an animal achieves lifetime yield of 3,000 kgs Protein production.

CONFORMATION AND LINEAR SCORING

Purebred animals are scored on Conformation by IHFA according to World Holstein Friesian Association (WHFF) standards. Conformation scoring is the linear assessment of 22 body traits as follows:

Stature, Chest Width, Body Depth, Angularity, Body Capacity, Rump Angle, Rump Width, Rump Score, Dairy Strength, Body Condition Score, Rear Leg Set, Foot Angle, Locomotion, Bone Quality, Rear Legs Rear View, Legs & Feet, Fore Udder Attachment, Rear Udder Height, Central Ligament, Udder Depth, Teat Placement Front, Teat Placement Side, Teat Length, Teat Placement Rear, Udder Texture, Rear Udder Width, Mammary Score, Overall Conformation.

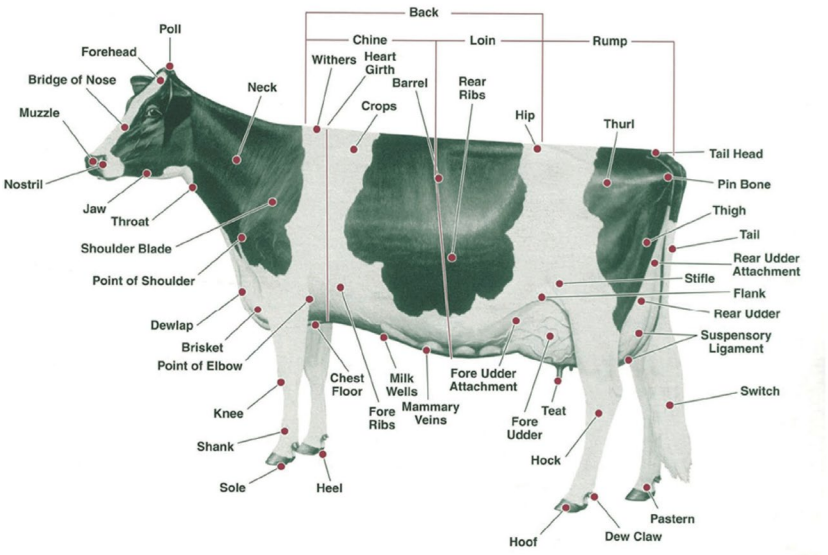


Fig 1: Holstein Friesian Body Traits assessed in the linears

Based on these linear trait scores, Composite scores are then applied; Body Capacity, Rump Score, Body Score, Dairy Strength, Legs & Feet Score, Mammary Score. A final, overall Classification Score is then awarded. There are seven possible grades within the Classification score, reflecting the number of designated points achieved as follows:

EX	Excellent	90 to 97 points
VG	Very Good	85 to 89 points
GP	Good Plus	80 to 84 points
G	Good	75 to 79 points
F	Fair	65 to 74 points
P	Poor	50 to 64 points

Maximum score for cows with 4 calves or more EX97 Maximum score for cows with 3 calves EX93

Maximum score for cows with 2 calves EX90

Maximum score for cows with 1 calf VG89

IHFA field staff record Conformation & Linear Data on breeder's herds which is submitted to ICBF via a classification handheld device. These scores and used in generating bull proofs. The traits are used as predictors of Longevity, Udder health, Feed Intake and Feed Efficiency. The conformation and linear scoring traits are in addition to the EBI index.

The breeder receives a data report of his/her herd scores. These generated reports are a management tool to help provide benchmarks. The breeder can select accordingly to improve each trait within his/her herd and also to perform assortative matings (e.g. corrective matings) by choosing which bull to mate to each female in his/her breeding selection for conformation. This does not limit breeders from having free choice in breeding and selection of their breeding animals.

The generations of the top two grades of Conformation/Classification VG/EX are stated on the zootechnical certificate to demonstrate the attainment of standards over numerous generations of Dams.

ADDITIONAL DATA

IHFA breeders record a large volume of important and significant data over generations of ancestry to the database.

