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Animal Health 2006

The Report of the Chief Veterinary Officer



Llywodraeth Cynulliad Cymru
Welsh Assembly Government



SCOTTISH EXECUTIVE



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Foreword



I am pleased to present this Annual Report on animal health for 2006 which describes progress and developments in the fields of animal health and welfare during the last calendar year.

It has been another challenging, yet successful year set against a backdrop of some poignant memories of key anniversaries, there to remind us of the challenges we face in animal health and welfare: the 20th anniversary of the first case of BSE; the 10th anniversary of the first connection made between BSE and CJD in humans and the 5th anniversary of the start of the Foot and Mouth Disease outbreak.

As well as managing the threat and incidences of exotic diseases we have made good progress with a number of new and on-going animal health and welfare issues. One of the year's highlights was securing the lifting of EU trade restrictions on UK beef in May a result of continued work to reduce the rates of BSE in cattle. Then in November the Animal Welfare Bill received Royal Assent, one of the most significant achievements in animal welfare legislation for almost a century introducing a duty of care for pet owners to do all that is reasonable to ensure the welfare of their animals.

On bovine TB, we have continued to reduce the risk of spread of the disease from cattle-to-cattle by introducing pre-movement testing and a new policy to improve testing by extending the use of the gamma interferon diagnostic blood test alongside the TB skin test.

This year we conducted Exercise Hawthorn which tested our contingency plans for a disease outbreak. The isolated incident of Avian Influenza in Scotland, the outbreak of Low Pathogenic Avian Influenza on three poultry farms in Norfolk and the spread of Bluetongue into Northern Europe have highlighted that an animal disease outbreak remains one of our top threats.

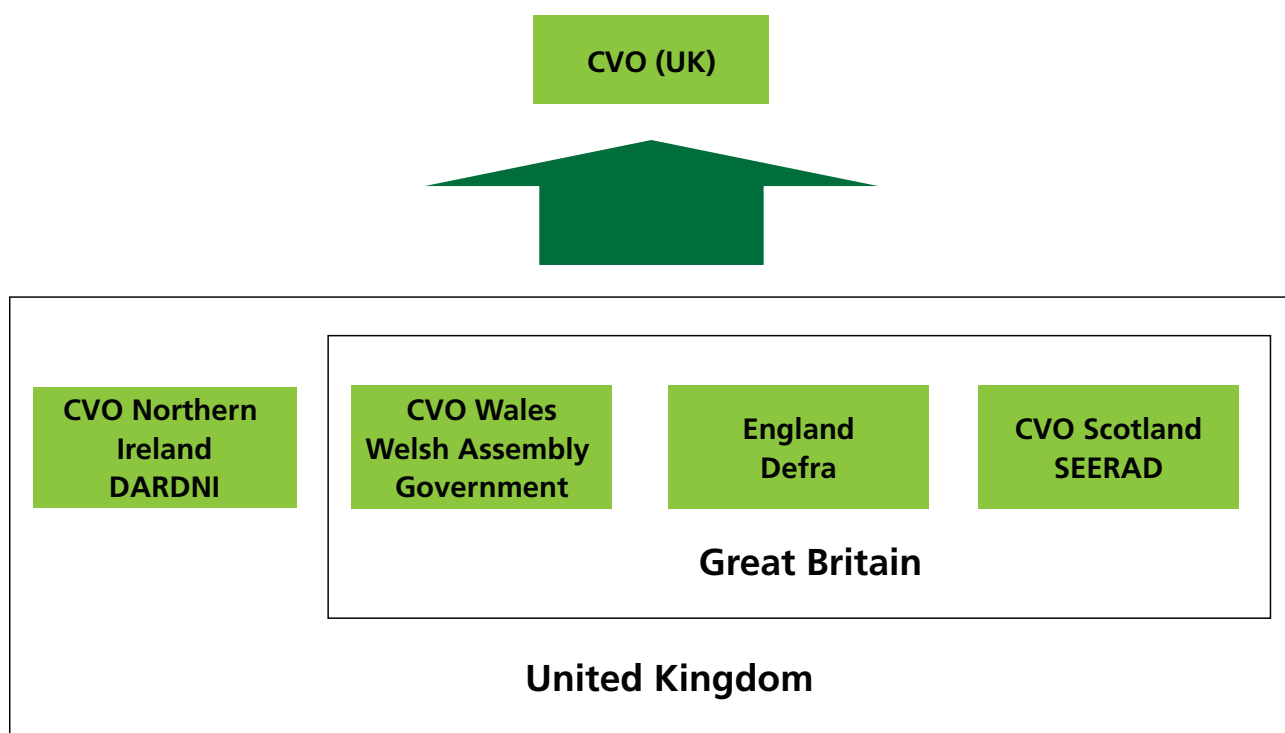
We have made excellent progress against the five strategic principles of the Animal Health and Welfare Strategy, which has been greatly assisted by the work of the separate advisory groups for England, Scotland and Wales. We have had particular success with the principle of working in partnership with our stakeholders, seen most evidently during Exercise Hawthorn and through the establishment of the UK Responsibility and Cost Sharing Consultative Forum on animal health and welfare.

I would like to record my gratitude to all my staff, colleagues across the devolved administrations, delivery bodies, departments, key stakeholder organisations and of course people involved at the frontline of the animal and livestock industry for their efforts during the past year and the huge achievements that we have delivered collectively. 2007 will, I am sure, be yet another challenging year but I am confident we are well equipped to meet these challenges effectively and efficiently.



Devolved Administrations

Animal health matters are fully devolved into the national administrations of the UK. The CVO (UK) meets with the devolved administrations of Scotland, Wales and Northern Ireland to ensure each Department is kept up to date on policy issues of mutual interest and help ensure a consistent policy approach across national boundaries. The CVO (UK) is responsible for animal health and welfare issues in England and overseeing developments in the UK, and representing the UK's interests internationally.



In terms of animal disease prevention, England, Wales and Scotland are treated as one epidemiological unit whilst Northern Ireland is linked more closely to the Republic of Ireland. Information and statistics on long term programmes working to eradicate animal diseases such as bovine TB, BSE and TSEs and to improve welfare are generally given on a GB basis.

However there are a number of working groups and initiatives which have representation across the United Kingdom such as the recently formed UK Responsibility and Cost Sharing Consultative Forum and the National Wildlife Crime Unit. As a result the information contained within this report predominantly covers Great Britain but in some instances the UK approach will be mentioned.

Executive Summary

The Animal Health and Welfare Strategy, launched in 2004 underpins the work to bring about long term improvements to the well-being of kept animals. Progress can now be seen under each of the five strategic principles. Central to the Strategy is effective collaborative working with our stakeholders. Throughout the year, this principle has been actively demonstrated and most evident during Exercise Hawthorn, discussions over disease prevention and during the Avian Influenza (AI) outbreaks where Government veterinarians, industry and key interest stakeholders all worked effectively in partnership.

Our relationship with industry has been enhanced by the establishment of the UK Responsibility and Cost Sharing Consultative Forum for animal health and welfare in which industry leaders and Government are working together to develop structures and mechanisms through which responsibilities and costs could be shared on animal health and welfare. Our relationship with delivery partners has also progressed during the year through the publication of the Eves review of the Animal Health and Welfare Delivery Landscape, assessing the roles and responsibilities of the main delivery partners, particularly the Local Authorities and the State Veterinary Service. The recommendations for improvement are currently being considered.

The Animal Welfare Bill received Royal Assent in November 2006 and the Animal Welfare Act 2006 came into force on 6th April 2007. It represents the most significant development in animal welfare legislation in nearly a century. Its aims are to ensure that those responsible for enforcing welfare laws can take action on owners who put animals at risk, even if the animals are not currently suffering. Similar legislation came into force in Scotland in October 2006.

We continued to take action on bovine TB (bTB) for instance by introducing a programme of pre movement testing to reduce the spread of the disease between herds in England and Wales. We have also introduced a new policy designed to improve the testing of cattle by extending the use of the gamma interferon diagnostic blood test alongside the TB skin test.

Bovine Spongiform Encephalopathy (BSE) cases continued to decline with a 62% drop in new cases confirmed by scanning surveillance and 46% drop in new cases confirmed by targeted surveillance. This continual decline helped secure the EU lifting trade restrictions on British beef in May.

The National Scrapie Plan continued, with an enhanced membership of the Ram Genotyping Scheme. The number of compulsory action orders issued under the Compulsory Scrapie Flocks Scheme reduced by 50% and the number of suspect cases of scrapie continued to decline during the year.

We worked with industry to develop strategies for increasing wider and more active Farm Health Planning. This included identifying initiatives to make farmers more pro-active in FHP and seconding staff in key cattle and sheep stakeholder organisations to embed FHP in delivery programmes. We have also made good progress in partnership with the pig industry in developing a pilot on the use of IT based farm health plans.

Government's contingency plan for a national outbreak of AI was tested during the year through Exercise Hawthorn. It provided an opportunity to explore how Defra's contingency plan works in tandem with those of the Devolved Administrations and the response plans of delivery partners.

Section A – Overview

Although the live exercise had to be curtailed due to a real AI incident in Scotland, it was a success in terms of the collaborative nature of the exercise which proved that we would be able to cope successfully with a real outbreak.

We conducted an independent review of the rules for livestock movements and identification in England and Wales. Work is currently underway to analyse the potential impact and cost to industry of the recommendations to simplify legislation and produce a unified approach to the movement of livestock. We were also successful in obtaining a derogation from the EU requirement to double tag sheep and goats.

To continue safeguarding our disease free status, we monitored imports of animals and animal products from countries within and outside the EU. International disease monitoring and risk assessments have a central role in increasing awareness and our defences. The creation of the National Wildlife Crime Unit will assist this by identifying any criminality on illegal importation of birds or other animal products.

Research and surveillance activities continued to be central to our evidence based policy making. Funding covered research in a wide range of animal health and welfare issues, although a significant proportion of this funding continued to be directed towards research on the control of transmissible diseases such as TSEs and bovine TB. The new Wildlife Health Strategy was introduced in June. It aims to manage the risk of wildlife diseases which have a role in new and emerging diseases that can pose a risk to the health of humans and animals, wildlife conservation and economic productivity.

During 2006, diseases affecting the national poultry flock were cause for concern and produced much public interest. An isolated incident of Highly Pathogenic Avian Influenza was discovered in a dead Whooper swan in Scotland and Low Pathogenic Avian Influenza was discovered on three poultry farms in Norfolk. During both cases contingency plans were engaged and control measures implemented. An isolated incidence of Newcastle Disease was also confirmed at a partridge farm in Scotland. Although the UK remained free of Bluetongue the outbreak in Central Europe during the latter part of 2006 signified a epidemiological development in the distribution of the disease to more northerly and traditionally cooler latitudes. This spread northwards may also highlight the influence climate may have on the distribution of vector borne disease and the importance of being prepared for the potential incursion of Bluetongue and similar exotic diseases previously confined to warmer climates.

Finally, 2006 saw the 5th anniversary of the start of the Foot and Mouth disease outbreak; the 10th anniversary of the first connection between BSE and CJD in humans and; the 20th anniversary of the first case of BSE.

2006 at a glance

February 2006

- New compensation scheme introduced for farmers in England whose cattle are affected by bovine tuberculosis (bTB), brucellosis or Enzootic Bovine Leukosis. Scheme extended to cover BSE in March in England, in June in Wales and in November in Scotland.
- Fifth anniversary of the confirmation of Foot and Mouth Disease.

March 2006

- Consultation and citizens panels held on badger culling in England concluded.
- First annual GB bovine tuberculosis conference held in March.
- New pre-movement testing rules came into effect in England, with the aim of reducing the risk of spreading bTB between herds.
- Tenth anniversary of announcement of a probable link between Bovine Spongiform Encephalopathy (BSE) and Creutzfeldt-Jakob's Disease (CJD).

April 2006

- Bob Bansback publishes his review of the National Fallen Stock Scheme. The review recognised that the Scheme is an excellent example of Government and Industry working in partnership. The Government is currently considering its findings.
- Following the discovery of a dead Whooper swan found floating in Cellardyke harbour, Scotland, at the end of March, an H5N1 virus was isolated and characterised as HPAI by the national reference laboratory at Veterinary Laboratories Agency (VLA) Weybridge. In response to the finding, the Scottish Executive implemented control measures required under the Commission wild bird decision.

May 2006

- EU Commission lifts export ban on British beef.
- UK confirmed low pathogenic H7N3 avian influenza on three farms near Dereham, Norfolk. Defra's exotic disease contingency plan was engaged to provide a local and national disease control centre to assist the State Veterinary Service in eradicating the disease. This was achieved rapidly with a policy of culling, movement controls, vigilant surveillance and cleansing and disinfection within the infected areas.
- New TB pre-movement testing rules come into effect in Wales.

Section A – Overview

June 2006

- David Eves publishes his report on the review of the Animal Health and Welfare Delivery Landscape.
- Consultation on proposals to amend the Welfare of Animals (Slaughter or Killing) Regulations 1995 to allow the use of gas as a killing method for birds outside of a slaughterhouse. The amendment came into force in April 2007.
- Wildlife Health Strategy introduced. It aims to manage the risk of wildlife diseases which play a role in new and emerging diseases.

July 2006

- Bill Madders publishes his report reviewing the rules for livestock movements and identification in England and Wales. The review contained 21 recommendations and is currently being analysed by Government.

August 2006

- Defra announces testing and additional surveillance on recent imports from Belgium, the Netherlands and Germany following the discovery of Bluetongue.

September 2006

- A single case of Equine Infectious Anaemia is confirmed on a premise in Northern Ireland. Work to trace and test horses who may have come into contact with the infected animal is initiated.

October 2006

- Government rolls out a new policy extending the use of gamma interferon (g-IFN) diagnostic blood test for bTB.
- National Wildlife Crime Unit (NWCU) launched. One of the unit's objectives is to identify any criminality on illegal importation of birds/or other animals/products, and to work closely with other agencies and with similar European Units to investigate information on alleged routes or illegal activity.
- Confirmed case of Newcastle Disease in Scotland. Protection and surveillance zones immediately established and movement restrictions extended.
- Presence of European Bat Lyssavirus type 2 is confirmed in Oxfordshire following the death of a female Daubenton's bat.
- New TB Advisory Group established to advise the CVO and Ministers on development and implementation of practical control policies in England.

November 2006

- The Products of Animal Origin (Third Country Imports) (England) Regulations 2006 came into force. This Regulation updates the previous version to take account of changes in the Community rules on importation of products of animal origin.
- Animal Welfare Bill receives Royal Assent. The Animal Welfare Act came into force on 6 April 2007. The Act introduces a duty on owners and keepers of all vertebrate animals, not just farmed animals, to ensure the welfare of animals in their care. Similar provisions are contained in the Animal Health and Welfare (Scotland) Act 2006, which was enacted in October 2006.
- Draft Animal Welfare Delivery Strategy published for public consultation; it sets out how animal welfare should be delivered in England over the medium term and defines clear roles and responsibilities for those involved in the care of animals.
- Twentieth anniversary of first BSE case in Great Britain.

December 2006

- First meeting of the UK Responsibility and Cost Sharing Consultative Forum.
- Defra permitted English zoos to vaccinate their birds against avian influenza following Commission approval for Defra's zoo vaccination plan. This was not in response to any increase in risk but was because of the vital role of English zoos in global conservation and the fact that zoos can contain the risks of vaccination through their high levels of biosecurity and veterinary surveillance.

Chapter 1: Animal Health and Welfare Strategy

Objective: to continue to direct Government and others in their work to bring about long term improvements to the well-being of Britain's kept animals.

Overview of work in 2006

- Introduction of framework indicators for Strategy implementation in England to demonstrate progress.
- Undertaking of surveys of veterinarians and farmers to identify the incidence of sheep scab in Scotland.
- Second Wales Animal Health and Welfare Annual Action Plan published.
- EU stakeholders conference held as part of an extensive consultation to inform the Community Animal Health Strategy.

The Animal Health and Welfare Strategy for Great Britain, launched in 2004, is intended to give this work a better clarity of purpose than in the past. In particular, the Strategy:

- gives a straightforward direction of where we should be heading, through its vision;
- makes clear that how we get there is just as important, recognising that we need different ways of working to avoid making the mistakes of the past;
- puts partnership working at the heart of the Strategy, and explicitly in its aim;
- defines other guiding principles on what is important in how we work together; and
- recognises the roles and responsibilities of different groups.

The Strategy underpins everything that Government does on animal health and welfare, sometimes explicitly and directly, at other times as underlying principles. A good example is the work, begun in 2006, to develop structures and mechanism through which responsibilities and costs of animal health and welfare could be shared. The Strategy identified the need for a fairer sharing of the costs of animal disease between industry and the taxpayer together with a greater sharing of responsibilities. The aim is also to promote the other Strategy principles of "prevention is better than cure" and a better understanding of the costs and benefits of animal health and welfare practices. Government and industry are developing work through the UK Responsibility and Cost Sharing Consultative Forum, which brings together senior Government and farming industry representatives to develop the structures and mechanisms, as well as through individual sectoral meetings.

Other examples, in this report, of Strategy principles being put into practice include:

“Working in partnership”

- the National Fallen Stock Scheme, recognised as an excellent example of a Government-industry partnership by Bob Bansback’s 2006 report.
- Government, veterinarians, industry and key interest stakeholders working in partnership to establish effective surveillance systems for avian influenza and maximise the country’s preparedness to respond where incidents emerged.
- Government and industry working closely together to lay the foundations for Europe’s lifting of the BSE-driven embargo on UK cattle and beef exports.
- cattle and veterinary representatives working in partnership with Defra to develop a national strategy to control Bovine Viral Diarrhoea.

“Promoting the benefits of animal health and welfare: prevention is better than cure”

- the ongoing implementation of the UK Veterinary Surveillance Strategy, which is improving our ability to detect threats and to prioritise surveillance activities.
- in Scotland there was increased uptake of the Animal Health and Welfare Management Programmes taking membership to around 4,500 farm businesses. Supported through the Scottish Rural Development Plan this initiative supports farmers in retaining vets to create farm health plans.

“Ensuring a clearer understanding of the costs and benefits of animal health and welfare practices”

- under the Veterinary Surveillance Strategy, the development of a prioritisation process, based on a comprehensive evidence base, to help Government focus its policies.

“Understanding and accepting roles and responsibilities”

- the draft Animal Welfare Delivery Strategy, which went out to consultation in 2006, is intended to clarify what the overarching Strategy means for animal welfare, providing a clearer definition of roles and responsibilities.
- completion of the Parliamentary passage of legislation in Westminster and Edinburgh to update the animal welfare legislation, notably to provide a duty of care on animal keepers.

“Delivering and enforcing animal health and welfare standards effectively”

- the work of Government to strengthen its relations with its delivery partners, including the State Veterinary Service and local authorities. David Eves’ review of this delivery landscape has been framed in the context of the Strategy.
- the maintenance and testing of contingency plans for diseases.

Section B – Initiatives

Putting partnership working into practice, the three administrations in Great Britain have stakeholder bodies to help guide Strategy delivery.

The **England Implementation Group** is an advisory body of experts, representing the range of interests, charged with overseeing delivery of the Strategy in England. During 2006, it has made notable progress in (among other things):

- promoting and supporting the creation of industry sector approaches to Strategy delivery, where industry representatives are developing species-specific strategies or plans for improving health and welfare;
- making recommendations, which it is taking forward with Government, for improving the implementation of the Veterinary Surveillance Strategy, in particular through better use of industry data.
- the introduction of a framework of indicators for Strategy implementation in England to help demonstrate progress.

In **Scotland**, the **Animal Health and Welfare Strategy Advisory Group** has continued to monitor progress against major disease priorities. The group, consisting of leaders of industry, the veterinary profession, welfare and research organisations in Scotland is chaired by CVO (Scotland).

Key achievements in Scotland in 2006 were:

- progress against industry disease targets, particularly industry led discussion on tackling BVD and the finalisation of a cattle health declaration for use at sales, providing clear and consistent information on disease status;
- undertaking of surveys of vets and farmers to identify the incidence of sheep scab. The Advisory Group's consideration of the survey results has led to the creation of a joint industry – Scottish Executive working group to consider the development and implementation of a compulsory treatment period;
- promoting knowledge transfer between animal keepers, industry and the research community by holding a conference bringing together work under the Animal Health and Welfare Strategy and the Scottish Executive funded animal health and welfare research programme; and
- production of a DVD promoting animal health and welfare management programmes and the benefits of good biosecurity. This DVD, produced jointly with industry and SAC, was sent to Scottish livestock keepers.

The **Wales Animal Health & Welfare Steering Committee** is chaired by and comprises of a number of industry representatives. During 2006:

- the Steering Committee held 3 meetings on 27 January, 25 May and 4 October. At these meetings presentations were given by Tamsin Dunwoody, Assembly Member and Chair of the Wales TB Action Group, Professor Wathes of the Farm Animal Welfare Council and Jeremy Blackburn of the British Poultry Council;
- the second Wales Animal Health & Welfare Strategy Annual Action Plan was published in April 2006. This Plan reports on progress made in 2005 – 06 and sets out targets for 2006 – 07. In recognition of the all embracing nature of the GB Strategy the Plan included pages on the aquaculture industry in Wales and Companion Animals;

- targets achieved during 2006 included the establishment of a biosecurity intensive treatment area in south west Wales, updated welfare codes and disease awareness campaigns;
- at the 25 May meeting the Steering Committee were asked to list what they believed to be the major animal health and welfare challenges facing Wales. The exercise will be used to guide future work and a report on the list's progress will be published in the Action Plan 2007 – 08; and
- a Database of Advisors on specialist topics including aquaculture, poultry, companion animals and equines was established to assist the Committee.

In Europe, the EU Commission is developing a **Community Animal Health Strategy**. This follows an independent review of EU animal health policies and extensive consultation, which included an EU stakeholders' conference in November 2006. The Strategy, which the Commission is aiming to publish in summer 2007, is expected to set out a prioritised, risk-based approach to future policy making and include ideas for an EU responsibility and cost sharing framework.

Chapter 2: Animal Welfare

Objective: to ensure that farmed and companion animals are treated humanely, both domestically and internationally. A significant development was the Animal Welfare Act – its aim is to improve animal welfare and to reduce unnecessary suffering.

Overview of work in 2006

- Animal Welfare Bill 2006 received Royal Assent.
- Introduction of new legislation for the welfare of animals in transport.
- Consultation on the use of gas as a means of killing birds outside a slaughterhouse.
- Animal Welfare Delivery Strategy published for public consultation.

Key Development in 2006

Animal Welfare Act 2006

In 2006 the Animal Welfare Bill completed all of its Parliamentary stages and received Royal Assent on 8 November. The Animal Welfare Act 2006 came into force on 6 April 2007.

Following public pressure to review animal welfare legislation, particularly the Protection of Animals Act 1911, Defra launched a public consultation in January 2002 and published the results in August 2002. In the light of this consultation, Defra published a draft Animal Welfare Bill on 14 July 2004. The House of Commons Environment, Food and Rural Affairs (EFRA) Select Committee completed pre-legislative scrutiny of the draft Bill, and published its report in December 2004. The Government responded to this report in March 2005, accepting many of the Committee's recommendations.

The Animal Welfare Act 2006 marks a milestone in animal welfare legislation. It brings together and modernises welfare legislation relating to farmed and non-farmed animals, some of which dates from 1911. Amongst other things, it introduced a duty on owners and keepers of all vertebrate animals – not just farmed animals – to ensure the welfare of animals in their care. The Act ensures that, where necessary, those responsible for the enforcement of welfare laws can take action if an owner is not taking all reasonable steps to ensure the welfare of their animal, even if it is not currently suffering.

The Animal Welfare Act is the most significant animal welfare legislation for nearly a century. It:-

- reduces animal suffering by enabling preventive action to be taken before suffering occurs;
- places on people who are responsible for domestic and companion animals a duty requiring them to do all that is reasonable to ensure the welfare of their animals;
- extends the existing power to make secondary legislation to promote the welfare of farmed animals to non-farmed animals, bringing legislation for non-farmed animals in line with that for farmed animals;

- deters persistent offenders, by strengthening penalties and eliminating many loopholes in the current system. For example, those causing unnecessary suffering to an animal will face up to 51 weeks in prison, a fine of up to £20,000, or both;
- simplifies the legislation for enforcers and animal keepers, by consolidating over 20 pieces of legislation into one;
- extends to companion animals the possibility to make welfare codes agreed by Parliament, a mechanism currently used to provide guidance on welfare standards for farmed animals;
- strengthens and amends current offences related to animal fighting;
- increases the effectiveness of law enforcement for animal welfare offences;
- increases from 12 to 16 the minimum age at which a child may buy an animal, and prohibit the giving of pets as prizes to unaccompanied children under the age of 16; and
- bans mutilations of animals, with certain specified exemptions.

The Government is now working on secondary legislation and Codes of Practice to be introduced under the new Act. Public consultation exercises on mutilations and tail-docking have been issued, and new regulations came into effect in April 2007. Working groups have been set up to discuss circus animals and greyhounds, as well as codes of practice for dogs, cats and primates and carry forward the animal welfare priorities identified during the passage of the Bill. Commitments to make secondary legislation in other areas such as animal sanctuaries will be met as soon as possible subject to available resources.

The Act covers England and Wales. Similar provisions are contained in the Animal Health and Welfare (Scotland) Act 2006, which was enacted in October 2006.

Progress in 2006

On Farm

Negotiations continued throughout the year on the European Commission's proposal for a Directive on the welfare of broiler chickens. Unfortunately, despite close liaison with stakeholders and other Member States, it was not possible to secure agreement on the new Directive. It is not clear whether the Directive will be progressed during future Presidencies.

During 2006, on behalf of Defra, ADAS ran a series of welfare campaigns to raise awareness on topics of welfare concern. Meetings, workshops, and on-farm demonstrations to review important welfare issues were held for farmers, managers and stock-keepers. These campaigns continued to create much interest within the industry, and were very successful in contributing to an increased awareness and better understanding of many of the key welfare issues.

Section B – Initiatives

Table B2.1: Advisory Campaigns carried out in 2006

Transport	<ul style="list-style-type: none"> The New Transport Regulations – How will they affect you?
Poultry	<ul style="list-style-type: none"> Pododermatitis and Broiler Litter Management Rearing Litter and Organic Replacement Pullets
Ruminants	<ul style="list-style-type: none"> Dairy Cow Lameness – Practical Solutions to a Persistent Problem
Pigs	<ul style="list-style-type: none"> Minimising Stress in Pig Production
Beef and Sheep	<ul style="list-style-type: none"> Beef Breeding Management

In support of enforcement action by the State Veterinary Service, ADAS visited individual farms to provide general advice on issues such as nutrition, housing, ventilation and pasture management.

Compliance with animal welfare legislation became a condition for receipt of payments under the Common Agricultural Policy in January 2007. Known as cross-compliance, this risk-based system of inspections was devised during 2006. SVS staff were trained to carry out this new type of inspection, and guidance was issued for both farmers and enforcers.

In 2006, the SVS carried out 6,407 welfare inspections at 3,834 visits (1.7 inspections per visit) on farms to check that legislation and welfare codes were followed. All complaints and allegations of poor welfare on specific farms were treated as a matter of urgency. The results of these inspections (which consist of up to 11 assessment criteria) are summarised to depict results for different enterprises and the different assessment criteria in **figures B2.1a** and **B2.2a**. In addition, the SVS carried out welfare inspections on a random basis and the results of these inspections are also summarised to depict results for enterprises and assessment criteria in **figures B2.1b** and **B2.2b** respectively.

Welfare assessments on farm by enterprise

Figure B2.1a: Assessments of the welfare of animals on farm in GB during complaint and target visits – enterprise (2006)

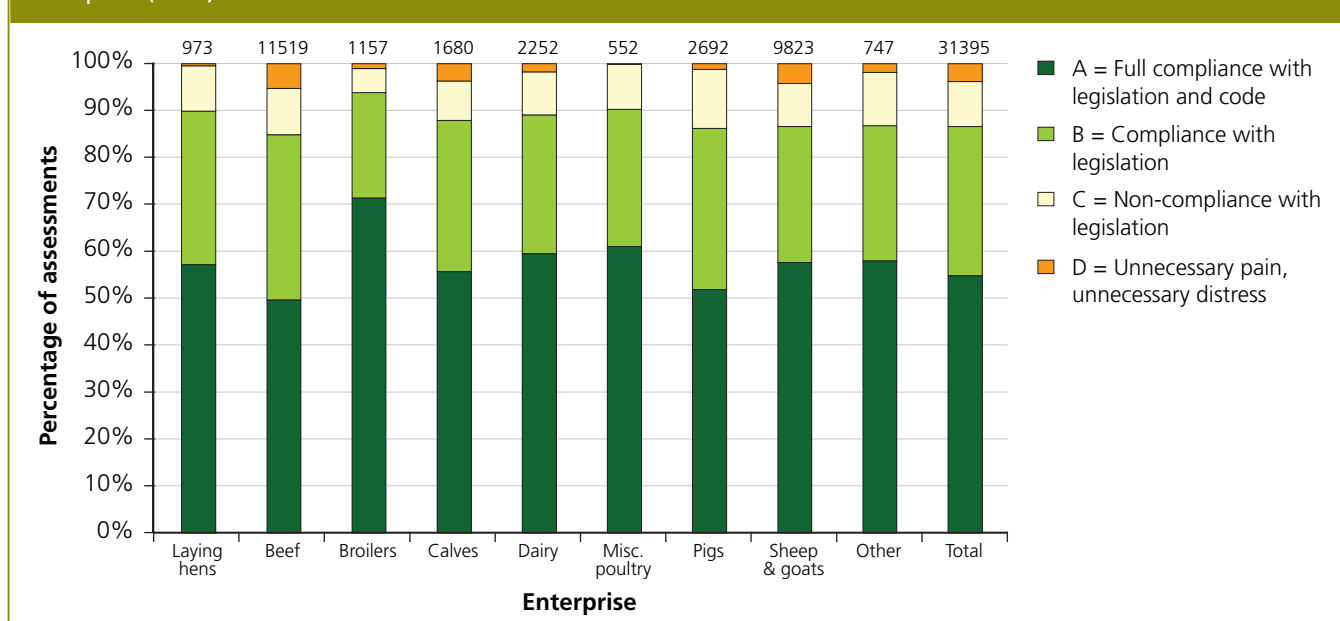
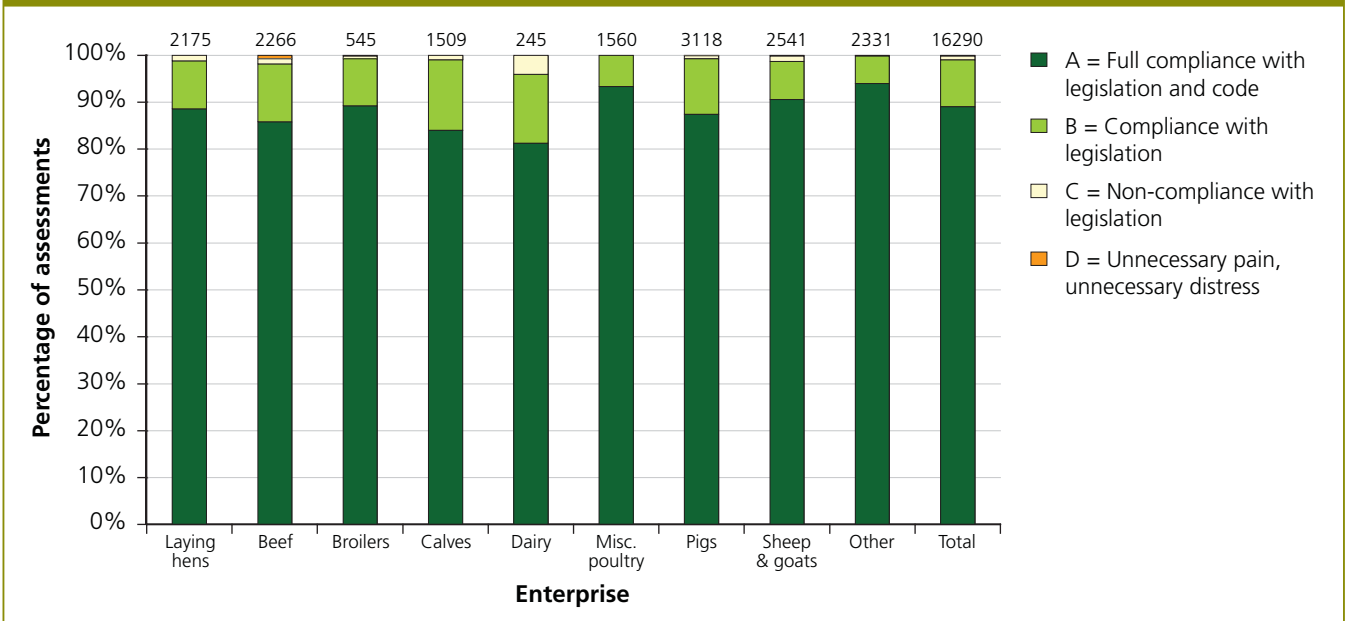
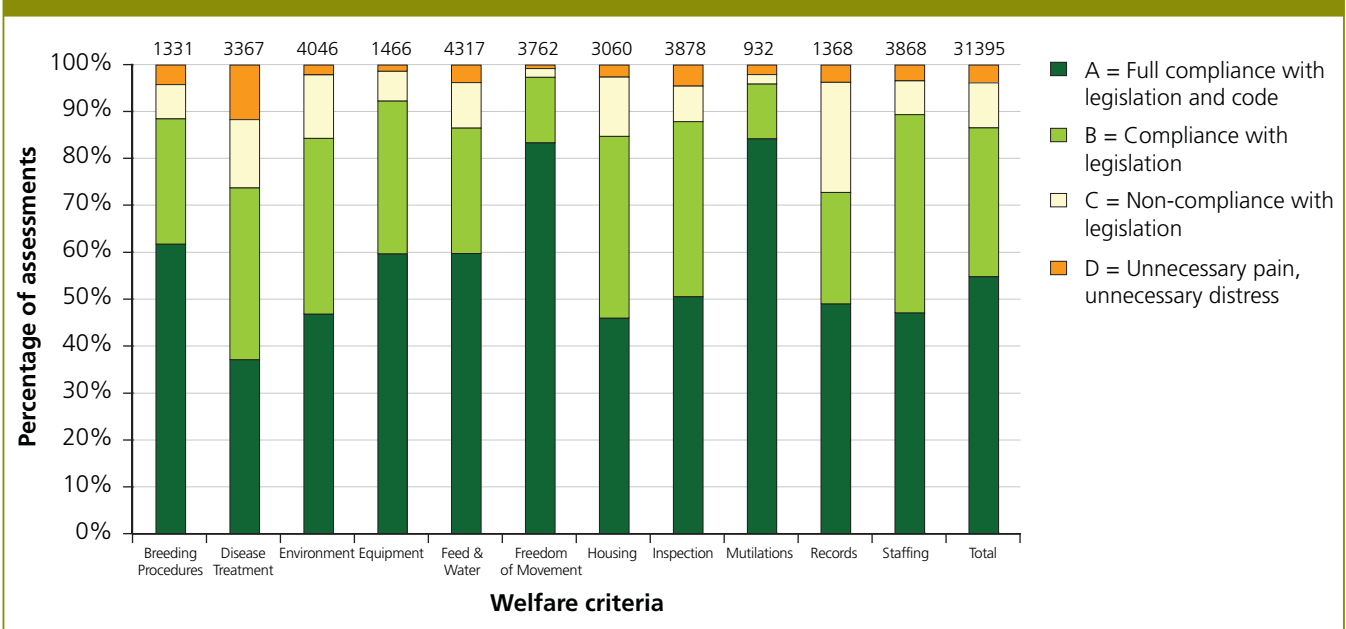


Figure B2.1b: Assessments of the welfare of animals on farm in GB during programme and elective visits – enterprise (2006)



Welfare assessments on farm by criteria

Figure B2.2a: Assessments of the welfare of animals on farm in GB during complaint and target visits – criteria (2006)



Section B – Initiatives

Figure B2.2b: Assessments of the welfare of animals on farm in GB during programme and elective visits – criteria (2006)



Transport

Defra continued to work in partnership with industry, animal welfare organisations and enforcement bodies to successfully implement EU Regulation 1/2005 on the welfare of animals during transport. One of the Regulation's requirements is that transporters must be authorised and vehicles approved for journeys over 8 hours. A public consultation was carried out in summer 2006 on the Regulation's application in England, following which the Welfare of Animals (Transport)(England) Order 2006 was made in time for the Regulation's entry into force on 5 January 2007. Guidance on the new requirements has been issued and can be seen at: <http://www.defra.gov.uk/animalh/welfare/farmed/transport/eu-transportreg.htm>.

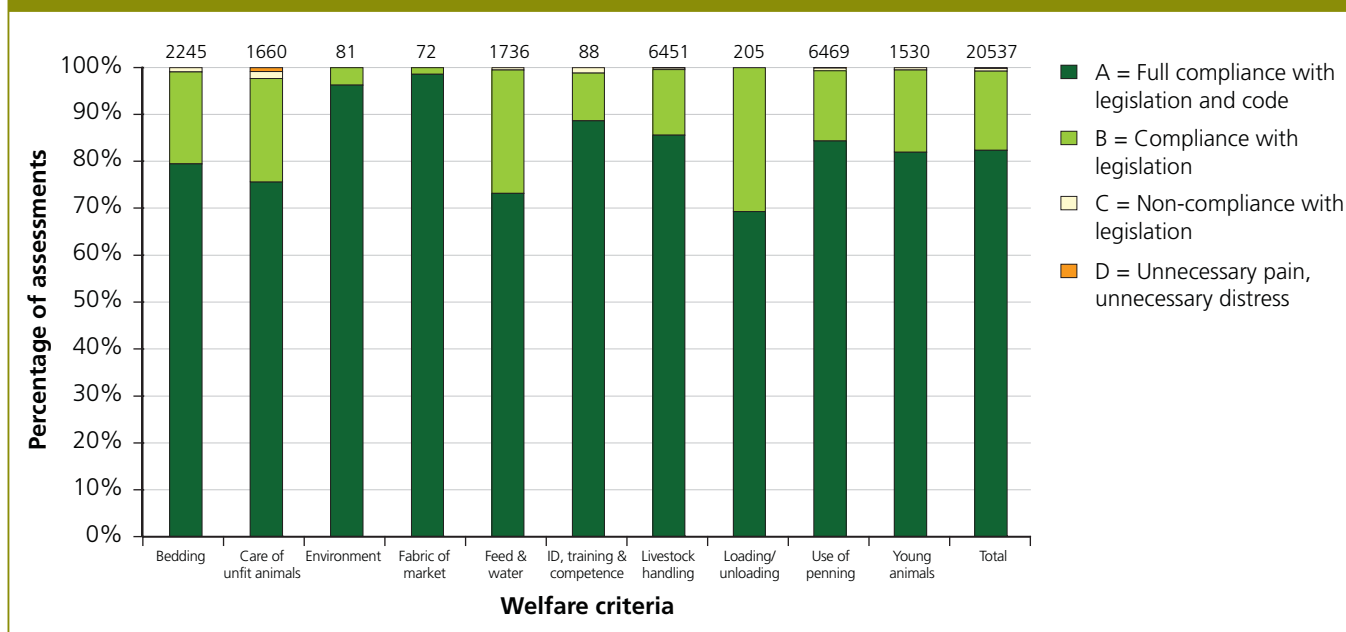
Arrangements were made for official tasks required under the new legislation to be carried out by the State Veterinary Service (SVS) with effect from January 2007. The SVS now authorises transporters under the new legislation and has taken over responsibility for approving journey logs for export journeys.

A quinquennial review of welfare during transport research and development was held during the year. The report will be published in 2007.

Markets

In 2006, the SVS carried out 6,706 welfare inspections at 2,569 visits (2.6 inspections per visit) at markets. A summary of the findings is shown in figure B2.3.

Figure B2.3: Assessments of the welfare of animals at markets in GB (2006)



Slaughter

Defra undertook a public consultation in 2006 on proposals to amend the Welfare of Animals (Slaughter or Killing) Regulations 1995 to allow the use of gas as a killing method for birds outside of a slaughterhouse. The intention was to provide producers with a humane method of killing large numbers of birds on the farm when emergencies restrict movements off farm and consequently threaten the welfare of the birds. It was also proposed to allow this method to be used for end of lay hens and end of life broiler breeder birds to improve their welfare. The amendment came into force in April 2007.

A revised code of practice on the welfare of poultry at slaughter was issued for public consultation, with a view to finalising the code in Summer 2007. Work continued on a similar code for red meat animals.

Animal Welfare Delivery Strategy

On 28 November 2006 Defra consulted on a new draft Animal Welfare Delivery Strategy. The Animal Health and Welfare Strategy (AHWS) for Great Britain, published in 2004, set out a vision for animal welfare and principles for the future roles of Government and stakeholders on health and welfare issues. Since its publication, stakeholders have requested more detail on what the strategy means for animal welfare, not only in terms of the Government's priorities for action but also its views on how welfare should be delivered.

The new draft Animal Welfare Delivery Strategy responded to that demand. It is consistent with the strategic vision set out in the AHWS, and aims to flesh out the principles contained within it. The consultation was also timely, given calls for an international declaration on animal welfare and the development by the European Commission of a Community Action Plan on the Protection and Welfare of Animals. The Delivery Strategy sets out the Government's vision for how animal welfare should be delivered in England over the medium term.

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It is aimed at stakeholders in all sectors, and it sets a clear direction of travel for achieving good welfare in the future. It proposes 5 specific Strategic Goals, focused on key areas, and explains that improvements in welfare will require a move towards greater partnership working, with an appropriate division of responsibility between Government and its stakeholders and an increased focus on innovative, non-regulatory delivery mechanisms. It defines clear roles and responsibilities for those involved in the care of animals, and it sets out principles for use in prioritising future work.

It was a non-statutory consultation (it was not required by law), but in keeping with the spirit of partnership working championed by the Strategy we are keen that the final published document is practical and robust, and supported by our partners. We were therefore seeking detailed input from stakeholders on both the general approach taken in the Strategy and on the detail of the document.

The Strategy does not contain detailed objectives, actions, timescales or funding requirements. These will be set out in a separate Action Plan, to be drafted in partnership with stakeholders and published as a stand-alone document during 2007. The Government hopes that, as part of this process, everyone with a responsibility for delivering animal welfare will identify and take responsibility for delivering their own commitments.

Farm Animal Welfare Council (FAWC)

FAWC is an independent advisory council established by Government in 1979. Its terms of reference are to keep under review the welfare of farm animals on agricultural land, at market, in transit and at the place of slaughter, and to advise the Government of any legislative or other changes that may be necessary.

Throughout 2006 FAWC made progress in the following areas:

In 2006 FAWC published a **Strategic Plan** which outlined the Council's aims, objectives and its work programme from 2006 to 2010. The Strategic Plan is intended to ensure that timely advice is provided to Government on farm animal welfare; the views of interested parties are taken into account in deciding on priority issues; and there is a clear focus on major studies while allowing FAWC the flexibility to be able to provide advice on new and immediate issues as they arise.

FAWC established a **new Working Group** to consider the economics of farm animal welfare which had been identified during the strategic planning process as a top priority. A study focussing on this will commence in 2007.

FAWC's three Standing Committees; Pigs, Poultry and Fish; Ruminants; and Ethics, Economics, Education and Regulation were set up in 2005. In 2006 the **scoping phases** for a number of **short studies** on topics identified in the Strategic Plan were initiated. These studies started in early 2007. The Standing Committees also provided advice to Government on issues which included the proposed Directive on the welfare of broiler chickens and the welfare implications of an outbreak of Avian Influenza; the implementation of the new EU Transport Regulation (EC) 1/2005; the EU Commission Working Document on a Community Action Plan on the Protection and Welfare of Animals 2006 – 2010; and a response to the Defra consultation on the Rural Development Programme for England 2007 – 2013.

