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TRACEABILITY

FOOD SAFETY AND QUALITY AUTHORITY OF THE GAMBIA

| Kotu East, Serrekunda, The Gambia

TRACING IN FOOD PRODUCTION, FOR THE FOOD SAFETY AND QUALITY AUTHORITY AND FOOD BUSINESSES

PURPOSE OF THIS DOCUMENT

This document is directed toward producers of primary production, food processors, distributors, retailers, restaurant, information related companies, organization and industrial associations of prospective companies and individuals who plan to introduce traceability system. This document supports the introduction of the traceability system by including fundamentals, procedures, and so forth. The introduction of a food traceability system by the food operator should be voluntary (unless otherwise requested by The Food Safety and Quality Authority Of The Gambia) and their responsibility. And this "Handbook" should be a framework for designing and implementing a reliable system. In addition, the "Handbook" offer basic information when developing or revising guidelines according to specific items and/or for specific industries.

INTRODUCTION

The International Organization for Standardization (ISO) definition of traceability (that appears in ISO 9000/2000): "Traceability is the ability to trace the history, application or location of that which is under consideration".

Traceability of food means the ability to track any food, feed, food producing animal or substance that will be used for consumption, through all stages of production, processing and distribution. Traceability is a way of responding to potential risks that can arise in food and feed, to ensure that all food products in the country are safe for consumption. It is vital that when The Food Safety and Quality Authority of The Gambia or food businesses identify a risk they can trace it back to its source in order to swiftly isolate the threat and prevent contaminated products from reaching consumers.

Traceability system is the ability to accurately record and report on what ingredients, processes, machines, operators, recipes etc. were used in the production of consumer goods. Food processing facilities need to be able to assure consumers, shareholders and The Food Safety and Quality Authority of The Gambia that safe and quality ingredients are used in the production of food for human consumption.

This concept makes it important to be able to identify any product inside a food business, from the acquisition of the raw materials, during production transformation and distribution.

INTERNATIONAL STANDARDS AND GUIDELINES

ISO 9001:2000 (JIS Q 9001:2000)

This is an International Standard model for quality management and quality assurance determined by ISO (International Organization for Standardization). Ensuring traceability could be added as one of the requirements.

ISO 22000:2005

This is a standard for food safety management systems. The analyzing methods of food hazards are introduced from HACCP, the principles of which were determined by the Codex Alimentarious Committee. And the approach of the management system is introduced from ISO 9001. 7.9 is the requirements of traceability systems.

DEFINITIONS

Food: all substances and products that are intended for human consumption this includes foods or beverages or are reasonably expected to be consumed by humans.

Food traceability: the ability to follow the movement of food through specified stage(s) of production, processing and distribution

Definitions of the traceability in ISO 9000:2005

"ability to trace the history, application or location of that which is under consideration."

Note: when considering product, traceability can relate to

- The origin of materials and parts
- The processing history, and
- The distribution and location of the product after delivery

Internal traceability

Traceability between the received unit (or raw material unit) and the sold unit (or product unit) at the food operator level

One-step-back traceability

Ability to identify the supplier of the units they have received

One-step-forward traceability

Ability to identify the buyer of the units they have sold if the material flow and the business flow differ, we will follow the material flow and call the one-step-forward operator as "buyer" in this document

Chain traceability

Traceability throughout the food chain

Traceability system

A series of mechanisms for traceability, by which "identification", "link", "records of information", "collection and storage of information", and "verification" are performed. The system is composed of rules (promises and agreement) and procedures, documented procedures, organizations/systems, and process and management resources (personnel, financial resources, machinery equipment, software, technologies and techniques), regulations and education / training. A traceability system can also use information system technologies for electronic data entry and database management services. However, just having an information system would not be sufficient to establish a traceability system. Also it is possible to construct a traceability system without using electronic information system databases. (For Reference)

- Definitions of traceability system in ISO/DIS 22005 (November 20, 2006,N36 Rev1)

"Organization of data and operations that is capable of maintaining desired information about a product and its components through all or part of its production and utilization chain"

ID

The mark used for identification

Link

Establishing connections between products and information Products and information may connect in the following patterns;

- product and product,
- product and information,
- information and information.

Nonconformity

Non-fulfillment of a requirement is a "need or expectation that is stated, generally implied or obligatory". Requirements include internal rules within a food operator's business, specifications promised to the clients, laws and regulations, standard, etc.

