

THE 
Pirbright
INSTITUTE

PREVENTING AND
CONTROLLING
VIRAL DISEASE

ANNUAL REPORT
AND ACCOUNTS
FOR THE YEAR ENDED
31 MARCH 2018

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Cover image: © Leonela Carabajal, The Pirbright Institute. Mosquito larvae showing fluorescent transgenic markers. In order to identify these genetically modified insects, visual markers are included such as red (left) or blue (right) full body expression of fluorescent proteins.

Inside cover: © Joanna Wells, Ismar Haga, Pip Beard, The Pirbright Institute. Cells in culture infected with GFP-tagged vaccinia virus (green), labelled with an antibody against tubulin to show the cytoskeleton (red), and stained with a DNA stain (blue)

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TRUSTEES' REPORT

INCORPORATING THE STRATEGIC REPORT



On behalf of the Board of Trustees of The Pirbright Institute, I am pleased to present our Annual Report and Accounts for the year ended 31 March 2018. You will find in the Report details of Pirbright's mission, objectives, achievements and scientific and financial performance in what has been another successful and productive year. As the UK's leading research institute in

the area of prevention and control of viral diseases in livestock, our work is of national importance against the ever present threat to the UK's livestock from the incursion of viral diseases from Africa and Asia as well as Europe.

We have made significant progress over the year in diversifying our funding streams, with continued success in winning competitive grants and working with research partners across Europe and around the world. We have much to contribute in our areas of expertise and remain confident that the opportunities for scientific collaboration will continue, despite the challenges of BREXIT. Whilst we will cease to be the EU reference laboratory for foot-and-mouth disease from next year, Pirbright remains the World Reference Laboratory for foot-and-mouth and other diseases and is continuing to develop strategic partnerships throughout Europe and beyond.

Our scientific excellence is supported by world-class scientific facilities, the result of the sustained investment made, and being made, by the Biotechnology

and Biological Sciences Research Council (BBSRC), now part of UKRI. The recent completion of a programme of decommissioning and demolition has made way for a further round of investment to complete the upgrade of our capability to carry out research at all levels, including the highest level, of containment. We have also established a Centre for Collaborative Learning as part of our plans to increase our engagement with the commercial sector, especially in the light of the creation by government of the Industrial Challenges Fund.

Bryan Charleston and his senior leadership team can be rightly proud of the scientific and business achievements over the year whilst meeting the

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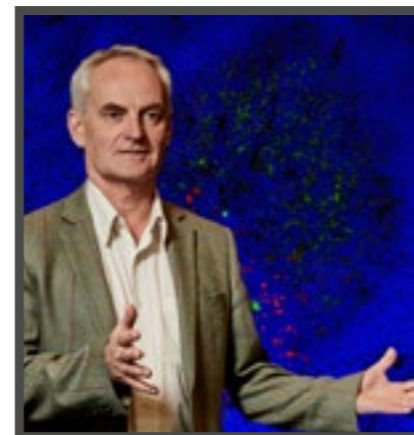
expectations and requirements of our various regulatory authorities. All this has been achieved by the professionalism and expertise not only of our front-line scientists but also those who support them by ensuring the smooth operation of the extensive range of complex facilities at Pirbright. We take this opportunity to thank all the employees of Pirbright for their hard work and dedication throughout the year.

Professor Quintin McKellar
Chair of the Trustee Board,
The Pirbright Institute

PIRBRIGHT'S CONTINUING SUCCESS

"IN 2017/18
PIRBRIGHT SECURED
OVER £20 MILLION
OF FUNDING FOR
FUNDAMENTAL
AND APPLIED
RESEARCH AIMED
AT PREVENTING
AND CONTROLLING
VIRAL DISEASES OF
LIVESTOCK AND
THOSE THAT SPREAD
FROM ANIMALS TO
PEOPLE."

Glass influenza virus sculpture
by Luke Jerram.
Photo courtesy Alec Riches



Pirbright continues to experience a huge amount of positive change to its campus and, despite the inevitable disruptions, we continue to deliver exceptional scientific achievements and milestones in vaccine development and disease control.

Our senior scientists have had a very successful year securing prestigious funding awards from Innovate UK, the National Centre for the Replacement, Refinement and Reduction of Animals in Research, BBSRC (now part of UKRI) and Defra, and from international

funders including the EU and the Defense Advanced Research Projects Agency (DARPA). We have been particularly successful with a number of initiatives this year, securing funding through the Global Challenges Research Fund (GCRF), including significant funds through the BBSRC – Newton Swine and Poultry Research Initiative, and funding from the Livestock Vaccine Innovation Fund, through the International Development Research Centre (IDRC). The funding enables us to expand our international reach and build on our ambition to address global challenges and have a positive impact in the poorest regions of the world.

We work closely with funders like the Defense Threat Reduction Agency and the Bill and Melinda Gates Foundation to help deliver our common missions by exchanging knowledge, ideas and expertise. 2017 has seen RCUK transformed into UK Research and Innovation (UKRI), this new overarching organisation includes the Institute's core funder, the BBSRC. Pirbright plays a key role in the delivery of the BBSRC strategic framework, and will continue to contribute to the overall objectives of UKRI. Our aim is to seek further opportunities through the GCRF and support UKRI science and innovation strategy in the years to come.

Attracting and retaining talent is key to our success, and the development of our vibrant PhD training programme linking to top UK universities and international organisations has been a key driver of the development of home-grown talent. This year we initiated a joint PhD programme with the Friedrich-Loeffler-Institut, Germany, strengthening the relationship between two of the major European centres of excellence for animal health.

Our role as a National Capability is to protect

the UK against existing viral diseases and those that threaten our borders. We are unique in that we combine high containment research and animal facilities that enable scientists to study highly-infectious viruses, their vectors and the livestock they affect. We are not only a global centre of scientific excellence, but a centre of excellence across many disciplines, including engineering, maintenance, and risk management of biocontainment facilities. Recognition of this was demonstrated by our involvement and key role in a World Health Organisation meeting to discuss level 4 biological containment facilities, attended by representatives from 50 laboratories from 20 countries. We will continue to share our knowledge and expertise through collaboration, consultation and through professional training – a growing area for Pirbright.

Our ability to interrogate host-pathogen interaction at different scales, from the cell, to the whole organism, extending to host populations, all within high containment, sets us apart from other research institutes around the world. Animal research

We are not only a global centre of scientific excellence, but a centre of excellence across many disciplines, including engineering, maintenance, and risk management of biocontainment facilities.

at Pirbright is facilitated and managed by a highly skilled and extremely dedicated Animal Services Capability department. The care and welfare of animals used in our research is of paramount importance, both for the animals and the validity of the science being undertaken. Our animal technicians, veterinary surgeons and researchers ensure animals used in our research receive the highest standards of care. We are fully committed to the 3R's of replacement, refinement and reduction and the Concordat on the Openness on Animal Research

Our global impact on human and animal health continues to grow and our reputation for leading-edge science with it. We are looking forward to seeing our new buildings come on line, including a new high containment animal facility, to further facilitate our ability to develop and test vaccines that will protect against the world's most devastating diseases – both now and in the future.

**Dr Bryan Charleston,
Director and CEO, The Pirbright Institute**

WELCOME TO OUR ANNUAL REPORT

Pirbright's mission is to be the world's leading innovative centre for preventing and controlling viral diseases of livestock and those that spread from animals to people. We apply cutting-edge scientific research into viral diseases and their interaction with hosts and vectors to prevent and control viral diseases, protecting animal and human health and the economy. We provide the UK with its capacity to predict, detect, understand and respond to the threat of specific potentially devastating viral livestock diseases.

OUR STRATEGY

The Pirbright Institute's strategic aims are to:

- **Predict** the worldwide spread of viral diseases which threaten economic prosperity and health, and to provide an early warning to the UK and EU of virus threats.
- **Detect**, contain and eliminate infectious viral diseases of livestock using monitoring, diagnostic testing, and supporting mass surveillance during and after virus outbreaks.
- **Understand**, through fundamental research, the complex biology of viruses of economic importance by characterising the structure, genetics, replication and evolution, as well as filling gaps in our knowledge on the virus-host and virus-vector interactions.
- **Respond** in the event of a virus outbreak by providing primary diagnostics, vaccinology expertise and advising disease control agencies.
- **Use innovative genetic technologies** and other novel scientific approaches to control the spread of disease through a number of control methods including vaccine development and vector control.
- **Support** the UK's scientific knowledge base and develop future leading researchers across a number of important research disciplines.
- **Engage** with the public, partners and policy-makers using a wide range of media to initiate conversations that will help shape future science.

OUR IMPACT

Pirbright's global impact continues and it makes a huge contribution to economic and food security and health by supporting the prevention and control of infectious viral diseases of livestock, and diseases that spread from farm animals to people (zoonoses).

Our scientists work to protect farming, industry and society in the UK by improving our understanding of the biology of these viruses and how they spread and how they interact with their hosts.

Pirbright is leading the way in the control and eradication of potentially devastating global diseases including foot-and-mouth disease (FMD), peste des petits ruminants (PPR), avian influenza (AI) and bluetongue (BT) by understanding host-virus interactions, developing effective vaccines and improving diagnostic tools. For example, researchers have developed a new portable test that can be used in the field for FMD that is able to differentiate between strains of the virus.

Diseases such as African swine fever (ASF) and lumpy skin disease (LSD) can cause huge production losses and have a big impact on the world's poorest regions where more people are directly dependent on livestock. There is currently no effective vaccine for ASF and, like ASF, LSD is now in Europe and although there is an effective vaccine little is understood about the disease. Outbreaks of ASF between 2014-2018 resulted in hundreds of thousands of pigs dying or being destroyed in Eastern Europe and the Russian Federation and are a huge economic threat to commercial pig farms. Assessments of estimated financial impact vary considerably, but outbreaks in 2014-2015 in Poland, Lithuania, Latvia and Estonia are estimated to have reduced export value of pork and pork products by up to 50%. Introduction of ASF into Denmark could result in losses of US\$12 million in direct costs and US\$349 million in exports. Further spread of ASF to China could have disastrous consequences, since it is home to more than half of the world's pig population. Research by scientists at Pirbright has taken us a step further in the hunt for the development of an effective commercial vaccine for ASF.



ENHANCED HOST RESPONSES FOR DISEASE CONTROL

Science pursuit

What properties of the host response to virus infections determine if disease occurs and if viruses are controlled, persist or are transmitted to a new host?

Science outcome

Fully understanding the responses of host species to viral infection, from the genome to the whole organism and population.

Focuses expertise in disciplines such as immunology, genetics, entomology, vaccinology and bioinformatics to study host-virus interactions from the host perspective (including arthropods that act as virus vectors), the host's response to viral infection and the translation of this knowledge into the development of new and improved disease control methods.

UNDERSTANDING AND PREVENTING VIRAL DISEASES

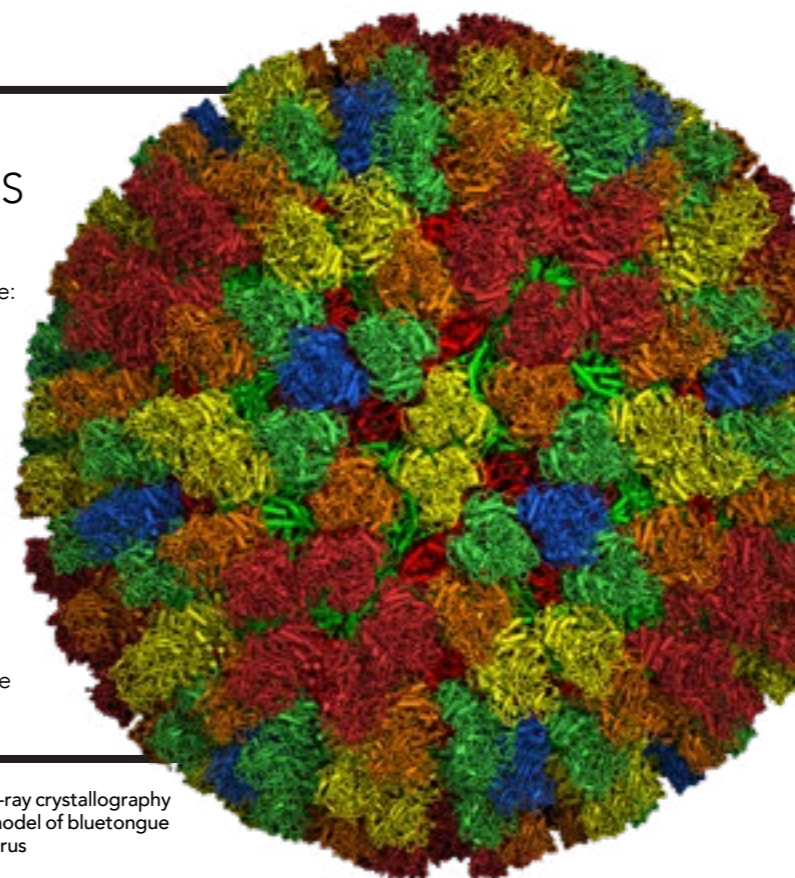
Science pursuit

To gain a deeper understanding of how viruses behave: at a molecular level, by examining interactions within cells; the process of evolution within the host; and on a global scale by seeking to reconstruct and predict how viruses are transmitted and cause disease.

Science outcome

This work will enable the development of new and improved methods of disease control such as vaccines and diagnostics, for both animals and people.

This programme explores the interaction between virus and host from the perspective of the virus and identifies those properties of a virus that determine the ability to cause disease, replicate, evolve and spread.



X-ray crystallography model of bluetongue virus

PIRBRIGHT OFFERS THE UK A NATIONAL CAPABILITY IN THREE CORE AREAS:

- Science expertise which drives the quality of research undertaken at the Institute by utilising specialist facilities, unique infrastructure and extensive collections of viruses and disease vector colonies
- High containment experimental facilities which enable the study of viruses that must be handled within a secure environment in their natural livestock hosts
- Low containment experimental facilities to support the study of endemic viruses of poultry and livestock in the laboratory and natural hosts

Unique bioimaging facilities

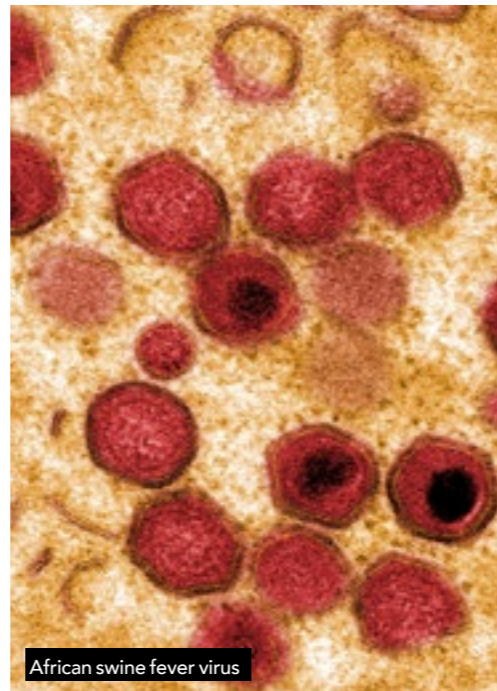
Pirbright houses a unique bioimaging facility containing advanced confocal and electron microscopes, flow cytometry analysers and cell sorters. Instruments are located in both high and low containment laboratories making them accessible to all researchers. The scope of imaging and analytical techniques available inside the high containment area is unique. As well as virus samples, it is also possible to image, analyse and sort live cells from host animals infected in our high containment animal facilities.





