Membership of the website (www.foodauthenticity.uk) continues to grow, and has nearly reached 500, which has been achieved in just over a year of the setting up of the Network. As Defra funding for the Network is due to end in March 2017, we are beginning to look at the future organisation of the Network. Various options for a sustainable Network are being developed and will be discussed with Defra, the Authenticity Steering Group and the Management Committee.

This newsletter features the executive summary of the annual report for the Network and three external contributions; the Centre of Expertise Profile is on Campden BRI, whose expertise and experience in food authenticity testing is well established; the second article is an overview of a completed EU Project – Labelfish which was commissioned to tackle the problem of seafood mislabelling and fraud, and the third article is an article from USP on its upgraded food fraud database (version 2), which is designed to help stakeholders develop their own food fraud mitigation plans.

Feedback Summary – 57 responses were received to a questionnaire sent out in June, and a partial summary of these are shown below. In general, the responses were favourable with the majority of members finding the website useful. Consideration is being given to suggestions made by members for new additions to the website.

<table>
<thead>
<tr>
<th>Usefulness of Information on the Website</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very useful</td>
<td>26 (45.6%)</td>
</tr>
<tr>
<td>Fairly useful</td>
<td>31 (54.4%)</td>
</tr>
<tr>
<td>Not useful</td>
<td>14 (24.6%)</td>
</tr>
<tr>
<td>Don’t know...</td>
<td>11 (19.3%)</td>
</tr>
<tr>
<td>What would make would make the most useful additions to the website?</td>
<td></td>
</tr>
<tr>
<td>Guidance on Food Authenticity management</td>
<td>26 (45.6%)</td>
</tr>
<tr>
<td>PDF copies of approved authentic testing methods</td>
<td>31 (54.4%)</td>
</tr>
<tr>
<td>Links to food fraud databases</td>
<td>46 (80.7%)</td>
</tr>
<tr>
<td>News of new products and services from members</td>
<td>14 (24.6%)</td>
</tr>
<tr>
<td>Webcasts or videos on Food Authenticity testing topics</td>
<td>14 (24.6%)</td>
</tr>
<tr>
<td>A site. Contents’ page</td>
<td>11 (19.3%)</td>
</tr>
<tr>
<td>Electronic training courses</td>
<td>26 (45.6%)</td>
</tr>
<tr>
<td>Guidance for non-specialists</td>
<td>19 (33.3%)</td>
</tr>
<tr>
<td>Wider international coverage</td>
<td>12 (21.1%)</td>
</tr>
</tbody>
</table>
Campden BRI - Helping Industry and Government to Combat Food Fraud

Campden BRI has many years’ experience offering a wide range of analytical services, including meat and fish species identification, foreign body identification, allergen detection, illegal dyes detection, cereal variety identification, and determination of illegal spirits, wine and olive oil.

Authenticity assurance remains one of the biggest challenges currently facing the food and drink industry. The recommendations of the Elliott Report and compliance with BRC’s Global Food Safety Standard (version 7) require companies to perform vulnerability studies, risk assessments and in certain circumstances test the authenticity of raw materials and ingredients.

Campden BRI’s authenticity services extend beyond just analyses. Other services offered include consultancy and training in TACCP (Threat Assessment), horizon scanning and authenticity risk assessment. Campden BRI also produces a “Food Authenticity Resources Bulletin” and will be holding a Food Fraud seminar in June 2017.

Campden BRI carries out olive oil grade testing for the Rural Payments Agency to ensure the authenticity of olive oil imported into the UK. For the past 13 years, it has been the scientific analyst for HM Revenues and Customs (HMRC) carrying out analysis of goods imported into the UK from outside the EU.

It also has a successful track record of working with technology companies to help deliver food authenticity testing methods and applications. Key benefits include insight into real industry problems, access to samples, and the ability to prepare and process matrices to industry specifications.

Campden BRI’s authenticity services are supported by a range of scientific research projects funded by its members and other funding bodies. Many of Campden BRI’s accredited services were developed during these projects. For example, its DNA-based meat and fish species authenticity tests were originally developed in Food Standards Agency funded projects. The fish species DNA profiling method using the Agilent Bioanalyser was subsequently adopted by several public analyst laboratories following training and support provided by the FSA and Campden BRI.

Current research projects include one looking at the development of 'next generation' analytical technologies to protect the food industry from fraud. The project has investigated a number of new analytical techniques that could offer rapid and cost-effective ways to ensure the authenticity of foods and drinks and detect adulteration. These include commercial rapid isothermal DNA amplification assays for detection of meat and fish species, immunoassay dipstick test kits to detect the presence of cow’s milk in dairy products, and a rapid hand held NIR device to determine composition of foods.

