



CODEX COMMITTEE ON FOOD IMPORT AND EXPORT INSPECTION AND CERTIFICATION SYSTEMS

Twenty-third Session

DISCUSSION PAPER ON FOOD INTEGRITY AND FOOD AUTHENTICITY

(Prepared by Iran with assistance from Canada and the Netherlands)

Introduction

1. At the 22nd Session of the Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS22) held in Melbourne, Australia from 6-12 February 2016, the Delegation of the Islamic Republic of Iran described the difficulty for consumers to assess the authenticity of food and need for new methodologies and Codex guidelines to help authorities to address the dramatic increase in food fraud.
2. CCFICS22 noted that the issue of food integrity/authenticity was a very difficult problem to tackle, but nevertheless may require more attention from Codex. Many delegations expressed their support for new work to be carried out in this area as they had experienced various forms of food fraud, where the analytical methods for detection of the fraud by food authorities were either missing or not widely available.
3. CCFICS22 invited the Islamic Republic of Iran to develop a discussion paper on the potential for new work on this topic, with assistance from the Netherlands and Canada, including a review of existing CCFICS text for possible gaps.
4. CCFICS22 agreed to seek guidance from the Codex Committee on Food Labelling (CCFL), the Codex Committee on Methods of Analysis and Sampling (CCMAS), and from the Codex Alimentarius Commission (CAC) to consider potential issues that would not be covered by the mandate of CCFICS.¹
5. At the 43rd Session of CCFL, held in Ottawa, Canada from 9-13 May 2016, the Committee agreed to wait for the discussion and a decision from CCFICS before considering further.²
6. This discussion paper aims to provide a basis for discussion on possible new work at CCFICS23, in 2017.

Background

7. The World Food Summit of 1996 defined food fit for consumption as having three dimensions: safety, quality and authenticity, which can be used interchangeably with "food with integrity". Food fraud and adulteration are the opposite of food integrity.
8. The complexity of the modern food industry worldwide detaches consumers from the original food sources such that it is almost impossible for them to trace or confirm the integrity of a product.
9. Economically motivated adulteration (EMA) is the intentional adulteration of a food for financial advantage³. Also known as food fraud, it is an emerging international issue that includes adulteration, deliberate and intentional substitution, dilution, simulation, tampering, counterfeiting, or misrepresentation of food, food ingredients, or food packaging; or false or misleading statements made about a product for economic gain.⁴
10. EMA has a broad range of target foods, domestic and imported, including, but not limited to, processed fruits and juice, cocoa products, coffee, chocolate, meat and fish products, honey, and vegetable oil. Some examples are:
 - olive oil adulterated with less expensive oils

¹ Report 22nd CCFICS 6-12 February 2016, Melbourne, Australia

² Report 43rd CCFL 9-13 May 2016, Ottawa, Canada

³ US National Library of Medicine National Institutes of Health, Journal of Food Protection, April 2013

⁴ Elliott Review into the Integrity and Assurance of Food Supply Networks, Final Report, July 2014; p6 and 82

- horse meat sold as beef

11. EMA is a criminal activity that may not only pose economic risks, but also safety and health risks for consumers. The consumer, without the option of laboratory analysis, has little chance of discovering the adulteration on their own⁵. EMA incidents can have a significant negative impact on consumer confidence and on the reputation and financial viability of food businesses.⁶

12. Codex Alimentarius has dealt with aspects of preventing and detecting EMA in commodity standards (e.g. by defining composition) and by setting MLs for Melamine as well as by giving guidance on claims. However, to date Codex has not dealt with the issue directly.

Health and Safety

13. Food fraud poses significant food safety risks and has been shown to lead to severe illness and death.⁷ Examples with food safety implications include:

- melamine adulteration of infant formula
- use of aniline dyes in edible oils
- use of peanuts (an allergen) instead of various other types of nuts
- gempylotoxism due to consumption of escolar that fraudulently sold as "butterfish" or "white tuna".

14. Food fraud can also impact health and nutrition quality of food. For example the dilution of juices with water and sugar, or false nutrition claims such as low salt on foods with elevated levels.

