

FOOD INTOLERANCE, INCLUDING FOOD ALLERGY**Executive Summary**

1. This paper discusses food intolerance, including food allergies and the issues that they raise for the Agency. It describes what the Agency is already doing to address these issues, including the research that is being funded. It also proposes a strategy to increase our understanding of food intolerance and to protect the interests of consumers who are intolerant to some foods by working with the food industry, including the catering sector, and consumers themselves.
2. The Board is invited to:
 - **note** the issues that food intolerance and food allergy pose for the Agency in relation to a need for clear labelling and information
 - **note** the actions that are already being taken to address these needs, particularly the extensive research programme that has been commissioned and the new research areas identified, and the ongoing work to determine what labelling and information consumers need
 - **endorse** the proposed strategy in paragraph 19 and table 1.
 - **agree** that a detailed action plan be developed for consideration at a subsequent meeting.

CHEMICAL SAFETY AND TOXICOLOGY DIVISION:

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FOOD INTOLERANCE, INCLUDING FOOD ALLERGY

Issue

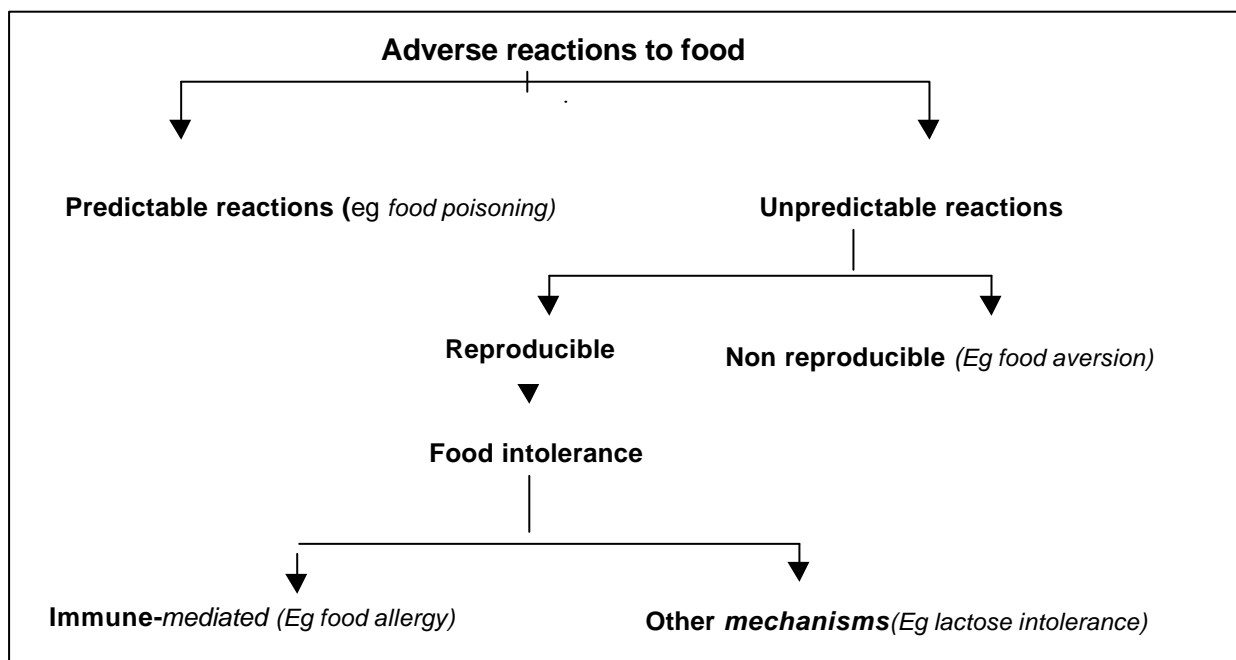
1. This paper informs the Board of the issues raised by food intolerance and food allergy, updates the Board on what is already being done by the Agency to address these issues and outlines a strategy to increase our understanding of food intolerance and to protect the interests of consumers who are intolerant to some foods by working with the food industry, including the catering sector, and consumers themselves.

