

STRATEGIC NUTRITION MAKES SUFFICIENT GAINS TO MARBLING

Background

Nutritional supplementation during pregnancy and infancy can enhance fat cell formation, including intramuscular fat (marbling).

For cattle, published scientific articles have shown that 'the critical window to influence marbling expression is when a calf is in the final 80 days of pregnancy up to 250 days of age'¹. The proliferation of the number of fat cells is maximised with a high energy, ideally a grain-based diet.

Intramuscular Fat Formation from Conception to Slaughter

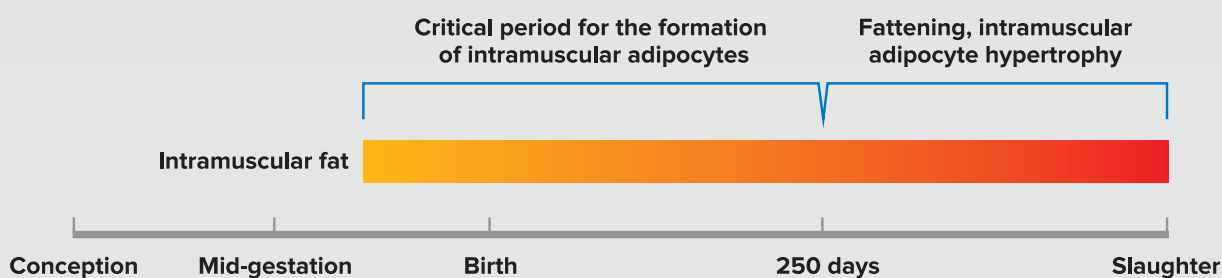


Image sourced: 'Optimizing livestock production efficiency through maternal nutritional management and fetal developmental programming' 2017.

Objective

To measure the marbling effect of calves (compared to their marbling Estimated Breeding Values (EBV)) that had a nutritional supplement from birth up to 210 days of age, compared to a control group of calves (compared to their marbling EBV) that didn't have a nutritional supplement.

Methodology

In the Feeder group, 12 steers were fed a high-energy supplement of pellets from birth until they were 7 months old. The average intake over this period was 940 grams/day, or 200kg of feed per steer. The steers also had access to pasture and their mother's milk.

In the Control group, 11 steers had the pasture diet and their mother's milk.

The EVBs of all steers are recorded.

After weaning, all steers are sent to a commercial feedlot for feeding for 500 days prior to slaughter.

At slaughter, the marbling of all steers is measured.

Acknowledgment

This trial was executed by Jeremy Cooper from Circle 8 Bulls, based in Marulan, NSW, Australia. His support and effort have made it possible to quantify the results and share the findings within the industry to enhance the Wagyu product.



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Results

	Marbling EBV Average	Marbling Average at Slaughter	Marbling Average Less the Marbling EBV Average
Feeder Group	1.1	8.0	6.9
Control Group	0.7	6.4	5.7



The feeder group’s marbling (considering their marbling EBV) was significantly higher, 1.2 (6.9 less 5.7) more than the control group

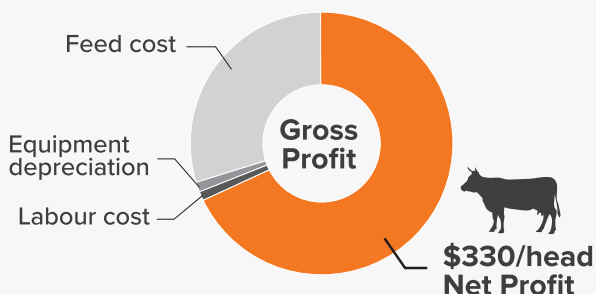
Conclusions

The return on investment in strategic nutrition to enhance marbling in cattle is very high.

The result ensures that the end owner of creep fed calves with average marbling scores of steers 1.2 higher than non-supplemented calves.

The financial returns are continually changing, however,

- If the added marbling lifts the owner’s return by \$1.20/kg (dressed weight) and the dressed weight is 400kg/head, this is an added gross income of \$480/head,
- The costs of the creep feeding equipment depreciation, 200kg of feed, and labour are commonly about \$150, which provides a net profit of \$330/head, not including the other positive effects of creep feeding.



If the calves’ growers own them at the time of slaughter, they will receive the added net profit. If ownership changes during the steer’s life, it is foreseeable that the buyer will pass on a large proportion of the added gross income to the calves’ growers.

The trial had added positive findings for the feeder group:

- The creep fed group grew 174 grams/head/day faster than the control group. This amounted to a 5.4:1 feed conversion. If there were no premium for marbling, this benefit alone would have a net profit of \$100 per calf.



- The calves’ weights were taken 60 days after weaning to measure the benefit of creep-fed calves gaining weight from added pasture conversion from a more developed rumen. The results showed that creep fed calves that had no supplementation after weaning grew 100 grams/day faster than the control group. This has a high net profit because there are no added input costs.

Strategic supplementation, which starts in late pregnancy, 80 days before calving, has the potential to yield even higher returns. The capital costs of feeding equipment during this feeding period are negligible because creep feeding assets can be used to supplement the cows.

¹Du, M., Ford, S. & Zhu, M. (2017) Optimizing livestock production efficiency through maternal nutritional management and fetal developmental programming. Animal Frontiers. Vol 7:1 – 5-11. Doi: 10.2527/af.2017-0122.

