

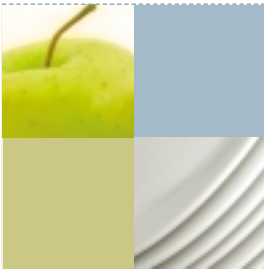


FOOD SURVEILLANCE

AUSTRALIA NEW ZEALAND

Australia New Zealand Food Authority

Autumn 2002



Editorial

Total Diet Studies

Issues associated with Total Diet Studies, previously referred to in Australia as Market Basket Surveys, are a feature of this Autumn edition of Food Surveillance Newsletter. Total diet studies are a tool used by health authorities to estimate the level of dietary exposure of consumers to a range of pesticide residues and contaminants that can be found in the food supply.

ANZFA coordinates the Australian Total Diet Survey (ATDS) and in New Zealand the Ministry of Health coordinates the NZTDS. In Australia, there have been twenty studies completed since the first Market Basket Survey was conducted in 1970. Work is in its final stages for the 20th ATDS and an update is included later in this edition.

From these studies much data has been collected on the dietary exposure of Australians to pesticide residues and heavy metals in particular. Rather than continuing with the same approach, ANZFA has decided on major changes to the format and scope of the survey. An article on the new direction for the ATDS is included in this edition. Also included in this edition is a report on the 2nd International Total Diet Study workshop by its chairman, Dr Richard Vannoort of Institute of Environmental Science & Research Ltd in New Zealand. This important international workshop, co-sponsored by ANZFA, the World Health Organisation and the New Zealand Ministry of Health, was held in Brisbane in February earlier this year.



ANZFA to change to Food Standards Australia New Zealand

ANZFA is to change later this year. The organisation will undergo a name change to Food Standards Australia New Zealand (FSANZ). This name change reflects a change to the way that food standards are developed and will include significant changes to ANZFA Board membership. These changes to ANZFA are part of a broader package of reforms to the food regulatory system in Australia.

Under the new legislation, the FSANZ Board will set food standards which must be consistent with policy guidelines set by the Food Standards Ministerial Council. FSANZ will retain key features of the ANZFA standards development processes, such as public consultation, openness and reliance on robust evidence and rigorous science.

FSANZ will also be taking on a wider whole-of-foodchain approach through bringing together, for the first time, standards for primary production and processing. These new arrangements are being currently finalised.

Microbiological guidelines for ready-to-eat food

In consultation with State, Territory and New Zealand health departments ANZFA has recently developed and published "Guidelines for the microbiological examination of ready-to-eat food". These have been developed in order to provide a consistent approach in the interpretation of microbiological analyses of foods where no other microbiological criteria exist. This is their first edition, and ANZFA would appreciate any feedback or comment to Patricia Blenman on 02 6271 2674 or email patricia.blenman@anzfa.gov.au. The guidelines can be found at www.anzfa.gov.au/mediareleasespublications/publications/guidelinesformicrobi1306.cfm

2001 – A record year for Australian food recalls

There were a total of 65 Australian food recalls notified to ANZFA during 2001. This is the highest number of recalls in a calendar year since ANZFA commenced coordinating food recalls in 1991. The Spring 2001 Food Surveillance Newsletter carried an article on recalls in Australia for the period 1990 to 2000. During this period there were 389 recalls, or an average of 35 per year for the 11 year period.

They say you can prove anything with statistics! However, the figure of 65 recalls for 2001 gives a misleading picture. There were 10 somewhat unusual recalls of imported soy sauce products associated with high levels of the chloropropanol 3-MCPD¹. Otherwise, the recalls for 2001 are consistent with the recall numbers over recent years.

Also it is important to bear in mind that a high number of recalls does NOT mean that there is a food safety problem in Australia. In fact, this level of food recalls indicates that Australia has a transparent and rigorous system for ensuring food safety. Most recalls are precautionary in nature and initiated by the food companies as part of a national food safety strategy to ensure that undesirable foods do not end up in the food supply.

