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| Benchmark Standards for a World Recognised Food Surveillance System  Final Report to Food Standards Scotland  04 June 2015 |

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| Benchmark Standards for a World Recognised Food Surveillance System  Final Report to Food Standards Scotland |
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List of acronyms

|  |  |
| --- | --- |
| Acronym | Full name |
| BfR | Institute for Risk Management |
| BMEL | Federal Ministry of Food, Agriculture and Consumer Protection |
| BVL | German Federal Office of Consumer Protection and Food Safety |
| CCA | Central Competent Authority |
| CFIA | Canadian Food Inspection Agency |
| COKZ | Control Authority for Milk and Milk Products |
| DAFA | Danish Agrifish Agency |
| DAFM | Department of Agriculture, Food and the Marine |
| DARDNI | Department of Agriculture and Rural Development of Northern Ireland |
| Defra | Department for Environment, Food and Rural Affairs |
| DG SANTE | Directorate-General for Health and Food Safety of the European Commission |
| DNA | Deoxyribonucleic acid |
| DORA | Database of Rapid Alerts |
| DVFA | Danish Veterinary and Food Administration |
| EC | European Commission |
| ERCF | Emerging Risks Consultative Forum |
| EU | European Union |
| FCELG | Food Chain Emergency Liaison Group |
| Fera | Food and Environment Research Agency |
| FSA | Food Standards Agency |
| FSAI | Food Safety Authority of Ireland |
| FSS | Food Standards Scotland |
| FVO | Food and Veterinary Office |
| GAIN | Government Agencies Intelligence Network |
| GPS | Global Positioning System |
| IMS | Issue management system |
| IPO | Intellectual Property Office |
| KCB | Quality Control Bureau |
| LALLF M-V | State Office of Agriculture, Food Safety and Fisheries, Mecklenburg-Vorpommern |
| LILO | Local Intelligence Liaison Officer |
| MEA | Dutch Ministry of Economic Affairs, Agriculture and Innovation |
| MFAF | Ministry of Food, Agriculture and Fisheries |
| MoU | Memorandum of understanding |
| MPI | Ministry for Primary Industries |
| NGO | Non-governmental organization |
| NVWA | The Netherlands Food and Consumer Product Safety Authority |
| NVWA-IOD | Intelligence and Investigation Service of the NVWA |
| POAO | Products of animal origin |
| PV | Dutch Fish Products Board |
| PVV | Product Board for Livestock and Meat |
| RASFF | Rapid Alert System for Food and Feed |
| SFELC | Scottish Food Enforcement Liaison Committee |
| SSI | Scottish Statutory Instrument |
| TSS | Trading Standards Scotland |
| UK | United Kingdom |
| UKFSS | UK Food Surveillance System |
| US | United States |
| VWS | Dutch Ministry of Health, Welfare and Sports |
| ZBO | Semi-autonomous public body in the Netherlands |

Executive summary

This report provides the findings of research conducted by ICF into international practice in food fraud and authenticity surveillance and its potential lessons for Scotland

Food Standards Scotland (FSS) is tasked with meeting Scotland’s food surveillance needs and contributing to UK and European Union food safety policy. Its responsibilities include surveillance of food in Scotland for fraud and authenticity.[[1]](#footnote-1) This is an issue that has risen up the list of concerns of regulators in Scotland, the wider UK, European Union (EU) and beyond over recent years. Food fraud takes many forms and is often difficult to detect.

This report provides the results of a study that FSS commissioned from ICF International. The study objectives were to identify countries that are internationally recognised as having particularly effective surveillance systems for food fraud and authenticity, identify the components that contribute to that effectiveness, compare arrangements in Scotland and the UK (including any planned improvements) with those countries in respect of the components identified, and consider the extent to which lessons from overseas experience could be applied in Scotland.

The focus of the report is on surveillance rather than compliance or enforcement. The report adopts a definition of surveillance provided by the Scudamore report as, ‘the on-going systematic collection, collation, analysis and interpretation of accurate information about a defined food or feed with respect to food safety or food standards closely integrated with timely dissemination of that information to those responsible for control and prevention measures’ (The Scottish Government, 2012).

The analysis is based on desk research supplemented by interviews with officials, experts and food chain representatives in Scotland and the rest of the UK, Canada, Denmark, Ireland, the Netherlands, New Zealand, Germany and the USA. In-depth case studies were conducted for Canada and New Zealand.

The research has identified the capabilities and characteristics of an effective food fraud and authenticity surveillance system

The configuration of surveillance systems varies according to the national governance arrangements (such as federal vs. centralised), and the powers and responsibilities provided by the legislative framework. The research does, however, suggest that effective surveillance systems:

Benefit from **planning processes** which ensure that the targeting of surveillance effort is informed by the risks to food integrity that are expected over the short, medium and long terms, and ensure that the plans are consistent with the financial and human resources provided. Planning for the acquisition and maintenance of the skills and capacity needed to operate the system is important.

**Capture information** that is comprehensive, timely, reliable, relevant, and provides sufficient coverage and insight to be useful. The surveillance system should gather information from different parts of the supply chain and for different product types. The system is stronger if it captures market data and other supply chain information alongside the samples gathered through the application of official controls.

Have **laboratory services** that provide timely, reliable testing of food samples. The laboratories need to be well-integrated into the wider surveillance system, and be equipped with the skills and technology needed to keep pace with changes in the types of fraud occurring in the market place.

Have **information management** **systems** that help users turn the information gathered into actionable intelligence. Good systems have straightforward and quick procedures for data entry and access. Data validation and harmonisation procedures need to allow comparison and sharing of results. Differences in the type and structure of data used in different systems can make them difficult to standardise and integrate with each other. The most advanced data management systems are able to link multiple databases effectively. They are also likely to have advanced search capabilities, with the functionality to link related strands of data and intelligence effectively. Data protection and policies regarding data release have implications for effective data sharing.

Use intelligence systematically to help inform risk-based surveillance priorities, operational risk management and investment decisions. Effective systems feature close **collaboration in analysis and investigation** between institutions with an interest in food fraud and authenticity. The level of integration within the food control surveillance system can be assessed by reference to how and what information is exchanged, the systems available to facilitate information exchange and the structure and scope of collaborative networks (e.g. whether formal or informal). This includes collaboration between food control authorities and industry, as well as with other stakeholders. Effective surveillance systems are likely to be supported by analysts with diverse expertise, including analytical chemists, criminologists, economists specialising in the analysis of market and economic data and experts trained in the analysis of human and other intelligence.

There are areas in which international practice provides examples that Scotland and the rest of the UK can learn from

Scotland has in place many of the core elements needed for an effective food fraud surveillance system. Sampling programmes are defined and there is a laboratory infrastructure to analyse the material collected. Information is gathered from a variety of sources. Officials in Scotland have access to UK-wide databases and networks, and also to systems operating at EU level. Legislation provides power of access to investigators and protection to whistleblowers. There is a culture of collaboration among competent authorities and other regulators and public bodies that promotes the sharing of intelligence and joint-working on investigations.

There is, however, scope to increase the breadth of information that is used in food fraud surveillance in Scotland and to strengthen the capacity to analyse and use it. More use could be made of data from the supply chain and market. Challenges with respect to analysis are improving access to detection technologies, further integration of databases and analytical tools, and acquisition of specialist skills in analysis and investigation.

The countries that make the most significant investment in food fraud surveillance all have a successful food export sector. Those exports rely on the confidence of consumers and the wider market in the claims made for provenance, quality and integrity of their products. In such circumstances the food fraud and authenticity surveillance system becomes an instrument to safeguard export earnings from the risk of fraud, alongside serving consumer and producer interests in the domestic market. Leading countries are extending their food fraud surveillance strategies, working in partnership with competent authorities in those markets.

Table ES1.1 summarises current status and areas for potential improvement for each of the components of the surveillance system.

Recommendations are provided on how to build a stronger food fraud surveillance system

The ***strategic planning*** component of Scotland’s food fraud surveillance system could be strengthened by decisions to:

**Develop a horizon scanning strategy for food fraud**, working with industry stakeholders and research institutions, and focusing on food subsectors that are of high economic importance to Scotland. There is an opportunity to learn from practice in the Netherlands and Germany where work is underway to develop more systematic methodologies for horizon scanning, and link these to surveillance priorities. FSS should also engage in UK and EU horizon scanning initiatives relating to food fraud.

**Adopt a more systematic approach to building skills and capability for food fraud surveillance and investigation.** Local authorities in Scotland received training through Food Standards Agency (FSA) funded programmes at UK level. It is important that this momentum is continued with the establishment of FSS, and adequate funding is provided for training. There are opportunities for more proactive engagement with industry to provide training for businesses on the identification of fraud risks along their supply chains. This type of approach is well-established in the Netherlands.

**Strengthen FSS’s capacity to coordinate food fraud surveillance and investigations** (similar to the Irish and Welsh Food Fraud Units). This would require recruitment of staff with backgrounds in criminal investigation. In contrast to its counterparts in the Netherlands and Denmark, FSS does not have significant policing functions. As FSS already benefits from close cooperation with the police and other enforcement partners, it is unlikely to need extensive criminal investigation capabilities in-house. In-house expertise in investigation would nonetheless help FSS to strengthen cooperation with the police and other intelligence agencies and to raise the profile of food fraud investigations.

**Evaluate risks and potential counter-measures and the role of government in tackling fraud perpetrated against Scottish products in export markets**, similar to the approach adopted by New Zealand. This will be increasingly important to Scotland in future as it looks to further expand export sales in emerging markets and use provenance as a source of value. An initial step would be to assess the risks associated with counterfeiting of Scottish products overseas, scope product sectors and develop a better understanding of specific challenges within high risk export markets.

Actions to strengthen ***information gathering*** are to:

**Make more effective and systematic use of information sources that are presently under-used** in surveillance such as trade and industry data, and social media. Company financial data could be used to support forensic accounting, as in the Netherlands. Trade data sources (Scottish, UK and international) relevant to domestically important food products should be identified.

**Foster information sharing and ‘safe spaces’ for discussion of food fraud issues with the food industry**. Further engagement with officials in leading countries could help FSS identify approaches that could be tested in Scotland.

Access to high quality ***laboratory services*** needs to be safeguarded. Recommendations in this area are to:

**Encourage better joint working among laboratories** **in Scotland** so that resources and results are shared more effectively, building on the work done in the Scottish government’s Shared Service strategy.

**Facilitate greater collaboration between Public Analyst laboratories, research institutions and industry** to enable more effective transfer of fraud and authenticity verification technologies. This could increase adoption of the latest technologies and methodological protocols to improve accuracy and reliability of testing. Specific funding arrangements are likely to be required, such as a ring fenced budget to support and encourage the translation of new technologies from universities to laboratories and industry.

In the area of ***information management*** the main priority is to **work with UK partners to develop and implement a strategy that will result in better integration of data systems**. Data system integration will require investment and strategic collaboration with other organisations to overcome barriers to data sharing and joint funding arrangements.

Securing access to UK and international collaborative forums, while maintaining the culture of collaboration within Scotland, is a priority. Specific actions that would support more effective food surveillance are to:

**Ensure FSS continues to have access to multi-stakeholder platforms** such as the Scottish Food Enforcement Liaison Committee (SFELC) to support collaboration with other stakeholders and that these have appropriate funding. Overseas experience provides positive examples of engagement with industry and research institutions. For example, the Netherlands and New Zealand benefit from a culture of collaboration and joint fora which help raise awareness of fraud-related challenges, enable research institutions to better understand industry needs and facilitate adoption of relevant technologies.

**Work with the FSA to secure access to EU stakeholders** (including those who sit on European committees and the Food Fraud team within the Directorate-General for Health and Food Safety of the European Commission (DG SANTE)) as well as other Member States.

Collectively these actions imply an increase in the resources that FSS dedicates to tackling food fraud. For some components, the scale of the investment required is linked in part to the future level of integration of different components of the surveillance system in Scotland with that of the wider UK.

Summary of the research findings

| **Component** | **Strengths of the current arrangements in Scotland** | **Areas to consider for further improvement** | **International exemplars** |
| --- | --- | --- | --- |
| Strategic planning | Sampling programmes are defined.  Scotland has been integrated into UK-wide strategic planning processes. | Horizon scanning strategy for food fraud.  A more systematic approach to building skills and capability for food fraud surveillance and investigation.  Evaluate risks and potential counter-measures and the role of government in tackling fraud perpetrated against Scottish products in export markets.  Evaluate the resources devoted to food fraud. | The countries that have prioritised food fraud, such as the Netherlands and Denmark, have made commensurate investments in staff, training and systems.  The Dutch Food Crime Unit has an annual business plan to guide surveillance and investigative priorities.  Capability to tackle food crime has been strengthened elsewhere in the UK. The FSA is developing a more strategic approach to medium and long-term risk planning, such as through the Emerging Risks Programme.  The Netherlands and Germany are developing more systematic approaches to horizon scanning to better identify and incorporate long-term fraud risks into their strategic planning process.  The Food Safety Authority of Ireland (FSAI) has invested in developing additional in house capabilities to support food fraud surveillance such as GPS tracking of suspect food distribution vehicles involved in fraud. |
| Information gathering | Data are collected from many sources. These sources include local authority routine inspections and surveys, other official data, stakeholder engagement, research conducted by third parties and advisory groups, trade data, media information, and consumers.  Legal protection afforded to whistleblowers. | Make greater use of data from the supply chain and other sources.  Targeted product sampling based on appraisal of risk and value.  Extending surveillance effort to selected export markets. | In the Netherlands, the competent authority proactively uses information such as company accounts to identify businesses which may be more likely to commit fraud due to their weak financial positions. Academic research on indicators of potential food fraud informs surveillance activities.  Germany has developed an online platform through which consumers can notify the authorities of suspected food fraud. Notifications are examined by specialist investigators.  In Ireland, the FSAI is gathering information from social media, focusing on public complaints and content generated by suspects.  New Zealand has authenticity sampling programmes for products judged to be at risk of adulteration and of high economic value (e.g. honey).  New Zealand has invested in surveillance of fraud relating to its products in export markets such as China. |
| Laboratory services | Established laboratory infrastructure well connected to local authorities. | Better coordination of services across the laboratory network.  Strengthen access to innovative testing methods. | Leading countries are planning to invest in strengthening their laboratory infrastructure.  In the Netherlands, New Zealand and Canada the capability of laboratories has been enhanced through engagement with research institutions and industry collaboration.  Germany has advanced analytical testing capabilities to verify labelling claims and support its sampling programmes.  In Ireland, the fast turn-around time achieved by laboratories enables them to support investigations effectively. |
| Information management | Access to the UK-wide data systems (e.g. Food Fraud Database and UK Food Surveillance System). | Improve integration of databases and information systems.  Build links to research base and sources of relevant new technologies.  Strengthen mechanisms for translation of new technologies from research community to analysts. | New Zealand is at the forefront of research to develop and implement systems to verify authenticity of labelling claims, such as for provenance. The techniques include stable isotope analysis that makes use of data on environmental parameters such as soil and rainfall patterns that can be linked to a specific place of origin.  The New Zealand Government is facilitating closer collaboration with the research community such as via establishment of centres of research excellence that bring together experts in virtual research hubs. A New Zealand Food Safety Science and Research Centre is being established with a consortium of universities. |
| Collaboration in analysis and investigation | Culture of collaboration among agencies, enforcement partners and other stakeholders.  Risk-based approach to resource allocation. | Ensure FSS continues to have access to multi-stakeholder platforms such as the SFELC to support collaboration with other stakeholders and that these have appropriate funding.  Work with the FSA to secure access to EU stakeholders and other Member States. | The Netherlands and Denmark have well-established food crime units. Food crime investigation is well integrated with criminal investigation agencies.  The Netherlands and New Zealand benefit from a culture of collaboration and joint fora which help raise awareness of fraud-related challenges, enable research institutions to better understand industry needs and facilitate adoption of relevant technologies.  Canada and New Zealand are establishing closer links with global platforms and institutions such as the industry-led Global Food Safety Initiative and the World Customs Organisation. |

# Introduction

This is the draft final report of a project to benchmark standards for a world-recognised national food surveillance system in Scotland. The project was delivered by a team led by ICF International for Food Standards Scotland. ICF was supported by Professor Chris Elliott of Queen’s University Belfast.

