Annual Science Update

1 Purpose of the paper

1.1 This paper is for discussion, and provides the Executive's annual update to the Board on the delivery of science in FSS. It presents an overview of research projects, surveillance and monitoring activities that have been commissioned through our Food and Health Research Programme (FHRP), how the outputs are being used to inform the delivery of FSS's strategy, and the wider impact our science has delivered over the past year.

1.2 Looking forward to the launch of FSS's new strategy for 2026-31, it is also timely for the board to review how we are addressing the risks and issues highlighted in our previous annual update. In light of the on-going uncertainty around FSS's budget allocation, and organisational commitments with regard to SAFER and working towards an EU/UK Sanitary and Phytosanitary (SPS) agreement, our ability to adequately resource this function continues to be our most significant concern. We describe how adaptability, and an increased focus on partnership working will help us to optimise our science to deliver the evidence needed to underpin FSS's new strategic objectives.

1.3 The Board is asked to:

- **Review and discuss** the performance of FSS's science delivery function during 2025, including key achievements over the year;
- **Note** our initial proposals for new research in 2026/27, and how we are managing shifting priorities and ongoing financial uncertainty to ensure the effective delivery of our science function next year and beyond;
- **Note and comment** on the steps which have been taken to mitigate the risks and issues identified in our December 2024 update relating to the appointment of our Chief Scientific Advisor (CSA) and the resilience of laboratory services to support national surveillance strategy.

2 Strategic aims

2.1 FSS's science functions underpin all five of the organisation's strategic outcomes for 2021-26 and comprise activities under Goal 3: A research and data science capability which enables us to detect risks, monitor public health trends and consumer behaviours, and translate evidence into action. It has also been identified as a key underpinning delivery function in our new strategy for 2026-31.

3 Background

3.1 This paper provides the fourth, and final, annual review of the science and evidence programme which has underpinned FSS's strategy for 2021-26. It describes how we have delivered our priorities as a science and evidence provider as defined in FSS's Corporate Plan for 2024-26 through the development of capacity and capability and the commissioning, analysis, and translation of research and data; illustrated by the framework shown in Figure 1.

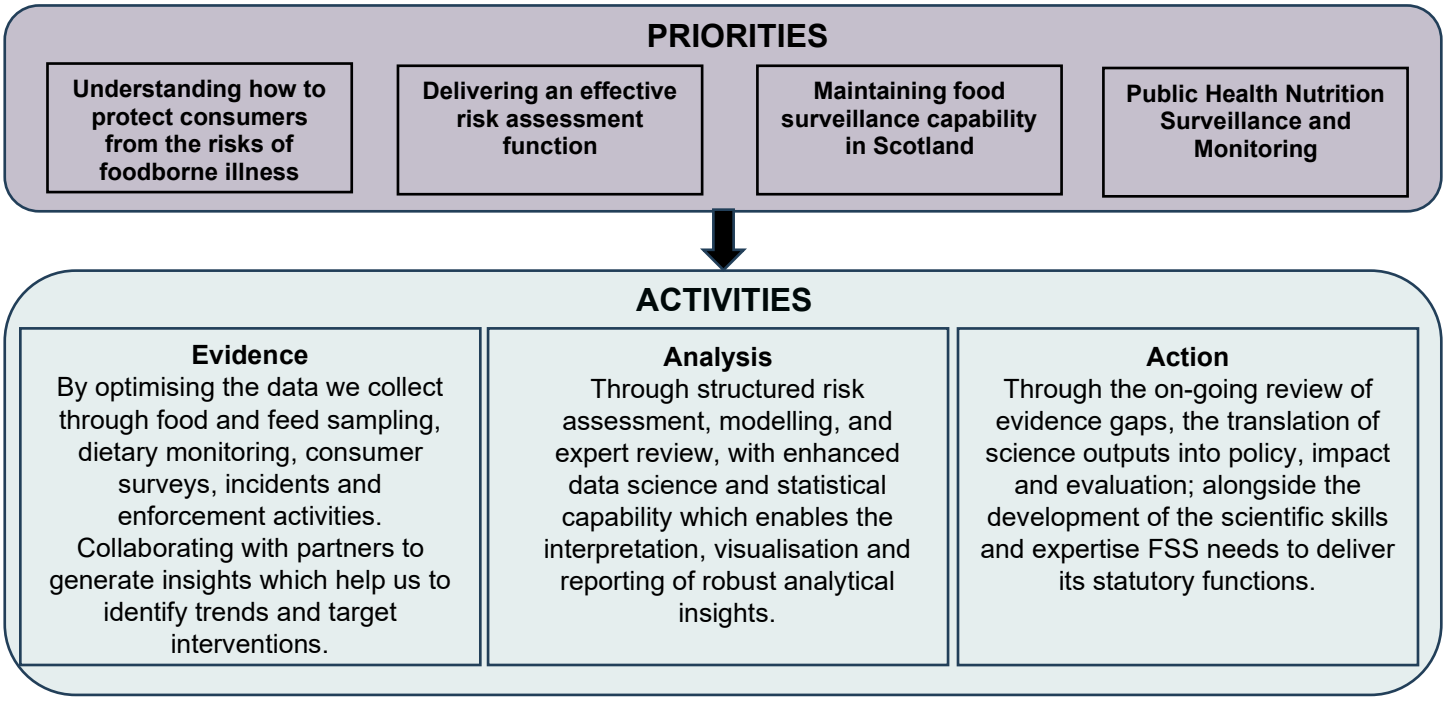


Figure 1 The framework for delivering FSS's priorities as a Science and Evidence Provider

3.2 Science delivery in FSS is reported on a quarterly basis to the Senior Leadership Team (SLT) through our quarterly Business Delivery and Performance Dashboard. These reports describe how research spend is allocated across the six themes of our Food and Health Research Programme (FHRP; see Annex 1), and include metrics which enable us to record and monitor outputs, and overall investment in our science functions as a proportion of the FSS organisational budget (see Annex 2). This paper provides us with an opportunity to take stock of what we have delivered in 2025, and how our capacity and capability compares to previous years.

