



IRISH CATTLE BREEDING FEDERATION SOCIETY LTD
(ICBF)

Data for Breeding Profitable Holstein Friesians

Brian Wickham
Chief Executive

World Holstein Friesian Conference
Ireland - October 9th 2008



© Irish Cattle Breeding Federation Soc. Ltd 2007

1

Thank you chairman. Ladies and gentlemen, the title of my presentation is, "Data for Breeding Profitable Holstein Friesians".



Cattle convert grass, and feed, into products which are valued.

Humans control cattle breeding in order to create profits.

Xxxx

Profit equals income less costs.

Contents

1. Structure of ICBF
2. Breeding objectives
3. Data collection & storage
4. Impact on Holstein Friesian Breeding

My presentation is in four parts:

Organizational **structure** of ICBF.

Breeding objectives for Irish dairy cattle.

The systems developed for collecting and storing the **data** used in Irish cattle breeding, and

The **impact** of our activities on the breeding of Holstein Friesians.

Irish Cattle Breeding Federation Society Limited (ICBF)

- *Established with interim Board in 1997*
- *Commenced operations in 1998*
- *Current structure in 2000*
- *Mission: achieving the greatest possible genetic improvement in the national cattle herd - Dairy and Beef*

1. ICBF Rules as amended in 2003

© Irish Cattle Breeding Federation Soc. Ltd 2008

4

ICBF is the Irish Cattle Breeding Federation Society Limited

XXXX

was established with an Interim Board in 1997,

XXXX

I was the first employee and began work on 1st March 1998,

XXXX

the current structure was formed in 2000

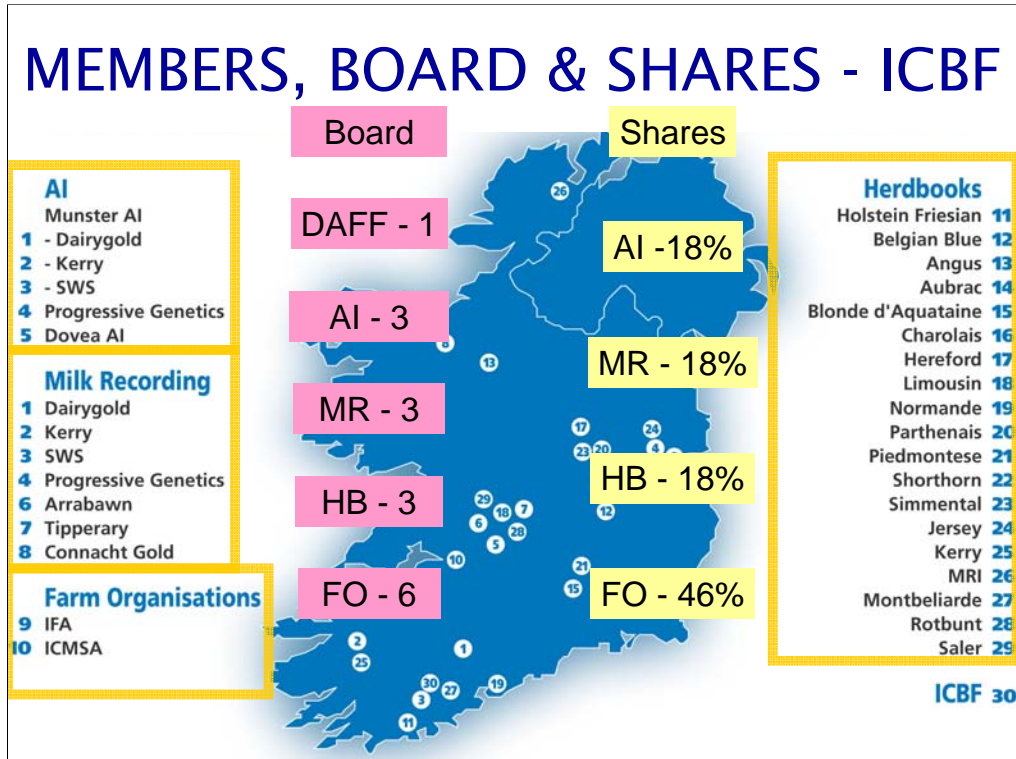
XXXX

with the mission of **achieving the greatest possible genetic improvement of the national cattle herd - dairy and beef.**



The importance of putting money in the bank for farmers has been the justification for major, and sometimes controversial, decisions.

ICBF is a unique collaboration of industry, farmers and the Department of Agriculture, to pursue genetic gain, with a focus on farm profitability.



ICBF's members and owners are four groups of organisations:

xxxx

the artificial insemination co-operatives,

xxxx

the organisations providing milk recording services,

xxxx

the Herd Books, and the

xxxx

the Farm Organisations representing farmer interests.

Xxxxx

The Board of 16 includes one from DAFF, 3 from each of the AI, MR and HB groups and 6 from Farmer Organisations.

Xxxx

The shares are held in three groups of 18%, (AI, MR and HB) and 46% by the Farm Organisations.

