



# By the Numbers

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## Using across-breed EPDs

*It is well-documented that expected progeny differences (EPDs) are the best tools to make genetic progress, but comparing EPDs directly from different breeds is not possible without a little help. That help comes from our friends at the U.S. Meat Animal Research Center (USMARC) near Clay Center, Neb., who each year at the Beef Improvement Federation (BIF) meeting release the annual across-breed EPD (AB-EPD) table.*

### Putting on the same base

These adjustment factors (see Table 1) are available for 18 of the most common U.S. beef breeds. They are calculated by using EPDs from the most recent national cattle evaluations of the included breeds and then calculating “adjustments” using progeny of each of the represented breeds born as part

of the Germplasm Evaluation Program at USMARC.

AB-EPDs are useful for a couple of reasons.

1. They can be used to directly compare bulls of different breeds for selection or mating purposes.
2. They can help cattlemen grasp how average cattle in one breed compare to

the average in another breed.

The AB adjustment table allows breeders to directly compare EPDs for animals of different breeds by adding an adjustment factor to the non-Angus animals (essentially converting all other animals to an Angus base). To illustrate the utility of the tool, let’s work through an example.

Let’s assume you are considering a Hereford bull and an Angus bull. Both have a birth weight (BW) EPD of 1.6 in the sire summary or online lookup from their respective association. As mentioned above, those within-breed EPDs cannot be directly compared. To compare the bulls on a level playing field, AB-EPDs must be computed

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**Table 1: Adjustment factors to add to expected progeny differences of 18 different breeds to estimate across-breed EPDs (AB-EPDs)**

Breed	BW	WW	YW	Milk	Marb <sup>a</sup>	RE	Fat	CW
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0
Hereford	2.7	-4.4	-26.6	-17.8	-0.32	-0.10	-0.053	
Red Angus	3.4	-25.7	-30.9	2.4	-0.32	0.03	-0.023	-6.2
Shorthorn	5.1	-30.7	-12.3	4.6	-0.24	0.31	-0.107	-11.6
South Devon	3.6	-8.0	-25.9	2.4	-0.09	0.21	-0.129	-22.3
Beefmaster	5.7	36.1	32.3	11.9				
Brahman	10.9	47.5	9.2	23.6	-0.83	-0.11	-0.146	-28.5
Brangus	3.9	13.9	5.1	4.6				-12.5
Santa Gertrudis	6.9	41.4	42.2	14.2	-0.62	-0.06	-0.097	-5.4
Braunvieh	2.5	-22.1	-49.3	-0.4				-44.9
Charolais	8.6	39.6	40.8	7.3	-0.39	0.98	-0.207	5.4
Chiangus	3.5	-26.9	-38.8	0.2	-0.40	0.34	-0.114	-20.9
Gelbvieh	2.7	-21.5	-30.4	1.6	-0.33	0.65	-0.117	-22.6
Limousin	3.0	-17.0	-42.0	-8.8	-0.60	0.98		-13.4
Maine Anjou	5.0	-24.5	-35.0	-3.6	-0.60	0.78	-0.192	-23.6
Salers	2.2	-4.1	-26.3	4.9	-0.14	0.85	-0.203	-29.7
Simmental	3.6	-4.8	-9.5	3.6	-0.38	0.43	-0.137	3.8
Tarentaise	3.1	28.3	9.6	23.4				

<sup>a</sup>Marbling score units: 4.00 = S1<sup>00</sup>; 5.00 = S<sup>m00</sup>.

Source: 2015 BIF Proceedings, Biloxi, Miss.; [www.bifconference.com](http://www.bifconference.com)

**Table 2: Comparison of popular breeds for weaning weight**

Breed	Avg. WW EPD	AB-ADJ	AB-EPD	Angus rank
Hereford	48	-4.4	43.6	70%
Charolais	26.9	39.6	66.5	5%
Simmental	63.2	-4.8	58.4	20-25%
Red Angus	57	-25.7	31.3	>90%
Angus	50	0	50	50%

**Table 3: Comparison of popular breeds for birth weight**

Breed	Avg. BW EPD	AB-ADJ	AB-EPD	Angus rank
Hereford	3.3	2.7	6.0	>90%
Charolais	0.7	8.6	9.3	>95%
Simmental	1.9	3.6	5.5	>90%
Red Angus	-1.5	3.4	1.9	55%
Angus	1.7	0	1.7	50%

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first. You'll notice that the AB-EPD table directs us to add 2.7 to Hereford BW EPDs to convert them to an Angus base.

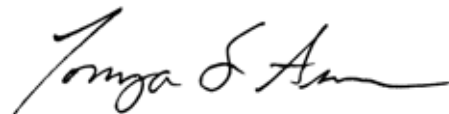
So, to compare them directly, add the 2.7 adjustment factor to the 1.6 Hereford BW EPD to establish his BW AB-EPD of 4.3, which is directly comparable to the Angus bull's 1.6 AB-EPD ( $1.6 + 0.0 = 1.6$ ). As BW EPD is expressed in pounds, if mated to the same set of cows, the AB-EPDs predict the Charolais bull would sire calves averaging 2.7 lb. heavier at birth ( $4.3 - 1.6 = 2.7$ ).

Tables 2 and 3 show how several of the most popular breeds compare to Angus for BW and weaning weight (WW) EPDs. Shown in the table are the average EPD as reported by each breed, the AB adjustment factor, AB-EPD and where that AB-EPD would rank in the Angus breed.

It's interesting to note that a breed like Charolais, a Continental breed, performs about as we would expect based on classic definitions of Continental European breeds. They excel in growth, but they may

present challenges from a heifer calving ease standpoint.

However, a breed like Red Angus, which many assume is just a different-colored black Angus, actually performs quite differently, with their "average" WW EPD putting them in the bottom 10% of the Angus breed.



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