3.3 FSS's Annual Science Update for 2024 highlighted how on-going financial pressures were impacting on the delivery of our science functions, and the specific issues we were dealing with around the resourcing of expertise, research and laboratory services needed to support our surveillance strategy. The Board confirmed that its risk appetite regarding the role of science in risk identification, policy development, and organisational reputation (see Annex 3) remained unchanged. However, members acknowledged the significant challenges of strengthening our position as a trusted science and evidence provider amid growing budgetary constraints. The Board also set

actions to support the mitigation of some of the risks identified, our progress with which will be reviewed in this paper.

4 Discussion

Delivery of FSS's science functions during 2025

4.1 In 2025, the core science functions that underpin all of FSS's strategic objectives have continued to be delivered by 6 teams, with governance and oversight provided by the Head of Science and Chief Nutritionist:

- Public Health Nutrition (PHN)
- Risk Assessment
- Food Surveillance and Laboratory Liaison
- Foodborne Illness Reduction Strategy
- Data Science
- Social Research

Throughout this year, we have been operating at between 70-77% of our full complement of 30 scientists, which is a slight improvement compared to levels in 2024 and follows recent reviews of organisational resourcing which enabled us to recruit new staff into our PHN and data science teams. However, it is worth noting that during Q3 of the 2025/26 reporting year, we transferred approximately 1.5 FTE of our analytical staff complement to the SAFER programme, which is requiring us to manage impacts on other areas of delivery.

4.2 There have been a number of important developments across all of our science functions in 2025, some of which have been tabled at open board meetings, including our input into the Food Standards Agency's (FSA's) risk assessment on Glycerol in slush ice drinks, a review of Public Health Nutrition Recommendations 2016-24, and our forthcoming paper on the development of FSS's data and digital strategy. In addition, our scientists have presented at board seminars on the analysis of dietary intakes in children, FSS's consumer research programme, our approach to horizon scanning, research on factors which make people vulnerable to foodborne illness, and strategies for strengthening the impact of nutrition science and communication. They have also promoted our work through attendance at a wide range of conferences, national and international engagements, presentations at parliamentary committees, and the delivery of webinars which have been attended by a range of key stakeholders.

4.3 Our update in 2024 reported a 22% reduction in our non-staff (science programme and administration) budget for 2024/25 compared with 2023/24, which had an impact on delivery across all 6 functions (Figure 2). After highlighting to the Board how FSS's static financial position was impacting on the breadth and quality of our evidence base, we made a case to SG that this presented an organisational budget pressure, and received approval to commission a defined set of priority projects in 2025/26 within an agreed spending limit. As a result, our non-staff budget for science is currently sitting at just over £1.54 M; representing an increase of approximately 45% compared with the same point last year (Figure 2).

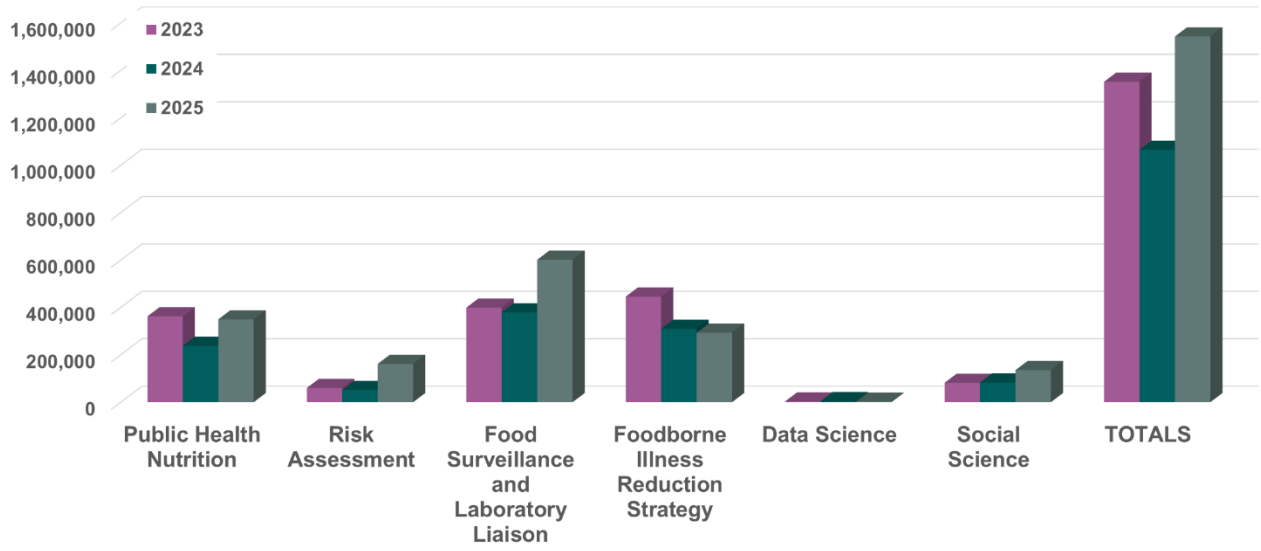


Figure 2 Non-staff budget forecast for each of FSS's key science functions in 2025, compared with the position at the same points in 2023 and 2024.

4.4 Our improved resourcing position for 2025/26 has enabled us to enhance FSS's data capabilities and deliver a range of important scientific outputs, alongside the commissioning of 13 new research and surveillance projects. These include work to enhance our evidence base for risk assessment, improve consumer food safety advice, and support policy development on public health nutrition and allergens.

4.5 While progress in 2025/26 has been significant, wider organisational pressures (including the work needed to develop a new SPS agreement with the EU), coupled with uncertainty over future budget allocations, are already constraining our ability to plan science delivery for next year and beyond. Consequently, this paper sets out initial proposals for new work, recognising that these cannot be confirmed until our next budget settlement is authorised in early 2026.

4.6 The sections below provide an overview of science delivery in FSS during 2025, including key outputs across our 6 functions, the status of our FHRP, and the work we are doing to strengthen external engagement and collaborations to help us to optimise impact and resources.

