QUESTIONS AND ANSWERS

Questions and answers surrounding Honey adulteration.

What is an EU coordinated action?

The Commission services - at the request of one or more EU countries or on its own initiative - can coordinate activities at EU level. This happens when operators in several Member States are involved in a possible fraudulent scheme and when the suspicion presents either a health risk or a significant socio-economic risk. Decision criteria for such coordination at EU level take into account the seriousness of those risks, the reliability of the information available and its similarity to previous occurrences. When the suspicion is related to imported products, the Commission liaises with the concerned non-EU countries and requests targeted information and investigations.

Is honey currently regulated in the EU?

Honey is a natural product which has been valued for its sweetening properties since ancient times. The EU legislation aims at preserving the purity of honey as an unprocessed raw agricultural product, excluding modifications to its chemical composition.

Council Directive 2001/110/EC, Annex 1, point 1 defines it as: *"the natural sweet substance produced by* Apis mellifera *bees from the nectar of plants or from secretions of living parts of plants or excretions of plant-sucking insects on the living parts of plant, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in honeycombs to ripen and mature".*

The Directive also sets out the composition criteria (for human consumption) and associated labelling requirements. These requirements have to be met before honey can be placed on the market in the EU.

What are the rules for sugar content in honey?

Natural sugars are one of the main constituents of honey and can be present at varying amounts depending on the botanical source. Council Directive 2001/110/EC relating to honey establishes two requirements for the sugar content:

1. the sum of fructose and glucose content shall not be less than 60g/100g for blossom honey, and not less than 45g/100g for honeydew honey and related blends;
2. sucrose content shall not exceed 5g/100g. However higher limits have been established for several specific botanical sources such as French honeysuckle, eucalyptus and lavender.

Why was honey selected for an EU coordinated action?

Producer organisations as well as consumer protection associations have repeatedly raised concerns about possible adulteration of honey. These concerns were corroborated by the results of a first Coordinated Control Plan organised in 2015-17 that showed that at least 14 % of the checked samples did not conform to purity benchmarks (link: https://food.ec.europa.eu/safety/agri-food-fraud/eu-coordinated-actions/coordinated-control-plans/honey-2015-17_en) and by the number of notifications in the Alert and Cooperation

Network, a network which facilitates the exchange of administrative information and the cooperation between Member States on official controls in the agri-food chain (link: https://food.ec.europa.eu/safety/agri-food-fraud/administrative-assistance-and-cooperation-system_en).

What are the most common fraudulent practices concerning honey?

Honey is the natural substance produced by honeybees. It must not have any ingredient added to it (e.g. sugar, food additives, flavourings, etc.).

Honey can be adulterated with several substances such as sugar or water, but sugar is the most common adulterant. Inexpensive sugar syrups are used to increase the volume of honey and their effective detection remains a complex issue even with sophisticated methods of analysis. The declaration of the botanical source or other attributes is also subject to fraudulent practices intended to modify the consumer perception of quality and value of the honey. Honey produced in a certain geographical area and respecting defined production methods can be sold as a quality product having special characteristic (PDO, Protected Geographical Origin or PGI, Protected Geographical Indication). As PDO/PGI honeys fetch a higher price, they are attractive targets to wrongly declare the origin of ordinary honey to increase profits. The declaration of the geographical origin may also be falsified to circumvent tariff rules. Other compositional or labelling-related fraudulent practices also take place, for example the name "honey" may be illegally given to a product consisting partially or totally of a lower quality product such as "baker's honey".

What are the fraud drivers for honey?

The wave of consumer demand for natural sweeteners leads to a market where global honey prices are at their highest levels in years. In the EU, market demand for honey is higher than domestic production and a substantial amount of honey is imported. Its market price varies significantly according to aspects of quality that are not always visible or measurable without thorough analysis; this provides opportunities for misleading practices intended to unduly increase economic or financial gains. The price difference between authentic honey and sugar syrups and the difficulty of detecting the extension of honey with syrups provide attractive fraud opportunities for dishonest business operators.

What are the direct and indirect consequences of honey adulteration with sugars?

While the risk for consumers' health is considered very low (based on the assumption that added sugar syrups are fit for human consumption), adulteration of honey with sugars is a detrimental for consumers' trust in the EU food chain and a challenge for operators and for honey reputation.

