R3.1. Develop a systematic, targeted approach to engage with academics in relevant research areas to provide incentives. For early career researchers this might include fellowships e.g., with learned societies or the UKRI Future Leaders Fellowships scheme. In addition, there are several schemes where academics can spend some time in FSA e.g. Biotechnology and Biological Sciences Research Council's Flexible Interchange Programme.
R3.2. Offer greater support to work those working with FSA e.g. offer expert advisors mentoring on specific requirements of the advisory role.
R3.3. Engage with the universities and other employers of experts and communicate the value and impact of their staff acting as expert advisors to FSA.
R3.4. Engage in discussion across government on how central processes such as the Research Excellence Framework (REF) can better reward academics, institutions involved in advisory roles across government.
R3.5. Increase remuneration to those on committees who will lose income because of the current day rate or identify an alternative approach to make expert roles more attractive.

Issue 4:

How the FSA can ensure it has the internal science capability it needs to be effective in developing and identifying, accessing, and using science to inform FSA's decisions

Background:

The WG observed that the main challenges for the FSA are to know what internal science capability it needs, and to access, support and use this capability effectively.

The WG agreed with the view of the CSA that the FSA science capability needs to produce new evidence and access all evidence within the organisation. This would ensure that science is developed or identified, accessed and used appropriately to inform decisions and advice.

Feedback from the CSA, the evidence from the interviews carried out by the WG Chair and the internal staff survey suggest that there are differences in how science is embedded and used across the FSA. Some FSA groups have scientific expertise and are aware of the need to use science and do so effectively. In other groups the understanding and use of science is patchy.

The WG heard that the science and analytics teams in the FSA had identified key staff to act as Business Partners (BPs), paired with specific groups in the FSA. Their role was to provide a single point of contact to help the group access the science providers, and to help FSA groups understand the science they might need and how to access it and use it effectively. The FSA questionnaire and interviewees both highlighted that BPs were effective in linking the providers and users of research and helped the latter access and use science more effectively. However, there was variation in the ability to access the BP and not all groups had a BP. The CSA's Team reported that all BPs had other roles and resource had constrained the availability of BPs to meet demand. For FSA to get the full value from BPs they would need to be consistent across all FSA groups and to be resourced to meet demand, including giving the BPs permission to prioritise this role within their complete job description.

Interviews with FSA staff also highlighted that there was an opportunity to make better use of data owned by FSA from inspection and monitoring. Analysis of such data could help engage the staff involved in data collection, improve data value and quality, answer existing questions and identify new challenges and questions. For example, the CSA noted that using data from meat inspection in abattoirs could add value for money to its collection. Given the investment in data science this new capability could be used as an early win.

Interviews highlighted there were opportunities to improve links with the National Food Crime Unit which used excellent approaches to analyse suspected dishonest activity that could be shared to help best practice in other groups in the FSA.

There is scope for improvement to reduce the variation in procurement and use of science across groups. This will be determined by the amount and type of internal resource the FSA has, and to how FSA makes use of this resource. Having more people working on science engagement (internally and externally) would enhance the FSA's ability to bring in new ideas and areas of expertise. The FSA should also consider if it can work more smartly to make better use of the resource available.

The WG noted that FSA works with other organisations within government to access expertise. Building collaborations and formalising arrangements by increasing mutual access to internal expert capacity in emergencies would help increase resilience.

The WG developed pictorial representations of the current flow of science information between different groups in the FSA and proposed a better or 'ideal state (Annex 2). These are not intended to be comprehensive but to highlight that moving from the current to the 'ideal' state

would provide connections between all providers and users of science. To be effective these connections would need to be proactive, frequent, and with a fully two-way flow of information.

Elements of good practice:

Internal science capability in the FSA falls into three role types, listed below. Good practice will reflect having a sound understanding of how science is needed in each of these three roles, having the right amount of capability in each role, and joining them up to use them effectively:

a. Specialist research roles for example performing risk assessments or economic analysis

b. Science roles for example defining and managing research projects, interpreting results, acting as science business partners

c. Science literacy in other roles: knowing when science is needed, how to access it and to work with science providers to use the outcomes effectively to inform decisions.