Strategic Aims

2. This work is linked to the Agency's strategic aims to improve food safety right through the food chain, promote best practice within the food industry, and promote honest and informative labelling to help consumers.

Background

3. Food intolerance is the description given to reproducible adverse reactions to foods seen in sensitive individuals. This includes adverse reactions mediated through the immune system, which are described as food allergies.



4. However, not all intolerance reactions are mediated via the immune system; for example, lactose intolerance is due to a deficiency in the enzyme that normally breaks down lactose, the sugar found in milk. In addition, some people have adverse reactions to gluten, a family of proteins found in wheat and some other cereals, that are thought to trigger reactions that destroy the lining of the small intestine. Although the exact mechanism involved in this process is not known, it may involve some components of the immune system. Some people also have adverse reactions to chemicals present in food, such as caffeine, or amines found in fish and cheese.

5. Food intolerance, including food allergy, significantly affects the daily lives of consumers with such conditions and it also affects the lives of their families. Although as many as 20-30% of the UK population believe they have a “food allergy”, estimates made using objective tests indicate a prevalence of reproducible adverse reactions to food of less than 2% in adults. The prevalence may be as high as 8% in infants and young children but children often grow out of some of their adverse reactions. The best estimates available indicate that approximately 1 in 200 people in the UK exhibit allergic reactions to peanuts, although this appears to be increasing, in line with an increase in allergic diseases in general, such as hay fever and eczema. Information on possible differences in the prevalence of peanut and nut allergy in different ethnic and racial groups is lacking but improvements in food labelling (see paragraph 16) will help anyone with a food allergy to avoid the food to which they react. Whilst reactions to some foods may be relatively mild (vomiting and skin irritation), reactions to peanuts can be severe, including life-threatening anaphylaxis. The possibility of triggering such reactions has a significant effect on their lifestyle and limits the choices available to such people about the foods they can eat, particularly when eating in catering establishments.

6. It is estimated that approximately 1 in 300 people in the UK are intolerant to gluten although this rises to 1 in 100 in some parts of Ireland. Lactose intolerance is more common in certain ethnic and racial populations than in others. In the UK about 5% of the general population are thought to be affected. The frequency is higher in communities where milk is not traditionally part of the typical adult diet, such as the black African (up to 75%) and Asian (higher than 90%) communities. Whilst such food intolerances may not be life-threatening, they can have a significant impact on consumers’ everyday lives in terms of the

food choices available to them. Improved labelling will also help those with food intolerances to avoid the foods to which they react.

7. In children, 90% of adverse reactions to foods and food ingredients are caused by cows' milk, chickens' eggs, wheat, peanuts, tree nuts (walnuts, Brazil nuts, hazel nuts) and soya protein, whereas in adults the majority of adverse reactions are caused by peanuts, tree nuts, fish and shellfish. Some patients can react to more than one foodstuff.

COT report on adverse reactions to food and food ingredients

8. In July 2000 the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) issued a report that considered whether the incidence and prevalence of adverse reactions to foods and ingredients was changing. It also considered underlying mechanisms and whether genetic and environmental factors could be identified that would increase the risk to health.
9. The COT found that there was clear evidence that the tendency to develop allergic diseases in general was increasing in the developed countries of the Western World. Although definitive evidence was lacking, the assumption was that this increased prevalence extended to food intolerance and food allergy. However, there were no systematic data which would enable the accurate calculation of the incidence and prevalence of adverse reactions to food and food ingredients in the United Kingdom or elsewhere. (See paragraph 5.)

