



THE MODERN SOLUTION TO THE EXPORTS OF CALVES: WORKING IN BLACK AND WHITE

The Beyond Calf Exports Stakeholders Forum:
A final report on progress

November 2013

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WHAT IS THE CALF FORUM?

In June 2006, Compassion in World Farming and the RSPCA convened the Beyond Calf Exports Stakeholders Forum with leading stakeholders to find realistic and economically viable solutions that would result in a greater number of male dairy calves being reared in the UK to meet the demand for beef on domestic and international markets.

To achieve this, the Forum agreed that members would need to:

- work to support and encourage the development of economically viable outlets for the domestic rearing and finishing of male dairy calves
- work to raise awareness, to identify and develop potential domestic and export market opportunities for home produced beef from male dairy calves
- support and encourage technical and breeding developments to assist dairy farmers wishing either to reduce the number of male dairy calves born on their farms or to improve the quality of calves that are presented to market
- support and encourage high welfare standards within calf rearing systems both domestically and in other EU member states
- support and encourage consumers to purchase welfare-friendly British beef.

The Forum has included during its work representatives from AHDB, Anglo Beef Processors, Arla Foods UK, Asda, Blade Farming Ltd, British Cattle Veterinary Association, Bristol University, Compassion in World Farming, Co-operative Dairy Group, Cranfield University, DairyCo, Dairy Crest, DB Foods, Defra, Dovecote Park Ltd, Dunbia, English Beef and Lamb Executive (EBLEX), First Milk, Food Animal Initiative (FAI), Freedom Food, Genus ABS, Helen Browning Organics, Hilton Food Group, Holstein UK, Linden Foods, Livestock Auctioneers Association, Marks & Spencer, Meadow Quality, McDonald's, Morrisons, National Beef Association (NBA), National Farmers' Union (NFU), National Farmers' Union Scotland (NFUS), National Milk Records (NMR), Organic Milk Suppliers Co operative (OMSCo), Premier Foods, Red Tractor, Royal Association of British Dairy Farmers (RABDF), Royal Society for the Prevention of Cruelty to Animals (RSPCA), Sainsbury's, Scottish Agricultural College, Soil Association, Southwest TB Farm Advisory Service, Tesco, Trading Standards Institute (TSI), Waitrose and Westpoint Veterinary Group.



FOREWORD

We are pleased to publish the final report of the Beyond Calf Exports Stakeholders Forum. The Forum was launched in 2006 against a backdrop of exports of live calves resuming to the continent and completed its work in 2013 with far fewer calves being exported.

The Forum was based on the very simple premise of getting all the major players together to agree sustainable and practical solutions for black and white male dairy calves (Holsteins), often seen as worthless by the market place and whose welfare needed improving. The Forum did look at solutions for calves from other breeds but recognised that as more than 90 per cent of dairy cows in Great Britain were black and white Holstein, this was where the largest problem lay. The Forum's guiding principle was that the live exports of calves, whilst only one part of the problems of poor welfare in the lives of calves, was a symptom of the failure of the market to develop alternatives to live exports. The Forum recognised that any market opportunities would benefit the country's beef and dairy industries and improve calf welfare.

Over the past seven years, the Forum has achieved remarkable success in the three goals that it set itself, despite working against a background of economic uncertainty and large changes in the beef environment. The number of calves going abroad has declined by 90 per cent, the number of dairy calves being retained for rearing in Great Britain has increased by 58 per cent and the number of calves being killed on farm has declined by 36 per cent.

This progress was achieved by a consensual approach amongst all the stakeholders, including producers, processors, retailers and other food outlets, academics and non-governmental organisations. These have shared new ideas, information and programmes which have resulted in new markets being developed and steady progress being achieved on all three goals set by the Forum. As the pursuit of these goals has now become embedded in the individual work programmes of stakeholders the Forum has served its purpose. Progress will continue under the auspices of individual members building on the initiatives outlined in this report.

This report contains valuable information on the economics of rearing black and white male dairy calves, case studies showing how individual stakeholders have played their role in developing markets for beef and veal from black and white male dairy calves, improving the welfare of the dairy calf and encouraging the development of a more robust dairy cow. The report includes an overview of external impacts in the beef and dairy sector and how Forum members overcame these. The model of the Forum is analysed showing how Forum members were able to set aside any differences and commercial sensitivities to work together.

We wish to thank and congratulate all the stakeholders for the progress that has been made in the past seven years. Everyone has played a vital role in improving the welfare of the male dairy calf; helping British farming and the food industry; and giving the British consumer more choice in the products available.

The co-chairmen of the Beyond Calf Exports Stakeholder Forum



David Bowles
RSPCA
Head of Public Affairs



Philip Lymbery
Compassion in World Farming
Chief Executive

EXECUTIVE SUMMARY

This is the Forum's end of programme report. It follows on from the previous progress report in 2009 and summarises progress against the Forum's three goals. One of the challenges the Forum faced was getting consistent data to measure progress against these goals as there is no definitive figure for the numbers of calves born. The data presented, collated by AHDB, are the best available and consistently collated during the seven years of the Forum. The report also lays foundations for future work on this area beyond the life of the Forum by giving clear information on the economics, welfare and processing of black and white male dairy calves that will assist anyone involved in the farming, production and marketing of these animals. This progress has been achieved by all the Forum members working and sharing information together and importantly by retailers, food providers and processors offering farmers commercial incentives to rear on their male calves. So what progress has been achieved?

The Forum agreed to increase uptake of male dairy calves into the beef chain

Since 2006, the numbers of male dairy calves retained in Great Britain rose from 245,586 to 390,140. This is a rise of 58 per cent and represents 86 per cent of those male calves born. More information has been produced on the economics of rearing male dairy calves, the margins involved and this has shown that intensive finishing of these cattle can consistently provide positive net profits that are amongst the highest of those in the beef industry. Two economic studies by EBLEX and Harper Adams University are given in this report for finishing beef dairy bulls and one by EBLEX on producing veal. Early on, the Forum realised that beef production rather than veal production was the key to achieving progress in this area. Seven case studies are given by retailers and processors showing how the beef and veal markets have grown in the past seven years. Blade has been a member of the Forum since the start and their case study shows how their model of rearing and finishing male calves has generated 7,500 spaces for male black and white calves and how it has expanded. The retailer case studies from Tesco, Asda and Sainsbury's show how their schemes encourage better calf welfare through improving diet and colostrum intake.

The case studies on veal production from Marks & Spencer/Linden, Waitrose and Brookfield Farm give important data on how veal production from male dairy calves can be commercially successful.

The Forum agreed to reduce the number of calves killed on farm

The number of calves killed on farm reduced from 84,817 to 54,670 and now represents 12 per cent of those born in Britain. There are an estimated 30,000 male calves being held on TB-restricted farms which may not be available to the beef and veal market and impact on these figures. Indeed the success of the Forum may have been greater without the restrictions placed upon farms by bovine TB (bTB) and this probably represents a continuing risk to future progress. The case study from Defra shows how this risk can be mitigated through using Approved Finishing Units (AFUs), which have already helped over 6,000 calves in the first nine months of the scheme's existence. The Forum in its 2008 Recommendations asked that all assurance schemes make specific provision for improving the welfare of male dairy calves and two case studies presented here by Red Tractor and the Soil Association show how this was achieved.

Early on in its work, the Forum recommended that increased uptake of sexed semen could reduce numbers of black and white male dairy calves being born. At that time sexed semen was still viewed as a very new technology and there was a lack of awareness and experience amongst farmers. As explained by Genus in the case study, using sexed semen can be profitable for farmers if used correctly. Industry usage is still growing, encouraged by promotional schemes such as the Asda scheme presented, but there are still challenges such as the low number of Holstein bulls available as sexed semen.

The Forum agreed to reduce the number of calves exported live for further fattening

The reduction in live exports of calves for further fattening has been the most noticeable success with the number of calves being exported reducing by 90 per cent and only 2 per cent of dairy calves born now going abroad. The live export trade is negligible compared with 20 years ago. The 8,000 calves that went to other countries in 2012 compared to the pre-BSE days when 500,000 dairy calves went abroad shows the progress made. Farmers have been given new opportunities in the domestic beef and veal market and traditional overseas markets have closed down. This has also been encouraged by awards to retailers, producers and processors involved in these new markets, such as Compassion in World Farming's Good Dairy Award and in particular the Good Calf Commendation element of that award. The award recognises companies rearing calves to slaughter in higher welfare group systems, ensuring good colostrum intake in early life and no export or long distance transport. Case studies on these appear in the report.

Challenges will remain ongoing. Improvements to the conformation of the Holstein cow are occurring but will be long term. The numbers of calves born on restricted TB farms will continue to be a challenge and though Approved Finishing Units (AFUs) can help to rear on calves ultimately success is linked to tackling bTB.

Millions of pounds are still being lost to the dairy and beef market by not rearing on male calves but this can only occur if it is economically viable. Price changes in the cereal, milk and beef market will continue to be challenging. But the Forum has shown that innovative programmes, such as using steers instead of bulls, can bring more dairy calves into the British market.

It is envisaged that this report, with its clear economic message that shares the experiences of different committed stakeholders, will play its own role in ensuring that the progress made in the past seven years will continue well in to the future.

Summary on achievements against the Forum's Success Measures

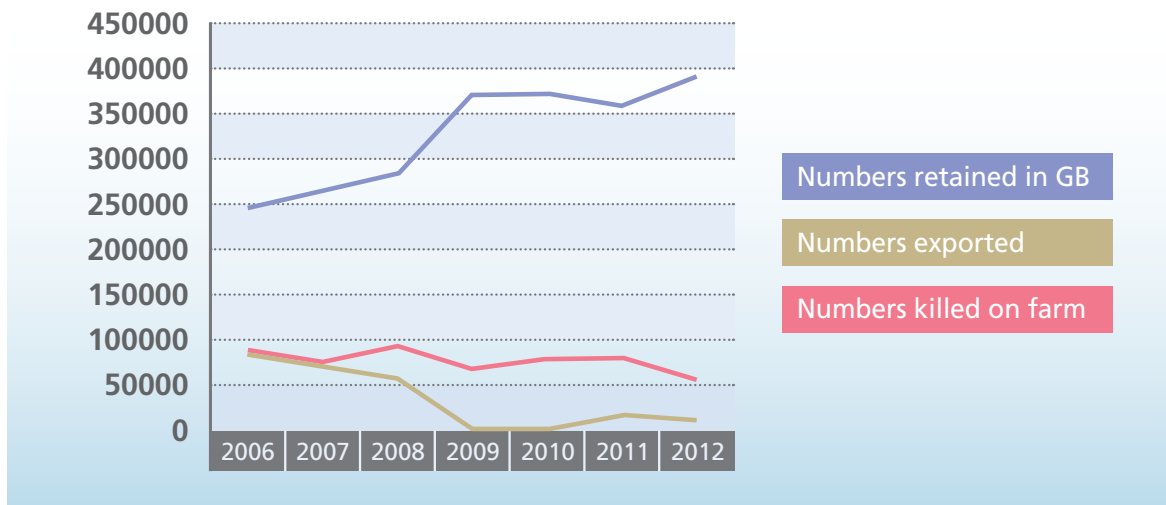
In January 2008 the Beyond Calf Exports Stakeholders Forum agreed that its success would be measured by three indicators:

- An increased uptake of male dairy calves into the beef chain in Great Britain
- A reduction in calves killed on farm
- A reduction in live exports of calves for further fattening.

The significant achievements of the Forum against these three indicators of success are illustrated in Figures 1 and 2 and were as follows:

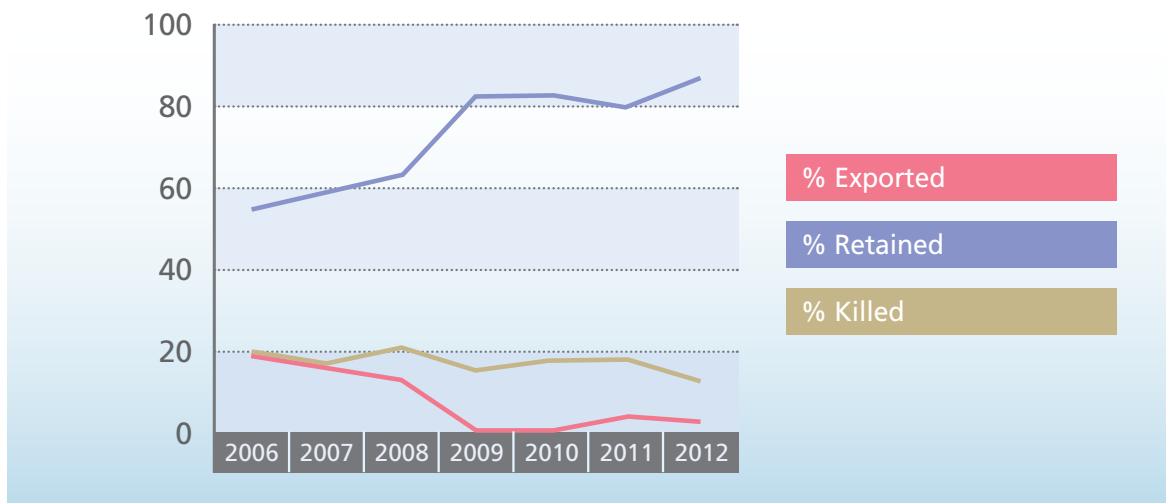
- An increased uptake of male dairy calves into the beef chain
 - The number of male dairy calves retained in Great Britain rose from 245,586 to 390,140 a rise of 58 per cent
 - The number of dairy calves retained in GB compared to those born rose from 50 per cent per cent to 86 per cent in the seven year period.
- A reduction in calves killed on farm
 - The number of calves killed on farm reduced from 84,817 to 54,670 calves a reduction of 36 per cent. The numbers of dairy calves killed on farm as a percentage of those born declined from 21 per cent to 12 per cent in the seven-year period.
- A reduction in live exports of calves for further fattening
 - The number of calves being exported reduced from 80,700 to 8,000 a reduction of 90 per cent
 - The percentage of those exported from GB as a percent of those born declined from 20 per cent to 2 per cent in the seven-year period.

Figure 1. Trends in the three success indicators for the Forum 2006-12



Source AHDB 2013

Figure 2. Destination of British bull calves 2006-12 as a percentage of total number born in Great Britain



Source AHDB 2013

SECTION 1 | MEASURE OF SUCCESS

INCREASED UPTAKE OF MALE DAIRY CALVES INTO THE FOOD CHAIN

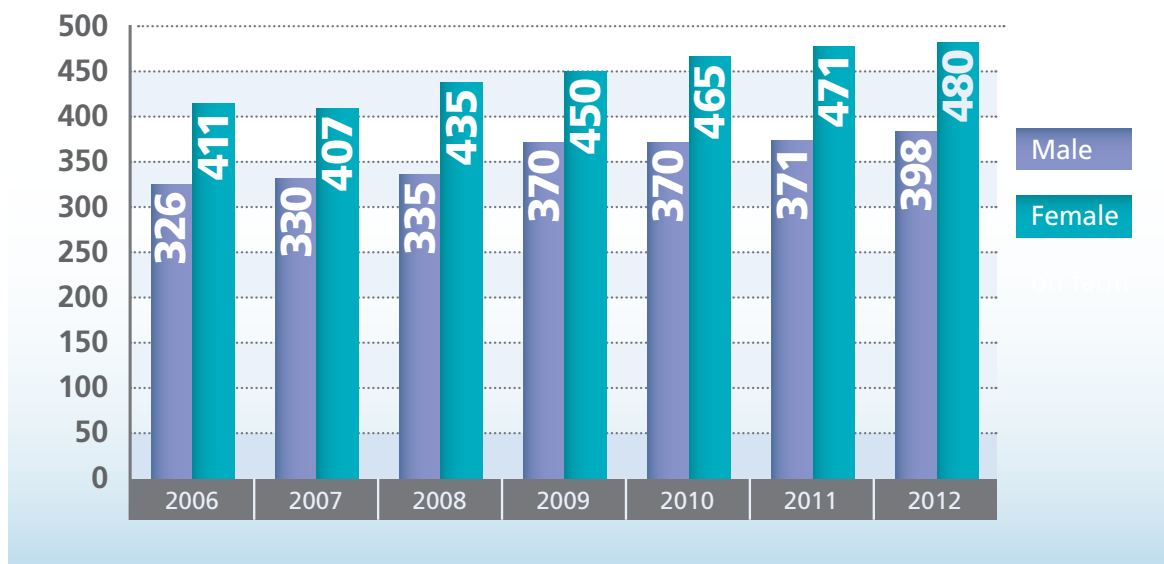
Summary of progress

	2006	2007	2008	2009	2010	2011	2012
Number of British bull calves retained	245,586	266,282	283,695	369,273	369,593	358,072	390,149
% British bull calves retained of numbers born	59	66	67	85	83	80	86

COMMENTARY ON THE ACHIEVEMENTS IN BREEDING HERD TRENDS AND CALF REGISTRATIONS

Debbie Butcher, Senior Analyst, AHDB/MI EBLEX

Figure 3. Dairy calf registrations since 2006 – male & female



Source AHDB/BCMS 2013

Calf registrations have increased since 2006, despite a lower breeding herd. Male registrations have increased 22 per cent, while female registrations are up 17 per cent. Latest data indicate that in the first five months of 2013, total calf registrations were 75,000 head or 6 per cent lower on the year. However, reflecting some modest stability in the dairy breeding herd and with increased numbers in January and February, dairy-bred registrations were back just over 3,000 head. In contrast, non-dairy calf registrations were over 70,000 head lower, with a similar reduction in numbers apparent for both sexes. This downwards trend, with non-dairy registrations in particular, has implications for future production of high quality beef and signals that cattle availability in the medium term, to 2016 at least is likely to remain tight and thus beef from dairy-bred calves will remain a valuable asset in the overall production mix.

What we agreed to do

Early on, the Forum realised that beef production rather than veal production was the key to achieving progress in retaining large numbers of calves for rearing and the majority of Forum stakeholders focussed on developing beef production. One stakeholder, McDonald's, set itself a target of obtaining 10 per cent of its supply from black and white male (Holstein) dairy calves. Leading retailers also invested in beef production from black and white calves including Tesco. Their case study shows how its producer scheme has grown the market for calves and the research it has undertaken on calf composition through the Tesco Dairy Centre of Excellence.

The Forum agreed that the number of dairy beef finishers needed to be increased. The Blade case study in this report demonstrates how it implemented a groundbreaking and replicable model which has grown geographically and in the numbers of calves it benefits, giving 7,500 spaces for male Holstein calves and an additional 12,500 spaces for dairy calves from other breeds.

A number of stakeholders, including Marks & Spencer, Tesco, Sainsbury's and Waitrose, also focussed on high-welfare veal production and, over the life of the Forum, there has been an increase in the market for British veal as explained by Debbie Butcher of EBLEX on page 11 and reported on in a case study by Brookfield Farm. Sainsbury's is now Britain's largest veal producer, and since December 2012 has sold veal in 150 stores.

Farmers and finishers for dairy bulls and steers need real costings so that they can make informed business decisions. Forum stakeholders, notably DairyCo and EBLEX, invested in producing this information and supported the Forum with producing all the data on the registration and losses of calves born in Great Britain.

In its first years of operation, the Forum considered whether changes to the carcass grading systems might be necessary to encourage the rearing of black and white male dairy calves and even proposed differentiation of such beef at point of sale. However, after examining these issues, stakeholders agreed that the best way forward was for issues of calf conformation to be addressed via the breeding of more robust cows.

Finally, the Forum wanted to increase Great Britain's self-sufficiency in beef through the dairy cow market as it felt this would be an incentive to retain male calves in the market. Self-sufficiency in beef did indeed increase from 75 to 85 per cent during the life of the Forum, despite a steep fall in breeding cow numbers. This is due principally to the return of Over Thirty Months beef on the market but the increased retention of Holstein bull calves has played its part too.



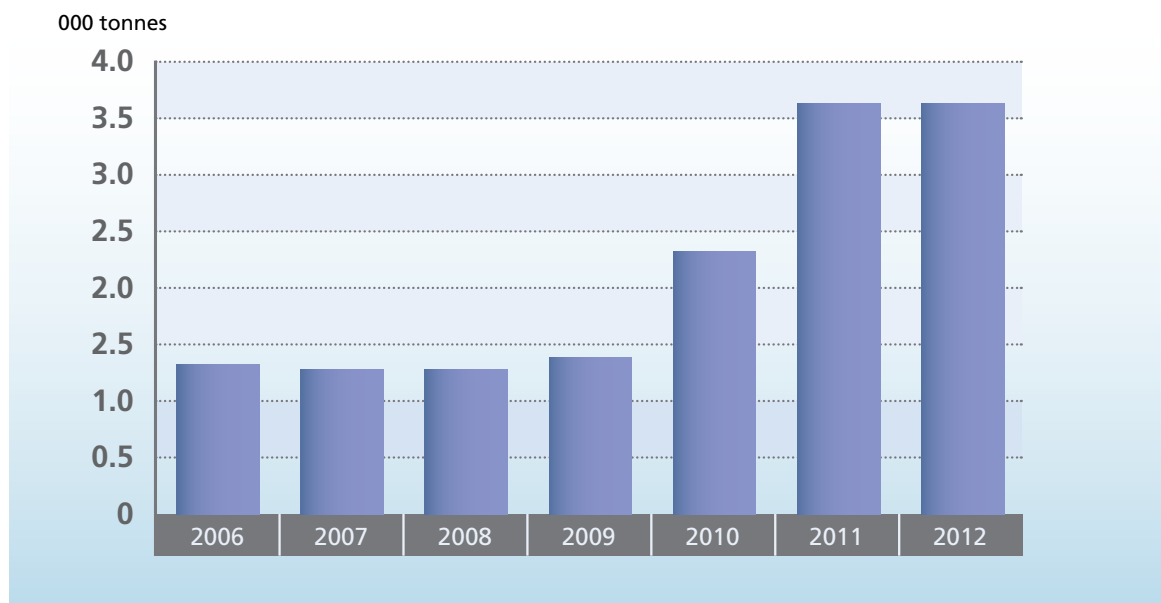
Image © Blade Farming

BLACK AND WHITE BULL CALVES ON A BLADE FARMING UNIT

COMMENTARY ON THE ACHIEVEMENTS IN THE DOMESTIC VEAL MARKET SINCE 2006

Debbie Butcher, Senior Analyst, AHDB/MI EBLEX

Figure 4. British production of veal 2006-12



Source AHDB/Defra 2013

Despite production being in decline, the EU veal market has been under some pressure in recent years arising from falling consumer demand as a result of the ongoing difficult economic situation. This seems set to continue during the remainder of 2013. However, assuming an eventual resumption of economic growth in the EU in the medium term, some recovery in demand for veal can be anticipated. Veal production is dominated by France, the Netherlands and Italy, which together account for 75 per cent of total EU output. The UK is only a marginal producer. However, despite only amounting to 3,000 tonnes in 2012, interest in veal production is growing and output is rising.

