

# First Annual Report

GB Cattle Health & Welfare Group

September 2012



**CHAWG**  
Cattle Health and  
Welfare Group

The work of the GB Cattle Health and Welfare Group would not be possible without the valued financial support of both DairyCo and EBLEX, which kindly fund the secretariat function for this cross-industry group.

The members of CHAWG are:

Animal Health & Veterinary Laboratories Agency

Animal Health & Welfare Board of England

Animal Health Distributors Association

British Cattle Veterinary Association

Defra

Farmers Union of Wales

Holstein UK

National Beef Association

NFU (England and Wales)

NFU Scotland

National Office of Animal Health

Red Tractor Assurance

RSPCA

Royal Association of British Dairy Farmers

Royal Veterinary College

Scottish Government

Welsh Government

## Foreword

I was very pleased to be asked to provide a foreword for this first annual report of the GB Cattle Health and Welfare Group (CHAWG).

Cattle Health and Welfare has perhaps never been more important. Profitability is increasingly hard for cattle keepers to achieve, retailers and consumers are rightly concerned about the care of the animals that produce their food, and efficient production is one of the many things needed to help avoid the worst impacts of climate change. There is no single answer to these issues and although the best producers can achieve a lot on their own farms, some things can only be done through effective collaboration at regional or national level.

At a time when devolution is rarely out of the news and its political importance cannot be denied, as Chief Veterinary Officer for the UK, I am also glad that the Group is focusing its efforts at GB level. Governments in all the GB administrations are committed to working in partnership as they develop policies and decide priorities for limited public funding. The Group's comprehensive understanding of the key challenges and priorities for action for the cattle industry will ensure it will be influential with key bodies: the Animal Health and Welfare Board for England<sup>1</sup>; the Animal Health and Welfare Stakeholder Group in Scotland<sup>2</sup>; and the Animal Health and Welfare Strategy Steering Group in Wales<sup>3</sup>.

But the most important outcome is to enable joint action that is industry-led, and that will be supported by the majority of individual farmers, and so has a chance of success. The Group's approach of identifying the current position against a range of parameters much wider than disease is critical to recognising where action is needed, where it will yield benefits to farmers and their stock, and how progress can be measured. The report identifies where there are gaps or less-than-perfect data, but this is a great starting point to build from. Whilst recognising where there is still room and need for progress, the report shows where improvements have been made and it is important to celebrate and build on what has already been achieved.

This report and many of the developments it records would not have happened without the support of EBLEX and DairyCo; I am sure they recognise that this is delivering a good return for the investment of levy-payers' money. Finally I would like to congratulate all those who have put in large amounts of personal time and effort, on a voluntary basis, to create and maintain the group and to deliver this first annual report.

### **Nigel Gibbens**

Chief Veterinary Officer UK  
September 2012

<sup>1</sup> <http://www.defra.gov.uk/ahwbe/>

<sup>2</sup> <http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/animal-welfare/policies/StakeholderGroup>

<sup>3</sup> <http://wales.gov.uk/topics/environmentcountryside/ahw/animalhealthandwelfarestrategy/ahwssteeringgroup/?lang=en>



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# 1 Introduction

Welcome to the first ever report giving an overview of the state of the cattle industry in Great Britain. The Cattle Health and Welfare Group (CHAWG) has compiled this report to help primary producers and the industry, including Government, set a framework so that progress can be gauged and reported on an on-going basis. Great Britain comprises a discrete biosecurity unit and thus it seemed appropriate to look at the situation on mainland Britain rather than the wider UK. There was also a suggestion that the report should have been delineated between dairy and beef; however, the listing of the top ten issues shows there are a huge range of common problems to solve.

This report is just a start. As the first of its kind, it inevitably highlights large gaps in data availability and 'currency', both geographically and between the beef and dairy sectors. We hope that now this report has been published, we can in the future produce an annual document with more complete and current data from private and public sources, building on this framework.

The report is designed to complement the information from Government, including specific reports on areas such as salmonella, Transmissible Spongiform Encephalopathies (TSEs) or zoonoses. A word about bovine tuberculosis (bTB): this is not included here as CHAWG felt it would dominate all other issues. There are also already a number of bTB-specific groups and activities dealing with this insidious problem which is slowly spreading, although Scotland is of course Officially TB Free (OTF).

During the course of assembling this report, the Animal Health and Welfare Board for England (AHWBE) has been formed. This partnership board between Government and the livestock industry is a new and exciting development in England, and CHAWG is delighted that there appears to be a new emphasis on endemic diseases which have not historically been on MAFF's/Defra's radar. In many cases these are the everyday issues that affect cattle farmers and their profitability.

We have seen the Scottish and Welsh Governments develop their own approaches and it is encouraging how the cattle industry throughout Great Britain has been prepared to share information on common problems.

In closing, I would wish to thank everyone who has contributed to the compilation of this report but in particular to Gavin Watkins, AHVLA, Jonathan Statham of BCVA and Brian Lindsay, the Secretary to CHAWG, whose support have made this report a reality. Finally, without funding for the secretariat from the relevant levy bodies of the Agriculture and Horticulture Development Board (EBLEX and DairyCo, covering England and GB respectively), our endeavours would not have been possible.

**Tim Brigstocke**  
Chairman, CHAWG  
September 2012

## 2 About CHAWG

In 2004, Defra and the administrations in Wales and Scotland launched the 10-year Animal Health & Welfare Strategy<sup>4</sup> for Great Britain.

Defra set up the England Implementation Group (EIG) to oversee the strategy in England, Scotland set up a Stakeholder Group and Wales a Steering Group. EIG was disbanded in 2009 but one of its legacies was a recognition of the benefits of species-specific groups to represent the interests of each sector. Hence CHAWG was established with funding from the relevant levy boards (EBLEX and DairyCo).

Its other members are (alphabetically): the Animal Health & Veterinary Laboratories Agency; Animal Health & Welfare Board of England; Animal Health Distributors Association; British Cattle Veterinary Association; Defra; Farmers Union of Wales; Holstein UK; National Beef Association; NFU (England and Wales); NFU Scotland; National Office of Animal Health; Red Tractor Assurance; RSPCA; Royal Association of British Dairy Farmers; Royal Veterinary College; Scottish Government; and Welsh Government.

CHAWG's remit is to:

1. Provide an industry forum that will encourage and co-ordinate a programme of economically focused improvements to cattle health and welfare across Great Britain.
2. Act as a forum to prioritise the research, development and knowledge interaction needs of the GB cattle industry in relation to cattle health and welfare to ensure knowledge gap identification, coordination and minimal duplication. Also, to assist in the dissemination of knowledge across the industry through the participating organisations within the group and others where appropriate.
3. Liaise closely with all stakeholders such as levy boards and educational institutions to promote consistent regional dissemination of national work and encourage the uptake of technological advances and best practice.
4. Provide guidance and be a resource for the Chief Veterinary Officers across GB and other relevant Government bodies on cattle health and welfare matters, including the early stages of policy development, where appropriate.

CHAWG, with its limited resources, has focused its work programme on aspects not currently being tackled by other bodies or initiatives, but with the potential to impact heavily on the cattle industry, namely: Farm Animal Health Planning; Surveillance and Monitoring; Bovine Viral Diarrhoea (BVD); and Dairy Cow Welfare (CHAWG is responsible for the Dairy Cow Welfare Strategy).

### 3 The Top 10 Issues

We asked a number of GB cattle sector organisations to come up with their lists of the top ten cattle health and welfare issues, to obtain an understanding of what the industry itself feels are its main problems. The list below shows there is a remarkable degree of similarity between the dairy and beef sectors. It should never be forgotten that many of these issues are multi-factorial and have a breeding, feeding and on-farm management component.

#### ▼ Top Cattle Health and Welfare Concerns across GB

Beef	Dairy
Fertility	Fertility
Mastitis	Mastitis
Infectious Bovine Rhinotracheitis	Lameness
Bovine Viral Diarrhoea	Bovine Viral Diarrhoea
Johne's Disease	Johne's Disease
Liver Fluke	Bovine Tuberculosis
Nutrition	Nutrition
Calf Pneumonia	Calf Pneumonia & Scour
Calf Scour	Parasitic Gastroenteritis /Lungworm
Parasitic Gastroenteritis /Lungworm	Genetics

Source: various industry bodies

“...there is a remarkable degree of similarity between the dairy and beef sectors”

This list has provided the structure for the content of this report. However, data availability and the extent to which certain issues are already covered in complementary reports was a key decider in identifying the main focus issues. Where topics are not covered in depth for these reasons, links are provided to other sources of information related to these challenges.

## 4 The Cattle Industry

The cattle industry continues to change structurally with a consistent pattern of reducing numbers of holdings and increasing herd sizes. The most recent industry- and country-wide data is available from the Agricultural and Horticultural Development Board (AHDB) and its subsidiary organisations EBLEX and DairyCo, but other figures are available through the Defra-supported ‘The Cattle Book 2008’<sup>5</sup>, the latest compilation of industry-wide figures on numbers, breeds and imports/exports available.

### Cattle populations and holdings

On 1 June 2003, around 8.82 million cattle were kept on over 83,000 ‘premises’ (ie holdings) in Great Britain<sup>6</sup>. In the subsequent 8 years, there was a 21% fall in the number of premises but only a 5% fall in the number of cattle, leaving a total cattle population of 8.34 million on just under 66,000 holdings.

The dairy sector suffered the greater loss in numbers. This is indicated by UK data (historic data not available for Great Britain) which shows dairy cow populations fell by almost 20% over the same period (between 2003 and 2011)<sup>7</sup>. The comparative reduction in dairy producers was even more dramatic with a fall of over 35%.

“ The dairy sector suffered the greater loss in numbers ”

During these 8 years, the average beef cow herd size stayed relatively static between 2003 and 2011, at just over 30 head<sup>8</sup>, but the average size of dairy herd grew from 102 to 127 head over the same period. By 2011, there were just over 12,000 dairy producers in Great Britain<sup>9</sup> and around 45,000 holding numbers with suckler cows registered (ie not including rearing cattle)<sup>10</sup>.

In 2011, just under 70% of cattle were on premises that kept over 150 head, and these accounted for a quarter of all holdings. At the other end of the scale, almost half of cattle holdings (45%) had between 1 and 50 cattle, but they accounted for only 8% of all cattle<sup>11</sup>.

All cows continued to be situated mainly in the western parts of the country with suckler herds having a wider geographical spread than dairy, which were very focused on south west Scotland, south west and north west England, and south west Wales<sup>12</sup>.

<sup>5</sup> The Cattle Book is produced by Defra’s Farming Statistics team and the Rapid Analysis and Detection of Animal-Related Risks (RADAR) team. Data covers all premises that have registered cattle with British Cattle Movement Service (BCMS). Official Scottish cattle figures are collected through the June Survey rather than RADAR. <http://www.defra.gov.uk/publications/2011/06/21/pb13572-cattle-book-2008/>

<sup>6</sup> EBLEX UK Yearbook, derived from Defra, and Scottish and Welsh Governments

<sup>7</sup> DairyCo Dairy Statistics, derived from Defra, and Scottish and Welsh Governments

<sup>8</sup> EBLEX UK Yearbook, derived from Defra, and Scottish and Welsh Governments, plus Agriculture in the UK 2011 (Defra)

<sup>9</sup> DairyCo Dairy Statistics, derived from Defra, and Scottish and Welsh Governments

<sup>10</sup> EBLEX UK Yearbook, derived from Defra, and Scottish and Welsh Governments, plus Agriculture in the UK 2011 (Defra)

<sup>11</sup> Agriculture in the UK 2011 (Defra)

<sup>12</sup> AHDB via Defra <http://www.defra.gov.uk/statistics/files/defra-stats-foodfarm-landuselivestock-june-detailedresults-livestockmaps111125.pdf>

▼ **Number of suckler beef cows (left) and dairy cows (right) per 100 hectares of farmed land December 2011** (Source: AHDB via Defra)



▼ **Share of Total UK Cattle Population by Country (%)**

Time Period	England	Wales	Scotland	Northern Ireland
1922 - 1957	66.0%	9.8%	15.2%	9.0%
1958 - 1993	61.0%	10.6%	17.4%	11.0%
1994 - 2010	54.9%	11.5%	18.1%	15.5%

Source: UK Census and Survey Data quoted in the Feed Compounder, December 2010

## Cattle breeds

Including both pure and cross breeds, there were some 87 different cattle breeds registered on 1 June 2008<sup>13</sup>. Black and white dairy cows (including the spectrum from British Friesian to pure Holstein) comprised 32%. Limousin was the most populous beef breed at 21% of all cattle recorded. Just over half of cattle were cross-bred and the remainder pure-bred.

