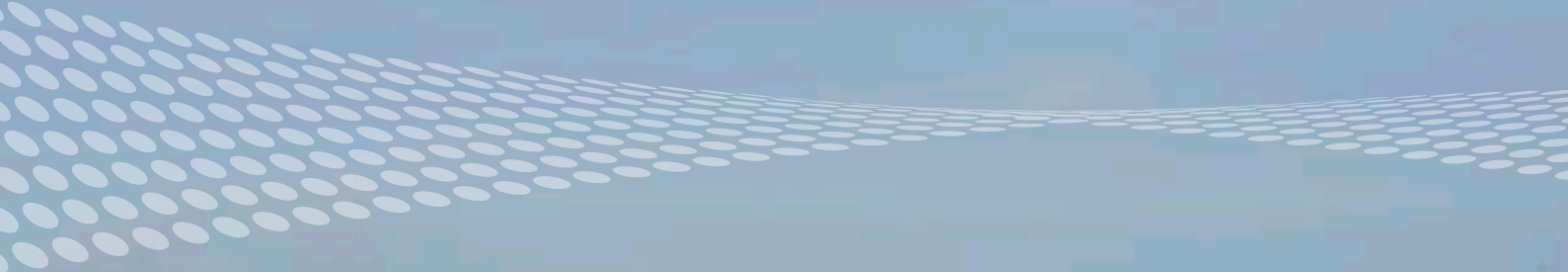




The Food and Environment
Research Agency



Annual Review

2010/11

About Fera

Our vision

■ ■ *To be the long term partner of choice to governments, industries and academia, in applied research, incident response and impartial advice, based on our trusted science, to secure the food chain and protect the environment from global threats.* ■ ■

Fera's vision statement encapsulates our role and purpose as an organisation, and how we aim to work with our customers. Our aspiration is to create partnerships based on exchanging knowledge and building learning, not just transactional relationships. All we deliver is founded on the international reputation we have gained for the strength and application of our scientific knowledge in our areas of expertise; we have only been able to achieve this through working closely with our customers to understand their needs and the challenges they face in meeting the needs of their own customers.

Our work

To fulfil our vision Fera brings together expertise in:

- **Multidisciplinary science** – As an applied research organisation we bridge the gap between pure research and industrial application. Quantifying through measurement, developing solutions or operating in a consultancy capacity we support our customers in both the strategic and day-to-day decisions they face. Our expertise falls into four broad thematic areas: Plant Protection, Food Safety, Environmental Risk, and Wildlife.
- **Emergency response and recovery** – We play a vital role in the nation's rapid response capability, responding to and recovering from unforeseen or emergency situations.
- **Policy and inspection** – We are responsible for the implementation of UK and international legislation on plant health, bee health and plant varieties and seeds, delivering the associated statutory services.
- **Proficiency testing** – As an operator of international laboratory proficiency testing schemes, Fera acts as an impartial assessor of laboratory quality standards.

Our Executive Team welcomes feedback from our customers and stakeholders on the services we offer and how we perform in delivering them. Please feel free to contact us with any feedback you wish to give us.

The Executive Team members are:

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Cover image: Scientist working in a trial crop plot at Fera's Sand Hutton site. The crop plots are currently used as part of fungicide efficacy trials carried out for a customer in the agrochemical industry.

Foreword

by Adrian Belton, Chief Executive

Welcome to The Food and Environment Research Agency's (Fera) Annual Review for 2010/11. The purpose of this document is to give you a sense of how we can help you, our customers and partners, solve problems and create value.



■ Adrian Belton

In spite of what has been a tough year with pressure on income from our main Government customer, Fera has secured new business with both wider Government and private sector customers. Overall, demand for Fera's brand of knowledge intensive solutions provision remains high, as testified by the 18% growth in our commercial income. We have also played our part in delivering efficiency savings, some £4m, and without having to make any cuts in our nationally important scientific capability.

By listening to what you tell us, it is clear that it is the ability of our scientists to understand a problem and find solutions that differentiates Fera. In some cases this is working as multidisciplinary teams within the Agency, and in others we are tapping into the extensive worldwide network of partnerships we have created with other research organisations and academia – in this role we are very much a 'solutions enabler'.

Fera's origins stretch back to the start of The First World War when there was an imperative to secure and prevent loss from the food supply chain. At that time it was about identifying pests and diseases and establishing effective methods of protection. Detection and identification remain core competences of Fera to this day, deployed now across four broad thematic areas:

Plant Protection – working with agricultural and horticultural businesses in the UK and overseas helping them protect their investment through assessing risk, early identification of pests and diseases, and through developing innovative and sustainable solutions.

