

Dairy-Beef – opportunities for dairy farmers

RD (Bob) Thomson, Sheep & Beef Specialist, AgFirst Waikato

Introduction

There has been much talk about how unacceptable it is that over two million bobby calves fail to reach a week of age. This presentation looks at what could be done with the surplus bobby calves, in the context of current and expected dairy and beef prices, and what the opportunity might look like for dairy and beef farmers.

Situation Review

Research projects, Kelloggs' reports and industry commentators alike have combined in a chorus, exhorting us to 'rear more and better bobby calves'. This was fair enough to start with, but since 1990 there has been a huge surge in surplus bobby calves coming off the back of a 2.6 million head increase in dairy cattle. The resultant bobby calves have created an increasing threat to our reputation in the market because of animal welfare perceptions, but advice on how and where the surplus will be raised has been less forthcoming.

There have been suggestions that we could rear the surplus bobby calves as veal but housing calves in sheds and feeding them like meat chickens or pigs does not bode well with our New Zealand farming ethos. There is a stronger argument for raising them on pasture because that is natural, the animals will be happy, and it will be environmentally acceptable. However, there is a major challenge with raising these bobby calves on our prime-beef finishing land.

As the Beef + Lamb NZ Economic Service have recently reported, since 1990 dairy farming has taken up almost one million hectares of our prime finishing land. Dairy farming was justified because it was the most land-use competitive pastoral land-use option. The price for beef and lamb had been too low and many sheep and beef farmers had been encouraged to move over to dairying or relinquish their farms to the high bidding dairy farmers.

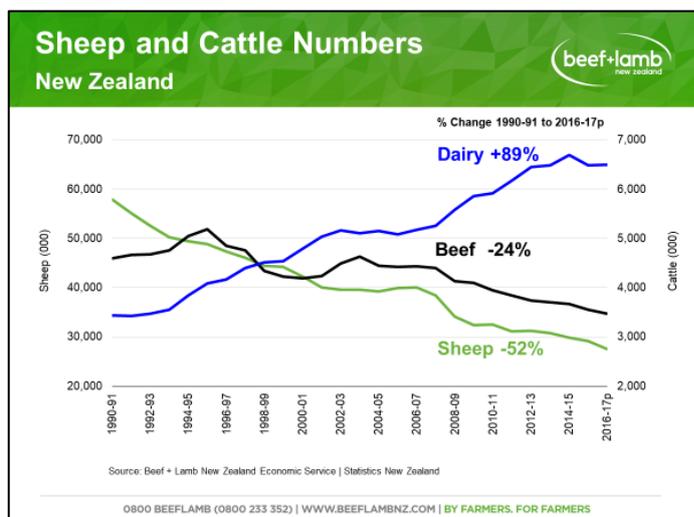


Figure 1: Sheep and cattle numbers 1990-91 to 2016-17

Figure 1 shows there was less than half the breeding ewes and almost a quarter less beef cattle in 2016-17 compared to 1990-91. The sheep and beef numbers contrast with the huge 89% increase in dairy cattle. Beef breeding cows and heifers in-calf are down 28% in number since 2000-01, while dairy

cows and heifers in calf or milk up 42%, which has resulted in major land-use change. In particular, sheep and beef lost to dairy almost one million hectares of prime land since 1990-91, mostly in the 2000's.