IMPORTANT ASPECTS OF A TRACEABILITY SYSTEMS

Traceability is fundamental for quality management in any food business. It is required to document procedures orientated towards the identification of all products in a food business. It is a tool not a solution. It should be part of the food business and it should not be treated separately

It recompiles and compares specific information and links it to technological processes, ingredients, raw materials and products

It should provide relevant information about any food product placed in the market by a business, it also gives information to a business that helps to control distinctive activities. although it might be used when a problem occurs, it should not be mistaken as a mechanism to withdraw products from the market.

FOOD IDENTIFICATION AND LINKAGE

Food business operators at each stage of food chain should at least set a rule to identify food (products and raw materials) and its suppliers and buyers, and to interlink in advance. Also as for food handling, it is necessary for them to identify the food, keep and store the linking records.

THE PROCEDURE OR TRACEABILITY SYSTEM THAT IS ADOPTED INSIDE EACH FOOD BUSINESS SHOULD TAKE INTO ACCOUNT

- Identification of the product, in a unique and easy way
- Information about the product:
  - Raw materials and all the inputs
  - The way in which it was handled, produced, transformed and presented
  - Origin and destination with their corresponding dates
- Relationship between identification and the data on it. Traceability is linked to business information and internal processes and self-monitoring.

DEFINITIONS

Recall: Procedures to remove a product from the market possibly out of control or contaminated and possibly, has already reached the final consumer

Track: Current location of products in the supply chain
Trace: History has been a product where and when

Product authentication: Confirmation that a product is genuine, not altered
Inventory: Monitoring and managing the inventory of products in different locations

Returns: Returned product from customers confirming they were legitimately purchase

Lot: set of sales units of a foodstuff produced, manufactured or packaged in practically identical circumstances

SCOPE AND TYPES OF TRACEABILITY

Depending on the type of activity, traceability can be:

BACKWARD TRACEABILITY OR TRACKBACK

whose objective is the identification of the products received by the food business and suppliers. For it is necessary to know the movements experienced by these products from their origin (form of production, storage, transport, quantities, times, etc.)

FORWARD TRACEABILITY OR TRACEFOWARD

it entails identification of product to deliver and the customer the delivery is made to (amount, means of transport, transport, dates, etc.)

TRACEABILITY PLAN

It is to describe a system that correlates processed products and their destinations, raw materials and intermediate products. To this end, the following aspects should be considered:

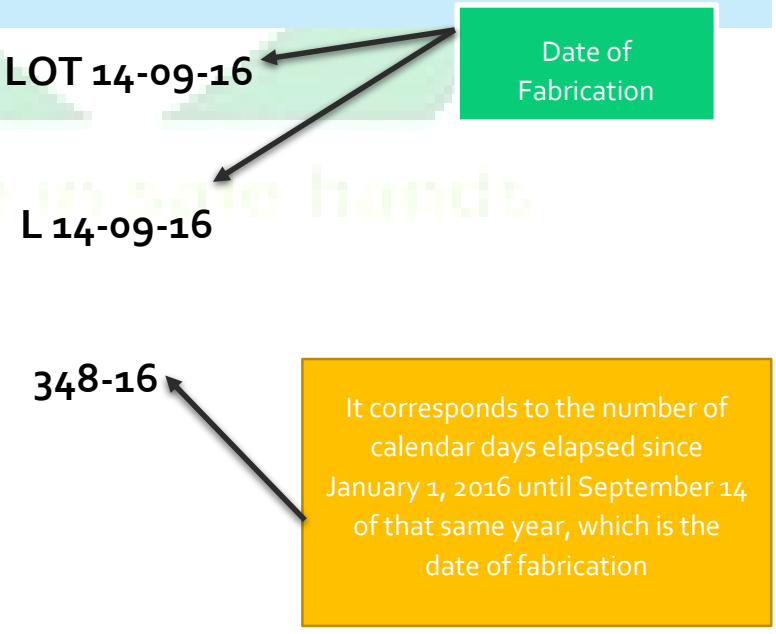
a) Description and Identification of products the food business receives, raw materials, ingredients, additives, packaging, labels, etc.
b) Description and identification of semi-finished products: pasteurized, frozen etc.
c) Description and Identification of final products produced or packaged in the company. That is products intended for the final consumed, this system represents the LOT.
d) During expedition, determine a system that maps the lot with its immediate recipients: recipients, departure, quantities, etc.
e) Description of routes and communication channels preset with each vendor and each client to ensure an effective system for removing an unsafe product from the market.
f) Description of verification activities that ensure compliance and effectiveness of the actions described (what? how? where? how often? person in charge? And records)

