Annex for Final Technical Report

Project Code FS241038 (T07067)

Project title: Survey of allergen advisory labelling and allergen content of UK retail pre-packed processed foods

Annex 1.

Table 9: List of samples that had tested as positive for peanut protein with the Neogen Biokits ELISA kit – this table lists all samples in the survey which were positive for peanut above the reporting limit of the test and therefore required additional confirmatory testing.

RSSL Ref Code	Description
P12-04781-18	Ormo White flour baps
P12-04781-42	Vogel's Soya and Linseed Bread
P12-04781-43	Burgen Soya and Linseed Bread
P12-04781-44	Burgen Soya and Linseed Bread
P12-04781-67	Waitrose LOVElife White Oaten Rolls
P12-04781-68	Waitrose LOVElife White Oaten Rolls
P12-04781-113	Mr Kipling 5 Mini Battenbergs
P12-04781-114	Mr Kipling 5 Mini Battenbergs
P12-04781-121	Genesis double butter scones
P12-04781-122	Genesis double butter scones
P12-04782-185	Bon Bon Buddies One Direction milk chocolate egg with choc bars
P12-04782-186	Bon Bon Buddies One Direction milk chocolate egg with choc bars
P12-04783-63	Food Heaven Lemon dairy free cheesecake
P12-04783-64	Food Heaven Lemon dairy free cheesecake
P12-04786-163	My Goodness Thai Red Vegetable curry
P12-04786-164	My Goodness Thai Red Vegetable curry
P12-04786-177	Weight Watchers Sweet Mango Chicken with rice
P12-04786-178	Weight Watchers Sweet Mango Chicken with rice
P12-04790-67	Very Lazy Ginger, lemon and parsley seasoning rub
P12-04791-80	Rainbow Wholefoods Yoghurt Apricots

Annex 2.

Table 10: Breakdown of product categories into product types with planned numbers and rationale for each – this table details the rationale for how product selection was made within each product category, which was used as a guideline.

Product category	Example product types (total numbers for the product type)	Number of products to be sampled (%)	Rationale for product types and sample numbers
1. Cereal and cereal products	Flour (2) – corn, rice or gluten-free flour – gluten Dried Rice (2) gluten Dried Pasta (2) gluten or milk Bread/ Bread rolls (6) 2 nuts/peanuts, 2 milk, 2 gluten Breakfast cereals **(not muesli**)[1] (8) 4 nuts/peanuts, 2 milk, 2 gluten	82 (16%)	▪ Many products within this category contain gluten as an intentional ingredient, however, advisory labelling is often used on maize and rice products manufactured in shared facilities ▪ A selection of gluten free/free-from products will be sampled from the product types bread/ bread rolls, biscuits, cakes because they are more likely to have may contain labels for the other allergens ▪ Emphasis in this category will be on biscuits and cakes as these tend to be manufactured in facilities that also handle peanuts, hazelnuts and milk ▪ Muesli has been excluded as the production methods for muesli are very different to other breakfast cereals. ▪ Many products will be baked so there may be restrictions with cleaning post-bake due to microbiological issues. This will make allergen control more challenging ▪ Retail surveys indicate that advisory labelling is commonly applied to products in this category because of

[1] A muesli product will not be sampled as the manufacturing process/environment and the types of ingredients used would not be comparable to the majority of breakfast cereals that will be sampled for the purpose of this survey

	Cereal bars (10) 2 milk, 2 gluten, 6 nuts/peanuts Sweet Biscuits (16) 12 nuts/peanuts, 2 milk, 2 gluten Ambient, stable cakes (16) 12 nuts/peanuts, 2 milk, 2 gluten Buns, eg. Iced, sultana (4) 2 milk, 2 nuts/peanuts Sweet or savoury pastries (8) 2 milk, 6 nuts/peanuts Savouries (8) (e.g. crackers and crisp breads) 2 milk, 4 nuts/peanuts, 2 gluten		the shared manufacturing environment. ▪ Retail surveys indicate that advisory labelling for nuts/peanuts is commonly used in this category; milk is used much less frequently. Through our experience, the advisory labelling for nuts/peanuts is overused with respect to milk or gluten. ▪ Comparable products should either be sweet or savoury ▪ Sandwiches have been categorised in chilled ready meals rather than cereal products as the method of manufacture is more akin to that category.
2. Confectionery	Sweets (non-chocolate), chewy or hard boiled (10) 6 gluten, 2 milk, 2 nuts/peanuts Chocolate with	90 (18%)	▪ Starch modified candy and hard boiled candy may be targeted for gluten if deemed appropriate ▪ Comparable sweets should be from the same type ie. 2 from chewy, or 2 from hard boiled or 2 from toffee ▪ Comparable chocolates should be from the same type, i.e. 2 bars, 2 Easter eggs, 2 enrobed i.e. chocolate covered bars

	or without inclusions , including bars, enrobed (80) sub divided into: dark chocolate (10) 6 milk, 2 gluten, 2 nuts/peanuts, white chocolate (10) 2 gluten, 8 nuts/peanuts, milk chocolate (60) 4 gluten, 56 nuts/peanuts		▪ Issue of milk cross-contamination in dark chocolate is well known in the industry; however, the management of tree-nut contamination in chocolate manufacture does present different challenges and requires different management strategies at plant level. For these reasons, the survey will not over bias sampling of products with a milk advisory statement as the issue is extremely well known. However, dark chocolate products without a milk advisory label will be purchased ▪ Based on retail surveys and previously published studies sampling in this category will be biased towards peanut and hazelnut.
3. Chilled and Frozen desserts/puddings	Ice cream (6) 2 gluten, 2 nuts/peanuts, 2 milk Plain meringues (4) 4 gluten Chilled mousse (6) 2 gluten, 2 nuts/peanuts, 2 milk Fruit pies (6) 2 milk, 4 nuts/peanuts Gateaux, including	50 (10%)	▪ Wet cleaning is generally permissible in this product category and high care hygiene practices are generally adopted. ▪ Many products in this category will have cereals containing gluten as ingredients and factories will generally produce non-gluten containing products (meringues, mousse etc.). Tree nuts such as almond and hazelnut also tend to be used extensively in these factories

	roulade (14) 10 nuts/peanuts, 2 gluten, 2 milk Cheesecake (14) 10 nuts/peanuts, , 2 gluten, 2 milk		
4.Meat preparations and meat products	Ham (coated or dusted) (4) 2 gluten, 2 nuts/peanuts Sausages (8) 4 gluten, 2 milk, 2 nuts/peanuts Beef/chicken Burgers (4) 2 milk, 2 gluten Marinated meat (4) 4 gluten, milk or nuts/peanuts	20 (4%)	▪ Emphasis in this product category would be on value added products (coated, dusted, stuffed, marinated etc.) where gluten, milk and peanuts will also potentially be handled in the factory
5.Processed fish and fish products	Fishcakes (4) 2 milk, 2 gluten Fish fingers, coated fish, coated crustaceans (6) 2 milk, 2 gluten, 2 nuts/peanuts	20 (4%)	▪ Emphasis for this category will be placed on value added products (coated, dusted, filled products) where gluten, milk and peanuts will also potentially be handled in the factory