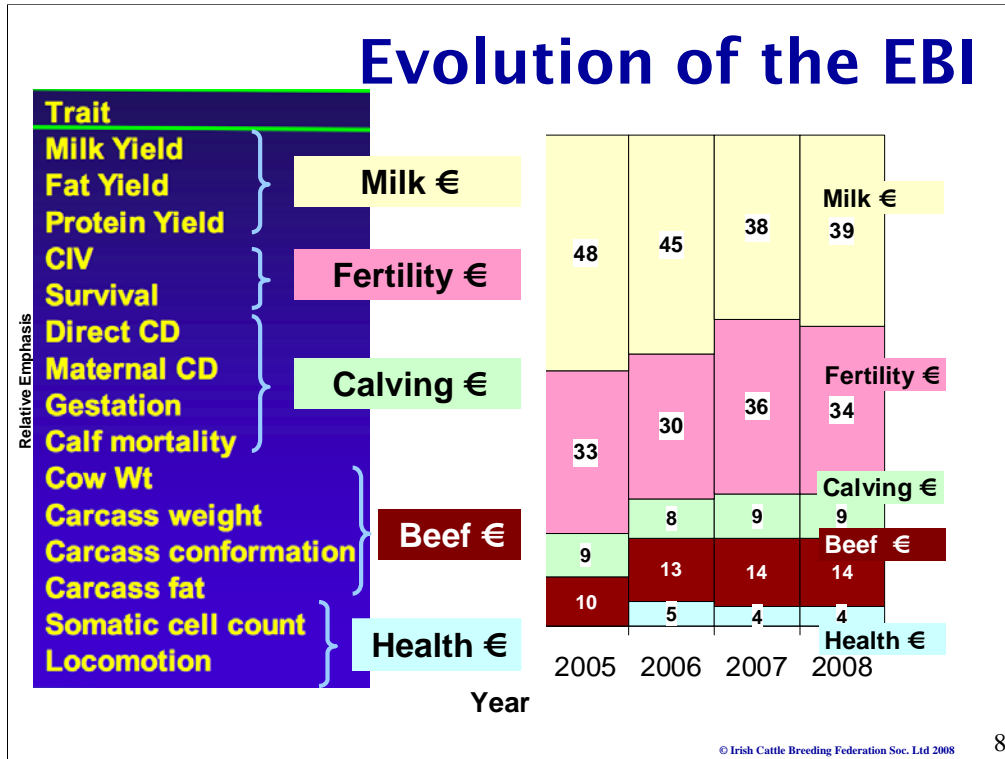
Breeding Objectives

- Fundamental to breed improvement
- Dynamic over time
- Traits to include
 - Important
 - Genetic basis
 - Measurable

Clear and agreed breeding objectives are fundamental to breed improvement. They determine the direction of the change, and are dynamic over time reflecting the many changes in knowledge, economics and farming conditions that occur.

Xxxxx

The choice of traits is key. Traits need to be important, have a genetic basis and be measurable.



The EBI (economic breeding index) has evolved to identify those dairy cattle that have the greatest potential for profits under Irish conditions.

Xxxxxxx

The 15 traits now included in the EBI are grouped into sub-indexes which are summed to give the EBI. The sub-indexes are expressed in economic units according to their impact on farm profit.

Milk – includes milk yield, fat yield and protein yield

Xxxxx

Fertility – includes calving interval (CIV), and survival

Xxxxxx

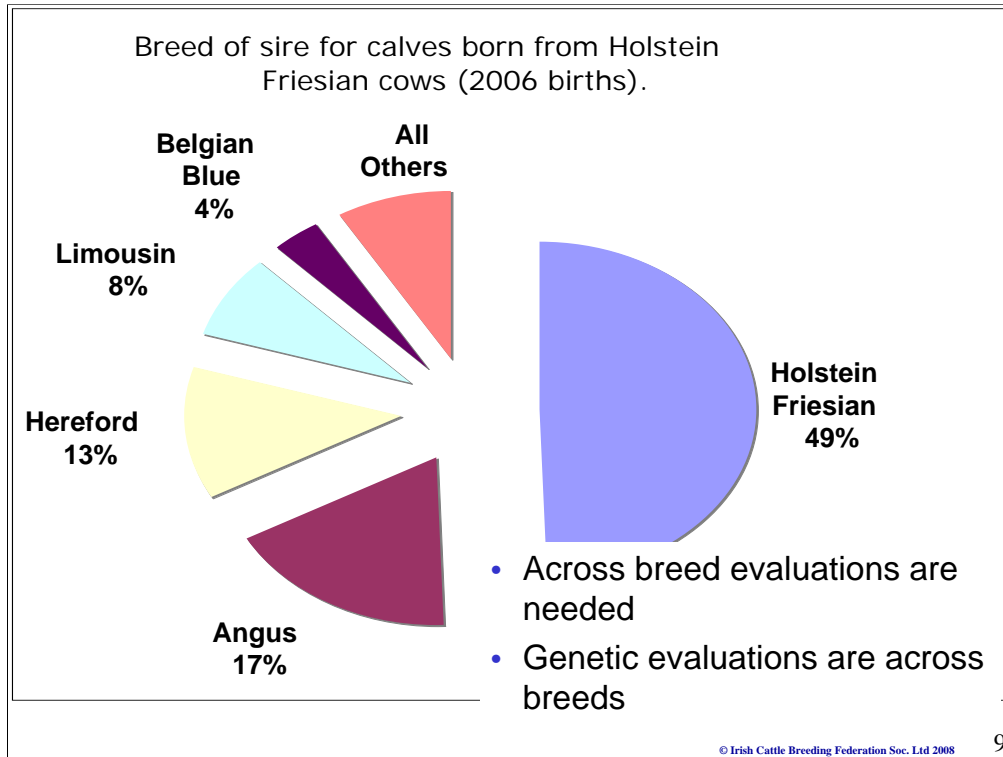
Calving – includes direct calving difficulty, maternal calving difficulty, gestation length, and calf mortality.

Xxxxxx

Beef – includes cow weight, carcass weight, carcass conformation and carcass fat.

Xxxxxx

Health – includes somatic cell count and locomotion



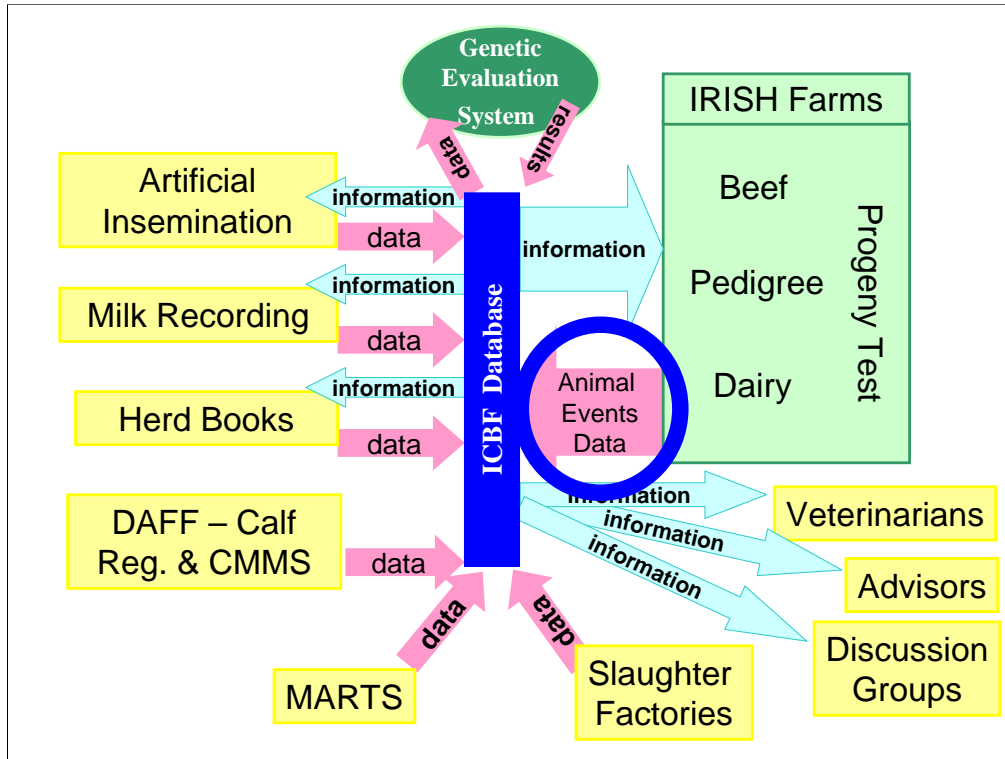
Ireland has many breeds, and a great deal of cross breeding in both dairy and beef.

