

Food Safety—A Current Perspective for Stakeholders: Creating a Food Safety Culture Through Audits and Best Practice Sharing

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A special session was held at the 2009 AAACC International Annual Meeting in Baltimore, MD, U.S.A., September 2009. The intent of the session entitled, “Third-Party and Customer Audits: A Current Perspective for Stakeholders Forum,” was to bring all stakeholders of the food and beverage supply chain together to discuss the current state of the industry in regard to third-party audits and hazard analysis and critical control points (HACCP) management systems and food safety versus the industry’s changing environment. The industry’s current emphasis on food security, food safety, monitoring, inspection, and recalls has led to a rapid increase in the number and types of audits that are required. As we respond to new audit requirements, we are faced with the challenge of creating a food safety culture, maintaining the best food safety practices and retaining consumer confidence, while effectively managing overall costs and complexity. The milling and baking industry as a whole has always been forefront in efforts to assure the safety of the food supply—they were early adapters of third-party audits and HACCP practices. AAACC Intl. is one of the first associations in the industry to tackle this complex and highly specialized area from a truly global perspective.

The session was focused on improving the safety of our food supply chain through developing an industry approach to third-party audits, standardized customer surveys, and the sharing of best practices

- The bottom line: Eating safe food should be a basic human right. To that end, food safety is an area where we should collaborate and share best practices.
- There are several issues associated with the current proliferation of audits. These include the marketing of audits; standards; transparency between audit schemes and international standards; audit redundancy; and cost.
- An AAACC International task force has been formed with representation from all segments of the supply chain: retail marketers, restaurants, food producers, ingredient manufacturers, academia, associations, and audit scheme providers to provide industry collaboration in the area of food safety.

relative to food safety in order to guide the industry toward a culture of food safety. Speakers represented major consumer food companies, food ingredient manufacturing, the U.S. Food and Drug Administration (FDA), and third-party certification and auditing bodies. More than 60 members of AAACC Intl. participated, representing industry partners, including customers, suppliers, retailers, associations, academia, and government. Participants shared their goals for the session and more than half volunteered to be part of a working group to address current industry needs.

The top concerns identified at the special session were in alignment with the concerns which prompted the session.

- In the area of third-party audits, concerns were raised with regard to audit redundancy, the cost of multiple inspections, and auditor competency/consistency. A desire was expressed to have the auditor provide training and education, or share best practices during the audit process.

- The completion of multiple customer-specific surveys was identified as an opportunity where the industry could be more efficient with standard questions and responses. Current surveys are quite similar in content. Standardization across the industry would provide consistency in the information collected and the speed of responsiveness, as well as allow for the updating of information by the vendor as continuous improvements occur. The end benefit would be the creation of more time spent on providing customer solutions.
- Sharing of best practices in the area of food safety emerged as a point that all could agree upon. A failure at any point in the supply chain for a particular product has an impact on the industry as a whole. Whether the organization was directly involved in the product withdrawal or recall, a food safety event creates consumer loss of confidence in the industry. To this end, session participants suggested sharing of food safety training, crisis resolution, and capturing of best practices into industry documents similar to how industry methods are written. Sharing of best practices was believed to be a key component in shoring up gaps in the current supply chain.
- Customer acceptance of the selected audit approach is a key driver to ensure that all industry participants are involved. Furthermore, it was suggested the industry would be better served focusing on best practice sharing instead of trying to satisfy particular customer requirements. The working group provides a forum for all stakeholders to influence best practices.
- Regulatory impact surfaced since there are global inconsistencies in requirements and the food safety regulations continue to intensify.
- Finally, concerns surfaced regarding the safety of products themselves: detection and monitoring for myco-

toxins, foreign material, allergens, microorganisms, etc.

The Challenge—Consumer Confidence

The safety of the food supply chain has been a major focus area for the United States, as well as for countries around the globe. In recent years, the United States alone has experienced food and ingredient contamination/adulteration and several food illness outbreaks in a variety of products. These include, but are not limited to peanut butter, spinach, pet food, infant formula, fast food, and cookie dough.

