Food Integrity & Traceability

Protecting your Brand

Explore More with Fera

With a scientific heritage stretching beyond 100 years and over 350 scientists testing more than 100,000 samples per annum, organisations in over 120 countries around the world rely on Fera to ensure the quality and safety of their products and services. We believe the world is a better place working together in partnership. Effective partnerships are built on trust and confidence. We achieve this by delivering science excellence and unrivalled customer service. This means supporting our customers to play that vital role in people's day-to-day life, from the food we eat and the air we breathe, to the water we drink, to the environment we live in. Underpinned by our world class expertise and state of the art laboratory facilities we are pioneers in applying diagnostics, measurement and analytical science which puts our customers at the heart of the business of science whether the organisation is local or global. Through our risk management and decision support systems services and products, customers depend on our accredited quality and safety testing systems and know-how to mitigate emerging risks from resistance to invasive pests. We have earned a reputation through our highly respected and documented, published science papers with a significant amount in ground breaking techniques and new understandings which have delighted our colleagues and peers; however we go beyond this.

We constantly evolve our Science. Fera is committed to working in partnership, we believe long term strategic partnerships and shared goals deliver change at a faster pace. In this way, our partnership with you becomes our framework for how we do business together; ultimately delivering results. By using our wide knowledge and expertise of the key issues as your intelligent partner we can help you define and enter new and emerging markets for your products. We are about delivering quality every time, helping you shape your decisions whether you are one of over 2,000 world leading brands working with us on our globally accredited Fapas proficiency testing programmes or the local farmer down the road. Our premium Food Quality and Safety screening programme, sets the standards in the food supply chain and enables us to be the UK's National Reference Laboratory* giving you confidence of the accuracy of results.

Fera is impartial and independent as recognised within industry and government with many of our experts residing on relevant committees to aid future proofing food quality and safety. Add to this the fact that Fera has been entrusted as the custodians of the National Collection of Plant Pathogenic Bacteria, an internationally recognised collection established over 65 years ago, demonstrating unmatched expertise at Fera. At Fera, purposeful innovation is more than just words, as thought leaders we continue to be the leading innovator in our Science. So this means being driven and resolute in combining our knowledge, science and technologies to create solutions addressing many of our customers', and the world's, biggest challenges. Trust Fera to help you deliver the meaningful interactions that win customers for life.

Facts & Figures

- More than 350 scientists, many of whom are experts in their fields and are renowned on the scientific world stage
- Our science not only demonstrates our leadership and influence qualities but also our impartiality and independence. As a result many of our experts are recognised for this by being part of industry and government committees
- We participate in over 600 research projects per year
- We publish hundreds of peer reviewed journals and work with many collaboration partners
- 4km laboratory benching facilities with the latest technology and tools & state of the art equipment
- Unique access to an extensive portfolio of intellectual property
- Chemistry and equipment innovations
- Training Provider of innovation and new techniques as well as regulatory material
- Integrated Systems – materials integration and data analysis
- Materials Science – solutions for enhancing food safety & security and identifying alternatives
- Knowledge Centre – a suite of real time food safety & pesticide alerting & monitoring software and much more
- *We are the UK National Reference Laboratory for; mycotoxins, heavy metals, dioxins and PCBs in food and feed, PAHs in food, materials and articles in contact with food, pesticide residues in cereals and feeding stuff, fruits and vegetables, and single residue methods and some veterinary medicines residues

Protecting your Brand Worth

Fera has world-class research and development expertise and facilities here in York and are constantly in that headspace of bringing about what we affectionately term **'smart surveillance'**. We are constantly developing solutions for fighting food crime, with innovations like a global database of raw material and commodity issues across all food integrity areas running since 2002, which monitors supply chain issues, from fraud and authenticity concerns, pesticide or veterinary medicine residues, environmental and other contaminants to microbiological problems or allergens. This means we can deliver to our customers the high end quality assurance they need for their own brand protection.

