Annual Science Update from FSA's Chief Scientific Adviser

FSA 26/06/05 - Report by Professor Ian Young

1. Summary

1.1 This is my first annual report to the Board as the Food Standards Agency's Chief Scientific Adviser (CSA). At the time of writing this paper I will have been in post for only eight weeks, so my focus is inevitably on initial impressions and should be considered in this context.

2. Introduction

2.1 To recap, my role as the FSA CSA is essentially threefold:

- to provide high level assurance about science within the FSA (including the work of our independent Scientific Advisory Committees), offering independent challenge and advice to the Board, Executive and the organisation more widely.

- to maintain strong links with CSAs in other government departments as well as key external stakeholders, representing FSA's interests in the wider (inter)national landscape and ensuring that the organisation benefits from the most up to date scientific findings from other fields.

- to act as an ambassador and communicator of science both within the FSA and across government, industry and consumer groups.

2.2 This is an independent report, reflecting on my first impressions of science within the FSA during my first eight weeks in post, as well as the Agency's relationships within the science and evidence landscape across government, the UK and wider world. I look forward to providing a more comprehensive report next year after my first year in post. However, below I discuss my early thoughts on key scientific priorities for the Agency, highlighting ongoing and future challenges, and providing recommendations for areas of development, looking ahead to my next 12 months as FSA CSA.

2.3 The FSA has overlapping but different functions and responsibilities in England, Wales and Northern Ireland. My opportunities to interact with and visit Wales have been very limited to date, although I have established regular meetings with the Welsh Government CSA. I look forward to further interactions with FSA Wales and Welsh Government in the next few months, and the opportunity to reflect more closely on these in my next report.

2.4 Most of these recommendations are operational in nature and there largely for the Board to note. However, in some cases they would imply either an elevated risk for the organisation or a level of strategic direction.

3. Progress on Last Year's Recommendations

3.1 In the 2025 Annual Science Update to the Board paper, SERD provided a summary of the work undertaken in response to the 2025 CSA report. Since September 2025, the following key progress has been made:

- Continuation of work to strengthen the FSA relationship with international partners, for example co-chairing the Joint Food Safety Regulatory Economics Working Group (FSREWG) and International Social Science Liaison Group (ISSLG) Scientific Meeting in Singapore in April 2026. (addressing Recommendations 1 & 5).

- Planning for the 26/27 SAC recruitment campaign and to review future needs with regard to SPS (Sanitary and Phytosanitary) (addressing the concern that led to Recommendation 2).

- Alongside the ongoing delivery of the National Food Surveillance Programme, establishment in FY26/27 of a new surveillance research programme to meet the "Better Surveillance" ambitions set out last year. The aim of this programme is to build on the work delivered by the PATH-SAFE programme and focus on the further development and deployment of innovative methods to enhance food system surveillance and build national laboratory capability (addressing Recommendation 8).

- Close working with the Government Office for Science (GO-Science) and the Universities Policy Engagement Network (UPEN) to raise awareness of FSA ARIs and find additional opportunities for collaboration, supplemented by externally publishing the current and planned research portfolio for FY26/27 to increase collaboration at a project level (addressing Recommendation 11)

- Continuation of work to strengthen the strategic insights programme to understand emerging threats and opportunities, most recently to consider the impact on the UK food system of the 2026 Middle East Conflict (addressing Recommendation 12)

4. Initial CSA Impressions

4.1 The FSA is a science and evidence led organization, which from the top-down places emphasis on identifying and understanding available evidence and commissioning research to address key evidence gaps. Science capability within FSA is strong and operates under clear governance structures and effective leadership. There is awareness of the value of the full range of evidence, including social and behavioural sciences.

4.2 The FSA draws upon input from a range of Scientific Advisory Committees (SACs) in addition to the Science Council and the Advisory Committee on Social Science (ACSS). In general, these work effectively in line with their core responsibilities, though objectives and ways of working will need to be reviewed in the context of the SPS agreement. I include some additional suggestions in relation to the Science Council and ACSS below.

4.3 FSA has a broad remit, with a focus on food safety, authenticity and ensuring food is healthy and sustainable. In addition, supporting innovation and growth is an important priority. This remit in turn must be supported by a wide appreciation of science and evidence. Given the limited resources available, most of this evidence will be generated independently of FSA, so relationships and participation in networks, nationally and internationally, are critical in ensuring awareness of new and emerging risks or opportunities for innovation.

4.4 In early discussions several areas of particular importance in terms of scientific evidence have emerged. These include reasons for threshold breaches in relation to foodborne disease; the effects of additives in the context of ultraprocessed food; opportunities for improved data access and sharing and the use of AI; and utilisation of, and access to, external scientific advice. Each of these is considered below.