This data is supplied directly through the Herdbook or via their co-ops, milk recording organisation provider, marts and meat factory movements or through their involvement in DAFM schemes or other

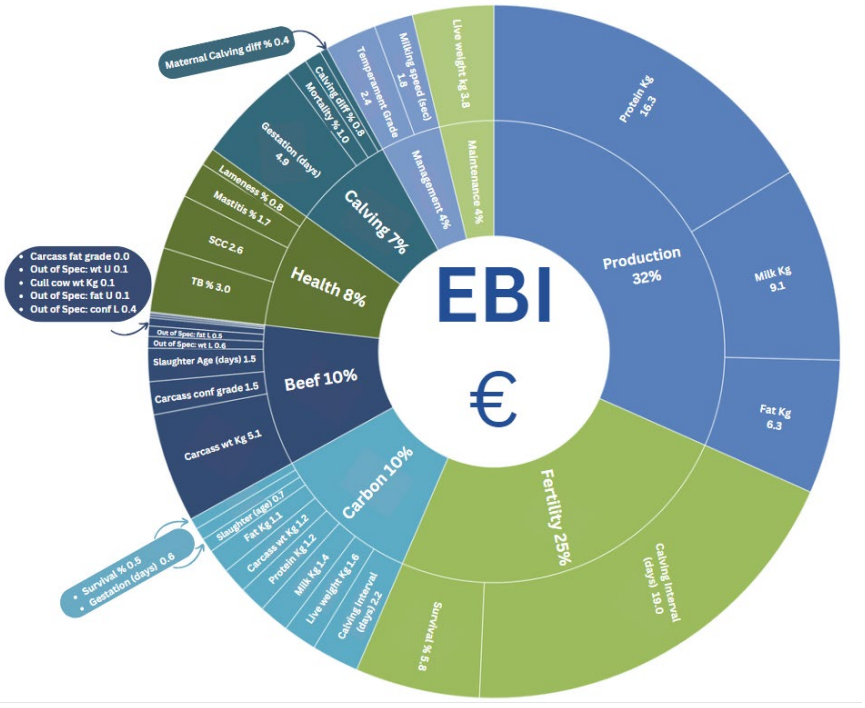
data harvesting services engaged with. Categories of raw data provided includes; Herdbook parentage, Linear Scoring data, calf registrations and calving dates,

on-farm milk recording data, insemination data and fertility heats, liveweights, slaughter weights and carcass yield data, milk deliveries to the co-op and herd health.

GENETIC EVALUATIONS:

ICBF carry out the genetic evaluations (prediction of breeding values) for the breed and are estimated based on the animal's own records and the performance of known relatives. The breeding value refers to the value of an animal in a breeding programme for a particular trait. An animal's breeding value is estimated to be twice the expected performance of its progeny.

Performance data such as calving surveys, milk recording, weights, birth and death dates are processed to provide a genetic evaluation. A single figure profit index, Economic Breeding Index, (EBI) comprises of information on seven sub-indexes related to profitable milk production and are weighted accordingly, see diagram. These are; (1) Milk production, (2) Fertility,(3) Calving performance, (4) Beef Carcass (5) Cow Maintenance (6) Cow Management (7) Health and (8) Carbon.



IHFA holds a significant shareholding in the National Database from the Irish Cattle Breeding Federation. Genetic evaluations are produced on the strength of recorded raw data, captured on-farm and thereafter.

The database is underpinned by a circular relationship with the various stakeholders and shareholders involved. The shareholders and stakeholder organisations record and add data to the database with data and resultant evaluations flowing in both directions i.e., to the database and from the database.

This raw performance data is used in the genetic evaluations by ICBF. The genetic evaluation information produced is interpreted and applied by IHFA breeders to suit their farming systems accordingly.

Conformation & Linear Data on breeder's herds is used in national genetic evaluations for all linear traits routinely undertaken by the ICBF with the resulting estimates of genetic merit for individual bulls submitted to an international genetic evaluation undertaken by INTERBULL. After running data quality tests, INTERBULL combine the linear scores of individual bulls submitted by their member countries in a procedure called Multiple Across Country Evaluations (MACE) and, in doing so, generate a new list of genetic evaluations for individual bulls on the Irish scale (and all other country scales) exploiting the data from all other countries. A combination of the Irish and MACE evaluations is routinely published in the public domain by the Irish Cattle Breeding Federation and are actively used by Irish famers in making their selection decisions of which bulls to mate to their females.

GENOMICS

Genomics is available as a genetic tool to improve the accuracy of evaluations. It provides a reliability figure which is a blend of Parental Average and DNA for the genetic evaluations.

The Society promotes the usage of genomics by breeders to help better predict how well an animal will perform in the future from an earlier stage.