Our Holistic Approach – Smart Surveillance

Origin, fate and behaviour of chemicals and microbes in food and the environment: Improved sustainability and reduced waste; food safety.	**Food quality, provenance and security:** Providing assurance in food authenticity and the detection of food fraud.	**Food production issues:** Advanced chemical and molecular biological science to solve production issues and improve product quality.	**Food safety compliance:** Surveillance of contaminants, residues and microbes entering the food chain.

This more historical approach, supported by our extensive breadth of scientific skills delivers the routine of safety assessments along with the more challenging. We pride ourselves on being the innovators of our industry, breaking new ground with our cutting edge techniques and methods, and helping to transform a company's R&D offering to meet their own changing industry needs.

Custom Made Testing – Individually tailored to fit your bespoke requirements

Like many laboratories, Fera is able to identify a wide range of known contaminants and residues in your food, many of which are controlled via EU legislation. **But, is this enough? The simple answer, especially when dealing with food fraud, is no.** Fera's experts are therefore continually investigating new ways to beat the criminals and to provide early warning of emerging risks. These 'foresight systems' allow companies to be made aware of developing issues at the earliest opportunity and to introduce mitigation procedures before a crisis develops. Much of this innovative work is based on non-targeted chemical and biochemical profiling of biological components in food samples, using advanced techniques such as NMR spectroscopy, high resolution Mass Spectrometry and Next Generation Sequencing coupled with advanced analysis of big-data. This approach is called 'smart-surveillance' and allows food businesses to better control their products and is capable of differentiating unusual events from the 'norm'. Smart surveillance can be used to provide a simultaneous assessment of a range of parameters including safety, authenticity and perhaps more importantly, product quality and/or product specification.

We have the ability to adapt to changing market conditions with our 'flexible scope' approach which means that we can validate a test that is not currently accredited, obtaining the necessary UKAS accreditation, giving our customers the assurance of accredited analysis quicker than the market;

Non-targeted analysis	Non-targeted chemical and biochemical profiling of biological components in food samples, using advanced techniques such as NMR spectroscopy, high resolution LC-MS, and next generation sequencing

The integrity of your food is paramount these days and with the pressure on to be open, transparent and to pave the way for a better world, you need the confidence in a brand you can trust to protect your reputation. Fera are constantly breaking new ground with advanced techniques.

This way of working can be very different for those used to long specifications and procurement processes, but it's essential for producing high-quality services to a standard that many users expect, it's about creating fast iterations of products and services based on real feedback.

What makes us different?

We are UKAS accredited to the internationally recognised ISO 17025:2005 and ISO9001 2008 standards. Dealing with an organisation that bears the relevant ISO hallmarks ensures innovative advances in technology are being disseminated as well as good management and conformity assessment practices being adhered to.

- We have extensive scope of UKAS (ISO17025) accredited tests
- We are able to obtain the necessary UKAS accreditation 'with our flexible scope approach' which gives customer the agility to act fast when needed
- National Reference Laboratory status (this gives you confidence of the accuracy of results)
- We deliver reliable results on-time and within budget
- We use multiplex testing where possible to provide more analysis for reduced costs
- We have an extensive range of experts, who can provide additional technical support to our customers
- We are constantly looking at new ways of delivering better analytical food safety for our customers

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UKAS 1624

Non-Targeted Analysis Example

Non-intentionally added substances (NIAS) and Non Listed Substances (NLS) represent a major issue for the food contact materials industry. As a requirement of the Plastic food contact Regulation (EU) No 10/2011, potential health risks in the final food packaging products or articles should be assessed by the manufacturer in accordance with internationally recognised principles of risk assessment. NIAS includes decomposition or degradation products, impurities of starting materials or contaminants from recycling processes. Non Listed Substances are colorants, solvents, polymeric production aids or aids to polymerisation which are exempt from authorisation in regulation (EU) No 10/2011 and are subject to national regulations or need to be risk assessed.

