

# Performance Records Are Useful

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 UNIVERSITY PARK (Centre Co.) — Pennsylvania beef producers tend to be small and part-time operators. Many read and hear about tools for genetic improvement in a cow herd, but consider them to be stuff for "the big guys out West." After all, you can get a whole pageful of numbers describing actual weights, ratios, and Expected Progeny Differences (EPDs) on a single bull. Do all the facts and figures mean anything? How much are they really worth? Some striking new Pennsylvania answers are just in. But first, some background.

The bull is targeted for more intensive selection than the females in a herd, first because he represents half of the whole herd's genetic potential for growth and performance in a calf crop. The true economic potential of a good herd of cows may never be realized if they produce calves sired

by inferior bulls that don't have the genetic potential to transmit growth ability.

Second, when producers are keeping heifer replacements from the bulls they select, future production in the herd can be either enhanced or stymied for years to come. The following table illustrates the impact that sire selection has on succeeding generations in a cow herd.

A lot of research indicates that performance records are useful and that their use is profitable. Three examples are:

\* A Georgia study evaluated the response over several years to selection for high yearling weight in Hereford cattle. Calves sired by the bulls with the highest yearling weight EPDs in the breed were compared with those from an unselected control herd. The results after five years were that calves from selected bulls were 68

lb. heavier at weaning, 95 lb. heavier as yearlings.

\* Another Georgia study, this time with Angus cattle, asked what happens when you use EPDs to select for more than one trait at a time. Two traits were under selection: high yearling weight and low birth weight, which are known to be antagonistic to each other. The results showed that, in this case, you really can "eat your cake and still have your cake",

because birth weight in the calves was kept below average while yearling weight was increased.

\* The milk EPD has been poorly understood by producers because it describes milk production potential but is expressed, not in terms of milk yield, but rather in pounds of calf weaning weight. A South Dakota study found that selection for increased milk production potential through use of the milk EPD did indeed result in higher milk yield as well as in higher weaning weight. The average response was about a 1-percent increase in total milk yield over the lactation for each 1 kg milk EPD of the sire.

Beef producers, typical of all production agriculture, are independent thinkers who sometimes view controlled research with skepticism. "Our producers often want to know why results in Georgia or South Dakota should matter to them," says John Comerford, Penn State beef extension specialist. "So we tried to design a program that would prove the value of genetic improvement in a next-

door approach."

Comerford, along with Penn State colleagues Erskine Cash and Lowell Wilson, conducted a demonstration project that tested the production and economic effects of sire selection in Pennsylvania beef herds.

"We wanted to identify herds that were typical of our region: part-time producers with 50- to 150-cow herds used as a secondary source of family income," says Comerford. "We were looking for herds that were being properly managed, but simply were not using all available tools for genetic improvement."

With the help of county extension agents Bill Kelly and Mary Shick, two such herds were identified in Westmoreland and Washington Counties.

The next step was securing bulls of known genetic value to compare on these farms. "Our purebred breeders have really been helpful," Comerford says. "We had no trouble finding people willing to donate the use of a bull

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TABLE 2. Project results

	calves		weaning rate	weaning weight	WDA <sup>1</sup>	calving date <sup>2</sup>
	#bulls	#heifers				
Older Campbell bull	7	15	77%	372.5	1.98	18.5
Younger Campbell bull	11	7	86%	393.0	2.16	25.6
Slayton bull	10	14	80%	474.3	2.47	15.3

<sup>1</sup>Weight per day of age (birth to weaning).

<sup>2</sup>Average day of the calving season when calves were born.

TABLE 1. The genetic influence of a bull in a herd for 10 generations

	Genetic contribution of a herd sire <sup>1</sup>		
	% calf crop	% cow herd	% total
Year 1	50	0	50
Year 2	50	0	50
Year 3	50	10	60
Year 4	50	20	70
Year 5	0	30	30
Year 6	0	40	40
Year 7	0	32	32
Year 10	0	12.8	12.8

<sup>1</sup>Based on a 20% replacement rate from a bull used for four breeding seasons.

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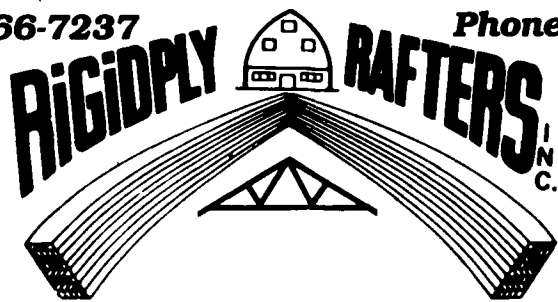
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