

# Grayway



**LEAD STORY**

## PROTECTING THE FOOD CHAIN

How Data Collection, Analysis and Automation are  
Improving Food Safety and Quality in the U.S.

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## WELCOME



Stephen Gray  
President &  
Chief Executive Officer

There was a time when identifying the origin of contamination at a food and beverage plant was difficult. But today's sophisticated food and beverage manufacturer utilizes highly integrated, automated process control systems that gather large amounts of data—and analyze it—in real-time.

In this issue of the GrayWay, we explore how data collection, analysis and automation are improving food safety and quality in the U.S, and how to integrate a top-line food safety and quality program company-wide.

*Gray practices methods  
which protect our environment.*

# FOOD SAFETY AND QUALITY IN THE 21ST CENTURY

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Jeffersonville, Ind.



# PROTECTING THE FOOD CHAIN

How Data Collection, Analysis and Automation are Improving Food Safety and Quality in the U.S.

**Today's demanding consumer is challenging food safety and quality standards like never before. The growing demand for food and beverages that are free of allergens, gluten, pesticides and GMOs are pushing food and beverage producers to redesign their quality and safety programs. And, today's consumer not only demands the foods they consume to be free of certain ingredients or contaminants—they want proof.**

Add to that increasingly stringent regulatory standards required by the [Global Food Safety Initiative](#) (GFSI) and the [Food Safety Modernization Act](#) (FSMA), it's never been a more challenging time to be in the food and beverage business. Transparency and traceability of ingredients are simply a must for producers that want to maintain customer satisfaction while meeting increasingly stringent regulatory standards.

[The USDA recalled](#) over 21 million pounds of meat and egg foods in 2015. Undeclared allergens were the leading cause, accounting for nearly half of these recalls.

Delivering the highest-quality foods that are safe for customers to consume continues to be priority number one for U.S. food and beverage producers, and the focus is on preventing quality and safety breaches rather than reacting to them.

As one might expect, the U.S. food and beverage industry is [rising to the occasion](#), tackling the increasing regulatory challenges and rising consumer demands head on. One key way they are doing so is by improving the way safety and quality data is collected and analyzed during the manufacturing process.



Barry Maxon  
Founder and  
President,  
Safety Chain

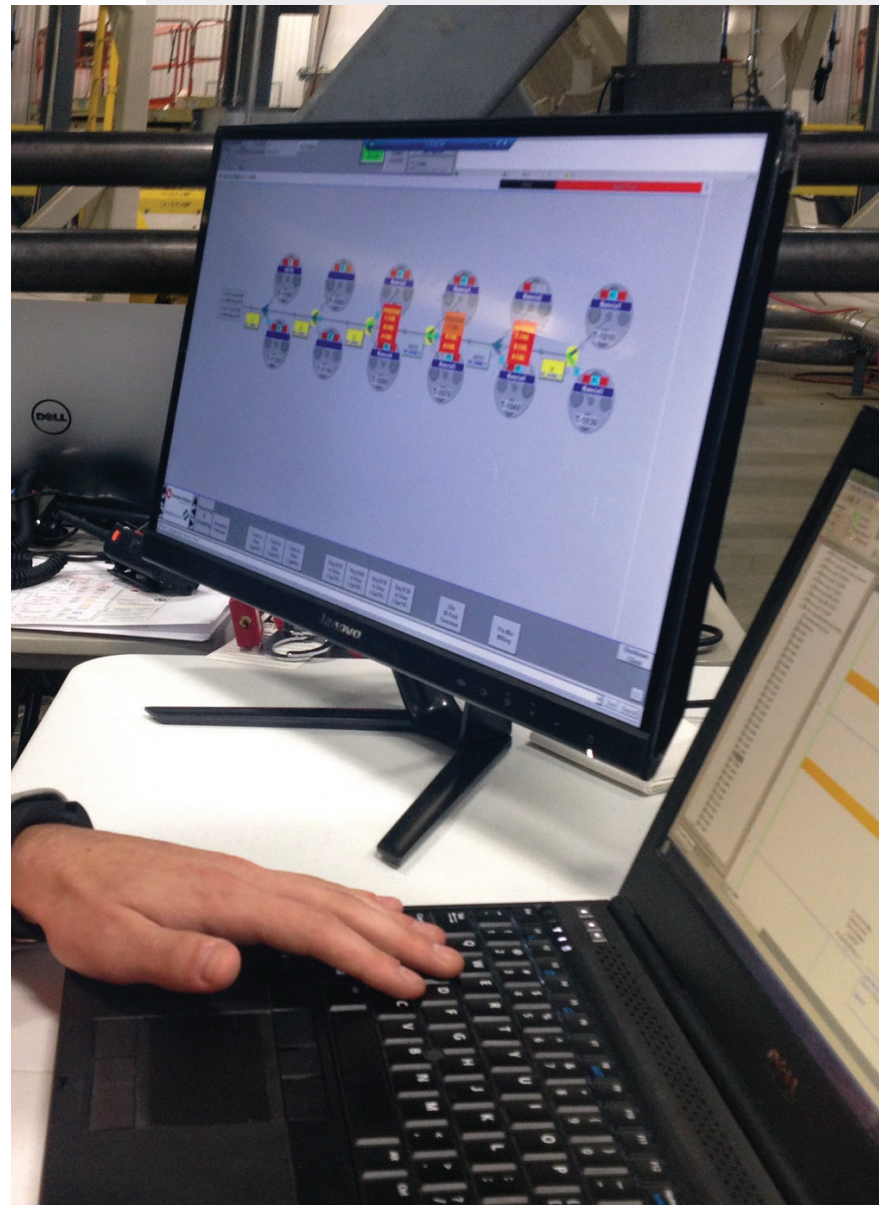
Barry Maxon is founder and president of Safety Chain—a company that provides software solutions to help food and beverage producers automate and collect data from the continuum of their food safety and quality programs. According to Maxon, the move from manual collection of data on food and beverage production lines to automated data collection has been the most significant and impactful change in food safety and quality over the last two decades. He says that, historically, food quality and safety information was checked and collected