Non-intentionally added substances or NLS analyses are delivered by our highly experienced scientists and regulatory experts following these steps:

- Gathering chemical composition, as complete as possible, for the material, including all relevant information from the manufacturing process.
- Analytical Screening – this can include investigations utilising a series of analytical approaches to determine all potential migrants. These NIAS screening programs are executed with a wide range of sample preparation techniques (e.g. extraction with solvents under controlled conditions) and analytical techniques (GC-MS, GC-Q-TOF, LC-MS, ICP-MS) to identify and semi-quantify the presence of NIAS.
- Identification of hazardous substances based on literature surveys and/or based on international recognised scientific principles of risk assessment (e.g. TTC approach/Cramer classification).
- Exposure assessment. Migration studies and/or exposure assessment to define real exposure and estimated daily intake.
- Final risk assessment on any potential health risk associated with the final material or article.

Our scientists and regulatory experts, who have more than 30 years' experience in food contact materials testing, deliver cost effective analytical data, regulatory guidance and documentation to achieve compliance for your food contact materials, helping you to strengthen your advantage in the marketplace. This makes Fera the ideal partner when you need that expertise to meet NIAS and NLS requirements.

Future Proofing Your Brand

With the food industry increasingly subject to scrutiny, testing to ensure compliance with food safety regulations and to protect public health is a must. As a leading provider of analysis and testing services to the global food and agricultural industry we are constantly improving our methods in order to achieve a safe, high quality and more sustainable food and beverage supply chain. We know that businesses rely on our innovative safety solutions and expertise to help build their brands and improve food safety, sustainability and operational efficiency while reducing food waste.

We are the UK National Reference Laboratory for;

- Mycotoxins, heavy metals, dioxins and PCBs in food and feed
- PAHs in food
- Materials and articles in contact with food
- Pesticide residues in cereals and feeding stuff, fruits and vegetables, and single residue methods
- Veterinary medicines residues

There are many reasons why you need premium food quality safety screening from combating food fraud to correct consumer labelling – you only need to digest the latest results from the 'Which consumer survey' and some of the findings are quite shocking.

Did you know? (source: Which 2015)

- 1 in 5 lamb takeaways contaminated by other meats.
- Only 56% of people say they're confident that what they're buying is exactly what is stated in the ingredients list.
- 92% of people say it's important that local authorities test food to make sure companies are correctly labelling it.

Food safety, quality, authenticity and traceability are of the greatest importance to you and everyone involved in the manufacturing and distribution of food products and services. The cost of a product or process failure is measured in more than just money. It can also do lasting harm to your reputation.

As your partner, we will support and guide you through the whole process offering you a wide range of effective solutions for your business needs including fit-for-purpose and risk-based testing, scientific and regulatory consulting, technical solutions for manufacturing/production issues and training. We can also use our analytical expertise to assist with meeting your Corporate Social Responsibility targets.

Standard Routine Tests

Our laboratory base just outside of York is strategically centrally located within the UK to allow fast and reliable testing and analysis; protecting your company, preserving your reputation and ensuring safe and quality food is delivered to the market. Whether focusing on specific aspects of your operations, or providing integrated solutions along your entire supply chain, our proposition remains the same; total commitment to delivering expert services that add real value to your business.

Combating food fraud is an ongoing mission for manufacturers and consumers alike in our fast paced modern society where traceability and sustainability are high on the agenda. For example, whether food contains animal by-products that are not fit to enter the food chain. From the packing and selling of beef and poultry with an unknown origin to knowingly selling goods which are past their 'use by' date, or the deliberate mis-description of food, such as products substituted with a cheaper alternative, these issues can all be serviced by Fera's wide offering of food Integrity diagnostics and quality screening range.

Contaminant	Tests
Food Contaminants	GC-MS and LC-MS for mycotoxins and food contaminants
Illegal dyes	Targeted analysis of illegal Sudan dyes
Authenticity, origin and traceability	Targeted analysis to detect food fraud and adulteration, and to confirm the authenticity and origin of foods, including DNA speciation
Food packaging and migration	Targeted and non-targeted screening for chemical migrants in food, food packaging and food contact materials, including Bisphenol A (BPA), BADGE and PFOS/PFOA and Non-Internationally Added Substances (NIAS)
Organic environmental contaminants	Ultra-trace analysis (parts per trillion and lower) of dioxins, PCBs, PAHs and related compounds
Trace elements	ICP-MS multi-element analysis including arsenic, cadmium, mercury, and lead
Pesticide residues	GC-MS and LC-MS multiresidue screening
Veterinary medicines residues	LC-MS screening for residues, including chloramphenicol, nitrofurans, tetracyclines, quinolones, macrolides, antimicrobials, nitroimidazoles, benzimidazoles, and avermectins including crystal violet and malachite green

