2009 ACROSS-BREED EPD TABLE

The table of adjustment factors to be used to estimate across-breed expected progeny differences (AB-EPDs) for eighteen breeds was presented at the Beef Improvement Federation Annual Meeting in Sacramento, CA on May 2 (see attached Table 1). Across-breed adjustment factors have been calculated for growth traits and maternal milk since 1993. Adjustment factors for carcass traits have been calculated since 2008; 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. 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-breed systems, AB-EPDs can be used to identify bulls in different breeds with high growth potential or favorable carcass characteristics.

As an example, suppose a Gelbvieh bull has a weaning weight EPD of + 42.0 lb and a Simmental bull has a weaning weight EPD of + 24.0 lb. The across-breed adjustment factors for weaning weight (see Table 1) are 1.7 lb for Gelbvieh and 25.0 lb for Simmental. The AB-EPD is 42.0 lb + 1.7 lb = 43.7 lb for the Gelbvieh bull and 24.0 lb + 25.0 lb = 49.0 lb for the Simmental bull. The expected weaning weight difference when both are mated to cows of another breed (e.g., Angus) would be 43.7 lb – 49.0 lb = -5.3 lb.

Most breed associations publish EPDs on an annual basis. These EPDs predict differences expected in performance of future progeny of two or more bulls within the same breed for traits including birth weight, weaning weight, yearling weight, and maternal milking ability (as reflected in progeny weaning weights). Normally, the EPDs of bulls from different breeds cannot be compared because most 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 2007) and differences in the breed base point. They should only be used with EPDs current as of July 2009 because of potential changes in EPD calculations from year-to-year.

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., when sires from two different breeds are mated to cows of

a third, unrelated breed) between 2007 born animals under conditions at 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 May 2009). 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@ars.usda.gov; ph: 402-762-4352) and Mark Thallman (email: Mark.Thallman@ars.usda.gov; ph 402-762-4261).

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

Breed	Birth Wt.	Weaning Wt.	Yearling Wt.	Maternal Milk	Marbling Score	Ribeye Area	Fat Thickness
Angus	0.0	0.0	0.0	0.0	0.00	0.00	0.000
Hereford	2.9	-2.8	-16.1	-17.5	-0.36	-0.24	-0.057
Red Angus	2.9	-5.4	-4.4	-3.0	-0.01	-0.21	-0.045
Shorthorn	6.1	19.9	52.8	23.1	0.06	0.12	-0.133
South Devon	4.5	6.9	-1.4	-6.5	-0.32	0.39	-0.131
Beefmaster	7.7	44.2	44.0	2.6			
Brahman	11.2	36.3	2.2	29.0			
Brangus	4.7	21.9	19.9	2.4			
Santa Gertrudis	8.1	17.1					
Braunvieh	7.5	21.4	12.8	30.6	-0.26	0.78	-0.149
Charolais	9.7	38.2	51.9	5.6	-0.50	0.63	-0.244
Chiangus	4.1	-19.6					
Gelbvieh	4.5	1.7	-12.6	9.9			
Limousin	4.2	-3.4	-28.6	-14.2	-0.80	0.93	
Maine-Anjou	5.5	-10.7	-22.8	-0.8	-0.92	1.07	-0.197
Salers	3.4	22.7	52.3	13.1	-0.11	0.78	-0.224
Simmental	5.5	25.0	22.4	13.7	-0.60	0.92	-0.193
Tarentaise	2.5	29.7	17.9	22.2			

TABLE 2: BREED OF SIRE MEANS FOR 2007 BORN ANIMALS UNDER CONDITIONS SIMILAR TO USMARC

Breed	Birth Wt.	Weaning Wt.	Yearling Wt.	Maternal Milk	Marbling Score	Ribeye Area	Fat Thickness
Angus	84.7	525.6	907.8	516.7	5.84	12.14	0.549
Hereford	88.9	520.3	879.7	494.6	5.21	11.92	0.483
Red Angus	85.7	507.9	878.3	509.2	5.58	11.83	0.492
Shorthorn	90.8	516.3	904.0	521.8	5.59	12.10	0.405
South Devon	89.6	528.7	901.8	511.0	5.47	12.49	0.417
Beefmaster	90.7	533.7	884.3	500.8			
Brahman	95.5	532.0	852.1	531.0			
Brangus	87.8	525.9	887.8	505.8			
Santa Gertrudis	91.1	503.3					
Braunvieh	89.8	504.4	842.1	527.0	5.28	12.79	0.386
Charolais	92.8	543.6	920.9	508.2	5.06	12.79	0.295
Chiangus	87.8	506.7					
Gelbvieh	88.3	524.8	889.2	524.1			
Limousin	88.4	521.3	878.3	503.3	4.73	13.33	
Maine-Anjou	89.9	511.5	884.1	515.4	4.83	13.22	0.341
Salers	86.8	522.6	909.6	517.7	5.42	12.79	0.314
Simmental	89.3	539.5	907.7	514.0	5.07	12.99	0.355
Tarentaise	86.5	515.8	856.7	519.3			