

Food Act Report

Year ending 30 June 2009



Government
of South Australia

SA Health

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South Australian Food Legislation

The *Food Act 2001*

The objectives of the *Food Act 2001* are defined in Section 3 of the Act as:

- Ensuring that food for sale is safe and suitable for human consumption
- Preventing misleading conduct in connection with the sale of food
- Providing for the application of the Food Standards Code.

The *Food Act 2001* closely follows the content and structure of national model food provisions, which provide for the consistent administration and enforcement of food legislation in Australia. This uniform approach to national food legislation was formalised by the Inter-Governmental Food Regulation Agreement 2002. Under the Agreement all states and territories have adopted the Australia New Zealand Food Standards Code (the Food Standards Code, 'the Code') through their food acts. While the Act contains important legal and administrative issues, such as defining offences and penalties, the Code details the specific requirements with which food businesses must comply.

The Food Standards Code (the 'code')

The Code is a bi-national document that details labelling, composition and food safety laws that apply to foods and food handling business. It is set out in four chapters:

- **Chapter 1 – General Food Standards:** General labelling and composition standards applying to all foods
- **Chapter 2 – Food Product Standards:** Standards applying to specific foods or categories of foods
- **Chapter 3 – Food Safety Standards (Australia only):** The Food Safety Standards include specific requirements for food businesses and food handlers that, if complied with, will ensure food does not become unsafe or unsuitable
- **Chapter 4 – Primary Production Standards (Australia only):** Primary Production and Processing Standards for seafood, meat, dairy and wine.

Primary Industries Legislation

The Primary Produce (Food Safety Schemes) Act 2004 is administered by Primary Industries and Resources South Australia (PIRSA) and the Dairy Authority of SA. The Act implements food safety requirements in the meat, dairy, seafood and citrus industries. This Act and the Food Safety Scheme regulations under this Act are recognised by (regulation under) the Food Act as they implement equivalent food safety requirements to those required by the Food Act.

South Australian food legislation forms part of a bi-national food regulatory system which is described below.

The Bi-national Food Regulation System

The food regulatory system is established by the Inter-Governmental Food Regulation Agreement 2002 between the State, Territory and Australian Governments. New Zealand's role and participation in the system is established by the Australia New Zealand Joint Food Standards Agreement between Australia and New Zealand, creating a joint food standards system. The system consists of three major components described below.

Policy development

The Australia New Zealand Food Regulation Ministerial Council (the Ministerial Council) is primarily responsible for the development of domestic food regulatory policy and the development of policy guidelines for setting domestic food standards. It has the capacity to adopt, amend or reject standards recommended by Food Standards Australia New Zealand (FSANZ) and to request that these be reviewed.

The council comprises Health Ministers from most Australian states and territories and the Australian Government as well as other Ministers from related portfolios (Primary Industries, Consumer Affairs etc) where these have been nominated by their jurisdictions. Currently all jurisdictions, except New South Wales and New Zealand, have nominated a Health Minister as Lead Minister for voting purposes. NSW has nominated the Minister for Primary Industries and New Zealand has nominated the Minister for Food Safety as Lead Minister for voting purposes. Under the Food Regulation Agreement the Australian Government Health Minister chairs the council. South Australia is represented by the Minister for Health and Minister for Agriculture, Food and Fisheries. The Minister for Health is the Lead Minister.

Comprehensive Review of Food Labelling Law and Policy

At the October 2008 Ministerial Council Meeting, Ministers agreed to commission an independent, comprehensive review of food labelling law and policy. Terms of Reference for the review were agreed by the Ministerial Council at its May 2009 meeting.

In November 2008 the Council of Australian Governments (COAG) also agreed that the Ministerial Council undertake this review, which would consider options to reduce the regulatory burden in labelling, using an evidence based approach, without compromising public health and safety.

The review would be undertaken by an expert panel comprising prominent individuals who collectively possess knowledge and expertise in the fields of public policy/economics, public health, law, consumer behaviour and business.

The Food Regulation Standing Committee (FRSC) is responsible for coordinating policy advice to the Ministerial Council and ensuring a nationally consistent approach to the implementation and enforcement of food standards. It also advises the Ministerial Council on the initiation, review and development of Standing Committee activities.

Membership of FRSC reflects the membership of the Ministerial Council and comprises the heads of departments for which the Ministers represented on the council have portfolio responsibility, as well as the President of the Australian Local Government Association and FSANZ as observers. The Director of Public Health represents the Department of Health at FRSC.

FRSC Working Groups

The Standing Committee has a number of working groups and this financial year the Department of Health was represented at the following groups:

FRSC Working Group for the Development of Policy Guidance for the Regulation of Infant Formula Products

This working group was given the task of preparing a draft policy guideline on the Regulation of Infant Formula Products. Infant formula is regulated by Standard 2.9.1 of the Australia New Zealand Food Standards Code which addresses composition, labelling and packaging. The intention of this policy guidance is to ensure that the addition of substances to infant formula products is considered more rigorously than general purpose foods in order to ensure their ongoing safety and benefit in regards to infants.

SA Health is a member of this working group. The group met several times during 2008-09 and developed a policy options consultation paper for which it received stakeholder comments until 1 September 2009.

FRSC Working Group for the Development of Policy Guidance on the Intent of Part 2.9 of the Code – Special Purpose Foods

During 2008-09, the working group prepared draft policy guidelines on the Intent of Part 2.9 – Special Purpose Foods, of the Australia New Zealand Food Standards Code. The intention of this policy guidance is to provide guidance to FSANZ to assist in a review of part 2.9 of the Code. The policy guideline will also assist FSANZ in consideration of any future development and review of food standards in Part 2.9 of the Code. Special purpose foods are defined as those which are specially processed or formulated to satisfy particular dietary requirements which are due to a particular physical or physiological condition and/or specific diseases and disorders.

SA Health was a member of this working group. The group met several times during 2008-09 and will present a draft policy guideline to Food Regulation Ministers in October 2009 for endorsement.

FRSC Strategic Planning Working Group

This sub group drafted amendments to the Food Regulation Agreement (FRA), which were intended to better reflect the current status of the food regulation system, and to give effect to amendments to the *Food Standards Australia New Zealand Amendment Act 2007*. At its meeting in October 2007 the Australia New Zealand Food Regulation Ministerial Council endorsed the changes to the FRA and referred it to the Council of Australian Governments (COAG). The revised FRA was signed by COAG at its meeting on 3 July 2008.

The working group has assisted FRSC in developing priorities for 2009 as outlined in the FRSC Strategic Plan 2009-2014. These priorities include:

- Implementing COAG directives
- Improving consistency of implementation
- Strengthening national and international harmonisation
- Improving stakeholder communication and consultation
- Improving evidence base and evaluation capabilities.

The strategic plan is available on the Department of Health and Ageing web site:

www.health.gov.au/internet/main/publishing.nsf/Content/foodsecretariat-standing-frsc-strat-plan

FRSC Front-of-Pack Labelling (FOP) Working Group

This working group was established to develop a policy guideline on front-of-pack labelling using the background work completed by the previous working group on front-of-pack labelling in 2007-08 and the research conducted by the Australian Population Health Development Principal Committee, a sub committee of the Australian Health Ministers Council.

It is anticipated that the final draft policy guideline will be provided to the Australia New Zealand Food Regulation Ministerial Council in October 2009 for consideration.

Standards Development

Food Standards Australia New Zealand (FSANZ) is the statutory authority responsible for developing all domestic food standards to be consistent with Ministerial Council policy and for developing labelling and compositional standards for both Australia and New Zealand.

FSANZ also has a national coordination role in food surveillance and food recalls, conducts research and supports the Australian Quarantine and Inspection Service (AQIS) in the control of imported foods.

The trigger for the development of, or amendment to, a food standard can be:

- An application submitted by an outside body (usually a food business)
- A proposal raised by FSANZ itself or
- Policy advice issued by the Ministerial Council.

The standard development and amendment process involves an evaluation of the risk to public health of the proposed change to the Australia New Zealand Food Standards Code (the Code) and the impact of the regulatory measures on the food industry and Australia's international trading obligations. FSANZ drafts a legal standard for public comment. There may be one or more periods of public consultation for each standard.

Finally, the draft standard is considered for approval by the FSANZ Board and if the Ministerial Council does not request a review of the decision within 60 days, FSANZ gazettes (publishes) the standard and it becomes law as part of the Code.

Food standards developed by FSANZ are adopted automatically by reference, without scrutiny by parliaments and without amendment into the food law of State and Territory Governments in Australia and the New Zealand Government.

SA Health's Advice to FSANZ Regarding Proposed Amendments to the Australia New Zealand Food Standards Code

A total of 31 applications and proposals to amend the Australia New Zealand Food Standards Code (the Code) were provided to SA Health Food Policy and Programs Branch by Food Standards Australia New Zealand (FSANZ) during the 2008-09 financial year.

Some of the issues raised in these applications/proposals include:

- Hydrocyanic acid in ready-to-eat cassava chips
- Addition of lutein as a nutritive substance to infant formula
- Addition of inulin/fructo-oligosaccharides (FOS) and galacto-oligosaccharides (GOS) to infant formula
- Calcium in chewing gum containing no more than 0.2% residual sugar
- Nutrition, health and related claims
- Mandatory iodine fortification for Australia
- Voluntary addition of fluoride to packaged water

A summary of five of the major issues covered by applications/proposals is set out below. More details on all applications and proposals can be found at the FSANZ web site: www.foodstandards.gov.au

Hydrocyanic Acid in Ready-to-Eat Cassava Chips

This proposal assessed the public health risks associated with hydrocyanic acid (HCN) levels in ready-to-eat cassava chips. Ready-to-eat cassava chips are a snack food similar to potato chips and are often called 'vegie chips/vege crackers'.

Unprocessed cassava contains naturally occurring cyanogenic substances, however with proper preparation or processing, cassava and cassava-based foods are safe for human consumption.

In April 2009, a new standard was introduced into the Australia New Zealand Food Standards Code which set a maximum level for 'hydrocyanic acid, total' in ready-to-eat cassava chips.

Addition of Lutein as a Nutritive Substance to Infant Formula

This application, from an infant formula manufacturer, requested permission for the voluntary addition of lutein to infant formula. The Food Standards Code requires pre-market approval of nutritive substances added to infant formula. Lutein is a protein present in breast milk.

The final assessment concluded that:

- Lutein performs a physiological function in the eye
- Lutein set at an appropriate maximum concentrate is unlikely to pose any public health and safety concerns in young children
- Fortified infant formula has the potential to make a reasonable contribution to the lutein intake of young children who consume these products.

In May 2009 the Code was amended to permit the voluntary addition of lutein as a nutritive substance to formulated supplementary foods for young children with a set maximum concentration.

Addition of Inulin/FOS & GOS to Infant Formula

FSANZ initiated this proposal after an infant formula manufacturer launched a brand of products containing added inulin-derived substances and galacto-oligosaccharides (GOS). Legal uncertainties about permissions relating to the addition of inulin to foods were assessed by FSANZ.

Consideration regarding the voluntary addition of inulin-derived substances and GOS to infant formula identified that:

- These substances are considered not to pose a risk to the health and safety of infants and young children at the proposed maximum levels
- The permissions will provide infant formula manufacturers with regulatory certainty regarding the addition of these substances to infant formula products
- The permissions are broader than, but consistent with, overseas recommendations, such as the addition of long chain inulin and GOS to infant and follow-on formulae in Europe.

The decision did not permit the addition of FOS, (as defined in the P306 Final Assessment Report) to these foods as there was insufficient evidence to support their addition.

The Code was amended in January 2009 to permit and regulate the composition of added FOS and GOS as nutritive substances in infant formula products, infant foods and supplementary foods for young children.

Calcium in Chewing Gum Containing no More than 0.2% Residual Sugar

In 2006, an application was made by a producer of chewing gum seeking to provide consumers with an additional source of calcium in their diet. The applicant also considered that chewing calcium-fortified chewing gum (with no more than 0.2% of residual sugar) may have benefits for dental health.

The Ministerial Council's decision on this application is expected later in 2009.

Voluntary Addition of Fluoride to Packaged Water

An application to permit the voluntary addition of fluoride to packaged water has been assessed.

This assessment considered submissions by various parties and found that packaged water with fluoride added was found to be nutritionally equivalent to fluoridated tap water and did not raise any public health or safety concerns for consumers.

The FSANZ final assessment report has been considered by the Ministerial Council and a decision is expected later in 2009.

The Department of Health Representation at Standards Development Advisory Committees

The department participated in the following FSANZ advisory committees in 2008-09:

Standards Development Committee for Eggs and Egg Products

SA Health is a member of the Standards Development Committee (SDC) advising Food Standards Australia and New Zealand (FSANZ) re Proposal P301, the development of a national Primary Production and Processing Standard for Eggs and Egg Products, which is proposed for inclusion in the Australia New Zealand Food Standards Code (the Code).

The SDC consists of members from national and state regulators and includes industry representation. During the 2008–09 year the committee met on two occasions to progress work on the draft standard.

FSANZ has completed a risk assessment which has since undergone international peer review. The risk assessment sought to determine the public health and safety risks associated with the consumption of eggs and egg products in Australia and to identify specific stages along the primary production, processing, retail and consumer chain where levels or prevalence of hazards may be controlled.

The draft standard focuses on a through-chain approach based on findings of the risk assessment. As it evolves, the draft standard is outcomes based and identifies the minimum requirements needed to produce and process safe eggs and egg products in Australia.

Implementation, enforcement and maintenance of the Code are the responsibility of state and territory food agencies. The Implementation Sub Committee (ISC) Integrated Model for Primary Production and Processing (PPP) Standards is being trialed as a pilot program during the development of the Standard for Eggs and Egg Products. Activities of this group are reported under a separate topic.

FSANZ intends to release a Draft Assessment Report for P301 for public consultation towards the end of 2009. It is intended that the implementation model and the draft standard will be considered at the same time by the Australia and New Zealand Food Regulation Ministerial Council.

Food Safety Programs for Catering to the General Public – FSANZ Standards Development Advisory Committee

This committee provides advice on the development of a standard to mandate food safety programs for businesses that cater for the general public. The development of this standard has been placed on hold pending review of the Ministerial Policy Guideline for Food Safety Management in Australia – Food Safety Programs.

Health Claims Standard Development Advisory Committee

This committee was formed in 2004 to assist in the development of a new Standard for Nutrition, Health and Related Claims. The committee includes representatives from Australian and New Zealand Governments, states and territory health agencies, nutritionist associations, consumer and fair trading organisations, therapeutic goods, quarantine and industry bodies.

Currently health claims on food labels are covered by a transitional Standard 1.1A.2 in the Food Standards Code, which prohibits statements linking consumption of a food with a therapeutic or prophylactic use or references to physiological conditions or diseases on a food label or food advertisement.

The new Standard for Nutrition, Health and Related Claims will permit specific claims on appropriate foods provided the claim is specific and substantiated.

The Standard Advisory Committee was disbanded after a final assessment report was released in April 2008. A first review of the draft standard has been requested by the Australia New Zealand Food Regulation Ministerial Council. A consultation paper seeking views on substantial changes to the proposed standard was circulated in February 2009. Progression of the draft standard has been put on hold until at least March 2010 in order to coincide with the COAG Review of Food Labelling Law and Policy.

Administration of legislation

States and territories have enacted Food Acts based on model food provisions as agreed under the Food Regulation Agreement 2002. Also under the agreement, states and territories have adopted the Code through their Food Acts. The model for administration of Food Acts differs between jurisdictions with either state and territory governments taking sole responsibility or responsibility being shared between State Government and local government.

The Australian Quarantine Inspection Service (AQIS) is responsible for the control of imported food which must also comply with the Code.

States and territories have traditionally regulated food safety in the domestic meat, dairy and shellfish industries under Primary Industry Acts, administered by primary industry departments. In recent times there have been moves in some jurisdictions to integrate this legislation into single Primary Industry Acts or modified Food Acts, with corresponding changes in administration. AQIS has responsibility for food safety regulation of the export meat, dairy and shellfish industries. Some jurisdictions, in some industries, share enforcement responsibilities between AQIS and states/territories.

Developing and overseeing a consistent approach across jurisdictions to the implementation and enforcement of food regulations and standards (regardless of whether food is sourced from domestic producers, export-registered establishments or from imports) is the role of the Implementation Sub Committee (ISC) – a sub committee of the Food Regulation Standing Committee (FRSC).

ISC members are either heads of their agencies or operational experts at senior level with capacity to make and implement decisions about enforcement issues in their jurisdictions. The membership comprises up to two representatives from each state and territory; one representative from each of the Commonwealth Departments of Health and Ageing, Agriculture, Fisheries and Forestry – Australia and AQIS; FSANZ; one representative from New Zealand; and one representative from the Australian Local Government Association. The department is represented by the Director of Food Policy and Programs Branch.

ISC has developed a strategy for consistent implementation and enforcement of food regulation in Australia and a three-year rolling work plan. The strategy and the work plan were endorsed by the Ministerial Council in October 2005 and updated by ISC in July 2007. ISC will report at each FRSC meeting on progress with the plan and specific projects. FRSC will report annually to the Ministerial Council against the key performance measures.

The strategy incorporates an agreed three-year work plan containing eight components each of which is sponsored by an ISC member. The department is sponsor of Component 3 – Food Safety Incident Response and Management Systems, with the aim of maintaining an effective system for the management of national food safety incidents. The strategy is available at: <http://www.health.gov.au/internet/main/publishing.nsf/Content/isc-workplan>.

On 2 May 2008, the Australian and New Zealand Food Regulation Ministerial Council (Ministerial Council) finalised the first review of its operations and endorsed the implementation of the seven recommendations. Recommendation 7 was that *FRSC should more closely examine the ISC work plan and give ISC more strategic direction with consideration of resource implications.*

Through its Strategic Plan 2009-2014, FRSC established six priorities for ISC in 2009. The following six ISC priorities sit within Priority 4 (*Consistency of implementation improved*) and Priority 7 (*Evidence base and evaluation capability improved*) of the FRSC strategic plan:

1. The integrated model for standards development and consistent implementation piloted on the Eggs Primary Production and Processing Standard.
2. National framework for auditor management operating.
3. National enforcement policy operating (including road-testing with local government).
4. Consistent interpretation of Regulatory Standards.
5. Food surveillance system linkages scoping project completed.
6. Framework for evaluation of ISC strategic plan implementation.

The work of ISC in 2008-09 can be placed into four categories:

1. Consistent implementation
2. Consistency in monitoring and compliance arrangements
3. Consistent action and enforcement
4. Communication.

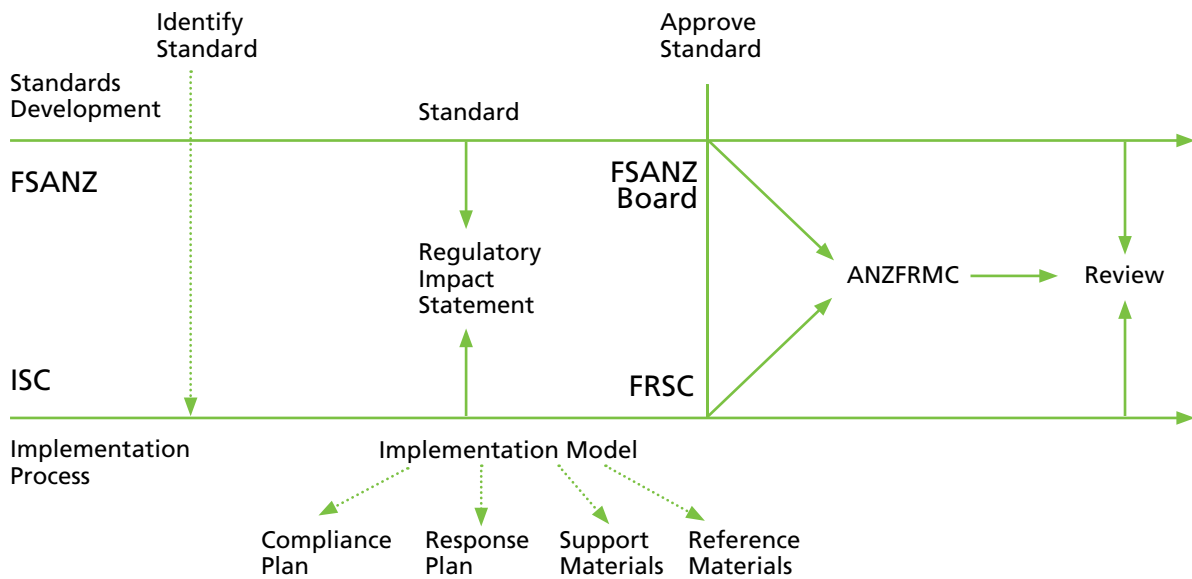
1. Consistent Interpretation

The Integrated Model for Standards Development and Consistent Interpretation

In July 2008, ISC endorsed a draft model for an integrated system for standards development and consistent implementation ('The Integrated Model'), see diagram below.

The key concept of 'The Integrated Model' is that when the Ministerial Council is presented with national food standards for approval, it should be provided with a package comprising the standard, an implementation model for the standard and a comprehensive Regulatory Impact Statement including costs associated with implementing the standard. This will allow the Ministers to be better informed of impacts associated with implementing national food standards at the time of approval.

An integrated model for standards development and consistent implementation



In August 2008, FRSC agreed that the 'The Integrated Model' should be piloted on the Primary Production and Processing Standard for Eggs and Egg Products (the Egg Standard). An ISC Working Group called the Eggs Implementation Model Working Group (EIMWG) was charged with managing the pilot.

Eggs Implementation Model Working Group (EIMWG)

During 2008-09, SA Health participated as a member of the EIMWG charged with piloting 'The Integrated Model' during the development by FSANZ of the Primary Production and Processing Standard for Eggs and Egg Products (Egg Standard).

The scope of the EIMWG is to use 'The Integrated Model' in developing an implementation model for the Egg Standard (including response to public submissions on the draft implementation model), and documenting and analysing the process of developing the implementation model for the Egg Standard.

The Implementation Model consists of the following:

1. Compliance plan (what is required of businesses, how regulators will monitor compliance).
2. Response plan (how regulators will take enforcement action).
3. Supporting materials (guidelines for regulators and businesses).
4. Reference materials (available information to assist businesses and regulators and how this information maps across standards).

The work group was also asked to provide information to FSANZ for the development of a comprehensive Regulatory Impact Statement compliant with processes of the Office of Best Practice Regulation and Council of Australian Governments (COAG).

The group has been asked to record and analyse the process of developing the implementation model for the Egg Standard, with due regard to:

- Elements of the implementation plan
- Consultation processes
- Development of the comprehensive Regulatory Impact Statement (RIS)
- Alignment with FSANZ standards development processes
- Impacts of the implementation plan.

The EIMWG was also asked to suggest modifications to improve 'The Integrated Model' and/or the process of applying 'The Integrated Model', and to examine its applicability to standards other than Primary Production and Processing Standards.

The original time frame for completion of the primary tasks and reporting to ISC, in July 2009 will be achieved. Further progress will be reported to the November 2009 ISC meeting.

Consistent Implementation and Enforcement of the Mandatory Folic Acid Fortification Standard

In 2008-09 ISC developed a strategy to assist the consistent implementation and enforcement of the mandatory folic acid fortification standard. South Australia participated in the ISC working group that developed this strategy. This strategy aims to provide advice to jurisdictions and industry on how to demonstrate sufficient compliance to the requirements of the standard. This strategy was endorsed by ISC in July 2008 and represents an agreed position to advise on compliance and enforcement activity across all Australian and New Zealand jurisdictions. The strategy has been provided to the Flour Millers Council of Australia via the Australian Food and Grocery Council to allow implementation arrangements to progress ahead of the 13 September 2009 deadline for implementation of the folic acid fortification standard.