Contact Us
Standard routine testing – T: 01904 462442 E: foodana@fera.co.uk

Turnaround Times
Our turnaround times vary by test, however they are typically from 10 working days and we are able to offer a premium rate, fast track option of 5 working days on certain tests.

Food Contaminants

Food contaminants are controlled under EU food safety legislation. We have an extensive suite of full analytical screening solutions specialising in testing for and identifying the levels of mycotoxins, contaminants resulting from food processing and illegal use of food additives.

Description	Target LOQ	Units	Determination Step	Application
Mycotoxins				
Aflatoxins B + G	0.2	µg/kg	HPLC	Foodstuffs and animal feedstuffs including: cereals, nuts, milk, dried fruit, rice
Aflatoxins M1 (+ M2)	0.01	µg/kg	HPLC	
DON	50	µg/kg	HPLC	
Fumonisins	40	µg/kg	HPLC	
Ochratoxin A	0.2	µg/kg	HPLC	
Patulin	5	µg/kg	HPLC	
Trichothecenes	50	µg/kg	GC-MS	
ZON	10	µg/kg	HPLC	
Food contaminants				
Acrylamide	30	µg/kg	GC-MS	Fried, baked and roast foods
3-MCPD	10	µg/kg	GC-MS	Soy sauces, HVP flavouring products and raw materials
DCP	5	µg/kg	GC-MS	
Furan	2-5	µg/kg	GC-MS	Canned and bottled food
Ethyl carbamate	10	µg/kg	GC-MS	Fermented foods
HMF	1	mg/kg	HPLC-UV	Honey and sweeteners
Total phenols	1	mg/kg	UV-VIS	Fish
Nitrate/nitrite	10/5	mg/kg	Ion Chromatography UV	Vegetables, meat, baby food
Methyl imidazole & THI	1	mg/kg	LC-MS	Sweeteners

Description	Target LOQ	Units	Determination Step	Application
Illegal use of dyes				
Sudan I – IV, Orange G, Black B	10	µg/kg	LC-MS/MS	Spices, seasonings, flavourings, sauces, pastes, batters, and derivatives of these products, including: curry powders, pastes, oils and oleoresins
Sudan Red 7B, G, B	10	µg/kg	LC-MS/MS	
Para Red	50	µg/kg	LC-MS/MS	
Rhodamine B	10	µg/kg	LC-MS/MS	
Butter Yellow	10	µg/kg	LC-MS/MS	
Orange II	10	µg/kg	LC-MS/MS	
Toluidine Red	10	µg/kg	LC-MS/MS	
Fast Garnet	10	µg/kg	LC-MS/MS	
Metanil Yellow	50	µg/kg	LC-MS/MS	
Auramine	10	µg/kg	LC-MS/MS	
Orange Oil SS	100	µg/kg	LC-MS/MS	
Bixin	100	µg/kg	LC-MS/MS	

Authenticity, Origin & Traceability and Non Targeted Analysis

We also have the most accurate chemical and molecular testing methods to confirm authenticity and provenance of foods, as well as offering up to date advice and guidance on food authentication issues, helping you protect your brand integrity and monitor compliance with labelling requirements like those arising through use of alternative or genetically modified ingredients.

