ShorGen

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FACT SHEET

INCREASING YOUR HERDS PROFITABILITY

There is an old expression in the livestock breeding industry.

"You can't pay tomorrows bills, with today's production."

Quite simply, costs rise and markets change and to offset and adapt to this, progressive breeders chase a high rate of genetic gain within their programs.

WHAT IS GENETIC GAIN?

Genetic gain refers to the rate of change in the genetic performance of the herd over time.

Importantly, genetic gain only refers to the speed at which the program is moving genetically, but not the direction.

WHAT IS GENETIC IMPROVEMENT?

Genetic improvement is essentially genetic gain with a direction. How much more profitable the animals are relative to the breeders targets.
The direction changes depending on target markets for each breeder and the strengths and weaknesses of their current herd. Making genetic improvement requires breeders to know their targets by setting a breeding objective for their enterprise.

WHAT IS A BREEDING OBJECTIVE?

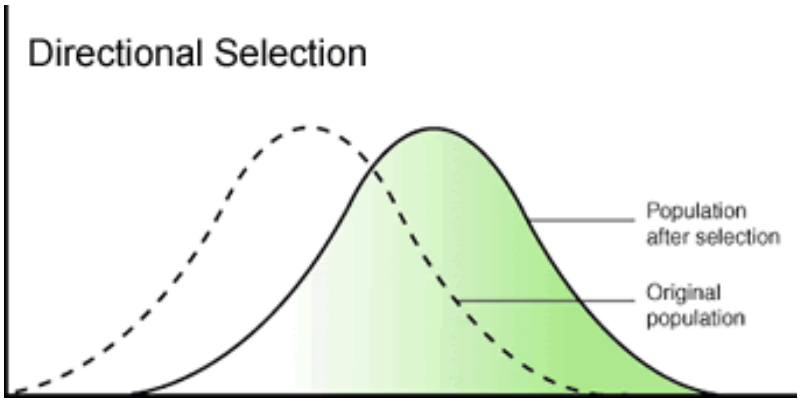
A breeding objective is usually a written document that details the key traits (preferably no more than 3 at any one time), that the breeder has identified are most critical for them to achieve their targets.

Mostly, people will talk in terms of rate of genetic gain. This is reasonable, given that it is the foundation for genetic improvement.
High rates of genetic gain also allow breeders to respond to changing markets.

INCREASING GENETIC GAIN

SELECTION DIFFERENTIAL

Selection differential is the difference between the average genetic merit of parents and the average of the population they came from. This a breeders main tool in driving genetic gain. Selection differential can be increased through increasing selection intensity and accuracy.

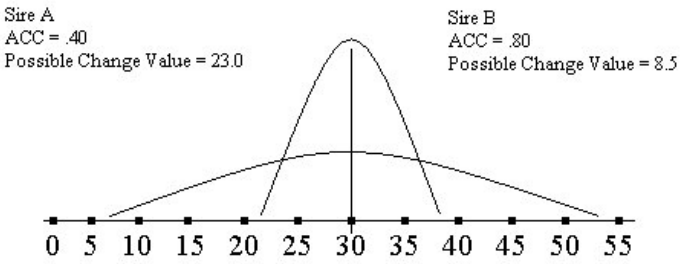


SELECTION ACCURACY

Selection accuracy is simple. The more accurate the information you know about an animal at joining, the less ground you lose from animals that look good but produce progeny that don't perform.

UNDERSTANDING EPD ACCURACY

Think of the accuracy of the EPD as the amount of possible change.
In the graph on the left, you can see the possible change for a higher and lower accuracy animal at different accuracy levels.

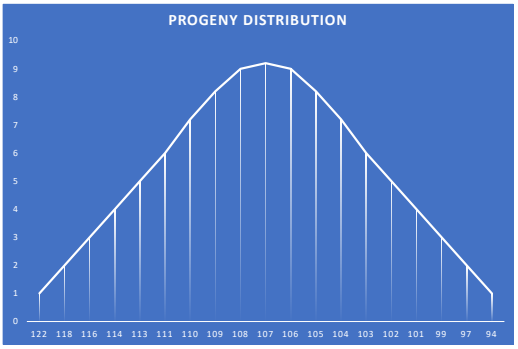


SELECTION INTENSITY

Selection intensity (or selection pressure) is about removing poor performers from your cow herd and introducing elite sires at joining time. The more elite the sires and the more accurately you can cull poor performers, the greater the selection pressure.

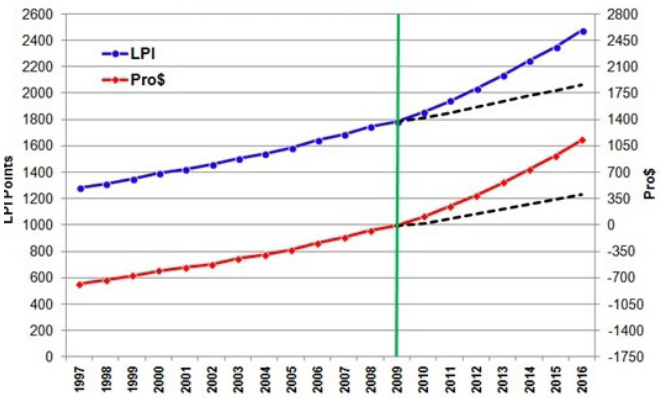
USING THE TOOLS

Breeders have a wealth of tools at their disposal to assist them to achieve high levels of genetic gain.
EPD's predict the most likely outcome for the performance of progeny as an average. It is important to remember that 50% of progeny will be below and 50% above, so poor bulls may still sire some good animals and good bulls may still sire some poor animals. The trick is to keep improving the average.



Genomics also provide an opportunity for increasing the selection accuracy and selection intensity in your program. The bottom graph depicts the effects on genetic gain in the dairy industry from the introduction of genomics.
Even progressive commercial breeders are now using genomic technologies to improve their accuracy of selection in younger nonparent animals.

Figure 1: Genetic Trend Realized for LPI and Pro$ in Canadian Holsteins Before and After Genomics



Artificial Insemination provides multiple benefits to beef breeders.
One of these is the ability to introduce elite sires at cost effective rates, which increases selection intensity and selection accuracy.