Food Safety in Australia – The role of Food Standards Australia New Zealand

Australian Fertilizer Industry Conference
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Overview

- Food regulation in Australia and the role of FSANZ
- Use of risk analysis for standard setting
- Food contaminant issues
- Food surveys
- Future issues
Regulating Food Safety

- **Australian States/Territories**
  - Public health/food law
    - Food should be safe; offences for food unfit for human consumption, perishable etc

- **Commonwealth Government**
  - **Food Standards Code (FSANZ)**
    - Permissions for additives, chemical contaminants; compositional and labelling requirements; food safety etc
  - Enforcement: imported food

- **Local Government**
  - Enforcement
Food regulatory system

Australia
New Zealand
States and Territories

Ministerial Council
Board

Policy committee system
- food regulation
- implementation

Food Standards Australia New Zealand (FSANZ)

Related agencies
- medicines
- ag and vet chemicals
- GM crops
- consumer affairs
- primary production

Committees and advisory groups

Who does what?

Standard setting
FSANZ (consistent with Codex)

Food regulatory system depends on effective collaboration.

Policy
Ministerial Council
(States/Territories/Aust/NZ)
(health/agriculture portfolios)
FSANZ Act

Enforcement
States/Territories/ISC
FSANZ (monitoring)
AQIS (imported foods)
Local government
Role of Food Standards
Australia New Zealand
(FSANZ)

What is FSANZ?

- Commonwealth Government agency: partnership between Australia and New Zealand
- 1991: formed to develop national food standards for Australia
- 1995: agreement signed with New Zealand to develop joint food standards for both countries
- 2002: acquired primary production/processing standards & separation of policy development/technical regulatory decision making
FSANZ Functions

- developing, varying and reviewing food standards
- coordinating food surveillance and recalls
- conducting research
- assessment policies about imported food
- developing codes of practice

FSANZ’s main objectives…

- Protection of public health and safety.
- Provision of adequate information relating to food to enable consumers make informed choices.
- Prevention of misleading or deceptive conduct.
And also have regard to…

- need for standards to be based on risk analysis using the best scientific evidence;
- consistency between domestic and international food standards;
- desirability of an efficient and internationally competitive food industry;
- promotion of fair trading in food; and
- written policy guidelines developed by the Ministerial Council.

The ANZ Food Standards Code

The Australia New Zealand Food Standards Code

- Part 1 Horizontal Standards
- Part 2 Commodity Standards
- Part 3 Food Safety Standards
- Part 4 Primary Production & Processing Standards
Application of Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Australia</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td>General standards (Part 1)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• Additives, contaminants, micro limits</td>
<td></td>
<td>(except MRLs)</td>
</tr>
<tr>
<td>• Labelling, promotion &amp; advertising</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Food contact materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commodity standards (Part 2)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• Definitions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food safety (Part 3)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>• Food handling, info about food business,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Food premises and equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary production and processing (Part 4)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>• Production of food</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Code

- Added substances and new foods
- Composition of food products
- Food handling (hygiene) (Australia only)
- Labelling, including claims
- Allergens and other warnings
- Contaminants and residues
Standard Setting Process

Developing/amending standards

1. Application
2. Proposal
3. Initial Assessment
   - Public consultation
4. Draft Assessment
   - Public consultation
5. Final Assessment
   - FSANZ Board
6. Ministerial Council – review?
7. Gazettal
**2006 Amendments to the Food Standards Australia New Zealand Act 1991**

**Key Elements**

1. Changes to the assessment processes
   - 3 Streams for assessment of applications and proposals
   - New process for applications for high level health claims
   - Use of *Application Guidelines*

2. Changes to the Ministerial Council process
   - Review process shortened

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**Application Handbook**

- Provide detailed information on data requirements for different types of applications
- Provides information on the application process
- Provides referral information to other relevant documents, where necessary
Data Requirements for Applications

- General information
- Technical information
- Information related to safety
- Information related to dietary exposure
- Information related to nutritional impact
- Information related to impact on consumers
- Information related to impact on the food industry

FSANZ’s Role in Relation to Food-related Health Risk

- Getting the science right
  - Adequate data / rigorous assessment procedures / evidence-based decisions
  - Addressing real and potential risks

- Building public support
  - Addressing public concerns
  - Seeking support from recognised experts
  - Having a cautious approach to risk
  - Identifying an acceptable level of risk
  - Meeting community expectations
Use of Risk Analysis

Risk Assessment
* Science based

Risk Management
* Policy based

Risk Communication
* Interactive exchange of information and opinions concerning risks