In June 2006 FAWC published a **Report on Welfare Labelling** which highlighted the Council's views on the labelling of livestock-based products in relation to the welfare of farmed animals. It made recommendations to improve the welfare of farmed animals and consumer choice through appropriate labelling.

FAWC played an important role in the establishment of the **European Forum of Animal Welfare Councils (EuroFAWC)** which held its inaugural meeting in Germany in September 2006. The membership of EuroFAWC comprises advisory bodies to European Governments on animal welfare, with Government officials from countries without animal welfare advisory bodies and international organisations (CoE, OIE, the EC and EFSA) attending with observer status. The initial remit of the forum is to exchange best practice amongst advisory bodies and identify common animal welfare issues which need addressing.

FAWC reports and the strategic plan are available at: <http://www.fawc.org.uk>.

The Government's response to FAWC reports can be accessed at: <http://www.defra.gov.uk/animalh/welfare/farmed/fawc-resps.htm>.

International Activities

Whilst the rules on animal welfare that apply in the UK are primarily established within the EU, it is important to work in other international fora to promote improved global welfare standards and to influence international agreements or guidelines which may affect rules adopted in the EU or impact on international trade rules. We have continued to work with international organisations such as the Council of Europe and the World Organisation for Animal Health (OIE) on the welfare of animals. We have supported European Commission activity to achieve greater acceptance of animal welfare policies at World Trade Organisation (WTO) level.

A joint multidisciplinary workshop "Animal Welfare in Europe: achievements and future prospects" was held in November 2006, organised by the main EU welfare organisations. The objective of the workshop was to examine methods of better collaboration between the organisations in drawing up welfare rules and codes and to examine ways of improving animal welfare standards at operational level. The UK actively supported this workshop, which involved 49 countries and which agreed a declaration aimed at better co-ordination of the animal welfare work of the COE, EU and OIE.

EU

We supported the development of the Community Action Plan on the Protection and Welfare of Animals 2006-2010, which was agreed in June 2006. The Action Plan has a valuable role to play in raising the profile of animal welfare, and to provide a more strategic and joined up approach both within the Commission and the Community to ensure greater consistency of approach in improving animal welfare. We have also contributed to EU initiatives relating to the implementation of the Transport Regulation.

Council of Europe (COE)

The Council of Europe continues to develop welfare legislation and codes of practice and we have supported developments relating to the Conventions on the protection of farmed animals, and on the transport of animals. In particular:

- Negotiation of Council of Europe **technical protocols and welfare codes for animals during transport**. The timeline for agreement is uncertain;
- The Standing Committee of the European Convention for the Protection of Animals kept for Farming Purposes (T-AP) adopted the recommendations of **welfare of farmed fish** which provide a framework for the protection of fish which entered into force on 5 June 2006. The T-AP continued to develop and agree appendices on slaughter methods for fish on farm, and husbandry standards for salmon/trout and is working on appendices for other farmed species such as carp, sea bass and sea bream, eels and catfish;
- The T-AP also considered revisions of recommendations on **welfare of farmed cattle** which are planned for agreement and adoption in 2008;
- The recommendation on the **welfare of farmed rabbits** was also considered by the T-AP taking account of an Opinion from the European Food Safety Agency; and
- The T-AP also considered monitoring of compliance with COE Conventions on the **protection of farmed animals**.

World Organisation of Animal Health (OIE)

The UK continued to support the development of welfare guidelines by the OIE. In May four guidelines on animal welfare were agreed: welfare during transport by sea and by land; at slaughter; and at killing for disease control. These guidelines were subject to further consideration as further revision is planned. New draft guidelines for welfare of farmed fish were also considered.

The UK also contributed to various initiatives for training veterinary staff in aspects of animal welfare. We contributed to an EU sponsored course on slaughter and killing held in the UK, which attracted delegates worldwide, and on killing for disease control for the Bulgarian Veterinary Service and shared experience on the implementation of welfare rules with Croatian colleagues.

Chapter 3: Collaborative Working

Objective: to ensure that decisions and delivery mechanisms are robust to meet the demands of government. Central to this is the relationship with stakeholders and delivery partners.

Working with Industry

Sharing Responsibilities and Costs

The *Animal Health and Welfare Strategy for Great Britain* (AHWS) established an aim of developing a new partnership with Government and the farming industry with each playing their respective role in making a lasting and continuous improvement in the health and welfare of kept animals whilst protecting society, the economy and the environment from the effects of animal diseases.

In delivering the AHWS vision, a key objective is the sharing of animal health and welfare responsibilities between industry and Government to achieve better management of animal disease risks so that the overall risks and costs are reduced. This work has the potential to fundamentally change the relationship between industry and Government to the benefit of both. Through the sharing of responsibilities, industry will be able to take greater responsibility for its own decisions and will have greater ownership of the risks that they are best placed to manage. In addition, responsibility sharing will provide opportunities for improved regulation and a reduction in the regulatory burden. Government will benefit from increased industry involvement in decision making, which should mean a greater ability to respond and deliver outcomes in a more effective and efficient manner.

Taking the work forward

Success will depend on Government and industry working together to develop a step change to ensure that roles and responsibilities are more appropriately aligned in the future. Progress has been made in 2006 to take this work forward:

Establishment of the UK Consultative Forum

In order to maximise the benefits, this work needs commitment from both industry and Government to work in a true partnership to address how decisions relating to animal health and welfare activities are made and how costs are apportioned in future. A UK Responsibility and Cost Sharing Consultative Forum was established, comprising senior representatives of UK Agriculture Departments and key Farming Unions:

- Department of Food, Environment and Rural Affairs (Defra)
- Scottish Executive Environment and Rural Affairs Department (SEERAD)
- Department of Agriculture and Rural Development (DARD)

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- Welsh Assembly Government (WAG)
- National Farmers Union (NFU)
- Country Land & Business Association (CLA)
- NFU Scotland (NFU(S))
- National Farmers Union Cymru (NFU(C))
- Farmers Union of Wales (FUW)
- Ulster Farmers Union (UFU)
- Northern Ireland Agricultural Producers Association (NIAPA)
- Scottish Rural Property and Business Association (SRPBA)
- Stewart Houston (ex-Chair of the Joint Industry/Government Working Group on Sharing Responsibilities and Costs of Animal Disease)

The remit of the UK Consultative Forum is to develop structures and mechanisms through which responsibilities and costs could be shared on animal health and welfare. The Forum's first meeting was on 6 December 2006; and it meets monthly at venues across the UK.

Engagement with individual sectors

In addition to the high level UK Consultative Forum, engagement is planned, starting in January 2007, with individual livestock sectors (pigs, poultry, cattle, sheep, dairy etc), upstream/downstream industries (including veterinarians, markets and auctioneers, retailers and food processors (including abattoirs), related industries (including banks and insurance companies) and consumers. The work of these individual sectors/interests will identify specific issues in relation to how responsibility and cost sharing is taken forward with regard to the wide spectrum of people involved in animal health and welfare.

Consultation on the underpinning principles

In generating policy on responsibility and cost sharing, Government has established a set of principles that can be used to underpin the development of how responsibility and cost sharing is taken forward in the future across the entire range of the Government's animal health and welfare policies. These ten principles formed the basis of consultations published on 11 December 2006 across the UK. The development of these principles draws on an earlier England consultation by the Joint (Industry/Government) working group on sharing responsibilities and costs of exotic animal disease.

Principles of sharing responsibilities and costs for animal health and disease:

1. Preserving public safety and maintaining confidence both nationally and internationally in UK food production
2. Preserving the principles of the *AHWS* – especially that prevention is better than cure
3. Maintaining and improving capability to deliver policies
4. Sharing responsibilities so that achievement of animal health and welfare outcomes is effective and efficient
5. Sharing costs only where the activity provides a clear benefit or service to industry, taking account of affordability and of the impact on competitiveness
6. Focus cost sharing where it is most likely to reduce disease risk
7. Responsibilities should be shared at least where costs are shared
8. Accountability for both industry and Government
9. The regulatory burden should be reduced and measures simplified wherever possible
10. Consistency with EC and international developments

The consultation exercise, and associated stakeholder engagement, aims to ensure that all those who have an interest in developing policy on responsibility and cost sharing for animal health and welfare get an opportunity to influence policy in this area. The principles are published early in the policy formulation process to ensure that in developing specific options on responsibility and cost sharing as many views as possible can be taken into account.

The outcome of this consultation exercise will help influence the next phase of work when Industry and Government will develop a series of specific options for the sharing of both responsibilities and costs. The Government intends to issue these proposals in a detailed consultation in mid 2007.

Working with Delivery Partners

Relationships with stakeholders, devolved administrations and delivery partners continues to be central to the UK's ability to meet its strategic aims for animal health and welfare. In addition to those mentioned below staff regularly attend or act as secretariat to a number of working groups and advisory panels. Progress within these groups are highlighted in the relevant sections.

The CVO chaired the second **annual meeting with heads of delivery partners** in January 2006. This meeting allowed the CVO to share with delivery partners Defra's progress on emergency preparedness, initiatives in train to reduce administrative burdens and priorities for animal health and welfare. The group also discussed progress on developing partnership working nationally and locally. The meeting included representatives from: State Veterinary Service, Veterinary Laboratories Agency, Veterinary Medicines Directorate, Meat Hygiene Service, HM Revenue and Customs, Welsh Assembly Government, Meat & Livestock Commission, Local

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Authority Coordinators of Regulatory Services, Society of Chief Trading Standards Officers, Trading Standards Institute, Trading Standards, Chartered Institute of Environmental Health, Rural Payments Agency, Rural Affairs Government Office West Midlands, Food Standards Agency and Health Protection Agency.

At the end of 2006, a **new animal health and welfare delivery board for England** was established with membership made up of the CVO, the Chief Operating Officer, Animal Health and Welfare Directors and the Chief Executives of State Veterinary Service (SVS), Veterinary Laboratories Agency (VLA), Veterinary Medicines Directorate (VMD) and the Meat Hygiene Service (MHS). This Board met once during 2006. Its role is as a strategic focus for animal health and welfare with a responsibility to ensure improved networking through a collaborative framework with a view to maximising the effectiveness of delivery.

On 30 June, David Eves published his report on the **review of the Animal Health and Welfare Delivery Landscape**. This review looked at the roles and responsibilities of the main delivery partners in animal health and welfare, particularly Local Authorities (LAs) and the State Veterinary Service (SVS). The report made 55 recommendations for improvement. These recommendations are wide ranging, including clarity of roles and responsibilities, better coordination and improving performance management. Defra is considering how best to take these issues forward.

Defra has continued to work closely with the **State Veterinary Service** (SVS) during the year. The bi-monthly SVS Delivery Review Board provides the forum to discuss strategic animal health and welfare issues, including priorities. The SVS has been providing regular performance information against key targets.

Our relationship with **Local Authorities** continues to develop. Defra is represented at the quarterly national animal health and welfare panel meetings to discuss issues and matters of common interest.

The **Veterinary Laboratories Agency** (VLA) has continued to play a major role in supporting animal health and welfare work throughout the year. During the year it was agreed that the Triennial Agreement should be replaced by a Service Level Agreement and a broad consensus has been reached on this ready for April 2007.

A Service Level Agreement was signed with the **Meat Hygiene Service** (MHS) with the required outcomes and measurements more clearly stated. Improved governance arrangements between both parties were established with more regular meetings happening at both strategic and operational level. During the year, Defra has participated fully in the MHS Board Meetings and events.

Consumer Engagement

In addition to the relationships with industry and delivery partners, during 2006 the CVO continued to give special attention to building co-operation with consumer organisations. Consumer views are key to the animal Health and Welfare Strategy and we are using this partnership to share perceptions and contribute to balanced decision-making.

A joint paper was produced defining the role of consumer and lay representatives within the decision making process. In addition, a report was produced outlining consumer perception of which animal health and welfare issues posed the greatest risk. Consumer organisations and representatives were invited to be part of the policy-making process on BSE and on Avian Influenza. They have influenced policy on AI vaccinations, withdrawals and marking as well as the website advice and the helpline practice.

To help ensure consumer participation, four general meetings were held with consumer representatives in 2006. Explanatory cover notes accompanied relevant consultations to draw out the main consumer aspects. Minutes of the meetings and the relevant papers are published on the Defra website to keep the public informed about consumer engagement.

Information is available at: <http://www.defra.gov.uk/animalh/ahws/consumer/index.htm>

Chapter 4: Disease Control

Objective: to work towards the eventual eradication of diseases such as bovine TB, BSE and other TSEs such as Scrapie that affect the national herd by ensuring programmes are in place and that progress continues to be made.

Bovine Tuberculosis

Introduction

Bovine tuberculosis (bTB) is one of the most difficult animal health problems that Government and the farming industry currently faces in Great Britain, with an estimated GB herd incidence of 3.5% in 2006¹. Government is committed to developing policies based on the full range of evidence available. We are committed to working ever more closely with our delivery partners and stakeholders throughout the policy development and delivery processes, with the aim of bringing about a sustainable improvement in control of bovine TB (bTB) by 2015. Our goal is to slow down and stop the spread of bTB to low incidence areas and achieve a sustained and steady reduction in bTB hotspot areas. These principles are enshrined in the 2005 'Government strategic framework for the sustainable control of bovine tuberculosis in Great Britain'. Although bTB incidence in Great Britain fell in 2006 compared to 2005, this followed a steady increase over recent years. The incidence of bTB remains at a high level and Government is committed to finding the best way to combat the disease, backed by the available evidence and taking account of all interested parties, including taxpayers.

Overview of work on bTB in 2006

- Defra spent just over £99 million on the bTB programme in the financial year 2005/06.
- 5.5 million cattle tuberculin tested in more than 50,000 herd tests. 28% of herds in GB subject to annual test.
- Pre-movement testing phase 1 rolled out to England and Wales in March and May, respectively.
- New policy on the wider use of Gamma Interferon testing for bTB in cattle effective in GB from October.
- Table valuation compensation scheme introduced in England in February. (Wales and Scotland retain previous system of individual valuations).
- The first annual GB TB Conference held in March.
- A new TB Advisory Group established in October.
- The Randomised Badger Culling Trial (RBCT) fieldwork concluded in March.
- Consultation and citizens panels held on badger culling in England from December 2005 to March 2006.

¹ Confirmed new TB herd breakdowns as a % of tests of unrestricted herds tested in GB between 1 Jan – 31 December 2006. (Total new TB breakdowns as a % of tests on unrestricted herds in the same period = 6.2%.)

The scale of the problem

The TB statistics presented in this report provide a detailed picture of the occurrence of the disease in cattle herds in England, Scotland and Wales during 2006. These should be regarded as provisional because they reflect the data for 2006 extracted from the various databases during March 2007, which will be subject to small adjustments in subsequent months. Other TB statistics published by Defra can be accessed online at: <http://www.defra.gov.uk/animalh/tb/stats/index.htm>.

Table B4.1: Bovine Tuberculosis figures for 2006. Total figures for 2005 shown for comparison.

	2005	2006 ¹	Change
Registered cattle herds (year end)	91,103	89,461	- 1.8%
Tuberculin herd tests	43,627	50,327	+ 15.4%
Tuberculin tests on unrestricted herds (including pre-movement tests)	46,470 (46,564)	56,637 (77,728)	+ 21.9% (+ 66.9%)
New TB herd incidents (breakdowns)	3,673	3,512	- 4.4%
Herd incidence of new TB breakdowns (including pre-movement tests)	7.9% (7.9%)	6.2% (4.5%)	- 21.5% (-42.7%)
New confirmed TB herd incidents	2,086	1,993	- 4.5%
Herd incidence of confirmed new TB breakdowns (including pre-movement tests)	4.5% (4.5%)	3.5% (2.6%)	- 21.6% (-42.7%)
Total cattle tested with the tuberculin test	4.85m	5.48m	+ 12.9%
Total tuberculin test reactors identified	25,769	19,963	- 22.5%
Reactors per 10,000 tests	53	36	- 31.4%
Other cattle slaughtered	4,312	2,279	- 47.1%
Apparent prevalence at year end (herds under restrictions due to a TB incident, excluding herds with overdue tests)	3.5%	3.6%	+ 4.3%
Percentage of cattle herds officially TB free at year end	93.7%	92.3%	- 1.4%
Total cattle tested with the gamma interferon blood test	13,877 ²	7,979	- 42.5%

1 Provisional data

2 Includes 4,950 tests carried out as part of the gamma interferon field trial, which ended in October 2005.

Provisional statistics for 2006 – herds

An overview of the cumulative TB surveillance statistics for 2006 compared with the equivalent data for 2005 is presented in **Tables B4.1 and B4.2**. 15.4% more tuberculin herd tests were carried out in GB in 2006 than in 2005 (50,327 against 43,627). Similarly, 12.9% more animals received a tuberculin test in 2006 than in the previous year (5.48 against 4.85 million). The number of tuberculin herd tests completed each month continued to show a marked seasonal pattern similar to that of previous years, with 61% of all tests completed in the period from 1 November through 30 April.

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Table B4.2: TB surveillance statistics for GB, for the period 1 January to 31 December 2006.² Total figures for 2005 shown for comparison.

Country	Cornwall	Devon	Somerset	Dorset	Gloucestershire	Avon	Wiltshire	Hereford & Worcestershire	Shropshire
1. Total number of cattle herds registered on Vetnet	3,458	5,545	2,912	1,526	1,453	1,028	1,452	2,830	2,792
2. Total number of herds under TB restrictions due to a TB incident some time during the year	624	1,192	242	134	367	137	181	640	217
3. Herds under TB restrictions at the end of the year (due to a TB incident, overdue TB test, etc)	551	953	200	113	214	101	122	590	226
4. Percentage of herds under TB restrictions at the end of the year	15.9	17.2	6.9	7.4	14.7	9.8	8.4	20.8	18.1
Tuberculin tests carried out									
5. Total number of herd tests ³	3,694	6,411	2,056	988	1,824	941	1,357	2,918	1,994
6. Total number of cattle tests	486,481	901,088	245,746	135,985	223,585	108,592	185,343	318,072	257,579
New TB incidents (breakdowns) started in 2005									
7. Total new herd TB incidents	345	647	162	80	215	89	121	355	149
8. Number of confirmed TB incidents	182	405	77	33	156	50	68	235	102
9. Number of unconfirmed TB Incidents	153	226	80	43	58	39	48	108	47
10. Number of unclassified TB Incidents (pending culture results)	10	16	5	4	1	0	5	12	0
11. Percentage of all new TB incidents that were confirmed	52.8	62.6	47.5	41.3	72.6	56.2	56.2	66.2	68.5
12. Total number of confirmed new incidents in 2005	251	445	68	41	183	45	68	252	87
Cattle slaughtered under the TB orders									
13. As Reactors, including unresolved (three-times) Inconclusive Reactors	1,657	4,113	844	311	1,347	301	629	2,506	812
14. As Inconclusive Reactors	29	84	14	20	34	12	22	55	20
15. As Direct Contacts	6	271	57	5	125	12	9	256	45
16. Total number of cattle slaughtered for TB control reasons	1,692	4,468	915	336	1,506	325	660	2,817	877
Other animals									
17. Slaughterhouse cases reported to the SVS by the MHS (number confirmed)	106 (68)	13 (3)	128 (86)	1 (1)	31 (20)	42 (21)	21 (13)	17 (9)	130 (74)

² Provisional data as extracted from Defra's Animal Health Database (Vetnet) on 15 March 2007. Subject to change as more data becomes available.

Table B4.2: TB surveillance statistics for GB, for the period 1 January to 31 December 2006.² Total figures for 2005 shown for comparison.

Country	West Region	North Region	East Region	Total England	Total Wales	Total Scotland	Total Great Britain (2006)	Total Great Britain (2005)
1. Total number of cattle herds registered on Vetnet	22,996	24,604	12,732	60,332	14,680	14,449	89,461	91,103
2. Total number of herds under TB restrictions due to a TB incident some time during the year	3,734	613	179	4,526	1,264	58	5,848	5,682
3. Herds under TB restrictions at the end of the year (due to a TB incident, overdue TB test, etc)	3,070	937	522	4,529	2,050	277	6,856	5,748
4. Percentage of herds under TB restrictions at the end of the year	13.4	3.8	4.1	7.5	14.0	1.9	7.7	16.3
Tuberculin tests carried out								
5. Total number of herd tests ³	22,183	10,504	3,580	36,267	10,615	3,455	50,327	43,627
6. Total number of cattle tests	2,862,471	1,026,076	252,379	4,140,926	1,094,255	240,285	5,475,466	4,849,206
New TB incidents (breakdowns) started in 2005								
7. Total new herd TB incidents	2,163	415	134	2,712	756	44	3,5673	3,673
8. Number of confirmed TB incidents	1,308	199	57	1,564	411	18	1,993	2,086
9. Number of unconfirmed TB Incidents	802	202	75	1,079	296	25	1,578	1,578
10. Number of unclassified TB Incidents (pending culture results)	53	14	2	69	49	1	119	9
11. Percentage of all new TB incidents that were confirmed	60.5	48.0	42.5	57.7	54.4	40.9	56.8	56.7
12. Total number of confirmed new incidents in 2005	1,440	207	31	1,678	395	13	n/a	2,086
Cattle slaughtered under the TB orders								
13. As Reactors, including unresolved (three-times) Inconclusive Reactors	12,520	1,654	400	14,574	5,220	169	19,963	25,769
14. As Inconclusive Reactors	290	21	46	357	101	9	467	56.8
15. As Direct Contacts	786	229	46	1,061	719	32	1,812	3,744
16. Total number of cattle slaughtered for TB control reasons	13,596	1,904	492	15,992	6,040	210	22,242	30,081
Other animals								
17. Slaughterhouse cases reported to the SVS by the MHS (number confirmed)	489 (295)	145 (84)	46 (27)	680 (406)	81 (34)	29 (10)	790 (450)	591 (390)

3 Does not include pre-movement tests or any individual animals tests

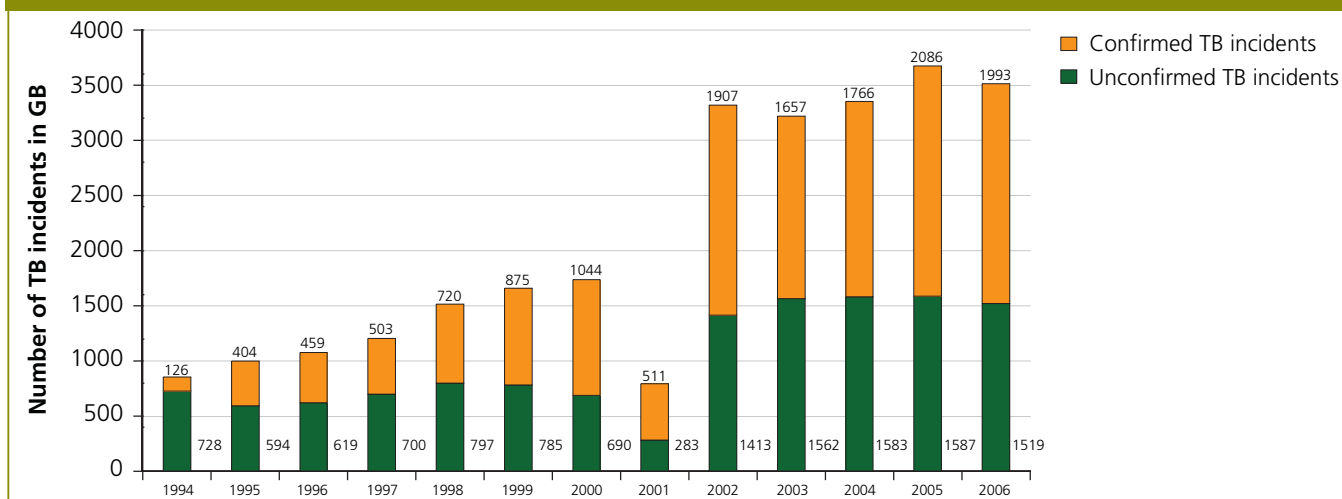
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A total of 5,848 cattle herds were under restrictions due to a TB incident at some time during 2006, compared with 5,682 herds in 2005. This figure includes new herd incidents plus any incidents disclosed in previous years and continuing into 2006. At 31 December 2006 a total of 6,856 cattle herds were under bTB restrictions, representing approximately 7.7% of the national cattle herd. This is to say that, at the end of 2006, 92.3% of the cattle herds in GB were considered officially TB free (OTF).

There was a considerable drop in the number of new bTB incidents in first 4 months of 2006 compared to 2005. However, since May the number of new incidents reported in 2006 was slightly up on 2005. **Figure B4.1** shows that, overall, the total number of new bTB incidents declared in GB fell from 3,673 in 2005 to 3,512 in 2006 (a reduction of 4.4%). This figure includes new bTB incidents first disclosed through pre-movement testing. Infection was confirmed by *post mortem* examination and/or detection of *Mycobacterium bovis* in 1,993 incidents, compared with 2,086 incidents in 2005 (down 4.5%).

It remains to be seen whether this decline in total and confirmed bTB incidents observed in 2006 represents a long-term reversal in the increasing trend observed since the mid-1980s or just a temporary improvement. The reduction in new bTB incidents in 2006, combined with the increase in the number of tests on unrestricted herds throughout the year, equated to a 22% drop in the incidence of herd breakdowns relative to 2005. When pre-movement tuberculin tests (which by definition are carried out in unrestricted herds and can disclose reactors) are included in the denominator, the drop in bTB incidence was 43%. Nevertheless, the incidence of bovine TB continues to be unacceptably high by EU standards.

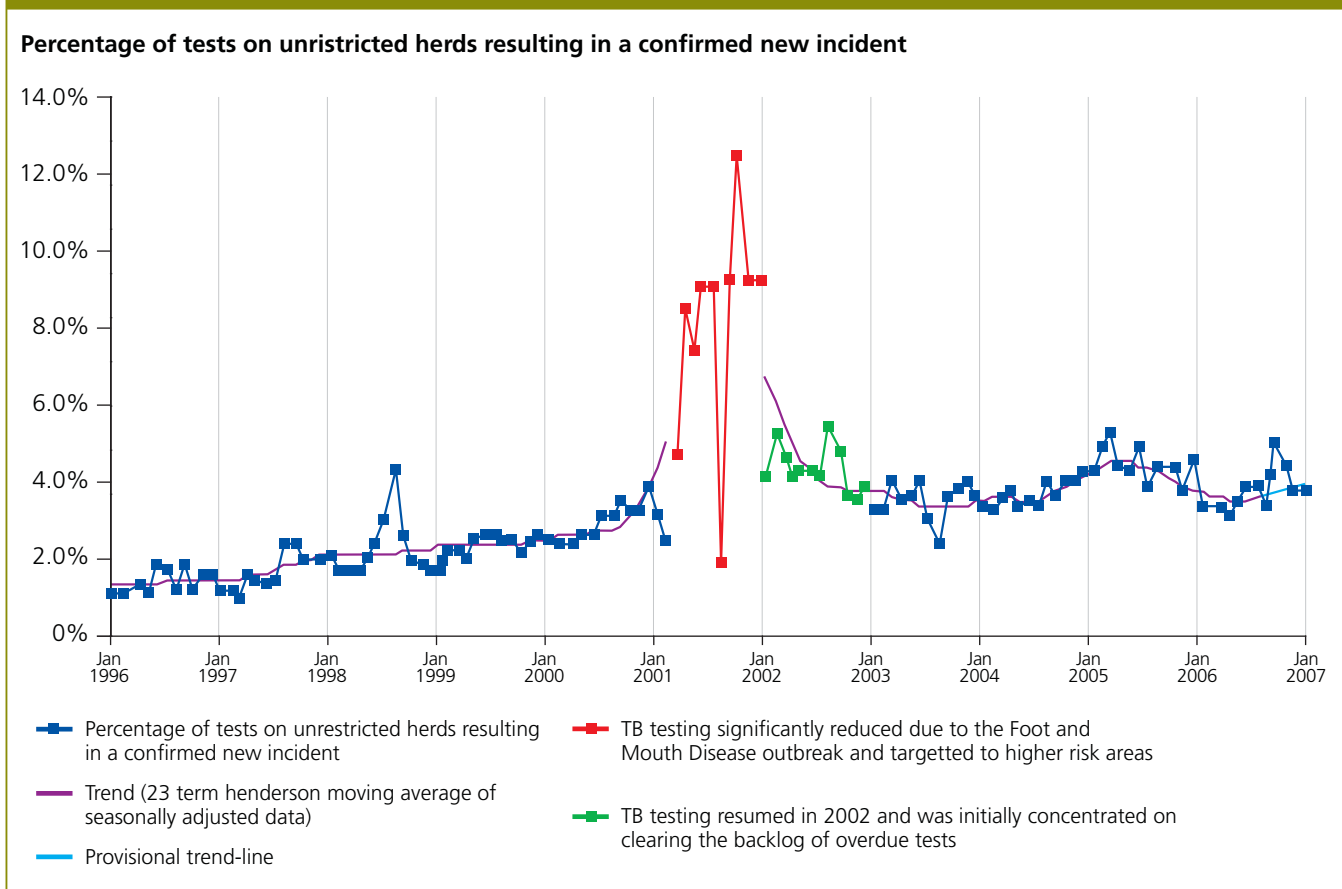
Figure B4.1: Evolution in the number of TB incidents disclosed annually in GB since 1994. (Note: the national TB testing programme was drastically reduced in 2001 due to the Foot and Mouth Disease outbreak, leading to a marked fall in the number of reported breakdowns in that year)



The proportion of all new TB incidents that were confirmed by culture or pathology-confirmed in 2006 (56.7%) was almost unchanged on 2005 (56.8%).

Figure B4.2 shows the long-term trend for confirmed bTB incidence in unrestricted cattle herds, expressed as the monthly percentage of tests in unrestricted herds that have resulted in confirmed TB breakdowns since 1996. In this chart the number of confirmed bTB herd breakdowns is divided by the number of tests carried out each month, to account for seasonal variations in the frequency of testing. In 2006, for every 100 tests in unrestricted cattle herds, an average of 3.5 new confirmed incidents were detected, compared to 4.5 and 3.6 for 2005 and 2004, respectively.

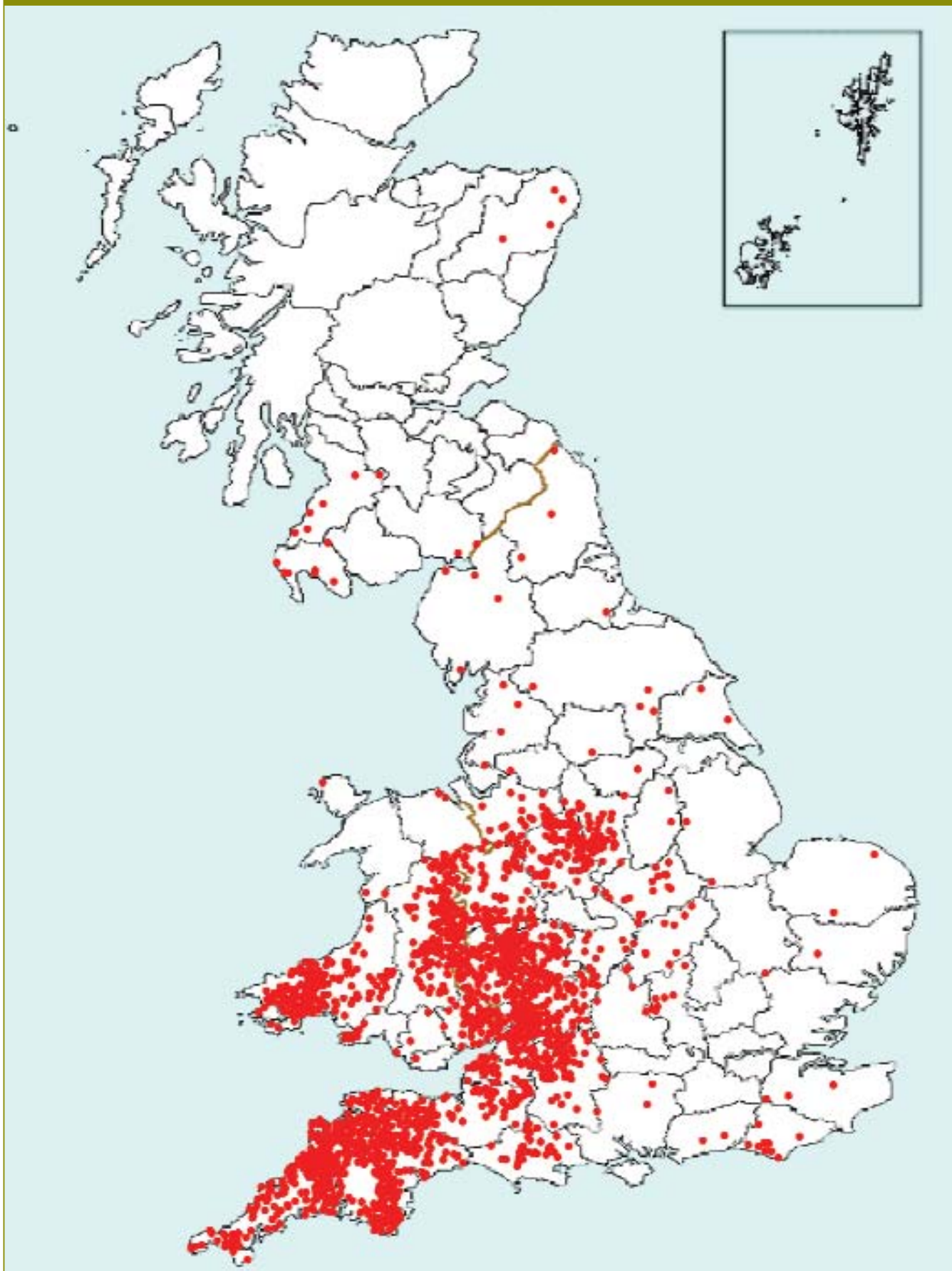
Figure B4.2: Monthly incidence of confirmed TB breakdowns and trend for the period January 1996 to December 2006, expressed as the percentage of tests on unrestricted herds that triggered confirmed new incidents.



As depicted in **Figure B4.3**, the southwest and west of England and mid and south Wales accounted for the vast majority (95%) of confirmed new incidents. The incidence of confirmed herd breakdowns was highest in Gloucestershire, followed by Hereford and Worcestershire, Devon, Cornwall and Gwent. Despite the overall decline in the number and incidence of herd breakdowns in 2006, Shropshire, Somerset, Powys and Scotland all experienced an increase in the number of herd breakdowns recorded. There were 44 new TB incidents in Scotland in 2006, of which 18 (41%) were confirmed, compared to 37 (13 confirmed) in 2005. Of those 18 confirmed incidents, six associated with infected cattle imported from Ireland, two were attributed to the purchase of cattle from Wales, one from England, one from the Isle of Man and eight had an obscure origin (still under investigation). Thirteen of the 18 confirmed incidents involved herds located in the Southwest of Scotland. By contrast, the number of new TB incidents recorded in Cumbria continued to steadily decline from a peak of 70 (15 confirmed) in 2003 to 41 (12 of which confirmed) in 2005 and 28 (6 confirmed) in 2006.

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Figure B4.3: Geographical distribution of cattle herds with new TB incidents in 2006 (only confirmed incidents shown).



Provisional statistics for 2006 – animals

A total of 19,963 cattle were slaughtered as tuberculin test reactors in 2006, down 23% on the total for 2005 (25,769 reactors) (**Table B4.2** and **Figure B4.4**). This represented 0.36% of the 5.48 million animal tests carried out during the period (i.e. 36 reactors per 10,000 animal tests or one reactor per for every 275 cattle tested). This is the lowest reactor rate recorded in GB since 2000 (**Figure B4.5**). Disease was confirmed by post mortem and/or bacteriological examinations in 38% of all reactors, a proportion significantly greater than that in 2005 (34%). The average total number of reactors per bTB incident disclosed or continuing in 2006 was 3.4, compared with 4.5 in 2005.

Fig B4.4: Number of skin test reactors slaughtered in GB since 1995, broken down by the animals' region of origin⁴

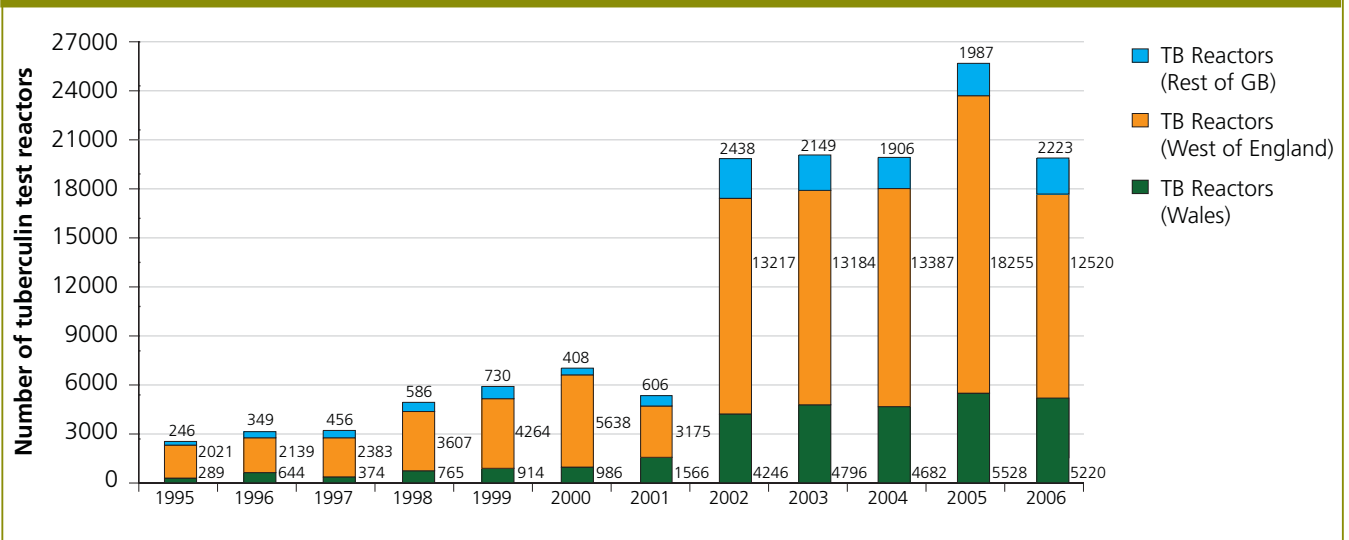
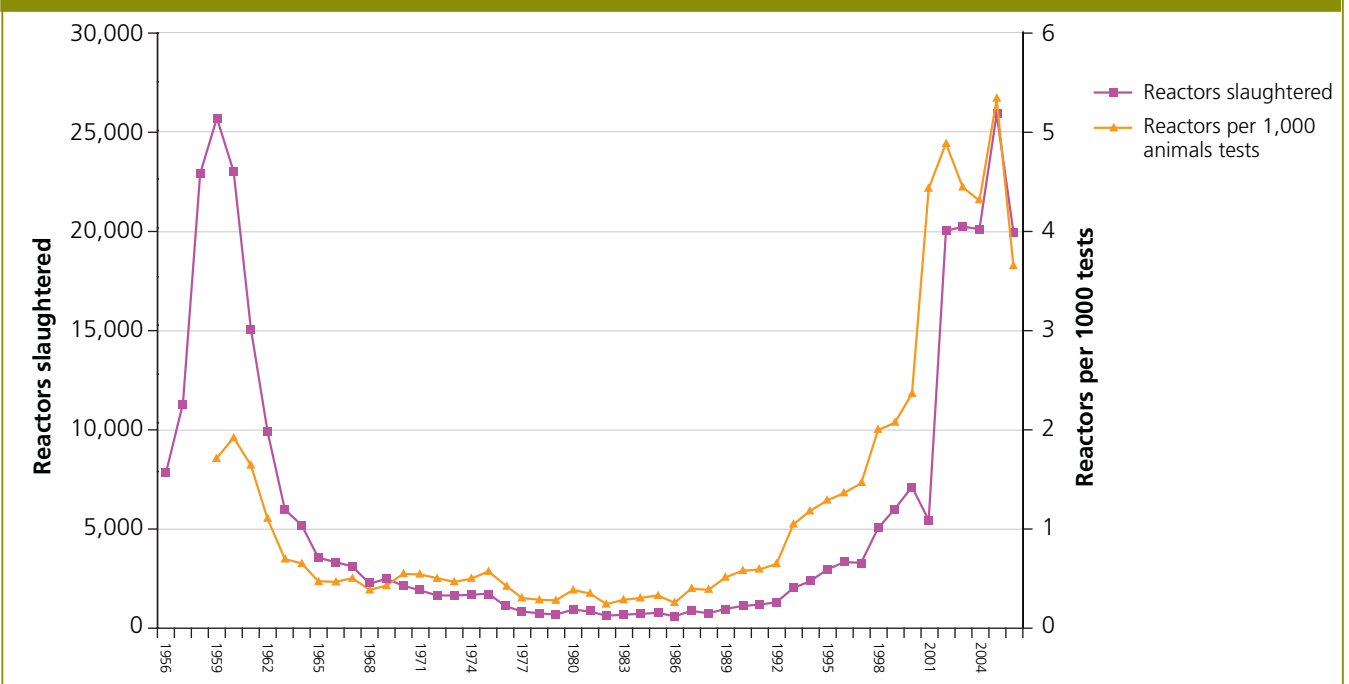


Fig B4.5: Number and rate of tuberculin test reactors disclosed annually in Great Britain



4 West of England' comprises the counties of: Cornwall, Devon, Somerset, Dorset, Avon, Gloucestershire, Wiltshire, Herefordshire, Worcestershire and Shropshire.

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Figure B4.6 illustrates the marked geographical variations in the density of tuberculin test reactors and slaughterhouse cases disclosed across GB in 2006.

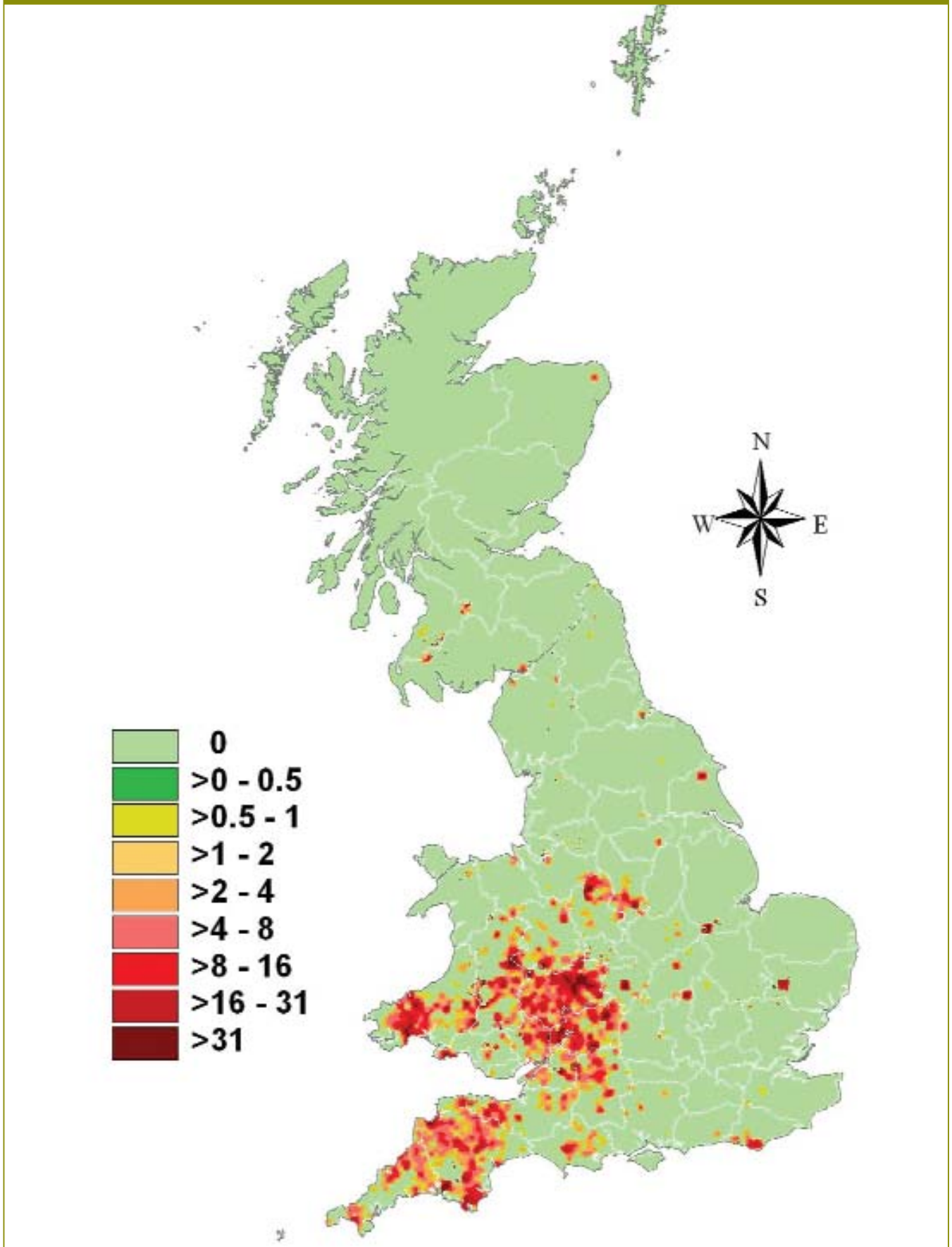
The numbers of cattle slaughtered as inconclusive reactors and direct contacts also decreased from those recorded in 2005, bringing the total number of cattle slaughtered for TB control purposes in 2006 to just over 22,000 (**Table B4.2**). The Meat Hygiene Service reported suspicious TB lesions in 852 cattle carcasses inspected in the course of normal meat production. The results of bacteriological cultures performed at the Veterinary Laboratories Agency on those slaughterhouse case submissions are shown in **Table B4.3**.