PANDEMIC THREAT OF BIRD FLU BETTER UNDERSTOOD

Pirbright scientists have identified the molecular mechanisms that enable H9N2 influenza virus – the most common type of avian influenza (bird flu) virus – to infect humans, in order to help assess the risk of the potential for it to cause a human flu pandemic. The research focused on the surface protein haemagglutinin, which enables the virus to bind and fuse with host cells for entry and infection. Researchers investigated two properties that facilitate adaption for human infection: its preference for binding to different host receptors (molecules on the surface of a cell responsible for communication) that allow cell entry and the pH level at which the virus can fuse with the host cells (pH of fusion) and therefore begin infection. It is hoped that the research published in the science journal *Nature's Emerging Microbes & Infections* will inform risk assessments of their zoonotic and pandemic potential and help improve global vaccine strategies.



African swine fever virus

AFRICAN SWINE FEVER RESEARCH ADVANCES AT PACE

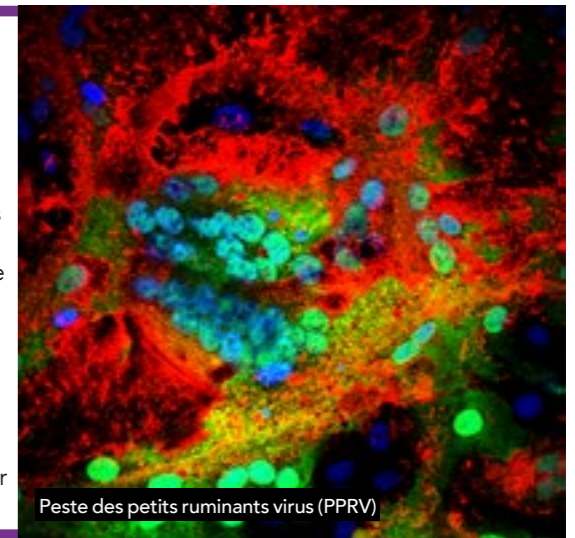
The hunt for a safe and effective vaccine for African swine fever (ASF) has recently been advanced by Pirbright. Researchers screened ASF genes for their ability to produce proteins that create an immune response in pigs, and they are now looking to incorporate the most promising genes into a vaccine. They also found another promising vaccine candidate by genetically modifying the ASF virus to reduce its ability to cause infection. Pigs exposed to the modified strain were protected against further infection by a natural ASF virus, indicating this method could be developed further to create a new vaccine. Scientists are also working to better understand how the virus evades the host's immune system, how it is transmitted and they are also improving diagnostics to detect the virus more accurately and rapidly.

PESTE DES PETITS RUMINANTS POSES THREAT TO EUROPE

Global policy makers are urged to consider better coordinated vaccine strategies to combat the spread of peste des petits ruminants (PPR). The call came as PPR, a neglected but devastating livestock disease, has spread rapidly and now poses a threat to sheep and goat populations in Europe.

PPR, also known as goat plague, is a highly contagious disease caused by PPR virus (PPRV) that infects small ruminants such as sheep and goats and can have a mortality rate as high as 90%.

PPRV has been targeted for eradication by 2030 by the Food and Agriculture Organisation of the United Nations (FAO) and the World Organisation for Animal Health (OIE). This follows the successful eradication of the related disease rinderpest – a success that Pirbright scientists played a major role in.



Peste des petits ruminants virus (PPRV)

Image courtesy of Dr Michael Baron



GOAT ANTIBODY GENES UNCOVERED

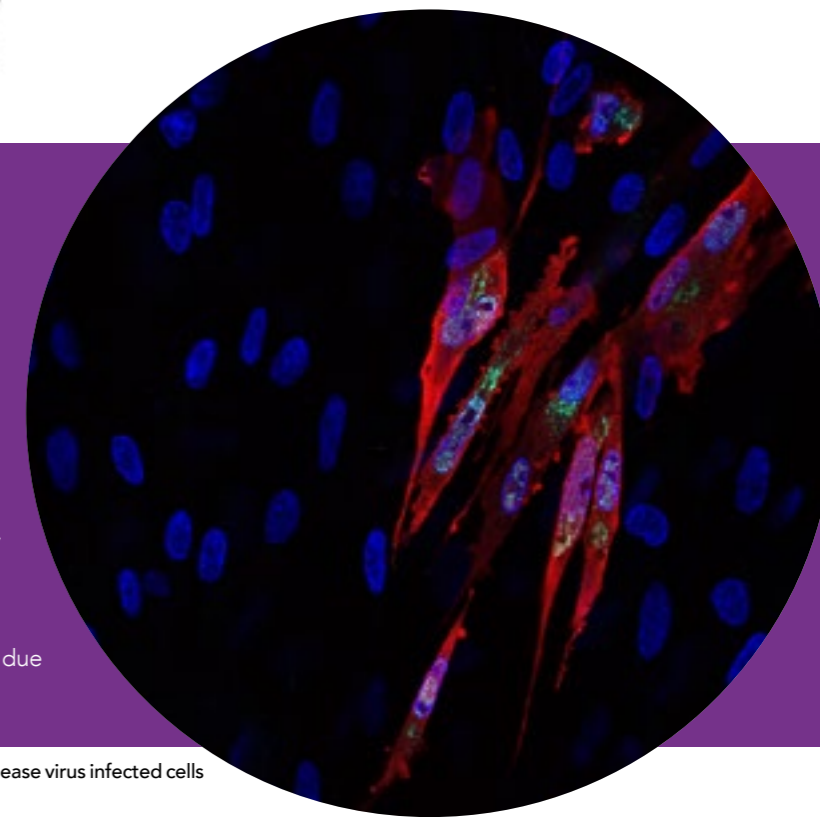
Expert geneticists from Pirbright have sequenced the entire genetic code of the goat, which is the most complete produced for any mammal to date. They used a combination of techniques in parallel, an approach which could revolutionise the process of genome sequencing and assembly for other species and help scientists further understand the relationship between genetics and disease. The team has since used the data to identify the position and function of the goat genes that are responsible for antibody production. The variety of antibodies expressed by any given individual is immensely diverse and influenced by vaccination and infection. By knowing the genetic sequence responsible for antibody production, scientists can better understand how animals are able to respond to disease.

NEW VACCINE TO TACKLE MULTIPLE POULTRY DISEASES

Researchers have created a new method of genetically modifying the Marek's disease vaccine so it can protect against another destructive poultry virus – infectious bursal disease (IBD) – and potentially others such as avian influenza and Newcastle disease. This approach could lead to a reduction in the number of vaccines given to birds.

Using a gene editing system called CRISPR/Cas9 to add a gene of the IBD virus into a current Marek's disease vaccine virus, scientists were able to add genetic material that could protect poultry against IBD adding to the protection already offered by the Marek's disease vaccine, meaning that bird owners would only need to use one vaccine instead of two.

Pirbright intends to partner with vaccine manufacturing companies to bring CRISPR/Cas9 edited vaccines to market due to strong commercial interest.



Marek's disease virus infected cells

SCIENTIFIC HIGHLIGHTS



WHICH UK MOSQUITOES ARE FUSSY FEEDERS?

The largest study of blood feeding by mosquitoes ever conducted in the UK has revealed that some species are fussier than others when choosing a host. Researchers aimed to discover which birds and mammals mosquitoes were biting in order to understand the potential for the UK to experience outbreaks of vector-borne diseases. Scientists collected almost 21,000 mosquitoes using special traps which provided shelter for females that had taken a blood meal, as only female mosquitoes bite. Eleven different species of mosquito were collected and DNA was sequenced from 964 individuals. The DNA was then matched to DNA sequences from UK wildlife held on global databases.

The study revealed that mosquitoes varied in their feeding behaviour: *Culex pipiens* and *Culex modestus* fed on native and migratory bird species but didn't feed on mammals. *Anopheles maculipennis*, fed on a range of mammals, including cattle, sheep and rabbits as well as birds. The use of both bird and mammal hosts by mosquitoes can lead to viruses 'spilling' over into new species and potentially humans. This is particularly important because of factors such as environmental change and the potential for exotic mosquitoes to reach the UK which means that diseases previously restricted to more tropical climates could emerge in more traditionally temperate regions.

Culex pipiens mosquito

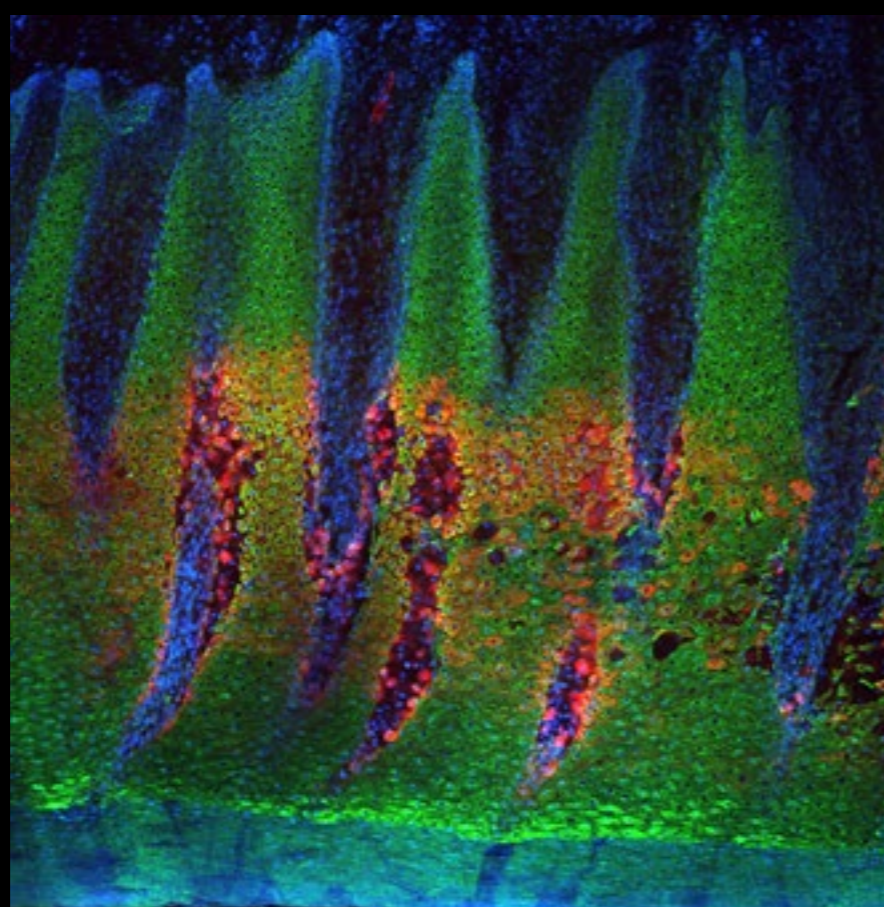


PIRBRIGHT CONFIRMED THE UK IS FREE FROM BLUETONGUE

Pirbright demonstrated the importance of its role as a National Capability in protecting the UK from devastating infectious viral diseases of livestock using its expertise in surveillance and diagnostics. We played a key role in providing assurance that the UK remained free from bluetongue virus (BTV) following the positive test results of four cattle which had moved from France into the north of England and Scotland in October 2017 without sufficient proof of vaccination. BTV causes a disease in farmed animals, such as sheep, goats and cattle, which can have a major impact on livestock production and movement. While the UK remains free of BTV, accurate surveillance carried out on live animal consignments moving from neighbouring countries affected by BTV transmission is vital.

FOOT-AND-MOUTH DISEASE VIRUS HOST-CELL INTERACTION REVEALED

New insight into the process of interaction between foot-and-mouth disease virus (FMDV) and host cells, could lead to the development of anti-virals capable of blocking the virus from entering cells and preventing infection. Advances in high resolution cryo-electron microscopy enabled samples to be studied at very low temperatures and viewed in their natural state. The research, a national and international collaboration, was supported by FMDV experts at Pirbright.



Foot-and-mouth disease virus infected cells

EVALUATING SAMPLING METHODS FOR FOOT-AND-MOUTH DISEASE IN KATHMANDU

The Transmission Biology group at Pirbright carried out fieldwork in the Kathmandu Valley, Nepal. The aim of this fieldwork was to evaluate environmental sampling methods for use in the surveillance of foot-and-mouth disease virus (FMDV). This ensures that methods developed

in the lab translate successfully to real world situations, providing additional tools for use in surveillance programs. Environmental swabs and aerosol sampling were both used in the detection of FMDV from suspected cases.



OUR CAMPUS

Strategic capital investment of over £350 million from the Biotechnology and Biological Sciences Research Council (BBSRC now part of UKRI) is transforming the Pirbright campus with new world-class facilities as part of an overarching masterplan for the site. Together these comprise a National Capability which is enabling our scientists to carry out cutting-edge research and is available to help deal with disease outbreaks in the UK.



Photography by Richard Chivers

BBSRC NATIONAL VACCINOLOGY CENTRE: THE JENNER BUILDING

The BBSRC National Vaccinology Centre: The Jenner Building, is a low containment laboratory which enables our scientists to undertake research into new avian vaccines and to gain a better understanding of poultry viruses of huge economic impact such as avian influenza, Marek's disease and infectious bronchitis.



THE PHILIP MELLOR INSECTARY

The Philip Mellor Insectary is used to create and maintain unique insect colony lines of disease vectors including biting midges such as *Culicoides* and mosquitoes including *Aedes* and *Culex*. These can be studied in and out of high containment to improve our understanding of the relationship between virus, vector and host. Insect lines are also supplied externally to research organisations. This capability was enhanced through the renovation of an existing laboratory.

REFERENCE LABORATORIES

Our reference laboratories, which work on behalf of Defra and other international organisations, provide expertise and capacity for diagnostics and surveillance to monitor livestock for high consequence viral diseases underpinning global disease control efforts. This year marks the 60th Anniversary of the World Reference Laboratory for Foot-and-Mouth Disease, which will be celebrated by a two-day symposium in November 2018.

Pirbright's reference laboratories cover ten exotic viral diseases of livestock including foot-and-mouth disease, African swine fever, bluetongue and lumpy skin disease. Reference laboratories have skilled and expert personnel, validated diagnostic tests, essential reagents and archive materials (viruses, antisera). At Pirbright the reference laboratories work alongside our research programmes enabling Pirbright to respond to outbreaks in a timely manner.



BBSRC NATIONAL VIROLOGY CENTRE: THE PLOWRIGHT BUILDING

The BBSRC National Virology Centre: The Plowright Building, provides the UK with a unique high containment facility to research and control highly infectious viruses of livestock which include foot-and-mouth disease, African swine fever, lumpy skin disease and bluetongue.



