



FOOD STANDARDS SCOTLAND: One Year on

The role of science in protecting the Scottish food chain

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2016 Government Chemist Conference



Food Standards Scotland: The background

- 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

Food
labelling

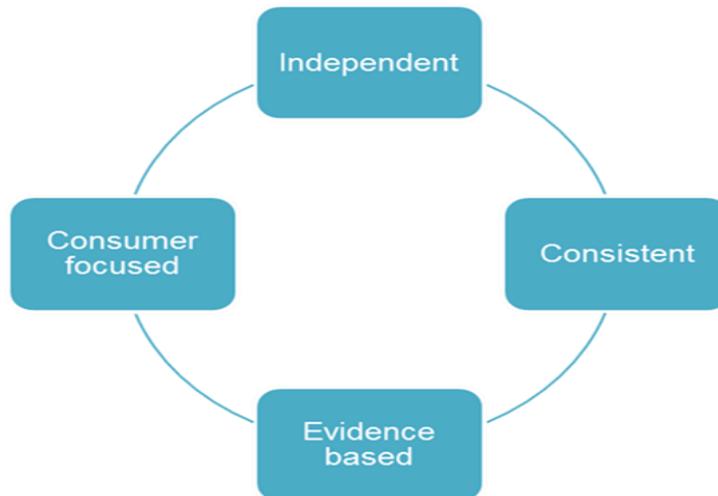
Operational
Delivery

Meat
inspection



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**



Strategy 2016-2021

Corporate Plan 2016-2019

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 Scottish food landscape

The Scottish Government
Riaghaidh na h-Alba

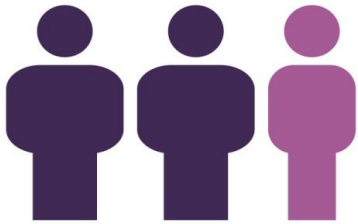
Recipe for Success: Scotland's National Food & Drink Policy
Becoming a Good Food Nation
Discussion Document

WALTHIER & FAIRER SMARTER HEALTHIER SAFER & STRONGER GREENER



The Public Health Challenges

DIETARY HEALTH:



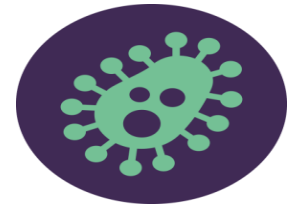
2 out of 3 people
are either overweight
or obese

50%

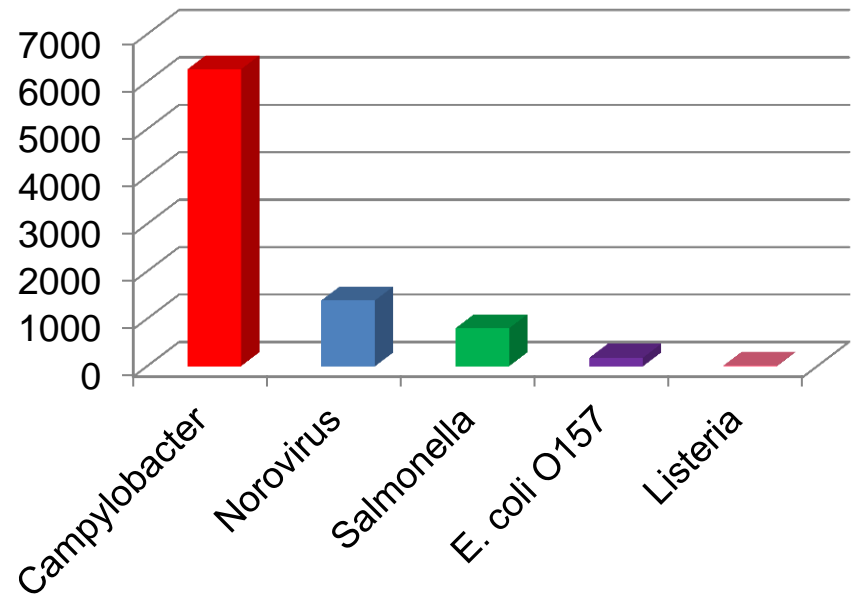
of the sugar we
consume comes from
discretionary foods



