

GENOMICS

Through ongoing genomic research with Quantum Genetics in Saskatoon, Cattleland has identified significant performance benefits in feeding cattle with certain variants in the obese gene, or Leptin gene. The obese gene, which produces the hormone leptin, has three variants identified. These are either normal (*cc*), one copy variant (*ct*), or two copies variant (*tt*). Cattleland believes that feeding of known *ct* and *tt* marketing groups results in more consistent quality carcasses which are ready for slaughter earlier than a *cc* animal. Significant amounts of research have also been conducted highlighting that *ct* and *tt* cows wean heavier calves when compared to *cc* cows. These *tt* cows also have higher rebreeding rates and a longer productive life than *cc* cows.

CATTLELAND GENETIC BREEDER ALLIANCE

Aim

Breeding and feeding the right cattle

Using superior sires of known genomic make-up for the improvement of overall profitability and marketability of the calf crop. To feed the most efficient cattle in the feedyard to produce a consistent, quality carcass. The alliance is designed for the cow-calf operator interested in genetic improvement while reducing the capital investment required to do so.

Background

Cattleland Feedyards in Strathmore, Alberta is a vertically integrated agricultural enterprise with a one-time feeding capacity of over 30,000 head. Reliability and consistency of end product are of great importance for Cattleland and the company is continually looking for ways to guarantee quality supply to the end user, the consumer. Through ongoing genomic research with Quantum Genetics in Saskatoon, Cattleland has identified significant performance benefits in feeding cattle with certain variants in the obese gene, or Leptin gene. The obese gene, which produces the hormone leptin, has three variants identified. These are either normal (*cc*), one copy variant (*ct*), or two copies variant (*tt*). Cattleland believes that feeding of known *ct* and *tt* marketing groups results in more consistent quality carcasses which are ready for slaughter earlier than a *cc* animal. Significant amounts of research have also been conducted highlighting that *ct* and *tt* cows wean heavier calves when compared to *cc* cows. These *tt* cows also have higher rebreeding rates and a longer productive life than *cc* cows.

Figure 1 demonstrates that *ct* and *tt* cows have a higher level of back fat at a lower body weight in both the spring prior to calving, as well as in the fall at weaning. This higher back fat has a direct correlation with body condition score which in turn affects reproduction rates. Figure 1 also shows that the higher weaning weights and daily gains of *ct* and *tt* calves.

Figure 1. Effect of Quantum L on beef cow and calf measures

| | Quantum L Genotype | | | P-Value |
|---------------------|-------------------------|--------------------------|--------------------------|-------------|
| | CC | CT | TT | |
| Dam | 201 | 398 | 211 | |
| Spring | | | | |
| Back Fat, mm | 4.30^a | 4.68^b | 4.52^{ab} | 0.10 |
| Body Weight | 1369^a | 1334^{ab} | 1322^b | 0.07 |
| Fall | | | | |
| Back Fat, mm | 6.72 | 7.06 | 6.91 | 0.34 |
| Body Weight | 1410 | 1397 | 1400 | 0.75 |
| Calf | | | | |
| Weaning Wt | 603^a | 614^a | 634^b | 0.02 |
| Adj. Weaning | 591 | 589 | 606 | 0.19 |
| WPDA, lb/day | 2.95 | 2.95 | 3.02 | 0.20 |

^{a,b} = Means in same row with different superscripts differ ($P < 0.05$), P -values ranging from 0.06 – 0.15 are considered a statistical trend. Quantum Genetics (Data on file)

The Genetic Breeder Alliance program is designed to help the cow/calf producer make long term herd improvements through the use of *tt* genotype bulls. Using a *tt* bull in a herd will guarantee the resultant calves are *ct* or *tt* depending on the dams genotypic makeup. Selection of replacement heifers from the calf crop will ensure *ct* or *tt* breeding heifers resulting in subsequent higher calf weaning weights.

How it works

Cattleland purchases bulls from reputable seed-stock producers and leases these bulls to the members of the breeder alliance at no charge, with the understanding that Cattleland gets first access to purchase the calves in the fall. These genotyped calves are of significant interest to Cattleland because of the benefits observed with feeding *ct* and *tt* calves. A great benefit of selling calves to Cattleland through the breeder alliance is the ranch-direct marketing avoiding the additional stress, commission costs, and shrink associated with auction mart sales.

There is a variety of purebred and cross-bred bulls available and all bulls have a Bull Soundness Evaluation carried out prior to delivery. The cow/calf producer has the ability to request what performance attributes and breeds they desire in the bulls.

