Food Allergens: A Comprehensive Approach For Food Processors To Prevent Unintended Allergens In Their Foodstuffs



A Food Safety Guide for Food Processors





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### **About EHA Consulting Group Inc.**

EHA Consulting Group, Inc. (EHA) offers comprehensive public health consulting, epidemiology and food safety services before, during and after a crisis. We provide these services to Retail Food, Food Service, Food Processing, and Contract Food Service Management companies.

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"Food processors must have an allergen prevention plan to determine potential sources of contaminating allergens and create appropriate controls to prevent allergen introduction into food products."



The proper control of food allergens in a food processing plant presents numerous challenges. The ubiquitous presence of allergens in the human food supply, coupled with increased awareness of food allergies, warrants undertaking appropriate preventive measures to protect sensitive consumers from unwanted exposure to offending food allergens. Food processors must have an allergen prevention plan to determine potential sources of contaminating allergens and create appropriate controls to prevent allergen introduction into food products.

The following guide from EHA Consulting Group, Inc. (EHA) contains information, best practices, and tools for a food processing company to avoid allergen-related recalls. Key factors in allergen control include poor identification, poor handling, poor storage, improper product matrix, improper labeling, poor sanitization, and inadequate testing. The purpose of this guide is to educate you and your staff on the proper steps to protect your brand and your business from the negative ramifications of an allergens incident and potential recall.

### Allergens and Food Processors

"Up to 15 million Americans have food allergies, 1 in every 13 children under the age of 18."



When it comes to food allergens, what you don't know could hurt you - as a customer and as a business owner. Up to 15 million Americans have food allergies, including one in every 13 children under the age of 18. Ensuring that a large number of potential customers can safely consume your food is a vital business practice.

Allergens affect people in various ways. Allergens are substances, usually protein in nature, that illicits a reaction that is generically termed an allergic reaction. Allergens do not have to be proteins; they can be chemical, such as sodium bisulfite or MSG (monosodium glutamate) and in non-food settings, they can be dust. Food allergens are an improper reaction of someone's immune system that most of the population tolerates without any problems. For those who are sensitive to an allergen, consuming one of the over 170 foods that contain allergens could result in symptoms that range from minor tingling all the way to death. Consumers with known allergies diligently select the food they consume to ensure they do not trigger a potential allergic reaction. Therefore, food processors that are distributing or serving foods that may cause an allergic reaction have great responsibility. As a food processor, staying current on allergens and understanding how to protect your end consumers is paramount.

Food processors must be aware of newly emerging allergenic foods and be cognizant of geographyspecific rules. While food processors in the United States should familiarize themselves with all allergens, it is of utmost importance to focus controls on the top eight foods containing allergies which are found in fish, eggs, soy, peanuts, tree nuts, wheat, crustacean shellfish, and milk. The European Union has a more comprehensive list of allergens that include the following foods and products thereof: gluten, (i.e. wheat, rye, barley, oats, spelt, kamut or their hybridized strains), crustaceans, eggs, fish, peanuts, soybeans, milk, nuts (i.e., almonds, hazelnuts, walnuts, cashews, pecan nuts, Brazil nuts, pistachio nuts, macadamia nuts and Queensland nuts), celery, mustard, sesame seeds, sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/liter expressed as SO2, lupin, and molluscan. In the Asian markets, Japan's declared allergens are eggs, milk and dairy products, wheat, buckwheat, shrimp/prawn, peanuts, salmon roe, soybean, kiwi, banana, crab, chicken, tree nuts, squid, mackerel, pork, salmon, gelatin yam and peach. As a processor you may be working with any number of these foods.



### Food Processors' Allergen Challenges

*"Undeclared allergens were the single largest cause of recalls from the USDA in the second quarter of 2013."* 



As a processor, you are charged with great responsibility to ensure that allergens are handled safely. Teams responsible for intake, storage, transfer, processing, labeling, cleaning and testing all have important roles in preventing allergens. Teamwork, communication, and strong control processes are paramount.

Unfortunately, food processors are currently experiencing more challenges with preventing allergen-related issues, leading to recalls and government intervention. Undeclared allergens have been a top trend setter in USDA and FDA recalls for the past six quarters, according to Whitworth of Food Quality News. Undeclared allergens were the single largest cause of recalls from the USDA in the second quarter of 2013, accounting for 60% of recalls and almost doubling from 33% in the first quarter of 2013. A study from Gendel and Zhu from the FDA uncovered trends from recalls between 2007 and 2012. Gendel and Zhu identified that bakery products were the most frequently recalled food type and milk was the most frequently undeclared major food allergen.