FOODBORNE ILLNESS:



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



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

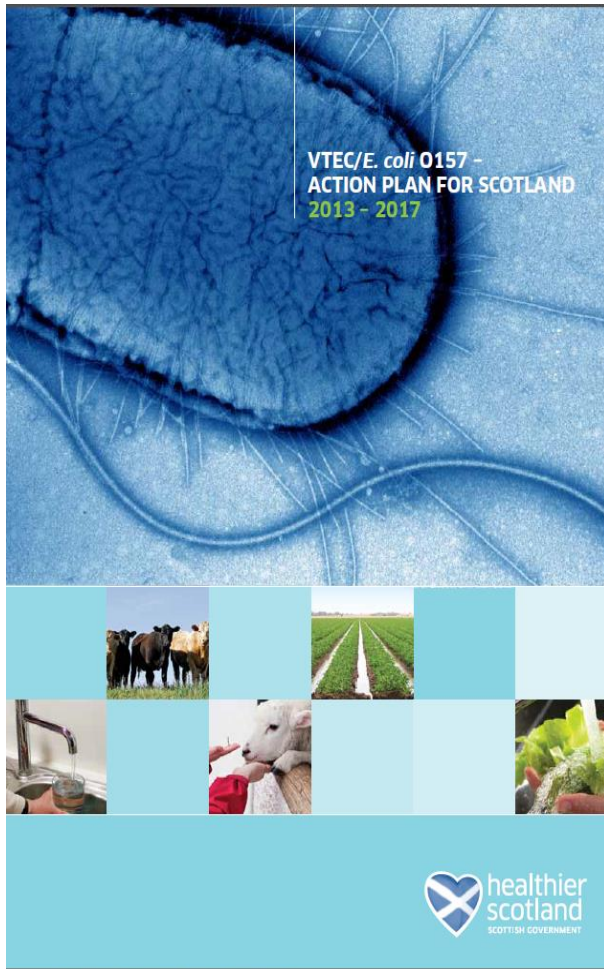
- Significant proportion of chicken on retail sale in the UK is contaminated
- FSA leading the campaign to bring together the whole food chain to reduce levels of Campylobacter in chicken. Producers, processors, caterers and retailers have all committed to their part in the fight against Campylobacter.
- 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

ACT
Acting on
Campylobacter
Together



Shigatoxin producing *E.coli* (STEC)



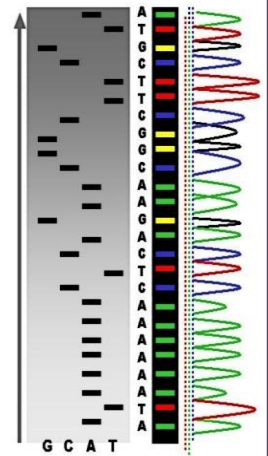
- Scotland still has one of the highest rates in Europe
- Approximately 20% of cases thought to be foodborne
- Environmental transmission routes play an important role
- Multidisciplinary approaches required – Cross government VTEC Action Plan published in November 2013

