

New Zealand Society of Animal Production online archive

This paper is from the New Zealand Society for Animal Production online archive. NZSAP holds a regular annual conference in June or July each year for the presentation of technical and applied topics in animal production. NZSAP plays an important role as a forum fostering research in all areas of animal production including production systems, nutrition, meat science, animal welfare, wool science, animal breeding and genetics.

An invitation is extended to all those involved in the field of animal production to apply for membership of the New Zealand Society of Animal Production at our website www.nzsap.org.nz

[View All Proceedings](#)

[Next Conference](#)

[Join NZSAP](#)

The New Zealand Society of Animal Production in publishing the conference proceedings is engaged in disseminating information, not rendering professional advice or services. The views expressed herein do not necessarily represent the views of the New Zealand Society of Animal Production and the New Zealand Society of Animal Production expressly disclaims any form of liability with respect to anything done or omitted to be done in reliance upon the contents of these proceedings.

This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](http://creativecommons.org/licenses/by-nc-nd/4.0/).



You are free to:

Share— copy and redistribute the material in any medium or format

Under the following terms:

Attribution — You must give [appropriate credit](#), provide a link to the license, and [indicate if changes were made](#). You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

NonCommercial — You may not use the material for [commercial purposes](#).

NoDerivatives — If you [remix, transform, or build upon](#) the material, you may not distribute the modified material.

<http://creativecommons.org.nz/licences/licences-explained/>

Managing the high performance beef cow herd – where to next?

K.I. LOWE

Massey University, Palmerston North, New Zealand.

ABSTRACT

Historically, the breeding cow has established its place on New Zealand sheep and beef farms as a 'hardy' animal, able to withstand the vagaries of climate and feed supply, and for 'cleaning-up' rough pastures generally assisting output from the ewe flock - the main enterprise. The cow has been particularly useful where contour or cost prevented cropping or conservation. In this context, pure breeds such as Angus or Hereford have served well. The traditional role of the beef cow needs to be reviewed as farmers:

- move to cross-breeding and use more 'productive' breeds
- have much higher expectations of beef income relative to sheep
- increase their proportion of beef to sheep
- develop their properties

Data from the 'Limestone Downs' property near Port Waikato is presented to show that this 'new' cow in the 'new' environment presents challenges and opportunities not earlier foreseen. At Limestone Downs, three-way cross-breeding of the Angus herd started in 1984, with Hereford and Friesian bulls introduced. At that time, average calf weaning weight was 180 kg. In 1992, the last of the pure Angus cows weaned calves of 205 kg, with the 3-way cross cows weaning calves at 250 kg. Mean cow liveweight of about 420 kg has not changed since 1984. However, the liveweight of the cross-bred cows drops 34-40 kg between calving and weaning, whereas the Angus tended to stay constant. Additional calf weaning weight has cost the cow liveweight which must be replaced before the following spring.

With increased subdivision, pasture development and greater cattle numbers there is no longer the rough feed for cows to 'survive' on. This, coupled with a cow now bred to produce a heavy calf at weaning at the expense of her own body condition if necessary, can lead to re-breeding problems and high cow losses.

What of the future? We need to be clear about our expectations of the breeding cow, and perhaps accept that in the traditional role, the traditional cow needs only minor modifications. At the other end of the spectrum however, in a situation where the cow is a direct competitor for feed, we need to consider a whole spectrum of options such as twinning, as these are developed and proven.

INTRODUCTION

Historically, the breeding cow has established its place on New Zealand sheep and beef farms as a 'hardy' animal, able to withstand the vagaries of climate and feed supply, to 'cleaning-up' rough pastures generally and assisting output from the ewe flock - the main enterprise. The cow has been particularly useful where contour or cost have prevented cropping or conservation.

In this paper the role of the breeding cow over the last decade at Limestone Downs is reviewed, and some questions asked about "where to next?" It is hoped that the issues addressed have some relevance to the wider industry.

Limestone Downs

Limestone Downs is a 3,200 ha sheep and beef farm located near Port Waikato. In 1982 the property was run on an "extensive" basis and stock included 1,400 Angus breeding cows. These performed the traditional function of cleaning up rank pastures in the autumn and supporting the main enterprise - sheep production.

The property was developed over the next decade into an intensive farming operation, and the breeding herd made an important contribution during the early years in assisting with pasture improvement.

The sheep flock has been reduced from 23,000 to 12,000 ewes and some 1,100 Friesian bulls are killed each year at 18-20 months.

The original plan was that as the farm was developed, there would be a decreasing need for cows and the herd size would be reduced. However, declining sheep prices relative to beef led to the herd being retained at about 1,200 cows.

In 1984, three-way cross-breeding of the Angus herd began with Hereford and then Friesian bulls introduced. A fourth breed is used over about a quarter of the herd as a terminal sire. All female progeny are mated to calve at 2 years of age - those not required for replacements are weaned early and slaughtered at 2 years of age as "once-bred" heifers. Male progeny are retained for finishing at 20-30 months of age.

At Limestone Downs there were three factors which required us to review the traditional "support" role for the breeding cow.

1. Increased beef returns relative to sheep over the last decade. In 1985 sheep consumed 65% of feed grown at Limestone Downs and provide 65% of the income. In 1993 sheep consumed 48% for 32% of the income.
2. Development of the farm with fencing, water, fertiliser.
3. Adoption, mainly through cross-breeding of a cow capable of higher performance.

