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**PAY
MORE FOR
A GOOD
BEEF HERD
BULL**

TEXAS A&M UNIVERSITY
TEXAS AGRICULTURAL EXTENSION SERVICE
J. E. Hutchison, Director, College Station, Texas



Pay More for a Good Beef Herd Bull

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A GOOD BEEF HERD BULL means money to you. Perhaps, more than you realize.

A beef herd bull that increases the weaning weight of your calves 15 pounds is worth \$445 more to you over a 7-year period, assuming 24 cents per pound calf prices. With 21 cents per pound calf prices, the bull is worth an additional \$389.

Assume that 20 offspring of the selected sire are sold each year, and five daughters are retained as replacements each year for 3 years. Each of these 15 daughters produce five offspring before being replaced.

The average weaning weight of the daughter's offspring increases 12¾ pounds. The selected herd sire is kept in production 3 years. His daughters are assumed to go in production at age 3 and to remain in production 5 years. Both of these conditions will vary, but maximum production can be expected under this type replacement program.

Consider Weight

The average weaning weight of calves sold from the original herd is 380 pounds.

The average weaning weight can be increased by selecting a sire which has a heavier weaning weight base at the same age of the original sire's offspring. The selected sire is assumed to be 100 pounds above the sire now in use.

Added Weight to Offspring

To get the increased weight of offspring of the selected sire, subtract 380 pounds from 480 pounds. This gives a 100-pound increased base for the selected sire. Add this 100 pounds to the present cow herd's index for increasing offspring weight (which is assumed to be zero) and divide by two. This gives 50 pounds as a base from which to

determine the increased weight. Multiply this 50 pounds by a 30 percent heritability factor. This equals 15 pounds which is to be considered as the average increase in weaning weight for the selected sire's offspring.

The original base of 380 pounds, plus the 15 pounds expected increase, gives an average 395 pounds average weaning weight for the selected sire's offspring.

The selected sire's daughters have a 12¾ pound plus advantage over the original herd, if bred to a sire of the same productivity. The average increases in weaning weights of all of the calves resulting from the use of one superior sire (plus 100 pounds at weaning time) are as follows:

1st Generation	15.0 lb.
2nd Generation	12.7 lb.
3rd Generation	10.8 lb.
4th Generation	9.2 lb.
5th Generation	7.8 lb.

TABLE I

Increase in live weight. Sale value from original herd. 25 calves from new selected sire. 20 sold. 5 heifers kept for replacement.

Year	15 pounds increase in weaning weight per calf	
First Year	300 lb.	300 lb.
	21¢	24¢
	\$63	\$72
Second Year	300 lb.	300 lb.
	21¢	24¢
	\$63	\$72
Third Year	300 lb.	300 lb.
	21¢	24¢
	\$63	\$72
	Increase in live weight sale value from original herd.	\$216

TABLE II

Increase in Live Weight Value from Offspring of Replacement Daughters. (Assume five daughters per year for 3 years until 15 daughters in herd. Daughters produce for 5 years. They start producing at 3 years of age)

First year.	5 daughters x 12.7 lb. =	63.5 lb. 21¢	63.5 lb. 24¢
		\$13.34	\$15.24
Second year.	10 daughters x 12.7 lb. =	127 lb. 21¢	127 lb. 24¢
		\$26.67	\$30.48
Third year.	15 daughters x 12.7 lb. =	190.5 lb. 21¢	190.5 lb. 24¢
		\$40.00	\$45.72
Fourth year.	15 daughters x 12.7 lb. =	190.5 lb. 21¢	190.5 lb. 24¢
		\$40.00	\$45.72
Fifth year.	15 daughters x 12.7 lb. =	190.5 lb. 21¢	190.5 lb. 24¢
		\$40.00	\$45.72
Sixth year.	10 daughters x 12.7 lb. =	127 lb. 21¢	127 lb. 24¢
		\$26.67	\$30.48
Seventh year.	5 daughters x 12.7 lb. =	63.5 lb. 21¢	63.5 lb. 24¢
		\$13.34	\$15.24
	Total	\$200.02	\$228.60

The following formula was used in computing the preceding values:

$$\text{Average genetic increase in the last generation} = \frac{30\% \text{ of the increase}}{2} = \text{Average genetic increase in next generation}$$

Production Management Factors

From the selected sire, 25 calves are produced each year. Twenty calves are sold directly to the live-weight market. Five heifers are kept for replacement. The selected sire is kept for 3 years.

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TABLE III

Value of selected sire when added value from original herd, daughters and base price for a bull is considered.

Live weight price	\$.21 per lb.	\$.24 per lb.
Additional value of daughters to herd	\$200.00	\$229.00
Additional value of selected sire on original herd	\$189.00	\$216.00
Total added value (All money values are held constant.)	\$389.00	\$445.00

His daughters are in production 5 years and are then sold.

The 15-pound increase in weaning weight per calf multiplied by 20 calves marketed equals 300 pounds per year or 900 pounds for 3 years.

Added Income Original Herd

At a live-weight price of 21 cents per pound, an increase in income of \$189 is attributed to the selected sire over a 3-year period for the calves that are sold directly from the original herd. If 24 cents per pound is used, the increase in income is \$216.

Added Income from Daughter's Offspring

Using $12\frac{3}{4}$ pounds as the average increase in weaning weight of offspring of the daughters, there would be \$200 additional income at 21 cents per pound; at 24 cents per pound there would be \$229 added income.

The first year there will be 63.5 pounds of calf weight to be sold, as a result of the selected sire; the second year 127 pounds; the third year 190.5 pounds; the fourth year 190.5 pounds; the fifth year 190.5 pounds; the sixth year 127 pounds; and the seventh year 63.5 pounds.

When the value of the original herd and offspring is considered, the added value of a selected sire is of great economic significance. In the tables you will find the value of an improved sire to a breeding herd, combining the value received from the original herd and daughter replacements from 3-year production. The income for generations beyond this are not included in this calculation, although under proper management, the total production would be increased.



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