

## Interpreting Performance Information of IBEP Bulls

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										Performance Index			
										111.4			
Birth Weight	87									Adj. REA	11.4		
Birth CE	UN	On Test Wt.	800							Adj. REA/cwt	0.91		
Dam Age	8	End Test Wt.	1215							Adj. Rib Fat	0.25		
205-d Adj. Wt.	723	ADG	3.32 (109)	Foot Angle	5					Adj. % IM Fat	4.12 (121)		
205-d PCT	108	WPDA	3.30 (115)	Claw Set	5					% Retail Product	64.7 (98)		
205-d NO	8	Frame Score	5.5	Adj. 365-day SC	33					Carcass Merit	109.5		
										\$ Indexes:			
EPDs: Birth Wt	Wean Wt	Year. Wt.	Mat. Milk	Direct CE	Mat CE	\$M	\$W	\$F					
0.8 (.56)	69.0 (.49)	117.0 (.40)	26.0 (.36)	8.0 (.37)	13.0 (.34)	60.0	79.0	92.0					
*7*	*9*	*9*	*7*	*7*	*10*	*6*	*10*	*8*					
Docity	Carcass Wt	Marbling	Ribeye Area	Fat		\$G	\$B	\$C					
11.0 (.38)	50.0 (.44)	.75 (.40)	.76 (.40)	.010 (.38)		59.0	151.0	256.0					
*3*	*8*	*8*	*9*	*6*		*9*	*9*	*9*					

**Birth: Birth Weight** is the actual birth weight. **Birth CE** is calving ease: UN = unassisted; EP = Easy Pull; HP = Hard Pull; AB = Malpresentation. In the ID section, after the birth date is the (**Birth Code**): S = Single; TW = Twin; TR = Triplet; ET = Embryo Transfer.

**Dam Age** is the dam's age at calving.

**205-Day: Adj. Wt.** is the 205-day weight adjusted for the age of the dam. **PCT** is the weight expressed as a ratio (percent of the average); this was determined within herd and not within breed at the Test Station. **NO** is the number of bulls of similar age (contemporaries) that were weighed at weaning.

**On Test Wt.** and **End Test Wt.** are the actual weights at the start of the test period (November 17, 2020) and at the end of the performance test (March 22, 2021).

**ADG** is the Average Daily Gain of the bull during the 125-day test. In parentheses is the ADG expressed as a ratio, which compares the ADG to the breed average. A ratio of 109 indicates the bull gained 9% faster than the average of his breed in this test. If there are fewer than 6 bulls of one breed, the ratio is based on the average ADG of all bulls on test.

**WPDA** is the Weight Per Day of Age on March 22. In parentheses is the WPDA expressed as a ratio, which compares the WPDA to the breed average. A ratio of 115 indicates the bull was 15% heavier than the average of his breed on test. If there are fewer than 6 bulls of one breed, the ratio is based on the average WPDA of all bulls on test.

**Perf. Index** is the IBEP Performance Index =  $.60(\text{ADG Ratio}) + .40(\text{WPDA Ratio})$ . In this example, the index is  $.60(109) + .40(115) = 111.4$ , indicating that his combined performance was 11.4% above the breed average. Bulls with higher indexes should add more growth potential to calves than bulls of the same breed with lower indexes. Calves with more genetic potential for growth should be heavier at weaning, gain faster in the feedlot, reach an acceptable harvest weight at a younger age, and be more profitable.

**Frame Score:** Hip height was measured on March 22 and was used along with the age of the bull on March 22 to calculate the Frame Score (BIF Guidelines, 9th edition).

**Foot Angle** and **Claw Set** were scored on every bull, utilizing the *Foot Score Guidelines* published by the American Angus Association. Scores range from 1 to 9, with 5 being ideal. See more details on Page 10 of this catalog.

**Adj. 365-day SC** is the scrotal circumference at the end of the test, in cm., adjusted to 365 days of age.

**Adj. REA** and **Adj. Rib Fat** are the Rib Eye Area and Rib Fat measured by ultrasound at the 12th rib, adjusted to 365 days of age. Breed-specific adjustments are used. ^ Denotes that the breed association does not adjust this ultrasound information to 365 days of age, so this is the actual record (unless otherwise specified). **Adj. REA/cwt** is the adjusted Rib Eye Area expressed per hundred pounds of live weight. The 365-day weight is used as the live weight measurement; if REA is not adjusted to 365 days, the weight at scanning is used.

**Adj. % IM Fat** is the % intramuscular (IM) fat measured by ultrasound, adjusted to 365 days of age. ^ Denotes that the breed association does not adjust % IM fat to 365 days of age, so this is the actual record (unless otherwise specified). In parentheses is the % IM fat expressed as a ratio, which compares the % IM fat to the breed average. A ratio of 121 indicates the bull had 21% more % IM fat than the average of his breed in this test. If there are fewer than 6 bulls of one breed, the ratio is based on the average % IM fat of all bulls on test. The % IM fat is a measure of marbling, which is one of the major factors influencing carcass Quality Grade. Comparing within a breed, bulls with higher % IM fat should sire calves with a greater ability to have a higher carcass Quality Grade than calves sired by bulls with lower % IM fat.