Table B4.3: Culture results for bovine carcasses presenting with suspicious TB lesions at routine meat inspection and notified by the MHS⁵ (slaughterhouse cases).

Culture result	2005		2006	
	No. of cases	%	No. of cases	%
<i>Mycobacterium bovis</i>	508	64.14	553	64.91
Negative	193	24.37	171	20.07
<i>Actinobacillus</i> spp.	80	10.10	93	10.92
<i>M. avium</i>	4	0.50	0	0
<i>M. kansasii</i>	0	0	1	0.12
<i>M. smegmatis</i>	1	0.13	0	0
Contaminated	3	0.38	0	0
Unclassified	3	0.38	2	0.23
Further investigation/still processing	0	0	32	3.76
Total slaughterhouse case submissions processed by VLA	792	100	852	100
New TB incidents on cattle farms triggered by <i>M. bovis</i> -positive submissions	390	NA	412	NA

5 Results are for individual cattle carcasses sampled in 2006, with the 2005 data shown for comparison.

Figure B4.6: Density of reactors and slaughterhouse cases identified in confirmed TB incidents across GB per 1,000 cattle (density smoothed with the quadratic universal kriging technique with a 5km grid and a 20km radius)



Developments in GB during 2006

Bovine TB Testing

New routine tuberculin skin testing intervals for animal health parishes in England and Wales became effective on 1 November 2006, following the annual review conducted by the SVS. A map of the new parish testing intervals appears in **Figure B4.7** and the headline figures have been summarised in **Table B4.4**. The net result of the changes was a shortening of testing intervals in 886 parishes in England and Wales, whereas 448 parishes had their testing interval extended.

Table B4.4: Results of the parish testing interval review 2006 – percentage of cattle herds under different routine tuberculin testing intervals after November 1st.

Herds under each testing frequency	England	Wales	Scotland	GB
Annual	31.2%	41.1%	0.0%	27.8%
Two-yearly	14.4%	28.3%	0.0%	14.3%
Three-yearly	0.4%	0.0%	0.0%	0.3%
Four-yearly	54.0%	30.6%	100%	57.6%

The “zero tolerance” approach to overdue tuberculin tests initiated in February 2005 continued throughout 2006. At the end of 2006 there were 3,627 overdue tuberculin herd tests across GB triggering herd movement restrictions, compared to the 2,595 tests overdue at the end of 2005. Approximately one quarter (937) of those tests had been overdue for at least 6 months.

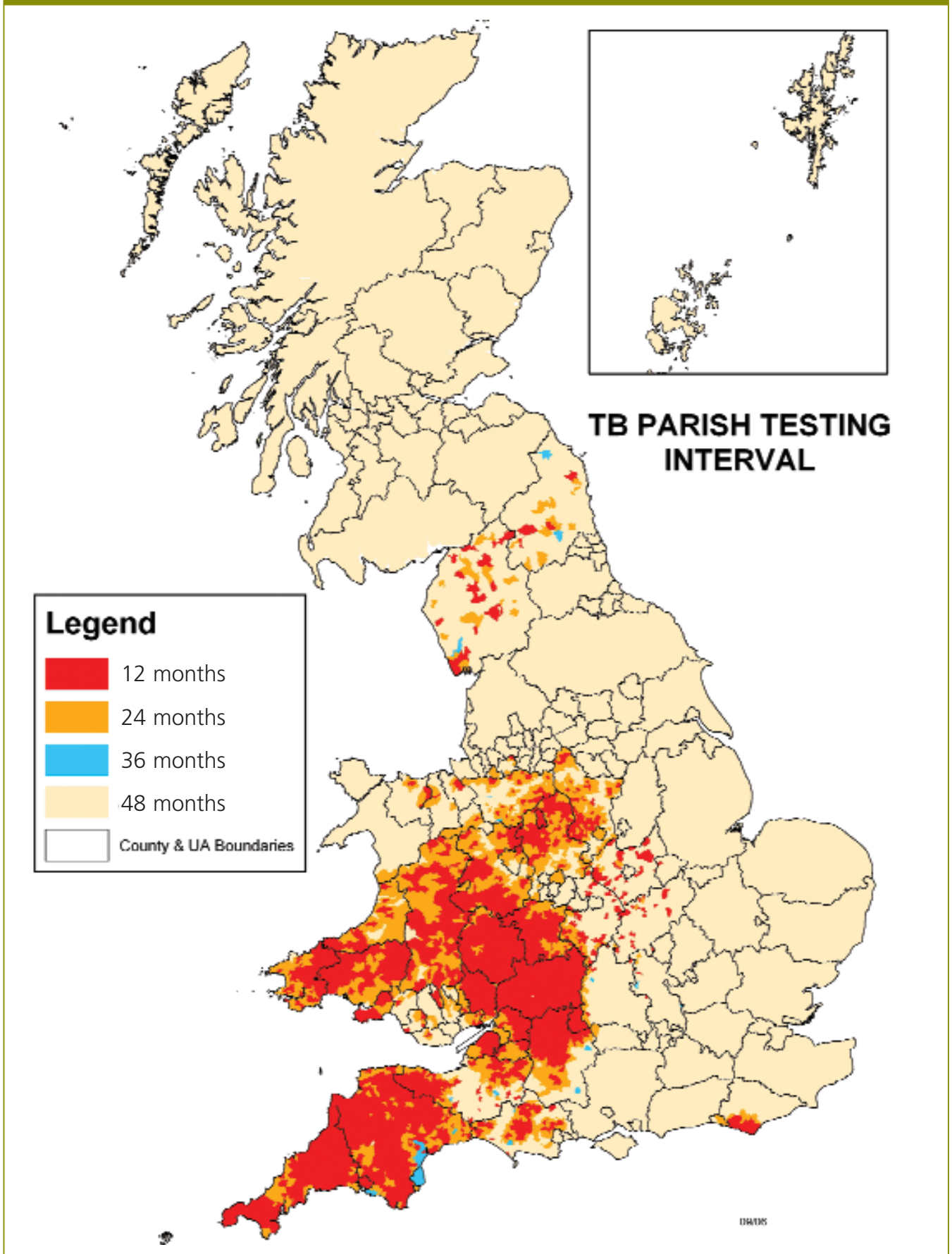
Review of TB Testing Procedures

The DNV Consulting (Comer II) report on review of TB testing procedures in England and Wales was published in August 2006. While the report concluded that no factors were identified to fundamentally undermine the validity of the testing process as a disease control measure, it highlighted that routine deviations from the Manual of Procedures (MoP) by SVS and private veterinarians were common and almost universal. The report recommended a review of the MoP, introduction of on-going monitoring/audit/assurance procedures, a review of IT solutions, and improved equipment used in TB tests. A Working Group was established in December 2006 to co-ordinate the response to these recommendations.

Pre and Post Movement Testing

On 27 March 2006, new pre-movement testing rules came into effect in England, with the aim of reducing the risk of spreading bTB between herds. It became a statutory requirement that cattle over 15 months old moving out of a 1 or 2 yearly tested herd have tested negative to a TB test within 60 days prior to the movement, unless the herd or the movement is exempt. Routine TB surveillance tests also qualify as pre-movement tests if the animals are moved within 60 days after that test. Other than these routine TB tests, pre-movement tests are arranged and paid for by the herd owner. All cattle herd owners in England were sent a guidance booklet; *TB in Cattle – Reducing the Risk*, a letter from the SVS and a postcard guide to explain the new rules.

Figure B4.7: Map of parish testing frequencies in GB, effective from 1 November 2006 (Source: SVS).



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The pre-movement testing measures introduced in 2006 constitute phase 1 of a 2-phased approach to introduce pre-movement testing. A phased introduction was used to allow sufficient time for herd owners and the veterinary profession to adjust to the new requirements. Phase 2, which extends pre-movement testing to all cattle over 42 days old came into effect from 1 March 2007.

Monitoring of the impact of pre-movement testing is ongoing. Although it is too early to expect to see significant impacts, early evidence is encouraging. Farmers are generally complying with the policy and TB reactors are being identified. The costs and benefits of pre-movement testing are being kept under review in light of experience.

The Welsh Assembly Government introduced pre-movement testing in Wales on 2 May 2006. The policy is the same as that in England. Phase 2 was also rolled out in Wales on 1 March 2007.

The Scottish Executive Environment and Rural Affairs Department introduced compulsory pre- and post- movement testing requirements for Scotland in September 2005. This legislation requires Scottish keepers to ensure that all cattle over 6 weeks old, originating from 1 or 2 yearly testing parishes, have been pre-movement tested within 60 days prior to movement. Assuming this has been done, Scottish keepers then need to make arrangements to conduct post-movement testing of these cattle 60-120 days after arriving on their holding.

Gamma Interferon Testing

On 23 October 2006, the Government introduced a new policy designed to improve the testing of cattle for bTB, by extending the use of the gamma interferon (g-IFN) diagnostic blood test across GB. An estimated 50,000 tests will be completed each year, trebling previous usage rates. The g-IFN test is now used more widely, alongside the tuberculin skin test, to improve the sensitivity of the testing regime and identify more infected animals more quickly and help to speed up the resolution of confirmed TB breakdowns.

Under this policy the g-IFN test is applied mainly in 3 and 4 yearly testing parishes in an attempt to ensure that infection in such areas does not become established in cattle or wildlife. The test also continues to be available to use as a disease control tool in TB hotspot areas. The use of the g-IFN test is mandatory, to enhance sensitivity and detection of infected cases, in the following prescribed circumstances:

- All confirmed new incidents in 3 or 4 yearly tested herds, including those that fail to resolve through repeated skin tests or where complete or partial de-population is contemplated
- Confirmed incidents (with visible lesions) failing to resolve, despite taking bio-security precautions in 1 and 2 yearly tested herds, including those herds where a complete or partial de-population is contemplated
- Used at the first inconclusive reactor (IR) retest in unresolved IRs in herds in 1 and 2 yearly tested herds.

Additionally, the test can be used occasionally to enhance specificity in the following limited circumstances:

- Non-specific reactor procedure for unconfirmed breakdowns in 2, 3, or 4 yearly tested herds
- Suspected fraudulent reactors

Where the use of the gamma interferon test is prescribed by Government, testing costs are met by the Government.

Table B4.5: Gamma interferon testing in Great Britain in 2006¹

	England	Wales	Scotland	GB Total
1 January – 22 October 2006				
Herds sampled	15	9	1	25
Animals sampled	2,056	508	146	2,710
Gamma interferon positive animals	162	31	1	194
% of animals identified as gamma interferon positive	7.9	6.1	0.7	7.2
23 October – 31 December 2006				
Herds sampled	89	61	2	152
Animals sampled	4,308	861	100	5,269
Gamma interferon positive animals	216	50	3	269
% of animals identified as gamma interferon positive	5.0	5.8	3.0	5.1
2006 Total				
Herds sampled	104	70	3	177
Animals sampled	6,364	1,369	246	7,979
Gamma interferon positive animals	378	81	4	463
% of animals identified as gamma interferon positive	5.9	5.9	1.6	5.8

¹ A new gamma interferon testing policy came into force on 23 October 2006. Data provided by the Veterinary Laboratories Agency.

Lay Testing

A pilot programme was introduced under the Veterinary Surgery (Testing for Tuberculosis in Bovines) Order 2005 to help establish whether suitably trained non-veterinarians (lay-testing) could successfully carry out the intra-dermal tuberculin skin test. The pilot was undertaken by SVS animal health staff, under veterinary supervision, from eleven Animal Health Divisional Offices. A total of 21,177 tests were carried out on 268 herds.

A report on the pilot has been completed by the SVS and will be used to help inform future decisions regarding the possible extension of lay TB testing, in full consultation with stakeholders.

Cattle Compensation

Following 2 public consultations, a new compensation scheme for farmers in England whose cattle are affected by bTB, brucellosis or Enzootic Bovine Leukosis was introduced on 1 February 2006. The scheme was extended on 1 March 2006 to cover BSE. The new system was developed following the findings of a number of independent reports showing that the previous compensation system resulted in significant and widespread over-compensation. The Government had no choice but to take corrective action, not least to better protect the taxpayer.

Compensation is now determined primarily using table values, which reflect the average sales price of bovine animals in 47 different categories. The categories are based on the animal's age, gender,

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type (dairy or beef) and status (i.e. pedigree or non-pedigree). Wherever possible, the Government has taken account of the detailed concerns raised by stakeholders and, following consultation, made significant enhancements to the system. In particular, the proposed number of table valuation categories was increased from 29 to 47, with separate tables for commercial and pedigree cattle.

The Cattle Compensation Advisory Group was set up in 2006, to help monitor the new compensation arrangements. The Group includes representatives from the NFU, valuer organisations, pedigree beef sector, pedigree dairy and organic sectors and the Meat and Livestock Commission.

Table B4.6: Number of stock slaughtered and compensation paid in Great Britain 2002-2006

	2002		2003		2004		2005		2006	
	No.	£	No.	£	No.	£	No.	£	No.	£
Bovine Tuberculosis (cattle) ⁶	23,744	23,138,512	23,821	38,216,249	23,064	33,785,023	30,081	42,844,857	22,242 ⁷	28,169,269 ⁷
Bovine Tuberculosis (deer) ⁶	Unknown	1,200	Unknown	1,923	Unknown	38,089	78	107,250	37 ⁷	1,800 ⁷

Collaborative Working

First annual bTB conference for Great Britain

The first annual bTB conference for Great Britain took place in March 2006. The aim of the event was to present a balanced coverage of bTB issues affecting Great Britain, with a clear focus on exchange of information with stakeholders on bTB developments and provide opportunities for discussion. The programme covered issues including cattle controls, wildlife issues and research. The meeting was well attended with approximately 60 stakeholders representing farming, veterinary, wildlife and conservation interests, the meat industry, markets and local enforcement authorities, as well as other interested parties, from across Great Britain.

TB Advisory Group

The aim of the TB Advisory Group is to advise the CVO and Ministers on development and implementation of practical control policies in England, working with interested organisations to take account of wider views and help promote a shared understanding. The Chairman was appointed by Ministers in July 2006. A small number of members were then appointed by the CVO and the Group was established in October 2006. These have been recruited from different backgrounds and interests to ensure a balance of experience across farming, veterinary, conservation and welfare issues. The Group will help deliver the aims of the 'Government strategic framework for the sustainable control of bTB in Great Britain' by:

- advising on development and implementation of bTB control policies in England providing in particular a practical perspective;

6 Includes reactors, dangerous contacts and inconclusive reactors

7 Provisional figures

- working with interested organisations to take account of wider views in developing advice and also to help promote a shared understanding; and
- responding to requests for advice from Ministers and the CVO, and identifying and advising on issues of concern to interested organisations.

The Group is working to build links with the England Implementation Group, Wales TB Action Group and interested parties in Scotland.

Wales TB Action Group

The Wales TB Action Group was established in November 2004 with representation from a wide range of stakeholders including farming and animal welfare organisations. The Group advises the Welsh Assembly Government on measures that could be taken to contain the spread of bTB and which are compatible with the overarching Government strategic framework for the sustainable control of bTB in Great Britain. The Group has met on a regular basis since it was established and, in response to its initial recommendations, the Assembly Government announced in December 2005 a number of specific initiatives on bTB including the introduction of phase 1 of pre-movement of cattle on 2 May 2006 and an all-Wales survey of badgers found dead in Wales to establish whether they are carrying the disease supported by a regional survey of badger populations in Wales. Both the final report of the regional badger population survey and the interim report of the badger found dead survey were made available to the Group in 2006 in order to inform its further advice to the Assembly Government.

TB Husbandry Working Group

Maintaining good biosecurity on farm and good animal husbandry practices is important in reducing the risk of cattle contracting bTB. In England in July 2006, the Bovine TB Husbandry Working Group was setup to identify appropriate and practical measures on good husbandry (including biosecurity) to help reduce the risk of bovine TB transmission from cattle to cattle and between badgers and cattle. The aim was to develop advice based on research, existing best practice and on the ground experience. It was also important to consider how these could be communicated. Members were drawn from farming, veterinary, wildlife and conservation organisations, as well as Government officials in England and Wales. The group met several times during the year to produce a best practice advice document on husbandry measures. This uses scientific evidence, veterinary and practical on-farm experience to enable farmers to make informed judgements about what measures they could take. The guidance is available at www.defra.gov.uk/animalh/tb/abouttb/protect.htm

TB and badgers

Work of the Independent Scientific Group on Cattle TB (ISG), including Randomised Badger Culling Trial (RBCT)

Previous CVO Reports have provided details on the background to, and design of, the RBCT. <http://www.defra.gov.uk/animalh/cvo/report/index.htm>

Culling in the proactive element of the RBCT ended in October 2005 and surveying work ended in March 2006. The ISG oversees the RBCT, and in February 2006 (online December 2005) they published the first results from the proactive element of the Trial in the journal *Nature*⁸. The ISG subsequently provided Ministers with updated analyses, which showed that, when compared to control areas, culling badgers, as conducted in the RBCT, significantly reduced cattle TB incidence in the areas culled, but that there was a significant increase in the disease in herds in areas outside the edges of culled triplets.

The ISG published two further papers in 2006. The first, published in the *Journal of Applied Ecology*⁹ in February, reported on a study that mapped the home ranges of RBCT badgers and demonstrated that culling badgers profoundly alters the spatial organisation of badgers on land where culls occur and on nearby land. The second, published in October in the *Proceedings of the National Academy of Sciences*¹⁰, highlighted the impact that badger culling and the suspension of TB controls during the Foot and Mouth Disease had on the increasingly prevalence of bovine TB in badgers and cattle.

In the first half of 2007 the ISG will be publishing a number of other scientific papers relating to the Trial, and expect to be in a position to present their final report to Ministers in the Spring. The report will be published in June to coincide with the conclusion of the ISG's work at two public open meetings later that month.

Finance

RBCT expenditure for the Financial Year 2005/06 amounted to £7.2 million.

RBCT audits

The RBCT has been the subject of a number of independent audits and the findings have been published by Defra together with Government responses¹¹.

In 2006 the Fifth Independent Audit on the Humaneness of Badger Dispatch procedures was published. www.defra.gov.uk/animalh/tb/publications/pdf/humaneness-audit06.pdf

Finally, an audit of data handling in the RBCT was completed in 2006 and will be published in 2007.

8 Positive and negative effects of widespread badger culling on tuberculosis in cattle

9 Effects of culling on badger *Meles meles* spatial organization: implications for the control of bovine tuberculosis

10 Culling and cattle controls influence tuberculosis risk for badgers

11 <http://www.defra.gov.uk/animalh/tb/culling/p5aud.htm>

Badger Road Traffic Accident (RTA) Survey

The purpose of the RTA survey was to estimate the prevalence of *M. bovis* infection in badgers within and outside RBCT areas, in 5 counties of high incidence (Cornwall, Devon, Gloucestershire, Herefordshire and Worcestershire), compared with 2 of lower incidence (Shropshire and Dorset), to validate the usefulness of badger RTA TB prevalence as an indicator of the TB status of badgers generally. The numbers of badgers collected, however, have been too few at the local (parish) level to allow meaningful analyses.

The study found that when using routine tests, TB was detected, on average, in around one in seven badger carcasses. In July 2006 the ISG published the results of the RTA for 2002-2005, and these can be found at <http://www.defra.gov.uk/animalh/tb/publications/index.htm>

However, the ISG feels the RTA data can only provide useful comparison at County level, and then only in relative rather than absolute terms.

Consultation on badger culling in England

A public consultation was held from December 2005 to March 2006 which considered the question of a badger culling policy in areas of high TB incidence in cattle. The consultation document presented a summary of the scientific evidence, the balance of costs and benefits, and considered the implications of a badger cull for animal welfare and conservation.

Over 47,000 responses to the consultation were received. 95% of all respondents were opposed to a cull of badgers; however opinion was much more evenly divided amongst organisations with a particular interest in TB. Of the interested organisations which responded, 50% were opposed to a cull whilst 41% supported culling badgers to control the disease. The remaining 9% of responses were neutral. A series of Citizen's Panels were held during the consultation period to consider the issue. There was an even division of opinion amongst the individuals involved for and against badger culling. However, in group discussions the view was marginally in favour of a cull as part of a multi-faceted strategy but with many conditions attached such as improved biosecurity and continued research into TB vaccines for cattle and badgers.

Ministers have continued to engage with stakeholders to develop a way forward in regard to the issue of badger culling.

Biosecurity Intensive Treatment Area in South West Wales

On 25 July 2006, the Welsh Assembly Government announced a number of measures to help control bTB in Wales including the implementation, of a pilot biosecurity Intensive Treatment Area (ITA) in South West Wales. The biosecurity ITA seeks to facilitate the implementation of appropriate biosecurity practices in cattle herds with the aim of reducing the risk and impact of a herd breakdown. The ITA uses the local private veterinary surgeons to work with the herd owner to assess the existing level of biosecurity using a semi-quantitative scoring tool and then to develop and agree a prioritised action plan. Arrangements are in place to evaluate the biosecurity ITA in order to determine what difference it has made and why changes in biosecurity practice have or have not occurred. This will provide an evidence base from which to assess the potential benefit of rolling out the ITA approach to other areas of Wales.

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In England, the TB Husbandry Working Group have produced revised biosecurity and husbandry advice, as reported above. Defra officials have worked closely with Wales to ensure their approaches are complementary.

Research

Scientific knowledge of bTB has increased significantly in recent years but there are still gaps in the evidence base which remain to be answered. In addition to the Randomised Badger Culling Trial (RBCT) which finished in 2006, Defra continues to fund a wide-ranging research programme which includes: development of a vaccine; improved diagnosis of disease; epidemiological studies on factors influencing the prevalence and persistence of the disease in cattle and wildlife; investigating transmission routes between and within species; investigating risk factors contributing to the development of the disease in cattle; and economic analyses of bTB control strategies. Expenditure on bTB research in 2005/2006 was £6.6m.

The quinquennial independent review of the research programme funded by Defra into bTB was held in July 2006 and further information can be found at: http://www.defra.gov.uk/science/publications/tb_review2006.htm. The research projects set out below represent part of the research programme.

TB vaccine research

Developing a TB vaccine for cattle or wildlife is a potential long-term policy option for the control of bTB in GB and as such a substantial part of the research programme focuses on this. Progress remains broadly in line with the timetable outlined in the Krebs' Report.

Badger vaccine development

- **BCG field study** – Research into the use of a vaccine for badgers has now reached the point where field studies are necessary for the next stage of the vaccine licensing procedure. An Animal Test Certificate (ATC) to perform a phase II safety/efficacy study in wild badgers was granted by VMD in March 2006 based on studies which demonstrated the safety of BCG vaccine in captive badgers. A 3-year field study led by VLA in collaboration with Central Science Laboratory (CSL) using injectable BCG is now under way. By the end of 2006, the study had successfully completed the first season of field work and over 140 animals have been vaccinated, meeting targets for gaining safety data. Data on safety of the vaccine will be reported to VMD once fully analysed and the study will be reviewed in 2007 when all the culture and blood test results are available. It is planned to revaccinate the badgers every year and to continue gathering data to give an indication of efficacy in order to support a licence application for the use of injectable BCG in badgers.
- **Oral formulations** – Work on developing an oral BCG vaccine bait formulation for badgers is continuing at the VLA in collaboration with colleagues at CSL, Aston University, Defence Science and Technology Laboratory (DSTL) and New Zealand and in close liaison with researchers conducting similar work in the Republic of Ireland. Successful research has been conducted to monitor the badger gastrointestinal tract to establish what level of acid protection an oral BCG formulation would need. Scientists at the CSL have recently carried out bait uptake work in the field to determine preferred bait formulations.

Cattle vaccine development

- **Natural transmission model** – In January 2006 the VLA began further work looking at vaccine candidates and delivery protocols in a natural transmission study in cattle. An initial proof-of-principle experiment is currently underway to demonstrate disease transmission between naturally infected and naïve cattle under these conditions. The first use of this model will be to test the efficacy of BCG protection in neonatal calves in a natural transmission environment. This will be compared with BCG heterologous prime boost vaccination strategy using candidate vaccines from the human TB field. Any promising vaccine would then need to be tested further in field trials.
- **Candidate vaccines** – The results obtained in Defra’s vaccine programme to date have demonstrated the principle that prime-boost strategies using subunit vaccines to boost BCG can confer superior protection to BCG. Research is now underway to optimise both the antigens and adjuvants used to formulate such subunit vaccines. The search for novel antigens recognised by the protective immune response is also being progressed through the use of a “memory immune” model. This model is based on an initial infection of cattle, treatment with isoniazid, and challenge with a second heterologous strain of *M. bovis*. It is possible that such antigens will be recognised specifically during the early establishment of immune protection and thus will extend the range of immune mechanisms generated in response to vaccination. Research to improve vaccine adjuvants is continuing via a systematic screening method and collaboration with industry partners. Collaborations are also in place to test human TB vaccines, currently undergoing clinical trials, for efficacy in cattle under experimental conditions.
- **Differential diagnostics** – Research on differential diagnostic tests, which are needed to distinguish vaccinated from infected animals, continues and has progressed from utilising genome sequence information to experimental testing of selected candidates. Current peptide pools have been shown to distinguish animals infected with *M. bovis* from those infected with *Mycobacterium avium* or vaccinated with BCG and work continues to complete the antigen screen using comparative genome and transcriptome analysis such that candidates can be prioritised and selected for use in the field.

Gamma interferon research

Several studies have provided supporting evidence for using the gamma interferon blood test as an adjunct to the tuberculin skin test in GB. The gamma interferon test has confirmed that a proportion of cattle exist that are infected with bTB but may not be detected by the skin test, particularly early in infection. However, these studies have also revealed that there are some animals which produce a positive reaction to the standard skin test while giving a negative result to the gamma interferon test.

Pathogenesis studies

An extensive study has reported on the pathology of *M. bovis* in naturally infected cattle. The study found broadly similar pathology in animals from either the reactor or in-contact groups and that there was good agreement between bacteriology and histopathology for the detection of infection. The predominant presentation of disease in cattle in this study, and in other work using experimental infection, suggest that the most common route of infection in cattle is via small numbers of bacilli delivered by small aerosol particles to the lung. In line with the findings from a

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current study of reactor animals, nasal shedding of *M. bovis* was not detected, indicating that this route of transmission occurs infrequently in the field.

Wildlife research

- Studies on badger ecology and the epidemiology of bTB in badgers continued at CSL (Woodchester Park) and in selected areas of the RBCT where culling resulted in a deleterious effect on cattle herd breakdowns outside the edges of the culled triplet areas, thought to be due to the phenomenon of badger perturbation leading to increased disease in badgers and transmission to cattle. Data continues to be collected to monitor the badger re-colonisation post badger culling in selected areas and these results, and those from perturbation studies support the findings from the RBCT.
- Recent research has identified that badger visits to farm buildings are probably common and widespread across the southwest of England and that the risk of cattle contact with badger excretory products in feed stores has the potential to be considerable. Improved biosecurity and farmer awareness is needed to reduce the risks of cattle contact with potentially infected badger excretory products and indirect transmission of disease. Barrier methods could successfully be used to prevent access and further work is continuing to determine ways to reduce badger visits to farmyards.
- Two independent quantitative risk assessments on the role of wild deer in the perpetuation of bTB in cattle were carried out. The results suggest that whilst surveillance of disease in wild deer should be continued, deer species do not generally pose a significant disease risk to cattle unless at exceptionally high population density. Other research has shown that common farmland wildlife other than badgers is unlikely to represent a reservoir of bTB.
- Interesting findings regarding disease incidence in cattle and geographic features of farms may also be emerging that suggest a reduced risk of bTB is associated with the management of farmland in ways that are favourable to wildlife. This suggests that a broad approach to disease prevention is beneficial.

Post-genomics

The availability of the genome sequence of *M. bovis*, and related tubercle bacilli, has provided researchers with the opportunity to take a global approach to understanding this pathogen, its interaction with the host, and its basic biology. Application of post-genomics at the VLA has been used to understand better the attenuation of BCG, identify strategies to rationally attenuate wild type virulent *M. bovis*, identify new subunit vaccines and diagnostic reagents, and discover genes that show differential regulation and may produce novel virulence factors. This work has helped support and catalyse other work at the VLA including developments in molecular epidemiology of *M. bovis*, and has generated hypotheses for the molecular evolution of the organism.

Further information on Defra's bTB research programme is available at:
<http://www.defra.gov.uk/animalh/tb/research/index.htm>.

TB in species other than cattle and badgers

The new Tuberculosis (England) Order 2006 that came into force on 27 March 2006 (and similar statutory instruments in Scotland and Wales) introduced changes in relation to TB surveillance in animals other than cattle. This includes a duty to report to Divisional Veterinary Managers (DVMs) the suspicion of TB in the carcase of any farmed mammal and mammals kept as pets. Under these regulations the identification of *M. bovis* in clinical or pathological specimens taken from any mammal (except humans) became notifiable to the VLA. These legislative changes, which were brought to the attention of veterinary practitioners and referral laboratories through articles and letters published in the Veterinary Record, probably contributed to the marked rise in the number of pathological specimens from non-bovine animals processed at VLA Weybridge for mycobacterial culture during 2006 (436 tissue submissions cultured against 306 in 2005).

Table B4.7 presents a summary of the outcome of mycobacterial cultures undertaken by VLA on tissue samples with suspected tuberculosis lesions submitted throughout 2006 by deer stalkers, park rangers, meat inspectors, private veterinary practices, veterinary referral centres and members of the public. The results show that spillover of *M. bovis* infection continued to be identified in a variety of companion, farmed and wild mammals other than cattle and badgers.

Deer

M. bovis was isolated in 51 of 100 deer carcasses presenting with lesions suspicious of TB and reported to the SVS and the VLA. This included a random sample of 16 deer carcasses from an infected private herd of 37 fallow park deer in southwest Cumbria which was culled at the beginning of 2006. Other cases of infection in ornamental park deer were detected in Devon, Somerset, and two different premises in Gloucestershire. Virtually all of the infected wild deer carcasses (red, fallow, roe and sika) were found in southwest England and southeast Wales where there is a high incidence of bovine TB in cattle. The five *M. bovis*-positive farmed red deer originated from a small deer herd in East Cornwall, where infection was first detected through post-mortem examination of the carcase of an emaciated yearling deer. The deer farm in question has remained under permanent movement restrictions since the confirmation of *M. bovis* infection in April and further cases were confirmed thereafter in carcasses of adult animals. Apart from the 100 statutory submissions investigated, an additional 219 carcasses without any visible lesions had tissue samples collected for mycobacterial culture at VLA, as part of an ongoing ad hoc survey of TB in wild deer in the Cotswolds and the Southwest of England (see end of **Table B4.7**). This survey commenced in December 2006, and a total of 700 samples will be taken from deer in these areas as part of this study. Samples are currently being cultured and no results are as yet available. Final results are expected in December 2007, to be reported in February 2008.

Cats

M. bovis was also isolated from 14 out of 135 feline pathological specimens referred to VLA as a result of suspected mycobacterial infection. *M. microti* and *M. avium*-complex organisms were other mycobacteria commonly isolated from domestic cats. Of the 14 cats with confirmed *M. bovis* infection, clinical histories obtained by the SVS indicated that nine of these first presented with a chronic granulomatous inflammation of superficial lymph nodes with or without an associated non-healing bite wound. Three other cases presented with inappetence, weight loss

Section B – Initiatives

and chronic pneumonia, one with chronic mycobacterial conjunctivitis and the remaining animal had a history of granulomatous dermatitis. To our knowledge, ten of the 14 cases were euthanased at the owners' request, three were treated with anti-tuberculosis drugs and reported to be clinically recovering and the fate of one cat is unknown. All cases involved cats living in rural or suburban areas of endemic TB incidence in England and Wales.

Camelids

In February, a found-dead alpaca submitted to the local VLA laboratory was diagnosed with *M. bovis* infection. The animal had originated from a large breeding alpaca farm adjoining the South Downs endemic TB area of East Sussex. TB restrictions were lifted following completion of two intradermal comparative tuberculin tests on the herd with negative results. Later in the year, a severe outbreak of tuberculosis caused by *M. bovis* infection was disclosed in a commercial llama herd in Devon. A summary of this incident (still ongoing at the time of writing) was published in the Veterinary Record.

Pigs

M. bovis infection was confirmed in two wild boar reared on a farm in East Cornwall and presenting with lesions suspicious of TB at routine meat inspection. The premises are expected to remain under long-term movement restrictions as the main enterprise on this self-contained wild boar farm is the production of fat stock for slaughter. Routine meat inspection of pig carcasses also led to the diagnosis of TB caused by *M. bovis* in two pig herds throughout 2006. However, the vast majority of suspicious TB lesions in domestic pigs were caused by *M. avium* infections.

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Table B4.7: TB surveillance in animals other than cattle and badgers in GB: number of animals investigated by VLA in 2006 as having pathology suspicious of TB. Only species with positive findings for mycobacteria (*M. bovis* or otherwise) are shown.

Species	Number of suspect TB cases investigated (cultured)	Number positive for mycobacteria other than <i>M. bovis</i>	Number positive for <i>M. bovis</i>	Origin of <i>M. bovis</i> -positive animals
Deer				
Red (farmed)	32	<i>M. avium</i> (22) Unclassified (1)	5	Cornwall (all five from the same farm)
Red (park)	7	0	4	Devon (3) Somerset (1)
Red (wild)	11	<i>M. avium</i> (2)	8	Somerset (6) Devon (2)
Fallow (wild)	17	0	16	Gloucestershire (12) Worcestershire (2) Devon (1) Monmouthshire (1)
Fallow (park)	20 ^a	<i>M. avium</i> (1) Unclassified (2)	13	Cumbria (11) Gloucestershire (2)
Roe (wild)	12	0	4	Somerset (2) Gloucestershire (1) Hampshire (1)
Sika (wild)	1	0	1	Worcestershire (1)
Companion animals				
Domestic cat	135 ^b	<i>M. microti</i> (18) <i>M. avium</i> (13) <i>M. malmoense</i> (1) Unclassified (6)	14	Avon (3) Gloucestershire (3) Devon (2) Worcestershire (2) Staffordshire (1) Wiltshire (1) Shropshire (1) Pembrokeshire (1)
Dog	20	<i>M. avium</i> (3)	0	–
Chinchilla	1	<i>M. gordonae</i> (1)	0	–
Farmed animals (excl. farmed deer)				
Domestic pig	110 ^c	<i>M. avium</i> (42) <i>M. microti</i> (1) Unclassified (2)	2	Gloucestershire (1) Monmouthshire (1)
Farmed wild boar	4 ^d	0	2	Cornwall (both from the same farm)
Goat	2	<i>M. avium</i> (1)	0	–
Alpaca	6	<i>M. microti</i> (2) Unclassified (1)	1	East Sussex
Llama	27	0	8	Devon (all eight from the same premises)
Zoo animals				
Various species	17	<i>M. kansasii</i> (1x gundi) <i>M. microti</i> (1x giant otter)	0	–
Total	436^e	121	78	

(a) Sixteen fallow deer carcasses were submitted for post-mortem examination and culture from of an infected herd of park fallow deer culled by the SVS in southwest Cumbria.

(b) Six culture results pending at the time of compiling this report.

(c) Three culture results pending.

(d) One culture result pending.

(e) Including those species where specimens submitted to VLA yielded no mycobacterial isolates (not listed in the table).

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Ad hoc wild deer survey in the South West and Cotswolds ^f				
Species	Number of suspect TB cases investigated (cultured)	Number positive for mycobacteria other than <i>M. bovis</i>	Number positive for <i>M. bovis</i>	Origin of <i>M. bovis</i> -positive animals
Ad hoc wild deer survey in the South West and Cotswolds f				
Red ^g	45	Unclassified (2)	0	
Fallow ^h	79	<i>M. avium</i> (2) Unclassified (5)	2	
Roe ⁱ	91	<i>M. avium</i> (2) Unclassified (2)	0	
Muntjac	3	0	0	

(f) All carcasses investigated, whether presenting with visible lesions or not.

(g) One culture result was still pending.

(h) Four culture results pending.

(i) One culture pending.

Bovine Spongiform Encephalopathy

Bovine spongiform encephalopathy (BSE) is a progressive, fatal, neurological disease which typically causes nervousness, exaggerated reactions, unsteadiness and recumbency in adult cattle. BSE is a transmissible spongiform encephalopathy (TSE) and was first identified in the United Kingdom (UK) in 1986.

The BSE epidemic in Great Britain (GB) peaked with over 36 000 cases per year in 1992 and there was a cumulative total of just over 181 000 cases by the end of 2006, more than 99.9% of which were born before August 1996.

In March 1996, BSE was linked to a new (variant) form of the human disease Creutzfeld-Jakob Disease (vCJD). By 8 January 2007, there had been 165 cases of definite or probable vCJD in the United Kingdom of whom 158 had died. Further details are available at <http://www.cjd.ed.ac.uk/>

In 2001, the European Union (EU) adopted comprehensive controls to prevent, control and eradicate TSEs. Regulation (EC) No.999/2001 applies directly throughout the EU. In November 2006, inspectors from the EU's Food and Veterinary Office carried out an audit of BSE controls in the UK.

Overview of work in 2006

- Total BSE cases confirmed by scanning surveillance decreased 62% to 15.
- Total BSE cases confirmed by targeted surveillance decreased 46% to 89.

Progress in 2006

Current Measures

Feed Control

Effective controls on animal feed are the key to the eradication of BSE, and are responsible for bringing about the continuing successful decline of cases in cattle in Great Britain (GB). The original feed ban introduced in 1988 prohibited the use of ruminant protein in ruminant feeds.

In 1994 this ban was extended to prohibit the use of mammalian protein in ruminant feed, reflecting EU controls. In 1996, rendered mammalian protein (mammalian meat and bone meal) was banned from all farmed livestock feed in the UK, to prevent low-level cross-contamination of ruminant feed both in the supply chain and on-farm. Harmonised EU-wide feed controls implemented in GB in 2001 prohibited the feeding of all processed animal proteins (PAP) and other specified animal-derived products to all farmed animals which were kept for food production with certain derogations. Further information is available at <http://www.defra.gov.uk/animalh/bse/controls-eradication/feed-ban.html>

During 2006, the State Veterinary Service continued to monitor and enforce the feed ban through the National Feed Audit (NFA). The NFA covered the feed supply chain from production and distribution through to end-use. Feed samples were tested for prohibited animal proteins by a variety of laboratory methods including MAT (Microscopy Analysis Test), ELISA (Enzyme-Linked Immunosorbant Assay), CIE (Counter Immuno Electrophoresis) and PCR (Polymerase Chain Reaction).

Specified Risk Material Controls

In 1989, the Government introduced controls on tissues thought most likely to contain the infective BSE agent in the event of the animal being infected. These controls have been extended and revised over the years in the light of the latest scientific knowledge. Specified risk material controls are estimated to remove over 99% of any BSE infectivity that might be present. During 2006, the removal of SRM continued to be the main public protection measure against BSE.

As a result of the EU lifting the beef export ban on 2 May 2006, the SRM rules in the UK were harmonised with those in other EU Member States.

Details of SRM are available at <http://www.food.gov.uk/bse/what/beef/controls>

Scanning (Passive) Surveillance

On average, there were fewer than 3 clinical BSE suspects restricted in GB each week. BSE was confirmed in 13% of clinical BSE suspects slaughtered, which is considerably less than the 2005 confirmation rate of 25%. As the incidence of BSE declined, diseases with similar clinical signs (e.g. listeriosis) formed a greater percentage of clinical suspects. The total number of confirmed cases of BSE in GB detected by scanning surveillance of clinical suspects fell from 39 in 2005, to 15 in 2006, a reduction of 62%.

Targeted (Active) Surveillance

EU Member States have been carrying out targeted surveillance for TSEs since 2001 in accordance with the requirements in the EU TSE Regulation 999/2001 (as amended).

Cattle surveillance continued throughout 2006 and the following categories of animals were tested for BSE:

- All cattle over 30 months of age, which were slaughtered for human consumption;
- All fallen stock over 24 months of age¹²;
- All emergency slaughtered cattle over 24 months of age, including those cattle identified at ante-mortem inspection at abattoirs;
- All healthy cattle slaughtered under the Over Thirty Months Scheme (OTMS) born after 31 July 1996;
- A random sample of 10 000 animals slaughtered under the OTMS or the Older Cattle Disposal Scheme (OCDS) born before 1 August 1996. OTMS ended and OCDS commenced on 23 January 2006. From 2 May 2006, OCDS surveillance changed to all cattle born between 1 August 1995 and 31 July 1996;
- All offspring of confirmed BSE cases, aged over 30 months and born after July 1996. From 2 May 2006 when the offspring cull was reduced to offspring born within two years of the onset of disease; and
- All birth and rearing feed cohorts of confirmed BSE cases, born after July 1996.

¹² All cattle over 24 months of age which die or are killed other than for human consumption, must be notified to the TSE Surveillance Helpline for BSE testing (Tel. 0800 525 890).

Brain stem samples taken from these animals were tested using EU approved rapid tests. All positive or inconclusive samples were re-tested using EU approved confirmatory tests. **Table B4.8** shows the results of this testing.

Table B4.8: Results from targeted surveillance for BSE in cattle in Great Britain during 2006¹³

Year	Ongoing Surveys (Cattle)	Tested	Results Pending	BSE not confirmed	BSE confirmed
2006	Fallen Stock	207150	0	207087	63
2006	Emergency Slaughter > 30 months OTMS	5694	0	5676	18
2006	Ante Mortem Inspection > 30 months OTMS	6629	0	6628	1
2006	Emergency Slaughter Casualties at Fresh Meat Plants	1098	0	1098	0
2006	Ante-Mortem Inspection Casualties at Fresh Meat Plants	998	0	998	0
2006	Healthy slaughtered animals aged over 30 months, born before August 1996	23764	0	23760	4
2006	Healthy slaughtered OTMS animals aged over 30 months, born after July 1996	20508	0	20508	0
2006	Healthy slaughtered fresh meat animals aged over 30 months, born after July 1996	332186	0	332183	3
2006	BSE Culling	716	0	716	0
Total for animals born in 96/97 Cohort (including fallen stock, casualties etc)		46619	0	46615	4
Total for other test categories as at 1 December 2006		552124	0	552039	85
Total for all Cattle tested between 1 January 2006 – 1 December 2006		598743	0	598654	89

Offspring Cull

Before the EU lifted its ban on the export of UK beef, the BSE offspring cull met an essential pre-condition of the European Commission Decision for a Date Based Export Scheme (DBES). The Decision required that before beef exports could resume under the DBES the UK had to slaughter all surviving offspring born after 1 August 1996 to confirmed BSE cases and the offspring of new BSE cases as these arose.

