

The British Blue Cattle Society

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Dispelling Misconceptions

1) Preface

A problem behind the creation of a 'Stereotype' is that such a generalization often masks essential detail and can overshadow many true facts, leading to dangerous and unjustifiable misconceptions being drawn.

This is particularly true when one considers the 'British Type' of Belgian Blue or as it is referred to in the UK, the 'British Blue'.

The British Blue Cattle Society is aware of misconceptions within the UK Beef Industry surrounding the 'British Blue' and has taken the initiative, through this document and a series of meetings to put the record straight.

2) The 'Belgian Blue' - The Stereotype.

Common misconceptions of the Belgian Blue are:-

- 2.1 All Belgian Blue genetics are all the same and will always be the same.
- 2.2 It is not possible for purebred Belgian Blues to calve naturally.
- 2.3 The 'Double Muscling' characteristics is not beneficial to the breed as the extra muscle surrounding the cervix and the extra muscle makes the calf larger, thus leading to calving difficulties.
- 2.4 The 'Double Muscling' characteristics lead to small organ size which is detrimental to the animal's wellbeing.

3) The 'Belgian Blue' – The Reality

3.1 A Range of Different Genetic Types.

A range of different genetic types exist within the overall Belgian Blue population, in its home country, spanning calving ease criteria from the very easy to the more difficult.

- Dairy type - A very easy naturally calving strain. (See Appendix 12)
- Intermediate - Common to UK
- Extremely Muscled. -A higher risk of calving difficult, requiring careful breeding and nutritional management to ensure a natural birth.

3.2 Calving With Natural Intent

British Blues' – Purebred statistics of those calving with **Natural Intent**

83% calve naturally, with 52% requiring no assistance whatsoever.

Only 17% required caesareans. (A number of these being due to naturally occurring breech births.)

(See Appendix 1)

Crossbred Statistics

3.3% calving difficulty experienced on Belgian Blues used in the dairy herd.
(See Appendix 2)

3.3 Short Gestation Period – Low Birth Weight.

The ‘British Blue’ is renowned for a short gestation period, 2 – 3 days less than the bovine norm, which leads to low birth weights. In instances of a higher weight calves, the presence of flexible muscle as opposed to inflexible bone lends itself to a higher chance of a natural birth being achieved.

3.4 Elective Caesareans

Overall 41% of the breed in the UK calves with ‘Natural Intent’. The remainder is by ‘Elective Caesarian’, carried out for management purposes and with no genetic association.

Elective Caesareans are an economic issue and a general bovine one and is not breed specific.

3.5 Organ size.

In extreme muscled examples of the breed, muscle pressure, within the body cavity can lead to a 10 – 15% reduction in organ size (heart and lungs). Veterinary advice has commented that such a reduction has little or no effect on the animals wellbeing.

The ‘British Type’ of ‘Blue’ is generally not of the extreme muscled type and is statistically 7 -10 cms taller than an animal of the extreme Belgian type, leading to more space in the body cavity. This is not an issue in the UK herd.

3.5 The ‘Belgian Blue’ overseas.

Statistics relating to natural calving in Pure Bred Belgian Blues is as follows:-

Australia	95 – 100%
New Zealand	98.45%
Denmark	79%

(See Appendix 3)

4) Developing the ‘British Type’

The British Herd Book has had a long term objective to address the calving issue associated with the Belgian Blue. This programme of technical development started soon after the original importation in 1982. The key development stages are listed below:-

4.1 The Introduction of Pre-Sales Inspections

With the start of public auctions of the breed, held under the auspices of the Society in 1987, pre-sale inspections were introduced in order to raise the breeding standards and to enhance purchaser confidence.

The Official Society Inspection Criteria taking into account Mobility, Jaws, minimum height and weight for age and minimum scrotal size. All animals

sold having to be a ‘Good representation of the breed.’

This vigorous inspection regime has had a major influence in improving the mobility of the breed out of all recognition and also in greatly reducing incidences of incorrect jaws and teeth.

Genetic Evaluation data relating to calving ease, growth and carcass traits being introduced in the early 2000’s. This data being included in sale catalogues as from the 30th October 2004, at the Dungannon sale in Northern Ireland

4.2 Late 1980’s onwards

Semen importations from Belgium have been closely monitored and filtered, by the Belgian Blue Group (a Belgian semen company), formally British Linalux to ensure that only genetics suited to the British market have been imported, deliberately excluding the extreme blood lines.

4.3 The Valuable Work of Individual Breeders

Before the inception of computerised genetic evaluation programmes, a number of individual breeders were using their commercial and breeding expertise to move the breed dramatically away from the surgical birth culture which has, in the past been the custom and practice on Belgium farms.

(See Appendix 4)

4.4 1990 Liverpool University – Veterinary Department

Establishing a correlation between ‘External Pelvic Measurements’ and ease of calving. Previous work of this type involved taking internal pelvic measurements was felt to be ‘intrusive’ and unethical.

(See Appendix 5)

4.5 1999 Promotion of the ‘British Type’ of Belgian Blue

By the end of the 1990’s it was clear that a distinctive ‘British Type’ of Belgian Blue had been developed within the UK, that had clear definition and was very different from that which had been originally imported from Belgium in 1982. **British Breeders had changed the breed to suit the British market requirements.** Active steps were taken to promote the merits of the ‘British Type’ of ‘Blue’. This took the form of an **International Leaflet**. It raised the profile of the British breeds characteristics of ‘Ease of Calving, Short Gestation Period, ‘Good Mobility and Structure’ and Excellent Temperament.

It was also highlighted the fact that the British Herd Book was backed up by an independent genetic evaluation programme.

This was the first time a move had been taken to depict a clear, separate identity for British bred ‘Blue cattle’, so as to differentiate it from other, overseas Herd Books of Belgian Blues.

4.6 2004 - ‘Spark Award’ - Genesis Faraday

In 2004 the Society was awarded a ‘Spark’ award by Genesis Faraday to undertake a ‘Preliminary Genetic Evaluation’ of all the data the Society had available relating to calving ease, namely :- Raw data, Pelvic data and BLUP’d data in the form of ‘Estimated Breeding Values’. This work was done by Professor JA Woolliams of the Roslin Institute in Edinburgh

The conclusion of this report stated:-

The British Belgian Blue Cattle Society should be congratulated for the initiative and commitment shown, in gathering a significant and valuable data set, on pelvic measurements, with a view to its use for improving calving ease.

(see Appendix 6)

4.7 2007 - The ‘Pedigree Breeding Index’

This index, a combination of ‘Estimated Breeding Values’ and Economic Factors, took over a year to develop, in conjunction with the team of geneticists at the University of New England in Armidale, New South Wales, as part of the ‘Breedplan’ Genetic Evaluation programme.

The object was to identify from the 30,000 pedigree records, held by the Society, animals that were above breed average for growth and carcass traits whilst at the same time, also, being above breed average for calving ease.

Its introduction provided a very valuable ‘Selection Tool’ for breeders wishing to select sires to facilitate natural calving within their herd, whilst at the same time minimising any potential adverse deterioration in growth and carcass traits.

4.8 25 years of Technical Development and Success

No other Belgian Blue Society, in the world, has undertaken such a continuous and sustained programme of technical development on a single issue.