The objective of this study was to identify how the Scottish food safety surveillance system could be improved by drawing on international practice. The project focus was on food fraud and authenticity, including imports, and information sharing. The analysis was based on desk research supplemented by interviews with officials, experts and food chain representatives in Scotland and the rest of the United Kingdom (UK), Canada, Denmark, Germany, Ireland, the Netherlands, New Zealand and the United States.[[2]](#footnote-2) In-depth case studies were conducted for Canada and New Zealand.

The components of effective surveillance are described. The contribution that each component makes to the effectiveness of the national system is then discussed by reference to the situation in Scotland and the wider UK, and in the countries selected for comparison. The report then provides conclusions and a set of recommendations that suggest examples of where international practice could be adopted to strengthen food fraud and authenticity surveillance in Scotland and the UK.

The report is structured as follows:

Section 2 provides background and context to the study and information about the purpose and scope of food fraud and authenticity surveillance systems.

Section 3 briefly explains the study methodology.

Section 4 identifies a set of components of an effective surveillance system that together provide a framework for the study.

Section 5 summarises the legal and institutional structure for food fraud and authenticity surveillance in each of the countries considered in the study.

Sections 6 to 10 discuss each component within the given framework, providing a commentary on the situation in Scotland and the wider UK before reporting on the results of the research in the comparator countries. Canada and New Zealand are considered in greater depth than the other reference countries.

Section 11 draws together the conclusions from the study and section 12 provides recommendations.

# Context and background to the study

This section sets out the policy context to the study and establishes the study scope with reference to the specific role of food fraud and authenticity surveillance within a national food safety surveillance system.

## Policy context

Scotland has established a new independent food safety authority, Food Standards Scotland (FSS).[[3]](#footnote-3) FSS develops policies, provides policy advice to others, is a trusted source of advice for consumers and protects consumers through delivery of a robust regulatory and enforcement strategy.

The core functions of FSS are the same as those previously performed by the Food Standards Agency (FSA) in Scotland. They include food and feed safety and standards, food labelling, nutrition, and operation delivery. FSS is responsible for setting surveillance strategies for food safety and authenticity, and managing food related incidents. FSS has a budget of £15.7 million per year and approximately 160 staff (The Scottish Government, 2014a).

Whilst food fraud is not necessarily linked to food safety, food fraud and authenticity surveillance helps inform and respond to food safety threats. The substitution and adulteration of foodstuffs can introduce materials such as allergens and other health risks into the food chain. There is also increasing recognition of the need to do more to protect food integrity, consumer and business interests and build confidence in food surveillance systems.

The establishment of FSS is recognised as an opportunity to establish a world class surveillance system that:

facilitates a risk-based approach that targets controls on non-compliant businesses and minimises the burden of controls on compliant businesses;

increases horizon scanning and improves forensic knowledge of and intelligence on global food chains to identify and minimise the impact of potential and re-emerging risks;

provides information about the effect of controls on increasing business compliance; and

improves the use of information on food standards and food safety.

The construction of such a system needs to take into account practical factors that include: European Union (EU), UK and Scottish legal requirements; institutional structures; financial resources; skills and technical capacities; and the size, distribution and nature of the food system. Many of these parameters are defined in Scotland and can be configured to meet its own specific requirements, working within the wider framework of UK and EU law, systems and institutions. The Food (Scotland) Act 2015,[[4]](#footnote-4) for example, gave Scottish Ministers power to define the administrative sanctions regime, including fixed penalty and compliance notices as well as how enforcement authorities carry out their functions.

This study provides an opportunity to inform the further development of systems and structures to assure the safety of food produced and consumed in Scotland, and meet Scotland’s particular needs and circumstances. Looking at what has worked elsewhere invites comparison and can provide ideas and inspiration.

## Study scope and definitions

This study focuses on food surveillance systems, with specific reference to food fraud and authenticity, including imports, and information sharing. The Scudamore report (The Scottish Government, 2012) defines ‘surveillance’ in the context of food safety as the on-going, systematic collection, collation, analysis and interpretation of accurate information about a defined food or feed with respect to food safety or food standards. Food fraud involves ’the deliberate and intentional substitution, addition, tampering, or misrepresentation of food, food ingredients, or food packaging [for economic gain]’ (Spink and Moyer, 2011). It is different from the unintentional mis-selling or adulteration of goods. Both of these are included within the scope of food fraud and authenticity surveillance (*Ibid.*).

Food fraud can occur in many different ways, adding to the complexity of the challenge to surveillance systems. Food related fraud can include (Rey, 2014):

Substitution: replacement of composite ingredients of food products, typically with cheaper alternatives.

Concealment: addition of materials to conceal defects in food, for example, food colouring or hormones.

Mislabelling: deliberate false labelling of product attributes such as expiry, provenance, method of production and nutritional composition.

Grey market production, theft and diversion: includes sales of stolen foods and excess unreported products.

Addition:use of unapproved materials to increase marketability and mark-up of food.

Counterfeiting:imitations of popular foods that are either in breach of patenting laws or are not produced with acceptable safety assurances.

Dilution:watering down of products typically to reduce costs of production and increase profit margins.

Food fraud can occur at any point along the supply chain. Examples are mislabelling and sales of stolen goods at retail level, adulteration during processing and unlawful activities at the primary production stage, including tampering of livestock identification systems and intentional use of prohibited substances during cultivation and rearing. Wide-reaching, integrated fraud and authenticity surveillance systems that adopt a farm-to-fork approach are needed to respond to this challenge.

Food fraud is a growing global concern. Estimates suggest that food fraud costs the global food industry USD 30-40 billion through loss of consumer trust and sales and crisis management (Spink, n.d. cited in Rey, 2014).

In the UK food fraud surveillance is commonly focused on protecting the interests of consumers and legitimate producers (both local and foreign) in the domestic food market. However, for food producing exporting economies such as Scotland’s, the fight against fraud can also have a role in safeguarding the reputation for quality and integrity of its food products in export markets, and so supporting the earnings and jobs that the trade supports.

Factors that have been linked to UK and global trends in food fraud include:

The complexity of food supply chains: many supply chains have become more complicated, with more intermediate processors and brokers. The number of product lines, variations, and volume of trade has also increased significantly. These changes have increased scope and opportunities for food fraud (Rey, 2014).

Globalisation of food supply chains:A growing proportion of foods and ingredients consumed in the UK are imported (Defra, 2015). Raw materials, intermediate products and final goods regularly move between different countries, and often, different continents, which increase the opportunities for fraud and creates challenges for fraud identification and prevention.

Challenging economic climate:pressure transmitted through the supply chain to drive down prices has squeezed suppliers at a time when many production costs are increasing, adding to incentives for unauthorised use of cheaper alternatives. Market volatility in globalised supply chains can also increase scope for food fraud (Rey, 2014).

The impact of crop failures and associated commodity price fluctuations (HM Government, 2014).

These factors are useful to consider in the design of an effective food fraud and authenticity surveillance system. An appreciation of these drivers can help inform where to identify fraud-related risks, prioritise surveillance and enforcement efforts, target resources and think more strategically about food fraud and authenticity surveillance.

# Methodology

The study method involved the following steps:

development of a benchmarking framework with which to compare and contrast food fraud and authenticity surveillance systems;

establishment of the Scottish and UK surveillance baseline;

selection of case study countries; and

analysis and cross-comparison of surveillance systems against each component of the benchmarking framework.

A brief overview of the method used for each of these stages is outlined below.

## Benchmarking framework

The benchmarking framework was developed through a literature review. The review considered academic publications, government reports (e.g. audit reports and documents of official food control systems in the UK and third countries), and grey literature.[[5]](#footnote-5) The study team undertook online searches of academic journal databases, competent authority websites and other online materials.

The intent was not to establish a comprehensive framework which sets out all aspects and functions relating to food fraud surveillance systems. Rather, the framework outlines critical, overarching components from which the effectiveness of different systems can be assessed and cross-comparisons made. The framework considers both the capabilities and functions that surveillance systems are intended to perform (such as intelligence gathering and diagnostic capabilities), and the supporting mechanisms and approaches that are needed to carry out these functions effectively (such as collaboration between different stakeholders and legislative powers).

The framework was discussed with FSS at interim report stage. It was further developed and refined in the later stages of the study.

## Scottish and UK baseline

A baseline was established for the Scottish and UK-wide food fraud surveillance system covering each of the components of the framework. The framework was based on a review of publically available literature and consultations with officials in FSS, the UK FSA, the FSA in Wales, the FSA in Northern Ireland and a local authority in Scotland.

## Case study country selection

One objective of this study was to identify and profile two countries against which the Scottish surveillance system could be benchmarked based on the framework developed and detailed in section 4. The two countries were chosen from a shortlist based on rapid assessment of surveillance systems in the EU and third countries. The assessment involved a review of publically available literature and consultations with selected experts.

Countries were shortlisted based on the following criteria:

presence of well-established food fraud surveillance systems;

prominence of food fraud within the food controls system (indicators of prominence being, for example, the presence of dedicated fraud and authenticity units);

evidence of innovative mechanisms in place for food fraud and authenticity surveillance;

effective legislative frameworks for dealing with food fraud; and

importance of the food sector to a country’s economy.

The following countries were shortlisted: Canada, Denmark, Germany, Ireland, the Netherlands, New Zealand, and the United States. In consultation with FSS, Canada and New Zealand were chosen to be the subject of in-depth case studies.

New Zealand has strong parallels with Scotland in respect of its food sector and stage of fraud surveillance development. Whilst New Zealand is still developing a strategic approach and building capacity for food fraud surveillance, the underlying thinking on this process and developments to date are pertinent to Scotland. New Zealand has a strong food export sector, as does Scotland. Exports are dominated by animal products (such as dairy, lamb and honey) which are distinguished by provenance and have a strong national brand. The integrity of its food exports is important to the New Zealand economy. Ongoing issues with counterfeiting of New Zealand goods in export markets, as well as authenticity claims on specific domestic products such as honey have encouraged collaborative efforts with export partners to strengthen labelling and testing regimes.

Canada is moving towards a more strategic approach to food safety and fraud surveillance. The central competent authorities in Canada are implementing reforms to modernise the food safety and authenticity system. There are also possible comparisons between collaboration of federal and provincial governments in Canada and administration of devolved powers in the UK.

Discussion of the situation in the two case study countries is complemented by examples of approaches adopted in the other countries.

## Comparative analysis of Scottish and international surveillance systems

A profile of the food fraud surveillance systems in the main case study countries was developed through consultations with officials and experts in these countries. A small number of interviews with stakeholders in the other shortlisted countries were also conducted. Publically available literature, including materials provided by interviewees, was used to supplement the findings of the consultations. The information for each country gathered through interviews and literature review was synthesised and corroborated to assess the weight and credibility of the findings, and headline messages. Similarities and differences between the Scottish system and that of other countries were identified. This included an assessment of how well these systems performed against each other, and examples of innovation and best practice.

Conclusions and recommendations for Scotland to improve its surveillance system were drawn from the analysis for each element of the benchmarking framework. The research evidence informed some further refinement of the benchmarking framework. The presentation of the framework in this report reflects that additional thinking.

# A framework for benchmarking national surveillance systems

## Introduction

This section sets out a framework for describing and comparing national food fraud and authenticity surveillance systems. The framework establishes a set of core components that define food safety surveillance systems and proposes features of an effective approach to tackling food fraud and authenticity surveillance issues within those systems.

The framework was developed based on a rapid review of publicly available information about existing food safety surveillance systems and initial consultations with experts from the FSA, other EU Member States, third countries and academics.

## Components of food fraud and authenticity surveillance systems

The study team has identified the following capabilities of effective food fraud and authenticity surveillance systems:

strategic planning, incorporating decisions about financial and human resources;

information gathering;

laboratory services;

information management; and

collaboration in analysis and investigation.

Enforcement and compliance support mechanisms are an important complementary part of any complete strategy to counter food fraud but are out of scope of this study.

The list of components could have been much longer - each item in the schedule above could have been deconstructed into its constituent parts and an attempt made to build system and process maps. This would add complexity but not necessarily provide greater enlightenment. The components identified here focus on core activities that take place within surveillance systems and map onto the principal themes and points of comparative advantage that were referred to by the practitioners that were consulted.

Clearly, the legal framework that defines competent authorities, their obligations and their powers is also important to how the system functions. Effective food fraud and authenticity surveillance systems are underpinned by legislative provisions that enable authorities to gather relevant information, carry out surveillance activities effectively, and stakeholders to participate in this process. In order to ensure the effectiveness of surveillance efforts, it is important that food control authorities either have a legal mandate with powers to investigate food fraud, or have effective mechanisms of trust and close cooperation with other agencies who hold these powers.

Our approach has been to recognise these legal and institutional factors as relevant but to try to identify what makes surveillance systems work more effectively within any given set of legal and institutional conditions. The text in section 5 on the legal and institutional context for surveillance in the countries covered in this study provides the background for the sections that follow.

### Strategic planning

Effective surveillance systems have strategic planning processes that determine fraud and authenticity priorities and the approach to be adopted in addressing them. They should be informed by an understanding of the nature and distribution of risks. More advanced processes look beyond the short term out to the future, and are informed by evidence from diverse sources.

Surveillance functions need to be adequately resourced to perform their operations effectively. The strategic planning process should ensure that the surveillance plan is consistent with the financial resources available. The need for adequate funding was recognised in the Elliott Review (HM Government, 2014). Relevant factors include:

the level of funding available to surveillance activities, in particular food fraud and related crime; and

how funding is allocated and by whom (e.g. emergency funding or sustained allocations).

Identification and investigation of food fraud and authenticity issues requires specialist skills and knowledge. Planning for acquisition and retention of appropriate staff, and investment in training are important components of the planning process.

The extent to which resources and training are provided in house or obtained through close cooperation with extra-agency investigation units will depend on local needs and circumstances. Factors such as the degree of decentralisation of law enforcement agencies and ease of communication can influence the optimal model of delivering and resourcing of surveillance functions.

### Information gathering

Information gathering is central to any food fraud surveillance system. It underpins the identification, prevention and management of risks to food safety and authenticity, and informs enforcement activities. The Elliott Review (HM Government, 2014) identifies information gathering as an important pillar of an effective food crime prevention framework, and stresses the need for shared investment and focus between government and industry. Data need to be timely, reliable, relevant, and provide sufficient coverage and insight into risk areas and vulnerabilities across different parts of the supply chain and product types.

Surveillance systems need to draw on information from a variety of sources. Information from official controls systems and regulatory alert systems should be complemented by those provided by food controls staff, consumers, industry, other enforcement agencies, the media and social networks. Effective systems capture market and other supply chain data.

Information should be gathered over different time periods. The frequency of data and information collection in most food surveillance systems is informed by an assessment of the risks associated with different sectors and establishment types. For example, supply chains of processed products involving multiple ingredients could warrant more frequent data and information collection, as could businesses with poor compliance history. The frequency of collection is also important to consider for the development of longitudinal datasets, which can help in the assessment of food crime and fraud related risks, strategic policy making and investment decisions. The frequency of collection needs to be considered within the context of resource constraints.

Timeliness of data collection also plays an important role in food surveillance systems. Real time information can be used to detect and manage fraud related developments that pose immediate risks to public interests and trade. Effective systems are likely to use real time information as part of ongoing, systematic monitoring and in response to alerts.

Legislation can also influence competent authorities’ access to information:

Statutory requirements for organisations to share information vary in form. They may impose a requirement to share information with competent authorities only on request or place a duty to report on businesses or individuals when they are in possession of certain types of information or intelligence.