Per capita, veal consumption in the UK is negligible and mainly concentrated in the food service sector. Demand declined during the 1980s due to concerns about the welfare of veal calves reared in crates which deprived them of light and room to move. The UK has since led the way in banning veal crates and they have been illegal here since 1990, some

17 years before such a ban was compulsory in other EU countries. Welfare-friendly veal comes from calves raised on quality-assured farms and the animals have permanent *ad-lib* access to straw, cereal-based feed and water.

There is clearly some scope for increasing the market through foodservice outlets and there is also increasing interest from some retailers. Much of the veal sold in the foodservice sector in the UK is imported. As such, if UK production grows further, it may be in a position to displace Dutch veal on the UK market.

While Dutch exports of veal to the UK amounted to 2,300 tonnes in 2012, it should also be noted that Dutch exporters have also been able to develop markets for veal on other EU markets. This suggests that with an increase in production, export opportunities could exist for the UK industry in the longer term.

VIEWPOINT

Robert Forster, External Expert to the Forum and former Chief Executive of the National Beef Association

Since it was formed in spring 2006, the Calf Forum has demonstrated that welfare-linked interests can, with the help of stakeholders drawn from across the relevant sector's spectrum, contribute positively to the wellbeing of commercial agriculture – on this occasion by helping to secure greater UK self-sufficiency in beef, as well as the generation of millions of pounds more in calf sales income for dairy farmers, dairy beef farmers, and the national exchequer.

At the same time it has helped to focus dairy sector attention on the comparative frailty of the Holstein cow and encourage improvements in robustness that have begun to raise fertility levels, reduce susceptibility to lameness and mastitis, and improve longevity.

The Forum feels more needs to be done before the Holstein once again has sufficient strength to demonstrate her full income earning potential on the milk and beef markets but is pleased more breeders are tuned into cows already being able to add £4.21 to the lifetime earnings for each one digit improvement in their Product Life Index (PLI).

Millions of pounds still being lost to dairy and beef sectors each year

An additional management reward for keeping robust cows is their £600-£700 baseline value on the cull market and the additional income, up to £300 a head, which can be earned if a strong cow is given additional feed and presented to processors as a smooth, carefully finished, *Fat Class Three*.

Another is a stronger purebred bull calf. It is clear that if these are given a quick two litres of colostrum, then fed adequately on fresh milk they can already earn £50-£100 a head on the rearing market and then be converted into beef animals worth almost £1,000 a piece¹. This individual value is important because Holstein bull calves, providing they are sufficiently strong and well managed, have the potential to earn the UK, and its dairy beef sector, at least £100 million more each year than is the case at present.

For at a time when an average, -03, 275 kilo, Holstein bull carcass is valued at around £960 or 360p a kilo, an estimated 55,000 calves a year are still being shot at birth instead of being reared and finished².

Soundings indicate that 30,000-35,000 of these, collective value £30-£35 million if reared to slaughter weight, are held up on TB-restricted farms because they cannot be introduced into the beef rearing system through an adequate number of Defra approved handling premises .

And it is also suggested that a further 50,000 calves, all of them registered with the British Cattle Movement Service (BCMS) but either lacking the strength or presentation, to attract rearers, are being slaughtered as bobby calves for only around £30 a head instead of being reared as fully-fledged beef animals worth perhaps another £50 million.

¹ All prices used are taken from AHDB market records confirmed over week ending July 12th. The auction market average provides the only confirmed figure covering the purebred dairy bull calf market that is published each week. However it should not be confused with the ruling, but unreported, average value of Black and White calves of rearing quality because auction sales also include low value bobby calves offered for immediate processing.

² Most purebred dairy bulls of the Holstein type produce a carcass which is described as -03 by official classifiers. This technical description covers the shape and meatiness of the carcass (conformation) as well as its fat cover. The -0 (minus 0) relates to conformation which is substantially below average and in lay terms might be described as skinny. The 3 describes the level of fat cover or finish which is ideal. Some Holstein bull carcasses can be classified as P2 (exceptionally thin and very lean) and others as 0+3 (quite well shaped, moderately meaty and ideally lean). An -03 classification is accepted as the technical description for most Holstein bull carcasses.

³ There are no official figures covering the number of dairy bull calves born, or shot, on dairy farms under TB2 restriction. However Meadow Quality, a livestock agency of good repute and some authority, whose commercial activities cover most TB areas in England and Wales, estimates that 30,000-35,000 bull calves continue to be shot on TB restricted premises.

Situation even worse in mid-2000s

Clearly, millions of pounds of valuable dairy farm and beef sector income are still being lost but in the mid-2000s, the situation reviewed by the Forum's members was many times more critical in cost and welfare terms.

It was estimated then that out of the 560,000 purebred dairy bull calves born each year around 260,000-280,000 were shot at birth because their average auction value, just £9 a head, fell well short of covering BCMS registration and rearing costs.

After export markets re-opened on May 2007, the auction average¹ for Holstein bull calves rose to £35-£40 a head as a result of fresh commercial interest from new buyers. BCMS later confirmed that 150,000 calves were presented for sale over the year ending April 2008 that would otherwise have been shot because more breeders were able to cover BCMS registration fees and rearing costs.

Nevertheless the UK's beef sector faced an increased production loss because the lift in registrations did not cover the debit created as a result of so many calves being exported.

Although the Calf Forum's long-term view continued to be that demand from domestic rearers for newly-released bull calves would eventually compete commercially with export led purchasing, it was also clear that the decline in calf rearing/feeding structures (which began when the dairy industry was forced by the beef export ban to focus single-mindedly on milk production), was making progress unexpectedly difficult⁴.

Its initial focus was therefore on countering the influence of export buyers, who were able to visit

dairy farms directly, by encouraging as many calves as possible to be offered to smaller scale domestic rearers through specifically designed Assembly Markets.

Unfortunately, calf rearing and finishing structures continued to be extremely fragile and it was difficult to persuade new rearers and finishers to enter the market because the ruling price for a typical -03 Holstein bull carcass was less than 185p per kg – about half the level it is now.

But there were, even then, genuine market opportunities for Holstein bull beef if calves were reared. The EU's beef supplies were already tightening and, significantly the UK, at that stage just 75 per cent self-sufficient, was short of fresh beef too.

Forum responds to challenge created by on-farm calf slaughter

The Forum contacted major fresh beef and burger retailers explaining that home-produced beef output would increase if more purebred dairy bull calves were reared – and detailed an informed outline showing why that was the case. Potential rearers and finishers were offered objective cost and profit indicators through the Forum's information dispersal system too.

Although Holstein bull calf registrations continued to rise, and more evidence emerged that the UK beef market could easily absorb more Holstein beef, the volume of calves being exported for veal production increased as well. Grain prices also rose making it more difficult to generate a margin from beef animals that required two tonnes of feed grain to reach slaughter weight.

⁴ Many of the structural problems faced by the Forum and its commercial supporters were the result of the sudden withdrawal of beef sector income from dairy farm accounts by the March 1996 beef export ban. Until then up to 30 per cent of dairy farm income had been earned from selling cull cows and calves (both purebred and cross-bred) to beef sector buyers and as a result of the export ban, and the imposition of the Over Thirty Month (OTM) rule, almost all of these earnings collapsed overnight. The only possible reaction was for dairy farmers to focus exclusively on earning more from milk – the only market open to them. One result of this was the mothballing, then deterioration, of handling and rearing structures for purebred male calves. Another was the emergence of dairy cows streamlined to meet milk market demands and less beefy because there were no longer markets for beefy animals. This meant that when the beef export ban was lifted ten years later, handling and rearing systems for purebred bull calves had vanished into the long grass – and the calves on offer were less attractive to beef rearers because dairy conformation traits had become even more pronounced over the beef export ban period.

Management flexibility of steer calves highlighted

The Forum took advice from its stakeholders and responded by supporting industry specialists who suggested that some finishing units might prefer Holstein steers to Holstein bulls. It noted that while cereal fed bulls usually killed out at 270-280kg at around 14 months, Holstein steers could, in contrast, be processed at 24 months, which included at least one summer at pasture, and weigh out at 340kg.

Some steers could be sold younger and lighter, say at 14 months and 280-300kg on a superior –O4L carcass classification too. While others could be sold off grazing in autumn to specialist feeders as stores and, providing the steer calf was sufficiently robust when it was originally purchased, they too were likely to be more profitable than bulls when grain was expensive. Price penalties incurred through the 16-month age limit on bulls could be avoided as well.

The management flexibility offered by Holstein steers was quickly picked up and it is currently estimated that across some English regions perhaps 50 per cent of male Holstein calves are being finished as steers.

Nevertheless, rearers still had problems meeting this feeder-led demand because sub-standard colostrum intake and poor milk feeding on many dairy farms meant some calves were unsuitable for steer production which requires calves to be especially well presented. They could only be purchased by bull beef specialists instead.

Although the Forum's collective long term initiative was grounded on the firm belief that consumer demand for beef would increase, and supermarkets could already see beef supplies were tightening globally because imports from South America were slowing down, it was not until TB positive calves were exported to farms in Belgium and the Netherlands that the commercial argument swung firmly in its favour.

At that stage, around 80 per cent of dairy cows were being put to the dairy bull but just 120,000 out of the 480,000 Holstein bull calves born in the UK over the previous year were being reared for beef because the others had either been killed on the farm of birth, or as bobby calves – or else exported.

TB-led export restrictions encourage more dairy farmers to heed Forum's message

But quite suddenly, in November 2008, the Dutch and Belgian importers stopped importing British born calves and the Forum's emphasis on persuading dairy farmers not to shoot Holstein bull calves, and the domestic dairy beef sector to improve its infrastructure to accommodate them, was immediately more readily heeded.

Put plainly the removal of the export option meant that the UK's milk producing farmers were faced with the stark choice of either shooting more male calves at birth (which most find uncomfortable) or taking on the cost of presenting them in sale condition to specialist rearers instead. Fortunately the majority chose the latter.

Fortunately too, commercial companies, including Blade Farms, Dunbia, and McDonald's – which had recognised that without more input from Holstein bull calves the UK's beef production would fall uncomfortably short of retail needs, were already developing structured supply systems for well, bred, well-fed Holstein calves – and so they had a flying start.

It was also obvious that despite the almost complete closure of the calf export market, the on-farm slaughtering of dairy bull calves was unlikely to return to its previous high because the UK suckler herd had lost 141,000 cows and shrunk by eight per cent since 2000 while dairy cow numbers had crashed by 539,000 head (23 per cent) as a result of higher yields colliding with production restraints. This meant beef cattle were in shorter supply and the contribution to beef output that could be made by purebred dairy bull calves was more appreciated.

Nevertheless there were many individuals across the beef supply chain who needed to be reminded that in these circumstances Holstein bull calves were hugely undervalued. Proof of this came from the number that continued to be shot at birth, were not fed adequately on colostrum, or could not find places on specialist rearing units in dairying areas.

The challenge to get this message over still continues because in 2012, just over 16 months ago, over 77,000 dairy bull calves a year were being killed on their farm of birth – even though 40 new export buyers were looking for UK beef and the

world's beef cattle prices were forecast to rise by 18-20 per cent by 2020. At that time the auction average for purebred dairy bull calves approached £90-£95 – before falling to around £60 at present.

Current situation more optimistic – but obstacles to further progress remain

The current, much more optimistic, situation has already been outlined but obstacles to the eradication of the wasteful slaughter of thousands of Holstein bull calves with a potential value of almost £1,000 a head remain.

Core points have at last been isolated and it is the 30-35,000 calves held up on TB2 farms that now creates the biggest waste and generates the most disappointment. More efficient methods of transferring these calves onto a one-way, TB transfer proof, rearing and finishing systems that take them directly to the abattoir as prime beef animals must be discovered, otherwise at least £30-£35 million will continue to be lost to the dairy sector, the beef industry, and the national exchequer each year.

More must also be done to slim down the 25,000 head a year that continue to be killed on non-TB restricted dairy farms. The Forum's experience is that this can be achieved through the combination of a long-term approach to further improving Holstein cow robustness and more encouragement to breeders to feed calves to sell for rearing at £50-£100 a head instead of reaching for the gun.

Could Red Tractor inspectors examine dairy bull calf management more closely?

The ongoing annual slaughter, at say 10-14 days old, of 50,000 bobby calves valued at about £30 a head is disappointing too. Some are poorly bred and their conformation can only improve if their sire and dam become stronger. But others are poorly presented – which in plain language means they have not been fed sufficient colostrum.

Beef specialists have told the Forum that many of these bobby calves could enter the beef supply chain as budding bulls or steers, with an ex-farm value of £50-£100, if they were given two litres of colostrum within three hours of being calved – and then fresh milk as well. In this context it

is significant that dairy specialists have told the Forum that 60 per cent of bull calves still do not receive either enough colostrum or fresh milk.

Before the 1996 export ban, it was estimated that just 1-2 per cent of dairy bull calves were sold as low-value bobbies. If more of the current calf crop was offered adequate colostrum and milk this extremely favourable figure might be repeated.

On this basis, a case could be made to Red Tractor inspectors that dairy farms should not be given assured status unless bull calf management has been examined and declared satisfactory. The Forum has also noted that DairyCo estimates dairy bull calf mortality at nine per cent.

On top of this, around 8,000 calves were exported from the UK last year, mainly through Northern Ireland, although expectations are that this year's total will be much lower.

The following points need to be summarised too. Back in 2007, the Forum anticipated that wider use of sexed semen would reduce purebred bull calf numbers dramatically. Current indications are that commercial use covers around 13 per cent of cows, and that this will continue for the foreseeable future; and sexed semen will not, as many had hoped, reduce Holstein bull calf production over the long term.

At one stage, it was thought that the commercial value of Holstein bulls could only be raised to levels that would prevent them being shot as calves if their beef could be presented as a branded product with positive health benefits because it was lean and high in polyunsaturates as well. Fortunately they achieved a commercial value of 350p/kg, or £960 a head, earlier in 2013. Further price improvements are expected, and a potentially expensive branding exercise is currently considered unnecessary.

It is also clear that if more Holstein bull calves had not been reared over recent years, then more beef would have to have been imported to maintain consumption; and adequate, home-produced beef supplies, which were so important for the preservation of consumer confidence over the horsemeat crisis, would have been unavailable too.

UK self-sufficiency in beef is now 85 per cent, compared with 75 per cent in 2007, despite a steep fall in breeding cow numbers. This welcome improvement is due principally to the return of OTM beef on the market but the increased retention of Holstein bull calves has played its part too.

Last year, the UK produced 3,500 tonnes of veal. This compares with around 850,000 tonnes of beef but some veal came from Holstein bull calves and increased veal production was encouraged by the Forum.

It must also be said that representatives of the many organisations that regularly attended Forum meetings found it useful, and unique, to sit down with other industry specialists to discuss a common area of concern. Indeed there is a view that industry organisations could benefit from expanding the Forum concept to cover other areas of mutual interest, and encourage the free exchange of information that would otherwise be difficult to access, that is a key feature of them.



ECONOMICS: WHAT ARE THE CRITICAL SUCCESS FACTORS FOR FINISHING PURE DAIRY-BRED MALE CALVES?

Simon Marsh, Senior Lecturer – Beef Cattle Specialist, Harper Adams University
 Dr Mary Vickers, Senior Beef and Sheep Scientist, EBLEX

Introduction

Pure dairy-bred male calves provide a valuable source of beef to the UK food chain and offer the potential of good financial returns to beef producers relative to other beef systems. The way pure dairy-bred beef cattle are managed is wide and varied, depending largely on whether they are castrated at birth to produce steers or kept entire as bulls. Regardless of system, feed costs and days on farm play a critical role in the margins generated from these cattle, as of course does calf price and the market price of the finished cattle. Recent work by EBLEX and Harper Adams University has demonstrated some of the critical successful factors in dairy bull finishing and these are explored further below.

Potential returns from intensive finishing dairy bulls

Ever since the development of the cereal-beef system by Dr Reg Preston in the 1960s, there has been a barley-beef system at Harper Adams University and some 100 dairy-bred bulls (Holstein and Continental cross Holstein) are finished each year. The physical and financial results from some recent batches of cereal fed bulls are shown in Table 1.

Table 1. Harper Adams University beef unit results 2011-12

Breed	Holstein	Continental x Holstein
Slaughter weight (kg)	560	626
Age at slaughter (months)	13.9	14.0
Daily Live Weight Gain (DLWG) from birth (kg)	1.23	1.37
DLWG from 12 weeks old (kg)	1.32	1.50
Carcase weight (kg)	285	346
Kill out (%)	50.9	55.3
Carcase daily gain from birth## (kg)	0.62	0.75
Carcase classification (EUROP scale)	-03	0+/R3
Finishing concentrates (kg)	2,252	2,502
Feed Conversion Ratio (kg feed/kg DLWG) (from 12 weeks)	5.51	4.90
Gross margin/bull (£)	279	353

Daily carcase gain calculation deducts 24kg for the birth carcase weight

At Harper Adams, bull calves are reared from the university's 340-cow dairy unit. If they were to be purchased instead as reared 12-14 week old calves, similar to many dairy bull finishers, then the gross margin would be reduced by approximately £100 per bull.

Gross margins do not take into account the fixed costs associated with an enterprise and hence it is useful to consider net margins which do. EBLEX enterprise costings for intensive finishers over the same period found that average producers were achieving net margins (excluding non-cash costs) of £118 per head, compared to top third producers at £185 per head. Whilst this sample was not exclusive to dairy bull finishers, it does demonstrate that such systems can be profitable, and that the top producers gain substantial financial advantage from better management of their systems.

Slaughter data from over 250 Holstein bulls from a large abattoir in southern England were recently analysed at Harper Adams. It showed that the average slaughter age and carcass weight was 15.1 months and 274kg respectively, compared to the EBLEX (2012) targets of 13-15 months and 270-300kg. The majority of commercial black and white bull finishers are therefore not achieving target performance which is in agreement with Allen and Browne (2006).

High energy forages

Work at Harper Adams has evaluated replacing ad lib cereals with good quality (11.0+MJME/kg DM, 31 per cent starch) maize silage to 7-month old bulls (Marsh, 2011). The diet also contained 2.5kg/head/day of a 21 per cent CP mineralised barley/rape mix. Compared to cereal-fed bulls at Harper which typically finish at 13.5 months old with a 285kg carcass weight, the maize silage fed bulls recorded 295kg carcasses at 15.3 months old.

Maize silage is not the only forage which could be suitable for inclusion in finishing rations. Others to consider are grass silage, wholecrop cereals, lucerne and red clover. The latter two forages have the attraction of supplying valuable home-grown protein. The general advice is for farmers to grow the crop which is going to produce the highest ME and DM yield per hectare. Whichever is the forage of choice achieving high feed quality and intake potential is crucial to achieving fast growth rates and reducing feed cost per kg gain. Also, it is important to consider that some abattoirs do not want to process bulls over 16 months old which can result with forage-based rations. There may also be housing implications if finishing times are extended.

Table 2. Effect of growth rate on feed costs per day and 100kg liveweight gain

DLWG (kg)	Silage 10 ME(kg/d)	Concs (kg/d)	Feed costs (p/day)	Days to put on 100kg lwt	Total feed & other costs (£)
0.8	30.0	1.0	95	125	169
1.0	24.0	3.2	124	100	164
1.4	8.0	8.0	180	71	156

Silage (10.0 ME 25% DM) @ £25/t, concentrates @ £200/t, straw and miscellaneous costs @ 40p/d

Medium quality forages

Replacing cereals with medium quality silage can reduce daily feed costs but it will also reduce growth rates which has the inverse effect of increasing overall feed and fixed costs per animal as shown in Table 2. Feeding medium quality silage is most applicable to cattle who are to be turned out in the spring and finished extensively which has implications for cash-flow and needs to be based on well-managed grazing.

Alternative cereals

In general, growth rate tends to be correlated with the energy density of the ration and as such maize grain is an ideal grain for finishing cattle on because it is the most energy-dense grain we can grow in the UK. Also compared to other cereals, a higher proportion of the starch is by-pass starch, thus reducing problems with acidosis. Finishing dairy bred bulls on maize grain at Harper Adams recorded daily liveweight gains 13 per cent higher than the traditional barley grain based system, and feed cost per gain were 12 per cent lower (Marsh *et al.*, 2011). Recent work (Marsh, unpublished), evaluating the replacement of barley with oats in intensive finishing systems resulted in significantly lower slaughter weights, with feed conversion efficiency tending to decline with oat inclusion. This work demonstrated that oats would have to cost £34/t less than barley to justify their inclusion at 50 per cent of the cereals in an intensive beef ration.

Alternative feeds

There are a number of alternative co-product feeds on the market which can work well in intensive finishing diets. However, their price generally tracks that of cereals relative to their energy value. Work at Harper Adams involved finishing bulls on a blend of a moist co-product (Traffordgold®), bread and beet pulp (Marsh *et al.*, 2011) and compared performance to that on cereals. The co-product based diet resulted in higher slaughter liveweights (572 v 550kg) and fewer days to slaughter. Co-product feeds tend to work best where farms are close to the source of the feed, rations are independently formulated, supply is guaranteed and storage losses are minimised. There is however a finite supply of alternative feeds and including such feeds may require a change in the feeding system.

Financial sensitivity

At Harper Adams University, calf rearing costs to take a calf up to 115kg liveweight at three months old are currently £102. Transport and abattoir costs are £26 and bedding costs are zero since it is on a 'straw for muck arrangement'. This allows Harper Adams to accurately predict if they are to make profit with black and white bulls. Based on a calf price of £50 and with a bull eating 2.5t of feed, the predicted gross margin (see Table 3) based on various feed and finished beef prices can be calculated for a Holstein producing a 285kg -O grade carcase at 14 months old.

Table 3. Cereal-fed Holstein bulls at Harper Adams – Predicted Gross Margins (£/bull)

Feed cost (£/t)	Beef price# (£/kg carcase wt)		
	3.25	3.50	3.75
175	311	382	453
200	248	320	391
225	186	257	328
250	123	195	266
275	61	132	203

-O conformation class

Assuming gross margins of £10/head/month are needed to at least cover fixed costs, then at any of the above feed cost/beef price combinations resulting in a gross margin of less than £140 per head, a net loss is being generated. If weaned, 3-4 month-old calves were to be purchased instead of young calves (currently costing £260), the gross margin must exceed £250 to make a profit unless the fixed costs can be trimmed substantially. Critically, such margins depend on achieving the target performance described earlier and will be eroded very quickly if growth rates are slower and age at slaughter increased.

