FOOD AND FEED SURVEILLANCE

Report by Steve Wearne, Policy Director

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1 Summary

1.1 Surveillance helps us to better understand the food system, to track known risks and identify new and emerging risks. It is fundamental to delivery of FSA's Strategic Plan, *Food We Can Trust* with data laying the foundations that lead to impact in the data pyramid (See Figure 1 in FSA 16/11/04 FSA Science – Retrospective Update and Prospective Priorities). There is already a significant amount of food surveillance activity, but there are opportunities for improvement. We are developing a new, open and collaborative surveillance approach that will be fully operational from autumn 2017.

1.2 The Board is asked to:

- **comment on and endorse** proposals for a new approach to surveillance;
- **agree** that, as this approach is implemented, the Board will (i) consider and agree each year the priorities for surveillance; and (ii) receive reports on material risk management actions identified by surveillance.

2 Introduction

2.1 Food[1] surveillance collects data systematically about key aspects of the food supply chain and its risks and vulnerabilities. It derives knowledge and insights from that data, so we, food businesses, enforcement authorities, and consumers themselves can act to manage the risks that are identified. In short, food surveillance generates knowledge that supports delivery of our strategic aim of *Food We Can Trust*.

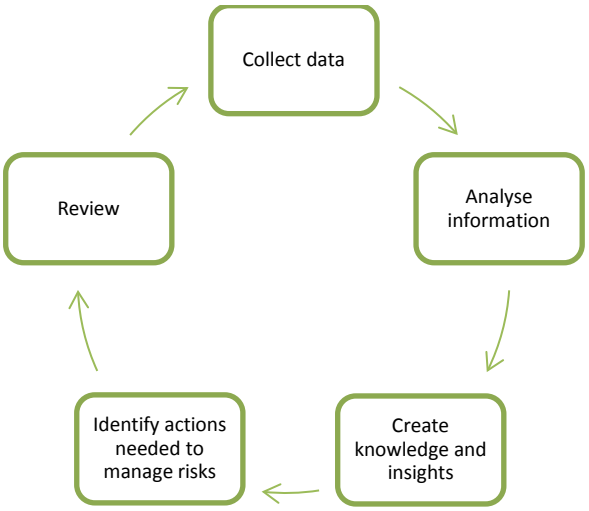

Figure 1: A generalised approach to food surveillance

[1] In this context food includes drink and animal feed

3 The current surveillance approach

3.1 The food surveillance picture is complex. In the UK there are many actors (Figure 2), of whom FSA is one, numerous sources of data and intelligence, and a diverse range of activity. There are links to surveillance in other countries through the work of multinational companies and organisations, and well-established structures for the exchange of information, including between national regulatory authorities.