<sup>13</sup> The Cattle Book 2008

## Cattle exports and imports

Cattle exports resumed in May 2006 after the BSE crisis with exports between 1 July 2007 and 30 June 2008 numbering almost 67,000 head; exports to the Netherlands accounted for 35% of all exports from Britain<sup>14</sup>.

Cattle from Northern Ireland accounted for just under two thirds of total imports between 1 July 2007 and 30 June 2008. The few cattle that came from outside EU Countries all came from Switzerland.

Today, imports of breeding animals continue to be a concern due to the potential to import disease but, largely due to the impact of bovine TB in many parts of the country, there are simply not enough breeding replacements in the system. This may explain the significant increase in imports between 2009 and 2010.

“...largely due to the impact of bovine TB in many parts of the country, there are simply not enough breeding replacements in the system”

### ▼ Imports of Breeding Animals into Britain

	2009		2010	
	No. Consignments	No. Animals	No. Consignments	No. Animals
<b>TOTAL of which:</b>	<b>1,485</b>	<b>28,953</b>	<b>1,762</b>	<b>31,338</b>
France	73	1,150	151	1,768
Germany	177	4,657	162	3,693
Northern Ireland	492	7,885	515	7,965
Rep. of Ireland	270	6,223	209	3,477
Netherlands	307	6,914	572	11,599

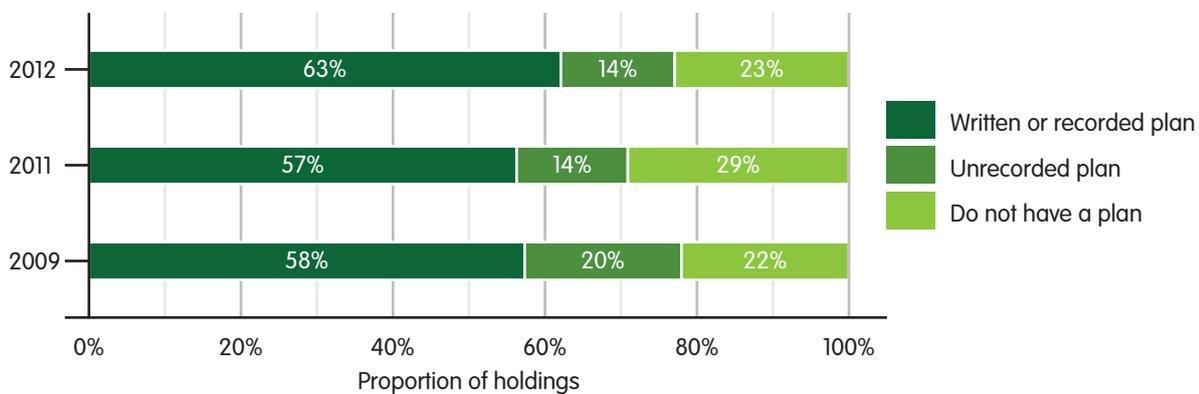
Source: AHVLA 2011

# Health Planning and Management

## Farm Animal Health Planning

According to Defra, 63% of all livestock farmers in England had a written farm animal health plan in 2012 (up from 2009 – 58%). 41% of those with a health plan use theirs on a routine basis to impose disease management decisions<sup>15</sup>. 64% of farmers always source livestock from farms where the health status is known, and 34% do so sometimes. Some 60% of larger livestock holdings in Scotland<sup>16</sup> have a health plan agreed with their vet, and 65% in England have completed a plan with the help of a vet or adviser<sup>17</sup>.

### ▼ Proportion of livestock holdings in England with a farm health plan: 2009-2012



Source: Defra Farm Practices Survey 2012

However, these figures cover all livestock enterprises. In the cattle industry, an estimated 95% of dairy farms across GB are inspected and assured under the Red Tractor Assurance Dairy Scheme – which stipulates that a farm health plan must have been developed – and some 80% of finished beef cattle in England. In Scotland, 62% of main cattle holdings and 75% of dairy holdings had health plans agreed with their vet<sup>18</sup>.

“...an estimated 95% of dairy farms across GB are inspected and assured”

Equally encouraging, at the RABDF Dairy Event and Livestock Show 2011, the exit survey showed that 21% of the 16,000 visitors attended the Farm Health Planning seminars which concentrated on the farmer/vet relationship to address a specific health and welfare issue.

<sup>15</sup> Defra Farm Practices Survey 2012

<sup>16</sup> Scottish Government 2011 Census <http://www.scotland.gov.uk/Topics/Statistics/Browse/Agriculture-Fisheries/PubFinalResultsDecCensus>

<sup>17</sup> Defra Farm Practices Survey 2012

<sup>18</sup> Scottish Government, as above

## Farm Assurance and Certification for Welfare

**Red Tractor Farm Assurance** (RTA) schemes operate primarily to provide consumers with confidence that the product, milk and meat in the case of cattle, has come from farms meeting good standards of food hygiene, animal welfare, traceability and environmental protection. RTA requires farm health plans and clear biosecurity guidelines that must be met as part of the accreditation procedure. The RTA Dairy Scheme has approximately 10,900 members in Great Britain producing over 95% of the country's milk, and the RTA Beef and Lamb Scheme operating in England has 22,000 members and covers approximately 80% of finished beef production. [www.redtractorassurance.org.uk](http://www.redtractorassurance.org.uk)

In Scotland, **Quality Meat Scotland** (QMS) is a whole chain assurance scheme, meaning only animals that meet its assurance standards at every point in their lives and qualify geographically in terms of breeding, rearing and slaughter, are eligible to be classed as Scotch Beef or Scotch Lamb. Similar to RTA, QMS requires a full animal health, disease control and prevention plan to be drawn up and reviewed on an annual basis. [www.qmscotland.co.uk](http://www.qmscotland.co.uk).

The beef and lamb assurance scheme in Wales, **Farm Assured Welsh Livestock Scheme** (FAWL) is part of Welsh Lamb and Beef Producers Ltd (WLBP), an agricultural cooperative of 7,500 Welsh farmers and is dedicated to the improved marketing of Welsh Lamb and Beef. The FAWL scheme underpins this objective by undertaking similar health and welfare checks to RTA, and also encourages good health and biosecurity planning by its members. FAWL Members have access to a bespoke on-line health planning service to help them and their veterinary advisers. [www.fawl.co.uk](http://www.fawl.co.uk).

Both QMS and FAWL have their own accreditation label, but there is a broad equivalence agreement in place that means beef and lamb assured via one of the devolved schemes is eligible to carry the RT logo on the final product.

**RSPCA Freedom Food** is the RSPCA's farm assurance and food labelling scheme. As well as having its own standards and aspirations for improving dairy cow welfare, the RSPCA acknowledges the work done by the RTA Dairy Scheme in seeking to improve the welfare of the dairy cow, and is happy to engage in the process for developing its standards through membership of its Technical Advisory Committee. Similarly, the Society sees the Dairy Cow Welfare Strategy and the work of CHAWG and the implementation of their short and long term initiatives as positive steps towards improving dairy cattle welfare. The RSPCA's own Freedom Foods standard has been developed by its dairy cattle working group which includes farmers, veterinary surgeons, researchers and other industry stakeholders. The standards are set at the stretching end of achievable and cover the life of the cow from birth through to slaughter. [www.rspca.org.uk/freedomfood](http://www.rspca.org.uk/freedomfood)

**Other schemes** encompassing animal welfare criteria exist, such as organic certification schemes including Organic Farmers and Growers, and The Soil Association.

Since 2005, the Scottish Government has provided financial support for health planning and specific actions through the Scottish Rural Development Programme (SRDP). In 2011, nearly 10% of livestock business had taken up the Animal Welfare Management Programme, requiring them to undertake an annual review of animal welfare and to use benchmarking data, as well as having an animal welfare management plan. Applicants also have to choose at least three of 10 measures to improve animal welfare. Full details of the specific actions are included in the guidance to applicants<sup>19</sup>.

The Welsh Government has been providing part-funding for veterinary-supported Animal Health Planning from the Rural Development Plan for Wales 2007-2013<sup>20</sup>, through the Farming Connect programme.

## Food Chain Information (FCI)

Legislation was implemented in January 2010 to pass back Food Chain Information to the farmer, including basic details of any disease or condition present at the time of slaughter. There is little evidence this is happening at present. With up to 30% of cattle livers condemned at slaughter due to *fasciola* infection (liver fluke)<sup>21</sup>, associated costs can be significant, and include: the infected liver (around £4); depressed liveweight gain of an average of 0.5kg/week; a 10-15% reduction in market value per finished animal; and reduced milk yields of around 0.5kg per day. Having clear Food Chain Information should help producers tackle issues like liver fluke before they accumulate significant losses.

## Surveillance and Monitoring

Surveillance is defined as the systematic, on-going or repeated measurement, collection, collation, analysis, interpretation and timely dissemination of animal health related data and information. It is essential for the planning, implementation and evaluation of risk mitigation measures<sup>22</sup>.

Many surveillance activities are undertaken in Britain to maintain and improve animal health and welfare. Scanning surveillance, or early warning surveillance through laboratory investigation and provision of a diagnostic service to vets, is a collaborative activity delivered jointly by livestock owners, veterinary clinicians and diagnostic laboratories. The main delivery agents for scanning surveillance in Britain are the Animal Health and Veterinary Laboratories Agency (AHVLA) (England and Wales) and the Scottish Agricultural College (SAC) Veterinary Services (Scotland).

The main aim of scanning surveillance is the early and accurate detection of new and emerging diseases. By definition, these are both novel and relatively uncommon, therefore their detection depends on the following sequence of events:

1. Observation by livestock keeper
2. Notification to a veterinary practice
3. Notification to AHVLA or SAC laboratory

<sup>19</sup> <http://www.scotland.gov.uk/Resource/Doc/278281/0114638.pdf>

<sup>20</sup> <http://wales.gov.uk/topics/environmentcountryside/farmingandcountryside/ruraldevelopment/ruraldevelopment-plan4wales2007/?lang=en>

<sup>21</sup> [http://www.moredun.org.uk/webfm\\_send/175](http://www.moredun.org.uk/webfm_send/175), SAC

<sup>22</sup> ICAHS May 2011

Disease surveillance findings are published for all species monthly in the Veterinary Record and in species-specific, quarterly 'Emerging Threats Reports'<sup>23</sup>. In addition to this, Disease Trend Reports are routinely produced to help monitor changes in numbers of diagnoses and affected holdings across years. The number of submissions varies between years for reasons other than disease levels, for example the market value of animals. In an attempt to compensate for this, diagnoses and affected premises in these reports are expressed as a percentage of the number of submissions subjected to tests likely to lead to confirmation of each diagnosis.

## Antimicrobial resistance (AMR)

Veterinary medicines, including antimicrobials, are needed to safeguard animal health. The Government takes the issue of antimicrobial resistance in humans and animals very seriously; antimicrobial resistance in animals can lead to problems with their treatment for disease and may risk passing resistant bacteria to consumers.