ISC is now considering the broader potential for application of this strategy to all standards where mandatory fortification is required (for example, iodine fortification).

Nutrition, Health, and Related Claims

For the first half of 2008-09 SA Health chaired the ISC Health Claims Working Group. The working group is tasked with assisting and advising ISC in its role as the health claims watchdog established by Australia New Zealand Food Regulation Ministerial Council *Policy Guideline on Nutrition, Health and Related Claims* (health claims) by:

- Collating and analysing information from jurisdictions regarding health claims complaints, proactive monitoring and enforcement action and providing periodic reports to ISC
- Advising ISC regarding health claims enforcement issues
- Assisting FSANZ in the creation and maintenance of a guideline document (in consultation with stakeholders)
- Providing recommendations to ISC regarding proposed amendments to the Nutrition, Health and Related Claims Standard (the new Standard) under development by FSANZ, or the guideline document.

The working group was also tasked with the development of an implementation framework for the new Standard. The working group reported to ISC in July 2008 on its investigation of the regulatory tools which would provide food regulators with optimum capacity for monitoring and enforcement of health claims to achieve the best compliance with the new Standard.

2. Consistency in Regulatory Compliance and Monitoring Arrangements

Implementation of the National Food Safety Audit Policy

The National Food Safety Audit Policy, which outlines a nationally consistent approach to the management of food safety audits and food safety auditors, was completed in 2006. ISC then convened the ISC National Food Safety Audit Policy Implementation Working Group to develop a guidance document on the consistent implementation of this policy. SA Health was a member of the working group. Following completion of the draft guideline this working group was disbanded.

The guideline is intended to serve as an advisory document to food regulators on how to implement the National Food Safety Audit Policy. The draft guideline contains the National Regulatory Food Safety Auditor Framework endorsed by FRSC in December 2008. A draft guideline will be provided to the July 2009 ISC meeting.

Food Safety Management

The national food safety management framework will be implemented using the FRSC risk profiling framework (which places food business sectors into risk categories). The risk management tools of the ISC Food Safety Management Tools Working Group will also be used.

The ISC Food Safety Management Tools Working group will develop:

- A suite of risk management options (regulatory and non-regulatory)
- Risk management criteria that will be applied when making decisions about the use of the risk profiling framework
- A process for identifying and applying a food safety management option appropriate to the level of food business risk.

SA Health was a member of the working group, which had one teleconference in 2008-09, when it was agreed to disband the group until work was completed on the Integrated Model for Standards Development and Consistent Interpretation ('The Integrated Model').

The Food-Medicine Interface

The ISC Food-Medicine Interface Working Group was established to develop an agreed process through which regulators can identify the regulatory regime appropriate for dealing with a particular product or group of products that sit at the food-medicine interface. A parallel Australia and New Zealand food-medicine interface process was agreed by ISC in 2008-09 for considering products of this nature.

ISC Compliance and Monitoring Strategy for GM Food

In 2008-09 SA Health contributed to the development of a National Compliance and Monitoring Strategy for GM food. The strategy will establish a framework that enables consistent and effective monitoring and surveillance of Standard 1.5.2 'Foods Produced Using Gene Technology' of the Australia New Zealand Food Standards Code across jurisdictions. A draft strategy will be provided to ISC at its July 2009 meeting.

3. Consistent Action and Enforcement

National Food Incident Response Protocol

ISC developed the National Food Incident Response Protocol (the Protocol) to maintain an effective system for the management of national food safety incidents. The Protocol was endorsed by the Australia and New Zealand Food Regulation Ministerial Council in May 2007. The Protocol is a guide for ISC member agencies and provides a framework to coordinate the response of these agencies to a food incident.

The Protocol formalised existing arrangements between agencies and defines roles and associated responsibilities during the response to a national food incident. A food incident is defined as 'any situation within the food supply chain where there is a risk, potential risk or perceived risk of illness or confirmed illness associated with the consumption of a food or foods.' A copy is available at:

<http://www.health.gov.au/internet/main/publishing.nsf/Content/foodsecretariat-isc.htm>

In 2008-09 the protocol was activated twice:

Incident	Date of Activation
Melamine in imported foods	Sept 2008
Hepatitis A linked to semi dried tomatoes	May 2009 activation by SA Health

Australia New Zealand Enforcement Policy

In November 2008, ISC endorsed a draft Australia New Zealand Enforcement Policy (the Policy). The intent of the Policy is to advocate a graduated and proportionate approach to the application of enforcement provisions against food businesses. While advocating such an approach, the Policy does not prevent a food regulator applying more serious provisions in the first instance, should appropriate circumstances apply. The Policy is further accompanied by an optional toolbox, which aims to provide a guide to regulators for selecting the appropriate enforcement tool to use in response to a legislative breach.

In November 2008, ISC endorsed a three-to-six month operative trial of the Policy to test its practicality in the marketplace. This trial concluded on 31 May 2009. Following an analysis of results, the Policy will be represented to ISC in November 2009.

4. Communication

ISC Stakeholder Forum

On 19 June 2009, ISC held its inaugural stakeholder forum in Melbourne with 150 people in attendance. The forum outlined the key ISC tasks in the areas of:

1. Consistent implementation – The Integrated Model for standards development and consistent interpretation.
2. Consistent compliance – Implementation of the national food safety audit policy.
3. Consistent enforcement – The draft Australia New Zealand enforcement policy.

Stakeholder feedback was also canvassed regarding 'consistent interpretation' of regulatory standards. The feedback will be considered by ISC in the second half of 2009.

Administration of the *Food Act 2001* in South Australia

The administration of the *Food Act 2001* in South Australia and the food standards which apply under the Act is the responsibility of the Department of Health and local government.

Responsibilities of the Department of Health

The department is responsible for the following:

- Oversight of administration of the Act
- Monitoring compliance with labelling, composition, microbiological and chemical requirements of the Code throughout SA
- The safety and suitability of food sold, and monitoring and enforcement of compliance with Food Safety Standards in unincorporated areas of the state (85% of the geographical area of SA)
- Monitoring food safety related incidents and initiating appropriate responses
- Providing advice to local governments dealing with minor food borne disease outbreaks in their areas and leading investigations and remediation of more significant outbreaks
- The exercise of emergency powers to remove, prevent or reduce the possibility of a serious health risk including initiation and coordination of food recalls
- Providing advice, support and assistance to local government
- Providing advice to food businesses and the public on food issues
- Advising the Minister on issues pertaining to the application of the Act and food issues generically.

The department's responsibilities are delivered by:

Food Policy and Programs Branch

The branch is responsible for the day-to-day administration of the Food Act, as described above (except for the role of the Regional Services Section as described below). More specifically, the branch prepares advice to senior department staff and the Minister for Health on food issues, development of legislation and proposed amendments to the Code. The branch monitors compliance with the Code and the results of surveys undertaken for this purpose are published on its web site.

The branch conducts environmental investigations of major food poisoning outbreaks. This involves an immediate response to stop the supply of suspected food, the collection of samples to confirm the source of the outbreak and an analysis of the food handling procedures to determine the cause of the outbreak. The branch also participates in the development of state and national food regulatory policy and contributes to national programs which facilitate a consistent approach across jurisdictions to the implementation and enforcement of food regulations and standards. Also, the branch provides assistance to the food industry in the implementation of significant new legislation.

Communicable Disease Control Branch

Under the *Public and Environmental Health Act 1987* laboratories and medical officers are required to notify occurrences of food borne diseases to the department's Communicable Disease Control Branch (CDCB). Monitoring and analysis of these reports by CDCB provides an alert for food borne disease outbreaks in the community. A follow-up interview with affected persons, including an assessment of foods eaten during the days prior to the onset of the illness, is used to trace potential causes of a food borne disease outbreak. The application of statistical tools can assist CDCB to identify the likely food or business responsible for the outbreak.

Regional Services Section of the Applied Environmental Health Branch

The Regional Services Section administers the Food Act to 'unincorporated' areas of the state (not serviced by a local council). This primarily involves remote areas of South Australia.

Details of surveillance activities have been reported in a manner consistent with data collated from local government surveys and are contained in the following tables.

Authorised Officer Qualifications

	Environmental Health Degree	Full-Time
Authorised Officers	4	4

Food Business Inspections and Food Safety Risk Categories

Inspections	Food Safety Risk Classification			Totals
	High	Medium	Low	
Number of Businesses	1	112	Nil	113
Inspections Conducted	2	168	0	170
Follow-up Inspections	1	20	0	21

Enforcement Actions Conducted 2008-09

Business Type	Warnings	Improvement Notice	Expiation
Bakery	0	0	0
Hotel/Pub/Tavern	0	1	0
TOTALS		1	

Complaints Received to Regional Services

Type	Total	Justified
Unsafe/unsuitable Food	1	0
Personal Hygiene	1	0
Labelling Issue	1	1
TOTALS	3	1

Roles and responsibilities of local government

Local government is responsible for the following functions within its jurisdiction:

- Safety and suitability of food sold, and monitoring and enforcement of compliance with Food Safety Standards, including undertaking appropriate inspections
- Managing minor food borne disease outbreaks within council boundaries and assisting the department with investigations into any significant food borne disease outbreaks within SA
- Monitoring and taking action as appropriate to ensure efficiency with which food is recalled for health and safety reasons, and/or is removed from sale
- Receiving notifications from food businesses.

Environmental Health Officers (EHOs) representing local councils are the front line for food safety in South Australia. EHOs routinely inspect food businesses to ensure that the premises, equipment and the standard of food handling will result in the supply of safe and suitable food. A key part of their role is the provision of advice and educational materials to food businesses. They also respond to complaints about food businesses and investigate food poisoning outbreaks independently, or with the assistance of officers from the department.

Effective administration

Establishing Roles and Responsibilities with Local Government and PIRSA

The Memorandum of Understanding (MOU) between the Minister for Health and the Local Government Association of SA (LGA SA) for the exercise of functions under the Food Act 2001 establishes the roles and responsibilities of the department and local councils.

A review of the MOU between the Minister for Health and the LGA SA for the exercise of functions under the Food Act 2001 was completed during 2007-08. The Minister for Health and the President of LGA SA signed the revised MOU in February 2009. The revised MOU was tabled in the South Australian Parliament on 18 February 2009.

A key addition to the revised MOU is a commitment to establish a work program for joint food regulation activities. This working group is being established jointly by the Food Policy and Programs Branch and Local Government Association of SA.

To maintain food safety through all stages from primary production to the consumer, the responsibilities and cooperative arrangements between the department, PIRSA and local government are defined through the following:

1. MOU between the department and PIRSA for Surveillance, Incident Response and Regulation of Food Safety in the Primary Industry Sector in South Australia.
2. MOU between the Minister for Agriculture Food and Fisheries, Minister for Health and Local Government Association of SA: 'Regarding Management of Food Safety at Accredited Meat Processors in South Australia'.

Food Special Interest Group of the SA Division of Environmental Health Australia (Food SIG)

SA Health has continued to maintain an association with the Food Special Interest Group (SIG). SIG continues to be a relevant food safety focussed group which meets regularly. SIG maintains an interest in relevant issues and participates in the working groups to research and support food safety in South Australia. The forum continues to be used to provide an effective communications tool and has provided a sound platform for EHOs to clarify practical field issues in relation to conduct of Food Safety Audits.

Throughout the year SIG has been involved in the consultation process for many important activities. These include:

- Support for the introduction and implementation of Food Safety Programs and auditing by identifying practical issues and providing feedback to assist with the successful development of the framework required to implement Standard 3.3.1
- Review of the MOU under the Food Act between the Minister for Health/LGA SA, supporting key improvements including strengthening the intent and inclusion of Food Safety Programs and auditing responsibilities, and the addition of a work program
- Providing an information resource to assist with the development of food safety standards and providing guidance to local government on the consistent interpretation of food standards
- Contribution to the development of a local government EHO knowledge base to facilitate consistency in interpretation of policy and practice
- Ensuring effective communication by providing an overview of the outcomes of national recalls and food borne illness outbreaks, for example, Melamine
- Identification of proposed sampling plan to enable local government to participate and provide review of any surveys completed (wet noodles, eggs, sushi, and Farmer's markets).

SA Division of Environmental Health Australia and the Department of Health Executive Bi-monthly Meetings

SA Health meets with Environmental Health Australia (EHA) bi-monthly to discuss and share information on topical issues. The meetings also provide a forum for communicating policy interpretation, implementation of new legislation and flagging potentially significant issues.

Topics addressed throughout the year included:

- Review of MOUs
- Review of Food Act Information System
- Publishing Successful Food Act Prosecutions
- I'm Alert Food Safety Training
- Incident Response Planning
- National Ready-to-eat Meat Primary Production and Processing Standard
- National Seafood Primary Production and Processing Standard
- Workforce tracking
- Management of Standard Food Safety Program Templates
- Food sampling programs
- Food safety program templates
- Environmental Health Australia Food Act enforcement seminar
- Council of Australian Governments food regulation reforms
- Food safety audit management
- Department of Health/local government planning day
- Community housing
- Benchmarking food safety regulation by the Productivity Commission
- Food Safety Auditor Forum
- Food Safety Auditor Training
- Food Safety Forums.

Activities of Food Policy and Programs Branch

Monitoring compliance with the *Food Act 2001*

The Food Policy and Programs Branch conducts sampling surveys of various foods that are of public health concern, or to confirm compliance with the compositional and labelling requirements of the Code.

The surveys completed by the Branch in 2008-09 include:

- I. Microbiological Quality of Prepared Salads
- II. Nitrate and Nitrite Levels in Cured Meats
- III. Microbiological Quality of Raw Vegetables
- IV. Lactose Free Products
- V. Trans Fatty Acids, Fatty Acids, Sodium and Iodine Levels in Commonly Consumed Food Products
- VI. Country of Origin Labelling
- VII. Gluten Free Products
- VIII. Modified Atmosphere Packaged Salad Vegetables
- IX. Ready-to-eat Foods, Soft Cheeses and Dairy based Dips
- X. Microbiological Quality of Wet Noodles.

Complete reports for the surveys can be found in Appendices I to X.

Past and current surveys listed above can be found on the Branch web site at www.health.sa.gov.au/pehs – click on 'Food'.

South Australian Participation in National Food Surveys – The ISC National Coordinated Survey Plan

The ISC national coordinated survey plan consists of surveys which are selected to gather information on current national issues of food safety and compliance. The Food Surveillance Network, made up of senior representatives from the states and territories, manages the plan on behalf of ISC. A state or territory is nominated to coordinate each survey with other jurisdictions participating. During this reporting period the department participated in the Trans Fatty Acids, Fatty Acids, Sodium and Iodine Levels in Commonly Consumed Food Products Survey.

Investigation of serious issues 2008-09

During the 2008-09 year, a number of significant issues were investigated. The source of notification of incidents and/or issues is varied and includes routine food surveys conducted by the Food Standards Surveillance Section, members of the public, the food industry itself, Environmental Health Officers in local government, other regulatory agencies, or from the Communicable Disease Control Branch (CDCB).

Incidents investigated as the result of outbreaks identified through epidemiological studies conducted by CDCB are reported separately and can be found on page 28.

In all, 21 serious incidents were investigated; 14 of these incidents involved collaboration with other agencies including interstate authorities, local government and other regulatory agencies in South Australia.

One case was the subject of criminal investigation as a result of possible deliberate tampering. Four cases were the responsibility of interstate jurisdictions.

Corrective actions have been implemented in relation to all incidents. The only incident which will remain ongoing in 2009-10 is the hepatitis A incident where jurisdictions are awaiting results of laboratory analysis to enable completion of investigations. Six voluntary product withdrawals were conducted by South Australian food businesses to retrieve product at market level to protect public health.

Food recalls

In the 2008-09 financial year there was a total of 50 Food Standards Australia New Zealand (FSANZ) food recalls. The recalls consisted of seven trade level recalls, where the company recovers the product from distribution centres, wholesalers and food services (for example, restaurants) as the product has not been released in retail stores and can easily be retrieved. A further 43 recalls were consumer level recalls, where the product is recovered from retail outlets and from consumers. The manufacturers who voluntarily recalled their product through the FSANZ recall officer do so because a food safety risk is identified. Most voluntary recalls are precautionary and are not associated with cases of illness. Food recalls, whether initiated voluntarily or by a state or territory agency, are nationally coordinated by FSANZ.

The food business undertaking a recall is responsible for ensuring that the recall is carried out as soon as an issue is identified. Standard 3.2.2 requires a food business that engages in the wholesale supply, manufacture or importation of food, to have a system to ensure the recall of unsafe food in place. This usually includes advertisements in newspapers informing consumers of the recall. SA Health informs local councils of the recall and requests that they check food businesses in their area to ensure they are acting on the recall.

Table 1. Type, reasons and the states involved in each of the recalls

No. of Recalls	Type of Recall	Reason for Recall	States Affected Other than SA	SA & Other States Affected	SA Only
50	Consumer – 43	Microbiological – 20			
	Trade – 7	Labelling – 15	39	9	2
		Foreign Matter – 12			
		Choking Hazard – 1			
		Chemical – 2			

Department of Health prosecutions

There were no prosecutions prepared in the 2008-09 year.

Food Safety Management

Food Safety Programs (FSPs)

Food safety programs have been mandated nationally for businesses providing food to vulnerable populations in hospitals, aged care facilities, child care centres, and via delivered meals organisations such as Meals on Wheels.

FSANZ developed the Vulnerable Populations' Standard – 3.3.1, with stakeholder consultation. It was introduced into the Food Standards Code in October 2006 with a two-year implementation period.

National Food Safety Standard 3.3.1 (requiring audited mandatory food safety programs for food services to vulnerable persons) became enforceable in South Australia in October 2008. The department is continuing to work with industry and local government and is developing monitoring and review systems, to ensure effective management of the audit process in SA food businesses to whom this standard applies.

The department has conducted food safety audits of public hospitals and not-for-profit delivered meals organisations including Meals on Wheels. In line with the priority classification for these businesses, in 2008-09 the department completed the first audit and commenced the second audit. The frequency of future audits will now be dependant on performance of the business.

Development of the auditor workforce is ongoing, as is the monitoring and review of systems and resources.

Meals on Wheels SA

The department has completed the first round and commenced the second round of Meals on Wheels fresh cook facility audits. The department is continuing to provide assistance in the development of the cook/chill facility template.

Department of Health Catering Food Safety Program Working Group

This working group has members from the South Australian catering industry and is chaired by the Department of Health. The purpose of the group is to monitor progress of the proposed national standard for FSP for catering to the general public. The group did not meet during 2008-09 due to development of the catering standard being placed on hold.

National Catering Template Development Working Group

This group did not meet in 2008-09.

Development of SA Legislation

SA Health is also contributing to the development of South Australian Egg Regulations to be implemented and administered by PIRSA. A further consultation paper is currently being prepared for further consultation with industry in early 2009-10.

Primary Industries Resources SA (PIRSA)

PIRSA's Food Safety Program administers the Primary Production (Food Safety Schemes) Act 2004 and regulations, with the objective to promote and improve food safety in primary industry sectors by applying legislation and risk management strategies. The program is an ISO certified regulatory management system and incorporates: compliance and enforcement, meat industry accreditation, meat industry Quality Assurance and validation, primary industry food safety (citrus, seafood, eggs, sprouts), and the SA shellfish quality assurance program as detailed below.

Accredited Businesses

Business Type	Accredited Businesses
Meat Processors	951
Shellfish Producers	160
TOTALS	1 111

Audits performed on Regulated Businesses

Audits By	Audits Performed
PIRSA	1 493
3rd Party	93
TOTALS	1 586

Validation of High Risk Processes

Product Type	Validations Performed
Uncooked Fermented Meat	25
Ready-to-eat Meat	21
TOTALS	46

SA Shellfish Quality Assurance Program

Test Performed	Number of Tests
Microbiological Water Tests	1 382
Microbiological Shellfish Tests	1 641
Phytoplankton Counts	504
Biotxin Samples	107
TOTALS	3 634

Enforcement Activities

Action Type	Number Issued
Minor CARs	160
Major CARs	200
Critical CARs	5
Warning Letters	21
Expiation Notices	6
Compliance Orders	0
Prosecutions	0
TOTALS	392

*CAR – Corrective Action Report

Educational activities

Food Safety Resource and Bug Buster DVD

The department has continued to provide resources for food businesses and local councils. The food safety resource CD containing version 2 food safety program templates for hospitals, aged care and child care was printed in 2008-09.

The *bug busters* training DVD (to assist food businesses to provide adequate skills and knowledge for staff members) was reprinted.

I'm Alert food safety training CD was also distributed as required to vulnerable population food businesses.

Food Safety Program Information Sessions

To continue to support the implementation and enforcement of Standard 3.3.1 the department has conducted information sessions and presentations for stakeholders on the implementation of food safety programs and auditing requirements. These have included aged care accreditation and child care licensing agencies as well as individual organisations.

The department has presented at two country seminars on the progress of food safety programs and auditing for The Institute of Hospitality in Health Care at Nuriootpa and Clare.

Start Right Eat Right for Child Care Centres

The *Start Right Eat Right* program focuses on nutrition and food safety in child care environments.

The department has continued to work with the facilitators of the *Start Right Eat Right* program this year to provide articles for industry newsletters, provide resources, attend meetings and continue to workshop the requirements of moving from Food Safe to the food safety program requirements. One workshop has been facilitated this year.

The department also conducted a presentation for the Child Care Association to capture child care centres not accredited to *Start Right Eat Right*.

Environmental Health Australia SA Division (EHA)

The department gave a presentation about the progress of mandatory food safety programs and auditing at the annual conference of the EHA. The EHA members are mostly from local government and are involved in enforcing food regulation.

The department attended most EHA Food Special Interest Group meetings and provided updates regarding implementation and enforcement of mandatory food safety programs and audit requirements.

Auditor Training for Department of Health and Local Government Officers

The department has continued to facilitate the Lead Auditor in Food Safety Management Systems training sessions through SAI Global. This will provide assurance that Department of Health and local government food safety auditors are competent to audit high risk food businesses. One training session was conducted this financial year, bringing the total number of training sessions provided to six. Ninety-six professionals from the department and local councils have now attended these sessions. A further training session is anticipated in 2009-10.

One auditor information session was held in 2008-09 and auditor forums will be held annually from 2009-10 to assist with professional development.

Presentation to Students/Education Institutions

Food Policy and Programs staff gave lectures and talks to a number of interested groups and organisations, including a lecture to Adelaide University medical students incorporating an overview of food safety, and food borne illness, and a lecture to Flinders University nutrition students on food law in general, and the process involved in development of Food Standards. Additionally, a paper was presented to the Environmental Health Australia annual state conference, describing outcomes of a survey of the microbiological status of soft noodles; and a presentation was given to the SA Bee Keepers Society on Food Safety Standards and Food Labelling.

Communication and Consultation

To facilitate communication and consultation with stakeholders, the department used a number of different mechanisms this year:

Food Regulation Inter-Departmental Committee

The SA Government Food Regulation Inter-Departmental Committee (IDC) was established in October 2005 to facilitate improved communication and consultation between relevant government organisations regarding food regulation matters.

The South Australian Government departments represented are:

- Department of Health (chair, secretariat)
- Department of Premier and Cabinet
- Department of Primary Industries and Resources South Australia
- Department of Trade and Economic Development
- The Attorney General's Department – Office of Consumer and Business Affairs.

The Terms of Reference are to:

- Consider food regulation, policy and industry compliance issues
- Actively share information that may be relevant or of interest to South Australian Government agencies in relation to food regulation and policy
- Consider issues referred to it by Government, Ministers or the Premier's Food Council
- Advise the Minister for Health and other relevant Ministers on food regulation and policy issues.

The IDC meets prior to the Australian New Zealand Food Regulation Ministerial Council meetings. The committee met twice in 2008-09.