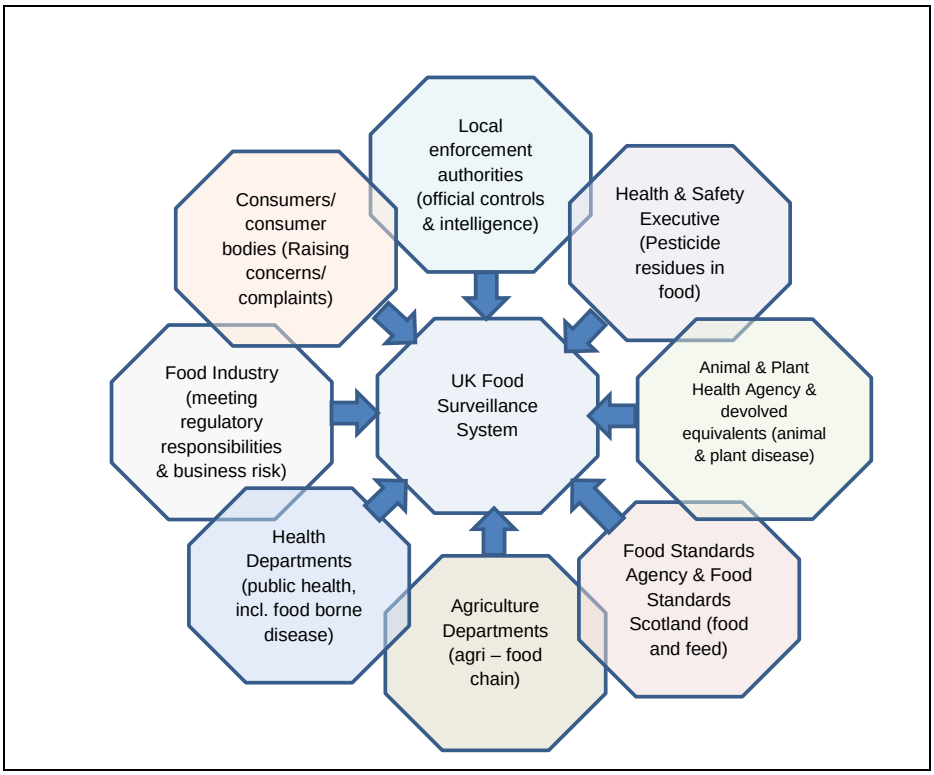

Figure 2: Main UK surveillance actors – many others if you include, for example, tax and environmental regulators who can provide useful insight.

3.2 The main elements of FSA's surveillance activities are:

- analysis of data from incidents and outbreaks;
- organising the national food standards sampling programme delivered through food enforcement authorities (see Annex 1 for detail);
- statutory and routine/regular monitoring including dairy and meat approved plants (hygiene, animal welfare or activities related to TSE - see annex 2 for detail), shellfish, contaminants or radiological;
- targeted and ad hoc surveys and other information gathering in response to specific policy or operational issues, for example Campylobacter in poultry meat (e.g. to collect data to inform policy negotiations, develop policy, or inform risk assessment on a new or changing issue)
- a system for identifying potential risks in relation to food imported from outside the EU based on analysing data from the European Rapid Alert System for Food and Feed (RASFF);

- work on emerging risks, where we have collaborated with industry to conduct global chain analysis and vulnerability assessments, and our economists have developed a model that tracks the economic, socio-political and other data of third countries to anticipate where risks may emerge;
- insights and data gathered as part of research projects;
- in relation to Norovirus, we are using social media to identify and track outbreaks;
- our National Food Crime Unit, working with the Welsh Food Fraud Coordination Unit and the FSA Consumer Protection Units in both Northern Ireland and Wales, works to collect, collate and analyse intelligence as an integral part of its fight against food crime.

3.3 While currently the information from each part of the FSA's surveillance activity is analysed to understand its importance and what action might be needed (e.g. to update advice, enforcement or other action to protect consumers), there is more we can do to coordinate and integrate FSA's activity better with that of others to avoid duplication and add more value. We aim to improve integration and obtain better evidence and insights through pooling data and analysis across the different activities and actors. A case study demonstrating the benefits of a more coordinated, integrated approach is given in Box 1.

Box 1: Nut Proteins in Spices

Early in 2015 FSA was advised by the Food and Drink Federation (FDF) and the Seasoning and Spice Association (SSA), in liaison with the British Retail Consortium (BRC), that there was concern in Canada and the United States after certain batches of ground cumin and paprika tested positive for undeclared peanut protein. This represented a significant public health risk to people with nut allergies. The level of contamination suggested that the products had most likely been adulterated with cheaper materials for financial gain.

Both industry and the FSA launched sampling programmes in the UK. Low levels of peanut protein consistent with adventitious cross-contamination were identified in some of the spice products tested, but we did not find any evidence of large scale adulteration.

Recognising the severity of the situation in North America, we held a workshop with representatives from across the food industry to identify any potential weaknesses in supply chains associated with dried herbs and spices in the UK and to discuss what further measures might be needed to strengthen consumer protection.

A key recommendation from this workshop was that an expert Joint Industry Working Group should be established to develop best practice guidance for UK businesses, which would provide advice on how to identify vulnerabilities in their supply chains and the types of preventative measures they could consider. As a result, representatives from the BRC, FDF and SSA developed a practical and easy-to-read guide with the focus on protecting the integrity of food and food supply chains in this sector.

This particular collaborative approach is a good example of the use of surveillance data for incident prevention and engagement across industry, the FSA and Food Standards

Scotland. It illustrates how we can use early warning signals or triggers that then lead us to identify and prioritise an issue for action.