COT report on peanut allergy

10. There are no robust data on the prevalence of peanut allergy in the UK, since peanuts were introduced just over 50 years ago. Although some individuals may have mild allergic reactions (tingling in the mouth and swelling in the mouth and throat), severe reactions, including life-threatening anaphylaxis are possible.
11. In 1998 the COT considered whether there was an association between early exposure to peanuts and peanut products and an apparent increase in the incidence of peanut allergy in the UK. The report (summary at Annex A) advised that women who suffer from diagnosed allergic conditions, or where the father or any sibling of their child had a clinical history of such conditions, might wish to avoid eating peanuts and foods containing peanut products during pregnancy and lactation. This was endorsed by the Department of Health and remains official Government advice.

12. Children with peanut allergy rarely grow out of their allergy. In contrast, those who are sensitive to eggs and milk often grow out of their allergy by the time they start school. The COT therefore advised that there was a need for clear and informative labelling of foodstuffs that contained peanut products. This has been taken forward in the Agency's Food Labelling Action Plan (see paragraph 16) and the UK has also been pressing the European Commission to improve the rules on labelling of food intolerance and food allergy.
13. The COT also recommended that research be commissioned to increase understanding of peanut allergy, including the route of sensitisation of infants and young children and the means by which previously sensitised/allergic individuals become tolerant. Prospective research was also recommended to determine whether the advice given in the report influenced the incidence of peanut allergy in children born subsequently. Eight projects have been commissioned since 1998 to address these research needs, the majority of these are due to be completed later this year.

Food additives and behaviour in children

14. Possible links between behavioural changes in children and some food additives may be a source of concern for some parents. Although most adverse reactions to foods are due to natural food ingredients, some research suggests that some food additives may cause behavioural changes in some children. However, independent experts agree that the results of tests that have been carried out in this area are not conclusive, and it remains an area of significant uncertainty.
15. The Agency has recently set up an ad hoc multi-stakeholder Working Group with a remit to advise on whether it would be possible to conduct further definitive research on any relationship between exposure to certain food additives and behavioural effects in children, and, if so, to advise on the most appropriate experimental strategies. The Working Group will complete its work this Spring. Meanwhile, the Agency is unable to offer clear evidence-based advice to consumers but, if parents are concerned, they can avoid these additives if they wish as they are listed, either by name or by E number, on the label of pre-packed foods.

Labelling

16. The Board discussed labelling in relation to food intolerance and food allergy within the context of the Action Plan on Food Labelling at its meeting on 14 November 2002¹. It welcomed the progress made so far on improving EU rules to require comprehensive labelling of certain foodstuffs that cause food intolerance and food allergy so that anyone with adverse reactions to those foods can make informed choices about the foods they eat:

- The text has been substantially agreed and changes to labels are likely to apply from 2005;
- The new rules will require certain foodstuffs that cause food intolerance and food allergy and their products always to be declared when used as ingredients². The ingredient name will need to refer to the list of foodstuffs (for example casein will need to be listed as milk protein);
- The new Directive also deletes the main exemption, which applies to other ingredients – the compound or 25% rule³.

17. At that time the Board also noted future plans to:

- develop best practice advice on “**may contain nut traces**” warnings. A report carried out for the Agency by the Anaphylaxis Campaign and published in June last year highlighted the continuing high level of use of “may contain” warnings, the wide variety of statements used and the difficulties this presents for consumers. A study into the impact of such labelling on the lives of nut allergic consumers and their families, carried out on behalf of the Agency was published in December 2002. Both studies recommended that nut trace contamination wording and positioning on the labelling should be more consistent for ease of identification and that there be an education campaign when any new labelling is introduced. It was also recommended that similar wording be introduced for non pre-packed foods. Executive summaries from these two research studies are at Annexes B and C. Following a stakeholder meeting held in January 2003, the Agency’s guidance on clear labelling is to be revised to encourage more consistent labelling, and a stakeholder Working Group will be set up to consider options for reducing the prevalence of this type of labelling.

¹ Paper FSA 02/11/02

² The foodstuffs listed by the EU as causing food intolerance and food allergy are: Cereals containing gluten, Crustaceans, Nuts, Eggs, Sesame seeds, Fish, Milk, Soyabean, Peanuts, Celery, Mustard and Sulphite at more than 10mg/kg and products thereof.