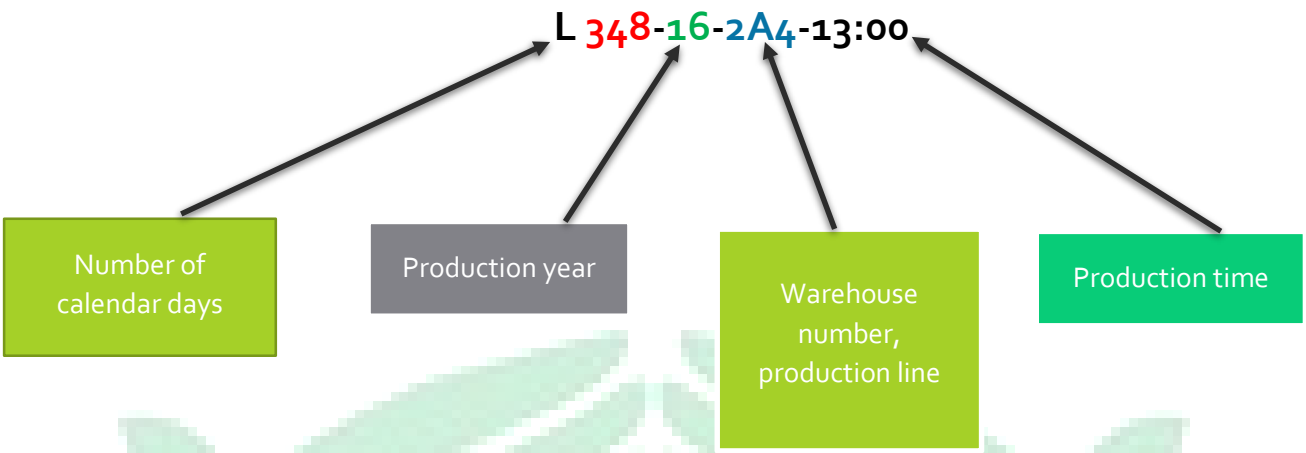
RECORDS

Record of Source and input of raw materials and other materials, output and shipment of final products, process data are essential. Records should allow to answer the following questions.

- The number of products that have been developed.
- The raw materials, origin date and quantity.
- What are the technical data and processes that the product has undergone? With which machines.
- To which places and in what quantities has the product been distributed product. remaining stocks, and has there been any returns/devolutions.

DEFINING A LOT





LABELING

The traceability system requires that the product is properly identified and that the information is adequate through appropriate labeling. Labels in a product can be written by hand, bar code or radio frequency chips.

BARCODE. Comprised of vertical parallel lines of different thickness and spacing. Quickly recognize an article in unique and globally in the logistics chain through various reading systems existing in the market (laser, CCD, imager, 2D, etc.). They can be:

LINEAR.

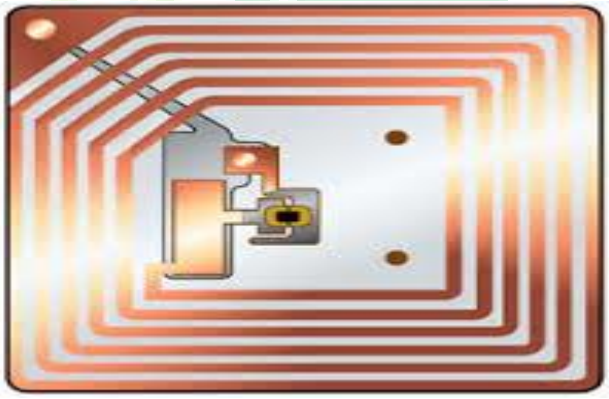
- EAN (European Article Number); the most common is the EAN 13, consisting of 13 digits divided into four parts: country code, company code, product code and check digit.
- UPC code (Universal Product Code) of 12 digits for products retailed in the US and Canada; products in retail outside these countries have the EAN bar code
- The GS 128 code (formerly UCC (Uniform Code Council) / EAN 128) is linear and high density; is the most commonly used for identification of logistical and commercial units. The label code is standardized, but the information it contains is also available as is humanly readable

TWO-DIMENSIONAL.

