Commercial Performance Matters

Working the Numbers

by **Shane Bedwell**

Some data is more useful than others.

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As a kid, shortly after weaning and getting the calves settled into their new home, I started thinking about who would make the keeper pen. Jack Smith, an old cow hand who helped us when we were busy, always said, "It's simple. Cull off the big ones and little ones. What's left is your keepers."

Essentially, he was saying the middle cut was more moderate and less extreme than the big end but higher performing than the little end.

I think these sentiments still fit today, especially when you are right on track when it comes to balance between performance, fertility and end-product merit. When we are talking about the mama cow, we need to keep balance in mind, especially when you are already right in that sweet spot. Why try to move the needle? There are too many examples of breeders inadvertently upending the balance by placing more selection pressure on one of these trait areas at the expense of others.

But what if you are not in that sweet spot? What if your percentage of open cows and heifers is increasing? What if your pounds of calf weaned per cow exposed are dropping?

You need to crossbreed. Research and data validate the advantages of both direct and maternal heterosis. Those advantages ring even truer today with high input prices. You can magnify them further by exploiting breed complementarity.

Beyond heterosis, think about the selection criteria you use when considering bull prospects. So much data is available today — so much of it printed in sale catalogs — that the task of sifting through it can seem daunting. Should you look at the raw values, the adjusted values, the ratios or the expected progeny differences (EPDs)? All are meaningful data points, but EPDs account for them all.

For instance, an actual or adjusted weaning weight value enables comparison within the herd but not across the breed. Because of the vast differences between environments and management practices across the U.S., I think it is fair to say we cannot compare the raw or adjusted values across herds.

Suppose you're using actual or adjusted weaning weights to compare two bull prospects. One weaned at 600 pounds in Kansas, the other one weaned at 550 pounds in Georgia. There's no way to know which is genetically superior for weaning growth. The difference in weight could stem from a host of reasons, everything from health to nutrition to management. And you have no idea which one is more likely to increase the weaning performance in your herd.

The same goes for using ratios to compare the two bulls. Ratios simply present actual or adjusted weights/measures as a percentage for in-herd comparison. A ratio is calculated by dividing an animal's weight/measurement by the average herd weight/measurement and then multiplying by 100. So, a calf with a 650-pound weaning weight in a herd with an average weaning weight of 600 pounds would have a ratio of 108. ((650/600) * 100)). Again, environmental and management differences mean ratios only can be used for comparison within herd. The same calf with a weaning weight ratio of 108 could have a higher or lower ratio in the next herd. All you know is that the bull with a weaning weight ratio of 108 outperformed his contemporaries in the same environment, though you don't know the size of the contemporary group. You're still no closer to knowing which bull can help move your herd forward.

> "The sole purpose of an EPD is to enable comparison between animals and ranking of animals for specific traits — determine which one is going to pass on more or less performance for a particular trait."
>
> **— Shane Bedwell, AHA**

On the other hand, this same bull's initial Weaning Weight EPD (WW EPD) includes generations of weaning performance from both sides of the pedigree. Next, the bull's own adjusted weaning weight is incorporated.

You might wonder why the weaning weight can be used for breed-wide comparison since it's from a single herd. It's because EPDs account for environment/management through contemporary groups. Unlike ratios, contemporary groups utilized to calculate EPDs account for the size of the contemporary group, as well as management and environmental differences.

That is the big advantage of an EPD. It ranks animals based on their in-herd performance, compared to those in other herds by the same sire. Instead of comparing the weights, the EPD considers contemporary group deviations and consistency of sire performance across herds, while holding environment constant.

Regardless of his own weaning weight, if a sire's progeny are outperforming other sire groups in 10 different herds, then his EPD will likely indicate that advantage. Bottom line, the EPD is the only tool that allows comparison across herds and factors in multiple years of performance through the pedigree. As more data (phenotypes) are submitted for more calves by the sire, the EPD accuracy increases.

Genomic-enhanced EPDs (GE-EPDs) go beyond conventional EPDs by also incorporating an animal's genotype, which increases prediction accuracy faster. Many Hereford breeders use the GE-EPD logo in sale catalogs and advertising to indicate an animal whose own genotype is contributing to the EPD. As well, you can use a bull's registration number to view his most current EPDs online. Scanning the QR code below will take you to the EPD search page.

The American Hereford Association (AHA) recognizes breeders who go above and beyond in collecting phenotypes and genotypes as Gold and Platinum Whole Herd Total Performance Record (TPR™) breeders. These breeders do more to elevate EPD accuracy than those who collect and submit few phenotypes and genotypes. You can find the latest list of these breeders on Pages 32-33 of this *Hereford World*.

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Table 1: AHA EPDs as of September 5, 2022, Pan American Hereford Cattle Evaluation (2020 & 2021 Calves)

Percentile Breakdown	Production					Fertility			Maternal					Carcass				$ Indexes		
	CED	BW	WW	YW	DMI	SC	SCF	MM	M&G	CEM	MCW	UDDR	TEAT	CW	FAT	REA	MARB	BMI	BII	CHB
2%	12.9	-1.4	72	116	-0.5	1.8	22.8	38	70	8.4	47	1.5	1.5	89	-0.033	0.79	0.47	455	546	161
15%	7.3	1	63	102	-0.1	1.4	19	32	62	5.2	71	1.4	1.4	78	-0.003	0.59	0.24	395	476	133
50%	2.8	2.8	54	87	0.2	1.0	15.8	26	53	1.9	88	1.2	1.2	68	0.017	0.41	0.12	342	413	115
85%	-1.7	4.5	46	74	0.5	0.6	12.5	20	44	-1.5	106	1.1	1.1	59	0.037	0.23	-0.01	290	351	98