Our current food safety systems, HAC-CP and audits, were not able to detect and prevent these failures. The increased incidence of product recalls, reports of deaths, and concerns about the threat of intentional adulteration have weakened consumer confidence. The fear associated with these events has been enhanced by contaminants being found in foods not previously thought susceptible.

In the ensuing investigation of these events, scrutiny has been placed on the value of third-party audits and their ability to enhance food safety and prevent issues from reaching consumers.

On a positive note, these events have shown how quickly FDA responds to contain food safety problems. While this level of response needs to be maintained and even enhanced, there is also a need to focus more on building safety into products right from the start to meet the challenges of today (Riley, D. Third-party and customer audits: A current perspective for stakeholders. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

Potential Solutions

So, what potential solutions are being brought forth to strengthen the safety of the supply chain and collaborate across the industry? One of the solutions being proposed is increased legislation.

- The FDA reform bill seeks to increase the funding and authority of the FDA.
- FDA has indicated a desire to work with the private sector to build on industry efforts to ensure product safety. This shift to an increased emphasis on prevention is at the core of FDA's Food Protection Plan (see, www.fda.gov/Food/FoodSafety/FoodSafetyPrograms/FoodProtectionPlan2007/default.htm). Prevention needs to be augmented then by targeted agency interventions that focus inspection and testing on the areas of greatest risk. The goal is to reduce the likelihood that contaminated products will reach consumers (Riley, D. Third-

party and customer audits: A current perspective for stakeholders. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

- The Food Safety Enhancement Act of 2009 (H.R. 2749) may require certification of compliance for imported food. Certifying entities will need to be qualified and meet conflict of interest requirements. Test results for entry decisions will only be accepted from accredited laboratories. Accredited laboratories may be required to advise FDA of testing and to send results to FDA. FDA may perform audits of the certification body, certification establishment, and accredited laboratories. FDA may utilize the information to make risk-based decisions (Kraemer, D. U.S. Food and Drug Administration—FDA activities in third-party certification. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).
- Increased frequency of government inspections has already been evidenced.
- Several states have sought and obtained mandatory reporting of pathogen test results.
- Imprisonment of a CEO may likely become a real consequence of food safety illnesses caused by their company, whether intentional or unintentional.
- It is expected that the government will expand the industries for which HAC-CP is mandated, including mandatory prerequisite programs.
- Guidance for industry from FDA may include voluntary third-party certification programs. The programs could include certification bodies performing audit activities, examining and gathering records or other information, collecting and analyzing samples, reporting on criteria, and applying criteria to certification (Wybourn, K. Global Food Safety Initiative—A global vision for food safety. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

Another approach to solving the problem is to create a common framework for third-party audits. The Global Food Safety Initiative (GFSI) is one such approach. GFSI began as a retailer initiative in Europe with the Consumer Goods Forum (CGF), which has membership of more than 400 retailer and manufacturing members from around the world (Wybourn, K. Global Food Safety Initiative—A global vision for food safety. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

The driver behind the initiative is that wherever the threat of food safety originates, a wider reaching global supply chain exposes our food supply to enhanced risk and much of the responsibility falls to those who ultimately produce and sell the food. As the distance from farm to fork grows wider it becomes harder for retailers to control every point in the supply chain (Wybourn, K. Global Food Safety Initiative—A global vision for food safety. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

The GFSI technical committee benchmarked available audits using their own guidance document. They approved audits that met the GFSI minimum standard of food safety. The audits are considered equivalent and a company is allowed to select any of the approved audit schemes for their certification. Of note, GFSI requires that the audit is not owned by a particular auditing body. Any accredited certifying body can conduct the GFSI audits. A key focus is placed on auditor competence and accreditation.

