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The Basics of Food Traceability

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Foreword

This publication, *The Basics of Food Traceability*, was produced by the World Bank Group's Ukraine Investment Climate Reform Project with financial support from the Swiss Confederation through the Swiss Development Agency (SECO).

This guide sets forth the concept and the main components of a traceability system in the food industry. It lists key traceability requirements, established internationally and within European Union (EU) legislation. It includes Ukraine's experience of implementing a food traceability system at the national level.

This publication will be valuable for businesses and government authorities responsible for food safety issues. It aims to facilitate quicker and broader implementation of traceability systems in the food industry.

In preparation of this guide, the authors drew from both international and national sources. They examined how traceability issues are handled in international and Ukrainian legislation and analyzed the experience of introducing traceability systems in the EU, China, the United States, Japan, and Australia. All sources are referenced in the guide.

This guide was compiled by Zhanna Pastovenska and Kateryna Onul, experts of the World Bank Group's Ukraine Investment Climate Reform Project.

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Introduction

Today, the need for traceability systems is the focus of debates in both the public and private sectors in countries implementing food safety reform. First, this is a requirement under national legislation; second, the experience of food businesses in developed countries and regions such as the EU, the United States, Canada, and Japan proves that a sound traceability system is a reliable tool for protecting both businesses and consumers.

Some food operators in countries implementing food safety reform view a mandatory traceability system as yet another regulatory burden; however, this is not the case. This faulty perception may be explained by the lack of readily available information on what a traceability system is about and how it may benefit a business. In some countries, reluctance by firms in the food industry to the implementation of a traceability system is fueled by the groundless belief that it would be too expensive.

This publication explains the concept of traceability systems in the food industry and discusses its main components. It includes a list of key traceability requirements established internationally and in European legislation. It also uses the case of Ukraine to illustrate implementation of food traceability on the national level.

An effective traceability system is a tool that allows a food business operator to trace food products along the entire food chain. The objective of traceability is to enable the quick identification of the source of a food safety problem and to take steps necessary to withdraw or recall a food product from the market with minimal interference in production. Without a traceability system in place, the process of food withdrawal/recall in the case of a food incident would be much more costly, time-consuming, and tricky, and would require considerably more effort and outlays of capital. With no traceability system in place, a food operator is more likely to respond to a particular problem in an untimely way, which could damage its operations and potentially endanger the entire food industry. Moreover, credibility and trust among business operators is unlikely without an effective traceability system at each firm.

Today, securing food safety is one of the most urgent tasks facing firms in the food industry. Because of high-profile scandals caused by the presence of melamine in baby formula, outbreaks of severe poisoning associated with *Escherichia coli*, dioxin, and microorganisms such as *Salmonella* or *Listeria* in foods, as well as the spread of infectious diseases such as *Foot-and-mouth disease* and *Spongiform Encephalopathy*, both the public and the global scientific community took a strong interest in preventing food safety hazards and finding ways to clearly identify sources of food safety problems.

Trade in food products is growing steadily across national borders. For many food market players, uncertainty in the flow of supplies and perishability of foodstuffs have increased the need for traceability systems on the widest possible basis to ensure a quick response whenever a problem is detected.

Records kept by an operating traceability system help to:

- Streamline the product withdrawal procedure and make it less costly
- Provide food consumers accurate information, for example, on the origin of food products
- Improve risk assessments on the part of competent inspection authorities

It should be noted that existing traceability systems do not make food products safe; rather, they serve as tools to address food safety problems.

Traceability also guarantees that certain features of a food product are preserved throughout the process of product handling. This is important, for example, in the production of kosher, halal, and organic foods.¹

A properly implemented traceability system enables a food producer to:²

- Focus on preventive measures rather than on responding to existing problems
- Implement monitoring and real-time risk protection
- Take well-grounded managerial decisions to reduce operating costs
- Significantly reduce the required response time in case of a food problem
- Increase consumer confidence

¹ EU Food Law Handbook 2014, 358.

² International Trade Center, *Traceability in Food and Agricultural Products*.



