

Sire Selection to Minimize Dystocia and Improve Performance

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Sire Selection is Critical

Natural or AI

Over time, 90% of Genetic Change is the result of Sire Selection. Your bull(s) contribute more to the genetic makeup of your herd in a breeding season than a typical cow contributes in her lifetime.



Effective Sire Selection will be based on genetic prediction for traits that can be objectively measured and quantified with a linear measurement. Selection based on EPDs is approximately 7 – 9 times more effective than using weights or performance data alone. EPDs are more valuable than individual performance records, within herd ratios or performance tests because all this information (plus more) is taken into account when calculating EPDs.



Genetic Change is cumulative and permanent

- EPDs are directly comparable across time and geography. If you know the genetic profile of the bull(s) you are using, it permits you to identify areas of improvement and select accordingly.
- Selecting genetically superior sires is the fastest approach to herd improvement and bottom-line profitability, if you select for genetic superiority that matches your management, production and marketing system.



Selecting the right herd sire with the right genetic superiority is based on analyzing your system.

- ◉ Genotype of your existing cow herd
- ◉ Your production environment
- ◉ Management & fixed resources
- ◉ Economics (marketing endpoints & production inputs)
- ◉ How do you intend to use the bull (on virgin heifers or mature cows)?

Not every bull fits your production system.



Dystocia – calving difficulty.

Caused by:

- Calf will not fit through pelvis. (can be caused by size or shape of fetus)
- Abnormal presentation.
- Weak labor (typical of heifers that are too fat or too thin. Optimize BCS to 6 during gestation by proper nutritional management)



- ◎ Dystocia is far more likely to occur in first calf heifers. Typically not a significant issue in mature beef cows.
- ◎ Calf death loss within 24 hrs. of birth <5% with no dystocia. 2 – 4 times higher if calving assistance required.
- ◎ Heavier calves more likely to require assistance; however, if they survive the first 24 – 48 hours post-birth, they are less likely to die prior to weaning.



- Bull calves average approximately 5 lbs. more at birth than heifer calves. If breeding AI, is female sexed semen an option?
- Is Calving Ease a Selection Priority? Will less Dystocia lead to a more profitable beef production system?



EPDs to use when Calving Ease is a Selection Priority



Calving Ease Direct (CED), is expressed as a difference in percentage of unassisted births, with a higher value indicating greater calving ease in first-calf heifers. It predicts the average difference in ease with which a sire's calves will be born when he is bred to first-calf heifers.

- Heritability = 19%
- Threshold Trait

Example

- Bull A has CED of 5
- Bull B has a CED of 16

If we mate both bulls to a set of virgin replacement heifers, we are 11% less likely to pull a calf sired by bull B



Birth Weight EPD (BW), expressed in pounds, is a predictor of a sire's ability to transmit birth weight to his progeny compared to that of other sires.

- Heritability = 46%
- Normally Distributed

Example

- Bull C has a Birth Weight EPD of -0.7
- Bull D has a Birth Weight EPD of 3.3

Calves sired by bull D will weigh 4 lbs. more at birth, on average



Calving Ease Maternal (CEM), is expressed as a difference in percentage of unassisted births with a higher value indicating greater calving ease in first-calf daughters. It predicts the average ease with which a sire's daughters will calve as first-calf heifers when compared to daughters of other sires.

- Heritability = 20%
- Threshold trait
- “Next generation” maternal predictor

Example

- Bull E has a CEM of 8
- Bull F has a CEM of 13

If we are calving out the daughters of both bulls which are mated to the same sire, we are 5 % less likely to pull a calf from one of bull F's daughters



Value of Knowing the Genetic Profile of Your Bull(s)

We have been using the following Angus bull for the past 5 years in a rotational mating system with Hereford.

Tag 5100

CE EPD = 3 BW EPD = 4 WW EPD = 50 CEM = 8



We are pulling 30% of the calves he sires out of first calf heifers and pulling 25% of the calves out his daughters having their first calves.



Selection Priority: Reduce Dystocia

How? Find a new herd bull with higher CE & CEM EPDs, and a lower BW EPD.



What if.....over the past 5 years, we have not pulled a calf sired by this bull or from one of his daughters, we sell our steer calves at weaning at an average 375 lbs.?

Selection Priority: Maintain this level of calving ease and identify other economically important traits to improve.

How? Selecting another Angus bull at (or better) CE, BW & CEM EPDs while stronger in WW EPD.



Since EPDs can be compared across generations and environment, knowing the EPDs of bulls you are using helps to identify where to spend your bull buying \$ in the future to improve profitability.



Improving Performance

- Maternal Performance
- Growth Performance
- Carcass Performance



American Angus Association has a very useful sire search tool which can be used online.

www.angus.org

Sire Evaluation Report



Reviewing Genetic Trend information in the Angus Sire Summary indicates:

- purebred breeders have lowered birth weights and improved calving ease while raising the genetic potential for weaning, yearling and carcass traits
- not much selection pressure has been placed on lowering mature cow size
- using multiple EPDs in selection programs has/can/will work.



Heifers that Don't experience Dystocia:

- have shorter post-partum intervals, return to fertile heats earlier in breeding season, calve earlier the following year.
- have stronger maternal performance raising first calf.



Consequences:

- ◎ Higher % pregnant, calving and calf crop weaned
- ◎ More calves born earlier the following calving season will result in older, heavier weaned calves (regardless of weaning growth genetics)
- ◎ More Lbs. of Calf Weaned per Exposed female and Entire Cowherds weaning off a Higher % of their Mature Body Weight.
- ◎ Improved profitability



Final Thoughts

- Calving ease is important, but bull selection is **CRITICAL** to profitability
- Select bulls with the genetic potential to add profitability to your production system.
- Question: You find two new-born calves that are vigorous, healthy and nursing with a belly full of colostrum. Calf 2101 weighs 58 lbs., calf 2102 weighs 75 lbs., which would you rather have?
- Profitable beef production is more likely to result from selection for multiple traits of economic importance, than selection for extremes in one (or few) traits.



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