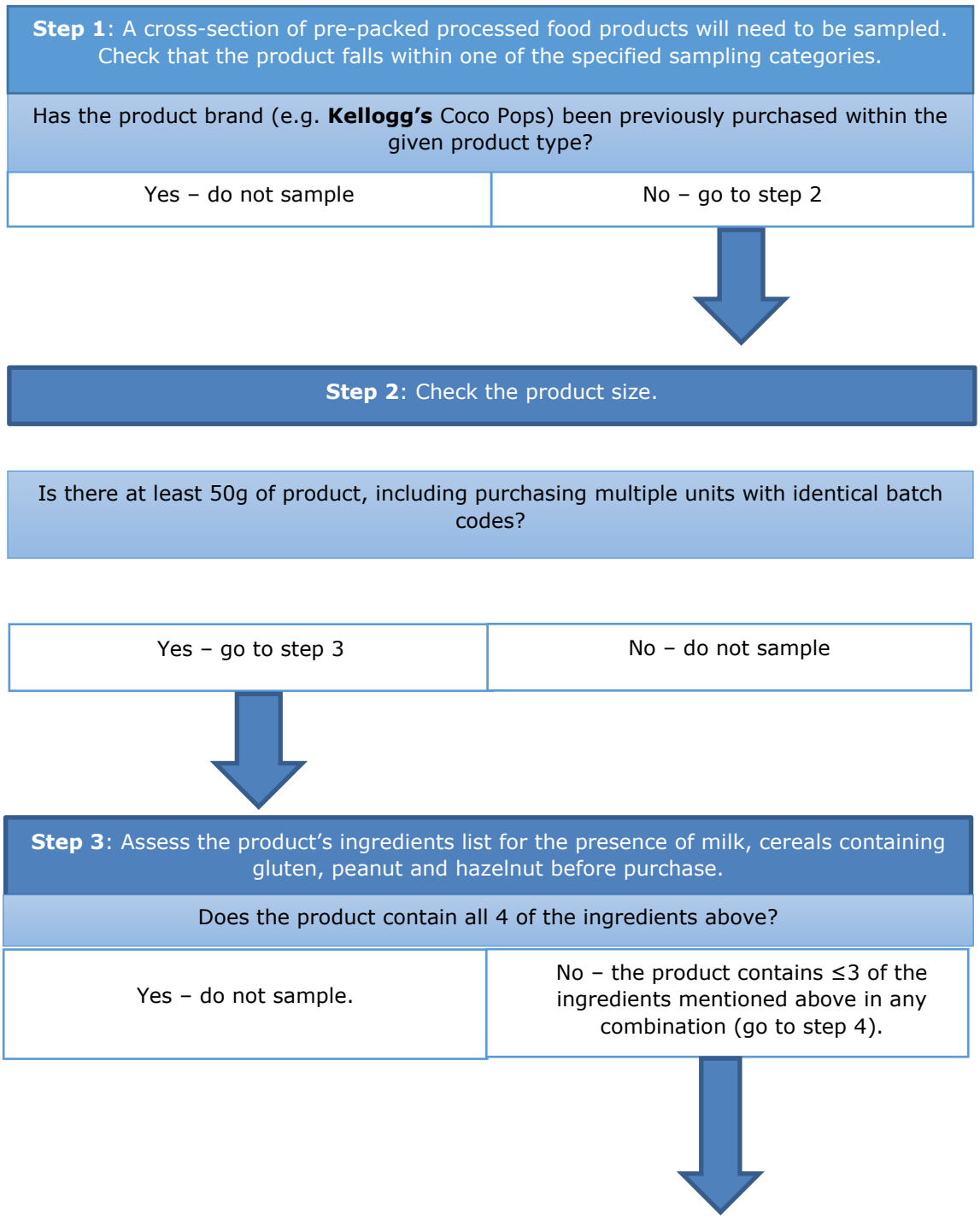
	fish pies (6) 2 milk, 2 gluten, 2 nuts/peanuts Fish in sauce (4) 2 milk, 2 gluten		
6.Chilled and frozen ready meals	Indian (curry, mini kebab selection) (30) 20 nuts/peanuts, 6 gluten, 4 milk Oriental (Thai curry, sweet & sour, chow mein) (28) 18 nuts/peanuts, 6 gluten, 4 milk Italian (risotto, spaghetti bolognaise, pizza, pasta meal) (12) 6 nuts/peanuts, 4 gluten, 2 milk Traditional (casserole, cottage pie) (14) 6 nuts/peanuts, 4 gluten. 4 milk Soups (fresh, tinned or packet) (4) 2 milk, 2 gluten	98 (20%)	▪ This category potentially presents a high level of risk to allergic consumers as reflected by the use of advisory labelling. ▪ Particular emphasis would be placed on "ethnic" meals (Indian, Chinese, and Thai etc.) due to the use of peanuts and other tree nuts in their production ▪ Milk is also commonly used in many meals and sauces in traditional and Mediterranean dishes (e.g. pasta sauces) • Sandwiches have been included in this category as their production is more akin to that of ready meals than cereal products.

	Sandwiches (8)) 2 milk, 4 nuts/peanuts, 2 gluten Meat Alternatives (2) Gluten		
7.Processed fruit, vegetables and pulses	Dried beans, pulses (4) 2 gluten, 2 nuts/peanuts Tinned fruit, tinned tomatoes and vegetables, tinned baked beans (6) 4 gluten, 2 nuts/peanuts	10 (2%)	▪ Low level of advisory labelling used in this category as indicated by retailers published suitable for lists ▪ Only exception is dried beans and pulses which have high frequency of advisory labelling for peanuts and tree nuts due to the risks associated with agricultural cross-contamination and processing
8.Jams and spreads	Jams (2) 2 gluten Savoury Spread (2) 2 nuts/peanuts Sweet spreads (chocolate) (2) 2 nuts/peanuts	6 (1%)	▪ Low frequency of advisory labelling as indicated by retailers published suitable for lists [20,21] ▪ Nut spreads declared allergens as ingredients and tend to be manufactured in facilities that do not make non nut containing variants ▪ The exception is chocolate spreads which would be sampled at a low frequency
9.Oils, vinegars, ambient dressings and pickles	Mixed pickles, chutneys, relishes (6) 2 gluten, 4 nuts/peanuts Salad dressing/mayon	10 (2%)	▪ Due to manufacturing practices highly refined oils do not give rise to a significant level of allergen cross-contamination. ▪ Mixed pickles, chutneys, relishes etc. would be included in this survey based on shared equipment use and ingredients used (spice blends etc.) ▪ Salad dressings tend to carry

	naise (4) 2 milk, 2 nuts/peanuts		advisory labels for milk so would be sampled
10.Dried sauces, gravies, stuffing and mixes	Dried stuffing mixes (12) 4 milk, 4 gluten, 4 nuts/peanuts Dry Mix Sauces and seasoning mixes (24) 8 milk, 8 gluten, 8 nuts/peanuts Gravy Granules (6) 4 gluten, 2 milk Breadcrumb and batter mixes (8) 4 milk, 4 gluten	50 (10%)	▪ Due to the range of ingredients in this category with wet cleaning, advisory labelling appears widespread, particularly for milk and gluten as reflected in retailer suitable for lists
11.Snacks	Potato Crisps (10) 4 milk, 6 gluten Popcorn (4) 2 milk, 2 gluten corn snacks/ tortilla chips (8) 4 milk, 4 gluten trail mixes, Bombay mix eg. Including fruit mixes and seed mixes (18) 2 milk, 4 gluten, 12 nuts/peanuts	40 (8%)	▪ Many seasoned snacks (wheat and maize based) tend to be manufactured in shared facilities so there is the potential cross-contamination with gluten ▪ Added to this, milk and wheat derivatives are used as carriers in many dried seasoning blends ▪ The application of seasonings is a dusty operation so there is a risk of cross-contamination through aerosols particularly where manufacturing lines are situated close together ▪ Peanuts and hazelnuts are used extensively on these manufacturing environments

12.Yoghurt and cheese	Flavoured/ coated cheese (6) 6 nuts/peanuts Fresh Cottage cheese, processed cheese spreads (6) 6 nuts/peanuts Yogurt, flavoured corner yogurt (8) 4 gluten. 4 nuts/peanuts Dairy free yoghurts/ vegan cheese (4), 4 milk	24 (5%)	▪ Emphasis would be on gluten and hazelnuts as these are common 'value added' ingredients in sweet dairy desserts • Comparable samples must be 2 cottage cheeses or 2 cheese spreads ▪ Dairy free yogurts/vegan cheeses would be tested for the presence of milk

Annex 3.


Step 1: A cross-section of pre-packed processed food products will need to be sampled. Check that the product falls within one of the specified sampling categories.
Has the product brand (e.g. **Kellogg's** Coco Pops) been previously purchased within the given product type?
Yes – do not sample
No – go to step 2
Step 2: Check the product size.
Is there at least 50g of product, including purchasing multiple units with identical batch codes?
Yes – go to step 3
No – do not sample
Step 3: Assess the product's ingredients list for the presence of milk, cereals containing gluten, peanut and hazelnut before purchase.
Does the product contain all 4 of the ingredients above?
Yes – do not sample.
No – the product contains ≤3 of the ingredients mentioned above in any combination (go to step 4).

