

# Food Safety and Your Small to Medium Sized Business

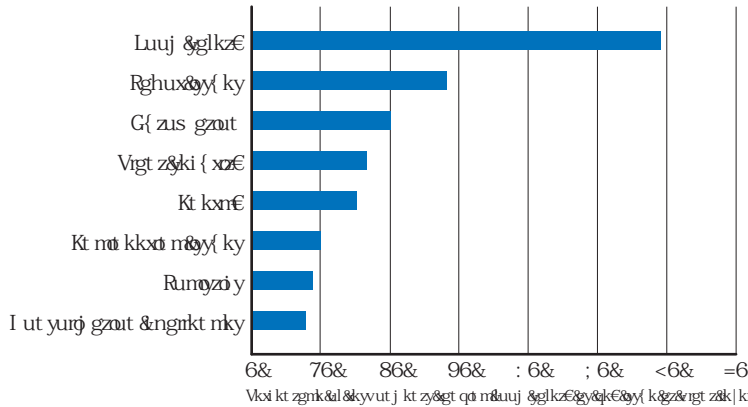


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## Introduction

The food industry is facing a number of external pressures, including greater dependence on fewer (but larger) customers, increasing raw material costs, limited supplies, increasing labeling costs, and a shift in consumer diet demands and product preferences. The *Food Processing Magazine* 2005 survey (see Figure 1) of industry professionals ranked food safety as the No. 1 plant-level concern.<sup>1</sup> Eighty-five percent of industry professionals stated they are taking additional steps this year to ensure food safety.



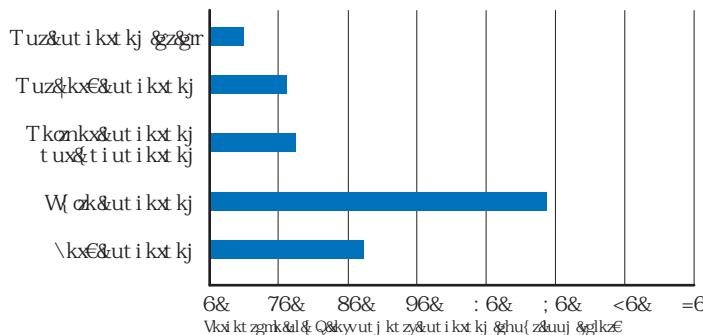
**Figure 1. Plant management concerns – 2005**

The ranking of food safety as the No. 1 concern is justified. The outcry against Salmonella, E. coli, SARS, mad cow disease, genetically modified organisms, and other food safety concerns is front-page news every day throughout the world. During 2004, the New York Times, Reuters, and the BBC published more than 10,500 stories mentioning food safety.

### Consumer Views on Food Safety

Does the consumer care? A survey of United Kingdom consumers (see Figure 2) conducted by the Food Standards Agency of the United Kingdom revealed that 71 percent of consumers are concerned about food safety while only 16 percent are not.<sup>2</sup>

The United States Centers for Disease Control reports that as many as 76 million illnesses are caused by food contamination every year in the United States.<sup>3</sup> In addition to the public cost, the impact of food safety lapses can be devastating within the food industry. While many food industry executives think of regulatory penalties as a risk, the major risks are potential shutdowns or, even worse, damage to brands and companies.



**Figure 2. Are consumers concerned about food safety?**

<sup>1</sup>See *Food Processing Magazine*, March 2005

<sup>2</sup>See [www.food.gov.uk/](http://www.food.gov.uk/)

<sup>3</sup>See [www.cdc.gov/ncidod/eid/vol7no3\\_supp/tauxe.htm](http://www.cdc.gov/ncidod/eid/vol7no3_supp/tauxe.htm)

As many as 76 million illnesses are caused by food contamination every year in the United States.

The Bioterrorism Act has more impact on the worldwide food and beverage industry than all other regulations combined.

## News Media Impact on Food Safety

The news media are attuned to food safety stories. For branded manufacturers, a negative image generated in the media can change a brand from an asset to a liability. For non-branded manufacturers (for example, ingredient suppliers or private label manufacturers), a company can become tainted in the eyes of customers by negative press. For distributors, food service operators and grocery retailers will question the distributors' credibility and ability to keep their names out of the media. And for retailers and operators, negative press can keep the consumers away. Major retailers are clearly concerned about food safety. For example, the mock recall requirements from Wal-Mart and Costco exceed the requirements stated in most regulations.