Gendel and Zhu also found that use of the wrong package or label was the most frequent problem leading to food allergen recalls. This finding tells us that food processors have (at least) one of the following problems:

1. Controls: Processors do not have checks and balances, allowing for mismatched recipe and label combination

2. Training: Processors have untrained employees adding allergens without understanding the danger to end consumers or inattentive employees who are not checking the label against the ingredients going into food products

Instituting a strong training program and reinforcing it with controls is the only way food processors can mitigate ramifications originating from allergen-related recalls.

### Major Risk Areas for Allergen Recalls

"Vendors must properly identify any and all allergenic materials used either in the product directly or indirectly as a processing aid."



#### 1. Controls

Food processors need an end-to-end system to control for allergens.

A. Product Intake Handling

Proper handling of allergens starts with an intake of products, including an inspection of the delivery truck, in your facility. First, a thorough intake inspection process is necessary, including checking the trip manifest of tankers and railcars to assure no cross-contamination could occur. Cleaning documentation is critical for tankers especially. Dedicated hoses, either from the supplier, or better from the manufacturer facility that is taking in the materials are essential to controlling contamination. Torn bags, spilled products and overall unsanitary conditions on any size delivery truck are unacceptable and partial or whole loads should be rejected, should this be the case. All loads should be documented, and in the case of a contamination issue, information must be forwarded to the carrier for them to make the appropriate corrective actions.

Then, it is critical to document the goods accepted. The box, bag, tote, tanker, bulk container or rail car delivering goods needs to have a manifest that clearly identifies what is being entered with that particular shipment. Vendors must properly identify any and all allergenic materials used either in the product directly or indirectly as a processing aid. At the point of intake, closed containers such as bags, boxes and totes should be clearly marked with a label that is comparable to any product label used in your facility.

Upon accepting items with known allergens, the rule to go by in determining where to store allergens should be simply stated as the 'shortest distance and least number of cross-overs.' Avoid moving allergenic ingredients all the way across the plant to an area that handles no other allergenic ingredients. Once you have finished making product and placed it in the product containers and affixing the proper label, where do you store the product? Are you confident that product in the container will stay in the container or will you create another cross-contamination risk?



"Each allergen should be designated a unique color and each accepted item should receive either a plain sticker for no allergen or identified allergen sticker."



#### B. Allergen Identification

Once you have accepted the product, if there is an allergen present in any of the ingredients, the facility must have an identification system that clearly visualizes that particular allergen. Each allergen should be designated a unique color and each accepted item should receive either a plain sticker for no allergen or identified allergen sticker. For example, to indicate flour as an allergen, use a 2x2 adhesive label colored red. Food processors should be able to identify products by allergen class by a simple scan of the products accepted.

The next step is to put the product in its proper place based on sticker color. Matching the color of the sticker to the rack or floor area corresponding to that allergen enables clear allergen separation. For ingredients that are taken into the facility and stored in large tanks or silos, the receiving area must have comparable allergen identification. If your intake involves a hose supplied by the trucking company, the hose must adhere to the same criteria. The hose must transfer a product with or without an allergen and not be used interchangeably. The driver should be able to produce a Cleaning Certificate prior to connecting any hoses to the receiving or distribution system. Whatever intake method chosen, clarity, consistency, and control will determine the allergen program success.

#### C. Storage

Identification does not stop once product passes through the receiver system. Your tanks and silos must be marked with the products contained. Putting flour into a silo one day and sugar the next, only to go back to flour is not acceptable. When ready to use, ingredients must transfer from where they are stored to where they are introduced into the equipment where they will ultimately end up in your final products. Allergens should always follow the same path to the processing equipment and, if moved via a material handling system, the product should always be behind the person moving.

Once you have the materials in-house, the work of keeping control becomes a matter of good manufacturing practices and clear distinct labeling comes into play. But there is also a question that needs to be answered, "Are we placing all allergens in the same area or separate parts of the facility to minimize cross-contamination risk internally?" Then you need to determine the controls in place to minimize the risk of confusion with like packaged materials, especially if the outer containers are similar in appearance. What type of visual controls do you have in place or are you capable of creating, managing and maintaining? Finally, do you have employees that are color blind and could potentially confuse materials by color label without reading the contents?

