

BREEDPLAN Bull Selection Exercises

As a practical guide to the use of BREEDPLAN, the following set of bull selection exercises were put together by Brian Sundstrom. Before retirement, Brian was the Cattle Breeding Coordinator with NSW DPI (Agriculture). Part of this role involved technical and advisory work with BREEDPLAN.

Please note, in these exercises:

- ❑ All bulls were assumed to be structurally sound and fertile.
- ❑ For simplicity, EBV accuracies are not provided in the earlier exercises. They are however used in Exercise IV.
- ❑ All EBVs are GROUP BREEDPLAN EBVs for bulls of the same breed.

Answers to the exercises are provided at the back of this document

Exercise I – Growth, Milk and Mature Cow Weight EBVs

| BULL | BIRTH WEIGHT | 200-DAY MILK | 200-DAY GROWTH | 400-DAY WEIGHT | 600 DAY WEIGHT | MATURE COW WEIGHT |
|----------|--------------|--------------|----------------|----------------|----------------|-------------------|
| A | -1 | +5 | +10 | +30 | +45 | +52 |
| B | +2 | +2 | +14 | +25 | +28 | +35 |
| C | +5 | -8 | +16 | +40 | +50 | +60 |
| D | +2 | +10 | +10 | +25 | +30 | +34 |
| E | +1 | 0 | +10 | +28 | +40 | +36 |
| Breed Av | +2 | +3 | +12 | +28 | +35 | +46 |

The following buyers are selecting from this sire list. Which bulls should they choose?

Buyer 1 - Sells vealers but also breeds replacement heifers. Increasing the level of milk production in this herd would benefit profitability.

Buyer 2 - Wants to increase yearling and final weights and avoid calving difficulty. The main product is heavy steers. Replacement heifers are retained.

Buyer 3 - Is straightbreeding in a harsh environment where cows with high EBVs for milk are slower to rebreed. Large mature cow size is also not favoured. Increased growth rate in two year old steers is also sought.

Exercise II – Fertility EBVs

From the following catalogue, advise the clients on their bull choice. Assume all bulls have adequate scrotal circumference for the desired mating load.

| BULL | 400 DAY WEIGHT | 600 DAY WEIGHT | SCROTAL SIZE | DAYS TO CALVING |
|----------|----------------|----------------|--------------|-----------------|
| A | +40 | +50 | +1.2 | -9 |
| B | +44 | +40 | +2.0 | -6 |
| C | +34 | +40 | -0.5 | +9 |
| D | +48 | +58 | -1.0 | +12 |
| E | +43 | +51 | +2.5 | -4 |
| Breed Av | +36 | +43 | +0.4 | 0 |

Buyer 1 - Has a commercial pure bred herd turning off two year old steers and seeks to improve female fertility, while maintaining heavy steer weights.

Buyer 2 - Intends to use the bull as a terminal cross over cross bred cows, selling both the heifers and steers as finished yearlings.

Buyer 3 - Wishes to increase scrotal size in this stud herd. Yearling bulls are sold and in the past some have been marginal for SS. Clients are predominantly breeders of yearling steers.

Exercise III – Carcase EBVs

The following is a selection of sires from a British breed catalogue. Which bull should the two clients buy?

| BULL | 400 DAY WEIGHT | 600 DAY WEIGHT | RUMP FAT | EMA | RBV | IMF |
|----------|----------------|----------------|----------|------|-------|-------|
| A | +58 | +83 | +1.3 | +0.3 | - 0.2 | +0.3 |
| B | +50 | +74 | - 0.2 | +2.0 | +0.1 | - 0.1 |
| C | +55 | +80 | - 0.7 | +4.1 | +0.4 | +0.1 |
| D | +56 | +78 | +0.8 | +2.0 | +0.1 | - 0.2 |
| Breed Av | +52 | +68 | +0.2 | +1.6 | 0.0 | 0.0 |

Buyer 1 - Sells yearling steers to a feedlot which is long-term feeding for Japan and has been advised to increase size and growth to 2 years, reduce fatness, maintain or improve muscularity and improve marbling.

Buyer 2 - Breeds yearling steers, from European x Dairy cross cows. She has difficulty in finishing yearling steers and seeks to improve this.

Exercise IV – Calving Ease EBVs & Accuracy

| BULL | BIRTH WEIGHT | | 400 DAY WEIGHT | | CALVING EASE DIRECT | | CALVING EASE DAUGHTERS | |
|----------|--------------|-----|----------------|-----|---------------------|-----|------------------------|-----|
| | EBV | Acc | EBV | Acc | EBV | Acc | EBV | Acc |
| A | +0.2 | 65% | +6 | 60% | +10 | 35% | -6 | 30% |
| B | +0.5 | 79% | +25 | 75% | +9 | 67% | -9 | 51% |
| C | +1.3 | 83% | +21 | 80% | +1 | 58% | +5 | 60% |
| D | +0.7 | 95% | +18 | 93% | +8 | 85% | 0 | 75% |
| Breed Av | +1.0 | | +16 | | 0.0 | | 0.0 | |

Buyer 1 - Seeks a terminal sire to join with crossbred heifers, for yearling production. Calving ease is of moderate importance.

Buyer 2 - Is straightbreeding for yearling production and wishes to improve calving ease of the females.

Buyer 3 - Is straightbreeding and seeks a sire to join with heifers. Calving ease is of considerable concern to this breeder of grass finished yearlings.

Answers**Exercise I**

- Buyer 1 - Bull D (The high milk EBV is the deciding factor)
 Buyer 2 - Bull A (High 400 and 600 day weight EBVs, with low birth and positive milk)
 Buyer 3 - Bull E (Adequate 600 day weight and low milk, neutral birth weight and moderate mature cow weight EBVs)

Exercise II

- Buyer 1 - Bull A (The highest priority is the negative (short) days to calving EBV, and 600 day weight is also good)
 Buyer 2 - Bull D (Fertility EBVs relating to progeny are not important, so select highest 400 day weight EBV)
 Buyer 3 - Bull E (Has the highest scrotal size EBV and a good 400 day weight EBV)

Exercise III

- Buyer 1 - Bull C (Fat EBV is -ve, eye muscle, retail beef yield and IMF EBVs are +ve, 600 day weight EBV is also high)
 Buyer 2 - Bull A (Fat EBV is +ve, 400 day weight EBV is the best)

Exercise IV

- Buyer 1 - Bull B (Positive calving ease direct EBV with moderate accuracy and with good 400 day weight. Note: bull A has a similar, but lower accuracy calving ease EBV; but low 400 day weight)
 Buyer 2 - Bull C (Positive calving ease daughters EBV, with acceptable 400 day weight)
 Buyer 3 - Bull D (Positive calving ease direct, with the highest accuracy, as calving ease is so critical)