Appraisal of options for the future relationship between the Veterinary Laboratories Agency and the Institute for Animal Health

A report for BBSRC Council and Defra Management Board
January 2007

(Update for financial assumption changes)
“The UK has the potential for world-leading research and biotechnology expertise in animal disease and its application, but we believe this position is endangered by the absence of a coherent and integrated national strategy.”*

“To bring greater coherence to the delivery of animal health R&D, a new National Centre for Animal Disease Research and Surveillance should be established – a "virtual" centre, organisationally coherent but physically dispersed.”*

* Infectious Diseases in Livestock, Royal Society, July 2002
Executive Summary

This is the report of a study commissioned by the Biotechnology and Biological Sciences Research Council (BBSRC) and Department for Environment, Food and Rural Affairs (Defra) to evaluate the future relationship between the Institute for Animal Health (IAH) and the Veterinary Laboratories Agency (VLA). The options considered ranged from closer collaboration and the retention of two institutes to total integration into a new organisation which would embrace the totality of VLA and IAH. The review criteria were captured under the headings of:

- Sustain the delivery of world class science to support evidence-based policy development and decision making that can adapt to changing requirements
- Support the UK to respond effectively to a national emergency
- Protect the UK taxpayer - ensure financial sustainability over the medium term

During the course of the evaluation, a vision evolved for the creation of a National Institute of Excellence in animal health which would be a scientifically ambitious animal health facility incorporating National/EU and World reference laboratories in addition to responsibility for all of Defra's animal health surveillance activities.

The emphasis of the study was the importance of providing the best possible science. The current science is generally strong, although there is some potential for enhancement. There is currently a high degree of complementarity within science across the two organisations and already some good collaborations, driven by strategic resource and critical mass needs. Overall, there is some natural polarisation at the pure and applied ends of the spectrum, spanning what is considered to be a weaker area, termed the 'translation gap'.

The VLA and IAH are planning to relocate their virology activities to a new £120 million facility funded by Defra, BBSRC and the Office of Science and Innovation (OSI), due to be commissioned in 2010/11.

Both institutes have vital roles to play in responding to an animal health national emergency and have demonstrated their importance in the past. Whilst the precise needs of any emergency cannot be fully anticipated, the capacity to assemble a top team of leading specialists supported by the maximum available resources in the shortest time possible, will inevitably be important.

Protection of the taxpayer has been defined as ensuring that animal health in the UK lives within its budget, at least in the medium term. Both organisations are heavily dependent on funding from Defra, with IAH also relying on BBSRC. Based on the current projections, it appears that both can sustain their operations whilst in broad terms remaining able to cover their costs even including the Pirbright redevelopment, with IAH reporting a small deficit and VLA a small surplus.

In considering options for the future, four examples were identified and tested. Options A and D represent independent cooperation and full integration respectively. Options B and C represent intermediate models involving transfers of parts of the IAH into VLA.

Options B and C provide few additional benefits, retain a number of challenges, create potentially non-viable residues and expose the organisations to
implementation risks; it is therefore considered that Options A and D are the only viable alternatives.

Option A comprises both organisations remaining autonomous but working with increasing collaboration. This has the apparent benefit of simplicity and poses no governance challenges, at least until commissioning of the new virology building. However, it fails to create a single manageable structure for the vision of a world class National Institute of Excellence, relying on sustained cooperation even though individual organisational pressures will remain. This will be further complicated by the new Pirbright virology facility which will represent a third component with different governance pressures. Option A is therefore considered to face real challenges.

Option D comprises both VLA and IAH in a single structure. This option has the benefit of providing the best prospect of achieving the vision of a National Institute of Excellence in that it can be managed through one name, one strategy, one culture, one budget, one coherent infrastructure (including IT systems) and one leadership. However, it does represent an implementation challenge and real concerns have been expressed over the requirements for new governance and new funding arrangements, and whether spend on the fundamental science end of the spectrum will be at risk in times of financial pressure. However, none of these concerns should be insurmountable.

From the evaluation process, the Steering Group favours the creation of a National Institute for Animal Health Research and Surveillance, integrating the totality of VLA and IAH in the form of Option D with specific plans and costings to be developed. The success of Option D is entirely dependant on at least medium term commitment to the funding assumptions used in our financial analyses and outline agreement on the appropriate governance arrangements. In the event that these challenges are not met, Option A should be pursued.
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1. Introduction

In June 2005, further to a series of earlier reviews and evaluations, Defra and BBSRC formed a Steering Group to explore the potential for closer integration and/or joint working between the VLA and the IAH. At the time there was already commitment to co-locate the virology activities of the VLA and Pirbright laboratory of the IAH at the IAH Pirbright site in a new facility estimated to cost approximately £120 million. An independent study highlighted a number of areas which might benefit from greater integration and listed the factors that should dominate the debate over any future relationship. As a result, Defra and BBSRC proposed a further in-depth study. Four options were specified, ranging from the retention of two separate organisations with closer collaboration to total integration, with the creation of a new organisation that would embrace the totality of VLA and IAH. A primary focus of the study was to be on “What’s best for the science?”. In April 2006 a Steering Group was appointed under the chairmanship of Professor John Preston and charged with the task of engaging external consultants to undertake the present study and report to BBSRC Council and Defra Management Board by year end. The Terms of Reference (TOR) and membership of the Steering Group can be found in Annexes 1 and 2.

The review criteria specified in the TOR were grouped under the headings:

- Sustain the delivery of world class science to support evidence-based policy development and decision making that can adapt to changing requirements
- Support the UK to effectively respond to a national emergency
- Protect the UK taxpayer – ensure sustainability

KPMG, the appointed consultants, presented progress updates to the Steering Group on five occasions, as the basis for discussion and future direction. The Steering Group’s draft conclusions were reviewed with the IAH Governing Body and the VLA Ownership Board before release of the final report.

The Steering Group would like to thank the management and staff of both institutes for their time and unstinting support in the conduct of this review.
2. A Vision for UK Animal Health Research

Animal health is critical to the UK. Livestock diseases not only adversely impact animal welfare and performance but may also be transmitted directly to humans or via the food chain. In any year it is estimated that at least one additional animal pathogen is transmitted to man and becomes established as a recognised zoonosis. The increased international movement of people, livestock and their products, compounded by climate change supporting the extended distribution of arthropod vectors, contribute to an ever greater threat of novel or returning exotic diseases. The potential use of biological agents by terrorists adds significantly to this threat.

Animal diseases are among Defra's top risks. The threats attributable to disease are very real and the economic risks and, in some cases, the risks to public health can be enormous. The occurrence of Bovine Spongiform Encephalopathy (BSE) in cattle and the related Variant Creutzfeldt-Jacob Disease (vCJD) in man and the outbreak of Foot and Mouth Disease (FMD) in 2001, estimated to have cost around £7.5 billion, are salutary reminders of the ongoing need for the most effective and efficient approaches to disease control and prevention. More recent threats include Avian Influenza (AI), cases of which have already been identified in the UK, Bluetongue which has continued its rapid migration to reach Germany, Belgium and The Netherlands and an outbreak of Newcastle Disease (ND) in Scotland. Prevention of, or rapid response to, a disease outbreak demands a thorough understanding of the infectious organism and its interaction with the host. This knowledge underpins the development of rapid and reliable diagnostic tests and effective vaccines or therapies which, with the support of effective mathematical modelling and epidemiological data, determine the capability to implement an effective response. Critical success factors in responding to an animal disease emergency include a high quality and broad scientific knowledge and skill base, a flexible organisation of trained and experienced staff who can react quickly, the ability to increase and redirect effort as required and contingency plans to cover all eventualities in the face of an outbreak. Pivotal to all of this is a high quality animal health research capability comprising the best of people and facilities.

Over several Steering Group meetings, based on discussion of interim findings, a vision evolved for the creation of a National Institute of Excellence. This scientifically ambitious animal health research capability with state-of-the-art biosecure facilities would provide the opportunity to maximise the quality of animal health research, crucially ranging from, and integrating fully, the fundamental to the applied, with access to all of Defra's national surveillance samples in addition to those received by the National/EU and World Reference Laboratories which would be incorporated into the facility. The critical mass of high quality scientists would not only contribute to the preservation and enhancement of the international reputation of UK animal health research but would provide for the efficient deployment of people, skills and resources as and when required.

Such an institute would have the potential to attract and retain well qualified scientists and veterinarians to a career in research, providing the opportunity for participation in the continuum of basic to applied research, product development, epidemiology, mathematical modelling, surveillance and disease control. Over the past 20 years it has been increasingly difficult to attract high quality candidates. Very often this has been caused by the perceived limited flexibility and opportunity for career development in such an environment but entry into a fully integrated system would be
much more attractive, particularly in the early stages of a career, offering employees the potential for movement and change of role along the continuum.

This model would also allow for the development of key personnel with a broader range of skills and experience who would be better equipped as potential leaders and to contribute effectively to an integrated programme, either in regular or emergency response mode.

