

## 2026 ACROSS-BREED EPD TABLE AND IMPROVEMENTS

Larry Kuehn, Bailey Engle, and Warren Snelling

**Across-Breed EPD (ABEPD) Adjustment Factors:** National Cattle Evaluation (NCE), and the resulting Expected Progeny Differences (EPDs), have resulted in substantial genetic change since their inception in the 1970s. However, EPDs are generally only comparable within breed because of differences in the genetic base. Since 1993, the U.S. Meat Animal Research Center (USMARC) has produced a table of factors to adjust the EPDs of cattle so that the merit of individuals can be compared across breeds. Adjustment factors for carcass traits have been calculated since 2009 and carcass weight was added in 2015; to be included, breeds must have carcass data in the U.S. Meat Animal Research Center (USMARC) database and report their carcass EPDs on an actual carcass basis using an age-adjusted endpoint.

Bulls of different breeds can be compared on the same EPD scale by adding the appropriate adjustment factor to the EPDs produced in the most recent genetic evaluations for each of the eighteen breeds. Normally, the EPDs of animals from different breeds cannot be compared because many breed associations compute their EPDs in separate analyses and each breed has a different base point. The across-breed adjustment factors allow producers to compare the EPDs for animals from different breeds for these traits; these factors reflect both the current breed difference (for animals born in 2024) and differences in the breed base point. The AB-EPDs are most useful to commercial producers purchasing bulls of more than one breed to use in cross-breeding programs. For example, in terminal cross-breeding systems, AB-EPDs can identify bulls in different breeds with similar growth potential or favorable carcass characteristics.

The factors are derived by estimating breed differences from the USMARC germplasm evaluation program and adjusting these differences for the EPDs of the sires that were sampled in the system. Traits for which factors are estimated are birth weight, weaning weight, yearling weight, maternal weaning weight (milk), marbling score, ribeye area, backfat depth (fat), and carcass weight (Table 1). The factors adjust the EPDs to an Angus base (chosen arbitrarily).

As an example, suppose a Red Angus bull has a carcass weight EPD of + 20.0 lb and a Hereford bull has a carcass weight EPD of + 72.0 lb. The across-breed adjustment factors for carcass weight (see Table 1) are -3.8 lb for Red Angus and -68.2 lb for Hereford. The AB-EPD

is  $20.0 \text{ lb} - 3.8 \text{ lb} = 16.2 \text{ lb}$  for the Red Angus bull and  $72.0 \text{ lb} - 68.2 = 3.8 \text{ lb}$  for the Hereford bull. The expected carcass weight difference of offspring when both are mated to cows of another breed (e.g., Braunvieh) would be  $16.2 \text{ lb} - 3.8 \text{ lb} = 12.4 \text{ lb}$ .

Brahman EPDs for marbling score are reported on a different scale than the other breeds with marbling score EPDs. For Brahman  $300 = SI^{00}$  and  $400 = Sm^{00}$  whereas for the other breeds,  $4.00 = SI^{00}$  and  $5.00 = Sm^{00}$  meaning the Brahman EPDs are reported on a scale that is 100 times larger in magnitude in addition to a base shift. As a result, EPDs from other breeds need to be multiplied by 100 after being adjusted to Brahman, and Brahman EPDs need to be divided by 100 prior to applying the adjustment factors. For instance, to adjust a Simmental bull with a marbling score EPD of 0.15 to compare to Brahman bulls using the factors from Table 1, add the Simmental factor, subtract the Brahman factor, and then multiply by 100:  $( 0.15 + ( -0.15 ) - ( -0.67 ) ) * 100 = 67$ . Similarly, to adjust a Brahman bull with a marbling score EPD of 40 to compare to Simmental bulls using the same factors, first divide by 100, then add the Brahman factor, and subtract the Simmental factor:  $40 / 100 + ( -0.67 ) - ( -0.15 ) = -0.12$ .

Please note that as of 2024, yearling weight EPD adjustment factors are derived using a BIF adjusted postweaning gain and weaning weight as separate traits which is consistent with most national cattle evaluations. Thus, these factors directly relate to EPDs from national cattle evaluations.

It is important to note that the table factors (Table 1) do not represent a direct comparison among the different breeds because of base differences between the breeds. They should only be used to compare the EPDs (AB-EPDs) of animals in different breeds. To reduce confusion, breed of sire means (i.e., one half of full breed effect; breed of sire means predict differences when bulls from two different breeds are mated to cows of a third, unrelated breed) for animals born in 2024 under conditions similar to USMARC are presented in Table 2.

The adjustment factors in Table 1 were updated using EPDs from the most recent national cattle evaluations conducted by each of the eighteen breed associations (current as of January 2026). The breed differences used to calculate the factors are based on comparisons of progeny of sires from each of these breeds in the Germplasm Evaluation Program at USMARC in Clay Center, Nebraska. These analyses were conducted by USMARC geneticists Larry Kuehn (email: [Larry.Kuehn@usda.gov](mailto:Larry.Kuehn@usda.gov); ph: 402-762-4352), Bailey Engle (email:

[Bailey.Engle@usda.gov](mailto:Bailey.Engle@usda.gov); ph: 402-762-4261), and Warren Snelling (email: Warren.Snelling@usda.gov).