Key outputs from our science and evidence programme in 2025/26

4.7 FSS's scientific advisors have continued to contribute technical expertise across all of our corporate objectives relating to food safety and standards. This year we have provided risk assessments and advice to support the management of 11 incidents and 3 international audits, and have maintained the horizon scanning service which informs our surveillance, enforcement and incident prevention initiatives. Our scientists also undertake the data analysis needed to monitor food law delivery, classify shellfish harvesting areas, and report on operational performance. We designate and provide oversight for official control laboratories, lead on the development of guidance for industry and enforcement authorities regarding the scientific aspects of food safety management, and ensure consumer advice on the risks of foodborne illness is

underpinned by evidence. In parallel, our Public Health Nutrition (PHN) team has delivered a significant programme of work to maximise the impact of our scientific publications and strengthen engagement with stakeholders across SG, public health networks and wider policy groups. Dissemination has been central to this approach, with evidence shared through webinars, press releases and targeted presentations to a wide range of policy, professional, and academic groups.

4.8 With regard to our work on **risk assessment**, we have continued to support the FSA's Science, Evidence and Research Division (SERD) in delivering the UK risk analysis process and regulated products service through the provision of expertise and scientific advice. Our contributions to UK risk assessments have covered a wide range of subjects, including data collection to support future policy on mycotoxins in oat products, input into the assessment of other regulators' scientific opinions for authorising additives and novel foods, and peer review of FSA-produced risk assessments and hazard analyses to inform international trade and food safety requirements for cell cultivated products (CCPs). We also contributed to new guidance on the assessment of risks associated with experimental trials of unauthorised animal feed additives, which we are aiming to develop through new research to inform advice on the management of risks associated with antimicrobial resistant (AMR) bacteria in probiotics during trials of these particular products.

4.9 Throughout this year, we have also extended our work on the translation of risk assessments into guidance on the monitoring and management of risks in production and processing. In November we published a review of chemical contaminant risks in wild caught fishery products, and this has been used to develop and implement a risk based sampling programme which addresses our legal obligations for assessing environmental pollutants in fish species landed in Scotland. The team has also worked with the food industry to strengthen our suite of guidance tools for food safety management in the smoked fish and fresh produce sectors, and recently commissioned research to inform the development of a similar tool for safe charcuterie production. Another important output has been the publication of our shelf-life guidance, which we developed in collaboration with industry experts to support businesses in demonstrating that their products will remain safe until their use by date.

4.10 We have continued to build our evidence base on the sources and burden of **foodborne illness in Scotland** through our input into the FSA's third study of infectious intestinal disease in the UK (IID3), which recruited 250 GP practices across the UK (including geographical representation across Scotland) to collect data on the incidence of IID in the community, determine levels of ascertainment, and identify the main causes of illness so we can understand what proportion of cases are likely to be caused by foodborne transmission. Data collection is now complete, and it is expected that the findings will be published in 2026; enabling FSA and FSS to update estimates on the burden and economic impacts of foodborne disease in the UK. We have also continued to work with Public Health Scotland (PHS) on the analysis of NHS datasets relating to the incidence of **Shiga-toxin producing *E.coli* (STEC)** infection in Scotland. We are aiming to publish this work in 2026, and expect it to provide important new insights on pathogenicity and epidemiological trends that will be invaluable in the future targeting of interventions and outbreak management. To complement this work, we have extended the research we delivered through the Pathogen Surveillance in Agriculture, Food and the Environment (PATHSAFE) programme. Our involvement in PATHSAFE

has supported the development of a novel Whole Genome Sequencing (WGS) surveillance and source attribution model for *E. coli* isolated from food and human infections in Scotland. During 2025/26, we are co-funding, with the FSA, further work with Roslin Institute and Scotland's Rural College (in collaboration with the Scottish *E. coli* Reference Laboratory and PHS) to assess the potential for this model to be used in investigations of STEC transmission in food, water and the environment. This work is being linked to a wider programme being led by the FSA to develop a One Health approach to STEC surveillance across the UK.

4.11 Improving our understanding of the factors that increase consumer vulnerability to foodborne illnesses has also remained a focus for our FHRP this year. In our 2024 update we highlighted the work we commissioned from Cardiff Metropolitan University (in collaboration with Ohio State University) to refine our definition of vulnerability based on underlying health status and food hygiene behaviours, which we have used to develop a new consumer messaging strategy. We are currently consulting on our new strategy with public health partners, with the intention to launch it in 2026 alongside publication of the research. In June, we published the final report of our first citizen science project FROST (Fridge Recording Over Set Time), which has served to verify longstanding concerns around the risks associated with domestic fridge storage. The data generated from this project is being used to support our consumer messaging strategy and risk assessments on the safety of chilled foods. We have also shared the data with industry and the scientific community to inform future research and interventions for addressing this issue, and hosted a webinar in June which provided the opportunity to disseminate the findings to representatives from Local Authorities, international food agencies, health experts, industry and the public.

4.12 **Strengthening our food surveillance programme** has remained a central priority throughout 2025/26. We have continued to advance and refine our horizon scanning approach by fostering collaboration and data sharing with the FSA, LAs, international agencies, and industry partners. This year, we identified 16 priorities for the targeted sampling regime we have been running since 2015, resulting in the analysis of over 900 samples (see Annex 4). We have also augmented this intelligence led sampling programme by piloting a new shopping basket survey that was designed based on a review of non-targeted sampling approaches which we published in 2024. The pilot comprised 311 samples of 59 different food categories that are commonly found in the average shopping basket in Scotland. Sampling was undertaken at 6 retailers (representing 84% of market share in Scotland), which were fully consulted throughout the project to support procedures for handling adverse results. This work has demonstrated proof of concept; enabling us to collect a more comprehensive data set through our Scottish Food Sampling Database (SFSD) to provide assurance on the safety and standards of Scotland's food chain and intelligence on emerging risks. As with previous years, we have continued to share the results of our food surveillance programmes with key stakeholders, with the findings published in Our Food. We are also developing a public facing food sampling report which we plan to make available on the FSS website early next year.

4.13 FSS's national food sampling programmes also play an important role in maintaining the capabilities of our four Public Analyst (PA) Scientific Services, which are designated as Official Laboratories (OLs) for food law compliance testing. Surveillance samples provide essential materials for enabling these laboratories to maintain and develop new

methods in accordance legal requirements for quality assurance and accreditation. In 2025/26 we provided additional support in this regard by awarding £30,000 grant funding which supported the upgrading of equipment and accreditation for a range of chemical and microbiological techniques.