Herd Management Software

For producers that qualify, Cattleland will provide herd management data through the CattleMax software system. One of the most powerful aspects of the CattleMax program is the ability to provide complete traceability of all processes, treatments, and movements at the individual animal level from the time of entry into the herd (i.e. birth or purchase) until the animal is slaughtered. Individual animal performance and carcass data ties all this together and allows the opportunity to rate each cow in the herd dependant on her calf output.

Novartis Vaccination Protocols

Cattleland has developed an alliance with Novartis Animal Health to provide a standardized vaccine protocol for the breeder alliance herds. Cattleland Feedyards' herd has extensive experience with the Novartis vaccine protocol and has been protected by it for a number of years. This vaccination program provides superior protection against the major bovine diseases both at the cow-calf and feedlot level. Research has shown that calves vaccinated under the Novartis program have reduced incidence of BRD in the feedlot resulting in improved gains and carcass quality. A standardized vaccination program results in benefits to the cow-calf producer, the feedlot operator and the beef consumer.

Calf Pricing

When it comes to Cattleland pricing your genotyped calves, there are a couple of options.

1. Cattleland can price the calves up to 12 months prior to delivery (October). This price will reflect the futures market pricing as well as seasonal variations in the calf market. This sale price will be negotiated between Cattleland and the Producer and will be based on a delivered Alberta price.
2. Cash price - Cattleland will price the CT and TT calves at \$2.00/cwt UNDER the published CANFAX average for the week prior to delivery. These calves must be booked for delivery 2-3 weeks prior to delivery date. The price paid will be based on the CANFAX average for the week prior to delivery.
3. If the Producer is using their own TT bulls and have genotyped their calves, Cattleland will price those CT and TT calves at \$3.00/cwt ABOVE the CANFAX average for the week prior to delivery. These calves must be booked for delivery 2-3 weeks prior to delivery date. The price paid will be based on the CANFAX average for the week prior to delivery.

The above pricing structure is based on delivery of CT and TT calves only. Due to the extra expense involved with feeding CC calves, there is a discount of \$45/CC calf if the producer chooses to send CC calves to Cattleland.

If for some reason the producer chooses not to sell the calves to Cattleland, a bull usage fee of \$35/calf weaned will be owed to Cattleland.

Benefits to Cow/calf breeder:

- * Secured cattle marketing options.
- * Bull cost waived (\$35/cow value).
- * No commission to be paid to auction marts (\$17/hd value).
- * Reduction in shrink (8% to 4%) because of direct farm-feedlot transport (24lbs decrease in shrink on a 600lb calf) = \$26/hd @ \$1.10/lb.

* Heavier weaning weights –*tt* females are known to wean calves up to 31 lbs heavier than their *cc* counterparts.

* Through retained ownership of *ct* and *tt* heifers, the breeder will see significant genetic improvements in the herd because of the increased milking abilities of these females. Weaning weights of subsequent *tt* and *ct* calves will improve.

* Through the use of the CattleMax herd management program, the cow-calf producer is able to keep track of their calf crop right through to slaughter. This will allow for further herd improvement through selection of cows that consistently produce healthier, higher yielding calves.

Table 2 below summarizes the benefits in being involved with the Cattleland Genetic Breeder Alliance. The table compares marketing calves through an auction mart (at Canfax average price of \$110/cwt) versus through the Breeder Alliance at \$2/cwt under the Canfax average.

Table 2. Summary of benefits of involvement in the Genetic Breeder Alliance.

| 600lb CALF | Normal Marketing \$110.00/cwt | CFL Alliance \$108.00/cwt |
|----------------------------|--|---------------------------------------|
| Shrink | 8% = 48lbs <u>552 lb payweight</u> | 4% = 24lbs <u>576 lb payweight</u> |
| Gross | \$607.20 | \$622.08 |
| Bull Cost | \$35 | 0 |
| Auction Mart Commission | \$17 | 0 |
| Genotyping | 0 | \$15 |
| NET | \$555.20 | \$607.08 |
| Difference | <u>\$51.86 = 9.4%</u> | |

Cattleland’s Genetic Breeder Alliance benefits all members of the beef supply chain including the cow-calf producer, the feedlot operator, and the beef consumer. Through participation in the alliance, cow-calf producers will see long term herd improvements along with financial benefits while making minimal changes to their current operation.

For any questions regarding Cattleland’s Genetic Breeder Alliance please contact Mick Taylor on (403) 934-4030.