Productivity Commission

In 2008-09, an annual review of regulatory burdens on business in the manufacturing and distributive trades was completed. SA Health provided a detailed response to the issues paper which included concerns about the analysis leading to the food regulation recommendations. The Productivity Commission released its final report which included 23 responses on 16 September 2009.

The Australian Government has accepted, or accepted in principle 19 responses. The remaining responses were either noted or not accepted. Further information on the report and the government's response can be found at: www.pc.gov.au/projects.

The Productivity Commission received a request from the Australian Government to commence the second year of the Performance Benchmarking of Australian Business Regulation in December 2008. The Council of Australian Governments (COAG) Business Regulation Working Group agreed that the Commission should benchmark the burdens on business arising from Food Safety Regulation. The Commission released an issues paper on 7 April 2009. SA Health met with the Productivity Commission in May 2009 to provide initial views. A draft report will be released in October 2009 with the final report due to the government in December 2009.

Premier's Food Council Inter-Agency Food and Wine Issues Group

The Food and Wine Issues Group is a whole of government group of senior public servants who have the authority to commit the support and resources of their agencies to support implementation of the State Food Plan, and to address issues raised by the Premier's Food Council. Meetings of the group are chaired by the convenor of the Premier's Food Council, Michael O'Brien MP. The Department of Health is a member and attends quarterly meetings.

SA Meat Food Safety Advisory Committee

The department is a prescribed member of the South Australian Meat Food Safety Advisory Committee under the Primary Produce (Food Safety Schemes) (Meat Food Safety Advisory Committee) Regulations 2005. The committee considers issues pertinent to the Primary Produce (Food Safety Schemes) (Meat Industry) Regulations 2006 under the Primary Produce (Food Safety Scheme) Act 2004.

Other

Food Policy and Programs Branch provides briefings, presentations as required and attends meetings (by invitation) of:

- Council of Australian Governments (COAG) working groups and sub committees
- Australian Health Ministers Conference (AHMC)
- Australian Health Ministers Advisory Council (AHMAC)
- Australian Population Health Development Principal Committee (APHDPC).

Food Borne Disease Investigations in South Australia in 2008-09

Introduction

The Communicable Disease Control Branch (CDCB) at SA Health conducts epidemiological investigations into food borne disease outbreaks in conjunction with Local Government Environmental Health Officers and the Food Policy and Programs Branch, which provides food technology and environmental investigation expertise and performs environmental and food premises investigations. Primary Industry and Resources South Australia (PIRSA) staff also assist in trace back investigations. The Institute of Medical and Veterinary Science (IMVS) conducts microbiological testing and molecular typing of food and environmental samples and isolates.

Epidemiological information including food histories of cases, environmental reports of onsite visits to premises and laboratory results of stool and food samples are collated to provide a descriptive analysis of clusters of cases. This information helps determine the appropriate analytical approach should further investigation be required.

Epidemiological analysis may demonstrate a statistical association between illness and the consumption of a particular food item or eating at particular premises. Microbiological and molecular evidence can support an association when a very similar or identical micro-organism is found in both cases and a food vehicle suspected on epidemiological grounds.

The specific food vehicle or source of an outbreak is difficult to identify as often there is no remaining implicated food at the start of the investigation. Additionally, faecal samples from affected persons are not always provided for testing.

SA Health investigated five outbreaks of gastrointestinal illness which were known or suspected to be food borne during the period July 2008 to June 2009. Two outbreaks were associated with catered events, one with a bakery, one was a community outbreak and one was associated with a restaurant.

In addition, 11 clusters (cases linked by a particular causative organism) of illnesses that are commonly, though not exclusively, food borne were investigated but the source was not identified. Where a cluster had cases associated with specific premises it may have been classified as an outbreak based on the strength of the association.

A summary of outbreaks and clusters investigated during 2008-09 and their settings is presented in Table 1.

Outbreak No.1 Norovirus – Catered Event

SA Health investigated an outbreak of gastroenteritis following a catered event in metropolitan Adelaide in September 2008. A total of five event attendees and one catering staff member reported illness. A cohort study was conducted and the catering premises were inspected, however a specific food vehicle was not identified.

Outbreak No. 2 *Salmonella* Typhimurium phage type 9 (STM 9) – Bakery

In December 2008, SA Health investigated 15 cases of STM 9 infection. A case control study found a significant association between eating at a particular bakery and illness. Further analysis of cases control data demonstrated an association between consuming sweet bakery items and illness, but the specific food vehicle was not identified. Food and environmental swabs from the bakery were all negative for *Salmonella*. Environmental inspection of the bakery occurred and advice was provided to the owner of the bakery regarding improvements to cleaning and sanitation. No further cases of illness were notified.

Outbreak No. 3 Hepatitis A – Community

SA Health investigated an outbreak of 37 cases of locally acquired hepatitis A identified in South Australia between March and June 2009. Increases in hepatitis A notifications were observed in other states around the same time. A case control study found semi-dried tomatoes were significantly associated with illness. This finding was replicated in other states. A voluntary recall of potentially affected semi-dried tomatoes from interstate was undertaken by a South Australian distributor. As a further precaution SA Health issued a public health warning advising South Australians to avoid eating specified semi-dried tomatoes.

Outbreak No. 4 *Salmonella* Typhimurium phage type 44 (STM 44) – Catered Event

In April 2009 SA Health investigated a report of gastrointestinal illness among attendees at a catered event in Adelaide. Eight out of approximately 200 attendees reported illness; of which seven were confirmed as being caused by STM 44. A cohort study found a significant association between consumption of aioli, made from raw eggs, and illness among attendees. An environmental investigation included testing of food samples. STM 44 was isolated from the aioli but *Salmonella* was not detected in any other samples, including eggs.

Outbreak No. 5 *Salmonella* Typhimurium phage type 135 (STM 135) – Restaurant

An outbreak of STM 135 was investigated in May 2009. Of nine cases investigated, eight reported eating fried ice cream at a common restaurant. An environmental investigation was undertaken and samples collected. All samples were negative for *Salmonella*. Fried ice cream was removed from the menu and advice provided regarding the use of pasteurised egg for fried ice cream batter. No further cases of illness were reported.

Cluster 1: *Salmonella* Typhimurium phage type 193 – Community

Salmonella Typhimurium phage type 193 (STM 193) is a rare cause of human infection in South Australia. Prior to 2005 there were no STM 193 cases notified in the SA surveillance system. Between July and August 2008 a total of 11 cases were notified. Most cases were spread across the metropolitan area of Adelaide with no apparent clustering by suburb. One case was from a rural setting and had not travelled to Adelaide in the seven days before illness onset. All cases were interviewed but no hypothesis was developed. The source of these infections was not identified.

Cluster 2: *Salmonella* Typhimurium phage type 29 (STM 29) – Community

In August 2008 CDCB investigated nine cases of STM 29 in metropolitan Adelaide. Two cases attended the same child care centre; the remaining seven cases had no links to the child care centre. An environmental investigation of the child care centre reported satisfactory food and toy handling practices. Cases were interviewed but no hypothesis was established. The source of these infections was not identified.

Cluster 3: *Salmonella* Typhimurium phage type 29 (STM 29) – Community

Five cases of STM 29 were notified to CDCB in October to early November 2008. Cases were from across different suburbs of metropolitan Adelaide. Cases were interviewed but no hypothesis was established. The source of these infections remains unknown.

Cluster 4: *Salmonella* Bovismorbificans phage type 24 – Community

Three cases of salmonellosis caused by *Salmonella* Bovismorbificans 24 were notified in October 2008. Two cases were from the same rural town and both reported recent interstate travel. The third case was from Adelaide with no recent travel reported. Cases were interviewed but no hypothesis was established. The source of these infections remains unknown.

Cluster 5: *Salmonella* Typhimurium phage type 44 (STM 44) – Community

A cluster of seven cases of STM 44 was investigated in January 2009. Hypothesis generating interviews did not identify any common foods, geographic links or risk factors. The source of these infections remains unknown.

Cluster 6: *Salmonella* Typhimurium phage type 9 (STM 9) – Community

A cluster of 20 cases of STM 9 was investigated in February 2009. Cases were spread throughout metropolitan Adelaide. Case interviews identified five foods that were frequently consumed however further breakdown into type and place of purchase did not reveal a common source. Two notifications were associated with one food service establishment and an environmental investigation was requested. The report from the EHO did not identify any food handling concerns.

Cluster 7: *Salmonella* Typhimurium phage type 108 (STM 108) – Community

In February 2009 CDCB investigated a cluster of 11 STM 108 cases. Six cases were interviewed, no links between cases were identified and a likely food vehicle was not found. The source of these infections remains unknown.

Cluster 8: Shiga toxin producing *Escherichia coli* O157 – Community

An investigation of a cluster of 11 cases of *Escherichia coli* O157 infection commenced in CDCB in February 2009. Case interviews did not reveal any common foods or geographical links. Molecular tests of isolates from the 11 cases determined that five were indistinguishable. The source of these infections remains unknown.

Cluster 9: *Salmonella* Typhimurium phage type 108 (STM 108) – Community

A cluster of 10 cases of salmonellosis caused by STM 108 were investigated by CDCB in May 2008. Among eight interviewed cases, no common links were identified and the source of these infections remains unknown.

Cluster 10: *Salmonella* Typhimurium phage type 44 (STM 44) – Community

A cluster of eight cases of STM 44 was investigated in May 2009. Hypothesis generating interviews were conducted, but no common foods, geographic link or other risk factors were identified. The source of these infections remains unknown.

Cluster 11: *Salmonella* Typhimurium phage type 193 (STM 193) – Community

In June 2009 a cluster of nine cases of salmonellosis caused by STM 193 was investigated. Of nine cases interviewed, four reported recent history of interstate travel. No suspect foods, geographic links or other risk factors were identified. The source of these infections remains unknown.

Table 1: Summary of food borne or suspected food borne disease investigations in SA during the period 1 July 2008 to 30 June 2009

No	Month	Organism	Location	No. ill	Transmission	Evidence
<i>Outbreak Investigations</i>						
1	Sep 08	Norovirus	Catered event	5	Food borne	D
2	Dec 08	STM 9	Bakery	15	Food borne	D, S
3	Apr 09	Hepatitis A	Community	37	Food borne	D, S
4	Apr 09	STM 44	Catered event	8	Food borne	M, D, S
5	May 09	STM 135	Restaurant	7	Food borne	D
<i>Cluster Investigations</i>						
1	Aug 08	STM 193	Community	8	Unknown	D
2	Aug 08	STM 29	Community	9	Unknown	D
3	Oct 08	STM 29	Community	6	Unknown	D
4	Oct 08	<i>Salmonella</i> Bovismorbificans 24	Community	3	Unknown	D
5	Jan 09	STM 44	Community	7	Unknown	D
6	Feb 09	STM 9	Community	17	Unknown	D
7	Feb 09	STM 108	Community	14	Unknown	D
8	Feb 09	Shiga toxin producing <i>Escherichia coli</i> O157	Community	11	Unknown	D
9	May 09	STM 108	Community	11	Unknown	D
10	May 09	STM 44	Community	8	Unknown	D
11	Jun 09	STM 193	Community	9	Unknown	D

STM – *Salmonella* Typhimurium; M – Microbiological; D – Descriptive; S – Statistical

Local Government Activities Under The *Food Act 2001* 2008-09

Under the *Food Act 2001* it is a mandatory requirement for local government councils to provide the department with information on their activities. For the purpose of this Annual Report, a request for information was circulated to all councils.

Councils are empowered under Parts 4 and 5 of the Act to ensure that proper standards of hygiene are maintained in relation to the manufacture, transportation, storage and handling of food for sale. They are also responsible for taking measures to prevent the sale of unfit food and to investigate complaints related to the sale of unfit food. Environmental Health Officers (EHOs) are authorised under the Act to issue orders and notices and take action for breaches.

Authorised Officers

All Environmental Health Officers must be authorised officers under the *Food Act 2001* to be able to administer the Food Act. EHOs must have the necessary skills and knowledge to effectively perform their food related responsibilities to gain authorisation.

Authorised Officers (Currently working in local government)	Environmental Health Degree	Other Qualifications	Not Provided
141	58	22	61

Authorised Officers (Currently working in local government)	Full-Time	Part-Time
141	112	41

* Numbers may be duplicated where EHOs are employed in more than one council

Inspections

To gain a better understanding of how inspections are organised and undertaken by local government, it was necessary to establish the size and make up of food businesses across South Australia. The frequency of inspections conducted at food businesses has not been clearly defined, with councils using a number of references. The following table establishes how many food businesses exist and the proportion of businesses by food safety risk categories. These figures have been combined with the number of inspections conducted by local government to ensure that planning and inspection frequencies are appropriate and maintained.

Inspections	Food Safety Risk Classification			Totals
	High	Medium	Low	
Number of Businesses	1 276	7 060	3 180	11 516
Inspections Conducted	1 239	5 276	1 255	7 770
Follow-up Inspections	429	2 134	93	2 556

Inspection Fees

Councils have the power to charge fees for inspection services and are using a variety of reference sources for setting fees.

Council Inspection Fees	No. of Councils
Fee	36
No Fee	27
Not provided	1

Complaints

Consumer enquiries and reports of illness, non-compliant businesses or food, constitute an important source of information. In addition, they provide: opportunities for the public to interact with EHOs first hand, a 'shop window' for food safety and give EHOs the opportunity to promote food safety. All complaints are logged and generally risk classified to ensure that the most serious cases are dealt with as a priority. The following table has classified complaints/reports into a list of most likely sources, in addition to reporting on whether the complaint and investigation was found to be valid or verified by an authorised officer.

Type	Complaints/Reports	Verified
Foreign Matter in Food	232	108
Micro Contamination	116	42
Chemical Contamination or Residue	7	2
Alleged Food Poisoning	231	19
Unclean Premises	157	60
Personal Hygiene or Food Handling	224	72
Pest Infestation	85	30
Refuse Storage	66	41
Labelling Issues	37	22
Others	147	52
TOTALS	1 302	448

Orders/Notices Issued to Food Businesses

The table below provides an indication of the nature of sanctions applied to each food business group. It can be seen from the table that a graduated response is generally in place, with warnings making up the largest single sanction applied, progressing to improvement notices and expiations as food businesses fail to respond or issues became more serious.

Enforcement Tools by Category

Business Type	Warnings	Improvement Notice	Expiation
Aged Care	0	2	0
Bakery	31	41	5
B&B Motel	6	0	0
Café	38	38	7
Canteen	11	2	0
Caterer	1	4	0
Charitable	1	0	0
Child Care	0	0	0
Club	12	9	0
Deli	34	21	1
Delivered Meals	0	0	0
Distributor	1	0	0
Farm Gate Sales	1	0	0
Fish Monger/Seafood	3	0	0
Fruit & Veg	4	2	0
Function Centre	0	0	0
Liquor Store	0	0	0
Manufacturer	7	16	4
Mobile Food Van	8	4	0
Restaurant	97	97	20
Service Station	10	6	1
Snack Bar/Kiosk	6	5	1
Stall	1	0	0
Supermarket	19	22	18
Take Away	100	84	22
Temporary Business	5	0	0
Hospital	0	0	0
Hotel/Pub/Tavern	82	47	7
Others	152	9	1
TOTALS	930	409	86

Food Safety Auditing Information

No data is available this year in relation to the number of food audits carried out by councils. This information will be made available next financial year as part of the mandatory information submitted by councils for the Food Act report.

Highlights of other Local Government Activities

Local government undertakes additional food safety programs in support of their statutory roles. These programs include food safety training courses, food compliance surveys, presentations to food handlers and primary school students, and special activities for National Food Safety Week.

Food safety education

City of Charles Sturt

The City of Charles Sturt carried out food handler training sessions twice during the year. In total 200 food handlers attended the sessions which consisted of a presentation, a hand washing activity and the completion of an activity booklet.

City of Marion

The City of Marion carried out two food training courses during the 2008-09 financial year, with a total of 27 people attending. The course consists of four modules and it is run over two nights. Module 1 covers the basics of food poisoning, Module 2 covers how to prevent food contamination, Module 3 is legislation and Module 4 discusses food safety plans. All participants received a certificate of attendance at the completion of the course.

City of Mount Gambier

This council has taken a proactive approach to food safety training, with a food safety training session held for members of a local netball association. Council regularly takes primary school students through the Council Chambers to introduce them to local government. The environmental health department participates by explaining food safety issues and the importance of hand washing. A hand washing demonstration using the glitter-bug crème provided a fantastic visual demonstration.

Council has recently entered into a partnership with TAFE SA to provide food safety training to the region. EHOs attend the training sessions to provide advice and to foster relationships with the proprietors and staff of food businesses. Council believes this is an important step towards positively encouraging compliance and breaking down the barriers between the EHOs and the proprietors/staff of food businesses.

The Rural City of Murray Bridge

The Rural City of Murray Bridge facilitated an accredited TAFE food safety training course for food handlers. The three-hour accredited course introduces basic food science knowledge and covers the food safety responsibilities of food businesses and food handlers under the Food Safety Standards. Participants undertake a short exam at the end of the session to receive their accreditation. The course was very well attended and further sessions are planned for 2009-10.

City of Port Adelaide Enfield

The Food Hygiene and Safety Course has continued to run successfully since 2005 as it provides food handlers with the opportunity to learn about food safety and hygiene in an affordable, fun and interactive learning environment. The cost of the course remains affordable at \$50 per person with a discount of 20% available for two or more attendees from the same business.

The course is promoted every two-to-three months through mail outs to businesses in the area and occasionally in the local Messenger Newspapers. Two programs with differing dates and times are offered for each course to allow food handlers to attend either day or night sessions. The course is delivered by an EHO who is also an accredited trainer, therefore enabling participants to obtain a Certificate of Achievement upon successful completion of the course. The course has recently been amended to include education and training around food safety programs and Standards 3.3.1 and 3.2.1. In 2008-09 a total of seven courses were presented with 118 attendees successfully completing courses. Since 2005-06, a total of 27 courses involving 453 food handlers have been conducted.

District Council of Mount Barker

Seven information sessions were presented to food handlers during the year. These presentations included PowerPoint slide shows, Bug Busters DVD, hand washing evaluation and Q&A information. After four years of council providing ongoing presentations, food safety practices and procedures have shown marked improvements across commercial, private and community food organisations.

Food safety week

Numerous councils participated in this year's Food Safety Week activities.

- **Alexandrina Council:** Environmental Health Officers took part in a number of food safety presentations in schools as part of Food Safety Week. Students were asked to take part in a poster competition designed to illustrate their food safety knowledge.
- **City of Marion:** The council's Environmental Health Team set up a visual display at the Council Administration Centre which provided information about safe food handling practices. Information packages which included posters, fact sheets and pamphlets on Food Safety were also sent to each of the libraries within the council area.
- **City of Mt Gambier:** Council held an information session with children from local primary schools to celebrate the adventurous spirit of Australians. A presentation showed a range of different foods which have been introduced by different cultures. The event was well attended with media coverage by the local newspaper and television station.
- **City of Tea Tree Gully:** In November 2008 a display was placed in the public area of the Tea Tree Gully Civic Centre. Along with a variety of information, four different types of activity sheets, mainly aimed at young children, were made available.

Food sampling/surveys

City of Charles Sturt

A comprehensive food sampling program was undertaken during the year to assess the levels of food poisoning bacteria in sandwiches and rolls sold across the City in cafes, delicatessens and bakeries. Of the 750 food businesses operating within the City of Charles Sturt, a random sample of 50 businesses most likely to sell these products was selected to participate. Nineteen businesses were then subjected to unannounced visits in which two food samples were purchased, temperature checked and then analysed for microbial content. The results of the food sampling program were then used in conjunction with a Flinders University study which investigated the level of food safety knowledge amongst food handlers in food businesses within the City of Charles Sturt. On the spot questionnaires were administered to 50 businesses. These businesses were also mapped geographically to determine the relationship between performance and socioeconomic status. The results identified a high level of skill and knowledge amongst food handlers within the City; however seven per cent of food handlers demonstrated a low level of knowledge. To address this issue, the Environmental Health Department regularly develops and distributes information to food handlers on food safety fundamentals.

Naracoorte/Lucindale Council

A small scale microbial sampling regime was conducted, focused on ready-to-eat cold salads which were on display, including pasta, rice, potato and chicken salad. The samples were tested for Standard Plant Count (SPC), an indicator and relevant pathogens according to the sample taken. All samples were immediately placed in polystyrene containers, together with ice bricks and sent to the IMVS Food and Environmental Laboratory for analysis. Results were then assessed against Food Standards Australia New Zealand 'Guidelines for the microbiological examination of ready-to-eat-foods'. All but one sample tested a result of satisfactory, and one sample tested marginal for Staphylococci. In response to the results further analysis was conducted and the second test showed satisfactory results.

City of Onkaparinga

The Environmental Health Unit has an allocated budget for pro-active food sampling. The unit samples on a monthly basis based on seasonal risks and general high risk foods. Results are used as an educational and monitoring tool to provide indicators of compliance with the Food Safety Standards. Food premises are categorised according to the type of food business as shown in Table 1 and each type is sampled for a four-month period. The types of foods that are sampled are shown in Table 2.

Table 1. Types of Food Premises Sampled

	Premises Type
A	Takeaway/Deli/Fast Food
B	Restaurant/Hotel
C	Supermarket
D	Bakery
E	Petrol Station Convenience Store

A total of 54 food samples were analysed. Table 2 shows the samples that returned unsatisfactory results (above 107 micro-organisms per gram) for the various tests. There were 11 unsatisfactory results, whereby further investigation and sampling was conducted at the food premises to improve food safety and handling.

Table 2. Unsatisfactory Results from Various Tests

	Test	Unsatisfactory (>107 org/gm)
1	Standard Plate Count	10
2	Coliforms	
3	Faecal Coliforms	
4	<i>Salmonella</i>	
5	<i>Campylobacter</i>	
6	<i>Staphylococcus aureus</i>	
7	<i>Listeria</i>	
8	<i>Bacillus cereus</i>	1
9	<i>E. coli</i>	
10	<i>Clostridium perfringens</i>	

Background

Raw vegetables have recently been implicated in food borne illness overseas and in Australia. In 2007, South Australia was a contributor in a national survey of raw and ready-to-eat fresh produce including lettuce, sprouts, strawberries and parsley. Additionally, over 100 lettuces, carrots, apples, onions and other raw vegetables were sampled in conjunction with an investigation of food borne illness. In 2008 a survey was undertaken to examine the microbiological status of prepacked green salad mixes.

While no pathogens have been identified in these foods, there has been a rise in the incidence of food borne illness with identified links to salad vegetables in the USA in 2008, particularly tomatoes, capsicum and spinach.

In SA in 2008, there was an identified increase in *Salmonella* infections with no particular food clearly identified; although many of the affected persons had eaten a healthy diet incorporating a good proportion of fruit and vegetables.

As raw vegetables have been sampled comprehensively in the last two years, it was considered appropriate to review the microbiological status of the prepared salads sold from supermarket deli counters and take away food businesses. Many of the take away food businesses will incorporate their own product from the previous day's manufacture in the production of a salad, for example, honey mustard chicken salad, Thai beef salad, etc. This introduces further potential risk factors into the production of the salad, as the meat must be appropriately cooled after cooking and handled appropriately before mixing with other foods to prepare the salad.

Methodology

This survey was intended to determine the microbiological quality of prepared salads sold in South Australia.

It was intended to collect 50 salad samples. During the sampling program, additional salads were included to ensure that a wide variety of products were sampled, particularly those with potentially high risk processes, such as cooking and cooling of pasta, or the addition of highly processed ingredients, such as pesto. Fifty-two samples of prepared salads were collected. The salads were displayed for sale in supermarket delicatessens and take away food businesses such as chicken and yiros shops.