The Result Since 1987 :-

The number of ‘Non – Elective Caesareans reduced from 81% to 17.5%

The Number of ‘Calving Easily’ had been increased from 1.5% to 52%

Striving towards the Overall Objective

The long term objective was to achieve **natural** births within the breed, of animals calving with ‘**Natural Intent**’ of **90% or higher**; a figure of **83%*** is currently being achieved; the move towards this overall objective having been particularly successful.

4.9 Publication of ‘The Bull Book of British Bred Sires’

The Society publishes a ‘Bull Book of British Bred Semen Sires’, which clearly identifies the genetic evaluation data for each animal and also illustrate this information in an easily understood, visual, graph, form. Including calving ease data (See Appendix 16)

This process is continuously ongoing.

5) Why the ‘British Blue’ is Different?

1. ‘Breedplan’ Genetic Evaluation enables ‘Calving Ease’ and ‘Pedigree Breeding Index’ trait leaders to be identified as valuable Selection Indexes.
2. The extreme types of Belgian Blue genetics have been filtered out, with the breed developing along the lines of a well muscled ‘Intermediate type’, eliminating most of the problems associated with the more extreme types of Belgian Blue Genetics.
3. The ‘British Type’ has been developed specifically to suit the British meat trade and British farming practices.
(See Appendix) 7
4. Natural calving of the purebred ‘Blue’ is common place within the Herdbook.
(See appendix 9)
5. The ‘British Blue Cattle Society’ has a clear objective to reduce the number of surgical births occurring within the breed. by:-
 - i. Continuing with a programme of technical development to further sophisticate the ‘Selection Tools’ available to breeders.
 - ii. To continue to educate towards this objective by providing management and nutritional guidelines to members.
(See Appendix 11)

6) The Importance of the ‘British Blue’

Numerical Importance Nationally

The ‘British Blue’ is the 5th most numerous breed by sire in the UK Beef Industry.

(See Appendix 7)

Importance to the Dairy Sector

Of those using a beef sire in the Dairy Sector, **75%** used ‘British Blue’ semen, thus greatly increasing the number of Dairy Calves being introduced into the beef supply chain, thus greatly reducing the slaughtering of culled bull dairy calves. This being a major ethical point.

(See Appendix 12)

Pedigree Sector

There are approximately 650 pedigree Breeders registered to the British Herd Book.

Value of Pedigree sales is estimated at approximately £2.7 million per annum

7) Other Issues

7.1 The Myostatin Gene

The double muscling syndrome was first documented some 200 years ago in Durham cattle by the Englishman George Culley; the breed was later referred to as the 'Durham Shorthorn'.

The naturally occurring gene responsible for these extra growth factors was identified as the 'Myostatin Gene'. This gene also occurs in other breeds of cattle such as the South Devon, Highland, Blonde d'Aquitaine and Limousin' to varying degrees. The Belgian Blue originated from the Durham Shorthorn.

The development of the 'British Type' of Belgian Blue, in the UK, began in 1982 with the importation of the Belgian Blue into the UK from Belgium.

It must be remembered that there are three distinct strains of Belgian Blue genetics found within Belgium. Firstly, the **Dairy Type** (see **Appendix 12**), producing an animal with average milk yields and average bovine carcass quality, which calves naturally, as per the Bovine norm. At the other end of the scale is the more **Extreme Animal**, which has been bred specifically for a very high meat yield. These are often depicted as a 'Belgian Blue' stereotype. In between is an **Intermediate Animal** of good structure, milky, with good carcass quality traits, without being extreme *and more akin, to what some would say, is the bovine norm.*

It is important to recognise that all these differing genetic types and blood lines are found within the whole spectrum of the "Belgian Blue Breed."

7.2 Breed History

The story of the Belgian Blue is one of evolution and improvement. During the second half of the 19th century Shorthorn bulls were exported from the UK to Belgium to improve the native population which was primarily of the dairy type.

Between 1920 and 1950 there was active selection for this dual purpose type of animal.

1950 to 1960 saw a move to favour animals with heavier muscling. The stereotype of 'Belgian Blue' as thought of today, was bred by developing this more extreme type of animal. It must be stressed that this is an example of only the extreme type found within the range of Belgian Blue genetics.

This type of Belgian Blue was imported into the UK in 1982, since then British breeders have further developed the Breed to create the 'British Type' of 'Blue' which is very different from that of the original 1982 importation.

7.3 British Stockmanship Expertise

The breeding skills of British stockmen, with experience and a reputation stemming from the days of the infamous ‘Bakewell’ of the nineteenth century, began to develop the breed to suit the environmental and market needs of the UK.

This demanded breeding a ‘Terminal Sire’ that was actively mobile, sufficiently so to work actively amongst the hill cows of Scotland, Wales and the hill areas of England, producing a quality crossbred carcass, suited to the demands of the UK meat trade.

A female was also required that had the genetic ability to calve easily and naturally, so keeping down unnecessary veterinary and labour costs. Breeders were encouraged by the example of the Charolais, a breed imported from France in 1961 that had, at that time, an infamous reputation for difficult calving, and a problem that has largely been bred out of the breed in the intervening 45 years.

These UK requirements, were very different breeding objective from that demanded from the Belgium beef industry, where pure bred meat commonly entered the food chain, mobility was not an important issues within their farming systems and the attitude towards, the financial costs and also the ethics associated with a surgical birth, were very different from the UK.

7.4 Embryo Transfer and Elective Caesareans.

This is a bovine issue, not a Breed specific issue.

(See Appendix 15)

7.5 Surgical births in the Human Species

It may appear an irrelevance by some but the point is made none the less, that in the UK 25% of human births are surgical. In the human world attitudes are changing and our own species is in a process of evolving all the time.

This figure rises to nearly 45% amongst the more affluent in parts of Latin America, where the comfort and convenience of a surgical birth is preferred to the rigours of a natural delivery. The British Medical journal reports that over 850.000 C –Sections are needlessly performed in the region each year.

“Isn’t it amazing that an animal can have an elective caesarean section and it raises issues, yet the human race perform this birth method as an everyday occurrence without comment!!.”

Conclusion

- 1) Within the 'British Blue' genetic pool, there is a wide range of family blood lines to be found.
- 2) Some, admittedly, lean towards the more extreme muscled type, typified by the traditional 'Belgian Blue' stereotype; however there are many blood lines which are less extreme and originate from the 'Dairy' and 'Intermediate Type' of 'Blue' genetics. It is from these blood lines that the on-farm examples of 'Natural Calving', demonstrated in this paper, have been sourced by breeders.
- 3) The near 100% natural calving achieved in Austral-Asia, using 'British Blue' sires is a credit to the skill of British breeders.
- 4) The skill comes for breeders to identify such families, which are predisposed towards easy calving, whilst at the same time retaining good growth and carcass quality traits. The introduction of the '**Pedigree Breeding Index**' has been very beneficial in helping to achieving this objective.
- 5) 'The British Blue Cattle Society' have undertaken a path of 25 years of technical development to develop the 'British Type' of 'Blue', which is very different from the genetics imported into the UK in 1982.
- 6) It is important to recognise what has been achieved by breeders and not to judge the breed on an outdated stereotype. All those dedicated breeders that are calving purebred Belgian Blues naturally, both here in the UK and overseas, need to be given due credit for their efforts.
- 7) The 'British Blues Cattle Society' has a responsibility to protect their interests.
- 8) Customers of 'Blue' genetics need to take full advantage of the genetic evaluation information and selection tools available to seek out and demand the sourcing of 'Easy Calving' families. This action in its self will greatly assist in taking the breed forward at an even fast development rate.
- 9) **"If we have to pull one calf, you won't sell another straw of semen!"**
The Australians challenge was taken head on by the 'British Blue' and numerous semen orders have been now shipped to that far side of the world, with:- '**No Worries**'
- 10) **The British Blue Cattle Society is committed to building on past achievement and to continue along the path of, continued, technical and educational development. Working hand in hand with its members to continue to contribute to the need of the meat supply industry whilst at the same time having, as one of its highest priorities, the welfare of those animals under its care.**

John Fleming
Secretary
British Blue Cattle Society
September 2007.