The EU average unit value for imported honey was 2.17€ per kilogram (excluding honey from New Zealand) in 2021 whereas sugar syrups made from rice are available at around 0.40 – 0.60€ per kilogram. Diluting honey with sugar syrups provide an unfair advantage for fraudsters. Facing such cheaper alternatives and potentially unfair competition from their competitors,

professional beekeepers in the EU may be discouraged to maintain their beekeeping activities, which in turn negatively impacts on the amounts of honey produced within the EU.

Do feeding bees with sugar syrups cause adulteration of honey?

The feeding of bees with sugar syrups may be necessary in certain periods of the year. This often coincides with the harvest of honey from a hive, in order to ensure that the bees have sufficient food to prevent starvation during winter. It is important that bee-feed remaining in combs must be separated from the next honey harvested for marketing, otherwise the bee-feed will contaminate the honey and the extracted product will not conform to the EU Honey Directive.

However, feeding of bees with sugar syrups during the main nectar flow period would conflict with the legal definition of honey. According to this definition, honey must be produced either from the nectar of plants ("blossom honey" or "nectar honey") or from secretions of living parts of plants or excretions of plant-sucking insects on the living parts of plants ("honeydew honey").

What were the objectives of the EU coordinated action "From the Hives"?

The action aimed at gathering intelligence on the incidence of non-conforming honey imported into the Union through sampling and analysis. Analyses focused only on detecting honey suspicious of containing added sugar syrup(s). The coordinated action ran in three phases:

- the collection of honey samples at EU borders,
- the recollection of traceability information; and
- investigations within the EU at the place of import, processing, blending, and packing.

Who were the actors and their roles in the EU coordinated action "From the Hives"?

The Directorate-General for Health and Food Safety of the European Commission initiated and coordinated the action.

Sixteen Member States (Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Poland, Romania, Spain, Sweden), Norway and Switzerland volunteered for the initial sampling phase. They also had to instate the place of destination of the controlled consignments before considering further investigations. Further investigations concerned all Member States and EFTA States[1] of destination having received suspicious consignments. These investigations were conducted at the places of import, processing, blending, and packing.

Member States and EFTA States' authorities received:

- analytical assistance from the Knowledge Centre for Food Fraud and Quality, operated by the JRC (link: https://knowledge4policy.ec.europa.eu/food-fraud-quality_en);

- intelligence support from the Directorate-General for Health and Food Safety of the European Commission for the recollection of information from both the exporters and the

[1] EFTA - European Free Trade Association (i.e. Iceland, Liechtenstein, Norway and Switzerland).

importers (past import operations registered within the TRACES system[2], non-compliances and food fraud suspicions already registered within the Alert and Cooperation Network); and

- intelligence and investigative support from the European Anti-Fraud Office (OLAF) when requested (link: https://anti-fraud.ec.europa.eu/index_en).

What was the sampling methodology for the control plan?

Member States and EFTA States' authorities sampled honey at border control posts (BCPs) between November 2021 and February 2022. In case that a consignment of honey presented to import controls consisted of more than one production lot, only one lot was subjected to sampling. Several aliquots from a lot had to be taken to form an aggregate sample, which had to be sent to JRC for analysis.

A total of 320 samples was taken and the majority originated from China (89), Ukraine (74), Argentina (34), Mexico (22), Brazil (18) and Turkey (15). Most of them were declared as 'polyfloral' (77 %) or 'monofloral' honey (11 %); the rest was of unknown botanical origin.

Which analytical methods and decision mechanisms applied to identify suspicious samples of honey?

Since sugar is the main constituent of honey, it can be difficult to determine the extent of any adulteration by additional sugars. It is also particularly challenging to distinguish between sugars occurring naturally from those added since the adulterated product can show very similar physical and chemical properties.

The JRC used several methods in combination to detect honey suspicious of containing added sugar syrup(s). The methods used are the most sophisticated currently available. JRC's quality system is ISO 9001 certified and certain testing activities of JRC Geel are ISO 17025:2017 accredited. However, the methods of analysis used for generating the reported data are outside the scope of accreditation. This fact had to be considered when initiating regulatory action by Member States authorities.

What do the results from the sampling phase show?