Legal protection afforded to those sharing information can assist information gathering. Legislation may specify conditions such as anonymity, the length of time data will be protected and restrictions on the purposes for which the information can be used.

Data protection and policies regarding data release will have implications for effective data sharing. These issues need to be considered in the design of surveillance systems to ensure legislation balances the need for surveillance with the need to protect sensitive information and maintain legitimate trade.

### Laboratory services

Data gathered through food safety, public health and food fraud surveillance activities need to be synthesised and turned into intelligence (i.e. actionable information). Laboratories are an essential part of that process. The technical capacity of these facilities is important to power of the surveillance system as a whole to detect problems.

The testing required to verify food authenticity and labelling claims is becoming increasingly complex (e.g. DNA, immunoassay, spectroscopic, and mass spectrometric techniques). It is unlikely that one single laboratory will be able to offer the full spectrum of authenticity testing. Access to a network of facilities that can collectively meet users’ needs is therefore important. Mechanisms that help laboratories to work with those that can create innovative testing methods, and to encourage translate of new technologies from research into practice, are also useful.

### Information management

Information collected from sampling programmes and other sources needs to be stored and available to users in a form that facilitates analysis. The capability of information management systems, defined broadly to include the data, technology and skills needed to exploit them, is thus critically important to effective functioning of a surveillance system.

Data validation and harmonisation procedures need to allow comparison and sharing of results. Differences in the type and structure of data used can make them difficult to standardise and integrate with each other. The most advanced data management systems are able to link multiple databases effectively. They are also likely to have advanced search capabilities, with the functionality to link related strands of data and intelligence effectively.

### Collaboration in analysis and investigation

Analytical capabilities are important for synthesising and assessing the relevance of the data and information that is gathered. Surveillance priorities, enforcement actions and preventative measures should be systematically informed by the most relevant intelligence and aligned with risks. Effective systems use intelligence systematically (rather than on an *ad hoc* basis) to help inform risk-based surveillance priorities, operational risk management and investment decisions.

Effective food fraud surveillance systems feature close cooperation between those synthesising information to convert to intelligence and those providing data to decision-makers. They are also likely to entail two-way processes in which information gathering and analysis help inform strategic decision-making, and in turn are influenced by strategic priorities.

The level of integration within the food control surveillance system can be assessed by reference to how and what information is exchanged, the systems available to facilitate information exchange and the structure and scope of collaborative networks (e.g. whether formal or informal). This includes collaboration between food control authorities and industry, as well as with other stakeholders.

Effective surveillance systems are likely to be supported by analysts with diverse expertise, including analytical chemists, criminologists, economists specialising in the analysis of market and economic data and experts trained in the analysis of human and other intelligence.

Crime surveillance and security services are important: the investigation of food fraud and related crimes is likely to benefit from the involvement of law enforcement agencies such as the police and special investigation teams with enforcement powers. Food crime may be part of other criminal activities and carried out by organised criminal networks. Information from crime surveillance systems, including revenue and customs, can be useful in directing surveillance efforts and identifying areas of risk.

Cross-border surveillance networks can also assist in addressing food fraud and authenticity issues. Collaboration with criminal investigation and other surveillance agencies across national borders is important given the increasingly globalised nature of supply chains and evidence of international criminal networks involved in food crime.

# Legal and institutional structures

## Introduction

This section provides a brief overview of the legal and institutional arrangements relevant to food fraud and authenticity surveillance in Scotland and the UK and in the selected comparator countries.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Section summary:*** Food fraud and authenticity surveillance activities are part of national official food control systems. The official control systems are configured to fit the specific governance arrangements in each country and so vary in the extent to which responsibilities beyond local authorities are divided between national and devolved (e.g. state and provincial) authorities. For those countries within the EU there is an additional functional layer provided by EU law, institutions (e.g. the European Food Safety Authority, European Commission) and systems (e.g. rapid alerts).  Countries differ in the extent and types of powers granted to food control officials to conduct food fraud investigations and sanction those guilty of fraud. In some countries food control officials (typically working within designated food fraud units) have extensive search and investigation powers that operate similarly to a police force. In countries where such extensive powers do not exist, food control authorities tend to work closely with the police and in-house lawyers to assist investigations and enforce actions.  In most countries where food inspectors do not have powers of search and detainment, authorities are developing ways to work effectively with the judicial system to support investigations. In Ireland, for example, the FSAI developed better ways of working with courts and getting the support of the police to execute warrants. In-house lawyers provide advice including on how to accelerate investigations and potential prosecutions. This is supported by close cooperation and high level engagement with the police which helps raise the profile of food fraud investigations.  Figure 5.1 provides an overview of the institutions with primary responsibility for food fraud and authenticity control activities in each comparator country.  Overview of the institutions with principal responsibility for food fraud and authenticity   | Country | Central Competent Authority | Shared responsibilities with the CCA | | --- | --- | --- | | Scotland/UK | UK FSA and The Department for Environment, Food and Rural Affairs (Defra) | In Scotland: FSS, Local authorities, The Scottish Government\* | | Canada | Canadian Food Inspection Agency (CFIA) | 10 provinces + 3 territories | | Denmark | Ministry of Food, Agriculture and Fisheries (MFAF) | Local offices of the Danish Veterinary and Food Administration (DVFA) and Danish Agrifish Agency (DAFA) | | Germany | Federal Ministry of Food, Agriculture and Consumer Protection (BMEL) | 16 state governments (Länder), sub-divided further between regional ministries and district or municipal authorities; Institute for Risk Management (BfR) | | Ireland | Food Safety Authority of Ireland (FSAI) | Department of Agriculture, Food and the Marine (DAFM); the Health Service Executive, Environmental Health Service; the Sea Fisheries Protection Authority; and local authorities | | The Netherlands | The Netherlands Food and Consumer Product Safety Authority (NVWA) | Semi-autonomous public bodies (ZBOs) such as:  Control Authority for Milk and Milk Products (COKZ), Product Board for Livestock and Meat (PVV), Quality Control Bureau (KCB)  Dutch Fish Products Board (PV) | | New Zealand | Ministry for Primary Industries (MPI) | 67 Territorial authorities | |   \*Note: For full details of responsibilities for administration of food and feed law in the UK the reader is referred to Annex 2, as sourced from the UK multi-annual national control plan for 2013-2016 (FSA, Defra, The Scottish Government, Welsh Government, DARDNI, 2015). |

## Scotland and the UK

Food legislation in the UK and elsewhere has historically focussed on food safety. The Food Scotland Act 2015 introduces new powers to authorities in Scotland relating to food fraud, including additional investigative powers and increased scope for authorities to report food fraud incidents and seek prosecutions.

The Scottish food surveillance system contributes to the UK’s implementation of the General Food Law[[6]](#footnote-6) and related EU legislation on the performance of official control activities.[[7]](#footnote-7) The regulation describes the requirements and responsibilities of competent authorities with respect to the implementation of controls, including the requirement for a risk-based approach to controls. The provisions necessary to apply the regulation in Scotland are contained in the Official Feed and Food Controls (Scotland) Regulations (Scottish Statutory Instrument (SSI) 2009/446). Guidance on enforcement is set out in The Food Law Code of Practice (Scotland) which provides instructions and criteria for local authorities engaged in the enforcement of food law (FSA, 2014). The Code was updated in 2014 to improve support for food fraud and authenticity surveillance as recommended by the Scudamore report. The definition of food incidents and reporting arrangements was extended to include non-hazardous food incidents such as food fraud and authenticity issues (FSA, 2014). The revised Code of Practice also provides more clarity for authorities in helping identify food fraud, how and when to report food fraud incidents, and encouragement to take a firmer stance on food fraud and report incidences early to the Procurator Fiscal Service (the public prosecutor in Scotland) (FSA, 2014; FSA, n.d.b).

As of 1 April 2015, FSS has responsibility in Scotland for food and feed safety and standards, nutrition related food legislation, food labelling, meat inspection policy and operational delivery (FSA, FSS, Defra, Welsh Government, Scottish Government and the Department of Agriculture and Rural Development of Northern Ireland (DARDNI), 2015). The FSA has responsibility at central Government level for the main body of feed and food safety law in the UK. Defra oversees some aspects of food legislation: protected food names, composition and standards of organic products. Responsibility for animal health and welfare and plant health law, and beef labelling lies with Defra and equivalent departments within the Devolved Administrations. In Scotland, this is overseen by the Agriculture, Food and Rural Communities department of the Scottish Government (*Ibid.*).

FSS and local authorities have the power to carry out routine and unannounced inspections to undertake sampling. Powers to seize and detain foods for further investigation were restricted to food safety issues until 2015, and did not extend to issues when public health was not at risk (The Scottish Government, 2012). The Food Scotland Act provides new powers of seizure and detention, notification of non-compliance with food information law and similar offences under food labelling law. These are similar to those that already existed for food safety. The Act thereby addresses a recommendation of the Scudamore report that powers and sanctions for contravention of food standards in Scotland be more closely aligned with those available for food safety. These changes should enable more effective surveillance of food fraud and authenticity.

Local authorities are responsible for investigating food fraud and authenticity issues and deciding when to escalate an investigation and pursue prosecutions. Consultations indicate that, due to the time and effort involved, they tend to report only those cases for which there is the strongest justification for prosecution. The court then makes a further decision about whether to take up the case or use available court time and resources on other crimes. In practice food crime cases are often dropped. The Procurator Fiscal Service does not have significant expertise in dealing with food crime and its exposure to these crimes is limited. The Scudamore report called for higher priority to be given to food standards and food safety cases in future and consideration of the appointment of a specialist Procurator Fiscal Service with expertise in food law (FSA and The Scottish Government, 2013). The Scottish Government is currently considering this proposal with the Crown Office and Procurator Service.

FSS consultations suggest that local authorities do not have the specialist knowledge on matters such as intelligence handling and investigation protocols that is required to undertake complex food fraud investigations. FSS does not have the data analysis and advisory skills to assess intelligence and provide local authorities with information on evidence gathering and other issues to ensure investigations are conducted according to standard protocols such that evidence will stand up in court.

The FSA has established a Food Crime Unit. The unit covers issues across the UK; the participation and role of FSS will be discussed between the FSA and FSS but has not yet been defined (FSA, 2014).

## Comparator countries

### Canada

Responsibility for food safety and authenticity controls in Canada is divided between the federal government and the provincial and territorial governments. Food safety legislation is overseen by Health Canada, the federal government department responsible for public health. The Canadian Food Inspection Agency (CFIA) is the central competent authority responsible for the establishment and enforcement of regulations on food standards and quality that are not related to food safety. This includes regulations pertaining to food fraud and authenticity.

The Safe Food for Canadians Act (2012) streamlined and consolidated food safety and standards provisions previously contained in a number of different statutes. The Act aims to strengthen the food traceability system, fill gaps in legislation and harmonise inspection and enforcement powers across food commodities. Whilst it is primarily concerned with food safety, the Act also introduces provisions to address fraud and authenticity issues such as stronger deterrents against food commodity tampering, deceptive practices and hoaxes. These include stronger sanctions to deter deliberate violations of food standards and safety legislation (CFIA, 2012). The CFIA has in-house lawyers to assist with prosecutions and investigations.

Consultations with the CFIA suggest that recent legislative changes have increased inspectors’ power to recall products, although this is not specific to fraud inspections and investigations. Fines are the most common sanctions for food fraud, although the option of imprisonment is available and used. Administrative monetary penalties are also being considered. These are penalties that can be levied by inspectors on businesses in breach of legislation, outside of the courts system.

The CFIA certifies and inspects all federally registered establishments. These are mainly production and processing operations dealing with products of animal origin (POAO) and businesses producing foods that are traded between the provinces and territories and overseas. Inspection of food retail and service establishments, and those producing food for sale within provincial and territorial boundaries is coordinated and carried out by authorities at these levels, although the federal government still maintains oversight of all food establishments. A small number of jurisdictions (such as Quebec) have arrangements with the CFIA to control inspections of businesses that would normally be federally managed.

Canada has embarked on a major programme to modernise its food surveillance systems. This will involve changes in legislation, operational structures and inspection delivery arrangements. The CIFA has been reorganised to have more horizontally integrated divisions that operate along functional lines rather than being focused on particular commodity groups. This restructuring is intended to help the agency identify cross-cutting intelligence gathering priorities and risks. There is no centralised food fraud unit in Canada, however, and there has not been a specific focus on food fraud in the organisational reform programme.

### New Zealand

The Ministry for Primary Industries (MPI) is the central competent authority in New Zealand overseeing official food controls. The MPI is responsible for drafting legislation and guidance, and monitoring sectors and businesses that must be federally registered by law (import and export businesses and primary industries dealing with POAO). Food safety and authenticity controls in these industries are monitored and enforced by the MPI Verification Services, a division of the MPI. The MPI also audits food businesses that opt to be federally registered by implementing prescribed risk management systems that exempt them from local council inspections (Smith, 2013). Inspections of food retail and service establishments, and non-federally registered businesses are carried out at local level by environmental health officers working for territorial authorities[[8]](#footnote-8) (Department of Internal Affairs, 2011).

The MPI typically leads on food fraud and authenticity issues. Responses to food fraud can also involve the Ministry for Business, Innovation and Employment where labelling and authenticity issues relate to unfair trading practices. As New Zealand develops a more strategic, coordinated approach to food fraud surveillance, the role and scope of the organisations involved are expected to become better defined and integrated.

In New Zealand the legislation that supports official food controls and surveillance was originally established in the context of food safety. The Food Act 2014 (which comes into force in 2016) updates the food safety regulatory system and moves it towards a more risk-based approach (Parliament of New Zealand, 2014). The Act provides official food control officers with enforcement powers that include the right of entry to premises and inspection, the right to seize and detain food or appliances, and the right to prohibit and control the use of equipment. Sanctions such as fines are used where food standards legislation is breached.

The Search and Surveillance Act 2012 extends police and government powers of surveillance to other agencies and ministries (Parliamentary Counsel Office, 2015). Under the Act, government departments, including the MPI will be able to obtain surveillance warrants directly (Green Party of Aotearoa, New Zealand, n.d.). The Act also provides additional search powers which include the use force and power to detain individuals during wine inspections (*Ibid.*). It further introduces provisions relating to confidentiality and disclosure which require individuals who may not have been charged with any crime to provide authorities with access to information (*Ibid.*).

### Other countries

#### Denmark

Overarching responsibility for official food controls in Denmark lies with the Ministry of Food, Agriculture and Fisheries (MFAF). Official controls are implemented at the local level by two MFAF agencies: the Danish Veterinary and Food Administration (DVFA) which is responsible for food business inspections, and the Danish Agri-fish Agency (DAFA) which exercises controls on seafood. The DVFA carries out surveillance and enforcement activities through five local control offices and operates the Food Inspection Task Force which conducts inspections that are similar to criminal investigations on illegal establishments, unlawful slaughter practices and other criminal activities.

The Danish food crime unit has benefitted from increased resourcing, and has doubled in size since its creation in 2006. The Unit has the capacity to conduct 16 major investigations a year (HM Government, 2014).

#### Germany

Food policy in Germany is overseen by the Federal Ministry of Food, Agriculture and Consumer Protection (BMEL). Responsibility for implementation and enforcement of this legislation lies with the state governments (Länder). The functions of the BMEL are divided between federal offices and institutes. The Federal Office of Consumer Protection and Food Safety (BVL) coordinates and advises on food safety, veterinary affairs and consumer protection. The BVL is responsible for gathering and evaluating data acquired by federal states to meet EU reporting requirements, including information on food fraud. The Federal Institute for Risk Assessment (BfR) is responsible for assessing and communicating consumer risks, including food safety (such as contaminants, residues, and contact materials for foodstuffs). The BfR has no official role with regards to food controls, with the exception of imported wines for which it can be called on to provide final verification in customs investigations. This includes authenticity testing and verification of potentially fraudulent imported wines.

Länder typically have two or three tiers of administration, and hold overall responsibility for official controls on all premises including those dealing with products of animal origin. Länder have their own analytical laboratories and some have food crime units. Regional ministries are the top administrative tier, responsible for planning, instruction and co-ordination of food control activities. District or municipal authorities are charged with delivery of local controls.