World Health Organisation
Risk Assessment Framework

1. Hazard identification
2. Hazard characterisation
   Quantitative/qualitative evaluation of the adverse health effect associated with the risk factor
3. Dietary exposure
   Qualitative and/or quantitative evaluation intake of risk factor via food (and other sources if relevant):
   - Survey info (e.g., ATDS, NRS, jurisdictions, industry)
   - Food intake (National Nutrition Surveys)
4. Risk characterisation
   - Qualitative/quantitative estimate of:
     - The probability of health risk
     - The severity of adverse health effect
   - Takes into account:
     - Uncertainties in the information
     - Sensitive populations (e.g., children, elderly)
Benchmarks for Safety

- Acceptable Daily Intake (ADI): food additives; ag. & vet. chemicals
- Provisional Tolerable Weekly (daily) Intake (PTWI): contaminants and natural toxins
- Upper Safe Limits (UL): nutrients

Using a Reference Health Standard
Using a Margin of Exposure

Compare:

Normal levels of exposure to the chemical

Exposure level

The lowest level which produces an increase in a defined adverse effect (LOEL or BMDL)

Using the Margin of Exposure

LOEL or BMDL

Margin of exposure

Exposure

Age groups
Risk Management Measures

- **Food Standards**
  - **End product** (prohibitions, restricting the levels of chemicals in food, microbiological limits, warning statement on label, e.g., allergies, permission for additives, GM food)
  - **Food safety** (food handling, info about food business, food premises and equipment)
  - **Primary production and processing** (through chain production/processing controls)

- **Guidelines/ Codes of Practice**

- **Education programs/material**
  - (e.g., advice on Listeria for pregnant women; mercury in fish advisory)

Regulation of Contaminants
Why Regulate Contaminants in Food?

1. Safe food / healthy population
2. Confidence in the food supply
3. Facilitate trade in agricultural products and processed food

Which contaminants in food should be regulated?

Consumer’s position
- Food should be ‘safe’ - contaminant levels zero or very low

Industry’s position
- Minimal regulation consistent with safe food
- MLs sometimes useful to promote ‘clean’ food message

Enforcement agencies’ position
- MLs for all contaminants in all foods
Managing Food Contaminants in Australia

- State Based Food Acts – Safe and suitable provisions
- ANZ Food Standards Code – specific standards for contaminants
- Legislation relating to zoning, waste management, air and water quality, environmental protection.
- Generally Expected Levels (GELs)
- Codes of practice / agricultural practices
- National Cadmium Minimisation Strategy

Control Options

- At primary industry level
  - waste management / disposal programs
  - water quality control programs
  - industrial zoning regulations
  - MLs / guidelines for primary produce

- At food manufacturing level
  - quality assurance programs
  - good manufacturing practices

- At consumer level
  - food choices / selective diet
What factors influence the need for regulating contaminants through food legislation?

- Potential for human health risk at the anticipated levels of exposure
- Nature and severity of the health risk, particularly for susceptible populations
- Frequency of contamination
- Importance of the food in the total diet
- Reliable assay methodology

Regulating Food Contaminants

Safe/clean Food

Food Standards and Guidelines

Monitoring
Principles used in Regulation of Contaminants

- The levels in food should be as low as reasonably achievable*
- Food containing the contaminant should be safe, even for the most sensitive population

* ‘ALARA’ Principle (Codex 1996)

Standards and Guidelines

- Standards (Maximum Levels)
  - legally enforceable
  - used to protect public health
  - unnecessary in many cases

- Guidelines (Generally Expected Levels or GELs)
  - legally unenforceable
  - used to minimize contamination
  - trigger for remedial action
**Basis for Considering a Maximum Level**

1. Demonstration of a potential public health and safety risk at the anticipated levels of total dietary exposure.

2. Potential for future public health and safety risk if controls are not established.

**MLs for Metal Contaminants**

MLs for:

Arsenic, Cadmium, Lead, Mercury, Tin

No MLs for:

Antimony, Copper, Selenium, Zinc
**Basis for Considering a Generally Expected Level (GEL)**

1. No immediate evidence of a public health and safety risk
2. Potential for contaminant levels above the ‘as low as reasonably achievable’ levels
3. Need to provide benchmark for industry and enforcement agencies regarding ‘normal’ contaminant levels
4. Remedial action can be initiated if the GEL is exceeded.