A world class National Institute of Excellence would also serve as the focal point within a broader network of collaboration with other organisations including university departments, veterinary schools and other public sector units both in the UK and internationally. In addition, its amalgam of skills, experience and facilities would make it a premier training centre for other government departments and agencies including the State Veterinary Service (SVS).
3. **Background**

3.1 **Institute for Animal Health**

The IAH formed in 1987 through the merger of previously distinct bodies will, from April 2007, operate at two sites in Compton (Berkshire) and Pirbright (Surrey). It is a major centre for research on infectious diseases of livestock, including many that transmit to man. The institute is a registered charity and sponsored by the BBSRC.

The IAH, excluding the Neuropathogenesis Unit (NPU), has an annual budget of £27.5 million and employs approximately 450 staff. The institute receives core and competitive funding from BBSRC, for fundamental and strategic research. Substantial funding is also secured from Defra, mainly in support of applied research and capacity to respond to an outbreak of a notifiable disease, such as FMD. The IAH has International Reference Laboratory Status for many diseases on the OIE list.

The focus of work at Pirbright is on exotic viral diseases of livestock, whilst the research at Compton centres primarily on endemic diseases and underpinning approaches to studies on infectious disease. However, this separation is not exclusive, with the recently established programme, in collaboration with VLA, on Avian Influenza based at Compton.

The principal diseases studied at IAH include Food-borne zoonoses, Avian influenza, Bovine Tuberculosis (TB), TSEs, Coccidiosis and Marek's Disease at Compton, with FMD, African Swine Fever, Rinderpest, Bluetongue and other orbiviruses at Pirbright.

The institute has recently published its science strategy (2005-2015) outlining its 10 year strategic objectives. Focus will be on cattle and poultry with fundamental programmes on the immunology and genomics of both species.

The IAH Governing Body provides support on scientific and fiscal issues to the management team; members of the body are trustees and directors. The BBSRC council, determines BBSRC policies and strategies and receives reports, recommendations and advice from several boards and committees which cover a range of BBSRC's activities, including those relating to the IAH.

The principle mechanism of funding from the BBSRC to IAH, is by a Core Strategic Grant; the Institute can also bid for peer-reviewed BBSRC competitive grants. The core funding is awarded over a period of 4 years after each round of the quadrennial Institute Assessment Exercise.

3.2 **Veterinary Laboratories Agency**

The VLA is an Executive Agency of Defra, established in 1995 and comprises a main site at Weybridge supported by a nationwide network of 15 regional laboratories. The mission statement of the VLA is ‘to safeguard public and animal health through world class veterinary research and surveillance’.

The VLA currently employs just over 1400 staff with an income of £107 million, 90% of which is provided by Defra. The science, surveillance and commercial programmes deliver a range of services to its customer base. A comprehensive surveillance network, multi-disciplinary research programme and the provision of an effective national emergency response enable the VLA to meet these requirements.
To provide this service, there are six main customer-focused programmes which are supported by discipline-based groups including pathology, epidemiology, risk analysis, applied immunology, microbiology and chemistry.

The six programmes are:
- Statutory and exotic viruses
- Statutory and exotic bacteria
- International trade
- Emerging diseases and welfare
- Food and Environmental Safety
- TSEs

A seventh programme is focused on commercial work, the aim of which is to generate surpluses for reinvestment in the business.

In terms of governance, the VLA Ownership Board, chaired by a non-executive, provides advice on strategic direction to Defra while the VLA Strategy Management Group, chaired by the CEO, retains oversight and management of operational delivery, and provides strategic direction to the CEO.

Given the influence and impact of the two major funders at VLA and IAH it is important to reflect on their current strategies.

3.3 Defra funding and strategy

Defra funds research and surveillance activity at both institutes. The contracts for surveillance amount to £75million and £1.7million annually at VLA and IAH respectively. This activity is essential not only for supporting Defra's statutory responsibilities, but also to help support the underpinning of the research and development activity at both institutes. Defra recognises the importance of both fundamental and applied research to address its policy needs and provides £40million per annum in support of animal health R&D. It is recognised that the applied nature of Defra's research requirements and the policy-driven strategy to define them present problems in securing long term funding, which is essential for effective translation of basic research into application.

3.4 BBSRC funding and strategy

The BBSRC as the principal funder of basic and strategic biological research in the UK, supports research, training and knowledge transfer through a variety of funding streams including responsive mode funding and core support grants. Investments of £336million per annum throughout the UK are currently made in the biosciences across a range of topics, ranging from genomics, whole organism biology to biological populations. The research grant activity and scientific strategy enable a balance to be struck between funding for top quality research ideas, regardless of topic, and more targeted funding for research in areas of strategic importance. Maintaining this balance enables BBSRC to take a less reactive stance than Defra towards allocation of its funds. BBSRC Council has recently increased spend on the core strategic grants in Animal Health and Welfare and established three initiatives in combating animal disease.
4. **IAH and VLA – Review of the current status**

4.1 **Overview**

In this section the findings of the in-depth study based on site visits and consultation with IAH, VLA, Defra and BBSRC personnel, key stakeholders and interested parties are summarised and categorised under the headings of:

- Sustain the delivery of world class science
- Support the UK to effectively respond to a national emergency
- Protect the UK tax payer – ensure sustainability

4.2 **Sustainability of world class science**

The IAH is an academically-oriented institute which fulfils the mission of BBSRC by delivering high quality science. The interim report of a rigorous quadrennial review undertaken in 2006 scored seven of the eight work programmes in the top two assessment categories. These results are considered to be extremely positive and reinforce the value of IAH to animal health in the UK.

Although subject to a different review process, the most recent in 2001, indicative ratings for the VLA’s research programmes were good or outstanding with the clear exception of Emerging Diseases and Welfare where Defra’s portfolio includes very little research. The corresponding ratings for Surveillance were all outstanding apart from Food & Environmental Safety which was rated as good.

In general terms the differing missions and objectives of the sponsors have a polarising effect on the activities and emphases within the Institutes – IAH is focused primarily on basic and early developmental research while VLA is heavily biased towards development and applied research. In total this has the net effect of creating a “translation gap” between basic and applied research compounded by the limited funding available for this part of the chain.

There is good complementarity rather than overlap both within and across the fields of research in the two institutes.

Where the two organisations work closely on specific areas, the outcomes are generally strong and positive. Good examples, with different drivers, are in the area of virology (strategic) Bovine TB (limited resources) and Food-Borne Zoonoses (critical mass).

It is planned to co-locate virology research from the VLA and Pirbright Laboratory in a new building at Pirbright. This is currently scheduled to come fully on stream in 2011. Research will benefit from combining and reinforcing fundamental and applied research in a single location while also providing for a more seamless response to national emergencies as compared with that witnessed during the FMD outbreak of 2001.

Lack of high containment large animal facilities was the main driver for a now well-established collaboration on Bovine TB and although located across both institutes the research programmes are highly integrated and jointly funded.
Reduced staffing at IAH in the Food-Borne Disease area is driving informal to formal collaboration between the complementary research activities of the two institutes as a means of retaining or rebuilding critical mass.

The diseases studied in both institutes in most instances require extremely specialist high containment laboratories and animal facilities which are not only very expensive to build but carry high maintenance and operating costs. Work on these diseases is not only constrained to these facilities by high costs but is also regulated under the Specified Animal Pathogens Order (SAPO), where the institutes must have a licence to work with these pathogens in Category IV containment. Staff must understand and have a culture of full compliance with the strict operational containment procedures. These are important safeguards to national security from the threat of these pathogens.

4.3 Supporting the UK in effectively responding to a national emergency

Together, VLA and IAH provide the National Reference Laboratory for all animal diseases of statutory or public health significance. In addition they host International Reference Laboratories for 26 diseases or topics. The Reference Laboratory status for each institute is as follows (see Annex 3 for abbreviations):

VLA – all are located at Weybridge with the exception of Contagious Equine Metritis which is housed at the Bury St Edmunds regional laboratory, and antimicrobial resistance at Shrewsbury.

- BSE and Scrapie (EU, OIE)
- Newcastle Disease (EU, FAO, OIE)
- Avian Influenza (EU, FAO, OIE)
- Classical Swine Fever (OIE)
- Bovine Viral Diarrhoea (OIE)
- Brucellosis (FAO, OIE, WHO)
- Infectious Bovine Rhinotracheitis (OIE)
- Salmonellosis (OIE)
- Contagious Equine Metritis (OIE)
- Equine Viral Arteritis (OIE)
- Bovine Tuberculosis (OIE)
- Anti-microbial resistance (OIE)
- Rabies (OIE, WHO)
- Contagious agalactia (OIE)
- Enzootic bovine Leukosis (OIE)
- Poultry diseases (FAO)
IAH – all are located at the Pirbright site with the exception of Marek’s Disease which is housed at Compton.