	Description	Determination Step	Application
	Food authenticity and traceability		
Meat and gelatine speciation	**Meat and fish speciation**	Real-time PCR based amplification of DNA and DNA sequence analysis	Specific detection using real-time PCR of turkey, chicken, duck, pheasant, quail, pork, beef, lamb, horse and donkey meat in cooked meats, pate and pies. Specific detection using real-time PCR of haddock, Atlantic cod, European plaice and Atlantic salmon in raw and lightly cooked products. Sequence analysis to verify or determine the species in an 'unknown' sample
Meat and gelatine speciation	**Meat binding agents**	Protein mass spectrometry	Presence and identification of species of blood based binding agents, e.g. presence of pork protein in fish and chicken
Meat and gelatine speciation	**Gelatine speciation**	Liquid chromatography – tandem mass spectroscopy	Detection and determination of species of origin of gelatin in food
Stable isotope testing	**Geographical origin**	Stable isotope ratio mass spectrometry (IRMS) and trace element analysis using ICP-MS	Verification of food provenance, e.g. PDO, PGI labels relating to meat, honey, rice and many others
Stable isotope testing	**Verification of natural origin of food additives**	Compound specific isotope ratio mass spectrometry	For example flavours, preservatives
Stable isotope testing	**Wine, fermented juices and spirit drinks**	Site-specific natural isotope fractionation nuclear magnetic resonance spectroscopy (SNIF-NMR) and IRMS	Geographical origin and botanical source of the original sample.
Targeted analyses	**Authentication of corn-fed chicken**	Mass spectromertry	Verification of labelling requirements
Targeted analyses	**Authentication of wine**	Suite of analysis	Verification of labelling requirements eg. Alcohol by volume, sulphur dioxide.
Targeted analyses	**Authentication of honey**	Targeted analysis	Manuka honey related compounds, Hydroxymethylfurfural (HMF) analysis, Veterinary medicine and pesticide residue analysis.
Non-Target	**Bespoke authenticity analysis using chemical, biochemical or nucleic acid (DNA / RNA) profiling**	Non-targeted analysis, e.g. NMR spectroscopy, high resolution mass spectrometry, Next Generation Sequencing	Geographical origin Species indentification Detection of product adulteration

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Food Packaging and Migration

As we know with recent headlines, contaminants migrating from food contact materials means food packaging can be a source of chemical food contaminants. Our experts believe food contact materials are an underestimated source of chemical food contamination. The extent to which migration occurs depends on various factors from temperature to storage time to size and physio-chemical properties of the food, packaging material and the migrant.

Description	Target LOQ	Units	Determination Step	Application
Food packaging				
Plasticizers (phthalate esters)	0.02-0.05	mg/kg	LC-MS/MS or GC-MS	Foodstuffs and animal feedstuffs including: cereals, nuts, milk, dried fruit, rice
Plasticizers (ESBO)	5	mg/kg	LC-MS/MS	
Residual solvents from printing inks	0.01	mg/kg	GC-MS	
Primary aromatic amines	0.01	mg/kg	LC-MS/MS	
BADGE and its hydroxy and chlorinated derivatives, BFDGE	0.1	mg/kg	LC-Fl	
Bisphenol A	0.05	mg/kg	LC-Fl	
Photoinitiators	0.01-0.05	mg/kg	LC-MS/MS or GC-MS	
Diisopropylnaphthalenes	0.02	mg/kg	LC-Fl	
Styrene	0.01	mg/kg	GC-MS	
Vinyl chloride	0.005	mg/kg	GC-MS	

Environmental Contaminants & Trace Elements

There are many organic environmental contaminants that occur naturally in marine and animal based foods, all at very low concentrations like dioxins (PCDD/Fs), polycyclic-aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and poly-brominated diphenyl ethers (PBDEs), but to ensure a healthy and sustainable food chain you need to ensure your screening programme can detect these toxic chemicals and comply with EU regulations.

Description	Target LOQ	Units	Determination Step	Application
Organic contaminants				
PAHs extraction & analysis	0.02-0.2	µg/kg	GC-MS	Foodstuffs including fish and fish products, meat and meat products, milk and milk products, eggs, fats and oils Animal feeds
PCDD/Fs & non *ortho*-PCB analysis	0.01	ng/kg	High resolution GC-MS	
ortho-PCB analysis	0.01	µg/kg	GC-MS	
PBDEs analysis	0.01	µg/kg	GC-MS	
Perfluorinated alkyl compounds (e.g. PFOS)	1-5	µg/kg	LC-MS/MS	
Trace elements				
Multi Element Customer Selection	0.01-0.7	mg/kg	ICP-MS	Foodstuffs including fish and fish products, meat and meat products, milk and milk products, eggs, fats and oils Animal feeds
Iodine	0.01-0.7	mg/kg	ICP-MS	
Inorganic arsenic	0.01-0.7	mg/kg	ICP-MS	

