

The Life Jacket of Knowledge

Those involved in the agriculture industry may feel that they are “drowning in data”. Constant inundation by new agriculture programs, accounting and production information, bombardment with advertising and now exposure to email and the internet have left many of us overwhelmed. The term “analysis paralysis” is quite accurate in many cases, and it is often difficult to sort the wheat from the chaff, or even to know which field we should be harvesting.

Simmental breeders have collected a veritable ocean of data. From over 1,000,000 pedigree records, to several hundred thousand growth and calving ease records, and now a growing database of fertility and carcass data coming along, the data collected can be very valuable. The value of the data lies in its’ ability to be turned into information. If we are interested in creating knowledge about a specific area such as carcass merit, we must obtain data on that characteristic.

Collecting data represents the first step of creating knowledge, and converting data into information, represents the second. One of the services of the Canadian Simmental Association (CSA) that converts the data into information is the genetic evaluation. CSA has recently moved their genetic evaluation to Angus Genetic Incorporated (AGI). The evaluation uses data from the CSA database on pedigree/ancestry, performance, breed composition, age, management, and a variety of other factors to produce EPDs or Expected Progeny Differences. It is unlikely that even the most experienced breeder would be able to sort through several hundred thousand weaning weight records from herds across Canada and accurately determine which animals in the breed contains the genetics for the most rapid pre-weaning growth. This in essence is what the genetic evaluation does. The system sorts through the data and determines the relative genetic merit of animals for traits such as calving ease, birth weight, weaning weight, yearling weight (post-weaning gain), milk production, and carcass characteristics.

The EPD for an animal expresses the animal’s potential genetic merit (what it will pass on to its’ offspring) in relation to over 1,000,000 animals in the Canadian Simmental database. For this reason the EPD for a trait such as weaning weight may appear as +25 (Sire A) or + 50 (Sire B), rather than 625 or 650. If we look at two potential sires, the difference between their EPD represents the differences we would expect in their calf crop due to their genetic contribution. In the above example, we would expect an average of 25 pounds more weaning weight ($50 - 25 = 25$) from Sire B when used on the same group of cows. In a high input herd that may equate to 850 vs. 825 pounds, and in a low input herd it may be the difference between 475 and 450. The key is the difference in calf performance due to the genetics of the calf.

Producers carry an inherent understanding of the tradeoffs in their programs. For example, too much growth or milk production may result in reduced fertility or increased feed costs for the cow herd. Focusing on increasing calving ease may decrease weaning weights and reduce cash flow. This means that the right bull for one operation may be the wrong bull for the next door neighbour. Further enhancement to the creation of information includes work done on selection indexes. Selection index combines various EPD into a single value based on their relative contribution to profitability of the overall system.

True knowledge comes with the understanding and implementation of information. In the context of genetic improvement this means applying the EPD and other information as part of a selection process in the context of your own operation. Combining genetic information such as EPD and practical knowledge about traits such as structural integrity is a valuable way to make progress. It is this knowledge that provides flotation in the sea of data.

The CSA evaluation provides EPD for the traits of:

Trait	Abbrev.	Units	Larger	Smaller
Calving Ease	CE	% Unassisted	Easier calving	Harder calving
Birth Weight	BW	Lbs	Heavier	Lighter
Weaning Weight	WW	Lbs	Heavier	Lighter
Yearling Weight	YW	Lbs	Heavier	Lighter
* Maternal Calving Ease	MCE	% Unassisted	Easier calving (daughters)	Harder calving (daughters)
* Milk	Milk	Lbs	Heavier (due to daughter's milk)	Lighter (due to daughter's milk)
* Maternal Weaning Weight	MW	Lbs	Heavier (due to daughter's milk production and growth genetics)	Lighter (due to daughter's milk production and growth genetics)
Scrotal	SC	Cm	Larger scrotal	Smaller scrotal
Carcass Weight	CWT	Lbs	Heavier carcass	Lighter carcass
Rib-Eye Area	REA	In ²	Bigger rib-eye	Smaller rib-eye
Fat	Fat	In	More fat cover	Less fat cover
Marbling	Marb	Marbling Score Units	More marbling	Less marbling

* Maternal traits – these traits express the genetic differences that are expressed through retained females.

To encourage access to information and development of knowledge, the CSA provides search utilities on its' website. The site also contains information such as breed average EPD, and percentile ranks of EPD for individual animals, showing where they fit within the breed for various traits.

For basic information please visit: <http://www.simmental.com>

For individual animal and EPD searches go to: <http://search.simmental.com>