Of the 320 samples received, 147 (46 %) were suspected of being non-compliant with the provisions of the EU Honey Directive 2001/110/EC because at least one marker of extraneous sugar sources was detected. The used techniques provided qualitative information (presence/absence of markers) and, therefore, it was not possible to estimate the level of syrup additions in honey.

The highest absolute number of suspicious consignments originated from China (66 out of 89, 74 %), although honey originating from Turkey (14 out of 15, 93 %) had the highest relative proportion of suspicious samples. Honey imported from the United Kingdom had an even higher suspicion rate (10 out of 10, 100 %). However, the available traceability information suggests

[2] TRACES – TRAde Control and Expert System (https://food.ec.europa.eu/animals/traces_en#about-traces).

that this could be the result of honey produced in other countries and further processed in the United Kingdom before its re-export to the EU.

Are the results from the EU coordinated action representative of the EU market for honey?

The results were never expected to provide a representation of the EU market for honey but to provide an idea of the extent and nature of adulteration of imported honey with sugar syrups. Samples were randomly taken. The frequency of sampling during the operation reached 15% of the consignments presented to import controls during the sampling campaign and thus offered a certain representation of the trade flows.

Although a certain number of honey consignments imported into the internal market was tested, the obtained results represent the situation during the sampling period and shall not be generalised or extrapolated to other situations.

In total, 123 exporters were controlled, of which 70 were flagged as having exported honey consignments suspicious of being adulterated with extraneous sugars. From 95 importers that were subject to sampling, two-third of them (63 importers) were concerned by at least the import of one honey consignment suspicious of being adulterated with sugars.

What are the main conclusions of the sampling phase?

The EU coordinated action confirmed the assumption that part of honey imported into the internal market is suspicious of not complying with the provisions of the EU Honey Directive 2001/110/EC. 46 % of the analysed samples were suspicious of being non-compliant. The suspicion rate was considerably higher than the earlier EU wide coordinated control plan conducted in 2015-17, where 14 % of the analysed samples did not comply with established benchmark criteria to assess honey authenticity.

However, a different set of methods with improved detection capability was used in the present study, which may explain this difference. Stable carbon isotope ratio analysis by EA-IRMS (AOAC method 991.41), a method that has frequently been used in the past to detect sugar syrups made of maize starch or sugarcane, was not effective in detecting honey suspicious of being adulterated. This may indicate that sugar syrups made of maize starch or sugarcane are no longer used to extend honey and that they have been replaced totally or partially by syrups made from rice, wheat or sugar beet, for instance.

Improved, harmonised and internationally recognised analytical methods are still needed to increase the capability of official control laboratories to detect honey adulterated with tailor made sugar syrups that imitate to a large extent the characteristic sugar profile of genuine honey.

How reliable can the results of a test be if it is not validated?

As the Commission has not yet adopted methods to permit verification of compliance of honey with the provisions of the Council Directive 2001/110/EC of 20 December 2001 relating to honey, Member States shall, whenever possible, use internationally recognised validated methods such as those approved by Codex Alimentarius to verify compliance. The methods used

in the frame of the EU coordinated action proved to be useful to identify suspicions of fraud and this is the reason why they were complemented by "forensic investigations" (i.e. combining on-site inspection, sampling and close examination of documents, computers and phone records) to uncover fraudsters.

What do the results from the investigation phase show?

Investigations concerned forty-four operators to date, about of which seven were finally sanctioned (to date) with regards to honey adulteration with extraneous sugars.

Other intelligence gathered during the course of the EU coordinated action – and currently being investigated – concerns the use and the blending of honey and sugar syrups on the EU territory itself, the removal of pollens (a marker of origin) or the forgery of documents accompanying honey to mask its true origin.

What are the main conclusions of the investigation phase?

Most of the Member States' authorities investigated using official laboratory techniques at their disposal; those techniques are primarily intended for control of the provision of the EU Honey Directive and are known to be less effective to detect and to prove sophisticated honey adulteration if used alone. At the same time "forensic investigations" (i.e. combining on-site inspection, sampling and close examination of documents, computers and phone records) proved to be useful to uncover fraudsters.

Based on the above, it could be concluded that part of honey imported from non-EU countries and found suspicious by the JRC of being adulterated remain present and undetected on the EU market.

How are OLAF investigations conducted?