#### Ireland

The Food Safety Authority of Ireland (FSAI) is an independent food regulatory authority and the central competent authority with overall responsibility for official controls in Ireland. The FSAI’s responsibilities include cooperation with food business operators, provision of guidance and training to agencies, actions to raise consumer awareness about food safety enforcement issues, data collection and monitoring, and direct enforcement actions.

Administration of controls is shared among FSAI and four agencies.[[9]](#footnote-9) Food legislation is enforced on behalf of the FSAI by these agencies, each of which has a service contract with the FSAI (ICF International, 2014). These organisations are responsible for surveillance and enforcement functions in meat production facilities and establishments handling POAO, food retail and service establishments, and the fishing sector. The FSAI has responsibility for coordinating food fraud surveillance activities. This is facilitated by a food fraud unit within the FSAI which works closely with partner agencies.

The FSAI Act is the primary legislation which sets out the mandate and powers of the FSAI. Provisions within the Act are available to other agencies to address issues of non-compliance relating to food, but it is not required (or used) by some agencies (*Ibid.*). The Act provides authorised officers with effective powers of entry in relation to food business establishments for the purposes of inspection and investigation, including entry to private and domestic dwellings without the need for a warrant in some specific circumstances. Whilst investigative powers are important, the FSAI recognises the need for stronger power of sanction and more dissuasive penalties for fraud.

#### Netherlands

The Ministry of Economic Affairs, Agriculture and Innovation (MEA) and Ministry of Health, Welfare and Sports (VWS) has responsibility for legislation, policies and coordination of official food controls in the Netherlands. The Netherlands Food and Consumer Product Safety Authority (NVWA) is the central competent authority responsible for implementation of controls. The NVWA is centralised with support offices at local level. The authority is responsible for supervision, risk assessment and risk communication across the entire food supply chain, and directly involved in control activities including food business inspections and control of imports and exports.

A specific division within the NVWA, the Intelligence and Investigation Service (NVWA-IOD), deals with organised and international crime (NVWA, 2013). The NVWA-IOD is responsible for investigating food fraud across the food supply chain, although it focuses on the primary production and processing sectors. The Dutch food crime unit has existed for over 60 years, although its structure has changed over that time.

The Netherlands has the strongest legislation on food fraud and authenticity surveillance of any of the countries considered in this study. The NVWA-IOD operates under the Law on Special Investigation Services which provides it with extensive powers, equal to those available to police detectives, for gathering intelligence and carrying out investigations (FVO, 2013). The IOD has a Criminal Investigation Team; strict rules govern how the IOD can communicate with informants while protecting their anonymity (Boom Lemma uitgevers and Ministerie van Veiligheid en Justitie, 2014).

# Strategic planning

## Introduction

This section discusses the strategic planning framework process by which countries make decisions about prioritisation and the distribution of the resources allocated to tackling food fraud surveillance. It also discusses the scale of that investment and comments on training arrangements where the research identified programmes of interest.

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| --- |
| ***Section summary:*** Scotland is moving towards a systematic, risk-based approach to decision making for food fraud that is similar to arrangements already established for food safety. Annual sampling plans give increasing consideration to food fraud and authenticity testing and are informed, reviewed and updated systematically by multiple intelligence sources.  National surveillance programmes in most of the countries assessed are informed by analysis of risk factors and trends. Surveillance priorities are typically adjusted on the basis of emerging intelligence and annual reassessment of risks. Most of the other countries reviewed are at a similar stage of system development to Scotland with regards to forward-looking surveillance, although a few countries are developing horizon scanning activities and are looking to use this to inform future surveillance priorities. Some of these developments are highlighted in this section.  Strategic decision-making is constrained by limited horizon scanning activities in many of the countries assessed. Leading countries are beginning to think strategically about forward looking surveillance activities and are considering methodologies to undertake horizon scanning more systematically, assess the usefulness of findings, and decide when information obtained through horizon-scanning should be used to guide follow-up investigations.  There is scope to increase the consideration given to emerging and long-term risks in strategic planning in Scotland. There are no forward looking surveillance activities undertaken in Scotland which consider fraud-related risks that could emerge in the future. Scotland can better link into horizon scanning efforts at UK level, although UK-wide activities are also not well-coordinated.  The countries that have prioritised food fraud have made commensurate investments in staff, training and systems. Where competent authorities have greater powers of investigation (as opposed to partnering with police and other law enforcement agencies), the number of staff working on food fraud tends to be larger and they have specialist investigative skills. The FSA’s establishment of a Food Crime Unit, as recommended by the Elliot Review, takes the UK in the direction of those leading countries. The extent to which FSS seeks to build similar capacity in Scotland, or rely on the FSA for such services, will have implications for resource planning and surveillance system organisation.  Resourcing was most commonly raised as an issue by consultees in the UK, Ireland and Canada. Resource planning in most countries has prioritised food safety over food fraud, though the Netherlands and Denmark are exceptions to this general rule. This balance is gradually shifting as the profile of food fraud increases. The Netherlands and Denmark have invested significant resources over the years in building highly developed investigative and analytical capabilities to address food fraud. They have well-resourced food fraud units and analyst laboratories. Authorities responsible for tackling food fraud are also recognising the need to bring in-house skills and capabilities that have not traditionally been required for food safety-oriented surveillance. |

## Scotland and the UK

The current strategic planning framework for food fraud and authenticity has until now involved:

Annual planning by FSS of sampling to be conducted by local authorities. Non-mandatory sampling plans are set by FSS for specific food safety and authenticity testing, to be conducted by local authorities, in addition to routine sampling and monitoring activities they undertake as part of food business inspections and in response to complaints and alerts.

The FSA leading on longer-term strategic decision making, including horizon scanning activities.

### Annual sampling

Annual sampling plans covering both food safety and authenticity testing were established for Scotland in response to the Scudamore report. FSS sets sampling targets for local authorities on a list of priority sectors and products based on information from the Food Hygiene Information Scheme, Health Protection Scotland, local authorities, intelligence gathered from both the UK Food Surveillance System (UKFSS) database[[10]](#footnote-10) (discussed in detail in Section 9.1) and from previous sampling programmes as well as emerging issues identified through incident investigations. Although the sampling plans are not in practice mandatory, consultations suggest that most local authorities have been meeting their targets.

Routine inspections and monitoring activities are funded through the local authorities’ own budgets. In the last two to three years, more funding has been made available from the FSS budget for additional sampling and analysis work, with increased focus on authenticity sampling. FSS provides funding to supplement existing local authorities’ sampling budgets to undertake annual sampling plans in accordance with UK and Scottish sampling priorities for food safety and authenticity (FSS, 2015).

### Medium and long term planning

Whilst local intelligence is used to inform short-term strategic decisions and surveillance priorities within Scotland, longer-term strategic decision making is led and coordinated by the FSA, with little activity undertaken in Scotland and other devolved administrations.

The FSA has recognised the importance of both pro-active information handling and more reactive incident management. Consultations indicate that the FSA is trying to move beyond alert-led, retrospective surveillance to incorporate more active, pre-emptive surveillance. Doing so will enable it to identify and establish food fraud and authenticity surveillance priorities more effectively and move towards a risk-based, intelligence-led system.

Medium-term risks are the focus of the FSA’s emerging risks programme. The programme analyses trends at local, regional and global levels, and includes information from many databases including the Food Fraud Database and incidents database, which are likely to contain the most reliable data available to the FSA. Trends in yearly incidents in the UK are also assessed and an annual report is produced to inform the following year’s sampling plan. The emerging risk programme is one initiative that is beginning to bring together disparate strands of information to look at patterns related to food safety and related issues in the UK. Food fraud is one aspect of this but is less well-developed than in other areas (such as work on food-borne illness).

Consultations with the FSA indicate that horizon scanning is used to address long term drivers of risks and opportunities at least five years into the future. The FSA is one of several government bodies, led by Defra, which contracts out horizon scanning activities. Outputs can be generated and tailored to specific agency requests and to model specific scenarios. Top line projections are used in part to inform present and future action areas for the FSA (e.g. how a regime change in an extra-EU importing or exporting partner affects UK food safety priorities). Although there is some horizon scanning activity taking place at UK-level, consultations suggest that these are not well-coordinated. There are no horizon scanning activities being undertaken specifically in Scotland. Scotland is not as well-connected to UK-wide horizon scanning efforts as it could be.

### Resources

Decisions on the financial and human resources to be allocated to food fraud are an important part of the strategic planning framework for food fraud and authenticity surveillance. The relevant human resource decisions include number of staff, their skills and expertise, and the investment to be made in training, support and development to maintain and enhance the organisation’s functional capacity.

Food fraud and authenticity surveillance is not identified as a specific line item in the FSS budget. FSS spends around £1.3 million per annum on research and surveillance (The Scottish Government, 2013), including programme spend and capital and staffing costs. Funding for strategic analysis and high-level surveillance such as horizon scanning is also allocated from the research and surveillance budget but is managed centrally, without sub-allocations to individual divisions.

Currently, two FSS staff have responsibility for addressing food fraud, and only as part of their wider roles. The amount of funding allocated by FSS to fraud-related work is based on annual bids and business cases submitted for additional surveillance, investigation and prosecutions (to supplement routine monitoring and surveillance activities undertaken by local authorities). As fraud work is difficult to predict and quantify in terms of resource requirements, it can be difficult for departments within FSS to plan and determine the resources required in a given year for these activities. Local authorities can also apply to the FSS’s Fighting Fund, which supports targeted enforcement activities including those relating to food fraud. Scotland had access to the FSA’s Fighting Fund before the formation of FSS. The Fund was rarely used and typically only called upon when local authorities had a disproportionate number or size of cases to investigate. It was not used for proactive sampling efforts. This may change under FSS.

Local authorities in Scotland benefit from FSA funded training programmes which are helping to develop specific skills for food fraud investigation. There are opportunities to learn from other devolved administrations in the UK, such as Wales which have well-established food fraud training programmes. Food control authorities in leading countries benefit from in-house staff who have backgrounds in criminal investigation and bring new skills needed for fraud investigations. These staff can also help pass on skills and may be well-placed to facilitate training and outreach activities.

The FSA has established a Food Crime Unit as recommended in the Elliot Review. FSS might seek to build similar capacity in Scotland, or to secure access to the support of the FSA unit. These choices will have implications for resource planning and surveillance system organisation in Scotland.

The Food Fraud Co-ordination Unit in Wales was identified in consultations as an effective advisory service for local authorities in Wales. The Unit coordinates enforcement activity in relation to food fraud across Wales so that legislation is applied consistently. The Unit also provides training on food fraud to local authority officers with support from FSA.

## International comparisons

### Canada

Each year CFIA prepares a national surveillance plan which determines where it will focus surveillance efforts such as authenticity programmes. Surveillance priorities are based on the number of complaints, the compliance record of different sectors in previous years and wider intelligence on risks. Priorities are also informed by international developments and trends relating to food fraud and authenticity issues. CFIA is moving to a more risk-based approach to surveillance which incorporates economic and fraud related risks as part of its modernisation programme. The authenticity verification programmes are consistent across the country, but also allow for increased sampling in some provinces and municipalities if certain sectors considered at greater risk of fraud or food safety issues are more concentrated in these jurisdictions.

Canadian authorities use several mechanisms to monitor emerging food fraud and authenticity related risks. Canada participates in international fora such as the International Food Chemical Safety Liaison Group. The CFIA has a group within its Science Branch which is responsible for identifying and scanning emerging environmental risks with implications for food. The group makes use of web searches, media reports and information gathered in the field. Although the focus of these scanning activities has been on food safety hazards, there have been ongoing discussions about whether the activities should look more intensively for fraud related information. The Environmental Scanning Working Group is developing algorithms to search and extract information more effectively. Consultations with Canadian authorities indicate that whilst the Canadian surveillance system is not constrained by a shortage of information *per se*, effective data mining remains a challenge.

There is little evidence of high-level forward-looking surveillance activities such as horizon scanning taking place in Canada. Nevertheless, the authorities are considering ways to upgrade and develop foresight mechanisms to identify and better understand wider fraud related risks that are presently not addressed within authenticity programmes. Forward looking surveillance activities are likely to be an important area of work in the future.

The number of federal inspection staff as defined by the CFIA (including field inspection staff as well as a variety of other positions such as chemists, risk assessors, supervisors and scientific researchers) was cut by five per cent between 2013 and 2014 (CFIA, 2015). This included a reduction in the numbers of inspectors dealing with fraud and authenticity related issues. The CFIA has pledged to increase the number of food inspectors in coming years, although they will not be specifically focused on food fraud.

The CFIA has a comprehensive orientation programme for new inspectors designed to provide them with the specific knowledge, skills and attitudes required to be successful. Training is not specific to fraud, but includes generic elements such as how to inspect labelling and sampling procedures for food safety and authenticity.

### New Zealand

New Zealand is moving towards a more risk-based approach to inspections and sampling. Surveillance priorities are primarily safety-oriented, though the MPI also sometimes considers other criteria which offer scope for greater fraud-related surveillance. These include considerations of how important the food is in New Zealanders’ diet, public perceptions of risk and whether overseas research and intelligence has identified specific food risk issues.

The MPI acknowledges the need for more effort to be invested in the identification and analysis of long term trends in food fraud. New Zealand is beginning to develop and implement processes in this regard. The strategic direction of intelligence gathering and analysis activities is steered by the newly formed Intelligence Planning and Coordination Team within the MPI. The team has been in operation since the creation of the MPI in 2012. An important component of its role is the coordination of forward-looking surveillance activities to identify future strategic risks. Surveillance activities will also draw on an emerging risks register which traditionally focused on biosecurity risks but will be expanded to incorporate food related threats.

A Food Safety and Assurance Advisory Council was established in 2014, in response to recommendations from the government’s enquiry into the whey protein concentrate contamination incident WPC enquiry.[[11]](#footnote-11) The Council will serve as a high-level independent advisory body with a remit to identify strategic trends including food fraud and authenticity risks, and bring these to the attention of relevant ministries.

Food integrity and fraud risks are generally perceived to be higher in New Zealand’s export destinations than for products entering the country. This is due to New Zealand’s geographic isolation, its export-focused food industry and tight biosecurity controls, which provide a high degree of protection against fraudulent imports. As such, food fraud surveillance activity and resources have been focused on the export sector and overseas markets. Consultations with the MPI indicate that the government is, for example, committed to increasing the number of staff working in major export markets such as China to enhance surveillance and improve intelligence sharing.

The MPI has a team of investigators who largely pursue investigations into organised, high level food crime, if there is reasonable suspicion of illegal activity identified through routine inspections and other sources. The MPI has 30 high level investigators working across 11 primary sectors.

The MPI has designed a new training course for middle-tier federal inspectors (Food Act Officers) which includes criminal investigation and fraud-related training. High level investigators are trained to a similar level to police investigators and undergo formal training courses.

### Other countries

Most of the countries assessed in this study have established food authenticity surveillance plans which are reviewed annually and aligned with immediate and emerging risks. In EU countries, surveillance activities are linked to EU wide authenticity sampling programmes. Surveillance priorities are informed by trends in sampling results and complaints, economically important (high value-high risk) food sectors, international alerts, and media sources.

There is little evidence of well-developed horizon scanning strategies implemented in the countries studied, although many are beginning to develop programmes in this regard. It is not clear whether and how the findings of horizon scanning are linked into surveillance priorities.

The Netherlands has the most advanced horizon scanning programme amongst those assessed in this study. The programme is undertaken by the Dutch government in collaboration with research institutions. Efforts are underway to develop risk factors for fraud that can be used to implement a risk based approach to monitoring and control of food fraud. The Dutch food crime unit undertakes economic analysis and considers price movements to establish where opportunities for fraud exist.