- Africa Horse Sickness (OIE)
- African Swine Fever (OIE)
- Bluetongue (OIE, EU)
- Lumpy Skin Disease (OIE)
- Marek’s Disease (OIE)
- Foot and Mouth Disease (OIE, FAO, EU)
- Peste des petits ruminants (OIE, FAO)
- Sheep and Goat Pox (OIE)
- Swine Vesicular Disease (OIE, EU)
- Rinderpest (OIE, FAO)

Hosting these reference laboratories has several distinct benefits ranging from providing Defra with the most up-to-date knowledge of the distribution and serotypes of disease across the world and research access to a most extensive stock of pathogens and surveillance samples.

With animal disease as one of Defra’s top threats, policies and preparedness are essential to drive an effective and efficient emergency response. Defra is very heavily dependent on the combined resources of VLA and IAH for this capability, which incorporates understanding the disease and its epidemiology, development of novel and improved diagnostic tests, therapeutics and vaccines, creation of risk assessment models, development and evaluation of control strategies, disease surveillance and the ability to provide a “surge capacity” for laboratory testing in the face of an epidemic.

The quality of the underlying research and its application which are key to all of the above elements will determine the quality of the emergency preparedness and response. The importance of effective integration of research, through to test development and its application in the field cannot be over stated.

Equally important in the face of an outbreak of exotic disease is the ability of IAH and VLA to provide the necessary “surge capacity” to rapidly turn around large numbers of diagnostic and surveillance test samples, generating high quality reports on the basis of which Government disease control policy can be determined.

The two organisations worked closely during the 2001 epidemic, utilising the high volume (semi-automated) testing and IT systems of the VLA alongside the specialist capabilities at IAH Pirbright, to deliver the necessary testing capability. Current contingency plans at both organisations envisage similar cooperation and support in the face of future outbreaks requiring massive surge capacity.

Undoubtedly, provision of surge capacity would be facilitated by merger of the two organisations. This would bring the emergency response under a single chain of management, increase the critical mass of available skilled staff and testing platforms and facilitate electronic reporting to Defra through a single IT system.

The network of regional laboratories is the mainstay of the surveillance system, broadly divided into scanning and targeted surveillance. Respectively these involve routine clinical and diagnostic testing services which flag up new and emerging
issues and focused surveys for work on specific diseases, often linked to research projects or specific disease control programmes.

Beyond their diagnostic capability, the regional laboratories provide essential links to the farming community, a nationwide network of animal health expertise and skills, capability in specialised clinical diagnosis, and the capability to make rapid, localised epidemiological analyses.

With regard to surveillance capability it is clear that, between the regional laboratories and the main laboratories of the VLA and IAH there exists a unique and valued asset of international quality. The skills, resources and people, together with the links provided between research, test development and diagnostic services and the ability to scale up in an emergency situation are critical to the provision and maintenance of this facility.

Appropriate investment at the VLA and IAH to support surveillance activities is essential to meet these challenges. Whilst identifying its evidence and innovation needs, Defra states that 'Investment in research, evidence and innovation, both nationally and internationally, is needed to ensure that the UK is in a position to prevent and control such disease outbreaks both effectively and efficiently'. It is clear that maintenance of an effective surveillance capacity, is not just a component of maintaining the skills base and technology, but must also promote and utilise supporting evidence and innovation.

4.4 Protecting the UK Taxpayer - ensuring sustainability

The IAH receives the majority of its funds from the BBSRC through a core strategic grant and competitive grant awards (see section 3.1). It is assumed that in future BBSRC will continue to provide core strategic grant funding based on current levels with increases related to inflation, and that the IAH will continue to be successful in winning competitive grants. In addition to BBSRC funds, a proportion of IAH income is provided by Defra, for which it is assumed that future funding will be flat (decreasing in real terms). For other funding assumptions see Figure 3.

The overwhelming majority of funding into the VLA is from Defra (see section 3.2). It is assumed that Defra will increase its funding level at 2.5% per annum. For other funding assumptions see Figure 1.

The single two largest elements of the cost base of both the VLA and IAH are salaries and capital charges (including depreciation and interest on capital) which relate primarily to high cost biosecure facilities. Assumptions for the projected cost base are set out in Figures 2, 4 and 5.

The existing estate of both organisations comprises substantial investment in laboratory and animal containment facilities. Utilisation of facilities varies significantly across the overall estate.

Management at both the IAH and VLA have identified potential initiatives that could be taken to further reduce costs at the organisations. These have been identified at a high level by both management teams for illustrative purposes only, but include administrative and operational savings.

In addition to illustrative savings identified by the management teams, Defra has completed a high level review and prioritised areas of surveillance and research that it currently receives from the VLA. This prioritisation process identified potential savings that could be achieved through staff rationalisation and asset reduction,
amounting to between £6 to 7 million. It has been assumed in Figures 1-7 that these cost reductions will be achieved but that income levels will remain unchanged.

Completion of the new Pirbright Virology facility in 2010/11 will increase the overall investment in property and consequently the level of capital charge expenditure across the two organisations. This cost is currently estimated at an additional £2.4 million per annum, which is to be divided between Defra and BBSRC, broadly in a ratio of 50:50. It is understood that in the case of Defra, this additional charge must be paid for from the funding allocated to VLA; i.e. no new funding will be provided. Given current projections of the cost of Pirbright, this should be sufficient. In the case of BBSRC, it is understood that new funds would be made available to cover its share of the costs of Pirbright so that there would be no impact on the IAH funding position.

Overall, the aggregate financial position of the two organisations after absorbing the Pirbright virology facility costs is a marginal surplus, following some early year fluctuations associated with restructuring activities. Importantly, these calculations do not take into account any benefit which may arise from rationalisations of the estate and facilities which would reduce the capital charge burden and increase the funding available for science and maximise flexibility.

The overall financial position in the first few years, after the cost-saving initiatives, science prioritisation and after factoring in the cost of Pirbright, is to achieve an annual surplus at VLA as savings become available; there is a deficit in 07/08 reflecting costs of addressing these savings. This surplus begins to decrease in later years due to assumed cost inflation that is in excess of assumed revenue growth. In the case of IAH, cost saving programmes progressively eliminate the current deficit, although in later years flat funding from Defra reintroduces a growing deficit in the absence of any further income.

None of the projections includes any ‘merger dividends’ which might arise through close cooperation of the type envisaged in the options reviewed in Section 6.
**FIGURE 1: Revenue Projections for the VLA 2006/7 to 2015/16**

Assumptions
1) Defra funding to rise at inflation (2.5% p.a) as advised by Defra Finance Director
2) Other revenue streams (EU, commercial and FSA etc.) advised by VLA management

**FIGURE 2: VLA Surplus/Deficit 2006/7 to 2015/16**

Assumptions
1) Cost base inflated at 3.5% (excluding capital charge) as advised by Defra Finance Director and IAH management
2) Other cost savings included as advised by VLA management
3) Surplus/deficit is shown net of redundancy and other restructuring costs
FIGURE 3: Revenue Projections for the IAH 2006/7 to 2015/16

Assumptions
1) Defra funding to remain flat (Defra Finance Director)
2) Other revenue streams advised by IAH management
3) BBSRC funding increases in line with inflation

FIGURE 4: IAH Affordability Gap 2006/7 to 2015/16

Assumptions
1) Cost base inflated at 3.5% (excluding Capital charge) as advised by Defra Finance Director and IAH management
2) Pay costs are inflated at 5% as per IAH management
3) Other cost savings included as advised by IAH management
4) Other assumptions on BBSRC funding as per IAH business planning basis
5) Does not include the impact of the Pirbright facility
FIGURE 5: Projected affordability gap for the new Pirbright facility 2006/7 to 2015/16

Key:
- BBSRC proportion of PSRP affordability gap. BBSRC have committed to finding additional funding to meet this
- Defra proportion of the PSRP affordability gap

Assumptions
1) Based on output from PSRP affordability model as advised by BBSRC Finance. Costs have been inflated at 3.5% per annum as advised by BBSRC management

FIGURE 6: VLA position combined with Defra’s share of increased costs arising from the new Pirbright facility 2006/7 to 2015/16

Assumptions
1) Combined position of figure 2 and the Defra proportion of incremental costs of PSRP affordability model
FIGURE 7: Combined position of VLA and IAH combined with Defra’s share of increased costs arising from the new Pirbright facility 2006/7 to 2015/16

Assumptions
1) Pirbright costs are based on output from PSRP affordability model as advised by BBSRC Finance. Costs have been inflated at 3.5% per annum as advised by BBSRC management.
2) VLA and IAH positions are based on figures 2 and 4 respectively.
3) As per figure 6, the BBSRC share of the increased running costs has not been shown as BBSRC have committed to find additional funding for this.
5. **Pros and Cons of Closer Integration**

The pros and cons of closer integration as determined during the consultation process are summarised under the same three categories applied in the previous section.