Economy

15. Food fraud undermines consumer trust in their food and the food businesses and it can have a major detrimental impact on the economy, both nationally and internationally. For example, customers that buy horsemeat when they intend to buy beef are paying a high price for a cheaper substitute.⁸

16. The Grocery Manufacturers Association (GMA) estimates that fraud may cost the global food industry between \$10 billion and \$15 billion per year, affecting approximately 10% of all commercially sold food products. However, most researchers acknowledge that the full scale of food fraud is unknown and the number of documented incidents is likely a fraction of the true number of incidents since the goal of adulteration for economic gain is to not be detected.⁹

A Growing Trend

17. Food fraud is not a new problem. However, the overwhelming number of incidents and case studies, which are being tracked through systems such as the Food Fraud Database of the US Pharmacopeial Convention and the Food Fraud Network of the European Commission, indicate that food fraud is a growing trend. For example:

- i. USP Food Fraud Database¹⁰ has registered fraud sensitive ingredients since 1980. From 1980 to 2013, 1,801 cases were registered with 939 of those occurring between 2008 and 2013, almost 52% of the cases.^{11 12}
- ii. In 2011, Interpol and Europol launched the Opson operation, a two week operation involving police, customs, national food regulatory bodies and the private sector. They carried out checks in airports, seaports, shops and markets across the 57 participating countries¹³ in every region of the world. Opson V (2015/2016) resulted in seizing more than 10,000 tonnes and one million litres of hazardous fraudulent food and drink.¹⁴

⁵ Czech Agriculture and Food Inspection Authority, Adulteration of Food Current Problem, http://ec.europa.eu/food/safety/docs/official-controls-food-fraud_brochure_2015.pdf, 2015

⁶ Elliott Review into the Integrity and Assurance of Food Supply Networks, Final Report, July 2014; p6 and 82

⁷ Elliott Review into the Integrity and Assurance of Food Supply Networks, Final Report, July 2014; p11, 12, 14

⁸ EPRS European Parliamentary Research Service; Briefing 16/01/2014

⁹ Food Fraud and Economically Motivated Adulteration of Food and Food Ingredients, p3, Renée Johnson, January 10, 2014; <https://www.fas.org/sqp/crs/misc/R43358.pdf>

¹⁰ <http://www.foodfraud.org/>

¹¹ Inventarisatie van voedsel fraude, Weesepeel en Van Ruth, WUR 2015; <http://www.wageningenur.nl/nl/Publicatie-details.htm?publicationId=publication-way-343932323433>

¹² The cases registered in 2014 were not verified yet when this report was published in 2015

¹³ Next to almost all European countries in this fifth Opson operation among others also participated: Thailand, South Korea, Australia, Indonesia, Bolivia, Zambia, Burundi and Sudan.

¹⁴ <https://www.europol.europa.eu/content/largest-ever-seizures-fake-food-and-drink-interpol-europol-operation>

18. Possible explanations for the dramatic increase in food fraud include:
- a. globalization, which requires more diverse and longer food supply and production chains to meet the demands of growing urban populations;
 - b. global economics that enable criminal activity since remoteness and anonymity are often characteristics of such supply chains;¹⁵
 - c. differences in commodity prices, such as where substitution of one species for another can yield significant profit (e.g. 2012-13 market prices of horse meat compared to imported beef) or when events like crop failures lead to increased raw materials costs¹⁶;
 - d. positive attributes, such as country of origin, that attract a premium;
 - e. increased trade and consumer purchase through the internet;
 - f. use of non-specific analytical test methods for food quality control purposes and possibilities of undetected frauds in majority of cases (Identification of Food Items through a series of quality assays instead of having 2 separate analytical test methods for identification and quality assays); and
 - g. lack of wide range of validated food adulteration test methods for most of food items.
19. Science and new technologies have had a significant influence on consumer preferences and have provided food producers with opportunities for innovation. However, they pose additional risk and challenges for adulteration of food because they enable more sophisticated and difficult to detect methods of adulteration.