I

Food Traceability and its Components

In a broad sense, traceability is an instrument that helps to trace a product from the source of its origin to the consumer. It represents a system of keeping records of all steps in the product supply chain.³

The form and content of food traceability depend on the type of a food product, the production process, and other factors. Therefore, there is no single definition of a traceability system.

However, as a universal concept, a traceability system consists of three basic elements:

- (a) Traceability of the supplier (external traceability, one step back)⁴
- (b) Traceability of the processes (internal traceability)
- (c) Traceability of the buyer (external traceability, one step forward)

Keeping records about a product and the ability to provide them, when required, are central components of each of these elements.

Largely, the legislative requirements focus on the need to ensure external traceability. Introduction of internal traceability is fully managed and controlled by a business. This requirement is an integral part of the international standards—and a majority of private ones—such as ISO 22 000, FSSC 22 000, BRC, and IFS.⁵

³ Ibid.

⁴ The «one step back—one step forward» approach enables the identification of the business operator from which a product was supplied and the business operator to whom it was supplied.

⁵ For more details, see Section V.

The objective of having traceability provisions in the legislation is to make product recalls as precise as possible and promptly report food safety problems to the competent authorities. Typically, mandatory traceability requirements apply to all business operators involved in the food supply chain, namely:

- Business operators of the primary production
- Business operators responsible for storage of food products
- Brokers and traders
- Transport companies
- Distributors
- Retailers
- Catering establishments
- Food processors



II

International Regulatory Requirements for Food Traceability

Pursuant to the WTO Agreement on the Application of Sanitary and Phytosanitary Measures, any sanitary and phytosanitary measures (including traceability requirements) introduced by World Trade Organization (WTO) member states must meet the following requirements:

- Not to discriminate arbitrarily or unjustifiably between WTO member states
- Have no more restrictions on trade than is necessary for WTO member states to reach an appropriate level of sanitary or phytosanitary protection, given their technical and economic capacities
- Not to apply rules in a manner that constitutes a disguised restriction on international trade

The WTO encourages the adoption by the member-states of legal acts harmonized with relevant international standards, guidelines and recommendations established by:

- (a) The Codex Alimentarius Commission for food safety
- (b) The International Office of Epizootics (OIE) for animal health and zoonoses
- (c) The Secretariat of the International Plant Protection Convention (IPPC) for plant health

In the CAC/GL 60-2006 standard, the Codex Alimentarius Commission defines traceability as follows:

Traceability/product tracing is the ability to follow the movement of a food through specified stage(s) of production, processing and distribution.⁶

Additionally, in the aforementioned standard, the Codex Alimentarius Commission defines the principles of traceability as a necessary tool as part of inspections by competent government authorities.

A definition of the term “traceability” is also provided in the standard of the International Organization for Standardization (ISO), which treats traceability as ***“the ability to track the movement of food or feed at certain stage(s) of production, processing and distribution.”⁷***

Therefore, one can conclude that the key element in any traceability system is the ability to trace and identify certain products as they progress through the supply chain.

The basic elements of the traceability system are as follows:

- Product identification
- Information required to track the movement of the product/item through the supply chain
- Establishing a link between the product/item and the supply chain participants

The amounts of information needed to ensure traceability may vary, depending on the production sector and product type. In addition, there are different types of keeping records of such information (for example, a paper form, barcodes, or certain computer software).

Today, the concept adopted by most countries envisages that the national legislation should include the “one step back—one step forward” traceability requirement. This is a basic precondition for ensuring effective traceability in any field of production and for any type of product.

⁶ See CAC/GL 60-2006 Principles for Traceability / Product Tracing as a Tool Within a Food Inspection.

⁷ See ISO 22005:2007, 3.6, *Traceability in the feed and food chain—General principles and basic requirements for system design and implementation.*



III

EU Regulatory Requirements for Food Traceability

1. General food traceability requirements

In the EU, legislative requirements to the traceability are established in Regulation (EC) No 178/2002.⁸ In particular, paragraphs 28 and 29 of the Preamble to this regulation focus on the importance of introducing traceability procedures for food and feed:

(28) Experience has shown that the functioning of the internal market in food or feed can be jeopardised where it is impossible to trace food and feed. It is therefore necessary to establish a comprehensive system of traceability within food and feed businesses so that targeted and accurate withdrawals can be undertaken or information given to consumers or control officials, thereby avoiding the potential for unnecessary wider disruption in the event of food safety problems.