Alternative systems

A few producers are looking at rosé beef and rosé veal production and some niche marketing outlets have developed. Particularly attractive to some producers are the contracts available that go some

way to minimizing the risk of price fluctuations affecting margins. Finishing pure dairy-bred male steers extensively, is another option that is attractive to producers wanting to make use of grazing and home grown forages, and that perhaps do not have the facilities for finishing bulls. The disadvantage of these types of cattle compared to continental cross dairy steers or even dairy bulls is their lower feed conversion efficiency and poorer killing out percentage. However they can be finished at an older age than bulls, be more flexible in terms of the systems suitable for finishing them and be easier to manage than bulls. EBLEX have produced a manual for farmers that explains the options for dairy-bred male calves titled '*Better returns from pure dairy-bred male calves*', which is available free to producers at www.eblex.org.uk or 0870 241 8829.



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Conclusion

Increasing market volatility means that both input costs and cattle prices exhibit peaks and troughs in a less predictable pattern than in the past. Intensive finishing of cattle can be particularly sensitive, because in many situations this system is heavily reliant on purchased feed or home-grown cereals which have to be costed into the beef enterprise at current market value. As such, its profitability can fluctuate with market conditions, but a look back at EBLEX beef enterprise costings over the last ten years demonstrates that intensive finishing of cattle consistently provides not only positive net margins but some of the highest net margins seen in any type of beef enterprise.

Work by EBLEX and at Harper Adams University demonstrates that attention to detail is critical to the success of any of the systems employed to rear and finish pure dairy-bred male calves and high levels of management are required for success.

Summary of the critical success factors for finishing pure dairy-bred male calves

- Carefully consider the pros and cons of rearing steers versus bulls
- If grazing cattle, manage sward heights carefully to ensure pasture quality is maintained. Finish intensively during a short period of feeding an energy dense ration
- Feed a balanced ration; the finishing ration should have a high starch content and 12 per cent CP in the fresh weight. Lightly roll cereals to crack the seed coat but not process them too finely, causing digestive problems
- Consider the structural and digestible fibre content of the finishing ration. Offer straw ad lib to maintain rumen function and minimise problems with bloat. Intakes will be 0.75-1kg per day
- Maximise DLWG during the finishing phase and avoid replacing cereals with medium quality (10.0ME) silage if possible. This will reduce DLWG, delay slaughter and increase overall feed and fixed costs
- Consider replacing some cereals with top quality (11.0+ ME) forage
- Consider alternative high-energy feeds and co-products.

Specifically finishing dairy bulls:

- House in groups of 10-20 and if possible adopt an 'all-in all-out' policy. Do not mix groups of bulls
- Monitor feed intakes and liveweight gain. Select cattle for slaughter at Fat Class 3 and before daily FCR exceeds 8:1
- Maximise slaughter weights of high performing bulls
- Cut your losses with 'poor doers' and sell early
- If considering rosé beef or veal production by finishing bulls under 12 months old, a market outlet needs to be secured beforehand.

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EVALUATION OF ROSÉ AND CEREAL BEEF PRODUCTION FOR HOLSTEIN BULLS AND CEREAL BEEF PRODUCTION FOR ANGUS X HOLSTEIN BULLS

Simon P. Marsh, Senior Lecturer, Harper Adams University

Introduction and Objective:

Asda has been keen to look at other options for dairy-bred bull calves and has sponsored an economics trial at Harper Adams University to gather more data on rosé beef production in the UK. The trial results are given below.

Using AHDB figures, approximately 448,000 dairy-bred bull calves were born in Great Britain in 2011 and over 77,000 calves were shot at birth. The undesirable performance characteristics of Holstein bull calves are well recognised with poor conformation grades (P+/-O), low killing-out percentages (50-52 per cent) and poor meat-to-bone ratios compared to Continental crosses (Kempster

et al., 1988). However daily liveweight gains are comparable to medium-late maturing beef breeds (Southgate *et al.*, 1988). It is recognised that the most appropriate beef production system for the 'late maturing' Holstein is the cereal bull beef system. The reason for the slaughter of so many calves at birth is simply due to lack of profitability with rearing these breed types in this system due to high cereal prices (and fixed costs), and historically very low beef prices for P+/-O grade carcasses.

The issue of shooting dairy bulls at birth has received significant coverage in the media and alternative options being quoted are rosé veal and rosé beef production (the definition of veal is a beef animal slaughtered under eight months of age).



There is no published data on rosé beef production in the UK. The Aberdeen Angus has traditionally been regarded as an early-maturing breed type suited to extensive grass based production systems and if reared on intensive production systems from birth would typically finish at carcass weights of under 270kg at Fat Class 4L. These slaughter weights are considered to be relatively low especially for the abattoirs supplying the supermarket trade. However, the recent introduction of North American genetics into the majority of the Aberdeen Angus bloodlines have significantly improved the performance of this breed. There is no published data on the performance of 'modern type' Angus cross Holstein bulls reared on an intensive cereal beef system in the UK.

The first objective of this experiment was to compare the performance of Holstein bulls finished on either a conventional cereal beef system at 13-15 months old against a rosé beef system with bulls slaughtered at 11.5 months old. The second objective of this experiment is to compare the performance of Angus x Holstein bulls against Holstein bulls finished on a cereal beef system at 13-15 months old.

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Discussion and Conclusions

Compared to the cereal-fed Holstein bulls, the rosé Holstein bulls recorded higher ($P<0.01$) DLWGs and were slaughtered at significantly lower ($P<0.01$) slaughter and carcass weights with a lower ($P<0.05$) fat classification. The Feed Conversion Rate (kg feed: kg LW gain) of the rosé bulls was improved from 5.72 to 5.14 with total concentrate feed intakes reduced by 443kg/bull. The gross margins per bull were similar, however, with the earlier slaughter of the Rose bulls the margin per bull place was improved by £48.

A market outlet should be secured before entering into rose beef production. The Angus x Holstein bulls recorded a carcass weight of 292kg at 13.8 months old. The EBLEX (2012) target for intensive cereal-finished Holstein bulls is a carcass weight of 270-300kg at 13-15 months old indicating that the modern-day Angus can be reared on an intensive system from birth, especially Angus cows bred from high-index sires. When the performance of the Angus bulls is compared to the cereal-fed Holstein bulls, the Angus bulls recorded significantly higher ($P<0.01$) carcass weights, DLWG, carcass daily gain, conformation score with an improved FCR and a £28 higher gross margin per bull.

Acknowledgement:

Financial support from Asda is gratefully acknowledged.



Image © Blade Farming

ALAN AND LOUISE TUDOR, UPPER HOUSE FARM, SHROPSHIRE, ARE DEDICATED BLADE FARMING CALF REARERS

CASE STUDY

BLADE FARMING

Richard Phelps. Managing Director

Introduction

Blade Farming has been involved with the Calf Forum since it began and has always supported beef production at home rather than exporting calves that can be reared and finished to meet demand in the UK market place. The business began in 1999 to find solutions for farmers and the beef industry in working together to benefit from improving beef quality through a more consistent approach to beef farming. By doing so, Blade has been able to develop bespoke supply chains for UK retailers and food service customers that meet their long-term quality and welfare objectives.



The Blade Farming model is still unique as the ownership of the cattle is maintained by Blade through the rearing and sometimes finishing operations. This allows rearers and finishers to release working capital and reinvest this into the farm infrastructure. As a result of this model, we see improved housing systems that improve the welfare of the cattle. It also allows new entrants into beef production, as the payback for the cattle is much quicker than other beef supply chains. All of this is vital to support a beef supply chain and to generate homes for male Holstein bull calves, as without this level of commitment and financial backing, these facilities may not exist. Unlike many other calf schemes and supply chains, we focus on the long-term sustainability of the farmer to ensure that any supply chain adopted is long-term and fit-for-purpose on the unit. By doing this we are able to really focus on reducing costs on the unit and increasing volumes by being more efficient. A good example of this would be the implementation of a health plan created by our vets and feed plan created by our feed partners that increases the daily gain of the animals and reduces the number of days on the farm. The result is healthy cattle that are efficient and a reduction of 60 days in the finishing period. The value of the savings made is in excess of £50 per head.

The Blade Farming business is now owned by ABP UK and was acquired in November 2011 to support ABP's long-term objectives in supporting British agriculture. The investment from ABP will allow Blade Farming to increase the number of rearing and finishing units for calves from the dairy herd. Since the acquisition of the business we have seen growth of more than 30 per cent in our operations. This is due to the expanding customer base and the proactive approach from UK retailers and food service customers in working with their dairy suppliers to bring in calves to their specific beef supply chains. Each supply chain is bespoke and exclusive to each customer and many of these will be covered in other case studies in this report.

As a farm business, we believe that there is an under-supply of beef to UK customers. However we must ensure that our farmers have a sustainable and long-term business rather than operate short-term “schemes” that have no long term future.

Summary of our Operations:

- Calf purchasing
- Contract calf rearing
- Contract beef finishing

Blade operates a system where we measure and manage all stages of our operations to ensure we are able to understand where improvements can be made and make judgements based on facts rather than assumptions which is vital in any decision-making process. Following the last report we have focussed on the following areas:

- Investment into vehicles and weigh scales collecting calves direct from dairy farms

- Investment into new rearing facilities and space to include a veal operation
- Investment into new finished contracts for Holstein male cattle
- Investment in people to manage the operation and work closely with farmers, suppliers and customers
- Investment in IT systems to improve the flow of information throughout the supply chain.

The investment has resulted in 7,500 calf spaces for Holstein male bull calves and 12,500 spaces for other calves from the dairy herd from beef sires. Blade Farming has increased the farming team by a further four team members to enable the geographical expansion of the rearing and finishing units and also to ensure we can support dairy farmers that need to move calves from the dairy farm to our rearing farms. We operate a dedicated hotline for dairy farmers and now visit geographical areas on a weekly basis to ensure calves are moved.

Table 4. Summary of Blade Farming Model

Objective	Work to be achieved	How to achieve our objectives
Understand where the gaps are in the beef supply chain and see if Holstein male calves would fulfil this	Review the demand for beef and the customer profile for the use of black and white calves	Discuss with key customers and agree on where this product fits with their product mix. Set farmer contracts based on the outcomes of these discussions
Understand farmer attitudes towards black and white calves	Meet with finishers and discuss the benefits of black and white calves	Detailed report on cost models to encourage more demand for these animals. Try to incentivise where possible
Review cost models and efficiencies in the supply chain and understand the long term opportunities	Look at the supply chain from start to finish and understand where and why costs of production could be higher than other beef supply chains	Review all areas and implement operating procedures to reduce waste costs and improve efficiencies. Develop a protocol that will act as a base line for further efficiencies
Review the supply chain from birth to slaughter and implement management techniques to support the use of black and white calves	Feedback systems to farmers so that knowledge can be shared	Review the supply chain from birth to slaughter and implement management techniques to support the use of black and white calves



Image © Blade Farming

CALF COLLECTION TRAILER INCLUDES WEIGHTS AND MEASURES APPROVED SCALES TO GIVE DAIRY FARMERS INSTANT FEEDBACK ON CALF QUALITY

A weekly calf collection centre operates at Honiton in Devon for farmers, as well as a fortnightly collection service for calves in restricted dairy farmers requiring a licence to move animals.

Calf quality

Blade Farming works closely with retailers, food service customers and their dairy supply base, to understand how and where we can improve on the volumes of Holstein male calves into the operation. We understand that some calves are still financially unviable for rearers and finishers to purchase the calves at any value. The key issues include genetics and calf management post calving. When collecting these calves, we realise that at two weeks of age the calf should weigh no less than 50kg liveweight on the farm. This is not a scientific measurement. However using more than 10 years of data in the Blade operation, we realise that calves under this weight consistently under achieve in the rearing and finishing phase and often are unable to meet the target carcase weight in the abattoir.

The outcome from this is that the finisher is unable to recover the cost of growing the animal as the cost of feeding the calf is above the financial return from the finished carcase.

Following the last Calf Forum Report⁵, we have worked on a colostrum measurement program to see if we can prove through science a correlation between weight and age. We have also worked hard to understand attitudes towards the production of black and white calves within our supply base to see if we can improve on the quality of calves supplied to us. We realise that direct feedback to stockpersons and farm owners is vital to improving the supply chain and have since invested in this area. We support our farmers by offering them a commitment for their calves as our retail customers and food service customers have offered the same commitment through the ABP meat-processing operations. It is this commitment through our supply chains that has allowed us to increase our volumes of black and white calves through our Blade Farming business.

⁵ Attitudes to male dairy calves are becoming more black and white. Calf Forum report 2009

Cattle contracts

ABP UK offer Blade Farming a forward price contract model to ensure that the beef finishers have a long-term commitment for the cattle produced through this system. The benefits of this contract are clear as the beef finisher can secure purchased feed for the lifetime of the animals allowing the producer to budget for the production for the cattle and ensuring that the model is financially sustainable. Feed is essentially the main cost in the cattle program and as the cattle will require a high cereal diet if fed indoors we rely on a cereal market to be reasonably consistent in value.

Summary of costs

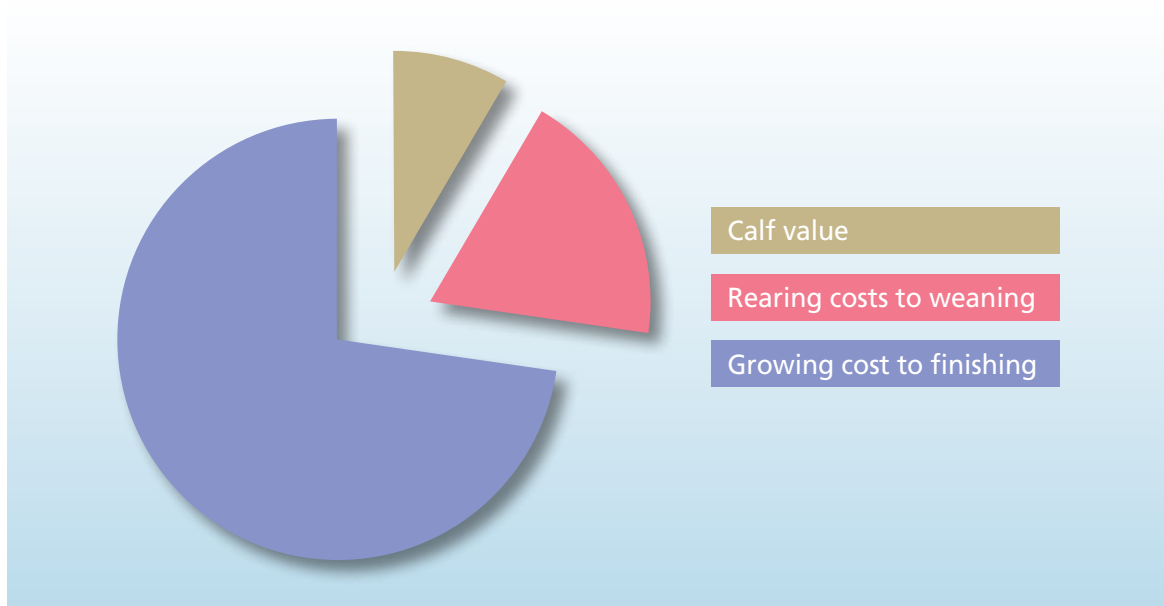
This simple chart explains where the main costs are for farmers in growing Holstein male calves. This is based on a 14-month bull beef system using a cereal-based diet. To achieve this, the animals need to grow at no less than 1.25kg per day each day they are in the finishing unit. If the animals fall below this target growth then they are unlikely to meet the carcass specification in the abattoir. When discussing options with beef producers on feeding black and white bulls we can understand very quickly that if feed costs increase further there is very little margin for error.

Summary

Our commitment still continues in promoting the use of Holstein male calves throughout the beef supply chain. We have effectively managed our farm operations to ensure that we can offer rearers and finishers a long term and sustainable farming program and the work that we have achieved demonstrates the growth we have achieved in our use of black and white male calves. We will continue to promote our operations to the industry and have enjoyed working with the key stakeholders in the Calf Forum.



Summary of costs





Graham Wilkinson, Agricultural Manager

Opening a market for dairy bull cows

Since establishing the Tesco Sustainable Dairy Group (TSDG) in 2007, the dedicated supply chain has not only ensured that the 700 dairy farmers are paid above the cost of production, but has also allowed Tesco to open up a market for previously unwanted dairy bull cows. This cross-functional initiative allows all of Tesco's core and seasonal milk producers to claim a £40 per head bonus for all Aberdeen Angus x calves that are sired by two Genus bulls that were selected for easy calving to ensure high standards of welfare.

This is part of Tesco's wider commitment to the UK farming industry; to move all Angus sired on to their Finest Brand. This cross-functional system increases the number of Angus bulls available to Tesco's beef farmers and supports the delivery of this commitment.

Crucially, this utilisation of beef from the dairy sector within the TSDG produces an integrated system to ultimately reward customers with a high quality product – so it's good for dairy farmers, good for beef farmers, and good for customers.

An added benefit to this programme includes a reduced need for a bull on farm, which helps ensure that high standards of safety for farm workers are met at all times. In addition, any producers that rear and finish any of the qualifying calves are eligible for a further premium of up to 40p/kg on carcass weight, driving up welfare standards in the supply chain.

Research to improve cow health

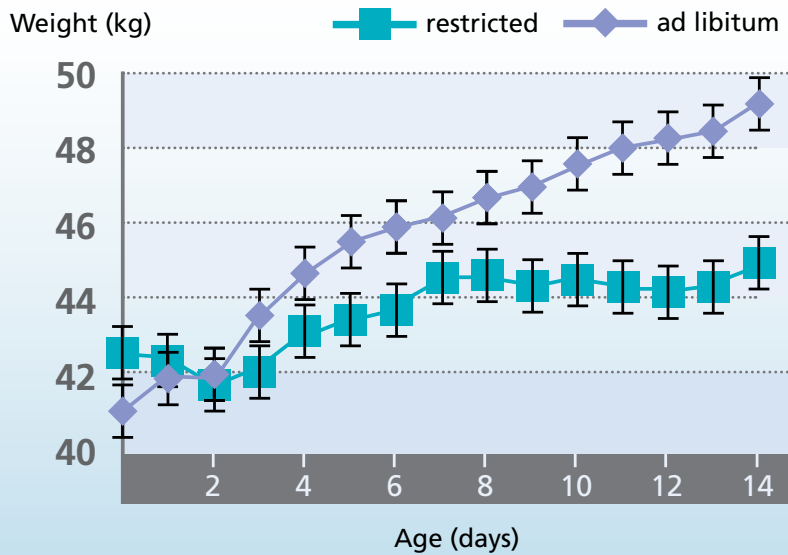
The Tesco Dairy Centre of Excellence (TDCE) is a unique alliance between a retailer and a veterinary university. It was established in 2009 and is based at Liverpool University's dairy farm. Since the partnership was first announced in August 2008, Tesco has made an investment of over a quarter of a million pounds. The Centre is also a platform (through the visitor centre launched in January 2010) for engagement with educational authorities (from primary schools to colleges), farmers, consumers, industry and non-government organisations (NGOs).

The TDCE is host to a number of studies that aim to improve the health, welfare and productivity of Holstein dairy calves by developing novel rearing strategies during the first three months of life. Impetus for the studies derives from the current data which suggest that mortality rates of calves on UK dairy farms are as high as 20 per cent. This is often due to sub-optimal rearing and has a huge economic impact. Studies are therefore being conducted to identify where improvements on farm could be made.

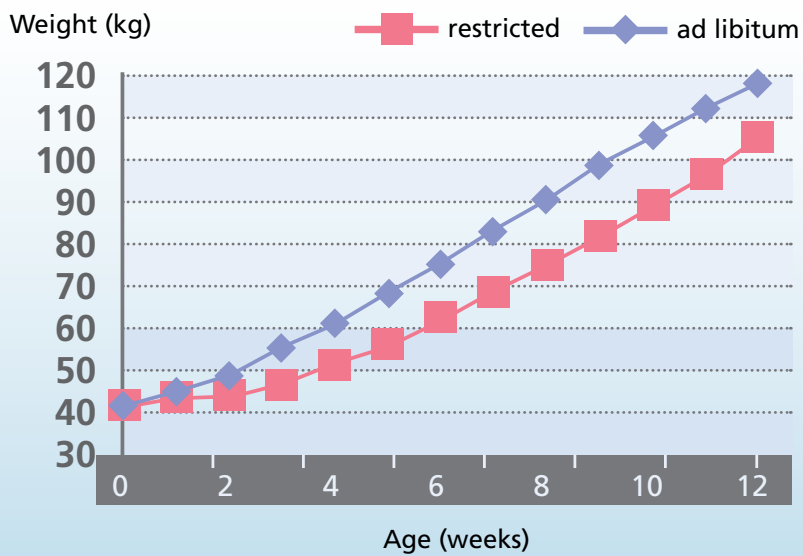
Cross-sectional study

In order to scope out the current landscape, many TSDG and non-TSDG members were involved in a postal questionnaire that was distributed to UK dairy farmers. This sought to determine current calf rearing and herd strategies. The questionnaire covered topics such as herd size, milk yield and calf rearing techniques. Key findings from this initial study included a correlation between herd size and milk yield indicating that as herd size increased, milk yield also increased. Farms that fed calves via a computerised feeder were found to have significantly higher milk yields compared to farms feeding calves using buckets, teats or troughs. In addition, only 6.6 per cent of farms fed calves *ad libitum* milk or milk replacer (MR) during the pre-weaning period.

Figures 5 a&b: Changes in weight (mean \pm s.e.) of calves in the restricted (n=50) or *ad libitum* (n=50) MR fed groups during the first 2 weeks (a) and 12 weeks (b) of life



a



b

Intervention study

One hundred Holstein heifers born at the TDCE were enrolled onto the study and were fed either restricted MR or given *ad libitum* access throughout the pre-weaning period. Weekly measures of weight, heights and body condition scores were taken. Preliminary data showed differences in weight between the two groups of animals. The biggest difference was seen from birth to two weeks of age. Restricted-fed animals gained no

weight during this time, whereas *ad libitum* fed calves gained around 20 per cent of their birth weight.