Appendix 1

Calving Ease – Purebred Cattle

Description	Number		% Natural Intent		% Total	
	2004	1987	2004	1987	2004	1987
Easy	450	14	52.3	1.5		
Assisted	232	37	27.0	4		
Difficult	4	90	0.5	9.5		
Serious	15	-	1.7			
Veterinary Assistance	9	34	1.1	4		
Non- Elective Caesarean	150	738	17.4	81		
Totals:- Natural Intent	860	913	100%	100%	41%	61.0%
Elective Caesarean	1222	247			58.	17
Unknown	15	337			1	22
Total	2097	1497			100%	100%

Source

2004

Professor JA Woolliams
Roslin Institute 17/8/2004

1987

'Breedplan' Data
University of New England

The data set shows that 41% of Belgian Blues calve with natural intent, the remainder calving following a caesarean, elected by the farmer. However, of the cows calving with natural intent 52% calved without assistance and only 17% require caesareans.

Professor JA Woolliams
Roslin Institute 17/8/2004

Comment

1987 has been taken as one of the first years of the Society with a meaningful number of registrations.

When considering 'Calving with 'Natural Intent', over the 17 year period covered by the above statistics, the % of animals calving easily has improved from 1.5% to 52%

The number of 'Non – Elective Caesareans' has dropped from 81% to 17.45%.

However the number of 'Elective Caesareans', carried out for management purposes and with no genetic association, has increased from 17% to 58%. This reflects the increase in embryo transfer work during the period and the increased value of purebred stock.

Elective Caesareans are an economic issue and a general bovine one and is not breed specific.

Appendix 2

Calving Ease – Commercial Cattle.

Genus Calving Survey

Beef Sires Used on the Dairy Herd

The number of recorded “Difficult” calvings per 100 births

Breed	Average
	%
Aberdeen Angus	2.1
Hereford	2.1
Limousin	2.6
Belgian Blue	3.3
Simmental	4.0
Charolais	5.1
Blonde	5.6

Source ~ Genus Breeding Ltd

Appendix 3

The Belgian Blue – The Overseas Experience

New Zealand

1. New Zealand breeders average 98.45% natural calving of pure Belgian Blues, with only 1.5% experiencing a surgical birth
2. Of those animals giving birth by caesarean section 99% are heifers and it is policy that neither they, nor their progeny will be kept for breeding again. Calving the Belgian Blue in New Zealand naturally, is a very high priority to breeders. Particular advantage is taken of the farming conditions found in this country which lend them to ensuring that cows calve with a low condition score, with light birth weights.

Source *Belgian Blue Herd Book of New Zealand Inc*

Australia

1. The British Blue Cattle Society is currently exporting selected genetics, to ‘Agri-gene’ in Melbourne, Australia, for sale throughout the Continent.
2. These semen sires include



Donnah Randy Lumiere’



‘Three Ways Superstar’



‘Norbreck Newman’



‘Ridge Dean Mahogany’.

None of these sires being of the extreme type.

3. The brief from Malcolm Reedy, Secretary Australian Belgian Blue Cattle Society, was :-

“If we have to pull one calf, you won’t sell another straw of semen!”

- 4 Mr. Reedy has also commented that 15 to 20 years ago they only had access to pure ‘Belgian Blue’ genetics from Belgium, which was not supported by any calving ease data. It was the use of these bulls, which led to an originally, low natural birth rate %.

Over the years, as we have returned to a higher, natural birth rate, it is interesting to note that birth weight has decreased. I guess getting away from the older Belgian genetics has helped here also; having recently spoken to several new members, who have calved Belgian Blues for the first time since joining our Society, all having **100% naturally calved**, both ET and calves out of crossbred recipients and their **pedigree cows**.

On my own farm, all our breeding cows have calved naturally in the past 12 months and we have just finished calving our ET calves out of crossbred recipients, all calved naturally, unassisted, with one giving birth to twins. These calves were sired by British genetics; namely, ‘Three Ways Superstar’ and ‘Ridge Dean Mahogany’.

This is a sure, testament of the UK genetics and their associated EBV genetic evaluation, through “Breedplan.”

Long-term, I would envisage our breed to be close to 100% natural calving, hopefully dismissing much stigma attached to the Belgian Blue breed.

In fact the greatest number of elective caesareans is performed on several other beef breeds here in Australia, other than Belgian Blue; the greatest number being performed on one particular dairy breed.

In comparison, the human population growth rate, here in Australia is 30%+, mainly attributed to a rapidly rising elective caesarean section method of delivery.

“Isn’t it amazing that an animal can have an elective caesarean section and it raises issues, yet the human race perform this birth method as an everyday occurrence.”

Denmark

Below is a chart outlining the breeding development achieved by Danish breeders over the last 10years.

**Danish Calving Statistics
% Calvings**

Year	No.	Caesarians	Easy	No Help	Calf mortality	Birth Weight Kgs.
1996/97	47	64	26	11	17	46.7
1997/98	62	48	37	15	11	45.9
1998/99	63	29	53	16	11	45.7
1999/00	45	47	27	27	18	46.8
2000/01	53	49	28	23	11	46.2
2001/02	26	31	46	23	4	43.9
2002/03	44	55	39	7	7	47.4
2003/04	28	36	43	21	14	46.3
2004/05	28	43	46	11	21	42.5
2005/06	34	21	62	18	18	37.3
"For Tv" i 1998	109	55	32	13	14	46.3
"Handlingsplan"	287	41	40	18	12	45.8
"Opstramning"	34	21	62	18	18	37.3

Source the Danish Belgian Blue Herd Book.

Notes

The % caesarean births has dramatically dropped from 64% down to 21% in 10 years

The % ‘Easy calving’ has increased from 26% to 62% in the same period.

Appendix 4

The Valuable Work of Individual Breeders

Before the inception of computerised genetic evaluation programmes a number of individual breeders were using their commercial and breeding expertise to move the breed dramatically away from the surgical birth culture which has, in the past, been the

custom and practice on Belgium farms. This culture is now changing, with an increasing number of the younger generation of Belgian farmers changing their attitude.

One notable breeder, Doug Hazel, of the ‘Hazelwood’ prefix, pioneered this work and was closely followed by Michele Wilde, ‘Ridge Dean’ prefix. Both these herds quickly developed families of pure bred Belgian Blues that consistently calved naturally with ease, proving that within the genetic pool it was perfectly possible for a well muscled animal, with a high yield of saleable meat, to calve easily, as per the bovine norm.