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

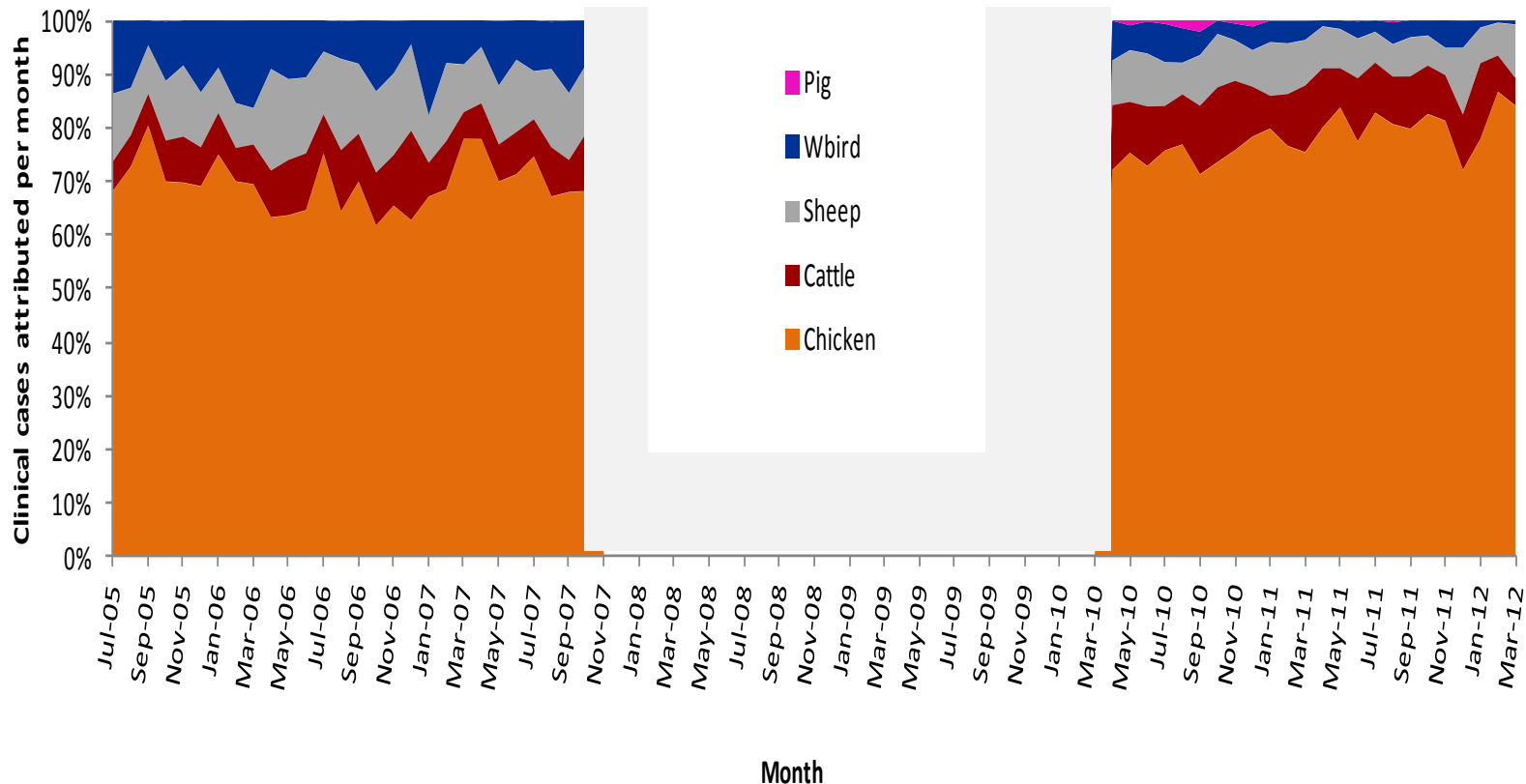


KEY FOCUS ON THE APPLICATION OF NEXT GENERATION SEQUENCING



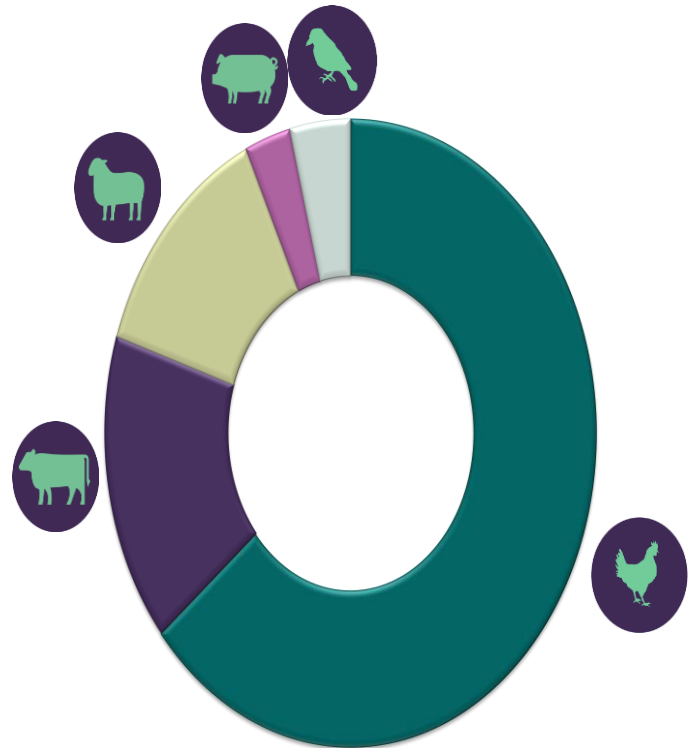
Campylobacter Source-Attribution

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



- Ensure levels meet EU standards
- Monitoring for emerging risks
- Research and surveillance

