

FOOD STANDARDS AGENCY
SCIENCE EVIDENCE AND INFORMATION STRATEGY 2015-20
PROGRAMME OF WORK
February 2016

The FSA Strategy and Strategic Plan for 2015-20¹ make clear that effective use of science is crucial to achieving the FSA's ambitious goals for protecting consumers' interests in relation to food. The Strategic Plan sets a strategic objective for FSA that:

We will use science, evidence and information both to tackle the challenges of today, and to identify and contribute to addressing emerging risks for the future.

The FSA's Science, Evidence and Information Strategy (SEI Strategy) and its Delivery Plan set out how we will do this.² They describe the vision, principles and framework for our SEI work, and a high-level narrative of the key objectives and areas of work. These are illustrated by a set of headline activities, which we will undertake to achieve and to test progress against our objectives.

This **Programme of Work** sets out our programme of science, evidence and information work in more detail, showing the programme as a whole and how the activities fit into a timeline across the Strategy period, 2015-2020. It is not an exhaustive list of everything we will do, but aims to set out the main activities we will carry out to implement the SEI Strategy and its Delivery Plan. It includes work we expect to commission externally, work we will carry out ourselves and where we will work in partnership.

We are publishing this programme of work - which we will update annually - to inform stakeholders on our plans and to **invite input** from stakeholders, external experts and potential partners, to help us identify

- ✓ better ways to formulate our overall needs
- ✓ existing evidence that might meet our needs, and
- ✓ opportunities to work together.

Alongside this, we also publish a Forward Evidence Plan³ each year, which provides more detail on individual pieces of work we expect to commission in the coming year. Again, we invite feedback on these specific projects, before they are commissioned.

Activities in the programme may change in light of feedback, changes arising during commissioning, progress of work, and wider developments. We will update our published programme of work annually.

If you have any comments on the Programme of Work please send them to:

CST@foodstandards.gsi.gov.uk

¹ <http://www.food.gov.uk/about-us/about-the-fsa>

² <http://www.food.gov.uk/sites/default/files/fsa151104.pdf>

³ <http://www.food.gov.uk/science/sci-gov/scistrat>

DESCRIBING THE PROGRAMME

The programme of work sets out the main activities following the framework set out in our SEI Strategy, which is based on two sets of themes:

The science we need to develop and apply

1. Understanding **risks** and how to evaluate and compare them, so that we can target our work on effective consumer protection
2. Intelligent and shared use of **data**, information and analytics, to understand existing risks, identify new and changing risks, and to develop targeted and effective surveillance and regulation
3. Understanding **consumers, food businesses, enforcement bodies and others in the food system** and how we can work with them to support behaviour change and build and spread good practice
4. Learning from **what works** and what doesn't, to maximise positive impacts and value for

The way we conduct our science

1. Building and maintaining the **skills and capabilities** we need
2. Assuring the **quality** of our science, evidence and information and their use so they have value for us and utility and legitimacy for others
3. **Use, communication and knowledge transfer** of science, evidence and information, for openness, engagement and effective use and impact by FSA and others
4. Delivering ambitious objectives and cross-cutting impact through **strategic partnerships**

Types of SEI activity

Entries are colour-coded to show where they fit within the four categories of SEI activity which we need to address and balance within our programme:

<p>Supporting policy and operational priorities Science, evidence and analysis to inform and evaluate specific policy, regulatory and operational work.</p>	<p>Building future capability Strategic and longer-term work, focused on developing future capabilities, better or radically different ways of doing things in the future, and high-risk/high gain projects.</p>
<p>Statutory Work we are required to do by statute (such as surveillance and monitoring).</p>	<p>Core and cross-cutting Core data and capabilities that underpin our work - such as data on food consumption and people's behaviour and to assure governance, quality and impact.</p>

New projects for 2016/17

Projects we expect to commission in 2016-17 are shown in **purple text**, and are described in more detail in the Forward Evidence Plan, which invites comments on these projects.

Partnerships

Delivering through strategic partnerships is a key theme in the SEI Strategy. Activities we are delivering or expect to deliver in partnership are indicated by a **[P]** after their title.