The NVWA’s criminal investigation division is well-resourced. The unit is staffed by 110 full-time employees, of which 90 are special investigators (HM Government, 2014). Between a third and a half of all special investigators have a police background. In addition, the unit employs three forensic accountants with expertise in electronic data processing and data mining. In 2014, the unit’s operational costs were in the region of £10 million (*Ibid.*).

Inspectors in charge of official controls in the Netherlands are trained in food fraud identification. Laboratories receive funding from NVWA and training in analytical techniques to detect food fraud. In response to the horse meat scandal, the NVWA further increased the provision of training programmes for food inspectors focusing specifically on fraud (Government of the Netherlands, 2014).

A few Länder within Germany have developed their own horizon scanning capabilities. The Bavarian government, for example, has had an early warning risk identification system since 2013. It has developed metrics and criteria to assess the usefulness of data sources and help it decide when intelligence from horizon scanning should prompt follow on investigations. The federal government plans to engage states, industry and the research community during the development of a national system. The system is presently in its early stages, and is starting to monitor, amongst other parameters, trade flows, commodity prices and harvest volumes. BVL is considering what other types of data flows to monitor and ways to assess the likelihood of fraud risks based on this information. It is exploring ways to obtain information from commodity sourcing managers working in industry who may have first-hand information (e.g. based on uncharacteristic prices paid for shipments).

Food fraud surveillance and enforcement activities are funded by the Länder governments. Consultations with the BVL suggest that there is significant variation in the level of resourcing among the Länder governments.

In Ireland the FSAI is investing in building the capacity and effectiveness of its food fraud surveillance activities. This includes developing additional capabilities alongside those typically required for standard food safety investigations. The FSAI’s fraud team, for example, now has the ability to undertake GPS tracking during investigations to track the whereabouts and movements of suspected food distribution vehicles. The FSAI is working with other competent agencies in Ireland to identify training needs in order to build capabilities in covert surveillance such as the use of CCTV, forensic examination of accounts and computers. Financial resource constraints are an ongoing challenge for the FSAI that was highlighted during consultations.

# Information gathering

## Introduction

This section discusses what and how information is captured by food fraud and authenticity surveillance programmes.

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| ***Section summary:*** In Scotland the most important information sources used in food fraud surveillance are routine inspections and sampling programmes, complaints and tip-offs. Other sources, such as third party research and the media, are also used.  All of the other countries studied gather information on food fraud and authenticity issues from routine monitoring, alerts and investigations, as is the case in Scotland and the UK as a whole.  Most countries have annual authenticity sampling programmes for commodities and products that are considered to be more susceptible to fraud related risks. Typically these are high value products, marketed on quality and provenance. Examples are alcoholic beverages, honey and oils.  Public notifications, tip-offs from industry and media sources are all widely relied on. Some countries are developing ways to gather and use industry data more effectively. Leading countries are also increasingly drawing on less obvious information sources and extending surveillance capabilities into export markets.  The review suggests scope for Scotland to make greater use of some of these less obvious information sources such as media and third party reports, and industry and trade data, including business insights on market developments that potentially have implications for food fraud, and trade and price movements. Countries such as the Netherlands are making better use of business data such as company accounts and trade flows to guide surveillance activities. |

## Scotland and the UK

In Scotland and across the UK, the following data sources are used in food fraud and authenticity surveillance:

local authority data (official control data and local authority intelligence);

official data including published data from official bodies such as enforcement agencies within and outside the UK);

data gathered through official stakeholder engagement (such as consultations with other intelligence agencies);

industry data (such as through engagement with businesses and other data sources on trade flows and market developments);

research conducted by third parties and advisory groups (academics, scientific committees, research institutions and NGOs);

media information (such as media exposés and investigations); and

consumer data (as released by consumer groups, consumer surveys).

Consultations with the FSA indicate that specific fraud-related issues are identified primarily from the data sources listed above. In total around 2000 datasets are used to develop intelligence.

Most information about food fraud and authenticity issues in Scotland comes from local authorities and is obtained through routine inspections and annual sampling plans testing for food safety and authenticity issues in specific products and sectors.

Whistleblowers and consumer complaints are other common sources of leads for identifying food fraud. Information comes from many other sources as well, but these are less well-developed and, in some cases, under-utilised.

The FSA encourages the public, trade bodies and other stakeholders to report suspected cases of food fraud. Protection for those sharing information is provided under the Public Interest Disclosures Act 1998 which includes safeguards to protect their anonymity (UK Parliament, 1998). The Act makes special provision for disclosures to regulatory bodies. Disclosures are protected where a whistleblower has a reasonable belief that information shows malpractice has occurred and that this information is relevant to the regulator. Certain exemptions to freedom of information are also provided. These set boundaries on access to information, including for investigations and proceedings conducted by public authorities. Exemptions seek to balance public interests and transparency with the need to maintain confidentiality in criminal proceedings and protect whistleblowers against reprisals. Consultations nevertheless suggest that the food industry is reluctant to share information due to confidentiality concerns and potential impacts on trade.

The Scudamore report concluded that FSS could work more effectively with industry to identify where food fraud is taking place in the food supply chain. In response to these recommendations, FSS is looking at how to increase information sharing with industry and understand better the intelligence sources currently available and potential barriers to information sharing.

The FSA considers industry data to be the largest under-used resource in the fight against food fraud in the UK, though it recognises that the situation is due in part to uncertainty about the usefulness and potential bias associated with this data source. Consultations with FSA suggest that EU-level data sources and market and trade data could also be better analysed for potential food fraud and authenticity issues. As noted in the Elliott Review, dramatic increases or decreases in a product’s price, the scale and volume of trade and the relative availability of foodstuffs can all signal the potential for fraudulent activity in the supply chain (HM Government, 2014).

## International practice

### Canada

In Canada information on food fraud and authenticity is largely gathered through sampling programmes and alert-led investigations based primarily on public notifications and complaints, industry tip-offs and media sources.

CFIA has a media group that scans information from media sources. Media reports are compiled and sent twice daily as email briefs to relevant departments. The media has been an important source of information for the CFIA. For example, CFIA investigations into fish fraud were prompted by media and third party reports.

Information is also gathered systematically through food quality and authenticity programmes. CFIA runs annual programmes aimed at verifying and preserving the integrity of food commodities of significant economic interest and at higher risk of food fraud. Products are tested as part of routine sampling programmes to help identify different types of fraudulent activities such as substitution, adulteration and provenance mislabelling. Food businesses are also monitored through routine food safety inspections; specific products can be singled out for sampling and authenticity testing if there is suspicion of fraud. Maple syrup, honey, and fruit juices are tested as part of routine surveillance programmes and issues are also identified through alert-driven investigations.

Events and meetings with industry and with national and provincial partners are important information sources. This aspect of the CFIA’s information gathering has benefitted from the long standing relationships and regular contact it has with major companies in the food sector and with other competent authorities.

### New Zealand

The MPI receives intelligence on food authenticity and fraud issues from information sources such as tip-offs from the general public, industry sources and routine business inspections.

The Ongoing Food Label Monitoring Survey conducted by Food Standards Australia New Zealand provides regular data on compliance with labelling requirements to identify food authenticity issues, including potential labelling fraud.

New Zealand authorities have increasingly focused on traceability and more effective information gathering following a whey protein concentrate contamination incident in 2013.[[12]](#footnote-12) An official inquiry into the incident emphasised the need for authorities in New Zealand to increase their role and resources both domestically and abroad in order to facilitate more effective engagement with export partners and improve surveillance in these countries (MPI, 2014). In response to these recommendations and concerns over counterfeiting of New Zealand products overseas, the MPI has put increased focus on improving food fraud surveillance in its export markets. This is an area of surveillance that is relatively undeveloped in the other countries studied. New Zealand is reliant on the quality and authenticity of its food exports as the majority of the food it produces and processes is exported.

The MPI is exploring ways to better use industry data and standardise traceability systems used in the food sector. Major food industry associations in New Zealand also sit on global forums such as Consumer Goods Forum and the Global Food Safety Initiative. The MPI plans to utilise the data and standards set within these bodies to strengthen food authenticity and protect consumer interests in New Zealand.

#### Other countries

The Netherlands has a well-developed strategy to gather and share data on food fraud and authenticity issues. In addition to the sources commonly used by other countries (such as official data and industry tip-offs) the authorities in the Netherlands also exploit other sources such as industry data and academic research. For example the NVWA’s intelligence system proactively uses information such as company accounts to identify businesses which may be more likely to commit fraud due to their weak financial positions. The NVWA also considers academic research on indicators of potential food fraud to inform its surveillance activities.

There are examples of innovative data gathering in Germany. As part of its wider surveillance strategy, Germany has incorporated consumer-led elements. The Federal Ministry of Food, Agriculture and Consumer Protection has built an online consumer-facing platform called Food Clearness (State Office of Agriculture, Food Safety and Fisheries, Mecklenburg-Vorpommern (LALLF M-V), 2013). Consumers can use it to notify the authorities of suspicious food, such as food with potentially fraudulent labelling. Notifications are then assessed by specialist investigators. The responsible business is requested to respond to the complaint within a week, after which investigators pass a final judgement on the validity of the claim and publish it alongside the business’s response.

Some countries are increasing their use of social media as an information source. The Irish food fraud unit has used social media to gather information on individuals and businesses involved in food crime. For example, the Irish food fraud unit is using Facebook to monitor social media for public complaints and posts made by suspects. Police and customs officials have used this information to identify whether those individuals are also involved in other criminal activities.

# Laboratory services

## Introduction

This section considers the role of laboratories in processing samples collected as part of food surveillance programmes. The analysis of food samples by Public Analyst laboratories is one of the principal sources of surveillance information and so the capability and timeliness of laboratory services and their integration into the overall system does much to determine its capacity to detect fraud and respond quickly.

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| ***Section summary:*** Scotland has a mature laboratory infrastructure and diagnostic capability that is closely linked to local authorities and FSS. It has the capacity to verify many aspects of food authenticity but not all. Consultees identified the need for better coordination and more efficient use of samples to ensure sampling efforts are not duplicated, and that resources are targeted to food sectors most susceptible to fraud. Efficient dissemination of laboratory testing results to local authorities and FSS is an ongoing challenge. This is linked to problems with data management and reporting systems rather than the capacity of laboratories.  Most of the countries assessed in this study have plans to strengthen the capacity of their laboratories. There is an emphasis on the identification, development and adoption of new analytical technologies that will increase the authorities’ capacity to detect fraud. In the Netherlands and New Zealand the capability of laboratories has been enhanced through engagement with research institutions and industry collaboration. In Ireland the fast turn-around time achieved by laboratories enables them to support investigations effectively.  The review suggests opportunities to learn from other countries in promoting joint working, sharing of expertise and translation of technologies between research institutions and laboratories. This could facilitate adoption of the latest technologies and methodological protocols to improve accuracy and reliability of testing. |

## Scotland and the UK

Food samples are taken as part of food business inspections to verify safety and authenticity. Analysis of inspection and sampling data is largely undertaken by local authorities and laboratories in Scotland. Results are inputted into the UKFSS database. This activity is an important source of intelligence.

Testing is carried out through a network of four Public Analyst laboratories which are aligned with councils. Local authorities cooperate closely with laboratories. Consultations suggest that the relationship between FSS and public laboratories is stronger in Scotland than elsewhere in the UK.

Consultations nonetheless suggest scope for improvement in the Scottish system. Consultees identified the need for better coordination and more efficient use of samples to ensure sampling efforts are not duplicated, and that resources are targeted to food sectors most susceptible to fraud.

Interviews with officials at the FSA and FSS suggest that local authorities have raised concerns about delays between the delivery of samples to Public Analyst laboratories and the laboratories’ provision of results. Local authorities reported time lags of up to two or three weeks in some cases. Concerns did not relate to ability of laboratories to conduct testing efficiently, but rather the reporting of results. Consultations suggest that resource constraints and time spent dealing with system issues impact negatively on laboratories’ capacity to report results.

FSS recognises the need to have a more joined-up approach to food sampling, including food authenticity sampling, and better information sharing across the labs. There have been some initiatives in Scotland over the past decade to facilitate closer working and sharing of expertise between labs, but these efforts have stalled. A single service that could assign expertise to particular labs has not been developed.

## International comparisons

### Canada

Canada benefits from a network of well-connected public laboratories. Public Analyst laboratories are part of the CFIA and work closely with food inspectors. Provincial and municipal governments operate laboratories that analyse samples from local establishments that are not federally registered. The provincial and municipal laboratories work closely with federal laboratories (both information sharing and capacity sharing), particularly during major food related incidents and investigations. Consultations suggest that there is effective information exchange between laboratories and official control staff. Samples can be tracked to individual inspectors using a unique code and are traceable throughout the surveillance system.

Canada is planning to increase its scientific and analytical capacity as part of its modernisation programme. CFIA laboratories adopt and have helped in the development of some of the latest authenticity verification methods and technologies. For example, CFIA has worked with the University of Guelph, Ontario, to develop DNA barcoding technologies to detect fish fraud. The CFIA collaborates with the research community and industry to ensure surveillance programmes are adapted in response to new technologies and risks. In the maple syrup sector, officials attend meetings of the International Maple Syrup Institute and meet with researchers to discuss new methods of detecting adulteration. In addition to laboratory analysts, CFIA also has researchers within its Science Branch who help identify research needs such as the development of new laboratory testing methods and are able to collaborate with external researchers and academic institutions.

### New Zealand

New Zealand is planning to strengthen the capacity of its network of analytical laboratories. Some facilities have expanded their testing capabilities to enable verification of food authenticity claims on specific products such as infant milk formula (Eurofins, 2014). New Zealand has authenticity sampling programmes, in particular for its exports and products (such as honey, wine and fruit juices) selected on the basis of the risk of adulteration and high economic value. In the case of honey, almost all products are authenticity tested. Major exporters in New Zealand’s honey sector (e.g. Comvita) also carry out their own surveillance programmes and operate laboratory testing facilities to ensure the authenticity of their products and minimise reputational risks.

Consultations with academic experts and the MPI suggest that New Zealand is at the forefront of research to develop and implement systems to verify authenticity of labelling claims. The government recognises that whilst traceability systems based on passing information along the food chain (e.g. labelling or radio frequency identification) are an important part of the surveillance system, they can be vulnerable to fraud or failure if they are not underpinned by effective mechanisms to verify labelling and traceability claims. These verification mechanisms authenticate provenance using techniques that trace foods to their geographic origins. Techniques include stable isotope analysis that makes use of data on environmental parameters such as soil and rainfall patterns that can be linked to a specific place of origin. DNA analysis may be used for species testing where data on environmental parameters are difficult to obtain.

The New Zealand government funded a three year sampling programme to obtain nationwide data on specific environmental parameters. These samples provided the primary geographic information against which national and sub-national provenance authenticity claims can be verified. This information has been fed into a database held by the International Atomic Energy Agency. Commodity specific data are held privately by producers. The government is considering ways to encourage information sharing and make this information publically available, although allocation of data collection costs among industries remains a major challenge. Although initially directed by government responses to food related incidents, the development and deployment of provenance authenticity technologies is now privately-led in New Zealand.

The technology has been adopted by food businesses that include producers of apples, lamb, beef, wine and dairy products. Companies are beginning to collect and record background environmental data so that their products’ specifications can be defined and linked to authenticity claims. The use of the technology can also help in branding and provides additional value, providing assurance that provenance claims can be tested. This is particularly significant for countries such as New Zealand with major food export sectors. An academic consultee for this study indicated that one company in New Zealand has also benefitted from a reduction in its insurance premiums because it had a verification system in place.

Uptake of this technology is only now occurring in other parts of the world. Whilst there has been significant investment in similar analytical technologies through EU-funded programmes, industry uptake and awareness has been considerably lower in Europe than in New Zealand. Although the development of forensic techniques to counter fraud is appealing to the scientific community, it can be perceived as costly by industry. Effective industry engagement and marketing is needed to highlight the monetary and reputational benefits of such technologies (such as the potential reduction in premiums for companies looking for insurance against the risk of their products being the subject of large scale fraud). The introduction of mandatory country of origin labelling in the EU (Regulation (EC) No 1169/2011) is helping to accelerate developments.