³ Under current EU rules the constituent ingredients, other than additives that perform a technological function in the final food, of a compound ingredient do not have to be declared if the compound ingredient makes up less than 25% by weight of the food.

- improve the level of information in **catering establishments** and on **loose foods**. A report (of a study carried out by the British Nutrition Foundation) published in August 2002 recommends a number of actions the Agency might take to raise awareness and help consumers with food allergies. A stakeholder meeting later in February 2003 will be looking at how best to take this forward. Representatives from appropriate ethnic organisations have been invited to participate in this initiative.

Views of Interested Parties

18. Discussions with the Anaphylaxis Campaign and other groups have indicated that, in addition to the changes in 'nut trace contamination' labelling, the main priority of consumers who are intolerant to some foods is for improved information in catering establishments. This is where the majority of deaths due to accidental contamination have occurred.

Strategy

19. A proposed strategy to protect the interests of consumers who are intolerant to some foods by working with the food industry, including the catering sector, and consumers themselves is outlined in Table 1. The strategy specifically targets teenagers and young adults as most food allergy related deaths occur in this group and can often be traced to foods that are not sold pre-packaged and which therefore carry only minimal labelling information. The Agency has already established working relationships with various organisations, such as the Anaphylaxis Campaign and the British Nutrition Foundation, and will continue to work with them to raise awareness of food intolerance and food allergy issues. The proposed strategy focuses on two main objectives:

- To gain a better understanding of food intolerance, including food allergy, by commissioning research; and
- to protect the interests of consumers by providing information and working with industry, especially the catering sector and enforcement bodies.

20. If the Board endorses these priority objectives, these will be taken forward in conjunction with stakeholders and a detailed Action Plan will be developed for consideration at a future Board meeting.

Impact

21. The Agency already has a significant research programme on food intolerance and food allergy and commissioning further projects within this programme is manageable within existing FSA resources. Improving the information available to consumers via our website already forms part of normal working procedures.

Board Action Required

22. The Board is invited to:

- **note** the issues that food intolerance and food allergy pose for the Agency in relation to a need for clear labelling and information
- **note** the actions that are already being taken to address these needs, particularly the extensive research programme that has been commissioned and the new research areas identified, and the ongoing work to determine what labelling and information consumers need
- **endorse** the proposed strategy in paragraph 19 and table 1.
- **agree** that a detailed action plan be developed for consideration at a subsequent meeting.

Proposed Strategy: Table 1

OBJECTIVE	MAIN ACTIVITY	SUPPORTING ACTIVITY
<p>To gain a better understanding of food intolerance, including food allergy</p>	<ol style="list-style-type: none"> 1. Fund research⁴ to provide information on the development of food intolerance and food allergy⁵. This will help consumers by: <ul style="list-style-type: none"> • Identifying risk factors associated with the development of food intolerance and food allergy so that information can be given on preventative measures, • Determining the prevalence of food intolerance and food allergy and whether this is changing with time, and • Developing methods for the detection of allergens in food. 2. Fund new research projects to better understand emerging food intolerance and food allergy issues, including new introduction to the diet, such as lupin, kiwi fruit and sesame. 3. Seek proposals for future research including: <ul style="list-style-type: none"> • the importance of other routes of exposure (eg dermal) in the development of food intolerance and food allergy, • the role of pre- and peri-natal exposure to allergens in the development of allergy, • relationship between food additives and behaviour, • the prevalence of fatal anaphylactic reactions to food, and • the determination of thresholds for allergic sensitisation and reaction. 	<p>To collaborate with counterparts in other EU Member States, including via the European Allergy Network (set up by the Joint Research Centre) and the EU Framework Programme. Outputs from the existing Agency research will be integrated into this new programme to avoid unnecessary duplication and to add value to our existing national programme.</p> <p>To establish further links with research programmes in the rest of the world.</p> <p>To continue to develop links with research councils to minimise overlap and duplication.</p>
<p>Protect the interests of the consumers who are intolerant to some foods</p>	<ul style="list-style-type: none"> • Provide information by continuing to develop content for the Agency's website. • To continue to work with organisations such as the Anaphylaxis Campaign and consumers themselves to raise awareness of food intolerance and food allergy issues. • Explore ways of working with the food industry and enforcement bodies to protect those at risk. The Action Plan on Food Labelling already includes some initiatives in the catering sector (see paragraph 17). • Commission a communications audit and analyse results. 	<p>Participate at relevant conferences and workshops where food intolerance and food allergy are discussed.</p>