This survey was intended as a snapshot, to obtain a general overview of the status of prepared salads, therefore single samples of each product were collected, rather than obtaining five units of each sample as required by Standard 1.6.1 of the Food Standards Code for official samples to determine the microbiological status of foods.

All samples were analysed for *Salmonella*, Coagulase-positive *Staphylococci*, *E. coli*, *Listeria spp.* and *B. cereus* when the salad included cereal based ingredients.

The samples were maintained under refrigeration from the time of sampling and during transit to the laboratory. The samples were delivered on the same day of their collection to the IMVS Food and Environment Laboratory which undertook analysis in accordance with NATA criteria and Australian Standard methods.

Assessment of Results

The *Food Act 2001* requires food businesses not to sell food that is unsafe or unsuitable for human consumption. The Food Standards Code sets out microbiological limits for foods as well as food product standards for some foods.

Mandatory microbiological standards have been set in Standard 1.6.1 where risk assessment has shown that the risk of food borne illness associated with the consumption of certain foods is relatively high and that a standard could contribute to the management of the risks identified. Where the justification for a standard was not found, guideline criteria have been developed by Food Standards Australia New Zealand (FSANZ) for some foods. Salads fall into this category.

These guideline criteria are intended to provide benchmark levels against which unacceptable microbial contamination of food can be identified. Failure to meet guideline levels generally indicates a failure in the process or hygiene procedures and requires action to identify the cause and remedy the problem.

FSANZ Guidelines for the microbiological examination of ready-to-eat foods will be applied to these salad samples.

Excerpt from 'Guideline levels for determining the microbiological quality of ready-to-eat foods'

Test	Microbiological Quality (cfu per gram)			Potentially Hazardous
	Satisfactory	Marginal	Unsatisfactory	
<i>Salmonella spp.</i>	Not Detected in 25g			Detected
Coagulase +ve <i>Staphylococci</i>	$<10^2$	10^2-10^3	10^3-10^4	$\geq 10^4$ SET +ve
<i>Escherichia coli</i>	<3	3-100	≥ 100	
<i>Listeria monocytogenes</i>	Not Detected in 25g	Detected but $<10^2$		$\geq 10^2$
<i>Bacillus cereus</i>	$<10^2$	10^2-10^3	10^3-10^4	$\geq 10^4$

Results

Type of Salad	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	<i>Staph</i>	<i>B. cereus</i>
Bean Salad	<3	ND	ND	<100	
Tabouleh	<3	ND	ND	<100	<100
Coleslaw	<3	ND	ND	<100	
Pasta Salad	<3	ND	ND	<100	<100
Pasta Salad	<3	ND	ND	<100	<100
Potato Salad	<3	ND	ND	<100	
Coleslaw	<3	ND	ND	<100	
Potato Egg & Bacon	<3	ND	ND	<100	
Coleslaw	<3	ND	ND	<100	
Potato Salad	<3	ND	ND	<100	
Pasta Salad	<3	ND	ND	<100	<100
Tabouleh	<3	ND	ND	<100	
Rice Salad	<3	ND	<i>L. innocua</i> detected	<100	<100
Pasta Salad	<3	ND	ND	<100	<100
Potato Salad	<3	ND	ND	<100	
Rice Salad	<3	ND	ND	<100	<100
Pesto Pasta Salad	1 100	ND	ND	<100	<100
Rocket, Parmesan & Capsicum	<3	ND	ND	<100	
Roast Potato, Capsicum & Onion	<3	ND	ND	<100	
Rice Salad	<3	ND	ND	<100	<100
Pasta Salad	<3	ND	ND	<100	<100
Bacon Pasta Salad	<3	ND	ND	<100	<100
Pasta Salad	<3	ND	ND	<100	<100
Potato Salad	<3	ND	ND	<100	<100
German potato Salad	<3	ND	ND	<100	<100

Type of Salad	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	<i>Staph</i>	<i>B. cereus</i>
Seafood Pasta Salad	<3	ND	ND	<100	<100
Steak Noodle	<3	ND	ND	<100	<100
Pasta Pesto Salad	7.4	ND	<i>L. monocytogenes</i> <100	<100	<100
Chickpea Rocket	23	ND	ND	<100	<100
Avocado, Tomato, Corn & Lime Mayo	<3	ND	ND	<100	<100
Caprese Salad	<3	ND	ND	<100	
Coleslaw	<3	ND	<i>L. innocua</i> detected	<100	
Rice Salad	<3	ND	ND	<100	<100
Tabouleh	3.6	ND	ND	<100	<100
Tangy Pasta	<3	ND	ND	<100	<100
Honey Mustard Chicken	3.6	ND	ND	<100	
Potato Salad	<3	ND	ND	<100	
Pasta Salad	<3	ND	ND	<100	<100
Curried Lentil	<3	ND	ND	<100	<100
Rice Salad	<3	ND	ND	<100	<100
Tabouleh with Olive & Feta	<3	ND	ND	<100	<100
Thai Noodle	<3	ND	ND	<100	<100
Creamy Pasta Salad	<3	ND	ND	<100	<100
Bean Salad	<3	ND	ND	<100	
Pasta Salad	<3	ND	ND	<100	<100
Potato Salad	<3	ND	ND	<100	
Pasta Salad	<3	ND	ND	<100	<100
Coleslaw	<3	ND	ND	<100	
Egg Celery	<3	ND	ND	<100	
Chicken Speciality	<3	ND	ND	<100	
Coleslaw	<3	ND	ND	<100	
Coleslaw	<3	ND	ND	<100	

Discussion

All of the businesses which sold the salads were subjected to inspection by the local council. In some cases, particularly supermarkets, the product had been manufactured by another food business. All of the take away food businesses manufactured the salads they sold.

Of the 52 samples collected only one (slightly less than 2%) was considered unsatisfactory, while four achieved marginal results. Two samples had *Listeria innocua*, a non pathogenic serotype of *Listeria* and another had *Listeria monocytogenes* at a level less than 100 colony forming units per gram.

Follow-up

The results of any unsatisfactory or marginal samples were forwarded to the local council to discuss with the manufacturer and advise on appropriate food safety protocols. Councils reported satisfactory outcomes from follow-up inspections which incorporated a review of temperature control, food processing and food handler hygiene.

FSANZ prepared 'Recall Guidelines for Packaged Ready-to-eat foods found to contain *Listeria monocytogenes* at point of sale', in 2001. This document outlines the circumstances under which packaged and high risk foods containing *L. monocytogenes* ought to be subjected to a recall. The pesto pasta salad that contained *L. monocytogenes* was manufactured on the day prior to sampling, and all leftover salad had been discarded by close of business on the day the product was sampled. There was no product remaining by the time the results of analysis were known. This food business was followed up by the local council, which in addition to routine inspection and assessment of food handling and food processing protocols, gave extra information and follow-up regarding the risk of contamination with *Listeria*.

The one sample that had failed was purchased during a week of extreme ambient temperatures and on a day where the highest ambient temperature ever recorded in South Australia of 42.7°C was achieved. Rolling power blackouts had significantly compromised refrigeration facilities for the retailer concerned, which would have contributed to the result.

Conclusion

This survey indicated that packaged salads from supermarket delicatessens and take away food businesses in South Australia had a high level of compliance with the 'Guideline levels for determining the microbiological quality of ready-to-eat foods'.

All samples tested negative for *Salmonella* and *Staphylococcus aureus*. Two samples tested positive to the presence of a non pathogenic serotype of *Listeria* and four samples had marginal levels of *E. coli* present. Only one sample had unsatisfactory levels of *E. coli*. This was most likely directly attributable to the extreme ambient temperature compromising the refrigeration facilities for the retailer concerned.

The method of follow-up for this survey allowed for greater levels of participation with local government in undertaking surveillance of food safety standards. Local government was directly involved in assessing where any potential breaches of food safety standards may have occurred and the food business was able to work with their local government representative to identify where their particular work practices could be improved.

A Survey to Investigate the Compliance Rate of Cured Meat Products with the Australia New Zealand Food Standards Code

Aims and Scope of the Investigation

The purpose of this survey was to determine the compliance rate of cured meat products available for retail sale in South Australia with nitrate and nitrite levels set out in the Australia New Zealand Food Standards Code (the Code). Samples will also be reviewed for compliance with general labelling requirements as set out in the Code.

Background of the Survey

Curing is a food preservation and flavouring technique, commonly used for meat products through the addition of nitrate or nitrite with salt and other ingredients. The presence of nitrites/nitrates in meat delays growth of spoilage and pathogenic bacteria such as *Clostridium botulinum*, retards oxidative rancidity and off-flavours, and helps develop typical cured meat flavour and characteristic red colour.

The prime intention of legislation controlling nitrite/nitrate usage is to prevent undesirably large amounts being consumed. A high intake of nitrite presents a risk to human health due to possible allergenic effects, vasodilator effects, reproductive and developmental toxicity and the formation of carcinogenic nitrosamines. The lethal oral doses for human beings have been established at 80-800 mg nitrate/kg body weight and 33-250 mg nitrite/kg body weight.

Standards

Standard 1.3.1 of the Code permits the following combined nitrate/nitrite levels:

- Commercially sterile canned cured meat – 50 mg/kg
- Cured meat, dried meat and processed comminuted meat, poultry and game products – 125 mg/kg
- Slow dried cured meat – 500 mg/kg
- Fermented, uncooked processed comminuted meat products – 500 mg/kg.

Part 1.2 of the Code details the general requirements for labelling of packaged food.

Which Foods Were Tested?

A total of 51 samples were tested, capturing as many different styles of cured meat as possible. This included a range of cured, dried, and slow dried meat; canned cured meat; processed comminuted meat, poultry and game products; and fermented, uncooked processed comminuted meat products from various supermarkets and delicatessens.

What Did We Test For?

All samples were sent to the National Measurement Institute (NMI) in Melbourne for analysis. Samples were analysed for nitrate and nitrite levels by Ion Chromatography, reported in milligrams per kilogram (mg/kg). In addition, all samples were reviewed for general labelling compliance as required by Part 1.2 of the Code.

Results

Table 1. Commercially Sterile Canned Cured Meat

Product	Total Nitrate/ Nitrites (mg/kg)	Permitted Nitrate/ Nitrite (mg/kg)	Compliance with the Code
Canned meat – 50% less salt	8.5	50	Compliant
Canned meat – Classic	5.7	50	Compliant
Corned Beef – (canned)	10	50	Compliant
Luncheon Meat – (canned)	6.5	50	Compliant

Table 2. Cured Meat

Product	Total Nitrate/ Nitrites (mg/kg)	Permitted Nitrate/ Nitrite (mg/kg)	Compliance with the Code
Bacon	34	125	Compliant
Bacon – Middle Rashers (Rindless)	24	125	Compliant
Bacon – Pieces	18.4	125	Compliant
Bacon – Pieces (Rindless)	38.4	125	Compliant
Bacon – Rashers (Rindless)	27	125	Compliant
Bacon – Short Cut (Rindless)	43	125	Compliant
Leg Ham – Baked Virginian	15	125	Compliant
Leg Ham – Bush Honey	43	125	Compliant
Leg Ham – Double Smoked	14	125	Compliant
Leg Ham – Double Smoked (97% Fat Free)	51	125	Compliant
Leg Ham – Honey	96	125	Compliant
Leg Ham – Shaved	98	125	Compliant
Leg Ham – Sliced	106	125	Compliant
Pastrami – Sliced	37	125	Compliant
Pastrami – Thinly Sliced	20	125	Compliant

Table 3. Processed Comminuted Meat

Product	Total Nitrate/ Nitrites (mg/kg)	Permitted Nitrate/ Nitrite (mg/kg)	Compliance with the Code
Cocktail Frankfurts	44	125	Compliant
Csabai	56	125	Compliant
Devon Luncheon Knob	94	125	Compliant
Fritz	67	125	Compliant
Ham Steaks	11	125	Compliant
Hot Dogs – Aussie	85	125	Compliant
Hot Dogs – New York Style	91	125	Compliant
Hot Dogs – Skinless	52	125	Compliant
Hot Dogs – Skinless Mini	50	125	Compliant
Kabana	104	125	Compliant
Knackwurst	43.4	125	Compliant
Kransky – Cheese	31	125	Compliant
Leg Ham & Cheese Sticks	67	125	Compliant
Liverwurst	80	125	Compliant
Mettwurst	49	125	Compliant
Mortadella	214	125	Not Compliant*
Polish Sausage	114	125	Compliant
Rookwurst	72	125	Compliant
Salami – Mild	<5	125	Compliant
Salami Pepperoni	250	125	Not Compliant*
Sandwich Slice	17.3	125	Compliant
Strassburg	116	125	Compliant
Viennas	25		Not Compliant**

* Exceeded allowable levels of Nitrate/Nitrite

** Labelling non-compliance

Table 4. Slow Dried Cured Meat

Product	Total Nitrate/ Nitrites (mg/kg)	Permitted Nitrate/ Nitrite (mg/kg)	Compliance with the Code
Pancetta	210	500	Compliant
Prosciutto	340	500	Compliant

Table 5. Fermented, Uncooked Processed Comminuted Meat

Product	Total Nitrate/ Nitrites (mg/kg)	Permitted Nitrate/ Nitrite (mg/kg)	Compliance with the Code
Chorizo	<5	500	Compliant
Salami – Beef	180	500	Compliant
Salami – Danish Style	370	500	Compliant
Salami – Hot	310	500	Compliant
Salami – Hungarian Style	420	500	Compliant
Salami Pepperoni – Italian Style	24	500	Compliant
Salami – Sopressa	32	500	Compliant

Follow-up Activities

Two letters were sent to one interstate authority, advising them of the two non-compliances of food products produced by food businesses within their jurisdiction. A copy of the test results and information relating to the products were submitted for further investigation and response. Follow-up sampling of the food products that had breached the standards were conducted by the interstate authority and showed no further breach of standards.

A warning letter was sent out to the food business in South Australia with incorrect labelling, advising of the error and providing them with photographic substantiation. The error was identified as an oversight and the issue rectified promptly, with evidence provided to SA Health of the modifications.

Discussion of Results

The survey results indicated a good level of compliance with Standard 1.3.1 of the Code, with only two samples exceeding the allowable nitrate/ nitrite level from 51 samples analysed.

The results also indicated a high level of compliance with general labelling requirements as set out in Part 1.2 of the Code, with only one sample displaying a labelling error.

Conclusion

Fifty-one cured meat samples were analysed for nitrate and nitrite levels and reviewed for general labelling compliance. The survey indicated a high level of compliance with both the allowable levels of nitrate/ nitrite and labelling requirements.

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Aims and Scope of the Investigation

The purpose of this survey was to determine the microbiological quality of a range of raw vegetables available for retail sale in South Australia.

The survey was conducted to identify the prevalence of pathogens in commonly consumed vegetables that may be eaten raw or partially cooked.

Background to the Survey

During the past years there has been an increased emphasis on the inclusion of vegetables in daily food intake due to the positive influence on overall health. Consumers have greater access to a broader range of vegetables in the market, without seasonal fluctuation in supply. People are more educated about vitamin losses during cooking and as such, more people are consuming raw or partially cooked vegetables to obtain maximum benefits.

Despite the positive effect of vegetable intake on people's health, the consumption of microbiologically unsafe vegetables can have a detrimental effect. Vegetables can be contaminated during emergence from seed, harvest, distribution and processing; as a result of contamination by organic fertilisers, polluted water or poor hygiene. Furthermore, identification of the contamination source is difficult as there are potentially numerous sources of contamination.

In recent food borne disease outbreaks, epidemiological evidence has suggested that raw vegetables may possibly have been the source of infection. Results obtained during this survey might provide a benchmark for determining risk in the future.

Standards

While there are no specific microbiological limits set out for raw vegetables in the Australia New Zealand Food Standards Code (the Code), it does require that food be safe for human consumption.

Which Foods Were Tested?

A total of 55 samples were tested, capturing a variety of raw vegetables available for retail sale in South Australia. Products included broccoli, cauliflower, lettuce, carrot, green capsicum, Lebanese and continental cucumber.

What Did We Test For?

All samples were sent to the IMVS Food and Environmental Laboratory in Adelaide for analysis. Samples were analysed for *Escherichia coli* (*E. coli*), *E. coli* 0157, *Salmonella* and *Listeria monocytogenes*.

Results

Table 1. Microbiological quality of vegetables

Vegetable Type	No. of samples	<i>Salmonella</i>	<i>Listeria Monocytogenes</i>	<i>E. coli</i>	<i>E. coli</i> 0157	Other
Broccoli	7	ND/25g	ND/25g	<3 cfu/g	ND/25g	
Cauliflower	10	ND/25g	ND/25g	<3 cfu/g	ND/25g	
Cos Lettuce	2	ND/25g	ND/25g	<3 cfu/g	ND/25g	
Iceberg Lettuce	2	ND/25g	ND/25g	<3 cfu/g	ND/25g	
Lettuce	5	ND/25g	ND/25g	<3 cfu/g	ND/25g	<i>Listeria sliverry</i> detected in 1 sample
Lebanese Cucumber	6	ND/25g	ND/25g	<3 cfu/g	ND/25g	
Continental Cucumber	7	ND/25g	ND/25g	<3 cfu/g	ND/25g	
Green Capsicum	6	ND/25g	ND/25g	<3 cfu/g	ND/25g	
Carrot	10	ND/25g	ND/25g	<3 cfu/g	ND/25g	

Confidence interval for *E. coli* – MPN <3 cfu/g

ND – Not Detected

Follow-up Activities

It is proposed that SA Health will continue to sample and analyse the microbiological quality of fresh produce periodically. From this information trend analysis can be derived and utilised in the future.

Discussion of Results

Fifty-five samples were obtained from 21 stores in South Australia. All samples analysed did not detect *Salmonella*, *E. coli*, *E. coli* 0157 and *L. monocytogenes*. These results indicate a high level of microbiological quality; in particular that *E. coli* was not detected in any sample. *E. coli* is an indicator organism and if it were present on raw vegetables it would have suggested that the vegetables had possibly been grown, harvested, distributed or processed under poor hygienic conditions.

One sample of lettuce contained *Listeria seeligeri*. This strain of *Listeria* is considered to be non pathogenic and therefore of no risk to public health.

While the survey results indicated that vegetables were of high microbiological quality, the importance of cleaning and peeling vegetables prior to consumption still needs to be emphasised.

Conclusion

Fifty-five raw vegetable products were analysed for the presence for of *E. coli*, *E. coli* 0157, *Salmonella* and *L. monocytogenes*. The results indicated a high level of microbiological quality with no detection of target organisms in any sample.

A Survey to Investigate the Compliance Rate of Lactose Free, Low Lactose, and Dairy Free Products with the Australia New Zealand Food Standards Code

Aims and Scope of the Investigation

This survey intended to measure the lactose and galactose levels in products for retail sale in South Australia claiming to be lactose free, low lactose and/or dairy free. Samples were reviewed for compliance with nutrition claims and for general labelling requirements as set out in the Australia New Zealand Food Standards Code (the Code).

Background of the Survey

Lactose intolerance is the inability to metabolise lactose, a sugar found in milk and other dairy products, due to an absence or decrease in the required enzyme lactase in the intestinal system. Lactose intolerance can cause a range of abdominal symptoms, including stomach cramps, bloating and flatulence. As such, people with lactose intolerance are reliant on adequate food product labelling to avoid products containing lactose.

Standards

Standard 1.2.8 Nutritional Information Requirements, Subclause 15 of the Code states the following about lactose claims in relation to food:

1. A claim to the effect that a food is low lactose must not be made unless the food contains no more than 0.3 g of lactose per 100 g of the food.
2. A claim to the effect that a food is lactose free must not be made unless the food contains no detectable lactose.
3. A claim to the effect that a food is lactose reduced must be accompanied by a declaration of the proportion by which the lactose content of the food has been reduced.
4. Where a claim is made in relation to the lactose content of a food, particulars of the lactose and galactose content of the food must be provided in accordance with subclause 5(1).

Subclause 5(1) states:

A nutrition information panel must include the following particulars –

- (g) the name and the average quantity of any other nutrient or biologically active substance in respect of which a nutrition claim is made, expressed in grams, milligrams or micrograms or other units as appropriate, that is in a serving of the food and in the unit quantity of the food.

Part 1.2 of the Code details the general requirements for labelling of packaged food.

Which Foods Were Tested?

A total of 50 samples were tested, all of which made a nutrition claim indicating that the product was free from lactose, low in lactose or dairy free. Products included milk and dairy based products, cheese, chocolate, cake, biscuits, yoghurt, spreads, cereal based products, and desserts.

What Did We Test For?

All samples were sent to the National Measurement Institute (NMI) in Melbourne for analysis. Samples were analysed for lactose and galactose levels by High Performance Liquid Chromatography (HPLC), reported in milligrams per kilogram (mg/kg). In addition, samples were reviewed for general labelling compliance as required by Part 1.2 and lactose specific labelling as required by Standard 1.2.8 of the Code.

Results

Product	Nutrition Claim	Lactose (g/100g)	Galactose (g/100g)	Compliance with the Code
Biscuit – Choc Chip	Dairy Free	ND	ND	Compliant
Biscuit – Choc Coated Crème Fill	Dairy Free	ND	ND	Compliant
Biscuit – Chocolate Hazelnut	Dairy Free	ND	ND	Compliant
Biscuit – Cream Filled	No Dairy	ND	ND	Compliant
Biscuit – Cream & Jam Filled	No Dairy	ND	ND	Compliant
Biscuit – Sultana	Dairy Free	ND	ND	Compliant
Biscuit – Vanilla	Dairy Free	ND	ND	Compliant
Bread – Home Style	No Dairy Products	ND	ND	Compliant
Bread – Orange & Apricot	No Dairy Products	ND	ND	Compliant
Bread – Plain Rye	No Dairy Products	ND	ND	Compliant
Bread – Rye	No Dairy Products	ND	ND	Compliant
Bread –Traditional	Lactose Free	ND	ND	Not Compliant*
Caesar Dressing	Dairy Free	ND	ND	Compliant
Cake Mix – Chocolate Mud	Dairy Free	ND	ND	Compliant
Cake Mix – Choc Walnut Slice	Dairy Free	ND	ND	Compliant
Cheese – Soy	No Lactose	ND	ND	Compliant
Chocolate Mousse Mix	Dairy Free	ND	ND	Compliant
Chocolate Spread	Dairy Free; Lactose Free	ND	ND	Not Compliant**
Cream Cheese – Imitation	No Dairy; Dairy Free; Lactose free	ND	ND	Not Compliant**
Cream Cheese – Soy	Non Dairy Spread; Lactose Free	ND	ND	Not Compliant**
Crispbread – Corn	Dairy Free	ND	ND	Compliant
Custard Powder	Dairy Free	ND	ND	Compliant
Flour – Plain	Dairy Free	ND	ND	Compliant
Flour – Plain Mix	Dairy Free	ND	ND	Compliant
Gelati – Mango	No Lactose	ND	ND	Not Compliant*
Gravy Mix	Dairy Free	ND	ND	Compliant
Ice Cream – Soy Chocolate	Dairy Free	ND	ND	Compliant
Infant Formula	For Lactose Intolerant Babies	ND	ND	Compliant
Muesli – Yeast Free	Dairy Free	ND	ND	Compliant
Milk – Full Cream	Full Cream Lactose-Free Milk	ND	2.4	Compliant
Oat Milk	Lactose Free	ND	ND	Compliant
Pancake Mix	Dairy Free	ND	ND	Compliant

Product	Nutrition Claim	Lactose (g/100g)	Galactose (g/100g)	Compliance with the Code
Rice Milk	Non-Dairy; Lactose Free	ND	ND	Compliant
Snack Bar – Baked	Dairy Free	ND	ND	Compliant
Snack Bar – Chocolate	Dairy Free	ND	ND	Not Compliant***
Snack Bar – Chocolate ‘Nut’	Dairy Free	ND	ND	Compliant
Snack Bar – Goji Berry & Cranberry	Dairy Free	ND	ND	Compliant
Snack Bar – Vanilla Nougat	Lactose Free	ND	ND	Not Compliant*
Soup – Pumpkin	Dairy Free	ND	ND	Not Compliant****
Soy Milk – Chocolate	Non-Dairy; Lactose Free	ND	ND	Compliant
Soy Milk Drink	Lactose Free	ND	ND	Compliant
Soy Milk – Lite	Non-Dairy; Lactose Free	ND	ND	Compliant
Soy Milk –Regular	Contains no Lactose	ND	ND	Compliant
Spaghetti	Dairy Free	ND	ND	Compliant
Table Spread	Dairy Free; Free from Milk & lactose	ND	ND	Compliant
Thickened Cream	Lactose Free	ND	0.5	Compliant
Yoghurt – Apricot & Mango	Lactose Free	ND	ND	Compliant
Yoghurt – Soy Variety	No Lactose	ND	ND	Not Compliant*
Yoghurt – Strawberry	Lactose Free	ND	2.2	Compliant
Yoghurt – Vanilla Crème	Lactose Free	ND	ND	Compliant

ND – Not Detected

* Lactose and galactose content not identified in Nutrition Information Panel

** Galactose content not identified in Nutrition Information Panel

*** Prescribed name or description of the food not clearly identified

**** Insufficient manufacturer contact details

Discussion of Results

The survey results indicated an exceptional level of compliance with Standard 1.2.8, Subclause 15(2) of the Code. All samples with a nutrition claim relating to the product being free from lactose (40% of samples) were confirmed to have no detectable lactose by laboratory analysis. All samples with a nutrition claim relating to the product being free from dairy (60% of samples) were also confirmed to have no detectable lactose by laboratory analysis.