BETTER VACCINES FOR DEADLY POULTRY DISEASE

BBSRC has awarded joint funding of £440,000 to Pirbright's Dr Yongxiu Yao and The Roslin Institute to research how the deadly Marek's disease virus (MDV) causes tumours in poultry, and to create a more effective vaccine. Nearly 22 billion vaccine doses a year are used in an attempt to control the disease which causes losses of up to \$2 billion worldwide, but the virus continues to evolve and form increasingly virulent strains. The team will use CRISPR/Cas9 gene editing to investigate a tumour-inducing gene which will provide a clearer understanding of the pathways involved in tumour formation and aid the creation of better vaccines.



PIRBRIGHT RECEIVES INTERNATIONAL FUNDING TO PROGRESS RESEARCH THAT IMPACTS ANIMAL AND HUMAN HEALTH GLOBALLY

FASTER INFECTIOUS BRONCHITIS VIRUS VACCINE DEVELOPMENT

Dr Erica Bickerton has been awarded over £300,000 by BBSRC to develop a faster and more efficient method for infectious bronchitis virus (IBV) vaccine production. IBV has significant economic impact on chicken production worldwide, reducing weight gain and egg production. The research aims to employ a new method to produce live vaccines in laboratory cell cultures, enabling large volumes of vaccine to be produced, thus reducing the number of eggs used.



RESEARCH TO BOOST VACCINE PRODUCTION

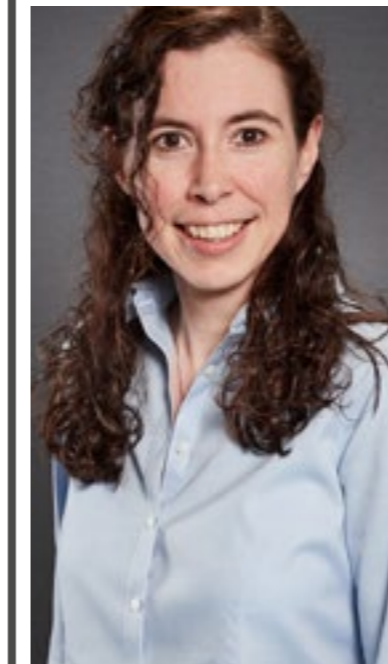
Dr Mark Fife has secured nearly £1 million for research into boosting vaccine yields by up to ten-fold. The research will involve using a gene editing system called CRISPR/Cas9 to remove chIFITM genes from chicken cells, which usually suppress vaccine virus replication thereby reducing the vaccine yield. chIFITM removal could halve the number of eggs required to produce each dose of flu vaccine. The funding was awarded by the Livestock Vaccine Innovation Fund which is supported by the Bill and Melinda Gates Foundation, Global Affairs Canada (GAC), and Canada's International Development Research Centre.

FMD VACCINE RECEIVES COMMERCIAL FUNDING

The Wellcome Trust has invested £3.1 million in research lead by Dr Bryan Charleston to produce a more affordable vaccine against foot-and-mouth disease (FMD). The funding will allow Pirbright and partners to move into commercial production of the virus-like particle (VLP) vaccine designed to protect livestock against all required serotypes of FMD. Vaccine producer MSD Animal Health will also be supporting the work with additional funds to ensure the vaccine is as inexpensive as possible while still remaining effective.

UNDERSTANDING SHEEP IMMUNE RESPONSES TO BLUETONGUE

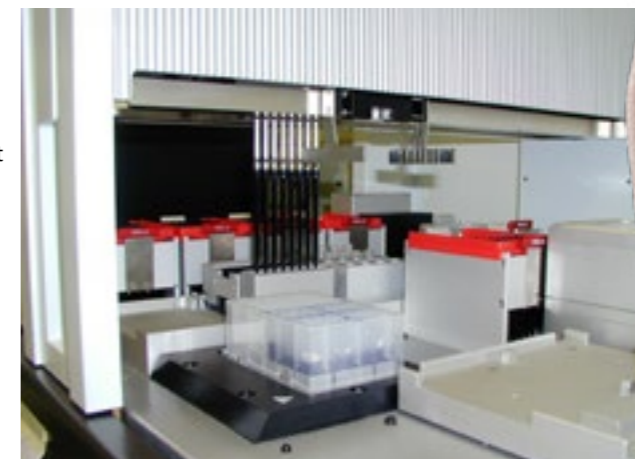
Dr Karin Darpel has won a BBSRC grant to investigate the immunological responses to bluetongue virus (BTV) infection in sheep, the natural hosts of the disease. Immune cells called T lymphocytes are central to the



anti-viral immune response, but little is understood about which subsets are activated when sheep are infected by BTV. By studying the levels of virus when each subset is removed, the research will provide much needed data on the specific role of T cell subsets on BTV production, immune responses, clinical signs and virus transmission.

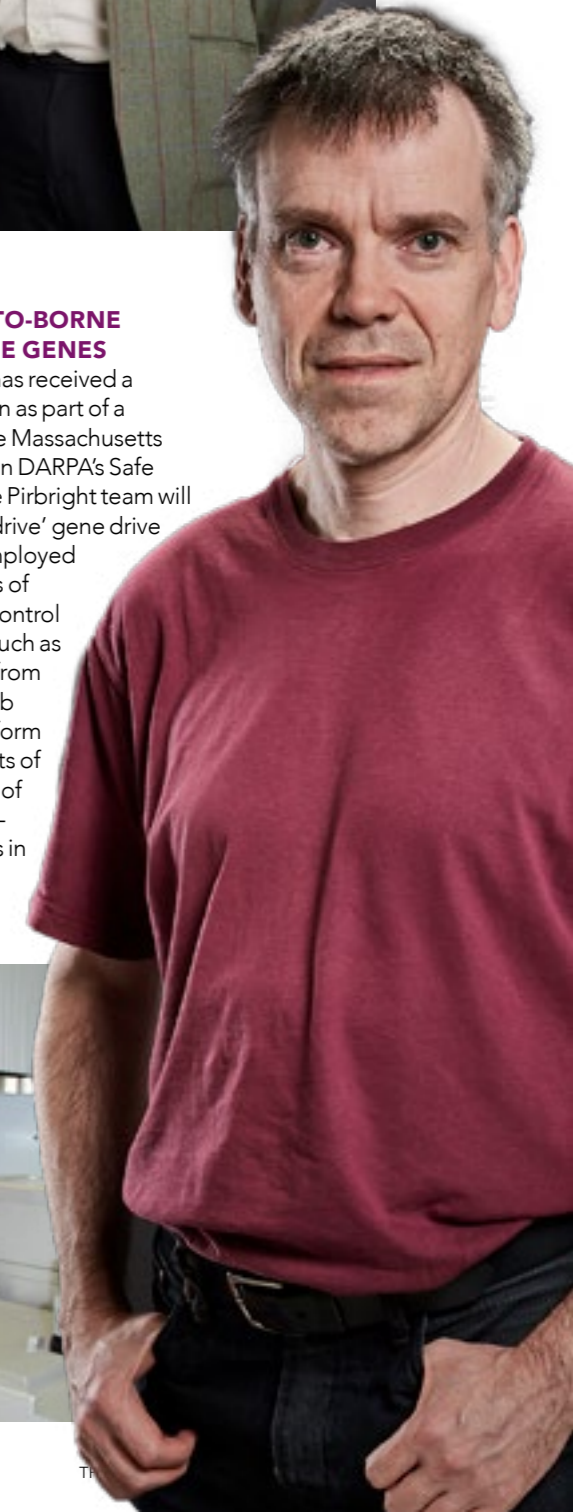
CAPACITY FOR DNA SEQUENCING BOOSTED

Pirbright's high containment DNA sequencing capacity has received a £550,000 boost from BBSRC to add two more high-throughput sequencers that will enable scientists to perform host and virus gene expression studies during natural infections and analyse how viruses evolve during an infection.



FIGHTING MOSQUITO-BORNE DISEASES WITH SAFE GENES

Professor Luke Alphey has received a subaward of \$2.66million as part of a research team led by the Massachusetts Institute of Technology in DARPA's Safe Genes programme. The Pirbright team will investigate how 'daisy-drive' gene drive techniques could be employed to suppress populations of mosquitoes in a bid to control vector-borne diseases such as Zika and dengue. Data from research in controlled lab populations will then inform detailed risk assessments of any potential future use of 'daisy-drive' genetically-engineered mosquitoes in the environment.



SCIENCE IN SOCIETY



BEIS MARKET PLACE

Pirbright scientists represented BBSRC at the Department for Business, Energy and Industrial Strategy (BEIS) Market Place. The Market was hosted as an opportunity for key BEIS staff to engage with researchers and to understand the importance of their work both in the UK and globally.

SUPPORTING PIRBRIGHT'S LOCAL COMMUNITY

Pirbright takes engagement with its local community and corporate social responsibility seriously. We sponsored local events, attended the Pirbright Community Games and informed local residents about the latest developments on the Pirbright campus at Parish Council Meetings. Volunteers also continue to maintain the Fox Corner Wildlife Area, a conservation hot spot that is valued by the surrounding neighbourhood.



SHOWCASING DIAMOND COLLABORATION

Our scientists visited the Diamond Light Source open day in July 2017 to show members of the public how they collaborate with Diamond Light. Using the Diamond facilities, our researchers were able to visualise the foot-and-mouth disease (FMD) virus outer shell, assisting the development of FMD vaccines.

ASK ME ANYTHING

Online engagement has become a standard platform which our scientists now use to communicate their research. Dr Anthony Wilson, an AAAS Leshner Fellow, took part in an 'Ask Me Anything' forum, where users could ask him anything about his work at Pirbright on infectious diseases that are carried by organisms such as mosquitoes and ticks.



Image © American Association for the Advancement of Science (AAAS)



INNOVATIVE 'BUG BUSTING'

This year's Innovate Guildford Science Festival saw Pirbright's first outing of 'Bug Busters', a new Lego® interactive model demonstrating how our scientists are using CRISPR/Cas9 gene editing to modify mosquitoes. Professor Luke Alphey then gave a public masterclass on how these mosquitoes can be used to control wild populations and prevent them from spreading deadly diseases.



Image © David Hartley

LEAF OPEN FARM SUNDAY

On LEAF Open Farm Sunday, farms across the country open their doors to the public to show them what it means to be a farmer and for the public to see firsthand how their food is produced. Our Named Veterinary Surgeon, Dr Ryan Waters, went to the Waitrose Dairy Farm to explain the role Pirbright plays in protecting the dairy herd from diseases, as well as other farm animals across the globe.

WORKING WITH INDUSTRY



REDUCING ANIMAL RESEARCH

The National Centre for the Replacement Refinement and Reduction of Animals in Research (NC3Rs) has funded Pirbright research which will progress techniques for investigating poultry viral diseases without the need to infect live birds. New methods for studying chicken immune cells in the lab will be developed, thereby improving the tools for understanding economically important poultry infections whilst reducing the number of birds required for research.



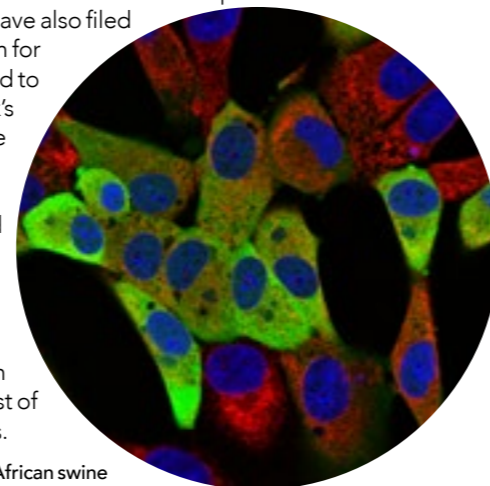
NEW FOOT-AND-MOUTH DISEASE VACCINE PATENT

Europe and Korea have joined the USA and China, among others, in granting the patent to Pirbright's virus like particle (VLP) vaccine for foot-and-mouth disease. The vaccine has been engineered to remain intact throughout manufacture, storage and transport, and is able to be produced in low containment laboratories as the VLP contains no genetic material.

Foot-and-mouth disease virus

PATENTS TO PROTECT AGAINST AFRICAN SWINE FEVER AND MAREK'S DISEASE

Pirbright has filed a patent application for a vaccine against African swine fever, a deadly pig virus which has spread rapidly across Europe and to which there is currently no vaccine. Developed jointly with Arizona State University, the vaccine uses a modified vaccinia virus to deliver proteins that will generate an immune response in pigs. Researchers have also filed a patent application for their technique used to engineer the Marek's disease virus vaccine to protect against infectious bursal disease. The method could be used to protect against multiple avian diseases in a single administration, which could reduce the cost of poultry vaccinations.

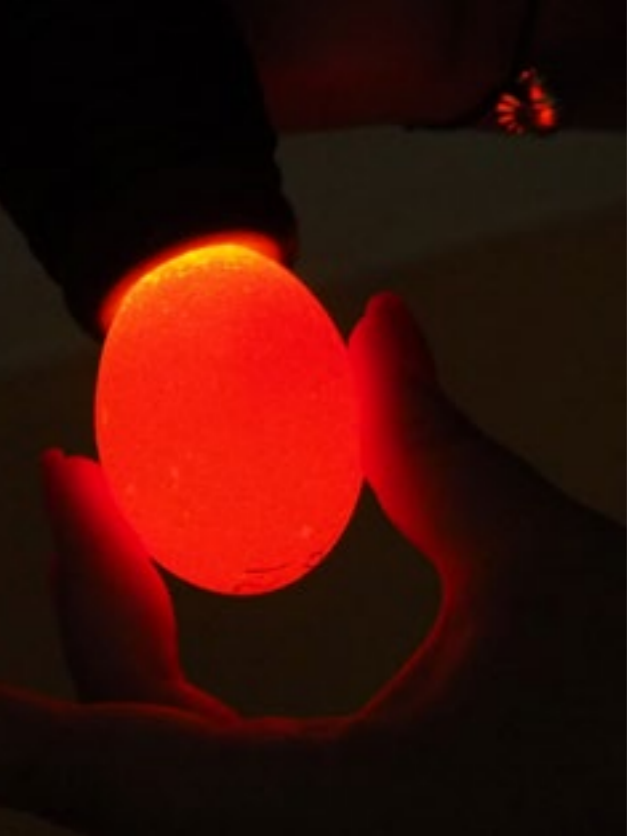


African swine fever infected cells



CHICKS TO BE VACCINATED AGAINST RESPIRATORY DISEASE IN THE EGG

BBSRC and Zoetis have jointly provided nearly £1.4 million for research on avian respiratory disease which is caused by infectious bronchitis virus (IBV). The research will involve testing three novel strains of vaccine for safety, stability and effectiveness. These vaccines have the potential to be administered to chicks while they are still in the egg, meaning that each chick will receive the correct dose and be protected against IBV before hatching. The research will also aim to determine if it is possible to protect chicks against two strains of IBV with a single vaccine dose prior to hatching.



WHICH INSECTS ARE CULPRITS IN SPREADING LUMPY SKIN DISEASE?

BBSRC and MSD Animal Health has funded Pirbright nearly half a million pounds through a BBSRC Industrial Partnership Award to investigate the most likely vector group responsible for transmission of lumpy skin disease virus (LSDV). The disease affects cattle and is endemic in Africa and the Middle East where it produces significant economic loss and acts as a barrier to trade, but since 2012 has spread into Turkey, Europe, the Caucasus and Russia. Understanding how the virus is spread will allow scientists to take on the second objective of the grant and assess the risk posed by LSDV and the potential impact of different control measures.