In 2006, of the calves born to Holstein Friesian cows, just 49% were sired by Holstein Friesians bulls, with beef breeds accounting for a large percentage of the rest.

Xxxxxx

We need a genetic evaluation system that enables farmers to compare animals across breeds for the full range of important traits.

Our system operates across breeds where-ever there is sufficient data to enable valid across breed comparisons.



The ICBF database forms the core of ICBF's activities.

All data of relevance to cattle breeding in Ireland is held in this system. Data is collected from many sources.

Xxxx

Farms

Xxxx

Providers of services to farms

xxxx

The genetic evaluation system is tightly linked to the database, sourcing data from it and storing results in it.

xxxxx

Information from the database is provided to farmers through services from many organisations.

xxxxx

The linchpin of the database, is the animal events recording system.

Animal Events

- Introduced in 2002
- Replaced previous systems for collecting event data from farms
- Tightly linked to official systems
- Paper & Electronic
- Dairy and Beef
- Complimented by data from services

xxxx

First introduced in 2002

xxxx

this system replaced various data collection systems operated by AI, Milk Recording, Herd Books and the Department of Agriculture

xxxx

Is tightly linked to the official DAFF systems for calf registration and cattle movements, thus eliminating any duplication of data collection

xxxx

The system has paper and electronic versions,

xxxx

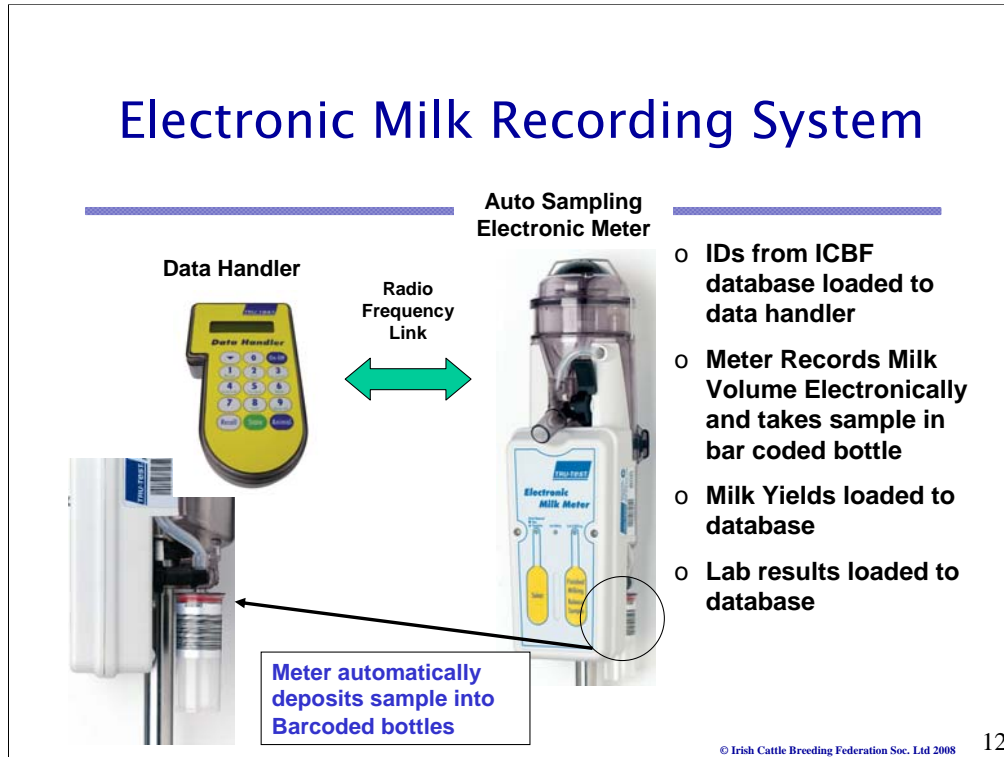
caters for dairy and beef,

xxxx

The data collected by animal events is complemented by innovative systems for providing services to cattle farmers.

Two illustrations are electronic milk recording and AI handheld computers.

Electronic Milk Recording System



The electronic milk recording system, now used by 35% of milk recorded herds, is a paperless system in which:

xxxx

Cow identifications are loaded from the database and stored on a data handler used in the milking parlour,

xxxx

The electronic milk meter records milk volume,

xxxx

automatically collects a sub-sample into a bar coded vial, and transmits the resulting data, via the data handler, to the database.

Laboratory testing utilises the bar coded vial for sample identification and transmits the results to the database.

Electronic DIY – “Cell” Model



Van customised so the meters are charged on the move



© Irish Cattle Breeding Federation Soc. Ltd 2008

13

Field operation comprises “cells” based on a technician equipped with a van containing 80 electronic meters and associated equipment. Each afternoon the driver delivers meters, data handlers and bar coded vials to several herds and collects them back the following morning.

20 of these “cells” are now operational, capable of servicing 3,000 herds. This system is playing a key role in increasing the use of milk recording,

A.I. Handheld Computer



Cordless Printer



Handheld Computer 14

The second field recording development is the AI handheld.