4 Opportunities

4.1 Although there are many examples such as that above where we derive impact from current surveillance activity, there are a number of opportunities for improvement. These opportunities include:

- greater coordination and collaboration across the actors (nationally and internationally) at all stages from the sharing of intelligence to inform prioritisation, through to joint action to manage risks,
- being clearer about the questions that surveillance activity should address, so we design activities that are appropriately targeted and have sufficient statistical power,
- improving value for money through improving data quality and accessing existing data (including that held by industry) rather than creating new data,
- a move to open data approaches – by the FSA and other actors – with a better capability to extract information and knowledge from currently separate and diverse data sets, and
- increasing the extent to which insights then direct activity to improve consumer protection.

4.2 Our approach to surveillance is linked to our other corporate priorities of becoming a data-driven organisation and implementing our wider strategy for science, evidence and research. The new approach to surveillance will support delivery of the Regulating our Future programme, both through establishing new relationships and data flows, and through testing and improving resilience in the food system.

5 A new approach to surveillance

5.1 We are proposing a new approach to surveillance, to exploit the opportunities for improvement we have identified. Our intention is to apply this new approach first to surveillance for antimicrobial resistance in commensal and pathogenic bacteria in food. This will form part of the FSA's contribution to the work of UK Government and the devolved administrations to counter the threat of antimicrobial resistance, as agreed by the Board at its September meeting. Figure 3 sets out schematically the general stages in this new approach, and how this translates to a work plan for surveillance on antimicrobial resistance.