After the EU lifted the export ban on 2 May 2006, the UK BSE controls became identical to those in other EU Member States. Regulation (EC) No.999/2001 requires the culling of the offspring of female BSE cases, born within two years prior to, or after, the clinical onset of disease, as soon as possible.

There is evidence that the offspring of cows with BSE are more likely to develop the disease because of maternal transmission, but the risk is now estimated to be much lower than previously thought. The offspring cull removes animals, which might have been infected by maternal transmission.

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Cohort Cull

Regulation (EC) No.999/2001 requires that all Member States identify, trace, restrict and cull the cohorts of confirmed BSE cases. Cohorts are cattle, which were either:

- born in the same herd as a BSE case, up to a year before or after its birth; or
- reared with a BSE case when both were up to a year old.

Cohorts might have consumed the same feed as the BSE case during the first year of their lives. Feed contaminated with the BSE agent is the most important source of BSE infection for cattle. Experts believe that the majority of BSE cases were infected during the first year of life.

Stakeholder Engagement

Defra worked closely with the European Commission, the Food Standards Agency and the devolved administrations in Scotland, Wales and Northern Ireland to develop policies on BSE controls.

Defra also worked closely with its delivery agents which included the State Veterinary Service, the Veterinary Laboratories Agency, the Rural Payments Agency and the Meat Hygiene Service. BSE testing in NI is carried out by DARD's agency AFBI (Agri-Food and Biosciences Institute).

The BSE Epidemic

The BSE epidemic continued to show a steady decline during 2006. This is shown in **Table B4.9**.

Table B4.9: The annual percentage change in BSE incidence in Great Britain from 2000 to 2006

Years	Percentage Change in BSE Incidence
2000 to 2001	-18%
2001 to 2002	-7%
2002 to 2003	-47%
2003 to 2004	-44%
2004 to 2005	-34%
2005 to 2006	-49%

The total number of confirmed cases of BSE in GB detected by scanning (passive) surveillance of clinical suspects fell from 39 in 2005, to 15 in 2006, a reduction of 62%.

The total number of confirmed cases of BSE in GB detected by targeted (active) surveillance fell from 164 (out of 547386¹³ cattle tested) in 2005, to 89 (out of 598743 cattle tested) in 2006, a reduction of 46%.

13 Data as at 19 January 2007

Figure B4.8: Confirmed BSE cases in Great Britain from 1988: scanning surveillance cases by year of restriction and targeted surveillance cases by year of death.

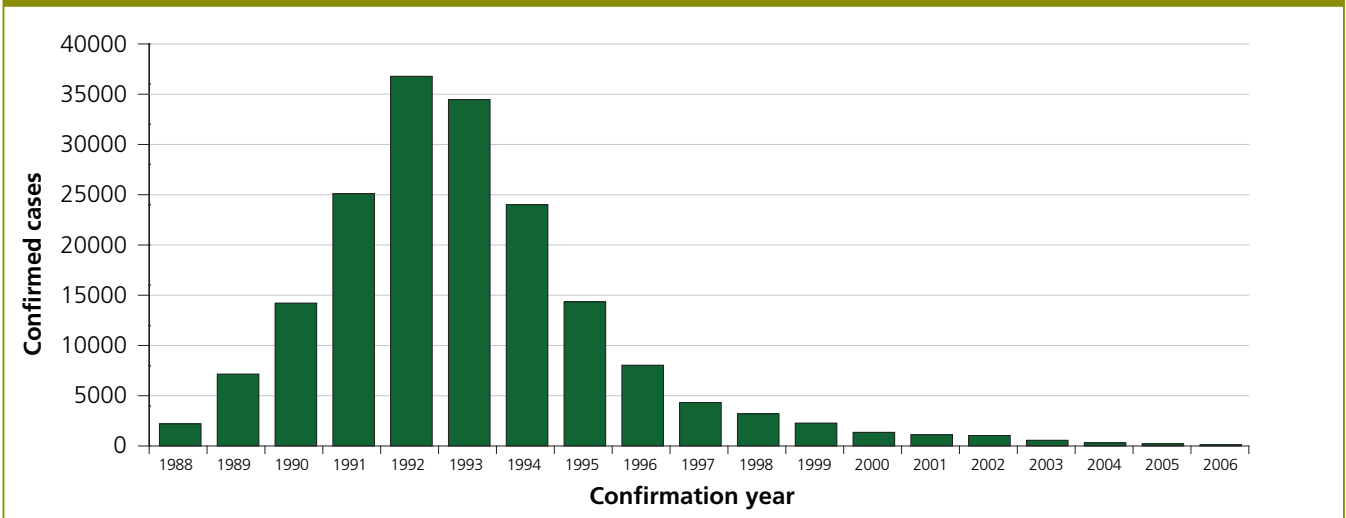
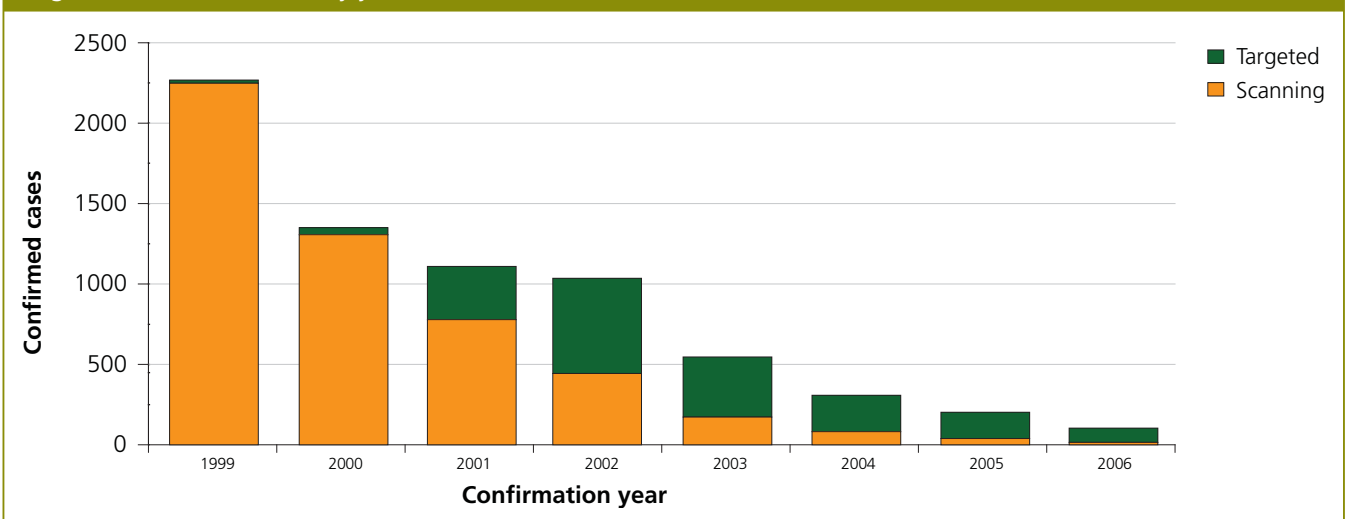


Figure B4.9: Confirmed BSE cases in Great Britain from 1999: scanning surveillance cases by year of restriction and targeted surveillance cases by year of death.



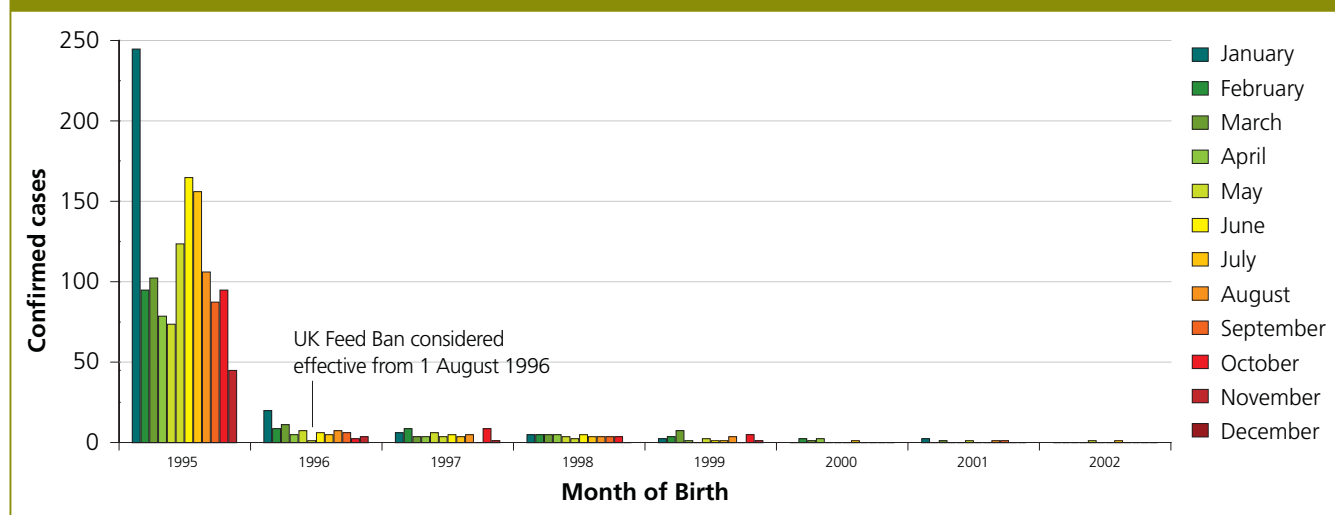
BSE Cases Born after the Reinforced Feed Ban (BARBs)

Additional measures to prohibit the feeding of mammalian meat and bone meal to all farmed livestock have been in place in the United Kingdom (UK) since 1 August 1996. This is regarded as the date the reinforced feed ban became effective. BSE cases born after 31 July 1996 are referred to as BARB cases. The main routes of infection for BARB cases are thought to be the persistence of traces of infectious material in contaminated feed produced before August 1996 or traces of infectious material in imported feed ingredients, particularly those imported via other EU Member States before feed rules were tightened in 2001.

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By the end of 2005, there were a total of 140 BARB cases confirmed in GB, 17 of which were confirmed in 2005. This was a 41% decrease on the 29 BARB cases confirmed in 2005. **Figure B4.10** shows the number of BSE cases in GB born from 1 January 1995.

Figure B4.10: Confirmed BSE cases in Great Britain by month of birth from 1995



An epidemiological analysis provided evidence of a decreasing trend in infection prevalence between each successive birth cohort year from 1 August 1996. An estimate of the total numbers of infected cattle in each birth cohort year¹⁵ is shown in **Table B4.10**. These estimates are not the number of BSE cases expected. The number of BSE cases observed will be less as many infected animals will die before the disease is detectable.

Table B4.10: An estimate of infection in the BARB cohorts based on surveillance data up to September 2006, and using a previously developed model¹⁵

Birth Cohort	Prevalence* Infected animals/10 ⁶	95% CI
1996/97	131	81-181
1997/98	80	50-110
1998/99	54	30-80
1999/00	31	17-51
2000/01	14	4-33

*maximum likelihood estimate

Further information on BARB cases is available at:
<http://www.defra.gov.uk/animalh/bse/controls-eradication/feedban-bornafterban.html>

14 Born from 1 August to 31 July

15 Reference: Arnold and Wilesmith, Proc R Soc B, 270, 2141-2145, 2003

Progress against targets

Defra's 2005-2008 Public Service Agreement (PSA) targets continued to include a *reduction in the number of cases of BSE in GB detected by both scanning and targeted surveillance to less than 60 in 2006, with the disease being eradicated by 2010*. Although the 2006 statistics continued to show an encouraging decline in the incidence of BSE, Defra slightly exceeded its 2006 PSA target. Due to the long incubation period of BSE, achievement of this target was determined by past events and was mainly affected by the longevity of the sub-population of cattle born before August 1996, in which the estimated prevalence of infection is greatest. The Older Cattle Disposal Scheme (OCDS), a three-year intervention scheme for cattle born or reared in the United Kingdom before August 1996, which started in January 2006, is expected to reduce the longevity of this sub-population. In May 2006, the programme of targeted surveillance in this sub-population altered from a random sample of 10000 cattle per year, to all the animals born from 1 August 1995 to 31 July 1996. This may increase the observed prevalence depending upon the total numbers sampled. Continued or increasing numbers of future BSE Cases Born after the Reinforced Feed Ban (BARB) cases may also impact on the achievement of the 2010 PSA target referred to above.

Transmissible Spongiform Encephalopathies in sheep and goats

Scrapie

Scrapie is a progressive and fatal neurological disease of sheep and goats. It is a transmissible spongiform encephalopathy (TSE) which has been reported in many countries, and has been present in British sheep flocks for nearly three centuries (since at least 1732). Although in the UK, atypical scrapie has only been found in sheep, others have reported cases in their goat populations.

Epidemiological investigations have revealed that sheep were exposed to the same contaminated feed that gave rise to the BSE in cattle epidemic, albeit in smaller amounts. Also in the 1990s research showed that it was possible to experimentally infect sheep with BSE material from cattle and the subsequent disease in the sheep was similar to classical scrapie. This raised the possibility that sheep might have become infected with BSE and that this was being masked by the presence of classical scrapie. At the time it was not possible to diagnostically distinguish between scrapie and experimental BSE in sheep.

Overview of work in 2006

- 50% reduction in the number of compulsory action orders issued under the Compulsory Scrapie Flocks Scheme.
- Decline in the reporting rate for suspect cases of scrapie.
- Increase in the requirement for sheep and goats tested as part of the targeted surveillance at abattoirs and fallen stock.

Progress in 2006

A number of measures have been put in place to allow the levels of TSEs in the national flock to be measured and we have also put in place a number of precautionary measures in case BSE is found to be present in sheep.

The National Scrapie Plan (NSP)

The National Scrapie Plan is a joint initiative of Defra, the Scottish Executive and the Welsh Assembly Government, which was launched in 2001. It is a genetic programme which involves genotyping sheep to determine how susceptible or resistant that animal is to scrapie, so that flocks can be selectively bred in order to increase genetic resistance to scrapie.

Through the NSP a number of schemes have been launched with the aim of:

- protecting animal health by eradicating scrapie; and
- protecting public health from the theoretical presence of BSE, if it is present in the national flock and being masked by scrapie.

The principle objective of the plan is to reduce the risk of TSEs occurring in the national flock by reducing the number of sheep with the most susceptible genotype to classical scrapie (VRQ/VRQ) and increasing the number of sheep with the most resistant genotype (ARR/ARR).

Extensive information on the plan is published at www.defra.gov.uk/nsp.

Schemes under the NSP include:

- Ram Genotyping Scheme;
- Flock Register;
- Compulsory Scrapie Flocks Scheme;
- Semen Archive; and
- Welsh Ewe Genotyping Scheme II (WEGS II).

Ram Genotyping Scheme (RGS)

The RGS is a voluntary breeding programme which requires farmers to slaughter their most susceptible animals and breed for resistance.

By the end of 2006, the RGS had 12,366 member flocks, and had sampled almost 1.7 million male and female animals. Since the start of the NSP in 2001, all major breeds have seen a shift away from the most susceptible type 5 animals, and an increase in type 1 sheep.

The NSP also offers a Flock Register. Membership stands at 339 flocks, with almost half of these at category B (flocks consisting of ARR homozygous males and any genotype females). Membership remained relatively stable throughout 2006.

2006 had been expected to see the introduction of a new **Compulsory Ram Genotyping Scheme**. Negotiations in Europe meant that there was no longer the requirement to operate such a scheme. The European Parliament questioned the justification for “compulsion” and instead suggested that the operation of breeding programmes for TSE resistance should be optional for Member States. This proposal was agreed by the Council, and detailed rules for any such programmes were to be drawn up by the Commission. As a consequence, Rural Affairs Ministers in England, Scotland and Wales commissioned a review of the current Ram Genotyping Scheme and Flock Register (which together make up the Breeding Programme element of the NSP). The review looked at the evolving science and the risk of BSE in sheep, as well as assessing the current operation of the scheme and the benefits it has delivered to date. As part of the benefits review process, almost 4,000 thousand questionnaires were returned by RGS members. The review has identified two options for the future; a cost-shared scheme; and closure of the RGS. These options will be put to public consultation during 2007.

The Compulsory Scrapie Flocks Scheme

Where herds are affected with scrapie, compulsory action requires either genotyping and selectively culling out the susceptible sheep or in exceptional circumstances, the whole flock.

By the end of 2006 action has been taken in 428 flocks since the scheme began with 134 flocks joining the scheme in 2006. This is approximately a 50 percent reduction compared with 2005.

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Following consultation with industry and other stakeholders, compensation payment rates for animals culled under the scheme were reduced in England and Scotland in March 2006 (June 2006 in Wales).

The Voluntary Scrapie Flocks Scheme

The Voluntary Scrapie Flocks Scheme (VSFS) was introduced in April 2004 to deal with flocks with historical cases of scrapie i.e. flocks with a confirmed case of scrapie between July 1998 and the introduction of compulsory measures in July of 2004. The scheme was closed to new members at the end of March 2005. Scheme contracts run for a maximum of four years. As at the end of 2006, 105 members remained under contract in the scheme.

Semen Archive

To protect the national flock from the risk of untoward consequences of breeding for scrapie resistance, Defra established a Semen Archive with the active support of sheep industry bodies, breed societies, and ram owners. The semen archived will enable the re-establishment of certain scrapie genotypes if that should ever prove necessary in the future.

The archive, already the largest of its type in the world, is a significant genetic resource. This initiative was commended in the first ever UK National Action Plan on Farm Animal Genetic Resources¹⁶ launched in November 2006. Collections continue apace. By the end of 2006 over 380,000 doses of semen had been stored from 75 native and mainstream breeds. Looking forward the focus in 2007 will be on: finishing collections, agreeing a protocol for future use of the semen, and arrangements for long-term maintenance of the archive.

Welsh Ewe Genotyping Scheme II (WEGS II)

With the support of the sheep industry in Wales, the Welsh Assembly Government (WAG) funded the Welsh Ewe Genotyping Scheme I (WEGS I) in 2001 and WEGS II in Years 2003 to 2008. WEGS II is being operated as a scheme under the NSP and administered on behalf of WAG by the National Scrapie Plan Administration Centre (NSPAC). It is entirely funded by the WAG for the benefit of Welsh sheep farmers with the aim of increasing the number of sheep in Wales genetically resistant to scrapie.

WEGS II Years 4 & 5 (financial years 2006/7 & 2007/8) offers farm visits and free blood sampling, electronic identification (EID) bolus, genotype tests, results summary, NSP certificates for animals with NSP Type 1 and Type 2 genotypes and breeding advice.

The projected cost of the WEGS II, which ends on 31 March 2008, is £14.3m.

Field Capability and Presence at Shows and Sales

Currently there are 255 technical field staff trained and certified for NSP work. In addition, some 520 local veterinary inspectors (LVIs) and 50 veterinary officers (VOs) have received practical and theory training in line with NSP guidelines.

¹⁶ <http://www.defra.gov.uk/farm/livestock/strategy/genetic-res/pdf/fangr-actionplan.pdf> (page 46).

GB Agriculture and Rural Affairs departments consider it important to communicate the aims and objectives of the NSP to a large audience, and consequently NSP staff were present at eight events during 2006, where almost 350 people visited the NSP stand.

Surveillance for TSEs

There are two main types of surveillance performed to monitor the levels and types of TSEs present in the national flock, scanning (passive) and targeted (active) surveillance. Scrapie has been a notifiable disease since 1993 meaning that it is a legal requirement for sheep and goats with apparent clinical signs to be reported to the local Division Veterinary Manager of the State Veterinary Service (SVS). The targeted (active) surveillance is part of an EU-wide programme of surveillance for TSEs in sheep and goats over 18 months of age either slaughtered for human consumption or as fallen stock and was initiated in 2002.

Scanning (Passive) Surveillance of Sheep and Goats

The reporting rate for suspect cases of scrapie declined throughout Great Britain in the second half of 2006. The cause for this decline is not yet clear. In 2002 approximately 90% of animals that were reported to the SVS as clinical suspects were slaughtered. In 2006 this figure had reduced to around 70%. In addition, the number of these slaughtered sheep, that were later confirmed with scrapie has continued to decline.

Figure B4.11: Percentage of confirmed cases of scrapie in Great Britain 2003-2006

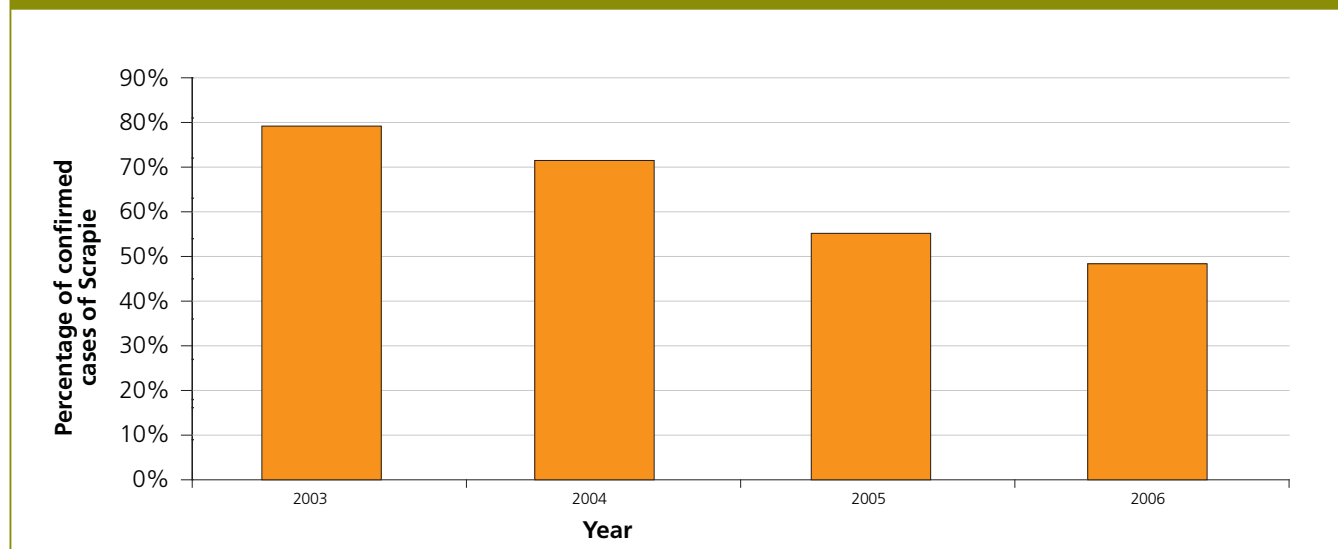


Table B4.11 shows the numbers of confirmed scrapie cases in GB identified by scanning (passive) surveillance between 1993 and 2006.

In addition to the three cases of atypical scrapie that were identified in 2005, the VLA reported that it had detected atypical scrapie in three further sheep submitted as clinical scrapie suspects in the first quarter of 2006. Changes in locomotion and behaviour were identified in all 6 cases and pruritus¹⁷ was recorded in one animal.

¹⁷ Skin irritation manifested as scratching, rubbing and nibbling at the fleece.

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Table B4.11: Summary of scrapie cases detected by scanning surveillance in Great Britain 1993-2006.

Year	Positive	Negative	Inconclusive
1993	328	163	3
1994	235	90	2
1995	254	56	1
1996	460	87	3
1997	508	83	3
1998	499	99	1
1999	598	117	2
2000	568	86	0
2001	295	57	9
2002	404	105	1
2003	378	98	0
2004	309	124	0
2005	173	169	0
2006	110	100	1

Targeted (Active) Surveillance in sheep and Goats

Sheep

In July 2006 in response to 3 cases from France and Cyprus of a TSE in sheep where BSE could not be ruled out, the European Commission increased EU wide surveillance in abattoir & fallen sheep aged over 18 months. For the year the UK was required to test 49,000 sheep at abattoirs and 25,000 fallen sheep aged over 18 months.

To help meet the new EU requirements for healthy slaughter sheep the number of survey abattoirs was increased from 15 to 21.

In October 2006 we extended the reporting and collection of carcasses for fallen sheep to a full 7-day coverage to help increase the numbers and to be consistent with existing reporting arrangements for cattle and goats. This required moving the reporting function from the State Veterinary Service (SVS) to the British Cattle Movement Service (BCMS).

The increased sheep surveillance was completed on 31 December 2006. The UK was able to meet the abattoir requirement of 49,000 but marginally missed the fallen sheep target of 25,000. A total of 47 atypical scrapie cases were confirmed and 41 classical scrapie cases. No BSE was detected.

Goats

Following the confirmation of BSE in a French goat from 2002, EU legislation was agreed on 9 February 2005 increasing EU wide surveillance for goats in order to establish the level of TSEs in the goat population.

In 2006 surveillance continued at the higher levels and the UK was required to test 1,000 fallen goats aged over 18 months and all goats aged over 18 months slaughtered for human consumption. An EU derogation allowed us to substitute up to 20% of our quota for goats slaughtered for human consumption with additional fallen stock.

The survey was completed on 31 December 2006 and the UK sampled a total of **2,558** abattoir goats and **2,486** fallen goats. All EU targets were met and there were 2 confirmed classical scrapie cases. No BSE was detected.

Table B4.12: Results from targeted (Active) surveillance for TSE in sheep and goats in the UK during 2006

	Requirement	Tested	Atypical	Scrapie +ve
Sheep abattoir survey	49,000	48,975	36	8
Sheep fallen stock survey	25,000	21,204	13	35
Goat abattoir survey	All	2,558	–	1
Goat fallen stock survey	1,600 ¹⁸	2,486	–	1

Investigation of atypical scrapie cases

In 2005, Defra initiated a case-control study, led by the VLA, for further investigation of atypical scrapie cases. It is envisaged that they will recruit 40 case farms and 120 control farms. The VLA plan to report their initial findings at the beginning of 2007.

Table B4.13: Genotype of atypical scrapie cases detected through targeted (active) surveillance between 2002 and 2006¹⁹

Genotype	NSP Type	2002	2003	2004	2005	2006	Total
ARR/ARR	1	3	7	4	1	1	16
ARR/AHQ	2	4	11	4	10	11	40
ARR/ARQ		2	7	1	3	5	18
ARR/ARH		0	1	0	0	0	1
AHQ/AHQ	3	4	6	1	2	6	19
AHQ/ARH		0	0	1	0	2	3
ARQ/ARH		0	0	0	1	0	1
ARH/ARH		0	0	0	0	0	0
AHQ/ARQ		3	14	2	2	10	31
ARQ/ARQ		2	5	3	3	6	19
ARR/VRQ	4	0	0	0	0	0	0
AHQ/VRQ	5	0	0	0	0	0	0
ARH/VRQ		0	0	0	0	0	0
ARQ/VRQ		0	1	0	0	0	1
VRQ/VRQ		0	0	0	0	0	0
Total		18	52	16	22	41	149

18 Fallen Goat requirement 1,000 + supplement of 20% of abattoir goats (approx 600)

19 Sheep most susceptible to Scrapie are type 5 and those least susceptible are type 1.

Section B – Initiatives

Table B4.14: The genotypes of both atypical and classical scrapie detected through the targeted (active) surveillance between 2002 and 2006.

Genotype	NSP Type	Classical Scrapie	Atypical Scrapie
UNKNOWN		1	0
ARR/ARR	1	0	16
ARR/AHQ	2	0	40
ARR/ARQ		1	18
ARR/ARH		0	1
AHQ/AHQ	3	1	19
AHQ/ARH		0	3
ARQ/ARH		2	1
ARH/ARH		0	0
AHQ/ARQ		4	31
ARQ/ARQ		27	19
ARR/VRQ	4	40	0
AHQ/VRQ	5	0	0
ARH/VRQ		15	0
ARQ/VRQ		91	1
VRQ/VRQ		15	0
Total		197	149

Collaborative Working

Spongiform Encephalopathy Advisory Committee

In January 2006, the Spongiform Encephalopathy Advisory Committee's (SEAC) Sheep Subgroup were asked to consider the atypical cases of scrapie and to specifically:

- give the best interpretation of the current data on atypical scrapie and of the potential risks for a) animal health and b) human health. To consider whether new data change the risk basis underpinning the NSP, flock control, or relevant sections of the TSE roadmap;
- consider what additional information is necessary in order to improve assessment of the risk for animal and human health.

The Subgroup reached a number of conclusions including:

- there is no evidence of a risk to human health, but a theoretical risk cannot be excluded;
- the new data, and identification of atypical scrapie, while of concern, are insufficient to justify immediate changes to the NSP.

The full position statement from the Subgroup is available at <http://www.seac.gov.uk/pdf/positionstatement-sheep-subgroup.pdf>

SEAC and the review of the NSP's Ram Genotyping Scheme

As part of the review of the RGS, SEAC's Sheep Subgroup were asked to review the science underpinning the RGS and to comment on:

- whether the risk from BSE in sheep can be quantified, and if so what degree of risk reduction is afforded by the RGS;
- whether concerns over atypical scrapie alter the scientific basis for the RGS; and
- whether removing VRQ only is a valid approach to controlling classical scrapie, given that scrapie also occurs in other genotypes such as ARQ.

The main conclusions from the Subgroup were:

- the prevalence of BSE in the UK sheep population is most likely to be zero, or very low if present at all. Consequently, any impact of the RGS on human health from removing BSE from sheep is likely to be negligible; and
- the scientific basis underpinning the current RGS remains valid to remove a large proportion of classical scrapie infection.

The full Subgroup statement is available on the SEAC website at <http://www.seac.gov.uk/statements/sheepsubgrp-statement131006.pdf>.

ANIMAL BY-PRODUCTS

The Animal By-Products Regulation (EC) No. 1774/2002 sets down the rules for the handling of animal by-products in order to protect public and animal health. It ensures that animal by-products i.e. animal carcasses and those parts of animals that are not fit, or intended for, human consumption are used or disposed of safely to help prevent outbreaks of serious animal diseases. The Regulation, introduced across the EU in May 2003, introduced stringent conditions throughout the food and feed chains requiring safe collection, transport, storage, handling, processing, uses and disposal of animal by-products.

Implementing and amending measures agreed under the Animal By-Products Regulation in 2006, include those relating to :

- permitting wider technical uses of certain animal by-products; and
- improving controls on importation and transit of certain intermediate products intended for technical uses in medical devices, in vitro diagnostics and laboratory reagents.

As part of its duty to review the Animal By-Products Regulation, the Commission issued a draft proposal to amend the articles of Regulation 1774/2002 in July 2006. The Commission has held a number of working groups with Member States and has consulted the major EU trade bodies on its proposal. Defra with the devolved administrations have been pushing, with some success, for a de-regulatory approach with a reduction in controls so that they are proportionate to the risks presented. Stakeholders have been involved from the beginning of the process to ensure that industry views are put forward in the discussions on the amendments of the Regulation. This dialogue will continue up to and during co-decision, which is likely to begin once the Commission have issued their proposal to the Parliament and Council in late Spring 2007.

National Fallen Stock Scheme

The National Fallen Stock Scheme has been running since November 2004. The Scheme was set up by Government, in partnership with industry, with the aim of assisting farmers in their compliance with the EU Animal By-Products Regulation by reducing the cost to farmers of disposing of their fallen stock. By November 2006, the National Fallen Stock Company, a government owned privately run not for profit business, had distributed over £11million of Government funding to 41,000 farmers; and over 700,000 collections of fallen stock had been carried out.

At the end of 2005, Defra asked Bob Bansback, a well respected figure in the meat & livestock industry, to carry out an independent review of the Scheme to look at how the Scheme and Company could remain viable as Government funding is withdrawn from the Scheme. The review was delivered in April 2006 and is available on the Defra website (<http://defra.gov.uk/animalh/by-prods/pdf/nfsco-review.pdf>). The review recognises that the Scheme is an excellent example of Government and industry working in partnership. Ministers have already agreed that, in line with one of the Reports' recommendations, that the existing Government funding for the Scheme should be spread over a further year to November 2008. The Government is currently considering the Reports' other findings, and will respond fully in early 2007. Further information about the Scheme can be found at www.nfsco.co.uk

Chapter 5: Emergency Preparedness

Objective: to develop and refine outbreak control strategies and communicate these through disease stakeholder groups.

Preparedness activities continued throughout the year. A series of leaflets and publications have been produced to ensure awareness of diseases and symptoms, and a number of disease specific stakeholder groups have been set up to provide a communication network in outbreak situations.

In September, a vaccine bank was set up for Avian Influenza, and over 10 million doses of the vaccine have been secured. English zoos have now been given permission to vaccinate birds on conservation grounds, and a number of zoos have already applied and have begun vaccinating.

Exercise Hawthorn

Although there is no requirement within the EU Avian Influenza (AI) Directive to test the national AI contingency plan, the EU FMD Directive 9494/03 requires Member States to exercise their FMD contingency plans twice within a five- year period although there is a derogation allowing one of these real time exercises to be for another “major epidemic disease affecting terrestrial animals”. Given current worldwide concerns relating to the spread of avian influenza and its impact upon human health, this provided an appropriate opportunity to test Government’s AI contingency plan.

The aim of Exercise Hawthorn was to review, check and update the Government’s current contingency plan for a national outbreak of avian influenza and thereby establishing a state of readiness for such an outbreak whilst identifying areas for improvement within the contingency plan, operational, instructions, structures and procedures employed in managing an outbreak. It also provided an opportunity to explore how Defra’s contingency plan works in tandem with those of the Devolved Administrations and the response plans of operational partners.

A number of preparatory tabletop exercises focussing on particular stages of disease progression were held prior to a real-time two-day national exercise, scheduled to be run 5/6 April 2006. It was intended that the two day exercise would specifically focus upon decisions to be taken at days 3 and 4 of an outbreak.

The final live exercise was curtailed at the end of day one due to a real AI incident in a wild bird found in Cellardyke, Scotland on 5 April 2006. However, valuable lessons were identified, including amongst others, the need for more effective communications, both internally and with operational partners, as well as a strengthening of instructions to facilitate the operational response. Approximately 500 people from over 40 organisations were involved in the final real-time exercise, including four Animal Health Divisional Offices (AHDOs) of the State Veterinary Service (SVS).

The over-riding conclusion that was drawn from this exercise was that Defra and the SVS would have coped well had there been a real-life avian influenza outbreak. This was demonstrated by the rapid and effective transition from an exercise environment to dealing with the real AI incident in Cellardyke. This was re-affirmed during the subsequent outbreak of low pathogenic AI in Norfolk later that month.

Section B – Initiatives

The SVS holds lead operational responsibility for responding to an outbreak of exotic animal disease such as AI. However, epidemiologists in Defra, the SVS and Veterinary Laboratories Agency (VLA) worked together in the National Emergences Epidemiology Group (NEEG) to provide necessary epidemiological expertise for Exercise Hawthorn. Upon confirmation of disease a National Disease Control Centre (NDCC) was established in London providing tactical guidance to the local AHDO responding to the outbreak, in line with arrangements set out in Defra's Contingency Plan for Exotic Animal Diseases. The plan was successfully deployed on a number of occasions last year. In accordance with the provisions of the Animal Health Act of 2002 (as amended) the contingency plan is reviewed and updated annually. The current version was laid before Parliament on 13 March 2006. The plan is composed of two elements: a Framework Response Plan outlining systems, structures, roles and responsibilities during an outbreak; and an Overview of Emergency Preparedness which provides details of the operational response to an outbreak of Exotic Animal Disease. Policy information held within the previous version of the plan has been reviewed, updated and placed on the Defra public website and is referenced in the plan to ensure that stakeholders always have access to up to date policy information.





The NEEG were also actively involved in the epidemiological investigations of the following three incidents of exotic avian diseases during the year in order to assess the likely source of infection, assess its potential for spread and advise the CVO on appropriate surveillance and control measures to contain disease in the context of these epidemiological findings.

The dead wild swan found to be infected with Highly Pathogenic Avian Influenza (HPAI) after the submission of its carcass from the harbour in Cellardyke, Scotland led to much epidemiological work in designing wild bird surveillance and assessing the results. This surveillance targeted the most appropriate species of wild bird and, with negative results throughout the rest of 2006, provided reassurance that HPAI is not prevalent in the wild bird population in Great Britain. Further details can be found on the 'Avian Influenza' page of the Defra website.

Epidemiological analysis of the low pathogenicity Avian Influenza outbreak at premises in Norfolk in late April led to the identification of two further affected premises, directed tracing and advised on control measures, contributing to the effective control of this outbreak. Full details of the epidemiological findings can be found in the Epidemiology Report for the outbreak, published on the Defra website.

In November, the Group became involved in the investigation of a single outbreak of pigeon paramyxovirus in a commercial flock of partridges maintained on premises in Galashiels division where rare species of birds were also kept.

Chapter 6: Farm Health Planning

Objective: to ensure that farm health planning is seen as best practice throughout industry.

Most farmers know that disease prevention is often better than a cure and many have been successfully using farm health planning on their farms. As part of the Action Plan for Positive Animal Health, developed with industry, we have been building on our successes of 2005 to increase the use of farm health planning and ensure that industry is equipped with the information, tools and systems to ensure animal keepers are able to protect the health and welfare of their livestock. This work represents a key initiative for positive animal health as set out in the Animal Health and Welfare Strategy for Great Britain.

Progress in 2006

Farm Health Planning in England

During 2006, we continued to partner the farming industry in delivering strategies that will increase wider and more proactive use of farm health planning in England.

We have been working with our industry groups to identify initiatives that develop and champion farmers and their advisors as active partners in proactive farm health planning. Together we have developed planning templates; farm level costs/benefits models and a number of projects to help promote positive health planning in practice.

To assist in delivery, Defra has seconded a number of staff to key stakeholder organisations to help embed farm health planning as part of their own delivery programmes. These staff are now working in the sheep and cattle sectors and we expect to second further staff to the pig sectors.

We have engaged the veterinary profession by involving them in our species sub groups and have worked with the British Veterinary Association to run a series of workshops to raise awareness of FHP. The Animal Medicines Training and Regulatory Association have also worked with us to develop a training module on FHP which is being taught to the Animal Health Distributors Association membership's Suitably Qualified Persons.

Defra has identified communications opportunities to raise the profile of farm health planning and is participating, with our industry partners, in a number of events. We have established and publicised best practice examples that build on a consistent message and encourage culture change at farm level.

Evidence baseline project

An independent Evidence Baseline was commissioned to investigate the current level of farm health planning across the livestock sector and how it is put into action. Together with information from existing surveys this baseline will provide a robust measurement of the uptake and usage of farm health planning and will be reviewed periodically against our action plan.

The Cattle Initiative

In November 2006, Defra launched the cattle initiative, inviting innovative proposals for projects to deliver training and advice on putting FHP into action to cattle farmers and their advisors. This project will provide Industry with the capacity to educate, equip and reinforce farmers and their advisors about the benefits of active farm health planning.

Pig projects

In partnership with BPEX and the NPA, we have developed a pilot on the use of IT based farm health plans in the pig sector and are working with the British Pig Association to develop a template for a farm health plan for small-scale/hobby pig producers and provide a series of regional workshops on herd health planning and biosecurity.

The Sheep Campaign

A project to pilot the use of FHP in the sheep sector is currently underway and work is progressing well to develop a wider communications initiative within the sector. We are also supporting innovation and best practice in the sheep sector by sponsoring the *Farmers Weekly* award for the sheep sector.

Farm Health Planning in Scotland

During 2006, there was an increased uptake of the Animal Health and Welfare Management Programme, taking membership to approximately four and a half thousand livestock farmers. Supported through the Scotland Rural Development Plan, this initiative supports farmers in bringing their vet on-farm at least annually to discuss and agree a plan to improve farm animal health and welfare. As well as helping to raise standards of animal health and welfare on-farm, this initiative is also indirectly supporting the sustainability of large animal veterinary practices.

As part of the Animal Health and Welfare Management Programme, farmers were also able to obtain support for additional recording on-farm for animal health and welfare benchmarking purposes. Since 2005, individual farmers have been collecting data that can be utilised for on-farm monitoring of health and welfare, feeding back into the review and implementation of Animal Health and Welfare Plans. In the summer of 2007 it is intended to launch a database to enable cross-industry benchmarking analysis of this data, as well as its long-term storage.

In previous years, promotion of the Programme, and health planning as a concept, through a presence at agriculture shows and workshops for both veterinary surgeons and farmers has contributed to the impressive uptake of the scheme, while the regular provision of induction training for veterinary surgeons has helped veterinary practices to implement the Programme on the ground. These activities continued throughout 2006. Additional activities included the ongoing development of a web-based sheep health plan, which has already attracted significant attention, and the production and free distribution of a DVD promoting the benefits of health planning and good biosecurity. This DVD was produced jointly by the Scottish Executive, Quality Meat Scotland and SAC, bringing Government, industry and researchers together to get the message across.

Section B – Initiatives

Farm Health Planning in Wales

Progress in 2006 included:

- the development of sector specific frameworks, intended to be a facilitating tool, have been agreed and printed for dairy, beef and sheep sectors;
- the RVC (Royal Veterinary College) reported on the "Evaluation of animal disease and welfare datasets relevant to Wales" as part of a potential benchmarking process; and
- two veterinary training events were held by Farm Assured Welsh Livestock on the subject of AHP.

Chapter 7: Identification and Movement

Objective: to try and stop the spread of disease by imposing strict rules controlling the identification and movements of livestock.

In the event of a disease outbreak the ability to determine the precise location of all livestock is essential for effective measures to control and eradicate highly contagious diseases.

GB Poultry Register

The Poultry Register opened on 9 December 2005 and requires owners of 50 or more poultry on premises to register their flocks²⁰, with the aim of reducing the impact of a disease outbreak. By the end of the 2006 there were just under 24,000 premises registered. Those with fewer than 50 birds are encouraged to register voluntarily. This is the first time this wide range of species and production types of poultry have been formally captured.

The information on the register has been used for risk assessments, to enhance contingency planning and in various communications to poultry keepers. The SMS text messaging facility was successfully used to alert poultry keepers during the avian influenza incidents in Cellardyke and Norfolk earlier in the year.

More information on the GB Poultry Register can be accessed at <http://www.defra.gov.uk/animalh/diseases/vetsurveillance/poultry/index.htm>

Livestock Register

A formal internal review, involving key livestock industry stakeholders, of the Livestock Register was carried out during 2006 into how it should be delivered. The Register will be Government's primary source of livestock identification and tracing information for animal disease control purposes and a new way forward was recommended.

The review recommended an approach whereby livestock keepers would register births, movements and deaths via one of a number of third-party intermediaries, such as a market or a breed society, rather than direct to Government. This approach would support the Responsibility and Cost Sharing Agenda as well as benefiting livestock keepers as it would tap into systems that they already use for their own commercial purposes. Animal Health, formerly the State Veterinary Service, will now be taking forward development of this work alongside work to deliver aspects of the Bill Madders Livestock Movement Rules review mentioned below. In doing so they will be working in partnership with the Livestock Industry and with the Scottish and Welsh administrations. Although NI has been engaged throughout the process they are not currently included in the scope of the Register as they run their own independent livestock identification and tracing system.

²⁰ Avian Influenza (Preventive Measures) (England) Regulations 2006; Avian Influenza (Preventive Measures) (Scotland) Regulations 2005; Avian Influenza (Preventive Measures) (Wales) Regulations 2006

Sheep and goat Identification

After the foot and mouth outbreak in 2001 the European Commission looked again at the requirements for identification and movement of sheep and goats. In 2004 new rules were introduced. One of these requirements was that sheep and goats be tagged in both ears (double-tagged). This represented a heavy burden on United Kingdom sheep farmers both in terms of cost and time. As a result of UK representations to the Commission a temporary derogation from double tagging was granted until April 2006. Following an inspection by the Food Veterinary Office and subsequent improvements to the sheep and goat identification system the derogation was extended until June 2007.

