

# Food Safety – Delivering Compliance and Trust

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## **INTRODUCTION**

Recent well-publicized product contamination and safety recalls have heightened the awareness of food safety and traceability issues. Recent consumer goods safety events that have been broadly publicized in the media include lead paint contamination of toys, pet food contamination, lettuce and spinach contamination, large recalls of contaminated beef and mad cow disease outbreaks in the US and UK resulting in export bans of beef products.

These events have heightened concerns about food safety but the issue for consumer goods companies is far broader than tracking product and being able to recall contaminated products from the market. With the media rapidly publicizing these issues there is a real risk to brand equity and a single significant event can severely damage a brand and lead to financial impacts far more severe than the costs of a product recall.

Many consumer goods products are now manufactured offshore, leading to longer and more complex supply chains that need to be monitored and verified.

Improvements in preservation and cold storage technology have enabled the sourcing of perishable products from around the globe and heightened the risk associated with maintaining product safety and integrity.

Consumers are also embracing organic and “natural” products, which are pesticide, hormone and additive free. Consumers are also more informed about what is in their food and are demanding increased information about ingredients and growing and food processing practices.

Many retailers are looking to build their reputations around organic and natural products and are taking more responsibility for ensuring product safety and validating information about product attributes and claims.

The increased focus on product safety has led to increased public demands on governments to update and enforce product safety legislation around the world. Recent legislation impacting the consumer goods industry includes the Bioterrorism Act of 2002 which requires that companies that manufacture, process, pack, transport, receive or import food are required to maintain records that identify the immediate previous source and the immediate subsequent recipients of food.

More recently the 2006 Food Allergen Labeling and Consumer Protection Act requires product labels to list specific allergens. In Europe compliance with Article 18 of EU's EC Regulation No. 178/2002 is required.

### **Delivering Solutions Engendering Consumer and Retailer Trust**

Food safety and protecting brand equity requires solutions that are far broader than merely tracking product so that defective product can be removed from the supply chain. Leading manufacturers are focusing not just on compliance but also on engineering quality and safety into their processes and expending their efforts in preventing errors and product contaminations from occurring. These leading brand

manufacturers realize that product safety extends beyond complying with regulations and that they have a responsibility for ensuring the safety of their consumers. By engendering trust in their brands with both consumers and retailers they can positively influence purchase behavior and brand equity and are using this as a point of differentiation in the market.

Consumers today are making purchasing decisions on a broader set of criteria than the product intrinsic and price. Factors such as whether products are natural or organic, grown or farmed in sustainable, environmentally friendly ways and produced in socially responsible manners can all factor into decision-making.

To make decisions based on these additional and in many cases new criteria, consumers and retailers are required to communicate additional information which in many cases needs to be packaged and communicated in new ways e.g. blogs and product web-sites.

There has also been substantial growth in functional foods that are food pharmaceutical hybrids. The market for functional foods in the US is over \$36B and growing at 19% per annum.<sup>1</sup> With these foods and many nutraceutical products there are likely to be increased regulations in the future as consumers demand substantiation to product claims and express product and ingredient safety concerns.

Many consumer product supply chains extend around the globe and between organizations. As more companies utilize contract manufacturers and third party packers, the need to deliver a solution that can truly track products from source to end consumption increases. These supply chains are becoming increasingly complex and involve multiple parties who in many cases are not, or poorly regulated.

Retailers have in many cases taken the lead in sharing additional information and providing labeling listing the location of farms and growers of produce as a way to gain consumer trust and share information that consumers are using to make purchase and lifestyle decisions. Many retailers are leveraging information and more detailed product information to effectively differentiate their private label offerings and build up their brands in terms of consumer credibility and trust.

A product safety solution needs to holistically focus on the entire process of product development and design, farming and growing practices, ingredient sourcing, receiving, quality management, transportation and storage, manufacturing, packing, tracking, monitoring and reporting. It is no longer sufficient to focus on traceability and identify defective product, but rather to focus on prevention.

Food safety and traceability has evolved to focus on the entire food lifecycle and concentrate on building quality assurance into all elements of the lifecycle, from farm to consumer.

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<sup>1</sup> IRI January 2007 – Times and Trends: 2006 Year in Review

## **Best Practices for Consumer Goods Food Safety**

To comprehensively track product many growers and food processors are tracking product from the initial source of production i.e. the farm. This is important for food safety but also enables the collection of information about food products that enables consumers to make informed purchase decisions e.g. certifying organic produce. Leading consumer product companies are tracking not just product grown/ harvested on farms but also many of the agricultural inputs associated with producing food products such as pesticide usage, block location of where product was grown, fertilizer usage and irrigation records. This helps track both detailed crop inputs and growing conditions as well as providing historical information to improve product yield and quality.

Leading companies are tracking both finished products and individual ingredients across their supply chains and are able to report “where used” information for ingredients. This is especially important in tracking ingredients that are classified as allergens under the Food Allergen Labeling and Consumer Protection Act of 2006.

Tracking ingredients and product across complex global supply chains generates a lot of data and leading companies are designing solutions that are easy to use and render the retrieval and reporting of traceability quick and easy.

Manufacturers are focusing resources on ensuring that new product development process support product and consumer safety. Conformance to safety and product quality standards are built in through thorough testing protocols.

Tracking multiple lot dates and not just use by or expiration dates is important. Leading companies track multiple lot dates related to the expiration dates of individual ingredients as well as best before, sell by and other user defined dates.