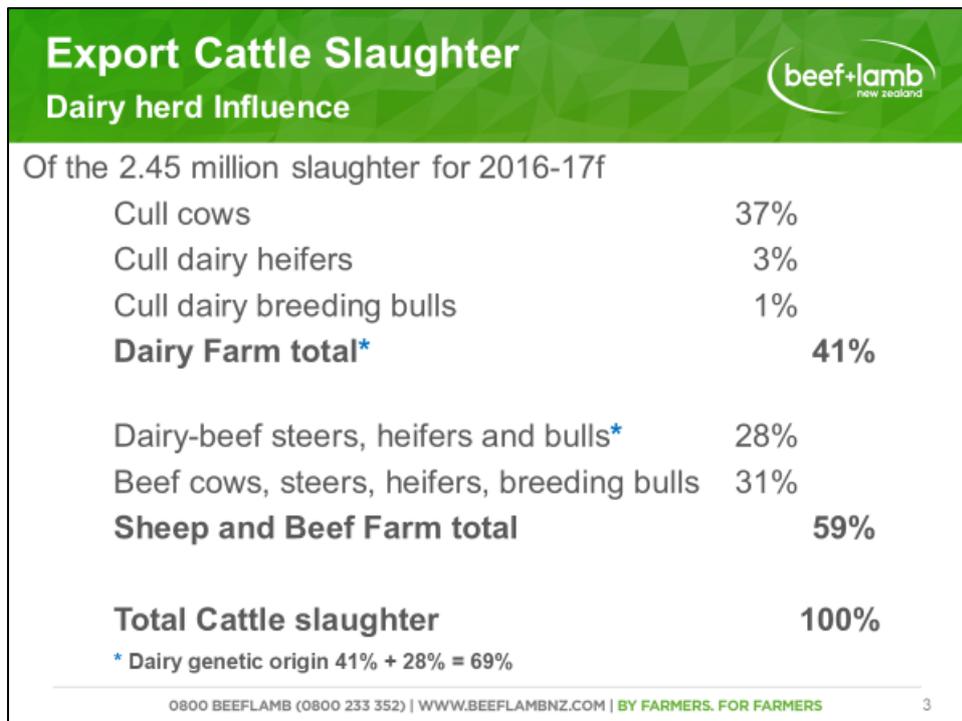


Figure 2: Export cattle slaughter in 2016-17

Figure 2 shows that the sheep and beef sector is very dependent on the dairy herd for its beef production. On sheep and beef farms the type of cattle processed is close to being equal in number, i.e. 28% of dairy-beef origin and 31% of traditional beef origin. Also, 69% of cattle predicted to be slaughtered in 2016-17 were expected to be of dairy origin.

The profitability of beef cows is relatively low and there is increasing pressure to plant more of our hill country in production forestry with the consequence that breeding cow numbers are likely to further decrease. Therefore, it is likely there will be an increasing dependence on dairy cows for any future increase in the number of beef finishing cattle.

A large part of our beef finishing land has already gone, and in my view we need to get some of it back if we are to find homes for our surplus bobby calves. In the Waikato we estimate that if we are to compete with an average dairy farm, returning \$6/kg of milk solids (MS), we would need \$7/kg carcass weight for prime beef. We would also need to couple up that high beef price with an efficient beef finishing system to be competitive on the basis of profit before tax (see Table 1). In practice, an efficient beef finishing system would mean wintering the cattle once, not twice, and accepting a lower carcass weight than we have traditionally targeted.

Table 1: Summary of Waikato dairy vs Waikato dairy-beef finishing

Summary Waikato Dairy versus Waikato Dairy-Beef Finishing					
<i>Profit Comparisons July 2017</i>					
Enterprise	Gross Income/ha	Operating Expenses/ha	Profit before Tax/ha	\$/kgMS/CW	Other \$/kg
Waikato Dairy	\$7,040	\$5,203	\$1,837	\$6.00	\$0.40
Waikato Dairy-Beef Current* \$4.95/kgCW	\$1,756	\$1,237	\$519	\$4.95	\$0.00
Waikato Dairy-Beef Contract \$5.00/kgCW	\$1,600	\$1,231	\$369	\$5.00	\$0.00
Waikato Dairy-Beef Contract \$5.50/kgCW	\$1,941	\$1,231	\$710	\$5.50	\$0.00
Waikato Dairy-Beef Contract = \$7.00/kgCW	\$2,965	\$1,231	\$1,734	\$7.00	\$0.00
<i>Production Comparisons</i>					
Enterprise	Area	Pasture tDM/Annum	Production/ha	\$/tDM	
Waikato Dairy	124	13.5	1,100	\$136	
Waikato Dairy-Beef Current \$	236	12.0	585	\$43	
Waikato Dairy-Beef Contract (\$5/kg)	236	12.0	516	\$31	
Waikato Dairy-Beef Contract (\$5.50/kg)	236	12.0	516	\$59	
Waikato Dairy-Beef Contract (\$7.00/kg)	236	12.0	516	\$145	

Current* = seasonal supply

The added challenge is in being able to keep the beef price moving up as dairy companies strive to increase returns through value-added products and better marketing. Back in July when we calculated a beef price to match dairy we agreed that the long-term MS price would be \$6/kg plus \$0.40/kg for 'other' farm income. As time has gone on we have come to accept that the MS price will likely be a moving feast and that will place more pressure on improving the beef price.

The current situation, with the issues around the destiny of bobby calves, is a 'burning raft' and the 'elephant in the room'. We must address this issue otherwise we're at risk of compromising our market status for both our dairy and beef products.

If we're to embark on a 'no kill bobby calf' regime, as some are suggesting, where will the surplus calves be reared, that is the conundrum.

The Value Proposition of using beef genetics in dairy herds

If we assumed that the dairy farmer should experience trouble-free calving from the use of beef bulls, then no matter what bull is used, the value proposition relates to two main factors:

1. Short gestation sires equal more Days in Milk (DIM).
2. High merit beef sires will generate higher value bobby calves because their offspring can be retained, finished, processed and marketed into discerning beef markets.

Natural Mating versus AI for beef

The merit or otherwise of using naturally mated beef bulls versus AI Beef bulls has always been the subject of debate. However, two recent reports show that naturally mated bulls result in higher levels of calving difficulty and are not as cost effective to use as AI.