Food Safety – focused on the interlinked issues of consumer safety, ensuring products are free from contaminants; brand protection, which is about safety, authenticity and provenance; sustainability, including such drivers as reducing waste and finding alternatives for high value ingredients without having an impact on safety or brand.

Environmental Safety – helping clients meet ever more stringent legislative requirements affecting the production and end use of their products, and doing so in more sustainable ways, for example through data modelling techniques.

Wildlife Management – serving two main commercial sectors; renewable energy, delivering ecological impact assessments for developers particularly focused on resident and migratory bird populations; aviation birdstrike avoidance, helping airports and airlines protect customers and reduce cost.

In this review you can also find out more about how we are investing for the future by aligning our innovation and new product development strategies, to meet your future needs. Completion of the York Science and Enterprise Centre on our Sand Hutton site is another example, which brings to life Fera's commitment to supporting regional partners, including the newly formed Local Enterprise Partnership. This new facility provides 'grow on' science based businesses with flexible high specification laboratory space and the opportunity to benefit from working alongside an internationally renowned centre of scientific excellence.

To conclude, what I hope this Review conveys is that Fera is an applied research organisation that bridges the gap between pure research and industrial application. Our business is about understanding problems and enabling sustainable solutions through innovative thinking, and the gathering and analysis of robust scientific evidence. In that way we can support you in both the strategic, and day-to-day decisions you face. I look forward to hearing how we might be of further help to you.

Adrian Belton

Science overview

by Professor Rob Edwards, Chief Scientist

Having taken up position as Chief Scientist in August 2010, taking in the enormous diversity of the science base in the Agency has been a major challenge to an incoming academic more used to a personal research programme. However, this 'fresh look' has itself been formative, highlighting Fera's need to realise the potential of its broad science base in offering integrated and in-depth solutions in applied research to our customers.



■ Professor Rob Edwards

The science strategy of the Agency is based on delivering to three themes; namely, sustainability, partnership and impact, and as such these provide a useful framework for reviewing progress made in the year.

Sustainability

In terms of sustaining the science base, Fera will continue to nurture and improve its skills base – an essential component in maintaining our ability to respond to the changing needs of our many partners and customers. To achieve this we recognize the need to attract and retain the very best scientists; in 2010/11 we introduced a number of initiatives with this aim.

We have recently created four Heads of Science in the areas of plant health, wildlife management, food and environmental safety, and science strategy. A key aspect of these roles will be to lead the development of our science in these areas to meet the future needs of our customers.

We also launched schemes to support the personal development of our wider scientific staff, in order to maintain our ability to deliver high quality science for our customers.

We actively encourage our staff to speak at and attend key international conferences and workshops, to share our knowledge and expertise with the wider scientific community and to ensure our scientists are exposed to the latest thinking in their disciplines.

Partnership

A major priority of the Chief Scientist's office in the last year has been to consolidate existing strategic partnerships and identify new alliances through networking activities with other Agencies, Institutes and University departments, concentrating this year on the Universities of York (environmental and analytical science) and Exeter (wildlife ecology and plant pathology). This partnering strategy will be further developed in future years, and gives Fera the ability to flexibly draw on external expertise.

In addition, partnering is important in bringing new ideas and technology into the Agency, in developing the professional profile of our scientists and extending our influence and external visibility. Through a variety of funding streams in 2010/11 we have supported or hosted 68 studentships, 43 of them at PhD level, with twelve Universities in the UK and overseas.

Impact

In February 2011, Fera underwent an independent external Science Capability Review. Chaired by Professor Sir John Lawton FRS, the review concluded that "Fera provides an essential national capability in translational research, monitoring and emergency responses for major UK problems in agriculture, food and the environment."

In examining the quality of Fera's science capabilities the review also concluded that, "an absolutely vital aspect of Fera's work is its ability to combine science with an intimate knowledge of the policy and statutory arena... this enormous body of knowledge and experience, synergistically combined in one organisation, differentiates Fera from most of its apparent competitors."

In the course of 2010/11, a total 157 Fera publications were indexed by Science Citation Index Expanded®, the highest number in the history of the organisation, broadly categorised as follows:

Analytical chemistry	50
Ecology/Wildlife	38
Entomology	18
Microbiology/Molecular biology	35
Plant pathology	16

82% of the papers were published jointly with external collaborators, with over 240 institutions represented. Fera research and policy specialists served on National and International expert panels including EFSA, EPPO and EU working groups, providing evidence in support of policy making.

The focus for 2011/12 will be on further developing the science base of the Agency to support sustainable growth through enhancing the progression, skills and governance of our scientists, increasing our visibility and influence through strategic partnering activities with key private and public sector organizations and taking a leading role in contributing to National and Global Food Security and Environmental Sustainability programmes.