All incoming information of potential investigative interest is analysed by a dedicated unit at OLAF, to determine whether it justifies the opening of an investigation or coordination case.

If a case is made, OLAF investigators examine the allegations and assemble the evidence that serves to establish the facts and produce a detailed final report. To this end, they gather and analyse all the documentary evidence and all the data available to them, and question witnesses and potential suspects. On the-spot-checks can also be carried out.

OLAF conducts administrative investigations. The results of these investigations are transmitted to the competent authorities. An OLAF investigation may lead to administrative, financial, disciplinary or judicial proceedings. OLAF performs its duties with integrity, impartiality and professionalism, respecting the rights and freedoms of individuals.

What is the legal framework governing OLAF intervention in the EU Coordinated Action?

OLAF's investigation was opened on the basis of Article 3 of Regulation (EU, Euratom) No 883/2013 (the 'OLAF Regulation').

The on the spot check and digital forensic acquisition were authorized in the course of an investigation opened under Article 5 of Regulation (EU, Euratom) No 883/2013 and conducted under Article 3 of Regulation (EU, Euratom) No 883/2013, in accordance with Article 7, paragraph 2 of Regulation (EU, Euratom) No 883/2013, in accordance with Article 3, paragraph 2 of Regulation (EU, Euratom) No 883/2013, and Articles 6 and 7 of Regulation (Euratom, EC) No 2185/96, pursuant to a delegation of powers by the Director-General of OLAF under Article 17(6) of Regulation (EU, Euratom) No 883/2013.

How does OLAF collect digital evidence?

OLAF's digital evidence specialists provide OLAF investigators with practical support for digital forensics (identification, acquisition, imaging, collection, analysis and preservation of digital evidence). More information to be found in the digital forensic leaflet (. https://anti-fraud.ec.europa.eu/document/download/2a0a34af-1c33-4103-80c4-801612c3ae90_en?filename=digital_forensic_leaflet_en.pdf).

What were the results of OLAF investigation?

OLAF opened a coordination case to provide investigative support and intelligence. OLAF worked closely with participating Member States and EFTA countries, with the European Commission's DG SANTE and with the JRC. The results of forensic investigations, based on site inspection, sampling and close examination of computers and phone records, demonstrated collusion between the exporter and the importer on:

- the use of sugar syrups to adulterate honey and to lower its price;
- the regular recourse of analyses in accredited laboratories to adapt honey/sugar blends to elude possible detection by clients and official authorities prior to import operations;
- the use of additives and of colourings to adulterate the true honey botanical source;
- the masking of the true geographical origin of honey by the forging of traceability information.

What is the situation in relation to EU origin honey?

An earlier EU wide coordinated control plan conducted in 2015-17 measured that 14 % of the analysed samples did not comply with established benchmark criteria to assess honey authenticity. As demonstrated by the results of forensic investigations by Member States authorities and OLAF, fraudulent behaviours also occur on the EU territory itself.

How many operators have been sanctioned?

To date, nine EU operators have been sanctioned. 340 tons of honey declared adulterated were either rejected at EU borders, recalled, withdrawn or downgraded to sugar syrups for the use in the industry.

How will the Commission act to ensure that honey is not adulterated by sugar?

Primary responsibility for ensuring compliance with the EU agri-food related legislation rests with the food business operators. Detecting and fighting food fraud is the responsibility of the Member States. Food business operators (including importers) operating in the honey sector at all stages of production, processing and distribution must:

(a) ensure that food placed on the EU market satisfies the requirements of the EU and national Food Law, which are relevant to their activities and ensure that the honey they are trading abides to the EU marketing standards;
(b) verify that such requirements are met (primary responsibility) and
(c) correctly identify the nature, composition, country of origin or place of provenance of the honey they are placing onto the EU market or that they are exporting outside the EU.

The results of the coordinated action demonstrate that some food business operators are not complying with their primary responsibility and thus jeopardise consumer confidence, undermine food value chains, create unfair competition for EU producers and operators and jeopardise food control systems' credibility. The Commission calls economic operators to comply with EU law's requirements and to apply for corrective actions to address the bad results observed that are detrimental to the honey sector reputation.

