



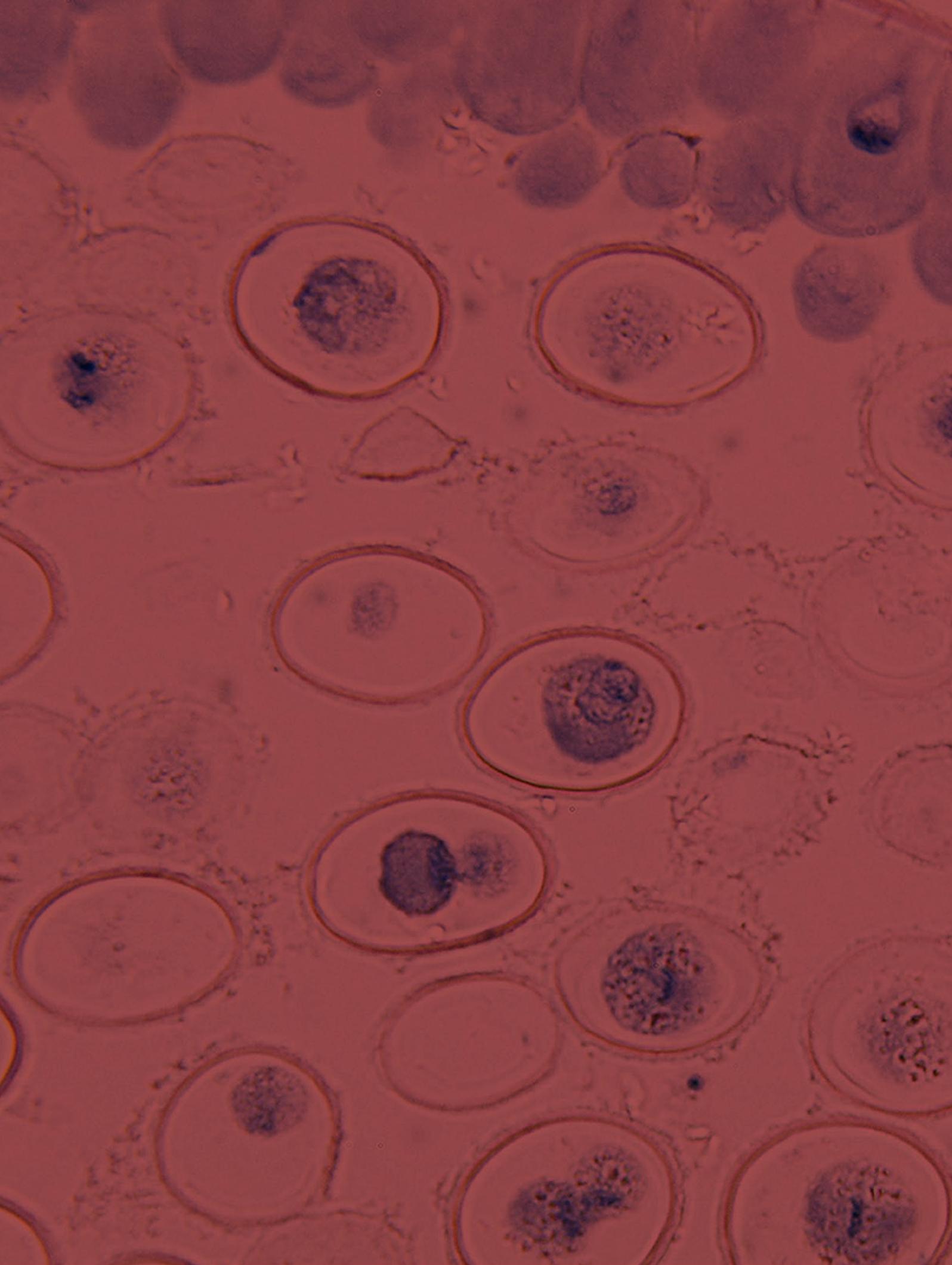
Midlothian Economic
Development Framework:
**Animal Biosciences Sector
Action Plan**



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1 Introduction

This document is an Action Plan for the Animal Biosciences Sector, prepared in accordance with the Midlothian Economic Development Framework (MEDF).

In late 2007 Midlothian Council and Scottish Enterprise launched the new Economic Development Framework for the area. This was developed in response to the expiry of the previous economic development strategy and widespread recognition that the progress made in Midlothian since that strategy's inception (1995) had been significant, meaning that the economic landscape in Midlothian had changed significantly.

The 2007 MEDF was based on this progress, finding that although much had been achieved, much was still to be done. MEDF was accompanied by an economic profile, which, along with extensive consultation, fed into the development of a range of key sectors for Midlothian during the 10 years from the Framework's launch. These sectors were:

- + Construction;
- + Education;
- + Environmental sciences;
- + Life sciences;
- + Public sector; and
- + Tourism.

Action plans were then developed for each of these sectors, focusing on opportunities that will help to achieve the vision for Midlothian by identifying actions that support growth, protect assets, add value and create employment in Midlothian. These plans were updated in early 2009 as part of Midlothian Council's response to the global economic downturn which began in mid-2008.

Following this a decision was made to commission the preparation of a further action plan on the animal biosciences sector. This decision reflects both recognition of the growing importance of the animal biosciences sector to Scotland's economy and the particular strength of Midlothian in this area.

For many years Scotland has punched above its weight in the field of veterinary education and animal related research. Much of this activity is based at and around the Edinburgh Science Triangle parks at Roslin and the Bush Estate.

The remainder of this report is structured as follows: Chapter 2 contains an economic profile of the sector; Chapter 3 reviews recent developments and future opportunities in the sector; Chapter 4 details recommended actions; and Chapter 5 considers recommendations for future monitoring and evaluation.