Compliance with Subclause 15(4) of Standard 1.2.8 was not as high, with four samples failing to identify the lactose and galactose content and three samples failing to identify the galactose content in the Nutrition Information Panels.

Two further samples exhibited labelling non conformances relating to Standard 1.2.2 Food Identification Requirements, one failing to properly identify the type of food and one providing insufficient manufacturer details.

Overall, the level of labelling compliance was moderate with 82% of samples sufficiently labelled as required by Part 1.2 of the Code.

Follow-up Activities

Seven letters were sent to four interstate authorities, and one letter sent to a South Australian food business, advising them of labelling non-compliance in relation to identifying lactose and galactose in the Nutrition Information Panel as required by Standard 1.2.8 of the Code on eight different food products. Identification of the labelling issue has resulted in mixed interpretation between jurisdictions and in accordance SA Health will be seeking advice from Food Standards Australia New Zealand (FSANZ) regarding the intent of the standard. The South Australian food business has identified the error as an oversight and rectified the issue promptly, with evidence provided to SA Health of the modifications.

A letter was sent to New Zealand Food Safety Authority (NZFSA), advising them of labelling non-compliance in relation to providing an adequate business address as required by Standard 1.2.2 of the Code. The error was brought to the attention of the manufacturer and NZFSA is satisfied with corrective measures put in place.

A letter was sent to the New South Wales Food Authority advising them of labelling non-compliance in relation to failure to properly identify the type of food as required by Standard 1.2.2 of the Code. The matter is currently under investigation.

Conclusion

Fifty lactose free product samples were analysed for lactose and galactose levels and reviewed for general labelling compliance. The survey indicated a 100% compliance with claims relating to lactose free products and 82% compliance with labelling requirements.

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<http://www.lactose.com.au/>

<http://digestive.niddk.nih.gov/ddiseases/pubs/lactoseintolerance/>

A Survey to Determine the Levels of Trans Fatty Acid, Fatty Acids, Sodium and Iodine in Commonly Consumed Food Products

Aims and Scope of the Investigation

The purpose of this survey was to determine the trans fatty acid (TFA) level in foods, without naturally occurring trans fat (that is, ruminant sources), commonly consumed and available for retail sale in South Australia. Samples were also analysed for fatty acid profile, sodium and iodine and reviewed for compliance with general labelling requirements as set out in the Australia New Zealand Food Standards Code (the Code).

Background of the Survey

Consumption of TFA from partially hydrogenated vegetable fats has increased considerably in the past 10-20 years through the consumption of highly refined and processed foods such as cakes and biscuits, and deep fried fast food. Processed foods are also likely to contain high levels of fat and sodium and, in conjunction with large amounts of TFA in the diet, can increase the risk of developing heart disease and other adverse effects on human health.

A review of TFA in the Australian and New Zealand food supply was conducted by Food Standards Australia New Zealand (FSANZ) in 2007, with a re-assessment scheduled for 2009. The survey is part of a National coordinated survey, with samples obtained by NSW Food Authority, SA Health, WA Health and NZ Food Safety Authority. NSW Food Authority and FSANZ will coordinate the survey and prepare a comprehensive report with recommendations about implementing regulations to control the level of TFA in Australia and New Zealand.

Additionally, Standard 2.1.1 of the Code has been amended to require mandatory iodine fortification to help address iodine deficiency across most of the Australian population. This revised standard comes into effect in October 2009 and will require the replacement of non-iodised salt with iodised salt in all bread, except organic bread.

Standards

Currently in Australia there is no regulation of either TFA content of foods or inclusion of TFA content on food labels, unless a nutrition claim is made about cholesterol, saturated, unsaturated or trans fatty acids. FSANZ is currently reviewing the issue of TFA regulation in foods.

Which Foods Were Tested?

A total of 50 samples were tested, capturing a variety of products from the following food groups – bread and bakery products, takeaway foods, meat and meat products, snack foods, and fats and oils. Products included hot chips, chicken nuggets, biscuits, cakes, donuts, potato chips and margarines obtained from a variety of supermarkets, fast food outlets and bakeries in both metropolitan and country South Australia.

What Did We Test For?

All samples were sent to the National Measurement Institute (NMI) in Melbourne for analysis. Samples were analysed for fatty acid profile (g/100g and percentage of total fat), sodium (mg/kg) and iodine (mg/kg). In addition, all samples were reviewed for general labelling compliance as required by Part 1.2 of the Code.

Results and Discussion

Table 1: Number of samples in each food categories tested

Food Category	Product	No. of Samples
Takeaway Foods	Chicken Nuggets	4
	Deep Fried Fish Fillets	2
	Hot Chips	6
	Pizza	2
	Potato & Gravy	1
	Satay Noodles	1
	Sweet & Sour Pork	1
Snack Foods	Extruded Snacks	1
	Noodle Snack	1
	Potato Crisps	2
Fats & Oils	Blended Edible Oil	1
	Margarine Spreads	3
Meat & Products	Chicken & Vegetable Pies	2
	Sausage Rolls	2
Bread & Bakery Products	Chocolate Biscuits	3
	Cream Biscuits	2
	Croissant	2
	Danish	2
	Donuts	4
	Muffins	2
	Pre-Prepared Pastry	2
	Savoury Biscuits	2
Shelf Stable Cakes	2	

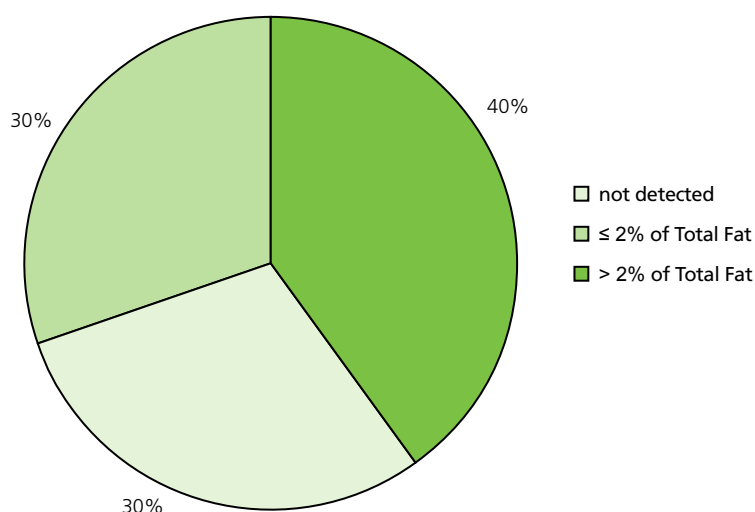
Table 2: Fatty Acid, Sodium and Iodine Levels in Food Products Tested

Product Name	Sodium (mg/kg)	Iodine (mg/kg)	Total Fat (g/100g)	SFA (g/100g)	MUFA (g/100g)	PUFA (g/100g)	TFA (g/100g)
Biscuit – Chocolate	1 200	0.05	26.4	15.1	9.3	1.9	0.2
Biscuit – Chocolate Coated Cream Filled	4 100	0.09	24.0	12.0	8.2	3.1	0.8
Biscuit – Cream & Jam Filled	2 600	<0.05	22.5	11.8	8.4	2.2	0.3
Biscuit – Double Choc Chip	3 300	0.08	20.5	12.0	6.4	2.0	0.1
Biscuit – Shortbread Cream	3 100	<0.05	25.3	13.0	9.7	2.6	0.4
Cake – Napoleon	2 300	<0.05	14.7	7.9	5.9	0.8	0.6
Cake – Rollettes	4 000	0.06	8.7	4.1	3.5	1.1	0.2
Crackers	7 100	0.22	24.3	12.7	9.0	2.5	<0.1
Crackers – Original	3 600	<0.05	17.8	8.1	7.3	2.3	<0.1
Croissant	3 300	<0.05	22.0	15.6	5.3	1.0	1.0
Croissant – Mini	3 900	<0.05	24.6	17.2	6.7	1.2	1.2
Danish – Apple	2 500	<0.05	14.5	10.4	3.0	1.0	<0.1
Danish – Pecan Custard	2 600	0.12	14.5	7.7	5.5	1.2	0.4
Donut – Chocolate	4 500	<0.05	12.5	6.3	4.8	1.4	0.6
Donut – Choc Custard	2 300	<0.05	13.1	6.5	4.9	1.6	<0.1
Donut – Cookies & Choc Mousse	2 000	<0.05	15.5	9.6	4.7	1.2	0.5
Donut – Glazed	2 400	<0.05	21.4	10.0	8.8	2.4	0.1
Muffin – Blueberry	3 500	0.07	10.3	3.5	3.5	3.3	<0.1
Muffin – Choc Chip	3 300	<0.05	17.5	4.0	8.9	4.5	0.1
Pastry – Puff	3 000	<0.05	14.3	7.1	6.4	0.8	1.4
Pastry – Shortcrust	4 600	<0.05	22.3	10.1	10.1	2.0	1.6
Chicken Nuggets (1)	6 500	<0.05	17.6	7.4	7.0	3.1	<0.1
Chicken Nuggets (2)	3 400	<0.05	18.3	2.7	11.7	3.8	0.2
Chicken Nuggets (3)	9 100	<0.05	15.3	7.0	6.4	1.8	<0.1
Chicken Tenderloins	5 800	<0.05	4.0	0.5	2.3	1.1	<0.1
Fish – Battered & Fried	1 700	<0.05	10.5	1.0	6.2	3.3	0.3
Fish – Crumbed & Fried	2 400	<0.05	11.6	1.5	4.8	5.2	0.4
Hot Chips (1)	2 400	<0.05	20.2	1.5	12.4	6.2	0.5
Hot Chips (2)	2 000	<0.05	14.1	1.4	8.4	4.2	0.3
Hot Chips (3)	1 400	<0.05	12.2	2.1	5.7	4.3	<0.1
Hot Chips – French Fries (1)	1 500	<0.05	18.0	1.8	12.1	4.0	0.2
Hot Chips – French Fries (2)	1 900	<0.05	16.4	8.8	6.1	1.4	<0.1
Hot Chips – Seasoned	1 700	<0.05	11.5	6.1	4.5	0.9	0.1

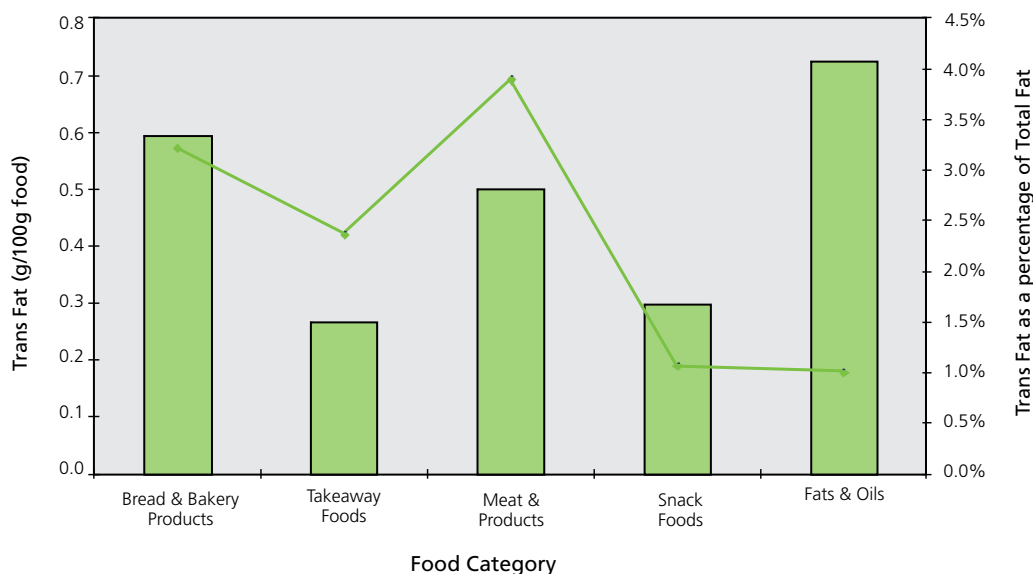
Product Name	Sodium (mg/kg)	Iodine (mg/kg)	Total Fat (g/100g)	SFA (g/100g)	MUFA (g/100g)	PUFA (g/100g)	TFA (g/100g)
Pizza – Vegetarian (1)	3 300	0.06	5.9	3.0	1.6	1.3	0.2
Pizza – Vegetarian (2)	3 900	0.07	7.0	3.9	1.8	1.0	0.2
Potato & Gravy	3 000	<0.05	0.8	0.4	0.3	0.1	<0.1
Satay Vegetable Noodles	4 600	<0.05	4.4	0.5	2.5	1.4	<0.1
Sweet & Sour Pork with noodles	2 100	0.04	3.1	1.0	1.3	0.8	<0.1
Pie – Chicken & Vegetable (1)	5 200	<0.05	9.6	5.0	3.3	1.3	0.2
Pie – Chicken & Vegetable (2)	3 400	0.09	12.1	5.7	4.5	1.2	0.6
Sausage Roll	7 200	<0.05	14.1	8.2	2.8	1.0	0.5
Sausage Roll (twin)	5 400	<0.05	15.5	8.5	5.6	0.6	0.7
Chips – Sweet Chilli & Sour Cream	5 600	<0.05	29.0	3.3	23.5	2.0	<0.1
Chips – Sour Cream & Onion	4 600	<0.05	34.3	10.4	12.5	11.4	0.5
Extruded Snack – Cheese	10 000	0.07	24.9	11.5	10.6	2.7	0.1
Noodle Snack – BBQ	11 000	<0.05	24.0	12.0	9.5	2.3	<0.1
Blended Edible Vegetable Oil	<10	<0.05	100.0	51.2	39.1	9.4	1.5
Margarine (1)	5 200	0.05	49.8	11.4	25.9	12.4	0.6
Margarine (2)	4 700	<0.05	70.1	16.6	23.4	29.9	0.3
Margarine (3)	4 600	0.05	66.1	16.0	32.3	17.6	0.5

Trans Fat

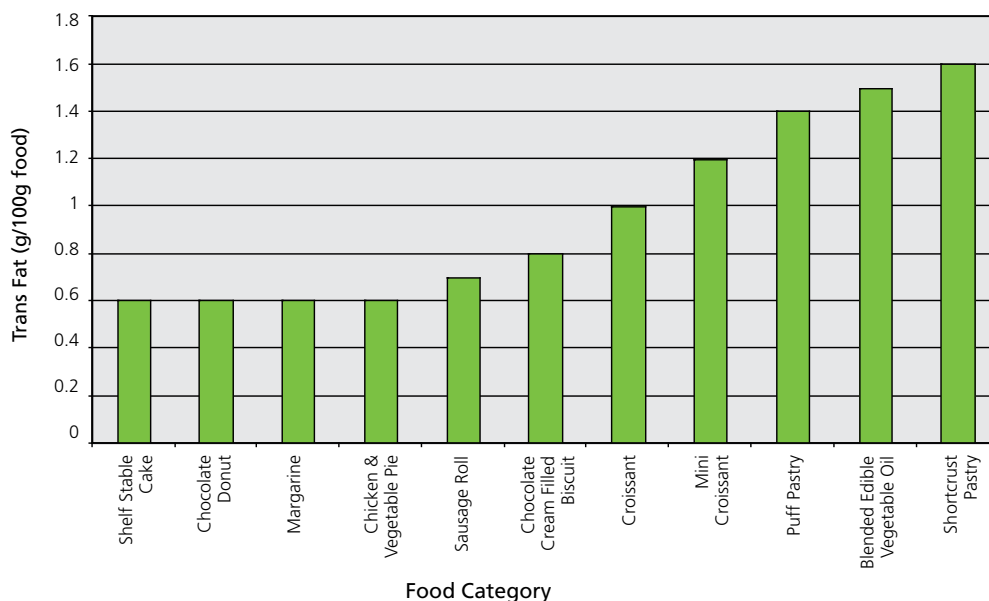
Proportion of Samples Containing Different Level of TFA



Average Trans Fat Levels by Food Category



Foods with Highest Levels of Trans fat



Of the 50 food products tested:

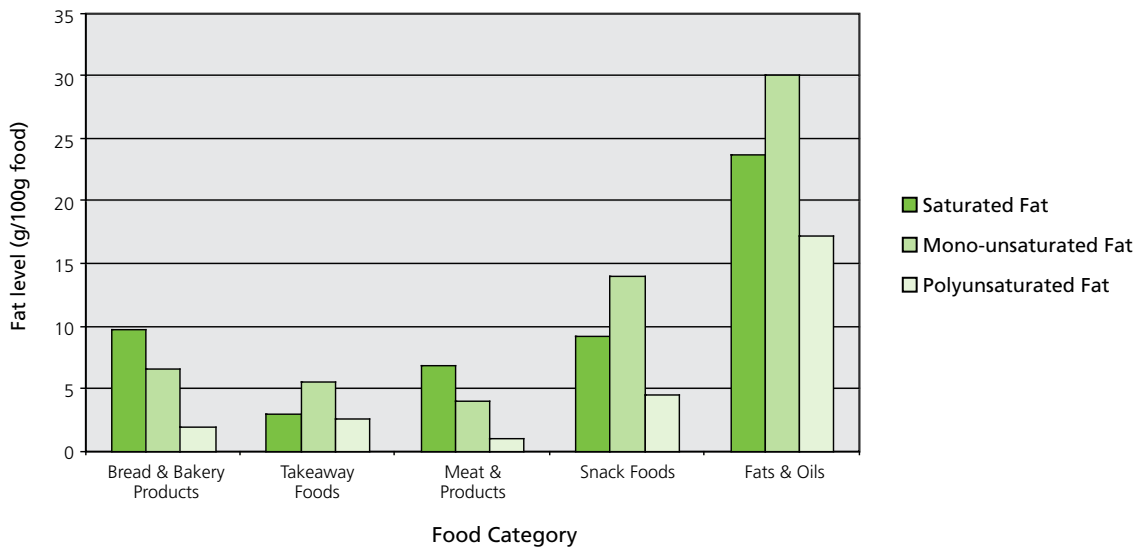
- 15 samples (30%) contained non detectable levels of TFA
- 15 samples (30%) contained TFA at less than or equal to 2% of Total Fat
- 20 samples (40%) contained TFA greater than 2% of Total Fat.

The food categories with the highest average level of TFA were fats and oils (0.7g/100g food) and bread and bakery products (0.6g/100g food). Single food products with high levels of TFA were shortcrust pastry, blended vegetable oil, puff pastry, mini croissants and croissants with TFA levels of 1.6g, 1.5g, 1.4g, 1.2g and 1g per 100g of food respectively.

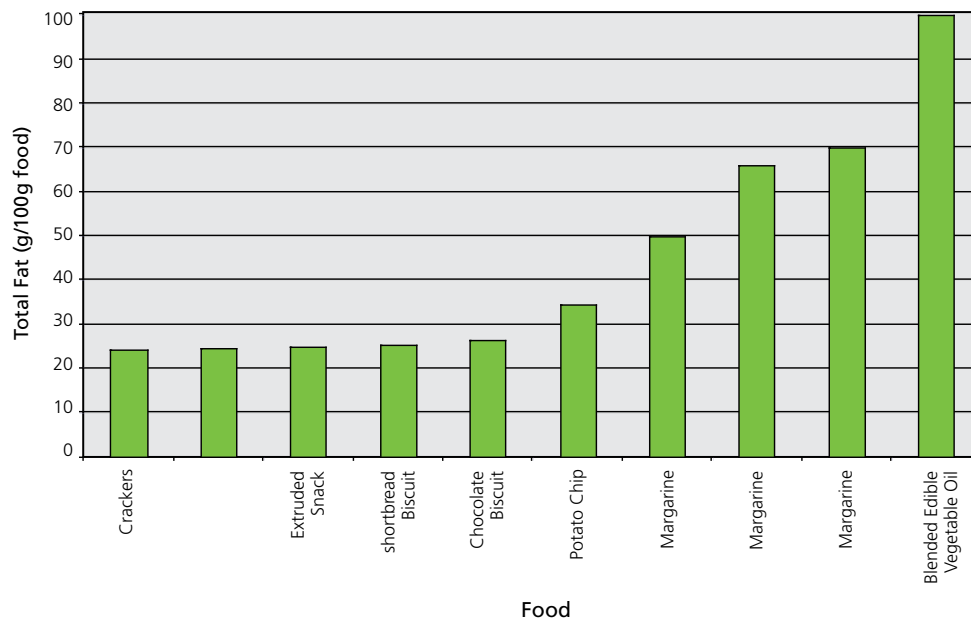
The food categories with the highest TFA as a percentage of total fat were meat and meat products (3.9%) and bread and bakery products (3.22%).