2010/11 Highlights

Overview

The following pages describe some key examples of our work from the past year. They demonstrate how we have applied our scientific expertise to deliver solutions for our customers.

Supporting new product development

Collaboration with industry ensures consumer safety.

06

Speeding up food safety inspection

Developing novel methods to detect illegal residues.

06

'On the origin of species'

The species origin of gelatine is revealed through protein biochemistry.

07

Renewable energy vs conservation – finding the balance

Using bird detecting radar to assess the ecological impact of wind farms.

07

Realising the potential of wildlife vaccination

A successful clinical trial shows viability of wildlife vaccination.

08

Using genetics to help the honey bee

A significant step in the fight against the *Varroa* mite.

08

Detecting the unknown

Demonstrating the ability to develop efficient non-targeted testing methods.

09

No laboratory required – in-field diagnostics

Developing innovative tests to help rapid decision-making.

09

Helping Red Tractor stay up to speed

Working closely with industry on knowledge management.

10

Managing risk in the Great Lakes Cassava Initiative

Using plant protection expertise to support international development.

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Space to grow – a fantastic opportunity for ambitious science businesses

State-of-the-art facilities at the York Science and Enterprise Centre.

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Making the most of Fera's analytical capabilities

Testing the limits of residue detection.

11

Supporting new product development

When Valspar Corporation wanted to develop innovative new coatings for use inside food and beverage cans, they enlisted Fera's support in testing the new products for their safety-in-use.

Fera deployed its full range of analytical capabilities and data interpretation skills, collaborating closely with Valspar's own R&D labs in the USA and France. This included measuring known chemicals but at much lower levels than previously imagined (down to parts-per-trillion). It also included a complete analytical screening test to ensure that there were no significant unknown chemicals with the potential to migrate into canned food or beverages.

The work carried out by Fera has enabled Valspar to decide which products look promising and which should be dropped. The timely

provision of results and their interpretation has helped Valspar to schedule their new product development work and their submissions to regulatory authorities worldwide.

Fera has a long-standing relationship with the company, dating back to a 2004 Defra-funded LINK project, which involved both academic and industry partners. Fera, the University of Leeds and Valspar have continued this collaboration to fine-tune and develop the risk assessment procedures and together have published a number of research journal papers on this and related topics.



■ Consumer safety is paramount in new product development.

How can Fera support your new product development? To discuss your analytical needs please contact Dr Emma Bradley, Lead Scientist in Food Packaging and Migration, by emailing emma.bradley@fera.gsi.gov.uk

Speeding up food safety inspection

Keeping illegal chemical residues out of the food chain requires the latest most effective testing methods available, but laboratory work can be slow and expensive.

In response to this issue, the Veterinary Medicines Directorate (VMD) approached Fera for help in developing portable tests for rapid and cost-effective in-field screening of food by inspectors at ports and on farms. The five-year project sees Fera scientists working alongside partners at the University of Leeds and the Veterinary Laboratories Agency on the development of innovative 'binding' oligonucleotides (short synthetic DNA or RNA sequences, which bind to residues and can be thought of as chemical alternatives to antibodies) for the detection of veterinary drug residues in food and efficacy testing of a rabies vaccine.

The new project follows on from groundbreaking work in which Fera used this technology to develop and validate a method for the detection of illegal residues of malachite green, a dye used to control fungal and parasitic infections, which is banned from use in food-producing animals in the European Union.

To discuss potential applications of this technology please contact Matthew Sharman, Lead Scientist in Veterinary Medicines and Residue Research, by emailing matthew.sharman@fera.gsi.gov.uk



■ NMR is among the technologies used at Fera.

'On the origin of species'

Gelatine is widely used in food, pharmaceuticals and household products. Around five million people in the UK alone choose to avoid animal products or products derived from cow and pig material, so it is essential to determine the species origin of gelatine used in foodstuffs to ensure correct labelling.

Gelatine is manufactured from animal bone and skin, predominantly from pig and cow, but also from poultry and fish tissue. Since DNA is effectively destroyed by the high temperatures and extreme pH used to produce gelatine, the challenge was on to develop an effective method.

In an unusual collaboration with archaeologists at the University of York, Fera took up this challenge. The method developed involves extracting gelatine proteins and breaking them into peptides, which can then be identified by mass spectrometry.



■ Species origin is revealed through protein biochemistry.

Specific peptides have been identified for cow, pig, poultry and fish gelatines and thus the species origin can be determined. Gelatine made from mammoth bone is used as a negative control for quality assurance purposes, since mammoth tissue is unlikely to be found in foods today!