Naturally mated beef bulls, most all of which have not been progeny tested, provide little to no guarantee that they will provide a shorter gestation length or an easy calving. On the contrary, they may very well be of longer gestation length and the dairy farmer would have no idea of this in a natural mating situation.

A review of available beef genetics shows clearly that semen in a straw offers much better value in terms of GL and beef quality than a naturally mated bull. This will be of no surprise to dairy farmers.

Perhaps the only remaining debate relates to the accuracy of heat detection and the associated labour for AI versus natural mating. Thankfully heat detection is becoming more and more automated with good options now available albeit at a cost.

About Short Gestation (SGL) Bulls

When milk is valued at \$6 per KgMS and production is 1.7kgMS per day then each day gained or lost is worth at least \$10.20 or \$1,020 per day per 100 cows and/or heifers.

With respect to AI mating, for non-herd replacement requirements, dairy farmers have the option to use dairy bulls with SGL through LIC. These bulls have GL Breeding Values of around minus 20 days and therefore afford the dairy farmer 10 more Days in Milk (DIM). But the LIC SGL Dairy bulls are high content Jersey and therefore their calves have a low value as a bobby calf and no value for rearing as dairy-beef.

The best of the currently available SGL beef bulls have breeding values for GL of minus 11 days and therefore, by deduction, are 4.5 DIM behind SGL dairy bulls (10 – 5.5 days). The value difference can be calculated as follows; 4.5 days x 1.7kgMS/day @\$6.00/kgMS = \$45.90 per cow.

However, if a dairy farmer chooses to use natural mating with Angus beef bulls, and we assume they are average for the breed and the same GL as the dairy herd, then there will be no difference in GL for the resultant and pregnant cows or heifers. On the other hand, if naturally mated Hereford or Simmental bulls were used and they were also assumed to be average for their breed then GL for pregnant cows or heifers would be 1.5 and 2.8 days longer respectively. That is, Herefords and Simmentals like many beef breeds have longer GL's.

Beef bulls available to dairy farmers

Table 2 Examples of Beef Bulls available for AI for mating 2017

Example of Beef AI bulls available and used for mating 2017						
Summary Table of Nominated Beef Bulls for Dairy Farmers						
<i>Available on first-in, first-served basis</i>						
Bull	Breed	GL EBV	ADJ GL EBV	CED EBV	Comments for Dairy Farmers	GL Value per Cow calving
Matuari Crikey G244	Angus 500 straws	-7.4	-7.4	+6.9	A good all-round proven Angus bull with good calving ease EBV; suitable heifers and cows.	+\$33.30
Rissington C200	Angus 1,000 straws	-11.3	-11.3	+4.7	A good all-round Angus bull with lower reliability figures but from a herd with VG easy-calving background.	+\$50.85
Storth Oaks H41	Angus 500 straws	-7.5	-7.5	+2.9	GL moderate and all-round reliability good. Cows only at this stage.	+\$33.75
Koanui Rocket O219	Hereford 500 Straws	-0.0	+2.5	+10.3	VG Calving Ease bull but no GL advantage. Great option for heifers and cows with great calving ease figures.	-\$11.25
Shrimptons Hill 130021	Hereford 1,000 straws	-8.0	-5.5	+10.8	The best Hereford bull on offer. Great for heifers and cows but waiting for some better reliability figures through Breedplan.	+\$24.75
Rissington New Standard AU158	Simmental 500 straws	-8.0	-2.5	+6.7	A VG Simmental bull for cows only.	+\$11.25

Footnote
The ADJ GL EBV's have been adjusted as follows:

- Angus: No adjustment as same as Friesian breed average
- Hereford: Plus 2.5 days GL compared to Friesian breed average
- Simmental: Plus 5.5 days GL compared to Friesian breed average
- GL Value per Cow has been calculated as follows: ADJ GL EBV/2 x 1.5kgMS/day x \$6.00/kgMS

The table above illustrates the sorts of beef bulls that are available for dairy farmers. Adjustments have been made to enable comparisons to be made between bulls for gestation length however it is important to note that calving ease direct (CED), the breeding value used to compare bulls for easy calving is a within breed value and therefore should not be used to compare bulls of different breeds.

Whilst the breeding values for growth and beef quality are not shown in this table the bulls shown have been selected for all round value to both dairy farmers and beef finishers.

A study of genetic trends for Angus and Hereford across the last 20 years shows that on average small positive changes in calving ease and gestation length have taken place. However further research revealed that individual breeders have made significant progress and bulls from these breeders should be sought.