2 Sector Review

This section profiles the animal biosciences sector in Midlothian.

2.1 Main Organisations

Four organisations are central to the animal bioscience sector in Midlothian: the Roslin Institute, the Moredun Group, the Royal (Dick) School of Veterinary Studies (RDSVS) and the Scottish Agricultural College. Each of these organisations is discussed briefly below.

2.1.1 ROSLIN INSTITUTE

The Roslin Institute is one of the principal organisations involved in animal biosciences in Midlothian. The institute is perhaps best known for creating Dolly the Sheep, the first mammal in the world to be cloned from an adult stem cell. In 2008 the Institute was incorporated within the RDSVS, part of the University of Edinburgh.

The Roslin Institute is currently located at the Roslin BioCentre in Midlothian, but will be moving to a new home at the Easter Bush campus of the University of Edinburgh in 2011. In 2008 the Roslin Institute employed 197 staff¹ by 2011 this number had grown to over 400 and is set to grow further in the future².

2.1.2 MOREDUN

The Moredun Group is located at Pentlands Science Park. The Moredun Foundation is a registered charity involved in research, education and knowledge transfer activities in animal disease and husbandry. The Moredun Foundation was originally set up to provide support and research for the farming community on the principle of promoting research concerning disease of farm livestock and of other animals whose health affects that of farm livestock. It continues to serve this purpose and is engaged with the agricultural industry.

The Moredun Research Institute (MRI) is wholly owned by the Moredun Foundation and focuses on strategic research on the prevention and control of infectious diseases in livestock. MRI employs around 170 scientists and staff and also has approximately 20 postgraduate students. Moredun Scientific is the commercial arm of the Moredun Group and offers contract research opportunities for the animal health industry.

2.1.3 SCOTTISH AGRICULTURAL COLLEGE

The Scottish Agricultural College (SAC) has facilities located on the Bush Estate; land predominantly used for research and linked to SAC's facilities at the King's Buildings Campus of the University of Edinburgh. SAC supports the development of the land-based industries and the associated communities through research, education and a large consultancy business. The research has a major emphasis on the animal sciences often aligned with economic and social science to provide a strong platform for interdisciplinary research. Research and development is conducted in association with farmers in Midlothian and the rest of Scotland.

2.1.4 ROYAL (DICK) SCHOOL OF VETERINARY STUDIES

The Royal (Dick) School of Veterinary Studies (RDSVS) based at Easter Bush Estate, is part of the University of Edinburgh. The school provides research, teaching and continued professional development for veterinary practice.

The most recent research assessment exercise (RAE) the School was rated as the top veterinary school in the UK. The RAE also classed 20% of the research undertaken at the School as 4* (world leading) and 55% as 4* or 3* (world leading and internationally excellent) confirming the School's position as one of the top veterinary schools not just in the UK but in the world.

In 2011, the RDSVS will move out of its historic home in Edinburgh's South Side to a new purpose building at the Easter Bush Campus. The new £42 million development will accommodate all of the University's veterinary teaching and is expected to accommodate an extra 100 staff and PhD student posts.

2.1.5 ANIMAL BIOSCIENCES COMPANIES AND NOT FOR PROFIT ORGANISATIONS

Midlothian is home to a small cluster of animal biosciences companies, some of which operate on a not for profit basis and many of which are spin-outs from the MRI. The number of such companies is growing but the latest available information from the Scottish Life Sciences Source Book suggests that there are 17-20 such companies in Midlothian, most of which are small enterprises, employing between 6 and 24 employees.

¹ BBSRC Annual Report 2007-8 (2008) BBSRC.

² Roslin Institute, February 2011.

2.1.6 SCIENCE PARKS

There are four science parks in the “Midlothian Campus” of Edinburgh Science Triangle, with many tenants involved in animal biosciences related activities:

- ♦ Pentlands Science Park is co-located with the MRI and is dedicated to the animal health industry as part of the strategy of the Moredun Group;
- ♦ Roslin BioCentre was borne out of the Roslin Institute but is now part of the Roslin Foundation. It accommodates companies involved in life sciences and is especially attractive to animal health companies wanting to locate in the Midlothian cluster;
- ♦ Edinburgh Technopole is a multi-sector park and also holds a particular appeal to companies keen to be based in the cluster; and
- ♦ BioCampus offers space for biomanufacturing of products for either animal or human application.

These sites are key drivers of growth of an industry cluster around the concentration of academic research and associated facilities.

2.2 Employment

In the UK, the main source of data on industrial production comes from the Office of National Statistics (ONS) using the UK Standard Industrial Classification (SIC) system which classifies businesses based on the type of economic activity they undertake. The SIC system was introduced in the UK in 1948 and although it has since been updated on a number of occasions (most recently in 1997) is not well suited for analysing new and emerging sectors.

For this reason, attempts to analyse sectors such as renewable energy, life sciences, informatics and in this case animal biosciences, are complicated because these activities are not easily accommodated using existing SIC codes. Activity undertaken within the animal biosciences sector does not fit neatly into any of the existing SIC codes however a proxy measure can be created by combining data from the ‘research and experimental development in natural sciences and engineering (SIC 85.2)’ and ‘veterinary activities (SIC 73.1)’.

Using this definition, it can be estimated that the animal biosciences sector in Midlothian employed around 1,375 people in 2007 representing approximately 5.1% of total employment in Midlothian. Employment in the sector grew by 36% between 2005 and 2006 and by 25% between 2006 and 2007. By extrapolating these growth rates³ it can be estimated that by 2009 employment in the sector might be in the region of 1,700. This is illustrated in Figure 2.1 (over).

³ Based on growth of 35% 2005-06, 24% 2006-07, 17% 2007-08 and 12% 2008-09.

