

EPDs Made Easy

Anthony Carver
 Extension Agent
 Grainger County

EPDs are a tool, just like a hammer or a screwdriver. Tools are very helpful, but without the knowledge to use them, they become worthless. This publication will help teach the basics of reading/using EPDs.

EPD stands for Expected Progeny Differences. Expected Progeny Differences (EPDs) can indicate the genetic value of one specific animal compared to another specific animal of the same breed, regardless of the age or location of the herd. Each EPD is an **estimate** of the individual's genetic merit for producing **future progeny**. In country terms, **“It’s a best guess of what the calves will do.”** But it is very accurate because of the methods used and the information gathered to calculate the guess. EPDs are calculated using world-wide performance record information. Breeders report data continually to their breed’s database. This information is then plugged into a complex algebra formula. The answer is “the best guess”.

Some rules everyone needs to know:

1. One EPD by itself tells nothing. EPDs have to be compared to something else to give information. Example: Bull A’s EPDs can be compared to the breed average or to Bull B’s EPDs.
2. One can only compare two animals of the same breed at a time. In other words, the EPD values for a Hereford bull need to be compared to another Hereford bull. Do not compare the Hereford bull to an Angus or Limousin bull’s EPDs.
3. EPDs change all the time. As new information comes in, EPDs are updated to reflect the new values.
4. Breed Associations websites have millions of EPDs just a click away.
5. Don’t focus too heavily on only one trait when making genetic decisions for the herd. By only focusing on one trait other traits quickly get unbalanced.

Accuracy – How accurate are EPDs?

EPDs are accompanied by an accuracy value between zero and one which should be used as a measure of reliability. EPDs with low accuracy values are less reliable than those associated with accuracy values closer to one. Accuracy values increase as the amount of information known for a particular bull increases. The table below is a general guideline to understand the accuracy value on EPDs. Keep in mind, younger animals will have a lower accuracy than older animals due to the amount of information that has been gathered.

Is this bull right for my operation?



CED	BW	WW	YW	Milk
+2	+4.7	+61	+110	+35

Accuracy	Meaning	Risk Level
less than .40	very likely to change with more information	high
.40 to .60	some change likely, records on few progeny	moderate
.60 to .80	small change possible, records on numerous progeny	low
greater than .80	not likely to change much	very low

Production						Maternal					
CED Acc	BW Acc	WW Acc	YW Acc	YH Acc	SC Acc	CEM Acc	Milk Acc	MkH MkD	MW Acc	MH Acc	\$EN
+2	+4.7	+61	+110	+4	-.27	+5	+35	10	+115	+9	-16.77
.57	.49	.47	.39	.65	.63	.48	.31	50	.55	.58	

Carcass					Ultrasound			
Cwt Acc	Mrb Acc	RE Acc	Fat Acc	Grp Prog	%IMF Acc	RE Acc	Fat Acc	Grp Prog
I +19	I +.25	I +.39	I +.011		+.64	+.92	+.024	45
.05	.05	.05	.05		.78	.78	.78	155

The above chart is a general example of what EPDs look like. This section will refer back to this chart several times.

Most producers look at production and milk information. First, look under the production section of the chart. The four most looked at EPDs in this section are CED (Calving Ease Direct), BW (Birth Weight), WW (Weaning Weight), and YW (Yearling Weight). The first number in a section is the EPD for that particular trait. The second number (under the first) is the accuracy level of that EPD. For example, The BW (birth weight) EPD is 4.7 and the accuracy of that EPD is .49.

CED and BW should be looked at when one is concerned with the size of calf or the animals that are being bred. Most beef producers don't like to pull calves. So they will breed heifers to a calving ease bull. Without getting into lots of details the higher the CED the better, and the lower the BW the better. Example: Let's say the above EPD is for an Angus bull and we compare it to the breed average for today. The average for the breed is 5 for CED and 1.8 for BW. Then the above bull should not be looked at for first time heifers, because his EPDs show he is above average in both CED and BW. The producer could have calving problems.

If a producer wants calf growth information then they would look at the WW and the YW EPDs. These EPDs tell what a calf's potential is at weaning and yearling weigh. The higher the number is for WW the more weight a calf should have at weaning time. And the same is true for YW section. Example: Again let's say the above is an Angus bull, and the average for the breed is 46 for WW and 83 for YW. Then the bull is above average for growth. His calves will be fast growers and be heavier at yearling weights, then the average Angus bull.

Producers talk about the mothering abilities of a cow or her calf. Basically, they are referring to her making milk for her offspring. Yes EPDs can even predict how good a heifer calf will be to produce milk. Under the maternal section of the above chart, Milk can be found. Example: Again let's say this is a Angus bull the average for the breed is 22 for Milk. Then we compare the above EPDs and find that the above bull will produce females that are 13 points above breed average for mothering abilities. His calves would make good momma cows for replacements.

In summary, EPDs are just a tool. They help producers understand: how to best use a bull, how good a mother cow will perform, and what potential calves have from EPD sires and dams. Tools are meant to be used to get the job done faster and easier. Knowing how to use the tools is key to any job. With a little practice, using EPDs will become second nature.

Definitions:

Expected Progeny Difference (EPD) , is the prediction of how future progeny of each animal are expected to perform relative to the progeny of other animals listed in the database. EPDs are expressed in units of measure for the trait, plus or minus.

Accuracy (ACC), is the reliability that can be placed on the EPD. Accuracy closer to 1.0 indicates higher reliability. Accuracy is impacted by the number of progeny and ancestral records included in the analysis.

Calving Ease Direct (CED), is expressed as a difference in percentage of unassisted births, with a higher value indicating greater calving ease in first-calf heifers. It predicts the average difference in ease with which a sire's calves will be born when he is bred to first-calf heifers.

Birth Weight EPD (BW), expressed in pounds, is a predictor of a sire's ability to transmit birth weight to his progeny compared to that of other sires.

Weaning Weight EPD (WW), expressed in pounds, is a predictor of a sire's ability to transmit weaning growth to his progeny compared to that of other sires.

Yearling Weight EPD (YW), expressed in pounds, is a predictor of a sire's ability to transmit yearling growth to his progeny compared to that of other sires.

Maternal Milk EPD (Milk), is a predictor of a sire's genetic merit for milk and mothering ability as expressed in his daughters compared to daughters of other sires. In other words, it is that part of a calf's weaning weight attributed to milk and mothering ability.

Sire is father of calf.

Dam is mother of calf.