A trial study for the UK Food Standards Agency was conducted using this method to determine if gelatine had been added to chicken fillets. Although the products were labelled as 'containing hydrolysed chicken' or 'Halal slaughtered', they were found to contain gelatine made from cow and pig tissue.

To explore the potential of protein biochemistry in determining the origin of food please contact Helen Grundy, Senior Protein Biochemist, by emailing helen.grundy@fera.gsi.gov.uk

Renewable energy vs conservation – finding the balance

When it was feared that the siting of offshore wind farms, in response to the UK Government's drive to promote offshore renewables, might lead to conflicts with EU legislation protecting geese Fera's bird detection radar provided the answer.

The only tool capable of monitoring potential conflicts between the wind turbines and migrating birds returning to the UK from their arctic breeding grounds in the Autumn, Fera's radar has been vital in helping regulators and the wind farm industry secure the environmental safety of their wind farms.

In an ongoing project begun in 2007, Fera continues to monitor the effects of wind farms in the North Sea on migrating geese for Centrica, showing that over 99% of geese avoid the turbines in those locations. Fera's work has satisfied statutory bodies

that there are no significant adverse effects to the protected species in these areas. Further turbines are planned with an ongoing programme of monitoring provided by Fera.

Success with this project has led to other developers approaching Fera to use bird detection radar to assess other proposed wind farm sites. In Autumn 2010 Fera's bird detection radar was deployed on projects monitoring geese in Northwest Scotland for ScottishPower Renewables, Northwest England for Dong Energy, and Southern Ireland for Centrica.

Do you have a renewable energy project that requires an ecological impact assessment? To discuss your requirements please contact Ian Simms, Senior Radar Ornithologist, by emailing ian.simms@fera.gsi.gov.uk



■ One of Fera's bird detecting radars in use for an offshore wind energy project.

Realising the potential of wildlife vaccination

In December 2010, Fera's Wildlife Disease team celebrated the news that they had won a Defra Team Award for their work with the Veterinary Laboratories Agency and Defra policy colleagues on badger vaccines.

The award for "Best Working in Partnership" recognises the close working between policy and science to arrive at a solution for a complex problem and for swiftly moving this from proof of concept research to practical application in the field.

Several years of work by Fera and its partners culminated in March 2010 with the successful completion of the largest clinical field trial of a wildlife vaccine the UK has ever seen. The results were recently published in the leading scientific journal *Proceedings of the Royal Society* and have led to the licensing of a new BadgerBCG vaccine.

The vaccine has already been used in the field, as part of the Badger Vaccine Deployment Project, with 541 badgers on over 90 farms in the trial area near Stroud having been vaccinated by Fera during 2010. In 2011 BadgerBCG will also be rolled out for a small commercial project in the southwest, with the National Trust funding vaccination of badgers on its Killerton Estate in Devon.

To discuss the potential of wildlife vaccines please contact Dr Steve Carter, Lead Scientist in Wildlife Vaccines, by emailing steve.carter@fera.gsi.gov.uk



The first vaccination using BadgerBCG.

Using genetics to help the honey bee

Nothing has caused more destruction to honey bee colonies than the mite *Varroa destructor*, responsible for losses across the globe.



Fera is responsible for delivering the Government's Healthy Bees Plan.

The mite sucks 'blood' from honey bees whilst injecting viruses and suppressing their immune system. They have become more of a problem over the last decade due to increasing resistance to the medication beekeepers use to control them.

It is vital that new approaches for control are explored. This is the challenge that Fera's National Bee Unit, working in collaboration with the University of Aberdeen's School of Biological Sciences, tackled in a groundbreaking project.

The team developed a way of preventing specific genes within *Varroa* expressing themselves by using a laboratory based technique called RNAi mediated gene-knockdown.

This method could stop essential genes from functioning in the mites, such as those controlling respiration, leading to the death of the mites. It would be a way of gaining complete control over *Varroa*, without the need to use chemical treatments, which are less specific and can affect non-target organisms such as the honey bees themselves. As Fera's Giles Budge explains "This is an important first step to developing a chemical free approach to *Varroa* control with no detriment to the honey bee."

For more information on our work in this area, please contact Dr Giles Budge, Research Co-ordinator at Fera's National Bee Unit, by emailing giles.budge@fera.gsi.gov.uk

Detecting the unknown

In the event of an accidental or malicious contamination incident, accurate determination of the contaminant is vital. Traditional testing methods require the analyst to compare a test sample against a calibration standard – but what do we do if a standard is not commercially available?

One option is to spend a lot of time (and expense) in synthesising and validating standards. However, Fera scientists are looking at a more cost-effective and rapid alternative. Modern mass spectrometry based technology, as used in Fera's analytical chemistry laboratories, has the potential to determine the nature of chemical compounds accurately, even if a standard is not available.