The number and causes of food recalls for the year 2001 are shown graphically in Figure 1. Of the 65 recalls, 22 were due to microbiological concerns, 16 due to chemical or miscellaneous contamination, 14 due to foreign matter contamination, 8 due to labelling errors, 3 due to processing faults, and 1 due to histamine contamination.

Usually, microbiological concerns and foreign matter contamination are the major causes of food recalls, however for the year 2001, there was an unusually high number of recalls due to chemical contamination. This was largely due to the 10 recalls involving soy sauce products mentioned above.

Of the recalls notified to ANZFA in 2001 for microbiological concerns (22 recalls), the majority were due to *Listeria monocytogenes* (10 recalls) and *Salmonella* contamination (6 recalls) (see Figure 2).

Of the recalls notified to ANZFA for foreign matter contamination (14 recalls), 8 recalls were due to the presence of metal fragments, 4 recalls resulted from the presence of plastic/rubber fragments and 2 recalls were due to the presence of glass (see Figure 3). Current recalls are listed on the ANZFA website for a period of two months.

ANZFA does not collect statistics on food recalls for just for the sake of it. The data is put to good use. As the body responsible for the coordination and monitoring of food recalls, ANZFA also collates and disseminates information on recalls. Data collected on food recalls can be used to identify common trends and problems occurring in the food industry. For example, recall statistics may provide useful baseline data to measure the effectiveness of the food safety reforms. Recall data can also be used as a mechanism to educate food businesses

on those hazards most frequently occurring in the food industry so that they can take steps to prevent further occurrences. Educating businesses will help to reduce the incidence of food contamination reaching the marketplace rather than detecting it after the food has been released – thus helping to reduce the number of recalls.

ANZFA has also published a document entitled the "Food Industry Recall Protocol" that aims to provide guidance to industry on establishing a product recall plan and conducting food recalls. Copies of the food recall protocol are available from the ANZFA Food Recall Coordinator or ANZFA website: www.anzfa.gov.au

¹ Although there were 10 listed recalls of soy sauce products, 16 individual branded products were recalled. The reason for the discrepancy is that a number of different products were recalled during one recall.

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Figure 1: Causes of food recalls, 2001