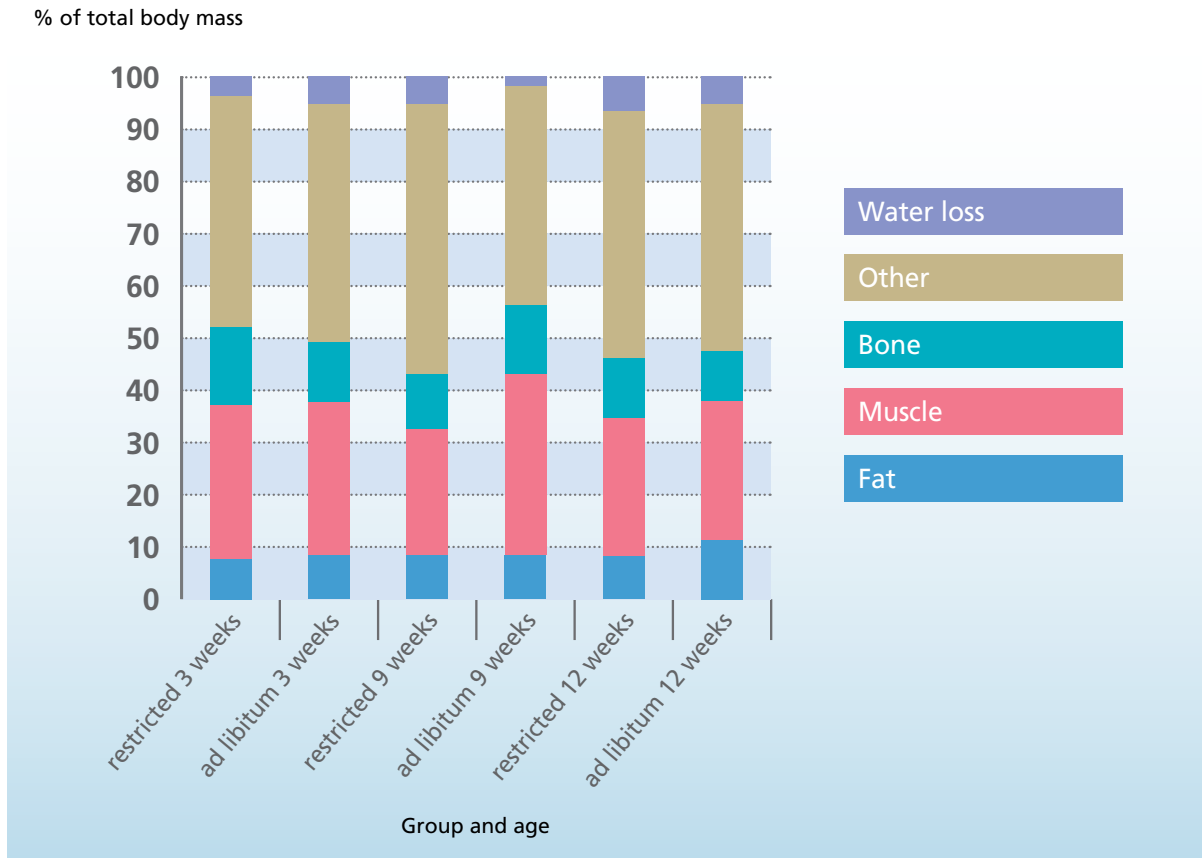
This weight advantage for *ad libitum* fed calves was maintained throughout the pre-weaning period and beyond. Measurements of height at the withers and BCS also showed differences between the dietary groups throughout the pre-weaning period, with the *ad libitum* fed calves being taller and having higher BCS than restricted fed.



Image © Tesco

THE TESCO DAIRY CENTRE OF EXCELLENCE STUDIES THE HEALTH, WELFARE AND PRODUCTIVITY OF HOLSTEIN DAIRY CALVES

Figure 6. Mean (\pm s.e.) carcass composition as a percentage of body mass for bull calves at the various ages throughout the pre-weaning period.

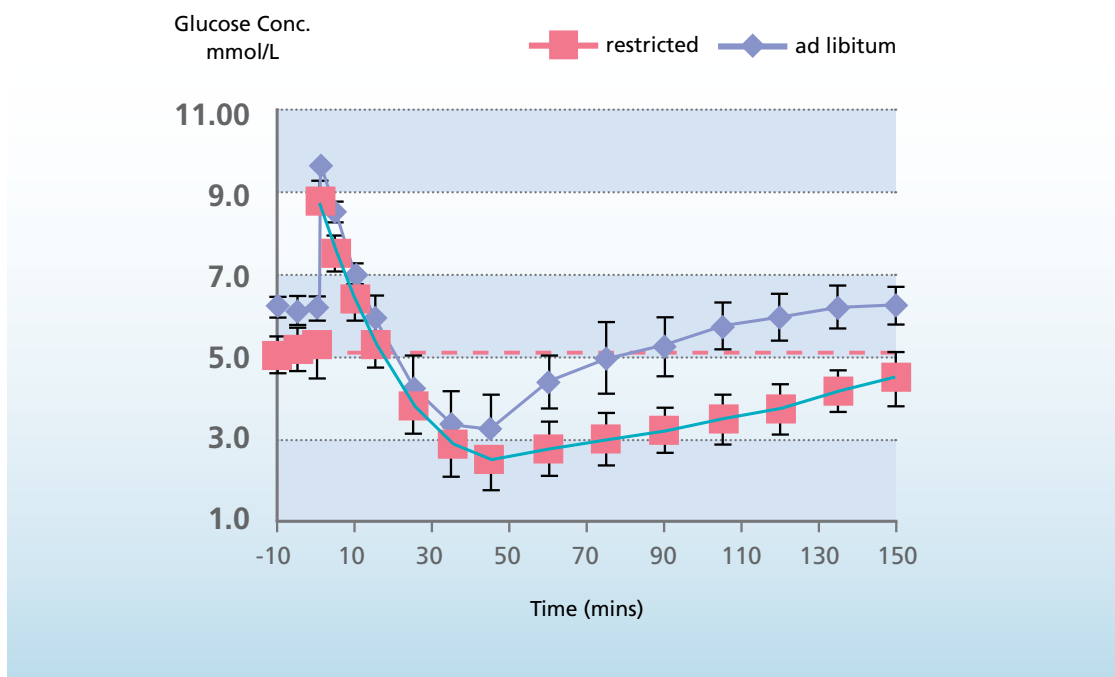


Carcass composition study

Eighteen bull calves were reared using the same protocol as heifers in the two groups until three weeks, nine weeks or 12 weeks of age (three calves in each dietary group at each time point). Calves were then euthanised and carcass composition was determined using spiral CT analysis.

There were no significant differences between dietary groups in terms of fat content of calf carcasses, showing that *ad libitum* MR feeding does not encourage increased fat deposition. In fact, at nine weeks of age, *ad libitum* fed calves would yield a 10 per cent higher 'killing out' percentage than restricted fed animals due to the higher proportion of muscle in the carcass.

Figure 7. Mean (\pm s.e.) plasma glucose concentrations for calves in the restricted and *ad libitum* fed groups during the i.v. CGIT test. The green arrow indicates time of glucose and insulin infusion, dotted lines represent baseline plasma glucose concentrations for the 2 dietary groups.



Glucose metabolism study

The impact of pre- and neonatal nutrition on future health and metabolism has been well documented. In the dairy cow, metabolic disease is a huge source of economic loss. A subset of 12 heifer calves ($n=6$ *ad libitum* MR, $n=6$ restricted MR) were challenged with an intravenous-combined insulin-glucose tolerance test (CGIT) at two weeks of age. Fasting baseline plasma samples were taken prior to a challenge with glucose (150mg/kg) and insulin (0.05 IU/kg). Further blood samples were taken over a 2.5-hour period after infusion, with samples being concentrated around the time of glucose and insulin administration.

Changes in plasma glucose concentrations throughout the test showed dietary group differences. Where *ad libitum* fed calves returned to baseline from the negative phase of the glucose curve by the end of the test, restricted fed calves

exhibited a prolonged hypoglycaemic phase. This may suggest prolonged endogenous insulin secretion in this group of animals. The CGIT was simple to perform, well tolerated and allowed concurrent appraisal of the dynamic changes associated with both elements of the homeostatic response. This test has the potential to be used in the future in a field situation and could aid farmers in identifying animals at risk of metabolic disease.

Disseminating information

Findings from these studies will be used to disseminate robust practical guidance to TSDG members. The rigorous evaluation of new rearing strategies under controlled conditions but at full herd level ensures confidence in the success of new strategies and techniques. Information will be provided in the form of workshops, blogs, newsletters, via the new Producer Network and at TSDG conferences.

BROOKFIELD FARM

David Tory, Tarrant Valley Livestock, a Brookfield Farm Producer

Introduction

One of the worst jobs on farm was shooting the black and white bull calves. We don't believe that any calves should be shot at birth so we found an alternative: high welfare veal. It is also the best option with regards to TB. This gets the animal off farm at seven months and therefore reduces the cash requirement over finished beef, eliminates problems associated with testosterone on dairy farm and also reduces space requirement.

This is a very straightforward and natural progression for a dairy farmer, who can utilise existing skill base and resource, extra labour and space requirement is minimal. The addition to his bottom line is not only welcome, but also surprising!

From the neighbouring dairy herd, we finish all the bull calves, which is around 100 animals per year. The calves are not exclusively Holstein Friesians, but over 80 per cent are. The costs of production are similar for beef and dairy breeds. The higher market value of the beef breeds is offset by an earlier finishing date, and therefore lowers the costs of production.

How the animals are reared

Baby calves are kept together in batches of five on clean straw (changed daily), with access to clean fresh water. They also have access to plenty of feed straw. They are fed twice a day on milk until they are weaned at 10 weeks old. During the weaning process, the animals have *ad lib* access to a starter nut (QRD Pellets). Once they are weaned they move onto a beef nut (16 per cent protein) also on an *ad lib* basis. There is also access to a maize and grass silage mix. Throughout the entire process they have access to plenty of fresh feed straw and clean fresh water.

All animals are reared under RSPCA Freedom Food Welfare Standards. Space allowances apply for group housed calves as follows: <100kg – 2sq m per head, 100-199kg 3.5sq m per head and 200-299 4.5sqm per head. Animals are vaccinated with Bovipast RSP (Pneumonia) at four and eight weeks of age. All animals also come under the Tarrant Valley Livestock Producer Group Protocols which are given in the box.

Protocols

- "All producers must be Freedom Food members and:
 - a. Fully compliant at all times.
 - b. Full subscription paid annually.
 - c. Subject to annual audit by Freedom Food.
 - d. Subject to RSPCA spot audit at any time as per Freedom Food protocol.
- All producers are subject to two annual visits (one unannounced) from Tarrant Valley Livestock. The purpose of this visit is to further satisfy ourselves that the integrity of our brand 'Brookfield Farm,' and that of our customers selling the brand, is upheld at all times.
- All livestock within the Tarrant Valley Livestock scheme are to travel for no more than two hours to final destination. This movement is to take place at under forty two days of age if from a non-Freedom Food holding, or at any age if between two Freedom Food holdings. All transport must be Freedom Food approved.
- A herd health plan must be kept for all stock and updated annually by your farm vet.

We ask that all our producers understand that we are developing the market for a new product in 'Brookfield Farm High Welfare English Produce'. All members of this supply chain are of equal importance and it our wish that they share in its success. Our standards and integrity therein are of paramount importance to this. We therefore ask that you only embark on this journey with us if you feel able to fully comply with our protocols, high welfare standards, and 'beyond reproach' philosophy."

Table 5. Economics of rearing

	Calf	Feed	Veterinary	Straw	Transport	Others	Total Costs
Bull calf weaning	£10 ear tag registration)	Milk: £26.22 19kg @ £1.410 per kg Feed £24.13 95kg @ £0.2540 per kg	£7.00	£7.00	-		£74.35
Bull calf rearing (28 weeks)		Feed £74.35 620kg @ £0.2140 per kg		£15	£16.00	£60.00 Labour £5.47 Mortality	£229.77

With an average weight per animal of 135kg (on the hook) the cost of production is £2.25 per kg. We are paying £3.45 per kg (on the hook) with a 5p per kg bonus, subject to fulfilment of the contract terms. The price achieved for calves depends on the individual weight of each animal, but based on an average weight of 135kg at £3.50 the animal will make £472.50. Veal is priced in stores at £8 and £10 per kg for mince in Tesco and Waitrose, and £22.99 for a pack of veal escalopes in Tesco and Waitrose.

Conformation issues/concerns

The animals must be under eight months of age (if they turn eight months on the day of slaughter they are no longer V classification, and are too old for the veal scheme). They must also average out at 125kg (dead weight) per batch and any animals under 100kg will be subject to a reduction in price. All weights are paid on intake weight to DB Foods not weights at the abattoir. Any animals that are rejected at kill (by the abattoir vet) remain the responsibility of the individual producer.

Future development of the business (potential new markets)

We are always looking for new customers/markets. Developing a new product in “High Welfare English Veal” we are developing both demand and supply at the same time. This forces us into a constantly marginal position. Until we have a larger customer base and are able to force a position where demand exceeds supply we will be operating at, what we would consider to be, below long-term sustainable margins. In order to achieve a long-term sustainable margin, one that allows for re-investment and development of the business and product, I would suggest we need to be operating at 15-20 per cent, right now we are profitable, but at a very low margin. If we were to increase the price in store we would restrict demand, meaning fewer producers were able to sell veal. Equally, if we were to reduce the supply price we could increase the price, but this would mean fewer animals in the system. Therefore we play the long game, developing supply and demand for as long as possible with a view to hopefully developing a long-term sustainable and profitable business for the future.



Image © RSPCA

ANIMALS MUST HAVE ACCESS TO STRAW AS PART OF RSPCA STANDARDS

CASE STUDY

MARKS & SPENCER/ LINDEN FOODS



Philip Gibson, M&S Farming for the Future

Introduction

In October 2007, Marks & Spencer made the decision to remove imported white veal from its shelves. Although Marks & Spencer never used 'crate systems' and only sourced veal reared in 'group housing systems', the company believed that welfare standards could be greatly improved and to achieve and control this, its veal production had to be brought back to Britain.

By 2008, Marks & Spencer was working with one of its red meat suppliers, Linden Foods, to develop trials on dairy bulls for Rose Veal production, with the first products being developed during 2009. The agreed approach takes black and white bull calves – considered a 'waste' product from the dairy sector – and produces a welfare-friendly product that is attracting considerable interest from consumers.

Since 2009, working to an agreed high welfare production method, Linden Foods has supplied M&S with a range of Rose Veal products. The integrated supply chain for M&S Rose Veal is tightly controlled. It takes dairy bull calves from

nominate dairy farmers, including M&S Select Milk Producers, and supplies them on contract to rearers who have housing designed for maximum welfare and comfort. Calves are then moved from the rearers to fattening units and are finished at between 8 and 11 months. Currently Linden Foods is slaughtering over 150 black and white calves per week for rosé veal.

The close working relationship with the rosé veal producers and the totally integrated approach has allowed Linden Foods to collect and correlate data on various aspects of both physical and financial rosé veal production. The feedback of this information has proved invaluable in developing the efficiency of the system to the producers.

One such aspect was the development of a feed intake versus calf weight graph. This allows producers to determine if their calves are eating sufficient concentrates, and is extremely useful as the rosé veal calves are on an *ad lib* concentrate diet. The graph below is used as a guide by Linden Foods rosé veal producers.

Figure 8. Relationship between Liveweight and Feed Intake



Table 6. Daily Growth Weight

Average Bodyweight	100 – 200kg	200 – 350kg	350 – 400kg	Over 400kg
Average Growth Rate	1.2kg per day	1.6kg per day	1.4kg per day	1.1 kg per day

The feed intake cannot only be taken as a guide to animal performance but also as a guide to monitor animal welfare.

A further example of how collected data has helped producers maintain margins is illustrated by the following, as concentrates account for over 75 per cent of the production costs, with animals consuming 9 – 10kg per day near the time of slaughter, it has been clearly established that animal performance drops once the animal reach a body weight of 400kg.

An integrated approach that gives total control of production, that includes the sourcing of the calves, control of veterinary and welfare practices, ration formulation and feed sourcing and the management of the processing, guarantees a very uniform carcass with an average weight of 205kg that will deliver the correct size of cuts the market requires.

A key part of the success of the scheme is the close relationship with dairy farmers and with the rearers and fatteners, and this collaborative and integrated approach leads to exceptionally low mortality levels (less than 2 per cent). Producers all operate in purpose-built, ‘state of the art’ calf units, and production is regularly monitored through the use of key performance indicators and benchmarking. In addition, a bespoke set of welfare performance indicators have been developed to ensure that the highest standards of welfare are achieved throughout.

The main key performance indicator is that of animal performance over its life time, currently 1.4kg of liveweight gain over the finishing period would be considered good with 1.2kg liveweight gain been average.

To improve the transparency and sustainability of the supply chain, in 2011 M&S and Linden Foods worked together using all the available information on feed intake, and growth rates together with various financial information developed a pricing model for the farmers involved in producing rosé veal to isolate them to an extent from the vagaries of price fluctuations in the feed and meat markets, protecting their margins and giving them a more stable future. This was followed in 2012 with trials to improve the feed conversion efficiency of veal calves.



Image © M&S/Linden

LINDEN REARERS HAVE HOUSING DESIGNED FOR MAXIMUM WELFARE AND COMFORT

CASE STUDY

SAINSBURY'S



Alice Swift, Agriculture Manager Beef and Dairy

Sainsbury's Dairy Development Group (SDDG) is a dedicated group of over 320 British dairy farmers who supply Sainsbury's with about 470 million litres of milk. The SDDG was established in 2007 with the aim of securing a sustainable supply chain, where farmers make a profit and are able to achieve high standards of animal welfare. In 2010 we were the first retailer to work with a dedicated group of farmers to supply the milk for our block cheddar. Our Cheese Development Group (SCDG) has 90 dairy farmers from Devon.

Over the last six years we have taken the time to get to know our farmers and as a result, have developed a number of successful initiatives, including a black and white bull calf scheme. The aim of the calf scheme is to provide our farmers with a viable outlet for their dairy bull calves which in return provides Sainsbury's with consistent cattle from a fully-integrated system.

In order to protect the scheme from market volatility, we agreed a pricing mechanism totally decoupled from the calf market. We agreed with our farmers a price per kilo which is currently fixed £1.30/kg. Eligible calves must be from an SDDG or SCDG farm and weigh a minimum of 50kg between 2-4 weeks of age. To ensure transparency and trust with our dairy farmers, all calves are weighed on farm prior to collection and the transport is fully funded. The average price paid for our black and white calves on the scheme is £70/calf. A unique element of our calf scheme is that calves from SDDG and SCDG farms under bTB restriction are eligible at the same price as a non-bTB restricted calf as all of our dedicated rearing units are Approved Finishing Units licensed by Defra. We are the only retailer to pay the same price for all calves irrespective of whether their farm is under bTB restriction which has contributed to the success of our scheme. The feedback from our farmers has been very positive and over 25 per cent of the SDDG and SCDG use it routinely.

British veal

The renewed appetite for British veal has recently created a new market for our bull calves. Prior to 2012, the majority of our calves were reared as bull beef but following the growing demand for British veal this has since changed. In the summer of 2012, we recognised the need to offer customers a British veal range in a large number of stores. In order to deliver this we established our Veal Development Group and recruited eight farms to rear calves exclusively for veal. Blade Farming manage these farms on our behalf as they have over 12 years' worth of experience in calf rearing, which is key to ensuring high standards of animal welfare. Each farm takes 120 calves at a time and these calves remain on the farm for six months. All farms are approved by Freedom Foods to guarantee the highest animal welfare standards. The calves have plentiful straw bedding, access to fibrous food and ad lib milk. The milk is fortified to ensure the calves are in good health.

Mike Brend, of Branch Farm, Barnstaple in Devon, is a Sainsbury's Veal Development Group farmer committed to improve the public's perception of veal and his meticulous attention is applied daily to ensure the environment encourages and enhances calf health and welfare. Determined to become a pioneer of new veal practices, Mike has invested over £90,000 in state-of-the-art housing facilities, tailored specifically for veal production.

From December 2012, the full veal range has been available in 150 stores with burgers, mince and escalope available in over 350 stores, making us the largest retailer of British veal. Since the launch, over 50,000 customers have bought into the range and come back to buy it again. Prior to December 2012, we only sold veal in seven London stores on the counter but the range has been extended to the aisle. Two new lines will be marketed exclusively in the Christmas 2013 instore ordering brochure which will result in a doubling of the number of calves needed six months prior to

Christmas. These new lines have already generated much interest, with our veal rib joint winning the Innovative Product of the Year Award at this year's Supermeat and Fish Awards 2013.

Offering a larger innovative veal range to our customers has proven to increase our demand, thus ensuring the long term viability of our black and white bull calves. We are now the largest retailer of British veal with nearly 20 per cent of the veal market and we are committed to growing this share. Alice Swift, Sainsbury's Agriculture Manager, admits there was a time when eating

veal was deemed politically incorrect, but customer perception is now changing and is helping to drive customer demand in-store.

In 2011, we launched our 2020 Sustainability Plan which consists of 20 stretching targets that our business is committed to delivering by 2020. One of our commitments is that "All of meat, fish poultry, eggs, game and dairy products will be sourced from suppliers who adhere to Independent Higher Welfare standards" Initiatives such as our calf scheme are helping us on our journey to delivering this target.



Image © Sainsbury's

ALICE SWIFT, SAINSBURY'S AGRICULTURE MANAGER (BEEF AND DAIRY) AT BRANCH FARM, BARNSTAPLE, DEVON

CASE STUDY

WAITROSE

Simon Ingle, Cattle Connect Manager, Dovecote Park

Opening a supply chain for veal

In August 2007, Waitrose and Dovecote Park established the Cattle Connect calf scheme with the intention of providing a sustainable outlet for all surplus calves born on Waitrose dairy farms in both the conventional and organic milk pools.

Since then, the scheme has grown year-on-year to a point where calves are being collected on a weekly basis from the majority of the Waitrose dairy farms. To date just over 18,650 calves have entered the Cattle Connect supply chain.

In 2008, Waitrose made the decision to only sell English veal produced from male dairy calves. The intention was to utilise the dairy bull calves born on the Waitrose dairy farms by creating a sustainable demand and value for these calves, and also guarantee a supply of good quality calves suitable for veal production.

When the scheme started there was little demand for dairy bull calves and this was reflected in the low market value of these calves. Prices have now improved and good quality dairy bull calves are in demand.

Waitrose

The Cattle Connect Supply Chain

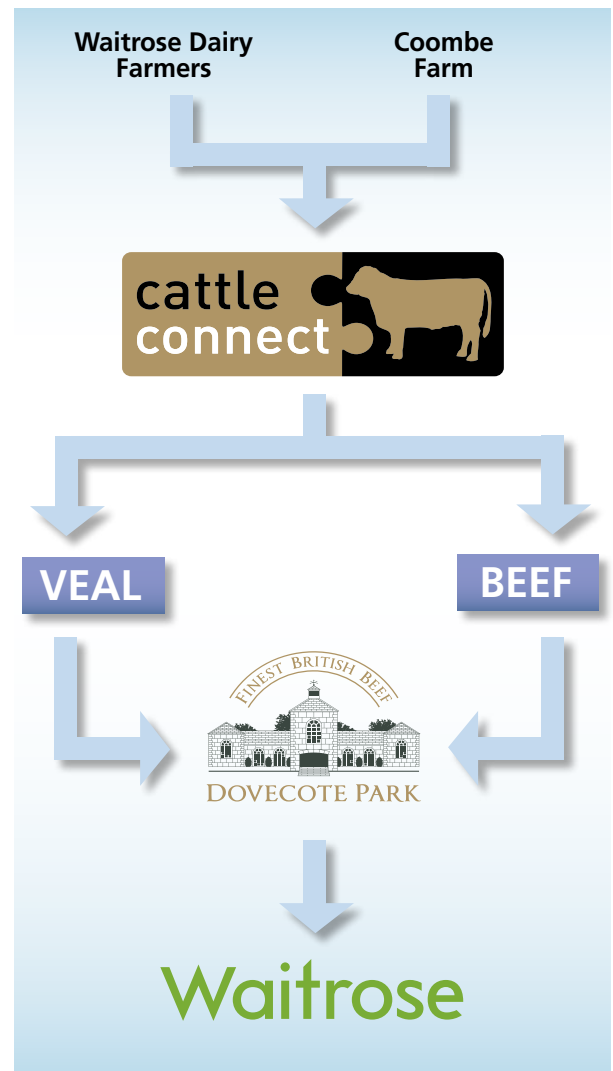


Figure 9. Number of dairy bull calves collected by year



Getting the right calf is vital to the success of the scheme and to this extent, a veal calf premium is paid for all those calves that are selected. Standards are set for the age, weight and feeding regime the calves are on on the farm of birth to prepare them for transfer to the veal unit. The aim is to provide a better return for the dairy farmer and also give an indication that these calves have a real value to this supply chain. This has resulted in an increase in the number and quality of calves collected.