4.14 Efforts to strengthen our analytical insights through improved use of **data and social science** are on-going through the **refresh of FSS's Digital and Data Strategy** (which will be presented to the Board in a separate paper at this meeting), and the commissioning of new consumer and stakeholder research projects to support a number of FSS priorities. Earlier this year we published the report of the first Scottish module of the FSA-led Food and You 2 survey (FY2); the official government survey of public knowledge, attitudes, and behaviours relating to food. Our Scottish FY2 module ran from October 2023-January 2024 and collected data from 1,377 adults from 954 households across Scotland on their food safety practices, eating out behaviours, experiences of food allergies and intolerances, and attitudes to sustainability and novel food technologies. We are currently analysing the data for 2024/25 with the 2025/26 survey due to be completed early next year, and plans in place to commission an additional module in 2026/27. Our involvement in FY2 is enabling us to build a valuable evidence base for engaging different areas of the business on future research and policy development. This year we used insights from the data to develop a new qualitative research project which will help us to better understand the experiences of consumers with food allergies and/or intolerances when eating food outside of the home.

4.15 Throughout this year, our analysts have also been leading the development of an evidence strategy to underpin the objectives of FSS's SAFER programme. This has included the identification of metrics for the assessment and benchmarking of food law delivery, and the commissioning of new research with LAs and the food industry to understand the role of guidance in food law compliance, and their experiences and opinions regarding the strengths and weaknesses of the current delivery model. All of our work in this area will now be managed through the dedicated Research and Evidence workstream of SAFER and reported to the Programme Board to inform their decision making on future reforms.

4.16 During 2025, **Public Health Nutrition** has delivered an ambitious and impactful programme of work which has strengthened the evidence base on children's diets, the Scottish dietary goals and the Out of Home (OOH) food environment; supporting cross-government policy development, and laying the foundations for FSS's new dietary surveillance strategy which will be published next year.

4.17 A major milestone was the publication of the Dietary Intake in Scotland's Children (DISH) research report, which filled an evidence gap of more than a decade. The findings highlight persistent challenges: children's diets continue to exceed recommended levels of free sugars and energy density, while remaining low in fibre, fruit, and vegetables. DISH demonstrated that children's diets in Scotland continue to exceed recommendations for free sugar and energy density while remaining low in fibre, fruit and vegetables, with the poorest dietary patterns observed among young people aged 11–15. The findings have informed policy development, including Ministerial and Director-level discussions, and were widely disseminated through a webinar attended by more than 200 participants and through presentations across the Scottish

Government policy system. This evidence will form a core component of the new dietary surveillance strategy.

4.18 This year we also led a review of the **Scottish Dietary Goals**, a central element of the Public Health Nutrition Strategy commitment to develop a refreshed dietary surveillance programme. Over the past year, the Goals have been reviewed against the latest scientific evidence, supported by a technical working group including representatives from the secretariat of the Scientific Advisory Committee on Nutrition (SACN). The red and red processed meat Goal were identified as a key area requiring further evidence. To support this, the University of Edinburgh was commissioned to review literature published since SACN's Iron and Health (2010) report and to model the health and climate implications of updated intake thresholds. An advisory group with SACN representation is overseeing this work, and interim findings have already been presented to SACN, with full recommendations due next year.

4.19 Alongside this, PHN delivered a substantial suite of publications on the **Out of Home (OOH) food environment**. The report Monitoring out of home food and drink purchases in Scotland and Great Britain demonstrates how consumer behaviour continues to shift, with 98 percent of Scotland's population visiting OOH outlets and notable growth in food-on-the-go and sweet snack purchases. Complementing this was research on Out of Home digital promotions, which showed that consumers are exposed to extensive promotional activity, particularly on aggregator apps, and that these promotions often lead to increased food volumes and unintended over-ordering. A further collaboration with Nesta produced the report, How healthy is eating out in Scotland? which explored nutritional analysis of popular food items from independent out of home businesses and revealed high calorie, salt and saturated fat levels in a wide range of popular items, with particular concerns around children's meals. The findings from this portfolio of work were supported by a press release highlighting that digital promotions fuel over-ordering of takeaways and key findings from all three OOH publications were shared in a dedicated stakeholder webinar with accreditation from the Association for Nutrition.

4.20 In response to the Board decision on the position of mandatory calorie information in the OOH sector in September 2024, we have commissioned research which will explore the impact and feasibility on businesses of an on-request approach, as well as provision of broader nutrition information. We are also collaborating with Nesta to support a trial with Deliveroo and the restaurant chain Maki and Ramen which will test interventions aimed at exploring the potential to reduce calories ordered through nudges such as product positioning, swaps and changes to default ingredients. Both of these projects will be completed in 2026.

4.21 PHN also supported the pilot evaluation of the Eating Out, Eating Well Framework and Children's Code of Practice, which found strong engagement with businesses and positive feedback from participating outlets indicating the Framework has potential for scalability with further refinement.

4.22 This year, PHN also established a new **Scottish Dietary Advice Forum** which will take a co-ordinated approach to the risk management of recommendations from the Scientific Advisory Committee in Scotland. The new forum includes representatives with expertise in diet and nutrition policy, including key stakeholders such as Public Health Scotland, The Scottish Government, and the NHS.

Collaboration and external engagement

4.23 Delivery of our science function relies heavily on effective collaboration with the wider scientific community and other research funders, particularly our work with FSA, UKRI, SG's Strategic Research Programme and SEFARI (the Scottish Environment, Food and Agriculture Research Institutions). Key examples of successful science engagement in 2025/26 include:

- Our contribution to a UK One Health surveillance programme for STEC, which is being led by the FSA to build on pilots developed under the PATHSAFE programme (further described in paragraph 4.10).
- On-going support for the UKRI funded Food Safety Research Network (FSRN), including the provision of advice on the development of a new platform for sharing insights from industry microbiology test data, and the co-chairing of a workstream for their Advancing STEC diagnostics programme, which aims to develop tools for improving the management of this pathogen in the fresh produce sector.
- The provision of advice, through our formal consultation response and on-going engagement with SG officials and SEFARI scientists on elements of the forthcoming Strategic Research Programme (SRP) for 2027-32 that relate to FSS interests on food safety and public health nutrition.
- Our role in the organisation of the 2026 International Conference on Verotoxigenic *E.coli* (VTEC), to be held In Aberdeen; for which we are planning a session on the role of data sharing in research and outbreak management.
- Participation on the expert working group supporting the development of a Nutrient and Environmental Profiling model (NEPM) a THRIVING project supported by NIHR and UKRI.
- Research to support development of Climate and Diet Policy including implications for the review of the Scottish Dietary Goals in Scotland led by ClimateXChange.
- Technical and strategic policy support through the Wellcome funded project, Living Good Food Nation Lab steering group Consortium.
- PHN contributed expertise, interpretation of findings and policy relevance to the *Food Insecurity in people living with Obesity* project funded under UKRI's Transforming UK Food Systems (TUKFS) Strategic Priority Fund.

