

Honey Legislative Policy Overview

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Overview



- Legislation & Standards
- UK Honey Market
- EU Coordinated Control Programme
- JRC Roundtable
- Issue: Exogenous sugars
- Enforcement



Honey Legislation

The sale and marketing of honey is controlled by **The Honey (England) Regulations 2015** (as amended) which transposes the **Directive 2001/110** and its 2014 amendment (**Directive 2014/63/EU**)
Equivalent legislation in Scotland, Wales and Northern Ireland.

- EU Rules define HONEY as coming from the *Apis mellifera* honey bee
- Legislation lays down reserved descriptions that must be used which relate to:
 - the source from which the honey is obtained (E.g. blossom, honeydew)
 - the processes by which it is extracted (for example drained, extracted)
 - the way it is presented (for example comb, chunk honey).



Honey Specification

- The Regulations lay down detailed specifications which honey must comply with in terms of its composition and also set out some general quality criteria for honey. If you use one of the reserved descriptions then your product must comply with the defined compositional criteria.



Sugar Content
Moisture Content
Water-insoluble Content
Electrical conductivity
Free Acid
Diastase
HMF

- In addition the Regulations contain some specific labelling requirements including a requirement for mandatory country of origin labelling on all honey. However for blended honey alternative options for labelling exits if the countries are not listed.

International Honey Standards

CODEX STANDARD FOR HONEY - CODEX STAN 12-1981

Adopted in 1981; revised 1987 and 2001.

Codex Committee on Sugars (CCS) - UK hosted - sets standards for sugars and honey.

The **Codex Alimentarius Commission (CAC)** is a Food and Agriculture Organisation (FAO) / World Health Organisation (WHO) sponsored body charged with the development of food standards **to protect the health of consumers and ensure fair practice in international trade of food and agricultural products.**

UK input to Codex standards is important as they serve as a basis for national law in many cases. In international trade disputes, **Codex standards can be referred to by the World Trade Organisation (WTO)** to settle disputes between countries.

Codex Honey Standard



CODEX STANDARD FOR HONEY - CODEX STAN 12-1981

- applies to all honeys produced by honeybees and covers all styles of honey presentation which are offered for direct consumption.
- Establishes naming, chemical properties, level of contaminants, and labelling of honey, and other characteristics.
- Wider than EU directive – honey obtained from honeybee so not exclusive to *Apis Mellifera*
- Origin labelling is not mandatory
- Industrial honey – to be developed



UK Honey Market

Trade Source: (HMRC trade data 2018)

- UK imports around 90% (**50,000** tonnes) of honey per year (one third coming from China). Re-exports account for approx. 10% (5,000 tonnes)
- Branded Products (Rowse, Gales, Duerrs, Tiptree) and Retailer own brands (M&S, Tesco, Lidl etc.)
- 50% of UK honey exports are to Republic of Ireland (ROI) (2,500 tonnes). ROI imported honey is mainly for domestic use
- Only 5-10% UK origin honey Bee farmers and Beekeepers

Most honey is imported into UK in bulk containers for further processing, blending or packing before being sold to consumers.
Some imported pre-packed in jars (Manuka etc.)



UK Honey Market

UK honey processors are concentrated on mainland GB meaning that UK to ROI exports are mostly entering through ports (Liverpool/Holyhead to Dublin) as opposed to crossing the border between NI/ROI.

- Honey is subject to border checks as its POAO though the Honey Regulations themselves do not mandate border checks.
- AC Nielsen figures to the end of Mar '18 states that 88% of the volume sold is blended.
- The balance would be mono-floral honeys both EU and Non EU including Manuka, Acacia, Orange Blossom, Eucalyptus etc. but some of these may be blends of more than one origin e.g. Orange Blossom could be a blend of Spanish and Mexican.



Coordinated Survey of EU Honey market

- In 2015 the European Commission organised an [EU coordinated control plan](#) to assess the prevalence on the market of honey adulterated with sugars and honeys mislabelled with regard to their botanical source or geographical origin.
- **2264** samples collected from 28 MS + Norway
- **1069** samples sent to JRC. 138 non compliant (15%) + 893 compliant/suspicious
- **893** underwent further analysis
- **JRC Results** - 127 (14%) of the samples tested indicated exogenous sugars may be present.



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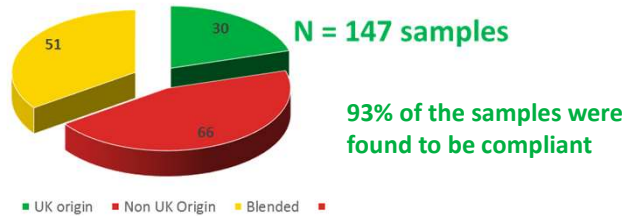
JRC Results for Added Sugars

Origin	No. of Samples	Suspicion of non-compliance	% of Samples
Blend of EU honeys	96	19	19.8
Blend of EU and non-EU honeys	426	40	9.4
Blend of non-EU honeys	30	3	10.0
Single EU Member State	275	53	19.3
Single non-EU country	55	11	20.0
<i>Unknown</i>	11	1	9.1
TOTAL	893	127	14.2

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UK Results



5% of samples were classed as non-compliant.

- Incorrect botanical source (4%)
- Presence of exogenous sugars or sugar products (1%).