⁴ Objectives of the current research programme can be found at Annex D.

⁵ This research programme has historically concentrated on issues related to peanut allergy because of the severity of reactions seen in sensitive individuals and the apparent increase in prevalence over recent years.

Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment

PEANUT ALLERGY REPORT

Executive Summary

- 1.1 Peanut allergic individuals can undergo a severe, life-threatening reaction following exposure to peanut allergens. Due to the severity of this reaction and the possibility that the incidence of peanut allergy is increasing in the UK, a Working Group of the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment was established to advise whether there is an association between early exposure to peanuts and peanut products and the incidence of peanut allergy in later life. If so, the Working Group was asked to give advice on the consumption of peanuts and peanut products by pregnant and lactating women, infants and children. The Working Group prepared a report which was considered and endorsed by the Committee.
- 1.2 It was noted that, although crude peanut oil can contain peanut allergens, refined peanut oil is a neutralised bleached deodorised product which contains no proteins detectable by immunoassay and which has not caused reactions in peanut-allergic individuals. It was considered that the use of the refined oil in food and medicinal products is without risk to sensitive individuals. Refined peanut oil is therefore not included in the category of 'peanut products' in the advice below.
- 1.3 There is some support for the suggestions that peanut allergy in an infant can result from exposure in utero or during lactation. However, following a review of the scientific literature, it was decided that the data on the relationship between peanut consumption by pregnant and lactating women and the incidence of peanut allergy in their offspring were inconclusive. With regard to the mechanism of sensitisation and allergy such a link is, however, possible. It was decided therefore that it would be unwise to discount sensitisation of offspring resulting from exposure of the mother.

1.4 Because of this uncertainty we have recommended a number of topics for further research, a detailed list of these can be found in section 13 of this report.

1.5 It was noted that peanut allergy occurs in individuals who have atopic eczema, asthma, hayfever or other manifestations of allergic disease (known as atopy) or who have parents, brothers or sisters with atopy. Overall, in common with other atopic diseases, the evidence indicates that the prevalence of peanut allergy is increasing. Given that exposure of sensitive individuals to peanut allergens can result in anaphylaxis, a life-threatening reaction, the advice given is precautionary.

1.6 It is advised that:

- (i) pregnant women who are atopic, or for whom the father or any sibling of the unborn child has an atopic disease, may wish to avoid eating peanuts and peanut products during pregnancy;
- (ii) breast-feeding mothers who are atopic, or those for whom the father or any sibling of the baby has an atopic disease, may wish to avoid eating peanuts and peanut products during lactation;
- (iii) a) in common with the advice given for all children, infants with a parent or sibling with an atopic disease should, if possible, be breast-fed exclusively for four to six months;
b) during weaning of these infants, and until they are at least three years of age, peanuts and peanut products should be avoided;
- (iv) infants or children who are allergic to peanuts should not consume peanuts or peanut products.

1.7 It is also recommended that the parents or those charged with the care of peanut allergic infants and children should:

- (i) be vigilant in reading labels on all multi-ingredient foods and should avoid any for which doubt exists about the ingredients;
- (ii) be aware that even minute amounts of peanut allergens may result in severe reactions. They should therefore be alert to the possibility of accidental exposure and should ensure that cross contamination of foodstuffs with peanut allergens does not occur;
- (iii) be aware of the treatment for anaphylaxis should inadvertent exposure occur at, for example, school or the homes of other children.

