

European Holstein Success - 2020 vision

A true success story – why? The Holstein breed has developed throughout the world to become established as the primary producer of milk. Whether as a purebred or crossbred, Holstein genes have been the foundation to economic milk production. The advent of SNP technology provides a depth of information previously unavailable, but will this science change the development of the purebred Holstein and subsequently the role of the organisations that have loyally served the breed, or will it foster greater advancement?

The European Holstein has been an important part of this evolution and this paper explores the involvement of many different European organisations, Herdbook Associations and the European Holstein and Red Holstein Confederation in the development and promotion of the Holstein breed, and the challenges faced as we look to the third decade of the 21<sup>st</sup> century. In addition the role Holstein Associations play now, and in the future, as new technology offers far more cost effective and efficient options for dairy farmers.

At the beginning of this century the Holstein was well established as the main milk production breed, but at a cost. Poor fertility and fragility had increased at the expense of production. Working in tandem with the scientific community these challenges are being faced and overcome as by working together the decline has been arrested. This has resulted in an overall improvement of the Holstein breed in all of these important traits and has positioned it to retain its historical dominance and partly eradicate the need for cross breeding.

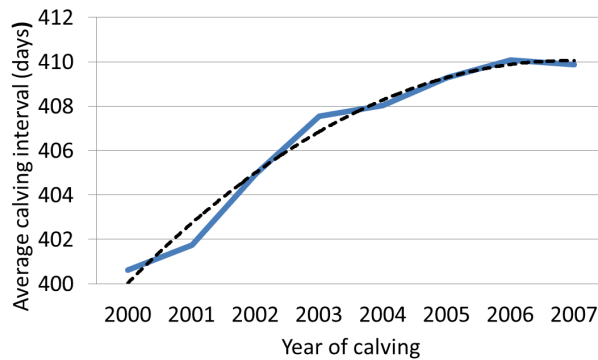
**Production**

Renown for its production the Holstein breed continues to dominate in the production of milk yield compared to all other purebred and crossbred milk-producing animals. Since the early part of this century production, on average, has increased in EHRC member organisation by 264kgs milk and 9kgs fat with protein remaining the same. The Red Holstein population has also increased production levels by 243kg milk 9kg fat 8kg protein. With over 10.5 million Holstein animals registered in EU countries it clearly demonstrates the contribution the Holstein breed is making to human food production.

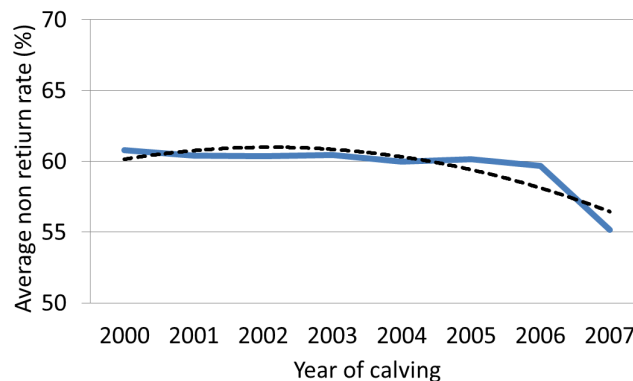
**Fertility.**

A concern to some sectors of the industry was the reduction in fertility, as production increased fertility decreased. The fact that fertility has a very low heritability, combined with many other contributing factors it is a situation that is difficult to reverse. The industry responded by introducing fertility indexes which appear to taking effect as reported at the 10<sup>th</sup> World Congress of Genetics Applied to Livestock Production: **World Trends in Dairy Cow Fertility**. Which in summary stated *'However, for many countries, an improvement in phenotypic and genetic trends for female fertility has been observed from the early to mid 2000s largely as a consequence of introducing breeding values for fertility and increased emphasis on fertility in breeding objectives'*

**Figure 1. Overall “world” phenotypic trend for calving interval, weighted by the number of reported cows in 16 countries that responded to the World Holstein Friesian Federation survey, the dotted line is a fitted polynomial (R<sup>2</sup> 98%).**



**Figure 2. Overall “world” phenotypic trend for non-return rate, weighted by the number of reported cows in five countries that responded to the World Holstein Friesian Federation survey (Belgium, Germany, Italy, Netherlands, Switzerland), the dotted line is a fitted polynomial (R<sup>2</sup> 75%).**



The information suggests that the decline has been reversed and that overall fertility is set to improve on current levels.

*The full report is available on line.*

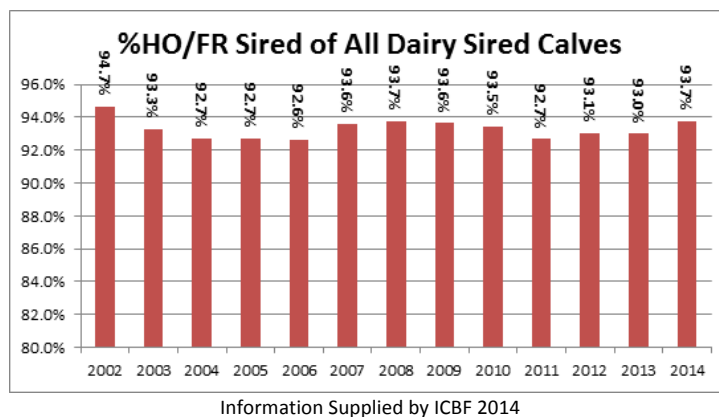
**Type Conformation.**

The introduction of linear type conformation recording has produced an international benchmark to evaluate the type (conformation) of the Holstein best suited to different management and environmental situations. All linear traits are defined as: essential, measurable, economical, heritable and with variation within the Holstein population. This unbiased assessment of important and economically significant type traits has been one of the catalysts to the overall improvement in conformation, with a positive effect on important welfare traits, such as legs, feet, mammary system and overall body strength. Linear evaluation has moved classification away from show type to functional type by recording the degree of the trait not its desirability. The information may be interpreted differently for differing management systems, and thus most classification programs have a overall classification grade and score built on the perceived ideal model for the country of inspection.