Waitrose require approximately 4,000 veal calves a year and the intention is to supply as many as possible through the Cattle Connect supply chain. Currently just over half of this requirement is being supplied through the scheme. The graph opposite shows how the number of dairy bull calves being collected has grown steadily each year and will hopefully continue to do so. All Waitrose veal comes from one dedicated producer, who has been working with Waitrose and Dovecote Park for over 20 years.

CASE STUDY 1

David Homer and his family have been supplying Waitrose with milk now for nearly 15 years. He was also one of the first dairy farmers to join the Cattle Connect calf scheme.

The aim is to rear a fit and healthy calf so for the first four or five days each calf gets individual attention and the right amount of good quality colostrum.

The calves are then group housed in hutches and have access to as much milk as they can drink so they get a really good start. It also means the calves destined for the veal unit are accustomed to drinking larger volumes of milk and really prepares them for the move to the veal unit.



ANNE HOMER FEEDING HER CALVES

"I'm a big advocate of the calf scheme. The calves are collected on a weekly basis and getting to know the type of calf required means we know when a calf is ready to go. This means we can hit the right specification and get the maximum value for the calf. The scheme means we've got a definite sustainable outlet for the dairy bull calves born on the farm. They are now a product with a demand and value."

David Homer

CASE STUDY 2

James has developed a high-welfare veal system on his Suffolk farm.

The calves reared for veal are all dairy bull calves and are mainly sourced from Waitrose dairy farms. Until recently, these calves were a by-product from the dairy industry but there is a very real demand for them now as they are well suited to this high welfare veal system.

The calves arrive at about three or four weeks of age weighing between 50 and 60kg. On arrival they are housed in groups of 20 in well-bedded straw yards and introduced to the feeding system.

The calves are fed milk which they have access to 24 hours a day. After about four weeks on farm, they are introduced a molassed cereal mix, which gives the calves some variety and increases growth rates.

The target is for the calves to stay on the farm for about six months and put on around 250kg in weight over that time period which equates to about 1.4 kg per day. It's vital that the calves are in good health and condition when they arrive, so they continue to do well and grow from the day one.

Before sourcing the calves from the Cattle Connect calf scheme, calves arrived from various sources and were delivered throughout the week. Sourcing the calves from the calf scheme has meant that there is one delivery each week from the same dairy farms. It also means that James can provide feedback to the dairy farmers about the calves they send, which will ultimately mean that they get a calf better suited to the system.

"My farm is an arable farm where we grow oil seed rape, wheat and rear veal calves. We have reared veal calves on this farm for more than 20 years for Dovecote Park and Waitrose."

James



JAMES WITH A GROUP OF VEAL CALVES

Image © Dovecote Park

SECTION 2 | MEASURE OF SUCCESS

REDUCED NUMBERS OF BULL CALVES KILLED ON FARM

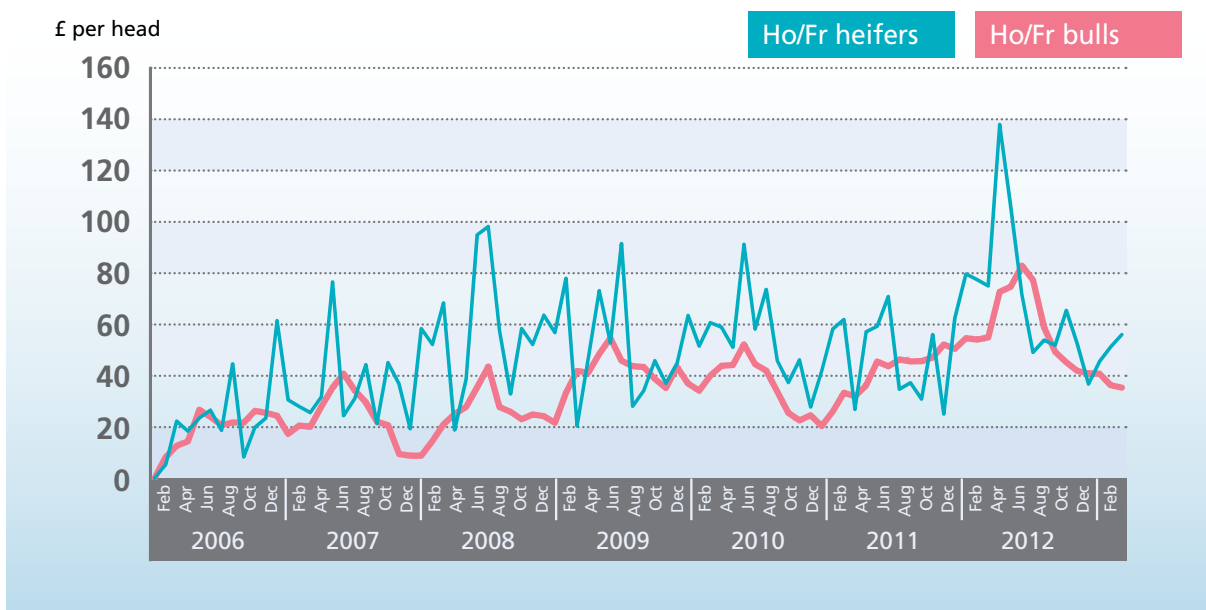
Summary of progress

	2006	2007	2008	2009	2010	2011	2012
Number of British male calves killed on farm	84,817	73,145	91,023	66,324	77,012	77,171	54,670
% British male calves killed of numbers born	21	18	21	14	17	17	12

COMMENTARY ON THE ACHIEVEMENTS IN BREEDING HERD TRENDS AND CALF REGISTRATIONS

Debbie Butcher, Senior Analyst, AHDB/MI EBLEX

Rearing calf prices volatile since 2006 – but have moved up



Source AHDB 2013

It is estimated that in 2012, almost 55,000 male dairy calves were born in Great Britain but not registered. This represents a sizeable downturn on the near 100,000 in 2008 and suggests that the estimated number retained on farm for finishing has moved in a positive direction since 2006.

What the Forum agreed

The Forum recognised at the start the crucial relationship between the market price for calves and beef and the decision of a farmer to rear the calf on rather than cull it, highlighted in Figure 10 below.

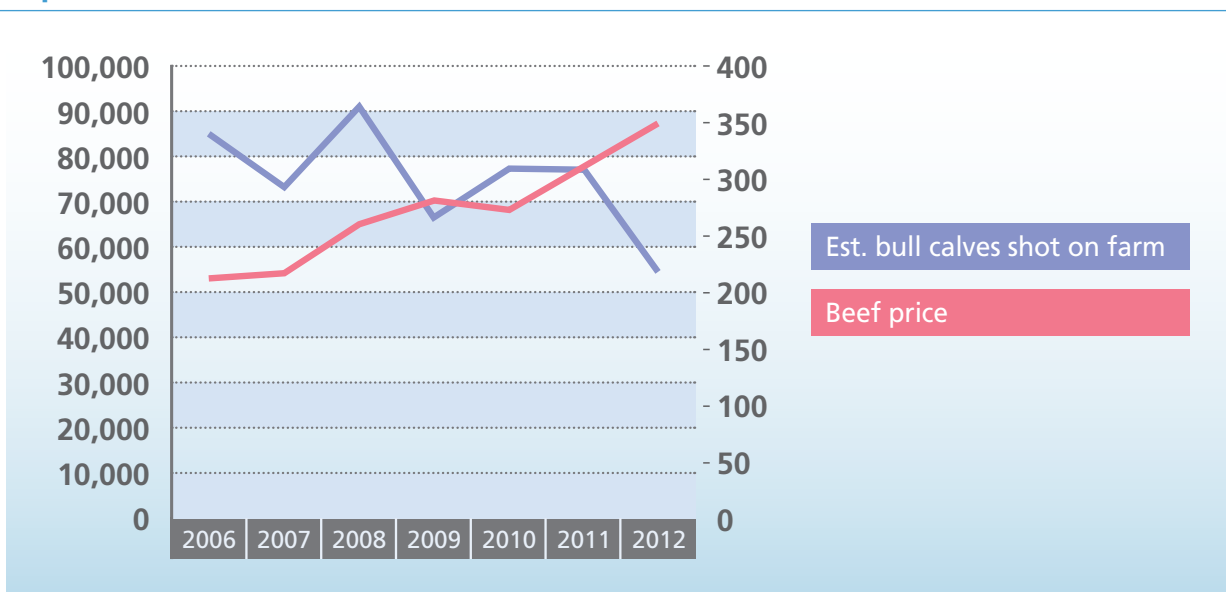
Aside from the economic drivers, the Forum recognised that certain calves would not be reared as they lacked the correct conformity, no matter what was the price of calves. The Forum agreed to concentrate on three issues. Black and white male dairy calves more suited for marketing for beef production needed to be produced, requiring attention to be paid to: i) breeding, ii) the development of a robust/more robust dairy cow, and iii) calf health and welfare.

Work on the long-term goal on breeding a more robust cow with the aim of improving both the health and welfare of the dairy cow and the viability of the bull calves she produces was done outside of the Forum. The study by EBLEX shows the progress that has already been achieved in this area, particularly on genetic improvements and selection for improved carcass traits.

The Forum recognised that many farmers needed advice on calf breeding issues and there was a real challenge to get reliable information to them, rather than decisions being made on the basis of offers made by semen salesmen. Communication to farmers has probably improved and the work of DairyCo through its website has helped enormously with this.

As part of the drive to improve calf breeding the Forum felt that the uptake of sexed semen could reduce the numbers of unwanted male calves being born in the dairy herd. The Forum produced a report on this issue in 2009 to encourage greater take up of sexed semen and had input from Genus and Cogent. In this report, there is a case study

Figure 10. Trends in the estimated number of calves shot on farm and the average steer price 2006-12



AHDB, FAI

by Genus on the challenges this new technology presents and its achievements to date. There are case studies from Asda and the Co-operative that demonstrate their efforts to maximise its use through incentives to farmers. Asda estimates that 75 per cent of their DairyLink farmers now use sexed semen.

Finally, the Forum agreed that the welfare of many newly-born calves was poor due to the lack of colostrum they were given with Sainsbury's estimating in their case study that 60 per cent of bull calves don't get the colostrum they require. Assurance Schemes such as Red Tractor have responded to this need to improve their standards on colostrum. One of the key issues noted by the Forum in 2008 and flagged in its first report was the separate farm assurance protocols for dairy and beef production that omitted the welfare of those calves that might not contribute to either system. This has now been recognised as detailed in the Red Tractor case study. From October 2013, Red Tractor standards include a requirement for

any calf death to be recorded and assessed by the veterinary surgeon. The Asda case study also shows how a more joined-up approach between their dairy and beef schemes can occur through a calf coordinator to encourage greater take up of male dairy calves into the food chain. Retailers such as Asda and Sainsbury's have put in incentives for farmers to accurately measure the colostrum given to a calf, for instance by offering colostrumeters to measure colostrum quality. However the Forum recognises that improving colostrum use is still an ongoing issue and hopes that under the leadership of DairyCo, this can be improved through an industry-wide approach.

The AHDB DairyCo contribution highlights the fact that on-farm implementation of a more comprehensive package of husbandry, nutrition and health planning for calves is required; that recommendations for feeding practice need to be standardised and that there are already good examples of industry initiatives indicating the results which can be obtained.



⁶ www.dairycobreeding.org.uk

⁷ Beyond Calf Exports: The Efficacy, Economics & Practicalities of Sexed Semen as a Welfare-Friendly Herd Replacement Tool in the Dairy Industry 2009

VIEWPOINT: CALF WELFARE

John Webster, Professor Emeritus, University of Bristol School of Veterinary Science

The title of this report from the Beyond Calf Exports Stakeholders Forum, "The modern solution to the exports of calves" identifies its primary aim but speaks only to a small part of the whole story.

The Forum was set up in 2006 by the animal welfare charities, Compassion in World Farming (CIWF) and RSPCA, primarily to address public concerns about the welfare of dairy calves transported live to the continent of Europe, many of which would be reared for the production of white veal.

From the outset however, the Forum elected to address a much wider range of issues relating to calf welfare. In brief, the aim was to work constructively with the industry to achieve a radical reduction in the wastage and welfare problems faced by male calves from the dairy herd, currently dominated by Holstein cows of extreme dairy type; a conformation unsuited to the economic production of high quality beef.

A number of strategies have been considered. The most constructive, from all points of view, has been to increase the number of these calves that could be reared for beef production in the UK. Alternative and complementary strategies have been directed to reducing the number of male calves born that are unsuitable for beef production through improvements to the conformation of the dairy breeds, the use of sexed semen and the breeding of more robust cows with a longer productive life. Even without the use of sexed semen, a cow that produces eight calves would need only to produce one dairy heifer calf to replace her in the herd. This, on average would be accompanied by one dairy-type male calf, giving her the potential to produce six calves with semen from a beef bull, suitable for rearing for prime beef. When the productive life expectancy of a dairy cow is only three lactations, as in common in modern dairy herds, then dairy farmers are likely to use semen from dairy bulls for all their cows to guarantee the supply of herd replacements.

The various submissions to this report provide facts and figures to demonstrate what has been achieved in pursuit of the several approaches to the

overall aim of improving the welfare of male calves from the dairy herd. My viewpoint will not rehearse and review the success or otherwise of these strategies in terms of changes in the number of such calves destined for the different fates. What it will do is consider the likely impact of the different strategies on welfare outcomes as experienced by the individual calf.

The strategies to be considered are:

- Reducing numbers of calves killed shortly after birth
- Increasing the number of calves reared for high welfare pink veal relative to those reared for white veal according to new EU standards.
- Increasing the number of male Holstein calves reared for beef
- Improving the conformation and productive life of the dairy cow
- Implementation of high-welfare quality control schemes for calf rearing units and dairy farms.

Reducing numbers of calves killed shortly after birth

The number of calves killed on-farm as soon after birth as possible has fallen from about 85,000 to 55,000. At present, this is largely due to an increased demand for beef production within the UK, which has raised the price of all but the poorest calves to the point where it becomes economic for the dairy farmer to register them and rear them to the point of sale. This trend has undoubtedly been encouraged by organisations such as Blade Farming, as described in this report by Richard Phelps. The live export of male dairy calves remains very low mainly for reasons of biosecurity (currently relating to bovine TB). The number of bobby calves slaughtered in the first month of life appears to be about 50,000.

The aim of good farm animal husbandry should be, in the words of the Farm Animal Welfare Council, to give each animal "a life worth living". It is therefore valid to argue on ethical grounds that killing a calf within a few hours of birth is an acceptable option when the only alternatives are

to condemn it to a life that is not worth living. We shall assume for the present that the intensive rearing of male dairy calves for beef or pink veal can be consistent with a life worth living (although I shall address welfare problems associated with these systems later). So far as the individual, low value male calf from the dairy herd is concerned, the alternatives are likely to be live export to continental Europe for white veal production, or slaughter as a bobby calf.

Minimum standards for the production of white veal within the EU have been improved by recent legislation. Calves are now reared in group-pens¹ (typically 5-7 per group) to slaughter at 20-26 weeks. However they are still fed almost exclusively on a liquid diet, deficient in iron. There is a requirement for solid, fibrous feed to stimulate rumen development but the statutory minimum amount is a derisory 250g/day (EC Council Directive 2008/119). In addition to anaemia, these calves show a high incidence of respiratory diseases, abomasal ulcers and metabolic disorders. These have been described in the EFSA scientific opinion on the welfare of beef cattle and calves (EFSA 2012). My interpretation of the evidence is that white veal production is still some way short of acceptable in terms of animal welfare

The alternative fate, to be kept on farm for 2-3 weeks, then sold as a bobby calf, is likely to be even worse since there is no incentive to add value to these calves by feeding and housing them in such a way that they will thrive. They are liable to suffer from hunger, cold and, when deprived of colostrum, a high risk of infectious disease.

These observations strongly emphasise the importance of the central aim of the Calf Forum, namely to bring about a significant reduction in the number of male dairy calves whose lives are nasty, brutal and short.

Increasing the number of calves reared for high welfare pink veal relative to those reared for white veal according to new EU standards

Several rearing systems for the production of pink (or rosé) veal or "rosé beef" are described in this report. The distinction should be made between pink veal and rosé beef as described in this report by Simon Marsh. The term rosé veal should be applied to calves fed largely on a liquid diet (but with adequate iron and solid food) and slaughtered at about 5-6 months of age. The term rosé beef has been used to describe calves fed a dry, cereal-based ration and slaughtered at 10-12 months. However the distinction is often blurred. The Waitrose system described in this report is clearly rosé veal by definition since the calves are given ad lib access to milk replacer. The Linden Foods system for the production of "rosé veal" for Marks & Spencer from calves fed a cereal-based ration to about 10 months of age should, by the above definition, be classified as rosé beef².

As a pioneer of alternative, higher-welfare systems of pink veal production, based primarily on liquid feed (Webster, 1984) I can vouch from personal experience that when things go well the calves meet the best and simplest of all tests of good welfare: one can be proud to show them off in public. They are reared in groups and given access to liquid feed similar to that which they would obtain from their mothers. They are spared the stresses of castration and dehorning. Their general condition, health and behaviour should satisfy the strictest critic.

Veal is perceived as a premium product for which some consumers are prepared to pay a premium price. For others, of course, the veal label is a complete turn off. Personally, I am satisfied that systems for the production of true pink veal, independently monitored by a body such as Freedom Food, can be welfare friendly and should be encouraged. However, in order to protect the public from being conned, I recommend that the term veal should be used only to describe meat from calves under eight months of age and reared on a predominantly liquid diet.

¹ Individual housing for calves up to 8 weeks of age are permitted. Individual pens must not have solid walls, but perforated walls which allow calves to have direct visual and tactile contact.

² Official derogation from Beef Labelling was granted by Defra in 2008.

Increasing the number of male Holstein calves reared for beef

There has been a significant increase in the number of male dairy calves reared for beef. Some of this can be attributed to market forces, e.g. a reduction in the national herd of suckler cows. However the Calf Forum has undoubtedly made a significant contribution to this trend, especially through discussion with major retailers keen to promote (and be seen to promote) the production of meat from quality assured, high welfare sources within the UK. It is necessary however to make the distinction between beef production of beef from male calves from the dairy herd and that from beef calves from the suckler herd raised with their mothers and finished at grass.

At present the only realistically economic way to rear male Holstein calves for beef is by housing them throughout life and to feed a high-energy ration to achieve slaughter weight, typically at 14-15 month of age. In most cases, cereals provide the principal source of feed energy and this carries the risk of disorders of rumen function, leading in some cases to secondary complications such as laminitis (EFSA, 2012). The trials reported by Marsh and Vickers show that maize silage can form a major part of the diet and this is likely to reduce these risks. However it is not realistic to expect that these calves can be finished on grass or diets based on grass silage.

The reports from the retailers operating link schemes with dairy farmers show a welcome willingness to accept dairy bull calves wherever possible but, as the Co-operative group acknowledges, there are still too many calves whose conformation is so poor that they could never be reared for beef. However, provided they are healthy many of these calves could be reared on a predominantly liquid diet for pink veal.

Improving the conformation and productive life of the dairy cow

It should be clear by now that the best way to address the problems of wastage and poor welfare in male dairy calves is to reduce the numbers of animals that are too poor in conformation to be reared for beef. However, despite good progress

in the initiatives described in this report there are still too many male calves born to cows from the national dairy herd that are not good enough for the beef trade. The majority of these are black and white calves of extreme Holstein type. It should be noted however that the relative number of unregistered male calves (i.e. killed at birth) is even higher in the other classic dairy breeds (e.g. Ayrshire, Guernsey, Jersey). On the other hand the conformation of the British Friesian cow is such that nearly all her male calves can be reared for beef.

As indicated elsewhere, the four ways to reduce the numbers of surplus male calves are through the use of sexed semen, extended lactations, improved cow conformation and improved longevity as measured by PLI (profitable life index). The use of sexed semen is self-evidently an effective approach but farmers are deterred partly by price and partly by a reduced expectation of fertility when used in lactating cows. At present many farmers will use it only on heifers. This is not an ideal strategy partly due to increased obstetric risk when using a dairy bull rather than (e.g.) an Aberdeen Angus, and partly because their lactation performance, which should influence future bull selection, has not yet been tested. Infertility in lactating cows is closely correlated with low body condition. Breeding a more robust cow, able to maintain reasonable body condition in early lactation, is known to be associated with improved fertility. This should increase the uptake of sexed semen, or if there was a parallel increase in the calf conformation, dispense with the need altogether.

The concept of extending lactation length from 12 to 18 months is potentially attractive on several grounds. It increases milk production relative to the number of calves born. Moreover it addresses the fact that dairy cows are most at risk from metabolic disorders and lameness in the first three months of lactation, so in theory reduces overall lifetime risk from these conditions. However, so far, attempts to operate extended lactation schemes in practice have met with little success. One of the problems has, paradoxically, been reduced fertility nine months after calving when cows should normally have regained condition. This problem may be overcome through better understanding and further research.

The single most effective way to reduce the number of surplus calves is undoubtedly to prolong the productive life of the dairy cow. I pointed out in my introduction that a cow that produces eight calves in her working life would need only to produce one dairy heifer calf, to replace her in the herd. Assuming she also produces one dairy-type male calf, this leaves six calves with semen from a beef bull suitable for rearing for prime beef. Of course, if she were a significantly superior cow in terms of lactation performance (which she could well be, as measured by the PLI), then the farmer would probably select her to be the mother of more dairy heifers – possibly using sexed semen. The merit of increasing PLI is not just increased profit per cow but increased flexibility in the breeding programme without compromise to calf welfare.

The major breeding companies have recognised the need to breed more robust, longer lived cows and have adjusted their selection indices accordingly. Already there is evidence to indicate increased PLI in the Holstein breed and this trend should continue. One would expect but cannot guarantee that increasing robustness as measured by PLI would be accompanied by a trend towards beefier conformation that would be reflected in their calves born to a dairy bull. This would be a bonus but, in economic terms, much less than that which would accrue from a significant increase in the proportion of dairy x beef crossbred calves coming out of the dairy herd.