Despite this, there is increasing scientific support for the view that the rise in antimicrobial resistance affecting human health is largely the result of the prescribing of these products by the medical profession and their use in humans. However it is recognised that the use of antimicrobials in animals has some impact on the occurrence of resistance genes in micro-organisms, as there is evidence that antimicrobial use in animals selects for resistance in both pathogenic and beneficial micro-organisms.

“...there is increasing scientific support for the view that the rise in antimicrobial resistance affecting human health is largely the result of the prescribing of these products by the medical profession and their use in humans”

The Veterinary Medicines Directorate (VMD) has produced a document entitled Code of Practice on the Responsible Use of Animal Medicines on the Farm<sup>24</sup> and the farming industry's Responsible Use of Medicines in Agriculture Alliance (RUMA)<sup>25</sup> provide use guidelines for antimicrobials for the five major food-producing species. These have been adopted by various farm assurance schemes. In addition, other non-governmental bodies, for example the British Veterinary Association (BVA), have also published guidance for veterinary surgeons on the prudent use of antimicrobials.

AMR and other forms of drug resistance have been the subject of several high profile conferences and seminars in recent years, for example at the Moredun Research Institute<sup>26</sup>, as well as the focus of an action plan announced recently in Brussels<sup>27</sup>.

<sup>23</sup> [http://vla.defra.gov.uk/reports/rep\\_surv.htm](http://vla.defra.gov.uk/reports/rep_surv.htm)

<sup>24</sup> <http://www.vmd.defra.gov.uk/pdf/RUCOP.pdf>

<sup>25</sup> <http://www.ruma.org.uk/>

<sup>26</sup> <http://www.moredun.org.uk/events/drug-resistance-turning-tide>

<sup>27</sup> <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1359&format=HTML&aged=0&language=EN&guiLanguage=en>

## About RUMA:

RUMA is an initiative involving organisations representing every stage of the 'farm to fork' process; it aims to promote a co-ordinated and integrated approach to best practice in the use of medicines. Antimicrobial resistance remains a live and politically sensitive issue. Proposals are expected in 2013 to address antimicrobial resistance by changing European veterinary medicines legislation. RUMA is preparing for this initiative and has developed a revised antimicrobial strategy (with the help of key members) which maintains that the current range of antibiotics available for use in livestock should be retained and that, with responsible use, the risk of resistance developing to antibiotics can be minimised.

RUMA is keen to get its stance on responsible use of antimicrobials more widely circulated and hopes that more countries will adopt its message. To gain support for this position, RUMA has been working closely with its members to monitor EU developments in relation to this issue and will collaborate with its EU counterpart EPRUMA to inform the Commission's developing proposals. It will also brief MEPs, who have a key role in developing the new legislation, and will actively encourage all parties to take decisions based on science. Members will be updated via email and on the RUMA website.

Limited surveillance for antimicrobial resistance in animal-associated bacteria in the UK is carried out in a number of ways by several publicly-funded bodies in partnership with private laboratories, veterinarians and animal owners.

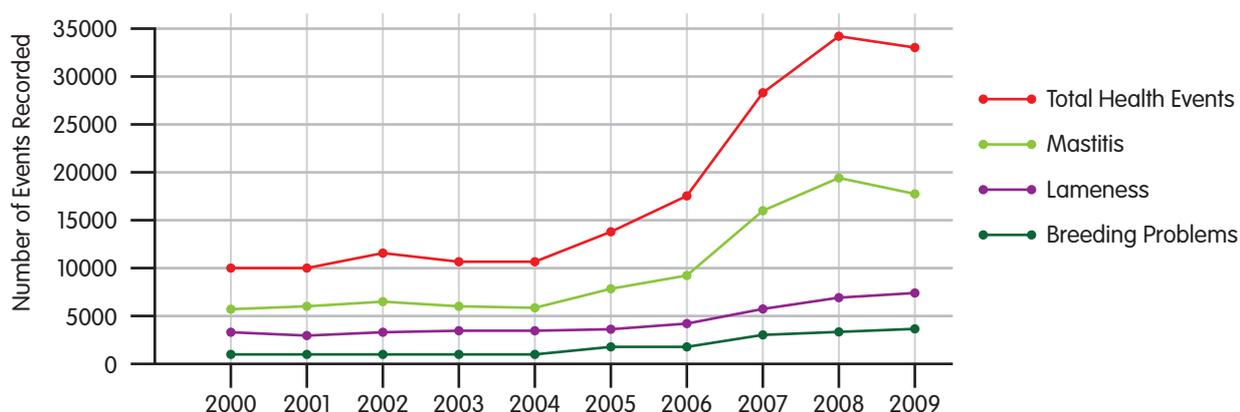
Collecting, analysing and sharing this information allows us to monitor trends in patterns of resistance, detect new and emerging AMR organisms, and hopefully identify the risk factors that lead to the development of AMR.

# Overview of Health Challenges

## Data availability

There is considerably more data available for dairy cattle than for beef cattle and suckler herds, particularly for management-related health challenges. This is partly due to initiatives such as the Dairy Cow Welfare Strategy<sup>28</sup>, but also because of data gathered by milk recording organisations. The chart below identifies a welcome behavioural change in the dairy sector with an increase in the number of farmers actively recording health issues on-farm.

### ▼ The rise in farmer-recording of dairy herd health 'events'



Source: CIS/CDI/Holstein UK

## Longevity and culling

A number of vet practices and consultancies dealing with the dairy sector also gather data. The following table provided by Kite Consulting<sup>29</sup> is a case in point, using statistics from some 20,000 dairy cows on its clients' farms across the country to provide a picture of the main reasons for culling in the dairy herd within that group. Kite uses the data alongside costings in farmer workshops to demonstrate best practice as well as the physical and financial benefits of good health and welfare management.

### ▼ Annual Dairy Cow Culling Report (Kite Consulting Culling Monitor)

Reason for Culling (% of culls)	2011
Mastitis/High SCC (Somatic Cell Count)	17.64
Udder Conformation	6.23
Not in Calf	24.88
Not seen Bulling	0.52
Abortion	1.69
Lameness/Legs & Feet	9.36
Accident/Trauma	4.38
Metabolic Disorder	2.65
Calving Injury/Downer Cows	4.41
Infectious Disease	3.23
Age	6.39
Yield/Slow Milking	2.91
Died on Farm	10.13
Other	5.58
<b>Culling % of total herd</b>	<b>24.93</b>
<b>Mortality % of total herd</b>	<b>3.10</b>

Source: Kite Consulting

The milk recording organisations are another source of data on culling levels, mastitis and conception rates in particular; here is another dataset from a National Milk Records study of 500 milk recorded herds<sup>30</sup>.

### ▼ A selection of Key Performance Indicators for the UK national herd

Parameter	Median
Year of the Study	2011
Culling rate	26%
Age at exit (years)	6.6
Age at exit by lactations	3.9
Percentage conceived 100 days after calving	25%
Conception rate	31%
Milk/cow/year (kg)	8,200
Average SCC ('000 cells/ml)	203

Source: PAN Livestock Services Ltd and VEERU at The University of Reading

<sup>30</sup> Key Performance Indicators for the UK national dairy herd, Hanks and Kossabati 2011; <http://www.nmr.co.uk/kpi-study-2011/>

There is a strong incentive for farmers to address these health challenges. For mastitis in particular, rejection of high Somatic Cell Count (SCC) milk is likely to be the strongest driver to reduce mastitis levels. However, these conditions also represent a management cost which is discussed more fully in subsequent chapters.

We are looking forward to more data emerging through the Dairy Cow Welfare Strategy, which is encouraging the capture of significantly more information on the main dairy cow issues.

Culling rate is a figure that needs to be handled with care as it can give an indication of the health status of the herd, but given sufficient numbers of replacement animals and/or a good cull cow price, many farmers may choose to cull voluntarily. Enforced culling of otherwise healthy reactors to Tuberculosis testing is a further complication in using culling rates as an indicator of health and welfare, unless these animals are accounted for separately.

▼ **A comparison of voluntary and involuntary culling reasons in dairy herds**

Voluntary	Involuntary
Low yield	Infectious disease
Conformation	Lameness
Temperament	Non-bulling/repeat breeder
Age	Not in calf
Out of calving pattern	Metabolic disorder
Slow milker	Udder disorder
Poor milk quality	Calving problems
Herd reduction	

Source: DairyCo

No data is available on reasons for culling in the suckler cow herd.

Data on both dairy and beef suckler cows<sup>31</sup> shows that longevity of cattle in both sectors is not as different as is commonly perceived.

▼ **Age Structure of UK Herds, 2011**

Cow Age	Suckler %	Dairy %	Cow Age	Suckler %	Dairy %
3	15.6	18.9	11	5.0	2.8
4	13.5	17.5	12	4.3	1.6
5	11.9	15.6	13	3.6	0.8
6	10.6	13.2	14	2.3	0.4
7	9.3	10.6	15	1.3	0.1
8	8.1	8.3	16	0.8	-
9	6.9	6.1	17-20	1.1	-
10	5.7	4.3			
%	81.6	94.4		18.4	5.6

Source: BCMS, taken from SAC Beef and Sheep Notes

## Mortality

In 2008, approximately 1 in 7 dairy calves and 1 in 13 suckler beef calves were dying on farm. Although more beef breed calves died in total, reflecting their greater number, dairy breed calves appeared to have a higher risk of dying in their first 6 months of life. The greatest numbers of deaths occurred in spring for beef cattle and in winter for dairy cattle<sup>32</sup>.

The industry takes this issue very seriously. The National Youngstock Association (NYA) is a recent initiative which uses DairyCo-funded research to quantify the average losses from birth through rearing. It reports that around 8% of all calves are born dead or die within 24 hours whilst only 86 out of every 100 dairy heifers born alive make it to first calving. Of those who do, 15% are culled before their second lactation<sup>33</sup>. Mortality is highest during the first six months of life but certain classes of cattle can be quite vulnerable until they are about 10 months of age.

Calf data has been collected at meat inspection though this has not been quality controlled. The high level of kidney lesions may be an overestimate but is indicative of the type of information that needs to be scrutinised to better understand why these levels of mortality are experienced.

“ In 2008, approximately 1 in 7 dairy breed calves and 1 in 13 beef calves were dying on farm ”

### ▼ Top Three Conditions at Ante and Post Mortem Inspection in Calves (aged up to 6 months)

Ante Mortem %		Post Mortem %	
Pneumonia/Respiratory Disease	19.4	Kidney Lesions	37.5
Diarrhoea/Scours	15.0	Pleurisy/Pneumonia	36.6
Lameness	14.5	Abscesses	4.9

Source: FSA/MHS

About 240,000 adult cattle also die each year of unknown causes on farms<sup>34</sup>. A wealth of data, though not strictly quality-controlled, has also been collected by what was the Meat Hygiene Service and is now part of the Food Standards Agency. This is data of findings at abattoirs, and is not about cattle that die on farms:

### ▼ Top Three Conditions at Ante and Post Mortem Inspection in Cattle %

Ante Mortem %		Post Mortem %	
Lameness	27.8	Fluke	43.6
Pneumonia/Respiratory Disease	10.3	Kidney Lesions	16.0
Mastitis	8.5	Pleurisy/Pneumonia	11.2

Source: FSA/MHS

Scanning surveillance provided by AHVLA and SAC does provide quite a lot of information on the causes of death of cattle on farms in GB<sup>35</sup> but gaining a better understanding of why these animals are dying would be very useful for disease surveillance and reducing replacement rates through better management strategies. So the question is what data to collect, and how, bearing in mind time constraints and existing levels of paperwork on-farm.

<sup>32</sup> The Cattle Book 2008

<sup>33</sup> <http://www.nationalyoungstock.co.uk/>

<sup>34</sup> BCMS

<sup>35</sup> For example: <http://veterinaryrecord.bmj.com/content/163/18/531.abstract>

## Nutrition

The last 50 years has seen a huge change in the productivity of Great Britain's cattle population. This has been achieved not only through improved environmental conditions, better management, control of disease and enhanced genetic potential, but also through a better understanding of nutrition. These different factors are all interrelated and all contribute to achieving a better end-product in terms of quality and quantity.