DETAILS OF METHODOLOGY, RULES AND STANDARDS

- ICBF is certified ISO9001:2015
- ICBF is a member of the International Committee for Animal Recording (ICAR). https://www.icar.org/index.php/about-us-icar-facts/icar-members/
- For genetic evaluation and genomic evaluation ICBF participates in
  » The International Bull Evaluation Service (INTERBULL) which is a permanent sub-committee of ICAR and
  » The Interbeef Working Group which is a permanent Work Group of ICAR

- All details relating to the data, traits, methods & models are published by ICBF on the ICAR website
  https://interbull.org/ib/geforms
  Available under the heading IRELAND

COMMUNICATION AND USE OF PERFORMANCE TESTING AND GENETIC EVALUATIONS RESULTS

Communication to breeders is through

- www.ihfa.ie
- Catalogue Service and Animal search functions are available where all parentage and current performance data on an animal and its ancestors is available
- Publication of bull lists on the ICBF website at each evaluation
- ICBF animal search https://webapp.icbf.com/v2/app/bull-search/
- Zootechnical certificates
- IHFA Journal
- Sales catalogues
- Mart boards where relevant
- Direct mail
- Field staff

Further details in relation to genetic and genomic evaluations are published on the ICBF website – https://www.icbf.com/wp-content/uploads/2020/02/Understanding-EBI-PTA-BV-Spring-2020.pdf

More details on the ICBF Genomics service can be found at: https://www.icbf.com/wp/?page_id=7876

Further details in relation to genetic evaluations are published on the ICBF website – https://www.icbf.com/wp-content/ uploads/2020/02/Understanding-EBI-PTA-BV-Spring-2020.pdf

OUTSOURCE OF SPECIFIC TECHNICAL ACTIVITIES.

IHFA are shareholders in the ICBF and have access to this national database to facilitate services to its members. The following services are outsourced:

- Taurus (Electronic system for recording & maintaining pedigree of breeding animals entered into the herd book)
- ET Maintenance
- Zootechnical certificates
- Catalogue Service

- Classification Application
- Performance testing and Genetic Evaluation
- Genotyping service

The ICBF shall continue to provide estimates of genetic merit for both production and linear traits combining IHFA breeder sourced data with ICBF collected data.

Irish Cattle Breeding Federation, Link Rd, Ballincollig, Co. Cork. P31 D452

Telephone: +353 (023) 8820222 Email: query@icbf.com

DEROGATIONS PROVIDED FOR IN ARTICLE 31(1)

A derogation was sought and granted by the Competent Authority that authorised germinal products to be accompanied by a zootechnical certificate issued, on the basis of the information received from the breed society, by a semen collection or storage centre or by an embryo collection or production team approved for Intra-Union trade in those germinal products in accordance with Union animal health law.

The approved AI/embryo centres are available from Department of Agriculture, Food and the Marine

https://www.gov.ie/ga/foilsiuchan/412da-animal-breeding/#approved-establishments-laboratories

ZOOTECHNICAL CERTIFICATES/HERDBOOK CERTIFICATES

The Competent Authority, approved a derogation to the IHFA as provided in Article 31 (2)(a) to the non-use of the model forms of the zootechnical certificate as referred to in Article 30(6)(b). The derogation is granted to permit the IHFA provide the zootechnical certificate in a landscape orientation.

A Zootechnical certificate is issued to breeders where animals are eligible for entry into the main section of the breeding programme.

In the context of the zootechnical certificate, the breeder of the animal is defined as the keeper of the animal at the time of birth. The owner(s) of an animal is that person(s) or company that declares their ownership to the Association.

Zootechnical Certificate are reissued to new owners on request (see transfer of ownership section).

The time frame for issuing zootechnical certificates is within one month following all requirements are met for entry of the animal into the breeding book. It should be noted that the testing requirement in

accordance with the breeding programme must be completed before entry into the breeding book, for example, in the case of a male the Zootechnical certificate is issued after receiving a Genomic/DNA profile.

Data is published on the zootechnical certificate for the following traits; EBI and EBI Reliability, Milk kgs, Fat kgs, Protein kgs, Fat %, Protein %, Survival %, Calving Interval, Overall Feet & Legs, Overall Mammary, Overall Conformation.

Male animals recorded in the Supplementary section of the breeding book receive herdbook certificates designated SRM.

Female animals recorded in the supplementary section of the breeding book receive herdbook certificates designated with ASR or BSR.

On receipt of the zootechnical certificate/herdbook certificate, breeders should examine it for error and/or omissions and in the event of an error and/or omission they should contact the office without delay to have it investigated.