FOOD STANDARDS SCOTLAND: One Year on
The role of science in protecting the Scottish food chain

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2016 Government Chemist Conference
Creation of a new Scottish food body agreed by Scottish ministers in June 2012

Followed machinery of government changes at Westminster in 2010 which changed the remit of the UK Food Standards Agency

Established by the Food (Scotland) Act 2015 as a non-ministerial office, part of the Scottish Administration, alongside, but separate from, the Scottish Government

Responsible for functions previously delivered by the Food Standards Agency in Scotland:

- Food safety and standards
- Feed safety and standards
- Nutrition
- Operational Delivery
- Meat inspection
- Food labelling
Food Standards Scotland: Objectives

- Protect public from risks to health which may arise in connection with the consumption of food
- Improve the extent to which members of the public have diets which are conducive to good health
- Protect the other interests of consumers in relation to food
Our Vision-

To deliver a food and drink environment in Scotland that...

- benefits consumers
- protects consumers
- is trusted by consumers
Food Standards Scotland

Working in partnership with FSA:

- UK-wide incidents
- European developments
- Science and evidence

A new Scottish focus:

- Scottish Board
- Scottish strategy
- Outcomes that best serve Scottish consumers
- Key difference now: a direct accountability to Scottish Parliament
FSS – 1 year on

Highlights since 1 April 2015 (Vesting Day):

• Re-structuring/recruitment
• Website and branding
• Board induction and programme of open board meetings
• Development of new Food Crime and Incidents Unit
• Publication of new incident management protocols
• Development of an ambitious nutrition strategy for Scotland
• Major food safety campaign launched (Look at the label)
• FSS Strategy and Corporate Plan
Outcome 1 - *Food is safe*

Outcome 2 - *Food is authentic*

Outcome 3 - *Consumers choose healthier diets*

Outcome 4 - *Responsible food businesses flourish*

Outcome 5 - *FSS is a trusted organisation*

Outcome 6 - *FSS is established, efficient and effective*
The Public Health Challenges

**Dietary Health:**

- 50% of the sugar we consume comes from discretionary foods
- 2 out of 3 people are either overweight or obese

**Foodborne Illness:**

- 43,000 cases
- 5,800 GP presentations
- 500 hospitalisations

- Campylobacter
- Norovirus
- Salmonella
- E. coli O157
- Listeria

Graph showing the distribution of foodborne illnesses.
Outcomes 1 and 2
Scientific Priorities

Outcome 1 - *Food is safe*

- A new foodborne illness strategy for Scotland
- Foodborne disease – Campylobacter and STEC
- Chemical contaminants – monitoring risks and impacts on the Scottish diet
- Shellfish safety – tools for determining product safety

Outcome 2 - *Food is authentic*

- Development of a strategy for food surveillance
- Research on methods for determining the provenance of the Scottish food chain
Outcome 1 – Food is Safe

A new foodborne illness strategy for Scotland

**IN THE ENVIRONMENT**
- Improved use of data and effective collaboration
- Greater focus on interventions for tackling contaminants at source

**AT PRODUCTION AND PROCESSING**
- Promoting compliance across the Scottish food and drink industry
- Measuring the impact of interventions and encouraging the uptake of effective controls

**AT RETAIL AND CATERING**
- Food safety as an integral part of Scotland’s reputation as a land of food and drink
- Empowering consumers with the knowledge they need to make safer food choices

**FOR CONSUMERS**
- Guidance and education is targeted appropriately to at risk groups and has a measurable impact on food safety knowledge, attitudes and behaviours
Campylobacter reduction strategy

• Significant proportion of chicken on retail sale in the UK is contaminated

• FSA leading the campaign to bring together the whole food chain to reduce levels of Campylobacter in chicken. Producers, processors, caterers and retailers have all committed to their part in the fight against Campylobacter.