## Food Safety—A Global Issue

Most countries have some food safety regulations. The rules typically cover all food products sold in the country. Therefore, any product imported into the country is covered by the regulations. For all members of the food supply chain, the import, export, and domestic impacts of worldwide regulations must be considered.

The two markets with the most impact worldwide are the United States and the European Union (EU). These markets are among the largest and are major importers and exporters of food.

### U.S. Bioterrorism Act

The U.S. Bioterrorism Act of 2002 is playing a major role in the worldwide food industry.<sup>4</sup> With the U.S. Food and Drug Administration (FDA) having authority over about 80 percent of the U.S. food supply, the Bioterrorism Act has more impact on the worldwide food and beverage industry than all other regulations combined. While limited exemptions exist, the law is intended to be broadly applied to all companies that manufacture, process, pack, hold, transport, distribute, or receive regulated food products. It is estimated that the U.S. Bioterrorism Act covers more than 400,000 U.S. and foreign facilities. Under this act, there are several new regulations to which food and beverage companies must comply. Two areas of the act have significant impacts on operations:

- **Establishment and maintenance of records.** Companies must establish and maintain a record of the source and destination of ingredients and products; this is called the *one up and one down* rule. When the FDA requests information, companies have four hours to respond to FDA inquiries.
- **Prior notice.** Food importers must notify the FDA at least one day before a shipment arrives in the United States, disclosing details on the shipment and the contents, and estimating the arrival time.

### European Union *Farm to Fork* Principle

On Jan. 10, 2005, Markos Kyprianou, the new EU Commissioner for Health and Consumer Protection in Brussels, Belgium, indicated that the Commission's guiding principle, primarily defined in its 2000 White Paper on Food Safety,<sup>5</sup> was to apply an integrated approach from *farm to fork*, covering all sectors of the food chain including feed production, primary production, food processing, storage, transport, and retail sale. This clearly indicates that food safety concerns affect all members of the food supply chain.

The European Food Safety Authority, setting forth the basic conditions for safeguarding food, established European Union regulation 178/2002.<sup>6</sup> Article 18 of the directive specifies that the traceability of food shall be established at all stages of production, processing, and distribution (that is, from *farm to fork*) including growers, processors, manufacturers, distributors, and retail and food service businesses. Article 18 also states that operators are required to:

- Guarantee traceability at all stages
- Identify from what suppliers products are received (used or to be used)
- Identify to what customers products are supplied

<sup>4</sup>See [www.fda.gov/oc/bioterrorism/bioact.html](http://www.fda.gov/oc/bioterrorism/bioact.html)

<sup>5</sup>See [www.europa.eu.int/comm/dgs/health\\_consumer/library/pub/pub06\\_en.pdf](http://www.europa.eu.int/comm/dgs/health_consumer/library/pub/pub06_en.pdf)

<sup>6</sup>See [www.europa.eu.int/eur-lex/pri/en/oj/dat/2002/L\\_031/L\\_03120020201en00010024.pdf](http://www.europa.eu.int/eur-lex/pri/en/oj/dat/2002/L_031/L_03120020201en00010024.pdf)

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- Have in-place tracking and tracing systems and procedures
- Provide tracking and tracing information to the regulatory authorities on demand

## Global Regulation Fundamentals: Tracking and Tracing

The capability to track (*farm to fork*) and trace (*fork to farm*) details per product or per lot is critical. Tracking and tracing is the core of most global regulations. The capability to track a product from *farm to fork* or using the *one up and one down* rule combines collecting appropriate information, organizing the information, and retrieving it as required.

The components tracked often include much more than just final product or ingredients. The tracking procedure begins at receipt of materials. The date and time of receipt is recorded along with product name, shipping data, and supplier lot number. Quantity is recorded before the material is stored.

For a manufacturer, consumption must be recorded to link the consumed material to the end-product lot. This includes ingredients (such as flour, spice, and nuts) and packaging material (such as bottles and plastic wrap). Any equipment (such as a weigh scale, mixer, or oven) that contacts the ingredients in the creation of intermediate or final products must be recorded.

The operating personnel who are involved in the manufacturing or distribution process should also be tracked. This includes the people who receive the material at the plant, those who weigh and stage material, the operators that run the process and packaging lines, and warehouse people. The key people are those who receive the material and those who run the process; they have the greatest impact on the safety and security of the final product.