Unlike a previous initiative by the Grocery Manufacturers Association (GMA) to market the “single audit” that would meet the needs of all stakeholders, the goal of GFSI is to benchmark audit schemes and determine “audit equivalency” (Riley, D. Third-party and customer audits: A current perspective for stakeholders. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

Included in the GFSI mission objective is a focus on continuous improvement, confidence in the delivery of safe food to consumers, converging food safety schemes, improving cost efficiency throughout the food supply chain, and providing a unique international stakeholder platform (Wybourn, K. Global Food Safety Initiative—A global vision for food safety. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

GFSI is seeking to engage governments. In an effort to heighten training efforts, GFSI has partnered with Michigan State University to establish core competencies for individual auditors, create a channel to maintain knowledge, and benchmark a model for existing food safety training (Kraemer, D. U.S. Food and Drug Administration—FDA activities in third-party certification. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

Audits—A Current Overview

There are several issues associated with the current proliferation of audits. These include the marketing of audits; standards; transparency between audit schemes and international standards, such as Codex

Alimentarius; audit redundancy; and cost.

To effectively discuss the concerns associated with the marketing of audits, it is important to review what is typically included in a third-party or customer inspection. There are three main components: food safety, regulatory compliance, and quality management. Food safety is based on Codex Alimentarius. It is defined and nonnegotiable. Regulatory compliance tends to be more food-law specific by country, but is also defined and nonnegotiable. The biggest area of differentiation is quality.

A few members of Cargill's Food Safety and Regulatory Affairs Team reviewed several of their most common audit schemes against the requirements of Codex Alimentarius and other key food safety, regulatory, and quality management criteria (Robinson, J. and Overland, M. Audits: Concerns, new challenges, and solutions for the food manufacturing industry. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*). These are their findings:

- Looking at only the 37 criteria of Codex, the audits cover 98% of the same material.
- Considering all 67 key criteria, which include food safety, regulatory, and quality management, the audits were 91% similar.

The main differences noted were country specific and not substantial. Based on these findings, auditor qualifications and consistency would be considered more of an issue than the brand of audit.

As noted, food safety standards are based on the Codex Alimentarius. Codex encompasses general hygiene programs and HACCP. The standard is accepted in 174 signatory countries, which represents

98% of the world's population. This makes Codex Alimentarius the logical choice for a common food safety framework. However, concerns with Codex include:

- The standard provides strategy, but does not provide enough tactical information for an organization to run their business. In other words, it provides the "what," but not the "how."
- Changes are slow to evolve and can take up to eight years to get enacted.
- Despite its broad acceptance and use by governments worldwide, some people and businesses are still not familiar with the standard. Many facilities continue to rely on other sources of information, such as industry practices, customer requirements, and third-party audits for understanding.

While the basis of the food safety audits is Codex Alimentarius, geographical regulations, and common quality practices, the link between the audit requirement and the applicable standard remains clouded. While it would seem common sense to outline the requirements and match them to related audit questions, sellers of audits appear reluctant to make this connection transparent. The current proliferation of audits is based on marketing and differentiation. Sellers benefit from a company selecting their audit for certification. Some even offer "branding" that can be utilized on product packaging and paperwork. This differentiation creates frustration on the part of the facility as they try to meet the requirements of individual audits, and at times these requirements are at odds with each other, and are separate from the non-negotiable items, such as food safety and regulatory requirements.

The bottom line: Eating safe food should be a basic human right. To that end, food

safety is an area where we should collaborate and share best practices.

In addition to a global standard for food safety, other global standards are emerging and coming together to strengthen the supply chain. These include the World Organization for Animal Health (OIE) and International Plant Protection Convention (IPPC). A key message heard from OIE is "one world, one health." We must create standards for animals and animal derivatives that are structured the same as they are for humans. The protection of plants from pests is a key part of our food safety strategy as well.

With 91% of the audit criteria overlapping, this begs the question: Do multiple audits improve food safety? One might argue that multiple audits keep a facility on their toes and ever vigilant to food safety. Others feel that the result is instead, audit redundancy. Let's take a look at this question another way.

The current set up looks like that shown in Figure 1 (Robinson, J. and Overland, M. Audits: Concerns, new challenges, and solutions for the food manufacturing industry. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

Each customer has aligned itself to a particular audit brand that it expects its suppliers to utilize. There is not consistency across customers, audit brands, or the auditors themselves. Does this make you feel better about the safety of your food? By comparison, what does transparency to a common standard provide (Figure 2)?