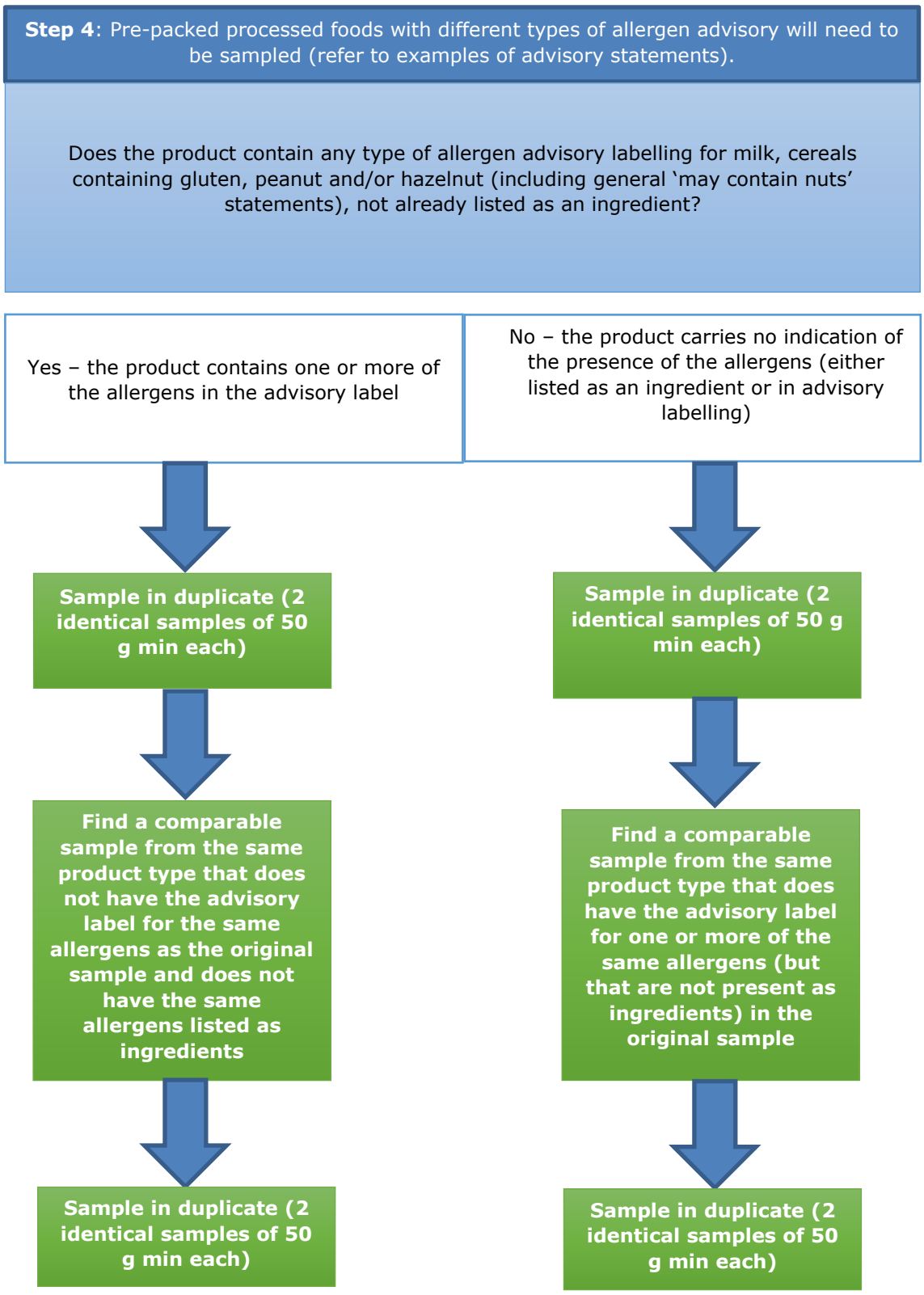


Figure 20. Sampling plan / Flow Chart decision tree – this sampling plan / flow chart decision tree was provided to sampling officers to aid shopping for comparable products.

Two scenarios explaining how comparable samples were selected by VTL are set out below:

Scenario 1:

You are looking to purchase a product from the 'chilled and frozen ready meals' category and the product type you are looking for is Indian (curry, mini kebab selection). No products from this product type have been sampled previously. You select a 'Birds Eye Chicken Curry 400g' from a freezer containing a number of these products. The product contains milk as an ingredient but does not have cereals containing gluten, peanut or hazelnut as ingredients.

Step 1: Has the product brand (e.g. Birds Eye) been previously purchased within the given product type?

Answer: No, this is the first product being purchased for this product type so a Birds Eye branded product is okay. Go to step 2.

Step 2: Is there at least 50g of product, including purchasing multiple samples with identical batch codes?

Answer: Yes, there is 400g of product and there are a number of identical products with the same batch code. Go to step 3.

Step 3: Does the product contain all 4 of the ingredients above (milk, cereals containing gluten, peanut and hazelnut)?

Answer: No, only milk is declared as an ingredient out of the four above. Go to step 4.

Step 4: Does the product contain any type of allergen advisory labelling for milk, cereals containing gluten, peanut and/or hazelnut (including general 'may contain nuts' statements), not already listed as an ingredient?

Answer: Upon checking the packaging, there is no allergen advisory labelling for cereals containing gluten, peanut or hazelnut (including general 'may contain nuts' statements).

Therefore, purchase two Birds Eye Chicken Curry products 400 g. On the same day, you will then shop for a comparable sample from the same product type that does have the advisory label for one or more of the same allergens (cereals containing gluten, peanut and/or hazelnut (including general 'may contain nuts' statements) and ideally have milk as an ingredient, although this is not essential. If the comparable product does not contain milk as an ingredient, the testing for that comparable product would have to include milk, and therefore the testing for the original and comparable could be different. In this situation the testing for the original would be for gluten, peanut and hazelnut; the testing for the comparable with milk as an ingredient would be gluten, peanut and hazelnut; the testing for the comparable without milk as an ingredient would be milk, gluten, peanut and hazelnut. Therefore, ideally the original and comparable products should have the same allergen ingredients, so that the testing for each is the same, but this may not always be possible as the choice of comparable products may be too restrictive.

Scenario 2:

You are looking to purchase a product from the 'cereal and cereal products category and the product type you are looking for is breakfast cereals (not muesli). Product brands from this product type have been sampled previously (Weetabix and Quaker). In this instance, you have already purchased Nestlé Nesquik® Chocolate Cereal 375g which has cereals containing gluten as an ingredient. The allergen advisory labelling states 'may contain milk' and 'may contain nuts'. You must now shop for a comparable product that does not have the advisory label for nuts and milk or contain nuts and milk in the ingredients list.

You select Kellogg's Coco Pops 550g which has cereals containing gluten as an ingredient (barley) but does not have milk, peanut or hazelnut as ingredients.

Assess the product's ingredients list for the presence of milk, cereals containing gluten, Step 1: Has the product brand (e.g. Kellogg's Coco Pops) been previously purchased within the given product type?

Answer: No, this is the first time a Kellogg's product has been purchased for this product type. Go to step 2.

Step 2: Is there at least 50g of product, including purchasing multiple samples with identical batch codes?

Answer: Yes, there is 550g of product and there are a number of identical products with the same batch code. Go to step 3.

Step 3: Does the product contain all 4 of the ingredients above (milk, cereals containing gluten, peanut and hazelnut)?

Answer: No, only cereals containing gluten (barley) is declared as an ingredient out of the four above. Go to step 4.

Step 4: Does the product contain any type of allergen advisory labelling for milk, cereals containing gluten, peanut and/or hazelnut (including general 'may contain nuts' statements), not already listed as an ingredient?

Answer: Upon checking the packaging, there is no allergen advisory labelling for milk, peanut or hazelnut (including general 'may contain nuts' statements).

Therefore, it is acceptable to use this product as the comparable product to the Nestlé Nesquik® Chocolate Cereal. Purchase this product in duplicate.

Annex 4.

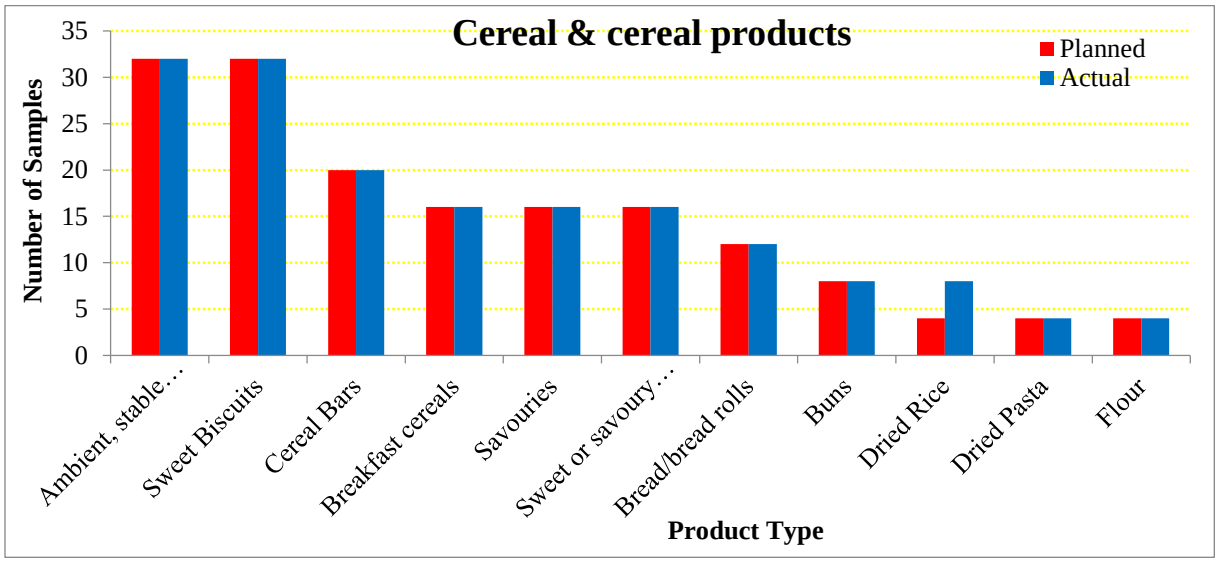


Figure 21. Comparison of actual product selection versus sampling plan for cereals and cereal products – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