Implementation of high-welfare quality control schemes for calf rearing units and dairy farms

So far, this viewpoint and indeed most of the entire report have been concerned with strategies to reduce wastage and improve welfare in the male dairy calf. However the only way to ensure the success of this overall aim and its specific objectives is to monitor both the breeding and management strategies of those involved at all stages of production and the welfare outcomes for the calves themselves. Monitoring, in this context, requires both the recording and measurement of husbandry and welfare plus evidence of action to address any identified problems (Webster,

2009). The Red Tractor Association (RTA) Dairy Scheme was originally based almost entirely on measures of husbandry inputs (resources and management) but is now incorporating welfare outcome measures developed by the AssureWel protocol (www.assurewel.org/dairycows). This and similar schemes operating within contracts between specific retailers and dairy farmers have undoubtedly been a force for good, not only because they are an incentive to good practice at farm level but also because they increase public awareness of efforts to improve farm animal welfare and public willingness to reward those who try and succeed. This parallel shift in farmer practice and public opinion has been greatly encouraged by schemes such as RSPCA Freedom Food and Compassion in World Farming's Good Dairy and Good Calf Awards.

Regarding the matter of calf welfare, we still have some distance to travel although the work of the Calf Forum points the way to go. Monitoring protocols such as AssureWel and the RTA Dairy Scheme nominally consider all animals in the dairy herd, including calves. However the inspection procedures are directed almost entirely to the cows. There is some consideration of the calves but only while they remain on the dairy farm. Many of the welfare problems for male calves from the dairy herd arise from the fact that most are passed from place to place and owner to owner. Blade Farming has described how this problem can be addressed through a vertically-integrated rearing strategy.

One of the most valuable outcomes of the Calf Forum has been identification of the need for a quality assurance scheme (or schemes) designed to promote the welfare of all calves from the dairy herd destined for beef production at all stages of the rearing process. The contents of this report provide much of the information necessary to develop such a scheme and ensure its success. The scheme must define standards for husbandry (resources, housing and management) from the moment of birth to the time of slaughter, including strict conditions for transport. It must also include the monitoring of health and welfare in all the rearing environments, including evidence of fitness to travel and absence of travel stress.

Although this monitoring process will usually need to take place on several different sites, current procedures for calf registration and identification make this entirely possible. It is unrealistic to think that it could be applied by law to every male calf that leaves the dairy herd. However sympathetic retailers, such as those who have contributed to this report could make this lifetime quality assurance scheme a condition for inclusion in their contracts for suppliers of beef and dairy products.

The success of the Calf Forum is that it has brought together a disparate group of producers, retailers and welfarists. There was at the beginning considerable mutual suspicion and planting of flags in entrenched positions. However, remarkably quickly, the air cleared and all began to work towards a common goal. It has been said that you can achieve anything so long as you don't mind who takes the credit. Credit for the success of the Calf Forum can be spread evenly amongst all who took part.



Image © Blade Farming

BLACK AND WHITE BULL CALVES ON A BLADE FARMING UNIT

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THE ROLE OF SEXED SEMEN AS A SOLUTION TO EXCESS MALE DAIRY CALVES



Hugh Ratcliffe, Genus ABS

Sexed semen was launched in the UK in 1999 and has since become a very important part of the UK dairy industry. In the early days when the technology was new, results were varied. But over the last 15 years our knowledge of how to use sexed semen on farm has improved, which has meant that results on farm are now very consistent.

The process of sexing semen is costly and inefficient for the AI company, as all the male sperm and any sperm which are deformed are separated out of the sample and put in the bin. So for every one straw of sexed semen produced, an AI company can produce five straws of conventional semen. This lost production, plus the high cost of the machines and the labour to run them, make sexed semen significantly more expensive than a normal straw of semen. However as efficiencies have improved and with all AI companies now having access to the technology, the market price for sexed semen has come down significantly from its launch in 1999, making it even more profitable for dairy farmers to use.

The on-farm results using sexed semen show that its fertility is typically slightly below that of a normal straw of semen. However, if dairy farmers manage their cows or heifers well, follow semen handling guidelines or use a professional AI technician, then excellent results can be achieved. The majority of dairy farmers will use sexed semen within their maiden heifers, as they generally have the best fertility on the farm, plus they will also benefit from the easy calving nature of sexed semen (90 per cent+ of the calves are born female – which are easier calved than males).

Dairy farmers using sexed semen on their maiden heifers and who have confidence in the product can then start to change the way they breed their cows and replacements. If the farmer isn't growing the size of their herd, or intending on selling heifers, then they can use more beef sires within their milking herd. This is because they can generate the majority of replacements they need from within the maiden heifers, freeing up the

cows for beef sires resulting in the generation of additional cash for the business. The additional beef calf sales it helps to generate is the main financial advantage for dairy farmers to use sexed semen. Other advantages are the easier calving already mentioned, as well as the ability to breed more heifers from the best genetics on the farm, which are the maiden heifers. The resulting reduction in the numbers of Holstein bull calves is also a huge advantage not just for farmers but for the industry as a whole.

The industry usage of sexed semen grew very fast during the first 10 years and is still growing today, although at a slower rate. It makes up 12 per cent of Genus ABS dairy sales due to its majority usage in maiden heifers. Many farmers would run a stock bull with their maiden heifers, as they are often on another farm or kept in fields away from the main farm, making the use of AI more difficult. So this limits the market for sexed semen a little, although the improved technology of tail chalking, activity monitors and locking yolks mean that over time more maiden heifers will get artificially inseminated. More and more farmers are using sexed semen within their milking herd, as the price of the semen has come down. Many get excellent results, but this method can only be tried if the farmers have excellent fertility and management.

In conclusion, sexed semen has had many positive effects for the global dairy industry. Its usage will continue to increase every year as confidence grows and a higher proportion of maiden heifers get artificially inseminated. The beef industry will be the next segment to use this technology as a way to generate more suitable suckler cows for the future. It is profitable for farmers to use, as long as they manage their animals correctly and get enough pregnancies. It has many health and welfare benefits for the industry as a whole.



PROGRESS ON CALF WELFARE THROUGH THE RED TRACTOR DAIRY SCHEME TO IMPROVE THE WELFARE OF MALE DAIRY CALVES

Emma Surman, Technical Manager, Red Tractor Assurance

Red Tractor Assurance (RTA) owns and operates the RTA Dairy scheme, which with over 11,000 members is the largest dairy farm assurance scheme that operates in the UK. The RTA Dairy standards (that apply to all cattle within the herd including calves) are inspected by trained assessors from independent, UKAS accredited certification bodies on an 18 monthly basis.

The standards cover a number of criteria crucial to ensuring a calf's welfare is maintained on farm, including:

- Stockman competency
- Feed (including colostrum) and water provision
- Housing and bedding
- Inspection, segregation, treatment and euthanasia (as appropriate)
- Health planning.

Some of the criteria is stated in a dedicated calf rearing section, and in other cases is included in standards that apply to all practices on farm. In addition to the criteria above, there is also a specific standard related to the care of unmarketable calves; making it very clear that if a farmer does have an unwanted calf, it must be well cared for prior to dispatch, in accordance with the industry agreed 'unmarketable calf policy'.

The Herd Health Plan must also include documented procedures regarding colostrum management and from October 2013 will require members to explicitly record calf mortality incidence and review that information with the veterinary surgeon. This is a key welfare indicator and compliments the introduction of other welfare indicators into the scheme from October 2013.

Other measures are more focused on cow welfare (mobility, body condition, hair loss lesions and swellings, cleanliness) but could indirectly affect calf welfare. Scoring protocols to be used are those developed or fine-tuned by AssureWel.

In addition to its standards the scheme also has clear rules; one of which is a requirement that all dairy farmers are a member of a beef assurance scheme, helping to maximise the marketing opportunities of not only cull cows, but calves too.

The RTA standards continue to evolve and develop in accordance with the needs and concerns of its stakeholders and science. A full review of the standards is in progress for implementation in 2014 – calf health and welfare will continue to remain a key priority for RTA.

RSPCA WELFARE STANDARDS FOR SPECIALIST CALF REARERS



John Avizienius, Deputy Head Farm Animals, RSPCA

The RSPCA Welfare Standards for Dairy Cattle contain detailed standards for the conventional rearing of calves. These standards were originally written for heifer calves to be reared as herd replacements, or bull calves reared-on for further fattening. However, for nearly a decade, fewer male dairy bull calves have been reared for further fattening, because of their dairy type conformation that has not been conducive to the production of beef.

The consequence of this has been that these calves have been regarded as being of low economic value and have either been shot on farm or sent for export to the continent. According to the AHDB figures, in 2010 and 2011, around 77,000 calves were either shot or not registered; and in 2012, just under 55,000 had been shot or not registered.



Image © RSPCA

These figures would have been even higher if it had not been for the work of the Beyond Calf Exports Stakeholders Forum, of which the RSPCA is a founder member. Since 2006, the work of the Forum has been to try and bring together all branches of the industry to seek ways of using these calves rather than shoot them at birth or send them for export. One major development has been the advent of higher welfare specialist calf rearing systems, rearing calves in group-housed, straw-based units. Many of these systems are rearing calves for higher welfare British veal under certification to Freedom Food, and also for beef. Some of the units are utilising calves from herds affected by bovine tuberculosis.

As noted above, the RSPCA Welfare Standards for Dairy Cattle do contain standards for rearing calves, but with the development of specialist calf rearing units we decided to make the standards more bespoke in terms of what the animals in these units required. The standards were developed over a twelve-month period, working in association with producer groups and veterinary surgeons. The standards are now being used to rear tens of thousands of calves per annum.

It is worth noting that the space allowances for the calf rearing systems have been reviewed based on evidence obtained from the field, and new allowances have been determined, which in places challenge some of the previously accepted practices associated with calf rearing.

We have changed the way that we allocate space compared to the existing RSPCA dairy calf rearing standards:

- It is now allocated within 50kg liveweight bands instead of 100kg bands. This is aimed at ensuring incremental increases in space in line with the needs of calves of lighter liveweights
- The standards are based around having the whole area bedded, instead of having a bedded area and a hard standing. An assessment of the systems over time has indicated that the calves are more comfortable without a hard standing. Also, there was strong evidence that trauma injuries from falling over onto concrete flooring were eliminated. Similarly, analysis of information from the field indicates that there is no evidence of any negative welfare consequences, e.g. overgrown hooves, through the animals not having a hard standing.

A significant number of producers stock the animals at their finished weight space allowance from the start of rearing, which means that these calves have probably more space than any rearing system. The group housing aspect of the system is important because the calves will lie down up to 80 per cent of the time in the early part of their lives, and having a well-bedded area where they can comfortably rest and develop socially is very important. In a conventional rearing system the calves can be in individual pens for up to eight weeks, in a smaller lying area than would be allowed with group housed RSPCA calf-rearing standards. This is a very good example where observation and dialogue with producers has helped to develop and configure new usable space allowances that provide the calves with higher levels of welfare.

As well as the other areas of importance associated with calf rearing such as diet, colostrum status, reception protocol, the provision of a calf veterinary health plan and welfare outcome measures, the standards also require the provision of environmental enrichment for the calves. Again this idea came from the direct field observations of the bull calves, and was primarily to satisfy their obvious need for oral stimulation, and to prevent behaviours such as preputial and navel sucking.

Conclusion

Amongst the other areas of work mentioned elsewhere in this report, the Calf Forum also gave the RSPCA the opportunity to revisit the welfare requirements of calves, and develop a new set of specialist calf rearing standards. Credit must go to the producers who hosted the farm visits, and who were invaluable in this process. Dialogue with producers and other stakeholders is an integral part of the RSPCA standards development process.

THE CONTRIBUTION THAT ORGANIC DAIRY BULL CALVES CAN MAKE TO TOTAL FARM TURNOVER

Kate Still, Animal Welfare Advisor, Soil Association

The Soil Association has introduced specific standards to prevent shooting of healthy dairy bull calves and prevent their sale into continental style veal systems. We are active in supporting our producers find markets for their calves and encourage our producers to carefully consider their breeding strategy and optimise fertility to prevent any unwanted calves being born.

Paul and Madeleine Crawley milk 240 dairy cows on a contract farming agreement over 950 acres of grassland and arable forage crops in West Sussex. Everything on the farm is sold organically; the milk, the cull cows and the beef calves, which include the dairy bull calves. This is part of a strategy to ensure all animals sold off the farm make a valuable contribution to total farm turnover. Selecting the right breeds for the milking herd is key and it now contains mostly cross breeds of British Friesian, Ayrshire and Montbeliarde, having made an active move away from Holsteins. The cows produce an average of 6,000-6,500 litres per annum, which is predominantly off-grass. The calving pattern is all year round so sales of calves are regular and provide a useful steady additional income.

All dairy bull calves are sold at 12 weeks to a single organic producer who then rears them to slaughter for the beef market. The quality cuts going for direct sale via a box scheme and the remaining cuts to ABP Sainsbury's as mince.

A good relationship has been established between the two parties and with the Crawleys being able to provide a constant supply of high quality calves, they have now become the single supplier

Calves are sold at a fixed price but with two bands: one for black and white bull calves and then a higher fixed price for the beef breed animals. This includes the Montbeliarde bull calves and all calves from heifers are put to a Sussex bull. This pricing structure clearly encourages the Crawleys to be selective with their breeding strategy. The average price is £248 per calf.

For the last financial year calf sales totalled £38,700 (5 per cent of £680,000 total turnover), exceeding the income from cull cows totalling approximately £34,000.

Choosing the right dual-purpose breed and ensuring a valuable calf is produced from all cows is at the heart of this successful organic system.



Image © Soil Association

IMPROVEMENTS IN THE COW: BREEDS AND BREEDING STRATEGY

Ray Keatinge, AHDB, DairyCo

Breeds and breeding strategy

The demise of dual-purpose breeds, and the increase in dominance by specialist breeds such as the Holstein, underlies the problem of dairy-bred calves with inferior beef value. While the British Friesian has regained some ground as attention shifts to more robust genotypes, approximately 92 per cent of dairy cows in the UK are black and white, mainly Holstein.

Cross breeding is advocated as an alternative strategy to improve fitness traits, such as fertility and longevity (Walsh *et al*, 2008). Cross-bred animals also tend to produce bull calves with a higher beefing value. Depending on the breed and market conditions, price differences can typically vary from £50-£150 per calf. Although interest in cross breeding has grown, particularly during periods when milk price is low, in practice it has not expanded rapidly. Approximately four fifths of the national herd is considered eligible (87.5 per cent pure) to register with a breed, and of the remainder, over 90 per cent are three quarter bred animals. For medium and high output systems, there is generally a trade-off in milk production,

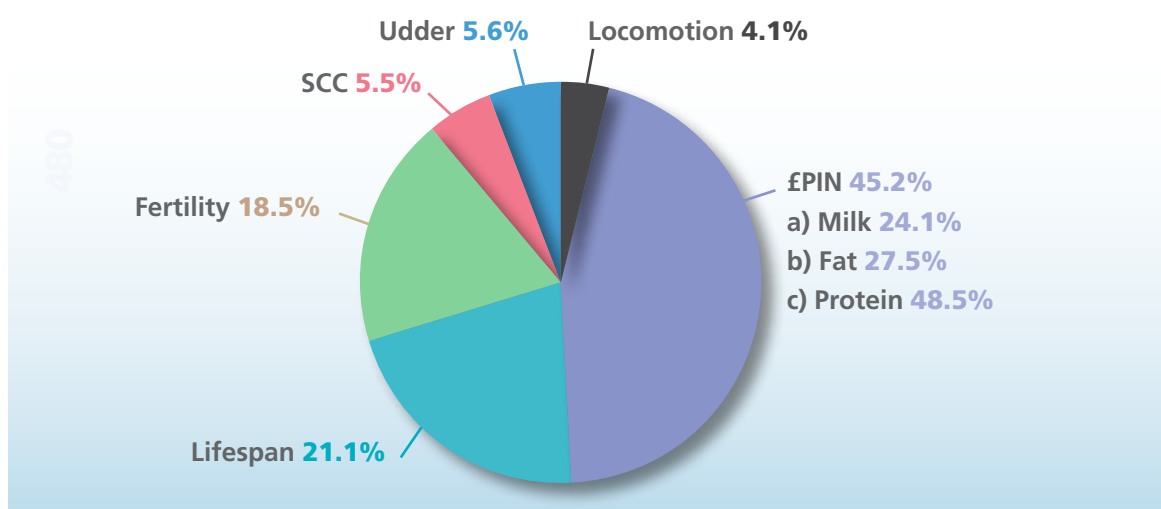
and when milk prices are high, crossbreeding becomes less attractive economically.

In the right circumstances, cross breeding can work well (CAFRE, 2005), but requires careful breed selection, matched to the system of production, and commitment to a long-term breeding strategy beyond the first cross animal. To assist farmers interested in pursuing a cross-bred strategy, across-breed genetic evaluations have been introduced (DairyCo, 2010, which allow farmers to compare bulls of different breeds, rather than just within breeds. This also means that data from cross-bred animals in the national milk recorded herds can be captured within the UK system of genetic evaluation.

Genetic improvement

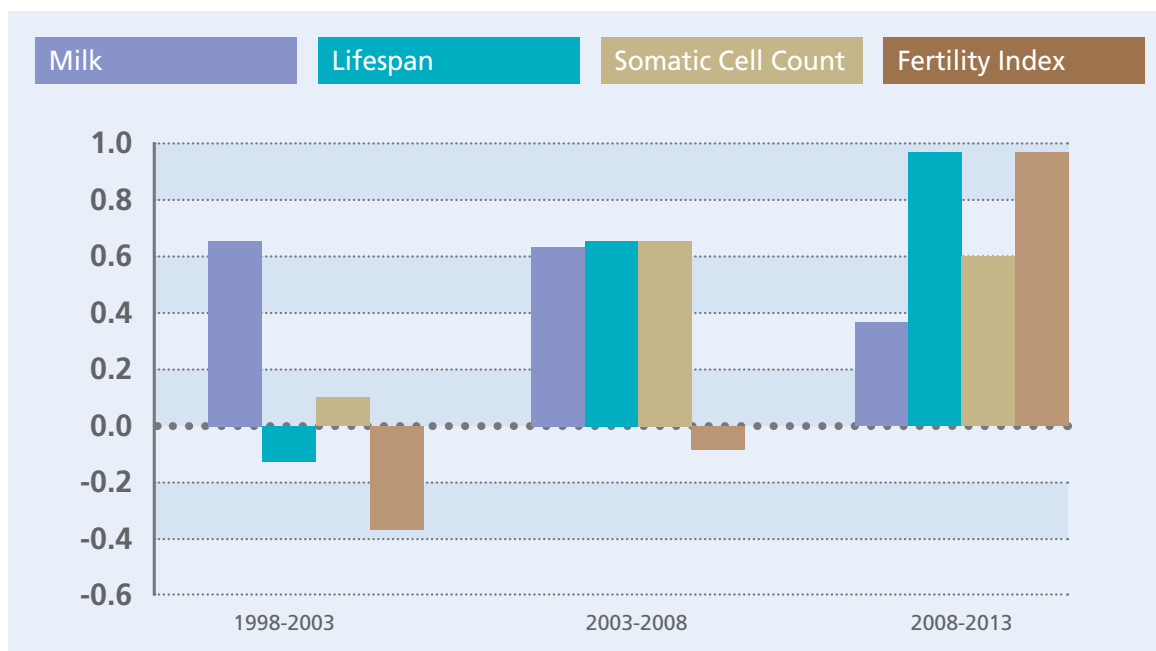
Significant progress is being made in the genetic improvement of the existing population. Since 2000, the system of genetic evaluation in Great Britain has been modified to place increased emphasis on fitness traits. These now account for 55 per cent of the weighting used for genetic selection (Profitable Lifetime Index).

Figure 11. Relative importance of traits in the Profitable Lifetime Index



Genetic trends in all four areas (milk, lifespan, fertility, and mastitis) are in a positive direction and likely to further accelerate following the introduction of genomic selection.

Figure 12: National genetic progress for lifespan, somatic cell count, fertility index and milk production, expressed as units of standard deviation based on insemination data from CIS and NMR



The data show that in the period to 2003, the direction of genetic change was still towards greater milk output, relative to fitness traits. While genetic merit for milk production has continued to increase, there has been a very positive and proportionately greater improvement in fertility, lifespan, and somatic cell count in the most recent years.

Increasing robustness impacts positively on the number and quality of bull calves produced from the dairy herd. Firstly, improvements in longevity will reduce the proportion of cows that need to be bred to pure dairy sires, in order to produce heifer replacements. Secondly, the offspring of more robust cows tend to have better conformation, and therefore a better value for beef production.

In addition to technical literature and guidance notes, DairyCo and Holstein UK now have web-based tools to help farmers select bulls that suit their farm and production system. Farmers can access Herd Genetic Reports (HGRs) to view the genetic potential of their herd (DairyCo, 2013). HGRs allow farmers to see the genetic potential of their herd by providing the genetic information for the cows milking on their farm, by individual or as a herd summary.

Selection for improved carcase traits

While there is a well-established system of progeny testing for dairy traits, based on milk recording, there is no parallel system for selection on carcase traits. Even within the beef sector, selection for carcase attributes is based on live assessment of the individual and their close relatives. An alternative approach might be to consider whether breeding value (EBV) could be estimated by combining data collected at the abattoir with birth and genotype information recorded by the British Cattle Movement Service. DairyCo, EBLEX and HCC have recently funded a feasibility study to investigate whether EVBs for carcase traits could be produced using this approach. The results indicated that EVBs could be determined with reasonable accuracy, recording heritabilities of 0.31, 0.24, and 0.14 for carcase weight, conformation and fat class respectively (DairyCo, 2012). Some challenges to this approach include the quality of individual sire information entered by farmers onto BCMS, and the ease of data capture and subsequent handling of abattoir data. At the time of writing, EBLEX and HCC are in discussion with breed societies, regarding the feasibility of national implementation.

Sexed semen

Use of sexed semen provides the option to put fewer cows to a dairy bull, in order to breed heifer replacements, and a higher proportion to a beef breed with inherently higher carcass value.