Appropriate nutrition is absolutely essential to promote optimum performance be it in terms of milk yield or quality, higher daily liveweight gain or improved conception rates, or lower incidences of metabolic problems. One of the consequences of higher productivity has been the increase in what are termed 'production diseases' or nutritional imbalances. Conditions such as acidosis and grass staggers are now seen as metabolic issues, as are ketosis, displaced abomasum or hypocalcaemia, although these are closely aligned with the transition of the cow from her dry phase through calving to freshly calved.

The incidence rate and cost of the most common of these in dairy cattle has also been captured by Kite Consulting<sup>36</sup>:

Health Monitor - % incidence	2011	£/100 Cows
Hypocalcaemia (Milk Fever)	5.10	£578
Hypomagnesaemia (Staggers)	0.11	£10
Acetonaemia (Ketosis)	2.28	£287
Displaced Abomasa (DA)	2.02	£384
Acidosis	0.52	£36

Source: Kite Consulting

In 2012, DairyCo produced Body Condition Scoring guidelines and a laminated picture guide for dairy farmers to improve awareness of how to aim for the right score in cows at different stages of lactation. These are used within group meetings and as a resource for attendees at DairyCo's Planning for Profit workshops where condition scoring is discussed in relation to nutrition and fertility, and overall farm profitability.

## Breeding and Genetics

Great Britain boasts a wide variety of farming systems and cattle breeds have evolved to suit those different systems. Both beef and dairy cattle have mechanisms in place to support the genetic development of their breeds. In dairy, these are Predicted Transmitting Abilities (PTAs) for a variety of traits including milk, fat and protein yields, body conformation, fertility and Somatic Cell Counts. The provision of this information is managed by DairyCo (Holstein UK for Holstein and Friesian conformation traits). In beef cattle, these are Estimated Breeding Values (EBVs) which focus on aspects such as ease of birth, growth rate, muscling and milkiness of the dams. The management of EBVs is carried out by Signet Breeding Services (a division of EBLEX) for the British Blonde, Devon, Limousin, Lincoln Red, Highland, Salers, Stabiliser, Red Poll and Sussex breeds. The societies for other breeds administer their breed's own evaluation using the services of Breedplan (ABRI, Australia).

### Beef genetics

A number of economically important traits are routinely analysed by the two genetic evaluation services operating in Great Britain: Signet and Breedplan.

Many of these will have a direct or indirect impact on health and welfare. The most significant are probably those four traits that affect the ease with which a calf is born and as a result subsequent calf survival. Trial work has shown that the selection of easier calving sires can greatly reduce intervention at calving and associated calf losses.

#### ▼ Estimated Breeding Values influencing ease of calving

EBV	Interpretation	Notes
Birthweight (kg)	Negative values = lighter calves at birth	High birth weights are more likely to be associated with difficult calvings
Gestation length (days)	Negative values = shorter gestations	Short gestation lengths result in easier calvings, because birthweights tend to be lower. A short gestation also increases the interval between calving and the start of mating, giving the cow more time to recover body condition.
Calving ease (direct) (%)	Positive values = more unassisted calvings	Estimates the percentage of unassisted calvings that can be derived from a particular sire.
Maternal calving ease (%)	Positive values = more unassisted calvings	Identifies females that will calve more easily. Should not be confused with calving ease direct (see above), which is an EBV predicting how easily born a bull's progeny will be.

There are also EBVs available for maternal traits, two of which may be useful in identifying genetically robust suckler cows, particularly with regard to fertility.

▼ **Estimated Breeding Values influencing lifetime performance**

EBV	Interpretation	Notes
Calving interval (days) - Signet  Days To Calving (days) - BreedPlan	Negative values = cows that get back in calf more quickly	This EBV can be used to breed cows with short calving intervals that get in calf again quickly.
Longevity (days) (Signet only)	Positive values = longer breeding life	Predicts the length of an animal's breeding life in the herd.
Age at First Calving (%) (Signet)	Positive values = heifers that reach puberty quicker	Predicts the proportion of a sire's daughters that will calve at an early age, given the opportunity.

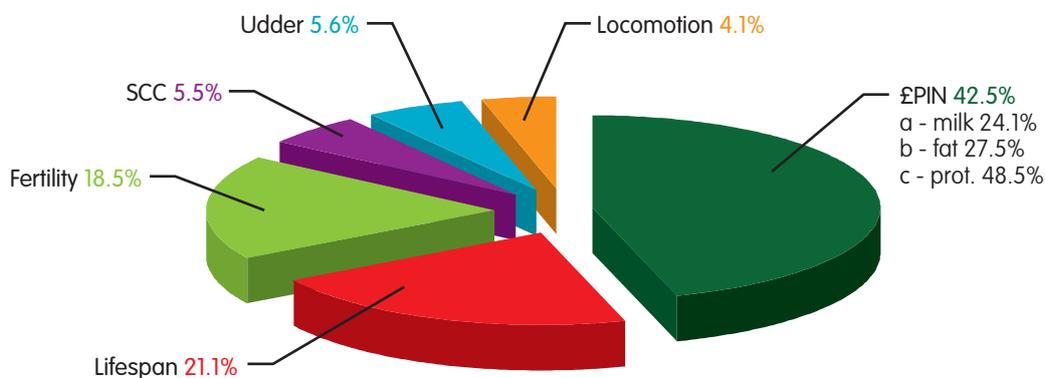
## Dairy Genetics

The Profitable Lifetime Index (PLI) was developed by the Milk Development Council (levy board DairyCo's former iteration) to guide breeding programmes by addressing the common issues of the modern dairy cow. By balancing different traits, it was possible to create a single index that indicated a bull's potential to improve herd profitability through addressing production, conformation and a number of longevity-related traits.

“The latest revision of the Profitable Lifetime Index (PLI) in 2007 saw a major shift away from production toward fitness and moved the emphasis towards a lifetime, rather than annual, breeding goal.”

The latest major revision of the Profitable Lifetime Index (PLI) in 2007 saw a significant shift away from production toward fitness and moved the emphasis towards a lifetime, rather than annual, breeding goal.

▼ **Relative Importance of traits in the Profitable Lifetime Index**



Source: DairyCo

The impact of this shift in emphasis on genetic change has already been observed. Industry-wide monitoring shows favourable genetic trends for all the main fitness traits<sup>37</sup> (selection traits given in brackets for each goal trait):

- improvement in udder health (Somatic Cell Counts, Udder Conformation)
- improvements in longevity (Lifespan/Herd Life)
- improvements in lameness (Locomotion/Legs and Feet)
- improvements in female fertility (Fertility Index)

Comparing the emphasis placed on health traits in the UK's PLI formula with the indices used in other countries, it can be seen that 45% of the index is based on health, just under 10% on confirmation and the remainder (around 45%) on production – milk, fat and protein.

### ▼ Comparison of Breeding Indices in different countries

Country	USA	USA	Canada	Germany	UK
Index	Total Perf. Index	Net Merit	Lifetime Profit Index	RZG (Total Merit Index)	Profitable Lifetime Index
<b>Production %</b>	<b>43</b>	<b>35</b>	<b>51</b>	<b>45</b>	<b>45.2</b>
Type	10				
Dairyiness	-1				
Mammary	12	7	13.5	7.5	5.6
Feet and Legs	6	4	10.2	7.5	4.1
Dairy Strength			3.4		
Body Size		6			
<b>Confirmation %</b>	<b>29</b>	<b>17</b>	<b>27.1</b>	<b>15</b>	<b>9.7</b>
Herd Life / Lifespan	9	22	6.8	20	21.1
Daughter Fertility	11	11	10.1	10	18.5
SCC	5	-10	-3	-8	-5.5
Udder Depth			1.5		
Milking Speed			0.5		
Calving Ability	3	5		3	
<b>Health/“Fitness” %</b>	<b>28</b>	<b>48</b>	<b>21.9</b>	<b>40</b>	<b>45.1</b>

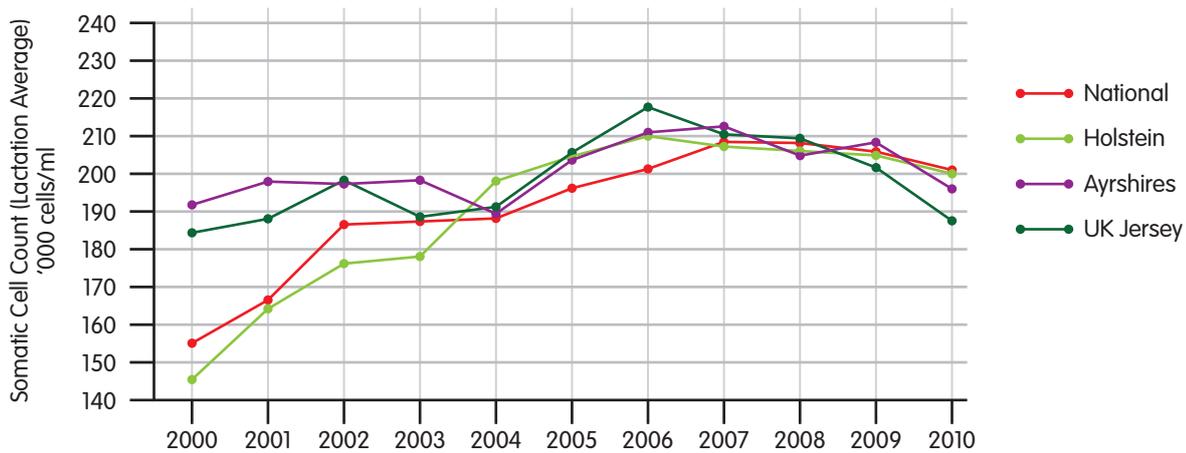
Source: various

The emphasis on Health traits is second only to a US merit score which places 48% emphasis on these traits, including Herd Life, Fertility and Somatic Cell Count.

We know that selective breeding for some of these traits makes an effective contribution to tackling health and welfare issues. The breeding of a more robust cow with a longer potential lifespan is a key goal of the industry following what was widely recognised as a disproportionate emphasis on production in the 1990s. For example, many years of selective breeding to reduce Somatic Cell Counts has helped produce the type of results now benefiting British farmers.

<sup>37</sup> DairyCo Breeding+

▼ Reduction in SCCs over time following selection within the PLI calculation



Source: Centre for Dairy Information (CDI), Holstein UK

Recent Government and industry-funded work has led to the development of an expanding array of genetic indices to help the dairy sector tackle an even broader selection of traits. As a result, Calving Ease indices were introduced by DairyCo in 2010 and implementation programmes to introduce an enhanced Udder Health and Fertility index during 2012 are well underway. Genomic evaluations were also incorporated into PLI in April 2012. The PLI is constantly being evaluated and will continue to be updated in light of new industry requirements to address welfare, environment and economic needs.

