

Undeclared Tree Nut Allergens 2004 – 2005

Tree nuts are a group consisting of almonds, Brazil nuts, cashews, chestnuts, hazelnuts, hickory nuts, macadamia nuts, pecans, pine nuts, pistachios and walnuts. Although tree nuts cause fewer reported allergic reactions than peanuts, the reactions are equal in onset and severity to peanuts (Food Allergy 2003).

The percentage of people in Australia allergic to tree nuts is largely unknown although two surveys conducted in NSW during 2002 have documented estimates for tree nut allergy prevalence of 0.24% and 0.73% for pre-school age children, the prevalence figures in general are thought to be underestimated (Loblay 2002).

The diversity of tree nut species combined with relatively new and limited analytical testing methods are a contributing factor in the lack of monitoring for tree nut allergens in food products. It is only recently that test kits for the detection of almond, hazelnut and sesame have become commercially available (ELISA 2003).

In Western Australia, no survey had yet been undertaken on undeclared tree nut allergens in foods. The Western Australian Food Monitoring Program (WAFMP) designed this current survey to determine the level of labelling and compositional compliance with the Australia New Zealand Food Standards Code.

During the design period of the survey, only two kits were available from ELISA Systems Pty Ltd for the analysis of tree nut allergens; almond and hazelnut. This limits the scope of this survey to only examine products sampled for allergenic proteins from these species of tree nut.



Allergic Reactions

Allergic reactions to food or ingredients in foods often take place on the second and subsequent exposures to the specific protein. The individual is usually sensitised on the first exposure by developing antibodies which then react on further exposures. Allergic reactions occur when these antibodies produce cellular chemicals such as histamine.

Symptoms may occur almost instantly or up to an hour after ingestion. Common reactions caused by food allergens are diarrhea, vomiting, abdominal pain, hives, rashes and asthma (FDA 2001).

A more severe systemic reaction can also occur that may include a rapid loss of blood pressure, severe obstruction of the airways, generalised shock reaction, and multiple organ failure. This is known as "anaphylactic shock" and can be fatal if not treated within minutes (AFGC 2002).

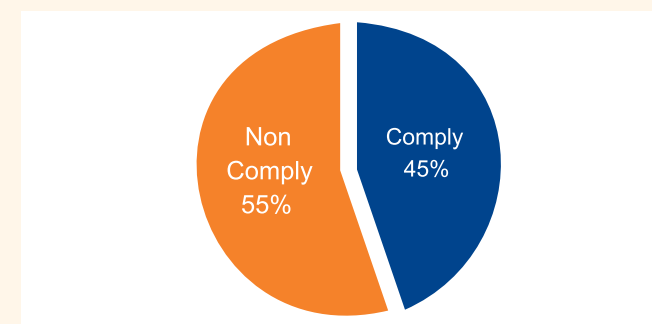
Doctors have estimated that between 10 to 20 Australians die each year from anaphylaxis (Williams 2003).

WAFMP 2004-2005 Survey Results

76 samples were collected by local governments at various locations across the Perth metropolitan area. The samples were submitted to the Chemistry Centre for analysis and comparison to label declarations for the presence of allergenic tree nut proteins.

A total of 55% of samples (42/76) had detectable levels of almond and / or hazelnut where no label declaration was made regarding their presence in the product, as shown in Figure 1.

Figure 1. Product Compliance with Labelling Requirements



The sample analysis results are listed, depending on the observed reaction within a concentration curve, into four categories:

1. No detectable level with no observable reaction
2. Observable reaction at low strength (0.1 to less than 1ppm),
3. Observable reaction at moderate strength (1 to less than 2.5ppm), and
4. Observable reaction at high strength (Greater than & equal to 2.5ppm).