4.5 Participation in the CSA network has recently changed. Prior to my appointment to FSA, the Government Chief Scientific Adviser reduced the size of the CSA network to exclude a number of CSAs who were previously members. As a consequence, the FSA CSA is not currently a member of the network but must rely on bilateral relationships with other Departmental CSAs and Government CSAs in Wales and Scotland. **I believe that this is disadvantageous from an FSA perspective, and have raised the issue for further consideration.**

5. Access to Scientific Advice

5.1 As discussed above, the FSA has a number of SACs, each of which has its own terms of reference and remit. Given the potential move to dynamic alignment with the EU, the roles and responsibilities of the four SACs and associated Joint Expert Groups (JEGs) will need to be reviewed and amended as required. The impact on individual SACs is likely to vary depending on their current remit and the details of any final SPS agreement. A recruitment exercise for new members will take place later this year as the terms of existing members, which have already been extended in some cases, come to an end.

5.2 The SACs and JEGs appear to work well under effective Chairs and with excellent support from the FSA secretariat. However, the pace of working and time taken to complete reports remains a challenge in some cases, and **the FSA should consider how this could be improved, including through the use of AI (discussed below).** This is partly related to resources available to the supporting secretariat, and this should be considered as part of the overall SAC review along with mechanisms for agreeing timelines for individual pieces of work which provide optimal support for business needs.

5.3 The Science Council and ACSS in general provide advice on broader areas of interest to FSA rather than conducting specific risk assessments, responding to commissions and questions but with the option of highlighting issues of interest/concern themselves.

5.4 In the case of the Science Council, a broad area of interest is often agreed in the autumn, and it may take several months to agree a specific focus for a piece of work which is conducted over the next year. Having discussed this with the Science Council Chair, **it would be more efficient and would help the work of Science Council to agree specific objectives rather than a broad area of interest early in the process, at the point of commissioning.** This would allow the work to proceed at an earlier stage in the cycle. Each commission for Science Council (and ACSS; see below) should be clearly linked to FSA strategic priorities, and the FSA response to recommendations should be tracked and reported. In addition, Science Council should provide time and opportunity on a regular basis for members to raise areas of emerging evidence or risk which have the potential to impact on FSA.

5.5 ACSS currently meets twice per year in plenary session and has four standing working groups. In addition, there is representation from a social sciences perspective on the Science Council. ACSS covers a broad and important area, including quality assurance, and comments on any research proposals falling within its remit. It is important to ensure that members have a clear understanding and appreciation of FSA strategic priorities to help focus their thinking as they approach their work, and **an update on this could form part of their standing agenda.**

5.6 In addition to the structures above, FSA has a Register of Experts (RoE) which can be called on to provide targeted advice in specific areas. At interview, potential SAC members who show sufficient expertise are asked if they wish to join the RoE. They can then be commissioned for specific pieces of work using set processes pre-agreed with procurement. Expert advice from the RoE was utilised 33 times in 25/26.

5.7 The different roles of the Science Council, SACs and a College of Experts (as summarised by GO-Science) are illustrated below, and the RoE is most closely aligned with a College of Experts:

5.8 Guidance on best practice for establishing a College of Experts is available via GO-Science; **a review should be conducted to determine how the FSA RoE aligns with best practice in this area, and whether more can be done to ensure that FSA can quickly access and make best use of a wide range of external expertise.**

6. Foodborne Disease

6.1 Following threshold breaches for Campylobacter and Salmonella, an investigation was initiated last year. With input from the Epidemiology of Foodborne Infections Group (EFIG), the ACSS and the Science Council, eight potential hypotheses were identified and analysis related to six of these has been taken forward, with the remaining two under consideration.

6.2 A variety of projects are currently being considered as part of the annual Research and Evidence Programme (REP) cycle, including future research project proposals for 26/27 which will aim to provide potentially actionable evidence in relation to the shortlisted hypotheses. **In terms of the projects which are proposed, it is important to specify how the outcomes might lead to actions which would potentially reduce infections.**

6.3 One of the questions, which remains unresolved, is the extent to which increased detection reflects either change in the quality or quantity of testing. There has been a gradual shift towards the use of molecular testing rather than culture for detection of both Salmonella and Campylobacter, which is significantly more sensitive in addition to being easier to conduct. Methods associated with detection of positive cases and data on the amount of testing which is being conducted in hospital laboratories are not currently available. **UK Health Security Agency (UKHSA) should be the source of this information for England, and it is important that the relevant data is obtained.**

7. Ultraprocessed Food

7.1 Risks associated with the consumption of ultraprocessed foods remain a matter of considerable public interest. An extensive body of literature supports associations between intakes of ultraprocessed foods and a wide range of adverse health outcomes. It remains unclear to what extent these associations are a consequence of the high saturated fat, salt and sugars content of many ultraprocessed foods, adverse effects of various additives or contaminants which may be present in such foods, or characteristics such as palatability.