National Equine Database (NED)

During 2006 the core element of the National Equine database went 'live' and over 950,000 records are now in the system. The commercial element of the database is expected to be launched to the public in May 2007.

The core passport database will be used to monitor the issuing of horse passports that are required under EU Horse Passport (2006/8EC) legislation and, improve Government's ability to carry out disease surveillance and control. NED will also assist in the development of effective economic strategies for the UK horse industry and serve to improve the quality of equines bred in this country.

Independent Review of Livestock Movement Rules

In February Ben Bradshaw, the Minister for Local Environment, Marine and Animal Welfare, asked Bill Madders, a dairy farmer from Staffordshire to carry out a review of the rules for livestock movements and identification in England and Wales. This was a direct result of evidence suggesting that the complexity of the rules, and their variation between species, meant that farmers found them difficult to understand.

During his review, Bill met a wide range of people from different parts of the industry: practical farmers, market operators, dealers, slaughterhouse operators as well as local authority enforcement officers. He also looked at the livestock movement control systems in Northern Ireland and Scotland as well as that of the Irish Republic.

The report was published in July 2006 and contained 21 recommendations which would greatly simplify the rules governing movement reporting. It has been widely welcomed by industry. Work to analyse the potential impact and cost of the recommendations to industry and Government is now underway.

Review of Cattle Identification Regulations

In line with the Government's policies for better regulation, Defra, the Scottish Executive and the Welsh Assembly Government reviewed the GB legislation on cattle identification and registration during 2006. The regulations were first made in 1998 and are now spread across 9 statutory instruments. At the same time the opportunity has been taken to abolish the use of temporary passports for calves, and to enable use of DNA test technology to support calf registration details when passport applications are made late. The new Regulations came into force on 6 April 2007.

Chapter 8: International Animal Health

Objective: to continue to play an important role in maintaining the UK's defences against the introduction of serious livestock diseases.

The CVO (UK) has overall responsibility for the animal health and welfare aspects of the international trade of animals and animal products.

Overview of work in 2006

- Ban on the export of UK cattle and beef lifted.
- Creation of the Private Office and International Relations Unit.
- National Wildlife Crime Unit launched.
- Export Health Certificates with a number of third countries negotiated.
- Success in opening up bovine genetic export markets.

Key Developments in 2006

Lifting of the UK beef export ban

On 8 March 2006, the EU Standing Committee on the Food Chain and Animal Health (SCoFAH) adopted unanimously a favourable opinion on a European Commission proposal to lift the embargo on UK exports of live cattle, beef and beef products. Regulation (EC) No.999/2001 was amended on 2 May 2006. Parallel legislation has been introduced in the TSE (No. 2) (England) Regulations 2006.

Creation of Private Office and International Relations Team (POIR)

Building on the successes of the UK Presidency of the European Union in 2005, 2006 saw the unification of the CVO's Private Office with the EU and International Co-ordination Unit of the International Animal Health Division (IAHD). The aim of the new team, Private Office and International Relations (POIR) is to strengthen the UK's role as an influential leader at EU and International level and achieve our key EU and International policy goals which will contribute to the achievement of the UK's domestic strategies for Animal Health and Welfare (AHW). This office is the first point of contact for all countries when dealing with the UK.

Key EU and International Policy Goals/Benefits

The POIR's policy goals include:

Developing a coherent negotiations strategy that supports the aims of the AHW strategy through:

- maximising EU and International relations;
- accurate and timely delivery of required information to the EU and OIE;
- support for lead negotiators; and
- ensuring consistent messages by taking a strategic overview and working in partnership with key colleagues.

Increased expertise on EU and International issues through:

- ensuring UK involved where business demands;
- correct information is disseminated; and
- training.

The development of good EU and International Relations through:

- taking part in bilateral/trilateral meetings to gain support for the UK position working in partnership with key colleagues;
- successful lobbying outside of EU and International meetings; and
- assisting with appointment of secondees.

EU and International meetings

International meetings provide the best opportunity for POIR's goals to be met. POIR co-ordinates the UK input into a number of arenas including:

- CVO Working Groups;
- EU Standing Committee on the Food Chain and Animal Health (SCoFCAH) – within the monthly animal health meeting;
- Food and Veterinary Office (FVO);
- EU Third Country issues (Potsdams);
- The Sanitary and Phytosanitary (SPS) Agreement of the World Trade Organisation (WTO);
- The World Organisation for Animal Health (OIE);
- European Commission for the Control of Foot and Mouth Disease (EU-FMD);
- International Highly Pathogenic Avian Influenza (HPAI) Issues; and
- EU Agriculture Council.

In addition, the POIR also coordinates participation in international visits and bilaterals including regular meetings with key policy and veterinary leads and stakeholders such as United Kingdom Permanent Representation in the EU (UKRep).

Launch of the National Wildlife Crime Unit (NWCU)

The NWCU was officially launched on 18 October 2006. Work since April has concentrated on setting up the Unit, agreeing priorities with the relevant Departments/Agencies, and progressing initial work on these priorities. The Unit gathers intelligence on national wildlife crime and provides investigative support to police and customs officers across the UK.

It will help ensure that criminals who are breaking wildlife laws are caught and punished and reduce the risk of diseases such as bird flu entering the UK through illegal trade.

Defra, the Association of Chief Police Officers and the Association of Chief Police Officers (Scotland), HMRC and the Home Office contributed towards its operating costs in 2006/7. The Unit is based in North Berwick, hosted by Lothian and Borders Police.

The Unit's initial priorities are: Hen Harrier persecution, illegal trade in Freshwater Pearl Mussels and Caviar, prevention of illegal trade in endangered species over the Internet and AI, particularly in the light of the ban on the import of captive birds. This AI Project began in June 2006, and the dedicated team is now in place. They have an overarching objective to identify criminal activity associated with the illegal importation of birds, other animals, or products and to work closely with other agencies and with similar European Units to investigate information on alleged routes or illegal activity.

The Unit's initial priorities can be found at <http://www.nwcu.police.uk/index.asp>

Progress in 2006

Veterinary Equivalence Agreements

There are a number of Veterinary Equivalence Agreements between the EU and third countries. The aim of these Agreements is to facilitate safe trade in animals and animal products between the EU and the Agreement countries on the basis of equivalent animal and public health measures. During 2006, the UK participated actively in the so-called Potsdam groups which assist the EC and Council Presidency in negotiations under the EU Veterinary Equivalence Agreements with the USA, Canada and New Zealand. These are considered the core groups for UK involvement given the traditional trade relationship between the UK and these countries.

General safeguard measures

Where necessary, as a result of disease outbreaks in EU Member States or Third Countries which were liable to present a risk to animal or public health, restrictions were put in place on the importation of live animals, their germplasm and, as appropriate, their products.

The relevant Regulations under which restrictions were applied are given below.

Regulation 27 of the Animals and Animal Products (Import and Export) (England) Regulations 2005 Regulation 28 of the Animals and Animal Products (Import and Export) (England) Regulations 2006	Imports of live animals from third countries; Intra-Community trade in genetic material
Regulation 59 of the Products of Animal Origin (Third Country Imports) (England) (No 4) Regulations 2004 Regulation 59 of Products of Animal Origin (Third Country Imports) (England) Regulations 2006	Imports of meat, meat products, other animal products and genetic material from third countries
Regulation 35 of the Products of Animal Origin (Import and Export) Regulations 1996	Intra-community trade in meat and other animal products

In England 34 Declarations²¹ were issued in respect of intra-Community trade and 26 Declarations for third country imports to prohibit or restrict imports from specified regions, areas or territories or to revoke any previous prohibitions. Similar Declarations were issued by Northern Ireland, Wales and Scotland under their equivalent legislation.

Restrictions on animals and animal products from other EU Member States were in relation to Bluetongue, Classical Swine Fever and HPAI.

Birds

Independent review of avian quarantine arrangements – the “Dimmock report”

Following the discovery of H5N1 in quarantine in October 2005, an independent review of avian quarantine arrangements in the UK was carried out, chaired by Professor Nigel Dimmock. The review report was published in December 2005. We discussed with stakeholders, and EU partners, how to take forward the recommendations and published a Government response in April 2006 which accepted nearly all of the report’s recommendations.

We reissued guidance on the minimum requirements for quarantine centres and trained State Veterinary Service (SVS) staff on implementing these requirements. Many of the recommendations are now being implemented across Europe through EU legislation.

²¹ Instruments issued under the import Regulations that enable us to apply emergency measures to ban or restrict imports of animals or animal products when new disease threats arise.

EU legislation

A temporary EU ban on the commercial importation into the EU of captive (wild) birds, and temporary restrictions on the import of pet birds, were in place from October 2005 until January 2006. This was then extended to apply to the end of 2006. In the latter months of 2006 the UK worked hard to secure an indefinite EU ban on the importation of wild-caught birds – this indefinite ban will be in place from July 2007.

Imports of Game Birds

Defra successfully negotiated in Brussels a new EU decision setting tougher rules for trade in game birds. Decision 2006/605/EC implemented new biosecurity measures for poultry holdings used to restock supplies of wild game. This included surveillance measures for these game birds when they are dispatched to other Member States or Third Countries. These rules give further guarantees for trade in live poultry and reduce the risk of spreading disease.

Importation of Intermediate Products

Intermediate products are derived from animals and are used in a wide variety of highly specialised applications, such as the manufacture of diagnostic kits and vaccines, and laboratory research. For various technical reasons they cannot meet the existing requirements for importing animal by-products. The Commission recognised their importance however, particularly to the EU healthcare industry, and brought forward proposals to allow their continued importation under an appropriate level of control. In late 2006, an EC proposal covering some of the affected products was agreed. Commission Regulation (EC) No 2007/2006 came into force on 1 January 2007.

New Regulations governing import of products of animal origin

On 24 November 2006, the Products of Animal Origin (Third Country Imports) (England) Regulations 2006 – SI 2006 No. 2841 came into force, revoking the Products of Animal Origin (Third Country Imports) (England) (No.4) Regulations 2004 and the Products of Animal Origin (Third Country Imports) (England) (No.4) (Amendment) Regulations 2006.

These updated Regulations take account of detailed changes to the Community rules on importation of products of animal origin. They establish the practical requirements that must be met when consignments are imported and also set out the various items of Community law that establish import conditions. Because changes to Community law at the detailed level are common, UK Regulations are updated on a regular basis.

Rabies policy review

Defra is close to completing a review of its policies aimed at preventing rabies entering the UK through an imported animal. The main aims of the review are to ensure that UK rabies controls on all rabies-susceptible mammals are proportionate and sustainable, given that their primary purpose is to protect public health, and to inform the UK's response to the European Union (EU) review of certain requirements of EU regulation 998/2003 on the non-commercial movement of pet animals.

Section B – Initiatives

A 12 week public consultation closed in February 2006. Other stakeholder involvement included inviting interested parties to give their views on the current requirements and future direction of the policy. The UK review takes account of evidence on the risk of introducing rabies or other exotic animal diseases or zoonoses through an imported animal, the practical aspects of implementing current policies, as well as cost and benefits, and the way in which other parts of Europe address the risk of rabies and other exotic diseases. It also includes an assessment of the scientific evidence on which current policies are based.

The EU will be carrying out a review of some of the requirements of the EU pet movement regulations, principally in those areas where the UK (and some other countries) has special derogations. The UK responded on 11 December 2006 to the European Commission's invitation to Member States to contribute to the EU review by submitting scientific and field information.

New Post Import Checks

During the latter part of 2006 the policy on post import checking of live animals was revised in order to minimise the risk to animal health.

Checks on intra-Community trade in live animals at destination

The SVS now prioritise their efforts by, among other things, continuing to focus on imports which present a high risk of introducing notifiable disease with high impact and providing a range of effective interventions that the SVS can use to rectify problems when found.

Poultry and game birds from the EU

The SVS carried out checks on all poultry and game birds from February 2006 because of concerns about avian influenza (AI) and Newcastle disease.

Testing animals from third countries at Border Inspection Posts (BIPs)

The SVS fully implement Community law, Directive 91/496/EEC by sampling at least 3% of consignments, validating tests which should have been carried out pre-export. They target checks on the basis of disease risk and carry out additional testing, up to 100% of specified consignments, if there is a heightened risk such as a recent disease outbreak in the region of origin.

Composite Products

Composite products are usually defined as foodstuffs intended for human consumption that contain both processed products of animal origin and products of plant origin. During 2006, Defra officials represented the UK at EU meetings to develop proposals to bring composite products into Community Law²². As a result, a new Commission Decision has been agreed which will include rules for the importation of composite products. This will come into force during 2007.

Advice to stakeholders

101 Customer Information Notes were issued, advising stakeholders of information relating to import matters. There were 93 Importer Information Notes on the Defra website providing details of import conditions for livestock, horse, meat and other animal products.
<http://www.defra.gov.uk/animalh/int-trde/imports/iins/index.htm>

²² This was based on UK Risk assessment

Border Controls

Border Inspection Posts (BIPs)

Animals and animal products from non-EU countries are subject to veterinary checks under EU law. This means they must be imported through an approved BIP where they are subject to a documentary check and an identity check. A percentage of consignments of imported animal products are also given a physical check, which may include an organoleptic check (sensory check on look, smell, taste etc.), a temperature check, and laboratory tests for contaminants. For imports of fresh red meat at least 20% of consignments undergo these checks, rising to 50% for consignments of poultry meat. BIPs must have facilities meeting the requirements of EU law and may operate only after inclusion in the Commission Decision listing approved BIPs. Before this can happen they must be inspected by the EC.

There are six BIPs approved to inspect live animals and 26 approved to inspect animal products. During 2006, the BIPs at Glasson and Shoreham were removed from the list of approved BIPs at the request of the port operators. The BIP at Sutton Bridge was suspended in November 2006 as the inspections by the SVS (see below) confirmed that the facilities did not meet the requirements of EU legislation. In addition, the BIPs at Aberdeen, Goole and Grangemouth have decided not to handle animal products and will be removed from the list when it is next updated.

Lists of BIPs are available on the Defra website at:

www.defra.gov.uk/animalh/int-trde/imports/bips/index.htm#animals for live animals; and
www.defra.gov.uk/animalh/int-trde/imports/bips/index.htm for animal products.

The SVS check all consignments of live animals entering the EU through a BIP. They also sample at least 3% of consignments, validating tests which should have been carried out pre-export. They target checks on the basis of disease risk and carry out additional testing, up to 100% of specified consignments, if there is a heightened risk such as a recent disease outbreak in the region of origin.

State Veterinary Service (SVS) Agency/BIP Liaison

During 2006, SVS officers made regular visits to BIPs which check animal products to offer advice and check their compliance with EU legislation. These visits have helped to build good relationships with port health authorities (who are responsible for carrying out the veterinary checks) and the port operators. If deficiencies are found, a procedure is in place to ensure they are quickly corrected or the BIP is suspended if high standards cannot be delivered.

Intra-community trade

Due to factors outside the control of the UK, international trade figures for 2006 were not available at the time this report went to print.

Illegal Imports

Between the financial years 2003/2004 – 2005/2006 the Government spent £25m tackling illegal imports from outside the EU of any meat, other animal products and plant products. The current level of funding has been included in Her Majesty's Revenue and Customs (HMRC's) allocation for future years. Funding will also continue to be available for Defra to examine the risks and help increase public awareness, and for the FSA for work on inland controls.

Enforcement

Within GB, HMRC has responsibility for anti-smuggling controls at the border on imports of Products of Animal Origin (POAO) from outside the EU. The Department of Agriculture and Rural Development for Northern Ireland (DARDNI) retains responsibility in Northern Ireland.

In terms of illegal imports, HMRC enforcement is based on risk. This includes information provided by Defra on the animal health disease situation around the world, including the risks from new disease outbreaks (AI, FMD etc.). We provide HMRC with the 'map of the world' including information from the OIE detailing animal health risks by country to assist HMRC in deploying their resources.

Information on HMRC staff was documented in the 2005 report and can be viewed at: <http://www.defra.gov.uk/animalh/cvo/report/2005/sectiond.pdf>

Since March 2004, HMRC have made nine successful prosecutions (one of which was a postal import). There continues to be a steady increase in the total seizures reflecting the continued increase in enforcement activity. 86% of seizures are made from higher designated risk countries of origin. HMRC accounts for 99% of all UK seizures. Most seizures continue to be under 20kg from small family groups, for a special occasion or simply for a 'taste of home'.

Table B7.1: Total seizures and weight (UK)

Period	Number	Weight (kg)
01/04/01 – 31/03/02	2,053	114,790
01/04/02 – 31/03/03	7,819 (281% increase)	109,211
01/04/03 – 31/03/04	15,838 (103% increase)	185,889
01/04/04 – 31/03/05	25,610 (62% increase)	220,155
01/04/05 – 31/03/06	32,795 (28% increase)	272,121

In 2006, following the spread of H5N1 in various regions of the world, HMRC doubled the dedicated number of staff who check passengers, freight and post from affected countries. A flyer on AI is issued to passengers leaving the UK, travelling to affected countries. Inbound and outbound posters are on display at airports. This is being kept under review.

Section B – Initiatives

Travellers are being encouraged to voluntarily deposit any high risk items into dedicated surrender bins at manned Red (HMRC) points. These are not amnesty bins and will only be deployed alongside staff to assist in the seizure of AI related products.

Raising Public Awareness

A large amount of publicity activity was conducted in 2006 and there continued to be a joined-up approach across Government Departments on the overall communications strategy. Defra led on inland audiences, HMRC on travellers from non-EU countries and at GB points of entry and DARD for travellers in NI.

A large amount of publicity activity was conducted during 2006. This included:

- **Leaflets** were distributed to a large number of organisations (universities, student groups, volunteer organisations, charities, travel guide companies, freight companies and hauliers) that provide information to individuals coming to, or returning to, the UK, as well as sending leaflets to general practitioners surgeries.
- A major phase of the campaign focuses on communities who may bring back food items from their trips abroad, and was conducted by a specialist publicity agency. **Bi-lingual leaflets and posters** in nine different languages²³ were produced. 55,444 bilingual leaflets were distributed between January 2006 – December 2006.
- The **branded mobile unit** visited 56 specific cultural, religious, and community events in 2006. These included Islam Expo, Praise in the Park and Regents Park Mosque. We also have a branded exhibition kit for smaller venues.
- During 23 October 2006 – 5 November 2006 **advertisements** were placed in phone booths in community specific locations in London. Further activity is planned for 2007.
- Between April and September 2006 our **TV filler** 'I Packed My Bag' was broadcast across GB in slots that would of cost us £219,587 to pay for an advertisement to be shown at these times. A significant number of showings were on stations such as the Islam Channel and Zee TV as well as regional TV stations. It was adapted for use as an in-flight video for incoming passengers to the UK to encourage them to surrender illegal goods to the HMRC Red Channel.

Figure B8.2: Bi-lingual leaflets and posters including English and Mandarin



23 Hindi, Urdu, Punjabi, Bengali, Gujarai, Mandarin, African/Caribbean (in English), Arabic and Turkish.

- We also undertook an advertising campaign aimed at UK travellers who research and book trips abroad online. The second phase of the **online advertising campaign** started on 23 October 2006.

We continue to receive positive feedback plus good media coverage in national, local and ethnic minority press.

HMRC are responsible for publicity at the border and overseas. They have revised their high-impact leaflets and posters, building on the posters/leaflets already discussed. In addition, warning letters and public notices were issued to all passengers from whom products were seized and by recorded delivery to those who received items in the post, thus ensuring better understanding of the rules. There was considerable publicity on HMRC prosecutions. HMRC is increasing awareness in key regions abroad through local advertising campaigns and co-operation with local Embassies, visa offices and international airlines. They have developed bi-lingual materials, which detail the rules for specific countries.

Figure B8.3: Online Advertising Campaign



Collaborative Working

Throughout the year, Defra continued to work closely with HMRC, FSA, Central Office of Information, Greater London Authority, International Fund for Animal Welfare, Chartered Institute of Environmental Health, Local Authorities Coordinators of Regulatory Services and other Government Departments.

46 major airlines are now showing an in-flight video or making announcements on inbound flights, to highlight the controls in place. HMRC and Defra continue to work with the Department of Transport to encourage more airlines to show the in-flight video or to make announcements.

World Organisation for Animal Health (OIE)

The CVO gave a presentation to the OIE regional conference in Lyon on 22 September 2006 on the issue of smuggling. This was based on the responses from member countries of the European Regional Commission (over 75% responded) to a questionnaire on smuggling drawn up by the UK on behalf of the OIE.

The main conclusions of the conference were that smuggling of live animals and products is considered an important issue with a potentially high impact on health status and economy. In addition the need for political commitment was recognised and that there was an effective legal basis for action.

At the conference the CVO encouraged the member countries to co-operate with Government Agencies and others, to provide assistance for under resourced countries and to have greater regional co-operation and intelligence sharing.

Section B – Initiatives

Risk Assessment

In 2005-2006 Defra commissioned the Veterinary Laboratories Agency (VLA) to undertake a Qualitative Risk Assessment (QRA) to determine how the risk from illegal imports fit into the wider context of import risk across the range of means of entry, both legal and illegal, and for both live animals and POAO, for EU and non-EU country imports. This will be published in Spring 2007 and will feed into longer-term enforcement strategies.

International trade: exports

UK Agriculture Departments are responsible for ensuring that intra-community trade in live animals, their genetic material and animal products is undertaken in accordance with EU rules. In the case of exports to Third Countries, the Exports Strategy Branch negotiates and drafts the necessary export health certification to meet the conditions for import into the country of destination.

Export Certification Users Group (ECUG)

The Export Certification User Group (ECUG) was set up in 2002 to assist in directing our limited resources at non-EU export markets where there was a real interest in, and realistic prospect of, trade in livestock, meat, semen and embryos. The ECUG meets regularly throughout the year.

The ECUG has made real headway for the important pig and cattle breeding sectors, opening many key markets, and is an excellent example of how industry and Defra can work together in line with the aims of the Animal Health and Welfare Strategy on sharing costs and responsibility. The group is currently focusing on beef and cattle exports.

Germplasm

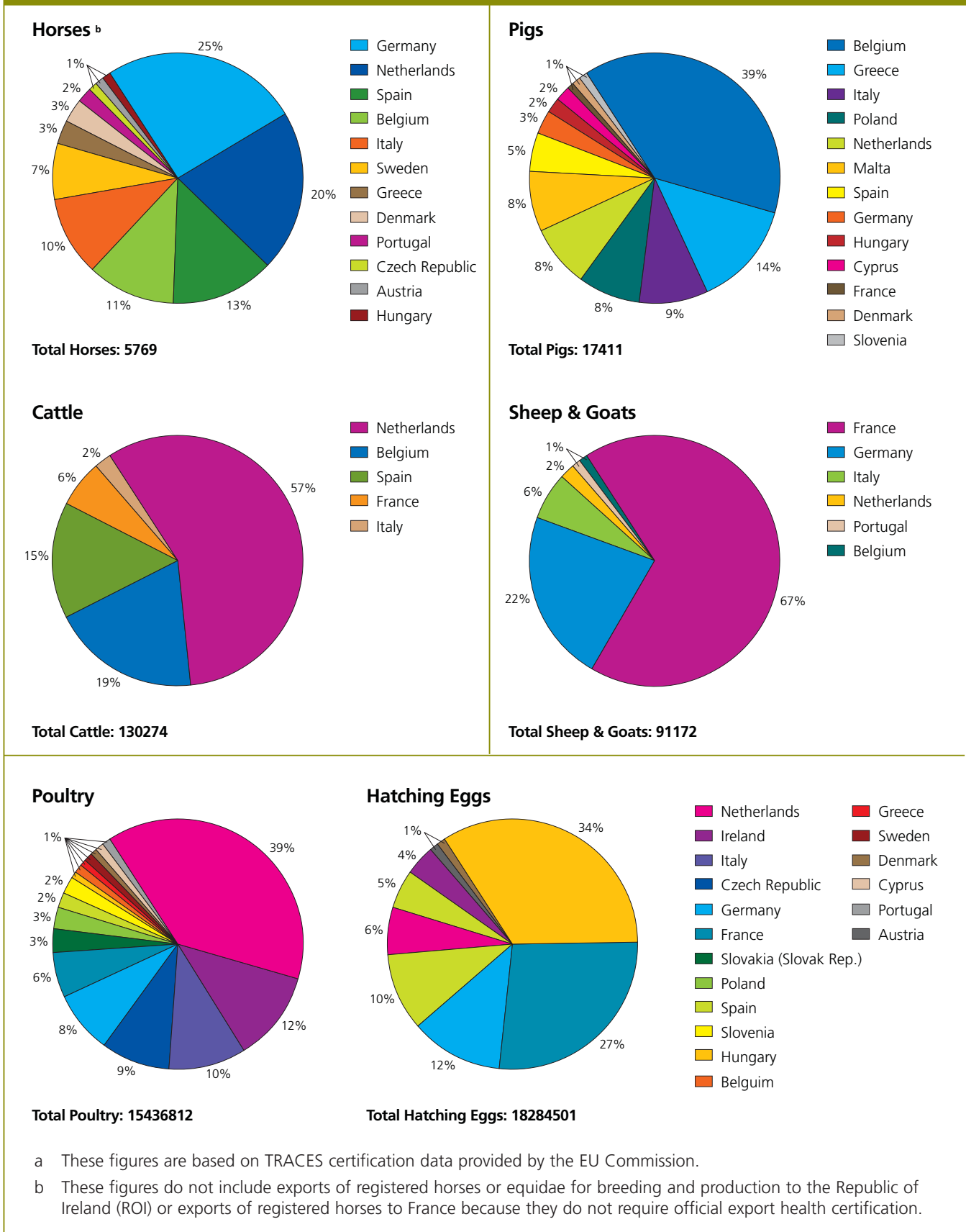
The main destinations for **bovine semen** in 2006 were Italy (212827 – 24%²⁴), France (145135 – 17%), Republic of Ireland (119686 – 14%) and the Netherlands (102840 – 12%). The majority of trade in **bovine embryos** were to Poland (200 – 56%) and Ireland (114 – 32%). Trade in **ovine and caprine semen** was predominantly with Ireland (102 – 39%), Sweden (62 – 24%) and Greece (60 – 23%). The main destinations for **equine semen** were the Netherlands (491 – 42%) and France (365 – 32%). France (1535 – 37%), Italy (904 – 22%), Spain (736 – 18%) and Germany (529 – 13%) were the main destinations for **porcine semen** in 2006.

Table B7.2: Exports of Germplasm by Unit

	Total Trade
Bovine Semen	868801
Bovine Embryos	357
Ovine/caprine Semen	259
Equine Semen	1158
Porcine Semen	4169

24 all figures in brackets are for units exported

Figure B8.4: Export of animals to EC Member States during 2006^a



Exports to Third Countries

Negotiating export health certification

We continued our partnership approach with UK industry during 2006 and, together with contacts in British Embassies and High Commissions, successfully negotiated a number of new and revised export health certificates with third country governments.

New export health certificates agreed during 2006 included those for:

- pig meat to Bosnia, Qatar, Cuba, Ukraine and UAE;
- sheep meat to Bosnia, Algeria, Qatar and UAE;
- breeding pigs to Tanzania, Serbia, Kenya and Colombia;
- porcine semen to Brazil and Kenya;
- bovine semen to Colombia, Costa Rica, Tanzania, UAE and Kenya;
- bovine embryos to Cuba, Turkey and Brazil; and
- sheep genetics to Mexico and Kenya.

A list of all available export health certificates can be found on the Defra website.

The European Commission successfully re-negotiated the harmonised certificates already in place in 2005 for the export of 14 commodities from EU member states to the Russian Federation to bring the animal health requirements in line with the OIE Terrestrial Animal Health Code as far as possible. It also negotiated certificates for 4 more commodities. Defra representatives ensured UK industry concerns were included in the negotiating process. The 18 certificates included breeding pigs, pig meat, breeding poultry, poultry meat and milk products, which were key for UK industry, and these come into force 1 January 2007.

Part of the export health certification negotiation process is the request for the completion of detailed and complex questionnaires on regulatory framework, enforcement authority and public and animal health issues. In 2006, questionnaires were completed for China, Argentina, Australia, South Korea and Taiwan.

Beef and Cattle

On 8 March 2006, the Standing Committee on the Food Chain and Animal Health (SCoFAH) unanimously approved a proposal to lift the ban on the export of cattle and to relax the restrictions on the export of beef and certain other bovine products from the UK.

The EU Regulation lifting the ban entered into force on 2 May 2006, with exports able to resume on 3 May 2006. Such exports were able to take place in accordance with EU rules and on the same basis as other Member States. In readiness for the ban being lifted, Defra worked closely with key industry stakeholders and animal welfare organisations to ensure that once the ban was lifted the UK would be in a position to export to fellow Member States from “day one” by having procedures in place that met both industry needs and were in compliance with EU trade rules.

Throughout 2006, Defra and SVS continued to work with industry representatives to keep cattle trade arrangements under review to bring about improvements to the process. As a result, revised arrangements were implemented in early December 2006 enabling new trading and movements options and in addition offered a more streamlined application and certification process (with the use of IT and co-operation from traders).

The swift and smooth implementation of these arrangements owes much of its success to our effective working relationship with the cattle export industry and SVS. This collaborative relationship continues to work successfully examining other potential enhancements to the cattle trade process.

Since the ban on beef and cattle exports was lifted, beef exports totalled around 35,000 tonnes in 2006. It was anticipated that exports of pedigree cattle would be slower, but nonetheless some exports of breeding cattle did take place to Austria, Estonia, Germany and Poland (valued at up to £1m).

For exports outside of the EU, certification was agreed with Switzerland and Romania in 2006. Efforts to open markets for cattle and beef in countries such as the Russian Federation, Serbia and Ukraine for cattle and Hong Kong and South Africa for beef continued. Strategies to open these markets were negotiated with the help of British overseas posts.

Bovine genetics (semen and embryos)

Whilst the BSE related cattle export ban was in place the emphasis for the cattle industry shifted to the export of bovine genetics. Success for opening bovine genetics export markets continued throughout 2006. UK exporters now have access to 26 other Member States and 22 Third Countries. In 2006, the UK exported semen from some 30 cattle breeds. As well as stimulating competitiveness, these exports brought in new income to the sector, helping to sustain critical mass and infrastructures in the UK. The breeds exported ranged from major international types to others that might be less established. It becomes a vital lifeline to the latter breeds to extend their markets, thus helping to ensure biodiversity and their continued existence. Demand for UK bovine genetics is increasing and we expect exports in 2007 to increase quite significantly.

Pigs and pig meat

The number of UK pigs exported during 2006 exceeded those in 2005 by a considerable margin. In particular, large numbers of breeding pigs, approximately 40,000, were exported to the Russian Federation. Also, following successful negotiations the first consignments of breeding pigs to China for a decade were exported.

Efforts to open the lucrative export market of UK pig meat to China continued during 2006. Chinese officials visited in the early part of 2006 and it was hoped that an agreement on the protocol for trade would be signed during various Ministerial visits in the latter half of the year. Such agreement has not however been reached. Work continues via the British Embassy in Beijing to find a solution.

Live poultry, hatching eggs and poultry meat

Following the 2005 Newcastle disease outbreak, contingency arrangements were reviewed and updated producing a new draft Disease Response Plan for Exports. Although not finalised, the Plan was implemented on a number of occasions during 2006.

We liaised frequently with stakeholders to identify the key export markets. We also worked closely with British Embassies and High Commissions to try to keep export markets open. This was achieved by providing information and reassurance about the disease situation in the UK. Where necessary, we negotiated with the veterinary authorities of Third Countries to get import bans lifted and/or to agree revised export health certification.

Impact of H5N1

The H5N1 incident in a wild bird at Cellardyke led to some overseas countries immediately imposing a ban on imports of UK poultry. Others imposed an import ban later in the year as a result of the low pathogenic H7N3 outbreaks in commercial poultry in Norfolk.

We had considerable success in facilitating exports of day old poultry, hatching eggs and poultry meat. Although bans were initially imposed by, or certification could not be signed for Algeria, Argentina, Bolivia, Hong Kong, India, Indonesia, Japan, Saudi Arabia, South Africa, South Korea, Syria and Thailand, we reached agreement with those countries and others for exports to take place. Conditions applied and in some cases, e.g. Russian Federation, Turkey & Ukraine, a condition of export was that the consignment did not originate from Norfolk.

Impact of Newcastle Disease

As a result of the 2005 Newcastle disease outbreak, we are negotiating and amending many export health certificates. When a Newcastle disease (pigeon variant) outbreak occurred in East Lothian, in October 2006 there were no significant trade issues, which can be directly attributable to the amended EHC. Syria introduced UK-wide restrictions and Ukraine imposed similar restrictions on exports from Scotland. A few other countries imposed restrictions from and around the Lothian Region of Scotland. These included Bosnia & Herzegovina, China, Croatia, Russian Federation and Turkey.

Throughout the 2006 avian influenza and Newcastle disease outbreaks, we kept industry fully informed of the status of poultry export markets by publishing regular Customer Information Notes on the Defra website.

The excellent working relationship we have built up with stakeholders, British Embassies and British High Commissions has resulted in many poultry exports being able to take place, bringing praise from poultry producers and exporters alike.

Artificial insemination (cattle & pigs)

The Artificial Insemination (AI) of Cattle Regulations 1985 and the Artificial Insemination (AI) of Pigs Regulations 1964 control the collection, storage, supply and use of bovine and porcine semen respectively as well as training farmers carrying out DIY AI. The industry and market has changed significantly in the intervening period and these regulations have been subject to review with a view to bring them more into line with current agricultural and AI industry practice.

Cattle

Details of the public consultation into the proposed updated legislation can be obtained by contacting the review team located in area 408 of Defra's Page Street Office in London.

The necessary Exemption Order to the Veterinary Surgeons Act is being finalised and will need to be brought into force at the same time as the Bovine Semen Regulations to ensure complete legislative cover for the whole of the industry.

The new regulations will come into force in 2007.

Pigs

During 2006 work has continued on producing new legislative cover for the porcine semen industry. A consultation document is currently being prepared which subject to Ministerial approval, will be issued this year.

These regulations are due to come into force at the beginning of 2008.

Unlike with cattle, the artificial insemination of pigs is not considered to be an act of veterinary surgery and therefore does not have to adhere to the introduction of an Exemption Order to the Veterinary Surgeons Act.

The review of the two outdated pieces of legislation will enable us to review the fees that are applicable to the administration of the bovine and porcine regimes. New fees will be introduced to reflect full economic cost at current prices. However, we aim to make pricing much more transparent for everyone's benefit.

Transfer of Delivery Functions to the SVS Agency

In April 2006, the delivery functions relating to imports and exports of animals and animal products and artificial breeding control (ABC) were transferred to the SVS. An International Animal Health Service Delivery Unit (IAH SDU) was set up within the Lincoln Animal Health Divisional Office to manage the transfer and recruit staff to take on delivery work which had previously been carried out by Defra. Enquiries relating to the import and export of animals and animal products and licenses relating to artificial breeding controls are now dealt with by the IAH SDU. Exporters needing export health certificates continue to deal with the local SVS Animal Health Divisional Offices which seek advice from the Lincoln IAH SDU where appropriate.

International disease monitoring and risk assessment

Diseases affecting livestock and other animals may occur endemically or in the form of occasional outbreaks or epidemics in any country. Some of these diseases could have serious welfare and economic consequences if they were to be introduced to the livestock populations of the UK²⁵. Early warning and the assessment of risks are essential tools for policy-makers seeking to reduce the possibility of further incursions of significant animal diseases to the UK.

The International Disease Monitoring Unit (IDMU)

The IDMU is responsible for the scientific monitoring of disease outbreaks in the EU and in trading partners worldwide. It undertakes qualitative assessments of the risks of highly pathogenic or economically threatening diseases being introduced to the UK livestock populations through international and intra-community trade or through other avenues. The unit provides input into policy decisions and directly informs policy makers and other stakeholders across government departments and their agencies, as well as distributing information to the general public through the Defra website.

The IDMU regularly provided internal monthly reports on the animal disease situation internationally to government and other bodies (SVS, Civil Contingency Secretariate (CCS) of the Cabinet Office, Health Protection Agency (HPA), Veterinary Laboratories Agency (VLA), Institute for Animal Health (IAH), VEROD, Surveillance, Disease Control Policy, HMRC, HPA, AATA and SANCO).

Publications

During 2006 the IDMU published 46 preliminary outbreak assessments (POAs) on the Defra website. These covered diseases such as FMD, CSF, HPAI, bluetongue, Newcastle disease and peste des petits ruminants, among others. 4 quarterly reports were published in the Veterinary Record and 10 detailed qualitative risk assessments (QRAs) were also published. These covered FMD, HPAI and equine infectious anaemia and are given opposite.

²⁵ Defra closely monitors outbreaks of high impact diseases wherever they occur around the world.

Table B7.3: Qualitative risk assessments published in 2006

Date Published	Title
17 January	Highly Pathogenic avian Influenza (H5N1) in Eastern Europe and Asia – An update and commentary.
10 February 2006	Foot and Mouth Disease in Argentina (FMD free zone with vaccination).
17 February 2006	Spring Migration and the Likelihood of the Introduction of Highly Pathogenic Avian Influenza (H5N1) into the United Kingdom.
22 February 2006	Highly Pathogenic Avian Influenza (H5N1) in a duck in France and an update on the situation in Europe.
22 March 2006	Potential role of certain free living avian and domestic animal species in the epidemiology of highly pathogenic avian influenza (H5N1) – A commentary working document.
7 April 2006	HPAI H5N1 in a Mute Swan (<i>Cygnus olor</i>) in Scotland.
13 April 2006	HPA1 H5N1 in a Whooper Swan (<i>Cygnus cygnus</i>) in Scotland.
30 June 2006	Outbreak of HPAI H5N1 virus in Europe during 2005/2006 – An overview and commentary.
6 July 2006	HPAI H5N1 situation in Europe and potential risk factors for the introduction of the virus to the United Kingdom.
14 September 2006	Equine Infectious Anaemia – Potential risk factors for the introduction of the virus to Great Britain from EU Member States and countries neighbouring the EU.

Chapter 9: Animal Health and Welfare Research

Objective: to develop policy grounded on good evidence and fund research either wholly or in collaboration to provide scientific information and advice that is used in developing evidence-based policies in line with the objectives of the Animal Health and Welfare Strategy.

The allocations of research funding within various programmes for the financial year 2006/07 are listed in **Table B9.1**. Further details of the wide range of animal health and welfare research projects funded by Defra can be found at: www.defra.gov.uk/science/default.htm

Progress in 2006

Key developments

In such a wide-ranging programme it is not possible to describe all the research areas that are being supported but a number of key developments are:

- Support is being given to the Global Foot and Mouth Research Alliance which is an international consortium of five institutions; IAH Pirbright Laboratory, (UK), Plum Island Laboratory, (USA), National Centre for Foreign Animal Disease (Canada), the Australian Animal Health Laboratory and the International Livestock Research Institute (Kenya), with a five-year research programme for developing a new generation of vaccines and other technologies for the control of FMD.
- Increased concern is being expressed at the spread of Bluetongue into European countries where previously the disease has not been reported. In a project jointly funded by BBSRC and Defra, work is underway to improve our understanding of the epidemiology of the infection and to develop appropriate control measures.
- With the spread of Avian Influenza in the world, there has been an increased investment in research aimed at developing better approaches to the prevention, detection and control of infection. The Veterinary Laboratories Agency are playing a key role in this expanded research programme.
- Results from Defra-funded projects have contributed to an increased understanding of atypical scrapie in particular the association with atypical scrapie with polymorphisms in the prion protein gene and the demonstration that atypical scrapie can be transmitted to mice and to sheep by the intracerebral route.
- Different sources of scrapie produce different prion disease phenotypes when inoculated intracerebrally into cattle but there is no unequivocal evidence that transmission can occur by the oral route.
- A field experiment has started at a specially constructed site to investigate the environmental fate of TSEs.
- A novel method to assess animal welfare through qualitative, 'whole animal' assessment was validated in collaboration with the State Veterinary Service. This potentially provides an approach which can be utilised during on farm welfare inspections.

- The research on sheep scab was reviewed and new research requirements identified.
- Research was commissioned into the development of a cost-effective, automated, early lameness detection for cattle. Lameness is one of the main animal welfare problems in the dairy industry.
- We continue to invest in research to develop a vaccine to protect badgers against bovine TB in partnership with international research collaborators. A field trial to assess the safety and efficacy of BCG in badgers has commenced and a project to develop a method for the delivery of the vaccine in oral baits is underway. The development of a vaccine is a long term aim, but Defra expects that it will one day form an important part of a balanced package of measures to control bovine TB.
- One of a number of research projects funded by Defra into bat related rabies involved challenging live Daubenton's bats (*Myotis daubentonii*) with European Bat Lyssavirus type 2 infection. This project attracted much public interest and debate. The research is due to be completed in 2007 and the results will be published. They will be used to help inform current policy on the protection of public health, which includes advice to bat handlers and the general public on risks to which they may be exposed when coming into direct contact with bats. From a conservation perspective the study will also help to understand how this species of bat is affected by infection with EBLV type 2.

Collaborative Working

Progress has been made in forging closer links with industry, other stakeholders and other funders in order to ensure best use of research funds.

The partnership principles have led to improved industry focus on research on non-statutory diseases through the Poultry Disease Research Advisory Group and the British Pig Executive. Improved collaboration with other UK research funders, including SEERAD, DARD, WAG, BBSRC and Wellcome is provided through the Animal Diseases Research Funders Forum. In addition, over the past year, four animal health and welfare projects submitted to the BBSRC under the Responsive Mode system were identified for joint support under the Government Partnership Award Scheme.

The Defra-coordinated Collaborative Working Group (CWG) on Animal Health and Welfare, under the EU Standing Committee on Agriculture Research, which is concerned with improved collaboration on animal health and welfare research across EU Member States and Associated Member States continued to evolve with the expansion of activities and the participation of more countries. The CWG acts as a 'think tank' to initiate activities for wider debate. This currently includes identification of priority topics for implementing a common research agenda; using foresight methods and processes to identify Europe's medium and long term animal health research needs and mapping EU animal health capacity. The CWG meeting in November considered collaboration on Emerging Disease Threats.

Programme reviews and workshops

A review was carried out into all research commissioned by Defra in the last five years into the welfare of animals during transport and at markets. The outcome of this will be used to inform policy and direct research in this area in the future.

A similar review of the bovine tuberculosis research programme was also reviewed during the year and the report of this review can be found at:

http://www.defra.gov.uk/science/publications/tb_review2006.htm

The UK Joint Funders' UK TSE Research and Development Co-ordination Group (Defra, Food Standards Agency (FSA), the Department of Health (DH), the Biotechnology and Biological Sciences Research Council (BBSRC) and the Medical Research Council (MRC)) ran a successful 3-day Workshop attended by all recipients of research funds for work on TSEs at the end of August. Earlier in the year the group published online the final version of the UK Strategy for Research and Development on Human and Animal Aspects of Transmissible Spongiform Encephalopathies 2005-2008.

Looking to the future

The Foresight project on the Detection and Identification of Infectious Diseases launched its findings in April 2006. This project was part of the Foresight programme managed by the Office of Science and Innovation within the Department of Trade and Industry. Defra worked closely with the sponsoring Minister for the project, Lord Bach of Lutterworth. Key findings from the project can be found at www.foresight.gov.uk .

For a number of years the TSE research programme has accounted for a large proportion of the total research budget, but control measures introduced to protect public health and animal health from Bovine Spongiform Encephalopathy (BSE) are reducing the levels of BSE in cattle and many of the long-running projects in this area will be completed within the next few years. Therefore, some funding has been re-directed to examine whether the unusual forms of BSE reported worldwide can also be found in the UK and other studies targeted at understanding the nature and spread of TSE infections in sheep and goats have been commissioned. Work on the development of tests for detecting TSE infection in live animals remains of importance. A major review of Defra-funded research was held at the beginning of 2007 and research priorities are being defined.