The expansion of Robotic milking machines adds another important dimension to measuring and collecting data adding new precision to the available information, particularly on mammary traits throughout the lactation.

### The Challenge of Cross Breeding

Within the EU the Republic of Ireland has the ideal environment for breeding a different type of milking animal, being ideal for seasonal calving and supplying the important beef market. At the end of the last century the Holstein and Holstein Friesian were well established as the sire and breed of choice, however the requirements of the market challenged the suitability of the Holstein to these conditions. In 2014 we can reflect on the situation over the past 12 years and see that Holstein Friesian sires have retained the high market share that had been historically established.



### Dairy Farmers

The knowledge transfer of information by all sectors of the industry to farmers has ensured that sires with poor performance in both production and conformation are not marketable commodities, which has resulted in the improved overall performance of the Holstein breed. Will this still happen in the Genomic area, which appears to have been the death knell for the traditional 'Proven Sire' as a new hot sire appear at each proof run. Confidence is high of the success and performance of 'genomically tested' sires in delivering the predicted performance. However, will the quest for genetic efficiency deprive the breed of the benefit of outstanding sires, as semen supply will be limited and not available as females mature?

### Holstein Associations/Organisations

Traditionally independent Holstein Herdbooks played an important part in the development and promotion of the breed. Herdbooks managed and accurately recorded births and parentage information, introducing production targets and conformation assessment goals. In addition to improving the performance of the breed these innovations also increased the value of individual animals and in many cases Herd prefixes became important promotional vehicles for the owners, adding the potential of another income stream in animal/embryo sales. History proves this fact that if we look at the most successful Holstein sires of the past 50 years; these were from pedigree/registered herds. With the recent introduction of gene discovery programs to determine animal ancestry, will the role of the purebred breeder change? Whilst this innovation has advantages there is an important facet that should not be overlooked – The historical role of the registered breeder in promoting and in many instances financing the development of the Holstein breed by supporting production and type recording.

In today's technological environment integration is the key to the future, independence can still be maintained, but shared resources and database facilities are the key to delivering an efficient and cost effective service. This basic requirement will take cost out of the registration process and permit Holstein Association's to concentrate resources on aspects of the promotion of the Holstein, at the same time as retaining influence in the development of the Holstein Breed through classification programs. In a recent survey of EHRC members it was interesting to note that integration was on-going and that in the future Herdbook organisation would offer a greater range of services. The traditional role of Herdbook organisation of registration and type evaluation were retained with a move to greater integration or links with their countries national database, where this was not already in place. The introduction of new services included; marketing, benchmarking, milk recording services and providing SNP services the most popular. In summary most EHRC Herdbooks are expecting change and have taken action to respond to the challenge and the future demand of it members.

### **Herdbooks Cooperation: European Holstein and Red Holstein Confederation. (EHRC)**

One central European Herdbook or registration organisation is not feasible, but with the EU registration regulations, the harmonisation of registration and information collection activities are well established. EHRC has played a significant part in the harmonisation of Herdbook information enabling cross-country comparisons of all aspects of performance, promoting the best of Holstein breeding. This commenced with harmonisation of parentage registration details and in 1987 the creation of the harmonised linear type assessment program, which was later adopted by WHFF and ICAR and has become the world standard for linear type evaluation and the foundation of sire type indices. EHRC has become far more involved than purely at management level. The committee react collectively to EU draft directives and are currently involved in drafting, together with World Holstein Friesian Federation (WHFF) a template to standardised Showing procedures, with a very strong focus on animal welfare. In addition Judges training and Conference programs are ensuring the very best practices are pursued in establishing a 'European Judges Panel'. The results of this programme may be assessed by the increasing exchange and use of Judges in different EU countries.

EHRC has created the 'THE European Championship' Show, the ideal venue to promote the very best of European Holstein genetics, with the added incentive of inter country competition, it is an occasion to savour. Add to this the introduction of the European Showmanship contest, and it is easily understood why over 12,000 visitors attended the 2013 Championship in Fribourg, Switzerland, which was described in the international farming press as the 'best Holstein show in the World'.

### **Summary**

As we look towards 2020 the indications are good for the Holstein breed to continue to develop genetically, at a faster rate that has been achieved in the past and with far more information on various management and breeding functions. Information transfer from and to the farmer will continue to be the catalyst for development of greater production and financial efficiency on farm as the EU free market is established; Herdbook Associations have an important part to play in the promotion and use of knowledge transfer. As in the past the role of Holstein Associations is an important part of the future, but only if they adapt to the requirements and efficiencies of the industry and the aspirations of their members, Holstein Breeders. The evidence is that in the majority of cases this is happening as resources are shared within integrated systems, however for

those that retain a traditional and in some cases independent outlook serious challenges will be faced to retain continued influence in the industry. The role of EHRC as a Non Government Organisation (NGO) will become stronger as it is the ideal forum for each EU country to meet and discuss the challenges within the EU, from a lateral position at the same time as ensuring EU Herdbook Associations are always kept briefed on all aspects of the industry at the same time as retaining the support of EU dairy farmers by promoting the Holstein breed through specialised events such as the European Championship. All these factors will enable the Holstein breed to continue its progress and meet the demands of the industry.