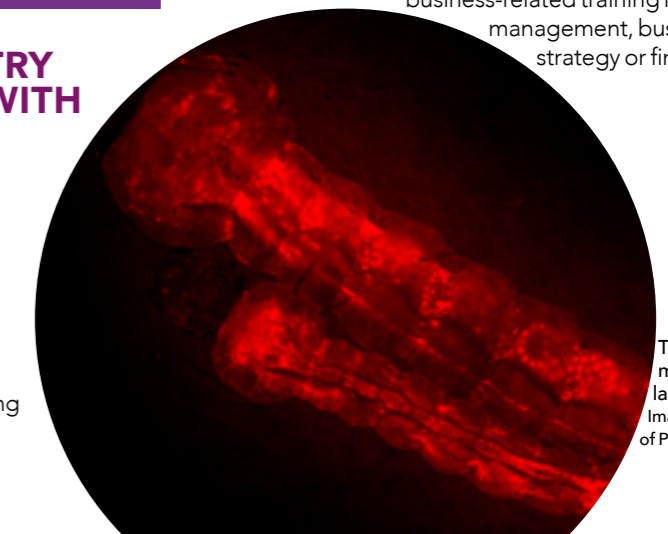
PIRBRIGHT SPEARHEADS INDUSTRY GUIDANCE ON SAFE WORKING WITH GM INSECTS

The first industry guidance on working safely with arthropods and genetically modified (GM) insects was officially launched at Pirbright in April 2017. Pirbright scientists and biosafety advisors worked with Institute of Safety in Technology and Research (ISTR), the Health and Safety Executive (HSE) and the Advisory Committee on Dangerous Pathogens (ACDP) to create the new publication, which advises on minimum requirements and provides best practice for work with arthropods infected with human or animal pathogens including genetically modified (GM) vectors or pathogens.



SUPPORTING STUDENTS IN SCIENCE AND ENGINEERING

Pirbright has collaborated with multiple industrial partners such as Zoetis, Meril and charities such as the Bill and Melinda Gates Foundation to provide PhD studentships through the BBSRC Collaborative Awards in Science and Engineering programme. The programme enables students to gain experience of an industrial research environment in addition to business-related training in project management, business strategy or finance.



Transgenic mosquito larvae. Image courtesy of Priscilla Tng

AWARDS AND ACHIEVEMENTS



Dr Pip Beard has been awarded the *Journal of Comparative Pathology* Veterinary Pathologist Medal for 2018 which included an invite to speak at the plenary lecture in September 2018.



Global expert on foot-and-mouth disease and Director of Pirbright, **Dr Bryan Charleston**, has been selected to sit on the Research Excellence Framework 2021 sub panel to oversee Agriculture, Veterinary and Food Science.



Dr Pippa Hawes, Pirbright's Head of Bioimaging has recently been appointed Visiting Professor for the Faculty of Health and Medical Sciences (SUND), University of Copenhagen, due to her experience and knowledge in the field of electron microscopy, particularly within a high containment environment.



Pirbright has jointly won the Public Engagement category at the fourth annual Understanding Animal Research (UAR) Openness Awards for its contribution to the 360° Laboratory Animal Tours project. The project involved the creation of a walkthrough video to reveal life inside the high containment animal laboratories and featured interviews with scientists and animal technicians.



Animal Technician, **Louise Carder**, has won the Steve Moore Memorial Poster Prize for a poster on 'Target training pigs within an Isolation Unit (pilot study)'. The prize was a trip to the National Meeting of the American Association for Laboratory Animal Science in Texas.



Dr Munir Iqbal, leader of the Avian Influenza Virus group, has been awarded an Honorary Professorship by the Royal Veterinary College. The award will enable both organisations to increase collaboration with South Asia network for work on poultry diseases.

The BBSRC National Vaccinology Centre:

The Jenner Building won a prestigious Guildford Design Award in the New Build category and impressed the judges with its contemporary functional design coupled with strong sustainability credentials. The £17 million building is home to over 100 scientists delivering world-leading research through energy efficient facilities including photovoltaic panels and thermal mass heating that secured the building a BREEAM 'excellent' rating. Designed by architects NBBJ and constructed by John Sisk & Son's, the new laboratory is surrounded by bio-diverse landscaped gardens including a wildlife meadow that was awarded to the Institute as a result of winning the CIRIA biodiversity BIG Challenge Awards in 2017.



Photography by Richard Chivers

GLOBAL PARTNERS



VACCINES TO COMBAT ARBOVIRUSES

Pirbright is proud of its many collaborations with scientists world-wide. This year we welcomed Dr James Nyagwange who is a joint fellow between Pirbright and KEMRI-Wellcome Trust, Kenya. He is studying the cattle antibody response to novel vaccines against arboviruses, aiming to help design and select the most effective vaccines.

FUNDING TO DEVELOP NIPAH VACCINE

A £2.36 million grant has been awarded by Innovate UK to Dr Simon Graham to lead an international team developing an inexpensive, safe and effective vaccine to protect pigs against Nipah virus (NiV). NiV is usually found in Old World fruit bats, but infection in pigs increases the ability for the virus to transmit to humans and cause severe,

often fatal, neurological disease. The grant will allow scientists from Pirbright and partners in the UK, Australia, Malaysia and India to develop a prototype vaccine that will aid the control of NiV outbreaks. As well as minimising impact on the pig industry, the successful candidate will prevent virus transmission and therefore lower the risk to public health.

GLOBAL DRIVE TO WIPE OUT AFRICAN SWINE FEVER AND LUMPY SKIN DISEASE

Dr Pip Beard has been awarded a five year European Union Horizon 2020 grant named DEFEND to target two viral diseases of livestock which are emerging into Europe and pose a serious threat to the pig and cattle industries. African swine fever (ASF) is a highly contagious disease of pigs which causes a haemorrhagic syndrome with up to 100% fatality. Lumpy skin disease (LSD) is a disease of cattle caused by a poxvirus that spreads rapidly in warm humid conditions, most likely due to insect-borne transmission. DEFEND will involve 31 partners in academia, government and industry from countries across Europe as well as Russia, Canada, South Africa and Australia.

RINDERPEST PROGRAMME OF SEQUENCING AND DESTRUCTION

Rinderpest (RP) is a highly contagious viral disease that primarily affects large cloven hooved animals, especially cattle and buffalo. In 2011 the World Organisation for Animal Health (OIE) formally declared the disease to be eradicated, in which Pirbright played a key role. We are now one of five Rinderpest Holding Facilities globally, approved by the Food and Agriculture Organization (FAO)/OIE for safe storage of material containing rinderpest virus. Dr Carrie Batten, Group Leader of the Non-Vesicular Disease Reference Laboratory at Pirbright, has been nominated as Secretariat for the Rinderpest Holding Facility Network and is leading a project along with Dr Michael Baron to sequence and destroy stocks of the virus around the world to prevent its accidental or deliberate release.



Pirbright was involved in 203 collaborations in 50 countries during 2017-18

Map showing number of Pirbright global collaborations



CHAMPIONING COLLABORATION



Fighting avian diseases together
Pirbright's Professor Venugopal Nair has co-founded a network, the UK-China CERAD, as a result of the Institute's highly successful collaboration with researchers at Shandong Binzhou Animal Science & Veterinary Medicine Academy and other academic institutions in China. Newton Fund and BBSRC funded a five-year grant to establish the virtual centre for state of the art research and training for UK and Chinese scientists to work more closely in the global fight against poultry disease.



Overcoming the challenge of vector research
Led by Pirbright's Dr Simon Carpenter, the Gnatwork is a Global Challenges Research Fund (GCRF) funded network, aiming to create and maintain a community of researchers based on shared technical difficulties across biting midges, sandflies and blackflies. Through funding of small-scale studies and hosting of annual training workshops, its aim is to create a more resilient research base for these three neglected vector groups.



Pooling expertise to fight disease
Pirbright joined with The Roslin Institute to launch an International Veterinary Vaccinology Network (IVVN) following their successful £2.1m joint funding bid. Grant-funded by the Medical Research Council and the BBSRC, the new international network will aim to facilitate interaction and collaboration between a range of partners across science and industry in the UK and globally.

THE BBSRC NATIONAL VACCINOLOGY CENTRE: THE JENNER BUILDING IS RECOGNISED FOR ITS ENERGY EFFICIENCY WITH A BREEAM 'EXCELLENT' RATING



CAMPUS DEVELOPMENT



HOUGHTON BUILDING
Investment in new buildings continued throughout the year. The Specific Pathogen Free poultry facility, The Houghton Building will be completed by the end of 2018 and provide the ability to hatch and rear disease-free poultry.

BROOKSBY BUILDING

Design work began, and a contractor was appointed, for The John Brooksby Building, a high containment large animal facility, for experimental work on livestock (cattle, pigs, sheep, goats and poultry work in isolators). Works are scheduled to start in early 2019 and expected to be completed by early 2021.



BIGGS BUILDING

Construction of a new low containment poultry experimental facility, The Peter Biggs Building, will commence in late 2018 and is expected to be completed and operational by 2020.

During late 2017 and early 2018, phase one of the decommissioning and demolition of old facilities was completed. This frees up land for future development on the Pirbright site.



Photography by Richard Chivers

BUILDING OUR EXPERTISE

The Institute continues to attract world-class researchers in viral diseases of livestock and highly specialised operational experts to support our highly regulated science.

DEVELOPING OUR CULTURE AND WORKFORCE

In delivering excellence across our science and research, we continue to provide our people with the best support and opportunities available, whether that is through training and development, career progression, wellbeing or performance management.

We have introduced further flexibility around working practices alongside improvements to standardised recruitment policies, recruitment channels and people processes. Senior leadership commitment to our People and Culture Strategy and Leadership Programme has further enhanced the opportunities for training and development in areas of leadership and line management, all focused on attracting and retaining the best people.

The Institute is continuously changing, physically through the creation of new facilities and alongside the enhancements and improvements to working practices, compliance and the addition of ideas and innovation brought about by new people joining. We endeavour to build on our commitment to how we reward and recognise our people, setting out our Remuneration and Recognition strategy to the Trustee Board in early 2018.

Diversity and inclusion are key elements of our people agenda and remain integral in ensuring that everyone has access to the same opportunities and the same, fair treatment.

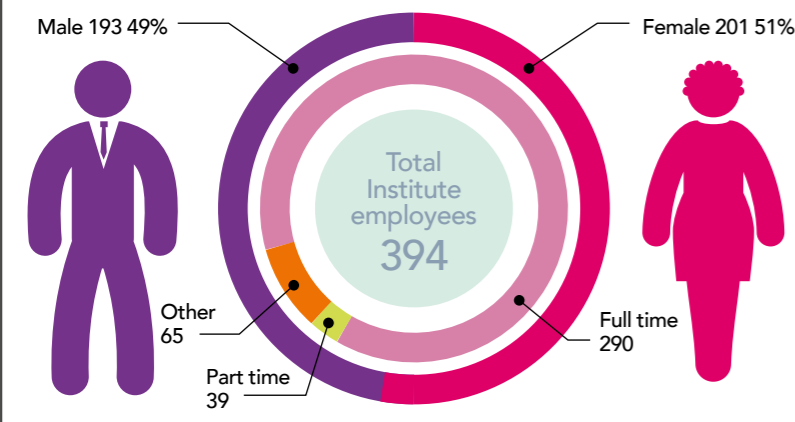
HOW DIVERSE IS OUR WORKFORCE?

We are transparent about our progress towards becoming a fully diverse and inclusive organisation. We were one of the first organisations to submit our gender pay gap report in August 2017 and we are currently taking forward the actions arising from our recent Athena SWAN success and Employers Network for Equality and Inclusion (ENEI) review.

BUT THERE IS STILL MORE WE CAN DO...

We want to lead by example as a social mobility employer – to be recognised as an inclusive organisation where people from all backgrounds are able to work, develop and succeed and we want to use our skills and resources to enable people from disadvantaged backgrounds to make the most of their potential, whether at the Institute or elsewhere.

GENDER BREAKDOWN



DALAN BAILEY

Cross-cutting research on viral glycoproteins is the focus of Dr Dalan Bailey's new research group at Pirbright. Dalan's research covers a broad range of areas from vaccine development and testing to fundamental molecular virology and innate immunology. He is particularly interested in comparative research on animal and human viruses – combining projects to deliver impact across the One Health spectrum. Dalan is also passionate about driving policy development in this area and is actively involved in advising agencies such as the OIE, FAO and WHO on relevant control strategies.



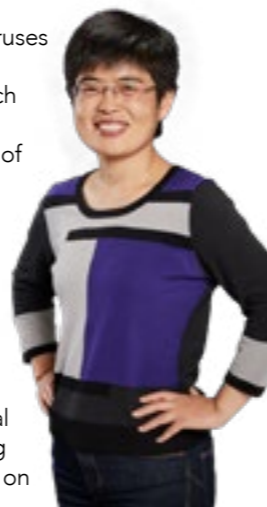
FIONA SIRKETT

With extensive experience in a variety of HR roles in the private and not-for-profit sectors, Fiona Sirkett, Senior Strategic HR Business Partner/Deputy Head of HR, joined the Institute in December 2017. Her personal aim is to work closely with colleagues across all areas of the organisation to help them meet their aspirations on both a personal and professional level.



YONGXIU YAO

Yongxiu's major interest is in the interactions between oncogenic viruses and their host, particularly focusing on the role of non-coding RNAs such as miRNAs in viral oncogenesis to unravel the molecular mechanisms of induction of tumours by oncogenic viruses. Yongxiu's recent research has focused on the application of CRISPR/Cas9 genome editing of avian herpesviruses for studying viral pathogenesis and developing recombinant vaccines. As the deputy head of Avian Oncogenic Viruses group, she is leading several projects using CRISPR/Cas9 editing tools to ask fundamental questions on host-virus interactions.