It is now common practice for a large number of members of the Society to strive towards and to calve their ‘Blue’ cows naturally. Of animals calving with natural intent 83% calved naturally in 2004 (Ref 1)

The work of these pioneers has since been verified with data analysed since by the ‘Breedplan International’ genetic evaluation programme, with both these herds having sires in the top 10% of the breed for ‘Calving Ease Direct’

	Top		Top
Eg. Hazelwood Jake	1%	Ridge Dean Physical	5%
Hazelwood upton	1%	Ridge Dean Mahogany	10%
Hazelwood Freshman	5%		
Hazelwood Jupiter	10%		

Appendix 5

Liverpool University

The first research miles stone was a contract taken out with the Veterinary Department of Liverpool University in 1990, under the guidance of Dr. Richard Murray, looking into the correlation of external Pelvic measurements and ease of calving. Previous work of this type taking internal pelvic measurements was felt to be ‘intrusive’ and unethical.

This work has been particularly valuable and has led to recording over 6000 pelvic measurement data from new born and mature animals with the objective of developing a ‘Pelvic Estimated Breeding Value’ to further add to the accuracy of the ‘Calving Ease’ Estimated breeding values; thus providing an even more reliable ‘Selection Tool’ for breeders.

It has been recognised in research circles that the ‘British Blue’ has accumulated a greater pool of information, either as raw or BLUPed data relating to the bovine than possibly any other breed. This has been recognised as a credit to the responsible technical focus of the ‘British Blue’ Society.

Appendix 6

‘Spark Award’ - Genesis Faraday

In 2004 the Society was awarded a ‘Spark’ award by Genesis Faraday to undertake a ‘Preliminary Genetic Evaluation’ of all the data the Society had available relating to

Calving ease, namely :- Raw data, Pelvic data and BLUP'd data in the form of 'Estimated Breeding Values'.

The conclusion of this report stated:-

The British Belgian Blue Cattle Society should be congratulated for the initiative and commitment shown, in gathering a significant and valuable data set, on pelvic measurements, with a view to its use for improving calving ease.

The data set showed that 41% of Belgian Blues calve with natural intent, the remainder calving following a caesarean, elected by the farmer. However, of the cows calving with natural intent 52% calved without assistance and only 17% require caesareans.

Professor JA Woolliams
Roslin Institute 17/8/2004

This report identified that; of animals calving with 'Natural Intent' 83% calved naturally.

Since that date the % of Belgian Blues calving with 'Natural Intent' has increased from 41% to 43%. This improvement trend in natural calving continues and is expected to rapidly gain momentum with the introduction of the 'Pedigree Breeding Index' in November 2006.

Appendix 7

Belgian Blue – The Importance to the Beef Supply Chain.

1) Meat Quality - General

Meat from a Belgian Blue or Belgian Blue Crossbred is lean, with fine muscle fibres leading to tenderness it also has, within the carcass, less gristle and connective tissue.

The fine bone lead structure resulting in a high Killing Out % and high yield of Saleable Meat, often up to 15% higher than other crosses.

This high Carcass Yield per animal results in a 'Low Cow Footprint'. This is, in itself, is a very environmentally friendly attribute.

The nature of the meat is well suited to the popular fashion for Continental recipes and convenience for meals.

2) Meat Quality – Bristol University Research

The Society commissioned Bristol University to undertake the following report:-

“Characterisation of fatty acid composition, cholesterol level and the relationship between intramuscular and subcutaneous fat content in Belgian Blue cattle”

Dr Olena Doran, University of Bristol February 2007 (Genesis Faraday SPARK Award)

Report Conclusions

- (i) Meat from the Belgian Blue cross-breed has healthier fatty acid composition when compared to Charolais and Limousin cross-breeds due to a significantly higher level of health-beneficial polyunsaturated fatty acids. There are no

differences in total fat content, SFA, MUFA and cholesterol levels between the three cross-breeds.

- ii) Meat from pure-bred Belgian Blue bulls is leaner and has a lower level of undesirable SFA when compared to Belgian Blue, Charolais and Limousin crosses and higher level of desirable PUFA when compared to the cross-breeds studied.
- iii) Identification of animals with low subcutaneous but high intramuscular fat content and *vice versa* suggests that fat deposition in muscle and subcutaneous adipose tissue is regulated by different mechanism. Further elucidation of these mechanisms is an important step in designing strategies for regulation of fat partitioning.

3) Meat Quality – Eating quality

The Belgian Blue has won the Tesco ‘Best Steak Competition’, three times at Royal Highland Show 2002, Royal Ulster Show, Balmoral, 2005 and Royal Highland Show 2007.

Thus demonstrating that not only does Belgian Blue genetics produce a high yield of quality meat, it also produces quality joints at the top of range in respect of eating quality.

4) Meat Quality – Carcase Grading

The meat processing industry requires quality carcasses, in volume of E, U and R grades.

Belgian Blue crossbred carcasses regularly achieve this.

See specimen grading sheet below: -

Kill no	Ear Tag	Grade	Origin	Category	Breed	Age	Body	Side 1			Side 2		
								Scale wt	Rebate wt	Net wt	Scale wt	Rebate wt	Net wt
272	UK320344100923	U+2	UK	Young Bulls	BBX	14	349.8	178	3.6	174	179	3.6	175.4
274	UK320344700922	E2	UK	Young Bulls	BBX	14	373.2	188.8	3.8	185	192	3.8	188.2
275	UK320344600942	U+2	UK	Young Bulls	BBX	14	305.6	155.4	3.1	152.3	156.4	3.1	153.3
277	UK320344400975	-U3	UK	Young Bulls	BBX	12	318.3	163	3.3	159.7	161.8	3.2	158.6
279	UK320344500927	U+3	UK	Young Bulls	BBX	14	365.7	185.6	3.7	181.9	187.6	3.8	183.8
280	UK320344400898	-U2	UK	Young Bulls	BBX	14	352.4	178.2	3.6	174.6	181.4	3.6	177.8
281	UK320344300925	-U2	UK	Young Bulls	BBX	14	361.4	184	3.7	180.2	184.8	3.7	181.1
282	UK320344200938	U+1	UK	Young Bulls	BBX	14	290.2	148	3	145	148.2	3	145.2
283	UK320344200952	E1	UK	Young Bulls	BBX	13	340.4	173.6	3.5	170.1	173.8	3.5	170.3
284	UK320344100909	-U2	UK	Young Bulls	BBX	14	294.4	148.6	3	145.6	151.8	3	148.8
286	UK320344500920	R2	UK	Young Bulls	BBX	14	294.4	150	3	147	150.4	3	147.4
287	UK320344600900	-U3	UK	Young Bulls	BBX	14	327.1	165.8	3.3	162.5	168	3.4	164.6
							3973	823	40.6	651	2035	40.7	1995

Appendix 8

Meat Quality – Double Muscled animals

Meat from double muscled cattle tends to be of better quality. This is due to a combination of :-

- 1) A higher proportion of “expensive” cuts of meat,
- 2) Increased tenderness
- 3) Reduced fat content, with a higher proportion of polyunsaturated fats.