2% of samples were classified as being in "suspicion of non-compliance"

- Geographical region (1%)
- Possible presence of exogenous sugars or sugar products (1%).

JRC Roundtable on Honey Adulteration



- Following the EU coordinated survey the EU Commission funded a Technical Round Table on Honey Authentication hosted by JRC-Geel, in Belgium (25 January 2018)
- **AIM:** to identify and discuss current challenges to authenticate honey, to identify the gaps in available tools and knowledge and identify ways of filling those gaps.
- **ATTENDEES:** Approx 40 participants including UK (industry, commercial labs, UK Govt - Defra)
- Broad representation of EU stakeholders: legislators, enforcers, honey industry, government, university and commercial labs.

JRC Roundtable: Types of Fraud

Addition of sugar - identified **as the most frequently occurring type of fraudulent manipulation**. Exogenous sugar can originate from inappropriate bee feeding and / or from a direct addition of sugar / syrup to honey, and the difficulty in differentiating the origin was pointed out.

Mislabelling - with respect to botanical- and geographical origin, mono-floral vs. poly-floral honey, and blossom vs. honeydew honey was highlighted as the second most important type of fraud.

Resin treatment / ultrafiltration (followed by blending)

Addition of pollen to ultrafiltered honey or the dilution of good quality honey with ultra filtered honey was discussed.

Bee feeding - widespread and accepted; however, feeding has to stop when nectar flow starts. Some carry over is practically unavoidable and should be considered in the analytical control.

Immature honey - removing honey early from the hive

JRC Roundtable: Summary of issues

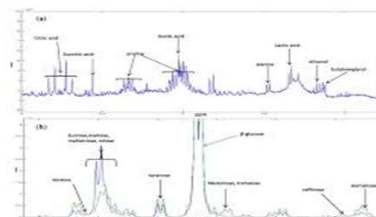
- **Lack of analytical methods** to detect the addition of certain types of sugar (syrup) and non-authorized processing of honey such as (ultra)filtration
- **Validation of existing and new methods** through ring trials and provision of quality assurance tools, i.e. reference materials and proficiency testing rounds.
- **Improvement of methods** (accuracy, application domain, data fusion), availability of emerging methods (e.g. NMR, High Resolution Mass Spectrometry - HRMS),
- **Harmonisation of analytical methods** and the validation of the decision criteria for purity and authenticity.
- **Need for modernised purity criteria** that have to go beyond the basic quality requirements laid down in current EU legislation such as electronic collection of chemical fingerprints against which a suspect sample can be compared for assessing its authenticity and/or correctness of label declaration.
- **Legislative**, more detailed provisions for honey authenticity in the relevant EU legislation or Codex.

JRC Roundtable: Recommendations

- A critical review of the current definition of identity and purity criteria of honey is necessary;
- Acceptance / rejection criteria for authenticating honey are needed;
- An appropriate analysis of the vulnerability of the honey supply chain should be done and an improved traceability system implemented;
- Screening methods should be developed to economise testing;
- Analytical methods to detect emerging fraud cases should be developed and already existing methods have to be validated;
- A mechanism for providing quality assurance tools should be established;
- Chemical and biological characteristics of genuine honeys (including blends), bee feeding products, and products from inappropriate practices should be generated and stored in a publicly available database.

UK Issue: Exogenous Sugars

- Detection of added sugar in honey can be very challenging and is limited by the availability of current validated methods of analysis,
- C4 derived plants such as sugar cane easier to detect using EA-IRMS
- Detecting C3 derived plants (Beet sugar) is much more difficult. EA/ LC-IRMS and decision criteria used in JRC survey
- In some instances, new techniques such as ^1H or proton nuclear magnetic resonance (NMR) is being used to screen honey for exogenous sugars, including cane and beet sugar or sugar syrups.
- NMR is generally a screening method which should prompt follow up investigations
- Reliant on robust databases
- Authentic honey samples



Enforcement



- Honey rules are enforced by local authorities: TSOs, EHOs or at the BIPs/ports by PHAs
- FSA has responsibility for oversight of food enforcement policy
- The Honey Regulations provide the basis for marketing of honey to consumers. General Food law 178/2002 and FIC 1169/2009 also apply
- Honey is a complex matrix and analysis can be very challenging
- Qualitative and quantitative detection of added sugars in honey has proven very difficult, particularly for C3 pathway sugars like beet sugar.
- Newer methods for analysis of added sugars in honey include NMR but challenges around its robustness: markers; databases and interpretation
- A weight of evidence approach recommended including traceability checks and follow up discussions

Honey Seminar - Ambitions

- Funded under Defra's Food Authenticity Programme with financial support from FSA, FSS and Government Chemist (GC)
- GC facilitation role - provide independent and impartial advice to Government under BEIS Framework programme

KEY AIMS:

- Bringing together experts in the field of honey analysis, NMR specialists, enforcers and representatives from the UK honey sector
- Scientific discussion and information sharing on the pros and cons of NMR technology to detect exogenous sugars in honey
- Better understanding of positions and the capabilities of NMR
- Agree any practicalities around the application of NMR and results
- If possible, reach consensus on use of NMR as a technique in honey analysis and any limitations to the methodology.

Q & As

The true chemists in the production of honey are surely the BEEs themselves!