New Zealand has also benefitted from very strong links between government, industry and the research community in facilitating the uptake of this technology. A small population and industrial base has also enabled it to raise industry awareness more effectively.

### Other countries

Laboratory testing capabilities are particularly advanced in the Netherlands, a country that has strong links between food control authorities and research institutions. Consultations suggest that there is significant investment in programmes to develop new analytical techniques to detect food fraud and authenticity issues.

Germany has a well-established and coordinated network of laboratories to support its authenticity sampling programmes. Länder are responsible for conducting their own testing programmes and are coordinated by the central ministry (Smith, 2013; LALLF M-V, 2013). Authorities recognise the expertise and analytic capabilities of the Länder laboratories as one of the main strengths of Germany’s food fraud and authenticity surveillance system. These capabilities enable sophisticated authenticity testing and compositional analysis of a variety of foodstuffs, such as for edible oils which can be tested for the degree of blending and country of origin of blended ingredients.

Germany has a labelling verification system managed by official control authorities within the Länder. A strict labelling regime and routine analytical testing helps address fraud related to product origin, animal species, and food composition (LALLF M-V, 2013). In particular, Germany is well-known for its stringent authenticity testing of wines.

The Food Safety Authority of Ireland has been using DNA-based analytical techniques to identify and verify food authenticity issues for almost a decade. Some of these techniques were instrumental in exposing the horsemeat contamination in 2013. These methods are widely used in criminal and paternity investigations, but are rare in food quality and safety investigations conducted by national agencies in the EU.

There are examples of very close cooperation between food fraud teams and Public Analyst laboratories. The FSAI acknowledges the support of the laboratories as being very important to the effectiveness of food fraud investigations. The FSAI’s fraud team is able to request immediate analytical testing when taking possession of counterfeit and other fraudulent products. The speed of this process is seen as an important benefit by the fraud team in helping them decide quickly whether to pursue investigations and to assist with operations in real time.

# Information management

## Introduction

This section reviews the role of information management in food fraud and authenticity surveillance systems.

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| ***Section summary:*** Multiple databases are used in Scotland and at UK level to collect and manage information. This includes a database specific to food fraud of a type that has not yet been developed in other EU countries. Consultations suggest that retrieval of data from the primary systems is not as straightforward as it might be. In addition, the various databases are not well integrated with the consequence that the full intelligence potential of the information is not always realised.  Better integration of the various UK databases within the core food fraud surveillance system, and with those of other agencies beyond it, would make the system more effective. The Memex platform used to host some of these databases has the functionality to support further integration, but requires additional standardisation of data input procedures and restrictions on information sharing would need to be overcome.  Consultations indicate that other countries are facing data management challenges similar to those seen in the UK. Some countries are at the early stages of planning for better integration of data management systems. The efforts made in the UK to standardise the way intelligence is reported and managed in line with the National Intelligence Model, and the functionality provided by the Memex platform are indicators of the fact that the process has advanced further in the UK than in most of the comparator countries. |

## Scotland and the UK

The two main data management systems used in Scotland to collect and store surveillance data relating to food fraud and authenticity issues are the UK Food Fraud Database and the UK Food Surveillance System (UKFSS).

The UK Food Fraud Database is a central database maintained by the FSA. It holds information on known or suspected food fraud supplied by local authorities, port health authorities, members of the public, industry, other governmental departments and international contacts of the Food Fraud Team. The FSA uses the database to assist investigations undertaken by local authorities. According to a 2013 report by the Food and Environment Research Agency (Fera), the UK Food Fraud Database is the only database used by a national enforcement agency in the EU to specifically record food fraud incidents (Fera, 2013). It is hosted on a type of intelligence management system called Memex that is also used by trading standards and the police (albeit on separate platforms).

The UKFSS is a national database holding analytical results of food and feed sampling as part of surveillance and enforcement activities undertaken by local authorities. It provides an important source of real time intelligence, and allows food safety and authenticity samples to be identified and authenticated relatively quickly. Public Analyst laboratories submit the results of the analysis they conduct on samples supplied by local authorities to UKFSS. UKFSS data are interrogated by the FSA. The system was developed in Scotland in 2001, and is used by all Scottish local authorities (except one) to input sampling data to the system. FSS and the FSA in Northern Ireland use the UKFSS as a basis for reporting national trends in food safety and standards and setting recommendations for risk-based sampling programmes.

Consultations with FSS suggest that there are concerns over its staff’s ability to retrieve data from this system quickly and effectively. Whilst the UKFSS is able to store sampling data, FSS and local authorities are unable to access datasets as the data upload and retrieval functions on the system are not well connected. Data retrieval operates through a separate and relatively old web-based platform. Data uploading times were also noted by FSS consultees to be slower in Scotland than in other parts of the UK. This means that FSS is unable to access sampling results and data on the UKFSS in timely fashion to support investigations promptly.

Additional data management systems at UK and EU level that are available to FSS staff include:

* The Imported Food Intelligence Database, which is managed by the FSA, and holds information about food products entering the country. Intelligence comes from port health authorities and border inspection posts. The database is linked to the Food Fraud Database and used to support enforcement at UK borders (Fera, 2013).
* The National Incidents Database, which is managed by the FSA and holds information on all medium and high risk food related incidents. This includes both food safety and food fraud incidents. High risk incidents are typically those with food safety implications; medium risk incidents are those with wide geographic reach but not necessarily associated safety risks (e.g. mislabelled and fraudulent products entering national supermarket distribution chains). Minor incidents are not usually recorded on the database, although there are ongoing discussions within the FSA on whether they should be inputted for record.
* National Intelligence Management Database, which covers England, Wales and Scotland. The database was initially managed by the Office of Fair Trading; this responsibility was transferred in 2013 to local authority Trading Standards Services (National Audit Office, 2013).
* The EU Rapid Alert System for Food and Feed (RASFF) is a centralised system for the collection of information on food incidents in the EU. The system focusses on food safety incidents but an IT system specifically for food fraud at EU level is currently under development (European Commission, 2014b).
* The EU customs seizures database, which provides information on the number of customs administrative and legal cases relating to food and drinks detentions in the EU (Fera, 2013).

Many of these systems have to be interrogated separately. Four databases are linked via the Memex platform: the Food Fraud Database, the National Incidents Database, the Emerging Risks Database and the Imported Food Intelligence database. Efforts have, however, been made to standardise the way intelligence is reported and managed in line with the National Intelligence Model.

Consultations indicate that UKFSS and the Food Fraud Database are not used as effectively as they could be to identify fraud or authenticity issues, for example, by drawing together information from multiple incidents. The UKFSS was described by consultees as more of an intelligence repository than an investigative source of information. As UKFSS is not integrated with the Memex system it is difficult to link sampling data with food fraud intelligence.

FSS is also not well-linked into data management systems of other organisations it works closely with. For example, FSS and Trading Standards Scotland (TSS) do not have direct access to each other’s intelligence systems. Consultations suggest that there is the capability to better link these systems. There have been discussions within the FSA about rationalisation of the databases, out of recognition that valuable information is not being put to best use, although there are resourcing and data sharing challenges that have to be overcome. There are opportunities to upgrade to more advanced data management systems. Consultations suggest that there are tools that enable users to carry out extensive case management scenarios and integrate this with visual mapping through Google Maps to identify where food-related incidences are found. These systems are likely to be costly, though there is merit in weighing up the additional benefits they bring.

## International comparisons

### Canada

Canada is considering ways to improve its data management systems. Consultations suggest that no specific plans have been developed as yet. Various data management systems are used by the CFIA to record, synthesise and extract information received from different sources, a legacy of how the agency was originally structured and the different departments which it was created from. Inspectors in each commodity division traditionally had their own system to log inspection activities. This means there are different ways in which inspection and sampling data are being recorded. CFIA is looking at ways to streamline these systems as part of its modernisation process and re-organisation of divisions.

CFIA uses an issue management system (IMS) in which complaints raised by the public and industry relating to suspected fraud can be logged. The IMS holds information including the history of enforcement activity relating to registered businesses, details of infractions and laboratory sampling results.

Data management systems have posed an ongoing challenge for the CFIA. One difficulty is that search functions are restricted to a small number of fixed fields which makes it harder to search, particularly if information is missing. Laboratory sampling results and inspection findings and history are also not currently held in the same systems. Although the inspection records system usually has a link to any samples taken, sampling results are held in a separate laboratory sample system, which can make reporting time-consuming.

Only CFIA has access to its databases. Databases are not shared between federal and provincial authorities and are subject to the Access to Information Act which prohibits information sharing unless a memorandum of understanding (MoU) is in place between authorities. If information is requested by provincial and other organisations, CFIA will locate and pass on relevant information for them, or take responsibility for potential follow-up investigations if a request falls within CFIA’s jurisdiction.

Consultations do not indicate significant issues relating to the timeliness of data collection in Canada. No issues were identified in terms of the capacity of laboratories to report effectively, although the lack of integration of data management systems suggest that reporting can sometimes be time-consuming and could potentially hinder real-time investigations.

#### New Zealand

The MPI faces similar data management challenges to the UK, particularly in the integration of the different databases it uses. The ministry has inherited different systems from the agencies from which it was originally formed. The databases are not well-linked to each other and data sharing and collaboration relies on personal interaction between colleagues in different departments of the ministry.

The MPI uses a central database called Information Leader to store information on food related issues that includes operational, investigative and prosecution records, and intelligence notes such as complaints and wider information. This is not linked to databases used by other departments within the ministry. Sampling data from chemical and microbiological sampling surveys and routine inspections is held on a separate database. This is being rebuilt to improve analytical and reporting capabilities, and to better integrate it to other systems. The MPI also has MoUs with the police and customs agency to facilitate information sharing.

The New Zealand government is working to improve the management and accessibility of traceability information passed along the food supply chain. The MPI operates electronic traceability and certification systems that verify authenticity and origins of domestic export products such as meat, dairy, wine and seafood from farm to border. The MPI is working with the meat industry on pilot projects to deliver interoperability of existing farm to fork traceability systems and databases, and to integrate traceability information into retail labelling and branding. The ministry is exploring ways to use data from traceability systems and branding to provide a greater degree of protection against fraud for food products.

### Other countries

Most countries are facing challenges similar to those seen in the UK in relation to integrating databases.

In Ireland, the FSAI uses a central database Database of Rapid Alerts (DORA) to log all fraud and food safety related information, although the database is not fully tailored to for this purpose. FSAI also has access to inspection databases used by the Sea Fisheries Protection Authority and local authorities. There is significant reliance on emails to access and store intelligence given the volume of information that is received in this format. Police and customs have a secure email system (SIENA) used for the transmission of sensitive data, but food safety agencies do not have access to this system. FSAI receives sensitive, confidential intelligence via the customs secure email address which on receipt is forwarded to the FSAI. The FSAI recognises that there is considerable scope to improve its data management system, and is looking to develop this in future. It is also awaiting completion of the EU’s food fraud database before developing its own to enable better harmonisation.

In Germany, the Länder have their own data management systems. The federal ministry (BVL) operates a centralised database which is used to receive and store information that is required for EU-level reporting. The scope of this database is smaller than those in the Länder. There are no formalised systems in place through which information is shared and managed between Länder. The BVL recognises this as a weakness of the system and an area to develop in the future.

An interesting example comes from Denmark where field investigators use a mobile system which allows them to build a comprehensive picture of businesses and individuals suspected of fraud based on multiple search fields (e.g. the business’s vehicle number plate).

# Collaboration in analysis and investigation

## Introduction

This section discusses the role of collaboration between agencies and other stakeholders within food fraud and authenticity surveillance systems.

|  |
| --- |
| ***Section summary:*** Close collaboration among agencies, enforcement partners and other stakeholders is a major strength of Scotland’s food fraud and authenticity surveillance system. Collaboration is facilitated by Scotland’s size, the long standing relationships between enforcement partners, and the establishment of collaborative platforms that have not been developed elsewhere in the UK.  In most of the countries compared, food fraud surveillance is underpinned by effective stakeholder collaboration. Lead competent authorities use bilateral meetings, working groups and multi-stakeholder fora to engage with stakeholders, including industry, enforcement partners and other competent authorities. Stakeholder platforms are not always specific to food fraud and can cover a number of food related issues.  As the profile of food fraud increases internationally, there is increasing discussion of food fraud within networks that have traditionally focussed on food safety and other risks. Leading countries have established networks such as food fraud taskforces or food fraud units with wide stakeholder representation. Some countries also benefit from well-established links and cultures of engagement between researchers, industry and government. This has enabled them to adopt the latest surveillance technologies more quickly and better identify emerging risk areas.  Overseas experience provides positive examples of engagement with industry and research institutions. For example, the Netherlands and New Zealand benefit from a culture of collaboration and joint fora which help raise awareness of fraud-related challenges, enable research institutions to better understand industry needs and facilitate adoption of relevant technologies. |

## Scotland and the UK

The Scottish surveillance system is integrated into other intelligence networks within Scotland, across the UK and at EU level. Collaboration and integration at UK level is largely coordinated by the FSA and Defra, with Scotland and other devolved administrations represented in most steering groups and collaborative platforms.

### Collaboration and integration in Scotland

There is effective two-way communication between Scotland’s 32 local authorities and FSS, with clear delivery expectations on both sides (The Scottish Government, 2012; FSA consultations). FSS has begun sharing intelligence with the Scottish Business Resilience Centre.[[13]](#footnote-13)

Effective surveillance requires effective information sharing and communication between those gathering information at local level and those in the central competent authorities that process and synthesise it into intelligence. This can sometimes present challenges. Local authority officers, for example, are asked to provide information which contributes to building a picture of the overall situation, which may require them to handle and report information, without knowing how it is ultimately being used. Consultations suggest that there is a common perception at local level that the flow of information is too unidirectional: that is, whilst a lot of information is being gathered and reported, information received back from central authorities is more limited. Intelligence-led systems and effective strategic decisions may require greater engagement between central and local authorities to agree common priorities and develop shared understanding of the approach and its objectives.

Collaboration is also facilitated through other structures in Scotland. An example is the Scottish Food Enforcement Liaison Committee (SFELC) which brings together Scottish local authorities and representatives of central and local government, consumers and industry interested in food safety and food standards in Scotland. The Committee helps identify surveillance concerns early, exchange best practice and facilitate information sharing. The Scudamore report recognised the importance of a forum such as SFELC being preserved once the new food body for Scotland is established. Consultations suggest that lack of resources can mean that projects proposed through SFELC are not always implemented.

Additionally, since the horsemeat incident, there has been greater recognition of the FSA’s role in tackling food fraud and authenticity issues, and willingness to share information by other enforcement agencies such as the police (e.g. through the National Fraud Intelligence Bureau) and the UK Intellectual Property Office (IPO). These agencies use FSA information and *vice versa* so that information travels in both directions and can be used to build a picture of food fraud and authenticity issues over time. There is some collaboration between these bodies through the Government Agencies Intelligence Network (GAIN) – a multiagency group that brings together intelligence and investigation staff from public sector enforcement agencies.

The FSA is also considering ways to improve collaboration and raise the profile of food fraud investigations with the police. This can be difficult as food crime is not always seen as a priority by the police. Consultations suggest that local authorities in Scotland have generally built up close links with the police, which should help overcome this barrier and enable more effective engagement on food fraud investigations. Scotland, unlike England, also benefits from a having a unified police force which can collaborate more easily with FSS and local authorities.

Local authorities work closely with Trading Standards Scotland (TSS), and are linked to TSS through a network of Local Intelligence Liaison Officers (LILOs) who help gather intelligence locally and facilitate investigations at a local level. In Moray Council, for example, fraud investigations are typically conducted jointly by environmental health officers and trading standards officials. This approach enables authorities to make best use of powers and skills from different organisations to conduct more effective investigations. Trading Standards Officers have the authority to seize counterfeit products, whereas Environmental Health Officers require there to have been a proven violation of food safety and authenticity legislation before controls can be exercised. Joint investigations enable TSS to seize suspected products whilst local authorities test samples.