The accuracy of this estimate can be verified through comparison with known employment at existing animal bioscience organisations in Midlothian. Evidence on employment from these sources which can be used to support the estimate made above includes:

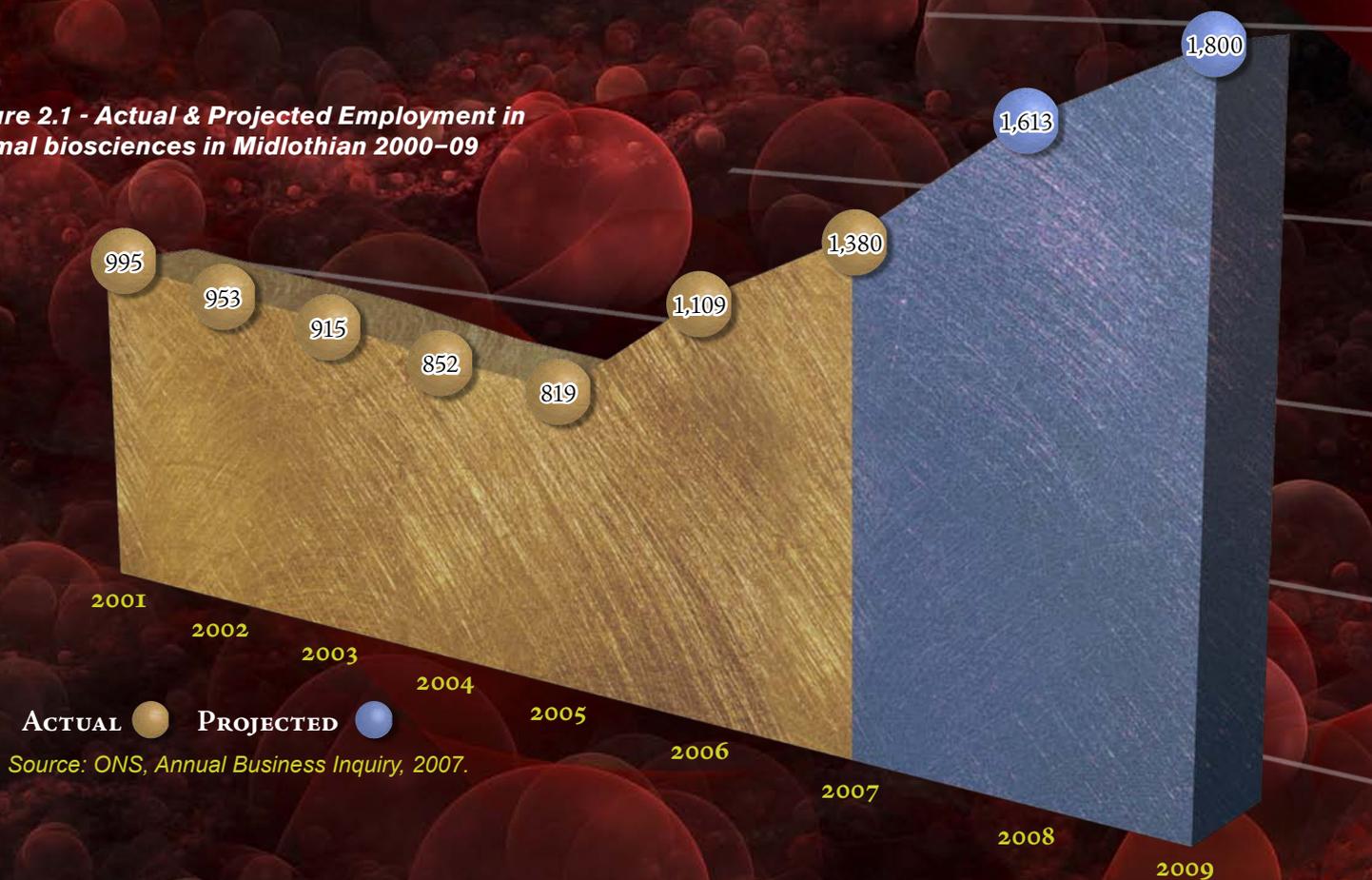
- ✦ previous research undertaken by BiGGAR Economics suggests that the University of Edinburgh employs approximately 1,000 people in Midlothian, most of whom will be engaged in animal bioscience activity (this figure includes the RDSVS but not the Roslin Institute);
- ✦ the Moredun Group currently employs around 220 full-time staff;
- ✦ the latest available information from the Scottish Life Sciences Source Book suggests that there are 17-20 such companies in Midlothian, most of which are small enterprises, employing between 6 and 24 employees;
- ✦ having undergone a period of rapid expansion, the Roslin Institute currently employs over 400 staff and research students and will likely continue to grow; and
- ✦ around 100 of the SAC staff at the Bush Estate are associated with animal sciences.

The combined total employment from these sources is consistent with the estimate made above and confirms that the estimate is broadly accurate.

The International Federation for Animal Health – Europe (IFAH - Europe) estimate that there are currently around 15,000 people directly employed in the animal health sector in Europe. Whilst IFAH-Europe focuses on employment directly in animal health research, the 1,700 employed in Midlothian represents a significant share of expertise in this important area and highlights the major role that the area plays at the international level.

Given that Midlothian accounts for a significant proportion of the Scottish animal biosciences sector, it is reasonable to assume that total Scottish employment in animal biosciences is in the order of 2,500-3,000, almost one in ten of the total employment in the Scottish life sciences cluster (32,000).

Figure 2.1 - Actual & Projected Employment in Animal biosciences in Midlothian 2000-09



2.3 Gross Value Added

Gross Value Added (GVA) assesses in monetary terms the amount of value an industry or sector adds to the economy.