4.24 In addition to these partnerships, FSS scientists have continued to exceed their collective target of 30 external engagements per quarter, with key activities this year comprising 20 presentations at a range of conferences including the European Symposium of the International Association of Food Protection (IAFP), the International conference of the Food Allergy Forum, the International Symposium for Salmonella and Salmonellosis, the UK Congress on Obesity, the UK RANK symposium, Obesity Action Scotland conferences on policy action to improve the food environment and the World Public Health Nutrition Association webinar on Building Capacity for Public Health Nutrition Action.

4.25 During 2025, we have also strengthened our international relationships on science through the sharing of insights from our research and horizon scanning work with other

regulators including Health Canada, the New Zealand Ministry for Primary Industries (MPI), and the Food Safety Authority of Ireland (FSA I). Earlier this year, our Head of Science joined the International Science Advisory Panel for the New Zealand Food Safety Science and Research Centre (NZFSSRC), which has proven to be useful network for making links with scientists and exchanging knowledge in areas of shared interest. In October, we also took part in a workshop with FSA and the German Federal Institute for Risk Assessment (BfR) to identify areas for collaboration on social science, which was one of the priorities identified in the collaborative workplan we agreed last year as part of our Joint Declaration of Intent.

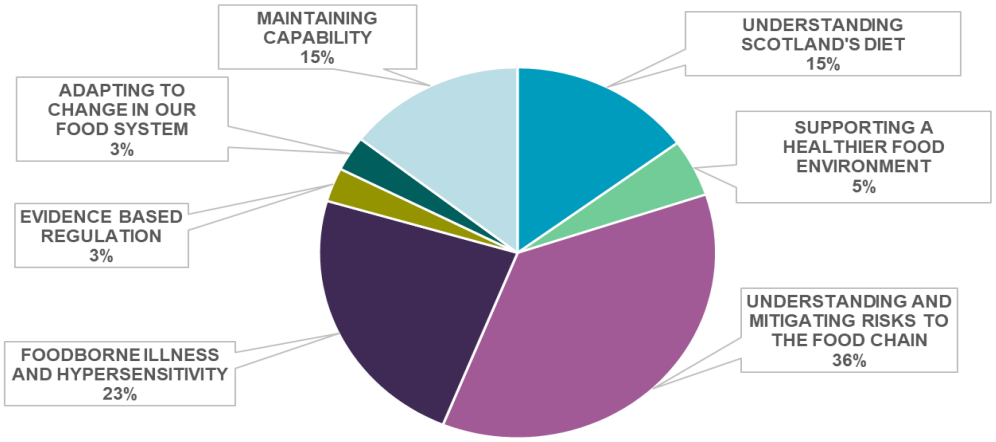
4.26 The activities described above demonstrate our commitment to collaborative working and knowledge exchange across sectors, reinforcing our leadership role in generating the evidence base needed to promote safer and healthier diets; informing policy development in Scotland and beyond.

FSS's Food and Health Research Programme (FHRP)

4.27 All of the evidence needs relating to FSS's Priority Corporate Deliverables for 2024-26 are brigaded under the six themes of our Food and Health Research Programme (FHRP; see Annex 1). During 2025, we augmented our FHRP themes through the publication of Areas of Research Interest (ARI), which are now also accessible (along with those published by other government departments) through the SG website and the Government Office for Science database, to raise awareness, across the scientific community, of evidence needs for policy development across the UK.

4.28 Since presenting our first science update to the Board in 2022, we have continued to track investment in the FHRP; ensuring it is aligned with our key evidence needs and the tools required to deliver our science functions. Figure 3a illustrates the current distribution of research spend across the six FHRP themes and science functions that support FSS's role as a competent authority and the tools needed to deliver our wider evidence base (grouped under 'Maintaining Capability'). Our research spend this year is approximately 50% higher compared to 2024/25, with increases in investment across all of our FHRP themes (Figure 3b).

a)



Total FHRP budget in 2025/26 (based on our November 2025 forecast) = £1,499,997

b)