**% Retail Product** is estimated as  $65.59 - 9.931*(\text{Rib Fat}) + 1.2259*(\text{Rib Eye Area}) - 0.013166*(\text{Carcass Weight}) - 1.29*(\text{KPH})$ . Rib Fat and Rib Eye Area are adjusted to 365 days of age. Carcass Weight was estimated as  $.60*(365\text{-day Weight})$ ; if the breed association does not adjust ultrasound information to 365 days of age, the weight at scanning is used instead of 365-day weight. A KPH (kidney, pelvic and heart fat) value of 2.0% was used for all bulls. In parentheses is the % retail product expressed as a ratio, which compares the % retail product to the breed average. A ratio of 98 indicates the bull is estimated to have 2% less % retail product than the average for his breed in this test. If there are fewer than 6 bulls of one breed, the ratio is based on the average % retail product of all bulls on test. The % retail product is heavily influenced by rib fat thickness and rib eye area, and highly related to carcass Yield Grade. Lower rib fat thickness and larger rib eye area result in greater % retail product. Comparing within a breed, bulls with higher % retail product values should sire calves with carcasses having more desirable Yield Grades than bulls with lower % retail product values.

**Carcass Merit** is calculated as  $(\% \text{ Retail Product Ratio} + \% \text{ Intramuscular Fat Ratio})/2$ . In this example, the carcass merit is  $(121+98)/2 = 109.5$ , indicating that his carcass merit is 9.5% above the breed average. Carcass merit is an attempt to provide an indicator of both carcass Quality Grade and carcass Yield Grade. Ideally, we would prefer bulls that were above average in both % retail product and in % IM fat. However, this is not always possible. Producers whose calves tend to have less than desirable Quality Grades need to place greater emphasis on % IM fat, while those with calves that tend to have poor Yield Grade (i.e., few Yield Grade 1 and 2 with some Yield Grade 4) need to place greater emphasis on % retail product.

**EPDs:** EPDs and (Accuracies) are given for several traits: Birth Weight, Weaning Weight, Yearling Weight, Maternal Milk, Direct Calving Ease, Maternal Calving Ease, Docility, Carcass Weight, Marbling, Rib Eye Area, Fat Thickness, Yield Grade, and Days to Finish. Exact traits will be different for each breed. **“Genomic EPDs”** means that the bull himself had a genomic test done, and this was incorporated into his EPDs. See the article **EPDs and \$ Indexes** for more information. The numbers in asterisks indicate the percentile group ranking of the bull in the breed, in 10% groups: \*10\* is in the top 1-10%, \*9\* is 11-20%, and so on; \*2\* is 81-90%; and \*1\* is 91-100% (the bottom 10%). Bulls are compared to non-parent EPDs from their respective breed associations; it is a ranking within the entire breed, not just the bulls in this test. It is only valid to compare EPDs of bulls within the same breed. Do not compare EPDs of bulls in different breeds.

**\$ Indexes:** These are multi-trait selection indexes calculated by some breed associations. These combine EPDs for several traits into a single economic value, which can be used to make selection decisions. The index values are interpreted like EPDs; the difference in index value between two bulls is the expected difference in average dollar value per head of their progeny, when the bulls are bred to similar cows. Typical beef production and economic values are used in calculating the indexes. Indexes are expressed in dollars per head, and higher indexes mean a higher dollar value per head. An index value only has meaning when it is compared to the index value of another animal of the same breed. Currently, indexes are calculated for Angus, Gelbvieh, Gelbvieh Balancer, Hereford, Limousin, Red Angus, Shorthorn, Simmental, and SimAngus bulls.

**Angus** indexes are Maternal Weaned Calf Value (\$M), Weaned Calf Value (\$W), Feedlot Value (\$F), Grid Value (\$G), Beef Value (\$B), and Combined Value (\$C).

**Charolais** index is Terminal Sire Index (TSI).

**Gelbvieh** indexes are \$Cow, Efficiency Profit Index (EPI), and Feeder Profit Index (FPI).

**Hereford** indexes are Baldy Maternal Index (BMIS), Brahman Influence Index (BIIS), and Certified Hereford Beef Index (CHBS).

**Limousin** index is Mainstream Terminal Index (\$MTI).

**Red Angus** indexes are Profitability and Sustainability Index (ProS), HerdBuilder Index (HB) and GridMaster Index (GM).

**Shorthorn** indexes are Calving Ease Direct (\$CEZ), British Maternal Index (\$BMI), and Feedlot (\$F).

**Simmental** and **SimAngus** indexes are All-Purpose Index (API) and Terminal Index (TI).

See the article **EPDs and \$ Indexes** for more information. The numbers in asterisks indicate the percentile group ranking of the bull in the breed, in 10% groups: \*10\* is in the top 1-10%, \*9\* is 11-20%, and so on; \*2\* is 81-90%; and \*1\* is 91-100% (the bottom 10%). Bulls are compared to non-parent indexes from their respective breed associations; it is a ranking within the entire breed, not just the bulls in this test.

### HOW SALE ORDER IS DETERMINED

Each bull is given a within-breed percentile group ranking (in \*'s) for many traits, including performance during the test, EPD's, and \$ Indexes. These are in 10% groups, so a bull can get 1-10 \*'s for each trait.

**Sale Index** is a weighted sum of the number of \*'s for six of these traits: 30% ADG, 20% WPDA, 7.5% IMF, 7.5% REA/cwt, 20% Direct Calving Ease EPD, and 15% Weaning Weight EPD (Birth Weight EPD will be used if the bull does not have an EPD for Direct Calving Ease). The maximum Sale Index for a bull is 100.0.

**Sale Order** is determined by Sale Index. A bull with a Sale Index of 100.0 would sell first. If two bulls have the same Sale Index, sale order for these bulls will be based on their Performance Index.