In September 2010 Fera successfully carried out a pilot study to test this concept. A method was developed for

detecting and measuring amanitin and phallotoxin toxins in *Amanita* mushrooms, which if consumed can be fatal. The scientists knew that the poisonous properties of the mushrooms arose from several compounds and their aim was to be able to detect all of them in a single test.

The capability to develop efficient non-targeted testing methods with the speed required to respond to emergencies underpins Fera's contingency response work, but

its potential application extends to any industry where analysis of complex mixtures of unknown compounds is required.

To discuss potential applications of this capability please contact Dr Don Clarke, Senior Analytical Chemist, by emailing don.clarke@fera.gsi.gov.uk



Complex mixtures of unknown compounds presents an analytical challenge.

No laboratory required – in-field diagnostics

Nucleic acid (DNA/RNA) extraction is the first fundamental step in all molecular biology techniques regardless of the aim of the study, be it R&D, diagnostics or forensics.

Despite this most technologies for nucleic acid extraction are based on the same fundamental process, with typical laboratory methods taking up to 40 minutes to complete. Fera has developed a new method that not only speeds up the process to a couple of minutes, but also does not require any laboratory equipment to perform so can be easily carried out in the field.

The work is based on technology developed by Fera for in-field plant health diagnostics – Lateral Flow Devices (LFDs) – which are now manufactured and marketed by Fera's spin-out company Forsite Diagnostics (www.forsitediagnostics.com).

The new technique was initially trialled as part of Fera's work on combating the quarantine plant



A lateral flow device.

diseases *Phytophthora ramorum* and *Phytophthora kernoviae*. Conventional LFDs are able to identify the presence of the *Phytophthora* genus, but now a species specific DNA test can be performed directly on the LFD allowing rapid determination of which species of *Phytophthora* is present; important information as it will direct the course of remedial action. In-field testing allows rapid decision-making and avoids the additional expense and delay of sending samples to the laboratory.

The technology has also been applied successfully for the detection of diseases in cattle in collaboration with the Veterinary Laboratories Agency, and for the detection of anthrax with the Health Protection Agency.

To discuss how this technology could be applied in your industry please contact Dr Neil Boonham, Lead Scientist in Novel Method Development, by emailing neil.boonham@fera.gsi.gov.uk

Helping Red Tractor stay up to speed

The Red Tractor Scheme is the UK's most comprehensive food assurance scheme, guaranteeing that food can be traced back to the farms from which it came, and is produced to high standards of food safety, animal welfare and environmental protection.

Up-to-date information on pesticide approvals is essential for Scheme members. Fera's Knowledge Management team have been working with the Red Tractor Scheme Fresh Produce team to support their members in this area by providing them with tailored access to Fera's LIAISON online pesticide management tool.

Accessed via a bespoke Red Tractor home screen, the system allows growers to access information on all current plant protection products approved for use in the UK. Searches are filtered specifically for those

crops for which Red Tractor Scheme members are registered.

Mark Tatchell, Chairman of the Red Tractor Assurance Fresh Produce Board explains the benefits of the new service: "This is a very significant benefit for our members. As new approvals are granted and existing approvals revoked regularly, our previous system of publishing individual crop practices in annual appendices meant that information could effectively become outdated as soon as the appendices were printed. Now members will have all the information they need at their finger tips, all year round."

Can Fera's Knowledge Management team help you? To discuss your information needs, please contact Team Leader Dr Miles Thomas by emailing miles.thomas@fera.gsi.gov.uk



■ Accurate pesticide management information is essential for farmers.

Managing risk in the Great Lakes Cassava Initiative

In the wake of the Cassava Brown Streak Viruses (CBSV), the causal agents of an emerging and potentially devastating disease of cassava, Fera was asked to support the Great Lakes Cassava Initiative (GLCI).

The initiative aims to provide healthy cassava planting material to 1.15 million households in the Great Lakes region of East Africa, where cassava is a vital crop because of its ability to grow in drought-prone and infertile soils.

Fera was tasked with risk-proofing the GLCI plans against the spread of CBSV. By a combination of risk analysis, field surveillance and testing of planting material, an innovative decision-support framework for mitigating the risk of CBSV has been developed and implemented over the past three years.

This has been challenging work for Fera not least because of the sheer scale of the project. Yet beyond this

the project has presented significant scientific challenges, notably unravelling the genetic diversity of CBSV through acquiring some of the first whole CBSV genomes, the development and validation of real-time PCR diagnostics, and in measuring the certainty our sampling and testing approaches afford.

