Food Authority

Annual Food Testing Report 2023-2024

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Introduction

The NSW Food Authority's (Food Authority) primary objective is to provide consumers in NSW with safe and correctly labelled food.

To support this objective the Food Authority regularly conducts testing of food products to ensure compliance with regulatory requirements, as part of foodborne illness investigations and to gather information to identify and respond to food safety issues. The Food Authority also undertakes scientific surveillance projects to identify and better understand food safety issues and risks in NSW. The data obtained in these surveillance projects allows the Food Authority to identify and respond to key food safety issues and develop systems and processes to manage the prevention of foodborne illness effectively and maintain food safety.

In 2023-2024, BVAQ is the primary testing provider for the Food Authority. Testing services provided by BVAQ include microbiological, chemical, foreign object identification, allergen contamination and nutritional composition. BVAQ has had accreditation from the National Association of Testing Authorities (NATA) since 1961.

At the end of each financial year, the Food Authority reports on the testing conducted by the Food Authority's primary testing provider and by other laboratories. Other laboratories used in 2023-2024 included Elizabeth Macarthur Agricultural Institute (EMAI) for microbiological analyses, NSW Health Pathology for serotyping and whole genome sequencing, and Symbio Laboratories for pesticides testing, shellfish toxin testing and *Vibrio* testing.

Why test?

Samples are submitted for testing for reasons such as hygiene assessment, foodborne illness investigation, verification of food safety programs and for research purposes. Testing results are then used to:

- ensure compliance with regulatory requirements
- assist with the development of food regulatory framework
- assist with the evaluation and review of regulations
- assist with enforcement actions
- respond to incidents that occur in the industry
- provide scientifically based industry communication, training and advice
- provide scientifically based consumer advice and information
- assist local government with concerns and complaints
- assist with the development of emergency management framework.

A year in review

Between July 2023 and June 2024, a total of 3,171 samples were submitted for testing: 2,328 samples were submitted to BVAQ where 8,355 individual tests were conducted, and 853 samples were sent to other laboratories where 2,536 individual tests were conducted (Table 1). Sample types analysed included meat, seafood, shellfish, dairy, plant products, packaged food, eggs and environmental samples (for example swabs). Many samples were submitted for multiple tests which may have included both chemical profiling and microbiological assessment. Over 70 different types of tests were performed including microbiological assessment, chemical assessment, pH, water activity and allergens.

Table 1. Number of samples per category

Category	Number of samples
Verification programs	961
Research and targeted surveillance projects[1]	892
Food safety compliance	1,318
Total	**3,171**

Serotyping is a process that identifies a subspecies by its distinctive surface structures. *Salmonella* subspecies are distinguished by the chemical make-up of the 'O' antigen (outermost surfaces of the bacterial cell) and the protein content of the 'H' antigen (part of the bacterium's flagella). Each subspecies has a unique 'O' and 'H' combination. For example, the serotyping result for *Salmonella* Infantis is 6,7:r:1,5 and for *Salmonella* Typhimurium, the result is 1,4,5,[12]:i:1,2.

Whole genome sequencing (WGS) is a process where the unique genome of a microorganism, its DNA (deoxyribonucleic acid) sequence, is determined. The genome sequence of one microorganism can be compared with that of another to determine how closely related they are. This is of particular use when investigating foodborne illness outbreaks as it can link bacteria isolated from suspected foods with isolates from patients' specimens.

In NSW, all clinical and environmental *Listeria monocytogenes* isolates are analysed by WGS to determine their relatedness and search for clusters of illness and potential sources. Similarly, all isolates of *Salmonella* Typhimurium and *Salmonella* Enteritidis detected from the Food Authority sampling are sequenced for trends and comparison with clinical isolates for cluster identification. Other *Salmonella* serovars or foodborne pathogens are sequenced where there is a strong need (such as an increase in human cases in NSW and/or Australia).