### Major Risk Areas for Allergen Recalls

"Schedules of allergens in production should always follow a product matrix, introducing allergens one at a time until the final production runs contain the most allergenic materials."



#### D. Cross-Contamination

While cross-contamination can happen at any time, it is important to place great attention when transferring products within the facility. Moving the materials through the production facility has its own challenges and there may be more than one point where cross-contamination and cross contact could take place, particularly if scheduling and logistics are not a focus of the risk assessment. Too often, production risk assessment appears as a linear process, while the actual production system is intermeshed and overlapping. Are all employees aware of the allergens and how their transport of allergens, no matter how innocuous, could impact other production and areas of the facility?

#### E. Product Matrix

Labeling and tracking allergens as they are introduced into the kitchen and handled throughout food preparation has to become a key component of risk analysis. It is optimal to continually update the entire allergen program, however there is seldom time to commit, so a program matrix will help assure that all the allergens are labeled, tracked, and handled correctly.

Schedules of allergens in production should always follow a product matrix, introducing allergens one at a time until the final production runs contain the most allergenic materials. The series that should be followed will introduce the allergen with the lowest incident rate first and each subsequent allergen has a higher incident rate. From research generated in the United States, the list is as follows; soy, shellfish, wheat, eggs, milk, seafood, tree nuts and peanuts. Once you reach the highest incident allergen or the highest dose of allergen in the formula, there needs to be a complete cleaning of the equipment before any other products, containing allergens or not, are produced on that equipment.

As referenced above, the "allergen load" of the ingredient and its formulation are a very important consideration. Since allergens are protein based, the focus here is the protein content of the ingredient, particularly from an allergenic source. Ingredients with high levels of protein from the allergenic source represent a higher allergen hazard by comparison with ingredients with no detectable protein from the allergenic source. There may be multiple areas that use one allergen, including scaling, minor production, major production, rework, and return of unused or underused materials. Are there provisions in the production matrix to control and minimize exposure?



"The target facilities of the FALCPA are retail facilities where consumers will be buying the food to consume."



#### F. Labeling

Labeling can easily become an issue, particularly when the label does not reflect the contents of the final container. How can we stop the label from becoming libel? First, the incoming stock of labels needs to be sampled and reviewed by someone in Quality Control to assure that the information is in fact accurate. If you print your own stock, the labels on the computer drives have to reflect the contents accurately. Review of labels has to be done frequently to assure that no changes were made that were unnoticed.

Second, the label needs to be tied into the formula, recipe, and batch sheets. The importance of tying the two together is that all allergens are identified by the label, and the recipe must be verified by the operator adding the ingredients to create the product. If you have a computer program that can link the two and then verify that the label is correct at the packing end of the production line, you have created a more stringent and vibrant system of checks and balances. Finally, the shipper needs to verify the label with the assistance of quality to place the correct product into an order.

#### US Government Regulations

The Food Allergen Labeling and Consumer Protection Act (FALCPA) is a noteworthy milestone in food safety. Certain foods are exempt from FALCPA such as raw agricultural commodities like fresh fruits and vegetables and highly refined oils derived from one of the eight major food allergens. This also includes any ingredient derived from such highly refined oils. Secondly, an ingredient used by a processor may be exempt if it does not cause an allergic response that poses a risk to human health or if it does not contain allergenic protein.

The target facilities of the FALCPA are retail facilities where consumers will be buying the food to consume. Congress passed the act to allow those people with food allergies better assurance that their known allergies will be declared on the label. For example, soy protein in the hamburgers will have no allergen alert or statement because the processors who sell to wholesalers have no legal obligation to declare allergens. However, the restaurant that cooks and serves that hamburger is charged with the responsibility of informing the consumer.



# *"It is important to understand the risk of FALCPA nuances."*



The 8 major food allergens in the United States (milk, egg, peanut, tree nuts, soy, wheat, fish, and crustacean shellfish) are responsible for over 90% of serious adverse food-induced reactions in the U.S. Products delivered with printed labels indicating allergens should raise little concern. But allergenic content could be used in the oils or other materials used in processing. Should you be concerned about processing agents like pan sprays and coatings? Are there quantities that could cause a customer to have an allergenic reaction?