Consultations suggest that there is scope for FSS to contract with TSS for LILOs to deal jointly with all environmental health issues including food and trading standards. All intelligence could be held on one database, although this would not be the one used by the FSA.

TSS has representatives at the Scottish Crime Centre, located at Gartcosh. The Centre is an important part of Scottish strategy to tackle serious and organised crime, and provides purpose built specialist accommodation and supporting facilities such as a forensic laboratory for criminal investigation and law enforcement agencies. The Centre serves as a base for some divisions of the Police Service of Scotland, including the former Scottish Crime and Drug Enforcement Agency, and its partner agencies such as parts of the Crown Office and Procurator Fiscal Service, the National Crime Agency and HM Revenue and Customs (The Scottish Government, 2014b). This shared space is intended to enable closer, more joined up working in the fight against serious and organised crime. Consultations suggest that it may be worthwhile for FSS to locate some staff at the Scottish Crime Centre.

* + 1. **Collaboration and integration at UK level**

Consultations indicate that FSS has a good working relationship with the devolved administrations, the FSA and Defra. FSS participates in FSA and Defra-led groups such as the Food Authenticity Steering Group, the FSA’s Intelligence Hub and the Food Integrity and Food Crime Group. As the UK moves towards greater joint working and intelligence sharing in response to the Elliott Review (2014), Scotland will also benefit from its representation in national fora and participation in nationwide intelligence networks. As noted in section 5, the participation and role of FSS in the FSA’s Food Crime Unit had not been confirmed at the time when the research for this paper was undertaken.

The Food Authenticity Steering Group is chaired by Defra and is composed of 17 members that include representatives of the food sector, consumer groups and the FSA. The objective of this group is to manage a research programme that is intended to support the development and enforcement of food labelling and standards policy and address food fraud issues. The group includes an Authenticity Methods Working Group, an expert group whose aim is to ensure that the methods to detect food fraud developed under the research programme are fit for purpose and enforceable (FSA, 2014b; UK Government, 2014).

The FSA’s Intelligence Hub was established in December 2013 and considers food safety and integrity issues including economically motivated adulteration. Consultations with the FSA indicate that it is placing greater emphasis on more effective information sharing and a number of additional stakeholder networks and communication channels involving other government departments, local authorities and industry are being developed. The hub will increase the FSA’s capability to capture information and develop actionable intelligence on future risks.

The Food Integrity and Food Crime Group is a strategic cross-UK government group chaired by Defra that was set up following the Elliot Review (HM Government, 2014). The group includes the Chairman of the FSA and Ministers from the UK Government’s Department of Health; Department for Business, Innovation and Skills; and the Home Office. The group aims to improve coordination related to the integrity of the food chain, consumer protection and confidence in food, food surveillance and crime. The group meets on a biannual basis (Defra, 2014).

There is information available in other government departments and extra-government organisations that could be better utilised for identifying and investigating food fraud. The FSA has maintained some level of engagement on these issues with stakeholders; these relationships are now being strengthened. For example, the FSA networks with the food industry through platforms such as the Food Chain Emergency Liaison Group (FCELG) and the Emerging Risks Consultative Forum (ERCF). The ERCF is used by the FSA and the food industry for the exchange of food fraud knowledge and information relating to emerging risks (i.e. future food safety and integrity risks) (FSA, 2014b). The FCELG and the ERCF are examples of successful fora used for information sharing – both FSA and industry are looking at developing other similar ‘safe spaces’ for information exchange.

Food industry representatives and the FSA are also considering the creation of an industry intelligence hub for collecting information on food crime generated by food companies, and the possibility to integrate the industry hub with the FSA’s hub (UK Government, 2014).

Consultations indicate that collaboration between regulators and industry is difficult for reasons that include commercial sensitivities, data security and industry concerns about being subject to enforcement actions when an incident is reported.

* + 1. **Collaboration and integration with the EU**

FSS’s engagement with the EU is coordinated through the FSA, which acts as the conduit and contact point for this process. The Single Liaison Body system is used to coordinate communication with other Member States on food issues, including forwarding complaints and information exchange through RASFF (FSA, n.d.c). Scotland has direct access to RASFF information as well. A parallel system to RASFF focussed on food crime is under development, but there are no formal networks through which to share information on food crime issues.

The FSA cooperates with the EU Food Fraud Network. The network was established in July 2013 to support knowledge sharing and investigations at EU level. Network members include EU-28 national authority representatives designated as contact points for food fraud and representatives from Iceland, Norway, Switzerland, and DG SANTE (European Commission, n.d).

Scotland provides information directly to and receives information from the UK liaison body. Consultations suggest that Scotland would benefit from receiving more information from EU-level engagements coordinated by the FSA and direct contact with the Commission, other Member States and third countries.

## International comparisons

### Canada

Consultations suggest that there is effective inter-agency collaboration in Canada. Collaboration with criminal investigation agencies occurs on a case by case basis. CFIA can call on police to provide protection if there is a threat to the safety of inspectors. Police can play a supporting role in such circumstances but do not share the same responsibilities as CFIA. CFIA uses its own staff who pursue investigations and prosecutions.

The Canadian surveillance system relies on close collaboration, information sharing and working relationships with industry. Food inspectors have also traditionally engaged closely with industry, with more emphasis on advice and collaboration than punitive controls. This allows officials to understand better the challenges and workings of industry, and help identify and manage risks early on.

At national level, there are both formal and informal arrangements in place in Canada to facilitate collaboration with industry. Some meetings with industry are initiated by the CFIA and chaired by its president. The main industry associations also invite CFIA to annual, bi-annual, quarterly or *ad hoc* meetings to discuss key issues, share information or give presentations. Regular meetings take place between the CFIA and Canadian Horticultural Council, Canadian Meat Council, International Maple Syrup Institute, Canadian Honey Council and Food Processors of Canada. CFIA organises the Food Forum, a platform which facilitates dialogue with the food sector as whole. The Forum, which covers all foodstuffs, has been running annually since 2013. It was set up as a platform to engage industry and other stakeholders on the modernisation of the CFIA. There is no regular forum or standing group through which CFIA engages with industry on issues relating to food fraud.

Canada is well connected to the industry-led Global Food Safety Initiative which provides leadership and guidance on food safety management systems. CFIA also recognises that it will be important to equip the food industry, in particular SMEs, with better tools so that it can contribute to the integrity of the supply chain and help both CFIA and industry shift towards more prevention-based surveillance activities. CFIA, for example, previously operated a voluntary pre-market label review service which offered businesses introducing new food products into the market the opportunity for their labelling to be officially inspected to ensure accuracy of claims and authenticity (CFIA, 2015). This service has been discontinued. CFIA has introduced an online Industry Labelling Tool which provides a self-assessment checklist to assist industry in complying with federal food labelling requirements (*Ibid.*).

### New Zealand

Consultations suggest that food control authorities in New Zealand benefit from close collaboration and working relationships with industry, and recognise this as a major strength of the country’s food surveillance system. Food fraud and authenticity surveillance activities are supported by effective public private partnerships and connections across industry through to senior management and executive level. The MPI is considering the establishment of industry forums as a means to improve the food safety culture in companies. The MPI suggests that these forums can help further improve collaboration on food fraud and authenticity issues. Industry-led efforts under the Consumer Information Transparency Initiative aim to understand better the kinds of information that will be useful to consumers in order to ascertain the authenticity of food products. The Grocery Manufacturers’ Association steers the initiative and aims to harmonise traceability information across all member brands.

The government is facilitating closer collaboration with the research community, for example, through the establishment of centres of research excellence that bring together experts in virtual research hubs. This enables researchers working on shared interests to collaborate more effectively on national priorities. The New Zealand Food Safety Science and Research Centre is being formed, and will be led by a consortium of universities. Successful centres have already been established in the domain of biosecurity. Whilst the centre will focus on food safety, there will be scope to incorporate research to support food standards and authenticity surveillance.

There has been a concerted effort by the MPI to increase collaboration on food fraud and authenticity surveillance with authorities in its major export markets. A bilateral agreement is in place between New Zealand and China to develop traceability technologies to identify counterfeit products. The MPI is keen to develop similar agreements with other trading partners. There is also work underway to provide food fraud surveillance training to officials in export markets. For example, New Zealand runs surveillance training in China as part of food expo events. Officials and public volunteers are trained to photograph and note all brands claiming to have association with New Zealand and check against an official register of companies. New Zealand is looking to develop protocols to address food fraud in foreign markets and facilitate greater harmonisation of food traceability systems between and within export markets.

The MPI is also looking to global data standards and expertise to identify counterfeiting and other types of fraud more effectively and develop ways to support anti-fraud operations overseas. The MPI recognises the need for closer cooperation with global bodies such as the World Customs Organisation to provide access to additional information sources and to support New Zealand’s anti-counterfeiting and food authenticity surveillance activities. Developing closer links with such bodies will enable New Zealand to make use of additional information sources and better support its anti-counterfeiting and food authenticity surveillance activities.

The MPI is also considering the introduction of a food mark programme as part of its efforts to tackle food fraud overseas. The programme will enable businesses to register to use the New Zealand mark to market their products and provide assurance of authenticity to consumers, by enabling electronic verification against suppliers registered with the programme. The MPI is also looking to work closely with overseas authorities and companies importing New Zealand products to raise awareness of the scheme and better monitor their supply chains.

Territorial authorities sometimes form regional clusters. These provide an effective way of pooling resources and cross-working. Regular meetings are held to ensure good communication, standardise inspection audit practices and train council staff. The extent to which these groups help facilitate information sharing and best practice in food fraud and authenticity surveillance is not known. The scope and extent of collaboration between the territorial authorities and the central ministry is not clear from the research.

### Other countries

The Netherlands has the longest-running and most well-developed food fraud and authenticity surveillance system of the countries considered in this study. The system is underpinned by extensive collaboration among partners. It is well integrated with other networks such as criminal investigation agencies. The NVWA cooperates closely with industry and the scientific community to identify sectors at risk of food fraud and develop and adopt the latest authenticity verification systems.

Efforts have been made by NVWA to help industry improve awareness and its ability to detect food fraud. Research institutions are also involved, and for example, provide training on food fraud detection to quality assurance managers in food companies. The links between government, academia and industry in the Netherlands have been supported through its well-established agri-food research base, which includes world-leading institutions such as Wageningen University.

Fraud and authenticity surveillance systems in other countries with specific food fraud units within their competent authorities (e.g. Denmark and Ireland) also appear to be well-integrated into wider networks. Denmark has had an established Food Inspection Task Force in operation for almost a decade. The Task Force, which is a division of the Danish central ministry (DVFA), undertakes investigations into fraud and inspection of accounts and documents in food premises. It has staff with accounting skills, investigative skills and experience in conducting food inspections (FVO, 2014; Rosenmark, 2013).

The FSAI established a Food Fraud Task Force in the wake of the horsemeat scandal in order to provide a multi-agency, multi-disciplinary forum to discuss emerging and established food fraud issues. The work of the Food Fraud Task Force includes improving cooperation on food fraud issues at national and international level, raising awareness, improving mechanisms for monitoring and surveillance and training of enforcement officers (FSAI, 2014). The Task Force includes representatives from law enforcement and other agencies such as the national police service, local authorities, veterinarians, Sea Fisheries Protection Agency, Public Analyst laboratories and the Irish Medicines Board. The official agencies and the FSAI also cooperate with the Custom and Excise Service of the Revenue Commissioners and the National Bureau of Criminal Investigation of the national police service, leading to joint investigations (FSAI, 2014c). The FSAI recognises that the Task Force forum has been pivotal in improving the effectiveness of its surveillance operations.

Germany’s surveillance system benefits from close collaboration between analyst laboratories. Authorities recognise this as a major strength of the system. There is for example a working group of food chemists which comprises representatives from different Länder. Discussions are held on the authenticity of new products. Länder meet and exchange information on issues such as new authenticity parameters for testing and countries posing emerging authenticity risks. An official working group exists for wine. It is likely that similar structures will be set up for other commodities.

# Conclusions

This section sets out the main findings and conclusions from this study. It provides an assessment of the Scottish and UK situation for each of the components of the benchmarking framework established in this study and how that compares to the other countries considered.

## The research has identified components of an effective surveillance system

The structure and focus of food fraud and authenticity surveillance systems vary from country to country according to factors that include governance arrangements (federal, centralised, etc.) and the economic significance of the food sector. A **legal framework** which provides designated authorities with the responsibility and powers to access information relevant to food fraud and authenticity and to investigate potential problems is important. The research suggests that, within that framework, an effective food fraud and authenticity surveillance system is likely to have the following components:

A structured, risk-based **strategic planning process** used to determine surveillance priorities and develop plans to address them. Successful systems also links surveillance plans to decisions about investment in human resources (including staffing levels, skills and training), and to technology and support services so that the ambition is matched to the capacity.

A well-orchestrated system for **collection of information**. While samples gathered along the food chain are at the heart of all surveillance systems, the most effective systems also gather information from a variety of other sources. The breadth of sources used is a measure of the sophistication of the system.

State-of-the-art **laboratory services** that provide reliable, timely processing of samples and have the capacity, where needed, to subject samples to the most sophisticated available tests that can help reveal evidence of fraud and problems with authenticity.

User-friendly, well-integrated **data management systems** that help analysts make the most of the information available and generate intelligence that meets users’ needs.

**Structures that support** **collaboration** among the public agencies with an interest in food fraud and authenticity surveillance (including investigation and enforcement), and between those agencies and other stakeholders, especially the food business operators and their representative bodies. Collaboration with research organisations is also important.

## Strategic planning

National surveillance programmes in most of the countries assessed are informed by analysis of risk factors and trends. Surveillance priorities are typically adjusted on the basis of emerging intelligence and annual reassessment of risks.

Scotland is moving towards a systematic, risk-based approach to decision making for food fraud that is similar to arrangements already established for food safety. Annual sampling plans give increasing consideration to food fraud and authenticity testing and are informed, reviewed and updated systematically by multiple intelligence sources.

Most of the other countries reviewed are at a similar stage of system development to Scotland with regards to forward-looking surveillance, although a few countries are developing horizon scanning activities and are looking to use this to inform future surveillance priorities. Some of these developments are highlighted in this section.

Strategic decision-making is constrained by limited horizon scanning activities in many of the countries assessed. Leading countries are beginning to think strategically about forward looking surveillance activities and are considering methodologies to undertake horizon scanning more systematically, assess the usefulness of findings, and decide when information obtained through horizon-scanning should be used to guide follow-up investigations.

There is scope to increase the consideration given to emerging and long-term risks in strategic planning in Scotland. There are no forward looking surveillance activities undertaken in Scotland which consider fraud-related risks that could emerge in the future. Scotland can better link into horizon scanning efforts at UK level.

The countries that have prioritised food fraud have made commensurate investments in staff, training and systems. Where competent authorities have greater powers of investigation (as opposed to partnering with police and other law enforcement agencies), the number of staff working on food fraud tends to be larger and they have specialist investigative skills.

The FSA’s establishment of a Food Crime Unit, as recommended by the Elliot Review, takes the UK in the direction of those leading countries. The extent to which FSS seeks to build similar capacity in Scotland, or rely on the FSA for such services, will have implications for resource planning and surveillance system organisation.

## Information gathering

In Scotland the most important information sources used in food fraud surveillance are routine inspections and sampling programmes, complaints and tip-offs. Other sources, such as third party research and the media, are also used.

All of the other countries studied mirror UK practice in gathering information on food fraud and authenticity issues from routine monitoring, alerts and investigations. Most have annual authenticity sampling programmes for commodities and products that are considered to be more susceptible to fraud related risks. Typically these are high value products, marketed on quality and provenance. Examples are alcoholic beverages, honey and oils.

