

Charolais Sire Summary

May 2008

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Sire selection is one of the most important decisions producers make. If it is effective, sire selection will account for nearly 90 percent of the genetic improvement in a herd. Mistakes made on sire selection this year will show up in next year's calf crop. Three years later, the sire's genetic influence will become evident again as his daughters come into production. Sire evaluation in the beef industry has become a sophisticated procedure developed through experience, research, improved statistical procedures and the development of high-speed computers. Fortunately, a beef producer only needs to know a few basic concepts to interpret and use the results.

Know the terms:

EBV (Estimated breeding value): Indicates the genetic potential of the animal for the trait, i.e. expected advantage / disadvantage in performance and how much of its performance will be carried over to its progeny. Breeding values are estimated from pedigree information and measurements taken in performance testing. Environmental effects can cloud genetic effects, it is therefore extremely important to measure animals. Animals without measurements can receive breeding values, if family members are measured.

Interpretation: A breeding value of +8kg for example is interpreted as follows:

- The animal's genetic ability is 8kg better than the average animal in the base year. Note that NOTHING can be said of the animal's actual weight - the effect of the environment is too large!
- On average +4kg weight will be added to its progeny.
- Absolute performance is not predictable, relative performance is. If the calves of two bulls with breeding values of +8kg and -8kg for example, are weaned in the same contemporary group, the calves of the former bull has the genetic ability to weigh on average more than the latter bulls.

Breeding value: Synonym to EBV. See EBV for explanation.

Accuracy: An accuracy value is supplied with each breeding value, indicating on how much information the breeding value was estimated. The accuracy is a value between 0% and 100%. If the accuracy is high, say more than 90%, enough information was available on the animal for its breeding value to indicate its genetic merit. One can then use this breeding value with confidence. On the other side, when the accuracy is low, say less than 30%, the breeding value should be used with caution.

Trait Leader: Bulls complying with requirements as set by the Breed Society, which can be used to improve certain traits in the herds. Roughly 10% of bulls are trait leaders. To qualify as a trait leader, animals should comply with the limitations as in the table. Trait leaders for proven sires as well as young bulls are identified.

Status 1: Animal that is active and alive and belongs to an active herd at the time of the analysis.

Proven Sires & Dams: Sires/Dams with progeny born within the past 2 years and accuracy of relevant breeding values higher than 50%.

Young bulls: Status 1 bulls aged between 17 and 37 months with no progeny. Accuracies for breeding values are above 25%. Please note that young bulls' breeding values are based on pedigree and own performance information, and it might change as his own progeny are measured.

Sire summary: Alphabetical list of all proven sires that had progeny born in the past 2 years. No limitation is placed on accuracies.

Requirements for trait leaders:

| Trait | EBV (mat) | EBV (mat) | EBV (mat) |
|------------------|-----------|-----------|-----------|
| Birth direct | <-0.29 | >10 | >8 |
| Mean direct | <-1 | >2 (mat) | >1.5 |
| Wean maternal | <-2 | >2 | >12 |
| Yearling weight | <-3 | >5 | >12 |
| 18 Months weight | <-3 | >5 | >14.5 |
| ADG | <-3 | >5 | <-180 |
| FCR | <-3 | >3 | >400 |
| Kleiber | <-3 | >3 | >20 |
| Height | <-3 | >3 | >25 |
| Length | <-3 | >3 | >13.5 |
| Scrotum | <-3 | >3 | >13.5 |

Accuracy: Bulls >50 Young Bulls >25

* No minimum accuracy required

Requirements for Young Bulls: Requirements for breeding values are the same as for Proven Sires & Dams, but accuracies are set to 25%.

Example:

For a bull to qualify for a proven sire trait leader for Wean direct, had recorded progeny born during the past two years and an EBV Birth Direct smaller than 1kg and an EBV wean direct of above 8kg and EBV Wean Maternal above -2kg. Accuracies must be above 50%.