Similarly, it is important to understand the risk of FALCPA nuances. Did you know highly refined oils and their derivatives produced from the 8 major allergen foods represent a labeling exemption? However, less well-refined and cold-pressed oils can contain protein and can be hazardous for individuals with food allergies.

#### International Regulations

The EU dictates, to ensure customers receive information on hazards, suppliers of substances and mixtures should ensure they are labeled and packaged in accordance with this regulation before placing them on the market, according to the classification derived. In fulfilling their responsibilities downstream users should be allowed to use the classification of a substance or mixture derived in accordance with this regulation by a processor in the supply chain, provided that they do not change the composition of the substance or mixture. Distributors should be allowed to use the classification by a processor in this regulation by a processor in the supply chain, provided that they do not change the composition of the substance or mixture.

To ensure information on hazardous substances is available when they are included in mixtures containing at least one substance that is classified as hazardous, supplemental labeling information should be provided, where applicable. While a manufacturer, importer or downstream user of any substance or mixture should not be obliged to generate new toxicological or eco-toxicological data for the purpose of classification, he should identify all relevant information available to him on the hazards of the substance or mixture and evaluate its quality.





#### "You must understand where multiple allergen containing ingredients are stored and identified."



The manufacturer, importer or downstream user should also take into account historical human data, such as epidemiological studies on exposed populations, accidental or occupational exposure and effect data, and clinical studies. That information should be compared with the criteria for the different hazard classes and differentiations in order for that manufacturer, importer or downstream user to arrive at a conclusion as to whether or not the substance or mixture should be classified as hazardous.

In Japan, a system of labeling for food allergies is necessary for people with allergies. However, proteins and nucleotides from allergens are not necessarily toxins. The threshold dose for the prevention of allergy reactions is often considered to be zero. However, a zero tolerance for the offending food would create enormous practical problems for the food industry. Therefore, the MHLW had to establish a threshold of food allergy labeling and develop the official detection method for specific allergenic ingredients. The MHLW organized a detection method study group and the labeling study group determined the threshold for the labeling system, that is, the definition of a trace amount. The group stated that, "If more than a few  $\mu$ g/mL protein or a few  $\mu$ g/g protein of an allergen are contained in a food, labeling of that allergen is necessary." Therefore, we had to develop the detection methods for determining a few  $\mu$ g/mL protein or a few  $\mu$ g/g protein in foods based on the definition of a trace amount.

#### Label Allergens

As stated above products must have a visual label that clearly identifies the allergen present. If there is more than one allergen in the product, for example a cake base, one could have labels for flour, egg and dairy. You must understand where multiple allergen containing ingredients are stored and identified. The next topic: finished product labels. Finished product labels should clearly identify what should be in the final finished product. There should be an identification system that will tie the ingredients with the final product. This is where your product matrix comes in. Your product matrix should be designed and implemented to use no allergens at the start of the production day or week and build-in minor allergens as production moves forward. Single allergens should be added each time a new product is placed into the system. For example, processing a product with only one allergen like flour in the beginning and then add allergens later. Moving to a more complex product, it would have egg and flour, then progressively to egg flour and dairy. And finally, egg, flour, dairy and nuts. Operations staff should be able to clearly identify the allergens that they need at a particular time in production using recipes or formulas that call for allergens at particular points in the process. Finally, any identifier that is used to label the final finished product must have the eight major allergens clearly identified, not only in the ingredients statement, but shown separately as allergens below the ingredient list.





*"We must also evaluate the tools that are used for their potential to accumulate and transfer allergens as part of the sanitization."* 



#### G. Proper Sanitation

Equipment design has a major influence on its cleanability. Hygienic design principles such as smooth surface and absence of crevices and dead spaces should be taken into account when designing equipment. All processing equipment should have an approval from a regulator body or third party that is charged with the investigation and evaluation for its use and its ability to properly be cleaned and sanitized (e.g., National Sanitation Foundation, Underwriter Laboratories, The Baking Industry Sanitation Standards Committee).

Equipment should limit tight corners with less than a quarter of an inch radius, areas that cannot be easily accessed by removing a door or panel, dead ends and openings into any vessel where caps or seals cannot be removed. Just as important as the design of the equipment, is the material that goes into the equipment manufacturing. Soft metals, soft plastic should not be used under any circumstance where materials will accumulate. Stainless steel that is grade "304SS" or above is the preferred metal of choice. Use of lower grades of stainless steel will hamper the ability to clean and maintain smooth interior surfaces of equipment.

