

Assuring Safe Supply: An Integrated Systems Approach

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INTRODUCTION

In past 20 years the general intent of delivering safe, quality food has not changed. However, the mechanisms by which you deliver against those fundamentals have changed dramatically. In today's global marketplace, food safety is just not about having a HACCP plan, prerequisite plans, SSOPs, SOPs, and 3rd party audits. Delivering safe food in today's global marketplace is about having validated systems along each step of the process to mitigate risk; it's all about detail! It is about having a full understanding of your supplier's strengths and weaknesses, your strengths and weaknesses, and your customer's strengths and weaknesses. It is about having a risk assessment that encompasses the entire supply chain. Assured, safe supply is about meeting and exceeding stakeholder expectations and reducing risk while managing costs. A company cannot test their way into a safe food supply; therefore, strategies and test models must be developed that allow your company to achieve its food safety goals. As with many things, risk must be managed against many different variables which can and do change constantly.

Managing assured, safe supply has 5 main areas of focus: 1) a systems approach, 2) raw material inputs, 3) manufacturing, 4) supply chain / distribution, and 5) customer/consumer expectations. The power and quality of a robust food safety system is in the detail and making the appropriate connections and linkages between all of the various elements. These connections and relationships are the foundation to a safe, assured food supply.

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A SYSTEMS APPROACH

Assuring a safe food supply ultimately starts in two general areas: 1) regulatory compliance and 2) customer expectations. Regulatory compliance is an element of the overall process that many times is assumed to be fulfilled and it generally is. The questions that might be asked are; How does it apply to raw material inputs that are received? or How does it apply to products that are co-packed? For example, How is regulatory compliance for a product that transitions between USDA and FDA governance defined? Is it segmented by governing Agency or is it managed by the product or ingredient that has the most restrictive standard?

Customer expectations are equally important to regulatory compliance. Your stakeholders have an equity position in what you do and your actions affect them. The expectations of the customer needs to be reviewed, a gap analysis needs to be completed against those expectations, and a work-plan to fill-in those gaps needs to be created. This might include but not limited to specifications of inputs, product specifications, microbial testing, packaging requirements, and distribution requirements.

Brand protection is a component that was not readily discussed 20 yrs ago. But as negative product events and recalls have occurred over the past two decades, companies have done a much better job at quantifying negative media event outcomes and how negative events affect the value of their Brand. As mentioned earlier, your customers have an equity position in your process, so how do you protect their Brand and yours.

Assuring a safe food supply chain is a complex multi-faceted activity that involves the interaction of different disciplines across the entire supply chain. A safe supply chain needs to be fully integrated across all programs and the execution of those programs, your raw material supply chain, and the distribution channel. Every discipline needs to be actively engaged in the process; operations, maintenance, sanitation, quality assurance, research and development, and logistics. A culture within the organization needs to exist in which any person in the facility can identify a potential issue or risk. We need to listen to all of our employees because many times they

will identify potential issues that are avoidable before they become events. The interaction and communication between the disciplines is also necessary. Everybody needs to be speaking the same language and working toward the same common goals. This alignment will help ensure clear, concise communication is being delivered at each and every point.

Emerging issues management is not a new topic but it is a topic that is in different stages of implementation and maturity across the food industry. The concept of tracking new, potentially impactful issues and making business decisions regarding the management of those issues is a time consuming but necessary activity. Tracking the issues that are potentially important to your business can facilitate risk management and provide a vehicle for change to your food safety strategies before they are mandated by either a regulatory agency or your customer. Long-term, decision-making justifications that are made today may not be valid tomorrow. Any number of business conditions or assumptions might change the system and potentially affect your overall risk management strategy. In which the risk management system may need to change so the identification of those emerging issues early in process can and will mitigate risks.

In the current marketplace and regulatory environment, an awareness of what elements are within your circle of influence and what elements are not; what issues are controllable within the systems that have been implemented and what issues are uncontrollable or are outside the circle of influence. If you have control over risks or potential risks, then you can put systems in place to monitor them and reduce their probability of manifestation with the goal of eliminating the risk. For the uncontrollable risks or potential risks that are on the outer reaches of your circle of influence, a business decision will need to be made as to their importance, their cost benefit, and/or the ability to influence them. If they are deemed important, then action items will need to be created that will bring them within the reaches of control.

RAW MATERIAL INPUTS

The safety of the supply chain must start with your food safety expectations being clearly and concisely communicated to your suppliers. Those expectations must flow directly into a supplier management program that has a strong food safety and quality foundation. Regardless if you're talking about protein and non-meat sources, all suppliers should have similar core expectations to meet. A question to ask yourself, Do my suppliers know what my food safety expectations are? Another question might be, Do my primary suppliers know what my long-term food safety strategies and initiatives are?

A food manufacturer must have a process of managing their suppliers. At a minimum, the process must address supplier approval (what are the minimum expectations, how does a supplier achieve approval status), delisting (failure to meet critical performance criteria), and

relisting criteria (what does a supplier need to do to be relisted following a delisting). The process for meat and non-meat suppliers may be different due to the nature of the product and performance indices. Second, how do you verify the performance of your suppliers? How are COAs validated? Overall supplier performance is a significant contributor to assured, safe supply. At what frequency and what attributes do you test raw materials for compliance? These evaluations might include raw product acceptable quality level (AQLs) evaluations, sensory checks, and/or microbial (pathogen and non-pathogen) testing. The data collected on supplier performance should not fill a filing cabinet, but be used to provide feedback to your suppliers. The expectation should be that your suppliers use the data and information to make process improvements within their system to enhance the quality of the raw material that is delivered. Sharing performance data are also a great opportunity to discuss expectations, discuss business needs, and further develop relationships with your suppliers. The ability to meet the expectation of delivering assured safe supply comes down to the simple fact; you can only be as good as your supply chain.