From 1 July 2023 to 30 June 2024, 188 samples were submitted to NSW Health Pathology for identification by serotyping and WGS. These samples were *Salmonella* or *Listeria monocytogenes* bacterial isolates from food or environmental samples that had been submitted for testing due to a foodborne illness investigation, a verification program or a surveillance program. These 188 bacterial isolate samples are in addition to the sample numbers in Table 1 as they arise from testing of food or environmental samples accounted for in the sample numbers in Table 1.

[1] Including SE mandatory testing samples

Verification programs

Food Safety Schemes verification program for ready-to-eat (RTE) products

The Food Safety Schemes verification program monitors RTE food that is produced under the NSW Food Safety Schemes (the Schemes).

Samples collected as part of this program include dairy, eggs, meat, plant products and seafood. RTE foods that were manufactured or packaged under the Schemes were purchased from retail outlets or collected from the manufacturers and tested against the requirements set out in the Food Safety Schemes Manual

Between July 2023 and June 2024, a total of 73 samples were randomly collected from retailers and manufacturers and submitted for testing (Table 2).

Four products from 4 different manufacturers were found to be non-compliant due to the following:

- One sample of soft cheese contained *E. coli* greater than the regulatory limit of 10 cfu/g
- Three samples of opened oysters contained *E. coli* greater than the regulatory limit of 2.3 cfu/g.

Follow-up actions for these non-compliant results included:

- Re-sampling of product for analysis and referral to the compliance team for further investigation (1), and
- Sending advisory emails notifying the business about the issue and providing a document on the control measures (3).

Table 2. Number of samples analysed for the Food Safety Schemes verification program

Scheme	No. of samples tested	No. of non-compliant samples (%)
Dairy	33	1 (3%)
Meat	14	0
Eggs	1	0
Plant Products	5	0
Seafood	20	3 (15%)
Total	**73**	**4 (5%)**

UCFM verification program

Uncooked Comminuted Fermented Meat (UCFM) is a comminuted meat product manufactured by a series of processes including fermentation and maturation (with smoking and/or heat treatment as optional steps). In addition, the final product has not had its core temperature maintained at 65°C for at least 10 minutes or an equivalent combination of time and higher temperature during production.

In NSW, all UCFM products for sale must be produced in accordance with Standard 4.2.3 of the Food Standards Code (the Code) and the NSW Food Regulation 2015.

The Food Authority requires each UCFM to be manufactured in accordance with an approved pro forma, which is a documented and verified manufacturing process. Verification testing is required for one sample from each of the first two batches of a product manufactured under a new pro forma. The two samples must be submitted to the Food Authority for testing. From 1 July 2023 to 30 June 2024, a total

of 64 UCFM samples were submitted for verification testing. All samples were microbiologically satisfactory.

Raw poultry verification program

The raw poultry verification program gathers ongoing data on the prevalence and levels of *Campylobacter* and *Salmonella* in raw poultry so that any changes over time can be monitored and the effect of Standard 4.2.2 can be analysed.

Samples of raw poultry were collected from processing facilities, retailers and, for the first time this year, facilities that process chicken meat for wholesale, and tested for *Campylobacter* and *Salmonella*.

Between July 2023 and June 2024, a total of 539 raw chicken samples were collected:

- 182 samples from processing plants (whole chicken and portion samples)
- 182 samples from wholesale processing facilities (portion samples only)
- 175 samples from retailers (whole chicken and portion samples).

At the processing plants, *Salmonella* was detected in 4.4% of samples (no samples had quantifiable levels of *Salmonella*) and *Campylobacter* was detected in 88.5% of samples (15.4% of samples had quantifiable levels of *Campylobacter*).

At wholesale processing facilities, *Salmonella* was detected in 3.3% of samples (one sample (0.5%) had a quantifiable level of *Salmonella*). *Campylobacter* was detected in 90.7% of samples (2.8% of samples had a quantifiable level of *Campylobacter*).