#### Cleaning Methods

In addition to a strong understanding of equipment design, a thorough knowledge of different cleaning processes is important. If you deal with only dry ingredients there is a higher likelihood that we will use dry cleaning methods such as compressed air, dustless sweeping or similar equipment. If the product has a wet component, chances are we will need to introduce a detergent with some form of agitation, followed by a rinse and chemical sanitizing step. We must also evaluate the tools that are used for their potential to accumulate and transfer allergens as part of the sanitization. Any cloth that will be used to wipe down equipment should be collected and laundered prior to being used again. Any scrappers or scalpers should not be made of materials harder than the equipment itself (i.e. not above "304SS"). Any brushes used to scrub interior food contact surfaces should be able to be easily cleaned, sanitized and air dried. They should also be color coded for allergens and stored so they will not contaminate or cross-contaminate any clothes, tools or brushes.





"The only way to be sure no allergenic material has been left behind is to test the material and document the results."



#### Inspection

As with any good sanitization program, adequate time needs to be given to the inspection of equipment to verify all ingredients and materials have been properly removed. Without knowing the exact amount of an allergen which causes a reaction, leaving the littlest amount of ingredient or product could inadvertently get into the next production and trigger a reaction. There are simple tests that can be run on equipment that can be conducted with minimal training to assure all allergic materials have been removed during the cleaning process. Some facilities chose to take the next fifty to hundred pounds of product run and chose to discard it as their steps to minimize cross-contamination. However, this practice is not recommended because of the waste of materials with no certainty the allergens did not get into the next product.

Cleaning the equipment and inspections that take place after cleaning are the next to last step to assure that allergens are not easily transferred into a subsequent product. The first risk that needs to be assessed is the ability to access all internal areas and components of the production equipment. If there are places where the equipment could "hold" ingredients, these places need to be eliminated through access, redesign or removal of the part or area completely. Next you need to assess the type of cleaning and the equipment needed to conduct cleaning. Are you cleaning with water or some other solvent? Will the introduction of liquids increase the likelihood that allergens are trapped or harder to remove effectively? Are you dry cleaning with brushes, air, vacuums, scrapers, etc.? Will this method of cleaning increase the likelihood of allergen drift to areas of the plant? Can you conduct the cleaning during production of any other foods in the area or adjacent areas? And once the cleaning is completed, who is conducting an inspection of the area, equipment, materials, tools and debris to assure that allergens were eliminated and removed properly.

#### H. Testing Allergens

The Safe Quality Food (SQF) Institute stated in its 2000 code that "verification of the effectiveness of cleaning and sanitizing of areas and equipment in which allergen-causing agents are used shall be part of the requirements." Additionally, the SQF code goes on to say "the responsibility and methods used to verify the effectiveness of the cleaning procedures shall be documented and implemented." The only way to be sure no allergenic material has been left behind is to test the material and document the results.





# *"The qualitative ELISAs are the method of choice for food processors these days."*



There are a wide variety of analytical approaches to test for allergens. They include such tests as enzyme-linked immunosorbent assays (ELISAs) for specific allergens, ATP detection, general protein detection, polymerase chain reaction (PCR) which will detect DNA fragments of allergenic foods and mass spectrometry methods to detect specific target peptides from allergenic sources. PCR and mass spectrometry are not ideal for a small processing facility as they require trained staff, expensive equipment and a laboratory. Quantitative ELISAs are not normally found in food processing plants either because they are not economical and require a trained staff. It is possible to have kits sent off to labs for testing but this is not practical for everyday use. The qualitative ELISAs are the method of choice for food processors these days.

Qualitative ELISAs are the most common test kits. It is important to use a positive control and test the kit on an unclean surface with some allergenic material. During processing, the allergenic material can diminish. It is possible that the allergenic material can be diluted during processing to an undetectable level when mixed with other ingredients. The only way to confirm this is by sending a sample to a laboratory. If the processing facility has determined that allergenic material will be at undetectable levels in the finished product, routine testing is not advised. Testing of the first production, after cleaning and/or discarding a given amount of product is only as good as the test run or the risk analysis undertaken to determine the proper amount to be discarded. The risk analysis has to encompass all of these questions, and more, to make a complete plan of action.

