Use $W For Cows That Do Everything Right

by
ASSOCIATION STAFF

Ask an experienced cow-calf producer to identify the characteristics of a profitable beef cow and you will probably get a response like this: reproductively sound, calves easily, transmits rapid early growth, enough milk (but not too much), raises an above average calf year after year, moderate mature size, reduced feed energy needs. Cows meeting these requirements will generate more profit, because they do most everything right.

A tool for the cow herd

Above average outputs (pounds of calf weaned) coupled with average or below average feed inputs are sure to improve the bottom line. But is it even possible to create a cow herd that gets so many things right? Pipe dream or achievable task?

Research conducted using the American Angus Association's database indicates that it can be done, and that $W is the right tool for the job. If your quest is to build a productive and profitable cow herd, the Association's bioeconomic index called weaned calf value, or $W, can help you reach that goal. The definition for $W is as follows:

Weaned calf value ($W), an index value expressed in dollars per head, is the expected average difference in future progeny performance for preweaning merit. $W includes both revenue and cost adjustments associated with differences in birth weight, weaning direct growth transmitted to the calf, maternal milk, and mature cow size.

If you select for higher-$W animals, the results will generally be more early growth, moderate mature size, above average (though typically not extreme) milk, and heavier calf weaning weights. Higher-$W females get these things right and are constructed in a more desirable package.

Looking at specific differences between high- and low-$W Angus females illustrates this point. Table 1 compares high- and low-$W females from the Association's database. The females used in the analysis were born from 1993 to 2007 and were required to have a full set of expected progeny differences (EPDs) and complete production information, including mature weight data.

Cows with a $W value above $22 formed the High-$W group, while the remaining cows ($W ≤ $22) fell into the Low-$W group. The average $W difference between the two groups was just more than $10, which is not especially large. Yet this difference was enough to create important physical and economic distinctions between these two sets of cows, which are discussed individually below.

Trait by trait

Calving ease. The High-$W cows calve more easily, because they possess more favorable (higher) direct and

Table 1: Comparison of high- vs. low-$W Angus cows

No. of Head*	
Avg. $W	
Cow age, years	
CED EPD	
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Milk EPD	
WW EPD	
YW EPD	
MW EPD	
MHT EPD	
Bull calf weaning wt., lb.	
Cow wt., lb.	
Energy requirements, Mcal/year	

*Cows 3 to 8 years old.

maternal calving ease EPDs. This means fewer calving problems, especially with younger females, and a higher weaned calf crop percentage.

Milk production. With a 5-lb. advantage in average Milk EPD, the High-$W cows produce more milk, contributing to faster calf growth and heavier weaning weights. Note also that, with an average Milk EPD of +20, the High-$W group would not be considered extreme for this trait.

Weaning and yearling growth. Advantages in both weaning and yearling weight EPDs mean that progeny from the High-$W cows will grow more rapidly both pre- and postweaning than calves with Low-$W dams. That means heavier pay weights whether calves are sold right off the cow after weaning, retained through a stocker phase, or fed out and finished in the feedlot. More pounds equal a bigger calf check.

Mature cow size. Even though the High-$W cows transmit more early growth, they bend the growth curve, and ultimately mature at lighter weights. Actual mature weights between the two groups differed by 61 lb., with the High-$W cows averaging significantly lighter (1,367 lb. vs. 1,428 lb.). This is a sizable advantage that saves feed.

Feed energy requirements. Today's higher feed costs make cow maintenance expenses very important to the producer's bottom line, and the High-$W cows, on average, can claim a slight advantage here, too. The difference between the groups is small. But it can be accurately stated that the much more productive High-$W cows cost no more to maintain compared to their Low-$W counterparts. The High-$W cows' smaller mature size offsets their increased milk production, resulting in no net increase in annual feed energy requirements vs. the larger mature size/lower milking Low-$W group.

Heavier weaning weights. With more milk and higher WW EPDs, the High-$W cows consistently wean heavier calves, as illustrated by the difference in bull calf weights shown near the bottom of Table 1. When bred to bulls of equal genetic merit, High-$W cows simply bring home bigger calves than Low-$W females, resulting in larger calf revenue year after year.

Using $W as a selection tool

Not every High-$W cow will be stamped out of a cookie-cutter mold, of course. The comparison discussed in this article is made across large groups of cows to give the breeder and commercial producer an understanding of what traits a high $W value favors.

High-$W sires will, as a general statement, pass more of these economically important traits on to their daughters. However, $W is an index, meaning that exceptional EPDs in one category may balance out weaknesses in another area.

$W can and should be used as a genetic selection tool to help build increased profit potential into a cow herd. It will pay producers to pursue higher $W cattle, while at the same time keeping a sharp eye on other individual traits and EPDs they deem important in their operations. For example, two sires might both have a $W of $30, but if one is +18 for milk, while the other has a milk EPD of +28, their daughters probably won't fit all feed environments equally.

The objective is to put positive selection pressure on $W, while finding the right levels for individual EPDs and other $Values in your operation. Doing so can help you build a cow herd that does most everything right.

	$W >$22	$W ≤$22	Difference
	17,642	15,154	
	$26.77	$16.57	$10.20
	5.4	5.4	0
	5.4	1.9	3.5
	6.5	4.5	2.0
	20	15	5
	38	33	5
	68	62	6
	19	44	-25
	0.3	0.7	-0.4
	645	624	21
	1,367	1,428	-61
	5,241	5,253	-12