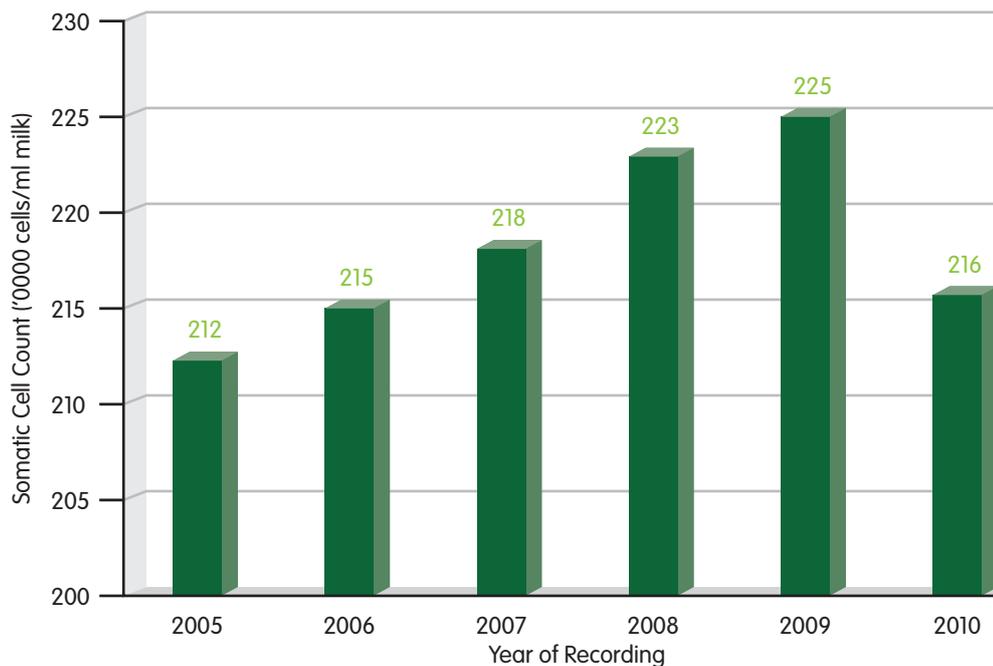
In order to maximise the opportunities that are available, recording of animal performance and health events is critical and national recording organisations (eg milk recording and Herd books) continue to provide valuable data which is being utilised by the breeders.

As well as this, DairyCo continuously monitors genetic change in the national recorded herd through its Genetic Advisory Forum in order to pick up change at an early stage, and where necessary provide appropriate advice to farmers and industry leaders.

## Mastitis

The Somatic Cell Count (SCC) figure reflects the number of white blood cells in the milk and increases as a result of mastitis, in particular chronic/subclinical cases. In terms of overall levels of mastitis as indicated by SCC, this is falling. An analysis of somatic cell counts in over 41 million milk samples collected between 2005 and 2010<sup>38</sup> showed the first reduction in the average annual SCC for all milk samples for some time.

### ▼ Average Somatic Cell Count for all milk samples collected by year of recording



Source: NMR

2010 was the third consecutive year of decline in the percentage of milk samples categorised as high cell count (above the threshold of 200,000 cells/ml). In 2010, the average Bulk Milk SCC (BMSCC) in Britain was also 192,000 cells/ml, a slight reduction compared with the two previous years. It is worth bearing in mind that cows not contributing to the bulk tank are not included in BMSCC, hence the figure is likely to underestimate the number of mastitis cases. The true figure is likely to be around 220,000<sup>39</sup>.

Approximately 25% of milk recorded cows have a cell count >200,000<sup>40</sup>, which is generally regarded as due to (subclinical) mastitis. The BMSCC is generally higher in the summer and lower in winter months. This may partly be a reflection of the calving pattern, with more mastitis cases in fresh calvers and higher cell counts (physiologically) in stale cows. The main subclinical mastitis pathogen is *Staphylococcus aureus*<sup>41</sup>.

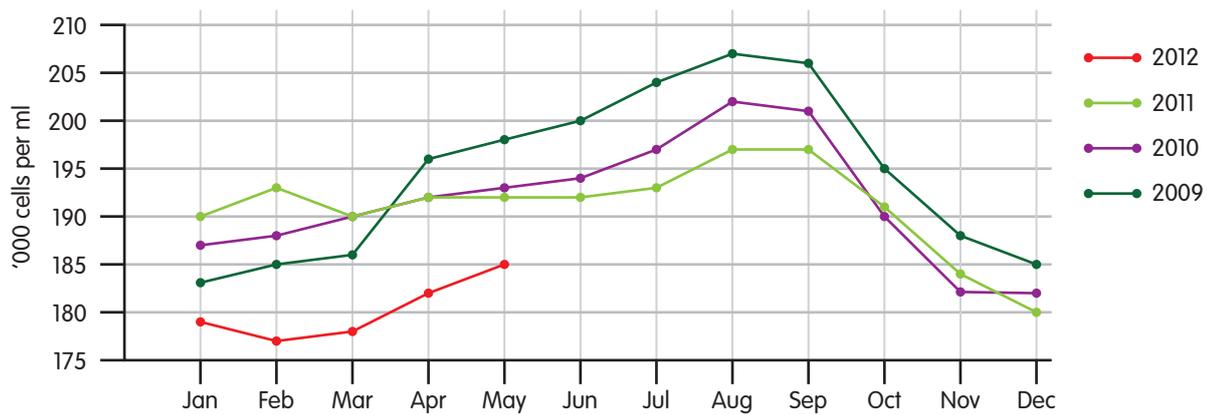
<sup>38</sup> National Milk Records

<sup>39</sup> NMR – personal communication

<sup>40</sup> NMR communication based on research by James Hanks, VEERU, Reading

<sup>41</sup> AHVLA/SAC data 2011

### ▼ Seasonal cell count variations



Source: DairyCo<sup>42</sup>

DairyCo reports that now its Mastitis Control Plan has reached the end of its three year term, 970 farms have enrolled at different stages of implementation and around 10% of the national herd has been impacted. The final report shows that where actions have been focused on the area identified as the 'diagnosis', reductions of up to 20% in mastitis incidence can be gained through the plan.

“...reductions of up to 20% in mastitis incidence and cell counts can be gained through Mastitis Control Plan”

The initiative has now entered a new phase with an industry steering group engaged to ensure progress is maintained, that it addresses the needs of the producer and that it takes account of latest findings in the field of mastitis and milk quality.

The cost of a mild case of mastitis was calculated in 2000 through Reading University's DAISY system<sup>43</sup> to be £28.90, rising to £113.20 per case when other costs such as lost milk yield were also factored in. A severe case cost £122, rising to £332.70. A fatal case cost around £1,418.

The last survey undertaken in the UK<sup>44</sup> concluded that the incidence of clinical mastitis is between 40-65 cases/100 cows per year, with around a quarter of these being repeat cases (same cow in the same lactation but not necessarily the same quarter).

“The last survey undertaken in the UK concluded that the incidence of clinical mastitis is between 40-65 cases per 100 cows per year, with around a quarter of these being repeat cases”

<sup>42</sup> <http://www.dairyco.org.uk/market-information/supply-production/composition-and-hygiene/gb-milk-hygiene/>

<sup>43</sup> <http://www.reading.ac.uk/AcaDepts/aa/DAISY/DAISY1/mastitiscost.htm> M.A.Kossaibati & R.J. Esslemont

<sup>44</sup> Bradley *et al*, 2007

According to recent AHVLA and SAC data, *Streptococcus uberis* and *Escherichia coli* are the most prevalent pathogens, both accounting for 20–25% of cases. The true incidence of *E.coli* mastitis is likely to be higher as at the time of sampling the pathogen has often disappeared and ‘no growth’ is recorded. *E. coli* is an environmental pathogen and most cases of *S.uberis* also originate from the environment, although some strains behave as contagious organisms. SCCs in individual cows with *E. coli* mastitis are very high during clinical disease but fall rapidly afterwards; cows with *S.uberis* mastitis can have a raised SCC for weeks after clinical disease.

The current BMSCC implies that a significant number of cows have subclinical mastitis or a case of previous clinical mastitis. This means that potential production is not realised and added costs of subclinical mastitis including premature culling, treatment costs and added labour are incurred. As an example, a cow with an average SCC of 400,000 cells/ml produces an estimated 100 litres less in her current lactation and 200 litres less in the next lactation than a cow with an average SCC of 200,000 cells/ml<sup>45</sup>. Even at an average BMSCC of 200,000, around 6% of quarters are infected, so the above estimate is conservative. There is plenty of scope for improvement.

<sup>45</sup> University of Wisconsin data

## Lameness

Lameness in dairy cattle is a well-documented problem<sup>46</sup>, with only a few epidemiologically robust studies quantifying lameness prevalence (proportion or percentage of animals affected at a given time or period) and incidence (number of new cases of lameness in a population in a period). Lameness data for beef cattle is absent in GB.

Esslemont calculated the average cost of a single case of dairy cow lameness as £262<sup>47</sup> in his 1999 report. A more recent report has costed the average case of dairy herd lameness at £323.47 per cow<sup>48</sup>. In a 'normal' sized herd this adds up to £7,499.30 or 0.97 pence/litre. The report also broke down the various conditions associated with lameness:

Sole ulcer	£518.73
White line disease	£300.05
Interdigital lameness	£154.31
Digital dermatitis	£75.57
<b>Average cost per case</b>	<b>£323.47</b>

It is often forgotten that clinical lameness can have a huge effect on subsequent animal performance - with reduced milk yield, and high medicine and culling costs, but also with extending the calving interval and associated fertility issues. As such, lameness is a key priority within the sector's Dairy Cow Welfare Strategy<sup>49</sup>.

Definition of lameness is a problem in tackling this issue as it varies from a slight imperfection in gait to an inability to place any weight on the leg or hoof. Work carried out by DairyCo to standardise mobility scoring<sup>50</sup> has achieved considerable success; this has also met one of the main goals of the Welfare Strategy. Rated on a scale of 0-3, it is now becoming common within the industry to refer to the % of cows scoring 2 or 3. Mobility scoring should not be confused with locomotion scoring, commonly carried out by the breed societies from a genetic perspective, which tends to look at the conformation issues that cause issues with gait and therefore lameness.

The most recent figures from 205 dairy farms in England and Wales report lameness prevalence ranging from 0% to 79.2%<sup>51</sup> across farms, with an average of 36.8%. This broad range demonstrates that some farmers are successfully managing their cows to maintain minimal lameness in their herds.

The introduction of digital dermatitis in the mid 1980s raised awareness and established more active screening for new lameness cases.

“The most recent figures... report lameness prevalence ranging from 0% to 79.2% across farms, with an average of 36.8%”

<sup>46</sup> DairyCo lameness review at [www.dairyco.org.uk](http://www.dairyco.org.uk)

<sup>47</sup> <http://www.reading.ac.uk/AcaDepts/aa/DAISY/DAISY1/Lamenesscost.htm> M.A.Kossaibati & R.J. Esslemont

<sup>48</sup> Willshire, British Cattle Veterinary Association conference, November 2009,

<sup>49</sup> <http://www.nfuonline.com/Your-sector/Dairy/News/Strategy-puts-cow-welfare-in-spotlight/>

<sup>50</sup> <http://www.dairyco.org.uk/technical-information/animal-health-welfare/lameness/husbandry-prevention/mobility-scoring/>

<sup>51</sup> Barker et al., 2010. Assessment of lameness prevalence and associated risk factors in dairy herds in England and Wales. *Journal of Dairy Science*, 93, 932-941.

Also informative to the industry are reports on incidence rates of the disorders that are precursors to lameness. A study of farmer-reported incidences of lesions causing lameness<sup>52</sup> suggested lameness due to the three most common lesions was lower than previously reported. Lesion incidence is complicated by a lack of standardisation on definitions and reporting of first and repeat cases. Hock lesions and other limb injuries are thought to account for as much as 8% of lameness<sup>53</sup> which can be more difficult to diagnose definitively. In the Warwick study<sup>54</sup>, hock injuries account for 0.8% of lameness.

With these challenges in mind, the DairyCo Healthy Feet Programme (DHFP)<sup>55</sup> has been developed to help dairy farmers reduce the number of lame cows on their farms by identifying and applying the right management techniques. The programme is a step-wise approach which will help dairy farmers make important progress towards diagnosing the problems, devising an action plan, and developing the skills necessary for long-term lameness control. To date over 140 farms have been registered on the programme covering more than 37,000 cows. Over 70 trained providers (vets or foot trimmers who have attended a specialist course) now facilitate the whole process and act as one-to-one advisers, or 'mobility mentors'. The National Association of Cattle Hoof Trimmers voted at its 2012 AGM to amend the categorisation of trimmers so that those fulfilling a set of criteria can be licensed.