The importance of Fera's contribution was recognised in year by the GLCI Technical Advisory Committee, who commended Fera for 'its excellent and comprehensive reporting'. Under the GLCI Fera is subcontracted to Catholic Relief Services, the grantee of a Bill and Melinda Gates Foundation award, and has partnered



■ Working with local partners is key to Fera's international development work.

extensively in undertaking the work with international and national organisations such as IITA and CABI, and KEPHIS and KARI (Kenya), and NaCRRRI (Uganda), respectively.

For more information on how Fera can support international development initiatives, please contact Dr Julian Smith by emailing julian.smith@fera.gsi.gov.uk

Space to grow – a fantastic opportunity for ambitious science businesses

Over the year Fera's Sand Hutton site has undergone a significant makeover.



■ State-of-the-art facilities at the York Science and Enterprise Centre.

At the heart of this redevelopment has been the creation of a world-class laboratory facility, the York Science and Enterprise Centre, which will provide space for small science and technology businesses looking to grow.

The development, funded by the European Regional Development Fund and Defra, offers tenants the chance to collocate on a world renowned business focused science campus, designed to help foster collaborative links between public and private sector science.

Modern well thought out laboratory facilities provide a flexible environment that can be reconfigured, overnight if necessary, in response to short-term

business opportunity or can be adapted and expanded to meet longer term business growth.

The high specification facilities can support diagnostic and analytical research, from wet chemistry through to molecular technology, and could be configured to meet the needs of high throughput laboratory based production methods.

Naturally, any business will be self contained and secure but will also benefit from 24hr manned site perimeter security, within which is the Centre's own dedicated onsite parking.

To arrange a visit or to discuss any aspect of the accommodation on offer please contact Rod Anson, Business Development Manager, by emailing rod.anson@fera.gsi.gov.uk

Making the most of Fera's analytical capabilities

In January 2011 Fera became responsible for testing all samples taken in Great Britain under the UK Statutory Surveillance Scheme for veterinary medicines residues, on behalf of the Veterinary Medicines Directorate (VMD).

The sample types tested include urine, feed, serum and animal tissues, which are analysed for a wide range of potential drug residues, including growth promoting hormones and antibiotics. This scheme is a legal requirement for all EU countries and Fera will test more than 30,000 samples per year. It's a challenge which makes extensive use of Fera's analytical expertise.

A total of 25 different analytical methods, including rapid biosensor-based screening methods and confirmatory methods based on mass spectrometry, are used to

ensure that samples can be tested for a comprehensive suite of veterinary medicines within a short timescale. Samples containing residues above legal limits are investigated by the VMD.

Through this work VMD benefits from Fera's ability to handle large-scale testing regimes involving complex analyses.

Could you benefit too? To discuss your analytical needs please contact Matthew Sharman, Lead Scientist in Veterinary Medicines and Residue Research, by emailing matthew.sharman@fera.gsi.gov.uk



■ MALDI-TOF is among the technologies used at Fera.

Business review

by Paul Whitfield, Director of Finance and Corporate Services

Fera is an Executive Agency of the UK Government's Department for Environment, Food and Rural Affairs (Defra) and as such we operate on a net running cost model.



Paul Whitfield

Growing our income

Income for 2010/11, which is Fera's second year of operation, stood at £65.4m. On a like for like basis, this is 2%¹ above the 2009/10 income figure and represents a strong performance against a background of falling government income. Figure 1 provides a breakdown of Fera's income.

Defra remains our largest customer accounting for 56% (£37m) of turnover. This spend reduced following the General Election of May 2010, and is forecast to decline further in subsequent years due to the pressures on Government spending. However, as you will see in this review, an active programme is in place to diversify our income base to ensure Fera continues to thrive in coming years.

Our strategy includes growing our income from other Defra network partners and Other Government

Departments. This is something we made significant progress on in 2010/11, generating £9.3m – an increase of 10% year-on-year. One of the major successes has been the win, on overall value for money grounds, of the Veterinary Medicines Directorate's Statutory Surveillance Programme, which in recent years had been with a private sector provider. With a strong portfolio of commercial services meeting the needs of the food production, environmental risk assessment, wildlife management and plant health sectors, Fera has been able to achieve 18% growth in its commercial income streams, which now stand at £12.3m accounting for some 19% of our income.

This growth includes securing a number of repeat contracts with global food industry players, where we have expanded the depth of our commercial relationships through our expertise in experimental design and data interpretation and provision. Elsewhere, through strong relationship building, Fera has moved from being an ad hoc supplier to a long term partner for a leading food sector company.

In the environmental risk sector, we have secured multi-year deals with two rapidly growing international pharmaceutical manufacturers in veterinary medicines and animal nutritional sectors.