Significance for producers

Double muscled animals produce a higher proportion of desirable cuts of lean meat, with greater efficiency than do comparable, conventional cattle, significance for consumers, this meat is more tender and, being lean having a higher polyunsaturated fat content, conforms more closely with current nutritional guidelines, than meat from normal animals.

(Source “Double Muscling and Myostatin” an article on the South Devon Cattle website)

Appendix 9

Selection for Natural Calving

As outlined in the ‘Developing the ‘British Type’ (page 2), the work started with Liverpool University in 1990, moving through to sophisticated genetic evaluation, has given the British Blue Herd Book, the opportunity to clearly identify, out of the whole herd book population, firstly, bloodlines that are proven to be easy calving, using the “Calving Ease Direct” ‘Estimated Breeding Value’ information and secondly, identifying animals which are above breed average for calving ease, whilst at the same time maintaining growth and carcass traits, using the newly introduced “**Pedigree Breeding Index.**”

Below are three examples.

Figure a) Lists the top ten published sires for calving ease

Figure b) Lists published sires which have a high “Pedigree Breeding Index.”

Figure c) An example of a ‘Percentile Table’

Figure a) Published sires in the top 10% of the breed for ‘Calving Ease’
Figures in boxes indicate a leading trait.

Name/ID	Calv. Ease Direct (%)	Calv. Ease Dtrs (%)	Gest. Len. (days)	Birth Wt. (kg)	200 Day Wt. (kg)	400 Day Wt. (kg)	600 Day Wt. (kg)	Milk (kg)	Carcass Wt. (kg)	Eye Muscle Area (sq.cm)	Rib Fat (mm)	Retail Beef Yield (%)	IMF %
HAZELWOOD JAKE	+2.7	+1.0	-1.0	-2.3	0	+4	+11	0	+12	+1.0	0.0	+0.1	-
ALAMBIC DE BAILLONVILLE IS	+1.8	+1.1	+0.3	-0.9	+5	+3	+8	+3	+10	+0.8	+0.2	+0.1	-
LEVRIER DE VEHIR	+1.4	+0.8	-	+0.5	+9	+13	+22	+6	+13	+0.6	0.0	-0.1	-
HAZELWOOD UPTON	+1.3	+0.7	-	-0.5	+7	+5	+15	+2	+12	-	-	-	-
CLOWN DU TILLEUL	+1.0	+0.9	-0.2	-1.3	-5	+1	+4	+2	-	-	-0.2	+0.7	-
VISCONTI DE ST FONTAINE (IS)	+1.0	+0.4	+0.3	+0.9	+2	-4	+1	+1	+2	+2.5	+0.6	+0.4	-0.1
HAZELWOOD KING	+1.0	+1.1	+0.3	+0.1	+8	+12	+26	0	+17	+1.3	0.0	+0.3	-
HAZELWOOD FRESHMAN	+0.9	+1.4	+1.0	+0.8	+16	+31	+46	0	+32	+2.0	-0.5	+0.9	-
RIDGE DEAN MAHOGANY	+0.8	+0.3	+0.5	+0.8	+15	+18	+22	+6	+16	0.0	-0.2	-0.2	+0.1
SAVANT DE PIERRECOME (IS)	+0.8	+0.3	-0.3	-0.4	-1	-5	-1	+1	+1	+1.2	+0.2	+0.2	0.0
TOTEM DE CHOQUENEE (IS)	+0.7	-0.1	+1.6	+0.6	+4	+4	+7	+3	+9	+0.5	-0.2	+0.1	-
RIDGE DEAN TEDDY	+0.7	+0.4	+0.5	+1.1	+14	+21	+26	+5	+18	-	-	-	-
RIDGE DEAN PHYSICAL (SR)	+0.6	+0.4	+0.2	+1.9	+12	+14	+23	+3	+13	+2.1	+0.3	+0.4	-
CRISTAL DE SOMME (IS)	+0.6	+0.2	+1.6	+1.1	+3	+8	+13	0	+9	+0.8	+0.1	0.0	0.0
SERUM D'ANLOY (IS)	+0.6	+0.3	+1.1	+0.7	+5	-1	+12	+4	+7	+1.6	+0.3	+0.3	0.0
Breed Avg. EBVs for 2005 Born Calves	0.0	0.0	+0.7	+1.7	+8	+12	+21	+2	+11	+1.1	+0.1		

Figure b) Animals in the top 10% of the breed for the ‘Pedigree Breeding Index’
 Figures in boxes indicate a leading trait.

	Calv. Ease Direct (%)	Calv. Ease Dtrs (%)	Gest. Len. (days)	Birth Wt. (kg)	200 Day Wt. (kg)	400 Day Wt. (kg)	600 Day Wt. (kg)	Milk (kg)	Carcase Wt. (kg)	Eye Muscle Area (sq.cm)	Rib Fat (mm)	Retail Beef Yield (%)	IMF %	BBB Carcase Yield Index (GBP)	BBB Pedigree Breeding Index GBP
HAZELWOOD FRESHMAN	+0.9	+1.4	+1.0	+0.8	+16	+31	+46	0	+32	+2.0	-0.5	+0.9	-	+25	+25
LAWNS DOMINIC	0.0	-0.3	-1.3	+0.6	+19	+47	+58	+7	+37	+1.2	-0.3	+0.4	-	+25	+20
TWYNING ASH TRENT	0.0	+0.2	+0.2	+2.2	+22	+48	+68	+4	+39	+0.9	-0.8	+0.6	-	+29	+20
RIDGE DEAN PHYSICAL (SR)	+0.6	+0.4	+0.2	+1.9	+12	+14	+23	+3	+13	+2.1	+0.3	+0.4	-	+14	+14
HAZELWOOD KING	+1.0	+1.1	+0.3	+0.1	+8	+12	+26	0	+17	+1.3	0.0	+0.3	-	+15	+13
WIDEWATH VAGABOND	+0.4	+0.2	0.0	+1.6	+11	+19	+24	-	+15	-	-	-	-	+13	+13
BRINGLEE FREEMAN	+0.1	+0.3	+0.5	+1.7	+14	+16	+19	+4	+14	+1.6	+0.2	+0.4	0.0	+10	+12
Breed Avg. EBVs for 2005 Born Calves	0.0	0.0	+0.7	+1.7	+8	+12	+21	+2	+11	+1.1	+0.1	+0.1	0.0	+9	+5

Figure c) An example of a ‘Percentile table’
 Used to search the 30.000 records on file for the type of genetics required.

