



# Calculating Across-Breed EPDs

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Expected Progeny Differences (or EPDs) are an invaluable source of information about the value of any animal as a parent. Currently, most breed associations run separate genetic evaluations and therefore, EPDs are not directly comparable across breeds. There are some exceptions to this rule. Red Angus and Simmental switched to using the same genetic base for their EPD predictions in 2012, so EPDs from their most current evaluation will be directly comparable to each other, but not to other breeds.

However, a tool exists today which allows us to calculate an Across Breed EPD (AB-EPD). These conversion factors are based upon ongoing comparative breed research at the Meat Animal Research Center in Clay Center, NE, and allow the conversion of EPDs to a common base. This allows the comparison of EPDs across breeds. AB-EPD's are very useful to commercial producers purchasing bulls of more than one breed to use in crossbreeding programs. Using bulls from different breeds with comparable AB-EPDs will help create uniformity in the calf crop. It also becomes a valuable tool for anyone wanting to switch breeds entirely and still be able to make selection decisions based on previous experience with EPDs. The accuracy of the EPD will be similar to the original accuracy, but with a small amount of additional error associated with the estimation of the conversion factors.

**Table 1. Consider the following two animals as prospective herd sires (using 2013 adjustment factors).**

	<i>Within-Breed EPDs</i>			
	<i>BW</i>	<i>WW</i>	<i>YW</i>	<i>MA</i>
<b>Gelbvieh</b>	<b>0.6</b>	<b>38</b>	<b>78</b>	<b>32</b>
Accuracy	0.91	.86	.74	.69
<b>Brangus</b>	<b>-6.8</b>	<b>11</b>	<b>29</b>	<b>17</b>
Accuracy	0.75	.64	.63	.26

Comparing these two bulls directly is invalid. Instead, these EPDs must be converted to an across-breed EPD to compare them directly. This can be done two different ways. Option 1 is to download the current across-breed EPD factors published by the US Meat Animal Research Center (located at <http://beefimprovement.org/proceedings.html> (click on Across Breed EPD Release) and follow the directions listed.

The second is to use the Across-Breed EPD Calculator on the OSU beef extension website (<http://www.beefextension.com/genetics/>), under the tools and fact sheets tab).

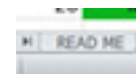
Continuing the example above, we can now convert these bulls' EPDs manually and compare them directly using either of the two methods above. Using the conversion factors directly, take the within-breed EPD (bolded in Table 2 below) and simply add the conversion factor to generate the across-breed EPD (shown in italics).

**Table 2. Conversion of Gelbvieh and Brangus EPDs to an Angus base.**

	<i>EPDs</i>			
	<i>BW</i>	<i>WW</i>	<i>YW</i>	<i>MA</i>
<b>Gelbvieh</b>	<b>0.6</b>	<b>38</b>	<b>78</b>	<b>32</b>
Adjustment Factor	2.7	-18.2	-25.6	3.6
<i>Across-breed EPD</i>	<i>3.3</i>	<i>19.8</i>	<i>52.4</i>	<i>35.6</i>
<b>Brangus</b>	<b>-6.8</b>	<b>11</b>	<b>29</b>	<b>17</b>
Adjustment Factor	4.5	14.6	6.0	5.8
<i>Across-breed EPD</i>	<i>-2.3</i>	<i>25.6</i>	<i>35</i>	<i>22.8</i>

All EPDs are converted to an Angus base, and can now be directly compared. Notice that the differences between these two bulls for weaning weight and yearling weight narrowed dramatically after the conversion. These conversion factors can often result in a complete re-ranking of bulls between breeds for a variety of traits and should always be used when comparing EPDs from animals of different breeds.

If you do not wish to do the conversions yourself, use the across-breed EPD calculator located on the OSU beef Extension website. It allows up to 20 AB-EPD conversions at one time. Follow the link above, or go to [www.beefextension.com](http://www.beefextension.com), click on cow/calf under management info, click on genetics, and click on tools and fact sheets. The calculator will be located under this tab and can be downloaded by clicking on the link. Detailed directions for using the calculator are located in the first worksheet tab called READ ME (see below).



**To summarize:** Click on the data input tab and enter the bull's EPDs that you wish to compare within the blue spaces.

D	E	F	G	H	I	J
Animal	Name	Breed	Birth Weight	Weaning Weight	Yearling Weight	Maternal Milk
1.			0.6	38	78	32
2.			-6.8	11	29	17
3.						

After the EPDs have been entered, select the correct breed from the drop-down menu.

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Available Breeds:	Data Input	Animal	Name	Breed	Birth Weight	Weaning Weight	Yearling Weight	Maternal Milk	Marbling Score	Ribeye Area	Fat Thickness	
2	Angus		1	Ted	Gelbvieh	0.6	38	78	32				
3	Hereford		2	Bob	Brangus	-6.8	11	29	17				
4	Red Angus		3.										
5	Shorthorn		4.										
6	South Devon		5.										
7	BeefMaster		6.										
8	Brahman		7.										
9	Brangus		8.										
10	Santa Gertrudis		9.										
11	Braunvieh		10.										
12	Charolais		11.										
13	Chiangus		12.										
14	Gelbvieh		13.										
15	Limousin		14.										
16	Maine-Anjou		15.										
17	Saler		16.										
18	Simmental		17.										
19	Tarentaise		18.										
20			19.										
21			20.										
22													
23													
24													
25													
26													
27													

You may also wish to add a name (column D) to help keep track of each animal. Notice not all of the EPDs that exist for a breed are listed in this spreadsheet. This is because conversion factors have not been generated for some traits, so those EPDs have not been included. Do not copy and paste within this spreadsheet, or the formulas may be corrupted. Results will be displayed in the results tab within the green boxes. Notice the values in the calculator match those from our manual conversion. You may wish to consider rounding the weaning weight and yearling weight EPDs off to their nearest whole number, as they are generally reported as integer values.

Updated tables of conversion factors are published in Beef Improvement Federation proceedings each year. The ability to compare and select from bulls and females of various different breeds is a strong asset when making selection decisions. Proper comparison of EPDs across breeds is vital to making appropriate decisions between bulls or females of differing breed composition. Conversion of within-breed EPDs to across-breed EPDs will ensure that you are using the correct EPD metrics to make your selection decisions.

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