1.8 The Committee would encourage the labelling of foodstuffs to indicate the presence of any peanuts or peanut products even where this is not specifically required under existing labelling legislation.

'May Contain' Labelling - The Consumer's Perspective

Summary

Consumers who are allergic to nuts and peanuts need to avoid them as ingredients. They also need to avoid other foods which may carry a risk of trace contamination because they have not been segregated from these allergens during manufacture. Anecdotal indications suggest that such consumers take longer to shop, find it difficult to locate, read and believe nut trace contamination information, may have to pay more for their food and have a restricted choice. This shopping basket comparison was carried out to find out whether such anecdotal indications were supported by evidence from buying and examining pre-packed food products in supermarkets.

The study aimed to:

Focus on nut trace contamination (NTC) labelling

Nuts and peanuts are recognised as the most likely food allergens to trigger serious allergic symptoms. UK manufacturers and retailers who know this may indicate their presence on the packet.

Determine the prevalence of such labelling

In a basket of everyday food items (selected because they do not normally contain nuts as ingredients), 56% indicated a risk of nut trace contamination. (71/127 items). The study indicated that nut allergic* consumers are unable to buy a match or substitute for 18% of the items listed. In addition, in many cases, they are forced to accept a substitute or poorer quality product (9%). They take 39% longer to shop and pay 11% more on average.

Examine the variety and style of such labelling

On products examined, ingredient information was allocated an average of 2.6% of the packaging area. Additional allergen information covered an average of 0.53%. Long-established industry guidelines to make labelling clear are often ignored. 37% of all products examined (95/254) had key information in poor colour combinations. There is little consistency in labelling style between different retailers or

* For purposes of this report any reference to nut allergic includes peanut (groundnut) as well as the tree nuts (hazelnuts, brazils, walnuts etc).

manufacturers. These and other factors make it very difficult for allergic consumers to find and read essential information.

Report on current practice

Biscuits, cereals and confectionery are most commonly cited by nut allergic consumers as those products that are hard to find without nut trace contamination information. Packaging examined often displayed nut trace contamination information which was not always noticed by the shoppers or sorters. Similar allergen warnings on a variety of products may reflect very different degrees of risk to the allergic consumer.

There is confusion among consumers over the status of sesame and coconut as nuts for labelling purposes.

Comment on the allergen risk assessment, management, and communication of different manufacturers and retailers

Some manufacturers and retailers are identifying the risk of nut trace contamination for the first time, and beginning to use warning labels. Others have recognised the problems for allergic consumers and are keen to find 'nut free' suppliers and remove NTC labels.

Make recommendations

Key recommendations include **improved labelling of all ingredients on all foods**, clearer allergen information, and support for manufacturers who are determined to remove nuts from their production. In addition it is important to undertake regular reviews of the quality and legibility of all essential information on pre-packed foods. It is important that this work is linked into parallel Food Standards Agency activities.

NUT ALLERGY LABELLING – REPORT OF RESEARCH INTO THE CONSUMER RESPONSE

Executive Summary

1.1 Introduction

Creative Research was commissioned to conduct qualitative research to explore the response of consumers to nut allergy labelling on pre-packed foods. This was to include their understanding of the various forms of nut trace contamination (NTC) warning currently in use, the value they attach to these labels and their attitude to the different styles of presentation. These views were used to provide advice on the development of new labelling.

1.2 Method

Twenty-one depth interviews were carried out with people who have an allergy to nuts, along with, in the majority of cases, their parent or partner who regularly shops on their behalf. In addition, three discussion groups of 6 respondents were conducted with people who occasionally shop on behalf of somebody with a nut allergy.

1.3 Outcome

A range of approaches were identified to the decision making process taken to determine the level of risk respondents were prepared to take when choosing which food products to buy. There were a number of respondents who avoided all contact with nuts, however remote the likelihood of exposure ('total avoidance'). A few consumers exhibited 'occasional lapses' from a total avoidance regime but the majority took 'calculated risks' when deciding whether to eat foods that may be contaminated with nuts.

