How much is a high performance sire worth?

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Supplementary S4

How Much Extra Can You Pay For Superior Bulls?

This of course depends on many factors, including:

- The target markets. Are there premiums for meat quality or yield aspects?
- Are the bulls to be used as a terminal sire or for a self-replacing herd?
- Joining rate and working life of bulls.
- Cost of any extra feed consumed by faster growing or bigger cattle.

* Cost of extra finance/insurance for higher value bulls.

Valuing a High Growth Terminal Sire

Let's start with a simple case with a Terminal sire. Turn-off weight is the main consideration, and sale is by liveweight.

A yearling steer breeder is choosing between bulls with 400-day wt EBVs of +30kg (Breed Av) and +50kg.

We know the bulls will breed yearlings 10kg different in weight (20kg difference between the bulls' EBVs, half of which is passed on to the progeny). The extra value of the high growth bull therefore depends on how many progeny he breeds and any extra feed costs for them.

In the simplest situation, (below) with a terminal sire and low cost feed, the gross value of this extra weight would carry through virtually to a net benefit. Depending on how heavily the bull will be used, you could pay an extra $60 (example A) to $100 (example B, table 1) per kg of EBV that a bull is above breed average. Let's take $70 as a conservative value, also allowing for such things as servicing the extra capital involved. .

If the average priced bull for your breed is say $2500, a bull with 400-day wt EBV 10kg above breed average, would therefore be worth $3200 (ie 10kg x $70 = $700 above breed av). Conversely, you might only pay $1800 for a bull 10kg below breed average (see table 1). This, of course, assumes that all other traits meet your minimum standards.

The steers by the higher growth bull, if sold on to a finisher, will also generate extra profit here. If it is a feedlot, with high feed costs, the extra weight gain is of course not "free" and has to be discounted for feed costs. There are still net benefits though, as high growth steers reach a target weight sooner, with less feed consumed, compared to lower growth cattle.

For example, in the "Trangie", NSW selection line experiments, HIGH LINE steers took 20 days less to put on 100kg liveweight in a feedlot and ate 10-15% less feed than CONTROL LINE steers gaining 100kg. This was at Supermarket weights. The lines differed in 400 day EBVs by about 25kg.

Feed efficiency gains of high growth cattle are largely eliminated if the steers are carried on to constant **ages**.

	A	B
Calves/year	30	40
Years joined	3	4
Total calves	90	160
Extra weight	900 kg	1600 kg
Extra gross value @ $1.30/kg	$1170	$2080
Sire differences in 400-day EBVs = 20 kg So; extra value of bull per 1 kg of Sire EBV (Extra gross value /20)	$58.50	$104
Rounded to	$60	$100

Example 1: Terminal Sire, growth only considered. With the high growth bull used at a low mating load (A), and a higher mating load and longer working life (B).

Valuing a Sire for Self Replacing Herds

Let's now assume the breederis planning on keeping heifers, that feeder steers are sold to a finisher who in turn sells dressed weight with price adjusted for carcase yield.

Bull	EBVs+									Yearling
No	BW	200M	200D	400D	600D	DC	SS	FD	EMA	$INDEX
37	4.9	14	38	72	85	0.5	0.9	0.4	2.5	+37
71	6.6	7	36	64	83	-3.8	1.3	-0.3	2.6	+36
34	5.5	3	31	60	74	-2.5	0.7	0.4	5.2	+35
25	8.3	2	34	54	82	-4.3	0.3	-0.4	2.6	+31
27	4.6	15	32	57	74	0.3	1.9	0.5	-1.0	+26
125	1.5	8	28	48	67	-1.4	0.4	1.8	0.4	+24
91	3.0	11	16	38	50	-5.3	1.1	0.7	1.0	**+23***
77	1.5	11	12	26	40	-5.6	0.1	1.0	1.2	+18
53	1.4	10	12	25	39	-5.9	1.0	1.0	-1.3	+16
531	8.5	14	36	52	70	5.9	1.2	1.3	-1.3	+15
151	5.1	7	18	31	49	2.4	-0.5	-0.1	2.1	+13
113	2.7	-1	16	33	50	1.9	1.5	0.4	-1.2	+11

Note: * Breed average for drop.
+ EBVs in turn: Birth weight, Milk, 200, 400 and 600 day weight, days to calving, scrotal size, fat depth, eye muscle area.

Example 2: Value of Bulls for a Yearling, self-replacing herd.

In this case, many factors have to be balanced. The most comprehensive way to do this is to obtain BreedObject $Indexes on the sale bulls. These weight all the EBVs according to the economies of the enterprise, and produce an index, or $EBV for each bull. These are available for several market situations, in some sale catalogues these days, or can be looked up on Breed Society websites. [eg http;//breedplan.une.edu.au then Links to whichever breed is needed] Table 2 shows examples an index for a self replacing herd, Yearling production system.

Progeny of bull 37 will produce, on average, an additional $7 per cow joined, compared to bull 91 which has a breed average index ($37 - $23 ÷ 2). The breed average indices are available along with all the other averages for EBVs for participating breeds.

We can now expand this example picking up the figures from example 1B for a situation where the bulls are to be used for 4 years joining, to 40 cows a year ie 160 cows.

Bull 37 would generate an extra $7 each from the 160 cows joined = $1120 over a breed average bull. It is then up to market forces between the bull buyer, the bull seller and the feeder steer buyer to decide how much of this $1120 is paid for the bull compared to breed average.