

SECTION 1

The Need for Traceability

From 1 January 2005, Regulation 178/2002 introduced a new traceability requirement to all food and feed businesses across the EU. To meet this new legal requirement, food businesses must be able to provide records of inputs and outputs when required by EU enforcement officers within a reasonable time period.

Defining Traceability

An important aspect of quality and safety assurance is to be able to trace products, ingredients, suppliers, retailer, processing operations or storage procedures through the food production chain. This is especially relevant when failures occur.

The term "traceability" has been introduced to describe systems in which information about a particular attribute of a food product is systematically recorded from creation through marketing. For instance if a particular batch of cold-smoked fish has caused an outbreak of listeriosis, authorities will want to trace the product in question to the producer to establish re-call procedures.

Traceability systems have been used for many years in several other sectors such as the aviation, automobile and pharmaceutical industry. As the food chain has lengthened from local production, processing and consumption to more global commercial opportunities, the need to transfer information related to production and public health and the complexity of these transfer vehicles have expanded. With the increase in complexity, the consumer wishes to know the origin (species, place, condition of rearing or catch), the transformations that have taken place and the distribution of their food products.

Quantitative risk assessments typically aim at covering the whole "farm-to-fork" or 'ship to dish' chain and at any point in time, one must therefore be able to trace an event or a product.

ISO 9000 (ISO, 2000) defines traceability as "*the ability to trace the history, application or location of that which is under consideration, while ISO 8402:1994 defines it as "the ability for the retrieval of the history and use or location of an article or an activity through a registered identification"*.

The European Union define it as "*the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be*



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incorporated into a food or feed, through all stages of production and distribution' (Regulation (EC) No 178/2002, Article 3,15; Article 18)".

Codex Alimentarius, at its meeting in July 2004, in Geneva, proposed that the following definition of traceability be added to its standard:

"Traceability/Product tracing: the ability to follow the movement of a food through specified stage(s) of production, processing and distribution"

From January 1, 2005, traceability systems are mandatory for all businesses operating within European Union food supply chains, based upon a one up, one down principle. This means that a business must be able to identify all suppliers and the food, feed or food ingredients they supply to the business and all recipients and the food, feed or food ingredients the business supplies to the recipients. A similar requirement is being introduced within the United States, over the period June 2004 to June 2005, as a result of a proposal contained within the Bio Terrorism Act (section 306).

When considering a product, traceability can relate to

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

In general, the term "trace" is used when the history of product origin is searched and the term "track" is used for searching its history after delivery. Moe (1998) described the terms used in traceability studies as

- a step is referring to a discrete operation or location at which some task or process is performed on the product
- a chain is composed of the sequence of these steps, and
- a product can be any material at any stage of processing, e.g. a live fish, a whole fish, or a processed fish product.

In simple terms, it means having the ability to answer 5 key questions about inputs, production, and outputs:

1. Where did it come from?
2. How did it get here?
3. What did we do with it?
4. Where did it go?
5. How did it get there?



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Apart from the legislative requirements, traceability may be advantageous within a company allowing different raw materials to be directed to production of different categories of product - and subsequently allowing the company to determine if yield, quality, or safety of a particular category was related to a particular raw material - or a particular ingredient.

Since traceability systems basically are record-keeping systems, these are in some form required for a Hazard Analysis and Critical Control Point (HACCP) System to be implemented. However, the record keeping step of the HACCP system aims at documenting that the system is under control, that corrective actions are taken when pre-defined critical limits are exceeded, and that recall of unsafe products is undertaken when required. A fully implemented traceability system is broader and also covers a range of aspects not related to safety.

Finally, implementation of traceability systems, although sometimes costly to implement, can also have an economic benefit to the producer. The whole chain, from net to retailer can be managed in a more effective way, when the traceable information is used actively to enhance mutual trust and cooperation between steps in the chain. Significantly less time (and money) can be spent on quality checks and storage, and when recalls are to be carried out, traceability is an insurance that the company limits the loss, and protect its brand on the market.



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