At retail, *Salmonella* was detected in 6.3% of samples (no samples had quantifiable levels of *Salmonella*) and *Campylobacter* was detected in 86.3%% of samples (5.7% of samples had quantifiable levels of *Campylobacter*).

NOTE: The limit of quantification for *Campylobacter* is 10 cfu/cm² for chicken portions and 5,000 cfu/carcase for whole chickens. The limit of quantification for *Salmonella* is 13 MPN/100cm² for chicken portions and 65 MPN/carcase for whole chickens.

Manufacturers and Wholesalers verification program

The Manufacturer/Wholesaler Food Inspection Program (MWIP) was introduced to ensure that food businesses not covered by the NSW Food Authority's licensing or local government inspections are meeting their legal responsibilities in keeping food safe for consumers. Businesses covered in the MWIP are businesses that produce and sell foods by wholesale with limited or no retail sales business component. These businesses may include home-based businesses. Information about this program can be found in the Food Authority's website.

An ongoing verification program for this sector was introduced in July 2022. The program aims to provide a snapshot of the microbiological quality and/or the presence of chemical contaminants in products manufactured by businesses under the MWIP. The data collected throughout this program will be used to gauge the current situation and determine whether a larger or more targeted survey needs to be conducted in the future.

Due to the variety of products produced by businesses in this sector, each financial year focuses on three to four product categories only. For 2023-2024, sampling was focused on:

- Sandwiches
- Non-dairy dips and pate (containing less than 30% meat)
- Cook-chill refrigerated meals.

Sandwiches

- A total of 69 pre-packaged sandwiches were tested for a range of microorganisms.
- 98.6% (68/69) of products were categorised as good or acceptable.
- One product was categorised as unsatisfactory because *Listeria monocytogenes* was detected at the level of less than 10 cfu/g. This product was not categorised as potentially hazardous because according to Standard 1.6.1 of the Code, sandwiches are categorised as foods that will not support the growth of *L. monocytogenes* because they have refrigerated shelf life no greater than 5 days. Foods that do not support the growth of *L. monocytogenes* have a limit of 100 cfu/g. The manufacturer was inspected.
- The labels of 66 products were assessed against Part 1.2 of the Code. One product had a minor non-compliance with no follow up required. Five products had major labelling non-compliance such as the absence of the manufacturer's name and address, absence of mandatory declaration and absence of date marking.
- Follow up actions included advisory letters for major labelling non-compliance (3) and inspection (1). Further sampling found that the issues have been rectified.

Non-dairy dips and pate (with less than 30% meat)

- A total of 93 pre-packaged non-dairy dips & pate with less than 30% meat were tested for a range of microorganisms.
- 97.8% (91/93) of products were categorised as good or acceptable.
- Two products were categorised as unsatisfactory because *B. cereus* was detected at the level of 1,000 and 1,100 cfu/g, respectively. The manufacturers were notified of the results.
- Of the 91 labels assessed, 31 of them had minor labelling non-compliance with no follow up required. Six products had major labelling non-compliance such as the mandatory declaration not being in the right form, or absent.
- Follow up actions included advisory letters for major labelling non-compliance and pathogen detection (2) and a contact by an Authorised Officer (1). Further sampling found that the issues have been rectified.

Cook-chill refrigerated meals

- A total of 119 cook-chill refrigerated meals were tested for a range of microorganisms. All products must be heated or cooked before consumption.
- For 114 products, no pathogenic organisms were detected. Five products had *Bacillus cereus* and/or *L. monocytogenes* detected. The manufacturers were contacted.
- The labels for 116 products were assessed. Six products had minor labelling non-compliance with no follow up required. 26 products had major labelling issues such as the absence of the name and/or address of the manufacturer, the mandatory declaration was not presented in the correct form or contradictory, and the absence of storage conditions and directions for use.
- Follow up actions include advisory letters for labelling non-compliance (9) and contact by the Authorised Officers (2). Further sampling found that the issues have been rectified or the product could not be found anymore.