⁸ Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.

(29) It is necessary to ensure that a food or feed business including an importer can identify at least the business from which the food, feed, animal or substance that may be incorporated into a food or feed has been supplied, to ensure that on investigation, traceability can be assured at all stages.⁹

As per Article 3 of the Regulation (EC) No 178/2002, “traceability” means the ability to trace and follow a food, feed, food-producing animal, or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing, and distribution.

Minimum regulatory requirements to traceability are determined in Article 18 of the Regulation (EC) No 178/2002:

Article 18. Traceability

1. The traceability of food, feed, food-producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established at all stages of production, processing and distribution.
2. Food and feed business operators shall be able to identify any person from whom they have been supplied with a food, a feed, a food-producing animal, or any substance intended to be, or expected to be, incorporated into a food or feed. To this end, such operators shall have in place systems and procedures which allow for this information to be made available to the competent authorities on demand.
3. Food and feed business operators shall have in place systems and procedures to identify the other businesses to which their products have been supplied. This information shall be made available to the competent authorities on demand.
4. Food or feed which is placed on the market or is likely to be placed on the market in the Community shall be adequately labelled or identified to facilitate its traceability, through relevant documentation or information in accordance with the relevant requirements of more specific provisions.
5. Provisions for the purpose of applying the requirements of this Article in respect of specific sectors may be adopted in accordance with the procedure laid down in Article 58(2).

Article 18 of Regulation (EC) No 178/2002 requires food business operators to adopt a “one step back—one step forward” approach, that is, to be able to identify the business operator from whom they have been supplied a product and the business operator to whom they have supplied a product. Food business operators must have systems and procedures in place that will allow them to comply with this requirement and provide the competent authority with the information necessary to ensure traceability.

NB →
Regulation (EC) No 178/2002 does not contain requirements regarding the form and structure of traceability systems and procedures

⁹ Hereinafter in the text, the English version of EU regulations and directives from <https://eur-lex.europa.eu/homepage.html> is used.

In accordance with the Guidance on the Implementation of Some Articles of Regulation (EC) No 178/2002 (hereinafter, "the Guidance"),¹⁰ food business operators must:

- Have a system in place enabling them to identify the immediate supplier(s) and immediate customer(s) of their products
- Establish a link "supplier-product" to identify which products were supplied from a specific supplier
- Establish a "customer-product" link to identify which products were supplied to which customers

Moreover, part four of Article 18 requires that a food product should be adequately labelled or identified to facilitate its traceability.

Requirements of Regulation (EC) No 178/2002 are more focused on introducing traceability systems than on explaining how these goals should be achieved.

Article 18, therefore, does not contain specific requirements on what information should be recorded and kept by the food business operator to comply with the traceability requirement.

Meanwhile, the Guidance provides explanation on which data should be recorded and stored by the food business operator in pursuance to Article 18 of the Regulation (EC) No 178/2002:¹¹

- Name, address of supplier, and identification of products supplied
- Name, address of customer, and identification of products delivered
- Date and, where necessary, time of transaction/delivery
- Volume, where appropriate, or quantity

Regulation (EC) No 178/2002 does not specify time limits for keeping records of necessary data to ensure traceability. Guidelines provide explanation as to the time limits for keeping relevant information: "5 years' period is sufficient for keeping records on traceability."¹² However, records should be kept for a period of six months after the date of manufacture or delivery for food products with "use by" dates of less than three months, or products such as fruits, vegetables, and non-pre-packed products to be shipped directly to the final consumer. For other food products with a "best before"¹³ date, records should be kept for the period of shelf-life plus six months. For products without a specified durability date, such as wine, vinegar, chewing gum, a general rule of five years applies.



In accordance with Regulation (EC) No 178/2002, a food business operator is not obliged to have information about the immediate recipient of the food product if it is the final consumer

¹⁰ Guidance on the Implementation of Articles 11, 12, 14, 17, 18, 19 and 20 of Regulation (EC) №178/2002 on General Food Law. Conclusion of the Standing Committee on the Food Chain and Animal Health, January 26, 2010.