Percentile Band	Calv. Ease Direct (%)	Calv. Ease Dtrs (%)	Gest. Len. (days)	Birth Wt. (kg)	200 Day Wt. (kg)	400 Day Wt. (kg)	600 Day Wt. (kg)	Milk (kg)	Carcase Wt. (kg)	Eye Muscle Area (sq.cm)	Rib Fat (mm)	Retail Beef Yield (%)	IMF %	BBB Carcase Yield Index (GBP)	BBB Pedigree Breeding Index GBP
Top Value	+2.3	+1.0	-1.5	-2.6	+27	+58	+81	+6	+43	+4.6	-1.2	+2.0	+0.5	+33	+24
Top 1%	+1.2	+0.8	-1.1	-0.8	+19	+33	+48	+5	+26	+2.1	-0.3	+0.7	+0.1	+20	+17
Top 5%	+0.8	+0.5	-0.4	-0.2	+15	+26	+38	+4	+20	+1.8	-0.2	+0.4	+0.1	+16	+13
Top 10%	+0.6	+0.3	-0.1	+0.3	+14	+23	+33	+4	+18	+1.6	-0.1	+0.3	+0.1	+14	+11
Top 15%	+0.4	+0.2	+0.1	+0.6	+13	+20	+30	+3	+16	+1.5	0.0	+0.3	+0.1	+13	+10
Top 20%	+0.4	+0.2	+0.2	+0.8	+12	+18	+28	+3	+15	+1.4	0.0	+0.2	+0.1	+12	+8
Top 25%	+0.3	+0.1	+0.3	+1.0	+11	+17	+26	+3	+14	+1.3	0.0	+0.2	+0.1	+11	+8
Top 30%	+0.2	+0.1	+0.4	+1.1	+10	+16	+24	+3	+13	+1.3	+0.1	+0.2	+0.1	+10	+7
Top 35%	+0.1	+0.1	+0.4	+1.3	+10	+14	+23	+3	+12	+1.2	+0.1	+0.1	0.0	+10	+6
Top 40%	+0.1	0.0	+0.5	+1.4	+9	+13	+22	+3	+12	+1.2	+0.1	+0.1	0.0	+9	+6
Top 45%	0.0	0.0	+0.6	+1.6	+9	+12	+21	+2	+11	+1.1	+0.1	+0.1	0.0	+9	+5
Top 50%	0.0	0.0	+0.6	+1.7	+8	+12	+20	+2	+10	+1.1	+0.1	+0.1	0.0	+8	+4
Top 55%	-0.1	-0.1	+0.7	+1.8	+7	+11	+19	+2	+10	+1.1	+0.1	+0.1	0.0	+8	+4
Top 60%	-0.1	-0.1	+0.8	+2.0	+7	+10	+18	+2	+9	+1.0	+0.2	0.0	0.0	+8	+3
Top 65%	-0.2	-0.1	+0.9	+2.1	+6	+9	+16	+2	+9	+1.0	+0.2	0.0	0.0	+7	+3
Top 70%	-0.2	-0.2	+0.9	+2.2	+6	+8	+15	+2	+8	+1.0	+0.2	0.0	0.0	+7	+2
Top 75%	-0.3	-0.2	+1.0	+2.4	+5	+7	+14	+2	+8	+0.9	+0.2	0.0	0.0	+6	+2
Top 80%	-0.3	-0.2	+1.1	+2.6	+5	+6	+13	+2	+7	+0.9	+0.3	0.0	0.0	+6	+1
Top 85%	-0.4	-0.3	+1.3	+2.9	+4	+5	+11	+2	+6	+0.8	+0.3	-0.1	0.0	+5	0
Top 90%	-0.5	-0.3	+1.4	+3.2	+3	+3	+9	+1	+5	+0.7	+0.3	-0.1	0.0	+4	-1
Top 95%	-0.6	-0.4	+1.6	+3.7	+2	+1	+6	+1	+3	+0.6	+0.4	-0.2	-0.1	+3	-2
Top 99%	-0.9	-0.5	+2.2	+4.5	-1	-3	+1	0	0	+0.3	+0.5	-0.4	-0.1	0	-6
Low Value	-1.2	-0.7	+3.4	+7.1	-6	-14	-13	-2	-8	-1.6	+0.9	-1.2	-0.5	-5	-11

Sophisticated Search Tool

Using the “Breedplan International” search facility on the Society website, under “EBV Enquiry” it is possible for any person wishing to use Belgian Blue genetics, to search for and identify easy calving bloodlines , whether this be male or female.

Name:	<input type="text"/>			
	<i>Enter the start of an animal's name (including prefix)</i>			
HerdBook No(s):	<input type="text"/>			
	<i>Enter one or more HerdBook Nos. separated by commas</i>			
EarTag (UKxxxx..):	<input type="text"/>			
Calving Year(s):	<input type="text"/>			
	<i>Enter one or more calving years separated by commas. or Enter Range as eg. 1999-2002</i>			
Registration Status:	Registered	Not Registered	Any	
Animal Type:	All	Published		
	Sire	Sire	Dam	Donor Dam
Select if:	<input type="text" value="Animal is MALE"/>			
Select if:	<input type="text"/>			
Select if:	<input type="text"/>			
Sire Name:	<input type="text"/>			
	<i>Enter sire name to view his progeny</i>			
Dam Name:	<input type="text"/>			
	<i>Enter dam name to view her progeny</i>			
Owner Located in Region:	<input type="text" value="Anyw here"/>			
Trait Description	Min	Max	Min. Accuracy (%)	Breed Avg *
Calv. Ease Direct (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>	0.0
Calv. Ease Dtrs (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>	0.0
Gest. Len. (days)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+0.7
Birth Wt. (kg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+1.7
200 Day Wt. (kg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+8
400 Day Wt. (kg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+12
600 Day Wt. (kg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+21
Milk (kg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+2

Carcase Wt. (kg)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+11
Eye Muscle Area (sq.cm)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+1.1
Rib Fat (mm)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+0.1
Retail Beef Yield (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>	+0.1
IMF %	<input type="text"/>	<input type="text"/>	<input type="text"/>	0.0
BBB Carcase Yield Index (GBP)	<input type="text"/>	<input type="text"/>		+9
BBB Pedigree Breeding Index GBP	<input type="text" value="12"/>	<input type="text"/>		+5
Sort By	<input type="text" value="BBB Pedigree Breeding Index GBP"/> <input type="button" value="v"/>			Default
	<input type="button" value="Ascending"/> <input type="button" value="Descending"/>			
On EBV Listing Display	Name: HerdBook No(s):			
* Breed Avg. EBVs for 2005 Born Calves(Click for Percentiles)				
Description of EBVs and In				

Use of this very sophisticated search facility has been particularly useful in selecting easy calving sires for export. The Society moving semen, in particular, to Chile in South America and also to Australia and New Zealand.

It is a specific requirement of the Australasian market and South American market, that only easy calving sires are used.

In the UK, the increasing pressure on labour is leading the industry towards “easy care” systems of management. In these circumstances there is a growing demand for easy calving sires, whether they are Belgian Blue, or any other beef breed.

Appendix 10

Herds Calving Naturally

When one considers 2005 a total of approximately 712 animals were registered with the Society calving with ‘**Natural Intent**’. ie. Natural Calving or a Non – Elective Caesarean.

67 herds calved 100% naturally, producing 150 naturally born calves = 21% of total
112 herds calved over 50% naturally, producing 338 naturally born calves = 47% of total

Source Society data, 2005, collected independently by Holstein UK.

Appendix 11
A Society Poster and Fact Sheet.

A Responsible Guide to Easy Calving Management

SELECTION OF BULL

Easy Calving Record
Short Gestation
Low Birth Weight

8 WKS PRE – CALVING

Minimal Diet
Low Protein
Low Energy
High Minerals

CALVING

Give Cow plenty of Time to Calve Naturally
Only intervene if the Cow and Calf are at Risk
If in Doubt Consult Closely with your Vet

THE “BRITISH TYPE OF BLUE”

Appendix 12
Dairy Type Genetics.