Recommendations:

The FSA should:

R4.1. Have a culture and leadership in which it is clear that FSA values use of science across all areas. This should support a shared and reciprocal endeavour to identify, access and use science across FSA.
R4.2. Understand the nature and level of capability that different employees of FSA need.
R4.3. Ensure FSA has and continues to maintain the internal capability and capacity it needs. Ensure FSA actively reviews its needs at intervals and takes steps to continue to maintain and develop what it needs, because these will change with time.
R4.4. Ensure FSA has and continues to maintain intelligent users of science by a process of induction for new employees on its value and having suitably resourced Business Partners in FSA teams to support all staff.
R4.5. Improve the use of data from staff in the field in inspection and monitoring roles with the aim of: • improving quality of field data, making better use of data e.g. to identify patterns of risk over time, spatial differences in reporting across abattoirs • motivating and improving quality of data collection by field staff.
R4.6. Strengthen links between the National Food Crime Unit and the wider FSA (in particular work on surveillance, horizon scanning and data) to ensure that potential synergies and complementarities are fully exploited.
R4.7. Ensure FSA has a well-established collaborative approach with key partner organisations such as Public Health England and the Animal and Plant Health Agency, so that in emergencies the ways of working together are effective.

The FSA and the FSA Science Division should:

R4.8. Strengthen the FSA's use of science partnering systems to improve links between science providers and users. This should ensure coverage of all science and user areas, provide a resilient and effective network of teams and help preserve organisational memory.
R4.9. Ensure the Business Partner role is better supported.
R4.10. Explore ways to support knowledge sharing and engagement, such as online tools and platforms, networks and informal communities.

R4.11. Strengthen the internal profile of science with activities focussed on skills and understanding such as: shadowing, mentoring, rotating posts; surgeries (where staff are invited to drop in to ask questions of FSA experts); sandpits to develop ideas and share good practice; identifying and encouraging FSA staff who are effective at introducing others and brokering.

Issue 5

How the FSA can put processes in place which provide assurance that its science and evidence activities are operating effectively and with integrity

Background:

The use of science within the FSA is an area that the WG did not have time to fully understand. The inputs from the CSA and FSA showed that FSA has a number of guidelines, frameworks and processes around assurance, but that these do not provide a complete, systematic overview of how well science is used practice, or complete confidence that the FSA would identify failures in use of science promptly.

The FSA has identified a need to strengthen its assurance and has identified four aspects on which assurance is needed: capacity, quality, relevance and use.

The Working Group suggested that the FSA's approach to the use of scientific evidence in decision- making should be formalised by setting out what should happen and being more transparent in showing what is done in practice. The FSA should look at what it might learn from other organisations and tools (such as NICE and GRADE in the health sector, although these operate in a different context to that of FSA's work).

Elements of good practice:

- Leadership from FSA that there is an expectation that science will be acquired and used with integrity
- A clear, agreed framework showing how processes that involve obtaining, creating and using science should work, that sets clear expectations and provides a reference for review and assurance of performance of the different parts of the FSA

Recommendations:

The FSA should:

R5.1. Develop a framework to be used for assurance of FSAs access and use of science. In developing the framework, the FSA should reflect the following points:

i. The framework and processes should be proportionate and should not be a barrier to FSA's seeking out and using scientific input

ii. Assurance processes should address different levels of activity in different ways. This would include individual activities and tasks (such as a risk assessment); assurance on specific projects or decisions (such as a Board paper setting out proposals for decision), periodic reviews at the level of FSA as a whole (which could be internal and, every few years, external). It would also cover day-to-day oversight and quality control, and one-off audits either on random and/or targeted pieces of work or programmes

iii. Assurance will need to be flexible and adaptable to future challenges and developments in the FSA's work.