By applying the definitions used in section 2.2 to data from the ABI, it can be estimated that GVA/employee in the animal biosciences sector is around £68,000. By multiplying this by the estimate of total employment in the sector provided in section 2.2, the total contribution of the sector to the Midlothian economy each year can be estimated at approximately £115.2 million.

Figure 2.2 - Animal Biosciences Sector GVA

	2007
Midlothian GVA £000s	£115,234,924
GVA per employee £	£67,906

Source: ONS, Annual Business Inquiry, section M 2008.

2.4 Summary

The animal biosciences sector is an important part of the Midlothian economy in terms of both existing employment and potential growth. The sector accounts for around 1,700 jobs in Midlothian, representing over 5% of total employment in the area and contributes approximately £115.2 million per year to the Scottish economy.

Midlothian is home to some of the world's top animal bioscience research organisations. This has enabled Midlothian to develop a world wide reputation in the field and become one of the most important locations for animal biosciences in Europe.



3 Drivers, Developments, Opportunities and Priorities

Midlothian boasts one of the biggest concentrations of animal bioscience related activity in Europe and is home to some of the world's leading scientists and research organisations in this field. The sector already enjoys a world class reputation in the animal biosciences field and has invested many millions of pounds in high quality research facilities over the past decade.

3.1 Market Drivers

With animal bioscience rapidly becoming a top research priority around the world, there is considerable potential for Midlothian to build and expand upon its existing strengths. Two of the most important market drivers of future animal biosciences activity are:

- the convergence of animal and human health; and
- the impact of population growth on demand for food, particularly meat and dairy products, in the context of a changing climate.

3.1.1 CONVERGENCE OF ANIMAL AND HUMAN HEALTH

One of the most important areas of scientific discovery in the future is likely to relate to the convergence of research into human and animal health. Midlothian is already one of the most important animal bioscience locations in Europe but the region also has a world class reputation in the field of human health and life sciences.

The University of Edinburgh is also closely involved in developments in this field and is one of the key partners behind the development of the new Edinburgh Bioquarter at Little France. The Bioquarter, which is also supported by, Scottish Enterprise and NHS Lothian, will involve a new £60 million Centre for Regenerative Medicine and will help to reinforce Scotland's international reputation in regenerative medicine.

This is likely to present particular opportunities for Scotland and in particular Midlothian because of the co-location of expertise in both medical and animal bioscience.

3.1.2 POPULATION GROWTH AND FOOD DEMAND

Another important market driver for animal bioscience is rapid growth in demand for food, particularly meat and other animal based food products. This has been caused by rapid population growth coupled with increasing demand for animal products from parts of the developing world, notably China. This increase

in demand is happening at the same time that action is needed to reduce climate-changing emissions from agriculture, including livestock agriculture. Fulfilling this demand whilst also reducing inputs and emissions will require the development of new technologies and methods of animal production and husbandry, areas in which Midlothian has particular strengths.

3.2 Recent Developments

Recent developments in the animal bioscience sector in Midlothian have been driven by a relatively small number of organisations which have recently joined forces in a formal partnership.

EASTER BUSH RESEARCH CONSORTIUM (EBRC)

In recent years, a highly successful animal biosciences cluster has developed at the Bush Estate near Roslin in Midlothian based around the highly renowned RDSVS, the Moredun and Roslin Institutes (both world acclaimed centres of research excellence) and the Animal Biosciences Researchers of the Scottish Agricultural College. The EBRC is a formal partnership between these organisations and is one of the largest groups of its kind in the world. The EBRC initiative and the cluster it represents has the potential to become the most important animal biosciences centres in Europe and one of the top two in the world.

The purpose of the EBRC is to:

- carry out collaborative research;
- reduce the cost of doing research by promoting efficient use of shared infrastructure;
- promote animal biosciences research and the interests of the partners in securing funding for research, infrastructure and sustainability;
- generate internal seed funds for shared projects; and
- work together within the broader Scottish Animal Bioscience Network.

3.3 Future Developments

The EBRC partners have ambitious plans for the future development of the sector which will involve the roll-out of a multi-million pound investment programme designed to secure Midlothian's place as one of the most important locations for animal biosciences in the world. Although the plans focus around the Easter Bush Campus it is envisaged that the development of the sector will be complemented by activity elsewhere in the

city, particularly the development of the new Centre for Regenerative Medicine in the South of Edinburgh.

3.3.1 EASTER BUSH CAMPUS

The focal point of the EBRC will be the Easter Bush Campus, a multi-million pound development which will provide state of the art research and teaching facilities and accommodate some of the world's leading scientists and researchers in the field.

The vision for the Campus is:

'to create one of the world's leading centres of veterinary education and research where students and scientists share a vibrant campus environment centred around the modern state-of-the-art animal hospitals that provide veterinary clinical services for the Lothians and beyond.'⁴

Plans for the development of the Easter Bush Campus were set out by the University of Edinburgh in March 2008. Phase one of the four phase development began in 2008 for completion in 2011. Phase one involves three capital building projects with an anticipated combined capital value (in 2008) of £110 million. The three projects include:

- + the new **Roslin Institute Building**, a £60.6 million state-of-the-art research centre to which will become home to around 500 scientists from The Roslin Institute and the Scottish Agricultural College in 2011;
- + a new **Vet School**, a £42 million project to create a new home for the RDSVS. The objective of the project is to co-locate all the components of the existing Vet School together at Easter Bush. The University's vision is to make the Vet School the best in Europe; and
- + a new **Veterinary Oncology & Imaging Centre (VOC)**, the new VOC building was completed in the first half of 2009 and is located next to the existing Hospital for Small Animals. The new-build facility is to provide diagnostic scanning service (CT scanner) for large and small animals and a new radiotherapy treatment facility for small animals.