For food manufacturers and distributors, shipping information must be recorded, including lot numbers and selected shipping details. This data provides the final link for *one up and one down* tracking.

Although regulatory authorities have the power to request this information, the regulations are typically not specific on exactly what information can be requested. Regulatory authorities expect information to be provided quickly. For example, in the United States, authorities require information in four hours from the time of request.

Regulatory compliance costs money. It includes initial investments in systems, devices, and so on. Perhaps more important, it includes the ongoing cost of people and some loss of productivity due to regulatory priorities.

Non-compliance can be even more costly, however. The question is, how much risk is a company willing to take? Non-compliance can lead to fines, shutdowns, loss of business opportunities, and even the end of the company. For most, these risks are too great, and compliance is seen as mandatory.

## Compliance in Small and Mid-Sized Companies

Other than a few differences in compliance deadlines, food safety compliance regulations apply to all companies without regard to size.<sup>7</sup> Therefore, small and mid-sized companies have the same requirements as large companies but with significantly fewer resources.

Regulations demand the collection, organization, and retrieval of information. For all but the simplest food companies, a manual recording approach to compliance is nearly impossible. Examples of simple food companies include a manufacturer with a very limited product line, few ingredients, a simple process, and few customers; or a distributor with a limited product line and few suppliers and customers. The vast majority of food manufacturers and distributors do not fit this definition.

For these companies, reliance on computer systems is necessary for successful compliance efforts. The core of every compliance effort is a company's enterprise resource planning (ERP)

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<sup>7</sup>From the U.S. Bioterrorism Act: Companies with 500 or more employees must comply by Dec. 6, 2005; companies with 11 to 499 employees must comply by June 6, 2006; companies with 10 or fewer employees must comply by Dec. 6, 2006.

The investment made to satisfy a regulation is actually a prepayment toward the cost of improved costing processes.

system. Computer systems can assist in collecting the information required. Computers can do an outstanding job of organizing data and producing the information required in a timely and organized fashion, for example, meeting the four-hour requirement established in the U.S. Bioterrorism Act.

Large companies can afford complex, standardized, and expensive compliance solutions. Small and mid-sized companies need compliance options that are both affordable and effective. When considering compliance options, the food manufacturer or distributor should evaluate approaches and suppliers based on the practicality of the solution: Will it work in your environment, and can you afford both initial and ongoing costs?

## Compliance—A Challenge or an Opportunity?

Is regulatory compliance a challenge or an opportunity? The dictionary defines challenge as a call to engage in a contest, fight, or competition. Opportunity is defined as a chance for progress or advancement.

Compliance, when viewed as a challenge, is nothing more than a necessary expense, a contest between the business and the regulatory authority. The cost of compliance is a cost of doing business that cannot be avoided. The best strategy is to meet regulations at the lowest possible cost, producing no business gain except to avoid the consequences of non-compliance.

When viewed as an opportunity, compliance is a chance for improvement. The cost of compliance: an investment in meeting other business needs and objectives. The strategy now: to leverage the investment in compliance systems and procedures for business progress.

How regulations are viewed either prevents or enables them to be turned into business opportunities. It is essential that organizations look beyond the demands of regulations to see potential business gains. Regulatory challenge means meeting a set of requirements. Regulatory opportunity means leveraging compliance investments to promote business goals.

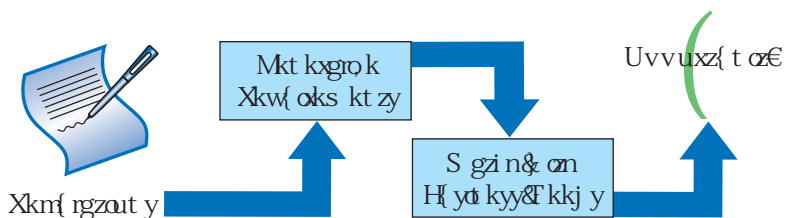


Figure 3. Viewing regulations as business opportunity

For example, food safety regulations demand full lot tracking. This requirement can be restated (or *generalized*) as gathering full and accurate information about product movement (see Figure 3). What business needs can be satisfied, fully or in part, with this information? One opportunity is to feed the product movement data into a costing system to better understand the true cost of products or warehouse operations. The investment made to satisfy a regulation is actually a prepayment toward the cost of improved costing processes.