Table B9.1: Funding levels for research programmes for the financial year 2006/2007

Veterinary Science Programme	Includes research on	Allocation for 2006/07 (£'000s)
Statutory and exotic diseases	Bovine tuberculosis	6,070
	Foot and mouth disease	2,441
	Swine fever	744
	Rabies (and related viruses)	530
	Brucellosis	320
	Influenza and Newcastle disease	794
	New and emerging diseases	330
	Bluetongue (and related viruses)	618
	Others (including VTRI)	3,596
Zoonoses	E.Coli O157	300
	Salmonellosis	1,187
	Campylobacteriosis	1,052
	Others	196
Endemic diseases and alternatives to pharmaceutical control	Bovine mastitis	192
	Non-statutory viral disease	752
	Non-statutory parasitic disease	591
	Antimicrobial resistance	634
	Others	316
Transmissible spongiform encephalopathies (TSEs)	Sheep TSEs	8,813
	Diagnostics	2,653
	BSE and animal by-products	1,787
Veterinary medicine	Veterinary medicine	1,923
Animal Welfare	On-farm	2,102
	Slaughter	479
	Transport	749
	Others	110
Fish Health	Fish health	1,776
Total		40,055

Chapter 10: Veterinary Surveillance Strategy

Objective: to deliver faster, better targeted disease prevention and control measures via earlier detection of animal-related threats; open, transparent and defensible prioritisation of surveillance activities and a well-defined evidence base.

Overview of work in 2006

- Wildlife Health Strategy initiated.
- Joint GB cattle disease surveillance report published.
- Pilot veterinary sentinel network for cattle established.
- RADAR connected to the GB Poultry Register and Disease Control System, in response to the potential AI threat.
- New prioritisation project initiated to help allocate finite resources in a transparent and standardised way.
- Expansion of the Equine Surveillance Project network of laboratories.
- Discovery of helminth resistance to all three groups of worming product in sheep and goats.

Key Developments in 2006

Wildlife Health Strategy

Diseases of wildlife have a role in new and emerging diseases that can pose a risk to the health of humans and animals, wildlife conservation and economic productivity. Government is managing this risk by developing a new strategy looking at the health of wildlife.

The Wildlife Health Strategy will help to implement the wildlife elements of the Veterinary Surveillance Strategy, an integral part of the Animal Health and Welfare Strategy.

It will develop a strategic approach to wildlife health in order to balance wildlife and other interests appropriately. This Strategy will also help to coordinate and prioritise policy and intervention in a consistent manner. Actions can be implemented from improved knowledge and understanding of wildlife diseases and their impacts. Awareness and concerns relating to wildlife disease issues has increased and the Strategy will respond to this.

A workshop held on 1st June 2006 introduced the Wildlife Health Strategy to interested individuals and organisations. 79 people attended from organisations interested in wildlife including government departments and agencies, universities, research institutions, non-governmental organisations and zoos. Attendees were asked to consider issues that the strategy should cover.

More information on the Wildlife Health Strategy can be accessed at:
<http://www.defra.gov.uk/animalh/diseases/vetsurveillance/species/wildlife/hws.htm>.

The Wildlife Health Strategy, once implemented, could be used to share data on wildlife disease. This would allow access to important information on a range of diseases, some of which may be zoonotic and others potentially of significance to farmed livestock. Should this proposal be included in the finalised Wildlife Health Strategy, this system could become akin to the successful use of data derived from various bodies on horse diseases, and which successfully underpins the horse surveillance strategy.

Development of a Cattle Disease Surveillance Report for GB

With the launch of the new Defra Veterinary Surveillance Strategy, attention has focused on scanning for new and emerging diseases. A key strategy for achieving this is through the statistical analysis of currently available surveillance data. This data is analysed to monitor trends in endemic disease and to horizon scan for new or emerging syndromes.

Until now cattle disease surveillance has been performed and reported on a separate basis for England and Wales and for Scotland. However, a recent initiative, involving collaboration between members of the Veterinary Laboratory Agency and the Scottish Agricultural College, has led to the development of a GB-wide approach to disease surveillance. Harmonisation of SAC and VLA disease data has involved changes to the reporting systems and disease coding of both institutions and the delivery of all data into a common database. This has led to the combined analysis and reporting of information derived from submission of diagnostic samples to all laboratories within England, Wales and Scotland.

A revised Cattle Quarterly Report for the whole of GB is in preparation and due for publication in March 2007. Improvements to the design and quality statements for the document have also been initiated. This document is planned to act as a precursor and pilot to the production of similar GB-wide reports for all the animal species currently the focus of disease surveillance projects.

Pilot Veterinary Sentinel Network (Cattle)

The Veterinary Surveillance Strategy recognised a need to expand the veterinary surveillance network. Clinical information held by both farmers and veterinary surgeons is not collated or shared with the VLA or SAC unless material is submitted for laboratory examination. A sentinel network should be able to collect information direct from the veterinary surgeons of a representative selection of farms, and provide estimates of the prevalence of all endemic diseases – not just those which are monitored through laboratory test results.

A pilot study was set up to explore whether a veterinary sentinel network could be established which accurately represented the cattle population and determine what useful information it is practical and economical to obtain from veterinary practitioners. A representative sample of farms in Yorkshire, stratified by herd size, was identified with a view to recruiting 30 to participate in the pilot. The private veterinary practitioners involved with these farms were identified and asked firstly if they would be interested in participating in the pilot project and if so to contact the farm(s) to encourage participation. 95% of the practices approached agreed to participate and 30 farms have been recruited.

The project consists of two phases. In the first phase, November – December 2006, each farm received three funded surveillance visits from their practitioner at three monthly intervals. Monthly records were submitted of all contacts with the farms between these visits.

Section B – Initiatives

Of the 30 farms agreeing to participate in the study, 23 completed all 3 surveillance visits. This data is now being analysed. In the second phase, data at a practice level is being requested from the vets participating in the study. This information will help establish the veterinary cover, visit frequency and farmer/vet contacts for the 31 practices in the study.

Several workshops of the participating vets took place in 2006. More information on the workshops and on the pilot veterinary sentinel network project can be accessed at: <http://www.defra.gov.uk/animalh/diseases/vetsurveillance/gettinginvolved.htm>

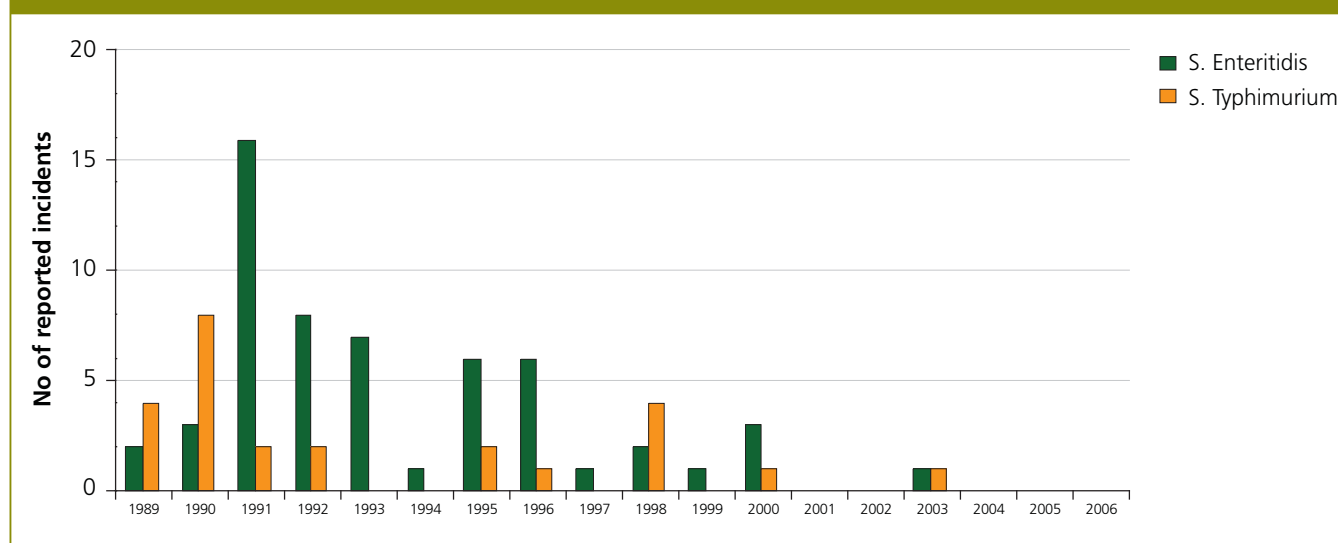
Salmonella levels in breeding flocks of *Gallus gallus*

The UK has successfully achieved and continued to maintain a marked improvement on flock Salmonella levels.

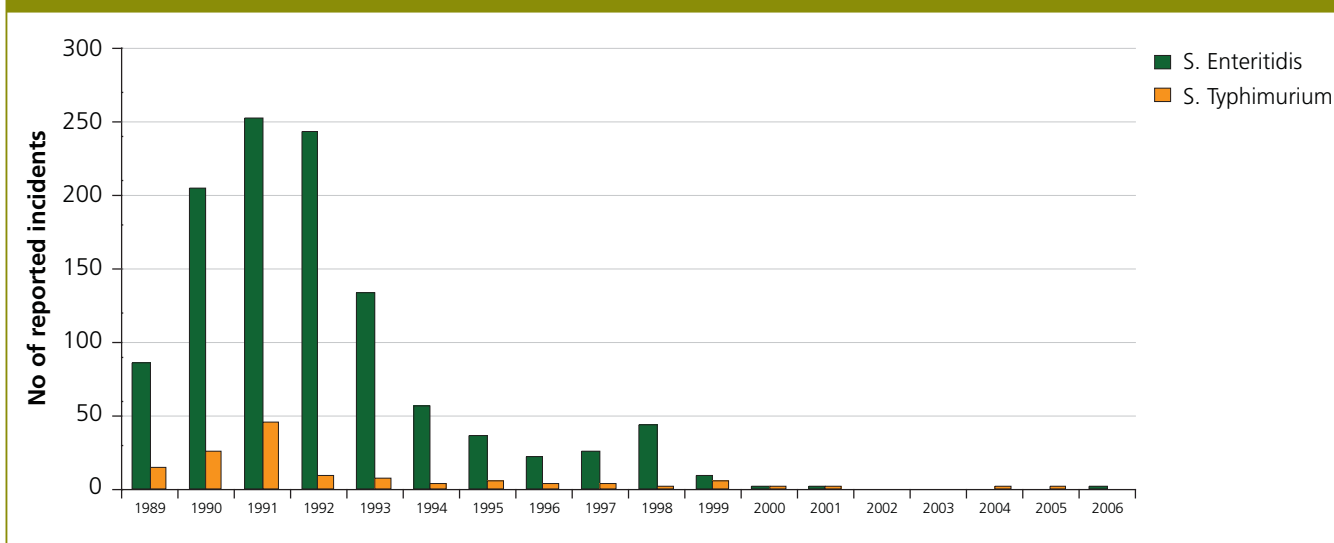
During the year the programme for the control of Salmonella in breeding flocks of domestic fowl continued in line with the previous Directive (EC) No 92/117, which is to be replaced in 2007 by the new control plan under Regulation (EC) No 2160/2003.

The programme indicated continuing good control of *S. enteritidis* and *S. typhimurium* in the breeding sector. The trend over the past years is demonstrated in the following graphs.

Figure B9.1: Reported incidents of suspected *S. Enteritidis* and *S. Typhimurium* in Layer Breeders 1989-2006



In 2006, no *S. enteritidis* or *S. typhimurium* were suspected or confirmed in the layer breeder sector. In the broiler breeder sector, *S. enteritidis* was suspected on two occasions in Broiler Breeder Parent flocks. *S. enteritidis* Phage type 1 was found both in the suspect case and in the confirmed case and the sensitivity to antimicrobials was the same. Epidemiological investigations were carried out on both sites and in the hatchery and on farms on which chicks had been placed, but the source of the infection was not identified in either case; there were close links between the two holdings. Birds on the confirmed infected site were compulsorily slaughtered and the site cleaned and disinfected. On the other site the birds had already been depopulated but *S. enteritidis* Phage Type 1 was isolated on the holding during the subsequent investigation.

Figure B9.2: Reported incidents of suspected *S. Enteritidis* and *S. Typhimurium* in broiler Breeders 1989-2006

Progress on the Veterinary Surveillance Strategy in 2006.

Throughout 2006 there was substantial collaboration with veterinarians, specialists, private and public sector companies, institutes and laboratories which resulted in a marked increase in the range of data providers contributing to surveillance intelligence. Through the pilot veterinary sentinel network, equine surveillance project and liaison with industry-led organisations such as the National Fallen Stock Company (NFSCo), we have developed new approaches that exploit existing data sources and offer us added surveillance value.

Work was also undertaken to help interested parties recognise and judge the quality of surveillance data. In partnership with a range of stakeholders, executive summary data tables with quality ratings have been developed and are being trialled in certain VSS outputs. A Joint Code of Practice, which specifies minimum quality standards for both laboratories and smaller veterinary practices (it is cross referenced to the Royal College of Veterinary Surgeons (RCVS) practice standards scheme), is being agreed and will be explored as an option to assure quality for official veterinarians working with the State Veterinary Service. The information management system RADAR (Rapid Analysis and Detection of Animal-related Risks) has been further expanded and has provided invaluable data during last year's avian flu incursions. Significant progress has been made under prioritisation resulting in the development of a prototype decision support tool which will be used to generate a "prioritisation score" to assist in the allocation of finite resources in a transparent and standardised way.

Rapid Analysis and Detection of Animal-related Risks (RADAR)

RADAR is an information management system, which has been developed to collect and collate veterinary surveillance data from different sources around the UK. This will allow disease data and a range of disease factors to be compared directly with each other and against the population of animals. RADAR was developed as part of the Veterinary Surveillance Strategy in response to the recommendations made in a number of independent inquiries, including those into BSE and FMD, for enhanced surveillance and better data management. To date, Radar has

Section B – Initiatives

made real progress in meeting these recommendations. It now provides specialist tools for the analysis of surveillance data and publishes reports highlighting the risks and distribution of veterinary threats to public and animal health. Some of these reports can be accessed on the RADAR website at <http://www.defra.gov.uk/animalh/diseases/vetsurveillance/radar/index.htm>

The first stage of RADAR made information available on the GB cattle population and cases of Salmonella. In 2006, RADAR was also connected to the GB Poultry Register and the Disease Control System of the State Veterinary Service, in response to the potential threat from Avian Influenza. RADAR proved an invaluable tool during the exotic disease incursions of Avian Influenza in 2006 and produced analyses, reports and maps for a wide range of audiences, ranging from Ministers and Defra/SVS officials, to farmers and academic researchers.

Work is currently ongoing to connect RADAR to the Animal Movements Licensing System to enable the analysis of the movement data about sheep, pigs and goats in England and Wales. The RADAR development will continue between now and 2013. Additional data will be progressively released and will include statutory surveillance program information and information about the occurrence of some diseases.

Prioritisation/Profiles

A project to develop a prioritisation process for Animal Health & Welfare issues was initiated in 2006. The project sought to provide the structure and tools to inform and enable evidence-based, socially and economically appropriate distribution of government funds for Animal Health & Welfare issues. A prototype decision support tool has now been developed to generate a “prioritisation score” for each disease or issue considered, for each “reason for intervention” under the Animal Health & Welfare Strategy.

The score is derived from an assessment of the relative importance of each disease or issue considered, in the context of their influence on each of the four reasons for government intervention under the Great Britain Animal Health & Welfare Strategy. These reasons for intervention are:

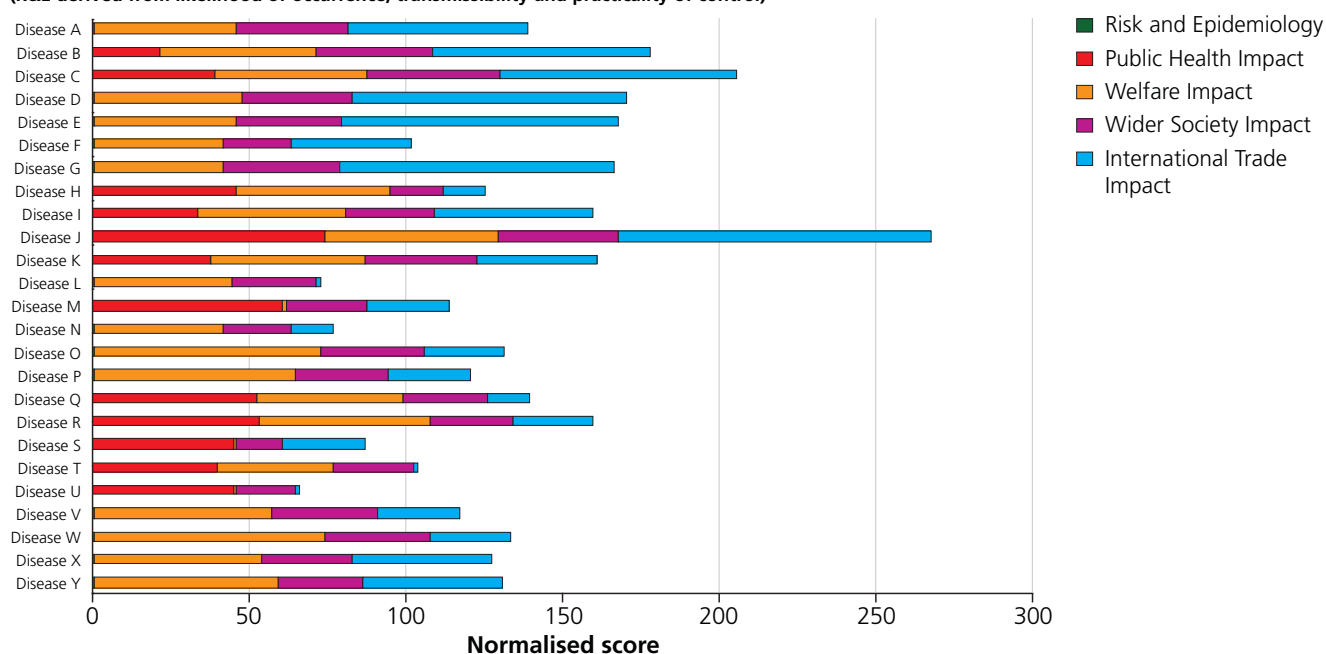
1. protection of public health,
2. protection and promotion of animal welfare,
3. protection of the interests of the wider economy, environment and society, and
4. international trade.

In addition the decision support tool assesses and scores the epidemiology of the disease or issue and the risk of a detrimental change. **Figure B9.3** shows a summary presentation of scores for the impact on each reason for intervention plus the ‘risk and epidemiology score’ for a number of diseases as an example.

Figure B9.3: Example output from prioritisation decision support tool.

(The prioritisation system in the prototype decision support tool has not been validated yet, so this diagram does not display the actual outcomes of the prioritisation process, and is for illustrative purposes only).

Summary presentation of normalised scores for impact on each RFI plus R&E score
(R&E derived from likelihood of occurrence, transmissibility and practicality of control)



More information on the theory behind the prioritisation process can be found at:
<http://defra.gov.uk/animalh/diseases/vetsurveillance/programme/prioritisation.htm>

Surveillance Initiatives

Defra is responsible for a range of surveillance activity for various diseases affecting animals, some of which are also zoonotic. There are two types of surveillance programme:

- **Targeted Surveillance** – this type of surveillance is focused on a specific disease or issue, and is designed to optimise the available information by targeting the surveillance effort at a point where there is the best opportunity of accurately identifying the particular situation. This can vary not just between different diseases, but also different surveillance methods may be used for the same disease in different circumstances. For example, dairy cattle in Great Britain are monitored for the presence of Brucellosis (which has been successfully eradicated here) by the regular assessment of milk samples from each herd. Cattle imported into Great Britain are tested for signs of Brucellosis on arrival (in case they are carrying this disease when imported), and each individual female is then re-tested following her first calving in Great Britain (as this is the time when Brucellosis is most likely to be diagnosed). Much targeted surveillance is carried out as a consequence of statutory obligations.
- **Scanning Surveillance** – this type of surveillance is carried out to obtain an overview of the health of a particular species. This provides a knowledge base of the “normal” causes of disease, so enabling identification of new and/or emerging diseases occurring in the United Kingdom.

Section B – Initiatives

The following summary of the present surveillance initiatives considers long term programmes, recently initiated areas of surveillance, and consultations/ liaison with industry in preparation for the possible creation of a future surveillance scheme.

- **Long Term Surveillance** – conducted either as a consequence of EU legislation, Government policy and/or industry schemes to control or eradicate the specific disease. For other infections work has been initiated to either assess the prevalence of a disease, or implement an appropriate method of surveillance, and so its ultimate control.
- **Recent initiatives** can stem from the identification of a new or emerging disease, or a disease prevalent for some time which has now been identified to be of greater significance to human health or to the welfare of UK livestock; or the presence of which could interfere with exports as specific control strategies implemented in other countries affect our relative status.

An important aspect of the Department's work is in prioritising Government intervention for such potential new areas. The Human, Animal, Infection Risks Surveillance (HAIRS) Group is a multi-agency and cross-disciplinary horizon scanning group. It consists of representatives from the Department of Health, the Health Protection Agency (HPA), Health Protection Scotland (NPS), National Public Health Service Wales (NPHS Wales), Food Standards Agency (FSA), Veterinary Laboratory Agency (VLA), the chair of the National Expert Panel on New and Emerging Infections (NEPNEI) and Defra. The HAIRS group met monthly in 2006 to exchange information on new or emerging hazards.

Long Term Surveillance Programmes

Some of these programs are disease specific (and also termed targeted surveillance), such as those described for Brucellosis. Others (known as scanning surveillance) are carried out to obtain an overview of the health of a particular species. This provides a knowledge base of the "normal" causes of disease, and so enables the rapid identification of new and/or emerging diseases occurring in the UK. Such surveillance ensures a timely and appropriate response. Where data provides information on the UK's disease status it can be found in Section C.

Completion of survey for *Salmonella* in broiler flocks

In line with Decision (EC) No 2005/636 a survey to establish the baseline prevalence in broiler flocks was completed in September and the report including the raw data submitted to the Commission in October to arrange for analysis by the European Food Safety Authority.

Equine Surveillance Project

As part of the UK Veterinary Surveillance Strategy to enhance veterinary surveillance, the species-specific quarterly surveillance reports published by the Veterinary Laboratories Agency (VLA) and Scottish Agricultural Colleges (SAC) were extended to include a quarterly equine disease surveillance report.

The Equine Surveillance Reports have been in existence for 18 months. They are a combined initiative between Defra, the Animal Health Trust (AHT) and the British Equine Veterinary Association (BEVA). The reports are an important step towards improving equine disease

surveillance by collecting equine disease data arising from a broad network of different laboratories, specialist equine practices and veterinary schools throughout the UK. The information received is collated by the AHT. This allows a unique insight into equine disease occurrence on a national scale.

The reports continued to be produced in 2006 and are published in the Veterinary Record in addition to the web sites of the AHT, Defra and BEVA. The number of contributors to the reports has expanded and the recipient list for electronic notification of the latest publication is now international.

The reports published in 2006 can be accessed at:
<http://www.defra.gov.uk/animalh/diseases/vetsurveillance/vsinfo.htm#who>

Recently Initiated Areas of Surveillance

Survey for *Salmonella* in turkeys

To fulfil the requirements of Decision (EC) No 2006/662 arrangements were made with the devolved administrations, the State Veterinary Service and the Veterinary Laboratories Agency (VLA) to carry out the defined survey to establish a baseline for *Salmonella* in turkeys being reared for meat and in flocks of breeder turkeys. The UK survey started in October 2006 and will be completed in September 2007. The survey will sample all breeding flocks of turkeys with more than 250 birds on one occasion within 8 weeks of depopulation of the flock. Approximately 318 flocks of turkeys being reared for meat will be sampled within the period 3 weeks before slaughter. The samples are being analysed at the national reference laboratories for *Salmonella* in animals. Additional epidemiological data are being collected on a voluntary basis which will be analysed to identify risk factors associated with *Salmonella* infection.

Survey for *Salmonella* in fattening pigs

Decision (EC) No 2006/668 sets out the timescale and protocol to establish a baseline survey for *Salmonella* in fattening pigs in the UK. This survey started in October 2006 and will run for 12 months. It is being carried out in collaboration with the devolved administrations, the Food Standards Agency, and the Meat Hygiene Service. Approximately 600 pigs will be selected at random at slaughterhouses. Samples are being taken of lymph nodes, carcass swabs for bacteriological culture and meat for serology. All isolates of *Salmonella* will be serotyped, phage typed when appropriate, and tested for antimicrobial sensitivity to a panel of antimicrobials.

Johne's Disease – Dairy Herd Prevalence Study

In 2005, a statistically-based surveillance survey was commissioned to look at the prevalence of Johne's Disease in the UK dairy herd. Johne's disease is caused by *Mycobacterium avium* subspecies *paratuberculosis* (often known as MAP). Johne's Disease (also known as *paratuberculosis*) has been an important disease of cattle in the UK since the 1950s, affecting animal health and welfare and farm level profitability. The disease is notifiable in Northern Ireland, where the number of cases has risen markedly in recent years.

Section B – Initiatives

Little is known about either the prevalence of Johne's Disease in the GB national herd, or regarding the performance of diagnostic tests and testing protocols in the GB situation. The study was designed to address these problems, and aimed to:

- (i) determine herd-level prevalence of the disease;
- (ii) determine the effect of management practices and herd location on disease prevalence (i.e. identify risk factors);
- (iii) establish the genetic diversity of MAP in the UK to help understand its spread and provide a baseline for comparison with human isolates;
- (iv) assess methodologies for future monitoring of the disease, including:
 - the assessment of direct sampling of pooled faeces and the collection of environmental samples as a method for ongoing monitoring of Johne's disease.
 - the validation of a liquid culture system for pooled faeces samples and assessment of its efficiency as a rapid, high-throughput diagnostic tool for the disease.

The study, involving 150 randomly selected commercial dairy herds began in the autumn of 2006 and is expected to report summer 2008. The study is a collaboration between the Veterinary Laboratories Agency (VLA), the Scottish Agricultural College (SAC), Moredun Research Institute, the Agri-Food and Biosciences Institute (AFBI) in Northern Ireland and is funded by Defra, the Scottish Executive Environment and Rural Affairs Department (SEERAD) and the Department of Agriculture & Rural Development for Northern Ireland (DARDNI).

Defra is also working in partnership with the beef industry to reduce the spread of Johne's Disease. This will help to raise production efficiency and will be beneficial to the export of cattle.

Consultations/ Liaison with Industry in Preparation for the Possible Creation of Future Surveillance and/or Control Schemes

Consultation on The Zoonoses (Monitoring) Regulation

Directive (EC) No 2003/99 requires Member States to monitor the trends and sources of a number of zoonotic agents. The monitoring is conducted according to the system in place in the Member State unless a harmonised monitoring system has been agreed in the Community. Statutory programmes provide information on the trends of a number of notifiable zoonotic agents, e.g., *Brucella* spp and *Mycobacterium bovis*, rabies etc.

To date a number of surveys have been successfully conducted to establish the prevalence of zoonotic agents in animals with the voluntary collaboration of farmers and the industry. In relation to surveys which have been agreed by Member States to establish the prevalence of a zoonotic agent it is important that voluntary participation does not introduce a bias into the results. To overcome this potential cause of bias when conducting the mandatory surveys required in Member States under Directive (EC) 2003/99, such as those to establish a baseline for *Salmonella* in layers, broilers, turkeys and pigs, legislation was introduced on each occasion as appropriate to provide powers to enter premises, take samples and collect relevant information. Further mandatory surveys are expected in the future.

It was decided to consult on a proposal to provide powers to enter and take samples to monitor for all recognised zoonoses and zoonotic agents, newly emerging zoonotic diseases and new strains of zoonotic organisms. The consultation also considered monitoring for zoonoses and zoonotic agents in all animals including those which are not directly involved in primary production. The consultation ran between 31 July and 27 October. The results of the consultation are being analysed prior to the publication of the government response.

Consultation on the *Salmonella* control plan in breeding flocks of *Gallus gallus* (domestic fowl)

Throughout 2006, a number of meetings were held with the industry and other interested parties to discuss the new plan for the control of salmonella in poultry kept for breeding. The UK plan was approved by Decision (EC) No 2006/759. Between 11th August – 3rd November a consultation was conducted on the implementation of the UK national control plan for *Salmonella* in breeding flocks of *Gallus gallus*. The consultation was carried out because new legislation was proposed to implement the new *Salmonella* control plan in breeding flocks of *Gallus gallus* and to meet the requirements of Regulation (EC) No 1003/2005 on the reduction of *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Infantis*, and *S. Virchow*. The maximum percentage of adult breeding flocks comprising at least 250 birds remaining positive must be 1% or less by 31 December 2009. Using current monitoring systems the UK has already achieved the target. The consultation set out a number of options which aimed to implement the control plan in the most cost-effective manner.

Sustainable Control of Parasites in Sheep (SCOPS)

The Sustainable Control of Parasites in Sheep (SCOPS) is an industry-led initiative chaired by the National Sheep Association (NSA) and supported by Defra, SEERAD and the Welsh Assembly Government. Members of the SCOPS working group, which met three times in 2006, include advisers to the sheep industry and representatives from the Central Science Laboratory (CSL) and Veterinary Laboratories Agency (VLA).

Internal and external parasites are one of the major causes of disease and loss of production in the sheep industry. Disease caused by internal parasites (intestinal worms and liver fluke) and external parasites (sheep scab mites, lice and blowfly) can be prevented and treated; but there is a limited range of treatments available and there is evidence that the parasites are becoming resistant to some of the available products. The VLA have reported helminth resistance to all three groups of worming products in sheep and goats on one farm, as well as fairly widespread resistance to individual groups elsewhere.

The aim of the SCOPS initiative is to slow down the development of parasite resistance to the available treatments by promoting good management practices to control parasites and to provide information on the correct use of the available treatments when these are required.

The National Sheep Association (NSA) has prepared a draft Strategy for the Development of a National Sheep Scab Eradication Program. This has been supported in principle by the Chief Veterinary Officers of England, Scotland and Wales. The NSA issued a News Release at the Malvern Sheep Event in August 2006, stating their intention to launch a Strategy for the Development of a National Sheep Scab Eradication Program.

Bovine Viral Diarrhoea (BVD)

Defra has been working with a small group of cattle industry and veterinary representatives to help build a partnership to progress the development of an industry-led national strategy to control Bovine Viral Diarrhoea (BVD). BVD is prevalent on many cattle premises and can cause a significant economic impact to the affected businesses. Vaccines are commercially available for controlling this disease. Several EU Member States have made significant progress in eradicating this disease through industry-led schemes, and there are significant benefits to be gained through eradication of this disease from British herds. Progress was made on several fronts:

- The Communications Group commissioned a survey of cattle farmers and veterinary surgeons to assess attitudes to BVD and its control. This was jointly funded by Defra and a number of BVD vaccine companies, through the National Office of Animal Health (NOAH). This study yielded extremely useful information which has now been shared with the Animal Health and Welfare Strategy England Implementation Group. The survey outcome is being used to shape a communications strategy on BVD.
- A Technical Group of experts reviewed the measures that need to be taken to identify and control the disease at farm level, and assisted in the development of decision trees to be used by vets.
- A Strategy Group was convened to develop ideas for how a GB-wide BVD control scheme could be implemented. The Group made contact with a number of cattle farmers in Norfolk and Suffolk who were interested in starting a local-level scheme to control BVD. An initiative has now been launched in Norfolk and Suffolk, with the help of Holstein UK and technical support and testing provided by the Scottish Agricultural College. The Royal Veterinary College have been funded by EBLEX (the English Beef and Lamb Executive) to undertake research to assess the costs and benefits of controlling BVD in this initiative. These results will help contribute to the development of a wider strategy.

This initiative is being taken forward step by step, learning from experience and developing next steps based on the best available evidence. It has been encouraging that a diverse number of industry organisations are readily contributing their time, expertise and some money into starting it off.

Use and Distribution of Intelligence Gained from Defra's Surveillance Work

It is vital that the surveillance data is used to maximum effect. This can be by various means, some of which are described below. Whilst distributing the data available to Defra some of these channels also provide new information and on occasion, horizons to scan, which in turn can lead to further refining of Defra's future surveillance program.

Support to Public Health authorities

Support was provided to public health authorities on request in situations involving an outbreak of a zoonoses in humans where there was evidence of a link to a specific farm source. In addition, advisory visits to farms are carried out when *Salmonella* and other infections of significance to public health have been reported. During the year 153 *Salmonella* advisory visits were made, and support was given to public health authorities in four VTEC O157 investigations. There were no requests for support with cryptosporidiosis outbreaks.

Salmonella in Layers

During 2006, the initial report of the analysis of the data from the baseline survey on salmonella in layer/flock holdings carried out from October 2004 to September 2005 was published by European Food Safety Authority. This included the results from all the participating Member States. http://www.efsa.europa.eu/en/science/monitoring_zoonoses/reports/1541.html

The results of the baseline survey were used to propose a target for the reduction of *Salmonella* in layer flocks/holdings in Member States and this was agreed in Regulation (EC) No 1168/2006. For the UK it will mean an annual reduction by 10% of the number of flocks of adult laying hens infected with *S. enteritidis* and *S. typhimurium* compared with the previous year, starting in 2008.

A meeting for over 100 delegates was held on 20 October 2006 organised by the Health Protection Agency and the Veterinary Laboratories Agency. The meeting looked at *salmonella* control in laying flocks and discussed the report of the European Food Safety Authority on *Salmonella* in layer flock holdings, and the results of an analysis of information collected at the time of the UK survey. Attendees heard a series of presentations on cross cutting issues from different organisations including Defra, the Veterinary Laboratories Agency, the British Egg Industry Council, the Health Protection Agency, the Food Standards Agency and the European Commission.

A selection of the presentations given is available at:

<http://www.defra.gov.uk/animalh/diseases/zoonoses/salmonella-control.htm>

Regular meetings to discuss and agree a control plan on how best to achieve and monitor the target have been held throughout the year with interested parties including the devolved administrations, Food Standards Agency, representatives from the Industry, and the State Veterinary Service.

Survey to set a baseline for *salmonella* in layer flock holdings according to Decision (EC) 2004/665

A mandatory survey of flocks of laying hens in UK for *Salmonella* began on 1st October 2004. Samples of faeces/litter/dust material were collected over a twelve-month period from 454 farms. The results were published during 2006. The holding-level *Salmonella* prevalence was estimated at 11.7% (CI95% 9.3 – 14.0%). The most common serotype identified was *S. Enteritidis* at a prevalence of 5.8% (CI95% 4.2 – 7.4%) and the majority of these isolates (70%) were phage types 4, 6, 7 and 35. *S. Typhimurium* was the second most prevalent serotype and was found in 1.8% of farms (CI95% 0.8 – 2.9%). Besides *S. Enteritidis* and *S. Typhimurium*, of the three other serotypes given top priority by the EU because of their public health significance, *S. Virchow* and *S. Infantis* were each isolated from one holding and *S. Hadar* was not isolated from any holdings.

Other Zoonoses

Defra and VLA staff participated in a symposium on 23 November organised by the Health Protection Agency. It considered trends in infection in animals and humans of some zoonotic agents that tend to receive less interest. These included tick-borne disease, toxoplasmosis, echinococcosis, leptospirosis, Q fever, psittacosis, and hazards from exotic pets.

Animal Diseases and conditions with a potential impact on Human Health

Extended-Spectrum Beta-lactamase (ESBL) *Escherichia coli*

Infections caused by *E. coli* expressing genes encoding extended-spectrum beta-lactamase (ESBL) enzymes are more difficult to treat with some antimicrobials than might otherwise be the case. ESBL containing organisms are recognised as an increasingly significant problem for public health. The first recorded case of *E. coli* containing an ESBL enzyme isolated in food production animals on a UK farm occurred on a dairy farm in Wales in autumn 2004. It was recovered from diarrhoeic calves that were being reared.

The initial identification led to a consultation meeting between various government departments, in January 2005. It was agreed that there was a need for more information on the ESBL-producing strains of *E. coli* in both the animals and the environment on the farm and that further on-farm investigations should be carried out. Subsequent meetings of human and veterinary public health officials have been held in February and September 2006. Results of the investigations made by the VLA at the Welsh farm were published in the *Journal of Clinical Microbiology*²⁶.

During 2006, sixteen further cattle farms containing ESBL *E. coli* were identified through scanning surveillance of bovine clinical veterinary *E. coli* isolates. Extended surveillance of clinical veterinary *E. coli* isolates was implemented in June 2006 by the VLA in England and Wales, and is ongoing. *E. coli* carrying ESBLs have been identified in other species apart from cattle in the United Kingdom for the first time during 2006. This was on one premise where an ESBL had already been identified in calves. Two further types of ESBL were also identified during the subsequent investigation by VLA officers at this premise. These were both found in sheep and in horses kept on the site. Similar on-farm investigations are anticipated on a number of the farms found to be affected in 2006, and are being undertaken with the objectives of:

- assisting with control of endemic disease problems to minimise the need for use of antimicrobials on the farms;
- advising, in conjunction with the private veterinary surgeon, on appropriate antimicrobial usage to treat the endemic disease problems currently affecting the herds;
- assisting with control of the ESBL *E. coli* and advising on practical measures to attempt to limit its spread and hasten its decline or elimination;
- monitoring how the situation is developing by collecting and testing samples collected during the visit;
- investigating possible sources of the ESBLs [though it should be noted that it is notoriously difficult to determine the source of a bacterial organism once secondary spread and multiplication have occurred, following a primary event at which an organism was introduced]; and
- taking samples to test for ESBL-resistance in any other significant pathogenic bacteria, including *Salmonella*, present on the farms.

To date, only one of the *E. coli* strains identified is a type known to be commonly associated with human disease, but the animal strain that has been isolated is not identical to that found in people. Defra's policy on ESBLs in animals continues to be guided by Defra's Antimicrobial Resistance Co-ordination (DARC) group.

26 (Liebana, E., et. al. Longitudinal Farm Study of Extended-Spectrum β -Lactamase-Mediated Resistance. *J Clin Microbiol* (2006), 44, 1630-1634.

Meticillin-Resistant *Staphylococcus aureus* (MRSA)

Meticillin-Resistant *Staphylococcus aureus* is an emerging issue in veterinary medicine. In response, Defra believes that it can most usefully assist in this area by providing input into certain specific cases and also by co-ordinating the responses of the many interested parties and, in so doing, ensure that the roles and responsibilities of stakeholders are adequately represented.

The Defra Antimicrobial Resistance Coordination (DARC) sub-group on MRSA, which held its inaugural meeting in 2005, continued to advise on how the Department can best contribute to the knowledge on and understanding of the role of MRSA in animals, in the light of the increasing number of reports in animals and the increasing concern about MRSA in the public health sector. It is of note that a number of reports in the scientific literature suggest that humans may have been the source of the MRSA strains found in colonised or infected animals.

The overall significance of the detection of MRSA in animals in relation to public health is not known. The Animal Health and Welfare Strategy for Great Britain highlights the need for working in partnership. In this regard, and recognising that the industry has primary responsibility for taking this forward, considerable progress in several areas has been made since the establishment of DARC's MRSA subgroup. Defra is assisting and encouraging initiatives from the Bella Moss Foundation, industry and the veterinary profession; such as developing a code of practice for veterinary hospitals and clinics, assisting in harmonising testing methodology and funding research to better understand the epidemiology of MRSA in companion animals and livestock and any role it may play in human infections. Defra also contributed to the first international MRSA convention, held in Liverpool in summer 2006.

Recently, there has been concern expressed over the increase in reported infections caused by *S. aureus* strains producing the Panton-Valentine Leukocidin (PVL) toxin. Infections caused by these strains are more likely to have deleterious consequences for affected patients. PVL can be expressed by meticillin-sensitive or meticillin-resistant strains of *S. aureus*. Internationally, PVL containing MRSA strains have been isolated from animals in the USA but, to date, none have been detected in livestock or companion animals in the UK.

Collaborative working

During 2006 Defra staff acted as secretariat to number of Interdepartmental Groups and Committees. In addition to those discussed below, staff contributed at meetings relevant to surveillance for zoonoses and emerging issues.

The UK Zoonoses Group

The United Kingdom Zoonoses Group (UKZG) met twice during 2006, in June and December. The UKZG brings together those in government with an interest and role in the assessment and management of the risks from zoonoses²⁷ and zoonotic agents. It is chaired on a rotational basis by the Chief Medical Officers for the UK.

27 that is diseases and infections which are transmitted naturally between vertebrate animals and man

Section B – Initiatives

During 2006 the Group considered:

- FSA's guidance on the safety of un-pasteurised milk in connection with **Meticillin-resistant Staphylococcus Aureus (MRSA)** and were informed that good hygiene should reduce the risk of milk contamination of all strains of *Staphylococcus aureus*
- The ongoing investigation into **Extended Spectrum Beta Lactamase (ESBL)** – producing *Escherichia coli* on a few cattle farms in England and Wales.
- The work being undertaken both by Defra and the European Food Safety Authority concerned with **Rabies and Exotic animal disease import controls**. A working group had been formed at Defra's request which had met on 16 May 2006 to analyse the risk assessments focusing on implications for public health and will provide any necessary further advice. A number of options concerning rabies import policy had been identified but a decision had yet to be taken.
- Various issues concerning **Avian Influenza (AI)** were brought to the Group's attention including seasonal flu vaccination of poultry workers. In particular it was noted that there had been relatively few cases of AI in humans suggesting that the virus is not a particularly effective zoonoses taking into account the large number of people that had probably been exposed.
- Updated details were provided concerning **West Nile Virus, Johne's Disease, Rabies, European Bat Lyssavirus, National Scrapie Plan, Hydatid disease, Bovine TB** and the cases of **Anthrax** in cattle in Wales and the death of a person in Scotland as well as reports from a number of other committees.

Further details are available: <http://defra.gov.uk/animalh/diseases/zoonoses/ukzg/index.htm>

Surveillance Group on Diseases and Infections of Animals (SGDIA)

The SGDIA was established in 1999 to co-ordinate the UK's Agriculture Departments' and the Food Standards Agency's programmes of surveillance of animal health and welfare on farms, including pathogens of both animal and human health significance. Membership of the group includes the Department of Health (DH), the Food Standards Agency (FSA) and the Health Protection Agency (HPA). The Group is chaired by CVO England, and normally meets twice a year.

In May 2006 members were updated on a number of items including the **Johne's Disease survey, Rabies and European Lyssavirus and Avian Influenza**. The Group also considered progress on the **Zoonoses Directive and Regulation** and noted that sampling for **Salmonella** in broiler flocks was underway and due to be completed in September 2006. Extensive surveillance and testing in UK domestic animals and wildlife have produced consistently negative results for **Trichinella**. As a result the FSA was finalising a notification to the Commission and other Member States seeking a derogation from recent EU legislation (Regulation (EC) 2075/2005 which came in to force in January 2006 and which replaced Council Directives 64/433, 77/96 and 92/120) which requires the testing (for *Trichinella*) of fattening pigs for slaughter.

It was also reported that a number of **National Reference Methods (NRM)** and **National Guidelines for Laboratories (NGL)** had been adopted following work by a sub-group of SGDIA.

Further details are available: <http://defra.gov.uk/animalh/diseases/vetsurveillance/sgdia/index.htm>

Advisory Committee on Dangerous Pathogens (ACDP)

The Advisory Committee on Dangerous Pathogens (ACDP) is a non-statutory advisory non-Departmental Public Body. Membership is tripartite, including 9 scientific experts, 4 employer representatives and 4 employee representatives. The secretariat is provided by HPA and HSE as well as Department of Health (DH) and Defra.

It advises the Health and Safety Commission, the Health and Safety Executive, Health and Agriculture Ministers and their counterparts under devolution in Scotland, Wales and Northern Ireland, as required, on all aspects of hazards and risks to workers and others from exposure to pathogens.