Misunderstood Matriarch

As the farm has developed and performance expectations of the herd has increased, management of the herd has

had to change drastically. In summary, the breeding cow shifted from a complementary or support role, to an animal which is in direct competition with other stock classes. We learned some things the hard way, and with hindsight "misunderstood our matriarch."

If we are to make progress with the debate on where to focus our research and extension effort with the breeding cow, I suggest we need to define two quite different farming environments:

1. The situation described by Webby and Thompson (1994) where there is feed that "neither sheep nor other classes of cattle could manage." For want of a better word I will call this the extensive situation, where the cow plays a non-competitive, perhaps a complementary role.
2. The situation where pastures and stock can be managed so that all feed can be consumed by sheep or younger cattle - the intensive situation. Here, the cow is a competitor.

The Extensive Situation

Most of our literature on the breeding cow is directed at this situation where as McCall et al (1994) say "unweaned cows can spend up to 2 months grazing low quality feed in the autumn."

This is how things were a decade ago at Limestone Downs. Two changes were made to lift herd performance at that time:

1. First calving at 2 years of age was introduced. Provided heifers and young cows were given priority feeding there were no particular management problems.
2. The Hereford bull was used over the Angus cows. Again, this was easy to do and created no particular management challenge. The results are shown in Table 1.

TABLE 1: Mean calf weaning weights.

| Cow Breed | Period | Calf Weaning wg (kg) |
|----------------|---------|----------------------|
| Angus | 1982-84 | 180 |
| Angus | 1992 | 205 |
| Angus/Hereford | 1992 | 220 |

Mature cow winter liveweight of around 420 kg did not change significantly over this period. The improved calf weaning weight from Angus cows is presumably due to improved nutrition of the cow and calf over lactation as pastures improved. The heavier calves from the cross-bred cows can be attributed to hybrid vigour.

Most importantly, the first-cross herd could be used in its traditional "cleaning-up" role without large fluctuations in cow weight and subsequent calving performance.

The Intensive Situation

With Limestone Downs fully developed, we now enter the situation I have called "intensive."

The next step for our herd was the introduction of the

Friesian as the third breed and the Simmental as a terminal sire over about a quarter of the herd.

In a separate paper (Crawford and Lowe), the relative current profitabilities of the livestock enterprises at Limestone Downs are described, showing the breeding cow ahead of sheep and close to bull beef. So they are still there, even though they are no longer required to assist with development and are in direct competition for feed with other enterprises.

To retain their place, they must produce steer calves capable of slaughter before their second winter and heifer calves which can rear a calf at 2 years of age and be slaughtered at 260 kg carcass weight six months later.

But we now have a herd in a situation where different rules apply, and it is this "high-octane" matriarch which is frequently misunderstood.

TABLE 2: Calf and cow weaning weights, 1992.

| Cow Breed | Calf Weaning Wgt. (kg) | Cow Weaning Wgt. (kg) |
|----------------|------------------------|-----------------------|
| Angus/Hereford | 220 | 445 |
| Friesian/A x H | 250 | 410 |

The bioeconomic index of efficiency suggested by Webby of calf weight weaned per kg of cow wintered places the Friesian cross cow ahead, but in an intensive situation the feed required to restore cow liveweight has to be diverted from some other enterprise. The opportunity cost of this is not zero and cannot be ignored.

Friesian blood in the herd has bred a cow capable of producing a 280 kg calf at weaning in a good summer and a 260 kg calf in a poor one.

The high performance cow suits our intensive situation and earns her place. However, she needs to be carefully monitored and managed. We find it important to weigh cows at calving, calf marking and weaning, and preferentially feed where necessary.

SUMMARY

In summary, our experience would suggest that the matriarch will be misunderstood unless we define the situation in which she will be run.

For the extensive situation, calving at two years and two-way crosses using beef breeds would seem appropriate in many situations, although farmer adoption is low, suggesting that on-farm constraints are real. (Brazendale *et al*).

For the intensive situation, use of multiple crosses and production of offspring capable of high liveweight gain will enable the cow to compete directly with other options. However this cow will require careful monitoring and management.

The Future

New developments such as sexed semen and twinning will need to be evaluated, and could raise the competitive edge of the breeding cow in the intensive situation.

However, as the proportion of our national breeding herd run in intensive situations is low, the uptake of these new technologies is likely to be limited.

We need to think carefully about the wisdom of having our breeding cow perform more and more like a dairy cow.

Our dairy farmers still slaughter 800,000 calves a year at birth. New technology such as sexed semen would allow them far greater opportunity to provide suitable calves for our beef industry.

REFERENCES

- Brazendale, R.; Reid, J.I.; McRae, A.F.; 1994; The on-farm impact of beef production technologies; *New Zealand Society of Animal Production*; **54**: 413-416.
- Crawford, K.; Lowe, K.I.; 1994; The stock unit system-fair treatment for the breeding cow?; *New Zealand Society of Animal Production*; **54**: 319-322.
- McCall, D.G.; 1994; The complementary contribution of the beef cow to other livestock enterprises; *New Zealand Society of Animal Production*; **54**: 323-328.
- Webby, R.W.; Thomson, R.D.; 1994; Current status of the breeding cow in mixed livestock production systems; *New Zealand Society of Animal Production*; **54**: 311-314.