Respondents based their calculations on their perception of factors such as the status of their allergy (severity and range of nuts), how secure they felt (who they were with, where they were and whether they had their medication), and their state of health. In making decisions about food purchasing and consumption, respondents relied heavily on the labelling of products because this was perceived as the most up to date source of information. In addition, respondents were unaware of other sources of information.

Particular products such as cakes, biscuits, ice cream and lollies, breakfast cereals, ready meals and desserts, were identified as those where nut content/contamination was a particular issue (although respondents also discussed skin and hair care products).

A significant issue for those respondents using food labels to find information about possible nut content was changes or inconsistencies in the use of warning.

The ease with which people could shop for someone with a nut allergy depended on two main factors; the number of products in the shop that carried some form of NTC warning, and the ease of identifying the NTC warning. In some shops, respondents felt that:

- a) NTC warnings appeared on so many of the products that it acted as a deterrent in terms of shopping and
- b) the value of the NTC warning became diluted.

Respondents sought two pieces of information from the label of the product, the NTC warning and the list of ingredients. Most respondents were critical of the way such information had been presented. The principal complaints were the variability in the form of phrases used to highlight nut content, the position of the NTC warning on the pack (neither prominent enough nor consistent) and the legibility of the NTC warning due to font size and lack of visual impact.

The NTC warnings which respondents recalled most frequently were; *'not suitable for nut allergy sufferers'*, *'may contain nuts / nut traces'* and *'produced in a factory using nuts'*. Many respondents (particularly those shopping occasionally) were uncertain as to what these phrases meant for the person with a nut allergy. The equivocal nature of the phrases had been universally resented by respondents and was seen as an insurance policy for manufacturers.

While respondents were able to assign a hierarchy of risk that they associated with various NTC warnings, their reported behaviour in response to such warnings fell into two main groups. Either respondents interpreted all NTC warnings as suggesting there was a real risk, and therefore they should not eat those foods, or they interpreted all NTC warnings as a suggestion of a

possible risk, and therefore should look in more detail at the pack. The first approach characterised the ‘total avoiders’ and occasional shoppers (who would not wish to knowingly take a risk on someone else’s behalf) while the second characterised the ‘calculated risk takers’.

Respondents had different views on what changes should be made to improve NTC warnings. The ‘total avoiders’ and occasional shoppers, in particular, wanted either a negative *‘this is not suitable for nut allergy sufferers because it contains nuts (or a specific nut)’* or a positive *‘this product does not contain nuts’* or *‘this product is nut-free’*. This group wanted the manufacturers to take the responsibility for deciding which products are suitable for the consumer with a nut allergy.

By contrast, the ‘calculated risk taker’, who were generally more accustomed to taking decisions about what they ate, wanted more meaningful information on the label to enable them to make their own choices with confidence. The information the ‘calculated risk taker’ would like included on the label were the probability and level of nut contamination, the type of nut, and greater discrimination in the application of NTC warnings.

1.4 Conclusions

Respondents gave widespread support for:

- greater standardisation in the information provided on the label and the style of presentation
- a symbol as the “primary, or first line, alert”. This should be placed in a prominent and consistent position
- greater visibility for the three key pieces of information; symbol, NTC warning and ingredient list with a consistent relationship with regard to positioning between all three elements.

A series of recommendations based on these findings were made to increase the usefulness of labelling for those with an allergy to nuts and their families. These included:

- a universal approach to NTC warnings, not just limited to foodstuffs but across other products containing nuts or nut derivatives
- an approach that is adopted by other forms of NTC warning such as on menus and signs in shops / restaurants / takeaways