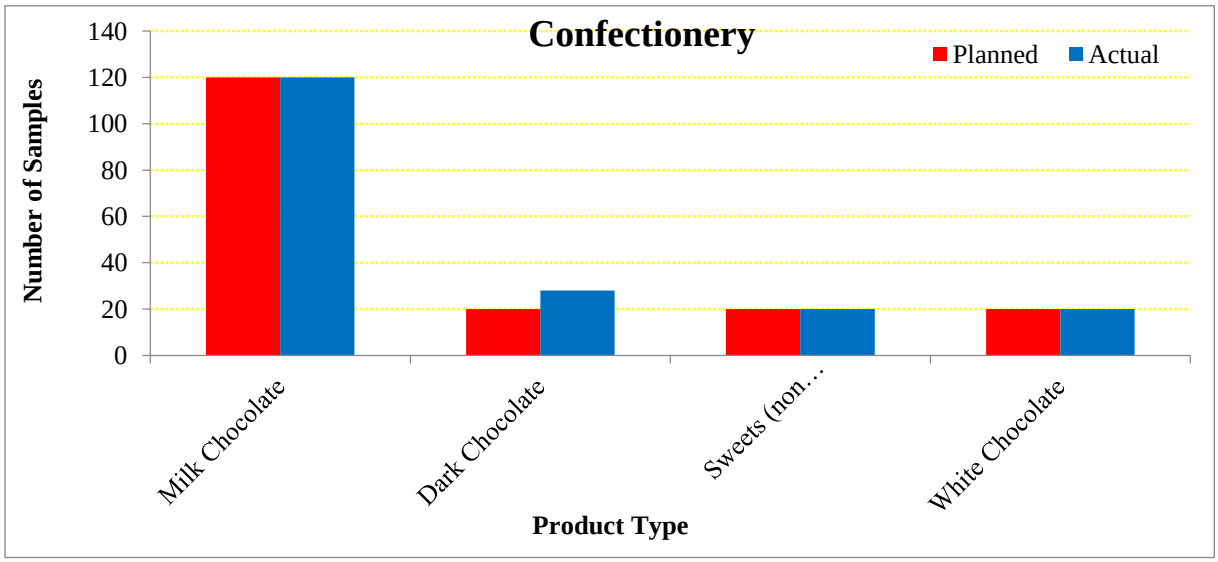


Figure 22. Comparison of actual product selection versus sampling plan for confectionery category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

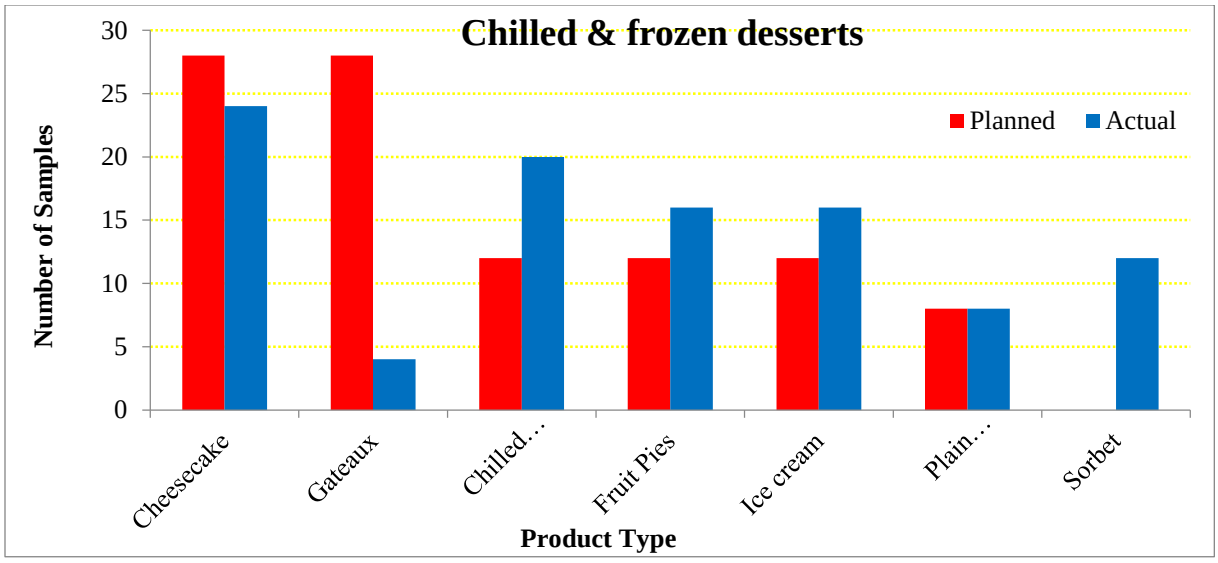


Figure 23. Comparison of actual product selection versus sampling plan for chilled and frozen desserts category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

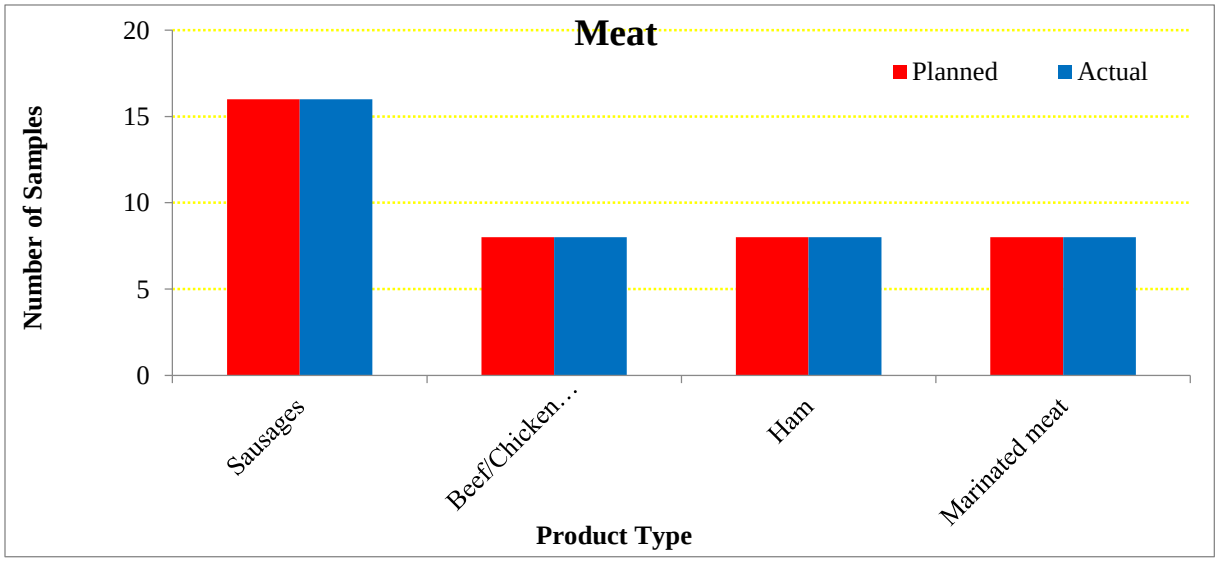


Figure 24. Comparison of actual product selection versus sampling plan for meat and meat products category– this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

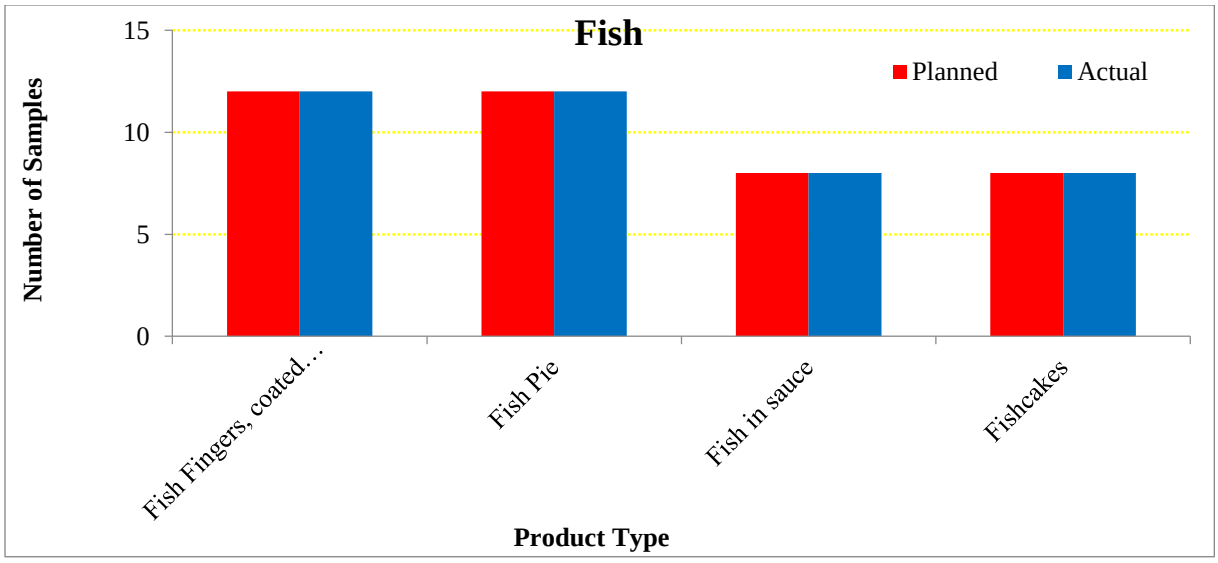


Figure 25. Comparison of actual product selection versus sampling plan for fish and fish products category– this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