Headline activities

Activities to address the headline projects in the SEI Strategy Delivery Plan are marked HEADLINE.

1. Understanding risks and how to evaluate and compare them, so that we can target our work on effective consumer protection			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
Sound and up-to-date evidence base on established priority risks and detriments	Survey of Campylobacter in chicken at retail (waves 2, 3 and 4)		
	2016 Slaughterhouse Monitoring Study (running for 5 years, with annual review)		
	Extended On Farm Testing Provision of Campylobacter in Broiler Chickens		
	Independent Validation of Industry Campylobacter interventions [P]		
	Enhanced molecular-based (MLST/whole genome) surveillance and source attribution of Campylobacter infections in the UK		
	Sources, Seasonality, Transmission and Control: Campylobacter and human behaviours in a changing environment [P]		
	EU Harmonised Survey of Antimicrobial Resistance (AMR) in Retail Meats (Pork & Beef/ Chicken) [P]		
	Assessing the Contribution Made by the Food Chain to the Burden of UK Acquired Norovirus Infection		
		EU Norovirus Baseline Survey	
		Research to inform the Foodborne Disease Strategy including on elevated risk pathogens	
	Review priorities for future programmes on food allergy and food intolerance	Implementation of Adult Food Allergy Programme of Research	
	Update to systematic literature review on early introduction of allergenic foods and risk of developing allergic disease		Implement first projects from Food Allergy Programme of Work
	The Effect of Extrinsic Factors on Food Allergy		
	Preferences of those with food allergies and/or intolerances when eating out		
	Timing of introduction of allergenic foods into the infant diet and prevention of food allergy		
Sound and up-to-date evidence base on established priority risks and detriments (continued)	Survey of acrylamide and Furan Levels in UK Retail Products		
		Development of hygienic, safe procedures for production of smoked skin-on sheep meat.	

1. Understanding risks and how to evaluate and compare them, so that we can target our work on effective consumer protection			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
Fundamental reviews of the evidence base in key areas	HEADLINE Systematic review of the contribution of food system to antimicrobial resistance	HEADLINE Follow-on work to address the priority evidence gaps and needs identified in the review of AMR and food	
	HEADLINE Workshop in partnership with EFSA on foodborne viruses [P]	HEADLINE Follow-on work to address key evidence needs and gaps from workshop on viruses	
	Review of the evidence base in relation to Campylobacter	Meat Hygiene Policy area research review	
Research, modelling and other analysis to understand risks and how they may change in the context of the wider food system	Investigation of the Potential transfer and uptake of contaminants into food arising from the use of recycled waste in agriculture		
	Projects from 2015 Expression of Interest call (4): use of recycled waste-derived materials		
	NFCU threat analysis on food crime[P]		
	Scope and define priorities for understanding of vulnerabilities that affect exposure to or ability to manage risks	Implement programme of work on understanding vulnerabilities and reflecting them in our approaches.	
		Modelling of risk of E coli O157 in rare burgers and impact of interventions on reducing risk	
	Monitoring hospital episode statistics to track trends in food allergies and food intolerance		
Understanding food futures and wider changes in or affecting the food system	FSA partnership in Defra network food-environment horizon scanning service [P]	Review scanning and other futures needs and commission new activities [P]	
	ESRC co-fund systems challenge/complexity [P]		
	Partnership in 5-year interdisciplinary Global Food Security (GFS) Programme on Resilience of the UK food system in a global context' [P]		