Public notifications, tip-offs from industry and media sources are all relied on. Some countries are developing ways to gather and use industry data more effectively. Leading countries are also increasingly drawing on less obvious information sources and extending surveillance capabilities into export markets. The Dutch system, for instance, conducts forensic accounting of companies suspected of food fraud, and uses web crawling and academic research. In Ireland the FSAI has enhanced its monitoring of social media. New Zealand authorities are developing overseas surveillance capabilities by improving collaboration with export partners to address issues such as counterfeiting of its products (e.g. in India and China).

## Laboratory services

The analysis of food samples by Public Analyst laboratories is one of the principal sources of surveillance information and so the capability and timeliness of laboratory services and their integration into the overall system does much to determine its capacity to detect fraud and respond quickly.

Scotland’s laboratory infrastructure is closely linked to local authorities and FSS. It has the capacity to verify many aspects of food authenticity but not all. Consultees identified the need for better coordination and more efficient use of samples to ensure sampling efforts are not duplicated, and that resources are targeted to food sectors most susceptible to fraud. Efficient dissemination of laboratory testing results to local authorities and FSS is an ongoing challenge. This is linked to problems with data management and reporting systems rather than the capacity of laboratories.

Most of the countries assessed in this study have plans to strengthen the capacity of their laboratories. There is an emphasis on the identification, development and adoption of new analytical technologies that will increase the authorities’ capacity to detect fraud. In the Netherlands and New Zealand the capability of laboratories has been enhanced through engagement with research institutions and industry collaboration. In Ireland the fast turn-around time achieved by laboratories enables them to support investigations effectively.

## Information management

Information collected from sampling programmes and other sources needs to be stored and available to users in a form that facilitates analysis. The capability of information management systems - defined broadly to include the data, the technology and the skills needed to use it - is thus critically important to effective functioning of surveillance system.

Multiple databases are used in Scotland and at UK level to collect and manage information. This includes the only national database that has been developed by an EU Member State, to specifically record food fraud incidents. Consultations suggest that retrieval of data from the primary systems is not as straightforward as it might be. In addition, the various databases are not well integrated with the consequence that the full intelligence potential of the information is not always realised.

Better integration of the various UK databases within the core food fraud surveillance system, and with those of other agencies beyond it, would make the system more effective. The Memex platform used to host some of these databases has the functionality to support further integration, but requires further standardisation of data input procedures and restrictions on information sharing would need to be overcome.

Consultations indicate that other countries are facing data management challenges similar to those seen in the UK. Some countries are at the early stages of planning for better integration of data management systems but the research did not identify examples of approaches that might provide models for the UK. Indeed, the efforts made in the UK to standardise the way intelligence is reported and managed in line with the National Intelligence Model, and the functionality provided by the Memex platform are indicators of the fact that the process has advanced further in the UK than in most other places

## Collaboration in analysis and investigation

Close collaboration among agencies, enforcement partners and other stakeholders is a major strength of Scotland’s food fraud and authenticity surveillance system. Collaboration is facilitated by Scotland’s size, the long standing relationships between enforcement partners, and the establishment of collaborative platforms that have not been developed elsewhere in the UK.

In most of the countries compared, food fraud surveillance is underpinned by effective stakeholder collaboration. Lead competent authorities use bilateral meetings, working groups and multi-stakeholder fora to engage with stakeholders, including industry, enforcement partners and other competent authorities. Stakeholder platforms are not always specific to food fraud and can cover a number of food related issues.

As the profile of food fraud grows internationally, there is increasing discussion of food fraud within networks that have traditionally focussed on food safety and other risks. Leading countries have established networks such as food fraud taskforces or food fraud units with wide stakeholder representation. Some countries also benefit from well-established links and cultures of engagement between researchers, industry and government. This has enabled them to adopt the latest surveillance technologies more quickly and better identify emerging risk areas.

Overseas experience provides positive examples of engagement with industry and research institutions. For example, the Netherlands and New Zealand benefit from a culture of collaboration and joint fora which help raise awareness of fraud-related challenges, enable research institutions to better understand industry needs and facilitate adoption of relevant technologies.

# Recommendations

This section sets out recommendations for Food Standards Scotland to consider in developing its food fraud and authenticity surveillance system. They focus on areas where international practice suggests opportunities to build on existing strengths and address areas of comparative weakness.

Recommendations on strategic planning

**Develop and implement a horizon scanning strategy for food fraud**, working with industry stakeholders and research institutions and focusing on food subsectors that are of high economic importance to Scotland. There is an opportunity to learn from practice in the Netherlands and Germany where work is underway to develop more systematic methodologies for horizon scanning, and link these to surveillance priorities. But it is clear that even leading countries have some way to go in developing a framework for horizon-scanning. FSS has the opportunity to innovate in this area. FSS should also engage in UK and EU horizon scanning initiatives relating to food fraud.

**Adopt a more systematic approach to building skills for food fraud surveillance and investigation.** Local authorities in Scotland have begun to receive training through FSA funded programmes at UK level. It is important that this momentum is continued with the establishment of FSS, and adequate funding is provided for training. There are opportunities for more proactive engagement with industry to provide training for businesses on the identification of fraud risks along their supply chains. This sort of approach is well-established in the Netherlands.

**Strengthen FSS’s capacity to facilitate coordination of food fraud surveillance and investigations** (similar to the Irish and Welsh Food Fraud Units). This would require recruitment of staff with backgrounds in criminal investigation. In contrast to its counterparts in the Netherlands and Denmark, FSS does not have significant policing functions. As FSS already benefits from close cooperation with the police and other enforcement partners, it is unlikely to need extensive criminal investigation capabilities in-house. In-house expertise in investigation would nonetheless help FSS to further strengthen cooperation with the police and other intelligence agencies and to the raise the profile of food fraud investigations.

**Consider the case for developing surveillance strategies to control the risk of fraud against Scottish products in export markets**, similar to the strategy adopted by New Zealand. This will be increasingly important to Scotland in future as it looks to expand export sales in emerging markets and to use provenance as a source of value. An initial step would be to assess the risks associated with counterfeiting of Scottish products overseas, scope product sectors and develop a better understanding of specific challenges within high risk export markets. FSS could also consider how best to share information about its own products with importing countries so that importers are able to identify differences between Scottish products and potential counterfeits.

Recommendations on information gathering

**Make more effective and systematic use of information sources that are presently under-used** in surveillance such as trade and industry data, and social media. Company financial data could be used to support forensic accounting, as in the Netherlands. Trade data sources (Scottish, UK and international) relevant to domestically important food products should be identified.

**Foster information sharing and ‘safe spaces’ for discussion of food fraud issues with the food industry**.

Recommendations on laboratory services

**Encourage better joint working among laboratories** **in Scotland** so that resources and results are shared more effectively, building on the work done in the Scottish government’s Shared Service strategy.

**Facilitate greater collaboration between Public Analyst laboratories, research institutions and industry** to enable more effective transfer of fraud and authenticity verification technologies. This could facilitate adoption of the latest technologies and methodological protocols to improve accuracy and reliability of testing as well as ensure that the right expertise is available to address new problems. It is likely to require specific funding arrangements, such as a ring fenced budget to support and encourage the translation of such technologies from universities to laboratories and industry.

Recommendations on information management

**Develop and implement, with UK partners, a strategy that will result in better integration of data systems**. This integration will require investment and strategic collaboration with other organisations to overcome barriers to data sharing and joint funding arrangements. As a starting point more work needs to be done to determine the ability of the Memex platform to support the needs of FSS and link to databases that are being interrogated separately. The UKFSS database could play a major role in providing information about food fraud incidents and identifying trends in this area, but FSS will need to consider how to use information on the database more quickly and effectively.

Recommendations on collaboration

**Ensure FSS continues to have access to multi-stakeholder platforms** such as the SFELC to support collaboration with other stakeholders and that these have appropriate funding. Overseas experience provides positive examples of engagement with industry and research institutions. For example, the Netherlands and New Zealand benefit from a culture of collaboration and joint fora which help raise awareness of fraud-related challenges, enable research institutions to better understand industry needs and facilitate adoption of relevant technologies.

**Create opportunities for informal data gathering** through, for example, ‘safe space’ meetings and offline discussions with industry, enforcement officials and the wider civil service. These sources can help to identify issues that are not apparent in the data.

**Work with the FSA to secure access to EU stakeholders**, (including those who sit on European committees and the Food Fraud team within DG SANTE) as well as other Member States.

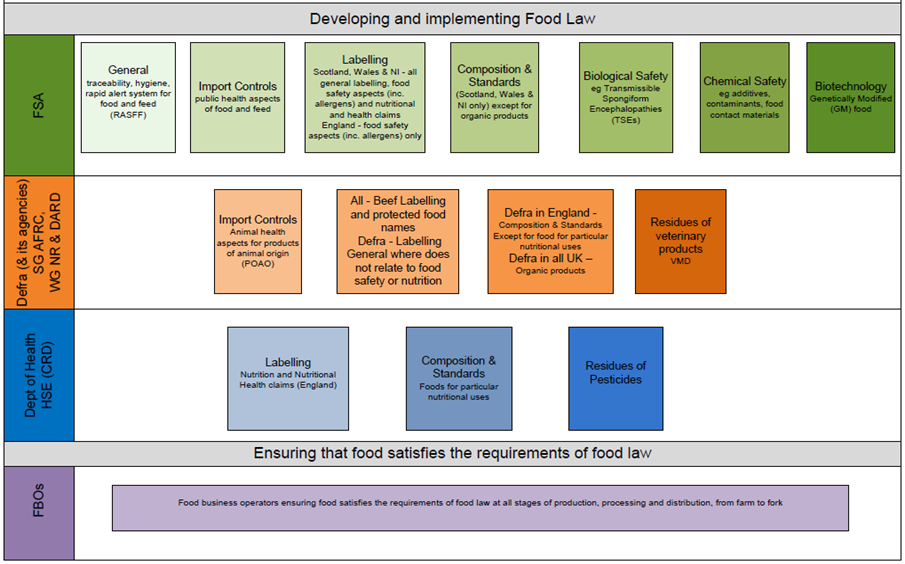
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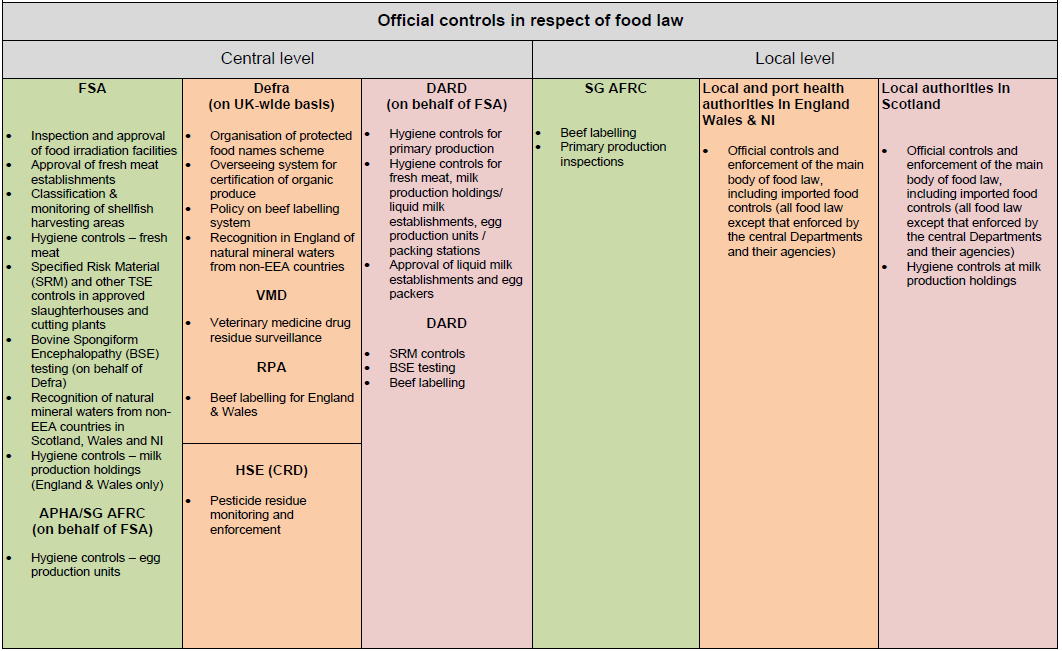
1. List of consultees

|  |  |  |
| --- | --- | --- |
| Country | Organisation/Expert | Number of consultees |
| The UK | FSA | 5 |
| FSS | 5 |
| FSA Wales | 4 |
| FSA Northern Ireland | 1 |
| Moray Council | 1 |
| New Zealand | Ministry for Primary Industries (MPI) | 5 |
| Professor Russell Frew  (Otaga University / International Atomic Energy Agency) | 1 |
| Canada | Canadian Food Inspection Agency (CFIA) | 3 |
| Health Canada | 1 |
| Agriculture Union | 1 |
| Ireland | Food Safety Authority of Ireland (FSAI) | 2 |
| Germany | The Federal Office of Consumer Protection and Food Safety (BVL) | 1 |
| Institute for Risk Management (BfR) | 1 |
| The Netherlands | Professor Saskia van Ruth  (Wageningen University) | 1 |
| The US | Dr John Spink  (Michigan State University) | 1 |

ICF would like to thank all those who participated in interviews for this study.

1. Responsibilities for official food controls in the UK





Source: Multi-Annual National Control Plan for the United Kingdom April 2013 to March 2016 (extended and updated March 2015) (Food Standards Agency, 2015); with the formation of FSS, some of the FSA functions are now shared with FSS.

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1. Food fraud is here defined as, ‘The deliberate and intentional substitution, addition, tampering, or misrepresentation of food, food ingredients, or food packaging [for economic gain]’ (Spink and Moyer, 2011). [↑](#footnote-ref-1)
2. Limited information was available on the US approach to food fraud surveillance and the information collected did not provide evidence of best practices. [↑](#footnote-ref-2)
3. The Food Standards Agency in Scotland became Food Standards Scotland on 1 April 2015. Although some references are made to the period before the change, Food Standards Scotland (FSS) is used throughout this report. [↑](#footnote-ref-3)
4. The Food (Scotland) Act received royal assent in January 2015. The Act was passed to ‘establish Food Standards Scotland and make provision as to its functions; to amend the law in relation to food; to enable provision to be made in relation to animal feeding stuffs; to make provision for administrative sanctions in relation to offences under the law in relation to food; and for connected purposes’ (The Scottish Parliament, 2015). [↑](#footnote-ref-4)
5. ‘Grey literature’ refers to information that is not formally published including technical reports produced by government, independent researchers, industry bodies and others, and white papers. [↑](#footnote-ref-5)
6. Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. [↑](#footnote-ref-6)
7. Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules. [↑](#footnote-ref-7)
8. Territorial authorities are the second tier of local government in New Zealand, operating below the regional councils. There are 67 territorial authorities. Some also perform the function of regional councils and are classified as unitary authorities (Department of Internal Affairs, 2011). [↑](#footnote-ref-8)
9. The Department of Agriculture, Food and the Marine (DAFM); the Health Service Executive, Environmental Health Service; local authorities (LAs); and the Sea Fisheries Protection Authority (SFPA). [↑](#footnote-ref-9)
10. The national UK database holding analytical results of food and feed sampling from surveillance and enforcement activities. [↑](#footnote-ref-10)
11. The Whey Protein Concentrate contamination incident was the largest single food scare in New Zealand’s history. Imports of milk powder from New Zealand were halted in China, following the discovery of bacteria linked to botulism. [↑](#footnote-ref-11)
12. Imports of milk powder from New Zealand into China were halted following the discovery of bacteria linked to botulism. The incident was the largest single food scare in New Zealand’s history. [↑](#footnote-ref-12)
13. The Scottish Business Resilience Centre comprises contributions and secondments from Police Scotland, Scottish Government, Scottish Fire and Rescue Service, major banks, industries, investors and private membership. It aims to provide its members with a single source for business security services and advice. Its website is at <http://www.sbcc.org.uk/>. [↑](#footnote-ref-13)