5.1 **Sustainability of World Class Science**

**PROS:**

- Opportunity for comprehensive integration of fundamental, strategic and applied work in all relevant pathogen-led research to generate increasingly higher quality research outputs.
- Bridging the translation gap; there is evidence that strategic science suffers due to focus being placed on pure and/or applied science
- Attracting more high calibre scientists to an Institute of Excellence; there is evidence that it is difficult to attract and retain bright, talented scientists in this field and it is suggested that an ‘end to end’ capability that links research with access to the surveillance sample base may represent an attractive proposition
- The benefits of joint working in larger and broader groups; where teams from IAH and VLA have been required to work together, there is powerful evidence that a more productive scientific environment is created
- Better critical mass; the shared Pirbright redevelopment programme is considered to have provided a better answer than would have come from separate initiatives
- Greater capability and access to work ‘in the animal’; as science moves from the molecule towards understanding function in the whole animal and whole populations, so the practical benefits of connecting pure, strategic and applied science will increase

**CONS:**

- Maintaining focus; the existing arrangement has created organisations that are individually suited to the priorities of their respective parents – there is a very strong concern that the needs of one single parent should not dominate an integrated organisation
- Maintaining academic rigour; the IAH is an organisation with a predominantly academic focus; without careful management this would be compromised
5.2 Supporting the UK in effectively responding to a national emergency

**PROS:**
- Diversity, scalability and flexibility; the larger and more diverse the capability, the greater and more skilled the resource that can be applied to resolving a national emergency
- Maximum coordination; past experience suggests that separate organisations add complexity and detract from the potential to maximise emergency response

**CONS:**
- Giving Defra control when it needs it; in case of national emergency, it is most likely that Defra would be accountable for management of the situation – any combined solution would need to enable Defra to act with confidence, security and speed

5.3 Protecting the UK Taxpayer – ensuring sustainability

**PROS:**
- Better day-to-day utilisation of expensive assets; both laboratory and animal containment facilities currently have varying degrees of day-to-day utilisation and it is suggested that a higher level of overall efficiency could be achieved through common management
- Single organisational decision making; it is generally agreed that some activity/investment is not optimised because it needs to meet the requirements of two organisations
- Administrative and staff cost savings and synergies; the organisations currently duplicate management and administrative costs – integration provides potential to reduce such duplication, although pay harmonisation may marginally increase staff costs
- Greater flexibility on major investment decisions; there may be opportunities to share the property portfolio more effectively across the organisation, thus reducing the need for capital investment

**CONS:**
- Reconciling short and long term decision making; there is a real tension between shifts in Defra funding priorities and the long term decisions which can be taken by BBSRC
- Maintaining existing funding streams; Any solution which fails to provide assurance to either sponsor that the funds it provides will further its objectives and provide appropriate value for money will not be sustainable
6. Assessment of Options

6.1 Qualities of a Good Solution/Implementation challenges

In the first instance, the qualities of a good solution were identified to support the option analysis. Again these were grouped under the headings used in the data gathering process. In addition, the implementation challenges of any selected option were addressed.

Sustainability of world class science
- Should create a more effective organisation from a scientific perspective and one that is able to unify basic and applied research in a seamless continuum
- Should be an attractive employment prospect to well-qualified scientists and veterinarians, to preserve the future of UK animal health research
- Should create a critical mass of scientists who can benefit from closer working and exchange of ideas

Supporting the UK in effectively responding to a national emergency
- Requires the ability to react flexibly, quickly and authoritatively to any emergency situation
- Would use a base of broad scientific knowledge and skills to improve emergency response capability

Protecting the UK taxpayer
- Should allow for optimum usage of laboratory space and animal containment
- Should facilitate decision-making based on optimising animal health
- Should be efficient administratively
- Should optimise the property portfolio and minimise capital spend (whilst ensuring that facilities are fit for purpose). It requires the ability to react flexibly and quickly to any emergency situation
- Should use a base of broad scientific knowledge and skills to improve emergency response capability
- Should be subject to sufficient funding certainty so as to allow proper investment decisions
- Should provide assurance to both major fund providers that the priorities of each are properly supported
- Should optimise overall spend to maximise science and surveillance activity
- Should enhance national security against the threat of specific pathogens

Implementation challenge of any selected option
- Disruption to the organisations and costs should be minimised
- Governance criteria should be established to safeguard funding and secure both the research and emergency response capabilities
Good governance and strong leadership are required to drive any selected options and meet the deadlines specified.

6.2 Analysis

A summary of the analysis of each of Options A, B, C and D, as defined in the TOR, is shown in Figs 8-11. The options comprise varying degrees of integration and range from Option A – building on the current position of increasing collaboration between the two organisations with establishment of the jointly owned virology facility at Pirbright to Option D which represents total integration of the two existing organisations. Options B and C lie between the extremes of A and D with B combining the Pirbright activities relating to Defra strategy with VLA and leaving Pirbright’s fundamental research with Compton. Option C would incorporate all of Pirbright with the VLA and part of Compton into one organisation leaving the remainder of Compton as a separate unit. There was no specific view as to which areas of science fell into categories which would be treated differently under Options B and C and no consideration was given to the involvement of or partnering with other entities.

Options A – D, ranked by the Steering group against the potential benefits listed in paragraph 6 of the TOR, are shown in Fig 12.

Each option was analysed against the criteria listed in paragraph 12 of the TOR and then ranked as summarised in Fig 13.

The potential risks were also evaluated as shown in Fig 14.

In the final analysis the Steering Committee determined that the focus of any further evaluation should be on Options A and D as the limited additional benefits accruing from any intermediate solution would not justify the associated complexity and challenges.

Option A is clearly the least disruptive, maintaining autonomy, preserving well established separate cultures and remaining aligned to separate strategies, albeit with a strong will to increase the degree of collaboration between the institutes. However, much simpler as it may appear to be than Option D, it is not without its challenges, particularly taking into account the prospective joint ownership of the new Pirbright facility. The issues associated with joint ownership will be no different from the situation with private sector joint ventures, carved from the portfolio of two or more parent companies where the survival rate beyond three years is less than 30%. In most of these cases the joint venture is terminated with acquisition by one of the parents or sold on to a third party. With separate funding streams, as compared with most joint ventures which are fully integrated and generate their own sales-based revenues, Option A could therefore potentially represent a greater management challenge than Option D.

Also, relationships based solely on a will to increase collaboration are very heavily dependent on the personalities of leadership and personnel within both partner organisations. As the populations of staff are subject to change and because it is not possible to legislate for personalities, the commitment to, and the quality of, the relationship will inevitably be subject to ongoing variation.
**FIGURE 8: Option A involves retaining two separate organisations but rationalising and sharing some facilities and, where appropriate, developing integrated research programmes**

**Option A – Closer collaboration between organisations**

<table>
<thead>
<tr>
<th>Weybridge</th>
<th>Joint Centre for Veterinary Virology at Pirbright</th>
<th>Pirbright</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Labs</td>
<td></td>
<td>Compton</td>
</tr>
</tbody>
</table>

**Further definition**

<table>
<thead>
<tr>
<th>Combined</th>
<th>Separate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some facilities</td>
<td>Most facilities</td>
</tr>
<tr>
<td>Some programmes</td>
<td>Most programmes</td>
</tr>
</tbody>
</table>

**Benefits of Option A**

- Less organisational and governance change and no additional implementation cost
- Retains focus of both organisations with the strong prospect of a range of activity from pure to applied; protects existing scientific excellence
- Preserves the cultures and brands of both organisations
- Provides potential to access some (but not all) of the financial, emergency response and taxpayer integration benefits
- Provides possible transition for even closer cooperation
- Allows scope for joint research projects, taking advantage of better critical mass
- Allows scope for shared administration, facilities and services
- Protects current funding streams from BBSRC to IAH
- Provides a solid springboard for great integration in the future

**Disadvantages of Option A**

- Lack of a single national vision for the future of the UK’s animal health – no ‘Institute of Excellence’
- The level of co-operation limits the range of operational science benefits including
  - two organisations serving separate masters; a lack of common goals
  - translation gap closing limited; some of scientific activity still polarised
- Provides a reduced prospect of an optimal, joined-up response to national emergency
- Creates fewer opportunities for financial scale benefits
- Lack of direct access to BBSRC funds for VLA
- Management (and legal) challenge of joint management of Pirbright

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**FIGURE 9: Option B involves creating a new organisation that would combine all or part of VLA together with statutory, surveillance and appropriate related research at IAH Pirbright**

### Option B – Merger of the VLA and selected activities from Pirbright

<table>
<thead>
<tr>
<th>Combined</th>
<th>Separate</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Some facilities</td>
<td>• Most facilities</td>
</tr>
<tr>
<td>• Some science programmes</td>
<td>• Most science programmes</td>
</tr>
<tr>
<td></td>
<td>• Leadership</td>
</tr>
<tr>
<td></td>
<td>• Overall strategy</td>
</tr>
<tr>
<td></td>
<td>• Management</td>
</tr>
<tr>
<td></td>
<td>• Administration</td>
</tr>
<tr>
<td></td>
<td>• Resource management</td>
</tr>
</tbody>
</table>