using pens, paper and spreadsheets, and then stored in filing cabinets to be accessed at a later date for audits or in case of a recall.

“It was very difficult to measure the effectiveness of food safety and quality because, fundamentally, the data of all of these different processes were locked up in paper files and spreadsheets that didn’t have any ability to connect the dots,” said Maxon. “When you’re managing a manual process on paper, things fall through the cracks. Trends aren’t seen soon enough, and so you wind up being very reactionary as opposed to preventative, which is the whole thrust of GFSI standards and the Food Safety Modernization Act—to make your food safety programs much more preventative versus reactionary.”

Maxon says most of today’s food and beverage producers have transitioned from a manual approach to an automated one, using advanced operating systems to collect, analyze and store massive amounts of data from automated equipment across food production lines. But today’s food and beverage producers have taken it a step further and want what he calls “harmonization” in their data collection processes, across all of their facilities.

“Harmonization is more than just doing things the same way,” said Maxon. “Harmonization is the ability to actually monitor that data collection is being done and being done correctly. Harmonization is going a step beyond a standard. It’s ensuring closed-loop management to make sure your programs are actually being implemented effectively in the proper way.”



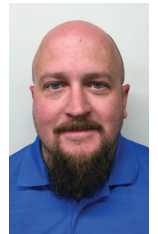
Control engineers testing during an equipment commissioning.

Now, with more data at their fingertips, food and beverage producers can extract and analyze data like never before. Maxon says his company’s operating system allows producers to capture every food and safety quality event, expose that data through a variety of views, and analyze the data in real-time.

“Was the metal detector check done on time? Was there a third-party laboratory analysis of a sample that indicated a positive for E-coli, or any other microbiological contaminant? Was a net-weight sample taken and was it within parameters, or not?” said Maxon of some of the questions that can now be answered, and answered quickly.

Food and beverage producers that have been resistant to change might say integrating sophisticated data collection operating systems is cost-prohibitive, but experts in the industry disagree.

Dan Schuster is a senior process control engineer for Schenck Process, a global market leader in measuring and process technologies in industrial weighing, feeding, screening and automation equipment. He says the cost of even the most sophisticated data collection system has followed advances in computer technology, like desktop computers and cell phones. As the availability of technology increases, the cost of these systems decreases.



Dan Schuster  
Senior Process  
Control Engineer,  
Schenck Process

“A couple of decades ago, it might cost hundreds of thousands of dollars to implement such a system, but now, it can be done for under \$10,000,” he said. “And what used to fill a room is now sitting on your desk.”

Maxon concurs, and added that it’s important to look at the cost of adopting automation software in the context of a return on investment.

“It’s really not an operating expense when you look at a return on investment model,” he said. “I would encourage companies to take a practical look at it because, if they’re not doing it today, they’re running a significant risk in liability by not adding preventative controls.”



# WORKING TOGETHER

Integrating a Top-Line Food Safety and Quality Program Company-Wide

**Modern food and beverage facilities around the world are integrating new technology to improve operations, but also provide new levels of safety and quality in their finished products. Food and beverage producers are introducing highly automated and innovative systems into their facilities for preparing and packaging foods, and distributing products to consumers.**

Walker Mattox is founder of Crow Street, a company that works with businesses to provide integrated technology solutions. He says it's important to establish a clear foundation for communication and standardization at the beginning of each project.

“Once technical standards have been set, the appropriate technology solutions can be brought together to create maximum flexibility,” said Mattox. “Developing an adaptable framework is the core foundation of any future ready project.”

A typical food and beverage plant will feature a variety of food processing equipment supplied by a number of vendors. While it's important to select just the right piece of equipment for each step in the manufacturing process, incorporating equipment from a variety of vendors can present a unique challenge when it comes to successful integration of a food safety and quality program.