R5.2. Set out its approach to the use of evidence in decision making to make expectations clear and provide a reference against which to check and assure performance in practice. In implementing this recommendation, the FSA should:

i. consider approaches used elsewhere (for example NICE and the GRADE system)[10], and assess whether these can be adapted to the FSA's context. It should also consider, and where appropriate reflect, previous work by the FSA, such and the reports with Heads of national Food Agencies in Europe on transparent use of risk assessment in decision making

ii. distinguish between the processes for assessing what the evidence says, and those for ensuring that the evidence is properly considered and used in decision making

iii. show how other factors besides the scientific evidence were taken into consideration in decisions.

R5.3. Consider incorporating into the framework existing tools (for example the FSA Science Checklist).

R5.4. **Ensure that the owners of the different decision processes using science and evidence in FSA are responsible for developing suitable audit programmes for their processes and specify what would a good audit would show. The CSA should have oversight of this process.**

R5.5. Routinely document and publish the evidence trail, showing how science is used in practice in FSA decisions and advice.

R5.6. Develop and publicise internally examples of good practice to help establish a common understanding of what good use of science looks like, and maintain institutional memory.

[10] NICE: National Institute for Health and Care Excellence. GRADE (Grading of Recommendations Assessment, Development and Evaluation. a structured framework for decision making) is used in the health sector for assessments and decisions about health treatments and interventions

Annex 1: acknowledgments

Membership of Working Group: Chair

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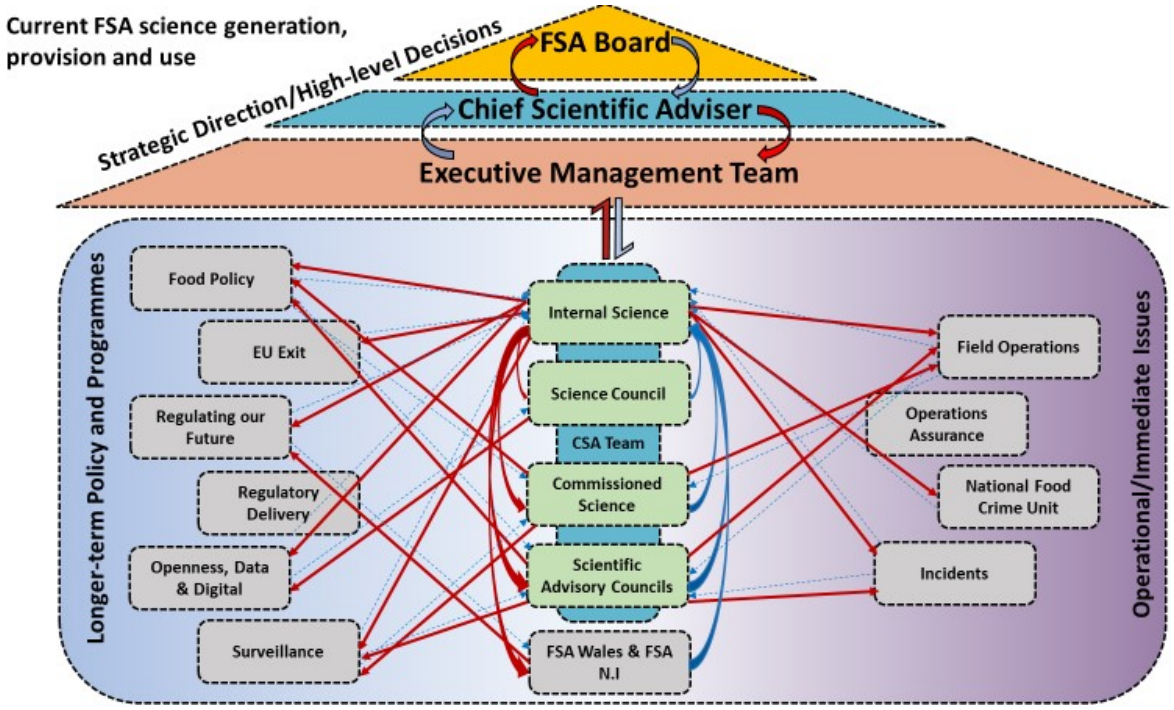
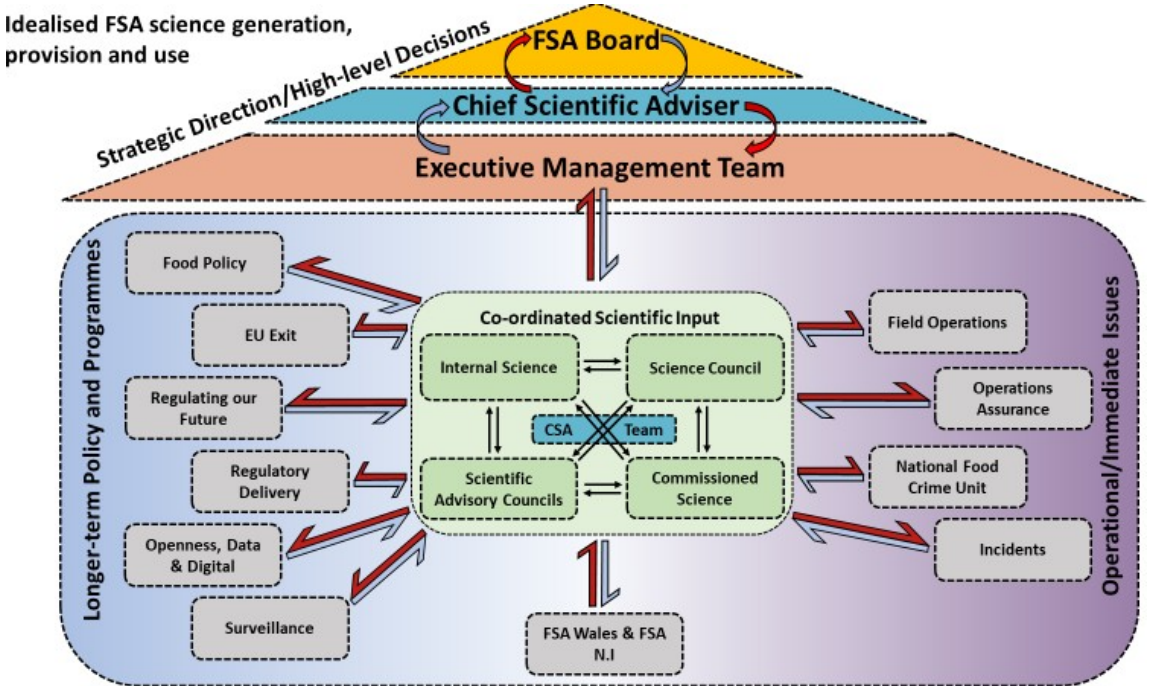
Professor Guy Poppy, FSA Chief Scientific Adviser