### Further definition

- **Benefits of Option B**
  - Creates a more joined up national emergency response capability by placing surveillance activities under the control of one organisation (Defra)

- **Disadvantages of Option B**
  - Captures only some of the science benefits
  - Most surveillance activities will be under Defra control
  - Enhances response to some types of national emergency but not others
  - Provides minimal opportunities for financial scale benefits
  - Adds to complexity of management
  - VLA and IAH would continue to operate as separate organisations; this could present its own challenge, particularly at the Pirbright site
  - Potential loss of skilled staff
**FIGURE 10: Option C involves creating a new organisation that would embrace additional elements of VLA and IAH**

<table>
<thead>
<tr>
<th>Option C – Merger of the VLA, Pirbright and some additional activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirbright</td>
</tr>
<tr>
<td>Compton</td>
</tr>
</tbody>
</table>

**Further definition**

<table>
<thead>
<tr>
<th>Combined</th>
<th>Separate</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Some science programmes</td>
<td>- Some science programmes</td>
</tr>
<tr>
<td>- Most facilities</td>
<td>- Some facilities</td>
</tr>
<tr>
<td>- Leadership</td>
<td>- Overall strategy</td>
</tr>
<tr>
<td>- Management</td>
<td>- Administration</td>
</tr>
<tr>
<td>- Resource management</td>
<td></td>
</tr>
</tbody>
</table>

**Benefits of Option C**
- Places national emergency response capability and Defra’s research under the control of one organisation
- Preserves the separate science cultures of both organisations
- Creates some financial scale benefits

**Disadvantages of Option C**
- Working on the assumption that Defra would only want to incorporate science that it funds (e.g. Bovine Tuberculosis) this would weaken the critical mass of scientists left at the Compton site
- The difficulties associated with dealing with two organisations would still exist
- Potential loss of skilled staff

*(a) Notwithstanding the need to consider other partners that may represent a better scientific strategic fit*
**FIGURE 11: Option D involves the creation of a new organisation that would embrace the totality of VLA and IAH**

<table>
<thead>
<tr>
<th>Option D – Complete merger of VLA and IAH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weybridge</td>
</tr>
<tr>
<td>Regional Labs</td>
</tr>
<tr>
<td>Pirbright</td>
</tr>
<tr>
<td>Compton</td>
</tr>
</tbody>
</table>

**Further definition**

<table>
<thead>
<tr>
<th>Combined</th>
<th>Separate</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All facilities</td>
<td></td>
</tr>
<tr>
<td>• All science programmes</td>
<td></td>
</tr>
<tr>
<td>• Leadership</td>
<td></td>
</tr>
<tr>
<td>• Overall strategy</td>
<td></td>
</tr>
<tr>
<td>• Management</td>
<td></td>
</tr>
<tr>
<td>• Administration</td>
<td></td>
</tr>
<tr>
<td>• Resource management</td>
<td></td>
</tr>
<tr>
<td>• Culture</td>
<td></td>
</tr>
<tr>
<td>• Governance</td>
<td></td>
</tr>
</tbody>
</table>

**Benefits of Option D**

- Creates a world class 'Institute of Excellence' with the potential to attract a new generation of scientists and vets
- Opportunity to revitalise an animal health agenda nationally
- Provides a fully integrated and more flexible response capability in case of national emergency
- Integrates full spectrum of science activities to provide better coordination and therefore critical mass
- End to end science is optimised creating a continuum from molecule to animal and filling the translation gap
- Aggregated science programmes gives the opportunity to support a broader scope of research
- Maximises business benefits (overhead expenses, utilisation etc.)
- Provides a better focal point for holistic collaborations with other entities such as universities etc.
- Provides benefits of common systems and operational processes

**Disadvantages of Option D**

- Risks loss of individual funding from current funding bodies if their objectives are not met
- Provides a substantial change management challenge
- Potential threat to each organisation’s culture
- Would require a governance structure that addresses the concerns of both sponsor bodies whilst generating the vision and delivering the benefits
- Potential loss to the institutes of scientific staff through disruption and uncertainty
### FIGURE 12: The assessment of Options A - D against potential benefits (TOR paragraph 6)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial sustainability for both organisations and their constituent parts</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>The ability to remain a major international player, both in terms of the scale and breadth of their work, and, by offering excellent career prospects and challenges, to enhance the ability to attract and retain the best scientists</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>The ability to pursue basic, strategic and applied research at the highest levels and to collaborate with other public and private research organisations</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>The potential to create a more efficient and integrated organisation that improves the linkage between fundamental scientific research and applied science and surveillance activities and creates a greater critical mass of expertise, particularly for new and emerging diseases</td>
<td>4</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>Although VLA and IAH have recently developed business linkages around the Pirbright site, the potential to offer greater clarity and transparency, in terms of ownership, governance and accountability</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>The potential to offer opportunities for facilities / estate rationalisation and improved value for money</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>Policy and knowledge transfer in the areas of public and animal health and welfare continuing to be informed by the best available science.</td>
<td>1=</td>
<td>3/4</td>
<td>3/4</td>
<td>1=</td>
</tr>
<tr>
<td>The provision and maintenance of national reference laboratory capability linked to a rapid response capacity for exotic, notifiable and emerging diseases</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Key:** 1 = Greatest benefit  4 = Least benefit
FIGURE 13: Analysis of Options A – D against the potential risks listed in the TOR paragraph 7

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>The need to respect the differing cultures of VLA and IAH and to ensure that any future arrangement is not seen as one laboratory taking over the other</td>
<td>1</td>
<td>3/4</td>
<td>3/4</td>
<td>2</td>
</tr>
<tr>
<td>Whilst BBSRC see that a form of integration of IAH with VLA offers one possible clear development path for the Institute, they recognise that the option of integrating some of IAH science with other institutes e.g. the Edinburgh Bio-Sciences Consortium, will also be an important consideration. Other options for sustainability of these units therefore need to be considered, alongside the VLA option and options presented on the same timescale</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>BBSRC are also mindful that a partial integration of IAH with VLA – most obviously around the Pirbright site – may leave the Institute with sustainability issues around its residual activities. Any integration proposal must therefore demonstrate how this consequence will be avoided</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Key: 1 = Lowest risk  4 = Highest risk
FIGURE 14: Analysis of Options A – D against the criteria listed in paragraph 12 of the TOR

<table>
<thead>
<tr>
<th>Criteria</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ability to secure the benefits outlined at paragraph 6 of the TOR</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>The potential to improve service and/or reduce costs by rationalising and</td>
<td>4</td>
<td>3/2</td>
<td>3/2</td>
<td>1</td>
</tr>
<tr>
<td>sharing facilities and back office services and relocating or co-locating, including with organisations other than VLA or IAH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The impact of different options on the potential for third party income and any potential alternative providers of the services required</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>The staffing and HR implications and the steps that must be taken to protect individual terms and conditions of current staff</td>
<td>1</td>
<td>3/4</td>
<td>3/4</td>
<td>2</td>
</tr>
<tr>
<td>Other impacts such as on information technology requirements</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>Its total financial impact (including any non VLA/IAH aspects) that identifies the ongoing financial benefits that the sponsors/funders should expect to derive over a ten-year period, as compared with maintenance of the status quo, and the one-off costs of implementation. This analysis should cover all costs and revenue but pay particular attention to the impact of Government capital accounting rules on both organisations</td>
<td>2</td>
<td>3/4</td>
<td>3/4</td>
<td>1</td>
</tr>
<tr>
<td>A proposed governance and ownership structure that takes into account issues relating to security, emergency and contingency management, public policy, charity law and the need to generate maximum efficiency, particularly in relation to estate and back-office management</td>
<td>1=</td>
<td>3/4</td>
<td>3/4</td>
<td>1=</td>
</tr>
<tr>
<td>The funding, contractual and performance management mechanisms which the new arrangements would need from the sponsors in order to meet their requirements, and to ensure disciplined contract management and value for money</td>
<td>1=</td>
<td>3/4</td>
<td>3/4</td>
<td>1=</td>
</tr>
<tr>
<td>The need to consider any impact on the funding of the joint Pirbright redevelopment, particularly with regard to its status as a non-commercial activity and VAT exemption</td>
<td>1=</td>
<td>3/4</td>
<td>3/4</td>
<td>1=</td>
</tr>
</tbody>
</table>

Key: 1 = Best 4 = Worst
The disadvantages of Option A reflect the loss of advantages associated with total integration. These include a lack of joined-up vision for the future of UK animal health, i.e. no world class National Institute of Excellence with generation of the synergies in the areas of science, working in the highest quality facilities, seamless response capability in the case of national emergency with the potential to attract and retain the brightest and best scientists and veterinarians, while capturing administrative savings with common systems and operational processes.

