

## Traceability in Food Industry

This article is based on presentation by Ms. Shashi Sareen (Head Quality-Aditya Birla Retail Ltd.) at Fi -India 2008

“Supply increases with Demand” – This is very well known by all and is true with traceability of food products too. Since the consumers are demanding for more information regarding the food product that they consume, the industry is compelled to have better standards and system to provide information demanded by the consumer right from the source of raw material to the point of consumption. Collecting information becomes much easier by having traceability and it is true the other way too, i.e. when they trace their food products, they collect a lot of information too.

### Importance of Traceability:

The label claims are made to let the consumers make an informed choice. This is an important tool which provides information to the consumers; this information is to support the authenticity of the label claims. When a label claims the product to be organic, GMO, home made food, veg/non veg, the product can be traced to the farm, to genetically modified organism, to the home where it has been made and to the source of the ingredients. Accurate product description facilitates trade, which in turn provides useful to business development & expansion. Accurate product description and label claims create an identity of the product (Organic, Home Made, etc), and traceability helps to preserve this identity

Another very important function of this system is that it enables the company to trace back unsafe food through the food chain so that source of problem can be identified and dealt with. Traceability systems help firms isolate the source and extent of safety or quality control problems. This helps reduce the production and distribution of unsafe or poor-quality products, which in turn reduces the potential for bad publicity, liability and recalls. The better and more precise the tracing system, the faster a producer can identify and resolve food safety or quality problems. A firm's traceability systems not only helps minimize potential damages for individual firms- it also helps minimize damages to the whole industry and to upstream and downstream industries.

Within the business too, it provides information which assists in process control and management. Traceability improves the supply management and decreases the expenses of the company towards supply-related activities, including the movement, storage, and control of products across the supply chain. The ability to reduce these costs often marks the difference between successful and failed firms. In the food industry, where margins are thin, supply management, including traceability, is an increasingly important area of competition.

### Definition:

The definition adopted by Codex in 2004 at 27th CAC defines traceability as the ability to follow the movement of food through **specified** stages of production, process and distribution and E.C (178/2002) defines traceability as the ability to trace and follow a food or feed, through **all** stages of production, processing and distribution.

Codex mentions traceability as only one of a tool. A system without traceability may meet **same objective & produce same outcomes** (e.g. food safety, level of protection) as one with traceability. The traceability system of the exporting country need not replicate importing country's traceability; it takes into account the capabilities of developing countries. The system for traceability should be designed such that it is practical, technically feasible and economically viable. It should be able to identify at any specified stage of the food chain **one step back & one step forward**, as appropriate to objectives and should not be more trade restrictive than necessary

### Traceability in retail sector:

The ultimate aim of all business is to achieve excellence in customer service and for this the traceability needs to start from the farm level and takes into account the producer of raw materials, suppliers/agents of raw materials & ingredients and also the manufacturer and packer, ware house, retail stores and customer information. Traceability is specifically important in 'Own Brand', fruits & vegetables, maintaining supply chain, removal of expired stocks.

### Characteristics of Traceability System:

The characteristics of a firm's traceability system depend on the firm's objectives and the costs and benefits of traceability. Firms balance costs and benefits to determine the breadth, depth, and precision of their individual traceability systems.

**Breadth:** Breadth is the amount of information the traceability system records. There is a lot to know about the food we eat, and firms must decide which information is of value. A recordkeeping system cataloging food's entire attributes would be enormous and unnecessary. Given the huge number of attributes that could describe any food product, full traceability is an unreachable goal.

**Depth:** The depth of a traceability system is how far back or forward the system tracks. Most businesses have one-up, one-back traceability. Firms must know who their suppliers are and who their buyers are. Whether product tracing goes beyond buyers and sellers depends on the objective of the system- and the attributes of interest to the producer or consumer. For food safety, depth of the traceability system depends on where hazards and remedies can enter the food production chain.

When a product claims farm fresh, it needs to be traced back through the semi processing unit, to importer, cold storage facility, various farms and mandis right upto the farm where the raw material was procured from. Major areas of concern in traceability are the agents or middle man as that cause breaks in traceability system and small size of farms which make way for getting the raw material from multiple farms.

**Precision:** Precision reflects the degree of assurance with which the tracing system can pinpoint a particular food products movement. A precise traceability system would only trace an apple, to its orchard with high assurance, while a less precise system would only trace a crate of apples to two or three orchards with lower assurance.

The first decision a firm makes with respect to precision involves the acceptable error rate. Error-rate specifications will determine the strictness of the segregation system with which the traceability system is paired. Low tolerance limit will require strict segregation systems and accurate bookkeeping systems. The second decision a firm makes with respect to precision is regarding the unit of analysis- container, truck, and crate, day of production or shifts? Firms that choose large units for tracking purpose will have poor precision in isolating safety or quality problems. A smaller unit of analysis will allow greater precision.

#### Implementation of Traceability:

When a company pays its bills and deposits cheques, it has a record of all the incoming and outgoing things .Traceability is nothing but joining up the record keeping system. It is bringing together the information collected at key stages in production and supply process. There needs to be the information of deliveries from suppliers, each step of process or manufacturing & combining ingredients into new products and records of deliveries out to consumers.

The data collected should be such that it is possible to identify units or batches of all ingredients and products, have information on when and where they are moved or transformed and ultimately there should be a system linking this data.

Some important aspects should be considered while compiling the record. There should be accuracy in the records of ingredient usage, production and dispatch. Record keeping should fit into normal working practice and not be complex and complicated. There should be identification of ingredients, intermediate and products with clear link to production history. Records should provide a complete supply chain and suppliers should be able to link to the raw material supplier and to whom the products passed on .

When there is a claim for organic, the company needs to have the certification of the premises and updated documents. The records of organic material to be traced to the original source need to be retained for 3 years. Also a record of seeds and transplants with origin has to be maintained along with the record of fertilizing material / manure brought, pesticide applied, management inputs, livestock purchase and sale, crop sales with amount and destinations, vet products purchased and used on annual basis. Maintain a livestock feed and feeding regime in records.

#### Traceability in US:

In US traceability is covered under the bio terrorism act .The law requires all foreign facilities that manufacture/process, pack, or hold food/ food products for human and animal consumption in the US to have registration with the FDA , have complete records of traceability of different ingredients through the supply chain and provide a prior notification of the food products .

#### Implications for India:

India has not yet been able to catch up with many of the developed nations and still there are rejections of exports from various regions. European Union rejects Indian exported food items due to antibiotic residues, cadmium and vibrios. We thus need to have our controls at fishing boats, farms and landing centers. Japan has very strong traceability systems; it can be taken as role model for the development of our exports. Many countries have their own traceability systems and to export to these countries we require to fulfill certain additional criteria. Australia insists on IRA (import risk analysis) where in testing viruses at importing end is carried out .US requires registration of all facilities and complete records of traceability. Russia requires pesticide usage details (groundnut, sesame, rice).

#### Current Systems in India:

India has increased its exports by putting many of its systems into place and working efficiently as a result India exports its grapes to many parts of world. Aquacultures from West Bengal, dairy products, and egg products have also entered export market. Dairy products are the ones which require stringent traceability systems as these are highly perishable products and to trace the source of milk from which the product has been made is also very difficult. Not only industry but government has also benefited from traceability. Government has been able to look after the public health efficiently by making the withdrawals, prevent frauds in cases where claims cannot be determined by testing, control zoonotic diseases eg TB, avian influenza, etc.

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