Belgian Blue

Taureaux BBB Mixtes

ARIBO (1+1)

IRIS (1+1)

Zorro van het Waterblock (Mh+)

UNIVERSAL (Mh+)

NOM	TYPE	RACE	EXPERTISE				INDEX NAISSANCE ET PRODUCTION**										PEDIGREE		
			FACE (MM)	TAILLE	Poids	Poids Naissance	Poids Naissance	VEL	REPT %	RE-LAIT	% EGES	% EGES	% EGES	RE-AP	CELLULE***				
ALAN	+/+	BL	16	127(+6)	790(18mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	IGRO & ALEXANDER
ARIBO	+/+	BL	16	126(+6)	555(18mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	MAIS & ENK
BOUCLE DE VILLERS	Mh/Mh	BL	21	175(+3)	705	89	76	54	86	28	-0.22	-0.17	-14	2.87	-	-	-	-	GEORGINA & DONALD
CHARLY DU CLIPOT	Mh/Mh	BL	49	150(+6)	1100	75	64	-45	85	-343	0.16	0.06	-15	2.46	-	-	-	-	ENK & MS DU CHAT
COCA COLA DU BARA	Mh/Mh	BL	29	143(+6)	875	80	65	-75	35	-400	0.10	0.05	-20	2.52	-	-	-	-	CHARENT & EPI
DAUPHIN DE VILLERS	Mh/Mh	FB	66	152(+6)	1220	87	52	-76	97	-355	0.03	-0.02	-25	3.26	-	-	-	-	HUSSARD & KAREL
EPERON DU CHAMPAUX	Mh/Mh	BL	42	146(+3)	1130	105	90	+	25	-99	0.08	0.07	-2	3.05	-	-	-	-	QUALIFE & CARANON
FEMER DU CLIPOT	Mh/Mh	EP	18	135(+9)	625	89	70	-6	35	-55	0.02	0.01	-2	2.64	-	-	-	-	MENTER & EPI
FLUPPER DE TERNAUX	Mh/Mh	BL	18	116(+7)	650	85	37	11	25	-17	0.05	0.05	-1	2.76	-	-	-	-	DAUPH & HAREZEL
FRANCOIS	+/+	BL	21	141(+6)	740	87	74	44	60	212	0.18	-0.02	18	2.4	-	-	-	-	JANUS & BONDEN
INSTRUCT DE TERNAUX	Mh/Mh	FB	15	126(+7)	740(21mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	FLUPPER & BONDEN
INSTRUCT DE LA PLATE TAILLE	Mh/Mh	BL	17	113(+8)	700	85	71	-2	19	-48	0.02	0.02	-2	2.83	-	-	-	-	FLUPPER & EPI
IRIS	+/+	BL	18	113(+7)	680	96	61	-	-	-	-	-	-	-	-	-	-	-	UMBERTO & ACEL
JETON DE TERNAUX	Mh/Mh	FB	43	148(+5)	1000	83	62	-79	84	-338	-0.17	0.01	-30	2.92	-	-	-	-	MONNETTE & HAREZEL
PIRONON	Mh+	BL	33	148(+6)	940	75	51	0	72	-3	0.07	-0.02	2	2.49	-	-	-	-	JOE & GORDS
SAPIN	Mh+	EP	60	161(+10)	1575	99	67	-44	52	-152	-0.05	-0.03	-14	2.8	-	-	-	-	BILLARD & MS DU CHAT
TESSA TER WAEREN	Mh+	FB	87	141(+6)	87	74	74	-28	24	-259	0.14	0.09	-11	2.4	-	-	-	-	JANUS & BONDEN
UMBERTO VAN HET WATERBLOCK	+/+	FB	23	141(+8)	740	93	76	-	-	-	-	-	-	-	-	-	-	-	FLUPPER & BONDEN
UNIVERSAL	Mh+	FB	31	142(+2)	830(31mo)	69	28	-	-	-	-	-	-	-	-	-	-	-	GORDS & ENK
VASCO	+/+	FB	16	136(+5)	710(18mo)	-	-	-	-	-	-	-	-	-	-	-	-	-	STAN & ESCOUR
WILLY	Mh+	EP	20	139(+10)	630	74	33	23	27	61	0.03	0.03	6	2.51	-	-	-	-	AJANCO & ENK
WIM	Mh+	EP	-	-	91	60	-	-	-	-	-	-	-	-	-	-	-	-	TOMMY (MARI) & ELIJT (ESAIT)
ZORRO VAN HET WATERBLOCK	Mh+	BL	25	151(+14)	850	97	74	19	24	3	0.06	0.05	5	2.55	-	-	-	-	BONDEN & ESCOUR

Index officiel : index estimé sur base des veaux vus en ferme (fiabilité élevée)
 Index pedigree : index estimé sur base des parents (fiabilité faible)

Le V & L est la valeur économique laitière (en €) en base BBB mixte.
 ** Valeurs officielles : Index avec 70 % (50 % pour la production) de répétibilité et au moins 20 (5 pour la production) descendants dans 5 troupeaux.
 *** Valeurs pedigree : Index estimés sur base du pedigree. Ils sont fournis à titre indicatif (fiabilité faible).
 **** Valeur d'élevage score cellulaire : > 3 = dérivé/élevé, < 3 = amidi/élevé
 Tarif taureaux mixtes : Réseau inséminateur : 4 € HTVA (+ acte) / Réseau vendeur : 8 € HTVA (sauf Sapin) : RI = 5 € / RV = 10 €
 Comme signalé par le HB BBB, les veaux issus de croisement entre BBB viandeux et BBB mixtes Mh/Mh sont traçables au livre généalogique de la race blanc-bleu.

Instinct de Ternaux (Mh/Mh)

SAPIN (Mh/Mh)

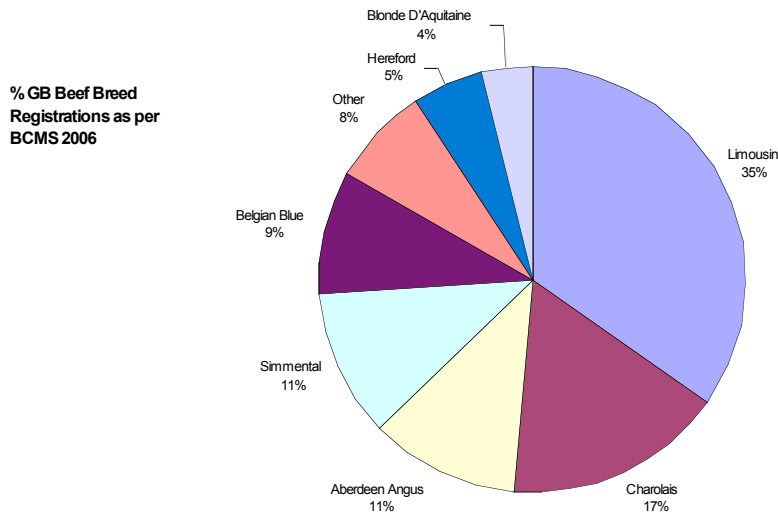
Coca Cola du Bara (Mh/Mh)

Instruct de la Plate Taille (Mh/Mh)

Appendix 13

Numerical Importance of Belgian Blue Genetics

BCMS Statistics



9% Belgian Blue/Belgian Blue X represents 178,057 animals registered through BCMS in 2006.