Where ingredients and raw materials are sourced from suppliers, leading companies are extending their food safety and inspection requirements beyond their own supply chain and imposing specific requirements on their vendors.

Companies are testing their food safety systems by practicing “mock product recalls” for their own products and supply chain as well as those of their suppliers and distributors. These tests are in many cases audited and validated by independent third part auditors.

Date stamping products and packaging in many cases simplifies product traceability and safety and should be applied at the place of manufacture and packaging.

Tightly integrating manufacturing execution systems with core manufacturing systems facilitates improved manufacturing compliance with recipes and quality standards and also reduces the incidence of operator error. This also enables more accurate quality and process measurements to be made and associated with specific batches produced.

Utilizing advanced manufacturing scheduling solutions that take into account manufacturing constraints and safety rules also help reduce the risk of product

contamination and spoilage. These systems can help schedule sufficient time for product and line changeovers where cleaning and sanitation are required.

Tracking products and ensuring product safety, needs to extend beyond sourcing and manufacturing to the logistics area. Leading companies are leveraging warehousing and transportation solutions that enable rules relating to what products can be transported together and rules relating to transportation quality requirements such as refrigeration temperatures etc.

Having all the information relating to tracking product in one place significantly improves organizations' ability to track products and ensure consumer safety. This entails using electronic batch records as the system of record or repository for operational transactions linked to products.

To enable accurate communication among trading partners, all ingredients, product, location and owners should be uniquely identified using standards like GS1 and EPC global.

### **The Oracle Solution**

Oracle provides a comprehensive traceability solution that has been developed in conjunction with many of our consumer products customers. The solution delivers bi-directional lot genealogy inquiry, reporting and analysis. This core capability enables consumer goods organizations to trace materials enterprise wide from receipt to customer shipment.

For the agricultural products and grower industries Oracle can also track product back to the individual farm and block of land where crops are grown. This capability enables not only the tracking of crops but also a detailed record of farming operations associated with the raising of these crops such as fertilizer usage, irrigation records, soil attributes and pesticide application.

These powerful capabilities are delivered via an intuitive user interface which improves responsiveness and minimizes the time, cost and risks associated with product recalls.

The Oracle solution helps consumer good manufacturers answer critical product traceability questions such as:

- What products were delivered to which customers?
- Which other customer shipments may be at risk?
- What finished products were manufactured from a specific batch of raw material?
- What were the quality test results for this lot of product and the ingredients, which went into making it?
- Which supplier lots were the sources of the contamination?
- What other material was stored near the contaminated material?

- Which lots of product passed through this refrigeration unit whose temperature dropped out of tolerance on a specific date?

Oracle enables precision tracking of inventory and specific inventory attributes throughout the supply chain. Tracking these ingredient attributes enables organizations to meet specific customer requirements as well as leverage this information in manufacturing, storage and distribution operations.

Recipes and manufacturing processes can be adjusted depending on the specific attributes of ingredients, the quantity being produced, seasonality and specific manufacturing plant configurations. These capabilities enable organizations to produce consistent product quality, even where ingredient, manufacturing and environmental variability exists.

Building these capabilities into the procurement, manufacturing and distribution processes reduces the risk of product being produced out of specification and hence the chances of product contamination and recall. The Oracle solution is focused on building safety into the manufacturing process and leveraging technology to consistently source, produce and distribute product that is high quality. Integration to Manufacturing Execution Systems (MES) and Quality systems enables very close monitoring and testing of these processes across the supply chain to ensure that what is planned and predicted is being delivered. The monitoring of quality helps manufacturers control quality at different inspection points across the supply chain and delivers automated quality monitoring where workflow notifications are employed to highlight issues, enforce compliance and secure approvals.

Where products are shipped across complex global supply chains there exists a need to track product across multiple transportation modes as well as capture critical contact information of supply chain partners. Oracle supports this by capturing key contact information such as name, address, phone & fax numbers and email addresses. Oracle also supports compliance with food labeling regulations, including country of origin labeling.

Products and lots can also be tracked by transaction, providing detailed information on product, quantities, names, description, dates product was released, shipped and received as well as quality attributes.

Oracle also supports the use of electronic records and electronic signatures, supporting 21 CFR Part 21 compliance. This solution is based on GMP and industry best practices and provides a consistent user interface across all events. 21 CFR Part 11 compliance is a key requirement for the life sciences industry and is being considered by many consumer goods manufacturers as a way to improve quality and safety.

Enabling traceability outside of a consumer goods companies supply chain is required to deliver true “farm to fork” traceability. To facilitate this next generation

of traceability solutions Oracle is working closely with the GS1 organization and the related subsidiaries.

The Oracle PIM Data hub is 1Synch certified and has pre-built integration to UCCnet. To deliver the next generation of traceability solutions Oracle is participating in a number of GS1 pilot programs that are leveraging RFID and sensor based services. These solutions will enable traceability across multiple supply chains and between trading partners, and enable true “farm to fork” traceability.

## **Conclusion**

Ensuring the safety of the food supply is a critical priority for consumers, manufacturers, retailers and government regulators. To deliver on consumer food safety expectations and mandates from regulators, consumer goods manufacturers need to build safeguards into every step of the food value chain. The challenge is to meet these requirements with a cost effective, automated approach that actually improves product quality, consistency and retailer and consumer perceptions. This will result in improved trust and enhance long-term brand equity.

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