### **National Association of Cattle Foot Trimmers (March 2012)**

Category 1 Foot Trimmers - 56

Total Number of Trimmers - 123

Total Number of Members - 131

As this is in its infancy, incidence and prevalence data is not yet available, although it is hoped that in future years, useful data will be forthcoming from this initiative to enable the industry to both track progress and act quickly should new and emerging issues be identified<sup>56</sup>.

<sup>52</sup> Barker 2007

<sup>53</sup> Murray and others 1996

<sup>54</sup> Barker 2007

<sup>55</sup> <http://www.dairyco.org.uk/farming-info-centre/healthy-feet-programme.aspx>

<sup>56</sup> For further details see Dairy Cow Welfare Strategy

## Fertility

Fertility is key to profitable production in both sectors. It is affected by numerous factors, which can include, but are not exclusive to, herd health, nutrition, body condition score, sire choice, diseases such as Johne's, and general management strategy.

### Fertility in the beef herd

In the beef herd, it can be assessed in various ways but the two main sources of data shown below are a survey of farms where full enterprise costing data has been collected, and from the Cattle Tracing System (CTS) database operated by the British Cattle Movement Service (BCMS).

#### ▼ Average calving interval of beef cows in England & Wales

Year of last calving	Average calving interval (days)*	
	England	Wales
2008	442	447
2009	446	450
2010	440	446

\* This data excludes cattle, born before 1 July 1996 and excludes multiple births

Source: BCMS

The average calving interval for suckler cows calving in England and Wales in 2010 was relatively similar ranging between 440 and 446 days<sup>57</sup>. Assuming an average figure of 443 days, then the calving interval is 78 days or two and a half months longer than the target interval of one year or 365 days.

This suggests that 21% more calves are possible from the same number of cows by improving herd fertility and reducing the calving interval to an average of 365 days for all cows in the herd.

“ This suggests that 21% more calves are possible from the same number of cows by improving herd fertility and reducing the calving interval to an average of 365 days for all cows in the herd. ”

#### ▼ Average age at first calving of beef heifers in England and Wales

Year of last calving	Average age at first calving (months)	
	England	Wales
2008	33.7	34.6
2009	34.0	34.6
2010	33.6	34.4

Source: BCMS

According to EBLEX, a target of calving beef heifers at two years old or 24 months of age is achievable, yet the national average for both Wales and England is approximately 34 months.

Data on calving period in suckler herds is limited. English data from enterprise costing surveys shows calving periods in the range of 20 to 22 weeks for average lowland and Less Favoured Area (LFA) suckler herds, respectively for 2010/11. Calving periods for hill, upland LFA and lowland suckler herds in Scotland were 16, 15 and 14 weeks, respectively for 2010. Ideally, producers should be aiming for a compact calving period of 12 weeks or less.

Similarly, information on barren suckler cow rates is scarce. English data from enterprise costing surveys shows barren cow rates in the range of 6.3 to 8.1 barren cows per 100 cows exposed to the bull across all the lowland and LFA suckler herds surveyed in 2010. The industry benchmark for barren rate is less than 5% of females exposed to the bull.

The productive life span of beef cows in England and Wales has been consistently similar between the years 2008-2010. During their lifetime, BCMS data shows that these cows have had in the order of 5 or 6 calves that were registered on the Cattle Tracing System (CTS) database. This data does not include calves that were born dead or that died shortly after calving and were therefore not registered with BCMS.

#### ▼ Average age at death and number of calves produced during the lifetime of beef bred cows in England and Wales

Year of last calving	Average age at death (years)		Average number of calves during lifetime	
	England	Wales	England	Wales
2008	9.9	10.0	5.9	5.9
2009	8.8	8.9	5.3	5.4
2010	9.3	9.4	5.8	5.9

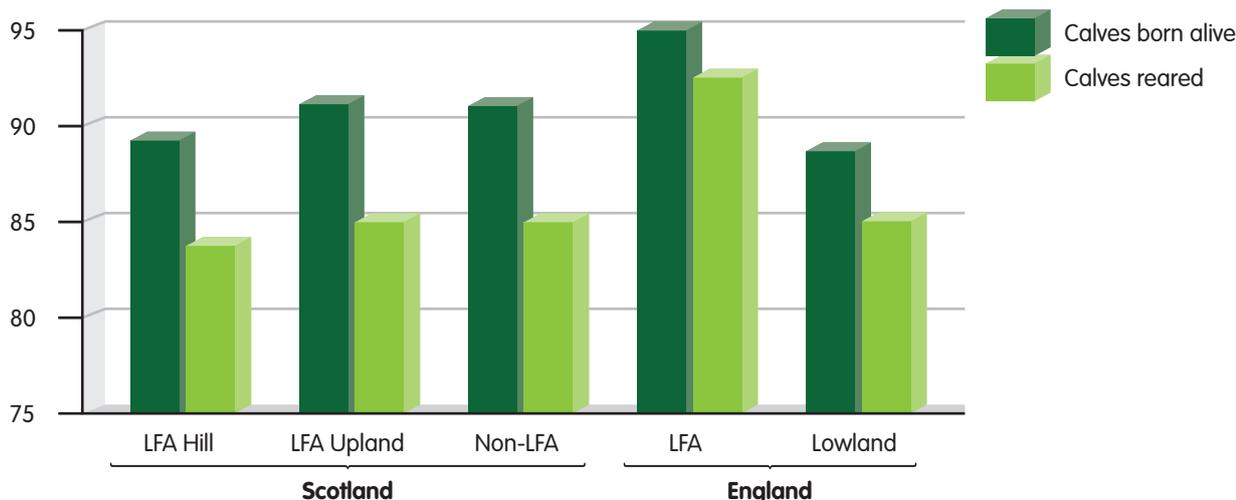
Source: BCMS

Fertility is a fundamental driver of suckler herd productivity and two of the best indicators of this are the number of calves born, and number reared per 100 cows exposed to the bull. The 2010 figures for lowland herds in England are slightly lower compared with previous years, with the LFA results being slightly higher than the rolling average<sup>58</sup>. The Scottish results show relatively high rates of calf deaths between birth and weaning which may reflect the difficult weather conditions experienced during the spring of 2010. Industry targets for these parameters are 95 calves born and 94 calves reared per 100 cows and heifers exposed to the bull<sup>59</sup>, hence there is potential to improve fertility performance of many British suckler herds which would have a direct effect on the number of calves reared and therefore herd output. Not to be forgotten are the indirect benefits to calf health, ease of cow management and reduced cost of production amongst many others.

<sup>58</sup> QMS data

<sup>59</sup> EBLEX

▼ Calves born alive & reared in different types of suckler herd in England & Scotland in 2010



Source: QMS Sheep & Cattle Enterprise Profitability in Scotland; EBLEX Business Pointers

Fertility in dairy cows

The reproductive ability of the dairy cow has been described as declining for over a decade<sup>60</sup>. It is worth noting that since 2007, it has been possible to select dairy bulls on the fertility performance of their daughters.

▼ Average fertility indicators taken from sample of herds over 15 years (dairy)

	1993	2002	2005	2007
Herd Size	109	121	130	144
Milk Yield (litres/cow)	5974	7138	7705	7648
Heat Detection Rate (%)	71	57	46	45
Days to First Service	71	95	99	101
Conception Rate (%)	45	40	39	37
Calving Index (Days)	382	411	430	425

Source: Paul Robinson, Kingshay - quoted from his Nuffield Scholarship, Nov 2010

There are a huge number of factors affecting conception rates including nutrition, semen quality, timing of insemination stress, environment etc., but nutrition and addressing negative energy balance in early lactation are crucial. The difficulty here is that as infertility is so multi-factorial it means that any solutions have to be found on a herd-specific basis. This highlights the importance of Herd Health Plans aided by the active involvement of not only the vet but also a qualified nutritionist.

A fertility survey conducted in 2011<sup>61</sup> reported that two thirds of 500 participating farms had regular vet visits to aid fertility, but almost a quarter did not set fertility targets. Repeated in 2011 but with almost 1,000 participating herds, the survey found 69% wanted a calving interval of 365-90 days but only 18% were achieving this.

<sup>60</sup> Royal and others, 2000 and Esslemont and Kossaibati in 2002

<sup>61</sup> Synergy Farm Health, 2010 and 2011 survey in association with MSD Metricure

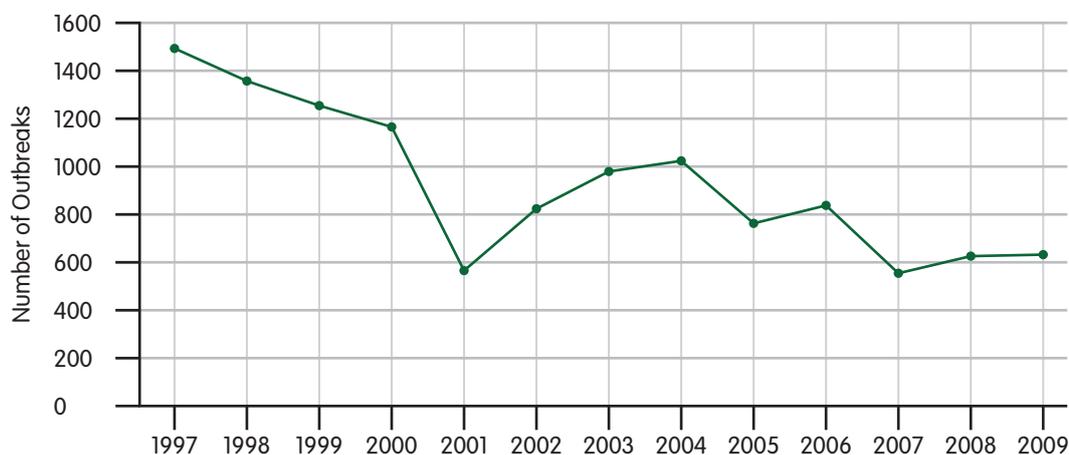
## Pneumonia and Scouring

Scouring is the most common disease in young calves and the greatest single cause of death. Respiratory Disease (pneumonia) is the most common reason for death or poor performance from weaning to 10 months of age<sup>62</sup>.

Whether or not an animal becomes diseased is a balance between the strength of its immunity and the level of the disease challenge it faces. Calf pneumonia and calf scour in particular remain poorly recorded at the moment, despite recent research<sup>63</sup>, but a national campaign to 'Stop the Loss' via the farming media has been rolled out this year. Issues such as good colostrum management, nutrition and environmental control combined with proactive monitoring of performance are currently being promoted within the industry.

### Calf Pneumonia

#### ▼ Enzootic Pneumonia - Youngstock & Calves



Source: NADIS

Calf pneumonia is expensive with average costs per affected calf estimated at £43 per dairy calf and £82 per suckler calf<sup>64</sup>. The costs in suckler calves are higher because these calves are generally bigger than dairy calves. Of these costs, only 40% are accounted for in vets fees and drugs; 60% are hidden costs such as loss in liveweight gains resulting in increased time to finishing.

“Calf pneumonia is expensive with costs per affected calf estimated at £43 per dairy calf and £82 per suckler calf”

<sup>62</sup> Youngstock Rearing to 10 months old: Hayton, Pocknee & Statham (Defra 2005)

<sup>63</sup> DairyCo & Royal Veterinary College

<sup>64</sup> Andrews AH (2000) 'Calf pneumonia costs' in Cattle Practice 8(2) p109-113

These costs are probably an underestimate. The dairy example does not take into account the reduced productivity of the animal once she starts to lactate. In the suckler model, the loss of liveweight gain was only monitored up to five weeks following the outbreak and therefore the costings didn't take into account loss of daily liveweight gain after this period or potential losses in seemingly unaffected calves.

Exactly how much calf pneumonia is present in the UK is not known. Data from AHVLA has been complemented by other sources such as NADIS (see previous page), but this is not comprehensive.

## Calf Scour

Between 2003 and 2012 AHVLA has tested around 10,000 submissions from neonatal calves with diarrhoea. A diagnosis was reached in approximately 75% of submissions. The most common diagnoses were *rotavirus* (42%), *cryptosporidiosis* (40%), bovine *coronavirus* (9%) and *colibacillosis* (8%).