Lou Rives is president of VersaTech Automation, a company that specializes in integrating process controls for industrial customers. In this capacity, VersaTech ensures that the control systems of each piece of equipment in a food and beverage plant coordinates with the rest.

“In a given plant, there might be a dozen different pieces of equipment supplied by unique vendors,” said Rives. “We establish a standard platform across equipment lines so they speak the same language. This makes it much easier and more efficient to gather important data used in food safety and quality efforts.”



Lou Rives  
President  
*VersaTech Automation*

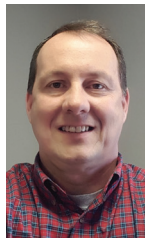


*“Companies want to be able to access metrics and traceability data from current production runs, and historical ones.”*

—Walker Mattox

On a recent project for an international pet food company, Mattox and Rives worked with [Gray Construction](#) to set a standard using [Rockwell Automation](#)—the largest controls vendor in North America—to help integrate equipment and create a common controls platform. This allowed vendors and OEMs to operate in their own space but provided commonality to deliver an integrated platform. Consultant Dan Heatherly, who works with Rives, helped the company use Rockwell’s [Vantage Point](#) software to ensure access to data from multiple vendors, whether in the database or a process on the plant floor.

But what does that mean for food safety and quality? Heatherly says it all comes down to [traceability](#).



Dan Heatherly  
Consultant

“At one time, I was working for a tire manufacturer who, before this kind of technology was available, was not able to isolate information when quality of the rubber was compromised,” explained Heatherly. “They would have to get rid of 40,000 tires—or two days of production—because they couldn’t tell at what point in the production process the rubber was compromised. Once they implemented paper barcode tracking of each individual item, when they had a bad batch of rubber, they could isolate a certain number of tires and just get rid of those.”

“You see that same sort of thing in the food industry where at least in a lot of cases, you know the ingredients that went into a product, so when there’s a recall, you can narrow down which product it is, and then how to segregate it and make sure it’s safe.”

While food and beverage companies have been mining this data for some time now, the speed and efficiency at which they can do so has changed dramatically over the last decade or so.

“We’re seeing a demand for highly integrated and coordinated systems today,” said Mattox. “Companies want to be able to access metrics and traceability data from current production runs, and historical ones. Creating common data points allows financial and operational systems to have access to near-real-time information.”

It’s not just [data](#) from processing equipment that impacts food safety and quality that companies are analyzing. They can now extract data from the environment of a plant to identify problem areas.

“If a particular temperature has to be met in order to maintain quality, manufacturers need to be able to see that information to verify the temperature, for example,” said Rives.

A highly sophisticated controls system can track data virtually in real-time and offers other benefits [beyond maintaining food quality and safety](#).

“Companies can now also track the status of their equipment,” explained Rives. “Every day, they can look back and see how they are utilizing production lines. Are they only utilizing a piece of equipment 50 percent of the time? Could this piece of equipment be utilized more often? From a future investment standpoint, they can make better decisions about investment in new equipment.”

# THE NEW FACE OF MANUFACTURING

The Grocery Manufacturers Association and Battelle Launch Tool to Protect Integrity of Food Supply Chain

Earlier this year, [news broke](#) that a [cheese plant](#) in rural Pennsylvania was doctoring its parmesan cheese—which it claimed to be 100 percent parmesan—with wood pulp, and selling it at some of the country’s largest grocery chains.

With ingredients and food products supplied to food manufacturers and grocers across the globe, the integrity of the food supply chain is at risk. According to some estimates, [food fraud](#) costs the world economy \$49 billion annually and about 10 percent of the food we buy is likely adulterated in some way.

The good news: the [Grocery Manufacturers Association](#) and [Battelle](#)—a world leader in scientific research and development—have partnered to provide a secure and intuitive

web-based software tool called [EMAlert](#) that allows food manufacturers to rapidly analyze and understand their vulnerabilities during the manufacturing process.

“EMAlert works by providing quantitative estimates of an organization’s vulnerability to EMA for each commodity included in the analysis based on a combination of characteristic attributes and subject matter expert-based weightings,” said [Ashley Kubatko](#), principal research scientist at Battelle. “The approach focuses on predicting fraudulent tendencies similar to approaches used by Battelle for the U.S. Department of Homeland Security to predict terrorist tendencies and preferences.”





GRAY... WE'RE BUILDING

# ENJOY LIFE FOODS

## JEFFERSONVILLE, IND.

Gray was selected to complete an interior tenant fit-up for a new 200,000 s.f. facility for Enjoy Life Foods, a natural foods manufacturer that specializes in allergen-free foods. The new facility will allow Enjoy Life Foods to more than double its production capacity and install more efficient production lines to meet growing demand for its products.

Acquired last year by snack food leader Mondelez International, Enjoy Life Foods has been recognized by Inc. magazine as one of the country's fastest-growing private companies for four consecutive years.



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