Figure 2. Product with correct labelling v deficient labelling

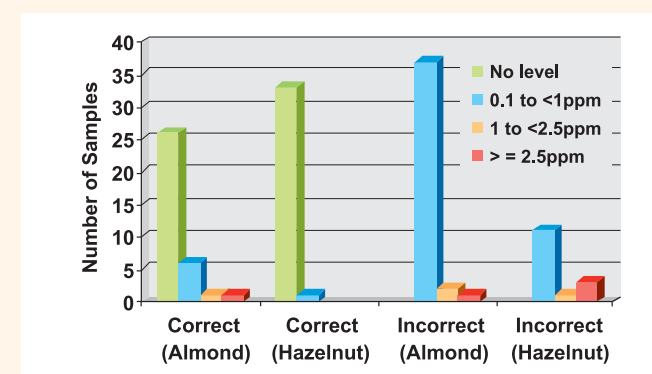


Figure 2 provides an insight into the numbers of products labelled correctly or incorrectly in accordance with the Food Standards Code and the levels of observable reaction in the product. The results show that where labelling was deficient and allergenic proteins

from almonds and hazelnuts were present; 7.5% (3/40) and 27% (4/15) respectively, were at a concentration greater than 1ppm and consequently an increased potential public health risk.

The most common mislabelling was for the presence of almond allergens with 95% (40/42) of failures attributed to the lack of some form of label declaration. Undeclared hazelnut allergens were present in 36% (15/42) of non complying products. In instances of undeclared hazelnut allergens, 31% (13/42) also had undeclared almond allergens.

Current Regulations – Food Allergens

The Australia New Zealand Food Standards Code, Standard 1.2.3 stipulates mandatory declaration if a food contains any of the foods or ingredients below:

- Cereals containing gluten and their products, namely, wheat, rye, barley, oats and spelt and their hybridised strains other than where these substances are present in beer and spirits standardised in Standards 2.7.2 and 2.7.5 respectively
- Crustacea and their products
- Egg and egg products
- Fish and fish products
- Milk and milk products
- Peanuts and soybeans, and their products
- Added Sulphites in concentrations of 10 mg/kg or more
- Tree nuts and sesame seeds and their products

The declaration should be labelled on the packaging of the food, displayed in connection with the display of the food, or declared to the purchaser upon request. Many manufacturers concerned with public health and safety and/or mindful of litigation make label declarations on their products regardless of whether the products actually contain nuts and/or their factories have nuts onsite.



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Examples of these types of warning statements are:

- **'May contain traces of nuts'**
- **'Processed on equipment that also handles nuts'**

Although these statements infer the potential for cross contamination from different product lines, there is currently nothing in the above standard that prevents such a declaration being made which is not true. This is a source of concern for people with allergens as the broad allergen statements limit the number of processed foods they can purchase and consume.

How can accurate declaration of allergens be maintained?

It is important that manufacturers and importers assume responsibility for the correct labelling of their products and maintain food safety systems that effectively control allergen cross contamination.

The main allergen control measures that manufacturers can implement include:

- Purchasing ingredients from approved suppliers
- Ensuring that ingredients containing allergens are correctly stored and handled in a manner to prevent possible cross contamination
- Ensuring equipment is thoroughly cleaned with verifiable clean up and sanitation steps that are recorded as part of the manufacturer's Quality Assurance (QA) systems. (FDA/CFSAN)
- Scheduling production of specific allergen containing products at different time periods to those without the allergen. Eg. Production on different days of the week, and
- Increasing employee awareness and training of unintentional allergen contamination in products.

Manufacturers should ensure that their food safety systems have identified and effectively control the risk of allergen cross contamination. This is of greater importance than relying on broad label statements such as 'may contain traces of nuts' as a way of covering any deficiencies in the manufacturing process because such statements limit the choice of foods available to allergen suffers and may ultimately impact on their ability to have a varied and healthy dietary intake.

Environmental Health officers can help ensure accurate declarations and allergen control by more comprehensive surveillance of manufacturers within their area of responsibility and providing guidance to establish effective QA programs to prevent allergen contamination of food.

References

Food Allergy 2003 "Clinical features of cashews allergy". Journal of Allergy & Clinical Immunology. Vol 105, No. 1, S141 <<http://www.inspection.gc.ca>>

Loblay, R. H. 2002, Food Allergy in Schools and Child Care Centres, Department of Clinical Immunology, Royal Prince Alfred Hospital, Sydney, NSW.

