



**Food
Standards
Agency**
food.gov.uk

The FSA's Food Authenticity Programme

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Misdescription of food

Italian buffalo mozzarella probe as tests find cow milk

Italian buffalo mozzarella producers fear their reputation could be undermined after it was revealed some were using cow's milk in production.



SEE ALSO

- ▶ How Italy's 'white gold' turned sour
28 Mar 08 | Europe
- ▶ Italy recalls tainted mozzarella

Basmati adulterators in UK pay heavy price

- Local Court Slaps Fine Of £8,000 On Two Cos

TAKEAWAY CHICKEN INJECTED WITH PORK

'Wild' fish found to be farmed

Ten per cent of samples wrongly labelled

Businessman jailed for organic and free-range egg scam

A businessman has been jailed for three years for masterminding a scam which saw tens of millions of battery hen eggs sold as free-range or organic.



BBC Hereford and
Worcester

Aims of the Authenticity Programme

- Agency's 2010-15 Strategic Plan:
'Secure effective enforcement and implementation of policies within the UK to protect consumers from risks related to food and from fraudulent or misleading practices, targeting the areas where there is highest risk'
- The Authenticity Programme aims to provide:
 - A **sound science base** to underpin and assist in food standards enforcement and tackling food fraud and misleading practices
 - A **sound evidence base** to inform the Agency's role in protecting consumer interests in relation to food labelling & standards policy
- Recent revision of the Programme's strategy

Authenticity Programme

➤ Research

Develop methods to verify labelling and description of foods, through research funding

➤ Method Transfer

Make these methods available to food enforcers

➤ Surveys

Use these and other methods in surveys of the UK market to detect misdescription

Legal framework for food authenticity

- Name of the food - customary/legal/true nature name
- Names given to ingredients - in labelling regulations
- Substitution/extension by cheaper but similar ingredient - water, starch
- Special process/treatment - irradiation, freezing
- Correct origin claims - geographic/species/method of production, PDO/PGI/TSG
- Quantitative ingredient declaration - meat definition

Research - approach

- Find a marker or a group of markers for a particular ingredient or process (DNA/protein/metabolite)
- Develop an assay to verify presence and amount of that marker in a food
- Assess whether a robust method can be developed, either qualitative or quantitative
- Involved in all steps of method development, from feasibility to validation and technology transfer

Methodologies for authenticity issues

Methodology	Labelling Issue / Commodity
Isotope Ratio Mass Spectrometry + trace elements	Geographic origin – poultry, beef, wine Production origin – wild/farmed fish, organic vegetable, corn fed chicken
Proteomics (peptide markers)	Meat products – Offal, meat species, gelatine species
Metabolomics (metabolite markers)	Meat products – MSM
DNA	Species and variety identification – fish, meat, Basmati rice, durum wheat pasta, potatoes
Others - antibody, lectin chips, enzyme assays, microscopy	Meat content, milk content, previously frozen, organic meat, MSM

Authenticity Programme Review

- >100 research projects funded to date
- Successes and failures
- Partial substitution or adulteration presents several challenges:
 - Unknown identity of the adulterant
 - Difficult to distinguish between materials that chemically are similar, e.g. hazelnut and olive oils
 - Methods that work well with raw materials often fail when applied to cooked or highly processed foods
 - Distinguishing between adventitious mixing and deliberate substitution

Method transfer

- Publish final reports on the Agency's open access website: www.foodbase.org.uk
- Wider dissemination of reports
 - peer-reviewed journals, international conferences, annual stakeholder seminar, media interest
- Ensure methods are in a format suitable for use by food control laboratories
 - Standard Operating Procedures
 - Transfer of methods to simple analytical platforms e.g. lab-on-a-chip Agilent Bioanalyzer
- Training courses and blind challenge exercises for public analysts

Surveys

- 16 surveys of the UK food market on misdescription since 2000
- Often use the methods developed by the Authenticity Programme
- Conducted in conjunction with local authorities
- Highlighted areas of misdescription
e.g. Basmati rice adulteration, added water in chicken and shellfish, misdescription of farmed fish as 'wild'
- All surveys are published on [food.gov.uk](https://www.food.gov.uk)

Case study – fish species

- Need for a simple method for raw and processed fish identification
- Developed DNA-based method to give a fingerprint for major species
- Transferred to a simple platform for analysis
- Training course in the method, challenge exercise
- Survey of fish species in catering sector in 2008, 10% of fish were not the species claimed



 Food Standards Agency
Monday 19 April 2010

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Survey on fish species in the catering sector
Thursday 4 December 2008

Food Survey Information Sheet 07/08

- Public analysts now routinely using method

Thank You

Current and past contractors:

LGC

Campden BRI

Leatherhead Food Research

Fera

Gen-Probe

NIAB

Institute of Food Research

Premier Foods

Durham Scientific Services

Nottingham Trent University

Royal Holloway University

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