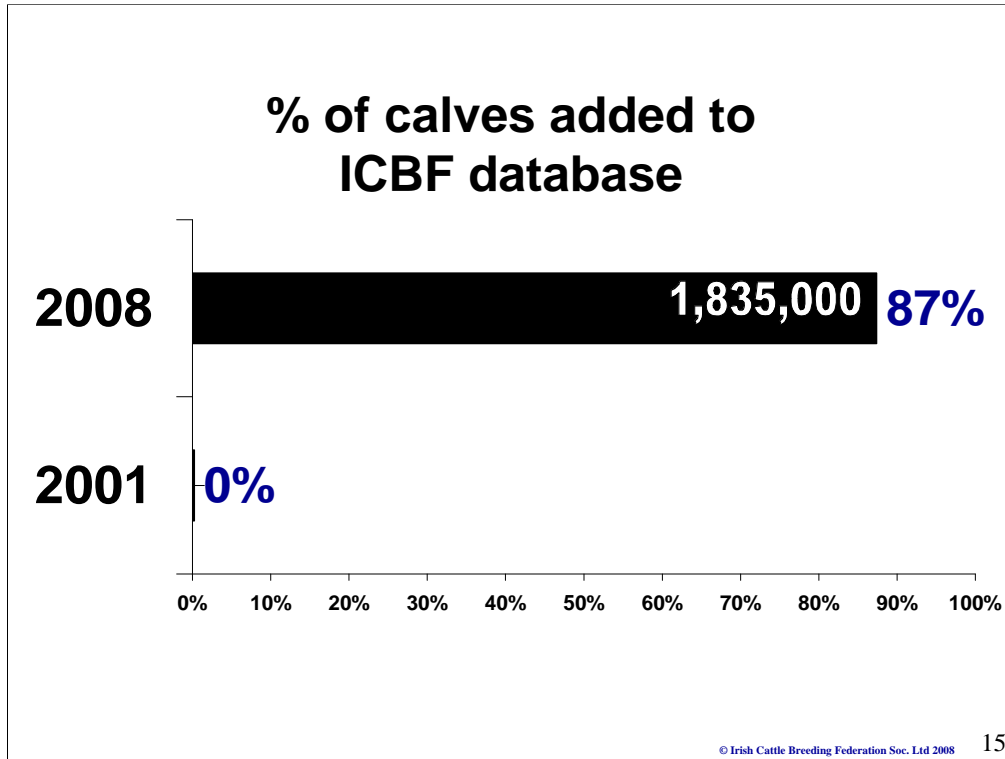
This system is now used by 250 technicians from all major AI companies.

It comprises: a handheld computer linked to the database through mobile phone technology and a cordless printer,

The handheld is populated with all cows in the herds being serviced. An inbreeding and lethal gene check can be computed for any mating.

This system has dramatically increased the quantity and quality of insemination data on the ICBF database while saving on administration costs for AI organisations.

In combination the systems that collect data for the ICBF database have resulted in a dramatic increase in the amount of data now available for use.

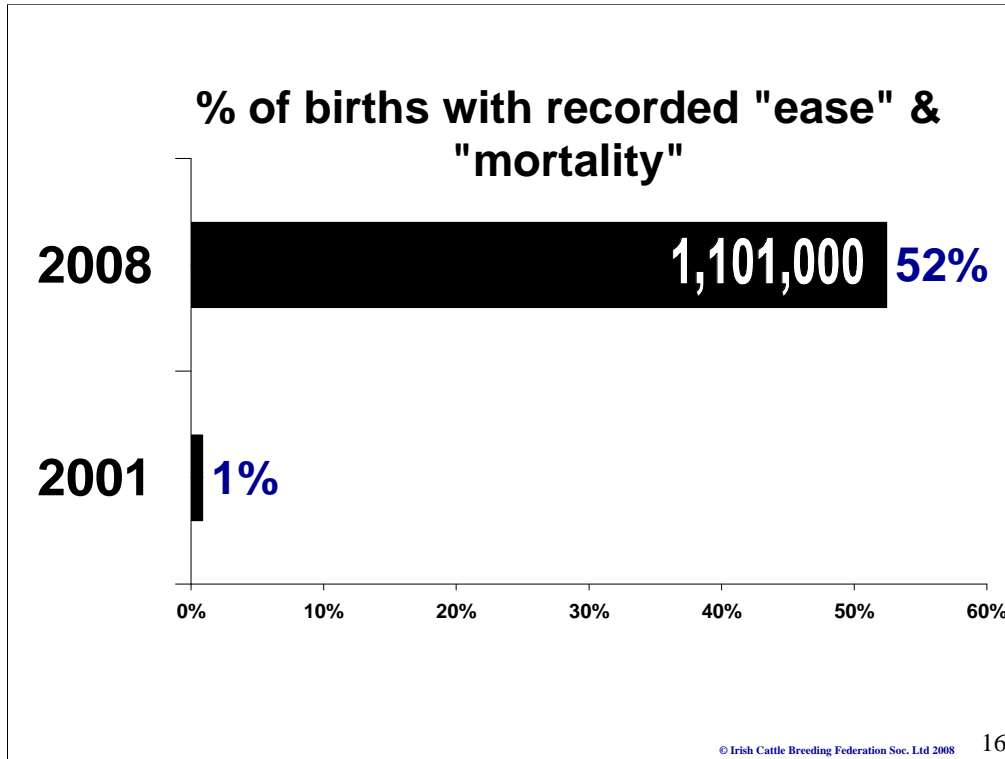


The contrast is between the situation in 2001, the year before the database went live, and projections for the current year - 2008.

In 2001 there was no link between the official calf registrations and the cattle breeding systems. In 2008, 87% of all calves, beef and dairy, a total of 1.835 million, will enter the cattle breeding database.

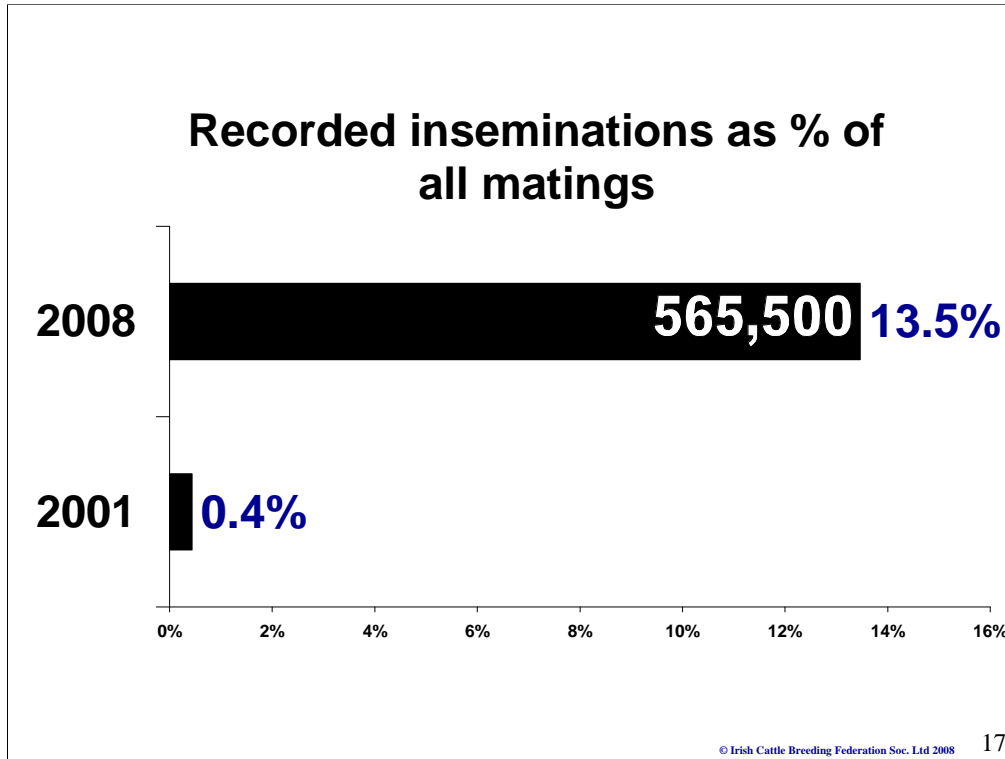
Calving dates from births are key data in genetic evaluations for calving interval and gestation length for all dairy and beef breeds.