Each step along the supply chain from farm to fork can be focused on a consistent framework as illustrated in Figure 2. When a common language is shared, it is possible to collaborate up and down the supply chain to help each other ensure a safe food supply to consumers. So the simple answer is "no." Multiple audits reduce the clarity of food safety goals, adding confusion and cost. The valuable time of facility food safety, regulatory, and quality experts is expended on the process of auditing at the expense of initiating and driving meaningful improvements in food safety. The time needed for developing and delivering customer solutions is exchanged for redundant audits.

The Bottom Line

So, what is the cost of multiple audits? Table I summarizes the estimated cost of audits in the industry (Robinson, J. and Overland, M. Audits: Concerns, new challenges, and solutions for the food manufacturing industry. Presented at the 2009 AACC Intl. Annual Meeting, *unpublished*).

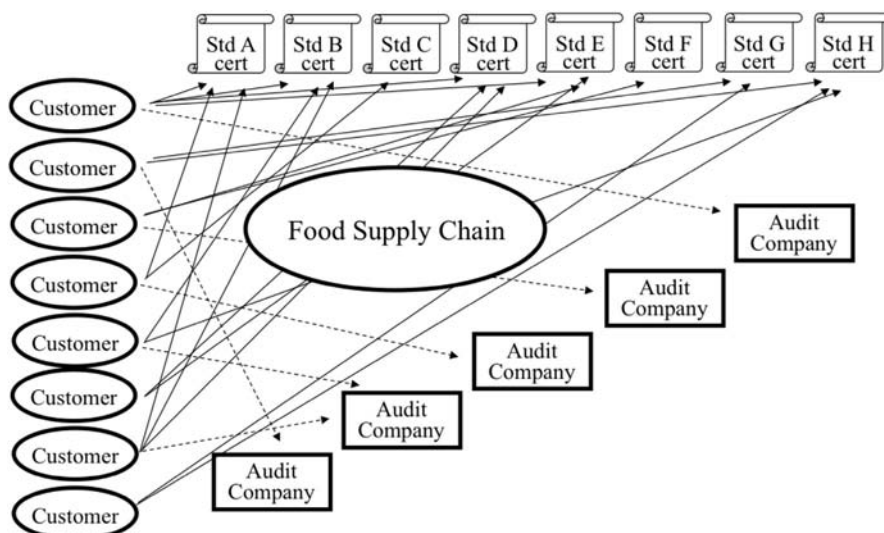


Fig 1. Current food supply chain audit redundancy.

Using an average cost for audit and auditor travel expense in U.S. dollars of \$7,684 per audit, and assuming on average three audits per year per food/food ingredient manufacturing facility, the cost per site is \$23,052. The cost does include the cost of labor for personnel involved in the audit. So, let's expand this. FDA lists 126,000 food manufacturing plants in the United States and estimates 420,000 plants worldwide. These figures put the current industry audit expense, with three audits per plant, at \$9.7 billion per year. If each manufacturing facility could choose one audit, this would reduce the total funds spent on audits to \$3.2 billion. This would free up \$6.5 billion per year that could be invested in food safety improvements to protect consumers instead of redundant audits.

Through the strategy described in Table I, the GFSI initiative seeks to address the larger issues regarding third-party audits. As shown in Table I, this would mean a reallocation of \$6.5 billion per year! Imagine the impact of \$6.5 billion spent on driving food safety improvements instead of redundant audits!

GFSI has currently approved six audit schemes: BRC, IFS, SQF 1000, SQF 2000 Level 2, Dutch HACCP, and FSSC 22000. FSSC 22000 is an audit scheme garnering a lot of interest by the food manufacturing sector. FSSC 22000 is a combination of ISO 22000 and PAS 220. PAS 220 is an addendum focused on prerequisite programs specific to "food manufacturing." Other addendums need to be developed and deployed to address prerequisite programs for distribution, food service, and retail, etc.

