

Which economic breeding index is right for me?

What is the difference between the £PLI, £ACI and £SCI ratings



What is an economic breeding index?

Three economic breeding indexes are published by AHDB Dairy as part of its genetic evaluation service, and have been developed to easily rank animals that transmit the most profitable combination of genetic traits to suit the various farming systems found in the UK.

Which economic breeding index is right for my farming system?

The three genetic merit rankings we calculate and the system for which they are designed are:

- **£PLI** – Profitable Lifetime Index for All-year-round calving herds
- **£ACI** – Autumn Calving Index for Autumn block-calving herds
- **£SCI** – Spring Calving Index for Spring block-calving herds

Each of these represent the additional profit a high ranking bull is expected to return from each of its milking daughters over her lifetime compared with an average bull of £0. As different systems have different costs and returns, the value and how bulls rank on each of these three indexes varies.

The £PLI should be used to compare bulls within a breed, but both the £ACI and £SCI can be used to compare genetic qualities of animals from different breeds directly with each other.

Details for each of these indexes are described in their individual factsheets, which can be found on the AHDB Dairy website.

Which traits are included in these ranking indexes?

With the ever-expanding availability of data recorded on UK dairy farms, we are now able to assess genetic qualities for many different traits. The most important of these are included in the three breeding indexes.

Trait	Trait group
Milk	Production
Fat kg	
Protein kg	
Fat%	
Protein%	
Lifespan	Survival
Calf survival	
Fertility index	Fertility
SCC	Udder health
Mastitis	
Udder	
Feet & legs	Leg health
Lameness advantage	
Direct calving ease	Calving ability
Maternal calving ease	
Maintenance	Efficiency
Body condition score	

What is the difference between the three indexes?

Since each of the three indexes is designed for different systems, each has a different relative performance to suit the different needs. The graph below aims to illustrate how the £PLI, £ACI and £SCI differ in their performance.

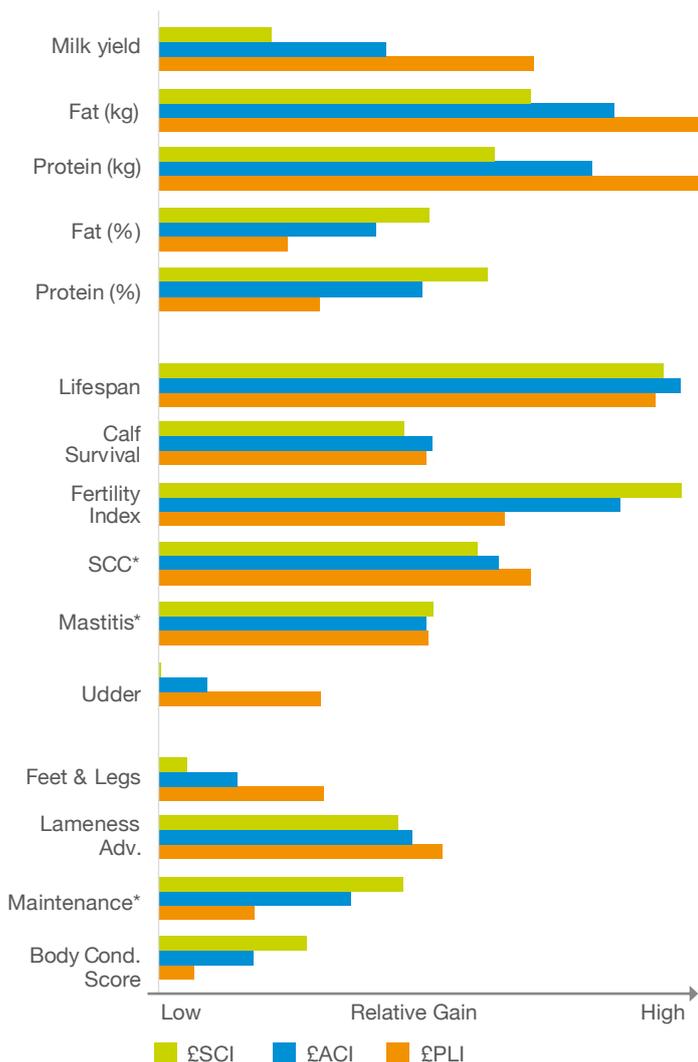


Figure 1. Relative genetic gain for a range of traits, based on the average of all available Holstein bulls; July 2018 (*trait reversed for presentation purposes)

Figure 1 shows how the three economic rankings place different emphasis on, for example, milk vs fat percentage, where spring-block calving herds, typically, require higher milk solids and lower volumes of milk, compared with either an autumn-block calving, or all-year-round calving herd. The Fertility Index is more important for block-calving herds compared with an all-year-round calving herd.

Our data partners



Finally, a higher producing all-year-round calving herd is likely to require more emphasis on functional type (Udders, Feet & Legs), but all three systems have similar strong requirements for improving mastitis, lameness or lifespan.

Why should I use a UK index and not just use an index from another country?

One good example of why a UK ranking is different from other country rankings is the fact that different milk payment systems operate in different countries. In establishing the genetic merit index, this makes a significant difference and, therefore, genetics most profitable for UK farming systems are rated in £'s (£PLI, £ACI or £SCI) and not in \$'s or €'s.

UK genetic evaluations are undertaken and published by AHDB Dairy three times a year: April, August and December.

Further information

For more information on AHDB Dairy breeding and genetics, visit dairy.ahdb.org.uk/breeding or email breeding.evaluations@ahdb.org.uk

Authors

Marco Winters – Head of Animal Genetics AHDB
Fern Pearston – Animal Genetics Manager

Produced for you by:

AHDB Dairy
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2TL
T 024 7669 2051
E comms@ahdb.org.uk
W dairy.ahdb.org.uk
T @AHDB_Dairy

If you no longer wish to receive this information, please email us on comms@ahdb.org.uk

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