Option D, while having the potential to accrue all of the latter benefits and meet all the qualities of a good solution, as outlined in 6.2, is not without its risks and challenges. Integration of any two organisations is rarely simple and in the case of VLA and IAH there would be some very specific issues to address. As in every case there would be need for total commitment from the sponsors and management of both institutes once a decision was made to amalgamate. This would have to be seen by all stakeholders as a merger of strengths, capturing genuine synergies, primarily in the quality and output of science and service. A sound workable governance structure permitting balanced treatment across all objectives would be critical for sustained success and would be required to incorporate the following key elements:

- A level of independence from both sponsors but with strong governance such that the new organisation is free to follow an agreed vision for animal health, in particular ensuring the quality of science is maximised
- Assurance for Defra that the emergency response capability is maintained (and enhanced) and that during an emergency can be appropriately directed to meet the needs of the country
- Assurance for BBSRC that basic and strategic research will be given due priority and knowledge transfer maximised
- A relationship with customers that reflects stated needs, provides for a more clearly defined contractual relationship and allows longer term funding commitments with comfort that all objectives are met
- Protection of UK PLC’s investment in, and control of assets of strategic importance to the national need; this would tend to exclude wholly private sector options
- Transparency to afford sponsors assurance that appropriate priorities are being addressed and funding is creating value for both funders
- Independent assessment of science quality that ensures that standards achieve world class levels across all areas
- Clearly defined and measurable deliverables that are agreed with sponsors and customers
- Strong and accountable leadership (reporting to a suitably balanced governing Board) with clear and specific objectives agreed with both funding organisations

The need for strong leadership with a “simple” organisation structure would be paramount as would be a clear mission with long term aligned objectives and a corresponding mid – long term funding commitment from both Defra and BBSRC. A focus on quality in all areas of operation will facilitate development of a new common culture across the organisation.

A range of governance arrangements and their potential suitability for Option D was considered without in-depth evaluation and, in the search for the most suitable
model, there was not one which stood out clearly as a good example from the rest. Fundamental to any suitable governance arrangement would be establishment of the appropriate legal and contractual agreements between Defra and BBSRC and meeting the criteria listed above.

More specific to this integration would be issues relating to funding and the different priorities of both sponsors. In order to satisfy its mission, BBSRC would require assurance that its funding was allocated to the promotion of basic and strategic research and the transfer of knowledge from this research to applications in business, industry and policy. This aspect could be readily accomplished by ring-fencing the BBSRC funds such that they could not be used for other than their stated purpose. Defra’s funding streams could be captured and accounted for in a similar manner. With respect to quality of science, both BBSRC and Defra would undoubtedly wish to continue to scrutinise the quality of science conducted by way of quadrennial or quinquennial review and there is no obvious reason why the entire consolidated research and surveillance programmes of the institute should not be subjected to this well accepted and effective process, as currently applied separately to IAH and VLA. Clarity will also be required on the organisational status of any new relationship for the purpose of attracting Research Council discretionary grants under the new eligibility criteria recently announced by Research Councils UK.

Uncertainty of funding has long been an issue for both institutes, presenting major challenges to effective planning and project management. This has been driven by the traditional one-year planning cycle in Defra and other government departments which is not compatible with the execution of research and development programmes. Recent migration to a three year horizon is much more in line with the four year time frame which BBSRC operates in accordance with the outcome of quadrennial review.

Mid to longer term funding commitment with alignment between the sponsors is an essential prerequisite to support any of the options, particularly in relation to the proposed £120m Pirbright facility which does not become fully operational until 2011 and carries very significant depreciation and interest charges for many years beyond.

More complex could be the impact on IAH’s charitable status which would be an issue for Options B, C and D. It is almost inevitable that some of the tax and other financial benefits would be lost with any loss of charitable status. The extent of loss would be dependent on the precise structure of any transaction but the biggest potential risk would probably be the VAT relief currently anticipated but not confirmed for the Pirbright development under the existing relationship agreement. Transfer of assets from a charity is complex but, in broad terms, provided the assets are transferred to a body with similar aims, the transfer should be achievable. Expert advice should be taken on how the charitable status could be maintained within a fully integrated solution. Although the implications are not insignificant, charitable status has not been a show – stopper in many major transactions and it is felt it should not be a primary driver of the strategy for IAH and VLA.

Science, economics and governance should be the fundamental drivers for any decision.
7. Recommendation

The conclusion of the Steering Group is that, in reality, the choice of option for BBSRC and Defra rests between A or D. Options B and C are each seen as inappropriate compromise with the potential to capture only some specific benefits while presenting all of the same challenges and issues associated with Option D and creating others such as the viability of the residual pieces related to lack of critical mass.

Options A and D were ranked by the Steering Group against the key drivers which were identified during the consultation process. The results are shown in Figure 15.

The differences between Options A and D have already been highlighted. Retaining two separate organisations but rationalising and sharing some facilities and, where appropriate, developing integrated research programmes could, with sustained will and commitment, possibly evolve into a “virtual” National Centre for Animal Disease Research and Surveillance as recommended in the Royal Society Report, Infectious Diseases of livestock, July 2002. While this is clearly the easier alternative, and may provide a short-term benefit, it lacks the real drivers and incentives for success beyond those that already exist. The proposed jointly-owned virology facility at Pirbright is a very strong indicator of the intent to collaborate but it will be jointly owned in isolation from the remaining functions and estate of VLA and IAH, a situation which adds another level of complexity to the overall management and operation of the two institutes. Regardless of how effectively the cultures and activities could be amalgamated within a “virtual” centre, they would continue to be viewed, at least from the outside, as two separate organisations lacking the vibrancy, attraction and international status that a fully integrated National Centre of Excellence could capture.

On the other hand, total integration creating an institute with a single name, mission, culture, workforce and governance structure has the potential to be a true world class National Centre of Excellence working to a common animal health agenda, with first-class science and improved national emergency response. In addition to the synergies, there will also be savings to be gained from the more optimal use of better quality, high cost containment facilities and estate and from consolidation of the administration.

On this basis the Steering group strongly favours integration of the totality of the VLA and IAH to create a National Institute for Animal Health Research and Surveillance, which will offer significant long term benefits to science and UK animal health as well as its employees, broad customer base and sponsors.

The Steering Group believes that there is only a short window of opportunity in which to make an in-principle option selection. A key decision on the Pirbright redevelopment programme is due in January 2007, which will require longer term funding commitment from Defra. Although not essential, an in-principle decision on the future relationship between IAH and VLA could help energise the project and at the same time provide opportunity for the final design to reflect a fully integrated organisation or co-located laboratories.

Also, both VLA and IAH have been subject to a series of varied and intensive reviews in recent years which can have a very debilitating effect on morale. It is a great credit to the leadership and personnel at both institutions that, throughout, they have continued to deliver high quality science and service.

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It is important to note that the steering group have not addressed in any detail the matter of governance for any new institution arising from a merger and is not forming a view as to how any new institute would ‘look’. If the broad concept of Option D were supported, considerable work would be required to develop the practical details of governance. However, the strongest possible commitment by Defra and BBSRC to work closely with all stakeholders in both organisations will be critical to achieving a fit-for-purpose, internationally renowned centre for the sustainable delivery of an integrated fundamental, strategic and applied research programme on animal health and welfare.

Whatever the decision from Defra and BBSRC, we urge you to make it in a timely manner so that, whatever the outcome, all constituencies and stakeholders can focus on a clear strategy with commitment, speed, focus, transparency and good cooperation for the enhancement of animal health research and surveillance in the UK.
**FIGURE 15: Ranking of Options A and D against the criteria considered to represent a good solution**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>A</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>• It should create a more effective organisation from a scientific perspective, one that is able to unify basic and applied research seamlessly</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>• It should be an attractive prospect to recently qualified scientists and vets, to preserve the future of UK animal health</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>• It should create a critical mass of scientists that are able to benefit from closer working and exchange of ideas</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>• It requires the ability to react flexibly and quickly to any emergency situation</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>• It would use a base of broad scientific knowledge and skills to improve emergency response capability</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>• It should allow for optimum usage of laboratory space and animal containment</td>
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<td>• It should facilitate decision making based on optimising animal health</td>
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<td>• It should be efficient administratively</td>
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<td>• It should optimise the property portfolio and minimise capital spend (whilst ensuring that facilities are fit for purpose)</td>
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<td>• It should be subject to enough funding certainty so as to allow proper investment decisions</td>
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<td>• It should provide assurance to both major fund providers such that each feels its priorities are properly supported</td>
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<td>• It should optimise overall spend to maximise science and surveillance activity</td>
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<td>• Disruption to the organisations and costs should be minimised</td>
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Appendix 1: Terms of reference

Appraisal of options for the future relationship between the Veterinary Laboratories Agency and the Institute for Animal Health

Purpose of paper

- To outline the scope of an appraisal of options for the future relationship between the Veterinary Laboratories Agency (VLA) and the Institute for Animal Health (IAH) and the proposed management of this work.