Potential Role for CCFICS

20. Addressing EMA is complex and requires a range of strategies and activities on the part of a competent authority, including prevention, verification of fraudulent practices, and enforcement. Starting with a strong regulatory foundation, uncovering fraudulent practices depends on communication and intelligence, strategic regulatory programs, robust laboratory methodology, and effective enforcement practices.
21. "Sharing knowledge in one market may prevent food fraud in another and ultimately helps protect public health and safety worldwide."¹⁷
22. The terms of reference of the Codex Committee on Food Import and Export Inspection and Certification Systems is:
- a) to develop principles and guidelines for food import and export inspection and certification systems with a view to harmonising methods and procedures which protect the health of consumers, ensure fair trading practices and facilitate international trade in foodstuffs;
 - b) to develop principles and guidelines for the application of measures by the competent authorities of exporting and importing countries to provide assurance where necessary that foodstuffs comply with requirements, especially statutory health requirements;
 - c) to develop guidelines for the utilisation, as and when appropriate, of quality assurance systems* to ensure that foodstuffs conform with requirements and to promote the recognition of these systems in facilitating trade in food products under bilateral/multilateral arrangements by countries;
 - d) to develop guidelines and criteria with respect to format, declarations and language of such official certificates as countries may require with a view towards international harmonization;
 - e) to make recommendations for information exchange in relation to food import/export control;
 - f) to consult as necessary with other international groups working on matters related to food inspection and certification systems;
 - g) to consider other matters assigned to it by the Commission in relation to food inspection and certification systems.
23. This positions CCFICS to play a key role in establishing international principles and guidelines designed to identify, manage, and mitigate fraudulent practices in food trade.

¹⁵ Defining the Public Health threat of Food Fraud, Spink and Moyer, NCFPD; <http://foodfraud.msu.edu/wp-content/uploads/2014/07/food-fraud-ffg-background-v11-Final.pdf>

¹⁶ Elliott Review into the Integrity and Assurance of Food Supply Networks, Final Report, Chris Elliott, July 2014; p96

¹⁷ <https://www.europol.europa.eu/content/largest-ever-seizures-fake-food-and-drink-interpol-europol-operation>

24. Some examples of existing Codex texts that provide principles and processes that include fair practices in food trade and could be relevant in addressing food fraud are (see Annex 1 for more information):

- a. *Principles for Food Import and Export Inspection and Certification* (CAC/GL 20-1995)
- b. *Guidelines for Food Import Control Systems* (CAC/GL 47-2003)
- c. *Principles for Traceability / Product Tracing as a Tool within a Food Inspection and Certification System National Food Control Systems* (CAC/GL 60-2006)
- d. *Principles and Guidelines for the Exchange of Information between Importing and Exporting Countries to support the trade in food* (CAC/GL 89-2016)
- e. *Principles and Guidelines for the Exchange of Information in Food Safety Emergency Situations* (CAC/GL 19-1995)
- f. *Guidelines for the Exchange of Information between Countries on Rejections of Imported Foods* (CAC/GL 25-1997)
- g. *Principles and Guidelines for National Food Control Systems* (CAC/GL 82-2013)

Role of other Codex Committees

25. Several Codex Committees play a role in protection against food fraud, including:

- The Codex Committee on Food Labelling is responsible for drafting provisions on labelling applicable to all foods and could contribute standards and guidelines to further support truthful and not misleading labelling. Some examples of relevant Codex texts are:
 - i. *General Standard for the Labelling of Prepackaged Foods* (CODEX STAN 1-1985)
 - ii. *General Guidelines on Claims* (CAC/GL 1-1979)
 - iii. *Guidelines on Nutrition Labelling* (CAC/GL 2-1985)
- The Codex Committee on Methods of Analysis and Sampling (CCMAS) elaborates sampling plans and procedures and considers specific sampling and analysis problems submitted to it by the Commission or any of its Committees. It could contribute methodology to help verify foodstuff adulteration. Some examples of possible Codex texts relevant to food fraud include:
 - i. *Guidelines for the Assessment of the Competence of Testing Laboratories Involved in the Import and Export Control of Food* (CAC/GL 27-1997)
 - ii. *Food Control Laboratory Management: Recommendations* (CAC/GL 28-1995)
- The Codex Committee on General Principles (CCGP) deals with such procedural and general matters as are referred to it by the Codex Alimentarius Commission. It could expand or develop new text for working principles for risk analysis for adulteration and other fraudulent practices for application by governments. An example of possible relevant Codex text:
 - i. *Working Principles for Risk Analysis for Food Safety for Application by Governments* (CAC/GL 62-2007)
 - ii. *Code of Ethics for International Trade in food including Concessional and Food Aid Transactions* (CAC/RCP 20-1979)