Sires have been identified for 67% of these calves.



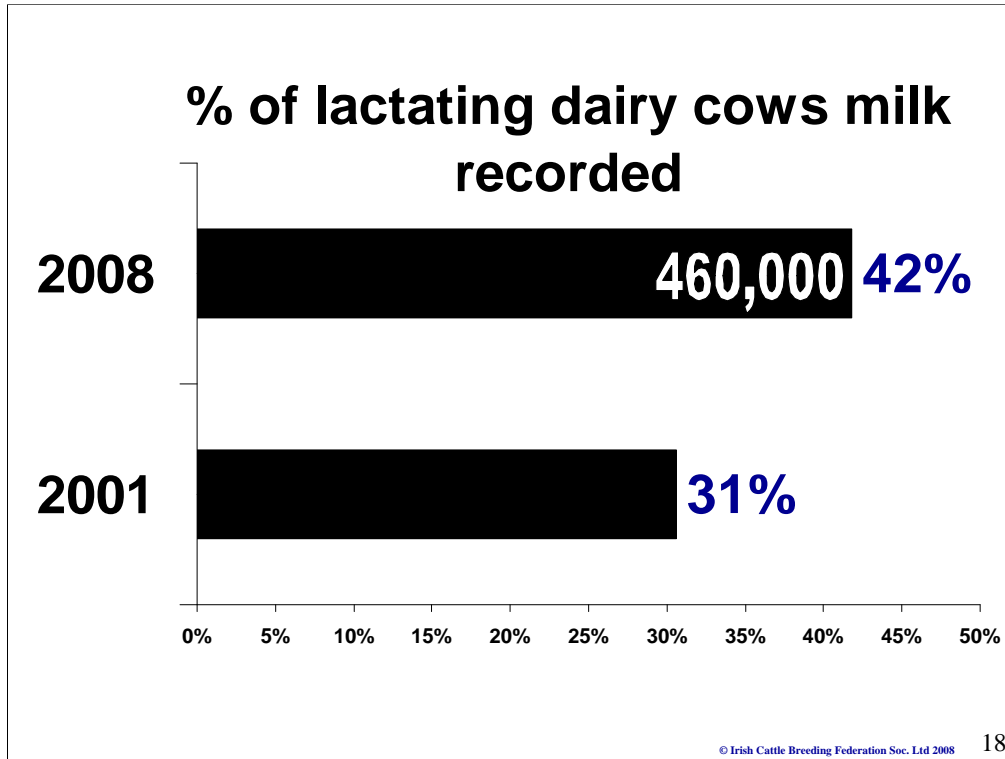
Farmers record and report calving ease and calf mortality through animal events. This data will be available for 1.1 million calves, 52% of all births, in 2008.

This increase in calving data has resulted in much more reliable and comprehensive genetic evaluations for calving ease and calf mortality for beef and dairy cattle.

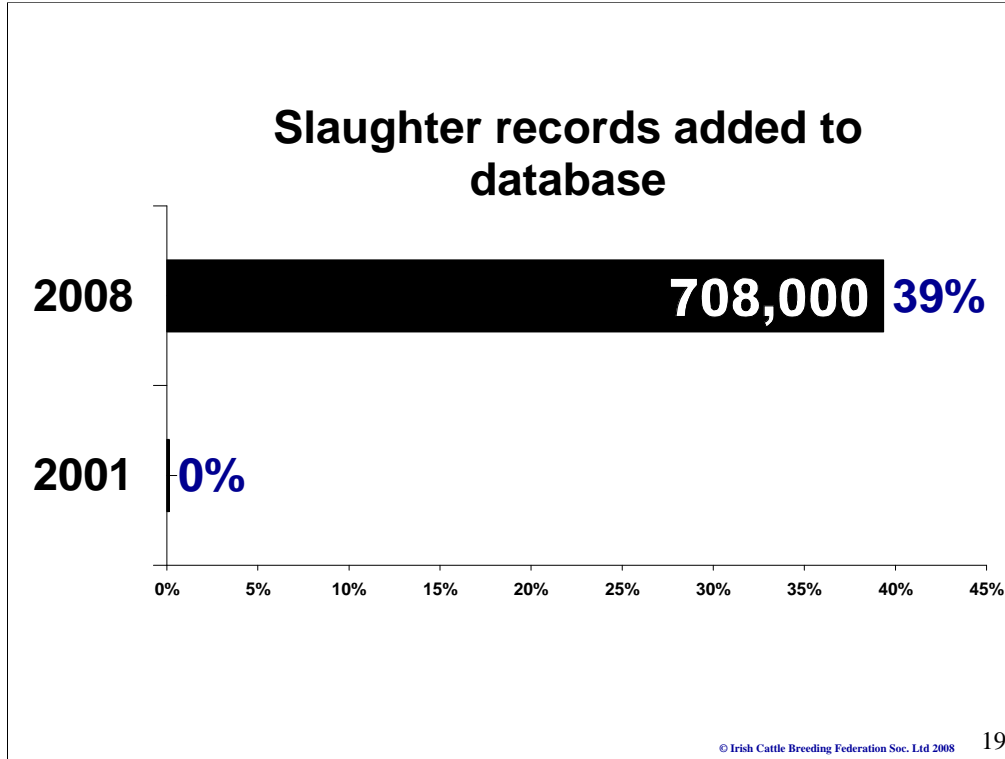


The AI handheld, coupled with the recording of DIY inseminations via animal events, has increased the amount of insemination data from 0.4% to 13.5%. The relatively low percent, even in 2008, is a reflection of the low usage of AI in beef and, to a lesser extent in dairy herds.

This improvement in data availability has occurred over the last three years and the full benefit for improving fertility evaluations has yet to be realized.