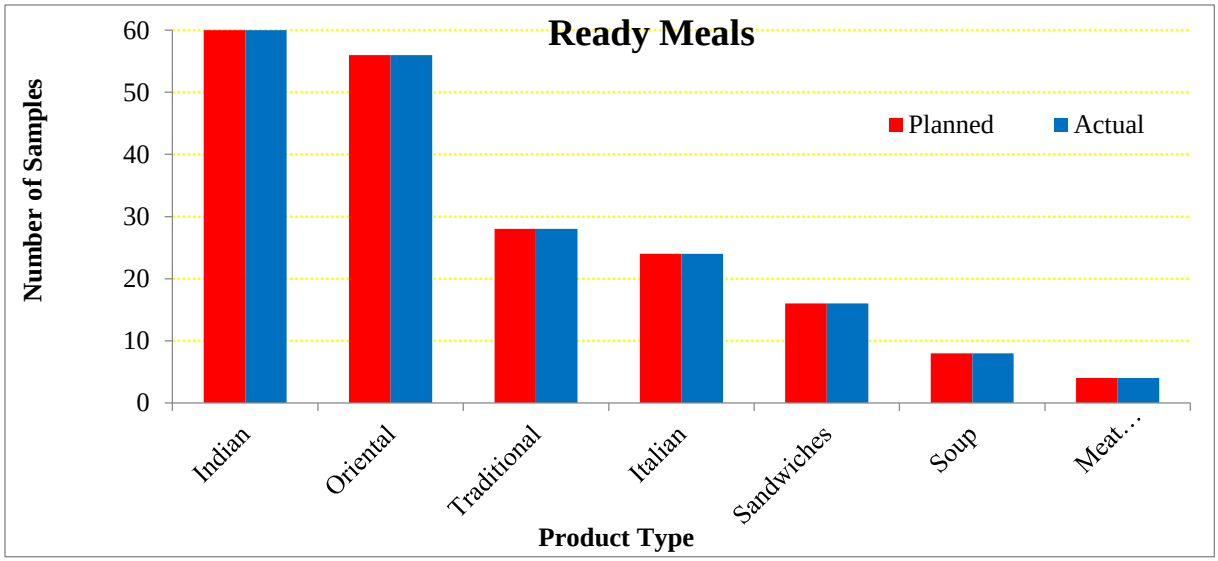


Figure 26. Comparison of actual product selection versus sampling plan for ready meals category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

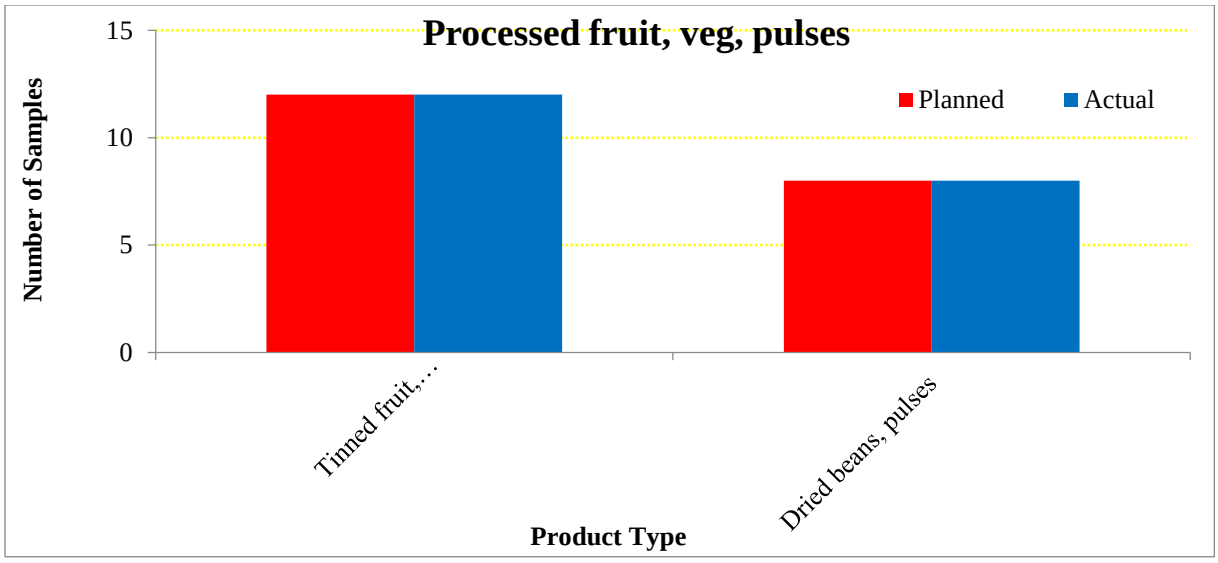


Figure 27. Comparison of actual product selection versus sampling plan for processed fruit, veg and pulses category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

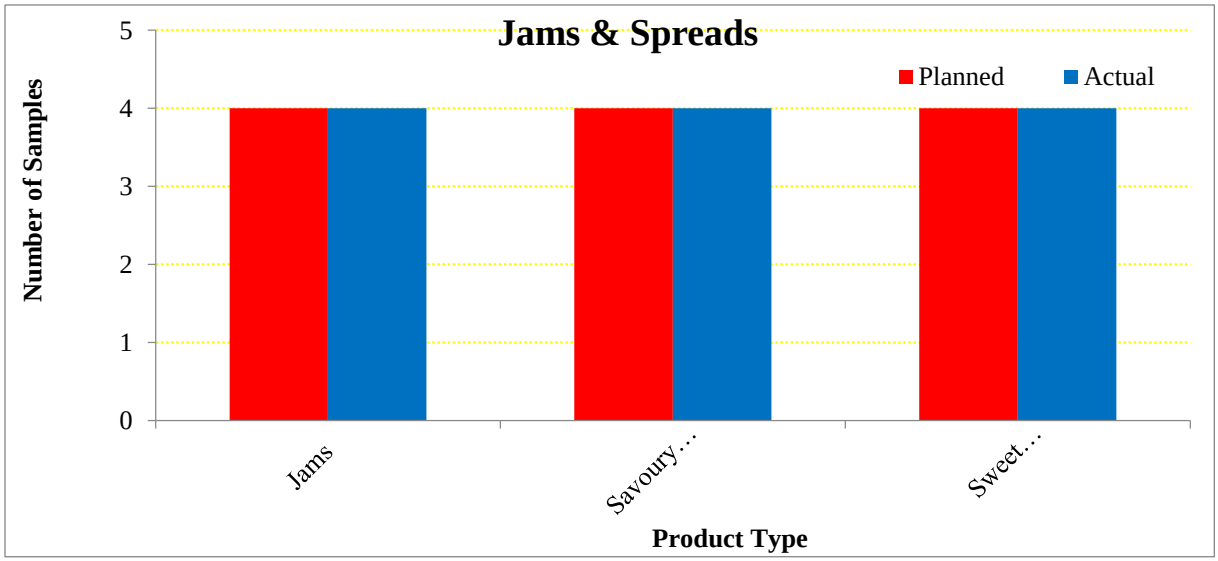


Figure 28. Comparison of actual product selection versus sampling plan for jams and spreads category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

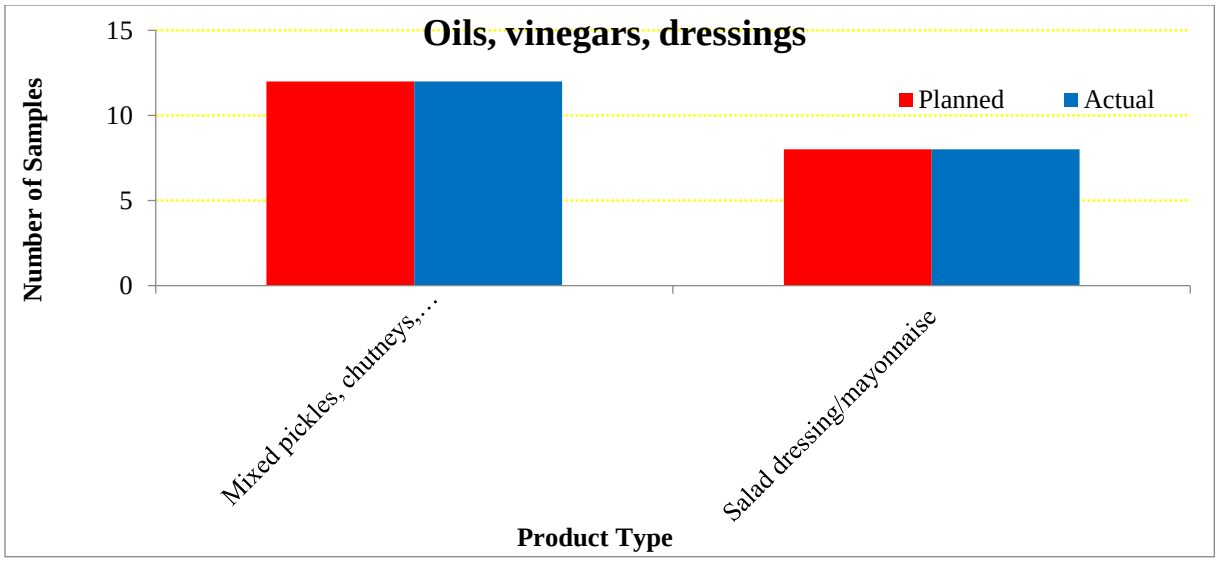


Figure 29. Comparison of actual product selection versus sampling plan for oils, vinegars and dressings category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