FUTURE PLANS

OBJECTIVES FOR THE FIVE YEAR PERIOD FROM 2018/19

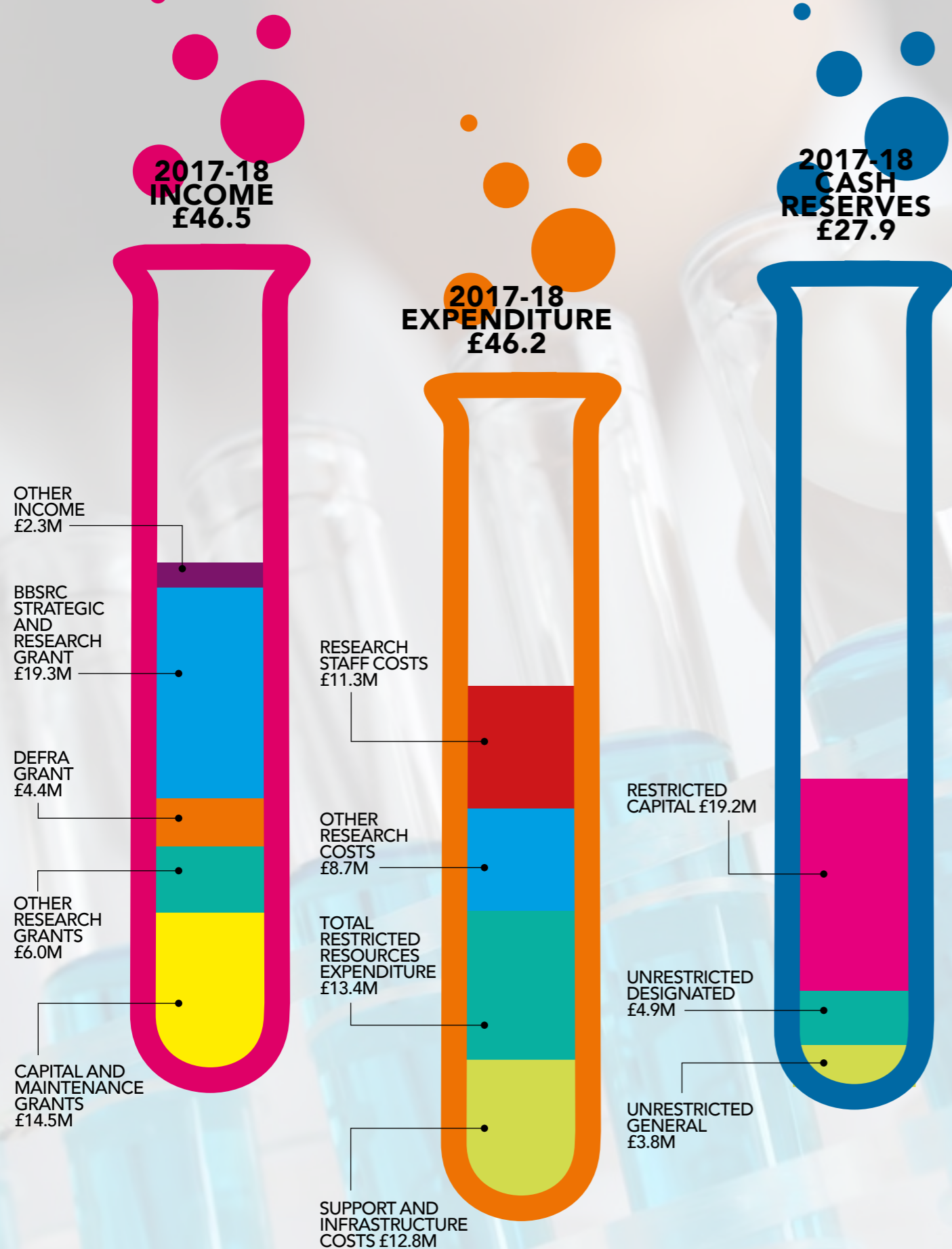
Pirbright's principal objectives are as follows:

- 1** To continue a world-leading research programme by publishing ground-breaking scientific research, winning research funding and recruiting and retaining the brightest and the best staff and students.
- 2** To further develop the Pirbright long term vision of scientific research with impact, in particular enhancing our collaborations with agencies improving disease control in low and middle-income countries.
- 3** To continue to implement the fully funded development programme to provide additional animal research facilities to study high consequence pathogens. These facilities will further enhance the Institute as a unique National and International Capability.
- 4** To develop strong strategic collaborations with other global centres of excellence to support the new Institute science programme grants.
- 5** To diversify our funding through greater collaboration with international partners via various new funding opportunities.
- 6** To provide training and expertise to external partners in commissioning and maintaining high containment facilities, health and safety, biosafety and biosecurity and quality assurance.

PIRBRIGHT'S KEY PERFORMANCE INDICATORS ARE:

- Publications in relevant scientific journals; being one paper per post-doctoral scientist per year
- Submission levels and success rates for research grant proposals; going from 25% to 30% over the next five years
- Recruitment and retention of high quality staff and students; to achieve a 85% and 90% retention for senior and other staff respectively within five years
- Annual research income of £11m externally won
- funding each year over the next five years
- Compliance with regulatory authorities. Maintaining accreditation to appropriate quality standards such as ISO/IEC 17025

FINANCIAL CHARTS



FINANCIAL REVIEW

INCOME

Total incoming resources, amounted to £46.5m (2017: £34.5m). Investment in tangible fixed assets in the year totalled £12.9m (2017: £4.7m). This was substantially funded by grants from the Institute's principal sponsor Biotechnology and Biological Sciences Research Council (BBSRC) which is now part of United Kingdom Research and Innovation (UKRI) plus from Defra and other grant awarding bodies. The change relates to both a rise in capital funding (£9.2m) and non-capital income being £32.1m in 2018 compared to £29.4m (2017).

EXPENDITURE

Expenditure for the year amounted to £46.2m (2017: £41.1m). This rise relates to the increased capital activity supporting the ongoing development of the Pirbright site. Staff costs accounted for £16.2m (35%) (2017: £15.9m; 39%) of expenditure. The slight rise in staff costs from 2017 relates to increase in science activity and the pay award for the year.

CASH

Cash at March 2018 was £27.9m (2017: £25.3m). Pirbright deposits its cash with UK registered financial institutions. Investment income from cash deposits in the year was £169k (2017: £165k).

GRANT PROPOSALS

During the year, Pirbright researchers submitted grant proposals with a sponsor value of £67.5m (2017: £45m) and were awarded grants with a value of £20.5m (2016/17: £13m).

GOING CONCERN

The Trustees have reviewed whether it is appropriate for the financial statements to be prepared on a going concern basis. The Institute has received its five-year strategic grant funding from BBSRC (now part of UKRI), £15m per annum, which was started on the 5 April 2017 and runs to March 2020 with a further provisional award for the subsequent two years to March 2022. This source of confirmed funding, the consistent performance of attracting income from other funding bodies, the successful

occupation of new laboratory facilities and the development of a business plan that is built on an income stream that is very likely to be achievable, provides a high degree of confidence of future financial security. The Trustees are not expecting any change to the Core Capability Grant (CCG) now that BBSRC has merged in to UKRI.

Having considered the risks in respect of future funding, financial forecasts for the period to March 2020 and the level of reserves, the Trustees have concluded that it remains appropriate to prepare the financial statements on a going concern basis.

NET MOVEMENT IN RESERVES

The Pirbright Institute recorded a net decrease in unrestricted reserves of £1.1m. The reason for the movement being the better operating performance offset by a need to increase the provision for debt which is now in dispute resulting in a decrease of £0.3m in general reserves. This has been further impacted by the undesignated reserve of £0.8m, which was utilised to support the continued Pirbright site development.

Due to the phasing of the Pirbright Development Programme, the restricted reserves increased by £1.2m. Capital expenditure in the year was £12.9m (2017: £4.7m). There has been an ongoing major development in the Pirbright site which has resulted in building new laboratory facilities and providing additional state of the art science equipment.

RESERVES POSITION

Total Institute reserves increased by £0.2m in the year to £279.1m (2017: £6.6m reduction to £278.9m). Restricted reserves increased by £1.2m to £270.7m, of which £270m relates to a capital reserve in connection with funding received from BBSRC. Unrestricted reserves decreased by £1.1m in the year to £8.3m (2017: £9.4m), of which £4.5m relates to a designated reserve to support ongoing non-operational activity and £3.8m to general reserves.

RESERVES POLICY

Unrestricted funds

It is the policy of the Trustees to ensure the General Fund in the Unrestricted Reserves reaches £4.5m by the end of the current business plan cycle being 2021/22 to enable the Institute to manage fluctuations in income and unforeseen cost pressures. At 31 March 2018 unrestricted general funds showed a surplus of £3.8m (2017: surplus of £4.1m). In the event of Unrestricted General Reserves being below £4.5m during this period it is the Institute's policy to ensure a future operating surplus is generated to restore Unrestricted General Reserves back to a level in line with this policy by reducing costs, via efficiency savings and enhancing grant income. In addition, the level of funding expected to be provided by BBSRC (now part of UKRI) for the next five-year funding cycle is considered by the Trustees to be sufficient to ensure the Institute has the ability to manage any such fluctuations or pressures. The redevelopment of the site will also provide the world class facilities required to ensure the Institute is best placed to succeed in future grant submissions.

Designated funds

The unrestricted designated fund as set out in note 15 comprises of sums set aside for specific purposes as decided by the Trustees to support ongoing non-operational activity and the continued development of the Pirbright site in support of the construction programme.

Restricted non-endowment funds

The Institute has been undertaking a significant building programme within the Pirbright site for which funding has been received from BBSRC. The funding of this programme is via grants which are held within the restricted funds and comes to a total of £262.2m. This funding is solely and specifically granted for the purpose of the building programme hence the inclusion within the restricted fund and mostly this represents the value of the buildings which have been constructed.

RISK MANAGEMENT

Pirbright's risk management system is broadly aligned to ISO 31000 and HM Treasury Orange Book. A Risk Policy is in place incorporating the High Reliability Organisation model and Human Factors Management into a risk management framework. A risk assessment process identifies and analyses operational, continuity and strategic risks, and delineates and monitors treatment of those risks. A range of insurance policies are in

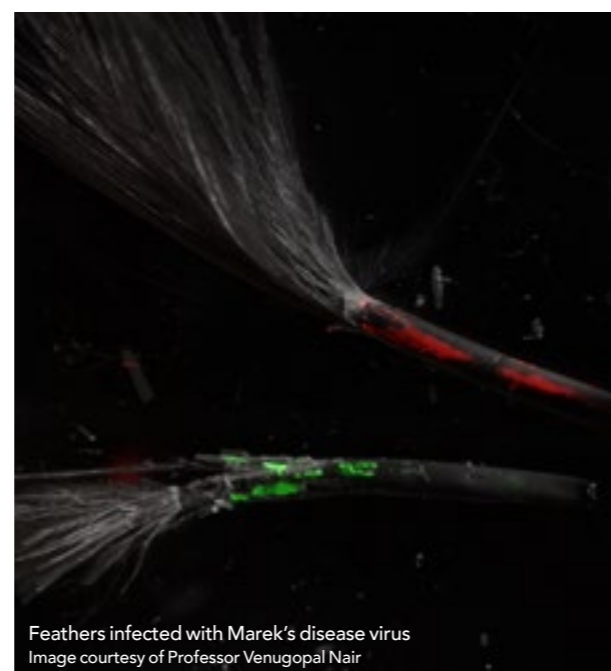
place. A risk register is maintained in conjunction with risk owners, supplemented by satellite risk registers in each business area. An internal audit programme provides stakeholders with objective evidence of conformity to systems and effective management of risk. A training programme supports all of this. A Risk & Assurance Directorate provides specialist practitioners to develop and support the risk management

system and processes. Senior Leadership Team take oversight of risk management by regular review of the risk register, relevant leading and lagging metrics, and outcomes of audits and investigations. Trustee Board have established a Risk and Assurance Committee to take similar oversight on their behalf.

Key risks are summarised in the table opposite:



African horse sickness virus
Image courtesy of Dr Javier Castillo-Olivares



Feathers infected with Marek's disease virus
Image courtesy of Professor Venugopal Nair



Nipah virus
Image courtesy of Cynthia Goldsmith



Transgenic mosquito larva glows blue (right) alongside an unmodified larva.
Image courtesy Ilona Flis.

RISK	CONTEXT	CONTROL / MITIGATION
BIOSAFETY (UNINTENTIONAL RELEASE OF OR EXPOSURE TO HIGH CONSEQUENCE PATHOGEN)	Pirbright is classified by the Health & Safety Executive (HSE) as a Major Hazard Site, because release of the high consequence viral pathogens of livestock animals that the Institute works with (such as foot-and-mouth disease virus) could cause a serious disease outbreak, leading to destruction of many animals, extensive national disruption and severe economic loss. Some of the pathogens are also zoonotic, i.e. can infect humans and cause serious illness.	Physical, operational and management measures for biological containment in compliance with relevant UK legislation (Specified Animal Pathogens Order 2008, Control of Substances Hazardous to Health Regulations 2002, Genetically Modified Organisms (Contained Use) Regulations 2014) and associated Approved Codes of Practice and guidance, HSE Major Hazard Intervention Plan, and a staff cohort of competent biorisk advisers.
BIOSECURITY (DELIBERATE RELEASE OF HIGH CONSEQUENCE PATHOGEN)		Physical, operational and management measures for security in conformity with requirements of the UK National Counter Terrorism Security Office, oversight by regional Counter Terrorism Security Adviser, background screening of new starters.
QUALITY	As well as being a leading research institute, Pirbright provides diagnostic reference laboratories for a range of pathogens for the UN Food & Agriculture Organisation (FAO) and the World Organisation for Animal Health (OIE), and is funded by HMG as a National Capability to provide diagnostic capacity in the event of disease outbreaks. Quality of Pirbright's scientific output is therefore critical, and FAO, OIE and HMG require the reference laboratories to be accredited to the ISO/IEC 17025 laboratory quality standard.	Accreditation of reference laboratories to ISO/IEC 17025 by the UK Accreditation Service, development and implementation of a quality management system across the Institute, internal audit, alignment to ISO 9001 in key operational areas.
ANIMAL WELFARE	Research with animals is an integral part of the research programmes at Pirbright, and is carried out to UK standards of ethics and animal welfare, which are the most stringent in the world, and this is a critical reputational risk.	Physical, operational and management measures for animal welfare in compliance with relevant UK legislation (Animal Scientific Procedures Act 1986) and associated Approved Codes of Practice and guidance, oversight by UK Home Office, application of 3Rs (Replace, Refine, Reduce) and ARRIVE guidance (Animal Research: Reporting In Vivo Experiments).
CYBERSECURITY		Technical measures for cybersecurity in conformity with requirements of HMG Cyber Essentials, certification to HMG Cyber Essentials Plus by an accredited body, deployment of backup servers.
CONTINUITY	Pirbright also faces the cybersecurity, continuity, people and financial risks that most organisations must manage, and the potential consequences of these are amplified because of possible effect on biological and quality risks, eg, a power failure could cause biological containment plant to fail, difficulty with recruitment could lead to an inadequate staff skill base, insufficient budget for planned preventative maintenance could lead to lower reliability of biological containment plant or scientific equipment, etc.	Major Incident Plan, Business Continuity Planning in alignment with ISO 22301, backups and contingencies for critical services and supplies, contingency plans for the reference laboratories for disease outbreaks, all plans regularly tested by exercises.
PEOPLE		Talent management framework, recruitment and retention and responsibility allowances, training and development programme, career pathways, performance and personal development reviews.
FINANCIAL		Rigorous systems for financial control, risk management, and quality management, processes and support to facilitate preparation and submission of competitive funding applications, business development programme, fraud policy.
BREXIT	BREXIT is a significant risk as EU funding of the reference laboratories will end, EU sources of research funding may no longer be available, collaborations with EU partners may be jeopardised, EU nationals on staff may leave, and the UK economic situation may be adversely affected.	Factored into business planning through planned increases in income from competitive funding sources, provision of support for staff who are EU nationals, and political and strategic mitigation.
INFLATION	Inflation is another significant risk as core funding 2017-2022 does not include an allowance for inflation.	Factored into business planning through planned increases in income from competitive funding sources and savings from improved procurement.