The use of milk recording in Irish dairy herds has been relatively low but the EDIY system has resulted in an increase from 31% to 42%. There is potential for further increases.



Access to slaughter data, via electronic links through DAFF to factory systems, has provided data of value to dairy and beef breeders. In 2008 some 708,000 slaughter records will be collected and used in genetic evaluations of dairy and beef cattle.

Research & Implementation

- International Team
 - Contractors
 - TEAGASC
 - ICBF
- Annual Cycle
 - Industry Consultation
 - Agree priorities
 - Review research results
 - Recommend changes
 - ICBF Board makes final decisions

© Irish Cattle Breeding Federation Soc. Ltd 2008 20

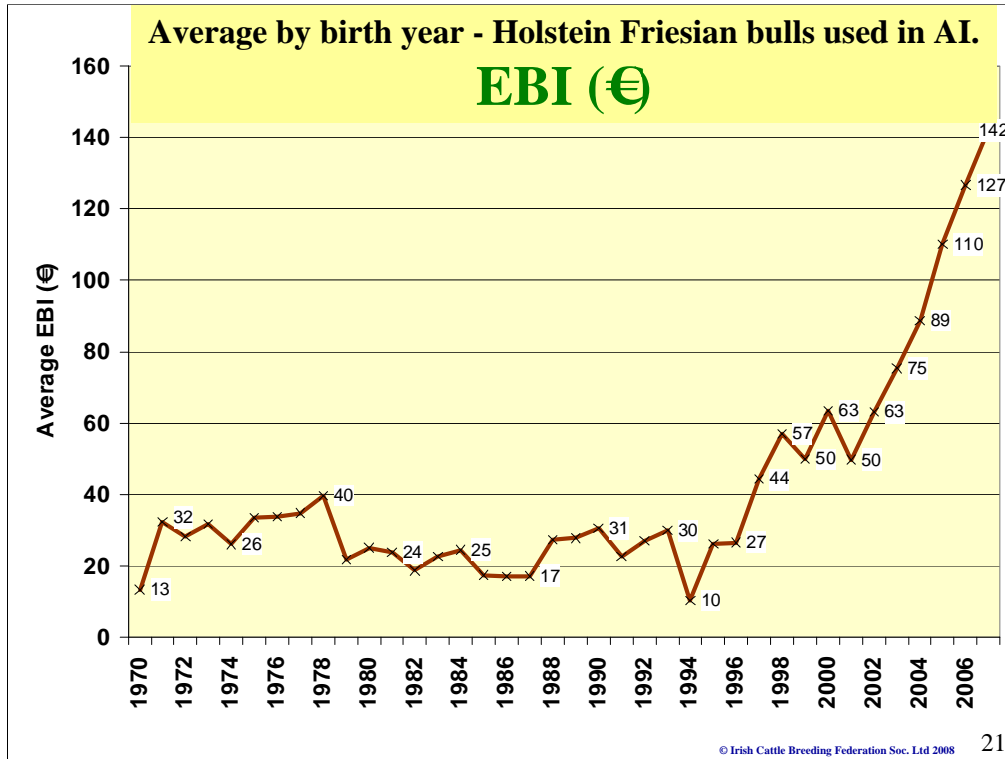
xxxx

In 1998 an international team of contractors, TEAGASC, and ICBF staff was established to research and develop the genetic evaluation system. The team deal with the statistical, genetic and economic aspects of the evaluations.

xxxx

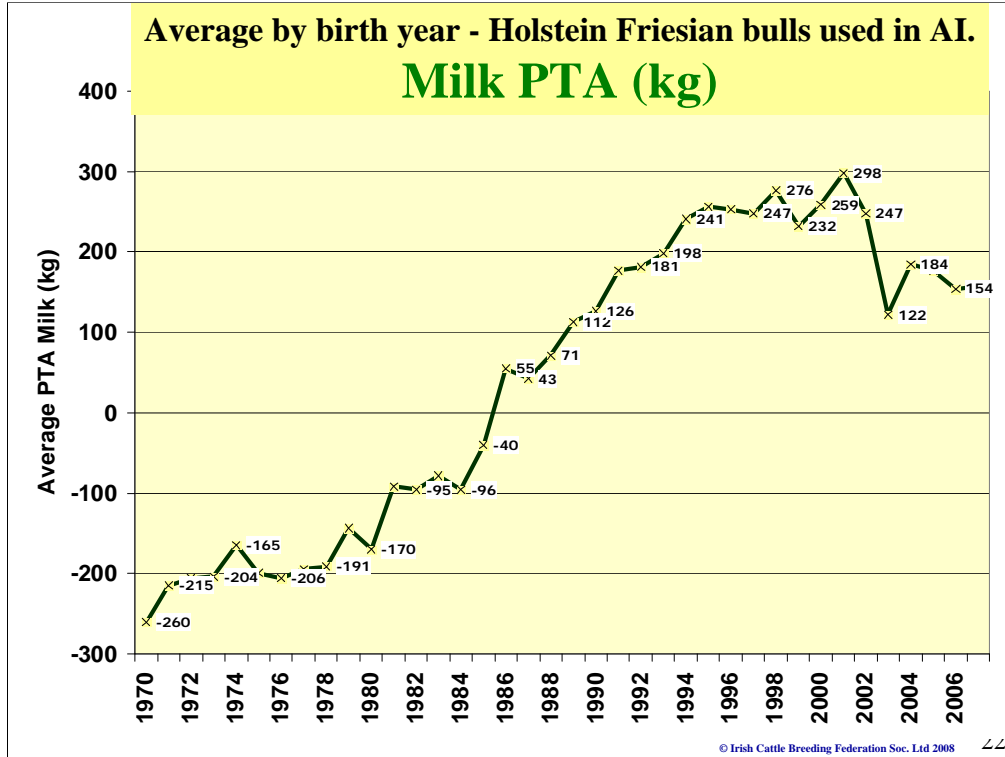
The development operates on an annual cycle with close involvement of AI, Herd Books, Farmers and Scientists, through regular consultation meetings.

The consultation meetings agree priorities, review research results and recommend changes. The Board of ICBF makes the final decision on implementing changes.



The following graphs illustrate our impact on Holstein Friesian breeding by charting genetic evaluations of bulls that have been in artificial insemination over the last 37 years.