Fatty Acids

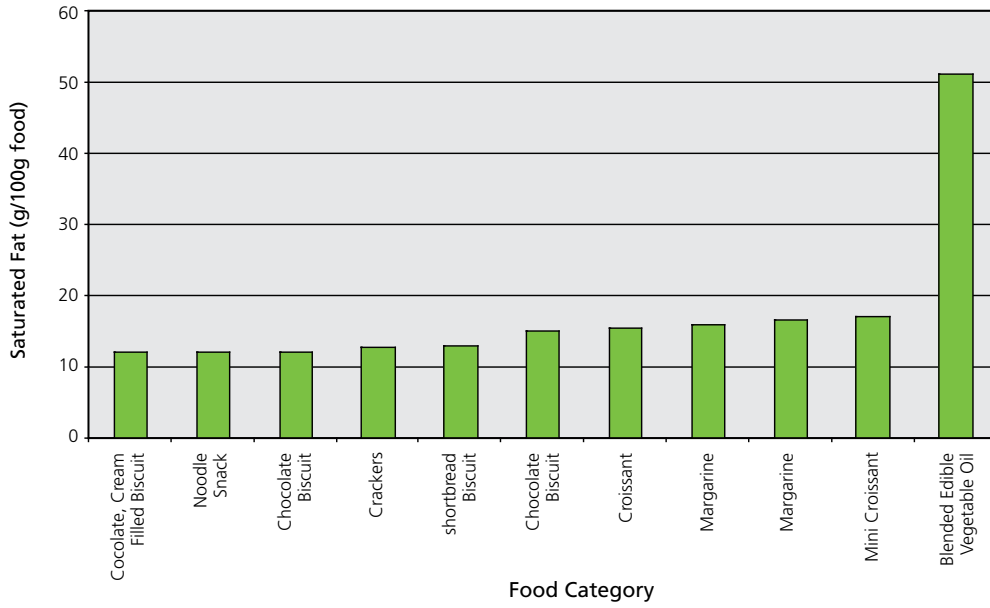
Average Fat Levels



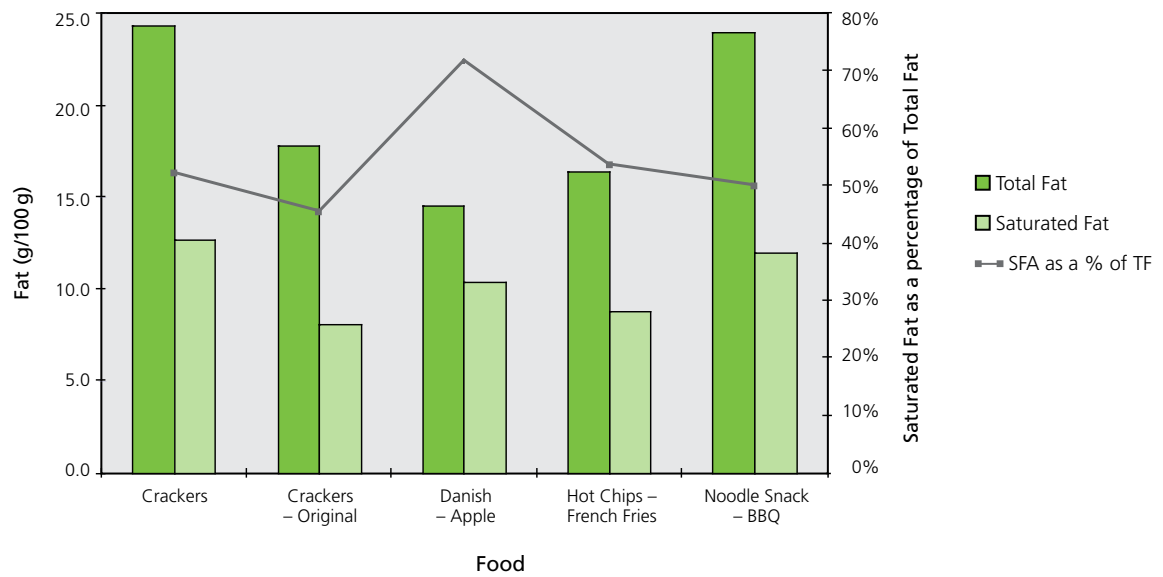
Foods with Highest Levels of Total Fat



Foods with Highest Levels of Saturated Fat



Foods with Undetected Levels of Trans Fat and High Levels of Saturated Fat

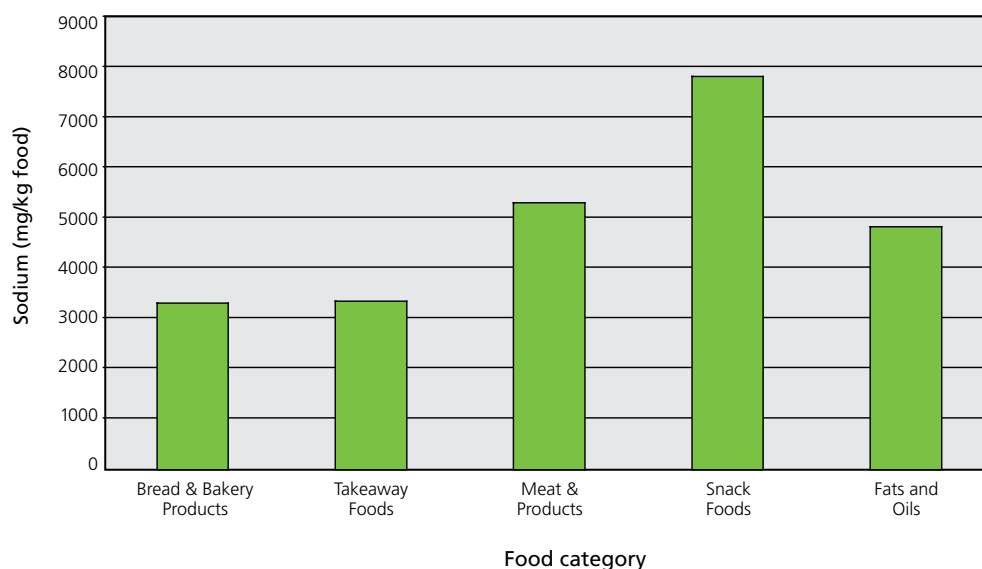


With the exclusion of fats and oils, the food categories with the highest average levels of total fat and saturated fat were snack foods (28.1g total fat and 9.3g saturated fat/100g food) and bread and bakery products (18.4g total fat and 9.7g saturated fat/100g food). Food products with high levels of total fat included potato chips, chocolate biscuits, shortbread biscuits and extruded snacks, with total fat levels of 34.3g, 26.4g, 25.3g and 24.9g per 100g of food respectively. Food products with high levels of saturated fat included mini croissants, croissants, chocolate biscuits and shortbread biscuits, with saturated fat levels of 17.2g, 15.6g, 15.1g and 13.0g per 100g of food respectively.

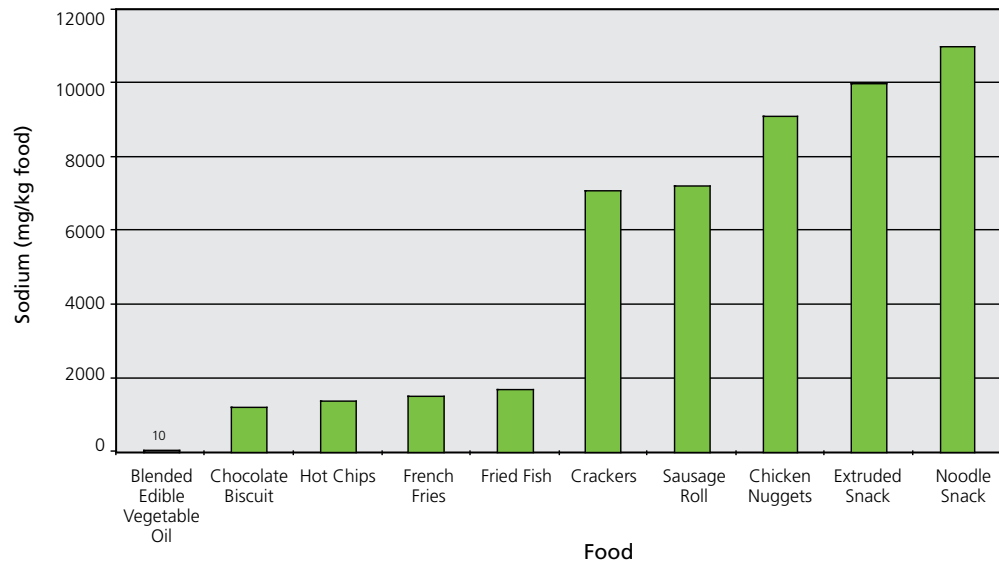
Several food products with undetected levels of TFA produced high levels of saturated fat, particularly in relation to the total fat present. Food products included apple danish, French fries, crackers, noodle snacks and crackers (original) with 72%, 54%, 52%, 50% and 46% saturated fat as a percentage of total fat respectively. These results suggest that unsaturated fats may have been replaced with saturated fats, lowering the TFA levels but subsequently increasing the level of saturated fat.

Sodium

Average Sodium Levels



Foods with Lowest and Highest Levels of Sodium

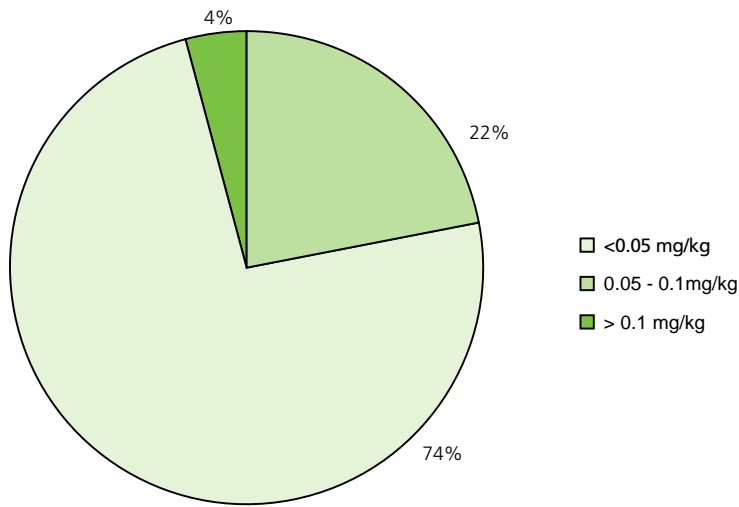


The food categories with the highest average level of sodium were snack foods (7 800mg/kg) and meat and meat products (5 300mg/kg). Single food products with particularly high levels of sodium were noodle snacks, extruded snacks, chicken nuggets, sausage rolls and crackers with sodium levels of 11 000mg/kg, 10 000mg/kg, 9 100mg/kg, 7 200mg/kg and 7 100mg/kg respectively.

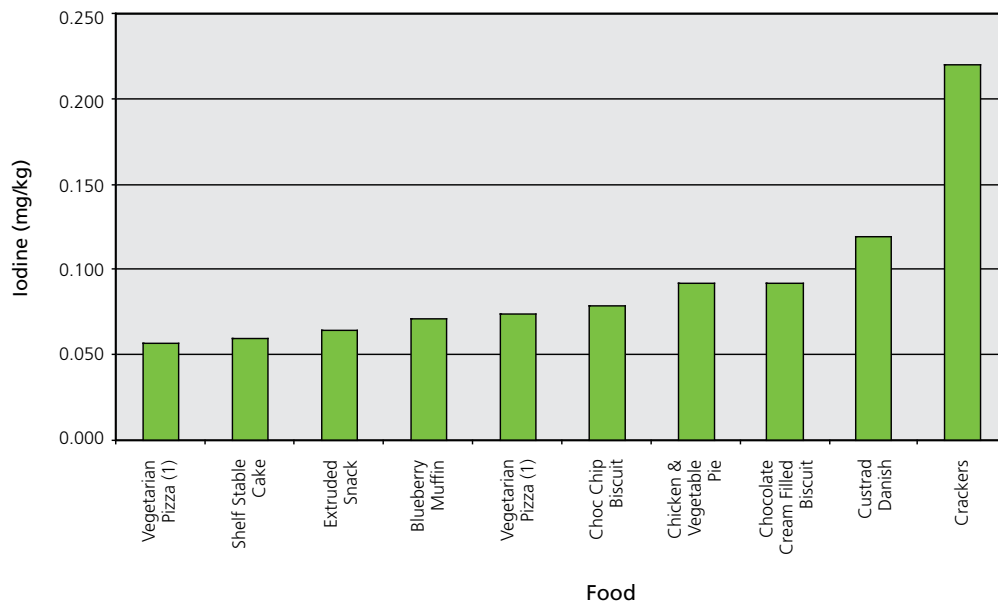
The National Health and Medical Research Council (NHMRC) has determined the adequate level of sodium for adults to be between 460 and 920 mg/day, with the upper level of intake determined to be 2 300 mg/day. Excessive consumption of products high in sodium, for example processed foods, may result in the upper level of sodium intake to be exceeded.

Iodine

Proportion of Samples Containing Different Levels of Iodine



Foods with Highest Levels of Iodine



Of the 50 food products tested:

- 37 samples (74%) contained less than 0.05 mg/kg of iodine
- 11 samples (22%) contained between 0.05 and 0.1 mg/kg of iodine
- 2 samples (4%) contained greater than 0.1 mg/kg of iodine.

The NHMRC has determined the recommended dietary intake of iodine for adults to be 150ug/day. In accordance, Standard 2.1.1 of the Code has been amended to require mandatory iodine fortification to help address iodine deficiency amongst most of the Australian population. This revised standard comes into effect in October 2009 and will require the replacement of non-iodised salt with iodised salt in all bread, except organic bread.

General Labelling Requirements

There was a 100% level of compliance with the general labelling requirements set out in Part 1.2 of the Code in all products sampled.

Conclusion

Fifty food products were sampled and analysed for fatty acid profile, sodium and iodine levels and reviewed for general labelling compliance. The survey indicated that fats and oils and bread and bakery products contained the highest levels of TFA, with meat and meat products and bread and bakery products containing the highest percentage of TFA in comparison to total fat.

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A Survey to Measure the Level of Compliance of South Australian Food Businesses with Country of Origin Labelling Requirements

Aims and Scope of the Investigation

This survey is intended to measure the level of compliance of South Australian food businesses with Country of Origin labelling requirements as set out in the Australia New Zealand Food Standards Code (the Code). Food businesses included but were not limited to supermarkets, butchers, fruit and vegetables stores, seafood stores and delicatessens in metropolitan and country South Australia.

Background of the Survey

A new standard that sets out the requirements for labelling packaged foods, and certain unpackaged foods, with their Country of Origin was implemented from 8 December 2005. Standard 1.2.11 – Country of Origin Requirements, provides consumers with information on the country or countries where the food was grown, manufactured or packaged. Food businesses were given a transitional period, with all requirements of the standard to be enforced by 8 December 2007.

The Country of Origin standard states that all packaged food and unpackaged (loose) fish, pork, and fruit and vegetables require a label on, or in connection with, the display of the food identifying the country or countries of origin of the food, and whether the food is a mix of local and/or imported foods.

Standards

Standard 1.2.11 of the Code sets out the requirements for Country of Origin labelling of packaged and unpackaged foods:

- Packaged food must clearly identify where the food was made or produced, or identify whether the constituents were imported or are a mixture of local and imported produce
- Unpackaged (loose) fish, pork, and fruit and vegetables require a label on or in connection with the display of the food identifying the country or countries of origin of the food, and whether the food is a mix of local and/or imported foods.

The standard applies to foods for retail sale and food sold to catering establishments in catering packs, but does not apply to food sold by restaurants, canteens, schools, caterers or self-catering institutions where the food sold is for immediate consumption.

What was Done?

A total of 284 food businesses were initially inspected for Country of Origin labelling compliance from June 2008 to December 2008; 230 food businesses in metropolitan Adelaide and 54 food businesses in country South Australia. Follow-up inspections were conducted from April 2009 to June 2009 in 117 food businesses. Food businesses included supermarkets, butchers, fruit and vegetable stores, seafood stores, and delicatessens.

Results

Table 1. Compliance with Country of Origin Legislation – Initial Inspections

	No. of Inspections	Compliant	Not Compliant	% Compliance
Supermarkets	116	81	35	69.8%
Butchers	92	24	68	26.1%
Fruit and Veg	51	25	26	49.0%
Seafood	5	4	1	80.0%
Delicatessen	20	9	11	45.0%
TOTALS	284	143	141	50.4%

Table 2. Compliance with Country of Origin Legislation – Follow-up Inspections

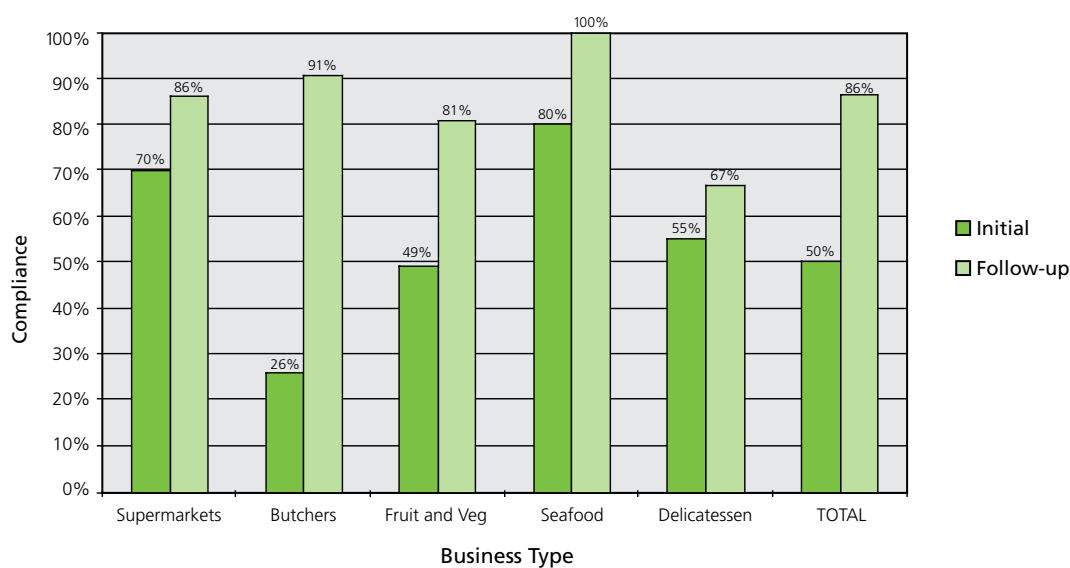
	No. of Inspections	Compliant	Not Trading	Part/Not Compliant	% Compliance
Supermarkets	29	25		4	86.2%
Butchers	57	49	3	5	90.7%
Fruit and Veg	21	17		4	81.0%
Seafood	1	1		0	100.0%
Delicatessen	9	4	3	2	66.7%
TOTALS	117	96	6	15	86.5%

Table 3. Compliance with Country of Origin Legislation – Improvement

	Initial Compliance	Follow-up Compliance	Improvement
Supermarkets	69.8%	86.2%	16.4%
Butchers	26.1%	90.7%	64.7%
Fruit and Veg	49.0%	81.0%	31.9%
Seafood	80.0%	100.0%	20.0%
Delicatessen	55.0%	66.7%	11.7%
TOTAL	50.4%	86.5%	36.1%

Figure 1. Compliance rates by business type – Initial Inspection vs Follow-up Inspection

Country of Origin Inspections



Discussion of Results

Initial Inspections

From June 2008 to December 2008, Authorised Officers from the Food Policy and Programs Branch inspected food businesses for compliance with Country of Origin labelling requirements. Initially 284 food businesses were inspected including 54 food businesses in country South Australia.

Of the 284 food businesses inspected, 143 businesses were compliant (50.4%) and 141 businesses were part compliant or not compliant (49.6%) with Country of Origin labelling, as detailed in Table 1. In particular, only 24 of the 92 butchers inspected (26.1%), nine of the 20 delicatessens (45%) and 25 of the 51 fruit and vegetable stores (49%) were compliant.

Food businesses that were part or not compliant were verbally advised of the legislative requirements, provided with an information brochure and sent a written warning.

Follow-up Inspections

From April 2009 to June 2009, 117 previously non-compliant food businesses were re-inspected to determine the improvement in compliance. Of the 117 business re-inspected, 96 businesses were now compliant (86.5%), six businesses were no longer trading and 15 businesses were part or not compliant (13.5%), as detailed in Table 2.

Of the 15 food businesses that were not compliant on re-inspection, six food businesses were mostly compliant, five food businesses had extenuating circumstances for non-compliance, and four food businesses were completely non-compliant or had multiple non-compliances. A graduated response was taken with non-compliant food businesses – food businesses with extenuating circumstances or food businesses that were mostly compliant were issued a strict warning letter advising their legislative requirements and that action would be taken if they were not compliant after a further inspection. Further action in the form of an Expiation Notice was taken against the four businesses that were not compliant or had multiple non-compliances.

Improvements

While almost half of the 284 food businesses initially inspected in 2008 did not meet Country of Origin labelling requirements, 86.5% of the 117 revisited in 2009 were now compliant – an improvement of 36.1%. Significant improvement was observed in butchers and fruit and vegetable stores, with improvements of 64.7% and 31.9% respectively.

Conclusion

Initially 284 food businesses were inspected for Country of Origin labelling compliance in 2008, of which 143 businesses were compliant (50.4%). 117 previously non-compliant food businesses were re-inspected in 2009 with 96 businesses now compliant (86.5%), six businesses no longer trading and 15 businesses part or not compliant (13.5%). The survey indicated a large compliance improvement of 36.1% from initial to follow-up inspections.

Aims

This survey was intended to determine the accuracy of gluten free claims made on packaged foods at the retail level. It was also to determine that any claim made about 'gluten free' was compliant with the requirements of Standard 1.2.8 Division 3 (16) of the Food Standard Australia New Zealand (FSANZ) Food Standards Code. A gluten free claim can not be made unless the product has no detectable level of gluten.

Background

Sufferers of Coeliac Disease rely on the truth of labelling to source products that will not aggravate their condition. Gluten is a protein found in cereal grains such as wheat and to a lesser extent in rye, barley and oats. It can have severe health implications for people who suffer from Coeliac Disease.

Previous Work

A compliance survey of gluten free labelling was carried out in June 2005 to investigate the accuracy of manufacturer's gluten free claims.

In the 2005 survey there was a compliance rate of 98% from a total of 54 samples taken. The only failure was an imported product and the interstate regulatory authority was advised and the importer now provides an analysis certificate when importing this product into Australia.

Sampling and Survey Methodology

In this survey a total of 50 samples were collected from a large independent retail supermarket, a larger supermarket chain, the Coeliac Society's retail outlet and a smaller retailer in the Adelaide Central Market. Only single samples were taken to allow for the widest coverage of foods possible. Twenty samples were gathered in two consecutive weeks and 10 samples the following week. Both locally produced and imported packaged products were selected for sampling.

The samples were only tested for the presence or absence of gluten using a gluten assay kit.

Handling of Results

The survey was intended to indicate the truth of labelling of packaged foods sold in South Australia where claims of being gluten free were made.

Results of Testing

Sample No.	Date	Food Type	Gluten Result
C17382	2/2/09	Corn Flakes	ND
C17381	2/2/09	Risotto Sauce	ND
C17380	2/2/09	Lasagne Sheets	ND
C17379	2/2/09	Chocolate Custard Snack	ND
C17378	2/2/09	Pumpkin Soup	ND
C17377	2/2/09	Lollies	ND
C17376	2/2/09	Organic Italian Dressing	ND
C17375	2/2/09	Glucose Syrup	ND
C17374	2/2/09	Cranberry Fruit and Nut Bar	ND
C17373	2/2/09	Wholegrain Brown Rice	ND
C17372	2/2/09	Gravy Mix	ND
C17371	2/2/09	Chocolate Wafers	ND
C17370	2/2/09	Chocolate Chip Cookies	ND
C 17369	2/2/09	Low Fat Baked Fruit Bars	ND
C17699	10/2/09	White Sauce	ND
C17698	10/2/09	Rice Cakes	ND
C17697	10/2/09	Banana Snack 4 Pack	ND
C17696	10/2/09	Bread Mix	ND
C17695	10/2/09	Chicken Chasseur	ND
C17694	10/2/09	Real Egg Mayonnaise	ND
C17693	10/2/09	Rice Milk	ND
C17692	10/2/09	Low Fat Milk	ND
C17691	10/2/09	Rice Flour	ND
C17690	10/2/09	Prunes	ND
C17689	10/2/09	Free Nut Butter	ND
C17688	10/2/09	Thai Green Curry	ND
C17687	10/2/09	Mayo Dressing	ND
C17686	10/2/09	Sakata Corn Chips	ND
C17685	10/2/09	Rice Porridge	ND
C17684	10/2/09	Fruit Flakes	ND
C17683	10/2/09	Baby Rice Rusks	ND
C17395	10/2/09	Vanilla Custard	ND
C17394	10/2/09	Ginger Nut Cookies	ND
C17393	10/2/09	D/Choc Biscuits	ND
C17392	10/2/09	Multigrain Pasta	ND
C17391	10/2/09	Delites Crackers	ND
C17390	18/2/09	Salsa Mexicana	ND
C17389	18/2/09	BBQ Sauce	ND
C17388	18/2/09	Bread	ND
C17387	18/2/09	Raspberry Dark Chocolate	ND
C17386	18/2/09	Natural Licorice	ND
C17385	18/2/09	Changs Shell Pasta	ND

Sample No.	Date	Food Type	Gluten Result
C17384	18/2/09	Chips	ND
C17383	18/2/09	Organic Pasta	Detected
C17400	23/2/09	Macadamia Muesli	ND
C17399	23/2/09	White Rice Crumbs	ND
C17398	23/2/09	Rice Flakes	ND
C17397	23/2/09	Animal Cookies	ND
C17396	23/2/09	Coconut Cookies	ND

ND – Not Detected

Discussion of Results

Of the 50 samples taken only one pasta sample did not comply with the Food Standards Code due to the detection of gluten. The raw material for this product was sourced from Western Australia and then processed into pasta in South Australia. The raw product is purchased as being gluten free. The compliance rate in this survey was 98%, which is similar to the compliance rate in the survey carried out in 2005.