1. Understanding risks and how to evaluate and compare them, so that we can target our work on effective consumer protection			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
Applying new data, methods, and partnerships (including on genomics) to provide better capabilities to understand and to manage existing and new risks in the future	Partnership in the Global Microbial Identifier international programme[P]		
	Co-funding of research fellow in microbial molecular epidemiology for pathogens in the agrifood chain[P]		
	Projects from 2015 Expression of Interest call (3): next generation sequencing 'big data'	Review potential for rapid/better test methods and follow-up work on priorities	
	Projects from 2015 Expression of Interest call (5): optimising food sampling and analysis.		
		Application of whole genome sequencing to fully characterise enteroaggregative E.coli isolates from the IID1 and IID2 studies	
Research and engagement with consumers (and businesses) on what level of protection is appropriate in different risks and contexts	HEADLINE Defining appropriate levels of protection and means to achieve them to help set objectives for regulation and compliance. Y1: research on consumers' views and attitudes on and chemicals and on burgers served rare	HEADLINE Exploring consumer tolerance and perception of different food risks	
	HEADLINE Begin work on relative measurements of risk and impact to enable us to compare and engage with consumers in comparing different forms of consumer detriment in relation to food and options for their control		HEADLINE Conclude work on relative measurements of risk and impact and identify and take forward applications
		HEADLINE Consumer research on communicating risks and raising awareness of chemicals of concern in food.	
Consistent, transparent, evidence-informed decisions and approaches on risk	HEADLINE Define programme of work on risk and decisions in partnership with external experts and advisers [P]	HEADLINE Implement the programme of work [P]	HEADLINE Review work on risks and decisions and define any new needs and priorities
	HEADLINE Further development of framework for foods with an increased risk per serving and supporting evidence		
	HEADLINE Develop frameworks (and supporting data/analysis) to support decisions that balance risks, benefits and other factors in consistent, evidence -informed and transparent ways; and test application of frameworks in practice with iterative improvement and evaluation[P]		

1. Understanding risks and how to evaluate and compare them, so that we can target our work on effective consumer protection				
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond	
<i>Core data and analysis on patterns and trends in the nature and content of food, and on food consumption and food practices by UK consumers and their exposures to risk</i>	National Diet and Nutrition Survey (NDNS) [P]	Review future approach to NDNS and/or its successors including supplementary or alternative approaches [P]		
	Statutory monitoring programmes for shellfish, egg, dairy, RDM, wine, radiological (including habit surveys)			
	National sampling programme with Local Authorities [note: approach from 2016/17 on will reflect the development of FSA's overall approach to surveillance]			
<i>Underpinning capabilities</i>	Risk Assessments by FSA teams, working with SACs and other experts, including for our incident response			
	Support and co-ordination on laboratory methods and networks, including National Reference laboratories and the EU reference laboratories, and collaborative trials[P]			
	Chemical & Biological Contingency Laboratory [P]			
		Horsemeat detection in highly processed foods		

2. Intelligent and shared use of data, information and analytics, to understand existing risks, identify new and changing risks, and to develop targeted and effective surveillance and regulation			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
Extracting maximum value from our own and others' use of our existing data wherever it is available and fit for purpose	Optimisation of gathering and use data from LAs work in enforcement and monitoring[P]		
	Projects from 2015 Expression of Interest call: optimising food sampling and analysis	Further work to develop/test/implement promising applications	
		HEADLINE Assessing the feasibility and relative effectiveness of different ways of providing food hygiene information to new FBOs via a digital platform.	
Use of new data sources, partnerships, and tools (for example, econometrics)	Y1 Partnership call with IT as a Utility for pilot projects on application of Internet of Things (IoT) to food. [P]	Y2/3 follow-on research to further develop promising areas and applications in IoT, and other applications of sensors and other technologies [P]	
	HEADLINE Exploring partnership with Digital Catapult[P]		
	Exploring potential partnership on use of sensors and remote systems with STFC, Innovate UK[P]		
Co-ordinated targeted surveillance (and links to other surveillance e.g. in public health)	HEADLINE Develop a new approach to surveillance, and implement in Year 2 [P]		
		The future of Trichinella in UK wildlife surveillance	
Use of Big Data and social media to identify existing and new risks and baselines, and early signals (for example, foodborne disease outbreaks), and to target advice, regulation and enforcement	Projects from 2015 Expression of Interest call (3) Exploring the potential of integrating next generation sequencing and other 'big data'[P]		
	White Rose Scholarships in uses of big data for food safety [P]		
	HEADLINE Real-life test of Social Media Norovirus early warning tool with PHE/NHS Choices and DFE[P]		
	HEADLINE Establish partnership with Alan Turing Centre [P]	HEADLINE Deliver programme of work on top applications of Big Data to deliver food we can trust, working with Alan Turing Centre and others[P]	