It is expected that future development at the Easter Bush Campus will occur in three phases:

- + Phase 2 is expected to involve the creation of a

4 Easter Bush Framework, University of Edinburgh, March 2008.

new Campus Hub with catering facilities and accommodation, the second stage of the Roslin Institute Building and a large animal facility;

The Roslin Institute is now actively seeking substantial funding to help finance phase two of development. This funding will facilitate the construction of new state-of-the-art large animal and poultry facilities as well as providing the potential to construct a veterinary clinical trials capacity and specialist laboratories to support animal bioscience research.

The Roslin Institute and other EBRC partners also intend to support the construction of high level containment facilities on the Easter Bush Campus, to enhance the UK capacity to study infectious diseases that threaten food security.

Plans for future phases are less clearly defined but are expected to involve:

- + Phase 3 is expected to involve the relocation of the large animal facility to its new location adjacent to the small animal facility and the creation of two new sites for research buildings in its place;
- + Phase 4 is expected to involve further expansion of the Campus with the creation of a number of new research buildings on either side of the main road.

The future development of the Easter Bush Campus is central to the future of the animal bioscience sector in Midlothian but will depend on the availability of necessary funding from public agencies, research councils and commercial investors. This presents an opportunity for public agencies such as Midlothian Council to support future development either directly by providing finance and developing infrastructure, or indirectly by undertaking (or supporting others to undertake) marketing and lobbying initiatives to attract commercial funding.

3.4 Opportunities and Priorities

Although ambitious plans are in place to guide the future development of the sector, bringing these plans to fruition will require support and commitment from a variety of organisations. The key opportunities and priorities facing the sector at present include:

3.4.1 COLLABORATION

A significant level of collaboration already exists within the Scottish animal bioscience sector with numerous

informal collaborations and a growing number of more formal relationships already established between research institutes and educational establishments.

In May 2006, for example the MRI and the University of Glasgow entered into a Memorandum of Understanding to formalise over four decades of informal research collaboration between the two organisations. The memorandum identifies specific areas for joint research and enables resource sharing in key areas.

In the future, as competition between national animal bioscience clusters intensifies, it will be important to build on this collaborative activity. Possible areas of future collaboration might include:

3.4.2 SCOTTISH PARTNERSHIP FOR ANIMAL SCIENCE EXCELLENCE (SPASE)

Recent discussions have paved the way for a new research pooling initiative, SPASE. The SPASE concept is to bring together key partners (research institutes, universities, colleges and industry bodies) involved in delivering scientific solutions to challenges such as emerging diseases and food security.

Similar research pooling exercises elsewhere in Scotland have enjoyed significant success. The National Sub-sea Research Institute (NSRI)⁵ for example was designed to develop and maintain the UK's position as a centre of excellence for sub-sea technology and skills and is helping to improve Scotland's competitiveness in the international oil and gas industry.

It is hoped that the creation of SPASE will help to create a critical mass to attract and retain the best scientists in Scotland and improve Scotland's reputation as a location for investment in animal bioscience research.

3.4.3 RDSVS AND GLASGOW VETERINARY SCHOOL

A recent audit of the University of Glasgow Veterinary School⁶ suggested that links between the School and industry and the School's general approach to commercialisation could be improved. It has been recognised that one approach to achieving this would be to strengthen collaborative opportunities across Scotland and in particular with the RDSVS.

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5 The NSRI brings together four UK higher education institutions: Robert Gordon University and the Universities of Aberdeen, Dundee and Newcastle.

6 Quoted in *Opportunities in Animal Health for Scotland*, IJ Knowledge, on behalf of Scottish Enterprise.

3.4.4 AVIAN SCIENCE RESEARCH CENTRE

Part of the Scottish Agricultural College, the Avian Science Research Centre in Ayr is the largest group of poultry researchers in the UK. The work of the Centre focuses on nutrition, welfare and food safety. The Centre is currently undertaking an options appraisal to determine where the Centre should be based in the future and included in the options being considered is relocating nearer to Glasgow or Edinburgh.

3.4.5 SCOTTISH ANIMAL BIOSCIENCE SECTOR

While Midlothian is undoubtedly where the majority of Scotland's animal bioscience activity is undertaken, strengths also exist in Glasgow and Dundee in particular. Future efforts to develop the sector are likely to be most effective if undertaken in collaboration with these areas. This will particularly apply to the promotion of the sector where it will be important to highlight not just Midlothian's strengths but also the area's contribution to the Scottish sector and complementarity to activity occurring elsewhere in the country.

3.4.6 INSTITUTE FOR ANIMAL HEALTH

Sponsored by the Biotechnology and Biological Sciences Research Council, the Institute for Animal Health undertakes research into and provides advice about infectious diseases of farm animals. The Institute is currently based in two laboratories, one in Woking in Surrey and the other in Compton in Hampshire. A recent review of the activity undertaken at the Institute resulted in a decision to close the laboratory at Compton.

Research into viruses which is currently undertaken at Compton will be transferred to a new laboratory complex at Pirbright but research on bacteria and parasites of animals will no longer be pursued by the Institute⁷. IAH is now working with the scientists in these areas to explore how this research can be supported at other institutions.

It is likely that this will present opportunities for the animal bioscience sector in Midlothian which already has major strength in the broad field of endemic diseases. This has been confirmed recently with the appointment by the Roslin Institute of a former senior member of staff from the Institute for Animal Health.

The importance of collaborative initiatives within the animal bioscience sector is growing and has led to calls for an 'honest broker'⁸ to facilitate the future development of the sector. There may be opportunities for Midlothian Council to assist in this respect.

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7 IAH press release, 9 September 2009.