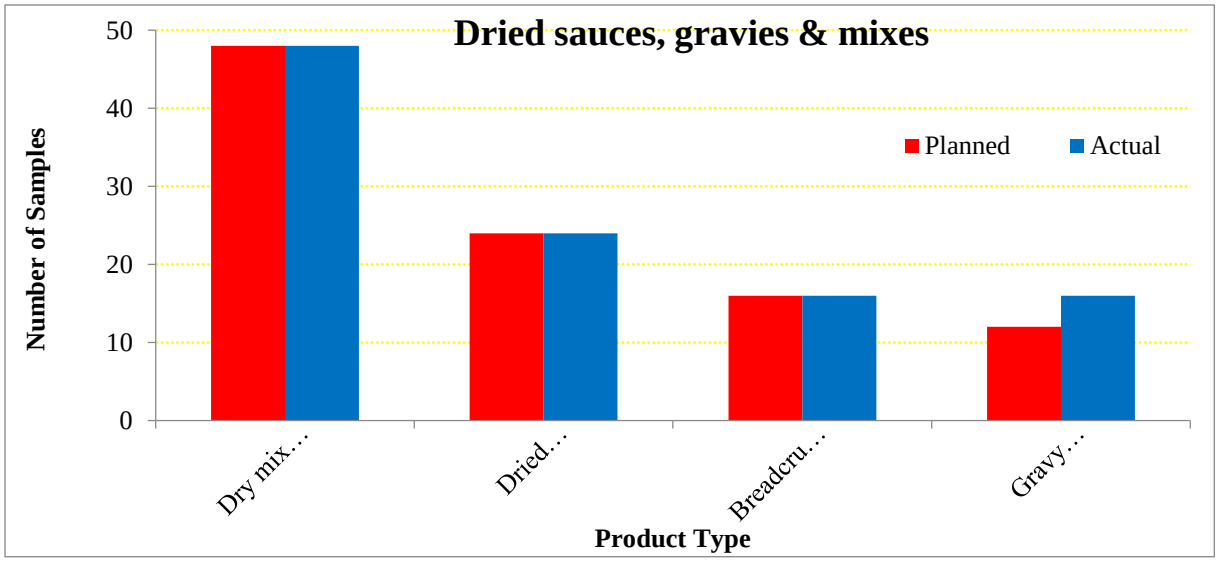


Figure 30. Comparison of actual product selection versus sampling plan for dried sauces, gravies and mixes category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

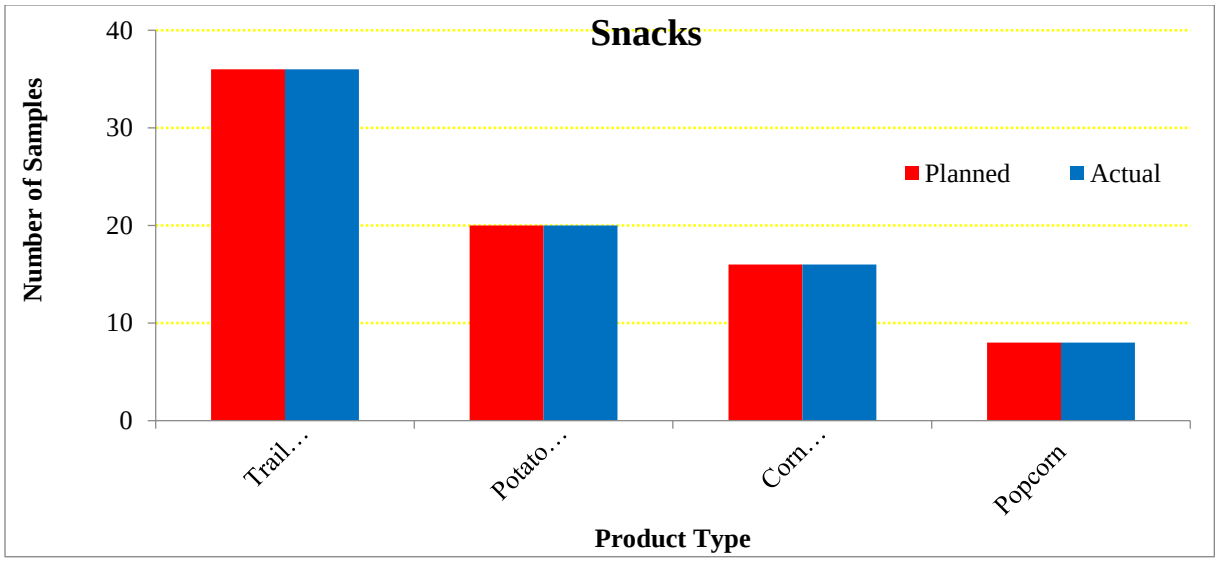


Figure 31. Comparison of actual product selection versus sampling plan for snacks category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

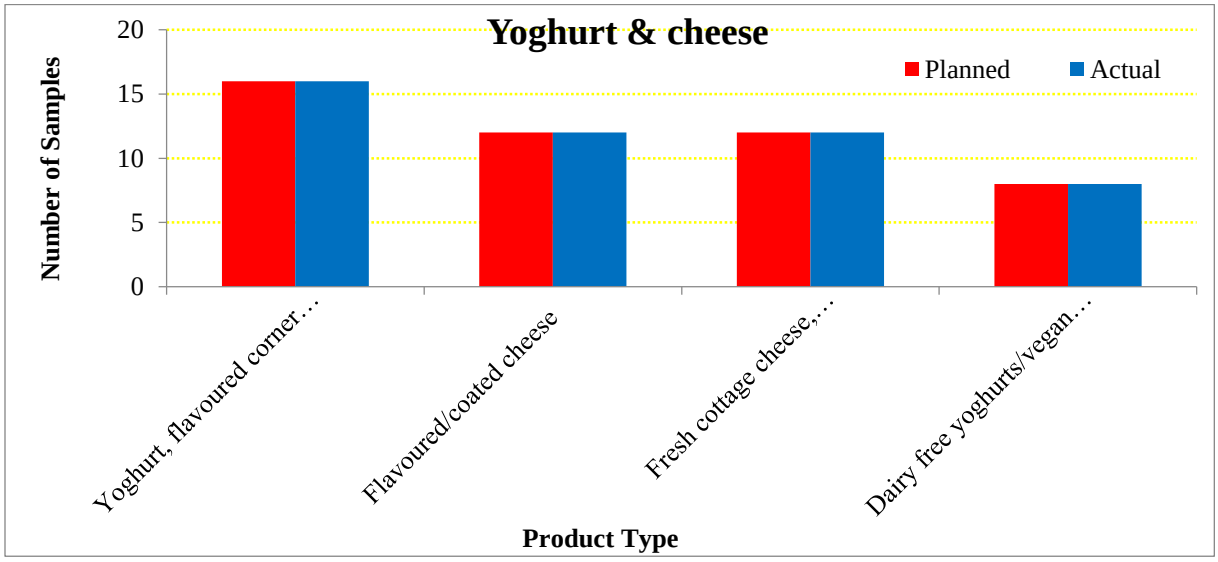


Figure 32. Comparison of actual product selection versus sampling plan for yoghurts and cheese category – this figure shows the total number of actual samples purchased against the planned numbers for each product type within this product category.

Annex 5.