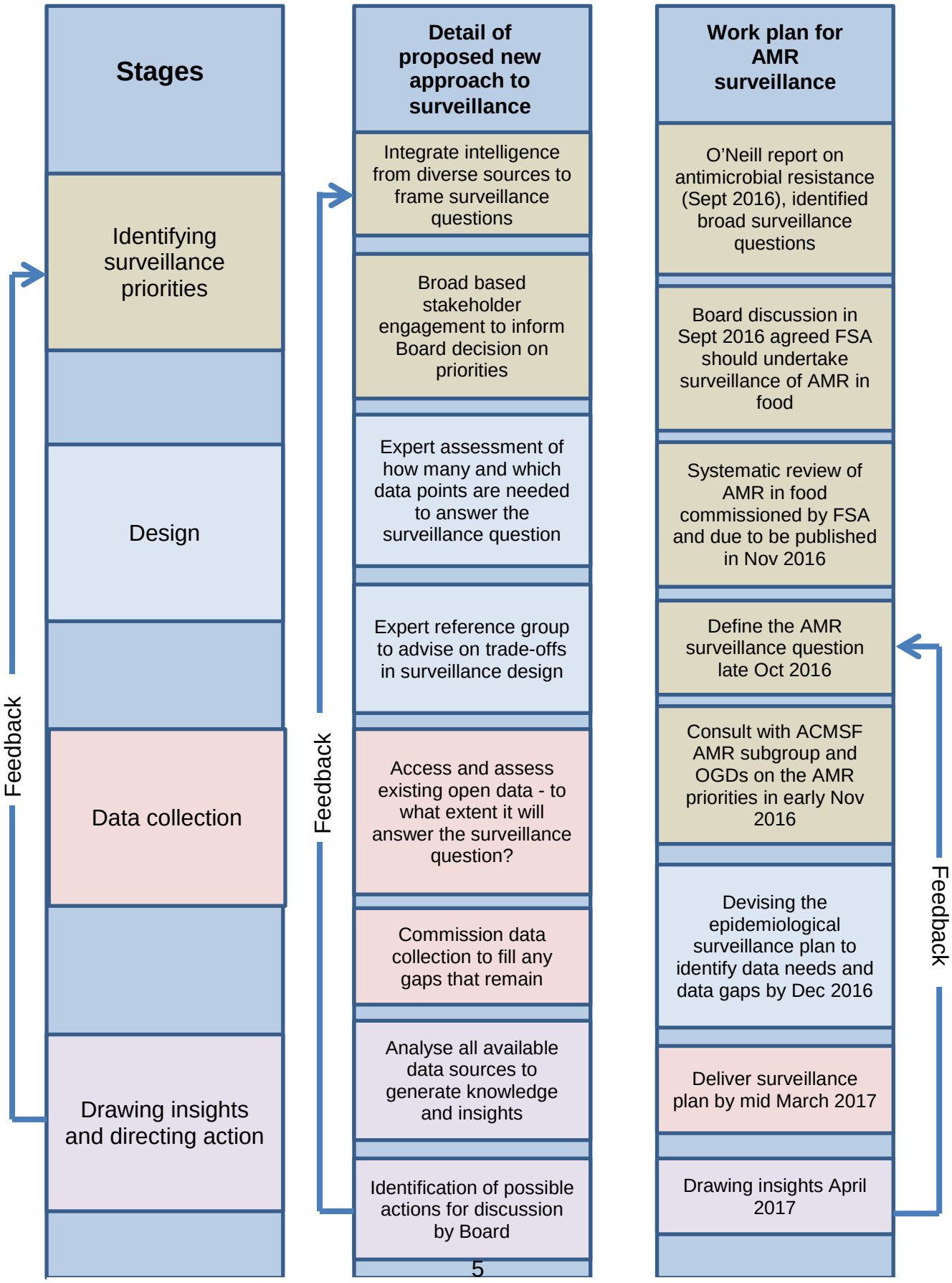

Figure 3. Schematic representation of the stages in the proposed new approach to surveillance, and work plan for AMR surveillance in terms of these stages

5.2 When compared to some of the previous approaches to surveillance, the new approach will provide the following benefits:

Current	New approach
A result of evolution from a traditional approach	A new approach to surveillance allows us to start from a blank sheet of paper, unconstrained by current orthodoxy
Focusses on the attributes of a food or its production system that can be physically sampled	Will be driven by data in all of its forms and sources, not just sampling
Often poor statistical power that limits the possibility of planning adequate interventions	Will enable robust conclusions for each surveillance priority, by identifying the relevant and reliable data required to give the necessary statistical power – in short prioritised and more powerful surveillance activities
Focus on using the data generated by sampling from the competent authorities or enforcement bodies	Will lead to the commissioning of the collection of new data (including sampling and analysis where necessary) only if the appropriate data does not already exist, it is not accessible to us or we cannot validate it
Emerging risks and horizon scanning taken account of, but are not central drivers	Will fully incorporate work on emerging risks and be informed by horizon scanning work
Poor integration with other surveillance systems such as human or animal health, or environmental surveillance systems, and little use of industry or international data	Will require FSA to work with government and external partners, including industry and international food regulators, to identify any existing relevant data to meet the data needs
Lack of shared ownership with industry	It will create synergies with external sources of data allowing a more targeted and cost effective use of taxpayers' funds and the possibility of transferring costs to others
Mainly driven by competent authority and enforcement bodies	Will be open and involve a wide range of stakeholders and sources, both nationally and internationally, to help frame and prioritise surveillance questions and to generate insights and identify resulting actions
No systematic review	Surveillance priorities reviewed annually

6 Supporting activities

6.1 In parallel with application of the proposed new approach for surveillance to AMR, we will undertake three supporting activities in the current financial year (Figure 4).

6.2 First, we will review existing approaches to surveillance around the world to benchmark our approach and identify further opportunities to develop it.

6.3 Second, we will design and hold stakeholder engagement to identify the key surveillance priorities beyond AMR, and existing sources of data that may provide insights and information for those priorities. We will incorporate web and social media based approaches to allow for wide participation, including by individual consumers. This process will form part of a broader cycle of engagement to support the new surveillance approach.

6.4 Third, we will establish a reference group of external experts to provide challenge to the design of surveillance programmes, and assurance regarding their statistical power to answer the surveillance questions we identify. Considerations of statistical power have to be balanced with those of cost and return on investment – where we require a higher degree of certainty that we will detect any weak signal, more data will be required and costs will increase. Our risk appetite will inform our decisions about approaches to individual priorities for surveillance, and the shape of the surveillance programme as a whole.