In addition to ELISA tests, a parts-per-million (ppm) analysis exists that constitutes a threshold in which an allergen must be declared on a label. If a product contains allergenic compounds at a level of 5 ppm or greater and this allergen is not listed on the label, allergenic symptoms may be invoked in extremely sensitive individuals.

Ensuring "allergen clean" equipment by testing is important. Likewise, having a SSOP so the process can be done the exact way every time is critical. Perform a sequence of processing known allergen products and then clean those surfaces. Swab the surface to detect the allergen and repeat until there is no detectable allergen. Once a thorough job of cleaning has been shown to have no detectable allergens, write the process down in an SSOP so future staff members will follow the same procedure without all the unnecessary trial and error.



## Major Risk Areas for Allergen Recalls

*"The most substantial risk of cross-contamination comes from the employees themselves."* 



#### Actions That Have To Be Taken

Recalls due to allergens continue to rise from poor manufacturing practices and lack of good controls. In the context of food allergens, "cross-contact" occurs when a residue or trace amount of an allergenic food becomes incorporated into another food not intended to contain it. FDA guidance for the food industry states that food allergen advisory statements, e.g., "may contain [allergen]" or "produced in a facility that also uses [allergen]" should not be used as a substitute for adhering to current Good Manufacturing Practices and must be truthful and not misleading. Stating the foods are prepared in a facility that may contain allergenic products is simply not being responsible. The FDA is considering ways to best manage the use of these types of statements by manufacturers to better inform consumers. Some manufacturers have moved key allergens, like peanuts, out of their facilities and isolating them in others that specialize in allergen-containi

#### 2. Employee Training

The most substantial risk of cross-contamination comes from the employees themselves. It is critically important that employees who handle allergens do not come into contact with the general workforce or cross through areas where allergens will not be handled. Whether employees are receiving and storing materials, moving materials throughout the facility, weighing ingredients, or handling full production runs, employees who are not in the area that they are specifically assigned to could be carrying and depositing allergenic materials throughout the facility. In an ideal situation, employees who work with allergens should either work in separate areas or have specific uniform-code guidelines enforced to control the risk of cross-contamination.

Cross-contamination can be mitigated by a Good Manufacturing Practices (GMP) program. If you have not established a strong GMP related to allergens, EHA can help establish the proper guidelines, training, and signage for your allergen control program.



### Moving Forward

"Understand all the aspects of the facility like what happens in the warehouse, the delivery truck, the store room, the refrigerator, the preparation tables, the hot-holding boxes or at the display cases."



#### Part 1: Processors

Processors must look critically at their system. Understand all the aspects of the facility like what happens in the warehouse, the delivery truck, the store room, the refrigerator, the preparation tables, the hot-holding boxes or at the display cases. Do a risk analysis for cross-contact. Verify it has been conducted accurately and there are measures in place to prevent or mitigate risks associated with allergenic materials. Have you looked at the risk in each of these areas, or maybe you have trusted the supplier, carrier or your own staff to minimize the exposure risk?

#### Part 2: Customers

What do we tell a customer, to educate them about the foods we produce and serve? There are no easy answers, but not having the correct information could turn a label into a libel issue; or worse for the individual consuming that food. We trust that the foods we consume are safe, unadulterated and honestly presented and having the entire risk analysis conducted in a 'farm to fork' format may take more than the eyes of the employees, supervisors and managers. But how much information is enough, or to what length will we need to go to adequately protect and inform our customers to protect them from adverse reactions during a meal?





# How EHA Consulting Group, Inc. Can Help

*"We are committed to finding solutions to our clients' needs to protect their businesses, reputations, and the customers they serve."* 



The staff at EHA Consulting Group, Inc. has over 100 years of cumulative experience in the food industry and, therefore, is poised to conduct a comprehensive risk assessment and complete a remediation plan focused on your allergen risk.

Food safety is our core practice area. Our staff's collective skills, together with an investigative mentality, contribute to our ongoing success in complex food safety audits. Our areas of expertise have covered a vast scope of food manufacturing from 'farm to fork' including retail-based inspections and packaging. We are committed to finding solutions to our clients' needs to protect their businesses, reputations, and the customers they serve.