Recent investments in state-of-the-art chromatography and mass spectrometry equipment allow Campden BRI to investigate wider screening and detection of adulterants. A new member funded research project “Ensuring the chemical safety of food and drink using non–targeted screening methods” is looking into this area. With the rapid advances in instruments and kits, a key requirement will be access to standards and authentic samples. Campden BRI will continue to work with the food industry and technology companies to develop authentic materials and applications, and to validate methods to ensure that they are fit-for-purpose.

Campden BRI is proud to be recognised as a UK Centre of Expertise in food authenticity testing. For further information contact Steve Garrett, Food Authenticity Team Leader, Campden BRI, stephen.garrett@campdenbri.co.uk  Tel. + 44(0)1386 842175
LABELFISH – The Atlantic Network on Genetic Control of Fish and Seafood Labelling and Traceability.
Getting to Grips with Seafood Mislabelling and Fraud

Seafood is a global commodity traded all over the world, with long and complex supply chains. It plays an important part of the diet for millions of people every day. However, seafood fraud and species substitution occur regularly, cheating consumers and putting public health and the oceans at risk.

LABELFISH is an EU funded project carried out between 2012 and 2015. It was the first large, European initiative to study seafood authenticity in an interdisciplinary fashion looking at the European seafood market in a transnational perspective. It investigated the enforcement of legislation, consumer perception, and the diversity of species underpinning the main products marketed across the UK, Ireland, Spain, France, Germany and Portugal.

The project examined the range of different approaches that each member country employs to enforce EU regulations and monitor the seafood supply chain. There was a wide divergence in the participating countries in the amount of effort into monitoring seafood authenticity, and even the methodologies employed to identify samples varied remarkably between and within countries.

To address this inconsistency, the consortium developed a standard operating procedure (SOP) to harmonise authenticity testing. The identification of seafood species was based on sequencing parts of the amplified mitochondrial cytochrome C gene.

Using the SOP, LABELFISH carried out an exhaustive survey of seafood labelling. The results were encouraging in that a level of seafood mislabelling was below 5% across nine product types and six countries. This picture is the likely result of stronger EU legislation, and an increased interest in seafood traceability and sustainability by both government and consumers.

Although these results are positive, there remains much to be done to ensure confidence for both industry and consumers. Governments must show continued efforts in enforcing legislation and new testing technologies must be implemented in existing programmes of authenticity testing. Furthermore, there is a need for greater understanding and control of the ever increasing diversity of global imports, which continue to be poorly advertised to consumers, in both restaurants and alternative food stores.

Global Seafood Fraud
A review by Oceana of 200 papers and reports on seafood mislabelling and species substitution has mapped the global occurrence of seafood fraud in 55 countries. See global seafood fraud.

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www.marianilab.org
@TheMarianiLab
Food fraud costs billions of US dollars per year globally and can pose a public health risk. The detection and prevention of food fraud requires approaches that differ from traditional food safety risk assessments and must take into account supply chain vulnerabilities. Successful food fraud mitigation strategies should consider the market environment and socioeconomic factors, as well as historical food fraud information. The Global Food Safety Initiative (GFSI) has established two requirements to help entities mitigate food fraud: (1) conduct a food fraud vulnerability assessment and (2) establish a control plan that incorporates measures to help reduce such vulnerabilities. USP has developed a Food Fraud Mitigation Guidance to support the food industry with compliance with food safety schemes in their effort to protect themselves and consumers from food fraud.

Historical data is critical in the assessment of food fraud vulnerability. It can identify those ingredients that are most susceptible to fraud, and estimate the degree of their vulnerability (based on data points such as fraud frequency, type of adulteration, adulterants linked to a particular ingredient, geographic origin, etc.). Also, the analysis of data collected over time can help identify trends and, when used in conjunction with market intelligence, can help establish a correlation between market conditions and the increase in certain fraudulent activities. In addition, historical data can include peer-reviewed literature related to analytical methodologies used to detect food fraud cases or methods developed to identify potential adulterants in food ingredients.

A fit-for-purpose method can be a control measure worth integrating into a food fraud mitigation plan. Therefore, the focused collection and analysis of historical information is relevant not only to support vulnerability assessments, but also to help establish and implement specific control measures as part of an effective food fraud mitigation plan.