2. Intelligent and shared use of data, information and analytics, to understand existing risks, identify new and changing risks, and to develop targeted and effective surveillance and regulation				
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond	
<i>Understanding and modelling of the food system as a system, to help us to understand where and how we can best achieve impact.</i>	Partnership with ESRC and others co-funding projects on complexity co-fund[P]			
	HEADLINE Explore partnership with Centre for Agri Metrics on food system data and modelling [P]			
	Identify the types, sources and analyses of food system data most useful for FSA work			
<i>Underpinning work</i>	HEADLINE Underpinning work on technical infrastructure: improving the ways in which we make our data available so others can access and use it, and ways to pool and share data for multiple uses and users			
	Governance: Establishment of the Social Media Analytics Review Group[P]			Review and extend approach to wider governance of data and digital work by us and by others[P]
	Skills: Appointment of Director Digital, Data and Communications and Head of Data Science			

3. Understanding consumers, food businesses, enforcement partners and others in the food system and how we can work with them to support behaviour change and build and spread good practice			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
Robust data and analysis on consumers, businesses and the food system, how these relate to policy and operational priorities, and how these may change	Food and You (Waves 4 to 6)		
	Food and You Waves 1 - 3 Evaluation		
	Ongoing use and development of our core tools for engaging with consumers and analysis of the outputs: Online Panel, 6-monthly Public Attitudes Tracker; Citizens' Panels and ad hoc Forums		
	Rare burgers market analysis		
	Omnibus survey questions relating to <i>Campylobacter</i>		
	Inspection data and other statutory monitoring of businesses		
Joining our and others' data on consumers and their views and interests in the wider food system, now and in the future	HEADLINE Scope, gather evidence and analysis and hold conference on food futures and consumer interests in February 2016 [P]	HEADLINE Develop and implement programme of activities drawing on outcomes of conference and wider work in government and more widely [P]	
Harnessing the power of consumers, businesses and social media to engage and support consumer decisions and good practice	Review communications and other tools to support dialogue and informed decisions	Test and apply approaches to communication and evaluate	
	HEADLINE Extending visibility and use of FHRS open data by linking to yell, tripadvisor, google and other platforms		
	NI Front of Pack Labelling - NI Research & Campaign		
		Identifying mixed motives for and against compliance among food businesses	
		A study of mental models shaping inspector work and their impact on the consistency of controls	
Citizen science	HEADLINE Review potential for citizen science to help deliver food we can trust [P]	HEADLINE Deliver first wave of citizen Science initiatives [P]	HEADLINE Review and further work on citizen science [P]
	HEADLINE Develop an online tool for structured capture and analysis of citizen reports on food safety issues		

3. Understanding consumers, food businesses, enforcement partners and others in the food system and how we can work with them to support behaviour change and build and spread good practice			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
<i>Development and testing behaviour change models; work on consumer and business attitudes and practices, including evidence to understand the scope for segmented/flexible approaches</i>	HEADLINE Review of behaviour change models		HEADLINE Piloting and evaluating use of selected models in real FSA projects
	Develop and implement work on the basis for and tools to apply segmented approaches to policy, advice, regulation and inspection.		

4. Learning from what works and what doesn't, to maximise positive impacts and value for money, through our own work and our work with others				
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond	
<i>Developing and testing new tools for effective policy and enforcement, and comparing and testing regulatory and policy options to identify which work best (with feedback to improve our and others' performance)</i>	HEADLINE Evaluation: FHRS (ongoing; and mandatory vs voluntary display)			
	Evaluating impact of new campaigns and approaches		Review of consumer communications	
	Phase 3 Study into the use of spotters to assist official inspection			
	Audit of the Display of Food Hygiene Rating Scheme (FHRS) in England, Wales and Northern Ireland			
	Audits of Local Authorities and analysis/follow-up [P]			
	Develop FSA Innovation Plan to ensure a coherent and proactive approach so we are open to and make use of innovation in regulation [P]	Implementation and review of the Innovation Plan		
	Trial to explore effectiveness of controls for poultry inspection and control with enhanced verification and process control criteria, with a particular focus on campylobacter			
				Post implementation review of the E. coli O157 cross contamination guidance issued in December 2014
				Evaluation of listeriosis guidance
				Innovation in the delivery of official controls in meat plants
		Development of an Active Management System (AMS) for shellfish harvesting		
		HEADLINE: Evaluation of targeted Local Authority initiatives		
		HEADLINE: Development and test of a debiasing tool for inspectors		