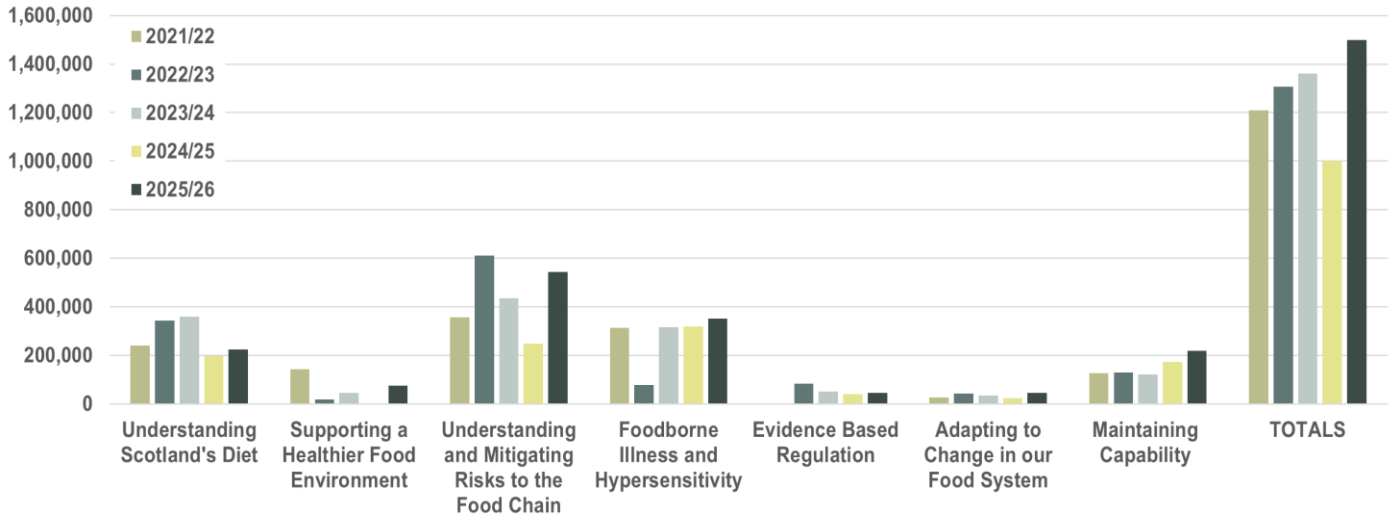


Figure 3 Status of our FHRP budget in December 2025, showing: a) how spend is broken down across the six themes this year, and b) how the current budget forecast for 2025/26 compares to forecasted spend at the same point in the previous 4 years.

4.29 Delivering the FHRP has continued to place significant resource demands on our science teams, particularly in relation to the procurement and management of contracts with external suppliers. The 2025/26 programme has required our scientists to oversee 20 research and surveillance contracts, including 13 projects which were newly commissioned this year. In addition, our science division managed 7 further contracts to maintain essential support functions, such as FSS's role in UK National Reference Laboratories and the operation of the Scottish Food Sampling Database (SFSD).

Priorities for 2026/27

4.30 FSS's science teams maintain a pipeline of evidence requirements, which is continuously reviewed and shaped through reviews of published literature, engagement with key stakeholders and horizon scanning. In preparation for the FSS budget being confirmed in mid-January 2026, we have conducted an initial assessment of our current and emerging research priorities (see Annex 5). These will be refined and prioritised in the new year through consultation with customers across all FSS business areas.

4.31 As we move into a new financial year with on-going budget uncertainty and evolving evidence needs driven by our new strategy, SPS, and SAFER, it is essential that our FHRP remains flexible and responsive. This will require us to keep our workplans under regular review so that we can plan procurement activities and identify where we can optimise resources by delivering work internally or leveraging external sources of research funding and expertise through collaborations with partners such as the FSA, SG's Strategic Research Programme, and the FSRN.

5 Identification of risks and issues

5.1 At the December 2024 Board meeting, members confirmed that, despite resource pressures, FSS's risk appetite for areas of our corporate delivery plan most dependent on robust science and evidence would remain unchanged. As the Board is considering the risk appetite categories that will apply to our new strategy, it is appropriate to consider the information presented in this paper, to ensure these categories adequately reflect the role of our science function in future delivery. The risk appetite statements which are relevant to the role of science for FSS's current strategy, and those proposed for our new strategy, are provided in Annex 3 for reference.

5.2 In our previous annual update, we also highlighted three issues affecting our work, and the Board agreed on actions to help mitigate the risks these posed to our role as a science and evidence provider. The following sections outline the current status of these issues and the steps we have taken over the past year to address them.

Resourcing

5.3 In our 2024 update, we highlighted how budget pressures had reduced staffing levels across our science function and limited the scope of our FHRP; raising concerns about resilience and the potential impact on the breadth and quality of our evidence base. Nonetheless, the Board confirmed that these limitations should not compromise our commitment to managing risks in areas where robust science and evidence are essential (Annex 3). While funding for our science function improved in 2025/26, ongoing financial uncertainty continues to make long-term planning difficult. At the same time, demands on our scientists have grown, driven by the technical expertise required to support our changing policy and delivery landscape, alongside the increasing workload and timelines which are now associated with research procurement. Delivery of all 3 of the priorities highlighted in FSS's new strategy for 2026–31 will depend on our scientific expertise; with a number of emerging policy issues that are reliant on our ability

to maintain a robust and up to date evidence base. Key considerations include understanding how changes in climate, food supply and innovation impact on safety, persistent dietary challenges (including the influence of ultra-processed foods (UPFs)), and the implications, of regulatory changes arising from SPS and SAFER, for consumers and food businesses in Scotland. For these reasons, continued investment in science will be fundamental in ensuring that our work continues to be based on the best available evidence.

5.4 As highlighted in paragraph 4.31, our ability to adapt has become increasingly important in enabling us to manage annual budget allocations for science. Therefore a key priority for 2026/27 will be to develop strategies that enable us to be more reactive and strengthen partnerships that provide opportunities to maximise our funding and expertise. The publication of our ARI offers a valuable platform for engaging stakeholders, communicating our evidence needs to the scientific community, and influencing external funding for research that is aligned with those needs. This year, our experience in commissioning a range of new projects has also confirmed that procurement remains a major rate-limiting step for our FHRP. While open tender will continue to be the right approach for many projects, we are committed to exploring more agile approaches to evidence generation, including in-house reviews, co-funded projects, and procurement frameworks that provide faster access to specialist expertise. This will better equip us to deliver timely, high-quality science to inform decision making in an increasingly challenging financial environment.

FSS's Chief Scientific Advisor (CSA)

5.5 Last year, the Board was informed of our efforts to identify options for procuring independent scientific advice following the expiry of FSS's previous Chief Scientific Advisor (CSA) appointment in February 2024. Members agreed that we should explore, with SG, the possibility of collaborating on CSA support for food and drink policy. After consulting with experts, it was determined that reappointing a dedicated CSA for FSS would be the most suitable approach. We now have approval for the job description from the new CSA for Scotland, Professor Calum Semple (appointed August 2025), and the government's Head of Profession, with support for the role to join SG's existing CSA network once it is appointed. As a result of these developments, we hope to be able to start the recruitment exercise in the new year.