Background

1. In May 2004, Defra commissioned an independent consultant, Ken Crossland, to undertake a review of its three science laboratories: the Central Science Laboratory (CSL); the Centre for Environment, Fisheries and Aquaculture Science (CEFAS); and the Veterinary Laboratories Agency (VLA). The review concluded that, because of declining future income (in real terms), and rising costs, the laboratories will face increasing financial uncertainty as currently configured. This, in turn, would impact on Defra’s ability to procure the scientific services and expertise it needs.

2. The Defra Management Board and Ministers subsequently agreed that:
   - Defra must agree and commit to longer term income streams for a specified programme of work from the laboratories;
     - this income commitment should be used to develop a business transformation plan for Defra’s three laboratories which will include a realistic projection of commercial income, an asset management/investment strategy and transitional management arrangements;
     - the VLA element of this work should, in the first instance, be considered in the context of the relationship with IAH, which is constituted as a company limited by guarantee and registered charity. Defra should seek to work with the IAH’s sponsor body, the Biotechnology and Biological Sciences Research Council (BBSRC), to make recommendations, based on a costed business case, on the future relationship between Defra, VLA, IAH and BBSRC, which maximises options for efficiency and asset utilisation within the remit of Defra’s Animal Health and Welfare Strategy and BBSRC’s 10-year vision and strategic plan.

3. This work is being taken forward as the ‘Laboratory Strategy Programme’. Lord Bach’s statement to the House of Lords of 14 July 2005 about the Programme is at Appendix A.

4. In June 2005, Defra and BBSRC, along with the VLA and IAH, formed a steering group to explore options for closer integration and/or joint working between VLA and IAH which met the principles for sustainability as set out in the April 2004 Government policy statement “A policy for sustainable trading and joint strategic investment in Public Sector Research Establishment (PSRE) infrastructure. This exercise included an independent study of the capabilities, expertise and assets
of the two laboratories that highlighted a number of areas, particularly around scientific work, strategic development and the facilities and assets, which may benefit from greater integration (there is already a commitment to co-locate the virology activities of the two laboratories at the IAH Pirbright site. This will help to realise some of the benefits set out below, but the options appraisal study will cover the whole of the laboratories’ activity, not just virology). The Terms of Reference for the study and a summary of its conclusions are at Appendices B and C respectively.

5. The VLA, IAH, BBSRC and Defra subsequently considered the findings of the study and generated a number of options for the future operating model at the VLA and IAH. These ranged from greater collaboration between them and with other similar organisations, to partial or full merger of the two laboratories. They concluded that these options should be explored further through a comprehensive options appraisal, which would generate a recommended way forward.

6. The conclusions drawn from the exercise have suggested that potential options should be measured against a number of potential benefits:

- financial sustainability for both organisations and their constituent parts;
- the ability to remain a major international player, both in terms of the scale and breadth of their work, and, by offering excellent career prospects and challenges, to enhance the ability to attract and retain the best scientists;
- the ability to pursue basic, strategic and applied research at the highest levels and to collaborate with other public and private research organisations;
- the potential to create a more efficient and integrated organisation that improves the linkage between fundamental scientific research and applied science and surveillance activities and creates a greater critical mass of expertise, particularly for new and emerging diseases;
- although VLA and IAH have recently developed business linkages around the Pirbright site, the potential to offer greater clarity and transparency, in terms of ownership, governance and accountability;
- the potential to offer opportunities for facilities / estate rationalisation and improved value for money; and
- policy and knowledge transfer in the areas of public and animal health and welfare continuing to be informed by the best available science.

7. In pursuing these benefits however, the sponsors are mindful of issues that need to be carefully and sensitively handled if the success of the initiative is not to be jeopardised. These issues include:

- the need to respect the differing cultures of VLA and IAH and to ensure that any future arrangement is not seen as one laboratory taking over the other;
- whilst BBSRC see that a form of integration of IAH with VLA offers one clear development path for the Institute, they recognise that there may be specialist units therein e.g. the Edinburgh Neuropathogenesis Unit (NPU) for which VLA is only one of several potential partners. Other options for sustainability of these units therefore need to be considered, alongside the VLA option and options presented on the same timescale;
- BBSRC are also mindful that a partial integration of IAH with VLA – most obviously around the Pirbright site – may leave the Institute with sustainability
issues around its residual activities. Any integration proposal must therefore
demonstrate how this consequence will be avoided.

8. Defra Ministers and Management Board have concluded that given the
complexity of the issues involved and the Department’s need to establish
different strategic relationships with VLA and with CSL / CEFAS, this work will be
managed separately from, but in parallel with, that relating to the CSL and
CEFAS. The VLA Ownership Board is being re-constituted. It will oversee the
future development of the VLA business and ensure that the Defra input into the
work relating to the future relationship between VLA and IAH is maintained.

**Scope of Options Appraisal**

9. Against this background, Defra and BBSRC now propose to undertake a more
detailed exercise to consider options for the future relationship between the two
organisations.

10. This exercise will consider a number of options for closer collaboration or
amalgamation, each of which will be measured against a baseline “no-change”
option. These options are:

- retaining two separate organisations but rationalising and sharing some
  facilities and, where appropriate, developing integrated research
  programmes;
- creating a new organisation that would combine all or part of VLA together
  with statutory, surveillance and appropriate related research at IAH Pirbright;
- creating a new organisation that would embrace additional elements of VLA
  and IAH, notwithstanding the need to consider other partners that may
  represent a better scientific and strategic ‘fit’;
- creation of a new organisation that would embrace the totality of VLA and
  IAH.

11. As a basis for the analysis of each option, the appraisal will require:

- a statement of the drivers of change for the organisations;
- a statement of requirements and priorities of Defra and the BBSRC for the
  services of the VLA and IAH. This will include an assessment of the extent to
  which they must be provided by the public sector and their views of the
  consequences of these requirements and priorities for the future status of the
  organisations;
- a statement from Defra and BBSRC of the medium to long term funding
  commitment that each is willing to provide.

12. For each option there will be an analysis of:

- the extent to which it would secure the benefits outlined at paragraph 6
  above;
- the potential to improve service and / or reduce costs by rationalising and
  sharing facilities and back office services and relocating or co-locating,
  including with organisations other than VLA or IAH;
- the impact of different options on the potential for third party income and any
  potential alternative providers of the services required;
Appendix 1

- the staffing and HR implications and the steps that must be taken to protect individual terms and conditions of current staff;
- other impacts such as on information technology requirements;
- its total financial impact (including any non VLA/IAH aspects) that identifies the ongoing financial benefits that the sponsors/funders should expect to derive over a ten-year period, as compared with maintenance of the status quo, and the one-off costs of implementation. This analysis should cover all costs and revenue but pay particular attention to the impact of Government capital accounting rules on both organisations;
- a proposed governance and ownership structure that takes into account issues relating to security, emergency and contingency management, public policy, charity law and the need to generate maximum efficiency, particularly in relation to estate and back-office management;
- the funding, contractual and performance management mechanisms which the new arrangements would need from the sponsors in order to meet their requirements, and to ensure disciplined contract management and value for money.

13. The output from the study will be:
- a summary of the analysis referred to in paragraph 12 above;
- an evaluation of the options considered;
- a proposed timetable and implementation plan for implementing the options, against a target implementation date of 1 April 2008. This should include communication needs - both sponsors are keen to ensure that all staff are kept up to date with the development of the proposal and its implications for their individual job security and career development.

Undertaking the study

The study will be undertaken by an external consultancy firm who possess the necessary scientific and business skills, experience and track record. They will be responsible for undertaking the analysis and producing the deliverables outlined in paragraphs 12 and 13 respectively. Defra and BBSRC will provide, as inputs to the study, the indications of requirements and funding set out in paragraph 11.

Estimated costs of the study are £250,000. The study is expected to commence in June 2006.

Defra / BBSRC
February 2006
Appendix 1A
Written Ministerial Statement

DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS

Date: 14 July 2005

Defra’s Laboratory Strategy

The Minister for Sustainable Farming and Food (Lord Bach)

I have agreed to the future direction of Defra's laboratory strategy, which aims to deliver a long term sustainable future for Defra’s laboratories: the Central Science Laboratory (CSL), the Veterinary Laboratories Agency (VLA) and the Centre for Environment, Fisheries and Aquaculture Science (CEFAS).

Defra’s laboratories have an international reputation for excellence. They play an important role for Defra by providing scientific capacity and the evidence base for policy development. Defra will continue to rely on the support they provide, so it is important that the strategy delivers a sustainable future for their work.

A new group, the “Laboratories Strategy Group” (LSG) has been formed to develop and oversee the programme of work necessary to take the strategy forward. The LSG is chaired by Lynton Barker (non executive) and reports to Defra’s Management Board.