7.2 A huge amount of international research is ongoing into the risks associated with ultraprocessed food consumption, and policy interventions to reduce consumption have been enacted or are being considered in a number of countries. **FSA should be actively informed about emerging evidence and key studies which are underway, as well as the evaluation and impacts of policy interventions internationally, and this should be a focus for future work.**

7.3 In addition to understanding emerging research and evidence, it is important for FSA to have accurate information about exposure to ultraprocessed foods and key constituents in the UK population. This information could come from dietary intake data or measurement of relevant biomarkers, although both are problematic.

7.4 FSA is a relatively small funder in this space, but given its role as a regulator should be in an important position to influence priorities and decisions of major UK funders. **Information about dietary intakes could be obtained from the National Diet and Nutrition Survey (NDNS) or from other major ongoing population studies which have assessed dietary intakes. This is likely to require modification to NDNS processes if sufficiently accurate information is to be obtained, and FSA should seek to influence design and conduct of the study.**

7.5 The alternative approach to assessing exposure would be to make use of validated biomarkers in NDNS and population studies which have collected appropriate samples alongside dietary intake data. **Identifying UK based studies which can provide dietary data and samples for biomarker analysis should be a priority, alongside a review of the status and validity of potential biomarkers of ultraprocessed food consumption.**

7.6 In practice, a combination of dietary and biomarker data is likely to provide the most robust indicator of exposure to key ultraprocessed food constituents. All of this data is likely to have deficiencies but should be explored to the extent possible and **appropriate links fostered with external academic groups to discuss and evolve best practice methodology.** In particular, the approach taken in the NutriNet-Santé study in relation to exposure to emulsifiers (dietary intake data, food composition data and dietary biomarkers) should be considered as a way of assessing exposure.

7.7 Carefully designed and controlled clinical trials in humans are required to clarify plausible mechanisms implicating constituents or characteristics of ultraprocessed food. Funding or conducting such trials is likely to remain outside scope of FSA, but it will be important to influence funding calls by UKRI and other major funders where possible to ensure that useful evidence is generated. **A process to identify key mechanistic research questions from an FSA perspective in the ultraprocessed food space should be considered, involving discussions with key research groups and other stakeholders**.

7.8 FSA retains responsibility for nutritional advice in Northern Ireland (NI), with a population of a little under two million. Purely from a scientific perspective, it would be possible in the future for NI to act as a testbed for implementation and evaluation of evidence-based advice, in relation to ultraprocessed foods or other issues.

8. Data Access and Sharing

8.1 Access to routinely collected data is critical for many aspects of FSA activity, including access to health and industry data. In both cases it is likely that arrangements for data sharing could be further improved.

8.2 Access to health data may be of help in relation to understanding foodborne disease and potentially for other purposes, when linked to dietary intake or biomarker data. There has been

extensive investment in providing anonymised health data with the potential for linkage to other data sets in the context of large cohort studies (such as UK Biobank) through the use of safe havens. UKG (with funding support from the Wellcome Trust) is developing a Health Data Research Service (Health Data Research Service | Major Initiatives | Wellcome) to bring together health data and encourage linkage with other datasets. Discussions are ongoing with the Devolved Administrations about participation. **FSA should consider opening discussions with the HDRS senior team to explore any benefits which might result from collaboration.**

8.3 UKHSA is a critical source of data for FSA in relation to foodborne disease and outbreaks. As discussed above, there may be additional data available via UKHSA which would be of use in supporting current hypotheses around threshold breaches, and access to this on an ongoing basis should be explored.

8.4 In addition to health-related data, large volumes of food safety industry testing takes place, and FSA does not currently have access to much of this data. The Quadram Institute are currently seeking to establish a network for data sharing in this space. **While there may be sensitivities in relation to FSA access to industry data, options for access (in an anonymised form) should continue to be explored.**

8.5 In the future, access to appropriate data will be essential in relation to any role of FSA in relation to Healthier Food Targets and Reporting, as referenced in the 10-year Health Plan for England.

9. The Use of AI

9.1 The use of AI, and more recently agentic AI, is expanding rapidly, and it is important that FSA maximise the use of validated approaches to improve efficiency and increase the pace of working where possible and when it is safe to do so. The opportunities extend well beyond routine productivity gains: AI is increasingly being applied to evidence synthesis and systematic reviews, analysis of complex datasets, horizon scanning, and quality assurance of scientific outputs. **There may be opportunities to explore the use of these approaches to increase the speed and confidence with which SACs and Science Evidence and Research Directorate (SERD) can safely complete risk assessments, potentially including the integration of New Approach Methodologies (NAMs) into the process.** There is also clear potential to further strengthen surveillance, drawing signals from foodborne disease data, sampling, intelligence feeds and open sources, so that emerging risks are identified earlier and acted on faster. The risks associated with AI use are real and must be managed, so a proportionate balance is needed; but FSA should remain forward-looking and continue to invest in the validated use of AI across its scientific, surveillance and regulatory functions.