Maintaining food and feed laboratory services to support national surveillance strategy

5.6 A further priority for our science function in 2025 has been our on-going efforts to safeguard the delivery of PA Scientific Services in Scotland. In our previous update we discussed with the Board the on-going risks posed by limited LA investment in the PA laboratories and potential impacts on FSS's capability for providing consumer assurance through food surveillance, managing incidents and delivering our statutory official control responsibilities. Following that discussion, the FSS Chair wrote to the Minister for Public Health and Women's Health to re-iterate our concerns; resulting in the establishment of a collaborative working group, led by PHS, with input from FSS, CoSLA and SG, to develop a Target Operating Model (TOM) for more resilient PA

service delivery. Our work on the TOM is advancing, with plans to consult with key stakeholders towards the end of 2025/26. Given the critical role of the PA laboratory services in food law delivery, we are also considering how further work to develop the TOM should be aligned with the SAFER programme. It is worth highlighting that in parallel with the development of the TOM, we have been able to provide additional funding to the PA laboratories this year through our enhanced national food sampling programmes (described in paragraphs 4.9 and 4.12) and a small grant award (see paragraph 4.13). Maintaining an Effective Food Surveillance Capability (including ensuring adequate provision of PA laboratory services) remains on FSS's strategic risk register, and we will keep the Board updated on future developments in this area as our work progresses.

6 Equality Impact Assessment and Fairer Scotland Duty

6.1 Equality Impact Assessment (EQIA) and Fairer Scotland Duty requirements do not apply to the information presented in this paper, although both are fully considered during the development of research requirements and the commissioning of individual projects.

7 Conclusion

7.1 The Board is asked to:

- **Review and discuss** the performance of FSS's science delivery function during 2025, including key achievements over the year;
- **Note** our initial proposals for new research in 2026/27, and how we are managing shifting priorities and ongoing financial uncertainty to ensure the effective delivery of our science function next year and beyond;
- **Note and comment** on the steps which have been taken to mitigate the risks and issues identified in our December 2024 update relating to the appointment of our Chief Scientific Advisor (CSA) and the resilience of laboratory services to support national surveillance strategy.

Please direct queries to:

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Annex 1 – Areas of Research Interest under the six themes of FSS's Food and Health Research Programme (FHRP)

Understanding Scotland's Diet

- What are the gaps in dietary surveillance data in Scotland and how can these be addressed?
- How can dietary surveillance and/or retail purchase data be used more effectively to inform policy and evaluate the impact of interventions across the food environment?
- What are the most effective methods for visualising and communicating dietary surveillance data to influence stakeholders?
- How can consumer purchasing data be integrated with dietary intake data to provide a more comprehensive picture of dietary behaviours and trends?
- How can dietary surveillance be used to monitor and evaluate the impact of the food environment on health inequalities?
- How can existing data on dietary intake and food purchasing behaviour be used to monitor and evaluate policies aimed at improving diets in Scotland?
- How can dietary intakes be optimised to improve population health and reduce greenhouse gas emissions?

Supporting a Healthier Food Environment

- What are the most effective strategies to increase the availability and consumption of fibre and wholegrains through food environment interventions?
- What is the impact of nutrition information (beyond calories) in OOH settings, and how can it be practically implemented across diverse business types?
- How do promotional practices in OOH and retail settings influence consumer behaviour, and what is the impact of restricting promotions on HFSS foods?
- How does the density and distribution of OOH food outlets relate to dietary health outcomes and inequalities across Scotland?
- What messaging strategies are most effective in empowering consumers to demand and choose healthier, more sustainable diets?

Understanding & mitigating risks to the food chain

- What analytical methods and tests can be used for rapid, accurate identification and quantification of pathogens and chemical contaminants in different foods?
- What data sources and approaches can be used to strengthen our ability to assess food safety risks?
- How are changes to the environment (including climate) likely to impact on contaminant risks to Scotland's food chain?
- What are the most effective intervention strategies for preventing or controlling microbiological and chemical contaminant risks at different parts of the food chain?

Foodborne Illness and Hypersensitivity

- What are the key sources and transmission routes for pathogens and AMR in Scotland's food chain and environment?
- What are the geographic and socioeconomic trends in foodborne illness in Scotland, and what are the factors that make people more vulnerable to the risks of food poisoning?
- What are the impacts of food hypersensitivity and food allergy in Scotland?
- What is the societal and economic burden of foodborne illness and food hypersensitivity in Scotland?
- How do consumers in Scotland perceive the risks of foodborne illness and food hypersensitivity, and what behaviours and attitudes are putting them at increased risk of illness?
- What are the most effective ways of targeting our advice on the risks of foodborne illness and food hypersensitivity to consumers in Scotland?

Evidence Based Regulation

- What evidence do we need to identify and predict risks in food production to improve the targeting of enforcement activities and interventions.
- How can social science be used to strengthen our understanding of the cultures, attitudes and behaviours across different sectors that either promote or prevent compliance?
- What societal, economic, political, environmental factors are likely to have an impact on the extent to which food businesses in Scotland are able or motivated to comply with food law?
- What data sources and methods are available that will enhance our ability to identify non-compliance and food crime?
- What regulatory approaches have proven to be successful in other countries for promoting compliance?
- What are the most effective methods for regulating on-line food sales and e-commerce.
- How can we improve use of analytical and data science for assuring provenance and traceability of foods produced and sold in Scotland?

Adapting to Change in our Food System

- How will climate change impact on Scotland's diet and the safety of our food chain?
- How do consumers in Scotland perceive changes that are happening to the food system e.g. novel foods and emerging technologies. What are their key attitudes and concerns in this regard?
- What are the most significant emerging opportunities and threats to Scotland's food system associated with new technologies, social change and wider food policies?
- What interventions will be most effective in promoting sustainable and healthy diets whilst maintaining high levels of food safety and standards?
- What sources of intelligence are needed to strengthen our ability to predict disruptions and risks to Scotland's food chain?

Annex 2 - Performance metrics for quarterly reporting of science delivery in FSS and status at end of Q2 2025/26.