Usefulness

Both commercial and seedstock producers should find sire summaries useful. A producer using AI can obtain semen from bulls that are superior in the traits of interest. Producers who rely on natural service can use sire summaries to select bulls that are sons and/or grandsons of outstanding bulls in the summaries. Because a bull receives one-half of his genetic makeup from his sire, sons of bulls with superior EBVs are more likely to have superior breeding values themselves for the same traits. This is especially true if their individual performance records also are above average.

Summaries also can be used to identify herds that excel in genetic merit and vice versa. A breeder who has several superior bulls listed in the report is a more reliable source of bulls than either the breeder who has no bulls listed or the breeder who has poorer than average bulls listed in the summary.



Selection on Breeding Values (EBVs)

| Trait | EBV (Unit) | Description | Extremely Negative EBV (-) | Extremely positive EBV (+) | Desired EBVs: | | | General Selection Guidelines (Please note: Objectives might change under certain circumstances) |
|-------------------|---|---|---|---|---------------|------|-------|---|
| | | | | | Ext - | Mean | Ext + | |
| Reproduction | Calving tempo (calves/100daughters) | Fertility/ retention of daughters (measured in number of calves) | Daughters have few or no calves | Daughters calved every year up to 6 years of age | | | | Select high calving tempo EBVs for profitable, fertile daughters |
| | Scrotum circumference (mm) | Scrotum circumference of the bull at the end of phase C or D | Small scrotum | Large scrotum | | | | Avoid extreme scrotum EBVs for fertile bulls and progeny |
| Birth | Birth weight - Direct (kg) | Calf's genetic ability for birth weight | Calf too small | Calf too big and heavy | | | | Select average birth-direct and birth-maternal EBVs for strong calves that are not too heavy at birth |
| | Birth weight -Maternal (kg) | Dam's influence on calf's birth weight | Calf too small | Calf too big | | | | Select high weaning-direct EBVs for heavy weaning calves |
| Growth tempo | Weaning weight-Direct (kg) | Calf's genetic ability for weaning weight | Light weaning weight | Heavy weaning weight | | | | Select high weaning-direct EBVs for heavy weaning calves |
| | Weaning weight-Maternal (kg) | Dam's ability to care for calf (primarily milk) | Light weaning weight as a result of too little milk | Heavy weaning weight as a result of too much milk | | | | Select high weaning-maternal EBVs for cows with good mothering ability |
| | Yearling weight (kg) | Animal's genetic ability for yearling weight | Small, light animal | Big, heavy animal | | | | Select average yearling EBVs for average size animals |
| | 18 Month weight (kg) | Animal's genetic ability for 18 month weight | Small, light animal | Big, heavy animal | | | | Avoid extremes for 18 month EBVs |
| | ADG (Average Daily Gain), (g/day) | Ability to grow, daily weight increase post wean | Poor growth (little weight gain) | Gains excessively per day post wean | | | | Select high ADG EBVs for good post wean growers |
| Growth efficiency | Mature weight (kg) | Animal's genetic ability for mature weight | Small, light adult animals | Large, heavy adult animals | | | | Select average mature weight EBVs for average size animals |
| | Feed Conversion Ratio (g/kg) | Kg feed consumed per kg weight increase | Requires little feed per kg weight gain | Requires a lot of feed per kg weight gain | | | | Select low feed conversion EBVs for economical growers |
| | Kleiber Ratio | Metabolic growth efficiency | Low growth efficiency | High growth efficiency | | | | Select high kleiber EBVs for metabolic efficiency |
| | Feed Intake (g/day) | Feed intake in post-wean growth test | Low feed intake | High feed intake | | | | Avoid extreme intake breeding values |
| | FPI (Feedlot Profitability Index), (Rand) | Profitability combination for post weaning intake and weight increase | Large loss on post weaning growth | Large profit on post weaning growth | | | | Select high FPI EBVs for profitable post wean growers |
| Frame size | Shoulder Height (mm) | Height of the animal | Pony type | Elephant | | | | Select animals with average EBVs for shoulder height |
| | Body Length (mm) | Body length measured from shoulder to pin bone | Short animal (poor length/height) | Long animal (good length/height) | | | | Select animals with good length-height ratio |