MANUFACTURING

A prudent manufacturer must have a robust, science based food safety program and the ability to execute daily against that program. The concept of considering all the food safety hazards is not new or innovative, but it is important that the management of the identified hazards is justified and supportable within the system. When considering hazard management, the verification of all inputs must be considered. How, by what method, and at what frequency are inputs checked. For example, are inputs sampled for pathogens? If a positive pathogen test result is yielded, what product disposition decision is made and is it supportable? Managing packaging and labels seems simple enough but is frequently missed. Systems need to be in place that ensures the right product is being packed into the right package. Within the manufacturing process are potential hazards been addressed? The use of a failure mode effects analysis (FMEA) is an extremely effective way to manage potential risks.

The training and development of a highly effective and motivated staff is a critical element to the overall success of any food safety system. We all rely heavily on our employees to do the right thing every time. The training program should include a complete review of the specific SOP, on-the-job training doing the activity, and then a series of direct observations ensuring that the activity is being conducted in accordance to the written SOP. To be successful, we must invest in our people! They have the responsibility to carry out the programs and processes each and every day. Your employees see all raw materials, each package of product, and are in the facility daily; they are your first food safety hurdle within the system.

Within a company's data and specification management system, there is often a disconnect between the company's

ERP, inventory, specification, and SPC software solutions. At each disconnect there are opportunities for errors. To minimize errors, an integrated software solution should be implemented. A single point, master data repository that can push data to all the other systems. Also a robust stock recovery system must be addressed. As much time and energy that is invested into risk management solutions; food safety issues still arise and product needs to be removed from the field. The stock recovery mechanism needs to be able to trace finished product one-step forward and raw material inputs one-step backward in a very short time period.

SUPPLY CHAIN AND DISTRIBUTION

Supply chain and distribution are generally simple and straight forward elements of the process; however, issues can and do develop. Cold chain management issues develop due to economical pressures on trucking lines, theft, poor driver choices, and accidents. Carriers and trucking lines are responsible to deliver your goods safely to their destination. Verify that the appropriate shipping instructions are properly written and printed on the bill-of-lading (BOLs). Are these requirements constant from product to product? Are they different? At a minimum, BOLs should include shipping temperatures and trailer seal requirements. Understand the specific details of your contract with the carrier. Understand what loads are owned by the customer when they leave your dock and which loads are within your ownership until they are delivered. Less-than-truck-loads (LTLs) present their own issues because so many things can be carried in the same trailer. Take dry, ambient temperature products for example, what is allowed to ship with that type of product? Hazardous chemicals? Aromatic substances? Also associated with LTLs, how do you ensure that the product's security and integrity has not been comprised? In either case maintaining transportation security is and can be an issue. It comes back to customer expectations and what is out of your control. An example what if the load arrives without a seal or the right type of seal. What happens next? Is the load rejected? Is the load inspected for tampering? Is the load accepted and what data are used to support the decision. Another example, What if the refrigeration unit goes out while the load is in route and temperature control is lost? What criterion is used to determine if the load is safe and able to continue into distribution?

Cold storage facilities can take on a variety of shapes, sizes, and services. Management of these facilities may or may not fall under the food safety management umbrella but the food safety risk needs to be managed. You should ask yourself, What criteria do our cold storage facilities need to meet? What audit standards should they meet? Does the facility have the ability to place products on hold? What is the capability of their inventory system; can they trace product shipments?

CUSTOMER AND CONSUMER EXPECTATIONS

To ensure food safety throughout the entire supply chain, the company needs to have an understanding of the product's intended use. This might include the product's distribution channel, the product's point of sale, and/or how the product will be consumed. A product that is sold through a vending machine or at a convenience store will most likely be formulated differently than a product that is distributed frozen and is being cooked where there are controlled cooking procedures. The product development group needs to be very engaged and interactive with the food safety function to ensure the product meets all the specific needs. Questions such as, Does this product need an inhibitor to limit Listeria growth? What is the shelf-life of the product? Does this product need to meet...?

Consumer studies report that historically consumers do not read labels but that shouldn't stop or lessen the quality of the information on the package. Product label content can communicate a variety of information to the customer. What information needs to be communicated on the package? Cooking instructions? Handling instructions? Allergen statements or even enhanced allergen statements such as "Does Not Contain Gluten."

There needs to be a terminal step or mechanism within the process to evaluate the safety of the product at the point of distribution or sale. Behind-the-counter visits are a great way to ensure the product is performing as expected. The behind-the-counter visits might also indicate opportunities that need to be addressed to reduce risk. Behind-the-counter visits also validate safe, high quality product is being delivered to final point of distribution. Conducting periodic product reviews where product is pulled from the distribution chain to evaluate product performance and to identify gaps and opportunities is also a very effective tool to monitor product quality. Evaluating product at various points within the supply chain provides valuable feedback and insights into the overall food safety risk profile and verification that the food safety strategies are being achieved.

CONCLUSION

Assuring safe, quality food is an accumulation of systems, raw materials, manufacturing, supply chain / distribution management, and customer expectations. Singly they will not delivery safe food. But when combined into a robust system that manages risk across the entire supply chain, safe food can be delivered each and every time. The overall food safety risk assessment should consider all of the elements. As a global food industry, we must deliver the safest, highest quality product possible to our consumers. Ensuring food safety must be an integrated approach across the entire supply chain. You can only be as good as your supply chain.