During the course of 2006 the Committee met three times and considered:

- DH's report that the national expert panel on New and Emerging Infections (NEPNEI) had considered the Drinking Water Inspectorates Epidemiology Study undertaken by the University of East Anglia. It had concluded that the report did not support a causative role for **Mycobacterium Avium Subspecies paratuberculosis (MAP) in Crohn's Disease** and that research into the causes of Crohn's disease was now a matter for the Medical Research Council. ACDP had agreed to keep a watching brief on this issue.
- The health and safety aspects for personnel when handling **Avian Influenza** viruses in the laboratory environment. Defra provided details of the surveillance results of poultry and wild birds. The provision of seasonal flu vaccination to poultry workers was discussed and account was taken of WHO studies on the current Avian Influenza outbreak which was ongoing.
- The **TSE Working Group** agreed that advice, in addition to that published on the website in 2005, should be drafted regarding pre-surgery assessment to identify patients with, or at risk of, CJD.
- Members of ACDP considered a paper entitled **animal isolators for small animals infected with biological agents** which was 21 years old and required updating. Various suggestions to improve the text were made. ACDP were content for HSE to publish the revised guidance on their website.
- Review of **Rabies Disease Import Controls Policy** and **West Nile Virus Diagnostics and Surveillance**.
- A number of update reports were made to ACDP concerning the work of:
 - **Human Animal and Infections Surveillance Group (HAIRS)**
 - **ACDP's Rabies and Exotic Disease Working Group**
 - and the Steering Group considering the revision of ACDP's guidance on **Blood-Bourne Viruses**.

ACDP had also contributed to the review of **Schedule 5 of the Anti-Terrorism, Crime and Security Act 2001**.

Further details are available: <http://www.advisorybodies.doh.gov.uk/acdp/index.htm>

Section C – Disease Status

A number of disease outbreaks occurred in 2006, the most notable of which were Avian Influenza and Newcastle Disease. Diseases can either be exotic, not regularly found within the UK or endemic, native to the UK.

Exotic Diseases

The CVO (UK) has a responsibility to control incursions of diseases that are usually exotic to the UK. Early detection is essential for effective control and rapid elimination of these diseases to ensure a minimal impact on animal health and welfare, public health, rural communities and trade.

Endemic Diseases

Scanning surveillance maintains a continuous watch over defined populations so that unexpected or unpredicted changes in the health status of that population can be detected. New diseases or a change in prevalence and/or severity of endemic disease can be detected by pathological examination of material submitted to veterinary diagnostic laboratories. Endemic disease summaries are obtained from the quarterly surveillance reports from the VLA and monthly surveillance reports supplied by the Scottish Agricultural College (SAC).

The following is a summary of the UK's disease status in 2006, broken down by species.

Diseases of poultry and game birds

Exotic Diseases

Avian Influenza

Avian influenza is caused by an avian influenza A virus. There are several different types of avian influenza A virus. They can be characterised by their structure or the severity of disease that they cause in poultry.

Avian influenza viruses that cause severe disease in poultry are known as highly pathogenic avian influenza (HPAI) viruses, those that cause no disease or milder disease are called low pathogenic avian influenza (LPAI) viruses. The ability to cause severe disease depends on the molecular structure of another part of the virus called the cleavage site. Subtypes H5 and H7 may cause LPAI or HPAI, all other subtypes to date have only been known to cause LPAI.

Avian notifiable disease

During 2006 there were 179 investigations carried out into suspect cases of avian notifiable disease. Those confirmed included: 1 case of Newcastle Disease (PMV-1), 1 case of notifiable low pathogenic avian influenza in poultry and 1 case of highly pathogenic avian influenza in wild birds.

The dead wild swan found to be infected with Highly Pathogenic Avian Influenza (HPAI) in Cellardyke, Scotland led to much epidemiological work in designing wild bird surveillance and assessing the results. This surveillance targeted the most appropriate species of wild bird and,

with negative results throughout the rest of 2006, provided reassurance that HPAI is not prevalent in the wild bird population in GB.

Epidemiological analysis of the low pathogenicity Avian Influenza outbreak in Norfolk, England led to the identification of two further affected premises, directed tracing and advised on control measures, contributing to the effective control of this outbreak. Full details of the epidemiological findings can be found in the Epidemiology Report for the outbreak, published on the Defra website.

Surveillance

Surveillance for avian influenza viruses in domestic poultry and wild birds is part of a European initiative and is carried out in all European Member States. Following a Commission Decision in October 2005 wild bird surveillance in EU Member States became compulsory (previously only poultry surveillance was compulsory; wild bird surveillance was voluntary).

UK surveillance for avian influenza includes:

- the UK wild bird survey for avian influenza viruses, including the causes of unusually high mortality events in wild birds;
- the national survey for avian influenza viruses of subtypes H5 and H7 in domestic poultry; and
- the investigation of any suspect cases of an avian notifiable disease in poultry (Newcastle disease or avian influenza).

The UK Wild Bird Survey

The wild bird survey aims to provide an early warning if HPAI H5N1 viruses are introduced into the UK in wild birds and an assessment of the risk of introduction into domestic poultry.

During the 2006 survey, only 1 virus was characterised as Asian lineage HPAI H5N1 in a dead wild swan which was found floating in the harbour at Cellardyke in Scotland in April (see below). A further 16 low pathogenic viruses were found but it is normal and expected to find a variety of LPAI viruses circulating in the wild bird population.

However, between February and November 2006, 748 detections of HPAI H5N1 were notified to the Commission by 14 other Member States.

There are a very large number of wild birds in the UK, only a proportion of which are migratory. Although over 10,000 birds were tested in 2006, this is a small fraction of the total wild bird population (there are approximately 5 million water birds in the UK during winter months). It is therefore important to target surveillance to areas and species where the likelihood of detecting H5N1, if it were present, would be greater.

There are three components to the UK wild bird survey:

- sampling of live caught wild birds;
- sampling of birds shot during normal wildfowling activities; and
- screening of wild birds found dead.

Section C – Disease Status

Table C.1: Avian influenza surveillance in wild birds in the UK from September 2006 to 18 February 2007²⁸.

Sampling category	Numbers of birds tested	Birds positive for an avian influenza virus	LP AI viruses/RNA detected
Live caught wild birds	3,018	11	H6N1, H5N3, H5N?, H6N2, H10N7
Shot wild birds	720	4	H8N4, H6N8, H9N2, H5N?
Wild birds found dead	1,337	2	H2N3, H6N8
Total	5,075	17	As above

Detailed information on the UK wild bird survey can be found at:
<http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/wildbirds/survey.htm>

Table C.2: Avian Influenza virus (AIV) surveillance in wild birds found-dead in Great Britain during 2006

Number of birds examined	Laboratory examinations	Positive AI results and species of bird	Comments
8,259 birds from England, Wales. 1,300 birds from Scotland (of which 559 were received within five weeks of the diagnosis of H5N1 in the swan at Cellardyke).	Post-mortem examination and analysis of tissues or swabs by PCR.	HPAI (Highly pathogenic Avian Influenza) virus H5N1 from a whooper swan (<i>Cygnus cygnus</i>) 3 LP AI isolates from two Mallards (<i>Anas platyrhynchos</i>) [LPAIH9N2 and LPAIH5N*] and a Greylag goose (<i>Anser anser</i>) [LPAIH6N8]	An H5N1 isolate from a dead whooper swan found dead in the sea near Fife, Scotland. All other isolates were low pathogenic avian influenza (LP AI).

Survey for Avian Influenza Viruses in Domestic Poultry

The UK national avian influenza survey in domestic poultry has been running annually between September and December since 2003. Following random selection from one of six categories (turkeys, domestic fowl, ratites, quail, ducks and geese) poultry on premises throughout the UK are sampled by staff from the SVS. These blood samples are then tested at VLA Weybridge for the presence of antibodies to avian influenza viruses of subtype H5 or H7 (those with the known potential to become highly pathogenic).

The survey is designed so that poultry species and management systems that are at greater risk from infection are sampled. During 2006, 440 premises were tested as part of the survey.

28 Start of the current autumn migration and over wintering period.

Table C.3: Results of the survey for Avian Influenza viruses in domestic poultry

Category of poultry	Number of premises sampled in UK	Number of premises positive for antibodies to H5 or H7
Ducks	86	1*
Geese	73	1*
Quail	30	
Ratite	12	
Fowl (breeder)	56	
Fowl (layer)	78	
Turkey (breeder)	11	
Turkey (fattener)	94	
Total	440	

* Antibodies to H5 avian influenza viruses were detected at one premises in free range geese in December; antibodies to H5 and H7 antibodies were also detected in some free range ducks in December. In both of these instances a veterinary investigation was initiated. Results of both veterinary investigations were negative; there was no evidence of active infection in these birds. The most likely explanation for the findings was previous exposure to low pathogenic avian influenza viruses from wild birds.

Investigations of suspect cases

Highly Pathogenic Avian Influenza detection

In April 2006 a dead Whooper swan found floating in Cellardyke harbour, Scotland, was submitted for routine testing as part of the wild bird survey. An H5N1 virus was isolated and characterised as HPAI by the national reference laboratory at VLA Weybridge. In response to the finding, the Scottish Executive implemented control measures required under the Commission wild bird decision; this included declaring a wild bird risk area within which disease control measures were applied including a requirement for poultry and other captive birds to be housed or otherwise separated from wild birds and additional surveillance in poultry and wild birds was carried out.

Although this was an isolated incident and there were no further detections of HPAI H5N1 in wild birds or domestic poultry, the incident generated significant media and public interest. In the following months the media and public response remained high, leading to significant reports of dead swans, ducks and geese which were collected by the SVS and tested at VLA Weybridge. The number of reports of dead wild birds has since significantly declined.

Low Pathogenic Avian Influenza Confirmed in Poultry in Norfolk

On 5th May the UK confirmed low pathogenic H7N3 avian influenza on three poultry farms near Dereham, Norfolk.

Defra's exotic disease contingency plan was engaged to provide a local and national disease control centre to assist the SVS in eradicating the disease. This was achieved rapidly with a policy of culling, movement controls, vigilant surveillance and cleansing and disinfection within the infected areas.

The restriction zones surrounding the three premises in Norfolk where low pathogenic H7N3 avian influenza was found were lifted on 26 May 2006. The decision was taken after all appropriate surveillance and tracing had been completed and clinical and laboratory testing had found no further positive results.

Safeguard Measures

Vaccination for Avian Influenza

The UK policy is not to use vaccination in advance of an outbreak or as an *immediate* disease control response due to the limitations of existing vaccines in terms of the risk of disease shedding and delayed detection. Good biosecurity, movement restrictions, surveillance and rapid culling remain the most effective method of disease control.

However, as part of good contingency planning, and in view of uncertainties in the nature and spread of the virus, in July we tendered for ten million doses of avian influenza vaccine which could be used against both H5 and H7 strains of the disease in birds. These ten million doses of the vaccine are fully available for use, should a veterinary risk assessment indicate it is necessary. One million of these doses are held in smaller 40 dose bottles (as opposed to the standard 1,000 dose bottles) to reduce costs when used in smaller flocks.

We have also formed a technical working group of stakeholders which is working on the details of a vaccination delivery plan for use with the European Commission if we should decide to seek approval to vaccinate. We hope to complete this work shortly, although the final details of any plan would also have to reflect the circumstances at the time.

In December, Defra also permitted English zoos to vaccinate their birds against avian influenza following Commission approval for Defra's zoo vaccination plan and Defra's purchase of 2.3 million doses of vaccine specifically for zoos. This was not in response to any increase in risk but was because of the vital role of English zoos in global conservation and the fact that zoos can contain the risks of vaccination through their high levels of biosecurity and veterinary surveillance. English zoos wishing to vaccinate their birds can now apply to Defra for permission subject to meeting the eligibility criteria, although none have so far begun vaccination.

Newcastle Disease (ND)

Newcastle disease is a highly infectious disease of birds caused by pathogenic strains of Avian Paramyxovirus type 1 (APMV-1). Occasionally virulent strains of Paramyxovirus of pigeon (APMV1) can infect poultry causing Newcastle Disease. Birds affected by this disease include fowls, turkeys, geese, ducks, pheasants, guinea fowl and other wild and captive birds, including ratites such as ostriches, emus and rhea.

Confirmed case in East Lothian, Scotland

Illness was first observed in early September 2006, on a commercial game bird rearing farm, in a flock of approximately 15,000 partridges being reared for restocking game and for human consumption. On 11 October, initial positive results gave rise to suspicion that an avian notifiable disease existed on the holding. On the same day movement restrictions were imposed on the suspect holding, an on-site investigation was completed, further samples were collected and the Newcastle Disease contingency plan was activated.

Pathogenicity tests were initiated on 12 October and Newcastle Disease was confirmed a day later on the basis of a PMV-1 isolation with a virulent motif at the cleavage site plus positive serology. Protection and surveillance zones were immediately established and movement restrictions extended. Slaughter of all the poultry on the holding was completed on 15 October and the carcasses were incinerated within 24 hours. Preliminary disinfection was completed on 18 October 2006.

Captive birds on the holding

The premises also contained a number of rare species of non-poultry birds including over 20 species of high conservation value as classified by the IUCN²⁹ Red List of Threatened Species. These species were kept for conservation and ornithological enjoyment and not for commercial production.

The birds were kept at various locations within the holding. There was some separation between them and the infected partridges but an epidemiological investigation concluded that they could not be regarded as a separate flock. These birds showed no clinical signs of Newcastle Disease. Samples were taken from each bird for virus isolation and serology. None of them were known to have been vaccinated against ND.

Measures such as strict biosecurity in two enclosed buildings and testing for the presence of virus both at the beginning and end of the 60 day period of confinement were in place to ensure there was no risk of the disease spreading. The State Veterinary Service carried out daily supervision of these measures.

Two buildings were identified as suitable for confinement of the birds. These provided limited capacity for effective quarantine so it was necessary to cull 227 birds of the less-endangered species.

Epidemiology

Significant progress was made in tracing movements of birds and personnel on and off the holding during the risk period. Flocks at risk from such movements were fully investigated with clinical examination and sampling of the birds. There were 19 flocks within the 3km protection zone. These were all sampled with negative results. Poultry keepers within the 10km surveillance zone were alerted to look carefully for any signs of disease and there have so far been no suspect cases reported.

There was no record of any movement to another Member State or evidence of lateral spread from the single affected holding.

Every epidemiological group of birds on the holding was sampled for both serology and virology. All birds were clinically examined at slaughter.

Evidence suggested that the affected birds were introduced from another Member State as hatching eggs in May 2006. Information was provided to the authorities in that country but there was no evidence to suggest that this was the source of infection.

Endemic Disease Surveillance

The United Kingdom poultry industry's changing situation in 2006 is demonstrated by a decline in the numbers of all four categories of chicks placed in 2006 (both broiler parent chick placings and commercial broiler chick placings, commercial laying chick placings and turkey poult placings). In addition there was an overall decline in UK poultry meat production of 2.45% compared with 2005. These figures are impacted by economic factors and it remains to be seen what the trends will be in 2007.

29 The International Union for the Conservation of Nature and natural resources.

Section C – Disease Status

Endemic disease problems such as red mite in chickens remain important. Marek's disease has continued to be prevalent in both vaccinated and unvaccinated flocks of birds. There has been a continued decline in Necrotic Enteritis in conventional broilers (only one case diagnosed during 2006), and of blackhead (histomoniasis) in turkeys. More detail on some aspects of this surveillance work is given below.

Enteric Viruses

As in previous years viruses associated with enteric problems, particularly rotaviruses, predominated in submissions from turkeys and gamebirds. There were 24 submissions from pheasants and partridge and five from turkeys in which rotaviruses were detected by electron microscopy (EM). In chickens (broilers) the main clinical signs were poor uniformity and unevenness and in turkeys a variety of enteric problems was described. Adenoviruses and reoviruses were also identified in broiler chickens showing poor weight gain or enteric and malabsorption problems.

From April to June there were three submissions from waterfowl in which duck virus enteritis (DVE) herpes virus was detected. This is significantly less than last year when 11 cases were reported and may be due to the Avian Influenza surveillance in which dead waterfowl would be submitted for AI testing rather than for DVE. There were six pigeon PMV-1 isolations from routine and wild bird mortality investigations and 19 from notifiable cases of pigeon PMV-1, which is similar to 2004/2005.

Marek's Disease

The incidence of Marek's disease increased compared to 2005, when disease was recorded in chickens at the highest level since 1999. The disease was diagnosed in both commercial and hobby/backyard flocks. The latter are often not vaccinated against Marek's disease but vaccination is widely used in commercial layers and in breeders.

Fowl Typhoid

A further case of fowl typhoid (*Salmonella gallinarum* disease) was diagnosed during 2006. (This is the fourth recent case. Prior to 2004, no cases had been diagnosed in Great Britain since 1986. *S. gallinarum* is not considered to be a zoonotic organism). This led to significant mortality in a small flock, and it is possible, but unproven, that the deaths in a flock previously kept at the same location may also have been caused by this infection. Red mites may have acted as a vector for disease transmission between these two flocks of birds.

Histomoniasis (Blackhead)

Blackhead (histomoniasis) was recorded in both chickens and turkeys. Although fewer cases were identified in turkeys than in 2005, there was a small increase in the annual diagnostic rate of blackhead in chickens. Blackhead is less commonly diagnosed in chickens than turkeys, and chickens are considered less susceptible to the disease.

Food Safety Incidents

There were a small number of potential food safety incidents associated with poultry during 2006. Incidents with potential significance to human health included lead poisonings and the ingestion of antifreeze by geese; but salt poisoning by mis-manufacture of feed and another due to stirring up of sediments in the flock's water supply system were also investigated.

Diseases of ruminants and pigs

Exotic Diseases

Foot and Mouth Disease

Foot-and-mouth disease (FMD) is an acute infectious disease, which causes fever, followed by the development of vesicles (blisters) – chiefly in the mouth and on the feet. The disease is caused by a virus of which there are seven 'types', distinguishable only in the laboratory. FMD is probably more infectious than any other disease affecting man or animals and spreads rapidly if uncontrolled. Among farm stock, cattle, sheep, pigs, goats and deer are susceptible. Elephants, hedgehogs, rats and any wild cloven-footed animals can also contract it.

Eleven investigations were carried out into suspect vesicular disease during 2006. Only one incident required the submission of material for laboratory diagnosis at the Institute of Animal Health (IAH) Pirbright.

Suspect case at an abattoir in Essex

Following reports of a vesicular condition in pigs at an abattoir in Essex restrictions were placed on the premises, and the farm of origin, on 26 October 2006. Samples sent from the affected pigs to the Community Reference Laboratory IAH-Pirbright. No clinical evidence of notifiable disease was found at the farm of origin. Initial results for notifiable disease (FMD and SVD) were negative. After reviewing the history, epidemiology, clinical signs and laboratory results the CVO concluded that notifiable disease was not suspected and livestock movement restrictions were lifted late the following day.

This incident was dealt with as rapidly as possible, with staff working throughout the night at the abattoir, the farm of origin and at the laboratory at the Institute of Animal Health at Pirbright. Given the advances in laboratory testing, the particular circumstances around this incident and the epidemiology, Defra were able to lift restrictions much earlier than would have been possible in previous years. Effort was made to ensure the disruption to business and the remainder of the industry was kept to a minimum although our prime concern was not to take any undue risks concerning a possible notifiable disease in pigs.

Key stakeholders were kept informed of the actions taken, by email updates and teleconferences. Defra are now working on a text alert mechanism to ensure messages can be sent to key individuals in the industry more rapidly in similar situations where issues emerge overnight.

It is vital for the industry to develop with us their own joined-up contingency plans relevant to their particular circumstances so that the response to such incidents is effective and disruption to business is minimised. These issues are being discussed at quarterly stakeholder meetings.

Section C – Disease Status

Anthrax

Anthrax is an acute, and generally fatal, disease caused by the bacterial organism Bacillus anthracis. Human beings and all species of animals can become infected. As a rule, cattle are the farm animals most frequently affected in Great Britain. Among cattle and sheep, the period of illness is often so short that the affected animals may be found dead without signs of illness having been noticed. Nevertheless, anthrax is not always rapidly fatal. Pigs and horses are also susceptible and although usually fatal, speed of death is slower than in cattle.

6446 veterinary investigations into sudden deaths of farm livestock were carried out in 2006, but these resulted in just two suspect anthrax reports; only one of which was subsequently confirmed, in Rhondda, South Wales.

The disease was suspected in April 2006 in a herd of 35 suckler cows kept in a field where anthrax cases previously occurred 35 years before. Anthrax could not be ruled out on microscopic examination of blood smears and following a VO enquiry anthrax was subsequently confirmed by the VLA in Weybridge. Restrictions placed on the premise under the Anthrax Order 1991 were lifted on 12 May.

During this outbreak the Welsh Assembly Government worked closely with Defra, the SVS and the Environment Agency. In addition SEERAD and DARDNI were kept informed.

Press releases were issued as the investigation progressed and full briefing was made available on both the WAG and Defra websites. An article appeared in the June edition of Gwlad providing guidance to farmers on what they must do if they suspect an outbreak of anthrax among their livestock.

Diseases of sheep and goats

Exotic diseases

Bluetongue

Bluetongue (BT) is a virus spread by insects which affects all ruminants, such as cattle, sheep, goats and deer. It has never occurred in the UK but is globally one of the most economically important diseases of livestock. The disease is difficult to control and eradicate and trade restrictions are potentially damaging.

There have been reports of cattle displaying clinical signs during the current outbreak of BT Serotype 8. These have included nasal discharge, swelling and ulceration of the mouth and swollen teats.

As a result of raised disease awareness regarding the disease situation on the European mainland there have been nine Bluetongue report cases or consultations with veterinarians during the autumn of 2006 since the first report on 22 August 2006.

Seven suspect clinical cases have been reported in cattle and two in sheep.

Only 3 cases have necessitated restrictions remaining in place pending receipt of laboratory results from the Community Reference Laboratory at IAH Pirbright. These were all cattle cases and two also involved the recent import of cattle from Europe. In all cases herd movement restrictions were lifted within 3 days following imposition. The last report was on the 16 November 2006.

Horizon Scanning

The incursion of Blue Tongue into Northern Europe has made the threat of this disease more likely to occur in the UK. Increased awareness is required especially as the presentation of the disease has varied in recent Northern European outbreaks, and because there is a risk that infected midges, that could spread this disease to ruminants in Great Britain, could be carried on the wind across the English Channel from the affected areas of Northern Europe. The VLA has collated results from the Regional Laboratory submissions, including communication with veterinary practitioners and further analysis of undiagnosed submissions to produce a report for Defra³⁰ in September 2006. This concluded that at the present time there is no evidence to support an undiagnosed syndrome consistent with presenting signs typical of Blue Tongue in either cattle, sheep or goats. The situation may change and so constant vigilance is required.

Brucellosis

Freedom from brucellosis in sheep and goats caused by *Brucella melitensis* is monitored in accordance with requirements of Council Directive 91/68 EC. A total of 35,783 sheep from 2,073 flocks and 1,042 goats from 248 herds were tested during 2006. All were clear tests.

Abortion submissions from 12,195 sheep and 297 goats were screened for *Brucella* with negative results.

Additional testing for brucellosis is carried out in accordance with International Trade regulations. Tests for *Brucella ovis* were carried out on 444 serum samples from sheep and goats.

Endemic Disease Surveillance

The late cold spring caused a delay in grass growth and led to the housing of lambs for longer periods on some farms. A slight increase in the number of incidents of colisepticaemia and cryptosporidiosis diagnosed in the first quarter was a likely reflection of this. There was also an increase in the number of incidents of encephalitis associated with *Listeria monocytogenes* although this was not significant as a percentage of diagnosable submissions. An increased reliance on silage supplementation could have been a contributing factor.

Scrapie Detected in a Flock Considered Free of TSEs

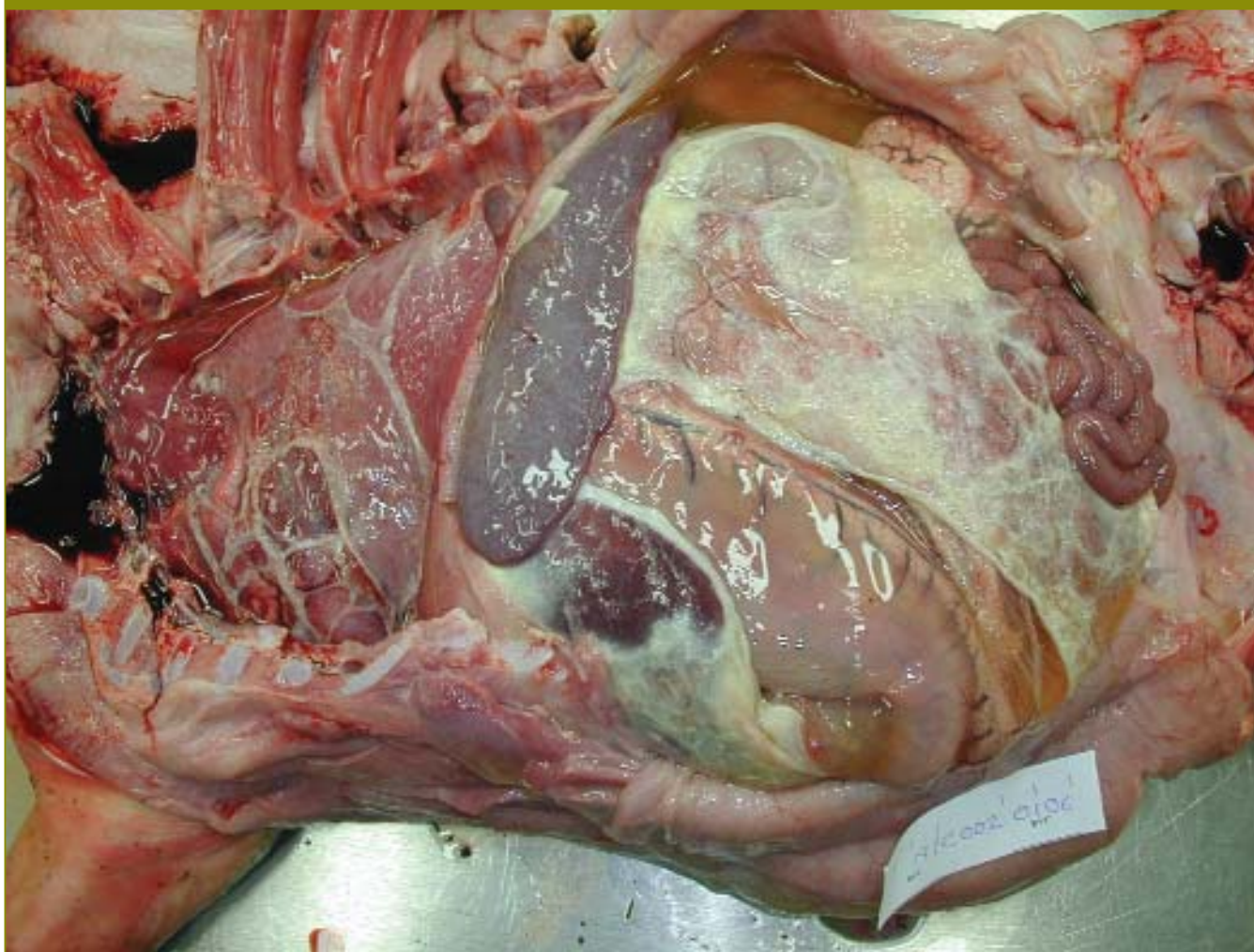
During November 2006, the VLA informed Defra that they had detected atypical scrapie in a flock considered to be free of TSEs. The founder animals in the flock were imported from New Zealand and Defra has been working closely with the New Zealand authorities to keep them informed of developments. Defra commissioned an independent audit of the finding, which is being performed by the United Kingdom Accreditation Service (UKAS). UKAS reported their conclusions to Defra at the beginning of 2007. The report will then be considered by SEAC.

30 VLA (2006) Scanning Surveillance for Exotic Notifiable Disease in Cattle, Sheep and Goats. Addlestone, Surrey (report to Defra).

Ovine abortion

Enzootic abortion (*Chlamydophila abortus*) as expected was the most commonly diagnosed cause of abortion in England and Wales followed by toxoplasmosis. The number of incidents of abortion associated with *Campylobacter fetus fetus* (as a percentage of diagnosable submissions) was slightly greater than in 2005, although the numbers recorded in 2005 and 2006 were significantly lower than 2004. Other bacteria also regularly diagnosed as a cause of abortion included *Listeria* and *Salmonella*. Other pathogens that were encountered less frequently included border disease virus, and the *Arcanobacterium*, *Bacillus*, *Yersinia*, *Staphylococcus* and *Streptococcus* species of bacteria.

Figure C.1: Foetus infected by *Campylobacter*



Nematodirosis

Nematodirosis caused significant disease problems in lambs particularly during May and June, a potential result of the cold spring and a dry April delaying hatching of eggs. Nephrosis was also commonly diagnosed and in most cases dehydration associated with nematodirosis, cryptosporidiosis or coccidiosis, was thought to be a predisposing factor.

Figure C.2: Lamb with Nephrosis



Other cases of parasitic gastro-enteritis

The warm weather experienced during the remainder of the year with above average rainfall in the autumn provided suitable conditions for the development of parasitic gastro-enteritis. Disease was recorded in this year's lambs, yearlings and also in adult sheep. The number of incidents of haemonchosis was higher than in 2005 although this was not statistically significant as a percentage of diagnosable submissions. Resistance to all three classes of anthelmintic was confirmed in a small Angora goat herd and also in the small number of sheep on the same premises.

Resistant Helminths Identified in Sheep and Goats

The identification of helminth parasites (worms) in sheep and goats at a farm in the UK that are resistant to all three groups of anthelmintics (wormers) is highly significant. Many worms in the UK have been found to be resistant to medication belonging to one of the groups, but this triple resistance is concerning for the future control of worms in grazing animals in the UK. The Sustainable Control of Parasites in Sheep (SCOPS) initiative chaired by the National Sheep Association (NSA) and supported by Defra, SEERAD and the Welsh Assembly Government was created, in part, because of the risk that such triple resistance may develop in helminths in the UK. This area will be subject to ongoing monitoring because of its potential significance to animal welfare and, because of the poorer consequential growth rates in livestock that cannot be effectively wormed, farm viability.

Pneumonia

Pneumonia associated with *Mannheimia haemolytica* was reported by most Regional Laboratories (RLs) and on several occasions in association with *Mycoplasma ovipneumoniae* infection. Systemic pasteurellosis due to *Pasteurella trehalosi* infection was also common. Stresses including movement and variable weather conditions may predispose to this condition usually seen in lambs in the autumn.

Caseous lymphadenitis

There were fewer incidents of caseous lymphadenitis (CLA), Johnes disease and arthritis in lambs associated with *Streptococcus dysgalactiae* subsp *dysgalactiae* compared with 2005. The number of incidents of lamb dysentery and pulpy kidney disease was also lower continuing the fall seen since 2003. Improved vaccine uptake may explain this. Acute fasciolosis was uncommon with fewer incidents of chronic fasciolosis compared with 2005. Triclabendazole inefficiency was also suspected on two farms in south Wales experiencing problems with fasciolosis.

Food Safety Incidents

Twelve potential food safety incidents were investigated during the year. These comprised four outbreaks of botulism, four incidents of copper poisoning and four single incidents of exposure. In the final quarter, a severe outbreak of botulism affected a group of 217 in-lamb ewes. Eighty-five ewes died or were euthanased over a period of approximately 14 days. Affected sheep were either found dead or exhibited clinical signs which included stiff legged appearance, lateral recumbency or flaccid paralysis. The group had been exposed to poultry litter a few days prior to onset of mortality. *Clostridium botulinum* type D toxin was identified in intestinal content of one ewe and the organism was identified in intestine of another. Gross post-mortem findings were unremarkable.

In each of these incidents, where appropriate, measures were taken to protect the food chain.

Diagnosis Not Reached

An important component of the scanning surveillance programme is to analyse the cases for which no diagnosis was reached despite reasonable testing. This has the potential to highlight clinical syndromes or pathological findings, which may be new or emerging, but cannot be attributed to known endemic diseases. Unusual conditions reported in 2006 included kangaroo gait affecting ewes on several farms, ulcerative vulvo-vaginitis and balanoposthitis, abomasal emptying defect affecting individual sheep on two farms, compressive cervical myelopathy ('wobbler syndrome') in Texel ewe lambs, neuroaxonal dystrophy in Swaledale lambs, and botulism. Where appropriate these conditions were considered by the HAIRS group. There was no indication that any of these unusual conditions were likely to lead to human health concerns.

Diseases of Cattle³¹

Exotic Diseases

Brucellosis surveillance in cattle

Great Britain has remained Officially Brucellosis Free (OBF) since 1991; the most recent confirmed case of brucellosis in Great Britain was in 2004. The national brucellosis surveillance programme continued throughout 2006; with monthly bulk milk ELISA testing of all dairy herds and blood testing of beef breeding herds every two years. Reporting of all abortions and premature calvings is required, with abortion investigations carried out for all reported abortions in beef herds and on the basis of a risk assessment in dairy herds.

In addition to post import tests, post calving blood tests are carried out on cattle imported from non-OBF countries following their first calving in Great Britain.

During 2006 17,641 dairy herds were bulk milk tested and 34,850 beef breeding herds were blood tested. A total of 5 reactor cattle from 5 separate herds were slaughtered; post mortem culture of samples from these serological reactors were all negative for *Brucella abortus*. In addition, 6,649 bovine abortion investigations were carried out; all were negative for brucellosis.

Post import tests for brucellosis were carried out on 2,174 cattle immediately following their arrival from non-OBF countries, and post calving check tests were carried out on 2,529 imported cattle. All were clear tests.

Enzootic Bovine Leukosis Surveillance (EBL)

Great Britain is an Officially Enzootic Bovine Leukosis Free region of the EU. The most recent confirmed case was in 1996. The national EBL surveillance programme continued during 2006. Dairy herds are tested by the bulk milk ELISA, an average of 20% of herds are tested each year and each selected herd is tested twice during the year. Beef breeding herds are blood tested, an average of 20% of herds are tested each year. All slaughtered cattle are inspected and any tumour lesions which could be caused by the EBL virus must be reported. If EBL cannot be ruled out, samples are collected and tested.

During 2006 3,528 dairy herds were bulk milk tested and 17,423 beef breeding herds were blood tested. No seropositive cattle were identified. Bovine tumour samples were submitted for examination on 101 occasions, and all were negative for EBL.

Endemic Disease Surveillance

SAC and VLA have been working closely together on a data harmonisation programme so that disease surveillance information captured by VLA's FarmFile and SAC's LIMS are compatible. In 2006 the new harmonised approach has been trialled for cattle surveillance, and this change is reflected in the appearance of the cattle report below. In future years a similar approach will be pursued for the other farmed species. The reports in this section for the various species summarise overviews published in the Veterinary Record during 2006 and the monthly and quarterly reports that can be accessed in full via a link on Defra's website:
<http://defra.gov.uk/corporate/vla/science/science-end-survrep-qtly.htm>

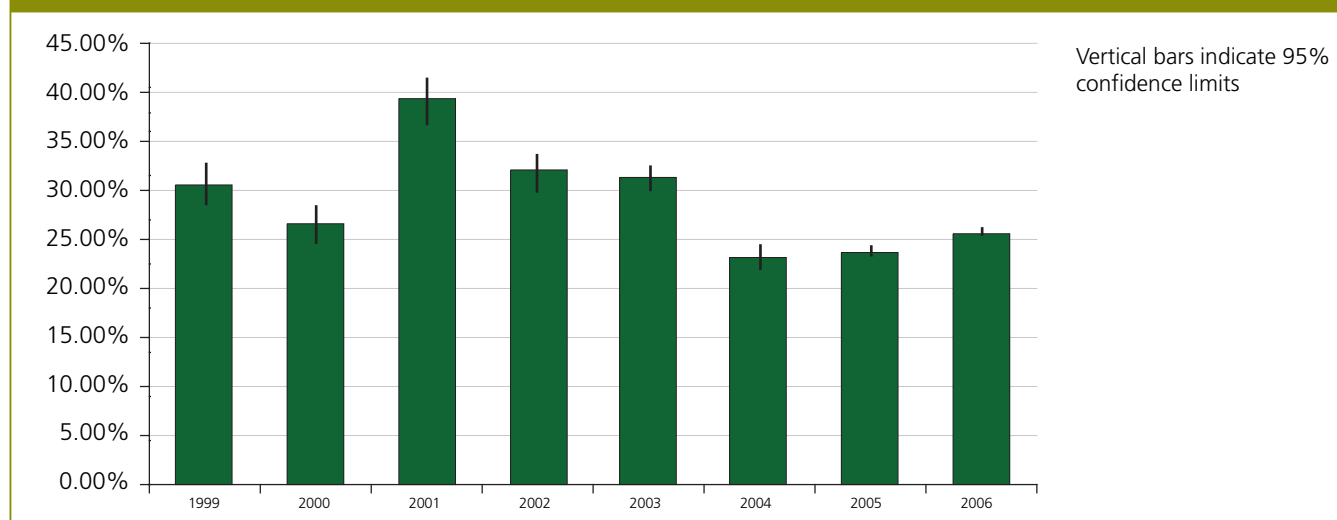
31 This section does not include diseases of cattle mentioned separately in this report

Section C – Disease Status

Johne's Disease

The number of positive diagnoses continues to increase significantly since 2004. In 2006 the percentage of submissions tested and diagnosed positive has reached 25% and the figure for cattle holdings (CPH's) is 27%. Scrutiny of monthly reports from Regional Laboratories indicates that this is the most commonly diagnosed cause of scour in adult animals. (The lowest age recorded for a confirmed clinical case of Johne's disease is 12 months).

Figure C.2: VIDA Incidents of Johne's in Cattle (as percentage of diagnosable submissions) Jan-Dec. 1999 – 2006



Bovine Viral Diarrhoea

Acute BVDV was diagnosed on 29 occasions in 2006; 8 less cases than in 2005. Acute disease is associated with pyrexia, nasal discharge and scour in younger animals and milk drop/pyrexia in dairy cattle. Confirmation is usually by seroconversion. The introduction of the RT-PCR test and its increased sensitivity compared to the antigen ELISA may result in more cases of acute infection being identified in the future.

There has been a reduction in the actual numbers of both chronic manifestations of intra-uterine BVDV infection: "Mucosal Disease" and "BVDV Persistent Infection". Whether this reflects more widespread use of vaccine is unknown but this is a possibility. There are occasional reports of large herd outbreaks of mucosal disease and one of these was investigated on a farm in the north east. Over a period of a month, 14 animals out of a group of 32 twelve-to-eighteen-month-old bullocks died following signs of watery scour and inappetence. Subsequent testing of the survivors identified a further five persistently infected animals.

Type 2 BVD virus rather than the predominant BVD type 1 was detected on a premises in the north west in June. Three still-born foetuses were each tested and found to be positive for the type 2 virus. There had been a problem with retained cleansings and recent stillbirths but no reports of any haemorrhagic syndrome signs or any other more serious sequelae. Further identification of the isolate from this farm has shown that it is different to the type 2 virus detected on the six farms previously investigated in Great Britain, and that it is more closely identified with the strain known as 'New York 93'.

Necrotising Enteritis

There was a large increase in the number of cases of necrotising enteritis diagnosed in July in Scotland. Cases generally presented as spring born calves approximately two to four months of age with diarrhoea, straining and often with blood present within the faeces. Two cases from different locations were submitted to the Perth DSC on the same day. The first case was a seven-week-old Simmental cross calf with a history of black scour. The large intestine was severely ulcerated and dilated with bloody mucosal casts. The second case was a 10-week-old Charolais cross calf with ulceration along almost the entire length of the small intestine. In both cases BVDV infection was ruled out by serology, virus isolation and PCR.

In contrast for the whole of Great Britain there was a sharp reverse in the recent trend for increasing numbers of cases of Necrotic Enteritis to be diagnosed. No reason can be provided as the aetiology of the condition remains unknown.

Cryptosporidia

In the last quarter of 2006 there was both a reduction in the number of calf scour samples received and percentage tested for cryptosporidiosis. This mirrors the situation for other neonatal scour pathogens, including Rotavirus and Coronavirus. The unusually clement weather conditions enabling late housing of dairy and beef dry stock is possibly the major factor in the reduced incidence of calf scours in this period. The overall incidence as in previous years remains just below 20% of submissions tested. Rotavirus remains the most commonly diagnosed cause of neonatal calf scours being diagnosed in 25% of submissions tested.

Lungworm Infection

From September a sharp increase in the number of outbreaks of parasitic bronchitis was recorded in cattle, including incidents involving adult dairy cattle with secondary bacterial bronchopneumonia in some cases.

Unusually, a four month old suckled calf presented as a sudden death. It was housed on straw with its mother in mid November when two weeks old and the cows were fed hay and silage with some concentrate. The calf had large numbers of adult *Dictyocaulus viviparus* worms present in the mainstem bronchi, which had caused a severe pneumonia. Respiratory syncytial virus (RSV) was also detected by fluorescent antibody test (FAT) examination of lung tissue. It is presumed that this calf either picked up lungworm larvae in the two weeks of life prior to housing or that the infection came from contaminated straw or hay inside or on the bedding. Infection at grass would seem unlikely given the normally low intake level of solid food in two week old calves.

Respiratory Syncytial Virus in young calves at grass

There were an unusually high number of cases of sudden death associated with Respiratory Syncytial Virus (RSV) infection in young cattle at grass. Commonly the animals were one to twelve weeks old and had been apparently clinically normal prior to death. Diagnosis was made by fluorescent antibody test (FAT) examination of lung tissue. In two of these cases there was an associated Pasteurellosis.

Section C – Disease Status

Infectious Bovine Rhinotracheitis (IBR)

IBR diagnoses are usually more common in the winter. However the number of diagnosis recorded (40) in this period in 2006 was the lowest since FarmFile records began. This may be a consequence of the mild autumn weather. A pan-herpes virus PCR is in the process of development and validation at VLA Weybridge and holds promise for the diagnosis of IBR from tissue. It is able to detect a whole range of herpes viruses and has already been used to demonstrate bovine Lymphotropic Herpes Virus (BLHV).

Bovine Lymphotropic Herpes Virus (BLHV)

BLHV was detected for the first time in December 2005 in a dairy herd suffering from chronic non-responsive post partum metritis (NPPM). Since then a limited study has been undertaken involving 13 other dairy herds with NPPM with BLHV detected in samples from at least one animal in nine of the 13 herds. Bovine Herpes Virus 4 (BoHV-4) was also detected in one of the BLHV positive herds. The relevance of these findings in respect of the clinical syndrome is uncertain. The initial results have been published (Cobb et al 2006) and if funding is obtained the syndrome will be investigated further.

Malignant Catarrhal Fever

There was a significant increase in the number of Malignant Catarrhal Fever cases diagnosed during 2006. This in part is probably due to increasing recognition of the respiratory and nervous clinical manifestations in addition to the typical “head and eye” form.

Annual Mastitis Summary

The high incidence of mastitis indicates that current approaches to control are not successful. It has been suggested that the UK dairy industry needs to fundamentally change its approach to mastitis control, to include diagnosis and a whole farm approach. The relative proportions of bovine mastitis diagnoses recorded in the FarmFile database for 2006 are shown in the pie charts below.