The True Purpose of Audits

The purpose of third-party audits is to ensure a safe food supply for consumers and the protection of the company brand. This is accomplished through the management of food safety, regulatory compliance, and quality systems. While the value of third-party audits has been challenged, it remains a critical component of an integrated process to ensure a safe supply chain.

New Challenges

We have already discussed where the path of multiple audits takes us. Yet, in response to recent incidents, more customers are feeling the push to come in and conduct their own audit to assure themselves that the product/process is safe. This is why an industry approach with involvement from all stakeholders is key to our success. We must engage customers to review our concerns and develop a plan to address identified gaps. We must actively collaborate with customers to conduct pilot programs and validate our stance. While we should not encourage audits, we should continue to support customer visits to our facilities to address items that may be outside an accredited audit scope.

In addition to multiple audits, there is an influx of customer surveys seeking to obtain food safety, regulatory compliance, and quality information. Each customer has their own survey that seeks basically the same information: allergen; nutritional; certification by religious, e.g., kosher or halal, or government bodies, for example organic; country of origin; formulation; and production line documentation and component, such as volatiles or treatment,

such as irradiation. Yet because of slight differences in format and how the questions are posed, each form must be completed individually per customer, per operation, and per finished good. This is both time consuming and redundant.

Our current audits tend to evaluate business-to-business transactions; one step forward and one step back in the supply chain. If we go beyond one step, we may be surprised at the origin of products/raw materials and the number of contract manufacturers/distributors employed. Bottom line, we need to become aware of the product life cycle "from farm to fork."

Currently there is a shortage of qualified auditors to conduct the accepted audit schemes. Training and recruitment are critical activities for the certification bodies.

A final challenge, although not really new, is the "acceptance" of GFSI, but not the broad acceptance of all GFSI-recognized schemes. As the process is driven from retailer to food manufacturer to food ingredient and food component producer, the audit schemes often go from six to one. When customers mandate different audit schemes, the result is again, multiple required audit and inspection programs per facility. If suppliers do not have a choice, the goal of GFSI is neutralized. The industry must instead focus on the imperatives, which are safe food and collaboration

Task Force Formation and Proposed Path Forward

The path forward was clear to the special session participants—industry collaboration in the area of food safety. An AACC Intl. task force has been formed with representation from all segments of the supply chain: retail marketers, restaurants, food producers, ingredient manufacturers, academia, associations, and audit scheme providers.

The vision of the task force:

- The food and beverage industry has a common, global approach, objective, and voice: Food safety is the key deliverable of the industry to our customers
- A food safety culture exists

Table I. Summary of the cost of food safety audits^a

Food Processors	Plants (\$)	Total Cost (\$)
Globally	420,000	9.7 billion
If one equivalent audit is chosen:		
Globally	420,000	3.2 billion

^a Assuming an average audit cost and three audits per plant: \$7,684 per audit per plant, multiplied by three audits per facility equals \$23,052 per plant per year. Calculated using FDA plant numbers of 126,000 (United States) and an estimated 420,000 global (with U.S.A.). The current industry audit expense is an average of three audits per plant.

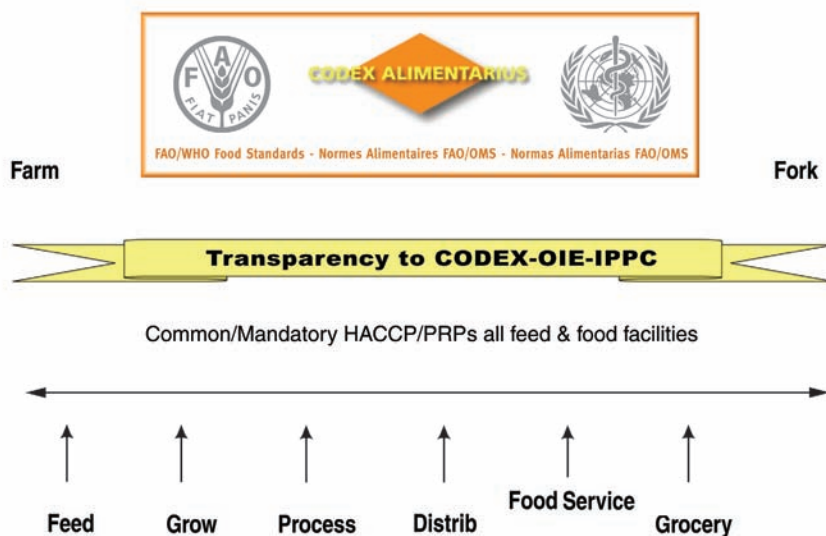


Fig 2. Transparency of audit requirements across the supply chain from farm to fork.