Follow-up Activities

The organic pasta that tested positive to the presence of gluten was a South Australian made product. The company purchases its flour from Western Australia as a product certified as being gluten free. The South Australian manufacturer of the failed product was advised by letter to contact his supplier in Western Australia and advise him of the positive test result and to ensure any claims on the product comply with the Food Standards Code. Due to the failure, the same pasta product with the same best before date was retested and on the second occasion proved negative for gluten. The SA manufacturer has been advised that a further test of his product for gluten will be undertaken in the future.

Conclusion

Similar to the earlier survey in 2005, there was a compliance rate of 98% that the product was gluten free. Only one pasta sample tested positive to the presence of gluten. The manufacturer and the supplier of raw materials were advised and informed that further sampling could occur for non-compliance with Standard 1.2.8 Division 3 (16) of the Food Standards Code.

Aims

The aim of the survey was to determine the microbiological status of modified atmosphere packaged (MAP) salad vegetables sold at the retail level in South Australia. While there are no specific microbiological limits set out for raw vegetables in the Australia New Zealand Food Standards Code (the Code), it does require that food be safe for human consumption.

Background

Pre-packaged salads have gained popularity in recent years because of their convenience as a ready-to-eat product. The samples were purchased from a number of large and small retail outlets and from the widest variety of manufacturers as possible.

MAP salad vegetables are considered to be a higher risk due to extended shelf-life and they are usually consumed without an additional pathogen control step. The majority of samples collected were in plastic bags with the balance in hard plastic trays sealed with a layer of clear plastic.

The 'Guidelines for the microbiological examination of Ready-To-Eat Foods' gives a comprehensive guide to identifying the four categories of microbiological quality for ready-to-eat foods, which ranges from satisfactory to potentially hazardous.

Packaged salad vegetables must comply with the requirements of the Food Standards Code which states that food manufacturers produce food suitable for human consumption.

Previous Work

SA Health has not conducted a survey on packaged salad vegetables in recent years and this survey will provide reference data for monitoring and surveillance.

In 2002-03 the Australian Capital Territory conducted a survey on the Microbiological Quality of Ready-To-Eat Foods to determine the microbiological status of a range of foods. The survey of 193 samples, which were not exclusively salad vegetables, concluded that the majority of the foods sampled returned satisfactory results.

Assessment of Results

Tolerances identified in 'Guidelines for the microbiological examination of Ready-To-Eat Foods' were applied to foods in this survey.

Sampling and Survey Methodology

In total 50 samples were collected from as many outlets as possible and from as many different types of package lettuce, rocket and other leafy salad vegetables offered in the market place. Most products were packaged in plastic, gas flushed transparent bags, while approximately five samples were packaged in plastic tubs with clear plastic covers. Twenty-five samples were collected from large retail supermarkets which brand products under their own name, seven samples were collected from wholesalers, and the remaining 18 samples were collected from smaller retail shops.

Ten samples were gathered each week and sampling was conducted over a five week period. Samples were refrigerated on purchase and delivered cold to the IMVS testing laboratory.

The samples were tested for coliforms, *E. coli*, *Salmonella spp.* and *Listeria monocytogenes* and compared with FSANZ 'Guidelines for the microbiological examination of Ready-To-Eat Foods'.

Handling of Results

Test results were evaluated against the FSANZ Guidelines for the microbiological examination of ready-to-eat foods and Recall Guidelines for Packaged Ready-to-eat foods at point of sale.

Guideline levels for determining the microbiological quality of ready-to-eat foods				
Test	Satisfactory	Marginal	Unsatisfactory	Potentially Hazardous
Indicators				
<i>Escherichia coli</i>	<3	3–100	≥100	**
Pathogens				
<i>Salmonella spp.</i>	Not Detected in 25g			Detected
<i>Listeria monocytogenes</i>	Not Detected in 25g	Detected but <10 ² .		≥10 ² ##

** Pathogenic strains of *E. coli* should be absent

The detection of *L. monocytogenes* in ready-to-eat foods prepared specifically for 'at risk' population groups (the elderly, immune compromised and infants) should also be considered as potentially hazardous.

Results of Testing

Product	Date of Sampling	Best Before	Coliforms	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	Compliant
Gourmet Lettuce	2/9/08	9/09/08	<3	<3	ND	ND	Yes
Complete Greek Salad	2/9/08	6/09/08	<3	<3	ND	ND	Yes
Iceberg Alfresco	2/9/08	6/09/08	9.2	<3	ND	ND	Yes
Complete Crunchy Salad	2/9/08	6/09/08	<3	<3	ND	ND	Yes
Complete Salad	2/9/08	8/09/08	<3	<3	ND	ND	Yes
Baby Rocket	2/9/08	8/09/08	<3	<3	ND	ND	Yes
Spinach & Baby Rocket	2/9/08	6/08/08	<3	<3	ND	ND	Yes
Complete Caesar Salad	2/9/08	8/09/08	<3	<3	ND	ND	Yes
Restaurant Blend	2/9/08	8/09/08	23	<3	ND	<i>L. seeligeri</i>	Yes
Sweet Iceberg	2/9/08	4/09/08	<3	<3	ND	ND	Yes
Baby Leaf	9/9/08	8/9/08	<3	<3	ND	ND	Yes
Rocket	9/9/08	12/9/08	460	<3	ND	ND	Yes
Leaves with Herbs	9/9/08	10/9/08	<3	<3	ND	ND	Yes
Caesar Salad	9/9/08	12/9/08	<3	<3	ND	ND	Yes
Baby Rocket	9/9/08	10/9/08	<3	<3	ND	ND	Yes
Spinach	9/9/08	12/9/08	<3	<3	ND	ND	Yes
Baby Rocket	9/9/08	10/9/08	<3	<3	ND	ND	Yes
Caesar Salad Kit	9/9/08	11/9/08	<3	<3	ND	ND	Yes
Salad Mix	9/9/08	14/9/08	3.6	<3	ND	ND	Yes
Asian Style Mix	9/9/08	8/9/08	<3	<3	ND	ND	Yes
Caesar Salad Kit	16/9/08	20/9/08	<3	<3	ND	ND	Yes
Greek Salad Kit	16/9/08	29/9/08	<3	<3	ND	ND	Yes
Baby Blend	16/9/08	18/9/08	<3	<3	ND	ND	Yes
Salad Stir Fry	16/9/08	20/9/08	43	<3	ND	ND	Yes
Coleslaw	16/9/08	19/9/08	3.6	<3	ND	ND	Yes
Sweet & Crunchy	16/9/08	18/9/08	1 100	<3	ND	ND	
Summer Lettuce	16/9/08	20/09/2008	<3	<3	ND	ND	Yes
Wild Rocket	16/9/08	20/09/2008	240	<3	ND	ND	Yes
Baby Spinach & Rocket	16/9/08	20/09/2008	<3	<3	ND	ND	Yes
Italian Salad	16/9/08	21/09/2008	1 100	<3	ND	ND	
Caesar Salad	24/9/08	28/09/2008	<3	<3	ND	ND	Yes
Italian Salad	24/9/08	25/09/2008	<3	<3	ND	ND	Yes
Greek Salad	24/9/08	25/09/2008	3.6	<3	ND	ND	Yes
Baby Salad Leaves	24/9/08	29/09/2008	<3	<3	ND	ND	Yes
Spinach Leaves	24/9/08	25/09/08	<3	<3	ND	ND	Yes
Wild Rocket	24/9/08	31/9/08	1 100	<3	ND	ND	
Baby English Spinach	30/9/08	3/10/08	460	<3	ND	ND	Yes
Summer Lettuce	30/9/08	6/10/08	1 100	<3	ND	ND	

Product	Date of Sampling	Best Before	Coliforms	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	Compliant
Salad Mix	30/9/08	3/10/08	<3	<3	ND	ND	Yes
Salad Mix	30/9/08	3/10/08	<3	<3	ND	ND	Yes
Salad Mix	30/9/08	30/9/08	43	<3	ND	<i>L. welshimeri</i>	Yes
Wild Rocket	30/9/08	3/10/08	1 100	<3	ND	ND	Yes
Baby Spinach	30/9/08	6/08/09	<3	<3	ND	ND	Yes
Baby Spinach	30/9/08	7/10/08	3.6	<3	ND	ND	Yes
Sweet Mix	30/9/08	3/10/08	460	<3	ND	ND	Yes
Mesculin Mix	30/9/08	3/10/08	1 100	<3	ND	ND	Yes
Rocket	30/9/08	5/10/08	<3	<3	ND	ND	Yes
Caesar Cos	30/9/08	9/10/08	<3	<3	ND	ND	Yes
Coleslaw Mix	30/9/08	3/10/08	3.6	<3	ND	ND	Yes
Baby Butter Leaf	30/9/08	3/10/08	<3	<3	ND	ND	Yes

ND – Not Detected

Follow-up Activities

The survey did not identify the presence of pathogenic organisms in any samples.

Coliforms are used to indicate the presence of enteric bacteriaceae, indicating that the preparation and packaging has not controlled or reduced these organisms to an acceptable level. This indicates that should pathogens be present the process, controlling packaging may not be effective. Letters have been sent to the five manufacturers who packaged the vegetables with high levels of coliforms advising them to review the effectiveness of their processing methods. A copy of the test result was attached to each letter.

Discussion of Results

In all, nine manufacturers were sampled and a total of 50 different salad vegetables and salad mixed vegetables were analysed. Approximately 50% of the products had labelling advice instructing the purchaser to wash the vegetables before consuming. No such instructions were given on the remaining 50%, however some did have labelling advice that the product was washed prior to packaging.

One of the samples tested positive to the presence of *Listeria seeligeri* while another tested positive to *Listeria welshimeri*. These types of *Listeria* are not considered to be pathogenic, and therefore not a risk to public health. All samples had below detectable levels of *E. coli* and *Salmonella spp.*

Conclusion

This survey on the microbiological status of modified MAP salad vegetables sold in South Australia showed a high level of compliance with the 'Guidelines for the Microbiological Examination of Ready-To-Eat Foods'.

In relation to the 18 samples that tested positive to the presence of coliforms, it was only those with levels of 1 100 organisms per gram that may indicate poor hygiene practices or washing of the product during packaging. Letters have been forwarded to the five companies that had coliform levels of 1 100 organisms per gram.

Background

Soft cheese products are a high risk for the growth of *Listeria monocytogenes*, due to their low acidity. The addition of herbs to cream cheese dips increases the potential for the introduction of *Salmonella spp.* and *E. coli*.

Food Standards Australia New Zealand (FSANZ) published A Risk Profile of Dairy Products in Australia in August of 2006. It was determined that there was little evidence of food borne disease attributable to dairy products, and that current management practices effectively managed the potential hazards associated with raw milk and dairy products.

FSANZ cited reports of food borne illness and indicated that between 1995-2004 there were only 11 reported outbreaks directly attributed to dairy products, eight of which were associated with consumption of unpasteurised milk. FSANZ reported; 'Microbiological survey data for pasteurised dairy products in Australia show a very low incidence of hazards of public health significance in these products.'ⁱⁱ

In the period 1990 to August 2005, a total of 43 dairy products and foods containing a dairy component were recalled. The recalls represented 6% of the total number of recalls that had occurred over this time. The products recalled include both domestically produced and imported dairy foods, with most of the recalls attributed to milk, cheese and cream. The majority of recalls were due to the presence of *L. monocytogenes* in products.

However, the profile seems to have changed; in the period February to November 2007, there were seven food recalls in Australia and New Zealand which relate to the presence of *L. monocytogenes*, *Salmonella spp.*, or *E. coli* in cheese or cream cheese dips. Internationally in the same time period, there were another 10 recalls of cheese products and raw milk was associated with only two of those incidents.

Other Issues

The Australian National Nutrition Survey indicated in 1997 that soft cheese was eaten by only 5.3% of the population, and dairy based dips only consumed by 1.5% of the population, however, since then there has been a significant increase in the range and variety of soft cheese products and cream cheese dips, which would suggest an increased demand for these products.

There are concerns about the potential for growth of *Listeria* in these products, given the manner in which these foods are handled in the home. Particularly through the summer months, when barbecues are more common, dips and soft cheeses can be left on the table for more than the recommended two hours. Additionally, it is often hard to isolate the causal food in a case of *Listeriosis* due to the potential long incubation period of the disease.

On 1 November 2007, FSANZ issued a press release advising pregnant and immuno-compromised persons to be wary of eating ready-to-eat foods, due to the potential risk of *Listeriosis*. The article quoted OzFoodNet stating that during 2006 there had been eight *Listeria* infections in pregnant women and 51 in elderly people.ⁱⁱⁱ In South Australia there were 33 *Listeria* infections between 2000 and 2007, over 50% of these in people aged over 70 years.^{iv}

Previous Work

Analytical data was obtained from the Dairy Authority of South Australia for pasteurised milk, cheese, dip/dessert and yoghurt between 1998 and 2004. These products were tested for coliforms and *E. coli*, coagulase positive *S. aureus* and *L. monocytogenes*. Data was recorded as groups of tests, therefore individual analysis of results could not be taken. The data was reported as indicating generally a good level of compliance, with an average over seven years of 6% failure, with the latest year, 2004 indicating no failures in 140 samples.

In most previous microbiological surveys for *E. coli*, *Listeria spp.*, *Salmonella*, and *S. aureus*, in pasteurised dairy foods, no micro-organisms were detected.

A snapshot survey of ready-to-eat foods was undertaken in the Northern Territory in late 2005. *Listeria* was not found in any of the five soft cheese samples collected.

Additionally, the Dairy Authority of South Australia undertakes random checks on the manufacturing process to ensure microbial standards are achievable.

Aims and Scope of the Investigation

The survey aimed to determine the level of compliance with microbiological standards in ready-to-eat foods, in particular soft cheeses and dairy based dips sold in South Australia.

The production of locally manufactured dairy products, including dips and cheese is regulated by the Dairy Authority of South Australia (DASA), which advised that there are approximately 19 South Australian manufacturers of soft cheese products including cream cheese dips. The food business notification database indicated another six premises that specialise in the sale of gourmet cheese products. On investigation, some of these businesses were no longer operational, or did not manufacture a product that fell within our definition of a soft cheese or dairy based dip, or produced only on a seasonal basis.

There are also multiple interstate manufacturers of soft cheese products whose products are widely distributed throughout South Australia.

Sampling and Survey Methodology

The Dairy Authority of South Australia was consulted regarding the size of the local industry and present testing status. Discussion included consideration of the scope of production of the manufacturers, and the definition of soft cheese compared to dairy based dips. An agreement was obtained regarding appropriate follow-up protocols, should there be a sample failure.

A majority of locally manufactured products were sampled, primarily from the manufacturers own retail outlets. Interstate and imported manufacturers were also sampled from local outlets, such as supermarkets and speciality gourmet delis.

A total of 126 samples, incorporating 21 products, including interstate, country and metropolitan producers were collected. In order to conform to the requirements of the Australia New Zealand Food Standards Code, Standard 1.6.1 Microbiological Limits for Foods, five sample units were collected for each product. Additionally, one more unit was sampled for chemical analysis to assess pH and moisture content. Samples were refrigerated on purchase and delivered cold to the testing laboratory.

Products were tested for *Escherichia coli*, *Salmonella spp.* and *Listeria monocytogenes* against the criteria of Standard 1.6.1. The IMVS Food & Environmental Laboratory undertook the analysis inline with NATA criteria and Australian Standard methods.

Within Standard 1.6.1, soft cheese is defined by pH and moisture content; The National Measurement Institute (NMI) based in Melbourne agreed to undertake this analysis.

Discussion of Results

FSANZ mandates microbiological standards for cheese. The limits are set out in the schedule to Standard 1.6.1 – Microbiological standards for food.

Food	Micro-organism	n	c	m	M
All Cheese	<i>Escherichia coli/g</i>	5	1	10	102
Soft and semi-soft cheese (moisture content > 39%) with pH > 5.0	<i>Listeria monocytogenes/25 g</i>	5	0	0	
	<i>Salmonella/25 g</i>	5	0	0	

n – the number of sample units which must be examined from a lot of food

c – the maximum allowable number of defective sample units

m – the acceptable microbiological level in a sample unit

M – the level which, when exceeded in one or more samples, would cause the lot to be rejected

Dairy based dips were assessed against the FSANZ Guidelines for the microbiological examination of ready-to-eat foods (December 2001).

Guideline levels for determining the microbiological quality of ready-to-eat foods

Test	Microbiological Quality (cfu per gram)			Potentially Hazardous
	Satisfactory	Marginal	Unsatisfactory	
Standard Plate Count	<10 ⁴	<10 ⁵	≥10 ⁵	
<i>Enterobacteriaceae</i> including coliforms	<10 ²	10 ² –10 ⁴		
<i>Escherichia coli</i>	<3	3–100	≥100	
<i>Listeria monocytogenes</i>	Not Detected in 25g	Detected but <10 ²		≥10 ²
<i>Coagulase +ve staphylococci</i>	<10 ²	10 ² –10 ³	10 ³ –10 ⁴	≥10 ⁴ SET +ve

Sample Results

Type	Moisture content	pH	Coliforms	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	<i>Staph</i>
Double Brie	49.3	7.14	<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
Papillion Roquefort – Un-pasteurised	43.5	6.03	<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
Camembert	51.2	6.71	<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
Marinated Feta	37.1	4.31	<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			<10	<10	ND	ND	<100
			240	<10	ND	ND	<100

Type	Moisture content	pH	Coliforms	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	<i>Staph</i>
Fior di Latte (Fresh Mozzarella)	49.6	4.74	<3	<3	ND	ND	<100
			43	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Goats Milk Cheese	58.2	5.3	<3	<3	ND	ND	<100
			3.6	<3	ND	ND	<100
			9.2	9.2	ND	ND	<100
			38	38	ND	ND	<100
			9.2	9.2	ND	ND	<100
Chevre	62.2	4.25	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Cheese & Beetroot Dip	64.9	4.23	7.4	<3	ND	ND	<100
			3.6	<3	ND	ND	<100
			3.6	<3	ND	ND	<100
			23	<3	ND	ND	<100
			23	<3	ND	ND	<100
Brie	46	6.01	>1 100	<3	ND	ND	<100
			>1 100	<3	ND	ND	<100
			>1 100	<3	ND	ND	<3
			>1 100	<3	ND	ND	<100
			>1 100	<3	ND	ND	<100
Triple Cream	33.6	7.3	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Cottage Cheese & Cream Cheese Blend	68.2	4.6	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100

Type	Moisture content	pH	Coliforms	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	<i>Staph</i>
Sheep's Feta	48.6	4.7	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Cream Cheese with Herb & Garlic	49.7	5.2	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Cream Cheese with Garlic & Chives	42.4	5.2	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Camembert de Chevre	50.3	6.34	>1 100	<3	ND	<i>L. seeligeri</i>	<100
			>1 100	<3	ND	ND	<100
			>1 100	<3	ND	ND	<100
			>1 100	<3	ND	ND	<100
			>1 100	<3	ND	ND	<100
Quark Style	73.6	4.17	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			3.6	3.6	ND	ND	<100
			<3	<3	ND	ND	<100
			3.6	3.6	ND	ND	<100
Salmon & Caper Dip	62.7	4.51	23	<3	ND	ND	<100
			<3	<3	ND	<i>L. seeligeri</i>	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Ricotta	67.4	4.91	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100

Type	Moisture content	pH	Coliforms	<i>E. coli</i>	<i>Salmonella</i>	<i>Listeria</i>	<i>Staph</i>
Lemon Myrtle & Coconut Dip	43	5.25	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Feta & Capsicum Dip	71.1	4.17	<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
			<3	<3	ND	ND	<100
Feta	47.4	4.88	93	43	ND	ND	<100
			23	23	ND	ND	<100
			23	9.2	ND	ND	<100
			3.6	3.6	ND	ND	<100
			9.2	9.2	ND	ND	<100

ND – Not Detected

On analysis, it was discovered that more than half of the samples did not fall under the definition of soft cheese as outlined in the Food Standards Code Standard 1.6.1. This did not affect the outcome of the results as all of the samples met the requirements for a soft cheese in that they were free from *Salmonella* and from *Listeria monocytogenes* in 25 gm.

The variable moisture levels could be attributed to the majority of South Australian manufacturers producing boutique style products. Those products with a pH less than five would be protective against the growth of pathogens. Additionally *Staphylococcus aureus*, a good indicator of poor hygiene controls, was not detected in any sample. Two samples had *Listeria seeligeri* at a level less than 100 organisms per gram; this is a non pathogenic strain of *Listeria*.

While a number of samples had a level of coliforms that could be considered to be marginal in ready-to-eat foods, the nature of many cheese products, particularly camembert and brie, rely on microbial growth for maturation of the product.

Only one product, a feta, could be considered to fail the standard for *E. coli*. This result was referred to the Dairy Authority of South Australia to investigate further and resulted in a withdrawal from the market of the remainder of this batch of cheese.

Follow-up

The Dairy Authority of South Australia worked closely with the manufacturer of the feta product to undertake a thorough review of the implementation of the business Food Safety Plan. The producer was required to implement a regime whereby the product could not be released for sale until satisfactory results were consistently achieved. Further testing of subsequent production runs was undertaken by the company and all achieved satisfactory results.

Where other products achieved marginal results, the manufacturer was informed of the result directly and information was provided to the Dairy Authority of South Australia. This protocol was also undertaken for those manufacturers whose product was found to contain *Listeria seeligeri*.

Conclusion

Soft cheese and dairy dips sold in South Australia show a high level of compliance with the Food Standards Code and Guideline levels for determining the microbiological quality of ready-to-eat foods. All products sampled were free from *Salmonella*, *Listeria monocytogenes* and *Staphylococcus aureus*.

Only one sample could be considered to fail Standard 1.6.1 for Microbiological Standard for Cheese in relation to *E. coli*. This product was withdrawn from the marketplace and measures were put in place to ensure that all future batches of this product were to be released only after achieving a successful result.

One other product achieved a marginal result for *E. coli*, and two products had a non pathogenic strain of *Listeria*. These manufacturers were advised of the results and referred to the Dairy Authority of South Australia.

This result, showing only a 5% failure rate, is consistent with previous sampling results achieved by Dairy Authority of South Australia.

Background

SA Health has considered food safety issues associated with sale of wet noodles in ambient temperatures for several years. Many councils have concerns regarding the safety of these products, particularly with regard to yeast, moulds and *Bacillus cereus*. Local councils have declared ongoing concerns that products which they consider should be refrigerated are displayed for sale at ambient temperature. Previous consideration by the department has included verifying that acidification of the noodles by addition of lemon juice or other approved additives will enable these foods to be safely stored at ambient temperature. Local councils have contended that products are continuing to be displayed at ambient temperature, even when there is no acidifying agent added.