Belgian Blue Genetics being the 5th most numerous breed by sire in the UK beef industry.

Source BCMS

Appendix 14

'British Blue' Influence in the Dairy Sector

1. The 'British Blue' sire, when used on a Holstein/Friesian is the one beef terminal sire, which will produce a quality beef carcass, out of this extreme dairy type. No other beef sire can stamp the mark of a quality carcass in these circumstances, quite the same as the British Blue.
2. It is estimated that, where a beef bull is used in the dairy sector, 75% of semen sold is British Blue. With over 160,000 straws being used in 2006.
3. The use of the British Blue, in this sector of the industry, has given dairy farmers the opportunity to put value onto a male calf, out of a Holstein. When bred pure, these (Holstein) calves are valueless and traditionally have been put down at birth.
4. **Whilst humane slaughter is not a welfare issue, the putting down of large numbers of healthy calves, is an ethical one. British Blue genetics have played a major part in reducing this death toll.**
5. In 2006 2.22 million head of prime cattle, were sourced from the dairy herd and it is officially recorded that 50,000 head of calves were slaughtered: The estimated non-recorded total being in excess of 135,000 head.

(source meat facts 2 – product flows in the beef marketing chain 2006 MLC technical)

6. The use of British Blue semen in the dairy sector has had a major impact on reducing this unnecessary loss of life.
7. The use of British Blue genetics is also popular, due to the short gestation period, characterised by the British Blue and the associated low birth weight. This has a knock-on benefit of facilitating getting the cow back in calf, thus reducing the length of the “dry period.” This has a very measurable financial implication to the dairy sector.

Appendix 15

Embryo Transfer and Elective Caesareans

When considering surgical births, those required for veterinary and welfare reasons, i.e. ‘**Non-Elective Caesareans**’ must be looked on separately from those surgical births initiated for management and welfare reasons, i.e. ‘**Elective Caesareans**’.

The latter have no bearing on genetic potential of the animal for calving ease.

A high percentage of ‘Elective Caesareans’ are associated with Embryo Transfers procedures.

This is as true with the British Blue breed and many other beef breeds.

It would be a fairly accurate assessment to make that virtually all breeds of cattle are involved with ET work to varying degrees.

A higher than bovine average number of ‘British Blue’ breeders chooses to initiate embryo transfer programmes, as a result approximately one third of all ‘British Blue’ pedigree new births are ET calves, with a knock on effect on ‘Elective Caesarean’ breed statistics. Such statistics are a result of management decisions and can in no way be attributed to dystocia in the breed.

This is a bovine issue not a specific breed issue.

There is quite a widely held view, amongst a large number of cattlemen and a major section of the Veterinary profession, both in the UK and abroad, that a straight forward surgical birth is considerably less stressful on the cow and leads to a speedier post parturition recovery, and greatly reduced calf mortality, than a difficult natural birth. This is a very relevant point when welfare is considered.

It can also be argued that a very satisfactory parturition procedure is a ‘**premeditated**’ caesarean due to the fact that a sterile environment can be prepared properly and neither the cow the calf nor veterinary surgeon is tired. The converse being a ‘**Non-elective caesarean**’ following an attempted difficult natural birth, where the farm circumstances challenge the sterile environment and cow, calf and veterinary surgeon are exhausted. When considering the welfare interest of the cow and the calf, it is a question of balance.

Such procedures though cannot be considered ‘Natural’ and does involve ‘Human Intervention’, and has its critics which we fully understand and accept.

Reducing calf mortality is a particularly pertinent point in the pedigree sector especially when one considers the value a pure bred calf and the demand for the genetic within the UK beef industry.

This welfare aspect of those choosing an ‘**Elective Caesarean**’ must be set against the cost, most surgical births costing in excess of £200. In the current financial climate of beef enterprise profitability, such procedures are not carried out lightly. There is also an issue over the possible introduction of antibiotic resistance, which it is most sensible to avoid .

Of these animals which are born following such an ‘Elective Caesarean’, a decision made by the farmer in consultation and carried out by his Veterinary surgeon; we can only assume that they would have had similar calving statistics to those ‘Calving with Natural Intent’, should they have been given the opportunity to do so.

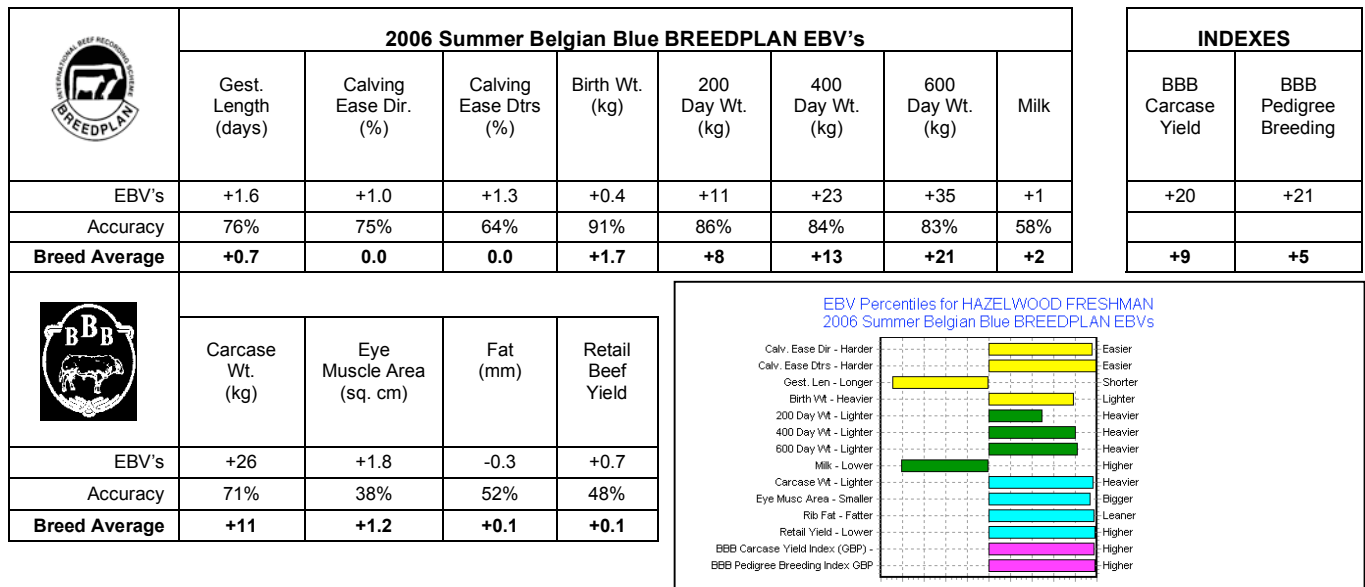
The process leading to the ‘Elective Caesarean’ is varied and may be taken simply for management reasons, and need not indicate the anticipation of a difficult calving.

Professor JA Woolliams
Roslin Institute 17/8/2004

Appendix 16

The “Bull Book” of British Bred Semen Sires

The Society publishes a ‘Bull Book of British Bred Semen Sires’, which clearly identifies the genetic evaluation data for each animal and also illustrate this information in an easily understood, visual, graph, form. (See graph below)



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