- simpler, more informative descriptions of the level of nut content/contamination e.g. *'this product contains nuts'*, *'this product contains ingredients derived from nuts'*, *'product mad on same production line as products containing nuts'* and *'products made in a factory where nuts are handled'* with the relevant ingredients (and specific nuts) in the ingredient list
- a symbol or graphic device which unambiguously signals a NTC warning - based possibly on a nut shape (though not too specific) or the word *'nut'* or *'nuts'*. If incorporating a statement, this should take a form such as *'Take care – Nuts'*, i.e. leave the consumer to decide about suitability if they wish. The phrase *'nut allergy suffer'* was generally disliked, *'not suitable for people with nut allergies'* was preferred
- ideally, the symbol should appear on the front face of the pack but wherever it appears, it should be in a consistent position
- on the reverse of the pack, the symbol should be positioned next to the NTC warning to direct attention
- the NTC warning should appear next to, but separate from, the ingredient list, possibly above it, or to the left
- *'Allergy Advice'* could be used as a banner to flag up the NTC warning; the advise about nuts should take priority over other allergens
- the key elements should stand out from the pack; it may be necessary to have a panel behind the elements if the background colour does not provide a good contrast
- the same colour should be used for the symbol and the NTC warning and possibly to highlight items in the ingredient list which are nuts or nut derivatives
- the font size used for the NTC warning and ingredient list should ensure legibility for most people without the need for spectacles. A mix of lower and upper case characters should be used.

A significant campaign will be needed to inform those with a nut allergy, their families and friends, about any new scheme for nut labelling. The role of retailers as a conduit for information and in highlighting nut-free products is particularly important.

FOOD INTOLERANCE PROGRAMME OBJECTIVES OF THE CURRENT RESEARCH PROGRAMME

The number of individuals suffering from allergic reactions to food appears to be increasing in line with a general increase in allergy in the UK, such as asthma and eczema. As many as one in 200 UK children may now react to peanuts; indeed, peanut allergy is the most common cause of severe (fatal and near fatal) allergic reaction to foods, causing 30% of all cases of anaphylaxis outside the hospital. The Food Standards Agency funds research in order to continue to reduce the incidence and severity of food allergy and food intolerance.

The research has mainly focused on characterisation of peanut and tree nut allergens, and work is underway to look at the differences in the reactivity of allergic individuals to tree nuts and peanuts. Much of the research in this area has concentrated on the later stages of the disease, when allergy has already developed. Studies have indicated that the majority of peanut allergic individuals react to their first known exposure to peanut. This suggests unsuspected prior sensitisation and so work is being funded to examine the role of maternal and weaning diets in initiation of allergic disease.

More recently, studies have been funded to establish to what extent the prevalence of food intolerance, including food allergy, is increasing. Studies are also being funded on methods of identifying those at risk of developing food allergy. Research is also underway to develop easy and reliable tests to identify allergens in food.

The objectives of the Food Intolerance Research Programme are to:

- determine whether, and to what extent, hyperactivity and other behavioural problems are associated with foods and food ingredients;
- develop approaches to the design and construction of databases of allergic epitopes displayed by proteins;
- develop methods for the identification and characterisation of food allergens;
- examine whether there exist any scientific or clinical bases for the apparent differences in the allergic sensitivity of young children and adults to peanuts and tree nuts;

- determine whether and to what extent the prevalence of food allergy is increasing;
- characterise the influences of age and route of exposure on the development of food allergy;
- consider what approaches are available to identify individuals who are at greater risk of developing allergic sensitisation to foods;
- characterise the structural basis for protein allergenicity and identification of the properties that confer on proteins the ability to induce allergic sensitisation;
- develop further appropriate methods for the identification and characterisation of food allergens;
- determine the influence of IgG antibody on the natural history of food allergy and the severity of induced allergic reactions.

In addition to the proposals listed above the Agency is commissioning a 3-year study to investigate factors that influence susceptibility to, and characteristics of kiwi fruit allergy. Adults that are allergic to kiwi tend to cross-react with other allergens such as tree pollen, whilst infants tend to be very sensitive and suffer from severe anaphylaxis. This project will serve as a model for how allergy develops in a population when a new food is introduced as kiwi fruit have only been part of the UK diet for the past 20 years.