Research and targeted projects

Vibrio parahaemolyticus in NSW oysters survey (2022-2024)

Vibrio are naturally occurring marine bacteria present in the marine environment. Illness outbreaks in consumers of raw shellfish have historically been associated with 2 species of *Vibrio*. In April 2022, a survey was initiated in 5 major NSW oyster growing areas to determine the prevalence and level of total and pathogenic *Vibrio parahaemolyticus*. The growing areas were selected in geographically diverse regions of the state.

The Food Standards Code does not specify regulatory limits for *V. parahaemolyticus*. Internationally, where regulatory limits or guidance values have been established, there is a very wide range. This is likely due to the weak relationship between *Vibrio* levels and illness outbreaks. The survey will provide information on levels of *V. parahaemolyticus* present in samples and polymerase chain reaction (PCR) analysis for virulence markers. Between 3 July 2023 and 15 April 2024, 313 samples were collected to support this baseline study.

Project survey sampling was completed in April 2024. The Food Authority have engaged a modeller to analyse the survey data and to identify key environmental variables to support *Vibrio* risk management. The data will inform the risk classification of key NSW shellfish productions areas and the potential for the risk profile to change if new shellfish species are cultured.

Pesticide residues in fresh produce

The Food Authority conducted a targeted survey of fresh produce commodities associated with pesticide detections in previous monitoring programs. Samples were collected from Sydney Markets (38%) and at the retail level from major and independent supermarkets (62%) between November 2023 and March 2024.

Samples were screened for pesticide residues at a NATA accredited laboratory. The results of the analyte screen were compared to the limits for pesticide residues in crops set out in Standard 1.4.2 Agvet chemicals and Schedules 20-22 of the Australia New Zealand Food Standards Code. A simplified dietary exposure assessment was undertaken to determine whether consumption of any of the non-compliant commodities could result in exposure to harmful levels of pesticides.

The majority of the produce samples surveyed (65%) were compliant and where detected, pesticide residue levels were within acceptable safety limits. Where detections were observed these indicated that there is an opportunity to improve chemical use practices within these industries.

It is recommended that consumers ensure that all fruit and vegetables are washed with cool tap water immediately before eating.

Salmonella Enteritidis (SE) mandatory testing

In August 2019, the Biosecurity (*Salmonella* Enteritidis) Control Order 2019 came into effect. The Control Order aimed to prevent, eliminate, minimise and manage the biosecurity risk posed or likely to be posed by the spread of *Salmonella* Enteritidis (SE) in NSW.

The Control Order was amended on 30 June 2020 to include a requirement for all licensed egg business in NSW to undertake mandatory SE testing from 1 July 2020. Sampling and testing are required every 12 to 15 weeks for the duration of the Control Order. This testing can occur within the National *Salmonella* Enteritidis Monitoring and Accreditation Program (NSEMAP), or at either EMAI or Birling Avian Laboratories. NSW Department of Primary Industries (DPI) funded the cost of laboratory testing conducted by EMAI and Birling Avian Laboratories for the first two years of the program.

On 26 June 2024, the Biosecurity (SE) Control Order was amended and extended until 30 June 2025. DPI will continue to fund the testing cost until then.

From 1 July 2023 to 30 June 2024, a total of 310 samples were tested at EMAI and Birling Avian Laboratories. SE mandatory testing activities will continue in 2024-2025.

Projects continuing into the 2024-2025 financial year

Projects continuing into 2024-2025 include:

- SE mandatory testing on egg farms.

Food safety compliance

Food safety compliance activities include:

- Conducting audits and inspections of food businesses
- Investigating breaches in compliance to the Code
- Investigating suspected foodborne illness
- Investigating labelling complaints and compliance
- Addressing issues identified by Food Safety Officers during audits
- Targeted food business or sector projects to increase compliance.