STRUCTURE, GOVERNANCE AND MANAGEMENT

MEMBERS

Members of the Institute are as follows:

Chair of the Trustee Board (ex officio)
Chair of the Science Advisory Board (ex officio)
UKRI formally known as RCUK
The National Farmers' Union
The Royal College of Veterinary Surgeons

ORGANISATION AND GOVERNANCE

The Pirbright Institute is a company limited by guarantee and a registered charity. The Annual Report provides information for legal purposes of the charity, its business activities and its main achievements. The financial statements have been prepared in accordance with the Charities Act 2011, the Companies Act 2006, the Memorandum and Articles of Association and Accounting and Reporting by Charities: Statement of the Recommended Practice applicable to charities preparing their accounts in accordance with Financial Reporting Standards applicable to the UK and Republic of Ireland (FRS102), effective 1 January 2015.

THE BOARD OF TRUSTEES AND ITS INTERESTS

The directors of the Trustee Board during the year were:

Professor Quintin McKellar – Chair
Dr Theo Kanellos
Mr Roger Louth
Dr Vanessa Mayatt OBE
Sir Bertie Ross
Professor David Rowlands
Mr Mike Samuel
Professor John Stephenson

The Trustee Board has established three committees to support it in its work: the Finance and Audit Committee, the Risk and Assurance Committee and the Nomination and Governance Committee. The Board and its committee structure work closely with the Director and senior management of the Institute and are responsible for corporate governance

and for the Institute's scientific strategy and strategic plans.

The Institute's science is organised into two strategic Science Programmes. Each Science Programme is managed by a Head of Programme who reports to the Director. The Trustee Board have appointed a Scientific Advisory Board, to provide advice and recommendations to the Trustee Board and the Director regarding the scientific strategy and activities of the Institute.

TRUSTEES' INDEMNITY INSURANCE

The Institute maintains liability insurance for its Trustee Board, with an annual aggregate cover limit for all claims against them in that capacity. The Trustees have also been granted a qualifying third party provision under section 233 of Companies Act 2006. Neither the Institute's indemnity nor insurance provides cover in the event that a Trustee Director is proved to have acted fraudulently or dishonestly. The premium and related costs in respect of this policy were £8,288 (2017: £8,140). The Trustees are satisfied they have complied with their duty in section 4 of the Charities Act 2011 to have due regard to public benefit guidance published by the Charities Commission. Based on this guidance, and as described in the Trustees' report, the Trustees believe the activities of The Pirbright Institute to be charitable in nature.

TRAINING OF TRUSTEES

The Institute continually reviews its practices for induction and Trustee training. Trustees are encouraged to attend appropriate external training events where these will facilitate the undertaking of their role.

SENIOR LEADERSHIP TEAM

The Trustee Board consider that the Senior Leadership Team is accountable for Institute strategy, risk mitigation and governance of day-to-day operational delivery, comprising the Institute Director and the Directorate heads; namely Director of Risk and Assurance, Director of

Capability and Head of Finance and Company Secretary.

The remuneration and benefits of the Senior Leadership Team is based on the agreed and recognised salary banding for the Institute and reviewed and agreed annually via the Senior Remuneration Committee, comprising of the Chair Trustee Board, Institute Director and Head of HR and Corporate Development. The Senior Remuneration Committee operates independently on issues relating to senior managers salaries and benefits and is responsible for considering and recommending the remuneration package for the SLT and senior management members. In fulfilling these responsibilities, the Senior Remuneration Committee will seek relevant and appropriate information to support its activities and also obtain necessary external independent professional advice as necessary.

APPROACH TO EQUALITY, DIVERSITY AND INCLUSION (EDI)

The Institute is committed in ensuring that everyone has access to the same opportunities and the same fair treatment. It discharges all appropriate governance and accountability for EDI through the Equality, Diversity and Inclusion Steering Group, chaired by the Head of HR and Corporate Development and endorsed by the Institute Director and Senior Leadership Team. The Institute has further committed to the Athena SWAN charter principles and achieved bronze status in 2017. The Institute continues to introduce flexible policies, processes and working practices covering Recruitment, Dignity at Work and Equality, Diversity and Inclusion, ensuring that every employee is able to give their best, unlock their potential and feel engaged with the Institute, and are openly able to celebrate their differences, experiences and backgrounds.

Institute and management decisions are transparent, based on merit and equality of opportunity. Discrimination of any type is identified

as abhorrent and not tolerated at the Institute.

TRADES UNION RECOGNITION

The Institute recognises collective bargaining arrangements of all appropriate trade unions representing BBSRC staff employed at its laboratories. National collective bargaining arrangements are not recognised for the workforce employed under The Pirbright Institute terms and conditions.

The Trades Unions recognised for collective bargaining are Prospect and PCS (Public and Commercial Services).

The Institute arranges joint consultation forums including an Institute Negotiating and Consultative Committee (INCC) and the Institute Change Committee (ICC). Where feasible, membership is drawn equally from the management and trade union representative community. This provides the necessary machinery for dealing with the local and national consultation and negotiation of

the terms and conditions of service previously agreed by the BBSRC Joint Negotiating and Consultative Committee (JNCC) and now directly accountable through The Pirbright Institute.

RELATED PARTIES

The Institute's subsidiary undertaking, Avrico Limited, last traded in 2003 and is currently dormant. Avrico Limited was formed as part of the Institute's role in the 2001 UK foot-and-mouth disease outbreak and provided diagnostic and testing services to Defra.

The Institute also has investments in two associate undertakings. Genecom Limited was incorporated in July 2004 as a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund and is a new business development vehicle. The primary aim of the company is to build capacity to develop more effective

commercial exploitation platforms for the members' technologies, share experience and expertise. The Institute has equal membership in this company with The Roslin Institute and the Moredun Research Institute. The Company has now disbursed all of its remaining grants and has ceased to be a Company during 2017.

Genomia Management Limited was formed on 16 April 2004 and is also a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund. The company manages the Genomia Fund the objective of which is to assist in the development of research output from the members into commercially realisable opportunities. The Institute has equal membership in this company with The Roslin Institute, Moredun Research Institute, The Rowett Institute and the Scottish Agricultural College.

TRUSTEES' RESPONSIBILITIES STATEMENT

The Trustees who are also Directors of the charitable company for the purposes of company law are responsible for preparing the Trustees' Report and financial statements incorporating the Strategic Report in accordance with applicable law and regulations. Company law requires the Trustees to prepare financial statements for each financial year. Under that law the Trustees have elected to prepare the financial statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards and applicable laws), including FRS102 (the Financial Reporting Standard applicable in the UK and Republic of Ireland). Under company law the Trustees must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the charitable company and the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period.

In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently;
- observe the methods and principles in the Charities SORP (FRS102);
- make judgments and accounting estimates that are reasonable and prudent;
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements;
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable company will continue in business.

The Trustees are responsible for keeping adequate accounting records that are sufficient to show and explain the charitable company's transactions and disclose with reasonable accuracy at any time the financial position of the company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps

for the prevention and detection of fraud and other irregularities.

The Trustees confirms that:

- so far as each Trustee Director is aware, there is no relevant audit information of which the charitable company's auditor is unaware; and
- the Trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

The Trustees are responsible for the maintenance and integrity of the corporate and financial information on the charitable company's website. Legislation in the United Kingdom governing the preparation and dissemination of the financial statements may differ from legislation in other jurisdictions.

It has been agreed by the Trustees to retender the appointment of auditors during 2018 with the appointment being in place for the following year's audit process starting in January 2019.

The Report of the Trustees incorporating the Strategic Report was approved and signed on behalf of the Trustee Board.

Professor Quintin McKellar CBE
Trustee Director

Approved by the Board of Trustees
on 25 July 2018

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE PIRBRIGHT INSTITUTE (LIMITED BY GUARANTEE)

OPINION

We have audited the financial statements of The Pirbright Institute for the year ended 31 March 2018 which comprise the Principal Accounting Policies, the Statement of Financial Activities, the Balance Sheet, the Statement of Cash Flows and the related notes. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102, The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:

- give a true and fair view of the state of the charitable company's affairs as at 31 March 2018 and of its incoming resources and application of resources including its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

BASIS FOR OPINION

We have been appointed as auditor under the Companies Act 2006 and report in accordance with regulations made under that Act. We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

WHO WE ARE REPORTING TO

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the charitable company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charitable company and the charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

CONCLUSIONS RELATING TO GOING CONCERN

We have nothing to report in respect of the following matters in relation to which the ISAs (UK) require us to report to you where:

- the Trustees' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the Trustees have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the charitable company's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

OTHER INFORMATION

The Trustees are responsible for the other information. The other information comprises the information included in the Trustees' Annual Report incorporating the strategic report (set out on pages 3 to 36) other than the financial statements and our auditor's report thereon. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. In connection with our audit of the financial statements, our responsibility is to read the other information and, in

doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

OPINION ON OTHER MATTERS PRESCRIBED BY THE COMPANIES ACT 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the Trustees' Annual Report incorporating the strategic report for the financial year for which the financial statements are prepared is consistent with the financial statements;
- the Trustees' Annual Report incorporating the strategic report has been prepared in accordance with applicable legal requirements.

MATTER ON WHICH WE ARE REQUIRED TO REPORT UNDER THE COMPANIES ACT 2006

In the light of the knowledge and understanding of the charitable company and its environment obtained in the course of the audit, we have not identified material misstatements in the Trustees' Annual Report incorporating the strategic report.

MATTERS ON WHICH WE ARE REQUIRED TO REPORT BY EXCEPTION

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept or returns adequate

PRINCIPAL ACCOUNTING POLICIES

- for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
 - certain disclosures of Trustee Directors' remuneration specified by law are not made; or
 - we have not received all the information and explanations we require for our audit.

RESPONSIBILITIES OF TRUSTEES FOR THE FINANCIAL STATEMENTS

As explained more fully in the Trustees' Responsibilities Statement on page 36, the Trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Trustees determine is necessary

to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error. In preparing the financial statements, the Trustees are responsible for assessing the charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so.

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes

our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

Carol Rudge
Senior statutory auditor

For and on behalf of
Grant Thornton UK LLP
Statutory Auditor, Chartered
Accountants, London
25 July 2018

The following accounting policies have been applied consistently in dealing with items which are considered material in relation to the Institute's financial statements.

BASIS OF ACCOUNTING

The financial statements have been prepared in accordance with Accounting and Reporting by Charities:

Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) (effective 1 January 2015) - (Charities SORP (FRS 102)), the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) and the Companies Act 2006.

The Institute meets the definition of a public benefit entity under FRS102. Assets and liabilities are initially recognised at historical cost or transaction value unless otherwise stated in the relevant accounting policy note(s).

GOING CONCERN

The Trustees have reviewed whether it is appropriate for the financial statements to be prepared on a going concern basis. The Institute has received its five-year strategic grant funding from BBSRC (now part of UKRI), £15m per annum, which was started on the 5 April 2017 and runs to March 2020 with a further provisional award for the subsequent two years to March 2022. This source of confirmed funding, the consistent performance of attracting income from other funding bodies, the successful occupation of new laboratory facilities and the development of a business plan that is built on an income stream that is very likely to be achievable, provides a high degree of confidence of future financial security. The Trustees are not expecting any

change to the CCG following BBSRC merging with UKRI.

Having considered the risks in respect of future funding, financial forecasts for the period to March 2020 and the level of reserves, the Trustees have concluded that it remains appropriate to prepare the financial statements on a going concern basis.

GROUP FINANCIAL STATEMENTS

The Institute is exempt from the requirement to prepare consolidated financial statements by virtue of section 405(2) of the Companies Act 2006 as the result of its dormant subsidiary undertaking, Avrico Limited, is not material for the purposes of providing a true and fair view. Accordingly, these financial statements present information about the Institute as an individual entity and not its group.

The associated companies, as detailed in note 10, have also been excluded from the consolidation on the grounds of these being immaterial to the Institute's financial statements.

INCOME

Income comprises unencumbered grants received from research councils; grant income from collaborative, commissioned and competitively awarded research projects; sales of produce from research farm operations; income from miscellaneous charitable activities; commercial and residential rents from the letting of Institute controlled property; and interest earned on the temporary investment of surplus funds.

Income is recognised when the Institute becomes legally entitled to the income and the amount can be quantified with reasonable accuracy.

All core BBSRC grants are recognised as revenue in the year they are received. Grant income including research

grants received in advance of conditions being met is deferred until those conditions are fully satisfied. Sales of produce are recognised on dispatch, rental and interest income is recognised based on the period to which it relates.

Capital grants are recognised in the statement of financial activities when entitlement passes, and once the criteria of certainty and measurement are met.

EXPENDITURE

Costs of charitable activities comprises costs incurred directly or in support of scientific research whether carried out in the Institute's own facilities or in other laboratories. Raising funds represents the costs associated with trading and raising income including the Institute's rental activities and tenant services and investments.

All costs are allocated between the expenditure categories of the Statement of Financial Activities on a basis designed to reflect the use of the resource. Costs relating to a particular activity are allocated directly. Support costs, representing the staffing and associated costs of finance, personnel and general administration in supporting the operations of the Institute, are apportioned on an appropriate basis (see note 5).

RESTRICTED NON ENDOWMENT FUNDS

Income received by way of grants, sponsorship, donation or legacy which is directed by the provider as to be applied for specific purposes is accounted for within restricted income. Awards applied within the terms dictated by the awarding authority on the acquisition or improvement of tangible fixed assets are also accounted for within restricted non endowment funds in full. The balance of the restricted fixed

asset fund is reduced by the depreciation or amortisation charges over the expected useful life of the asset. This treatment has been applied to reflect the assets being on land owned by a third party, therefore at the end of the lease they will revert to that third party (see further explanation below regarding the ownership of land and buildings). In addition, as detailed in note 19, there is a contingent liability to account to the BBSRC (now part of UKRI) for the net proceeds of disposal of fixed assets acquired with grant assistance and for recurrent grant in excess of the financing requirements.

DESIGNATED FUNDS

Unrestricted designated funds comprise sums set aside by the Trustees for specific purposes including the acquisition and improvement of tangible fixed assets, the presentation of scientific conferences, and contributions towards capital to be replaced using the fully economic costing policy adopted by the Institute.

UNRESTRICTED FUNDS

Income received which is not directed by the provider to be applied for specific purposes to an extent which exceeds the constraints of the Institute's constitution is accounted for within unrestricted general funds.

FIXED ASSETS

Fixed assets with a cost of £10,000 or more are capitalised and depreciated to their estimated residual values basis as set out below. Plant and machinery and fixtures and fittings with a cost of less than £10,000 are expensed in year of purchase. Land and buildings – on a component basis, between 15 and 50 years Plant and machinery – 5 years on a straight line basis Fixtures, fittings, tools and

equipment –5 years on a straight line basis. No depreciation is provided on assets in the course of construction.