8 Quoted in *Opportunities in Animal Health for Scotland*, IJ Knowledge, on behalf of Scottish Enterprise.

3.4.7 LINKS WITH OTHER MAIN RESEARCH PROVIDERS TO SCOTTISH GOVERNMENT

SAC and the MRI are part of the network of Main Research Providers (MRPs) to the Scottish Government. This network, which also includes the Macaulay Land Use Research Institute, the Rowett Institute of Nutrition and Health in Aberdeen, and the Scottish Crop Research Institute in Dundee, will have a growing emphasis on systems level interdisciplinary research. This will enhance the capability of Scottish science to place new discoveries in animal (and other) sciences in the context of the systems in which they may be relevant and hence facilitate the delivery of greater impact from research.

3.4.8 INFRASTRUCTURE

To ensure that Scotland can continue to attract the best animal scientists in the future and maintain its current globally competitive position, significant investment in physical infrastructure will be required. As part of the initial discussions to establish the SPASE initiative in 2008, the following infrastructure priorities were identified⁹:

- a Category 4 research facility. These facilities are suitable for handling samples and specimens of high-risk agents such as the Lassa and Ebola viruses. At present there are only two high secure infectious diseases units in the UK¹⁰, neither of which are in Scotland and both of which are overcommitted and inaccessible. The creation of a category 4 facility in Scotland would enable Scottish based scientists to address the challenges of major animal, human and zoonotic diseases in this category;
- a large animal research facility for non-infectious disease research. Although Scotland is generally well provided with resources for infectious disease research (below Category 4) its resources for other research with large animals are old and inappropriate; and
- a national animal data and biobank facility. This would help to integrate animal bioscience research across scales and disciplines by bringing together phenotypic and genetic data and storing biological material for access as needs and opportunities arise.

9 SPASE Concept Note, November 2008.

10 High Secure Infectious Diseases Units are highly specialised isolation facilities for patients with dangerously contagious viruses such as Viral Haemorrhagic Fever. At present, the only two Category 4 facilities in the UK are in Newcastle and London.

3.4.9 SCIENCE PARKS

Midlothian is home to a significant cluster of companies involved in animal bioscience research, animal health products and services and firms supplying or supporting these. The industry cluster has developed as a result of the concentration of academic research combined with an appropriate business environment in terms of availability of accommodation on science parks, access to facilities and expertise, and business support.

Pentlands Science Park and Roslin BioCentre have been fully occupied consistently in recent times and are looking to increase capacity. Edinburgh Technopole has vacant space in larger units whereas there is greatest demand for smaller space. BioCampus has been unoccupied for years.

In order to ensure the cluster continues its growth trajectory there needs to be an increase in capacity and a masterplan which spans the four parks whilst also considering optimum location for shared research and animal husbandry facilities, and perhaps a social hub, is likely to enhance overall efficiency and impact.

3.4.10 PROMOTING THE SECTOR

A consultation process undertaken on behalf of Scottish Enterprise in 2009¹¹ highlighted that the unanimous view of stakeholders consulted in the animal bioscience sector was that Scotland is a major contributor to animal bioscience but is poor at promoting its capabilities.

Scotland is host to one of the largest concentrations of animal related research in the world, much of which is located in Midlothian. The strength of this offering is that the research undertaken spans the complete spectrum from fundamental, through to strategic, applied and contract work undertaken on behalf of end users. Awareness of Scotland's strength in this area is however not as strong as it could be.

The animal bioscience sector is increasingly out-sourcing contract and collaborative research to companies and research institutes around the world. A greater understanding of the animal bioscience capability in Scotland would be likely to result in more work being placed in Scotland. Promoting the sector internationally is therefore of paramount importance.

The animal bioscience sector is a major strength for Midlothian and to the life sciences sector across Edinburgh City Region. It is one of the competitive advantages of the region to be highlighted by Edinburgh Science Triangle, whose twin economic development

11 Opportunities in Animal Health for Scotland, IJ Knowledge, on behalf of Scottish Enterprise.

goals are to attract investment and build scientific community. EST has a key role to play in promoting the sector directly and in concert with local partners and Scottish Development International. EST is also seeking to strengthen networking within the sector and to other areas within Life Sciences and has initiated a second hub for the Nexxus bioscience network for Edinburgh and East to help achieve this.

3.4.II SKILLS DEVELOPMENT

An important issue facing the life sciences sector in Scotland is the availability of appropriately skilled staff. As an important sub-sector of the Life Sciences, this issue is also pertinent to animal biosciences and will be an important priority for the future development of the sector. A recent survey undertaken by the Sector Skills Council for Science, Engineering and Manufacturing Technologies revealed that more than half the companies surveyed reported skills gaps. The most commonly reported was for laboratory technicians, laboratory scientists and senior scientific staff¹².

One important way of addressing these skills issues is through the provision of Modern Apprenticeships. Modern Apprenticeships offer those of school leaving age and above, paid employment combined with the opportunity to train for jobs at craft, technician and management level. Modern Apprenticeships are developed by Sector Skills Bodies (SSBs) and key partners in their sector. A Modern Apprenticeship has been developed for the life sciences sector and will also be relevant to the animal biosciences sector. This will:

- + attract younger people, from schools and colleges, into the sector;
- + benefit those already working in the sector (predominately female) to acquire recognition, skills and qualifications;
- + provide a route to market with provision which has been previously non-existent; and
- + engage a higher number of small to medium size employers who have previously failed to engage with training.

The life sciences sector is also identified as a priority industry within the Midlothian Employability Strategy. Two of the objectives of this strategy are to;

- + improve interaction between local industry and the local population so that both have a better understanding of the opportunities offered by the

other; and

- + enterprise and learning services to continue to work closely together so that locally available skills increasingly meet the needs of the economy.