Detecting and fighting food fraud is the responsibility of the Member States, notably under the provisions of the Official Control Regulation. It provides a comprehensive set of tools to tackle fraud, including provisions for cooperation in case of violations spanning across borders and gives the Commission a role in coordinating and enforcing the effective application of these measures at EU level.

Official analytical methods to ascertain honey authenticity exist but are lagging behind and are lacking sufficient sensitivity to detect low and intermediate levels of sugar adulterations. Thus, fraudsters are adapting the level of adulteration with extraneous sugars in honey to exploit the weakness of the current analytical capabilities. The same analytical limitations apply to border controls. The methods used by the JRC in the frame of the EU coordinated action have proved to be useful to identify suspicions of fraud but are yet to be harmonised and standardised. Such a programme requires appropriate funding and some time for being effectively implemented in official control laboratories. The Commission has invited Member States to increase national market and borders controls but this call could not be maximised without addressing the above-mentioned limitations.

What assurances do consumers have that the honey they buy is not adulterated?

Consumers are not in a position to get those assurances by themselves without specialised instruments and knowledge. They may not necessarily know, even after consuming the product, that they are victims of food fraud. This is why the fight against fraud in the honey sector cannot be left to consumers, but instead must be taken up by the food business operators and Member States authorities. Consumers play a role in identifying and tackling food fraud by:

- checking the labels to determine if any information may be misleading;
- considering the price and knowing the difference between great discounts and prices that are *"too good to be true"* or
- contacting the operators to report concerns and ask questions about the information on the labels or on how the products are manufactured.

It is an obligation of food business operators operating in the honey sector at all stages of production, processing and distribution to provide such assurances by correctly identifying the nature, composition, country of origin or place of provenance of the honey they are placing on the EU market. This is vital from the perspective of protecting consumers and their interests but also to enhance the reputation of honey trade.

How will the revision of the "Honey Directive" address the issue of fraud in the honey sector?

Pending the validation of agreed analysis methods, the honey directive cannot be amended to include them. What can be done in the meantime is to more precisely inform consumers of the origin of the honey they buy. At present, the country of origin of honey must be labelled when fully obtained in one single country. However, in case of honey blends (honeys mixed from different origins) the Directive allows for the following indications:

- "blend of EU honeys"
- "blend of non-EU honeys"
- "blend of EU and non-EU honeys"

It is estimated that about 80% of honey sold in retail are blends. To improve market transparency and information to consumers the Commission is considering introducing the mandatory labelling of all individual countries of origin in honey blends.

How will the Commission engage with competent authorities in third countries?

On imports, the Commission has already added an authenticity requirement in the certificate that accompanies imported honey (see: Commission Implementing Regulation (EU) 2022/36 of 11 January 2022 amending Annex III to Implementing Regulation (EU) 2020/2235 as regards model certificates for the entry into the Union of consignments of certain live aquatic animals and products of animal origin (OJ L 8, 13.1.2022, p. 36)).

The Commission will also propose reinforcing controls on imports but at this point, as to the contrary of many other products of animal origin, the possibility for Member States to reinforce controls on identified fraudsters operating in third countries is hindered by the absence of obligation for listing the establishments authorised to export honey to the EU. Such listing would allow applying the provisions of Commission Implementing Regulation (EU) 2019/1873 of 7 November 2019 on the procedures at border control posts for a coordinated performance by competent authorities of intensified official controls on products of animal origin, germinal products, animal by-products and composite products (OJ L 289, 8.11.2019, p. 50).

Finally, the Commission is trying to engage with competent authorities of exporting countries. All the countries concerned will be notified of the results of the EU coordinated action and asked to conduct investigations and to sanction confirmed frauds appropriately.

Why doesn't the EU ban these imports?

The good operators should not pay for the bad ones. Half of the honey tested appeared not adulterated. Rather than banning imports, it is more important to tackle the unfair behaviours and the bad operators. To do that, a validated and accredited method to detect the adulterated honey is necessary for official controls and subsequent sanctions to take place. A list of third country establishments aiming at exporting honey to the EU would allow to target reinforced controls at EU borders, as necessary. This listing of third country establishments go hand-in-hand with their delisting in case of repeated non-compliances.

De-listing a third country due to the number of non-compliant consignments is certainly not excluded. It would effectively end the import of adulterated honey from a particular third country, but would remain a measure of last resort.