As well as AHVLA data, diagnostic data is available from the MSD ScourCheck scheme, which recently asked 80 vet practices nationwide to submit their findings from calf-side diagnostic testing.

Data from the scheme<sup>65</sup> covering around 750 calf units and over 1,300 calves suffering from scour problems during 2010 show that *rotavirus* and *cryptosporidia* are still the key scour-causing organisms in the UK. But dam vaccination, good colostrum feeding practices and sound hygiene can significantly reduce the financial impact of these causal agents.

Over 32% of samples were positive for *cryptosporidia* with more than 29% positive for *rotavirus*. The scheme also picked up other significant infectious organisms, with 235 (17.7%) testing positive for bovine *coronavirus* and 51 calves (3.8%) testing positive for *E.coli*. Many farms had a mix of the various organisms implicated in disease outbreaks.

Opportunities exist for improved control of calf scour through good cow nutrition & calving hygiene, coupled with vaccination of the dam before calving to reducing scour problems caused by *rotavirus*, *E.coli* K99 and bovine *coronavirus* through enhanced colostrum immunity. Currently, only around 10-15% of cattle are vaccinated nationally to control calf scour<sup>66</sup>.

# Parasites

## Liver Fluke

Liver Fluke (*Fasciola hepatica*) is a physically and economically devastating parasite. The National Animal Disease Information Service (NADIS) currently provides sheep and cattle producers with short-term *fascioliasis* risk, based on the Ollerenshaw index – a model driven by the influence of rainfall and temperature on the free living stages of the parasite and its intermediate host, the dwarf pond snail.

A recent report indicates that throughout the UK, the average liver fluke risk from summer infection has increased during the past four decades with risk predicted to generally increase further and serious epidemics predicted in Scotland by 2020 and Wales by 2050. Additionally, a steady increase in risk from winter infections is forecast along the West Coast, with Wales being most at risk<sup>67</sup>. In the meantime, liver fluke continues to incur an on-going cost to the industry. The table below shows the huge cost of liver rejection, a subject which is touched upon when discussing Food Chain Information on page 13 and the importance of feeding information on issues like liver damage back to primary producers.

### ▼ Liver fluke rejection at slaughter, by country in which slaughter took place

Liver rejection data (flake) 2010		Throughput	Liver condemnation	%	Estimated loss from liver rejection alone (cattle liver = £4.00)
England	Cattle	1,547,151	306,499	19.81	£1,225,996
Wales	Cattle	135,563	38,126	28.12	£152,504
Scotland	Cattle	518,461	143,271	27.63	£573,084

Source: EBLEX

## Worms, including Parasitic Gastroenteritis (PGE)

An industry initiative led by EBLEX and DairyCo called 'COWS' (Control of Worms Sustainably) has identified the importance of sustainable worm control strategies for cattle. PGE, lungworm and liver fluke have already been mentioned as major issues facing the cattle industry. It is hoped that the COWS initiative can fit in the RUMA Alliance to make sure that its message is effective and relayed at farm level.

<sup>67</sup> Fox NJ, White PCL, McClean CJ, Marion G, Evans A and Hutchings MR: The impacts of climate change on *Fasciola hepatica* risk in the UK, via BSAS Animal Bytes <http://www.animalbytes.org/index.php/2012/06/30/the-impacts-of-climate-change-on-liver-fluke-fasciola-hepatica-risk-in-the-uk/>

## Infectious Diseases

The consensus is that Bovine Viral Diarrhoea (BVD), Johne's Disease, Infectious Bovine Rhinotracheitis (IBR) and Leptospirosis are among the most important infectious diseases in both beef and dairy cattle herds.

Defra, through the Reading University Economic Disease cost calculator models<sup>68</sup>, estimates that BVD costs the UK cattle industry up to £61 million and Johne's disease £13m. The British Cattle Veterinary Association (BCVA) incorporates/recommends the use of these models in its relevant CPD module. This is a useful step forward but completely dependent on the quality of farm data used – however it is positive to see the increased use of these models over the past year.

In the meantime, it's clear the diseases are prevalent and infection rates are rising. An EBLEX market report in 2008 indicated that 35% of suckler herds had confirmed or suspected Leptospirosis, 50% had BVD and 26% had IBR<sup>69</sup>.

Figures from 1,648 herds tested under the Merck's DairyCheck Scheme<sup>70</sup> in 2011 found that:

- 66% of herds had been exposed to Leptospirosis.
- 69% of herds had been recently exposed to BVD.
- 70% of herds were infected with IBR.

Figures from the same company's animal health check show in May 2011 disease rates of 43% for Leptospirosis and 62% for BVD in beef animals. These non-statutory infectious diseases are complex and the key to success is the farmer/vet partnership and robust health planning.

Vaccination can have an important role to play but appropriate training in the use of vaccines is vital as a recent study<sup>71</sup> on 71 beef and dairy farms has found:

- 21% of farmers vaccinated using the incorrect dose of vaccine or administered it by the wrong route.
- While all farmers gave a two dose primary course, nearly 50% had the wrong time interval between doses.
- Only 24% managed to complete the primary course of a vaccination four weeks before service.
- 34% kept a vaccine bottle open for more than a month in contrast to the guidelines of only ten hours.

“Defra estimates that BVD costs the UK cattle industry up to £61 million and Johne's disease £13 million.”

<sup>68</sup> [www.fhpmmodels.reading.ac.uk](http://www.fhpmmodels.reading.ac.uk)

<sup>69</sup> EBLEX

<sup>70</sup> Merck DairyCheck data

<sup>71</sup> Royal Veterinary College

## Johne's Disease

The National Beef Association led an industry awareness campaign on Johne's disease and concentrated on raising the issue in livestock markets and other places where livestock farmers congregate. This 2004 activity certainly raised the disease's profile for a short time, though limited financial resources inhibited progress.

Although Johne's testing programmes have been available in the UK for over 20 years, it is only in the last two years that there has been significant engagement by dairy farmers. This has been prompted by a UK-wide collaborative survey<sup>72</sup> conducted in 2009 by VLA, SAC, the Agri-Food and Biosciences Institute (AFBI) and Moredun Research Institute, showing a herd prevalence of over 34%. Dairy UK has also established and co-ordinated an industry-wide Action Group<sup>73</sup> to encourage further collaboration.

The availability of testing using milk samples has led to many milk purchasers setting up farmer awareness programmes designed to allow farmers to learn their Johne's status, and a herd prevalence of over 50% is now being detected where farmers have engaged in awareness activities. Appreciation is growing of the critical need to manage transmission risks in order to reduce the spread of the disease before infectious animals are culled. Farmers are also becoming aware that if the disease becomes established in their herd the costs are 1-2p/litre on account of reduced milk yields and infertility. Future success will depend on the long term commitment of farmers, and the selection of the most appropriate control strategy for each farm.

Perhaps the most dramatic influence on disease control by a beef breed is the Welsh Black Cattle Society's Johne's Eradication Scheme as can be seen in the following table. The success of this is largely due to having a vet as an administrator running the programme.

### ▼ % of Total cattle of different health status entered in the Society's sales in each year

Year	% Cattle Accredited	% With Clear Herd Test	% With No Status
2002	23	7	70
2003	26	9	65
2004	45	19	36
2005	47	19	34
2006	55	24	21
2007	65	15	20
2008	71	9	20
2009	64	12	24
2010	77	11	12
2011	89	4	7

Source: Welsh Black Cattle Society

<sup>72</sup> <http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/documents/johnes-qa.pdf>

<sup>73</sup> Including NFU, FUW, DairyCo, BCVA, Dairy Crest Direct, Arla, Wisemans, First Milk, Milk Link, NML & Dairy UK

## Bovine Viral Diarrhoea (BVD)

There have been numerous attempts to monitor, control and eradicate this disease in the recent past. A pilot trial in East Anglia<sup>74</sup> showed that it was possible to eradicate BVD but that considerable administration was needed 'on the ground' to co-ordinate, while the majority of 21 discrete small scale projects run between 2006 and 2009<sup>75</sup> had a BVD component. Unfortunately there was no agreed template for data collection and thus it has not proved possible to use any of this potentially useful information. Similarly, under the various Rural Development Regulations (RDP England) there have been a great number of farm health and welfare initiatives.

Again none of this appears to be co-ordinated and even on a regional basis little or no data is publicly available. This is in contrast to Scotland where several regional schemes have been successful.

### The Scottish BVD Eradication Scheme

Between September 2010 and April 2011, the Scottish Government subsidised BVD screening for breeding herds, making £36 available for an initial screening test and £72 for follow up testing and/or discussions with a vet should evidence of exposure show up in the first test. Around 4,000 herds signed up – approximately half of the breeding herd population in Scotland – comprising 3,424 beef herds, 532 dairy herds and 130 mixed.

The results differed quite dramatically between beef and dairy with only a quarter of beef herds showing exposure but over half of the dairy herds in the same position. However, it was agreed that bias could arise from bulk milk samples showing historical antibodies, no longer representative of the status of the herd. Overall prevalence for the subsidised screening results was 27.8% exposed and 72.2% negative for any exposure to BVD. It is important to bear in mind that this is a self-selecting group that is likely to represent areas of lower prevalence.

Shetland became BVD-free in the early 1990s, and a concerted effort on Orkney has left only a handful of positive herds. Recently, a very active Scottish Cattle Industry Group led by NFUS has now embarked on a BVD Eradication Plan<sup>76</sup> with funding and support from the Scottish Government. The reasons the Scottish Government is specifically involved in eradicating BVD are:

**Economic.** It has been shown that eradicating BVD could be worth £50 - 80 million to the Scottish cattle industry over ten years.

**Environmental.** A healthy animal is far more environmentally efficient so eradicating BVD would improve the carbon efficiency of the cattle industry.

**Welfare.** Eradicating BVD would improve the welfare of a significant proportion of the national herd.

**Diagnostics.** There are excellent tests for BVD that are very reliable, unlike for some other diseases such as Johne's.

**Timing.** Much progress has been made on disease prevention and control in Scotland in recent years, such as achieving official TB freedom, and therefore there are resources to concentrate on the next challenge; BVD is the obvious choice.

## CHeCS

Cattle Health Certification Standards (CHeCS) is the regulatory body for the 10 cattle health schemes operating in the British Isles. CHeCS is not itself a cattle health scheme but a non-trading organisation established by the British cattle industry for the monitoring, control and ultimate eradication of disease for the most important non-statutory diseases that are prevalent in both beef and dairy herds: Infectious Bovine Rhinotracheitis (IBR); Leptospirosis; Johne's Disease; and Bovine Viral Diarrhoea (BVD).

CHeCS sets out the rules to which all schemes and their farmer members must adhere for accreditation. Herd owners may test for one or all of the diseases at any one time in conjunction with the herd's vet. Once the health status for any of these diseases is known then a herd may progress through a programme of screening and eradication to eventual accreditation of disease free status. In 2007 only 4.4% of UK farms were members of CHeCS accredited schemes but this itself was a major improvement on 2004 when only 1% was. Since 2007 there has been a major increase in UK cattle health schemes both on a national and regional basis. Currently 14,000 UK herds are in some form of disease monitoring, control and/or eradication under a CHeCS accredited scheme. That is around 14% of UK cattle holdings. It is difficult to be precise on the dairy:beef ratio but it is likely to be around 40:60. [www.checs.co.uk](http://www.checs.co.uk)

<sup>76</sup> <http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/animal-welfare/Diseases/disease/bvd/eradication>

## Bovine Tuberculosis

It has been explained in the Foreword why content on bTB has not been included in this report. More information on the subject can be obtained through the following links:

[www.tbfreeengland.co.uk/](http://www.tbfreeengland.co.uk/)

[www.defra.gov.uk/animal-diseases/a-z/bovine-tb/](http://www.defra.gov.uk/animal-diseases/a-z/bovine-tb/)

[www.wales.gov.uk/bovinetb](http://www.wales.gov.uk/bovinetb)

[www.nfuonline.com/Our-work/Bovine-TB/Bovine-TB/](http://www.nfuonline.com/Our-work/Bovine-TB/Bovine-TB/)

## Horizon scanning

Surveillance indicates there are a number of emerging health and disease threats to the industry, some of which are being caused by changing climate conditions. Equally, there are emerging opportunities. The main ones are summarised here.