The Institute includes in its financial statements leasehold land and buildings owned by third parties, that it occupies and enjoys through peppercorn leases, at their full value. The current lease for the Pirbright North site ended in May 2016 and the lease for the Pirbright South site ended in March 2015. Neither have yet been renewed, however the Institute is protected under the LTA. The Institute is in negotiations with BBSRC with the expectations of being granted new long term Pirbright leases. The Trustees consider that in substance the risks and rewards of ownership of the assets have passed to the Institute, and as such follow a policy of recognising the assets on the balance sheet to reflect the continuing occupancy of these assets for the foreseeable future. The only circumstance under which the Institute could be asked to vacate the site is due to a failure to deliver the required programme, which in the Trustees' view is highly unlikely.

Individual freehold and leasehold properties at the Pirbright site were revalued to fair value upon transition to FRS 102 (1 April 2014) with the surplus on book value being transferred to the revaluation reserve, except that a deficit which is in excess of any previously recognised surplus over depreciated cost relating to the same property, or the reversal of such a deficit, is charged (or credited) to the Statement of Financial Activities. The fair value at the transition date was recognised as the deemed cost of the assets.

LEASED ASSETS

Rentals payable under operating leases are charged

to the Statement of Financial Activities on a straight line basis over the lease term.

Assets acquired under finance leases are capitalised as tangible fixed assets and depreciated over their useful lives. Finance charges and interest are taken to the income and expenditure account in proportion to the remaining balance of capital repayments or net obligations outstanding.

INVESTMENTS

Quoted investments are valued at market value. Investments in subsidiary undertakings are carried at the lower of cost and net realisable value. The policy of the Institute is to write down investments where a permanent diminution in value is deemed to have occurred.

STOCK

Laboratory supplies are valued at the lower of cost and net realisable value.

DEBTORS

Trade and other debtors are recognised at the settlement amount due after any trade discount offered. Prepayments are valued at the amount prepaid.

CREDITORS AND PROVISIONS

Creditors and provisions are recognised where the Institute has a present obligation resulting from a past event that will probably result in the transfer of funds to a third party and the amount due to settle the obligation can be measured or estimated reliably. Creditors and provisions are normally recognised at their settlement amount.

FINANCIAL INSTRUMENTS

The Institute only has financial assets and financial liabilities of a kind that qualify as basic financial instruments. Basic financial instruments are initially recognised at transaction value

and subsequently measured at their settlement value.

FOREIGN CURRENCY TRANSLATION

Monetary assets and liabilities denominated in foreign currencies are translated into sterling at the rates of exchange ruling at the balance sheet date. Transactions in foreign currencies are recorded at the rate ruling at the date of the transaction.

STAFF AND PENSION COSTS

Staff engaged at the Institute prior to April 2015 were previously employed by BBSRC (now part of UKRI) and deployed back to the Institute. Following the Transfer of Undertakings (Protection of Employment) exercise as of 1 January 2017, all BBSRC employees are now covered under the Institute's position as a separate legal entity. The Institute therefore retains responsibility for paying employment costs in relation to all employees, including basic pay and allowances, contractual payments, tax, national insurance and pension contributions. Employees engaged prior to April 2015 remain members of the Research Councils' Pension Scheme (RCPS), a defined benefit scheme for multiple employers. The BBSRC Employment Code remains applicable and frozen at the date of TUPE transfer. The Institute does not have any liability for pensions other than for monthly employer contributions, the rate of which is determined by the Government Actuary's Department on a periodic basis. The cost of providing pension and related benefits is charged to the statement of financial activities. Some payments are to a defined benefit scheme as explained above and in note 8 but there are no separately

identifiable assets and the actuarial cost to the Institute is not known. Consequently, it is not possible to supply the information referred to in Financial Reporting Standard 102, Section 28 and the Institute has accounted for the scheme as though it were a defined contribution scheme.

TAXATION

The Pirbright Institute is a registered charity within the meaning of the UK Taxes Acts and is, therefore, eligible to claim exemptions to income tax and capital gains tax.

JUDGEMENTS IN APPLYING ACCOUNTING POLICIES AND KEY SOURCES OF ESTIMATION UNCERTAINTY

Preparation of the financial statements requires management to make significant judgements and estimates.

The items in the financial statements where these judgements and estimates have been made include:

Depreciation, which has been charged in line with the accounting policy above.

The amount of depreciation charged and net book value of the assets is included in note 9.

The Institute includes in its financial statements leasehold land and buildings owned by third parties because the Trustees consider that in substance the risks and rewards of ownership of the assets have passed to the Institute, and as such follow a policy of recognising the assets on the balance sheet to reflect the continuing occupancy of these assets for the foreseeable future. These assets are held at their deemed cost, being their fair value at the transition date. The judgements applied and the revaluation adjustments and net book value of the assets is included in note 9.

STATEMENT OF FINANCIAL ACTIVITIES

For the year ended 31 March 2018

	Note	Unrestricted Funds £'000	Restricted Funds £'000	2018 Total Funds £'000	2017 Total Funds £'000
<i>Income from Donations</i>					
Core strategic grant	1	15,351	-	15,351	13,128
<i>Charitable activities</i>					
Grants and contracts	2	14,556	14,316	28,872	18,085
Research farm operation	2	1	-	1	574
Other charitable income	2	1,408	-	1,408	1,623
<i>Investment income</i>	3	819	-	819	1,085
Total		32,135	14,316	46,451	34,495
<i>Expenditure on</i>					
<i>Raising funds</i>					
Rental income and tenant services		300	373	673	647
Investment management costs		15	-	15	12
<i>Charitable activities</i>					
Scientific research		31,270	11,869	43,139	36,930
Research farm operation		-	-	-	1,197
Rental income and tenant services		923	1,060	1,983	1,901
Other charitable activities		376	61	437	451
Total	4	32,884	13,363	46,247	41,138
Net gains on investments		18	-	18	2
Net income/(expenditure) before tax		(731)	953	222	(6,641)
Tax payable		40	-	40	-
Transfers between funds	15	(289)	289	-	-
Net movement in funds		(1,060)	1,242	182	(6,641)
Balances brought forward		9,409	269,495	278,904	285,545
Balances carried forward	16	8,349	270,737	279,086	278,904

All incoming resources and resources expended derive from continuing activities. The accompanying accounting policies and notes form an integral part of these financial statements.

BALANCE SHEET

At 31 March 2018. Company Number 00559784

	Note	2018		2017	
		£'000	£'000	£'000	£'000
Fixed assets					
Tangible fixed assets	9		251,773		250,605
Investments	10		151		133
			<u>251,924</u>		<u>250,738</u>
Current assets					
Stocks	11	153		96	
Debtors	12	9,683		10,998	
Cash at bank and in hand		<u>27,928</u>		<u>25,332</u>	
		37,764		36,426	
Creditors: amounts falling due within one year	13	<u>(10,602)</u>		<u>(8,260)</u>	
Net current assets			27,162		28,166
Total assets less current liabilities			<u>279,086</u>		<u>278,904</u>
Net assets			<u>279,086</u>		<u>278,904</u>
Financed by					
Unrestricted funds	15		8,349		9,409
Restricted					
Fixed asset fund (including revaluation reserve of £14,876k [per note 16] (2017: £15,517k))	15		262,210		260,767
Other restricted reserve	15		8,527		8,728
Total funds	16		<u>279,086</u>		<u>278,904</u>

The Institute includes in its financial statements leasehold land and buildings owned by third parties, these are detailed further in note 9.

Approved by the Board of Trustees on 25 July 2018 and signed on their behalf on 25 July 2018

Professor Quintin McKellar CBE
Trustee Director

Mr Roger Louth
Trustee Director

The accompanying accounting policies and notes form an integral part of these financial statements.

STATEMENT OF CASH FLOWS

For the year ended 31 March 2018

	2018		2017	
	£'000	£'000	£'000	£'000
Net cash provided by operating activities				
Net movement in funds		222		(6,641)
Interest and rent receivable		(819)		(1,085)
Depreciation charged		11,759		12,461
Corporation tax paid		(40)		-
Revaluation gain on investments		(18)		(2)
(Increase)/decrease in stocks		(57)		402
Decrease/(increase) in debtors		1,315		(1,050)
Increase/(decrease) in creditors		<u>2,342</u>		<u>(3,821)</u>
Net cash provided by operating activities			14,704	264
Cash flows from investing activities:				
Interest and rents received		819		1,085
Purchase of property, plant and equipment		<u>(12,927)</u>		<u>(4,746)</u>
Net cash used in investment activities			<u>(12,108)</u>	<u>(3,661)</u>
Change in cash and cash equivalents in the reporting period			2,596	(3,397)
Cash and cash equivalents at the beginning of the reporting period			25,332	28,729
Cash and cash equivalents at the end of the reporting period			<u>27,928</u>	<u>25,332</u>

The accompanying accounting policies and notes form an integral part of these financial statements.

1 INCOME FROM DONATIONS

	2018 £'000	2017 £'000
BBSRC – core strategic grant	15,351	13,128

All income from donations in the current and prior year was unrestricted.

2 INCOME FROM CHARITABLE ACTIVITIES

	2018 £'000	2017 £'000
<i>Grant income</i>		
BBSRC – research grants	3,973	4,586
BBSRC – other grants	14,539	5,622
Other research grants	10,360	7,877
	<u>28,872</u>	<u>18,085</u>
Research farm operation	1	574
Other charitable activities	1,408	1,623
	<u>30,281</u>	<u>20,282</u>

Income from charitable activities includes restricted income from grants and contracts of £14,316k (2017: £5,121k) All other income from charitable activities in the current and prior year was unrestricted.

The analysis by region is set out below:

	2018 £'000	2017 £'000
United Kingdom	27,669	17,699
Europe	1,313	913
North America	1,103	1,603
Others	196	67
	<u>30,281</u>	<u>20,282</u>

INCOME FROM CHARITABLE ACTIVITIES (CONT)

	Unrestricted £'000	Restricted £'000	2018 Total £'000	2017 Total £'000
<i>Analysis of grant income</i>				
BBSRC				
- Competitive Project Grant – research grants	3,973	-	3,973	4,586
- Other grants	223	14,316	14,539	5,622
Total BBSRC	4,196	14,316	18,512	10,208
Defra “Umbrella” contract commission projects	2,641	-	2,641	2,094
Defra Surveillance	1,726	-	1,726	1,543
Other government departments, public sector	-	-	-	119
European Union	958	-	958	1,136
Industry, levy boards	956	-	956	238
Trusts, foundations, charities	2,852	-	2,852	2,482
Other research grant income	1,227	-	1,227	265
Total incoming resources – grants including research	14,556	14,316	28,872	18,085

Ancillary trades and activities

Other charitable income consists of trades and activities which are ancillary to the charitable activities of the Institute:

	Unrestricted £'000	Restricted £'000	2018 Total £'000	2017 Total £'000
Royalties	317	-	317	303
Diagnostic kits	46	-	46	188
Other	1,045	-	1,045	1,132
	<u>1,408</u>	<u>-</u>	<u>1,408</u>	<u>1,623</u>

3 INVESTMENT INCOME

	2018 £'000	2017 £'000
Rental income and tenant services	650	920
Bank interest	169	165
	<u>819</u>	<u>1,085</u>

All investment income in the current and prior year was unrestricted.

4 ANALYSIS OF EXPENDITURE

	Staff costs £'000	Other direct costs £'000	Allocated support costs £'000	2018 Total £'000	2017 Total £'000
<i>Unrestricted funds</i>					
<i>Costs of raising funds</i>					
Rental income and tenant services	-	-	300	300	274
Investment management costs	-	7	8	15	12
<i>Charitable expenditure</i>					
Grants and contracts for scientific research	11,359	8,569	11,342	31,270	26,617
Research farm operation	-	-	-	-	711
Rental income and tenant services	-	(21)	944	923	917
Other charitable activities	-	180	196	376	389
Total unrestricted resources expended	11,359	8,735	12,790	32,884	28,920
Restricted funds					
Cost of raising funds	-	-	376	376	372
Charitable expenditure	-	-	12,987	12,987	11,846
Total restricted resources expended	-	-	13,363	13,363	12,218
Total resources expended	11,359	8,735	26,153	46,247	41,138
Total resources expended – 2017	10,936	5,768	24,434	41,138	

Included in allocated support costs are normal staff costs of £2,911,630 (2017: £2,291,709).

5 ANALYSIS OF SUPPORT COSTS

	Rental income and tenant services £'000	Investment management costs £'000	Grants and contracts for scientific research £'000	Science rental income and tenant services £'000	Staff restaurant and nursery £'000	Other charitable activities £'000	Total 2018 £'000	Total 2017 £'000	Basis of allocation
<i>Unrestricted</i>									
Premises	171	-	7,372	857	64	-	8,464	8,577	% of floor area
Financial costs	21	8	472	36	21	21	579	540	time spent
Management	28	-	663	11	13	7	722	274	time spent
Human resources	63	-	460	-	19	-	542	507	time spent
Information technology	9	-	1,821	20	10	20	1,880	1,663	time spent
Purchasing and procurement	6	-	498	19	13	6	542	507	time spent
Governance	2	-	56	1	1	1	61	148	time spent
	<u>300</u>	<u>8</u>	<u>11,342</u>	<u>944</u>	<u>141</u>	<u>55</u>	<u>12,790</u>	<u>12,216</u>	
<i>Restricted</i>									
Depreciation	367	-	10,351	980	61	-	11,759	12,461	
Repairs / compliance	9	-	1,511	84	-	-	1,604	(243)	
	<u>376</u>	<u>-</u>	<u>11,862</u>	<u>1,064</u>	<u>61</u>	<u>-</u>	<u>13,363</u>	<u>12,218</u>	
	<u>676</u>	<u>8</u>	<u>23,204</u>	<u>2,008</u>	<u>202</u>	<u>55</u>	<u>26,153</u>	<u>24,434</u>	

6 OPERATING COSTS

	2018 £'000	2017 £'000
<i>Operating costs stated after charging:</i>		
Auditor's remuneration		
- audit services	49	47
- non-audit services	23	33
Depreciation	11,759	12,461
Profit on foreign exchange translations	-	1
Hire of plant and machinery	5	7
Rental of land and buildings	<u>219</u>	<u>243</u>

Operating costs are stated net of laboratory supplies carried forward in stock amounting to £153,166 (2017: £96,223).

7 REMUNERATION OF THE MEMBERS OF THE TRUSTEE BOARD

None (2017: none) of the members of the Trustee Board received any remuneration from the Institute during the year. Seven members (2017: four members) of the Trustee Board had travel expenses of £7,196 (2017: £6,957) reimbursed during the year and none (2017: one member) received consultancy fees (2017: £Nil), as permitted under the Institute's articles.

8 STAFF NUMBERS AND COSTS

The average number of persons employed by the Institute (including members of the Governing Council) during the year, analysed by category, was as follows:

	Number of employees	
	2018	2017
Office, management and estate support	114	121
Scientific	208	200
	<u>322</u>	<u>321</u>

The aggregate payroll costs of these persons were as follows:

	2018	2017
	£'000	£'000
Wages and salaries	12,557	12,046
Social security costs	1,236	1,296
Other pension costs	2,375	2,545
	<u>16,168</u>	<u>15,887</u>

STAFF NUMBERS AND COSTS (CONTINUED)

Some employees of the Institute are members of the Research Councils' Pension Schemes, which are funded principally through employer and employee contributions. The pension schemes are by analogy to the Principal Civil Service Pension Scheme (PCSPS), except that while the schemes that are defined benefit schemes and provide retirement and related benefits on final emoluments, redundancy and capability ill health are administered and funded by the council, the pension schemes are administered by the Research Councils' Joint Superannuation Services and the schemes' finances are administered by BBSRC (now part of UKRI). It is an unfunded scheme, and there are no separately identifiable assets and the actuarial cost to the Institute is not known. Consequently, it is not possible to supply the information referred to in Financial Reporting Standard 102, Section 28 and the Institute has accounted for the scheme as though it were a defined contribution scheme.