26. Additionally, there are a number of commodity committees and the Codex Committee on Nutrition and Foods for Special Dietary Use (CCNFSDU) that elaborate standards for specific foods, which provide a basis for determining fraudulent practices such as adulteration. Some examples of standards include:

- i. *Standard for Olive Oils and Olive Pomace Oils* (CODEX STAN 33-1981)
- ii. *Standard for Infant Formula and Formulas for Special Medical Purposes Intended for Infants* (CODEX STAN 72-1981)
- iii. *Standard for Honey* (CODEX STAN 12-1981)
- iv. *Standard for Canned Crab Meat* (CODEX STAN 90-1981)
- v. *Standard for Cheddar* (CODEX STAN 263-1966)

Integrated Codex Approach

27. Given the international nature of EMA, Codex has an important role to play.

28. As noted in the Report of CCFICS22 (REP 16/FICS), the issue of food integrity/authenticity is a very difficult problem to tackle, but which may nevertheless require more attention from Codex. To begin to address food fraud at the international level, the following approach is presented to CCFICS for consideration:

- i. carry out a full analysis of CCFICS texts to identify those standards that should address food fraud, and if there are any gaps in the ways food integrity/authenticity is covered in them
- ii. where gaps are identified, consider whether an amendment to the existing text will address it or if a new Codex text would be more effective
- iii. consider a compilation of relevant Codex texts that contribute to a system that protects against food fraud
- iv. request CCGP, CCFL, CCMAS, and commodity committees to review existing Codex texts to identify any gaps in relation the prevention, detection, verification, and action of food fraud, taking into account the work of CCFICS and new work in the area of food integrity and authenticity

Annex 1: Examples of CCFICS Codex Texts Relevant to Prevention and Management of Food Fraud*Principles for Food Import and Export Inspection and Certification (CAC/GL 20-1995)*

- Section 3 – Principles - Food inspection and certification systems should be used wherever appropriate to ensure that foods, and their production systems, meet requirements in order to protect consumers against foodborne hazards and deceptive marketing practices and to facilitate trade on the basis of accurate product description
- Risk assessment is for food safety, could be expanded to include fraud related risks

Guidelines for Food Import Control Systems (CAC/GL 47-2003)

- The document provides a framework for the development and operation of an import control system to protect consumers and facilitate fair practices in food trade while ensuring unjustified technical barriers to trade are not introduced.
- In the design and operation of food import control systems, precedence should be given to protecting the health of consumers and ensuring fair practices in food trade over economic or other trade considerations.

Principles for Traceability/Product Tracing as a Tool within a Food Inspection and Certification System (CAC/GL 60-2006)

- Recognizing the dual mandate of the Codex Alimentarius, traceability/product tracing is a tool that may be applied, when and as appropriate, within a food inspection and certification system in order to contribute to the protection of consumers against foodborne hazards and deceptive marketing practices and the facilitation of trade on the basis of accurate product description.

Principles and Guidelines for the Exchange of Information between Importing and Exporting Countries to support the trade in food (CAC/GL 89-2016)

- The exchange of information and associated assessments may be required where the risks associated with the traded commodity are high, whether they relate to food safety or fair practices in the food trade, and the necessary assurances cannot be gained by other mechanisms.

Principles and Guidelines for the Exchange of Information in Food Safety Emergency Situations (CAC/GL 19-1995)

- The Guidelines provide guidance for responding to food safety emergencies, which is defined as a situation, whether accidental or intentional, that is identified by a competent authority as constituting a serious and as yet uncontrolled foodborne risk to public health that requires urgent action.

Guidelines for the Exchange of Information between Countries on Rejections of Imported Food (CAC/GL 25-1997)

- The guidelines provide the basis for structured information exchange on rejections of imported food where the reason for the rejection is related to food safety and fair practices in food trade