Both of these objectives are closely aligned with the objectives of the new life sciences Modern Apprenticeship and should help to ensure that the future skills needs of the animal bioscience sector in Midlothian are met.

12 A Modern Apprenticeship in Life Sciences, a Framework Document for Scotland, SEMTA, March 2009.

4 Priorities and Actions

	ACTION	LEAD RESPONSIBILITY	OTHERS	TIMESCALE
PROMOTION & MARKETING				
1	<p>Develop an understanding of the key strengths and specialisms of the animal biosciences sector in Midlothian and use this to develop a distinctive inward investment proposition for Midlothian. This should:</p> <ul style="list-style-type: none"> • quantify mobile investment opportunities • identify priority target locations • articulate the extent/cross-over of animal bioscience with human medical science and biotechnology • articulate the strength of interdisciplinary capability throughout the spectrum of basic and applied sciences for addressing problems of food security in the context of a changing climate • articulate the extent to which Scotland's competitive advantages in animal biosciences are located in Midlothian • promote Roslin/Pentlands area as hub for relevant networks and knowledge exchange activity • review the branding of the Midlothian cluster • explore EU funding opportunities to establish EBRC as Europe's centre of excellence in Animal Bioscience • explore funding for research collaboration and trade missions 	Midlothian Council	Edinburgh Science Triangle, Scottish Development International, research institutes, animal bioscience companies, government departments.	1 year
2	Promote the strengths of the animal bioscience sector in Midlothian internationally to animal bioscience companies and potential purchasers of contract research.	Edinburgh Science Triangle	Midlothian Council, Scottish Development International, research institutes, animal bioscience companies.	18 months
3	Lobby research councils and government bodies to recognise the global potential of the animal biosciences cluster in Midlothian and its importance to the future development of the animal biosciences sector in Scotland & the UK.	Midlothian Council	EBRC (SAC, Moredun Research Institute, Roslin Institute, RDSVS, companies)	Immediate and on-going.

	ACTION	LEAD RESPONSIBILITY	OTHERS	TIMESCALE
INFRASTRUCTURE AND PHYSICAL DEVELOPMENT				
4	Engage with partners involved in the emerging SPASE initiative to identify how the Council might best support the development of SPASE and retain maximum advantage for Midlothian.	Midlothian Council	SPASE partners, Scottish Funding Council.	Immediate and on-going.
5	Engage with partners involved in the emerging SPASE initiative to identify whether it would be appropriate to deliver any of the required infrastructure projects in Midlothian and support partners to deliver this.	Midlothian Council	SPASE partners, Scottish Funding Council.	Immediate and on-going.
6	Support efforts to raise funds for phase two of the Roslin Institute and actively promote opportunities to potential commercial investors.	Roslin Institute/ University of Edinburgh	Midlothian Council, Scottish Government.	Immediate and on-going.
7	Engage with major development proposals brought forward by the animal biosciences institutes at an early stage in order to facilitate the provision of necessary infrastructure.	Midlothian Council	SPASE partners, utilities and telecoms providers.	Immediate and on-going.
TRAINING & SKILLS				
8	Identify opportunities for further University and other related activity to be located in Midlothian.	Midlothian Council	University of Edinburgh, SAC	1 year.
9	Facilitate greater interaction between training providers, industry, the relevant sector skills councils and Midlothian Council's Education and Children's Services Division to help address potential skills shortages and skills gaps.	Midlothian Council	Animal bioscience companies, research institutions and education providers.	Immediate and on-going.
RESEARCH & GENERAL SUPPORT				
10	Develop a formal sector support statement to demonstrate the Council's commitment to the future development of the sector to be used as support by key organisations to support funding bids.	Midlothian Council		1 month.
11	Undertake regular progress reviews involving key industry stakeholders initially to agree priorities and allocate responsibilities and subsequently to evaluate progress toward agreed goals.	Midlothian Council	EBRC partners, SMEs, Scottish Development International & Scottish Enterprise.	3 months then annually.

	ACTION	LEAD RESPONSIBILITY	OTHERS	TIMESCALE
12	<p>Commission or undertake research to support and inform the development and promotion of the sector. This should include:</p> <ul style="list-style-type: none"> ♦ regular auditing of Scotland’s ranking in animal biosciences. ♦ assessing the extent to which Scotland’s assets and capabilities in the animal bioscience sector are located in Midlothian. ♦ projecting future space requirements for animal bioscience companies. ♦ assessing transport requirements necessary to support staff and student flows from the city centre and outlying areas. ♦ investigating the future skills needs of the sector. 	Midlothian Council	Scottish Enterprise, Scottish Development International, Scottish Government.	3 months and ongoing.
SUPPORTIVE BUSINESS ENVIRONMENT				
13	Consult and prepare a masterplan for the development of infrastructure to enable growth of the industry cluster; so to include science parks capacity, choice of location of shared facilities, and consideration to a social hub.	Midlothian Council	Edinburgh Science Triangle, University of Edinburgh, Moredun Group, Roslin Foundation, Scottish Enterprise.	6 months.
14	Engage Scottish Enterprise and Scottish Development International to facilitate access to their products and services appropriate to the cluster.	Edinburgh Science Triangle	Scottish Enterprise, Scottish Development International.	3 months and ongoing.

5 Recommendations for Future Monitoring and

As part of the monitoring and evaluation of the Midlothian Economic Development Framework, a plan needs to be developed to analyse progress against baseline economic activity from animal biosciences.

BiGGAR Economics analysis of the sector suggests at the current levels of employment, animal biosciences supports around 5% of total employment in Midlothian (1,700 jobs) and contributes approximately £115 million per year to the Scottish economy.