### Potential disease threats

Influence	Comment
Schmallenberg virus infection	Now in southern England with much uncertainty on whether and how the infection will progress in 2012 and beyond. There is potential for continued surveillance and appropriate risk mitigation measures but the impact on the cattle industry is not yet fully evaluated. See <a href="http://www.defra.gov.uk/ahvla/2012/01/12/schmallenberg-virus/">http://www.defra.gov.uk/ahvla/2012/01/12/schmallenberg-virus/</a> for more details.
Bovine psoroptic mange	The disease has spread slowly since it was first identified in south-west Wales in 2007, probably through purchase of infected animals from mainland Europe. It poses a significant risk to the health and welfare of affected cattle and to the economic performance of affected herds, especially dairy herds due to long withdrawal periods of available treatments. There are other non-statutory diseases of cattle that could potentially be introduced to GB through imported animals, eg parafilaria and besnoitiosis.
Foot and Mouth Disease	Recent outbreaks on-going in Turkey and along its border with the Balkans present a risk of incursion within the EU. Government has a responsibility to maintain border security, but equally the industry must uphold its responsibility for trading in a risk-aware way.
Bluetongue	Six serotypes were circulating in mainland Europe in 2011: there is always the potential therefore for further incursion of this disease into Northern Europe and we should be mindful of this in terms of trade and surveillance for signs of disease. See <a href="http://www.defra.gov.uk/animal-diseases/a-z/bluetongue/">http://www.defra.gov.uk/animal-diseases/a-z/bluetongue/</a> for further information.
Rift Valley Fever	This highly fatal disease can affect people, has an on-going presence in Africa, and could spread to Europe given the right vectors.

## Other potential threats

Influence	Comment
Antimicrobial resistance	There is a rising prevalence of extended spectrum beta-lactamase producing <i>E.coli</i> in cattle (although most are probably not responsible for disease). Novel resistance mechanisms have emerged recently and may continue to do so. The risks to cattle health are through the potential development of non-efficacy of current antimicrobial treatments and, possibly, through steps being taken at EU level to limit AMR through restricting use of these products in livestock, leaving potentially unmet treatment needs. The European Commission is developing a strategy on reduction of use of antimicrobials. This could result in legislation that requires reduction in use or even the banning of veterinary use of certain classes such as 3-4 generation cephalosporins, which are used in cattle farming for treatment and prevention of diseases such as mastitis. Other classes of antimicrobials are available and not under the same threat as these products but it is widely believed that to remove these products entirely from veterinary use would be a negative outcome from an animal health and welfare point of view.
Large herds	This could represent a change in disease dynamics and need to modify monitoring and control approaches accordingly as herd sizes increase.
Climate change	Potential for impact on vectors that can transmit disease, grassland productivity, heat stress, flooding and drought. Government has a statutory requirement under the Climate Change Act 2008 to undertake a risk assessment to aid our response to climate change. A greenhouse gas emission reduction project is currently running to help the UK reach its EU target of reducing greenhouse gas emissions from livestock production by 6%. This has identified measures at the interface of breeding, feeding and reduction of endemic disease. There is a need for better data of prevalence and impact of endemic diseases, and development of sophisticated cost/benefit models to inform this process. The farm vet has a pivotal role in helping this through promotion of effective herd health planning.
Cattle movements	In the dairy sector, there has been a trend towards fewer closed herds and greater reliance on purchase of animals from elsewhere to maintain herd numbers. Movement of cattle between herds risks the spread of infection, unless accompanied by appropriate biosecurity measures that are properly applied (including quarantine). There is also a risk to cattle welfare if statutory requirements are breached.
EU Animal Health Law	The European Commission is currently undertaking a revision of the regulatory framework surrounding animal health. This is a major initiative and will ultimately deliver a single regulatory framework setting basic principles for animal health, providing health rules for movements of animals and animal products, disease control measures and early detection of disease, disease notification and surveillance. It is currently unknown whether such a complex task could result in legal anomalies and unintentional consequences limiting our ability to react and deal with disease outbreaks or animal health issues.

Influence	Comment
EU Animal Welfare Framework Law	The EC is looking to harmonise the legislation around animal welfare and published its EU Strategy for the Protection and Welfare of Animals 2012-2015 earlier this year. The main objectives of the Strategy were based around improving enforcement of EU legislation, providing for open and fair competition for EU businesses, building knowledge and awareness of animal welfare and the coherence of animal welfare across species. Again, the scale of the task, could result in unintended consequences. It is unknown whether this may 'gold plate' or disadvantage the reputation of our farm produce on the international (and internal EU) marketplace and may pose a risk of adding to the bureaucratic burden of farmers.

## Potential positive influences

Influence	Comment
Herd health planning	Many cattle disease threats and opportunities for improved health, welfare and production are best addressed through a proactive herd health planning approach, delivered by partnership between cattle farmers and their veterinary surgeon. There probably remains significant potential for the control of common endemic diseases (eg liver fluke) through development and application of effective herd health planning.
Climate change	Could lead to higher prioritisation of control of endemic diseases leading to production loss, by the cattle industry and Government.
Potential for improved control of salmonellosis	National Control Plans, co-ordinated by the EU, have led to significant reductions in the prevalence of salmonella infection in poultry. A similar approach to the control of salmonellosis in cattle would be more complex, due to the more diverse nature of the industry and the greater exposure to salmonella in the environment. But a national plan, were it to happen, could potentially reduce incidence of bovine salmonellosis. (Some EU countries have embarked on national plans for <i>Salmonella Dublin</i> in cattle).
BVD eradication	BVD eradication is technically achievable, at herd, regional and national level though the complexity of its epidemiology does pose challenges as witnessed in other countries close to eradication. Current evidence shows a positive cost-benefit balance of eradicating BVD within a herd. CHAWG could have a role in co-ordinating/facilitating BVD schemes across England and Wales.
Surveillance	Surveillance has recently been reviewed in Scotland (Kinnaird report <a href="http://www.scotland.gov.uk/Publications/2011/11/09091744/0">http://www.scotland.gov.uk/Publications/2011/11/09091744/0</a> ). AHVLA has recently announced a 'Surveillance 2014' project to take forward the recommendations of the independent Surveillance Advisory Group (SAG) for a future veterinary surveillance model in England and Wales <a href="http://www.defra.gov.uk/ahvla/2012/05/29/ahvla-announces-surveillance-2014-project/">http://www.defra.gov.uk/ahvla/2012/05/29/ahvla-announces-surveillance-2014-project/</a> . Further details of the work of the SAG, including the recommendations in its final report, are available at <a href="http://vla.defra.gov.uk/science/sci_surv_model.htm">http://vla.defra.gov.uk/science/sci_surv_model.htm</a> ; <a href="http://vla.defra.gov.uk/science/docs/sci_sag_final_report.pdf">http://vla.defra.gov.uk/science/docs/sci_sag_final_report.pdf</a> . There are new opportunities with agency mergers (ie AHVLA) and potential for more collaboration with industry. The vision is for better, not less, early warning surveillance.

## Conclusions

As CHAWG anticipated, a number of issues have arisen during the compiling of this report. Until these issues are resolved, the industry will struggle to confidently quantify both levels of challenge and improvements in performance.

1. **Data Quality** – there are large gaps in availability and consistency of current data. There is considerably more data available for dairy cattle than for beef herds; on the other hand the uptake by the Pedigree Beef Breed Societies of cattle health schemes has been most encouraging. Data consistency could also be improved by creating a standard template when recording the various regional activities; private companies operating in the industry could also pool pre-competitive data.
2. **Data Mining** – a number of potential sources of really useful information remain untapped. The Cattle Tracing System (CTS) of the British Cattle Movement Service (BCMS), the National Fallen Stock Company, and the abattoir data collected by what was the Meat Hygiene Service (now part of the Food Standards Agency) are the three most obvious. It is also hoped there will be a more structured approach in the next round of RDP England which will lead to an agreed template for data gathering. CHAWG is also interested why Food Chain Information does not yet appear to be generating any useful information for cattle producers.
3. **Demographic Data** – more consistent and reconciled data from the UK, Welsh and Scottish Governments, Defra, and the levy bodies, would help give an accurate picture of the latest situation in the cattle industry and trends in producer numbers, herd sizes, imports and exports. The descriptive statistics about the cattle population in GB contained in the RADAR Cattle Book has not been published since 2008. A publication describing cattle population trends in GB using the national databases should be published regularly as the definitive source of GB statistics.
4. **Cattle Imports** – imports of breeding animals continue to be a cause of great concern. The surveillance work undertaken on such animals seems to be effective but the potential for new and emerging disease is obvious.
5. **Herd Health Planning** – the uptake reported by Scottish and Welsh Governments is most encouraging, as is the information from the Defra Farm Practices Survey. CHAWG would like to incorporate some further questions into this annual survey in particular.
6. **Cost:Benefit Calculators** – throughout the report there are frequent references to the cost of disease, either at national level or on an individual farm/case basis. While extremely valuable to certain parts of the industry, Reading University economic disease cost calculator models do not relate to many individual farmers' operations and thus simple cost calculators for producers' own data need to be developed.
7. **Farm Assurance** – the various schemes operating in GB have very high uptakes from both beef and dairy farmers, but many retailers now have their own schemes as “add-ons” to Red Tractor Assurance. We would like more information on the health and welfare components of these schemes.

8. **Antimicrobial Resistance** – this continues to be a concern with potentially serious implications for the industry. In Great Britain, the increased uptake of responsible use guidelines, as recommended by the cross-industry RUMA alliance, could help build confidence in addressing this matter.
9. **Calf and Heifer Rearing** – these continue to be the Cinderella enterprises on many farms with alarming figures of calf mortality in both the beef and dairy sectors. The increased publicity given by the farming press to the Stop the Loss campaign is to be welcomed whilst the National Youngstock Association is a further step in the right direction. But there is a real need to see some better recording of health events here.
10. **Importance of Nutrition** – nutrition is listed in the Top 10 health issues facing both the beef and dairy sectors. Yet often the feed adviser/nutritionist is not involved in farm discussions on health and welfare matters, particularly in areas such as poor conception rates. The farmer/vet relationship is vital but the input from a skilled feed adviser is also worth considering.
11. **Breeding and Genetics** – real progress is being made with the introduction of health traits in dairy genetics and it will be interesting to see the impact of these coming through on-farm.
12. **Mastitis and Lameness** – it is encouraging to see initiatives such as DairyCo's Mobility Scoring, Mastitis Control Plan and Healthy Feet programmes in action. The National Association of Cattle Foot Trimmers could be another useful data set on incidence and prevalence. Data on lameness in the beef sector is needed.
13. **Liver Fluke** – this is a hardy perennial which remains a huge cost to the industry, yet frequently overlooked. The EBLEX and DairyCo-led COWS (Control of Worms Sustainably) has identified the importance of worm control strategies. It is hoped that COWS can be as effective as SCOPS in the sheep sector where a product champion and industry support has achieved real success at farm level.
14. **BVD/Johnes** – it is pleasing to report the various industry actions to monitor, control and ultimately eradicate these diseases. The differences in approach taken by Scotland in a National BVD Eradication Plan is striking and reflects the joined-up approach between the Scottish Government, NFUS, SAC and the Scottish cattle industry. It is hoped similar progress can be made in due course south of the border.

This by no means exhaustive list highlights many of the areas of work that CHAWG will be pursuing over the coming months.



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