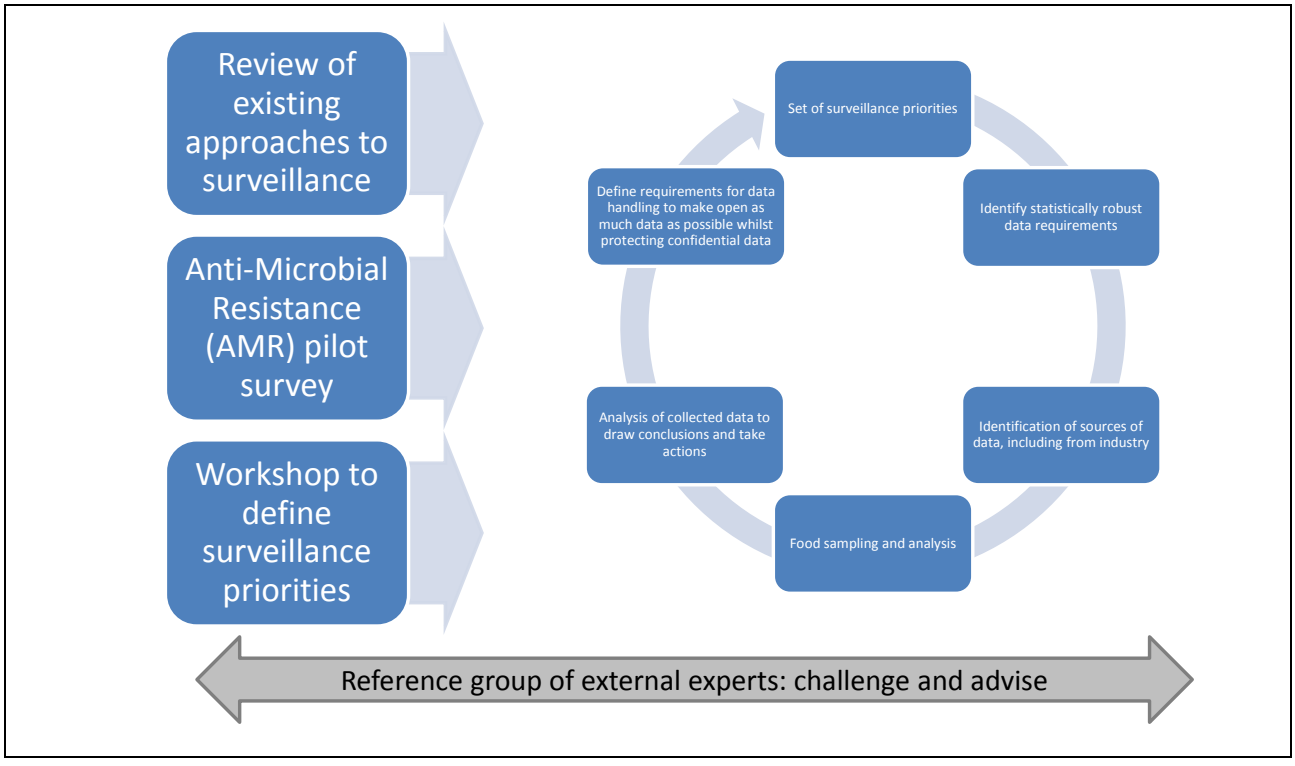

Figure 4: **Pilot phase projects informing the development of the ongoing cycle**

7 Impact

7.1 The outputs from surveillance directly support consumer protection and underpin delivery of FSA's Strategy 2015 – 2020. Surveillance is an integral part of the Science, Evidence and Information Strategy and has an important supporting role to Regulating Our Future, including the work to optimise the operational functions of FSA and our food enforcement authority partners. Surveillance is an approach to describing the future horizon and helping us to understand whether current regulatory approaches are fit for purpose, now and in the future. With this insight we can then respond in an agile way to build resilience. Our approach to surveillance will also have crucial links to, and interdependencies with, FSA's strategic approach to data.

7.2 The open approach to surveillance proposed should increase collaboration with other regulators, including internationally, and also with industry, to the benefit of consumers through increased and more cost-effective protection.

Box 2 – Surveillance and food incidents

The agrifood sector contributes £197 billion to the UK economy with exports valued at £18.8 billion in 2014. The sector employs approximately 3.8 million people.

Major food incidents can have significant impacts on the UK economy in terms of loss of trade and reputation. For example, the Sudan I incident in 2005 was estimated to cost £119.7 million and the horsemeat scandal of 2013 significantly affected the market, although it has not been possible to estimate the losses. A coherent food surveillance system helps to protect the food sector by identifying problems and dealing with them, as well as by providing reputational reassurance and acting as a deterrent to wrong doing.