4. Learning from what works and what doesn't, to maximise positive impacts and value for money, through our own work and our work with others			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
<i>Understanding and testing which combinations of approaches work best to achieve our objectives - from traditional formal regulation to campaigning and to supporting behaviour change and informed decisions</i>	HEADLINE Scoping of new ways to deliver, including shared assurance; modelling of options and impacts and costs	HEADLINE Analysis and testing to understanding how effective different enforcement tools and approaches (and combinations) are including confidence in management and assurance	
	HEADLINE Official Food and Feed Controls -	evidence base and advice	
	HEADLINE Future Delivery Models: define evidence and analysis needs[P]	HEADLINE Future Delivery Models: implement work identified by scoping/review; may include evidence reviews, modelling, piloting, evaluation[P]	
		HEADLINE External Review of new delivery model for feed law official controls	
		HEADLINE: Development and test of a comparative approach to assess the impact of different ways of delivering controls	
		HEADLINE: A review of prioritisation strategies for delivering controls	

4. Learning from what works and what doesn't, to maximise positive impacts and value for money, through our own work and our work with others			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
Tools to evaluate and compare impact and benefit across different science, policy and regulatory areas	HEADLINE Projects from 2015 Expression of Interest call (2): use of technology in meat operations		
	Modelling to support work on review of meat charging		
	HEADLINE Developing our use of data, analysis tools to assess the impact and benefits of our work, including though the use of measures such as Quality Adjusted Life Years, Willingness to Pay.		
		HEADLINE Valuing Benefits of FSA Research and Development (R&D)	
		HEADLINE Estimating the direct cost of microbiological and allergenic foodborne illnesses.	
	Develop and apply proportionate approach to prioritisation of new evidence work focusing on impact (underpinning)		
	Development and application of analytics to support effective impact assessment and evaluation across FSA work		
Partnerships to share information and tools to understand impact.	Partnership in Wellbeing What Works Centre [P]		

HOW			
	Year 1 2015/16	Year 2 2016/17	Year 3+ 2017 and beyond
Assuring the quality of our science and evidence and their use so they have value for us and legitimacy for others	HEADLINE Quality Change Programme led by Deputy CSA/HOSEP: develop QA framework across all our science (including separation of provision of science input and its assurance)		
		Support and assure application of frameworks for effective and transparent use of evidence in decision-making.	
	Reputation Change Programme led by Deputy CSA/HOSEP		
Use, communication and knowledge transfer of science, evidence and information, for openness, engagement and effective use and impact by FSA and others	HEADLINE Develop and implement process to ensure we identify and realise clear pathways and plans for use and impact for all our own science work		
	HEADLINE Launch a programme of CSA Quarterly Reports to communicate FSA Science and its impact in ways that are accessible to a wide audience and allow those who want to drill down into the detail	Further develop and implement Science engagement programme including through use of social media and partnerships with others	
	HEADLINE Sharing our data and information in ways others can use [P]		
Maintaining and building the skills and capabilities we need	HEADLINE Complete an analysis of skills needs and gaps and develop science skills strategy	HEADLINE Consider our needs and where we can act in respect of the longer-term skills pipeline, in partnership across government [P]	
	HEADLINE Working across government to develop and support science professions: lead project with HOSEP community to identify ways to support toxicologists across Government [P]	Further work on other profession and disciplines [P]	
	HEADLINE Complete Triennial Review of the FSA's Scientific Advisory Committees [P]	HEADLINE Implement recommendations from Triennial Review [P]	
	HEADLINE Lead development of SAGE Guidance on scientific issues + sources of expertise relevant to a national-level food incident [P]		
	Developing use of secondments and exchanges [P]		