\*Mention of trade names or commercial products in this publication is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the USDA. The USDA is an equal opportunity employer

**TABLE 1: JANUARY 2026 ADJUSTMENT FACTORS TO ADD TO EPDs OF EIGHTEEN  
DIFFERENT BREEDS TO ESTIMATE ACROSS BREED EPDs**

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score <sup>a</sup>	Ribeye Area (in <sup>2</sup> )	Fat (in)	Carcass Wt.(lb)
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0
Hereford	0.8	-14.3	-24.0	-12.8	-0.25	0.01	-0.068	-68.2
Red Angus	2.3	-19.4	-21.2	0.8	-0.04	0.32	-0.029	-3.8
Shorthorn	4.0	-21.9	-20.1	0.2	-0.03	0.29	-0.027	-7.3
South Devon	2.9	-27.9	-44.2	4.5	-0.09	0.27	-0.036	-20.7
Beefmaster	3.1	25.7	20.2	6.8				
Brahman	8.6	54.9	19.7	13.2	-0.67	0.08	-0.141	-37.4
Brangus	3.1	28.9	24.3	12.6				
Santa Gertrudis	4.5	39.8	45.2	20.8	-0.38	0.20	-0.077	1.1
Braunvieh	1.6	-16.0	-30.6	18.2	-0.03	0.49	-0.041	-16.9
Charolais	7.3	6.0	-13.0	-1.8	-0.27	0.76	-0.179	10.2
Chiangus	3.0	-14.6	-22.3	-1.8	-0.48	0.48	-0.116	-27.7
Gelbvieh	2.9	-8.6	-15.9	6.0	-0.44	0.62	-0.088	-17.5
Limousin	1.7	-3.9	-14.6	-8.9	-0.22	0.62	-0.062	-11.5
Maine-Anjou	1.6	-27.2	-34.5	-6.4	-0.45	0.85	-0.146	-35.8
Salers	2.3	-9.4	-14.7	3.8	-0.15	0.45	-0.064	-21.2
Simmental	2.2	-10.9	-16.8	0.0	-0.08	0.43	-0.051	-4.0
Tarentaise	1.9	26.6	13.8	15.1				

<sup>a</sup>Marbling score units: 4.00 = S1<sup>00</sup>; 5.00 = S<sub>m</sub><sup>00</sup>. Note that Brahman EPDs for marbling are reported on a scale where 300 = S1<sup>00</sup> and 400 = S<sub>m</sub><sup>00</sup>. When converting sires from other breeds to a Brahman basis, the adjusted EPD should be multiplied by 100. Likewise, when Brahman EPDs are adjusted to other breeds, the EPD should be divided by 100 before adding the adjustment factor.

**TABLE 2: BREED OF SIRE MEANS FOR 2024**  
**BORN ANIMALS**  
**UNDER CONDITIONS SIMILAR TO USMARC**

Breed	Birth Wt. (lb)	Weaning Wt. (lb)	Yearling Wt. (lb)	Maternal Milk (lb)	Marbling Score <sup>a</sup>	Ribeye Area (in <sup>2</sup> )	Fat (in)	Carcass Wt.(lb)
Angus	84.9	544.9	987.0	520.4	6.33	13.79	0.672	927.4
Hereford	87.0	517.2	930.3	508.6	5.38	13.53	0.605	874.1
Red Angus	84.2	522.5	949.0	521.2	5.91	13.49	0.632	888.5
Shorthorn	89.0	498.9	908.9	516.6	5.40	13.68	0.544	867.1
South Devon	87.4	506.6	908.0	514.3	5.35	13.72	0.513	846.3
Beefmaster	87.1	528.9	923.3	510.3				
Brahman	94.2	547.8	916.7	513.6	4.83	13.40	0.510	849.9
Brangus	86.7	528.6	934.4	513.9				
Santa Gertrudis	88.1	525.9	923.7	515.1	5.17	13.30	0.573	870.3
Braunvieh	87.1	509.9	902.4	528.5	5.51	14.17	0.499	848.5
Charolais	89.7	544.7	966.7	517.6	5.35	14.55	0.486	906.2
Chiangus	88.6	512.3	919.7	508.6	5.31	13.98	0.515	871.7
Gelbvieh	86.3	539.3	960.1	523.4	5.37	14.19	0.543	888.9
Limousin	86.5	538.9	955.4	510.5	5.33	14.44	0.548	893.9
Maine-Anjou	86.6	488.5	884.2	507.6	5.16	14.22	0.477	848.1
Salers	86.2	519.8	924.1	515.9	5.21	14.18	0.502	860.1
Simmental	87.2	543.1	965.2	517.5	5.59	14.35	0.530	899.0
Tarentaise	86.1	517.3	904.3	509.5				

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