¹¹ Ibid.

¹² Ibid.

¹³ Minimum shelf life ("best before") and the "use by" date are indicated on food products labels in the EU in accordance with Regulation (EC) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers.



Special attention should be paid to the fact that the requirement for the introduction of traceability systems applies to all food products and not just food of animal origin

Regulation (EC) No 178/2002 has general requirements for traceability. Specific traceability requirements for certain types of food products in the EU are set forth in specific legislation. For instance:

- Regulation (EU) No 931/2011 laying down specific traceability requirements for food of animal origin¹⁴
- Regulation (EU) No 1337/2013 setting forth specific traceability requirements for certain types of meat¹⁵
- Regulation (EU) No 1224/2009 setting forth specific traceability requirements for fish products,¹⁶ and Regulation (EU) No 404/2011 with detailed traceability requirements for fish products¹⁷

2. EU traceability requirements for food of animal origin

Regarding food products of animal origin, the following information envisaged by Article 3 of the Regulation (EU) No 931/2011 should be recorded, kept and presented upon demand of a business operator receiving the food, or a competent authority, in addition to general information required by Regulation (EC) No 178/2002:

- An accurate description of the food
- The volume or quantity of the food
- The name and address of the food business operator from which the food was dispatched
- The name and address of the consignor (owner) if different from the food business operator from which the food was dispatched
- The name and address of the food business operator to whom the food is dispatched
- The name and address of the consignee (owner), if different from the food business operator to whom the food is dispatched
- A reference identifying the lot, batch, or consignment, as appropriate, and
- Date of dispatch

¹⁴ Commission Implementing Regulation (EU) No 931/2011 of 19 September 2011 on the traceability requirements set by Regulation (EC) No 178/2002 of the European Parliament and of the Council for food of animal origin.

¹⁵ Commission implementing regulation (EU) No 1337/2013 of 13 December 2013 laying down rules for the application of Regulation (EU) No 1169/2011 of the European Parliament and of the Council as regards the indication of the country of origin or place of provenance for fresh, chilled and frozen meat of swine, sheep, goats and poultry.

¹⁶ Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy.

¹⁷ Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy.

3. Traceability requirements set out in the Commission Implementing Regulation (EU) No 1337/2013

Commission Implementing Regulation (EU) No 1337/2013 sets out requirements for providing information to the final consumers or mass caterers on the country of origin or place of provenance for fresh, chilled, and frozen meat of swine, sheep, goats, and poultry.

The regulation contains labeling requirements for meat, compliance with which requires the introduction of a traceability system at all stages of the production and distribution of meat, from slaughtering to packaging, to establish a link between labelled meat and the animal or group of animals from which the meat was obtained.

To comply with the requirements specified in the regulation, a food business operator must have an animal identification and registration system at each stage of meat production and distribution. Such a system sets a link between the meat and the animal or the group of animals from which the meat was obtained. At the stage of slaughter, it is the slaughterhouse's responsibility to establish this link.

In addition, Regulation (EU) No 1337/2013 set forth requirements on providing information regarding the country where a particular animal was reared, the country of slaughter, and the meat batch number at all stages of meat production and distribution.

4. Traceability requirements for fish products set out in the Council Regulation (EU) No 1224/2009

Article 58 of the Regulation (EU) No 1224/2009 sets out requirements for the traceability of fishery products. Pursuant to this regulation, all lots of fisheries and aquaculture products must be traced at all stages of production, processing, and distribution, from catching or harvesting to retail sale. In addition, Regulation (EU) No 1224/2009 requires that all fisheries and aquaculture products should be adequately labeled to ensure traceability of each lot.

Business operators shall have in place systems and procedures to identify any business operator to whom their products were delivered. This information shall be provided to the competent authorities on demand.