The mission of the task force includes driving change and acceptance in the global food and beverage industry that will lead to:

- Audit equivalency
- Elimination of audit redundancy
- Transparency between the audit scheme and food regulations and requirements
- Collaboration on food safety—shared learning, shared consumer confidence
- Harmonization
 - A common audit—requirements and content driven by industry safety standards
 - A common survey for food and food ingredient manufacturing sites and products
- An influence on management practices for critical food safety concerns—microbes, extraneous matter, and toxins, including how FDA will regulate/audit
- Food regulation and enforcement organizations (e.g., FDA) are strong, viable organizations that align with the industry to work together to deliver increased consumer confidence, validation, and acceptance
- Auditor competency
- Harmony between audit and regulation—just one set of books

The task force has proposed the following key deliverables:

- Standard survey for processes and products based on Codex, regulations, quality management, and other food safety standards
- Database to facilitate sharing of survey and key manufacturer information, including kosher, halal, allergen statements, etc.
- Mechanism to share training materials, best practices, identified gaps, and issue resolution
- Gain consensus on acceptable audit schemes, and all schemes accepted by customers resulting in true audit equivalency
- Gain industry acceptance through communication and collaboration with other food industry organizations such as the American Bakers Association, American Oil Chemists' Society, American Society for Quality, Consumer Goods Forum, GMA, Federation of Animal Science Societies, Institute of Food Technologists, International Organization for Standardization, North American Millers' Association, Produce Marketing Association, and the United Fresh Produce Association to name a few.

- Open communication with FDA
- Standardize auditor training to provide auditor equivalency, i.e., similar to the training standards and certification for accountants (CPA certification) and engineers (PE certification)

Several working groups have been formed within AACC Intl. to generate these key deliverables:

- Vision, mission, and deliverables
- Development of a common survey
- Identification of potential database solutions
- Exploring mechanism for training and issue resolution information sharing
- Gap analysis of current GFSI-accepted schemes and the recommendation of modification to allow universal acceptance
- Auditor competency

For those interested in the activities of the working group, contact Susan Kohn (skohn@scisoc.org) at AACC Intl.

Additionally, the Consumer Goods Forum (CGF) Global Food Safety Conference will be held February 3–5, 2010, in Washington, DC, U.S.A., to provide a platform for networking, knowledge exchange, and sharing best practices. Information on the conference can be found online at www.tcgffoodsafety.com.

Summation

In conclusion, as you think about food safety, consider the following:

- Focus on standard requirements and not the audit brand
- Consider your available people, resources, and budget
- Ensure your food safety dollar is utilized to drive improvements in your food safety plan and not spent on redundant audits
- Engage all stakeholders for your industry and product, including customers, suppliers, distributors, manufacturers, consumers, industry associations, and government agencies
- Share best practices and learn from each other—food safety is an area where we should collaborate
- Know your supply chain. Do you know who touches your raw materials, ingredients, and products from farm to fork? Do you have confidence in their intent to comply, their knowledge, and their ability to deliver their part of the promise?

Together, we can restore consumer confidence and ensure a safe food supply for our families and communities across the globe.



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editorial content for numerous food industry magazines. She has been granted six patents. Along with the team of Jan Funke of General Mills, Jennifer Robinson of Cargill, and Nick Weigel of ADM, she organized the special session "Third-Party Audits and Food Safety—A Current Perspective for Stakeholders," sponsored by the Milling and Baking Division at the 2009 AACC Intl. Annual Meeting. She is currently facilitating the association's task force activities. She can be reached at bbheidolph@gmail.com.