## Driving Principles of Regulatory Compliance

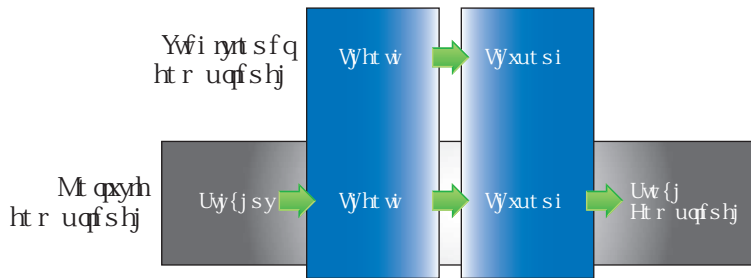
Regulatory compliance is not just about the regulations. Many regulatory authorities discuss the risk of food safety incidents as one of their driving principles. Regulations focus on both minimizing risk, through Hazard Analysis and Critical Control Point (HACCP), and responding to incidents, through recalls. Food companies should regard regulations in the same way. How aggressive a food company becomes in compliance efforts should be based on the risk level of an incident. For example, some food categories have a higher risk of an incident than others. Categories that process or sell fresh product (for example, seafood, meats, fruits and vegetables, and dairy) are at higher risk. These high-risk categories make up 33 percent (UK) to 54 percent (France) of food spending in the

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European Union and 44 percent in the United States.<sup>8</sup> Companies dealing in these categories need to be more aggressive in their compliance efforts.

## Preventing Food Safety Incidents

When making decisions regarding compliance efforts, companies must look beyond the traditional view of compliance and take a holistic approach (see Figure 4). Dealing with the potential business problems associated with food safety incidents means collecting and organizing required information as well as preventing incidents.



**Figure 4. Holistic compliance considers potential business problems**

Efforts should be made to reduce the risk of an incident by improving physical security, quality control, manufacturing procedures, and communications with suppliers along with other efforts. ERP systems are at the heart of these efforts.

## Responding to Food Safety Incidents Quickly

Regulatory authorities need to know food companies are in control and ready to respond quickly to a food safety incident. The implementation of compliance processes must recognize this need and provide the ability to prove compliance. For example, mock recalls (in preparation for a real recall) prove that a company is ready in case of a real recall. The ERP system should enable mock recalls to be done quickly. For example, responding to the U.S. Bioterrorism Act requirement for a four-hour response can typically be reduced to minutes with an effective ERP system.

## The Business Value of Compliance

The value of compliance is not just about avoiding fines, or even shutdowns. And the cost of compliance is not just an investment in preventive public relations to avoid negative press and the damage it can cause.

Today, not only regulators but retailers and operators, as well, care about compliance. Wal-Mart announced its own food safety requirements which, among other things, require at least one mock recall per year. Consumers care about compliance: Unless they trust the brand, they won't buy the product.

If retailers, operators, and consumers see value in compliance, the distributor or manufacturer has the opportunity to promote the value of their compliance efforts. Customers should know about the increased protection of their favorite brand due to company compliance efforts.

## Financial Head Start on RFID Demands

Compliance requires capturing information, accurately organizing and retaining the information, and then quickly and efficiently analyzing and presenting it. Many business needs can be addressed with this information in a cost-effective way.

Capturing this information can be time-consuming. Management should consider data-collection methods that lower the time and costs involved. Given the attention of retailers (such as Wal-Mart

Regulatory authorities need to know food companies are in control and ready to respond quickly to a food safety incident.

<sup>8</sup>Economic Research Service, U.S. Department of Agriculture

Accuracy is an absolute requirement for compliance and inventory control. And accuracy at the receiving dock is key.

Stores, Inc., Tesco Stores Limited, Costco Wholesale Corporation, Marks & Spencer Group PLC, and others) to radio frequency identification (RFID), food manufacturers and distributors should expect an RFID mandate in the future. The cost of the data collection required by regulations provides a financial head start toward meeting the RFID demands of retailers. RFID-tag cost considerations limit the application of RFID to the pallet level for most food companies. But for much of regulatory and customer demands, this level of detail is adequate.

### **Improved Compliance and Business Processes**

Link Snacks, Inc. (DBA Jack Link's® Beef Jerky) is implementing RFID in its plant and supply chain.<sup>9</sup> Jack Link's® Beef Jerky, headquartered in Minong, Wis., is one of the fastest growing global meat snack companies. Its beef jerky is a leading U.S. meat snack brand. Products include Jack Link's® Beef Jerky, Kippered Steaks, Beef Sticks, Snack Sticks, Beef Steak Nuggets, Tender Cuts, Beef & Cheese Snack Packs, and Gourmet Sausages. Jack Link's® meat snacks are shipped worldwide.