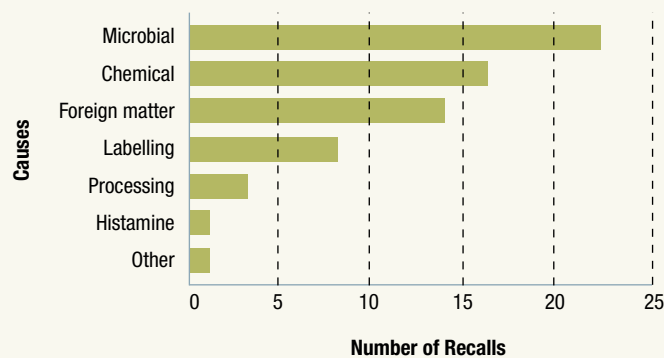


Figure 2: Types of microbiological recalls, 2001

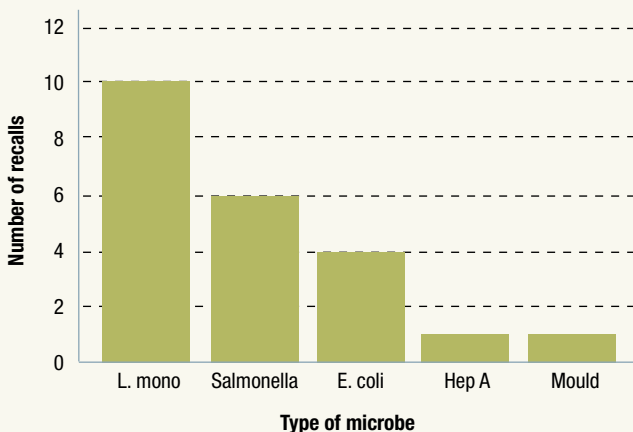
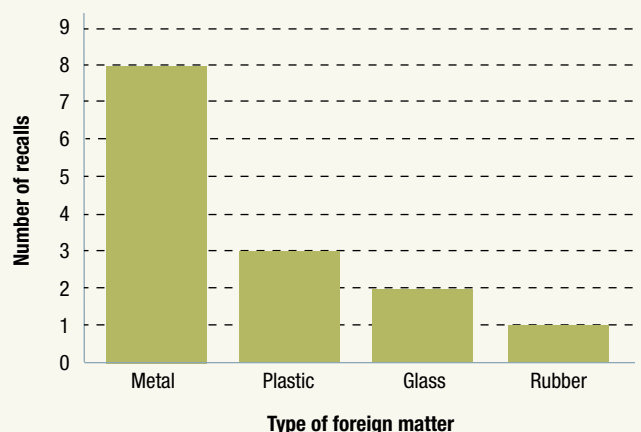


Figure 3: Categories of foreign matter recalls, 2001



Total Diet Studies and the 2nd International Total Diet Study workshop

Total Diet Studies (TDSs) enable us to estimate intakes/exposures from pesticide residues, contaminant and selected nutrient elements in our diet, and to determine if these represent a risk to public health.

As the name suggests, a Total Diet Survey looks at foods across the 'total diet' in the one study. Countries may have many thousands of different foods, but TDSs generally restrict themselves to food lists of 70-300 foods, representing about 60-80% of those most commonly consumed.

In a TDS, the dietary intakes/exposures to various chemicals (such as pesticide residues, contaminant or nutrient elements) are estimated by multiplying the concentration of the particular chemical in a food by the amount of that food consumed, and then adding together the exposures for each food in the diet. The concentration data are obtained by direct testing of the foods (after they are prepared as for normal consumption), while consumption information may be derived from Food Balance Sheets, WHO diets, National Nutrition Surveys or simulated 'typical' diets. The dietary exposures can then be compared to international health standards to assess any potential risk to public health.

To further this field of science, the 2nd international Total Diet Study (TDS) workshop was recently held at the Queensland Health Scientific Services facilities in Brisbane, Australia, from 4-15 February 2002. The two week workshop, which was highly valued by the participants from 27 countries, acknowledged that the safety and quality of a country's food supply has the potential to significantly affect public health, and that Total Diet Studies are an important tool used internationally for assessing this risk. This was also one of the main reasons why the 2nd International TDS workshop was co-sponsored by the World Health Organization

(WHO), ANZFA and the New Zealand Ministry of Health (MoH).

Week one of the workshop consisted of presentations by world experts on issues more related to policy, infrastructure, recent developments, and reports of TDSs carried out since the inaugural international workshop of 2000.

The TDS workshop reiterated that a key characteristic of Total Diet Studies is that foods are analysed for pesticide residues, contaminants and nutrients after being prepared 'ready for normal consumption' (ie bananas peeled; meat trimmed and cooked etc). This approach thus provides the best means of assessing the exposure to these chemicals from the diet and any potential risk to consumers. In contrast, commodity based surveys analyse agricultural products as produced (ie bananas, whole, unpeeled; meat, raw).

TDSs were recognised as being particularly valuable in determining whether pesticide residue, contaminant or nutrient element intakes/exposures are distributed across the diet as a whole, or restricted to certain food groups, or even to individual foods. This can then be very useful to regulatory agencies and other stakeholders for identifying possible risk management and risk communication options.

The second week of the TDS workshop was much more of a learning focus, aimed specifically at developing countries, and made up of 'how to do it' presentations on the many and varied components of a TDS.