The United States Pharmacopeial Convention (USP) launched the Food Fraud Database (FFD) version 1.0 in 2012. FFD version 1.0 grew to include more than 2,600 records and was accessed by thousands of users around the world. To account for additional compliance requirements within GFSI-recognized food safety schemes and FDA’s rules on the implementation of the Food Safety Modernisation Act (FSMA), the FFD was rebuilt and redesigned. FFD version 2.0 was launched in July 2016 and contains over 5,000 records; 3,600 ingredients; 1,350 adulterants; and 2,200 primary source references. Updates to FFD include:

- A new data structure where records are classified by type: incidence, inference, surveillance, and method.
- The hazard categorisation of food adulterants, as established by a USP Expert Panel. Potentially hazardous adulterants are “tagged” throughout the database, allowing users to quickly identify them. Users can generate Hazard Identification Reports within the application, supporting compliance with the provisions of the FSMA Preventive Controls Rule that address economically motivated adulteration (EMA).
- Data analytics capabilities, customisable to user needs, which display data trends in a graphic or tabular format.
- Customisable features, including a dashboard homepage that can be tailored to display information of interest to the user, which facilitates updates and new information related to queries previously saved by the user.
- Email alerts to notify the user when new records are added responding to a prior saved search.

The U.S. Pharmacopeial Convention (USP) is a scientific non-profit organisation that sets worldwide standards for medicines, food ingredients and dietary supplements. USP Food Safety and Integrity Solutions provide all stakeholders with practical products and services to ensure the quality, safety, and integrity of the food supply.

This article was written by Carmen Díaz-Amigo, and for questions about the database or related tools and resources, contact USP at food@usp.org or look at the food fraud database.
Executive Summary of the Annual Report for the Virtual Food Authenticity Network

Following the Elliott review in 2013-14, the UK Government committed to setting up a Virtual Food Authenticity Network to help bring those involved in food authenticity testing together in a more coordinated way.

Defra issued an invitation to tender which sought to appoint a Coordinator who would be responsible for creating a virtual food authenticity network with the following aims:

To act as the key mechanism for the dissemination of technical information on food authenticity and to support the transfer of knowledge including Knowledge Transfer exercises, Standard Operating Procedures for analytical methods, final research reports, scientific publications and other methodological literature.

To act as a trusted source of curated information on food authenticity testing.

To be an open forum for knowledge exchange, discussion of “fit for purpose” methods and promotion of best measurement practice in food authenticity analysis.

To help facilitate the advancement of new scientific approaches and techniques through discussion and co-operation to help demonstrate the UK’s potential as a world leader in food authenticity.

To facilitate this, the Coordinator is required to provide “…a simple user friendly web based tool to disseminate and host information of use to the participants of the virtual authenticity network, promote and raise awareness of the network’s activities and store information relating to food authenticity testing and methodologies”.

LGC was selected as the coordinator for the Network. LGC started work on the project in April 2015 and rapidly developed a simple user friendly website based on a social media type platform for the Network (plus an interactive website to act as a document ‘library’) which was piloted with a cross section of stakeholders before being officially launched on 14 July 2015:

http://www.foodauthenticity.uk/

In the first year of this project, LGC has engaged with a wide variety of stakeholders and undertaken a significant amount of promotional activity which has resulted in 398 people signing up to become members of the Network. The membership spans a range of relevant stakeholder groups and looks set to continue to grow. The Network’s Twitter account was set-up in August 2015 and it also has a respectable 286 followers.

The virtual Food Authenticity Network is a success and has fulfilled Recommendation 4 - Laboratory Services of the Elliott Review which stated that “those involved with audit, inspection and enforcement must have access to resilient, sustainable laboratory services that use standardised, validated approaches”. This has been achieved by the creation of a dedicated website (www.foodauthenticity.uk) which has been populated with:

- Direct links to eleven organisations with a food authenticity testing programme / initiative.
- Direct contact details for food authenticity testing experts in 14 different Centres of Expertise.
- Links to or copies of 173 research reports and methods.
- 127 relevant food authenticity related current news and events posts.
- 29 posts on the Network’s discussion forums.

The Google Analytics performance data demonstrates that the information is being accessed on a regular basis with a high number of members returning to the website.
The website has created a direct mechanism for dissemination of technical information (SOPs, research reports, policy documents etc…) on food authenticity and information on food authenticity related media articles and events. An e-seminar has been loaded which shares best measurement practice in relation to the determination of meat species in food which can be freely downloaded and viewed. The discussion pages allow open forums for knowledge exchange as well as a facility for closed members’ only discussions.

The creation of Centres of Expertise for food authenticity and placing direct contact details for experts on the website makes food authenticity expertise available to any stakeholder.

In creating the food authenticity network (the only website dedicated to food authenticity testing globally) which is a one-stop-shop for food authenticity testing, the UK is much better prepared to tackle the next food authenticity issue that arises and has demonstrated that it is a world leader in food authenticity testing.

In year 2 of this project, LGC will continue to engage with members and other stakeholders by undertaking further promotional activities with the aim of growing the membership further. LGC will conduct a user survey to seek feedback with the view to improving the website. LGC will also work with Defra and interested parties to develop a plan that will allow the virtual Food Authenticity Network to be sustainable beyond the lifetime of this project so that this useful tool continues to be available to all those with an interest in Food Authenticity Testing.