The Institute pays employers' contributions, at a percentage of scheme members' pensionable pay and emoluments assessed by the Government Actuary's Department on a periodical basis. The rate for the year was 26.0%, which was established following GAD's most recent assessment. The pension costs represent contributions payable by the Institute to the scheme and amount to £1,577,799 (2017: £2,140,904). Since April 2015, all new staff (including promoted staff) are employed directly by the Institute, rather than BBSRC, under the Institute's own

terms and conditions. These staff are members of The Pirbright Company Pension, a defined contribution scheme administered by Aviva on behalf of the Institute. The Institute contributes 10% of scheme members' pensionable pay and emoluments. The pension costs represent contributions payable by the Institute to the scheme and amount to £748,051 (2017: £404,221).

Staff engaged at the Institute prior to April 2015 were previously employed by BBSRC and deployed back to the Institute. Following the Transfer of Undertakings (Protection of Employment) exercise as of 1 January 2017, all previous BBSRC employees are now covered under the Institute's position as a separate legal entity. The Institute therefore retains responsibility for paying employment costs in relation to all employees, including basic pay and allowances, contractual payments, tax, national insurance and pension contributions. Employees engaged prior to April 2015 remain members of the Research Councils' Pension Scheme (RCPS), a defined benefit scheme for multiple employers. The BBSRC Employment Code remains applicable and frozen at the date of TUPE transfer. The Institute does not have any liability for pensions other than for monthly employer contributions, the rate of which is determined by the Government Actuary's Department on a periodic basis.

The key management personnel of the Institute comprise the senior leadership team and the trustees (note 7). The total employee benefits (including wages and salaries, employer's national insurance and pension costs) of the key management personnel of the Institute were £534,070 (2017: £666,494).

The number of staff with emoluments greater than £60,000, (excluding pension costs), was:

	2018	2017
	Number	Number
£60,000 – £69,999	11	11
£70,000 – £79,999	6	3
£80,000 – £89,999	2	2
£90,000 – £99,999	2	1
£100,000 – £109,999	-	2
£110,000 – £119,999	-	1
£130,000 – £139,999	-	1
£140,000 – £149,999	1	-

The number of staff earning over £60,000 for whom retirement benefits are accruing under defined benefit schemes amounted to eight (2017:18) and the amounts paid in the year were £152,130 (2017: £278,900).

9 TANGIBLE FIXED ASSETS

	Land and buildings £'000	Plant and machinery £'000	Fixtures, fittings, tools and equipment £'000	Payments on account and assets in course of construction £'000	Total £'000
Cost/revaluation					
At 1 April 2017	247,664	16,912	1,283	23,119	288,978
Additions	-	1,765	-	11,162	12,927
Disposals	(3,343)	-	-	-	(3,343)
At 31 March 2018	244,321	18,677	1,283	34,281	298,562
Depreciation					
At 1 April 2017	25,372	11,718	1,283	-	38,373
Charge for year historic	9,073	2,045	-	-	11,118
Charge for year revaluation	641	-	-	-	641
Disposals	(3,343)	-	-	-	(3,343)
At 31 March 2018	31,743	13,763	1,283	-	46,789
Net book value at 31 March 2018	212,578	4,914	-	34,281	251,773
Net book value at 31 March 2017	222,292	5,194	-	23,119	250,605

Land and buildings include land with a book value of £10,363K. All of the tangible assets of the Charity are used for charitable purposes.

The Institute includes in its financial statements leasehold land and buildings owned by third parties, that it occupies and enjoys through peppercorn leases, at their full value. The current lease for the Pirbright North site ended in May 2016 and the lease for the Pirbright South site ended in March 2015. Neither have yet been renewed, however the Institute is protected under the LTA. The Institute is in negotiations with BBSRC (now part of UKRI) with the expectations of being granted new long term Pirbright leases. The trustees consider that in substance the risks and rewards of ownership of the assets have passed to the Institute, and as such follow a policy of recognising the assets on the balance sheet to reflect the continuing occupancy of these assets for the foreseeable future. The only circumstance under which the Institute could be asked to vacate the site is due to a failure to deliver the required programme, which in the trustees' view is highly unlikely.

The Institute used the option in FRS102 to use fair value at the date of transition to FRS102, (1 April 2014), as deemed cost on transition. GVA Grimley Limited, Chartered Surveyors and an independent valuer, derived these values from a professional valuation.

10 INVESTMENTS

	2018 £'000	2017 £'000
<i>UK listed investments held as fixed assets</i>		
Market value at 1 April 2017	133	131
Unrealised profit	18	2
Market value at 31 March 2018	151	133
<i>Represented by:</i>		
Genus plc	90	67
Dairy Crest	61	66
Total	151	133

Investment in subsidiary undertaking

Avrico Limited, which is incorporated in England and Wales, previously undertook foot-and-mouth disease testing on behalf of the Institute, was dormant during the current and previous year. The Institute owns the entire share capital of 100 ordinary shares of £1 each.

The assets and liabilities of the subsidiary were:

	2018 £'000	2017 £'000
<i>Current assets</i>	-	-
Creditors: amounts falling due within one year	(8)	(8)
<i>Net liabilities</i>	(8)	(8)
<i>Aggregate share capital and reserves</i>	(8)	(8)

The Institute has provided for the deficit shown by the subsidiary undertaking by writing off the amount owed to it by Avrico Limited.

Investment in associated undertakings

Genecom Limited was incorporated in July 2004 as a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund and was a new business development vehicle whose primary aim of was to build capacity to develop more effective commercial exploitation platforms for the members' technologies, share experience and expertise. The Institute has equal membership in this company with Roslin Foundation and the Moredun Research Institute. The company's turnover for the year ended 31 March 2018 was £Nil (2017: £Nil) and its net assets as at 31 March 2018 were £nil (2017: £Nil). The Company has now disbursed all of its remaining grants, and has ceased to be a Company during 2017.

Genomia Management Limited was formed on 16 April 2004 and is also a company limited by guarantee. The company was established by way of grants from the Department of Innovation, Universities and Skills and the European Regional Development Fund. The company manages the Genomia Fund the objective of which is to assist in the development of research output from the members into commercially realisable opportunities. The Institute has equal membership in this company with Roslin Foundation, Moredun Research Institute, Rowett Institute of Nutrition and Health and the SRUC. The company's turnover for the year ended 31 March 2018 was £280,000 (2017: £211,000) and its net assets as at 31 March 2018 were £157,000 (2017: £430,000).

11 STOCKS

	2018 £'000	2017 £'000
Laboratory supplies	153	96

The Institute's stock consists of laboratory supplies for research purposes.

12 DEBTORS

	2018 £'000	2017 £'000
Trade debtors	1,068	981
Prepayments	1,569	743
Accrued income	3,306	3,307
Other debtors	3,740	5,967
	<u>9,683</u>	<u>10,998</u>

13 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2018 £'000	2017 £'000
Trade creditors	4,110	1,724
Taxation and social security	583	594
Other creditors	508	53
Accruals	1,250	1,203
Deferred income	3,708	4,250
Short-term compensated absences	443	436
	<u>10,602</u>	<u>8,260</u>

14 RECONCILIATION OF MOVEMENT IN ACCRUED AND DEFERRED GRANT INCOME

	2018 £'000	2017 £'000
Accrued income	3,306	3,307
Deferred income	(3,708)	(4,250)
	<u>(402)</u>	<u>(943)</u>
Net deferred research grant income at the beginning of the year	(943)	(518)
Research grant income received during the year	(14,015)	(13,389)
Research grant money released to SOFA during the year	14,556	12,964
	<u>(402)</u>	<u>(943)</u>

15 FUNDS

	Balance April 1 2017 £'000	Net incoming/ (outgoing) resources £'000	Transfer between funds £'000	Balance March 31 2018 £'000
<i>Unrestricted funds:</i>				
General	4,081	15	(289)	3,807
Designated	5,328	(786)	-	4,542
<i>Restricted non endowment funds:</i>				
Fixed Asset Fund	260,767	1,350	93	262,210
<i>Other restricted funds:</i>				
Fixed Asset Project Support Costs	3,043	-	-	3,043
Equipment	596	-	(596)	-
BCIC Projects	2	-	(2)	-
DP2 phase2 occupation	3,961	(53)	799	4,707
IS4L Interim Insectary	-	6	-	6
Innovation at Pirbright	209	(359)	150	-
Hostel	851	-	(155)	696
Other	66	9	-	75
	<u>278,904</u>	<u>182</u>	<u>-</u>	<u>279,086</u>

Unrestricted designated funds

Unrestricted designated funds comprise sums set aside for specific purposes including the acquisition and improvement of tangible fixed assets, the presentation of scientific conferences, and contributions towards capital to be replaced using the fully economic costing policy adopted by the Institute. This includes £92k for change management (2017: £179k), £2,768k for occupation costs relating to capital projects (2017: £4,912k), £271k for decommissioning (2017: £nil), £355k for spoil clearance (2017: £nil), £862k for group leaders (2017: £nil) and £194k for other projects (2017: £237k).

Restricted non endowment funds

Restricted non endowment funds comprise grants received from funders specifically to be applied in the acquisition or improvement of tangible fixed assets or otherwise applied for such purposes as specified by the grants provided.

	2018 £'000	2017 £'000
<i>Fixed Asset Fund</i>		
Balance brought forward	260,767	269,003
Grants received	13,190	3,466
Depreciation/ impairment (note 6)	(11,759)	(12,461)
Revenue spend	(81)	549
Transfers	93	210
Balance carried forward	<u>262,210</u>	<u>260,767</u>

The Fixed Asset Fund is not an endowment fund, but represents funding received, principally from BBSRC, for the past and future acquisition of tangible fixed assets. These assets are built on land that is not owned by The Pirbright Institute. The capital fund has been set up to assist in identifying those funds that are not free funds and it represents the net book value of tangible fixed assets held by the charity and amounts received for capital but not yet spent. The unexpended balance of unrestricted designated funds and restricted funds is invested in temporary deposits and appears in the balance sheet under current assets.

FUNDS (CONTINUED)*Other restricted funds*

Fixed Asset Project Support Cost grants have been received from BBSRC to provide funding towards support costs and overrun costs relating to the DP1 capital projects.

The Capital Rebuild Grant, Additional Construction Support has on approval from BBSRC been transferred to DP2 phase 2 occupation fund. As part of the ongoing development project funds from these reserves have been transferred to the Fixed Asset Fund.

The Equipment fund contains funding received from BBSRC for the purchase of equipment.

BCIC project income was received specifically for use on the BCIC projects.

The Innovation at Pirbright reserve contains funding received specifically to refurbish existing buildings and create a state of the art conference facility on the Pirbright site.

The Hostel funds were received from BBSRC to cover the cost of the rents payable at the Compton site. Redundancy funds have been specifically received from BBSRC to fund the redundancies in the year.

Transfers between funds

	Unrestricted general funds £'000	Unrestricted designated funds £'000	Restricted funds £'000
Transfer of funds from general reserves	(289)	-	289

The transfers during the year are as follows:

- A transfer of £294,000 has been made from general reserve to the Fixed Asset restricted fund in respect of a piece of equipment specifically funded from a research grant.
- A transfer of £150,000 has been made from general reserve to the Innovation at Pirbright restricted fund to reflect a proportion of this project that has been funded from general reserves.
- The Hostel restricted fund transfer of £155,000 has been made to set rents paid in the year against the restricted grant received for this purpose.
- Transfers of £596,000, and £2,000 have been made from the Equipment restricted fund, and the BCIC Projects restricted fund respectively to the Fixed Asset restricted fund to finance elements of the remaining DP2 Phase 2 occupation.
- A Transfer of £799,000 has been made from the Fixed Asset restricted fund to the DP2 Phase 2 occupation restricted fund in respect of construction in future years.

16 ANALYSIS OF NET ASSETS BETWEEN FUNDS

	Fixed assets £'000	Net current assets £'000	Total £'000
Unrestricted funds	151	8,198	8,349
Restricted funds			
Capital fund	236,897	10,437	247,334
Revaluation reserve	14,876	-	14,876
Other restricted funds	-	8,527	8,527
	<u>251,924</u>	<u>27,162</u>	<u>279,086</u>
			£'000
Revaluation Reserve			
Revaluation reserve brought forward			15,517
Depreciation charged (note 9)			(641)
Revaluation reserve carried forward			<u>14,876</u>

17 FINANCIAL INSTRUMENTS

	2018 £'000	2017 £'000
Financial assets measured at amortised cost	4,808	6,948
Financial liabilities measured at amortised cost	(5,201)	(2,371)
	<u>(393)</u>	<u>4,577</u>

Financial assets measured at amortised cost comprise trade debtors, amounts owed by related parties and other debtors. Financial liabilities measured at amortised cost comprise trade creditors, other tax and social security and other creditors.

18 COMMITMENTS

- (a) Capital commitments at the end of the financial year for which no provision has been made:

	2018 £'000	2017 £'000
Authorised but not contracted for	7,774	2,607

The capital commitments of £7,774k (2017: £2,607k) will be significantly funded by the BBSRC (now part of UKRI)

COMMITMENTS (CONTINUED)

(b) *Operating lease commitments*

The Institute is committed to the following charges in respect of:

	2018 £'000	2017 £'000
Land and buildings		
Within one year	363	266
In two to five years	1,302	1,065
In over five years	906	1,012
Plant and machinery		
Within one year	39	39
In two to five years	-	39

19 CONTINGENT ASSETS AND LIABILITIES

There is a contingent liability to account to the Biotechnology and Biological Sciences Research Council (now part of UKRI) for the net proceeds of disposal of fixed assets acquired with grant assistance and for recurrent and capital grant in excess of the financing requirements. No such liabilities existed at either 31 March 2018 or 31 March 2017.

20 RELATED PARTY TRANSACTIONS

Biotechnology and Biological Sciences Research Council (BBSRC now part of UKRI)

The BBSRC provides substantial funding to the Institute. The Institute is affiliated with the BBSRC along with seven other institutes. Details of grants received from BBSRC are detailed in notes 1 and 2. During the year, the BBSRC charged the Institute £45,318 (2017: £151,676) for other costs.

REFERENCE AND ADMINISTRATIVE DETAILS

Trustees: Professor Quintin McKellar CBE Chair
 Dr Theo Kanellos
 Mr Roger Louth
 Dr Vanessa Mayatt
 Sir Bertie Ross
 Professor David Rowlands
 Mr Mike Samuel
 Professor John Stephenson

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 Statutory Auditor
 Chartered Accountants
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Director of the Institute: Dr Bryan Charleston MRCVS

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