Fera's regulatory responsibility in the areas of plant health, plant varieties and seeds and bee health generated income of £4.3m for services delivered by Fera's own Plant Health and Seeds Inspectorate and other sub contracted varieties trials work. In some cases the fees for these services have not

been reviewed for many years prior to Fera vesting in April 2009. A significant piece of work in this area for 2011/12 is to conclude a consultation with the industry on how fees can be brought in line with the Government's requirement for such services to be provided on a full cost recovery basis.

One of the key pieces of research we undertake isn't into any scientific area, it is our customer satisfaction survey. Using a sample drawn from both our public and private sector customers, it provides an insight into what it is that customers value about their relationship with Fera and the services we provide. From the 2011 study it is clear that the knowledge of our staff, the quality of our work and our focus on meeting delivery deadlines are top of their reasons for using Fera.

Our strategy to achieve better utilisation of the Sand Hutton site progressed well. The transformation of an under utilised science block on the Sand Hutton campus into the York Science and Enterprise Centre was completed on time and within budget. The new centre provides ambitious small to medium sized science based businesses with 'grow on' space in a flexible, high specification laboratory environment. This development is the next step in Fera's drive to establish the Sand Hutton campus as part of the region's growing science capability. In recent months agreement has also been reached with two other government departments to relocate a number of staff at the Sand Hutton site, which will bring additional rental income to the Agency in 2011/12.

Figure 1
2010/11 Income (by source)

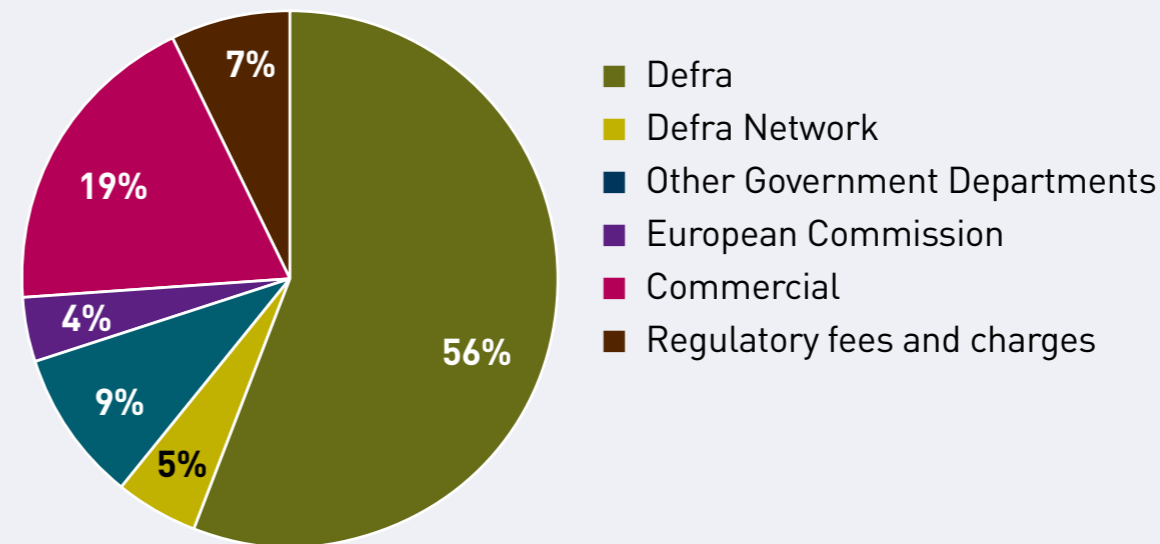
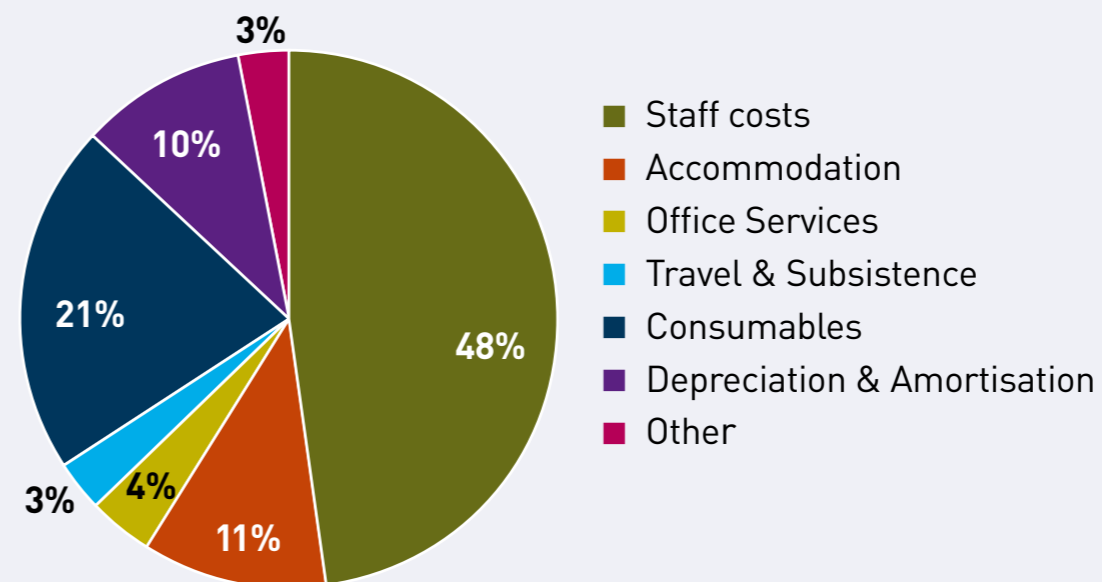


