

Department of Animal Science

2014 ACROSS-BREED EPD ADJUSTMENTS

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Most beef breed associations publish EPDs either on an annual, biannual or weekly basis. These EPDs are used to predict expected differences in performance of future progeny between two or more bulls within their same breed for performance traits. These traits include a number of economically important traits such as birth, weaning and yearling weights along with maternal milk and a number of carcass traits. The EPDs of a breed are normally not compared with those of another breed as they are calculated from data within their own breed and most likely have a different base point than another breed.

In order to compare individuals across breeds, adjustments are needed for the within-breed EPDs. Computation of the adjustment factors requires direct comparison of the progeny of sires of those breeds when all sires are mated to dams with the same breed composition. Those comparisons are only available from the Germplasm Evaluation Program at the U.S. Meat Animal Research Center (USMARC) in Clay Center, Nebraska. Across-breed adjustments for growth traits and maternal milk have been calculated on an annual basis at USMARC since 1993. Adjustment factors for carcass traits have been calculated since 2009. In order for a breed to be included in carcass adjustment factors, the breed must have carcass data in the USMARC database and report their 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 18 breeds. The adjustment factors listed in Table 1 are the most recent and should only be used with EPDs current as of June 2014 because of potential changes in EPD calculations from year to year. It is important to realize that the table does not represent a direct comparison among the different breeds because of the different base points used between the breeds.

Across-breed EPDs (AB-EPDs) are used to compare EPDs of animals of different breeds on the same scale. Across-breed EPDs are most useful to commercial producers purchasing bulls of two or more breeds for use in a systematic crossbreeding program. They can be used by commercial producers as a tool to optimize performance levels in commercial herds that implement crossbreeding systems to exploit heterosis and match genetic potential to environment, feed resources, climate and market targets. Uniformity of across-breed EPDs should be emphasized in the selection of bulls for use in rotational crossbreeding systems to improve the uniformity of calves produced in successive generations of the rotation. Accuracy of across-breed EPD (AB-EPD) depends

primarily upon the accuracy of the within-breed EPD of individual bulls being compared.

As an example, in comparing a Simmental bull that has a Birth Weight EPD of +1.0 and an Angus bull with a Birth Weight of +3.1, you would add the appropriate breed adjustment factor to each bull's actual Birth Weight EPD and then compare them. The Angus Across Breed EPD (AB-EPD) would be 3.1 (3.1 + 0.0), and the Simmental's AB-EPD would be 4.4 (1.0 + 3.4). The expected difference in birth weight when both are mated to cows of a different breed would be 1.3 pounds (4.4 - 3.1 = 1.3).

Another example might be comparing a Hereford bull with a Weaning Weight EPD of +56 to a Gelbvieh bull with a Weaning Weight EPD of +70. You would add the appropriate adjustment factor to each bull's actual EPD and then compare them. The Hereford AB-EPD would be 51.8 (56 + - 4.2), and the Gelbvieh AB-EPD would be 50.6 (70 + -19.4). The expected difference in weaning weight when both are mated to cows of a different breed would be 1.2 pounds.

TABLE 1: ADJUSTMENT FACTORS TO ADD TO EPDs OF 18 DIFFERENT BREEDS TO ESTIMATE ACROSS BREED EPDs

Breed	Birth Wt.	Weaning Wt.	Yearling Wt.	Maternal Milk	Marbling Score ^a	Ribeye Area	Fat Thickness
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000
Hereford	2.7	-4.2	-23.6	-17.7	-0.31	-0.08	-0.051
Red Angus	4.1	-22.1	-29.9	1.5	-0.34	-0.02	-0.027
Shorthorn	6.2	9.9	27.8	21.7	-0.19	0.23	-0.135
South Devon	3.3	-5.2	-24.4	1.3	-0.11	0.23	-0.135
Beefmaster	6.4	37.2	33.3	6.4			
Brahman	11.0	44.8	10.0	23.9	-0.85	-0.08	-0.150
Brangus	4.4	15.4	5.2	2.1			
Santa Gertrudis	7.0	40.6	43.5	13.0	-0.67	-0.09	-0.103
Braunieh	2.3	-23.4	-47.7	1.9			
Charolais	8.8	37.9	40.9	6.7	-0.43	1.04	-0.213
Chiangus	2.2	-19.5	-45.6	1.0	-0.43	0.46	-0.145
Gelbvieh	3.4	-19.4	-24.9	3.2	-0.35	0.67	-0.131
Limousin	3.8	-0.8	-38.7	-7.0	-0.71	1.08	
Maine-Anjou	4.9	-19.0	-41.5	-7.1	-0.72	0.93	-0.149
Salers	2.2	-5.1	-24.6	3.6	-0.10	0.82	-0.206
Simmental	3.4	-6.4	-13.6	0.5	-0.41	0.46	-0.149
Tarentaise	1.9	30.7	10.3	25.1			

^aMarbling score units: 4.00=SI⁰⁰; 5.00=Sm⁰⁰

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