The objectives achieved by the 2nd international TDS workshop were:

- To promote and support Total Diet Studies (TDSs) in all WHO member countries;
- To help prepare people to conduct new total diet studies;

- To update recent developments in the field of TDSs;
- To promote reliable and comparable TDSs through harmonised approaches and exchange of international best practices and expertise;
- To promote electronic submission to and use of TDS data from the WHO Global Environmental Monitoring Systems/Food Contamination Monitoring and Assessment Programme (GEMS/Food); and
- To establish a network of national counterparts for intended TDS projects.

It became apparent from the 2nd international TDS workshop that many developing countries do not currently know what the safety or quality of their food supply is, or the associated potential risk to public health. A wide range of recommendations came out of the workshop, the key one being a proposal for a pilot Total Diet Study for developing countries in the Asia Pacific region. Securing funding for this to occur is seen as a high priority in the short term.

The workshop confirmed Total Diet Studies as an important public health risk assessment tool, and delegates reiterated the need for another international TDS workshop in two years time.

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In the pipeline. Future surveys are planned or underway for a number of food additives and contaminants including:

20th Australian Total Diet Survey

For the twentieth ATDS sixty-five types of foods, representing the Australian diet, were sampled during the 2000/2001 financial year. ANZFA coordinated the survey and relied on the States and Northern Territory to arrange purchase and preparation of the samples. The food samples were tested by the Australian Government Analytical Laboratory for a range of pesticide residues and heavy

metals. A selected number of the foods were tested for aflatoxins and ochratoxins. The report of the twentieth ATDS is currently being finalised and is scheduled for completion in mid 2002.

Listeria in cooked prawns

ANZFA is soon to commence a survey of *Listeria monocytogenes* in ready-to-eat cooked prawns. Currently, there is very

limited data on the frequency of occurrence or the level of *L. monocytogenes* in cooked prawns, especially at the retail level. The survey will be designed to answer the question "What is the frequency and level of contamination with *L. monocytogenes* in imported and locally produced cooked prawns at retail". It is planned that results from the survey will be available in August 2002.

Microbiological safety and quality of ready to eat ham



Ready-to-eat (RTE) sliced meats are considered to be potentially hazardous foods and have the potential to become contaminated with pathogenic microorganisms such as *Listeria*, *Salmonella*, *Staphylococcus*, *Campylobacter*, etc. These types of food products readily support the growth of these microorganisms, especially if stored within the temperature danger zone for lengthy periods.

The potential for cross-contamination of microorganisms from raw meat (eg. mince, sausages) to RTE meats (eg. sliced ham) at retail butchers and delicatessens is relatively high. Staff may be required to handle and serve both raw and cooked meats at the one time. This increases the potential for cross-contamination, especially if personal hygiene and/or food-handling practices are inadequate. The handling of raw meat followed by the handling of cooked meat could easily result in cross-contamination of the cooked product.

Environmental Health Officers from the Sunshine Coast Public Health Unit recently obtained samples of RTE ham from 27 premises (butchers and delicatessens). Prior

to obtaining the RTE ham, a raw meat product was requested. Staff from these premises were then assessed on food handling techniques and possible cross-contamination concerns.

The samples were analysed to assess microbiological quality with some surprising results.

11 samples (41%) were found to contain *Listeria monocytogenes*, which is a notifiable pathogen in Queensland.

1 (4%) sample was found to contain *Campylobacter jejuni*, which is also a notifiable pathogen in Queensland.

Twenty-five (93%) of the premises sampled had dubious food handling practices which could have resulted in cross-contamination of the RTE ham. These undesirable practices included:

- 23 (85%) of the food operators did not wash hands between handling raw and cooked foods;
- 22 (81%) of the food operators used unclean scales to weigh cooked food immediately after being used to weigh raw food;
- 21 (78%) of the food operators handled other items without washing hands prior to handling RTE meats, including: scales, money, cash register, knife, slicer, refrigerator, etc;
- 6 (22%) of the food operators placed a cooked food on an unclean bench or used an unclean knife which had been used to prepare a raw meat product.