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**Current GELs Established**

- **Antimony**: meat, offal
- **Arsenic**: meat, offal, liver
- **Copper**: crustacea, offal, liver, fish, meat, molluscs, nuts, wheat
- **Mercury**: offal, sheep, meat,
- **Selenium**: crustacea, molluscs, offal, fish, meat
- **Zinc**: crustacea, offal, fish, meat, oysters
Setting an ML in Food

- Raw agricultural commodities rather than processed foods
- Only those foods which provide a significant contribution to total contaminant exposure
- Set ML at upper end or above the range of contaminant levels found in food
- ML should be reasonably achievable through primary production practices
- WTO obligations need to be considered

Exposure to Cadmium

- PTWI
- MLs established
- MLs not established

FOODS
**ML for Contaminants**

- ML established at the upper end or just above the normal concentration range

**GELs for Contaminants**

- Used to define the generally expected level (GEL)
- ML established at the upper end or above the normal concentration range
Cadmium Minimisation Strategy

Recognised:
1. The potential public health concerns with cadmium in food
2. The limitations of MLs to achieve low cadmium levels in foods
3. The need for responsible agricultural practices

Outcomes:
1. Reduction in cadmium addition to soils through fertilizers
2. Improved use of biosolids
3. Improved awareness of cadmium issues
4. Inputs into international food standards
Food Survey Work

Regulatory Survey Overview

Regular National Surveys
- Total Diet Surveys
- National Residue Surveys
- Imported Food Inspection Program

3 – 5 Year Coordinated Food Survey Plan
- Activities relating to Australia and New Zealand national surveillance priorities

Jurisdictional specific survey activities
- Surveillance activities undertaken by single or multi jurisdiction
### Australian Total Diet Study Results

#### Pesticide residue screen:
- Chlorinated organic pesticides
- Organophosphorus pesticides
- Synthetic pyrethroids
- Carbamates & fungicides

#### Contaminants:
- Antimony, arsenic, cadmium, copper, lead, mercury, selenium, tin, zinc

#### Toxins:
- Aflatoxins & ochratoxins

<table>
<thead>
<tr>
<th>ATDS No.</th>
<th>Sampled Published</th>
<th>No. Foods</th>
<th>Analytes</th>
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| 20th     | 2000/2001         | 65        | **Pesticide residue screen:** chlorinated organic pesticides, organophosphorus pesticides, synthetic pyrethroids, carbamates & fungicides  
**Contaminants:** antimony, arsenic, cadmium, copper, lead, mercury, selenium, tin, zinc  
**Toxins:** Aflatoxins & ochratoxins |

#### Additives:
- Suphites, nitrates, nitrites, benzoates, sorbates

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<tbody>
<tr>
<td>21st</td>
<td>2003</td>
<td>60</td>
<td><strong>Additives:</strong> suphites, nitrates, nitrites, benzoates, sorbates</td>
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<td></td>
<td>2005</td>
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#### Essential trace elements:
- Iodine, chromium, molybdenum, selenium and copper

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<th>Analytes</th>
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</table>
| 22nd     | 2004              | 96        | **Essential trace elements:** iodine, chromium, molybdenum, selenium and copper  
**Additives:** nitrates/nitrites  
**Others:** PBDE/PAH |
|          | July/Nov          |           |          |
|          | 2006 Dec          |           |          |
• Mainly essential trace elements: iodine, chromium, molybdenum, selenium and copper

• Estimate dietary intake of population groups by age and gender

• Nutritional adequacy assessed against Estimated Average Requirement (EAR) or Adequate Intake (AI)

• Intake assessed against the upper level (UL) or a tolerable intake

Iodine intake for children

![Iodine intake graph for children](image)
Selenium intake for children

Molybdenum intake for children
22nd ATDS Preliminary conclusions

• **Iodine**
  – a proportion of some groups of the Australian population have dietary intakes of iodine below the EAR
  – no concerns about excessive dietary intake

• **Selenium and Chromium**
  – majority of the Aust population have dietary intakes approaching or exceeding the EAR/adequate intake
  – no concerns about excessive dietary intake

• **Molybdenum and Nickel**
  – majority of the Australian population have dietary intakes well above the EAR/adequate intake and there are no public health concerns in relation to nutritional adequacy
  – no concerns about excessive dietary intake
Future Issues

Trends in Contaminant Regulation

- Conservative regulatory position nationally and internationally regarding contaminants in food
- Increasing regulation of contaminants
- Increased focus on naturally-occurring toxins
- More focus on inputs into the food chain
Primary production and processing standards

- ‘Paddock to Plate’ approach
- Food safety obligations placed on primary producers and processors of food commodities
  - Established: Seafood, dairy products
  - Developing: Poultry meat, eggs, raw milk products
  - Future: Plant and plant products, meat and meat products

Requirements:
- Control of inputs
- Premises and equipment
- Skills and knowledge
- Storage and transportation
- Traceability

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