Charolais EPD

The Canadian Charolais Association makes a significant investment each year in genetic evaluation and the calculation of Expected Progeny Differences (EPD). On a semi-annual basis the entire pedigree, performance, carcass and ultrasound data is sent to AGI, where the genetic evaluation is conducted. The evaluation process compares animals that are raised in the same contemporary groups to determine genetic differences between animals and applies pedigree information to connect contemporary groups and predict genetic differences among animals that are passed onto their offspring. The EPD produced can be directly compared between Canadian Charolais animals and provide a tool that is up to 9 times more accurate for selection than the use of raw or adjusted weights, or within herd indexes.

EPD rank animals based on differences passed to progeny. A good way to think about EPD is to consider a situation where you use two sires (A and B) across the same group of cows in the same environment. The EPD expresses what do you expect the average difference in the calves from Sire A vs Sire B to be.

EPD are expressed in the unit of measure of the trait. For example, birth, weaning and yearling weight are expressed in pounds. Traits such as milk and total maternal weaning weight are expressed in pounds as well, but are related to the added pounds of weaning weight due to the influence of a sire's daughters. In other words, they are expressed in differences between grandprogeny, rather than progeny. Calving ease is presented as a standardized value where high numbers indicate easier calving (fewer assisted births).

Current Population Average

The current population consists of calves born in the last 2 years. It provides a base for comparison of the majority of the animals for sale into the commercial industry (yearling and two year old bulls).

	CE	BW	WW	YW	MILK	TM
Top 25%	87.7	0.3	47.0	89.2	23.4	45.2
Avg	**68.4**	**1.6**	**42.2**	**80.6**	**20.9**	**42.0**
Top 75%	53.6	3.0	37.4	71.7	18.5	38.8

Percentile Rank

The CCA website also provides information on percentile rank. This value is presented beneath the EPD and Accuracy and shows more precisely how the animal's EPD fits in comparison to the current population. For example a bull may have birth and weaning weight EPD that appear as...

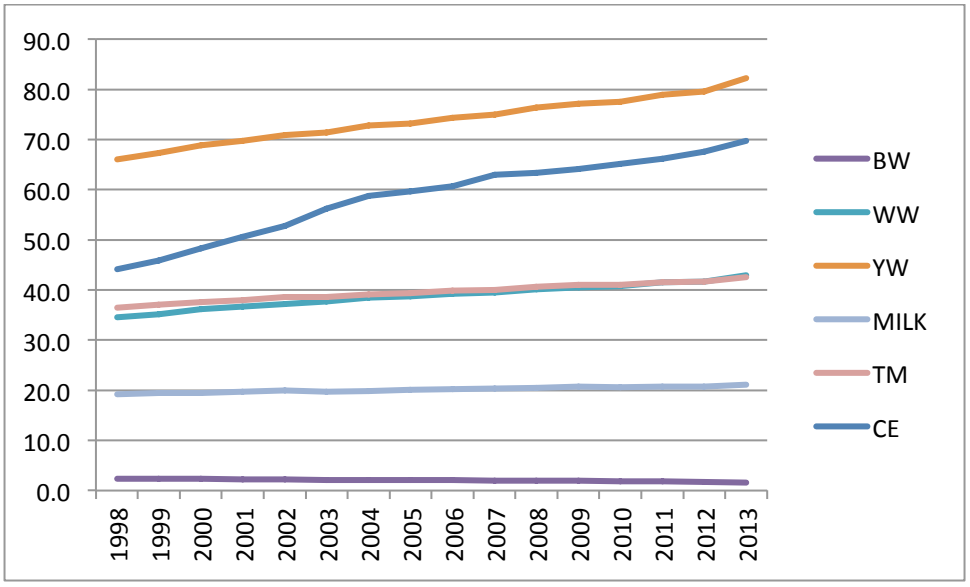
	BW	WW
EPD	0.3	46
Acc	0.35	0.23
Pct	25	30

This birth weight EPD indicates that calves from this sire would be 1.3 pounds lighter on average than a bull with a 1.6 (current average) birth weight EPD when used in the same situation (1.6 – 0.3 = 1.3). The accuracy (Acc) shows that the EPD has some potential to change if we add more progeny information and the percentile (Pct) number shows that the bull is in the top 25% (lightest birth weight) of the breed for birth weight. The value of 30 for WW Pct shows that the animal is in the heaviest 30% of the breed for weaning weight.

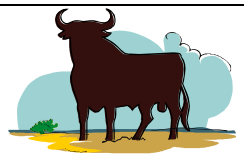
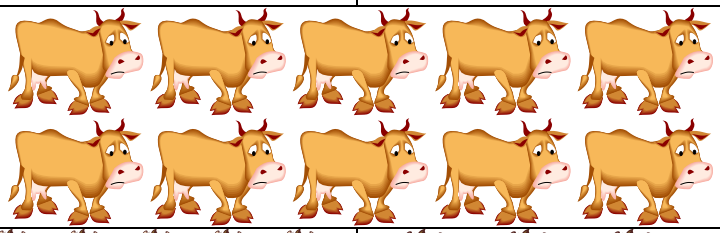
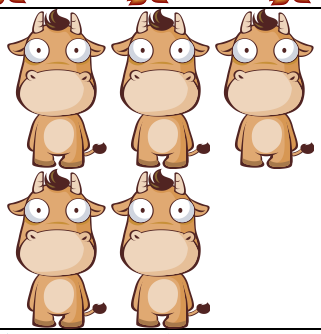
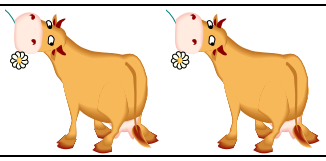
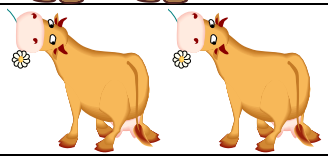
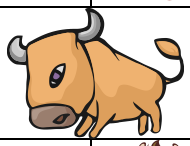
Most yearling and two year old bulls will have an accuracy value of somewhere between 15 and 40% for most traits if the data has been reported on them.

Genetic Trends

The genetic trend for Charolais shows the direction that members have selected for over the years. It is a map of where the breed has come from and where it may be headed. The graph shows members have stabilized and slightly reduced birthweight and improved calving ease while still increasing growth and milk.



It is important to note that a bigger EPD does not necessarily indicate that a sire or animal is superior. It merely indicates that progeny are expected to exhibit “more of” the trait being reported if all else is equal. Each increase in a trait may come with tradeoffs in other areas. For example, “more growth” may result in larger cows, “more milk” may result in harder doing cows, “more yield” may result in lower marbling. In breeding there are always tradeoffs, and EPD can help to more accurately fit seedstock into situations best suited to their individual merits. Each herd may have a different “optimal” point for the EPD they are selecting for and the role of a sire such as producing replacements or feeder cattle should be taken into account.

Sires	 **+5**	 **+25**	Two Sires with different EPD
Cows			Mated to the same cow herd
Calves			Produce calves with differences (BW, WW, YW, REA, Fat, Marb, CE)
Daughters			If we keep daughters from these bulls and mate them we will see differences in the calves due to the influence of the mother (Milk, MWWT)
Mated to Sire			
Daughters' Calves