Retailers are resistant to refrigerating this product as the noodles harden under refrigeration and customers will reject solidified noodles. In order to address this issue, some manufacturers are producing two types of products, one which requires refrigeration and another with the addition of an acidifying agent which allows it to be shelf stable. This has created a level of confusion as the addition of the acidifying agent is not always declared on the label and retailers are not consistently storing the food according to the manufacturers' directions.

Aim and Scope

This survey is intended to determine the microbiological quality of packaged wet noodles sold in South Australia.

This included packaged wet noodles which are displayed for sale in refrigerated, acidified shelf stable and gas flushed shelf stable formulations. The sample labels were also reviewed to verify if the manufacturer had determined that the food should be stored at ambient temperature or under refrigeration.

Additionally, the survey recorded the temperature at which food is stored and assessed the label for compliance with the requirements of the Food Standards Code. Information will be provided on completion of the survey to the manufacturer and retailer if the product is found to be not suitable for sale.

Sampling and Analysis

Fifty-five samples were collected. The samples were purchased from a range of outlets including large supermarkets, independent grocers, speciality shops and small wholesalers. Samples were collected in their existing packaging to minimise the risk of cross contamination during sampling. The temperature of the food was measured at the time of purchase. All samples were maintained under refrigeration from the time of sampling and during transit to the laboratory.

Photographs were taken of the product labels to allow for verification of correct ingredient labelling and for comparison to the standard.

The samples were delivered to the IMVS Food and Environment Laboratory on the day of their collection. All samples were analysed for *B. cereus*, Coagulase-positive *Staphylococci*, coliforms, *E. coli*, *Listeria* spp., yeast and moulds, standard plate count and pH. Samples were analysed according to NATA criteria, and Australian Standard methods were used.

Assessment of Results

Samples were assessed against three main criteria; the samples were submitted for microbiological analysis against Standard 1.6.1 of the Food Standards Code (the Code) and the associated guideline microbiological limits for foods, microbiological results were also compared to the Food Standards Australia New Zealand 'Guideline levels for determining the microbiological quality of ready-to-eat foods', and the label of the product was assessed against Part 1.2 Labelling and other Information Requirements of the Code. The temperature of the product was recorded at the time of purchase and compared with storage directions on the label.

Microbiological Standards – Standard 1.6.1

The *Food Act 2001* requires food businesses not to sell food that is unsafe or unsuitable for human consumption. The Food Standards Code sets out microbiological limits for foods as well as food product standards for some foods.

Mandatory microbiological standards have been set in Standard 1.6.1 where risk assessment has shown that the risk of food borne illness associated with the consumption of certain foods is relatively high and that a standard could contribute to the management of the risks identified.

Where the justification for a standard was not found, guideline criteria have been developed for some foods.

Pasta products, including noodles fall into this category.

These guideline criteria are intended to provide benchmark levels against which unacceptable microbial contamination of food can be identified. Failure to meet guideline levels generally indicates a failure in the process or hygiene procedures and requires action to identify the cause and remedy the problem.

Microbiological Guideline Criteria for Pasta and Noodles¹

Food	Micro-organism	n	c	m	M
Pasta and Noodles – Uncooked, Wet and Dry	<i>Bacillus cereus</i>	5	2	10 ²	10 ³
	Coagulase-positive <i>Staphylococci/g</i>	5	2	10 ²	10 ³

n – the number of sample units which must be examined from a lot of food

c – the maximum allowable number of defective sample units

m – the acceptable microbiological level in a sample unit

M – the level which, when exceeded in one or more samples, would cause the lot to be rejected

Guideline Criteria – Microbiological Quality of Ready-to-Eat Foods

Additionally, guidelines for the microbiological examination of ready-to-eat foods were applied to these products as these noodles are generally not thoroughly cooked but usually only minimally heat treated before consumption.

Guideline levels for determining the microbiological quality of ready-to-eat foods²

Test	Microbiological Quality (cfu per gram)			Potentially Hazardous
	Satisfactory	Marginal	Unsatisfactory	
Standard Plate Count	<10 ⁴	<10 ⁵	≥10 ⁵	
<i>Enterobacteriaceae</i> including coliforms	<10 ²	10 ² –10 ⁴	≥10 ⁴	
<i>Escherichia coli</i>	<3	3–100	≥100	
<i>Listeria monocytogenes</i>	Not Detected in 25g	Detected but <10 ²		≥10 ²

¹ Food Standards Australia New Zealand, User guide to Standard 1.6.1 – Microbiological Limits for Food with additional guideline criteria, July 2001.

² Food Standards Australia New Zealand, Guidelines for the microbiological examination of ready-to-eat foods, December 2001.

Labelling Criteria – Part 1.2 Food Standards Code

The Labelling and other Information Requirements under the Food Standards Code contain standards relating to the application of labelling requirements, food identification requirements, mandatory advisory statements, labelling of ingredients, date marking of food, directions for use and storage, nutrition information requirements, legibility requirements, characterising ingredients and country of origin requirements.

The following criteria are the minimum that apply to the noodle products sampled: labels are required to be in the English language, contain an ingredient list and nutrition information panel, a date mark (either Use By or Best Before), with associated storage requirements and a statement of the country of origin of the food.

For the purposes of this survey, laboratory reports were assessed during, and at the conclusion, of sampling and results compared against similar research conducted in Australia or overseas.

Initial Follow-up

After the sample results had been analysed, a letter with a copy of the results was forwarded to the manufacturers to provide general feedback to the industry. The appropriate local jurisdiction, including two interstate jurisdictions and Australian Quarantine Inspection Service were also informed of sampling results for businesses that fell within their jurisdiction, and for products for which an Australian jurisdiction could not be identified.

Additionally, arrangements were made to visit three South Australian businesses with the local council Environmental Health Officer (EHO). In this way, the council would be included in discussions regarding any potential process improvements to be made to enhance product quality.

The results from this follow-up with South Australian manufacturers are discussed in more depth later in this report.

Results

Fifty-five samples were collected over a six-week period in October and November, 2008.

Labelling

Two products had no English on the label. These products were sold from speciality grocers catering to particular cultural groups. A further five products had the name of the importer, name of product, and date marking clearly visible in English, but no other English language details. Sixteen products, approximately 28.6%, had no nutrition information panel. The majority of products, approximately 87.5%, had storage conditions on the label, either 'store below 5°C' or 'store in a cool, dry place away from sunlight.' One product listed 'Corn Flour, Rice Flour, Vegetable Oil & Water' on the ingredient list, but had a pH of four; suggestive of the addition of an acidifying agent that had not been declared on the label.

All products with English language information on the label (87.5%) clearly identified a country of origin of the food.

A good level of compliance with labelling requirements was observed, approximately 71.4%. Of the products made in, or packaged in Australia, (n = 25) the compliance level was very high with only five labelling anomalies, approximately 80%. Only two South Australian manufacturers had incorrect label information; one business was prevented from supplying unlabelled hot cooked noodles for resale by another business and the business with the incorrect ingredients labelling was found to be closed down when a follow-up inspection was scheduled.

Microbiological testing results are detailed in the following tables:

Type of Noodle	pH	Standard Plate Count	Coliforms	<i>E. coli</i>	Yeasts	Moulds	<i>Listeria*</i>	<i>Staph spp.</i>	<i>Bacillus cereus</i>	<i>Salmonella*</i>
Udon Noodles	4.24	<10	<3	<3	<10	<10	ND	<100	<100	ND
Udon Noodles	4.28	100	<3	<3	<10	<10	ND	<100	<100	ND
Hokkien	8.57	<10	<3	<3	<10	<10	ND	<100	<100	ND
Rice Noodles	4.87	>3x10 ⁷	<3	<3	TNTC#	TNTC#	ND	<100	<100	ND
Cooked Noodles/ chives	6.14	2x10 ⁵	43	<3	<10	100	ND	<100	<100	ND
Singapore Noodle	6.51	>3x10 ⁷	<3	<3	<10	<10	ND	<100	<100	ND
Udon Noodles	6.66	>3 x 10 ⁷	<3	<3	<10	20	ND	<100	<100	ND
Korean Style Noodle	4.2	10	<3	<3	<10	<10	ND	<100	<100	ND
Noodles	4.2	<10	<3	<3	<10	<10	ND	<100	<100	ND
Mongolian Style	3.83	<10	<3	<3	<10	<10	ND	<100	<100	ND
Hokkein										
Knife Cut Noodles	5.33	10	<3	<3	<10	<10	ND	<100	<100	ND
Peking Noodle	5.82	2.1x10 ⁶	<3	<3	20 000	6 000	ND	<100	<100	ND
Wonton Noodle	9.84	1.4 x 10 ⁴	<3	<3	20	<10	ND	<100	<100	ND
Udon Noodles	4.03	<10	<3	<3	<10	<10	ND	<100	<100	ND
Egg Noodles	10.1	6 x 10 ⁴	<3	<3	<10	<10	ND	<100	<100	ND
Korean Style Noodle	4.07	40	<3	<3	<10	<10	ND	<100	<100	ND
Japanese Noodle	4.23	<10	<3	<3	<10	<10	ND	<100	<100	ND
Udon Noodles	3.91	10	<3	<3	<10	<10	ND	<100	<100	ND
Japanese Noodle	4.34	<10	<3	<3	<10	<10	ND	<100	<100	ND
Thin Hokkein	6.83	8.2 x 10 ⁵	<3	<3	<10	100	ND	<100	<100	ND
Japanese Noodle	4.32	<10	<3	<3	<10	<10	ND	<100	<100	ND
Japanese Style	10.5	<10	<3	<3	<10	<10	ND	<100	<100	ND
Tapioca Noodle	4.11	8 x 10 ⁴	<3	<3	10	<10	ND	<100	<100	ND
Udon Noodles	4.25	10	<3	<3	<10	10	ND	<100	<100	ND
Sea Tangle	4.45	3.4 x 10 ⁴	<3	<3	<10	3 200	ND	<100	<100	ND
Singapore Style	3.83	30	<3	<3	<10	200	ND	<100	<100	ND
Thin Egg Style	3.97	10	<3	<3	<10	<10	ND	<100	<100	ND
Hokkien	6.39	<10	<3	<3	<10	<10	ND	<100	<100	ND

Type of Noodle	pH	Standard Plate Count	Coliforms	E. coli	Yeasts	Moulds	Listeria*	Staph spp.	Bacillus cereus	Salmonella*
Hokkien Noodles	8.72	10	<3	<3	<10	<10	ND	<100	<100	ND
Noodles	9.66	140	<3	<3	<10	<10	ND	<100	<100	ND
Egg Pasta Ribbons	6.11	<10	<3	<3	<10	<10	ND	<100	<100	ND
Egg Noodles	9.53	1.4 x 10 ⁵	<3	<3	10 000	20	ND	<100	<100	ND
Hokkien	9.55	5.4 x 10 ⁶	<3	<3	60	30	ND	<100	<100	ND
Rice Noodle	4.98	80	<3	<3	40	<10	ND	<100	<100	ND
Fried Egg Noodle	7.2	2300	<3	<3	100	<10	ND	<100	<100	ND
Noodles	4.48	1900	<3	<3	10	30	ND	<100	<100	ND
Rice Noodle Drops	3.74	<10	<3	<3	<10	<10	ND	<100	<100	ND
Rice Noodle Sticks	3.77	<10	<3	<3	<10	<10	ND	<100	<100	ND
Cooked Vermicelli	4.36	4x10 ⁵	<3	<3	400	<10	ND	<100	<100	ND
Rice Noodles	4.2	1000	<3	<3	1 500	<10	ND	<100	<100	ND
Wheat Flake	5.56	7.4 x 10 ⁴	<3	<3	500	200	ND	<100	<100	ND
Egg Fettuccine	4.68	20	<3	<3	5 100	20	ND	<100	<100	ND
Lasagne Sheets	4.64	1200	<3	<3	2 700	<10	ND	<100	<100	ND
Rice Noodle	4	<10	<3	<3	200	<10	ND	<100	<100	ND
Pure Egg Noodles	8.9	1.4x10 ⁷	3.6	<3	30	<10	ND	<100	<100	ND
Lasagne Sheets	6.23	4.6 x 10 ⁴	<3	<3	200	<10	ND	<100	<100	ND
Udon Noodles	4.18	<10	<3	<3	<10	<10	ND	<100	<100	ND
Rice Noodle	5	20	<3	<3	<10	<10	ND	<100	<100	ND
Egg Noodles	8.8	6.2 x 10 ⁵	<3	<3	20	100	ND	<100	<100	ND
Egg Noodles	8.62	6.4x10 ⁵	<3	<3	<10	1 400	ND	<100	<100	ND
Fresh Hokkien	6.1	> 3 x10 ⁷	240	23	240	30	ND	<100	<100	ND
Instant Fresh Hokkein	5.97	>3x10 ⁷	1 100	<3	5 300	130	ND	<100	<100	ND
Thai Noodles	5.87	> 3 x10 ⁷	>1 100	3	500	<10	ND	<100	<100	ND
Udon Noodles	4.49	>3x10 ⁷	>1 100	<3	2 100	400	ND	<100	<100	ND
Shanghai Noodle (Ramen)	5.16	810	<3	<3	<10	10	ND	<100	<100	ND

TNTC – Too numerous to count

* ND – Not Detected

All samples complied with the Food Standards Australia New Zealand User Guide to Standard 1.6.1 – Microbiological Limits for Food with additional guideline criteria. Significant pathogens associated with food borne illness, such as *Salmonella*, *Listeria*, *Staphylococcus* or *Bacillus cereus* were not detected in any sample.

Sixteen samples (29 %) did not conform to the Food Standards Australia New Zealand Guidelines for the microbiological examination of ready-to-eat foods.

Ready-to-eat food is defined as food that is ordinarily consumed in the same state as that in which it is sold or distributed and does not include nuts in the shell and whole, raw fruits and vegetables that are intended for hulling, peeling or washing by the consumer.

Some of the noodle products sampled are intended to be cooked in boiling water for several minutes before consumption; for those products this guideline is not applicable. The majority of this type of product is quickly rinsed in hot water or added to food at the end of the cooking process. This minimal heating is not considered to be an effective step in reduction of bacterial growth.

Seven samples, approximately 12.8%, had a Standard Plate Count greater than 30 million organisms per gram. This is considered to be a spoilage indicator and may be related to temperature abuse. The noodle samples were purchased from retail outlets and the temperature of the food was measured at the time of purchase.

Twelve samples were stored below 5°C, 26 were stored at a temperature between 5 and 10°C and the remaining 17 were stored at ambient temperatures, measured between 15 and 27 degrees on the day of sampling.

Standard Plate Count	Satisfactory	Marginal	Unsatisfactory
	Less than 10 000 cfu	Less than 100 000 cfu	Greater than or equal to 100 000 cfu
Refrigerated (below 10°C) n = 38	17	6	15
Displayed at ambient n = 17	16	0	1

pH was measured and showed that only those products which were highly acidic (measured as a pH below 4.5) were able to demonstrate low plate counts. The nature of some products involves the addition of alkalis water as a colour fixative and to prevent noodles clumping together. Of the alkaline products, approximately half were satisfactory and half unsatisfactory.

Standard Plate Count	Satisfactory*	Marginal	Unsatisfactory
pH 3.74–5 Acidic n = 29	24	2	3
pH 5–7 Weak acid to neutral n = 14	4	2	8
pH 7–10.5 Alkaline n = 12	5	2	5

Nineteen samples, approximately 34.5 %, had yeasts and moulds present at levels of concern, although there is no standard or guideline directly applicable to this food.

	Yeasts		Moulds		Coliforms	
	S	U	S	U	S	U
Refrigerated (below 10°C) n = 38	17	21	22	16	33	5
At ambient n = 17	16	1	16	1	16	1
pH 3.74–7 Acidic n = 43	29	14	31	12	38	5
pH 7–10.5 Alkaline n = 12	5	7	5	7	7	5

S – Satisfactory

U – Unsatisfactory

The results of these samples were forwarded to the local council for discussion with the manufacturer and for advice on appropriate food safety protocols.

Discussion

Nineteen of the products sampled had been manufactured in South Australia. This allowed an opportunity to visit the manufacturers in company with the local council EHOs to review the manufacturing process and where necessary make suggestions regarding potential improvements.

The South Australian manufactured products were produced by six different manufacturers. One business had closed; one business had no unsatisfactory results in any of the original samples and did not need re-sampling, and a third business was a restaurant that had supplied a hot cooked product for resale for immediate consumption. The food temperature measured 27.8°C; however, it was not possible to verify that the food had been out of appropriate temperature control for more than two hours.

Food Standards Australia New Zealand has developed a 2-hour/4-hour guide based on the time required for food poisoning bacteria to grow to unsafe levels. Essentially, the guide acknowledges that potentially hazardous food may be out of appropriate temperature control for short periods to allow for delivery, preparation, transport and display of foods. It was determined that the issues regarding the temperature control for this sample were outside the scope of this survey and the matter could be addressed more effectively by the local EHO.

The 2-hour/4-hour guide explained³

Although potentially hazardous food should be kept at 5°C or colder or 60°C or hotter, wherever possible, this food can be safely kept between 5°C and 60°C provided it is between these temperatures for less than four hours. This is because it takes more than four hours for food-poisoning bacteria to grow to dangerous levels.

Total time limit between 5°C and 60°C	What you should do
Less than 2 hours	Refrigerate or use immediately
Between 2 hours and 4 hours	Use immediately
More than 4 hours	Throw out

The 2-hour/4-hour guide applies to ready-to-eat potentially hazardous food. It provides guidance on how long his type of food can be held safely at temperatures between 5°C and 60°C and what should happen to it after this certain times.

The times refer to the life of the food, including preparation and cooling, not just display times, so it is necessary to add the total time that the food has been between 5°C and 60°C.

Follow-up Results and Discussion

Site visits were made to the three remaining South Australian manufacturers, in company with local EHOs. This allowed for a comprehensive review of the steps involved in the manufacturing process and the manner in which food businesses had addressed potential risk factors.

Two businesses had independently audited voluntary Food Safety Plans in place, although these plans did not cover all the products included in the survey. Where Food Safety Plans were in place, the product was subjected to a post packaging step that involved a pasteurisation process, or the addition of a gas, to reduce bacterial growth.

Following discussion between the food businesses and the local EHOs, each business undertook to address issues of concern that had arisen during the site visits. The most common issues raised were inadequate ventilation, inadequate cooling of the cooked product, packaging of hot product, stacking of inadequately cooled product and issues associated with hand packaging. Additionally, consideration was given to the determination of the shelf life of the product and advice given to retailers regarding appropriate temperature control.

In June 2009, the three South Australian businesses were sampled again; with samples collected from the manufacturer's premises. Collecting the samples from the manufacturer ensured that the product had been stored at an appropriate temperature, and the product was sampled close to the manufacture date.

Type of Noodle	Date Marking	Date Sampled	pH	SPC	Coliforms	<i>E. coli</i>	Yeasts	Moulds
Manufacturer 1 – Original								
Egg Noodles	BB 4/11/08	07/10/08	8.8	6.2 x 10 ⁵	<3	<3	20	100
Egg Noodles	BB Nov 08	22/10/08	8.62	6.4 x 10 ⁵	<3	<3	<10	1400
Fresh Hokkien	BB 03/10/08	07/10/08	6.1	>3 x 10 ⁷	240	23	240	30
Instant Fresh Hokkien	BB 24/11/08	22/10/08	5.97	>3 x 10 ⁷	1 100	<3	5 300	130
Thai Noodles	BB 17/11/08	28/10/08	5.87	>3 x 10 ⁷	>1 100	3	500	<10
Udon Noodles	BB 24/10/08	22/10/08	4.49	>3 x 10 ⁷	>1 100	<3	2 100	400
Shanghai Noodle (Ramen)	BB 04/11/08	22/10/08	5.16	810	<3	<3	<10	10
Manufacturer 1 – Follow-up								
Egg Noodles	BB 10 Aug 09	22/06/09	9.37	4 000	<3	<3	<10	20
Hokkien Noodle (twist tie)	BB 15 Jul 09	22/06/09	6.69	6.6 x 10 ⁵	460	<3	40	10
Hokkien Noodle (heat sealed)	BB 4 Aug 09	22/06/09	6.83	2 x 10 ⁶	1 100	<3	100	1 000
Thai Noodles (heat sealed)	BB 28 Jul 09	22/06/09	6.15	>3 x 10 ⁷	1 100	<3	90	10
Thai Noodles (twist tie)	BB 15 Jul 09	22/06/09	6.08	1.1 x 10 ⁵	43	<3	300	1 500
Japanese Udon	BB 4 Aug 09	22/06/09	4.94	1 300	<3	<3	10	100
<i>BB – Best Before</i>								
Manufacturer 2 – Original								
Egg Noodles	BB 26/12/08	14/10/08	9.53	1.4 x 10 ⁵	<3	<3	10 000	20
Hokkien	UB 20/10/2008	07/10/08	9.55	5.4 x 10 ⁶	<3	<3	60	30
Rice Noodle	B 4/11/08	14/10/08	4.98	80	<3	<3	40	<10

3 Food Standards Australia New Zealand, Fact Sheets, Charities and Communities, Temperature Control, www.foodstandards.gov.au May 2002

Type of Noodle	Date Marking	Date Sampled	pH	SPC	Coliforms	<i>E. coli</i>	Yeasts	Moulds
Manufacturer 2 – Follow-up								
Egg Noodles	BB 1 Jul 09	22/06/09	9.03	3.6 x 10 ⁵	<3	<3	1 200	600
Hokkien (heat sealed)	BB 20 Jul 09	22/06/09	9.16	880	<3	<3	<10	<10
Hokkien (twist tie)	BB 14 Jul 09	22/06/09	9.27	5 500	<3	<3	<10	100
Rice Noodles	BB 20 Jul 09	22/06/09	5.89	560	<3	<3	10	<10
Manufacturer 3 – Original								
Rice Noodles	UB 18 Nov 08	11/11/08	4.87	>3 x 10 ⁷	<3	<3	TNTC	TNTC
Manufacturer 3 – Follow-up								
Rice Noodles	UB 2 Jul 09	22/06/09	6.01	20	<3	<3	<10	<10
Rice Noodle Strips	UB 2 Jul 09	22/06/09	6.12	1 400	<3	<3	30	<10

BB – Best Before

UB – Use By

TNTC – Too numerous to count

Conclusion

All samples tested negative for *Salmonella*, *Listeria*, *Bacillus cereus* and *Staphylococcus aureus*.

Three South Australian businesses were resampled following negotiation between the local council and the business to address potential risk factors for the growth of yeasts and moulds in their product. One business in particular undertook significant structural improvements to enhance ventilation within the factory and increased cooling steps prior to packing.

One business was confident that its post production steps adequately addressed risks associated with the growth of yeast, moulds and coliforms, and that any bacterial growth was due to temperature abuse by retailers. The results from the second round of sampling indicated that the problems with bacterial contamination were evident in the products as distributed from the warehouse. This matter has been referred to the local jurisdiction for ongoing follow-up.

The method of follow-up for this survey allowed for greater levels of participation with local government in undertaking surveillance of food safety standards. Local government was directly involved in assessing where any potential breaches of food safety standards may have occurred and the food business was able to work with its local jurisdiction to identify where particular work practices could be improved.

i Food Standards Australia New Zealand, 'A Risk Profile of Dairy Products in Australia', 9 August 2006.

ii Food Standards Australia New Zealand, 'A Risk Profile of Dairy Products in Australia', op cit.

iii <http://www.foodstandards.gov.au/newsroom/mediareleases/mediareleases2007/1nov2007fsanzissuesl3750.cfm>.

iv Kellie Byron-Gray, CDC Disease Surveillance & Investigation, SA Health, personal communication, 1 November, 2007.

v Australia New Zealand Food Standards Code Standard 1.6.1.

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