8 Conclusions and recommendations

8.1 Surveillance is vital to delivery of FSA's strategic plan and has strong links to key strategies, including Regulating Our Future. The new approach that has been identified has the potential to bring about a step-change in food surveillance.

8.2 The Board will be kept informed of the progress and is asked to:

- **comment on and endorse** proposals for a new approach to surveillance;
- **agree** that, as this approach is implemented, the Board will (i) consider and agree each year the priorities for surveillance; and (ii) receive reports on material risk management actions identified by surveillance.

ANNEX 1

LOCAL ENFORCEMENT AUTHORITY DELIVERED FOOD STANDARDS SAMPLING PROGRAMME

The FSA currently sets the priorities for the National Co-ordinated Food Standards Sampling Programme following consultation with stakeholders. The FSA then commissions UK enforcement authorities (broadly Local Authorities and Port Health Authorities) to take samples that are analysed by official control laboratories – Public Analysts (PAs). Data on samples and results are entered onto the UK Food Surveillance System (UKFSS).

This FSA-funded programme covers the costs of sample collection and analysis, and represents additional work over and above the existing work programme of LAs in respect of official control sampling and analysis on food and feed in accordance with articles 11 and 12 of Regulation (EC) No. 882/2004.

The LA delivered sampling programme has had many benefits, including increasing official controls activity in risky areas where there is likely to be low levels of local delivery (e.g. irradiated food and dioxins) and educating businesses about particularly difficult areas e.g. allergens and acrylamide (see Boxes A and B). However, the data obtained from previous sampling rounds has often been of limited strategic use as it has not been possible to ensure that it is statistically valid.

We now propose to take a more strategic approach to enable us to identify and ensure that sampling focus is on national priorities, informed by a better understanding of wider risks in the food system and so enabling us to prioritise ensuring consumer protection.

Box A - Dioxins

In 2012, Netherlands and Germany reported several non-compliances with regulatory limits for dioxins and PCBs in free-range and organic eggs. Investigations showed the source to be localised environmental contamination. The Commission asked other Member States to check for similar problems.

Dioxin analysis is expensive and food authorities struggle to fund it themselves. Risks to health from exposure to dioxins and PCBs usually only occur with exposure over a long time and occasional consumption of non-compliant food is not normally a health concern. However, the risk may be higher where consumers like to buy their eggs locally and obtain all of their eggs from the same supplier.

Consequently, the testing for dioxins and PCBs in organic and free-range eggs from small and medium-scale producers was included in FSA's sampling programme. Non-compliances were identified in several producers in Wales and East Anglia. Enforcement officers, with help from FSA, have been able to identify potential contamination sources and advise the producers on appropriate mitigation measures.

Box B – protecting allergic consumers

Some FBOs are not aware that peanuts and almonds are two very different allergens. The failure of almond crops in the US resulted in vulnerabilities in the food chain and some food service businesses substituted cheaper ground peanuts for ground almonds. Sampling of ground almonds has been a priority in the food sampling programme in recent years and has led to a successful prosecution for the adulteration of almond powder with peanut.

To improve allergen awareness, the FSA produced additional measures and toolkits and, together with sampling, this has increased awareness amongst FBOs and increased inspections by food authorities.

ANNEX 2

BSE DATA ON SURVEILLANCE AND ENFORCEMENT OF CONTROLS ON SPECIFIED RISK MATERIAL – July 2015 to June 2016

1. This Annex sets out the results of BSE monitoring and the enforcement of SRM removal to ensure confidence in the continued effectiveness of BSE controls. It covers the period 1 July 2015 to 30 June 2016.

2. Surveillance for TSEs is carried out in the United Kingdom in animals susceptible to these diseases - cattle, sheep and goats. The main aim is to monitor trends in disease incidence and prevalence to evaluate the effectiveness of TSE controls.

3. Surveillance is not in itself protection against disease, but supports other control measures that either exclude affected animals or remove potentially high risk tissues from the food chain. TSE surveillance data also determines the TSE status of each country.

4. There are two categories of surveillance, passive and active.

Passive surveillance

- This is when an animal with clinical signs suspicious of BSE or scrapie is reported to an APHA Office to be investigated. Such animals are slaughtered and the examination of the brain determines whether the animal was affected by BSE or scrapie.
- APHA has been recording and analysing data from reported cases in cattle since the start of the BSE epidemic in 1986 and for scrapie in sheep and goats since this disease became notifiable in 1993.