Variance from allocated budget (all non-staff costs)	
+/-10%	2%

Total Science Budget (Staff and non-staff) calculated as variance from budget allocated at the start of Q1.
0-10% = green; >10-<20%=amber; ≥20%=red

Investment in science as a % of FSS full year forecast	
10%	14.4%

Investment represents total (staffing, programme, admin and capital) budget for science and PHN divisions as a % of FSS total net budget forecast calculated at each quarter. Target is 10% in line with FSS's role as a science and evidence based organisation.
≥10% = green; 2.5-<10%=amber; 0-<2.5%=red

Staffing (% full complement)	
80%	77%

Calculated based on Risk Assessment, Food Protection Science and Surveillance, Analytical Functions and Public Health Nutrition branches at full complement
80-100% = green; 60-<80% = amber; <60% = red

Engagements/activities	
30	56

Activities include presentations, media, conference attendance, participation in cross gov groups, and commissioning of new work. Target based on numbers achieved each quarter since 2021/22
≥30= green; 20-29=amber; <20 =red

Publications (FSS & External)	
5	3

Reports published by FSS (including research reports, situation reports and risk assessments we have led or contributed to) as well as papers in scientific journals authored by our own scientists or generated through FSS funded research
≥5= green; 2-4 =amber; <2 = red

Annex 3 –Risk appetite statements relevant to the role of science in the delivery of FSS strategic priorities

a) FSS Strategy for 2021-26: Risk appetite statements for current areas of delivery that rely on science functions

- **Public health/consumer protection:** to identify the material risks that have potentially significant impact on public health (which the Board is averse to), and where there is uncertainty around the balance of risks and benefits for public health or other consumer interests (about which the board is cautious); to identify new approaches and innovative ways of improving the Scottish diet and reducing risks to the food chain (around which the board is open and hungry).

- **Policy/legal/regulation/enforcement:** to develop policy/regulatory approaches that are evidence based, with the potential to produce the best outcomes in Scottish-specific circumstances (which the board is open to); to pursue innovative approaches for implementing Regulatory Standards where analysis indicates potential for significantly improved compliance (which the board is open to); and to identify policy approaches that combat the food-related effects of inequalities (about which the board is hungry).

- **Reputation/authority and public confidence:** to make evidence-based decisions and recommendations and influencing opinion where we are clear that the benefits for consumers outweigh the risk (which the board is open to).

b) Draft FSS Strategy for 2026-31: Proposed risk appetite statements relating to new priorities for which science and evidence will have a key role in delivery

- **Impacts on Public Health:** Our public health appetite is **very low,** and we are **averse** to taking risk that impacts on our ability to protect the interests of consumers in relation to food and risks that could negatively impact public health.

- **Impacts on our Reputation**: Our key priorities are public health and consumer protection and as an organisation it is crucial that we are trusted, viewed as being transparent and having integrity therefore our reputational risk appetite is **very low**. We are **averse** to organisational decision making where decisions attract risk to how we are perceived and decisions that could impact on our ability to influence effectively and protect consumers. Alongside the importance of taking account of the views of all interested parties in undertaking our duties, as an evidence-based organisation we must also be rigorous in ensuring decisions we make are transparent and based on robust evidence. As such, we will adopt a **cautious** approach to reputational risk where consensus cannot be reached across all relevant parties to ensure there is no impact on our ability to influence effectively to protect consumers.

- **Impacts on the delivery of our Strategy**: We maintain a **medium** risk appetite in relation to the delivery of our strategic ambitions. We are **open** to accepting a degree of risk where it enables innovation, improves efficiency, or enhances long-term outcomes for consumers and stakeholders.

- **Impacts on our Technology and Innovation abilities** Our risk appetite for technology, data and innovation is very high and we are eager for opportunities to use innovation and technology to deliver wider business benefits and to leverage innovation to enhance our regulatory frameworks, operational efficiencies and enhance our ability to monitor food safety, predict risks, and respond swiftly to emerging issues.

Annex 4 – Priorities for our targeted food sampling programme in 2025/26

ISSUE	COMMODITY	TESTING PARAMETERS
MICROBIOLOGICAL SAFETY	Tomatoes	Salmonella
	Ready to eat salad leaves	Salmonella, L. mono (detection and enumeration), STEC
	Beansprouts	Salmonella, L. mono (detection and enumeration), STEC
	Unpasteurised French cheese	Salmonella, L. mono (detection and enumeration), STEC
	Sunflower, sesame and chia seeds	Salmonella
	Oat 'milk'	Bacillus cereus
	Vegan cheese alternatives	Salmonella, L. mono (detection and enumeration)
CHEMICAL SAFETY	Imported tomatoes and peppers	Cadmium
	Eggs	PFAS
	Dried Figs	Aflatoxins, Ochratoxin A
	Fresh or frozen tuna or mackerel	Histamine
	Flaxseed (linseed)	Cadmium
AUTHENTICITY/LABELLING	Sunflower or rapeseed oil	Fatty acid methyl ester profiling to identify substitution
	Magnesium, calcium or iron supplements	Accuracy of declaration, Labelling, Health claims
ALLERGENS	Garlic powder or granules	Peanut and Gluten
	Dairy-free Indian takeaway meals	Milk

Annex 5 – Initial research proposals for the 2026/27 FHRP

FHRP THEME	PRIORITY
Understanding Scotland's Diet	1. Secondary analysis of dietary intake data from the Scottish Health Survey
	2. Analysis of commercially available retail purchase data
	3. A targeted survey to improve our understanding of dietary intakes among ethnic minority groups
Supporting a Healthier Food Environment	4. Consumer awareness, perceptions, and reported behaviours related to non-sugar sweeteners and sugar
	5. Research to assess the impact of in-premise promotions within Scotland's out-of-home food environment
Understanding and mitigating risks to the food chain	6. Further development of FSS's surveillance strategy, including delivery of the second phase of our shopping basket food survey, and data collection to address evidence gaps relating to pathogen and AMR risks in a range of food and animal feed products
	7. Strengthening epidemiological and Whole Genome Sequencing data needed to improve our understanding of the sources and risk factors for STEC infection in Scotland
	8. Understanding emerging chemical contaminant risks in Scotland's food chain, and public perceptions relating to chemical food safety
	9. Expansion and refinement of our existing on-line resources for supporting food businesses in managing microbiological safety risks.
Foodborne illness and hypersensitivity	10. Understanding reasons for increases in reported IID infections; including the relative contributions of food vs non-food transmission routes
	11. Risk ranking of foods which have been associated with Listeria infection
	12. On-going collection of robust data on consumer attitudes, behaviours and experiences through Food and You 2 and social research to improve our understanding of allergen risks
Evidence Based Regulation	13. Research to support the SAFER programme including the views of food businesses and food law professionals on the current model of food law delivery, and evidence on future strategies for improving compliance
Adapting to Change in our Food System	14. Consumer awareness and attitudes to emerging technologies in food production