Value of Bobby Calves to the dairy farmer

The best of the LIC SGL Dairy bulls are high content Jersey and therefore their calves have no extra value as a bobby calf whereas the SGL Beef Bull sired bobby calves have real potential. For example, in a pilot dairy-beef scheme promoted for 2017 spring mating in the Waikato, 4-day old calves sired by highly selected beef AI bulls were valued at \$4.00/kgLW for bulls and \$3.00/kgLW for heifers.

For this exercise let's assume the average beef-sired bobby calf is just 35.5kgLW (average of heifers 34kgLW and bulls 37kgLW) which would mean the average bobby calf price would be \$123.50 per calf based on the Waikato dairy-beef pilot scheme (average price for heifer and bull calves times their average weight). By comparison the bobby calves from the SGL Dairy bulls with high Jersey content may only be worth \$25 per head. This gives an advantage to SGL Beef Bulls of \$52.60 per calf. See Table 2.

And, when SGL beef bulls are compared to the average dairy herd they would afford an extra 5.5 DIM or \$55 per cow using conservative MS production and price. The added advantage is the certainty of easy calving from progeny tested beef bulls and a valuable dairy-beef calf.

Table 2; Value of Short Gestation Length Bulls Compared

Value of SGL Bulls Compared						
Bull Used	Value of SGL Bull					
	BV GL	DIM	MS/d	Total MS	\$/kgMS	Total \$
Best SGL Beef Bulls	11	5.5	1.7	9.35	\$6.00	\$56.10
Best SGL Dairy Bulls	20	10	1.7	17.00	\$6.00	\$102.00
Difference	-9	-4.5	0	-7.65	0	-\$45.90
Value of Bobby Calf						
Bull Used	Semen *	Heifer	Bull	Average Value	Total\$	
Best SGL Beef Bulls	-\$30.00	\$99.00	\$148.00	\$123.50	\$93.50	
Best SGL Dairy Bulls	-\$30.00	\$20.00	\$30.00	\$25.00	-\$5.00	
Difference	\$0.00	\$79.00	\$118.00	\$98.50	\$98.50	
* assumed 2 straws per live calf						
Overall Difference per calf (advantage to SGL Beef)						\$52.60
Abbreviation	Explanation					
SGL	Short Gestation Length					
BV GL	Breeding Value Gestation Length					
DIM	Days in Milk					
MS	Milk Solids					

Value of Bobby Calves to the beef farmer

Contrary to popular opinion the quality of dairy-beef is as good as traditional beef. This has been proven in science and in practice. The quality of dairy-beef can be further enhanced by selecting the very best beef sires for beef quality traits based on breeding values. The very best value beef bulls for beef finishing are available via AI and not through natural mating.

Male calves are preferred over female calves and in time sexed semen will provide a viable option for dairy farmers and more efficient cattle for beef finishers.

Challenges and Opportunities

There are other factors to consider which are less tangible and more difficult to calculate and these include:

- Heat detection for AI – the extended AI period may involve extra time and effort.
- The risk of higher rates of calving difficulty with unproven naturally mated bulls.
- The risk of bull breakdown from infertility, lameness and mating capability with naturally mated bulls.
- The Health and Safety risks with aggressive bulls.
- Added animal health risk with breeding bulls transferring-in from other farms e.g. Mycoplasma Bovis.
- When using SGL Dairy Bulls, dairy heifer replacements cannot be kept therefore all calves are surplus and have no tangible value as retained bobby calves.
- When bobby calves are of high value and are retained for beef production then less calves are slaughtered at 4-days of age which is a positive solution to the challenge of bobby-calf slaughter.
- With a 'no kill bobby calf' policy dairy farmers may have to pay for their calves to be taken away and certainly will need to be more thoughtful about the value of surplus calves for rearing for beef production.

Summary and Conclusions

The dairy industry has converted around one million hectares of prime finishing land to dairy farming thereby limiting the capacity for bobby calves to be reared. In the conversion process the number of surplus bobby calves has at least doubled further exacerbating the challenge.

The so called 'burning raft', represented in the two million bobby calves that fail to reach more than a week of age, is a dairy industry issue but also has the potential to negatively impact the beef industry. Ironically, the solution will likely be on beef finishing farms where the surplus calves should be reared.

But for beef finishing to be land use competitive with dairying we need a farm gate price for beef that can match milk. When the milk solids price is \$6/kg we'd need \$7/kg for beef which is about 25% more than at present. That 25% premium is available in the market but is not being differentiated in the price paid to beef farmers. Our price averaging system is stifling both the quality of beef being produced and the price farmers receive for it.

With very few exceptions the quality of our naturally-raised grass-fed NZ dairy-beef has the potential to be as good as it gets, and it usually is.

Beef finishing is not yet land-use competitive with dairy farming and until it is the bobby calf challenge will likely remain a major industry issue and a market threat to the future of both the dairy and beef industries

In the meantime, dairy farmers can advantage from utilising high breeding value beef semen that will generate more days in milk and a better beef calf for finishing.