The most commonly used is the QR code; a matrix designed for quick scanning of information through applications (eg, cell phone)

CHIPS RADIO FREQUENCY (RFID) Use of micro integrated circuit (IC) memory or microchips, attached to the product through which you can track its location. For its operation it is required to have :

- An electronic label or tag consists of a chip and an antenna mounted integrated and very small size gives it the flexibility to be inserted into a sticker
- A reader tags, manual or remote
- A database



ALTERNATIVES TO IMPLEMENT A TRACEABILITY SYSTEM

- Manual with no information system
- Manual with Information System
- Automated barcode
- Automated EPC (Electronic Product Code)

MANUAL WITH NO INFORMATION SYSTEM

- It is based on the maintenance of physical records (eg. Formats), about the lots that the company produces or handles
- It implies a good physical file information to facilitate the search when required
- It implies time by the labor for handling and file format
- When the company is large, retrieve information about a batch or products involves spending significant time
- There is a risk of handling errors information in formats
- Low capital investment to establish system

MANUAL WITH INFORMATION SYSTEM

- It is based on maintaining records in an information system about the lots that the company produces or handles
- It involves handling physical formats in the process, which are then scanned into the system.
- Time required for handling formats and scanning system
- The response speed increases because the system allows faster information.
- The risk for errors is maintained in handling formats and digitizing errors in the system
- Requires medium capital investments in system assembly

AUTOMATED BARCODE

- It is based on maintaining records in an information system about the batches the company produces.
- It means having a robust information system supporting the generation and data capture with barcode and storing traceability information.
- The filling time formats and digitization in the system is reduced by the capture process.
- The response speed is increased since information can be online (eg. Using Radio Frequency) the risk for scanning errors is reduced, but the risk of errors remains at the time of capture
- Barcode requires medium capital investments in assembling the system, product labeling and other system elements

AUTOMATED EPC (ELECTRONIC PRODUCT CODE)

- It is based on maintaining records in an information system about the lots that the company produces, based on the EPC technology.
- It involves having a very robust information system that supports the EPC technology and storage of information traceability
- The filling time of scanning formats and reducing system is almost imperceptible
- Maximum speed of response given information that allows completely online
- Eliminating of errors in data capture
- It requires very high capital investments in system assembly and products with EPC

RECALL PROCEDURE

A written recall procedure should be develop to ensure that if a food which is known to present an actual or potential unacceptable health risk to the consumers has entered the food chain the food can be retrieved quickly and completely, the recall procedure must meet the requirements or guidelines for recall issued by The Food Safety and Quality Authority of The Gambia. The recall procedure should be tested periodically to determine its effectiveness and should be base of identification records and the traceability program. The procedure should include the following information:

- The people including their alternatives if they cannot be contacted who will be responsible for conducting the recall and the people who should be available to provide information along with the specific responsibilities of each individual.
- The details for contacting the appropriate senior management or other personal with assigned responsibilities including contact information for these individuals during periods outside of regular working hours.
- The details for contacting and communicating With The Food Safety and Quality Authority of The Gambia with all consumers who would have received the food being recalled with the news media.
- The personal designated to be liaison with officials from the food safety authorities
- The records and other information that should be retrieved during a food recall the required information related to the food including its
    a) common and brand name, item number, lot number, batch number, expiry date ,product code, packing materials, container size and packing format
    b) a list of all locations with addresses, telephone numbers and contact information of the organization or individuals to who the food has been shipped including all ware houses for its storage, all costumers including distributors ,food service institutions and restaurants.
    c) Identification of all raw materials, ingredients, processing aids, storage and packing materials used in handling the food product.
- The procedure to be followed to determine which production lots or batches of the food are affected to ensure that the scope of the recall targets all the affected food but only the affected food.

IMPORTANCE OF TRACEABILITY FOR BUSINESSES

- It's Quality Control
- It is consumer safety
- Helps control logistics flows
- In case of a problem, it facilitates determining the scope of responsibility of individuals
- It allows combat smuggling
- Competitive advantage to the client

- Inclusion in international markets