Only one premises sampled was able to

provide a sample with a surface temperature of less than 5°C. All other samples were recorded with temperatures greater 5°C (ranging from 6°C – 15°C, mean 8.5°C).

This survey demonstrates that the potential for contamination of RTE products within butchers and delicatessens is high. Cross-contamination from raw to cooked foods, dubious personal hygiene and food handling practices and temperature abuse all contribute to the possible contamination of the product.

The presence of *Listeria monocytogenes* in 41% of samples obtained is a public health concern. Ham is a popular food product and may be consumed by a large number of pregnant women and other 'at-risk' persons who are unaware of the hazards associated with *Listeria monocytogenes*.

The results of this survey highlight the need for increased food hygiene training and education amongst food handlers, particularly those that handle foods with an increased potential for cross-contamination, such as butchers and delicatessens.

As a result of this survey, an information sheet is being developed, in conjunction with Safe Food Production Queensland, for dissemination to all butchers and delicatessens throughout the Sunshine Coast.

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Restructure of the Australian Total Diet Survey

The Australian Total Diet Survey (ATDS), formerly known as the Australian Market Basket Survey, has been undertaken since 1970. Nineteen surveys have been completed with the twentieth ATDS close to finalisation.

The survey estimates the level of dietary exposure of the Australian population to a range of pesticide residues and contaminants, such as heavy metals, through the testing of food samples representative of the total diet.

It is a valuable tool in the development and review of food regulatory measures. Data from the surveys is used in the risk assessment process and also in the review of existing food regulatory measures, in particular food standards. Consequently, ANZFA views the ATDS as playing an important role in the work of the Authority and intends to retain total diet surveys in its core activities.

The current ATDS is a large and costly survey, conducted with the same basic format over many surveys. It has traditionally been conducted over a two-year cycle with a well-established sampling protocol suited to the pesticide residues and metal contaminants that it is aimed at. The twenty total diet surveys undertaken in Australia have yielded a large quantity of data on the dietary exposure of Australians to these compounds. ANZFA recognises that there are limitations with the current approach and that continuing to collect data on the dietary exposure of Australians to pesticide residues and metals in this way may not be the most effective use of limited funds. Consequently, ANZFA undertook a review of the ATDS in early 2002 and proposes significant changes to the format and scope of the survey.

ANZFA intends to restructure the ATDS from its current two-year format to a rolling format of annually agreed, discrete surveys, each involving separate sampling programs targeted to the compounds being analysed.

The scope of total diet surveys will be broadened to include the assessment of dietary exposure to a broader range of compounds. In addition to pesticide residues and metal contaminants, it is planned to include substances such as food additives

which have not previously been included in the ATDS. It is also planned to increase the emphasis on other non-metal contaminants and other potentially harmful constituents. Examples include mycotoxins, chloropropanols and nitrates.

This new format and scope for the ATDS will facilitate the generation of better data sets for each substance tested. The results of the survey work will be released as the reports are finalised, rather than once every two years and this will facilitate a continued and more frequent presentation of total diet survey work.

ANZFA proposes to produce a long-term ATDS program in consultation with the major external interested parties i.e. New Zealand, the States and Territories and Commonwealth agencies under the auspices of the Bi-National Surveillance and Enforcement Strategy which was described in the last edition of this Newsletter. This longer-term program would focus attention on a different group of compounds each financial year e.g. food additives, metals, mycotoxins.

An annual draft ATDS program, derived from the long-term program, would be prepared by ANZFA in advance prior to each financial year. This would be discussed, refined and agreed, again through the Bi-National Surveillance and Enforcement Strategy process. The annual program should, however, allow some flexibility for emerging issues.

In summary, ANZFA recognises the importance of total diet study work in providing valuable input to the food regulatory process and intends to retain this work. However, ANZFA proposes that the format be restructured to allow the survey to become more relevant, more responsive and more targeted to present day requirements.

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