Pesticides Residues – Pesticides and the Environment

With the constant pressures on the agricultural industries to deliver more and more; whether high yielding crops at a competitive price to supplying the ever demanding food supply chain – intensive farming practices have to use fertilisers and pesticides. Food production has been increasing by growing these high-yielding crops, removing other plants and pests and adding fertiliser to the soil.

Farmers worldwide use more than two million tons of chemical pesticides each year. Whilst each pesticide is assessed by Regulators (and are regarded as safe when used correctly) they can make their way into a land, water and air source, and, in some cases when used incorrectly, have the potential to affect the whole ecosystem as well as being harmful to human health. As a consequence, the concentrations of pesticides in food and animal feed are strictly controlled. Food producers are responsible for the safety and quality of their products. To protect your business and minimise the risk of negative health impacts, you need to comply with the relevant guidelines and standards for minimising levels of harmful pesticides in the food chain and the environment. For such a critical service, you need a partner you can trust to deliver precise, quality results. Being the National Reference Laboratory for Pesticides Residues gives you the confidence that we will provide you with reliable, accurate testing results ensuring the quality and safety of your products and processes and ultimately safeguarding the image of your brand.

Product Test	mg/kg
Multi-Residue Methods	
GC-MS Multi-Residue Screen for Fruit, Vegetable, Cereals	0.01 to 0.05
LC-MS Multi-Residue Screen for Fruit, Vegetable, Cereals	0.01 to 0.05
GC-MS screen as per Infant Food Directive 1999/39/EC	0.003-0.01
LC-MS screen as per Infant Food Directive 1999/39/EC	0.003-0.01
GC-MS Multi-residue screen for Animal Products	0.0005-0.01
LC-MS Multi-residue screen for Animal Products	0.0005-0.01
Single Residue Methods	
Chlorate and/or Perchlorate	0.01 to 0.05
Chlormequat and/or Mepiquat	0.01 to 0.05
Dithiocarbamates	0.05 to 0.1
ETU and/or PTU	0.01 to 0.05
Ethephon	0.01-0.05
Glyphosate	0.1
Inorganic Bromide	10
Maleic Hydrazide	0.1
Quaternary ammonium compounds (QAC's)	0.05
Trinexapac-ethyl	0.01 to 0.05

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Veterinary Medicines Residues

We have an extensive range of tests designed to determine low level residues in complex matrices such as animal tissues, dairy products, and where raw materials are not available, processed foods and ready meals. The laboratory services range from rapid screening, through to full quantification and confirmation using the most up to date measurement technology such as optical biosensors and mass spectrometry.

Mass spectrometry is the preferred technique at Fera for the identification, quantification and profiling of chemicals (both good and bad) in food. The development of mass spectrometers and related techniques has grown at pace over the last 3 – 5 years. This has included continued improvements to sensitivity (detection limits), a new capability to both target and profile chemicals in food within a single experiment, miniaturisation and the introduction of techniques that can provide measurements on the surface of products (such as tablets and packaging materials) within a few seconds. Fera has invested in all of these advanced technologies and works in strategic partnership with instrument manufacturers to ensure that these new technologies are both suitable and advantageous to the food industry.

With our self accreditation (Flexible Scope) under ISO/IEC 17025 we have the ability to offer an agile approach to testing for our customers in a timely manner. A fixed scope of accreditation requires an evaluation of the laboratory's competence by the accreditation body for each new test that is added to the scope. A flexible scope allows adding a new test based on a competence evaluation carried out by the laboratory. This inclusion of a new test to the flexible scope is verified by the accreditation body, in our case UKAS.