Active surveillance

The EU requires all Member States to carry out active surveillance for TSEs. As a result:

- cattle have been tested since July 2001; and
- sheep and goats have been tested since January 2002.

5. Very few cases of cattle are now seen. Following a peak of over 36,000 clinical cases in the UK in 1992, the number of new cases detected by active and passive surveillance continues to decline year on year, with just 1 case confirmed in the UK in 2014, 2 cases confirmed in 2015 (one of which was atypical BSE case (H-type)) and no cases confirmed so far in 2016.

6. As incidence of the disease in cattle continues to fall, and controls across the EU are reviewed in accordance with the Commission's roadmap, it is important to maintain an appropriate level of surveillance as a sentinel against any unexpected re-emergence of the disease in cattle. The criteria for inclusion in the testing programme have been changed over the years in

response to regular risk assessments. With falling numbers of BSE cases across the EU, the requirement to carry out testing on healthy slaughtered cattle was relaxed in 2013 and now only 'at risk cattle' such as fallen stock aged over 48 months, where BSE is most likely to be detected, are regularly tested under EU law.

BSE Monitoring Data

7. In the period from July 2015 to June 2016, a total of 116,769 higher risk cattle were tested in GB (includes Scotland). 18,795 have been tested in NI for the period January to September 2016. Two positive cases were reported.

Controls on Animal Feed

8. Data received from Defra provides a summary of checks concerning feeding restrictions for feed of animal origin (i.e. feeding of prohibited processed animal proteins). In Great Britain:

- The presence of processed animal proteins in animal feed was detected on 1 farm and 2 feed mills from a total of 2,319 inspections.
- No documentary breaches were identified.
- The presence of animal protein from terrestrial animals was detected in 3 out of 5,491 samples of feed materials and compound feeding stuffs.

Details of incidents:

- In July 2015, low levels of bone spicules were identified in a blended feed destined for ruminants. Extensive investigation was not able to determine the source of the contamination but laboratory findings suggested an environmental (soil) source. The veterinary risk assessment concluded that the likelihood of new TSE cases developing as a result of this incident was negligible. The original positive batch of feed was destroyed. All remaining batches of feed on site were tested, with negative results, prior to release.
- In October 2015, one muscle fibre was identified in a routine feed sample collected at a mill. An investigation was triggered including a tracing exercise and further sampling of feed and ingredients. The result was not repeatable in any sub-samples tested from the same aggregate sample or through subsequent targeted sampling. Based on veterinary risk assessment it was concluded that in the absence of any evidence that ruminants had access to contaminated feed, no further action was required.
- In January 2016, a routine feed sample collected on farm proved positive for the presence of ruminant bone. Forty cattle were identified as having access to the ration. Extensive targeted investigations including testing of rations and ingredients were not able to determine

the source of the contamination. As the contamination was of ruminant origin of unknown source, the veterinary risk assessment concluded that, on a precautionary basis, the exposed cattle should be prevented from entering the food chain.

SRM Controls – Non-compliance

9. A recorded non-compliance is when an FBO is not operating in accordance with the requirements of the TSE Regulations and this is identified during routine daily inspection where FSA/DARD plant-based staff intervene to rectify the problem.

10. In this period, a total of 255 interventions were made by FSA staff in 60 different slaughterhouses in England, Wales & NI to ensure the appropriate removal and disposal of SRM. Of these, 47 related to the incomplete removal of SRM with most of the remainder being related to the staining of SRM and the labelling and condition of the containers in which the SRM was stored.

11. Of the interventions noted above, 15 cases relating to 6 separate slaughterhouses have been referred for investigation.

12. Of the 15 cases, 13 were referred for non-removal of SRM prior to post-mortem inspection, 1 was referred for non-testing of an imported bovine and 1 for a lack of sheep dentition checks on over 12 month animals.

13. In one case prosecution is being pursued by the CPS. In the case of the non-tested imported bovine the case file has been presented to CPS, two cases are under reviewer investigation, while the remainder have been withdrawn either for evidential reasons or for not being in the public interest.