The company chose RFID to strengthen regulatory compliance, to improve manufacturing lot tracking and traceability, to develop visibility into operations, and to streamline and automate many of the distribution processes. Link Snacks expects many benefits, including:

- Automated regulatory compliance and integration into the ERP
- Facilitation of target-product recall and minimized exposure
- Significant reduction in time required for a recall, from several hours to minutes
- Increased food safety through ingredient tracking
- Improved inventory accuracy
- Reduced manual recording
- Increased visibility and more accurate costing information
- Improved yields across manufacturing processes

Accuracy is an absolute requirement for compliance and inventory control. And accuracy at the receiving dock is key. Errors in receiving undermine the integrity of both compliance and inventory recordkeeping efforts. Any investment in improving receiving operations enhances both regulatory and inventory recordkeeping.

Tracking requires management of raw material consumption at the lot level. Many food manufacturers account for raw material consumption by assuming that the standard usage occurred. This quantity is then used to reduce the inventory of the ingredient. Compliance requires linking ingredients to end-items. This can only be accomplished by accurately recording lot numbers and, to ensure the integrity of compliance, the actual quantity consumed. Using data collection methods (such as RFID and bar coding), paper, or computer-based batch sheets generated by the ERP system will link consumption to end-items while increasing accuracy. Again, the demands of compliance provide the processes to better manage the business by increasing the accuracy of inventory control and, in doing so, eliminating shortages, overstock, and expired product.

### **Improved Product Quality**

Every food manufacturer is concerned about quality. Compliance builds links between suppliers, products, and customers on a lot-by-lot basis. From suppliers' certificates of analysis (COA) and internal quality analysis to raw, in-process, and finished products, food companies can capture and attach quality data to this supplier-to-customer link. This data can yield a cause and effect analysis, increasing consistency and eliminating off-spec production.

### **Effective Pricing Through Improved Cost Management**

Margins are under pressure for every manufacturer and retailer. As large operators and retailers gain more power, companies have less control over prices. Addressing margin pressure rarely

<sup>9</sup>See [www.jacklinksjerky.com/](http://www.jacklinksjerky.com/)

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means increasing prices. Management options are to accept a lower margin or to decrease cost. Cost management demands high-quality, detailed cost figures. The detailed information required for compliance serves as a foundation for improved costing. If a cost can be assigned to each issue, receipt, and move, management has gained significant cost management detail. For example, assigning a meaningful cost to each move of a product yields an improved analysis of warehouse efficiency and effectiveness. Assigning a cost to each issue of ingredient enables management to accurately understand the cost of end-products and, so, effectively decrease costs. Understanding the details of costing is vital to making effective cost-reduction and pricing decisions.

## Improved Customer Service

More operators and retailers are demanding advanced shipping notices (ASNs), which means documenting, often at the level of lot numbers, exactly what is to be delivered. The collection of compliance data at the point of shipping demands this same information. Compliance can drive improvements in customer service by making compliance data available to customers in an ASN and as input to their compliance systems. Because retailers and operators care about food safety, food companies have the ability to assist them in compliance efforts and to improve customer retention.

## Conclusion

For the entire food supply chain, regulations are a fact of life. Compliance is not optional, for both regulatory and public relations reasons. The manufacturer or distributor can see regulations as a challenge and do the minimum to comply and get minimal return on the investment. Alternatively, the manufacturer or distributor can look at regulations as an opportunity.

By understanding the investments and business processes required for compliance and by treating these investments and business processes as a head start toward business improvement, the challenge of compliance can become the opportunity for business gains. In the highly competitive food market, competitive gain is often tied to how well the business is managed. Compliance can be used to improve the management of the business.

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## About the Author

Olin Thompson is a principal of Process ERP Partners and the founder of the Food CIO Forum. He has more than 25 years of experience as an executive in the software industry. Olin has been called *the father of process ERP*. He is a frequent author and an award-winning speaker on topics such as gaining value from ERP, supply chain planning, e-commerce, and the impact of technology on the food industry.

Olin can be reached at  
[Olin@ProcessERP.com](mailto:Olin@ProcessERP.com).

## Additional Resources

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