To this end, Article 58 of the Regulation (EU) No 1224/2009 lists minimum labelling and information requirements to all lots of fisheries and aquaculture products:

*Minimum labelling and information requirements for all lots of fisheries and aquaculture products shall include:*¹⁸

- The identification number of each lot
- The external identification number and the name of the fishing vessel, or the name of the aquaculture production unit
- The FAO alpha-3 code of each species
- The date of catches or the date of production
- The quantities of each species in kilograms expressed in net weight or, where appropriate, the number of individuals
- The name and address of the supplier
- The information to consumers provided for in Article 8 of Regulation (EC) No 2065/2001: the commercial designation, the scientific name, the relevant geographical area and the production method
- Whether the fisheries products have been previously frozen or not

5. Indications or marks identifying the lot to which foodstuff belongs

An important requirement for ensuring the traceability of food products is the presence in the labeling of indications identifying the lot number to which the foodstuff belongs. In the EU, the issue of indicating a lot number is regulated by Directive No. 2011/91/EC.¹⁹

In accordance with the above Directive, a foodstuff may be marketed only if its label contains an indication or mark identifying the lot to which it belongs.

This requirement shall not apply:

- To food products which, on leaving the holding, are sold or delivered to temporary storage, preparation or packaging stations; or transported to producers' organizations; or collected for immediate integration into an operational preparation or processing system
- When the non-prepackaged foodstuffs are packaged at the point of sale to the end-consumer, including at the request of the latter
- To packaging or containers, the largest side of which is less than 10 square centimeters in area
- To individual portions of ice cream—the indication enabling the lot to be identified shall appear on the combined package

A lot number shall be preceded by the letter "L" except in cases where it is clearly distinguishable from the other marks on the label. When the date of minimum durability or "use by" date appears on the label, reference to a lot does not need to appear on the foodstuff provided that the date indicates at least the day and the month, in that order.

¹⁸ Abstract from Article 58 of the Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a community control system for ensuring compliance with the rules of the Common Fisheries Policy.

¹⁹ Directive 2011/91/EU of the European Parliament and of the Council of 13 December 2011 on indications or marks identifying the lot to which a foodstuff belongs.

6. Internal traceability in the EU

Internal traceability allows to clearly locate the raw materials and components of the finished food product within the production process and the enterprise. Since the final food product is made from different raw materials, processed, combined with other components, and re-packaged, it must have its own identifier or a combination of numbers and letters by which it can be tracked. To ensure traceability, there should be a clear link between the finished product and its ingredients (for example, butter, bread crumbs, sauces, marinades, salt, and other components of the food product) and packaging materials.

To illustrate, consider the production of baby food formula. To ensure internal traceability, it is important to organize and retain records about the production process, particularly in regards to the development of the product, raw materials and additives making part of the product, production process control, control of finished products, and so forth. Manufacturing companies need to record key data and parameters throughout the production process while ensuring that all records are actual, reliable, and enable efficient food traceability at every step of the production chain. A manufacturing enterprise must set requirements for such records at its own discretion, considering the type of records and the level of detail required to guarantee the baby food safety and quality.

Meanwhile, it should be noted that the presence of internal traceability is not mandatory in accordance with the EU legislation.

Regulation (EC) No 178/2002 does not contain requirements for the mandatory establishment of the link between “incoming and outgoing” products, such as those for internal traceability, or for the records to be kept for identifying how batches are split and new batches or new products created. Regulators entitle business operators to independently determine the need for the introduction of internal traceability at an enterprise, depending on its size, volumes of output, and products used in production. However, many researchers of European law believe that the option of traceability constitutes a legislative gap.

Moreover, according to the Guidance,²⁰ EU legislation is interpreted in such a way that the introduction of internal traceability would contribute to more targeted and accurate withdrawals, if necessary. In addition, internal traceability is a means of controlling and optimizing production, for example, by better managing inventories or by identifying reliable and unreliable suppliers.

²⁰ Guidance on the Implementation of Articles 11, 12, 14, 17, 18, 19 and 20 of Regulation (EC) N° 178/2002 on General Food Law. Conclusion of the Standing Committee on the Food Chain and Animal Health, January 26, 2010.

IV



Regulatory Requirements for Food Traceability: Case of Ukraine

In the Ukrainian legislation, traceability requirements are established by the Law of Ukraine On Basic Requirements for the Safety and Quality of Food Products of December 23, 1997, No. 771/97-BP, as amended on April 4, 2018 (hereinafter referred to as “the Law”).