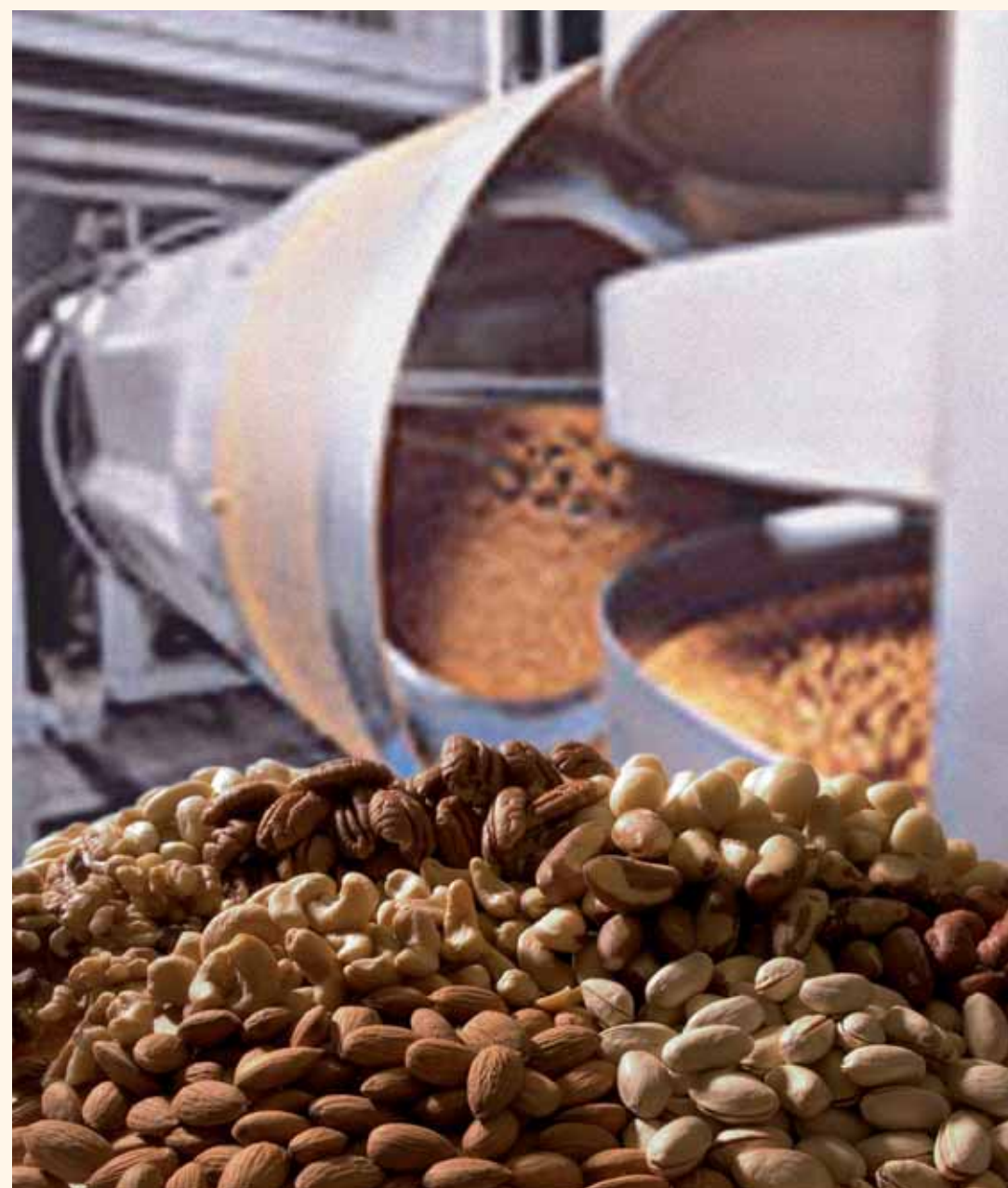
ELISA 2003 "Rapid Tests for Safe Food", ELISA SYSTEMS Pty Ltd, Queensland, Australia.

FDA 2001 "Food Allergen Monitoring", US Food and Drug Administration.

AFGC 2002 "Food Industry Guide to Allergen Management and Labelling", Australian Food and Grocery Council, October 2002.

Williams D 2003 "Shock Tactics", Time, 15 Sept, pg 58-59.

FDA/CFSAN 2000 "A survey of food allergens" Food Allergen Partnership - FDA, Minnesota Department of Agriculture (MDA), Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP). <<http://www.cfsan.fda.gov/~dms/alrgpart.html>>



Who was involved in this survey?

WA Local Governments:

- Armadale
- Bayswater
- Belmont
- Fremantle
- Kwinana
- Mundaring
- Nedlands
- Perth
- Stirling
- Subiaco
- Victoria Park
- Vincent
- Wanneroo

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