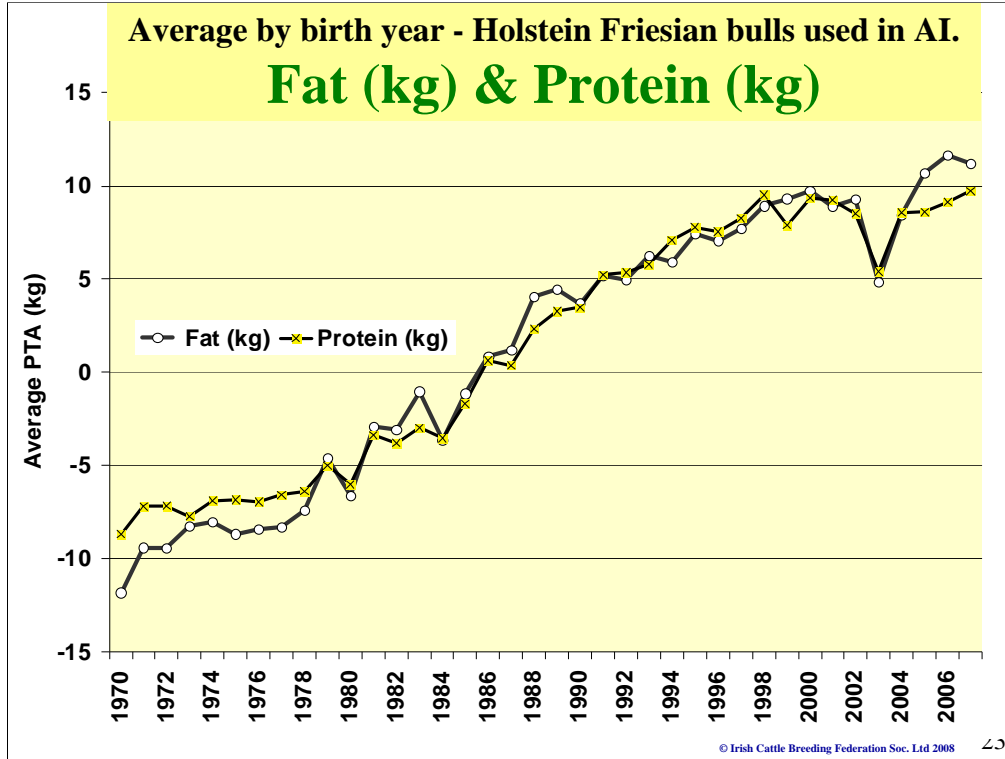
The EBI, in a single figure, measures profitability. Over a period of twenty years the trend in EBI shows no progress in profitability. This is followed by rapid progress over the last ten years.



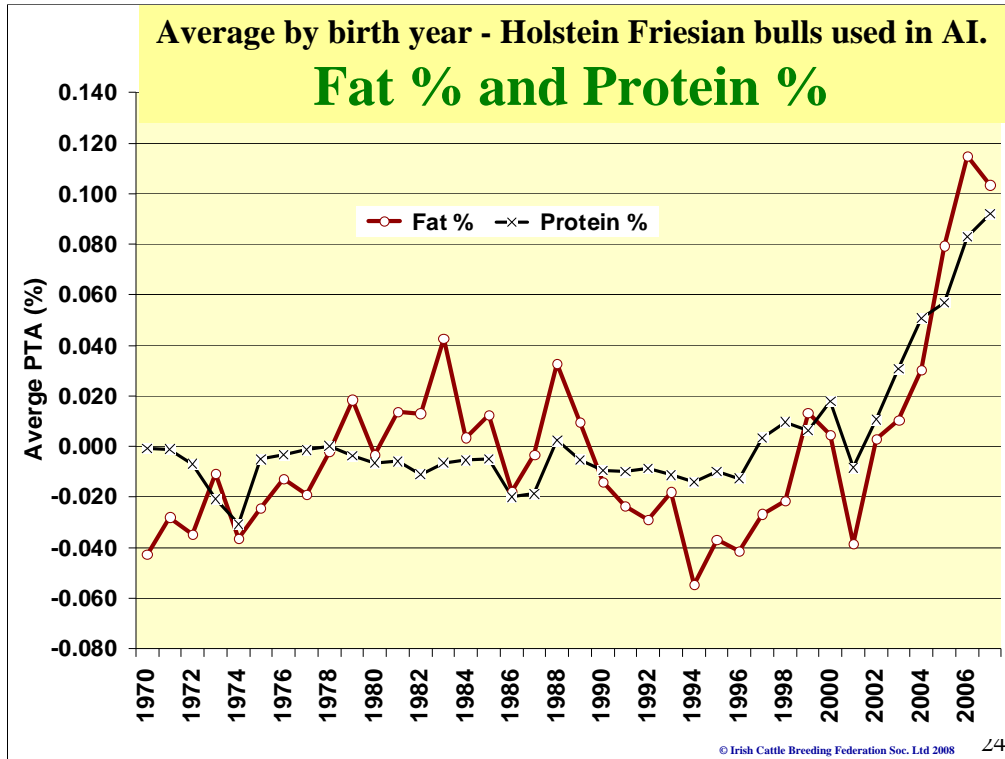
To clarify how this happened let us look at some of the traits that contribute to the EBI.

Firstly, milk volume.

Over the period 1970 to 1998 there was rapid increase in milk volume reflecting the emphasis placed on high production for bulls in AI. This is followed by a decline and levelling out reflecting the negative value placed on milk volume in the EBI. This is a desirable trend as Irish farmers supplying manufacturing milk receive less income if they supply extra volume without extra protein and fat.