Figure 2
2010/11 Costs



Looking to the future

Fera continues to operate in a difficult economic climate with constraints imposed following the General Election in May 2010, which makes operating a commercial business particularly difficult. However, we are working closely with our owner to identify ways of developing the Agency to meet the future challenges presented to us.

As part of that process in 2010/11 we commissioned a study into potential market opportunities for commercial growth. The study identified six market segment opportunities where Fera can further leverage its position as a leading science and research facility, these being; Agrochemicals, Veterinary pharmaceuticals, Agriculture, Food related chemicals, Food and the Natural Environment. This work will be developed over the coming year to refine Fera's future growth strategy.

¹ This is after adjustment of the 2009/10 income figure to allow for the change in the Government's policy on accounting for the £3.9m cost of capital charge.

This document has not been audited. Fera's full audited Annual Report and Accounts 2010/11 can be found on our website www.defra.gov.uk/fera/annualReport

Fera's quality standards

All the quality standards applied by Fera are assessed by third parties including UKAS, the GLP Monitoring Authority, Lloyds QA, ISTA and the Chemical Regulation Directorate (CRD) so that Fera's customers can rest assured in the knowledge that the work carried out for them will meet or exceed their quality expectations.

ISO 9001:2008 Certification including TickIT for software development

The provision of scientific services to government and non-government customers worldwide. Software development in accordance with TickIT.

ISO 17020 Accreditation

Physical examination of controlled materials for quarantine pests and diseases covering plants, potatoes, produce, seeds and grains, and soils and growing medium.

Compliance to EU Council Directive 2000/29/EC, the Plant Health (England) Order 2005 and the Plant Health (Wales) Order 2006.

Sampling of regulated materials for plant health testing and diagnostics.

ISO 14001:2004 Certification Environmental Management System

Activities at Fera at York and Woodchester Park associated with analytical, diagnostic and consultancy services for the land based and food industries.

Good Laboratory Practice Compliance in accordance with Directive 2004/9/EC

Covering analytical chemistry, ecosystems, environmental fate and environmental toxicity.

National Reference Laboratory (NRL)

Fera is the NRL for the UK and Malta for chemicals in food, pesticides, veterinary drug residues and dioxins and PCBs in feed.

ISO 17025:2005 Accreditation

Food and plant health testing covering veterinary drug residues, pesticide residues, environmental contaminants, mycotoxins, food additives, authenticity, packaging, food microbiology, and plant pathogen detection.

ISO/IEC 17043:2010 Accreditation

Provision of proficiency testing covering food chemistry (FAPAS), food microbiology (FEPAS), GM detection (GeMMA), and water and environmental analysis (LEAP).

International Seed Testing Association Accreditation

Provision of seed quality testing.

Official Recognition of Efficacy Testing Organisations (ORETO) Compliance with Commission Directive 93/71/EEC

Efficacy trials and testing in agriculture/horticulture, stored crops, vertebrate control, and biologicals and semiochemicals. Assessed by CRD.

Investors In People (IiP) Accreditation

Fera holds accreditation against the IiP standard for all areas of its business.

Fera at a glance



■ Fera's 32ha science campus at Sand Hutton, York

Here are a few facts and figures about The Food and Environment Research Agency:

- We employ over 550 scientists and 150 plant and bee inspectors
- We have over 7,500 government and commercial customers
- We run over 600 research projects per year
- We provide services to customers in over 100 countries
- We work with more than 1,000 collaboration partners
- In 2010/11 our work led to the publication of over 150 papers in peer-reviewed journals listed in the Science Citation Index
- We operate at over 40 sites throughout the UK including York, Cambridge, Stafford and Gloucestershire





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