10. Contaminants

10.1 There is considerable public and political interest in the presence of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) and microplastics in food, and potential risks to health. European Food Safety Authority (EFSA) has established limits for four PFAS, which may have implications for FSA in the event of an SPS agreement.

10.2 In 2023 the Committee on Toxicity (COT) considered the EFSA opinion which set out the scientific basis of the new EFSA tolerable weekly intake for the sum of four PFAS that the EU have now set specific limits for in certain foods. COT noted a number of reservations and uncertainties about the endpoint selected and the key studies that EFSA used to set their Health Based Guidance Value (HBGV). Due to the uncertainties noted, it was agreed that the COT would undertake its own consideration of the evidence base and risk assessment. This will consider a number of critical endpoints, consider the biological relevance of the endpoints

assessed, whether and how different PFAS can be grouped for assessment, and the potential for deriving a HGBV or a number of HBGVs as the data allow. The future of this work will need to be reviewed in the context of the SPS agreement.

10.3 In the interim, the FSA has commissioned the development of suitable analytical methods for PFAS and a programme of work to establish levels in a range of foods through sampling will be carried out. This should provide information about levels of PFAS for which limits have been recommended / agreed and in turn inform risk assessments and support any future regulatory measures.

10.4 A scientific question remains about risks of exposure to other PFAS or to total PFAS exposure, and further evidence will be required in relation to this along with discussions with EFSA and other international groups who may be engaged in similar work.

10.5 Exposure to microplastics through food is also a matter of interest. However, it is highly likely that much of the available data is a result of contamination by environmental exposures during sample collection, handling and analysis and is therefore of limited value. The Laboratory of the Government Chemist (LGC) is currently working on this and additional data from studies in which contamination has been excluded should inform the need for any future measures.

11. External Partnerships and the Wider World

11.1 FSA has established good relationships with academic units and many other external stakeholders, and it is important to continue to foster and develop these in key areas. International relationships are also important, and positioning FSA as a trusted and authoritative partner in terms of science and evidence remains a significant priority. This will particularly be the case in relation to Europe depending on the outcome of SPS negotiations. Given the excellent quality of the science conducted by and available to the FSA, it will be important to ensure that there are mechanisms for effective information flows to and from Europe and that there are opportunities to influence decision making in the context of dynamic alignment, while also encouraging scientific interactions and partnerships with other countries where this is of benefit.

12. Science Communication

12.1 FSA has a key role as a trusted voice in relation to the food system, and it is important for FSA scientists to contribute to this. This year across government there is a focus on communication of trusted information, and establishing FSA as a reliable source of advice, communicated clearly and well, in relation to science and evidence should remain an objective. **It is important that FSA scientists contribute to this work as part of establishing FSA as an authoritative and trusted voice in relation to the food system, not just at the time of an incident but at all times.**

13. Conclusions

13.1 Having just joined FSA, I have been struck by the commitment and expertise of scientists across the organisation, and their focus on ensuring the work of FSA can genuinely be science and evidence led. My predecessor in his final report to the Board highlighted his confidence in science across the FSA, and my initial impressions very much align with this. Clearly, there are likely to be significant challenges in the content of our relationship with Europe, but I am certain that the quality of FSA science will continue to ensure that UK consumers can have confidence in the safety and authenticity of the food they consume, and that innovation in the food system for public benefit will continue to be supported to the maximum extent possible.

Annex

Summary of Recommendations:

1. Develop processes to agree specific objectives at an early stage when commissioning Science Council to look at a broad area (para 5.3).

2. An FSA policy update should be a standing item on the ACSS agenda (para 5.5).

3. Review operating arrangements for the FSA Register of Experts and consider any measures required to align with the GO-Science recommendations for a College of Experts (para 5.6).

4. For commissioned research projects and other commissioned work, ensure that outcomes are clearly and explicitly linked to potential policy actions (para 6.2, and other areas).

5. Liaise with UKHSA with regard to availability of additional data on testing for foodborne disease (para 7.3).

6. Engage with Department of Health and Social Care (DHSC) to discuss current arrangements and protocols for the National Diet and Nutrition Survey to ensure that FSA needs are addressed (para 7.4).

7. Review current proposals to assess dietary exposure to additives in ultraprocessed foods, and consider best international practice and how it could be applied using established UK-based cohort studies (paras 7.5 and 7.6).

8. Explore potential of additional linkage to health data and availability of anonymised industry data to improve understanding of foodborne disease (paras 8.2 – 8.4).

9. Continue work to explore the use and implementation of AI (including consideration of agentic AI) to increase the speed and confidence with which SACs and SERD can safely complete risk assessments, potentially including the integration of New Approach Methodologies (NAMs) into the process (para 9.1).