According to Article 1 of the Law: *“Traceability is the ability to identify the food business operator, time, place, subject, and other terms of supply (sale or transfer) sufficient to establish the origin of foodstuffs, food-producing animals, materials in contact with foodstuffs, or any other substance intended to be, or expected to be, incorporated into foodstuffs at all stages of production, processing, and distribution.”*

However, the term “traceability” used in the Law does not fully match the definition provided in the EU Regulation (EC) No 178/2002. In the above regulation, the term is directly linked to foods, feeds, food-producing animals, or substances intended to be, or expected to be, incorporated into foodstuffs or feeds, while the definition provided in the Law is linked to the food business operator.

Traceability requirements for food business operators are established in Article 22 of the Law. It implies that food business operators should be able to identify other business operators supplying them with foodstuffs and objects of sanitary measures on a “one step back” principle, as well as other business operators to whom they supply foodstuffs and other objects inputs of sanitary measures, based on the “one step forward” principle.

However, the Law does not require introduction of internal traceability by food business operators.

To ensure the highest standards of food safety and effective implementation of the “farm-to-table” principle, a food product must be traced along the entire food chain, and therefore both external and internal traceability is imperative. Availability of internal traceability is one of the elements of an effective traceability system (Zhang and Bhatt 2014). Moreover, the Law does not establish special requirements for the labeling of food products to ensure traceability. According to the Law, the information necessary to ensure traceability should be kept for six months from the end date of sale of a foodstuff indicated on the labelling.

Considering that current Ukrainian legislation contains only minimal traceability requirements, food business operators interested in implementing an effective traceability system can be guided by best European and international practices.

According to these best practices, Ukrainian food business operators should take the following key steps to ensure traceability:

- Comply with the legislative requirement “one step back—one step forward”
- Introduce an internal traceability system at the enterprise and determine what information should be recorded and kept to comply with this requirement based on the size of the enterprise, the type of products it produces, and the type of food products used in production
- Identify the batches of foodstuff and raw materials used for production in a manner that allows tracking of the physical movement of the foodstuff along the food chain
- Establish and maintain accurate traceability records that can be quickly retrieved and presented for scheduled inspections or investigations at the request of the appropriate authorities

To develop an effective traceability system at an individual enterprise or one of its facilities, one can use the recommendations set forth in the Bulletin,²¹ which provides a two-step approach.

²¹ International Trade Center. *Traceability in Food and Agricultural Products*.

Step 1: Create an operations diagram:

- Identify the company's main activities
- Map these activities in a flow chart
- List all inputs/operations and outputs for each stage of production
- Analyze the flow of a product to identify its key points:
 - Performed operations
 - All changes to the product or packaging
 - Transport, movements, warehousing, or writing-off
 - Combinations (components brought in at a certain point of the process) and mixes

It is important to identify how continuity of information will be guaranteed in all stages of the production process.

Step 2: Write procedures to be followed

For each activity in the operations diagram:

- Identify the type of activity by name and number
- Briefly describe the performed activity
- Identify/assign the person responsible for the activity, the data to be recorded, and the traceability data documentation to be kept
- Explain how to capture/record traceability data
- Indicate where data must be stored

The approach outlined in the Irish Guidance Note on Product Recall and Traceability²² may also be used. It provides step-by-step recommendations on developing traceability systems for an individual enterprise and includes the following key steps:

- 1) Define the scope of the traceability system
- 2) Decide on the optimal batch size
- 3) Identify the traceability information needed, including:
 - a) Information that must accompany food ingredients used by the food business operator
 - b) Internal process information needed to maintain traceability through food processing or preparation, where applicable
 - c) Information that must accompany distribution of the food produced by the food business operator
- 4) Identify a period for keeping the traceability records and design a record retrieval procedure
- 5) Establish procedures for reviewing and testing the traceability system
- 6) Document the traceability system

²² FSAI. *Guidance Note No. 10 Product Recall and Traceability.*



Traceability Requirements in International and Private Standards

Increasingly, food producers are introducing food safety management systems. Most food producers in countries implementing food safety reform are implementing ISO 22 000 and FSSC 22 000. Additionally, the manufacturers considering entry to EU markets tend to implement BRC²³ and IFS²⁴ standards. These standards require the mandatory introduction of an internal traceability system.