FSA staff interviewed by WG Chair (Note: FSA CSA Guy Poppy also attended)

Roles in FSA	**Staff interviewed**
FSA Northern Ireland	Kirsten Dunbar
FSA Wales	Delyth Murray-Lines, Owen Jones
Food Policy	Mark Willis, Linden Jack, Stuart Armstrong
Regulating our Future Team	Leigh Sharpington
Surveillance	Bhavna Parmar, Rachel Mumford
Operational Vet Lead	John Lawrence
EU Exit Team	Carles Orri
Meat Hygiene	Milen Georgiev, James Ridsdale
Regulatory Delivery	Andrew Gangakhedkar, Mark Davies, Rachel Patrick, Angela Towers, Nicolette Harrison
Operational Delivery	Glen Leat, Carmel Lynskey
National Food Crime Unit	Giles Chapman

Annex 2: diagrams of current and 'ideal' FSA science generation, provision and use





Representation of the flow of scientific information in the current system of generation, provision and use compared to the 'ideal' state of co-ordination between the various FSA units/ programmes. The connections illustrated in the depiction of the current state of play do not represent the full extent of activities but rather serve to illustrate the primary links and thus the opportunity for future improvements, particularly with respect to the two-way flow of information. Further efforts to move towards the 'ideal' state, would strengthen the placement of science at the heart of FSA.