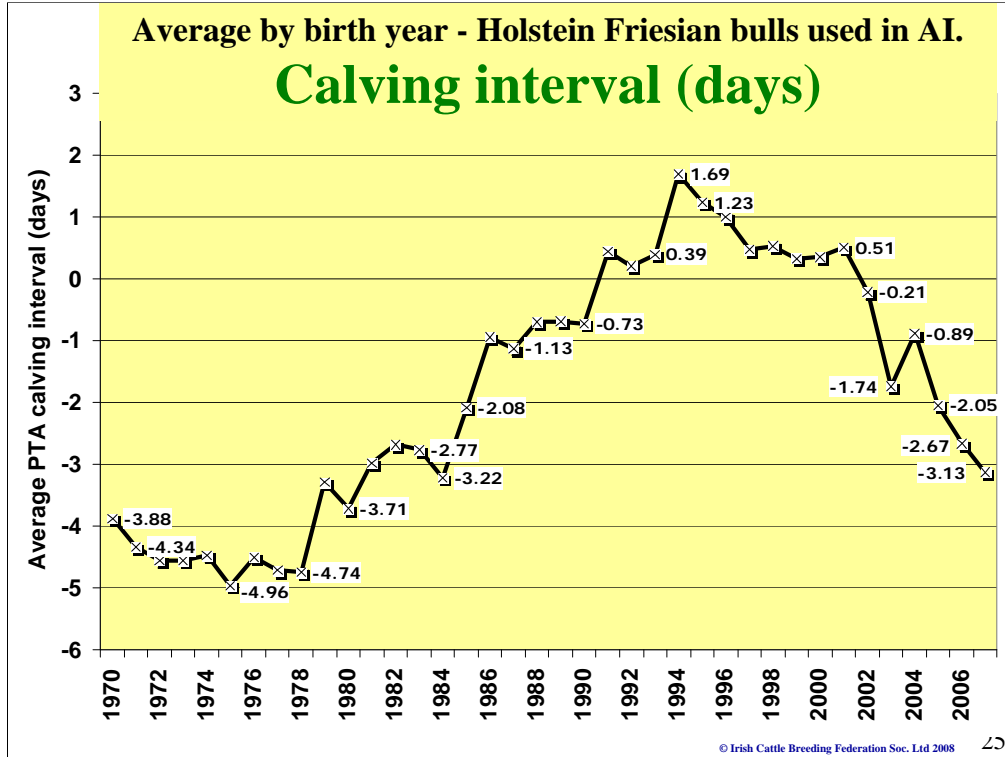


Lets now look now at the protein and fat yield trends. The trends for kg protein and kg fat demonstrate that over the last ten years the upward trend has been maintained despite the recent decline in milk volume.



After a sustained period in which protein % changed little and fat % declined slightly, both have, over the last ten years, taken a dramatic turn upwards. In other words, the Holstein Friesian bulls being used in AI are those whose daughters are producing more milk solids in a reduced volume of milk.

However, this only explains a small part of the trend in the EBI.

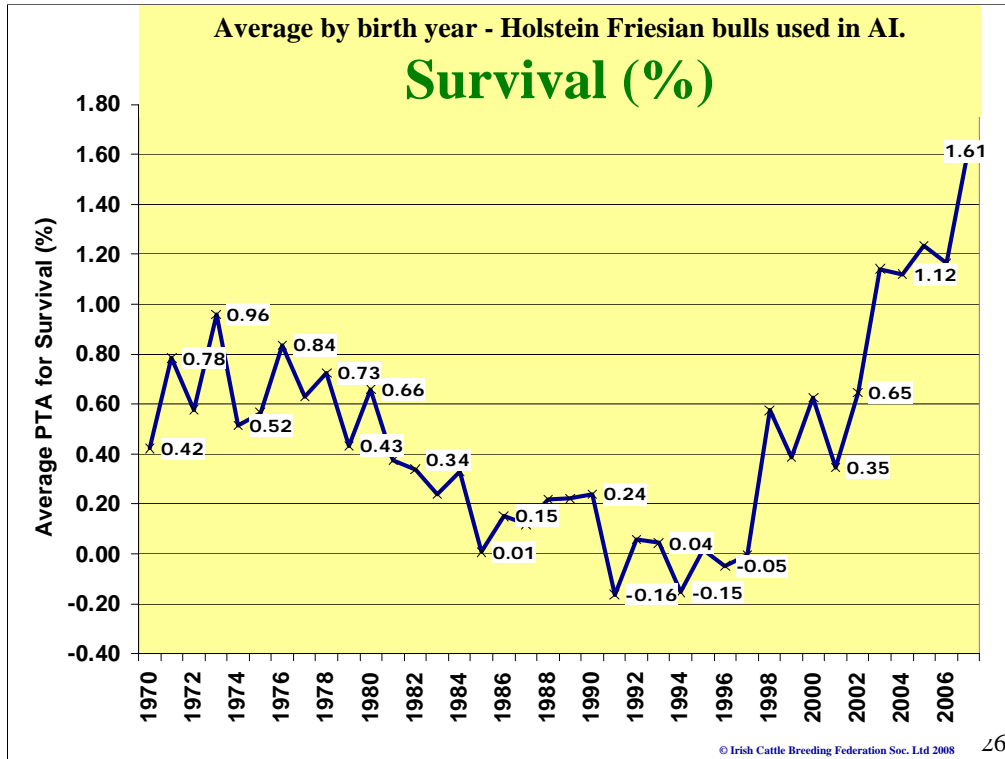


The traits contributing to the Fertility Sub Index are calving interval and survival.

For many years the trend in calving interval was an increase from a low of -5.0 days in 1975 to a high of +1.7 days in 1994. That is, an increase of one week in calving interval, over a period of 19 years. For seasonal production this increase represents a substantial decline in fertility and a substantial increase in production costs.

We have now reversed this trend and the Irish AI industry is moving rapidly to fertility levels in Holstein Friesians last seen in the early 1970s.

A similar trend also exists for survival.



Up to the late 1990's survival declined by 1.1% and over the last ten years has improved to levels not seen previously.

In combination, the trends in calving interval and survival, combined with the trends in milk traits explain why the trend in profitability was static for many years. Only recently has a desirable trend been established.

This is a good illustration, and a lesson for all cattle breeders, of how focusing on outputs without giving proper consideration to costs can reduce profitability.

Holstein Friesian breeders around the world need to be acutely aware of the importance of genetic trends in fertility and survival.

Summary

1. Irish Cattle Breeding is evolving rapidly
2. ICBF is leading the development
3. Mission, Structure, Funding
4. Database and data collection systems
5. Dramatic increase in relevant data
6. Research & Implementation on annual cycle
7. EBI is profit based, evolving & resulting in a more profitable Holstein Friesian for Irish dairy farmers.

© Irish Cattle Breeding Federation Soc. Ltd 2008

27

In summary,

xxxx

Irish cattle breeding, especially for Holstein Friesians, is evolving rapidly

Xxxxx

under the leadership of the Irish Cattle Breeding Federation.

xxxxx

ICBF's mission, structure and funding has led to the establishment of a

Xxxxx

state-of-the-art cattle breeding database and associated data collection systems.

The database supports a wide range of valuable information services to the breeding industry and Irish farmers.

xxxxx

The amount of data available for achieving the breeding objective of the Irish dairy industry has increased dramatically.

xxxxx

An annual cycle of research and implementation has ensured innovations in genetic evaluations reach the breeding industry quickly.

xxxx

The EBI, with its focus on profit, while evolving continually, has resulted in a more profitable strain of Holstein Friesians for Irish dairy farmers.

Learn more about ICBF:

1. Visit the ICBF Stand at Millstreet on Saturday
2. Visit the ICBF website: www.icbf.com



Thank you.