• Focus on transparency - more accountable and publically visible means of monitoring industry action

• The Scottish Dimension - promoting action in Scottish production chain

understanding the profile of human infection in Scotland
Shigatoxin producing *E. coli* (STEC)

- Scotland still has one of the highest rates in Europe
- Approximately 20% of cases thought to be foodborne
- Environmental transmission routes play an important role
Where we need science in the fight against foodborne disease in Scotland

- Understanding the causes and the population groups at risk
- Attributing human illness to pathogen sources
- Identifying vulnerabilities in the food chain and tracking transmission routes
- Identifying pathogenic attributes and antimicrobial resistance

KEY FOCUS ON THE APPLICATION OF NEXT GENERATION SEQUENCING
Between 60-80% of human cases of Campylobacteriosis in Scotland attributable to a chicken source.
What molecular epidemiology has told us about Campylobacter infection in Scotland

- Comprehensive baseline on attribution of Campylobacter infection
- Clear evidence linking high proportion of human Campylobacter infection in Scotland to a chicken source
- Higher reporting rates of chicken types in more affluent post code sectors – artefact or actual difference?
- Ruminant sources also important:
  - under 5’s living in rural areas
  - private water supplies a risk factor
Shigatoxin producing *E. coli* (STEC)
Risk assessment and interventions

**FSS/FSA funded research programme:**
*E. coli* O157 super-shedding in cattle and mitigation of human risk

- Over 500 animal and clinical isolates sequenced across GB
- Relationship between human and ruminant strains
- Human incidence in Scotland linked to the emergence and expansion of strains which are associated with higher excretion levels in cattle
- Trialling of interventions to prevent colonisation (vaccines, feed)
Outcome 1 – Food is Safe
Chemical Contaminants in the food chain

Persistent contaminants in marine fish and shellfish
e.g. dioxins, PCBs, PAHs, heavy metals

Natural toxins
• Mycotoxin risks in commercially important crops
• Biotoxins in shellfish

Agricultural risks
• Geochemical
• Pesticides
• Veterinary medicines residues

Process contaminants
• Acrylamide risks for the Scottish diet

• Ensure levels meet EU standards
• Monitoring for emerging risks
• Research and surveillance
Outcome 1 – Food is Safe
Shellfish Biotoxins

• Scotland has one of the most developed shellfish biotoxin monitoring programmes in the world

• Good microbiological quality and nutrient rich waters – TOXIC PHYTOPLANKTON

• Compliance with EU Regulations to ensure shellfish harvesting areas are protected from biotoxin risks

• Monitoring regimes underpinned by risk assessment and detection of biotoxins in water and shellfish
Marine biotoxins – Scientific challenges

• Natural phenomenon – difficult for industry to manage

• Reliance on complex LC/MS detection and quantification

• **DSP outbreak** in 2012 led to ‘traffic light’ guidance: prediction of biotoxin events and targeting testing regimes

• Need for rapid field based testing methods to support the industry in ensuring product safety
Outcome 2 - *Food is authentic*

A new Food Surveillance Strategy for Scotland

**Scudamore recommendations:**

*The New Food Body should consider how to improve the use and collation of information across food standards and food safety to ensure Scotland has a world recognised surveillance system in place.*

**Starting point:**

- Research on international practice in food surveillance and potential lessons for Scotland (published July 2015)

- Focussed on food fraud and authenticity but theory also relevant to food safety
A new Food Surveillance Strategy for Scotland

Key Principles:

• **Strategic Planning** – horizon scanning, building expertise and capacity, protection of export markets vs interests of Scottish consumers

• **Information Gathering** – Make more effective use of existing data and strengthen intelligence sharing with industry and other key stakeholders

• **Information management** - Improve IT platforms for collecting data in Scotland and integration with UK and international stakeholders

• **Laboratory Services** – Promote joint working among Scottish laboratories and collaboration between Public Analysts, Research Institutions and commercial laboratories
Protecting Scottish products from fraud Traceability and Authenticity

- **Substitution** of meat and fish species - extent of risk in the market and public sector food supply chains

- **Illegal harvesting/fishing/slaughter** - Strengthening enforcement

- **False claims** - protecting consumers from misleading labelling
## Trends in meat and fish substitution

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<th>Number of samples taken</th>
<th>% of unsatisfactory samples</th>
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<tr>
<td>2015</td>
<td>527</td>
<td>3.2</td>
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Food Authenticity in Scotland – Provenance of Scottish beef

- Commissioned to strengthen a previously developed analytical database of stable isotope signatures of British beef.

- Capable of determining regions that are and are not consistent with the isotopic profile of an unknown sample.

- More work required to improve the discriminatory power needed to distinguish Scottish beef from other beef on a global scale.

A useful enforcement tool for verifying the identification of fraudulent claims
In conclusion

- FSS - an opportunity to look at food protection through a Scottish lens
- Many challenges are UK wide but specific challenges in relation to public health and food production
- A focus on ensuring we have access to the scientific expertise and analytical provision to help us achieve our objectives
- Collaboration and information sharing is key - working across government, with industry and scientific experts
THANK-YOU!

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