These investigations can result in the analysis of food for a wide variety of tests. Enforcement action may be instigated for non-compliant samples. Between July 2023 and June 2024, a total of 1,318 samples were submitted to BVAQ and other laboratories (Table 3).

Table 3. Samples submitted for compliance investigations

Category	Number of samples
Samples taken during audits and inspections	60
Foodborne illness investigations	918
Complaints and Compliance projects	340
Total	**1,318**

Samples taken during audits and inspections

Samples taken during audits usually consist of raw meat samples that have failed a field test for sulphur dioxide (SO_2). SO_2 is not permitted to be used in raw meat. If a field test is positive, a three-part sample is then taken and submitted to BVAQ for SO_2 analysis. Some of these samples can also be submitted for meat speciation to determine whether the meat species matches with what is on the label. Sausage samples are occasionally submitted for SO_2 analysis to ensure they comply with the maximum permitted level in the Food Standards Code of 500 mg/kg.

Between July 2023 and June 2024, 853 audits of licensed retail meat businesses were conducted. This year 58 samples of raw meat including sausages from 29 butchers were submitted for SO_2 testing because of a positive field test. Forty-eight of the 52 raw meat samples were non-compliant, with SO_2 values ranging from 13 to 3,300 mg/kg. Three of the 6 sausage samples were non-compliant with SO_2 values ranging from 1,400 to 2,100 mg/kg.

Appropriate enforcement action has been taken for non-compliant samples, including:

- Issuing 38 penalty infringement notices.
- Voluntary product disposal under the Authorised Officer supervision.

Foodborne illness investigations

The Food Authority investigates suspected cases of foodborne illness in partnership with NSW Ministry of Health, local councils, and interstate agencies. Between July 2023 and June 2024, a total of 918 food and environmental samples were submitted for testing in response to foodborne illness investigations and their follow up activities. A notable investigation is outlined below.

Listeria monocytogenes investigation

In November 2023 a multijurisdictional outbreak investigation into *Listeria monocytogenes* in RTE chicken occurred following 13 cases nationally with onset from 1 August 2023. All cases were non-perinatal and had underlying health conditions. The Food Authority worked with NSW Ministry of Health, other states food enforcement agencies and Food Standards Australia New Zealand (FSANZ) to investigate the likely cause of the outbreak. Sampling conducted by Queensland Health implicated a NSW manufacturer of RTE chicken for catering purposes. Specialist Authorised Officers from the Food Incident Response and Complaints Unit and Regulatory Operations Unit inspected and collected samples from the facility that manufactured the RTE chicken. Twenty-one food samples plus 65 environmental samples were collected. While the facility was visually clean and compliant with their food safety program, *L. monocytogenes* was detected in 2 boot swabs, 2 sponge swabs (both were food contact surfaces) and one food sample. The facility was placed under a prohibition order which remained in place until the facility was cleared by further sampling. The manufacture conducted a trade recall of all RTE chicken product.

Complaints and compliance projects

Complaint samples usually result from either a member of the public contacting the Food Authority's helpline or from local councils. Samples may be acquired from the complainant or from retail outlets, manufacturers or importers. Common complaints include unlabelled allergens, allergen contamination or poor labelling. Compliance projects usually result from an incident, increase in unknown illnesses, an increase in a particular issue seen during audits or inspections or an overseas or interstate event.

Between July 2023 and June 2024, a total of 340 samples were submitted for testing due to a complaint (331 samples) or compliance activities (9 samples).

Complaint samples

Between July 2023 and June 2024, 331 samples were submitted for testing due to a complaint. This number is higher than the previous year (100 samples were submitted in 2022-2023) and this increase is due to a large number of samples relating to one complaint.

Compliance projects

No compliance projects were undertaken during 2023-2024.

More information

- Visit foodauthority.nsw.gov.au
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