As part of the laboratory strategy, Defra is working with the Biotechnology and Biological Sciences Research Council (BBSRC) on a joint study to consider the future relationship between VLA and the Institute of Animal Health (IAH). Objectives of the study are to achieve financial sustainability, exploit synergies between the two organisations and ensure the continuation of critical research and other scientific services.
Appendix 1B
Joint study to consider the future relationship between Defra, VLA, BBSRC and IAH

Terms of Reference

- Undertake a comparison of future science requirements, within the context of Defra’s Animal Health and Welfare Strategy and BBSRC’s 10-year vision and strategic plan, and the science services offered by the VLA and IAH.
- To construct a skills / capabilities matrix, focusing on the level of ability within each area of expertise and the degree of complementarity between VLA and IAH.
- Undertake a high-level fixed asset stock take of VLA and IAH, separating out the current position and future aspirations.

The outputs from these work streams will allow:

- The development of an options appraisal study to consider alternative operating models for VLA / IAH that would eliminate duplication, identify the potential to generate savings, improve quality, and generate other operational benefits. The study should consider whether the science base available to Government would be strengthened through better integration of VLA and IAH, and if so, after the development of a robust business case, to propose a preferred alternative model through which this integration might best be achieved.

Outcomes

The outcomes of an alternative operating model would be, in no particular order:

- Financial sustainability.
- Improved capacity to respond more effectively in emergency situations.
- Improved efficiencies and value for money through rationalisation of assets and resources.
- Improved opportunities from the integration of world-class organisations operating at the forefront of strategic and applied science.
- Greater critical mass of expertise, particularly for new and emerging diseases.
- Policy in the areas of public and animal health, and animal welfare, are informed by the best available science.
- Improved biosecurity around sites.
Appendix 1C
Conclusions of joint study to consider the future relationship between Defra, VLA, BBSRC and IAH

The study findings on science, strategy, and fit with sponsors’ needs are:

1. Both organisations and both main sponsors see strong benefits in closer integration of the science programmes at IAH and VLA. This is convincingly demonstrated by the plan for joint BBSRC and Defra investment at Pirbright, with co-location of VLA’s virology team with the IAH staff there.

2. Both organisations are highly valued by their sponsors and other customers, but both face significant challenges and risks to future income.

3. The science strategies of both organisations involve strengthening capability in genomics, bioinformatics, modeling and related “predictive biology” areas.

4. From a BBSRC/IAH perspective, the scientific opportunities of greater integration with VLA are attractive, but there is a clear concern that the focus on fundamental science might be lost in a larger, integrated organisation subject to urgent public policy pressures.

5. From a Defra/VLA perspective, greater integration of IAH and VLA appears highly attractive; the risk to fundamental science is recognised but appears manageable.

6. Both organisations will need to move outside their “comfort zone” into more joined-up working with other disciplines and types of organisation to address Defra’s strategic needs.

The findings on capability and people are:

7. The organisations have a complementary mix of qualifications and experience; while there are some shifts of emphasis across disciplines in both organisations there are no obvious areas of major over-provision of science capacity.

8. The experience base of both organisations is heavily weighted towards farm animals, reflecting their historic focus. As the rationale for public investment in animal health swings from “supporting the agricultural economy” to “protecting public health”, the mix of experience and capability needed in farm vs other species may well change.

9. Staff at both organisations are highly motivated by science, proud of their work and loyal to their employer.

10. Most staff at both organisations have spent most of their career in animal health with their present employer. Previous career experience is predominantly with other science establishments rather than elsewhere in the public or private sector. First hand experience working in a public policy environment such as that at Defra is very limited.

11. The age profile of both organisations is well distributed. Neither has a “peak” of scientists approaching retirement. This is highly positive for continuity and succession planning in the science work, but means there is little opportunity to facilitate major changes by using some mix of natural and early retirement to introduce a significant shift in staff numbers, disciplines and locations.
12. Most people in most organisations like being able to combine an element of pure science ("advancing knowledge") with its practical application. IAH preferences are tilted more towards the "pure science" end of the spectrum, particularly at Compton.

The findings on facilities are:

13. The main opportunities for enhancing facilities and efficiency of their use through closer integration of IAH and VLA would be at the Compton, Pirbright and Weybridge sites.

14. All three sites have a mix of animal, laboratory and support facilities. All demonstrate the high costs of working with animals in comparison with other sophisticated laboratory activities.

15. There are 34 substantial\(^1\) laboratory buildings at the three sites, but only 13 substantial large animal buildings (of which 2 are of no present or future use) and 8 substantial small animal buildings. These substantial animal buildings are well used and represent a scarce resource.

16. The effect of investment policies in recent decades has been to spread scarce animal facility resources across the three sites, rather than to concentrate them. There is thus no easy option to rationalise sites that would not involve loss, or costly replacement, of scarce animal facilities.

17. The costs of building new facilities have risen substantially in recent decades because of rising welfare and environmental standards. High levels of disease containment, and building in the flexibility to cope with diverse circumstances, are particularly costly.

The findings on costs are:

18. The unit costs of the two organisations are broadly comparable (given the differences in their business mix), with the major exception that VLA has incorporated annualised full economic costs of facilities into its accounts for several years, while IAH is in the process of introducing FEC during the current year.

19. Full economic costing has introduced a major strategic threat to both organisations, that rises in facility charges ahead of inflation will consume a rising proportion of income, leaving less for staff and science.

20. This means there is a double benefit in seizing any possible opportunities for rationalising and sharing facilities across IAH and VLA, in mitigating strategic risk as well as in short-medium term efficiency gains.

21. VLA has considerable experience in working with full economic costing and in the allocation of costs across activities, from which IAH should be able to benefit considerably.

22. While there would be potential for efficiency gains were the management and administrative functions of the organisations to be merged, the scale of such gains are modest in relation to the scope for efficiencies on the facilities front, and for value added through closer scientific integration.

\(^1\) Taken as buildings having a replacement value of over £0.5m
The author’s conclusions of the study are as follows.

1. Three factors should dominate the debate over the future of the relationship between IAH and VLA:
   a. the **value** of closer integration of scientific work and strategic development,
   b. the **risk** of losing focus on fundamental science in a more integrated arrangement, and
   c. the **enhancements in facilities** and **mitigation of the threat of rising facility costs** achievable through shared use and integrated investment planning.

2. In light of conclusions 1(a) and (c), a business case for full integration of the two organisations should be seriously explored. The challenge of (b) is already implicit in the future management arrangements agreed for Pirbright. If that challenge can be solved for Pirbright, it is hard to see why it cannot be solved for IAH and VLA more generally.

3. In light of (c), options should be explored not only for rationalising the use of facilities between the two organisations, but also for actively reducing the combined asset base and using any resources thus released to fund facility enhancements. Such options might include
   - active disposal of under-utilised buildings and land
   - forms of “sale and lease-back” of assets, and
   - mixtures of both (e.g. through PFI/PPP with a specialist provider of facilities and services who might accelerate the process of disposals and re-investment in new, high quality facilities).

These options should be explored for Compton, Pirbright and Weybridge collectively – a site-by-site approach would weaken the organisations’ bargaining position, and increase transaction costs.
# Appendix 2: The Steering Group

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<th>The Steering Group</th>
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<tr>
<td><strong>Chair</strong></td>
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<tr>
<td>Professor John M Preston</td>
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<td><strong>Membership</strong></td>
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| Professor Nigel Brown  | Director of Science and Technology  
|                     | BBSRC  
| Richard Drummond  | Head, Veterinary Exotic Diseases Research and Official Controls Division (VEROD)  
|                     | Animal Health & Welfare DG  
|                     | Defra  
| Professor Steve Edwards  | Chief Executive,  
|                     | Veterinary Laboratories Agency  
|                     | Defra  
| Tim Key  | Member of The Governing Body  
|         | Institute for Animal Health  
| Fred Landeg  | Director and Deputy Chief Veterinary Officer  
|            | Animal Health & Welfare DG  
|            | Defra  
| Professor Martin Shirley  | Director  
|                      | Institute for Animal Health  
| **Secretary**      |
| Dr Scott Sellers  | VEROD  
|                     | Animal Health & Welfare DG  
|                     | Defra  

January 2007
Appendix 3: Glossary

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<th>Acronym</th>
<th>Full Form</th>
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<tr>
<td>BBSRC</td>
<td>Biotechnology and Biological Sciences Research Council</td>
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<td>CEO</td>
<td>Chief Executive Officer</td>
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<td>CFO</td>
<td>Chief Finance Officer</td>
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<td>vCJD</td>
<td>Variant Creutzfeldt-Jacob Disease</td>
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<td>Department of Environment, Food and Rural Affairs</td>
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<td>Food and Agriculture Organisation of the United Nations</td>
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<td>Food Standards Agency</td>
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<td>Institute for Animal Health</td>
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