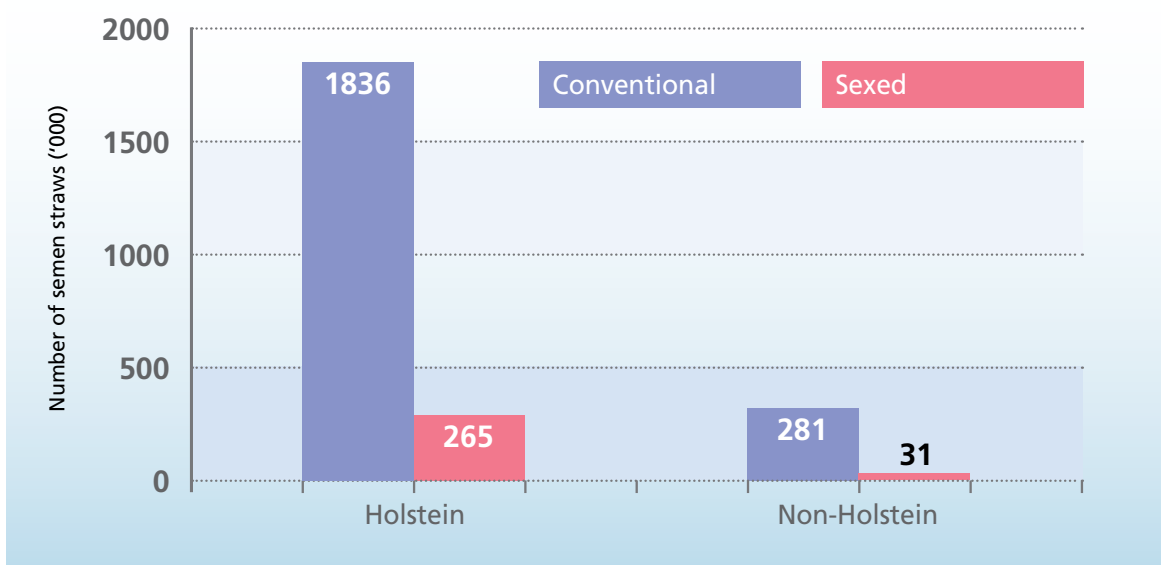
In recent years, there has been a steady increase in the uptake of sexed semen in the national herd. A comprehensive survey of breeding companies by DairyCo indicated that sexed semen accounted for 14 per cent of GB sales in the year ending March 2012. This varied from 14.4 per cent for Holstein to 11.0 per cent for non-Holstein bulls. Constraints to greater uptake, include the increased price of sexed semen compared with conventional, reduced conception rate, and reduced availability of sexed semen from elite bulls. The reduction in fertility favours use in maiden heifers over lactating cows, and makes adoption less attractive for block calving systems where there is less scope for slippage in calving date. For these reasons, it is difficult to predict when the market for sexed semen might peak. However, based on current usage and assuming a calving rate of 40 per cent, sexed semen is estimated to result in 5 per cent fewer dairy male calves being born on UK dairy farms.

Extending lactations

Traditionally, the aim has been to achieve a calving index of 365 days. In recent years calving interval in the national herd has increased to around 410 days (FAWC, 2009). As yields have gone up farmers are less inclined to rebreed high-yielding cows as quickly after calving, faced with the challenge of increased metabolic stress in early lactation, or to dry cows off when they may be giving significant quantities of milk. The prevalence of year-round calving systems means that going beyond a 365-day calving index is less punitive financially than would be the case under a block calving system (Brotherstone, 2007).

Extended lactation cycles can be defined as planning to calve at 18-, or even 24-month intervals. The theoretical advantages of 18-month lactation cycle, i.e. calving twice in three years, include reduced periods of increased metabolic stress, reduced number of dry days, lower insemination costs and fewer dairy progeny being born. Some experimental work has suggested that extended lactations may be feasible (Sorensen *et al*, 2008). However, practical application is more problematic.

Figure 13. GB annual sales of sexed semen (12 months ending March 2012)



While some cows can still yield significantly at 13/14 months of lactation, different cows and sire groups react differently to delayed breeding (Haile-Mariam, M. and Goddard, 2008). There is a risk of cows getting too fat during late lactation, compromising subsequent fertility and return to cyclicity. The challenge is exacerbated for extensive pasture-based and block calving systems that have a defined calving period requiring stricter 18-month or 24-month calving intervals. The interactive effects of genotype (lactation curve/nutrient partitioning), diet and management are critical. Given that the management and economic implications of extended lactations are not sufficiently proven, breeding more robust cows and improving transition management are likely to be better short term options. Using national milk recording data, an analysis by Wall *et al* (2012) suggested that extending lactations would adversely affect UK greenhouse gas emissions.

Calf management

No evidence can be presented to indicate male calves fair worse than heifer calves during the rearing period. As yet unpublished data from a survey of 35 farms (Boulton, *pers comm.*) found variations in the way heifers and bull calves were reared, including farms where bulls appeared to receive preferential treatment in preparation for sale.

There is growing industry consensus that more needs to be done to improve the management and health of all calves during the early stages of life. In a survey of 19 farms, loss rates of 14.5 per cent were recorded for heifers between day one of life and calving (Wathes *et al*, 2008), while perinatal mortality was 7 per cent. The importance of colostrum has long been advocated. However, this is only one aspect and on-farm implementation of a more comprehensive package of husbandry, nutrition and health planning is required. In particular, recommendations for feeding practice need to be standardised. This is largely a knowledge transfer opportunity, which can be supported by sound science and evidence based case studies. There are already good examples of industry initiatives indicating the results which can be obtained (Anon 2012).

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Pearce Hughes, Agriculture Development Manager, Asda

Introduction

Asda's DairyLink scheme was launched in 2004 and the BeefLink scheme in 2007 with a CalfLink scheme ensuring the dairy and beef farmers are able to deal directly with each other. Asda has a number of key goals:

- Improved survival rates of heifer calves
- Fewer health issues
- Improved weight gains as maiden heifers
- Increased productivity and longevity in the herd
- With this and the increased uptake of sexed semen, producers will require fewer heifers on the farm, which is a more efficient place to operate. As a result fewer dairy bull calves will be born.

To achieve these, a number of initiatives have been introduced and are discussed next:

Providing outlets for dairy bull calves

Asda DairyLink has linked up with Asda Beeflink to provide outlets for dairy bull calves by building relationships within the two groups. A calf coordinator was employed to ensure the initial success of relationships and highlighting contacts with farmers that have bull calves to sell and those that require them to rear to enter the food chain. This has linked up with the Asda 180 Dairy Beef Scheme allowing rearers to make the most of the most efficient rearing system for dairy bulls. This has also encouraged dairy farmers to rear their own dairy bulls on their own farms as the size of the animals is smaller and the time on farm is shorter.

Improving calf management

Asda DairyLink farmers have had specific meetings on calf management best practice discussing best management and husbandry best practice and the merits of different housing types. Calves continue to be a topic of discussion as we visit DairyLink farms via group activity. Some producers have visited each other to look at systems and practices away from the actual groups.

A group of Asda DairyLink farmers visited Minnesota and Wisconsin in November 2012. This involved visiting top dairy farms and research centres. The purpose of this study tour was to bring back key learnings from the USA and cascade this to group members. Research in the US has shown that doubling calf birthweight by week 7-8 has many advantages, including increased daily weight gain for the heifer and increased production and longevity in lactation. This practice has been widely adopted in Minnesota. The key factors to achieving this state are:

- Management, handling and administering of colostrum.
- High standard of overall management.
- Feeding more and better quality milk powder or whole milk and for longer.
- Using pasteurisers to help reduce Johnes infection but also to decrease the bug challenge to calves and provide a more consistent product to calves.



ASDA DAIRYLINK FARMERS MEET TO DISCUSS BEST PRACTICE ON CALF MANAGEMENT

Colostrum management

There have been Asda offers on colostrumeters (to assess colostrum quality), colostrum storage systems and pasteurisers to improve calf health. Some of this has been grant-aided which has been explained to farmers. There has been a significant uptake and Asda's DairyLink producers are putting much more emphasis on overall colostrum management which is paying dividends and will continue to do so.

Sexed semen

Asda has encouraged the uptake of the use of sexed semen to its DairyLink farmer through best-practice meetings, a study tour to Cogent and other advocates and champions of using sexed semen and providing a discounted deal to DairyLink farmers. Sexed semen is now estimated to be used by 75 per cent of the DairyLink farmers, take up being improved by a discount on sexed semen and group meeting with DairyLink farmers to understand best practice.

Asda successfully negotiated a discounted deal on sexed semen via Cogent.

In addition, free Artificial Insemination consumables are made available together with a free Gun Warmer with first individual order of 50 straws or more and free Flask Thawer with first order of 100 straws or more.

Fantasy Farming Project

Another way Asda have encouraged the relationship and understanding between the two groups is by developing the Fantasy Farming Project. A number of dairy farmers meet up with a number of beef farmers and run trials along with Askham Bryan College looking into different rearing systems and making decisions to affect the processes and then discussing the results and changes made together. To provide further discussion and learning expert guest speakers have also attended the Fantasy Farming group meetings.

180 Dairy Bull Scheme

ASDA has developed the 180 Scheme to provide a market and a price for black and white bulls over 12 months of age instead of having no value and being dispatched on farm at birth. In 2011, Asda was awarded a Compassion in World Farming Good Dairy Award for this industry-leading scheme.



ASDA DAIRYLINK FARMERS VISITING TOP DAIRY FARMS

THE CO-OPERATIVE DAIRY GROUP

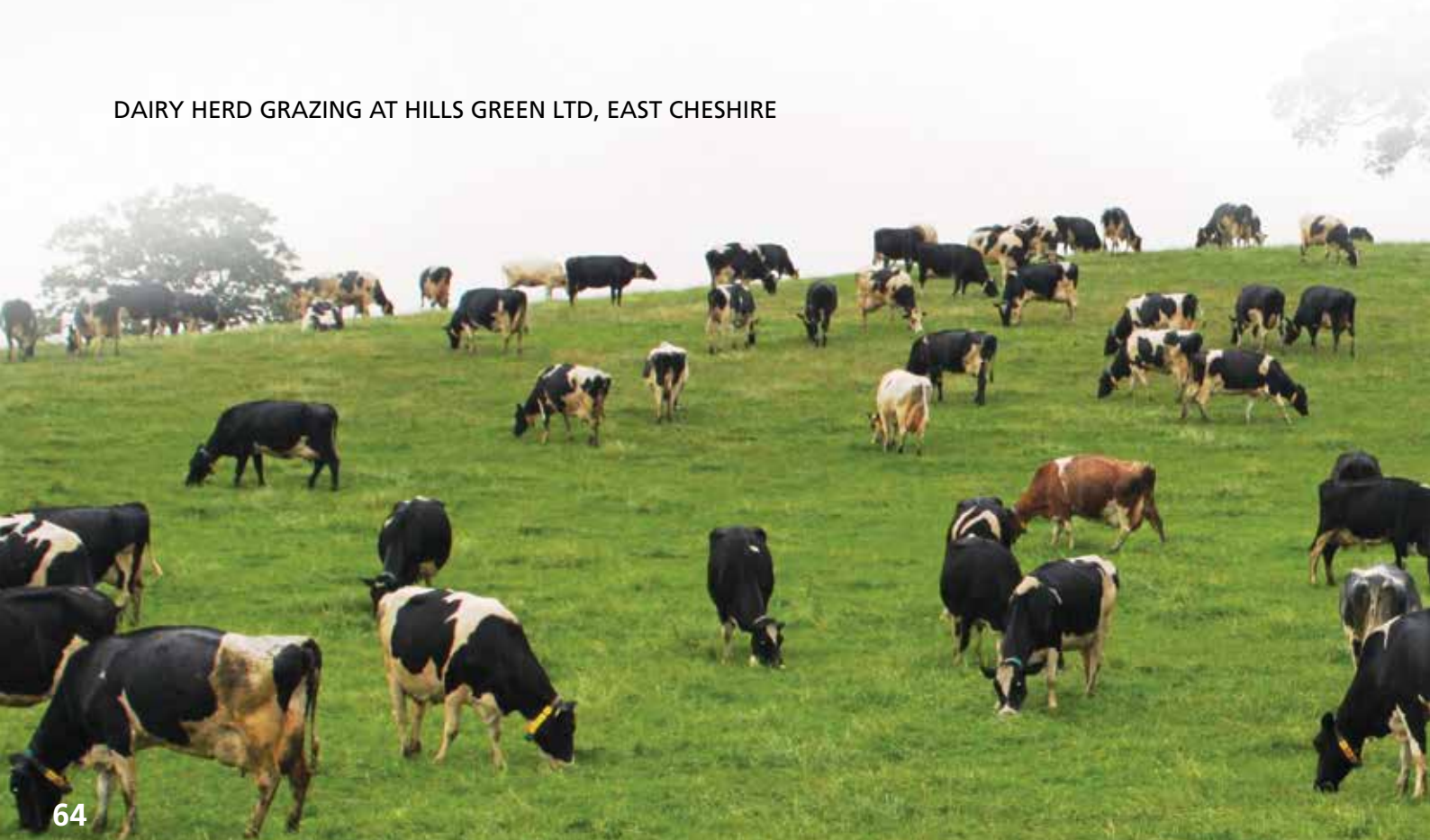
Ciara Gorst, Senior Technical Manager

The Co-operative Dairy Group commenced in August 2011 as a long-term initiative established by the Co-operative in conjunction with Muller Wiseman Dairies and made up of a dedicated milk supply chain working in partnership with over 220 supplier dairy farms representing more than 42,000 cows.

Led by the Co-operative's Food Ethical Policy, the Co-operative offers a price premium to these milk suppliers and is building a transparent relationship, providing both security and support, in addition to recording information and sharing of best practice to improve animal welfare, the environment, efficiency of milk production and reducing the overall carbon footprints of the group. These aims are not exclusive; the carbon footprint measurements demonstrate that high levels of animal welfare lead to more efficient milk production and lower carbon footprints.

Fifteen local business groups, from Dorset to Aberdeenshire have been established and meet three times a year on different suppliers' farms. Professionally facilitated by Kite Consulting who bring in industry expert speakers, there are around 15 suppliers per group, who are encouraged to share ideas and best practice to improve dairy cow welfare. Holding the meetings on suppliers' farms allows the combination of speaker presentation, group exercises and practical demonstration making them insightful and fun, ensuring that the key messages are taken home and implemented. Using the concept of "Measurement – Engagement – Measurement", these groups focus on improving herd efficiency, welfare and sustainability, whilst assessing and improving each farms carbon footprint over time. This unique small group facility engages people more effectively and allows them to learn from best practice.

DAIRY HERD GRAZING AT HILLS GREEN LTD, EAST CHESHIRE



The Co-operative Dairy Group members monitor and comply with a number of key herd health standards including:

- Non export of male dairy calves
- Monitor and adhere to a grazing policy
- Milk record on a monthly basis and monthly key performance indicators monitored
- Mobility score the herd twice a year and body condition score once a year
- Cases of mastitis and lameness are regularly monitored
- Adhere to a Herd Health plan based on making improvements to maximise health and welfare
- Monthly reporting on a number of health, welfare and quality measures into our agricultural database for analysis and development by The Co-operative Group.

This animal health information and key performance indicators are collated onto The Co-operative Agricultural Database and benchmarked for the whole group and by each business group. Whilst the project is still in its early days, this information allows the suppliers and the Co-operative to track, review and ensure continuous improvement in all matters connected with welfare, the environment and as a consequence, overall farm efficiency. Key welfare parameters have been set for example on dairy cow mobility, mastitis and culling, with a simple 'green / amber / red' scoring system.

Focusing on animal welfare, training sessions during the business group meetings have been held on a number of areas as below. A coherent strand runs through these training programs to reinforce that many cow health issues are linked and that good herd management will lead to reductions in metabolic disease, lameness, mastitis and infertility.

- Improving cow mobility
- Foot trimming best practice
- Reducing and prevent mastitis
- Improved feed intake and nutrition of dairy cows, leading to fewer metabolic and infectious diseases
- Improving fertility and management of associated issues

The autumn 2013 business group meetings will focus on calf management. Key topics included in this workshop will be colostrum quality, calf housing environment, feeding systems and disease management. We have covered other areas of calf husbandry in previous meetings throughout 2012/1013.

A key focus area of The Co-operative Dairy Group is the management of surplus dairy bull calves. Our dairy standard states that members need to take all reasonable steps possible to ensure that dairy bull calves are not sent for export.



This is managed by obtaining a signed declaration from the purchaser to detail the destination of movement. Any slaughtering of non-viable calves on farm must be done to the guidelines laid out by the Humane Slaughter Association. In addition The Co-operative encourages our members to utilise approved collection centres for the uptake of surplus calves from the dairy farms. This is a flexible option to work collaboratively with our farmers in the area of calf management.

Our current beef supply chain utilises offspring from the dairy herd for our beef requirements (proportion of 9,000 annually based on carcass balance). Our aim is to encourage the use of black and white calves as part of our long-term commitments. Our supply base has worked hard on measuring the calf quality attributes and understanding why some calves are unsuitable for beef rearing and finishing. This can be due to poor conformation due to the genetic choice by the dairy farmer and management of the calf.

Poor conformation cattle (P grade) do not have the necessary meat yield for meat processing, therefore the cost of producing the animal is higher than the carcass value paid back to the farmer. This has been improved by ensuring a tight calf specification is in place by our supply base. Additionally dairy farmers can improve calf quality by focussing on post-calving management including provision of adequate and good quality colostrum.

In May 2013, The Co-operative launched a Farming Group for Hereford Beef Cattle. In addition to the key objectives of the scheme, our aim is to integrate the dairy and beef farming groups for long-term supply. We are currently engaged with our members to encourage the use of sexed semen on our dairy farms with the overall aim of a fully-integrated model and the supply of Hereford crossed calves from the dairy herd to finishing units for our beef supply chain. This scheme is in its infancy but we expect strong interest from our farmers as this is an opportunity for increased efficiency on farm and good calf management.

The Co-operative Dairy Group is a *tri-partite* agreement designed to benefit all parties. The Co-operative has achieved a socially responsible mechanism for procuring milk that is market related and comparative to its competitors, but has the flexibility to ensure it producers are paid a sustainable fair milk price. It also secures the long-term future supply of British milk into its stores. The scheme provides valuable hard data to defend the British dairy industry from various allegations from NGOs. The producer not only has the benefit of the CDG premium, but through knowledge gained from the business groups is able to become more efficient with less wasted opportunities on farm and other initiatives like Co-operative green electricity. The producer is able to turn these opportunities into tangible savings that improve their bottom line profitability. Improving welfare standards on farm will in turn improve efficiency,



THE CO-OPERATIVE DAIRY GROUP MEMBERS COMPLY WITH A RANGE OF HERD HEALTH STANDARDS

SOLVING THE PROBLEM OF MOVING CALVES UNDER RESTRICTED TB CONTROLS



Department
for Environment
Food & Rural Affairs

TB Policy team, Defra

Bovine TB is the most significant animal health problem facing cattle farmers in England. The impacts on cattle keepers, their families and the communities in which they work can be devastating. The trend in the number of new TB incidents in herds is still rising – in the last 10 years 305,000 cattle have been slaughtered in GB for TB control purposes. Last year, 26 per cent of herds in the South West and West Midlands were TB affected and so placed under movement restrictions at some point.

Against this worrying backdrop the need for robust disease control measures is as important as ever. But, as the Coalition Government's new draft long-term strategy for achieving official TB freedom makes clear, those measures need to be designed such that (as far as is possible) they do not compromise the separate objective of maintaining a sustainable livestock industry. So it is important that TB control policies, which will inevitably restrict some trade options for affected businesses, are proportionate as well as being effective.

The Forum's interest in bovine TB has focussed on what happens to the calves (particularly male calves from dairy herds) born in TB restricted herds. We all agree that it is a sad waste if farmers' options are so limited that they must slaughter such calves shortly after birth, rather than market them for rearing by others. That is why towards the end of 2009 Defra began licensing the establishment of 'Approved Quarantine Units' (AQUs). Operators of these units typically bought surplus calves from various TB restricted herds, with the collected animals then subject to short interval TB tests. In many cases, that allowed restrictions to be lifted and the calves sold on – either to live in new herds or channelled for slaughter.

Few would argue that, with an imperfect skin test, mixing calves from high risk herds and allowing them subsequently to move into new herds to live poses TB risks to other cattle in the receiving herds. In 2012, the judgement was made that those risks were simply too high, so Defra announced that all AQUs would have to be de-stocked and closed by the end of 2013.

The decision to close AQUs was justified. But given the scale and impacts of the TB epidemic it renewed concerns about the options for surplus calves. So it was very helpful when a Forum member approached Defra with a proposal to allow the establishment of Approved Finishing Units for calves, with operators of these units able to purchase calves from owners of TB restricted herds for rearing and subsequent channelling to slaughter either directly or via another AFU. The proposal was accepted by Ministers and Defra officials, together with Animal Health and Veterinary Laboratory Agency colleagues, worked closely with industry to agree the operating rules. This new marketing option was introduced in October 2012. Since then feedback from industry has been very positive – a number of the rearing units have been set up, thereby reducing the number of calves having to be slaughtered on TB restricted farms.

In the nine months between October 2012 and June 2013, 40 Approved Finishing Units have been set up in the South West and West Midlands, those areas most affected by TB, to receive calves. During those nine months 6,128 calves have been moved from farms to the units.

YOUNGSTOCK MANAGEMENT – WHERE HAVE CHANGES OCCURRED IN CALF HEALTH IN THE PAST SEVEN YEARS

Rob Drysdale, Westpoint Veterinary Group

Dairy farmers had always been aware of the need for a good start for their heifer replacements but problems seemed to emerge when the management of the dairy bull calf was scrutinized. Westpoint had always advised farmers to set targets and review them whilst giving someone a specific role to look after heifer calves. However DairyCo research suggested 14 per cent of heifer calves born alive failed to reach 24 months old, including 8 per cent mortality by seven days old (DairyCo, 2008. Reducing the wastage in the dairy herd). The Forum identified that the number of unregistered calves who were shot or died before seven days old was over 80,000 animals. The cost to the UK farming industry due to poor calf management was therefore considerable.

What has then followed over the past six years could almost be said as a revolution. Fuelled partly by retailer pressure, a self-imposed import ban by some of our EU partners, a rapidly rising beef price and by work towards reducing wastage through farmer education, the number of black and white bulls registered for beef has risen dramatically. Farmers have recognised the value of beef calves whilst vets and industry have become much more involved in initiatives to see overall better calf health. How have these changes occurred?

The Forum set up working groups in its first years of work to investigate three primary areas identified by the industry as areas that needed improvement: bobby calves, early calf health and colostrum levels; and the opportunity for increased meat sourcing from the dairy herd. Of the various initiatives that emerged from these groups, Westpoint Veterinary Group has been involved in the following:

- **Blade Farming** has taken on the challenge of both white and rosé veal along with greater use of all beef calves from the dairy industry. As the veterinary surgeon to Blade Farming, I have seen the attitude of UK farmers change to beef production systems and numbers. In 2006-07 black and white bulls were a profitable enterprise but as cereal and protein prices rose

the margins became tighter with farmers moving towards beef cross steers and better returns. By 2012 this had moved again to a point now where a shortage of beef at the abattoir sees all forms of beef being farmed. Now with the margin on purchase price of a black and white bull comparable to a beef cross, once again the dairy bull calf is a viable option for many farms. Managing the health of 5,000 calves on Blade rearing units at any one time offers Westpoint vets a chance to see protocolisation for health at work. Strategic management within the Blade Farming system has shown that process and protocols in calf rearing are vital and with best practice the daily liveweight gains average above 0.9kg/day whilst morbidity and mortality are always well within targets.