Figure C.4: Clinical mastitis by pathogen in 2006 (Jan-Dec) n = 3004 (VLA diagnoses)

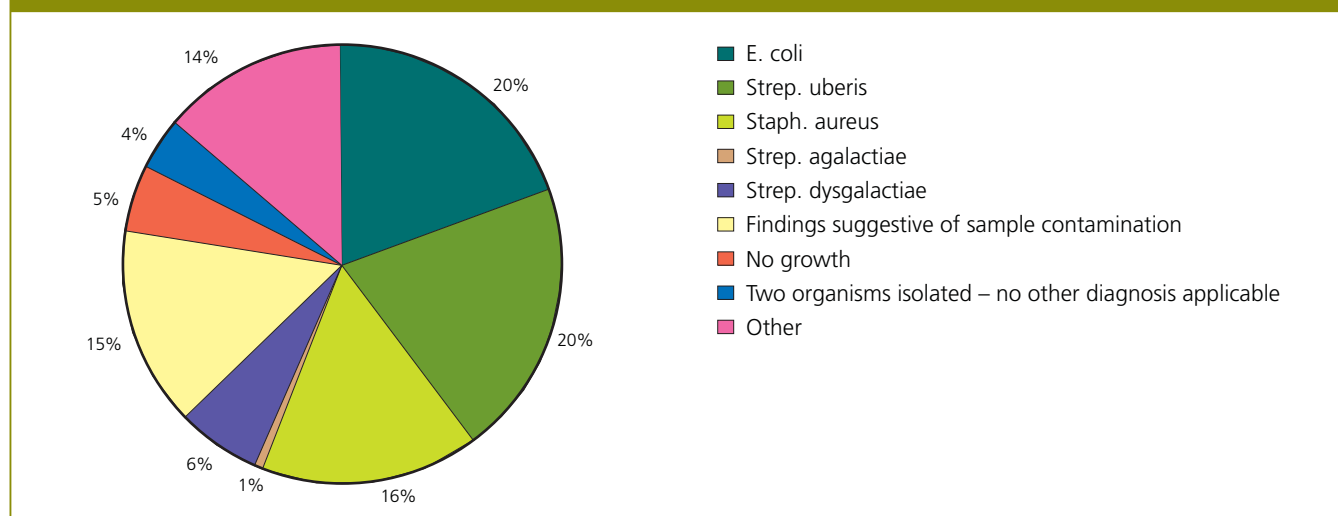
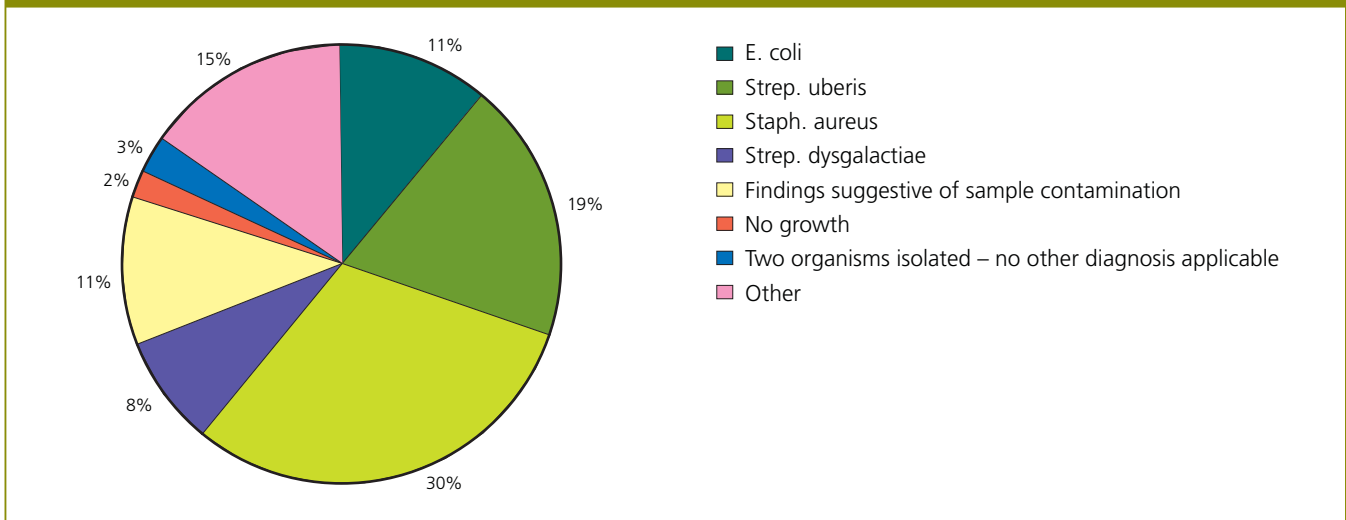


Figure C.5: Subclinical mastitis by pathogen in 2006 (Jan-Dec) n = 654 (VLA diagnoses)



Food Safety Incidents

There were 69 food safety incidents in cattle during 2006. Lead poisoning was the cause in 31 of these cases, botulism was diagnosed in 30 cases, two cases were attributed to copper and six other specific causes were attributed to the remaining six cases.

This number of botulism incidents was the highest recorded. All but one of these cases had actual or a potential association with poultry litter on investigation. A total of nine farms in Devon had clinically affected cattle associated with the distribution of 200 tonnes of broiler litter from one poultry unit.

Diagnosis Not Reached (DNR)

In a number of cases analysis hasn't led to a diagnosis being made. This is still an important category as it provides information on the possibility of new or emerging syndromes developing within the GB cattle population. Detailed information on the methodology, can be found at: <http://vla28/reports/diagnosis%20not%reached/default.asp>

During 2006 the percentage of diagnostic submissions where a diagnosis was not reached was 28% (4401/15450), a significant rise from previous years (pooled data) where 26% of submissions were classified as undiagnosed. A significant increase in undiagnosed systemic and miscellaneous disease and in undiagnosed reproductive disease was noted in 2006, with a significant decrease in musculoskeletal disease.

Enteric Disease

30% of enteric submissions remained without a diagnosis, the majority of which presented with diarrhoea. Diarrhoea is a frequent condition in cattle, especially in calves. Investigation of new cases of diarrhoea without a diagnosed cause will continue so that potential causes, either novel or established, can be established. However, no singular syndrome has been identified at post mortem, and this concurs with results from the early detection model used by VLA to identify possible new syndromes.

Reproductive Disease

A significant increase was seen in the category of undiagnosed reproductive disease during 2006, with a 5% increase noted. In addition, examination of the presenting signs for undiagnosed disease indicated significant increases in the clinical signs of abortion and reproductive disorders. The increase noted was virtually ubiquitous with all but one region affected with statistical significance.

Systemic and Miscellaneous Disease

A statistically significant rise in undiagnosed systemic and miscellaneous disease was seen in 2006, following the previous rise in 2005.

Diseases of Pigs

Exotic Disease

Brucellosis

Pig herds in Great Britain have remained free from *Brucella suis* infection. Herds which show clinical signs which could be caused by *B. suis*, are investigated; samples are taken for culture and serum is collected for antibody testing. During 2006 125 samples were tested. None of the cases investigated were attributed to disease caused by *B. suis*.

In addition wild hares which are submitted to the VLA regional laboratories as part of the wildlife disease surveillance programme, are screened for *B. suis*; 11 hares were examined in 2006 and all were negative for *B. suis*.

Zoonoses

Salmonella submissions and isolations remain static with Salmonella typhimurium U288 and DT 19 remaining the most consistent isolates.

Streptococcus suis type 2 accounted for 42 of the 70 isolates serotyped this year. No zoonotic incidents were recorded.

VTEC O157 was not found in any of the pig submission from the enhanced E.coli surveillance.

Endemic Disease Surveillance

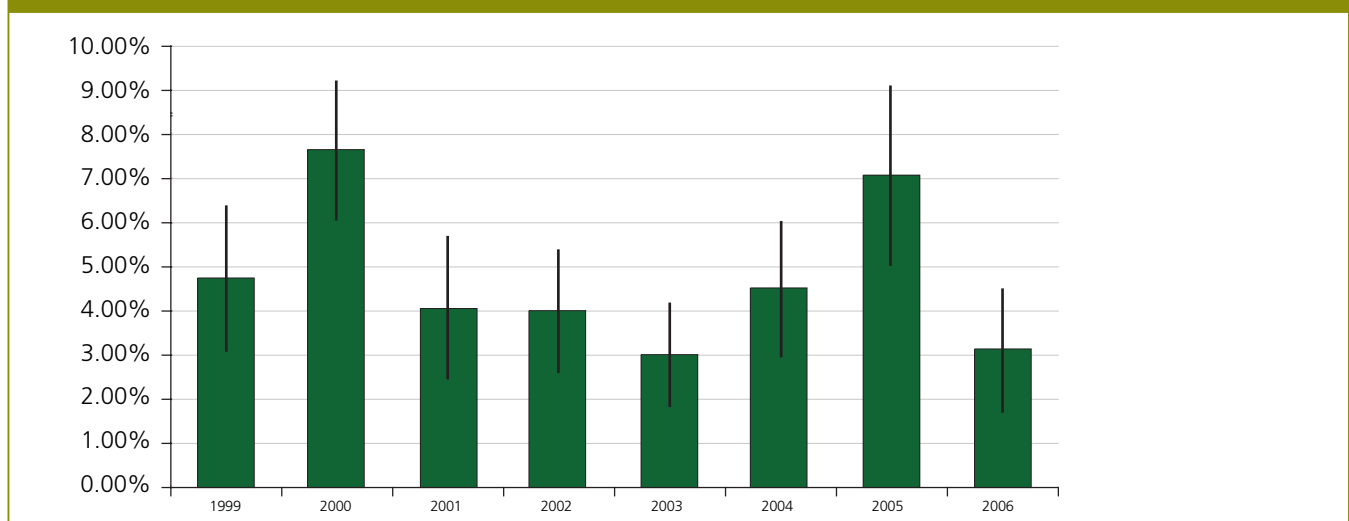
A vital part of the scanning surveillance program carried out by VLA and SAC is the identification of new and emerging diseases. Such diseases can arise for many reasons, and may have very specific clinical signs, but can also mimic the clinical presentation of well-known diseases. During 2006 the VLA have identified a possibly new disease entity in pigs. Only a handful of possibly affected animals have so far been presented for analysis, and it is too early to identify if this is a new disease, or merely a different clinical presentation of a disease that has been identified for sometime. Further work will continue in 2007 should more cases arise, but the importance of the scanning surveillance program in identifying such novel situations cannot be over emphasized.

Postweaning Multisystemic Wasting Syndrome (PMWS) and Porcine Dermatitis and Nephropathy Syndrome (PDNS)

There was a further fall in diagnoses of PMWS (as a percentage of diagnostic submissions) such that the annual diagnostic rate is similar to 2000, the first full year of PMWS diagnosis and significantly lower than in almost all subsequent years. Overall this represents a continuation of the steady downward trend in diagnoses of PMWS after 2001. This may reflect increased familiarity with the disease amongst farmers and practitioners and consequently a reluctance to further investigate typical pigs. It is not uncommon for PCV 2 related disease to manifest as pneumonia in recent years, sometimes without the typical changes in lymph nodes or clinical signs associated with PMWS, so that although disease manifestation has changed the overall incidence of disease associated with PCV 2 involvement may not be significantly altered.

Annual diagnostic rates for PDNS have fallen back to close to 2002/2003 levels. This is likely to reflect reduction in the actual prevalence of disease, and/or an increase in familiarity with the disease amongst farmers and veterinary surgeons, and a consequential reduction in the number of submissions of appropriate samples to VLA.

Figure C.6: Percentage of submission diagnosed with PDNS



Respiratory Disease

Respiratory disease continues to be an important disease syndrome often being complex and associated with multiple infections. This is causing significant mortality in finishers. PDNS, Porcine Reproductive and Respiratory Syndrome virus (PRRS) and Porcine coronavirus type 2 PCV-2 were not uncommon, all causing degrees of acute respiratory distress, lethargy and wasting. Concurrent bacterial infections were also diagnosed with *A.pleuropneumoniae*, *P.multocida* and *Streptococcus dysgalactiae equisimilis* being isolated. PRRSV in conjunction with *P.multocida* was diagnosed most commonly.

PRRS and PMWS/PCV-2 continue to be the main causes of pig morbidity and mortality. Reproductive failure and myocarditis are still not a large problem with PCV-2. The vaccination manufactured by Merial for sows for PCV-2 infections has been granted an import licence by

VMD. Hopefully, the other vaccine producers will follow suit. All four vaccines in use in the USA are said to be effective. The continuing use of hybrid or non Large White pedigree boars continues to maintain the downward trend of reduced PCV-2 morbidity and mortality.

Swine Influenza

There are no indications of new influenza strains in pigs. The classical strains of H1N1 and H3N2 are less common than the avian virus adapted to pigs 195852. The recombinant virus H1N2 is also found but has not become the predominant strain in the UK as it has in the rest of Europe.

Enteric Diseases

The alimentary diseases have shown little change in incidence but there does appear to be two things of importance. In the neonatal pig there appears to be an increasing incidence of concurrent infections of **rotavirus**, ***Clostridium perfringens* type C**, **coccidia**, and ***E. coli***. There is therefore a necessity to continue diagnosis to make sure that all combinations are investigated before prematurely concluding that the first determined cause is the only cause.

Similarly, the most common differential diagnoses of finishing pig mortality, especially if diarrhoea is involved, are **PCV2 infections** and the several manifestations of ***Lawsonia intracellularis*** (regional ileitis, porcine proliferative naturopathy or intestinal adenomatosis). In many cases of diarrhoea PCR will identify the presence of ***Brachyspirae* species**. However this identification does not confirm its role in the clinical disease affecting the herd.

Colibacillosis involving enterotoxigenic strains continued to cause significant mortality in weaners during 2006, with Abbotstown and G1253 the commonest serotypes identified. In contrast, **neonatal colibacillosis** is a relatively rare condition suggesting that farrowing house management and hygiene standards are usually adequate especially when linked to prophylactic vaccination of sows. Less well recognised attaching and effacing *E. coli* (AEEC) infection is seen sporadically in both sucklers and weaners but the diagnosis can only be made by histological examination of intestine from freshly dead or euthanased animals. Some of these AEEC cases may involve verotoxic strains but because the diagnosis is usually retrospective, subcultures of *E. coli* are not always available for detailed serotyping and toxin testing. Sudden death in weaners from bowel oedema was occasionally reported involving VT positive serotypes such as E57 and E145.

Fascioliasis in a pig

Examination of a faeces sample from a Tamworth sow in Caithness revealed large numbers of **liver fluke eggs**. The sow was one of a group of six kept outside that had been scouring despite anthelmintic and antibiotic therapy. Fasciolosis is an unusual occurrence in pigs in the UK since few are kept in the wet pasture conditions suitable for maintenance of the fluke life cycle and clinical problems in adult pigs are rarely reported. This is the first porcine case of liver fluke infestation to be reported in Caithness. Following the prescribing cascade, the sows were treated with triclabendazole (off licence), which appeared to result in clinical improvement.

There is still no evidence of the presence of ***Clostridium difficile*** in the UK pig population however widely this is reported in the rest of the world. The standard anaerobic culture techniques followed by API identification will detect the agent so if it is present in Great Britain it should have been identified through normal scanning surveillance.

Gastric ulceration continued to be the most common non-infectious cause of death in fatteners. Pale pigs were often found dead following acute haemorrhage from a large chronic ulcer located around the oesophageal opening. Rectal stricture was confirmed in some Hampshire fatteners, 4% of which were wasted and pot-bellied.

Diagnosis Not Reached

Analysis of the submissions without a diagnosis did not indicate the emergence of a novel pig disease during 2006. No new and emerging disease or recrudescence of old disease has been identified in pigs. Unusual manifestations of new syndromes were not seen (the possible exception being the continual occurrence of PRRS outbreaks). However, it appears that there is a new upsurge of reproductive problems associated with PRRS.

Throughout 2006 diagnosis not reached cases rose to 22.1%. Ten submissions were recorded as an unknown syndrome with no diagnosis in 2006. These showed no consistent presenting sign and were submitted sporadically through the year. A statistically significant increase in undiagnosed disease was detected for reproductive syndrome with 67.4% DNR in 2006 compared to 51.8% DNR for prior years. A statistically significant increase in undiagnosed disease was detected for systemic and miscellaneous syndrome with 10.5% DNR in 2006 compared to 6.2% DNR for prior years. Ill-thrift as a presenting sign for systemic and miscellaneous disease showed a significant increase in DNR, accounting for 49 of the 306 submissions of which 9 were not diagnosed.

Diseases of Horses

Exotic disease

Equine notifiable disease

There were three confirmed cases of notifiable equine disease in 2006. These were two single detections of Contagious Equine Metritis Organism (CEMO) in imported horses. One of these was only briefly in transit via the UK prior to export to a third country (see below). The third was a single case of Equine Infectious Anaemia (EIA) in Northern Ireland.

Nevertheless, there was considerable activity in this area, due to the revision of many areas of legislation relating to equine diseases, ongoing contingency planning, and dealing with the possible consequences for the UK of an outbreak of Equine Exotic Disease in Ireland.

Contagious Equine Metritis Organism (CEMO)

Disease was first confirmed in a single, privately owned, non thoroughbred mare in Oxfordshire on 24th April 2006. It was routinely swabbed and the swab was submitted to a private laboratory and subsequently to the Veterinary Laboratories Agency (VLA) at Bury St Edmunds, Suffolk on 19 April.

The resulting investigation concluded that the mare, imported from Germany, had never been used for breeding purposes since entering the UK. Any breeding of horses undertaken on the owner's premises was by artificial insemination alone. The swab results were negative and the UK regained freedom from CEMO rapidly in May 2006.

Section C – Disease Status

In a second incident, a 7 horse consignment including a stallion was imported into the UK on 29 October, from Poland via Germany. It was reported to have had no breeding contact with any other horse. 9 other horses subsequently joined the consignment, and pre-export testing produced a positive CEMO result. Subsequent investigation showed there was no evidence to suggest that there was any possibility of transmission to the UK horse population during the time that horse was in the UK.

Disease control was carried out in accordance with the protocol as set out in the Horserace Betting Levy Board (HBLB) Code of Practice for CEMO.

These incidents provided further continued evidence of the high degree of vigilance there is for CEMO within the UK industry for the disease in imported horses, and for the use of pre export quarantine testing.

Equine Viral Arteritis (EVA)

The UK remained free of EVA in 2006.

The VLA undertook more than 4000 EVA serology tests in 2006 of which over 1500 were tested as part of trade requirements. A single tube RT-PCR test to allow sequencing of new virus isolates has been developed. This will greatly aid in future testing regimes when it is fully available.

Equine Infectious Anaemia (EIA)

On 15th June 2006 the Department of Agriculture and Food announced the presence of Equine Infectious Anaemia (EIA) in a small number of horses in the Meath/Kildare area. These were the first cases of EIA recorded in Ireland.

By 31st December 2006, Ireland had confirmed EIA in twenty eight horses. The nature of the equine industry in both Ireland and the UK requires the frequent movement of equines between the two countries. The Irish authorities contacted both Defra and DARDNI regularly with details of horses that had possible contact with traced high risk horses. As a result of the information supplied, a total of 22 such horses in GB were placed under Form C restrictions provided by the Infectious Diseases of Horses Order 1987 due the risk of exposure to the EIA virus.

On the basis of the body of scientific evidence available for EIA including the prolonged incubation period for the disease, the possibility on non clinical signs, the risk of iatrogenic spread, and the evidence of spread by insect vectors. These horses were kept under restrictions requiring a high degree of separation from other horses, the use of adequate vector control, and the use of regular testing for EIA using the Coggins test. These restrictions were kept in place for at least 90 days, with a final Coggins test before restrictions were lifted. By 31st December 2006 all such restrictions on any such horses in GB were lifted. DARDNI **detected one positive case of EIA** amongst the horses that the Department sought to restrict as being at risk.

Throughout this period there was a high degree of contact between officials of the GB Equine Industry, devolved authorities, and the Department of Agriculture and Food in Ireland. Defra sought to work with the GB Industry and to communicate significant developments as they occurred. Many parts of the UK industry such as sale yards and racing authorities undertook the use of precautionary testing for EIA as an additional safeguard measure. These measures are expected to continue into early 2007.

The VLA undertook substantially increased testing for EIA during 2006 as a result of the need to deal with the risk of disease incursion.

Rabies

European Bat Lyssaviruses (EBLVs) are related to the classical rabies virus. There are two strains of rabies-related lyssaviruses found in bats across Northern Europe, EBLV-1 and EBLV-2. EBLV-2 is found mainly in the UK. EBLVs are normally only transmitted by the bite of an infected bat. There is no risk to humans if bats are not approached or handled by them. Bats are a protected species and must not be deliberately disturbed, captured or killed, or their roosts damaged or destroyed.

The Veterinary Laboratory Agency (VLA) has a long-standing programme of passive surveillance for EBLVs in bats. This programme involves testing dead bats usually submitted by bat workers. During 2006, 787 bats were tested under the programme, only **1 of which tested positive for live EBLV in England**. This was a female Daubenton's bat found in Oxfordshire in September.

Programmes of active surveillance took place in both England and Scotland in 2006. This work involves taking samples of both blood and saliva from live bats in their roosts for laboratory analysis to check for the presence of live virus or antibodies to EBLV. The aim of the programmes is to assess the prevalence of EBLV type 1 and EBVL type 2 in England and Scotland.

Results for England from 2005, the second year of this three year Defra-funded study into EBLV, were announced in July 2006. They indicated that there remains a low prevalence of EBLV-2 in Daubenton's bats in England. The risk to the general public from bats remains low. Full results of the England study will be available in 2007. Active surveillance work on EBLV presence in bats in Scotland is ongoing.

The VLA is the UK's national reference laboratory for rabies, as well as the World Health Organisation Collaborating Centre for Rabies.

For more information see: <http://www.defra.gov.uk/animalh/diseases/notifiable/rabies/index.htm>

Rabies Investigation

In 2006, 4 cats, 1 dog and 1 fox were submitted for testing as suspect cases. 13 captive exotic bats were also investigated as suspect cases. All these test results were negative, allowing the country to remain rabies free according to the OIE definition.

Diseases of companion animals

Exotic Diseases of Dogs

Dog And Cat Travel And Risk Information (DACTARI)

Recent years have seen a large increase in the number of dogs and cats entering or re-entering the UK, mainly as a consequence of the introduction of the Pet Travel Scheme. While abroad these animals are at risk from a number of exotic diseases, some of which are zoonoses. Zoonoses are diseases and infections which can spread naturally between animals and people. In order to establish whether these diseases pose a threat, the Dog And Cat Travel And Risk

Section C – Disease Status

Information (DACTARI) scheme was set up in March 2003. The scheme covers not only dogs and cats brought into the UK but also those which were born and lived here without ever having gone abroad. Diseases of concern include leishmaniasis, babesiosis, ehrlichiosis and dirofilariasis (heartworm). None of these is notifiable.

DACTARI was established with the help of the British Veterinary Association (BVA) and the British Small Animal Veterinary Association (BSAVA). It is a voluntary reporting scheme for use by private veterinary surgeons in GB.

Information on the scheme has been widely distributed to private veterinarians, pet owners, and others, by means of PETS leaflets, The Defra internet and publications.

Findings

From 1 January to 31 December 2006, six cases of diseased dogs were reported to Defra. There were no reports for cats. Table presents the cases by disease and county. All reported dogs were resident in England at the time of their examination by a veterinary practitioner but each one had been abroad and entered the UK via the Pet Travel Scheme shortly prior to the examination.

Table C.4: DACTARI Report by region for diseased dogs between 1 January-31 December 2006

Country	County of Pet Owner	Babesiosis	Leishmaniasis	Ehrlichiosis	Grand Total
England	West Sussex		1		1
	Kent	1		1	2
	Derbyshire		1		1
	North Yorkshire		1		1
Scotland	Aberdeenshire	1			1
Total		2	3	1	6

Brucellosis

Dogs are serologically tested for *Brucella canis* prior to export to New Zealand and Australia. The rapid slide agglutination test is used for dogs being exported to New Zealand, and 1055 animals were tested. Dogs for export to Australia are tested by the serum agglutination test and 1722 dogs were tested. None of the dogs tested during 2006 failed their respective test prior to export.

Diseases of Wildlife

Exotic Disease

Brucellosis

This year the VLA had a total of 112 submissions. *Brucella* marine species were isolated from three common dolphins and one bottle nosed dolphin. SAC also received cetacean submissions, and of these two Atlantic white sided dolphins and one harbour porpoise were diagnosed to have had *Brucella cetacae* infection.

Endemic Disease Surveillance

Surveillance for wildlife disease has been provided by the VLA since 1998. This involves diagnostic examinations of wild bird and mammal species submitted to VLA Regional Laboratories. In addition to scanning surveillance, more targeted surveillance, for example for Avian Influenza and West Nile Virus has been made possible by extending the scheme. <http://www.defra.gov.uk/corporate/vla/science/science-end-survrep-qtlyw.htm>

West Nile Virus (WNV)

Monitoring for the mosquito-borne West Nile Virus has continued in conjunction with avian influenza surveillance. West Nile Virus has never been isolated from birds in the United Kingdom. This monitoring program, which relies on the participation of partners across the country, will continue to be undertaken in view of the public health implications should active infection occur in wild birds in the future. 300 wild birds were examined by both WNV tissue culture and PCR and all were found to be negative for West Nile Virus.

Salmonella diagnoses in wildlife

45 incidences of *S. typhimurium*, of various strains, were diagnosed in 10 species of wild birds (all garden birds and all cases appeared to be associated with clinical disease) and in otters. Two incidents involving *S. enteritidis* in hedgehogs were also identified, plus three incidents of other Salmonella serotypes (which were not associated with clinical disease) in various species of waterfowl.

Swan mortality incidents

Several incidents of necrotic enteritis in Whooper (*Cygnus cygnus*) and Mute swans (*Cygnus olor*) were usually associated with feeding grain to these birds. At a swan rescue centre in Devon, 40 mute swans died from a group of 200 over a period of ten days. The swans were fed a mixture of grain and dried grass pellets. Affected birds showed minimal clinical signs and died quickly. Post-mortem examinations showed typical necrotic intestinal lesions and the causative organism, *Clostridium perfringens*, was demonstrated. A separate incident occurred at a town lake in Lancashire, where 25 mute swans and one Canada goose (*Branta canadensis*) died. Again the disease was circumstantially linked to the feeding of up to 5-10 kg of grain/day to the large numbers of water birds present. In addition however the recent dredging of the lake and an influx of sea water were considered to be contributory factors. Losses stopped after these two events, and after advice on provisioning the birds was given.

Sugar beet impaction

Deaths of 25 gulls, mainly Black-headed gulls (*Larus ridibundus*), on a reservoir in East Lancashire prompted diagnostic and field investigations. The cause of death was severe impaction of the gastro-intestinal tract with sugar beet pulp, almost certainly a feedstuff provided for local sheep. It is assumed that this ingested sugar beet swelled considerably when the birds drank at the reservoir, which they used as a night roost.

New bacterium associated with mortality in birds reported

A new bacterium named *Suttonella ornithicola*³² was isolated from tits (*Paridae*) that died over several months in different localities in England. The cause of death in the birds, and the possible role of the bacterium in the deaths, is not clear at present.

Pigeon trichomoniasis (canker) causing mass mortality incidents in wood pigeons

Outbreaks of oral trichomoniasis were reported in October in England causing high mortality incidents in wood pigeons (*Columba palumbus*). Cases have been recorded from Oxfordshire, Buckinghamshire, Wiltshire and Suffolk. Later in the year outbreaks were reported in Northern England. Similar trichomonad mass mortality incidents in wood pigeons during the autumn and winter months and across large areas of England have also been reported in previous years.

Garden bird oesophagitis

Several research and surveillance groups reported continuing losses due to this condition, which was first described in 2005. The range of species of passerines affected by the disease increased in 2006. Oesophageal lesions in affected birds similar to those seen in garden bird salmonellosis were noted, but the condition is now thought to be caused by infection with the trichomonad parasite. At present it appears that risks of disease are probably confined to bird species. Oesophagitis may be less seasonal than salmonellosis although workers reported frequent cases with high losses (epidemic mortality) during August and September 2006.

Mass mortality during migration in redwings (*Turdus iliacus*) and thrushes

Approximately 26 thrushes, mainly redwings, were found dead early one morning in gardens in a North Wales village. Death was caused by traumatic injury due to a severe storm during night migration. There were concerns that AIV infection was responsible however post mortem examination revealed clear evidence of trauma and the virus was not detected in the tissues of the birds.

Red squirrel pox

This disease is of conservation importance and is currently threatening the English and Welsh populations of the red squirrel (*Sciurus vulgaris*). The pox virus is carried, without clinical signs, by the expanding population of the grey squirrel (*Sciurus carolinensis*). The current areas affected by the disease are primarily in the North of England. Grey squirrels probably appeared in North

32 Kirkwood, J. and others, Veterinary Record (2006) 158, 203-205

Cumbria in the late 1990s, subsequently and predictably pox disease in red squirrels in the area followed in the wake of the appearance of the greys. Incidents of pox were identified in red squirrels from many areas in the North of England during 2006, including a case within a few kilometres of the Scottish border.

Marine Mammals

During 2006 SAC carried out the post mortem examination of a total of forty eight cetaceans representing six different species as a part of the UK Marine Mammals Strandings Programme. Harbour porpoises [*Phocoena phocoena*] were again the most numerous species examined. Respiratory disease continues to be of major importance in this species. The most common microbiological isolates associated with significant episodes of severe lung pathology are *Brucella*, *Aspergillus fumigatus*, members of the *Pasteurellaceae*, *Edwardsiella tarda* and *Streptococcus phocae*.

A Northern bottlenose whale [*Hyperoodon ampullatus*] which stranded at Craighton, Highland in October was found to be suffering from meningo-encephalitis due to *Aspergillus fumigatus* infection. Further cases of lymphoid meningo-encephalitis due to *Brucella cetacae* infection were seen in 2006: two such cases were in Atlantic white sided dolphins [*Lagenorhynchus acutus*] which stranded in Shetland.

Endemic Disease Surveillance in miscellaneous species

This section refers to exotic livestock such as camelids and deer and zoo animals. During 2006, 329 alpaca submissions, 49 llama and 87 deer submissions were received.

Salmonellosis

Salmonellosis was recorded once in a llama during the year. *Salmonella typhimurium* was probably an incidental finding in an alpaca cria that died due to parasitic gastro-enteritis and *Yersinia enterocolitica* septicaemia. Salmonella infection in camelids appears to be very unusual in the UK.

Yersinia infection

Yersinia infections were diagnosed in 2 alpaca and a llama. One case was in a 5 month old Alpaca with unresponsive diarrhoea. There were ulcers in the caecum and colon and a pure growth of *Yersinia pseudotuberculosis* was isolated from mesenteric lymph node. In December, *Yersinia enterocolitica* caused a terminal septicaemia in an alpaca cria that was debilitated due to parasitic gastro-enteritis.

Johne's Disease

One case of Johne's disease was confirmed by faecal microscopy during 2006 in an alpaca, and one case in a deer.

Bovine viral diarrhoea virus

One of the most interesting findings during 2006 was the diagnosis of bovine viral diarrhoea virus (BVDV) infection associated with abortion, stillbirth and the birth of weakly cria. BVDV type 1 infection was confirmed by PCR from a new born cria that was hyperaesthetic. Also BVD virus had been detected by PCR from an aborted foetus in the same herd. Both animals showed positive labelling for BVD virus of the brain by immunohistochemistry, which in cattle would indicate persistent BVDV infection. The animals were from a group of 22 adult alpacas and screening of blood samples from the herd showed further PCR positive animals.

In another herd, BVDV was confirmed by PCR in a stillborn alpaca. This dam had had contact with a BVDV infected alpaca at the previously mentioned farm. There are large numbers of movements of alpacas between units, often for breeding purposes, which could allow for further spread of infections such as BVDV.

Malignant Catarrhal Fever (MCF)

Two cases of Malignant Catarrhal Fever were confirmed in deer in 2006. In October, a 7 year old reindeer died due to Malignant Catarrhal Fever. It was one of a group of 8 and showed convulsions shortly before death. A vasculitis was detected at histopathology and a PCR for the OHV-2 virus that causes MCF was positive. There was no identifiable sheep contact.

Alpaca Fever

In December, an adult female Alpaca and cria died in poor condition and both had a heavy gastro-intestinal worm burden. The cria had a terminal septicaemia due to *Streptococcus equi* sub-species zooepidemicus. This organism is the cause of what is termed "alpaca fever" which reportedly causes losses in South America. The parasite burden was likely to have been a predisposing factor in the development of the septicaemia.

Parasitic Gastroenteritis and Fasciolosis

In 2006, 10 cases of parasitic gastro-enteritis were confirmed in alpaca and 3 cases in llama.

In December, disease resembling Type 2 ostertagiasis was seen in an adult alpaca. At necropsy, the mucosa of the third compartment had a very nodular appearance and large numbers of immature worms resembling *Camelostrongylus* species were seen on scrapings of the mucosal surface of the third compartment. Only 50 trichostrongyle-type eggs were seen in the faeces. In this outbreak, 3 alpacas died out of a group of 14 alpacas within 48 hours and the 2 alpacas examined had heavy worm burdens. Some routine monitoring of faecal egg counts had been carried out in this herd with no significant findings. It illustrated the dangers of relying on routine faecal worm egg monitoring in the winter months when hypobiotic larvae are likely to be present. Eight diagnoses of parasitic gastroenteritis in deer were made during 2006.

Fasciolosis was confirmed in one llama and 7 alpaca submissions during 2006. In December, fasciolosis was diagnosed in a 12 year old alpaca which had appeared lethargic for several days. At necropsy, large numbers of adult liver flukes were seen in thickened bile ducts. Camelids appeared to be very susceptible to fasciolosis. Two cases of fasciolosis were diagnosed in deer.

Coccidiosis

Coccidiosis was recorded 16 times in alpaca and once in a llama. Separate examinations for *E. macusaniensis* are routinely performed. *E. macusaniensis* usually causes disease in older alpacas.

In November, a 3 year old alpaca from a farm with 100 alpacas died after a short illness. A faecal sample taken prior to death showed 650 trichostrongyle-type eggs per gram and 3,350 *Eimeria macusaniensis* oocysts per gram. Histological examination revealed massive epithelial necrosis associated with large numbers of coccidial forms. These findings indicated concurrent parasitic gastro-enteritis and coccidiosis.

A 3 week old Water Buffalo died due to coccidiosis and *Damalinia* lice burden. It was also thought that the nutrition may have been inadequate.

Lungworm

Nine cases of parasitic pneumonia were diagnosed in deer in the year. Lungworm in deer tends to present as ill thrift rather than as respiratory signs. In one outbreak in December, 3 red deer hinds died out of a group of 56 hinds and calves. The signs seen were ill thrift and coughing prior to death. Large numbers of lungworm were seen in the trachea and bronchi of a 6 month old red deer submitted for necropsy.

Skin disease

5 cases of ectoparasitic disease were diagnosed in alpacas. In November, a visit was carried out to an alpaca farm after *Sarcoptes scabiei* mites were detected in skin scraping from a carcass received for examination. A group of 13 females all showed extensive lesions of the head, legs and ventral body and sarcoptes mites were seen on further scrapings.

Copper deficiency

Copper deficiency was diagnosed 5 times during 2006 in deer. In November, copper deficiency was diagnosed in 2 adult reindeer in poor condition. Very low plasma copper levels of 0.7 and 0.8 $\mu\text{mol/l}$ were found. Reference ranges for other deer species suggest normal values of 9-26 $\mu\text{mol/l}$, so there can be little doubt these animals were severely deficient.

Rabbits

The most common diagnoses recorded in rabbits in 2006 were mucoid enteritis (6 cases), coccidiosis (3 cases) and rabbit haemorrhagic disease (2 cases).

In November, head tilt and nervous signs in 3 out of 30 rabbits was due to *Pasteurella multocida* infection of the middle ear and brain. Purulent deposits were found on dissection of both tympanic bullae and also the ventral brain.

Zoological Specimens

In October, a 4 year old Red Neck Wallaby died due to a *Toxoplasma gondii* infection. The history was of acute weakness, poor appetite, ill thrift and head pressing. No gross changes were seen at necropsy but on histological examination of the brain, a moderate sub-acute granulomatous meningo-encephalitis was present. Immunohistochemical examination confirmed *Toxoplasma gondii* antigen was present. It is considered that marsupials are highly susceptible to toxoplasmosis as a consequence of evolving in isolation from cats. Toxoplasmosis should also be suspected in macropods as well as other marsupials showing respiratory, enteric or nervous signs.

Also in October, an adult male Bennett's Wallaby, one of a group of 7, died due to necrobacillosis. The animal had showed weight loss and facial swelling prior to euthanasia. There was extensive abscessation under the mandible extending into the soft tissue under the tongue. Necrobacillosis is caused by *Fusobacterium necrophorum* and macropodid marsupials such as kangaroos and wallabies are particularly susceptible

An aged Gemsbok that died in poor body condition had a heavy nematode burden in the abomasum and small intestine. Benzimidazole resistance has been previously reported in this group.

In November, the death of 10 year old Red Panda was due to an acute multifocal fibrinonecrotic hepatitis, splenitis and lymphadenitis. *E. coli* was isolated in pure growth from liver and spleen. The animal had chronic dental problems including gingivitis which may explain its poor condition, whilst an ulcerative glossitis may have been the source of the bacterial infection.

In December, a male Fossa (a Madagascan mongoose) was submitted following a fatal fight with his sister. Severe bite wounds were present over the nares and the neck of the animal, and there was significant haemorrhage around one kidney that was also thought to be related to trauma. However, a pericarditis and an endocarditis were also present which suggested infection over a longer period, which might have explained its inability to ward off attack. These animals are endangered in the wild and a very small number are in captivity, making the death of even one individual of significance.

Diagnosis Not Reached

During 2006, there were no significant changes in the proportions of submissions from alpacas, llamas and deer (of all species) for which no diagnosis was reached despite reasonable testing, compared with prior years. There is insufficient data for other species to make this sort of analysis valid.

Abbreviations and acronyms

A

ABC	Artificial Breeding Control
ACDP	Advisory Committee on Dangerous Pathogens
AFBI	Agri-Food and biosciences Institute
AHT	Animal Health Trust
AHW	Animal Health and Welfare
AHWS	Animal Health and Welfare Strategy
AI	Artificial Insemination
AI	Avian Influenza

B

BARB	Born after the Reinforced Feed Ban
BASC	British Association for Shooting and Conservation
BBSRC	Biotechnology and Biological Science Research Council
BCG	Bacille Calmette-Guerin
BCMS	British Cattle Movement Service
BEVA	British Equine Veterinary Association
BIPs	Border Inspection Posts
BSAVA	British Small Animal Veterinary Association
BSE	Bovine Spongiform Encephalopathy
BT	Bluetongue
bTB	Bovine Tuberculosis
BVD	Bovine Viral Diarrhoea

C

CCS	Civil Contingency Secretariat
CEMO	Contagious Equine Metritis Organism
CIE	Counter Immuno Electrophoresis
CJD	Creutzfeldt-Jakob's Disease
CLA	Country Land & Business Association
CSF	Classical Swine Fever

Appendix A: Abbreviations and acronyms

CSL	Central Science Laboratory
CVO	Chief Veterinary Officer
CWG	Collaborative Working Group

D

DA's	Devolved Administrations
DACTARI	Dog And Cat Travel And Risk Information
DARC	Defra's Antimicrobial Resistance Co-ordination
DARD	Department of Agriculture and Rural Development
DARDNI	Department of Agriculture & Rural Development for Northern Ireland
DBES	Date Based Export Scheme
DEFRA	Department of Food, Environment and Rural Affairs
DH	Department of Health
DSTL	Defence Science and Technology Laboratory

E

EBL	Enzootic Bovine Leukosis
EBLV	European Bat Lyssavirus
ECUG	Export Certification Users Group
EFRA	Environment, Food and Rural Affairs
EIA	Equine Infectious Anaemia
EIU	
ELISA	Enzyme-Linked Immunosorbant Assay
ESBL	Extended-Spectrum Beta-lactamase
EU	European Union
EUFMD	European Commission for the Control of Foot and Mouth Disease
EVA	Equine Viral Arteritis

F

FAWC	Farm Animal Welfare Council
FMD	Foot and Mouth Disease
FSA	Food Standards Agency
FUW	Farmers Union of Wales
FVO	Food and Veterinary Office

G

GB Great Britain

H

HAIRS Human, Animal, Infection Risks Surveillance

HBLB Horserace Betting Levy Board

HMRC HM Revenue & Customs

HPA Health Protection Agency

HPAI Highly Pathogenic Avian Influenza

HSE Health and Safety Executive

I

IAH Institute of Animal Health

IAH International Animal Health

IAHSDU International Animal Health Service Delivery Unit

IATC International Agriculture and Technology Centre

IDMU International Disease Monitoring Unit

ISG Independent Scientific Group

L

LAs Local Authorities

LPAI Low Pathogenic Avian Influenza

LSD Lumpy Skin Disease

LVIs Local Veterinary Inspectors

M

MAP Mycobacterium Avium subspecies Paratuberculosis

MAT Microscopy Analysis Test

MCF Malignant Catarrhal Fever

MHS Meat Hygiene Service

ML Macroyclic Lactone

MRC Medical Research Council

MRSA Meticillin-Resistance Staphylococcus Aureus

Appendix A: Abbreviations and acronyms

N

ND	Newcastle Disease
NED	National Equine Database
NEEG	National Emergencies Epidemiology Group
NEPNEI	National Expert Panel on New and Emerging Infections
NFA	National Feed Audit
NFSCo	National Fallen Stock Company
NFU	National Farmers' Union
NFU(C)	National Farmers' Union Cymru
NFU(S)	National Farmers' Union Scotland
NGL	National Guidelines for Laboratories
NI	Northern Ireland
NIAPA	Northern Ireland Agriculture Producers Association
NOAH	National Office of Animal Health
NPHS (Wales)	National Public Health Service Wales
NRM	National Reference Methods
NSA	National Sheep Association
NSP	National Scrapie Plan
NSPAC	National Scrapie Plan Administration Centre
NWCU	National Wildlife Crime Unit

O

OBF	Officially Brucellosis Free
OCDS	Older Cattle Disposal Scheme
OIE	World Organisation for Animal Health
OP	Organophosphate
OTMS	Over Thirty Months Scheme

P

PAP	Processed animal proteins
PCR	Polymerase Chain Reaction
PDNS	Porcine Dermatitis and Nephropathy Syndrome
PIOs	Passport Issuing Organisations

Appendix A: Abbreviations and acronyms

PMWS	Postweaning Multisystemic Wasting Syndrome
POAO	Products of Animal Origin
POAs	Preliminary Outbreak Assessments
POIR	Private Office and International Relations
PPEG	Performance Pedigree, Evaluation and Grading
PSA	Public Service Agreement
PVL	Panton-Valentine Leukocidin

Q

QRA	Qualitative Risk Assessment
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R

RADAR	Rapid Analysis and Detection of animal-related Risks
RBCT	Randomised Badger Culling Trial
RCVS	Royal College of Veterinary Surgeons
RGS	Ram Genotyping Scheme
RLs	Regional Laboratories
RTA	Road Traffic Accident

S

SAC	Scottish Agriculture College
SCoFAH	Standing Committee on the Food Chain and Animal Health
SCOPS	Sustainable Control of Parasites in Sheep
SEAC	Spongiform Encephalopathy Advisory Committee
SEERAD	Scottish Executive Environment and Rural Affairs Department
SGDIA	Surveillance Group on Disease and Infections of Animals
SP	Synthetic Pyrethroid
SPS	Sanitary and Phytosanitary
SRM	Specified Risk Material
SRPBA	Scottish Rural Property and Business Association
STEED	Specified Type Equine Exotic Disease
SVD	Swine Vesicular Disease
SVS	State Veterinary Service
SZEID	Surveillance, Zoonoses & Emerging Issues Division

Appendix A: Abbreviations and acronyms

T

TB	Tuberculosis
TSE	Transmissible Spongiform Encephalopathy

U

UFU	Ulster Farmers' Union
UK	United Kingdom
UKAS	United Kingdom Accreditation Service
UKZG	United Kingdom Zoonoses Group

V

VEROD	Veterinary Exotics, Research and Official Controls Division
VIDA	Veterinary Investigation Surveillance Report
VLA	Veterinary Laboratories Agency
VMD	Veterinary Medicines Directorate
VS	Vesicular Stomatitis
VSFS	Voluntary Scrapie Flocks Scheme
VSS	Veterinary Surveillance Strategy

W

WAG	Welsh Assembly Government
WEGS II	Welsh Ewe Genotyping Scheme II
WNV	West Nile Virus
WTO	World Trade Organisation

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