ISO 22 000 contains specific traceability requirements for an enterprise, namely the need for a system that allows identification of the product batch number and its link to the batch of raw materials, as well as to the records on their processing and delivery. According to this standard, an enterprise must have both external and internal traceability in place. The FSSC 22 000 standard has similar requirements for traceability.

BRC requires the introduction of a traceability system that allows the tracking of (a) raw material from the supplier through all production processes and (b) the shipping of the finished product to the buyer. All traceability procedures should be documented and should contain a clear description of how the traceability system operates, a list and explanation to the labeling used and the records to be kept, and product flow records. The identification of products and materials can be provided by either manual marking or computerized bar-coding systems.

²³ The British Retail Consortium Global Standard for Food.

²⁴ German Standard for Food Quality and Safety Audit.

To determine and validate the traceability system in place, an enterprise should test the system annually at a minimum. Under this standard, the traceability system must produce all necessary product-related information within four hours.

IFS requires the availability of both external and internal traceability, emphasizing that traceability must be ensured at all stages of production, including unfinished processes and the handling of the product after production.



Conclusions

Producers cannot deny that food production processes are becoming more and more complex and include increasingly longer and more complicated supply chains. For example, a candy manufacturer today often sources ingredients from different parts of the world while selling its finished products both domestically and in markets tens of thousands of kilometers away. From a bottom-line standpoint, this is a positive development. As barriers disappear, trade becomes more and more international.

However, this has led to food safety problems. The more complicated the production process, and the longer the distance from manufacturer to consumer, the more difficult it is to react promptly to a hazard. That is why the introduction of effective approaches and tools to rapidly detect potential hazards, places of origin, the extent of potential dispersion, and consumers at risk—as well as the ability to respond quickly—is an integral part of an effective food safety management system. In other words, a food safety management system cannot be truly effective unless it includes a well-established traceability component.

From the standpoint of business, a traceability system is a life jacket that helps a company remain afloat in the event of food safety incidents. A traceability system enables producers to prevent production of dangerous products, terminate production or suspend sales when a threat is detected after a product has entered the market, and inform consumers and recall the product in a timely way and at the lowest cost.

For the state, a well-established traceability system is an important tool for protecting the lives and health of the population in an environment where international trade in food products is constantly growing. This was the reason many countries introduced legislative requirements for ensuring traceability of food products and components based on the “one step back—one step forward” principle. The relevance of traceability for guaranteeing the safety of food products is confirmed by the fact that the relevant norms are part of Codex Alimentarius and ISO international standards, use of which is encouraged in WTO agreements.

However, as evidenced in practice, when an approach or system has proven effective and efficient, businesses do not need an order from the state to implement it. Entrepreneurs will adopt the system themselves even in the absence of regulatory requirements. This is the experience with the traceability systems. While the national laws in many countries require the establishment of external traceability, progressive businesses have long been introducing internal traceability in addition to external ones. Moreover, external and internal traceability systems have become integral parts of the majority of private standards for food safety management systems.

Creating a traceability systems is not rocket science. Indeed, the cost of building a system depends on the complexity and number of production processes. Sometimes, creating a traceability system requires nothing than a notebook, a flipchart, and a pencil, or a Word or Excel application. The most important thing to analyzing all the benefits of introducing traceability in operations. After this, the decision to begin building the system will be taken quickly.

In many developing countries, the food business is entering global markets with confidence. Export potential is constantly expanding, new markets are opening, and food products are becoming part of global food chains. Increasing and maintaining competitiveness in global markets requires considerable effort. The experience of other countries shows that companies with a high level of consumer confidence usually win the competition. The ability to quickly, reliably, and effectively track the movement of products along the entire food chain and to prove the origin of all its components drives this confidence. That is, an effective traceability system at an enterprise can significantly boost its competitiveness. Therefore, the implementation of traceability is one of the primary preconditions for the successful integration of a national food sector into an increasingly complex global food system.

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