- **RSPCA Freedom Food Standards** were worked through over 2012-13 with calf management now a considerably larger section to include veal and bull calf management standards. By working with the RSPCA, Westpoint hoped to offer commercial and practical experience in calf rearing. Having an opportunity to help shape what Freedom Food would set as best practice standards that will work for the UK farmer fitting into an efficient, economic and outcome driven farming practice for the future proved to be a worthwhile use of vet time.
- **National Youngstock Association** was started in January 2010 by a team from Westpoint. The NYA is targeted at improving farmer knowledge of youngstock health and best practice. Working as a non-profit making association, the NYA is now a cross-industry group that has set itself the task to show best practice to UK farmers. To date, over 1,500 farmers have attended annual conferences (workshops, practical sessions and lectures for farmers and industry) alongside co-sponsored farm walks (RABDF and Farmers Weekly) and meetings. Working across all aspects of the farming media a series of articles and initiatives have been run to include calf rearing advice, beef calf management and colostrum best practice.



Image © Westpoint

A MIXTURE OF BLACK AND WHITE BULL AND BELGIAN BLUE X CALVES IN A DEDICATED BLADE FARMING CALF REARING UNIT

- **Youngstock4Life** is a new health planning programme launched by Westpoint Veterinary Group in 2010. The plan, to see best practice on Westpoint dairy farms, has been introduced to over 300 dairy farms across the UK (including the Isle of Man) milking more than 100,000 dairy cows. Sixteen progressive dairy farms took up the full contract programme between them milking more than 10,000 cows and carrying in excess of 5,000 head of youngstock. The programme includes training and education for farmers and their staff, pre-calving cow health, colostrum management, measuring passive transfer for all bull and heifer calves, daily liveweight gain monitoring, specific written health protocols for each farm and reviews of the performance. This initiative has to date monitored over 10,000 calves from birth to 12 weeks old and the data gathered is now being used to further refine management and best practice for the other practice farms.
- **“Stop the loss”** a campaign in conjunction with Farmers Weekly magazine in 2012 and 2013 the NYA and Westpoint worked to promote

calf health and farmer home learning. Using a blended approach to learning with online workshops for distance learning, farmer meetings, magazine articles and sponsored farm walks the aim was to see the UK farmer change their attitude to everything from bobby calves to vaccination regimes.

- **British Cattle Veterinary Association** congress 2011, where a presentation on the targets and reasoning for the cross industry Forum was given. Cattle vets were encouraged to recognise the need for more involvement on farms along with examples presented of improving best practice. Now several practices have implemented specific youngstock working programmes with calf health centred around the mantra: measure, monitor and manage.

So much progress has happened in the last five years. Looking to the future, with a firm beef price, a need to improve efficiency and a consumer population that is becoming more aware of farm animal welfare, the future of the many more dairy bull calves should be secure.



Image © Westpoint

VET KEITH CUTLER TALKING TO A GROUP OF FARMERS ON YOUNG CALF HEALTH, AT FARM PRACTICAL SESSION OF NYA CONFERENCE 2012

SECTION 3 | MEASURE OF SUCCESS

REDUCED NUMBERS OF BULL CALVES GOING ABROAD

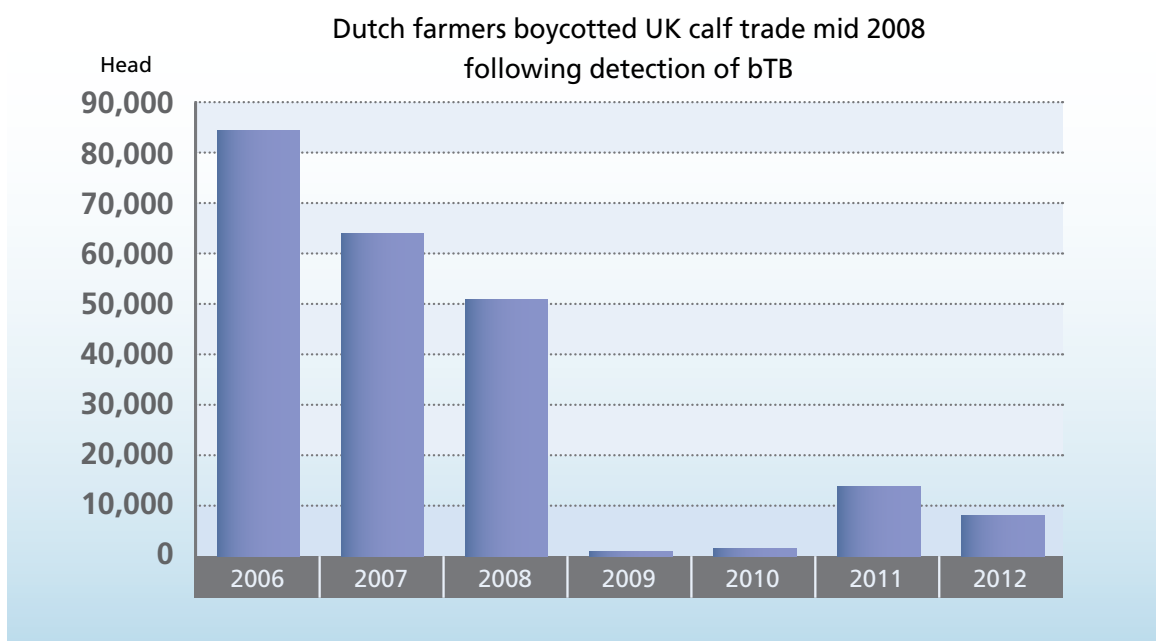
Summary of progress

	2006	2007	2008	2009	2010	2011	2012
Number of British male calves exported	80,700	63,800	51,400	1,000	680	13,300	8,000
% British male calves exported of numbers born	20	16	12	0	0	3	2

COMMENTARY ON THE ACHIEVEMENTS IN THE TRENDS IN NUMBERS OF MALE DAIRY CALVES BEING EXPORTED

Debbie Butcher, Senior Analyst, AHDB/MI EBLEX

Figure 14. Trends in live animals being exported to the continent 2006-12



Source AHDB 2013

The live export trade is negligible compared with 20 years ago. BSE halted the trade in 1996. Although the live export ban was lifted 10 years later in 2006, and a fledgling recovery in the trade started, it was abruptly curtailed when the discovery of TB infected calves to the Netherlands prompted an industry-led ban on British cattle to that destination that is still in effect today. British Cattle Movement Service reports that only a handful of dairy calves were exported for veal production to the Netherlands or Belgium last year. Official data show that live exports of male dairy calves to Spain totalled 3,400 head, overtaking France as the main destination for live shipments. A total of 1,350 calves were exported to France, significantly less than in 2011.

What the Forum agreed

The Forum was set up to reduce the export of calves from the UK to other countries where they could be kept in conditions that were illegal in the UK and that would lead to poor welfare. It recognised that to do this, new domestic markets would have to be created to offer farmer and producers economic incentives to keep and rear on their male dairy calves. The Forum also realised that it should recognise such programmes through its reports and through awards such as those presented here by Compassion in World Farming.



Image © Soil Association

SOIL ASSOCIATION LICENSEE CROUCH FARM ORGANIC CALVES



COMPASSION IN WORLD FARMING

Dr Tracey Jones, Director of Food Business

Since 2007, Compassion's Food Business team has pioneered a unique programme of engagement with the world's leading food businesses, firmly placing farm animal welfare at the heart of their sustainability programmes, and raising the baseline standards of welfare in intensive food production systems. Our work is focussed on addressing animal welfare holistically, incorporating not only their health and physical wellbeing but also their mental wellbeing and ability to express natural behaviours.

Through our Good Farm Animal Welfare Awards programme, we engage with and recognise market-leading food companies across Europe for their policies and commitments that result in meaningful welfare benefits to the farm animals throughout their supply chain.

Compassion encourages schemes that value the lives of male dairy calves – and we actively encourage food companies and the dairy industry to take ownership of male as well as female calves produced in their supply chain, and to rear them in higher welfare systems. Such systems ensure that calves are provided with adequate colostrum to give them the best start to life, and are reared in groups with bedding and fed a more natural diet throughout life. Compassion's aim is also to end the live exports of calves to continental veal farms and to reduce the numbers of calves shot at birth.

Our Good Dairy Award addresses the welfare of dairy cows and calves with a set of criteria being met as a current policy or as a commitment to be achieved within five years. Award applications are considered in four product categories: liquid milk; dairy products such as ice-cream, cheese, yoghurt and butter; ingredient (i.e. as part of a product such as chocolate); and veal or beef. The criteria applies to 100 per cent of the winner's supply chain in the chosen category for a retailer, food service company, manufacturer or significant brand.

Companies commit to developing an active supply chain to meet the criteria. In terms of utilisation of male calves it is not enough to simply add within the company policy that calves are not to be shot at birth; there must be a proactive programme within the supply chain to create a sustainable market for the calves. This may be stand alone or combined with other measures such as cross breeding programmes (to improve the conformation of male calves to be more useable for beef) or using sexed semen (to reduce the number of male calves). As an example, a retailer approach could be to integrate bull calves into the food supply chain through their processor, with their dairy farmers receiving a guaranteed price for quality calves. This creates both a market for male calves and an income for farmers, but the market demand may not be able to meet utilisation of all of the male calves. This could be complemented by a programme to incentivise the use of sexed semen and help reduce the number of male calves in the supply chain.

Good Dairy Award winners that are addressing the criteria for both dairy cows and calves and are producing or sourcing higher welfare dairy products include: Asda, The Co-operative Food, Waitrose, OMSCo, Yeo Valley, Ben & Jerry's (EU), Beemster Cheese, Green & Black's Ltd, Laverstoke Park Farm, Riverford, Kimber's Farm Shop, Acorn Dairy, Ängavallen, Brown Cow Organics, Cream O'Galloway Ice Cream, Good Food Nation, Tossed, University of Portsmouth, Sanclêr, East Sussex County Council, Oxford Brookes University and University of Winchester.

Our Good Calf Commendation winners, that address the criteria for the dairy calf throughout life, include Sainsbury's, Dovecote Park, Brookfield Farm, Woodlands Jersey Beef, Hall and Woodhouse and Jurassic Coast Meats. All have made significant commitments to rearing their calves in higher welfare systems and stimulating economically sustainable supply chains for the higher welfare production of veal and beef from the dairy industry.



One of our Good Calf Commendation winners, Brookfield Farm, is a joint venture between DB Foods and Tarrant Valley Livestock. They have made a significant commitment to farming sustainably by buying in dairy calves from local farms and raising them for veal and beef. By working in partnership, they have developed an economic and sustainable production system where they can share the costs and profits of rearing their calves in high welfare systems.

Another of our winners is Hampshire-based Woodlands Jersey Beef, who have been working to improve the plight of Jersey bull calves which are generally perceived by the rest of the industry to be too light to be worth using for beef production and are therefore often culled at birth. The Denley's have developed a thriving business by buying-in Jersey calves at 10 days old and turning them into premium beef.

Dovecote Park Ltd is the sole beef supplier to Waitrose. They are committed to raising stock to the highest possible standards of animal welfare and husbandry and are rearing calves for this dedicated beef supply chain in higher welfare systems which are strictly monitored by Dovecote Park's own audit teams.

Sainsbury's has a clear, long-term strategy to deliver against its sustainability targets, including sourcing meat products from suppliers that adhere to independent higher welfare standards. They received a Good Calf Commendation in 2011 for making a commitment to introduce higher welfare standards for all the dairy calves in their supply chain within five years and for increasing market availability to these calves.

The Award criteria for dairy cows includes providing access to pasture grazing in the grass growing season, no tethering and implementing an active programme to reduce the incidence of key welfare indicators such as lameness, mastitis, poor body condition, and to improve longevity and robustness in the dairy cow. The criteria for calves includes the provision of group housing with adequate bedding throughout life, appropriate diet and fibre source *ad libitum*; good quality colostrum within the first six hours after birth; and transport times limited to a maximum of eight hours with minimal time encouraged; live export from the UK is not permitted.

The science behind the calf criteria

Group Housing: Group housing from birth can provide welfare (including health) and performance benefits to calves. Housing them in groups allows social behaviour and provides more space for play other activities¹. Research also shows that calves kept individually are more fearful than those kept in groups². They are unable to acquire social skills, which initially causes fear when they meet new calves, followed by exaggerated contact-seeking³, as they have not learnt to modulate their social behaviour⁴. Group-housed calves benefit from social support provided by other calves, which improves their ability to cope with challenges, including restraint, blood sampling, and separation from their dam⁴. There are benefits for producers too; as calves kept in pairs have a higher daily weight gain and begin eating solid feed nearly two days earlier than individually-housed calves⁵. In addition to social contact, grouped calves learn how to eat from each other through social facilitation⁴. Compared to individual housing after birth, keeping calves in small stable groups (up to 6-8) minimises competition during feeding and can reduce the risk of neonatal diarrhoea and respiratory disease⁶.

Provision of adequate bedding: Calves require a hygienic housing environment which provides sufficient space; as well as natural light, drainage, shelter and a separate feeding area. Providing dry bedding up until slaughter is crucial for their welfare. Bedding is needed for traction while walking, for smooth standing-lying transitions⁷, for its thermal insulation properties and to reduce the risk of leg injuries⁸. Most importantly, bedding provides comfort while lying down⁹.

Appropriate diet and fibre *ad libitum*: Calves are typically fed 4-6 litres of milk replacer per day¹⁰. However this is insufficient to prevent hunger, as calves fed *ad libitum* can consume 12 times the minimum EU feed allowance¹¹. EU legislation¹² also requires a minimum provision of 50-250g fibre/day from 8-20 weeks. This has also been shown to be insufficient for rumination¹¹. Compared to calves restrictively fed milk-replacer, calves offered additional *ad libitum* concentrate, hay, straw and maize silage ruminated more and had less abnormal oral behaviours (e.g. tongue rolling, sham chewing and manipulation of pen structures)¹¹, highlighting improved welfare.

In early life, calves need a milk-based liquid diet as they can only digest lactose. Introducing solid feed too early can cause fatigue because the rumen is under-developed, but delaying provision leads to nutrition and welfare problems, such as hunger¹¹. By 2 weeks calves can digest some fibre, and by 6-8 weeks they require largely fibrous, solid feed¹¹. Ideally they need *ad libitum* access to milk (or quality milk replacer); as well as *ad libitum* access to clean, fresh water and fibre from 2 weeks. Fibre helps them to feel satiated (full) as well as allowing rumination and normal oral behaviour.

Good quality colostrum must be provided within the first six hours after birth: A new-born calf has a poorly developed immune system, since antibodies (Immunoglobulins) do not cross the placenta during pregnancy unlike in humans. Good quality colostrum rich in antibodies (particularly IgG) protect the calf from diseases early in life, before its own immune system starts working. It is also an important first source of nutrients. Absorption of these antibodies in the gut drops off rapidly after birth and hardly occurs after 24 hours¹; therefore the timing of colostrum provision is crucial. Poor colostrum intake is capable of reducing a calf's average growth by 7 per cent over nine months¹³. Ideally, colostrum should come from the dam¹, but when given artificially, it must be high quality. Three "Qs" which describe the key to successful provision are 'Quantity' (4-6litres over 2 feeds), 'Quality'

(IgG >10mg/ml in the blood, with low bacterial levels) and 'Quickly' (within 3-6 hours of birth)¹.

Transport time limited to a maximum of 8 hours (inclusive of loading and unloading); minimal transport time is encouraged and export from the UK is not permitted: Transport is particularly stressful to young calves. Research shows they are poorly adapted to transport, because they have under-developed immune systems and are susceptible to cold and heat stress, with little control over their body temperature⁸. In addition to high risks of leg bruising and mortality¹⁴; calves have a reduced body weight after as little as one hour of transport. This likely occurs due to feed and water deprivation during the journey, as well as excretion, which lead to dehydration and hypoglycaemia¹⁵. Giving rest stops during the journey has been shown to be ineffective in preventing weight loss; and are likely to inflict more stress than they prevent, as loading and unloading are some of the most stressful parts of the journey¹⁶. Transport causes stress to calves at any age¹⁷ and therefore should be avoided wherever possible or kept to a minimal duration.

Compassion will continue its work to encourage food companies across Europe to introduce higher welfare standards for rearing calves and to support the development of economically viable outlets for the domestic rearing and finishing of male dairy calves.

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THE FORUM AS A MODEL OF WORKING TOGETHER



David Bowles, Head of Public Affairs, RSPCA

Background (what was the problem?)

The Forum was set up as a concept by Compassion in World Farming and the RSPCA to find a shared way amongst all the stakeholders of solving the problem of male dairy calves. In the mid 1990s there were many public protests around the export of young male black and white calves to veal crate systems abroad. This was a legal trade in calves to a system that was illegal in the UK. Male calves were a by-product of the milk industry and had little use in the UK as the UK was not a major market for veal. The calves were killed at birth, exported to the Netherlands or taken up into the food chain. The Forum was to find a sustainable solution to this problem. The ban in 1996 on these calves going abroad was a result of the BSE crisis rather than any sustainable solution to the problem. The overturn of the ban on calves in 2006 provided the opportunity to discuss the issue and find a long term sustainable solution.

There were four main obstacles to be overcome:

- Lack of profitability in the beef sector which meant it was not profitable to rear on calves
- The use of sexed semen as a technology (and thus reduce the numbers of male calves born) was seen as imperfect, expensive and its use sceptically viewed by farmers
- Demand overseas was for locally produced veal and beef so there was no market in the UK or overseas for UK veal or beef
- There was no value in the supply chain as prices were low.

How was the issue addressed? Who was involved and how were they organised?

The Forum agreed that it was a cross-sectoral body for information exchange, working together on shared goals and agreement on problem solving. Membership included representatives from all the major sectors such as producers, farmers, retailers and NGOs who all agreed the goals, research requirements to achieve those goals and a report back mechanism in a controlled atmosphere where others could learn from programmes being used.

Three clear outcome measures were agreed for the Forum: an increase in uptake of male dairy calves into the UK beef food chain; a reduction in calves killed on farm; a reduction in live exports of calves for further fattening. Data on these measures could easily be obtained and provided a benchmark to gauge success. The Forum focussed its work to achieve these measures by supporting and encouraging the development of economically viable outlets for the domestic rearing and finishing of male dairy calves, assisting dairy farmers and raising awareness to identify market opportunities.

A website was set up (www.calfforum.org.uk) and annual progress reports produced as well as scientific reports on issues of concern such as sexed semen and data on the beef and calf industry. Biannual meetings were held to assess progress on the three indicators and presentations given on issues that could improve progress on these indicators.

What were the barriers that were overcome?

Three barriers were overcome. The most important was obtaining agreement from all the stakeholders but importantly retailers, processors and producers on the measures that were needed to overcome the market forces that made it financially uncompetitive to rear calves in the UK. The Forum recognised early on that market pull-through mechanisms were needed to convince farmers to rear on their calves instead of killing them or sending them abroad. Secondly, communication was seen as a barrier, especially for producers and farmers, to encourage the use of new techniques and to overcome perception issues in the market resulting from the assumed poor meat configuration from black and white Holstein calves. Thirdly, all the stakeholders recognised that internal sharing and communication amongst Forum members was critical and this trust was essential to overcome issues around commercial sensitivity or on non-related issues that Forum members may disagree with each other.

What were the benefits of partnership working to the participants (public sector and private sector)?

All the participants agreed on shared goals and vision and all wanted to achieve progress. Good communication and cooperation between the private sector, the third sector and farmers was essential and resulted in new initiatives during the seven years of the Forum. The government benefitted as a market-based solution was obtained to an issue that could not be tackled through legislation but was still of major public concern.

What was the outcome? What were the critical success factors?

The Forum has been very successful in achieving its goals. The number of dairy calves retained in GB compared to those born rose from 59 per cent to 86 per cent in the seven year period; the numbers of male dairy calves killed on farm declined from 21 per cent to 12 per cent as a percentage of all those born and the number of calves being exported reduced from 20 per cent to 2 per cent.

Additionally the Forum became an information exchange place to generate initiatives developed by retailers, processors and restaurants that resulted in new schemes to improve the market conditions to rear on black and white calves and provide the right financial conditions to market this product. Communication to farmers on market opportunities showed the economic value of key dairy animal traits.

Finally the Forum agreed that it had to set out a fixed term for its work but ensure that communication can continue. This was ultimately fixed as 2013 and to produce a final report with all the learnings from the Forum. There are a number of indices that will always fluctuate such as beef industry market conditions, the transfer to a more robust dairy cow and the disease status of dairy herds. All impact on the profitability of the market for male dairy calves. However the Forum feels that the schemes that have been introduced and the partnerships that have evolved particularly between retailer and farmer in the seven years of the Forum's life will mean that there is a continued market solution to this problem.



SECTION 4 CONCLUSION

The Forum has largely met its objectives of reducing the live export trade, increasing the market for male dairy calves and reducing those shot on farm. Live exports are negligible compared with 20 years ago. Farmers have been given new opportunities in the domestic beef and veal market and traditional overseas markets have closed down. Fewer male dairy calves are shot on farm than in 2006. Whilst external factors such as the Dutch prohibition on importing calves have decreased exports, this has not resulted in more calves being shot as new market opportunities have been able to absorb these calves.

The Forum has worked in a collaborative manner to achieve this, sharing information in a non-competitive environment to learn success factors. Yet there are still challenges. Improvements to the conformation of the Holstein cow are occurring but will be long term. The numbers of calves born on restricted TB farms will continue and the provision of colostrum to calves is still a problem. The Forum has shown that innovative programmes, such as using steers instead of bulls can bring more dairy calves into the British market and help increase beef self sufficiency.

A black and white male dairy calf will only be reared on if it is in good health and has an acceptable conformation. This means that the dairy industry needs to continue to address the robustness of the Holstein cow as well as calf health and welfare, particularly issues related to colostrum. However, all of these issues are priorities for industry and are being addressed.

The numbers of calves born on restricted TB farms will continue to be a problem and it is to be hoped that the AFU scheme will prove successful. However, with commitment from the beef and dairy industry, retailers, processors and others, these animals can, as this report has shown, enter the supply chain as bulls or steers with an ex-farm value of £50-£100 and a potential end value of some £1,000 head. Black and white male dairy calves represent an opportunity to generate millions of pounds for the British farming industry and it is the Forum's hope that this potential will continue to be realised.

The Beyond Calf Exports Stakeholder Forum offers a good model of how the food and farming industry, government and NGOs can all work together to achieve mutually beneficial goals based on clear challenging objectives and a spirit of trust and partnership.

THE MODERN SOLUTION TO THE EXPORTS OF CALVES: WORKING IN BLACK AND WHITE

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