Description	Analyte Class
Antimicrobial	
Antimicrobial screen	Penicillins, sulphonamides, tetracylines (separate tetracyclines test is required for seafood, fish and eggs)
Antimicrobial post screening	Penicillins, sulphonamides, cephalosporins, macrolides, quinolones, tetracyclines
Aminoglycosides	
Avermectins	
B-agonists	
Benzimidazoles (and imidazolthiazoles)	
Chloramphenicol	
Coccidiostats (multiresidue)	Ionophores, coccidiostats, nitroimidazoles
Dyes	
Florfenicol	
Macrolides	
Nitrofurans	
NSAIDs	
Penicillins/Cephalosporins	
Phenolic anthelmintics	
Quinolones (including fluoroquinolones)	
Sulphonamides	
Tetracyclines	
Tetracyclines	
Tranquillisers	

Innovation in Food Testing

In today's fast paced modern society, globalisation makes food safety more complex and essential, making it all the more of a challenge. Globalisation of food production and trade is making the food chain longer and complicates the investigation of foodborne disease outbreaks, as well as product recall in case of emergency. This can be a very expensive and time consuming exercise for all, something to be avoided at all cost.

Food fraud is much more prevalent than most consumers understand. It affects everything from seafood to milk, spices and even food colouring — anything with even a moderate economic value is at risk. Food fraud is, of course, not a new phenomenon. Since the 13th century, Britain has had laws against diluting wine with water, adding ash to pepper, or padding flour with chalk. Some of the more high-profile food fraud case headlines are quite shocking and every organisation within the food supply chain needs to ensure they are protected;

- In June, more than 100,000 tons of smuggled, frozen, expired meat — some of it decades old — was seized in China from groups selling it for consumption.
- In September, global walnut crop failures lead to an increase in fraudulent peanut substitution.
- South Africa experienced an enormous recall of supermarket products in October after they were found to be coloured with banned dyes.
- China: an undercover video of fake rice being produced in China out of plastic resin and sweet potato.

Achieving food safety is a multi-sectoral effort requiring expertise from a range of different disciplines – toxicology, microbiology, parasitology, nutrition, health economics, human and veterinary medicine. Today's food supply is complex and involves a range of different stages including on-farm production, slaughtering or harvesting, processing, storage, transport and distribution before the food reaches the consumers. Hence food contamination that occurs in one place may affect the health of consumers living on the other side of the world. So this means that everyone along the production chain, from producer to consumer, must follow food safety practices.

The Difference of Fera

With access to great industry and scientific insights and minds, we help companies to understand their trends within their own market and sector enabling them on their journey of innovation together with strengthening their compliance measures. The spotlight is very much on tighter regulation on official controls aimed at modernising legislation on animal health, plant health and plant reproductive materials containing specific provisions relating to food fraud. These new rules would include regular unannounced checks along the food supply chain aimed specifically at identifying fraudulent activity and mandatory testing programmes as part of an EU-wide coordinated control plan. There could also be provision for establishing sector-specific controls as and when new risks emerge. You need to ensure you are working with partners who you can trust and confidently know how to navigate the optimum path in these food fraud matters.