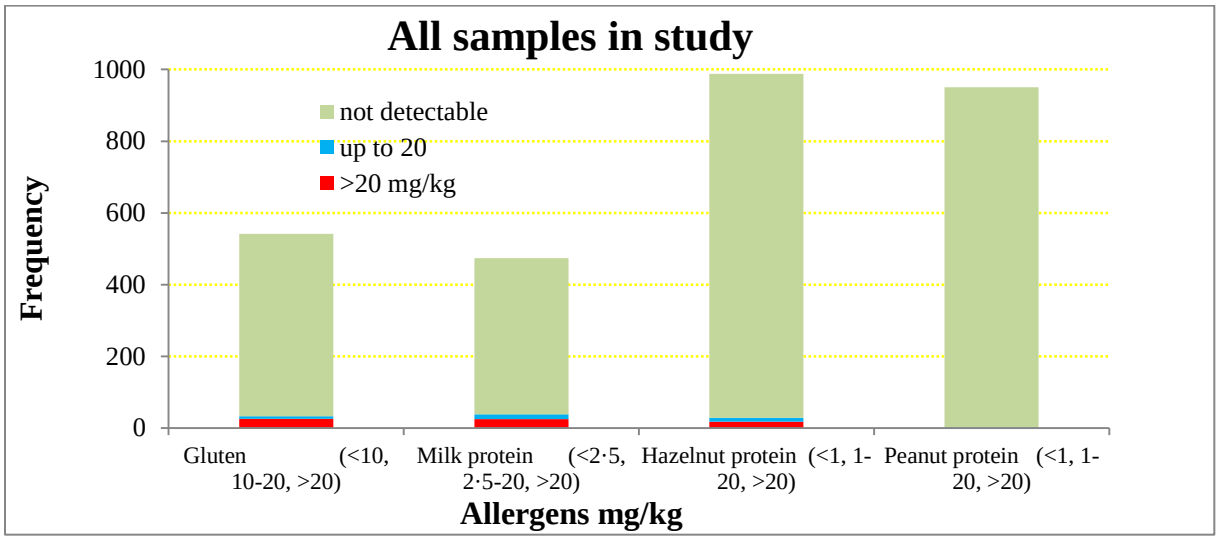


Figure 33. Total results for each allergen in the three results categories in numbers of samples – this figure shows the results obtained for each allergen at each result level of not detected, positive above the reporting limit for that test but < 20mg/kg and > 20mg/kg in numbers of samples.

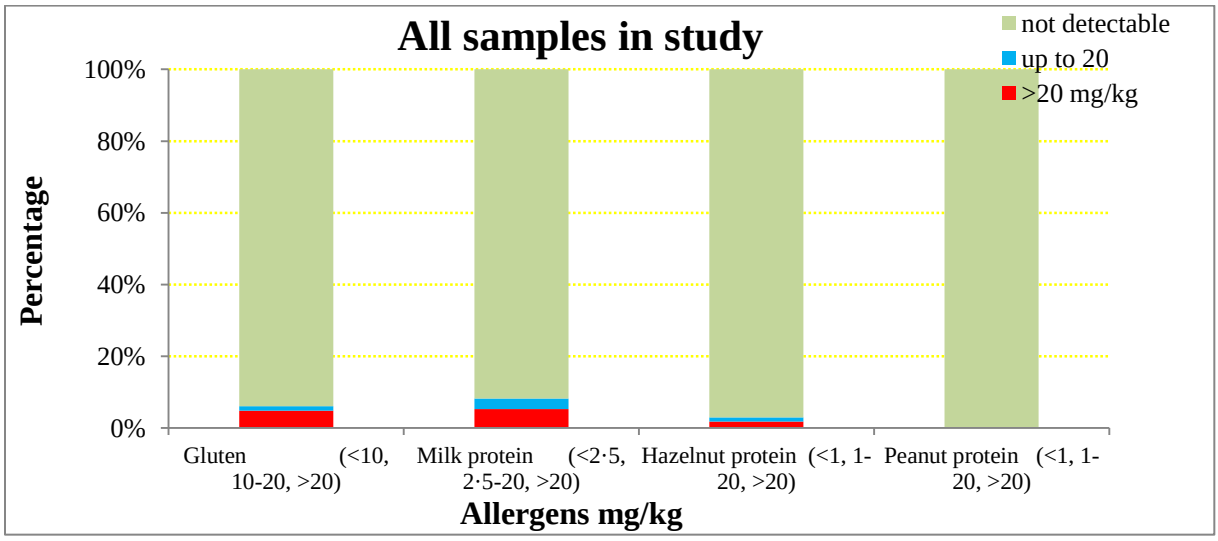


Figure 34. Total results for each allergen in the three results categories as a percentage of the overall sample numbers - this figure shows the results obtained for each allergen at each result level of not detected, positive above the reporting limit for that test but < 20mg/kg and > 20mg/kg as a percentage of the overall sample numbers.

Annex 6.

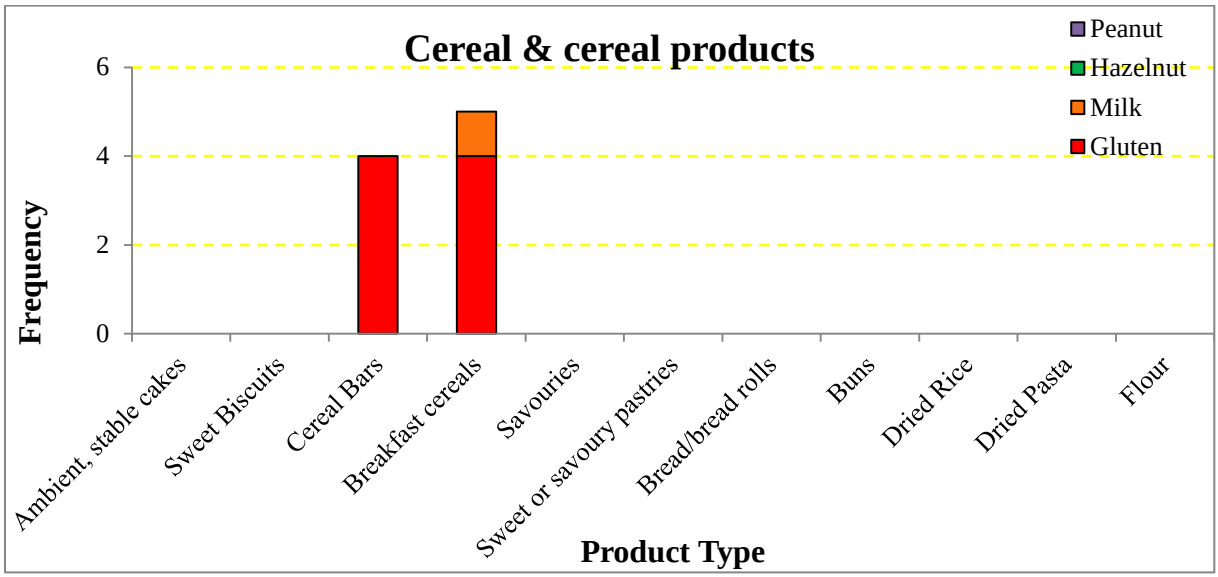


Figure 35. Total number of positive samples per allergen per product type for cereals and cereal product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

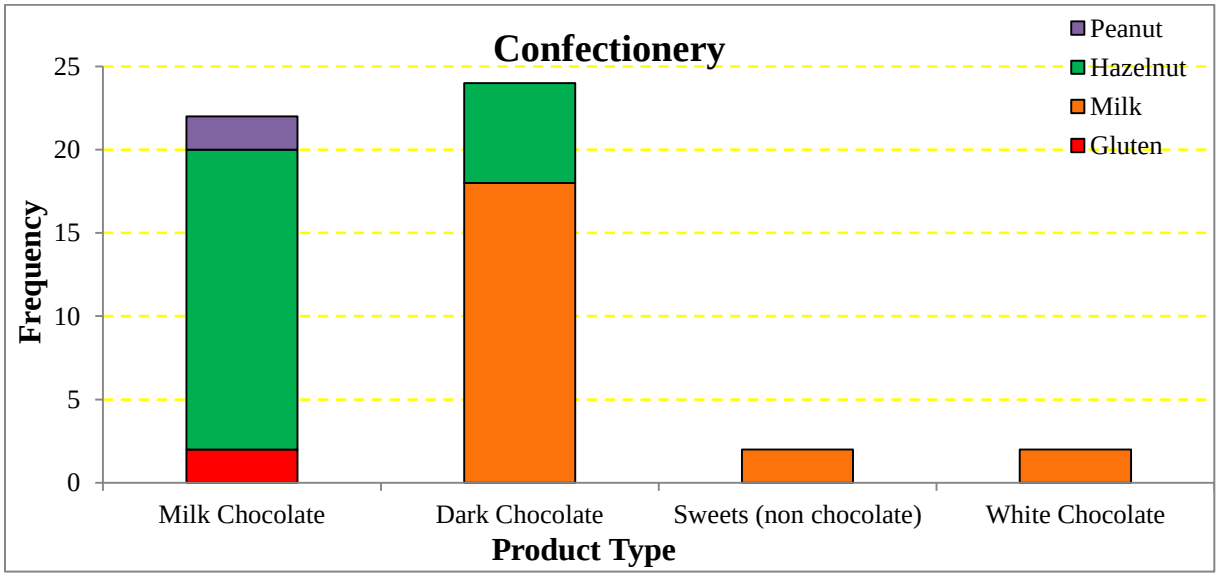


Figure 36. Total number of positive samples per allergen per product type for confectionery product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