Process contaminants

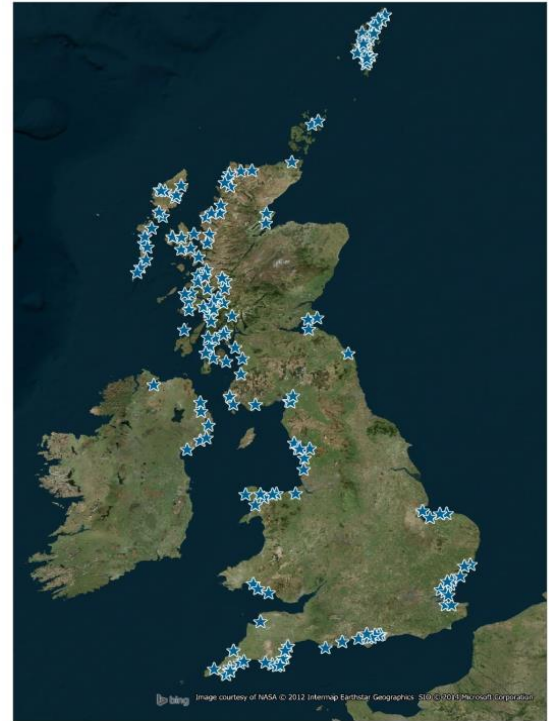
- Acrylamide risks for the Scottish diet



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**

		Green	Amber	Red
Information	Official Control results for flesh or FBO's own testing (EPT)	Low levels detected in shellfish	OC/EPT at or above amber trigger level but below red trigger over previous 4 weeks	OC/EPT gives levels at red trigger level or above
	Phytoplankton Monitoring	Levels below action limits or evidence to suggest non-toxic species	Phytoplankton samples at amber trigger level	Phytoplankton samples at red trigger level
	Wider Area consideration	Neighbouring areas at green status also	Neighbouring areas showing flesh or phyto at amber trigger level	Neighbouring areas showing flesh or phyto at red trigger level
Actions	Harvesting Action	All harvesting can continue subject to routine verification FBO sampling	Harvesting continues, with increased EPT or positive release.	Consider suspension of harvesting unless there is evidence for product safety
	Post Toxic Event Consideration	Area returns to green if criteria are met and 4 weeks have passed since red criteria applied	Area should remain at amber alert for minimum of 4 weeks before returning to green	Suspend harvesting on a precautionary basis until levels fall below red trigger level.



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



Criminals make £65k a day from electrocuted clams



Which? investigation uncovers fish fraud

Fraudulent fish found in fish and chip shops

13 September 2014

Seven out of 45 portions of fish bought from fish and chip shops across the UK were mislabelled, reveals a new Which? investigation.

Earlier this year, Which? research discovered that 24 out of 60 lamb takeaways we tested were adulterated with other meats, so we wanted to see if food fraud was also happening in fish and chip shops.

We found that food fraud isn't limited to meat takeaways and horsemeat - fish in local chippies is being mislabelled too.

Which? members can read our full [investigation into lamb takeaways](#). If you're not already a member, you can gain access to this investigation and all of our online reviews with a [£1 trial subscription to Which?](#)



Seven out of the 45 portions of fish we bought were mislabelled

Fraudulent fish at fish and chip shops

We bought 45 portions of fish labelled as haddock or cod from fish and chip shops in Birmingham, Manchester and Glasgow. We tested the fish DNA to find out what was really in it.