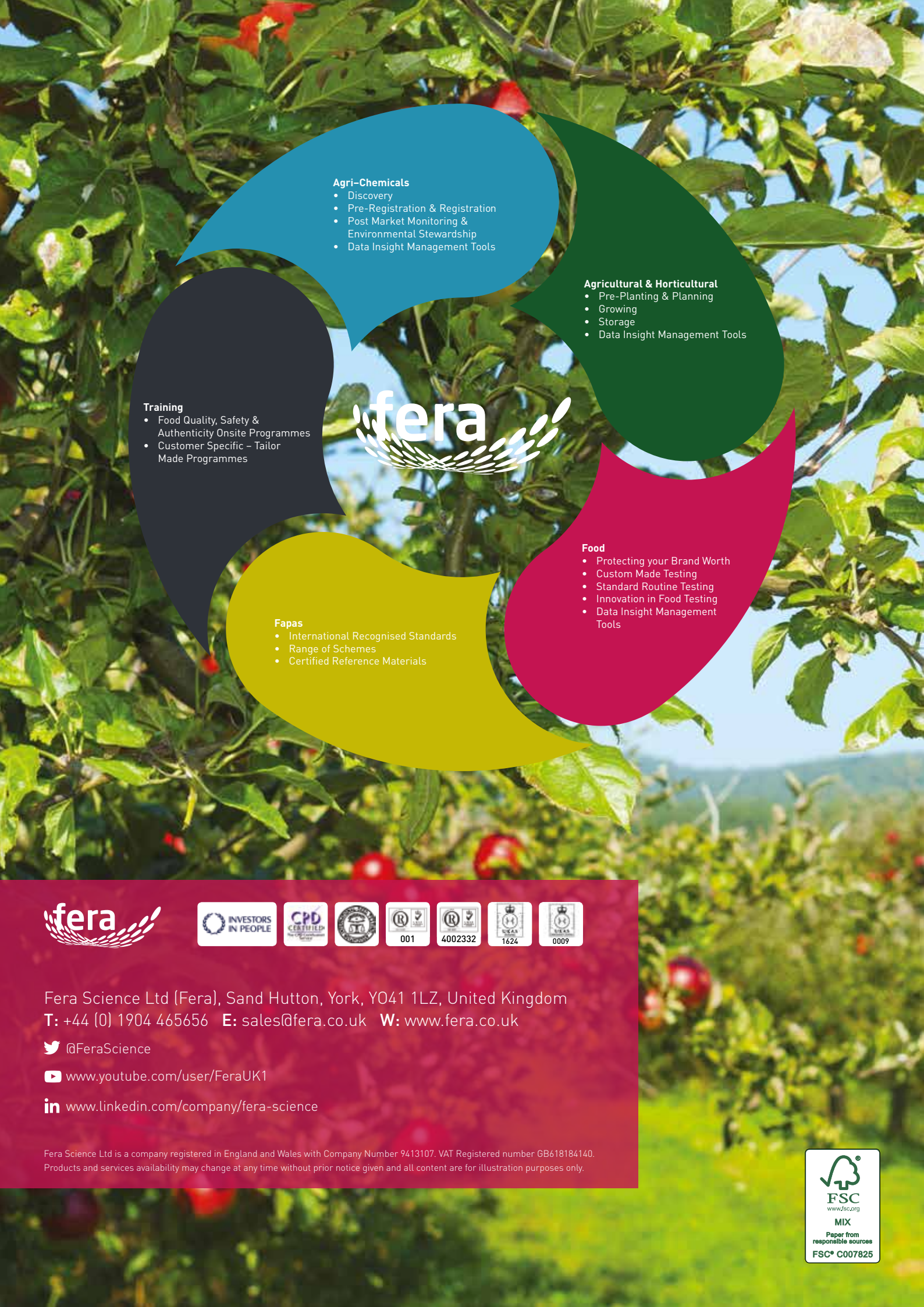
Emerging risk identification is a vital weapon in your armoury against food integrity issues and with tools like HorizonScan, developed at Fera, the hard work is done for you. Working across all food sectors from around the world, its advanced search functions, daily alerts to common food hazards and any emerging threats, combined with the functionality of screening individual commodities, potential suppliers and exporting countries for previous issues help ensure opportunities for food contamination to your supply chain are minimalised.

Data Insight Management Software Tools

Our extensive experience and understanding of contaminants analysis and safety in the food supply chain has enabled us to deliver a suite of intelligent web based software aiding you to make those all important business decisions;

- **HorizonScan –** Global information on food contaminants, rapid alerts and residues including mycotoxins, allergens, microbial, PCBs, heavy metals, food fraud, veterinary medicines, pesticides and dioxins.
- **FC24 –** EU wide information on food contaminants, rapid alerts and residues including metals, nitrates, veterinary medicines, pesticides and dioxins.
- **LIAISON –** Comprehensive information on UK pesticide approvals, label information, UK/EU and CODEX pesticide MRLs.
- **HOMOLOGA –** Comprehensive database of global pesticide approvals and MRLs, including active, marketing company, harvest interval, expiry date, approved crops, maximum dose.

HorizonScan
Food Safety at Your Fingertips



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