Employment in animal biosciences in Midlothian represents a significant share of employment in the European animal biosciences sector, confirming Midlothian's role as one of the most important centres for animal bioscience in Europe. Midlothian is home to some of the world's leading researchers and scientists in this field and has a global reputation for excellence in this field.

Many millions of pounds have already been invested in developing world class research and teaching facilities in Midlothian and ambitious plans are in place for further multi-million pound investment in the future development of the sector. This represents an important opportunity for Midlothian in terms of both business growth and the potential creation of large numbers of high value jobs.

The extent to which Midlothian benefits from the animal bioscience sector will however depend largely on the availability of funding and investment from both public and commercial sources. Active and effective promotion, to research councils, government and commercial investors, will therefore be central to the future development of the sector. This is one of the areas in which Midlothian Council may be able to directly support the sector.

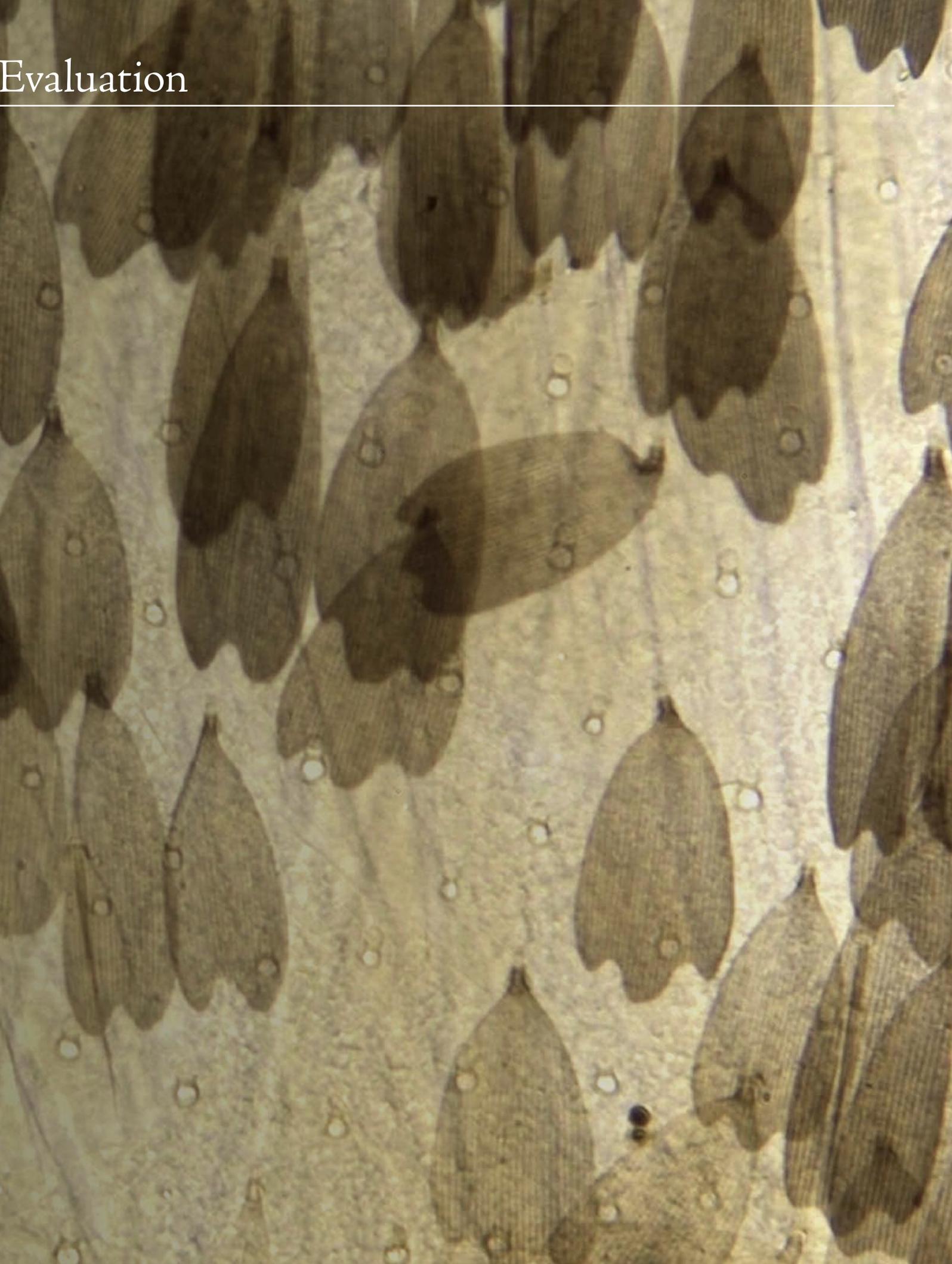
MEDF has a target of creating 10,000 new jobs by 2020, representing a 37% increase across all sectors. If the animal biosciences sector was to contribute to this target in line with its current proportion of employment in Midlothian, this would imply the creation of around 630 additional jobs, increasing employment in the sector to around 2,325 jobs.

However, as a growth sector it would be reasonable to set a higher target. Average annual employment growth of 5% would generate almost 1,200 additional jobs, increasing employment to the sector to approximately 2,900 by 2020.

At the current GVA per employee level this would increase the GVA contribution of the animal biosciences sector to around £197 million by 2020.

Between 2006 and 2007 employment in the animal biosciences sector in Midlothian grew by around 24%. Although this rate of growth is unlikely to be sustainable in the long-run, it means that the area is on course to achieve if not exceed the 5% growth target by 2020.

Targets will continue to be measured annually along with the economic baseline constructed for the MEDF Monitoring and Evaluation Plan, using the indicators of employment in animal biosciences and associated GVA.





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