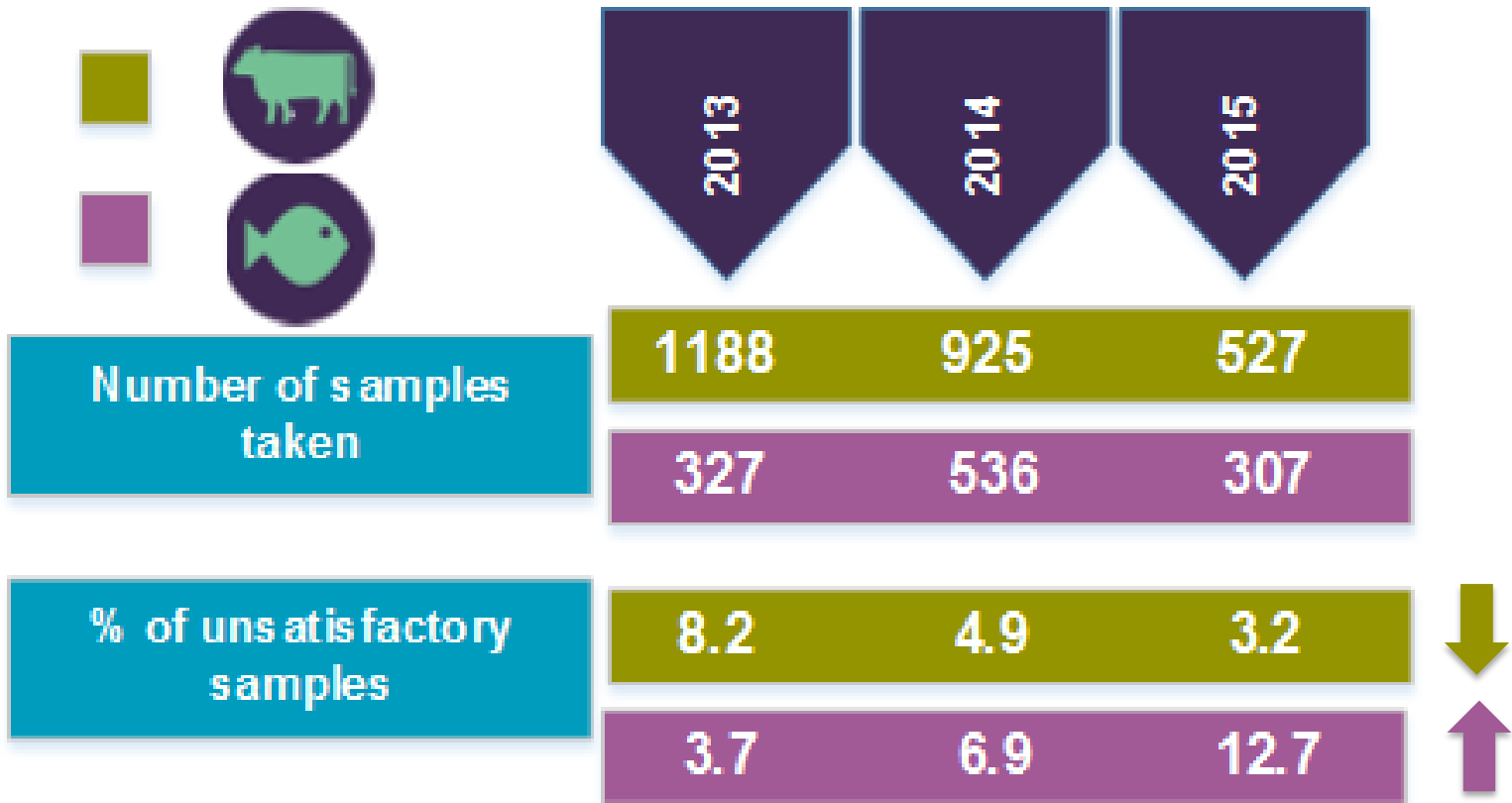
- Two portions in Manchester that were being sold as cod were, in fact, haddock
- In Glasgow, five sold as haddock were actually whiting.

Whiting easily passes for cod or haddock and is a cheaper fish, often used in fish meal and pet food.

Stop Food Fraud campaign

In April this year we launched our Stop Food Fraud campaign - we want you to feel confident that the food you are buying is what it says it is. It's important that the Government, Food Standards Agency and local authorities

Trends in meat and fish substitution



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**



Food
Standards
Scotland

For safe food and
healthy eating



THANK-YOU!

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