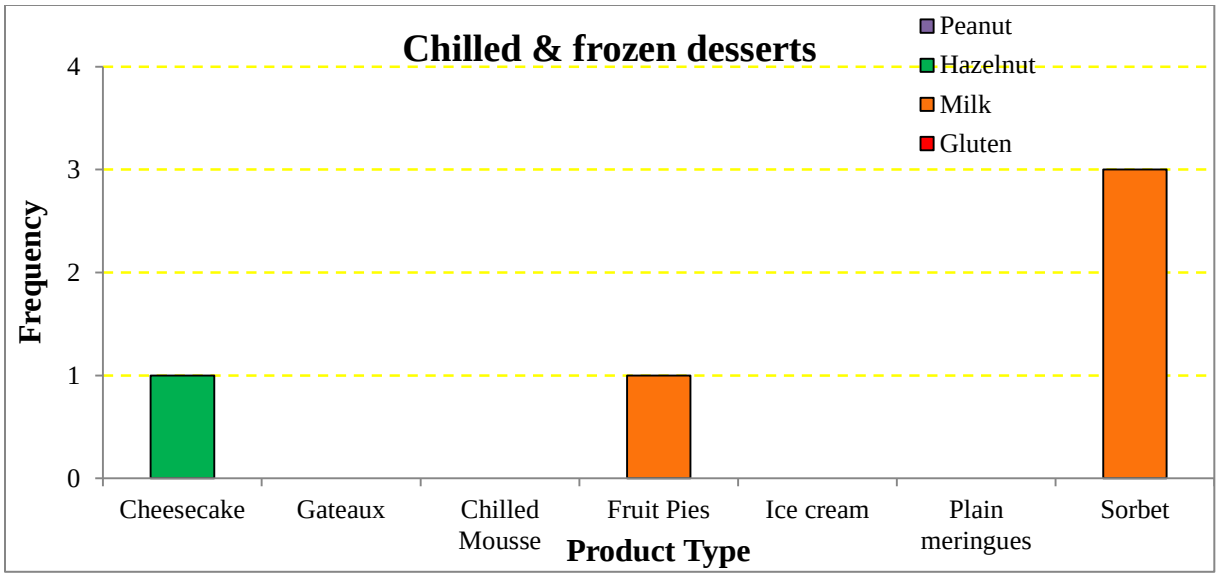


Figure 37. Total number of positive samples per allergen per product type for chilled & frozen desserts product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

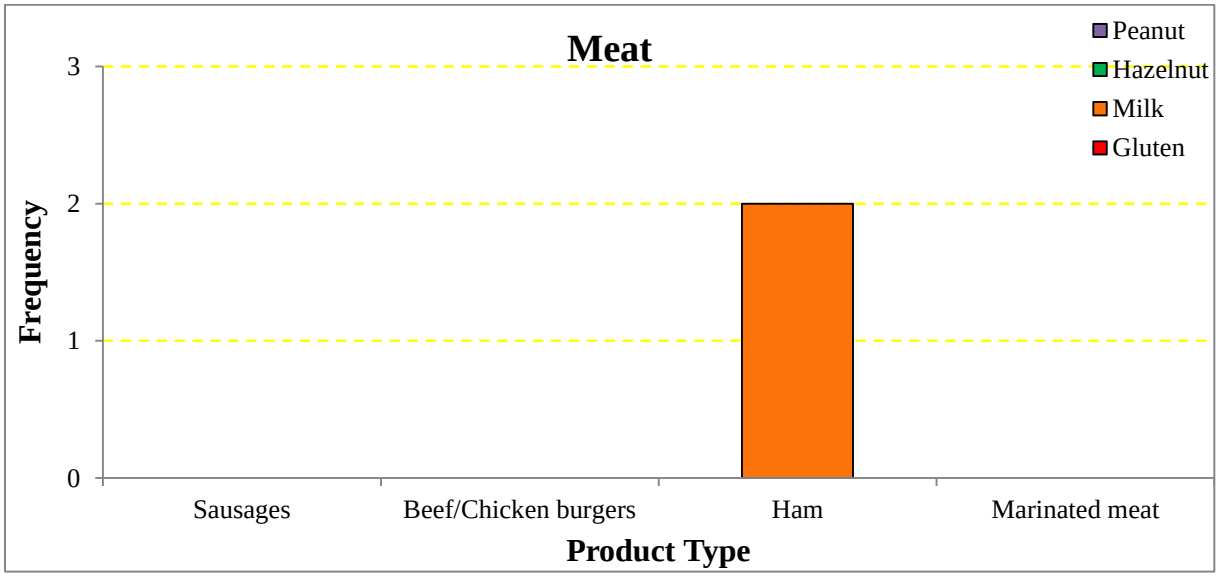


Figure 38. Total number of positive samples per allergen per product type for meat product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

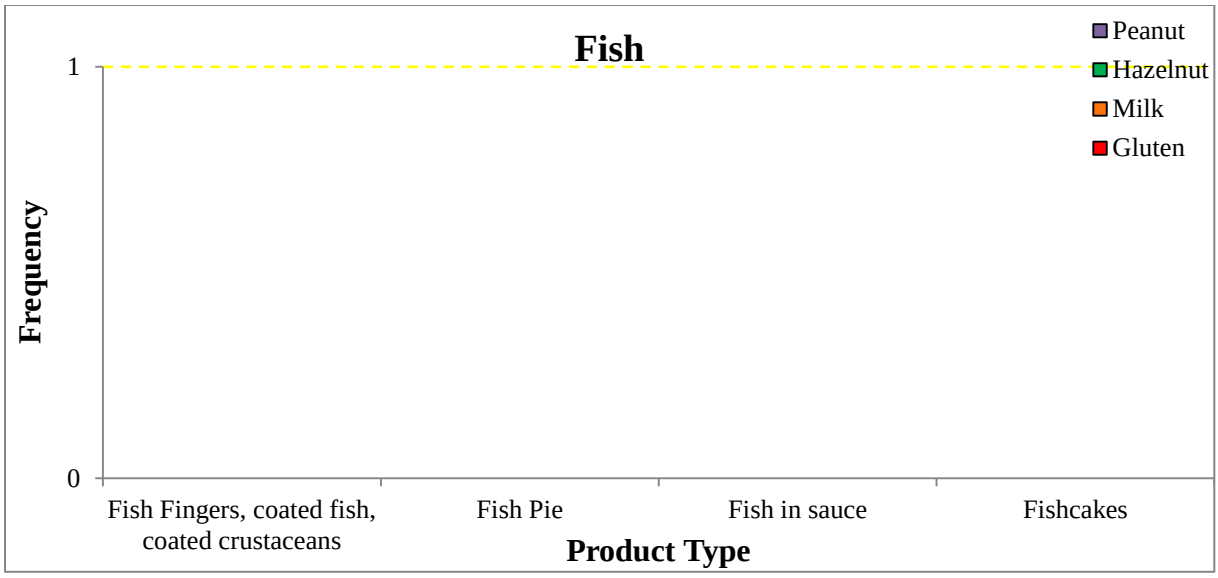


Figure 39. Total number of positive samples per allergen per product type for fish product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

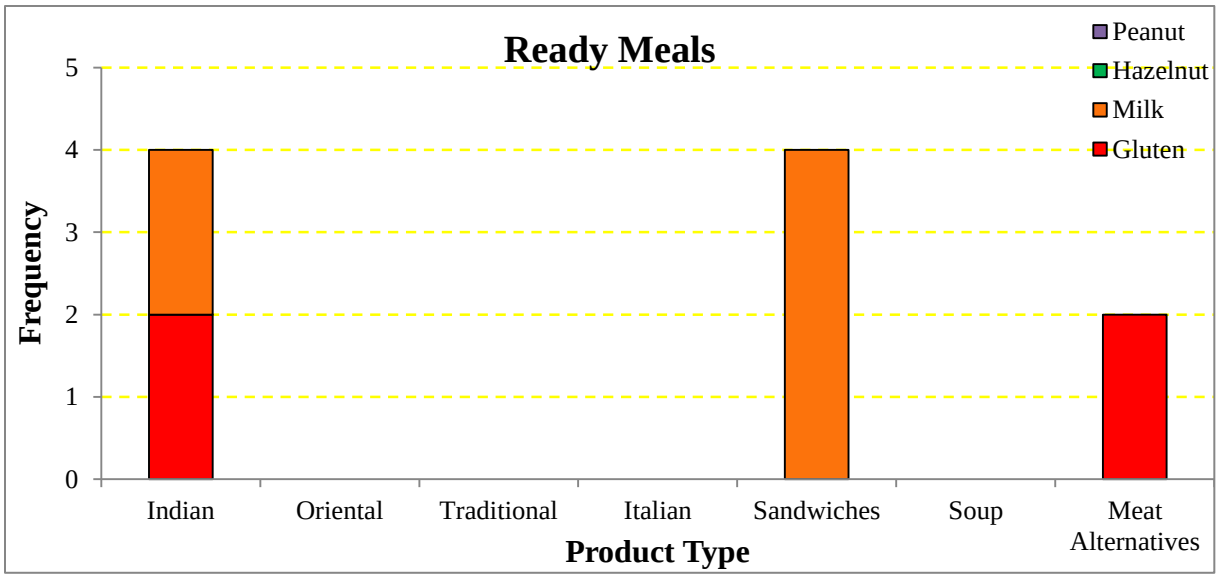


Figure 40. Total number of positive samples per allergen per product type for ready meals product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

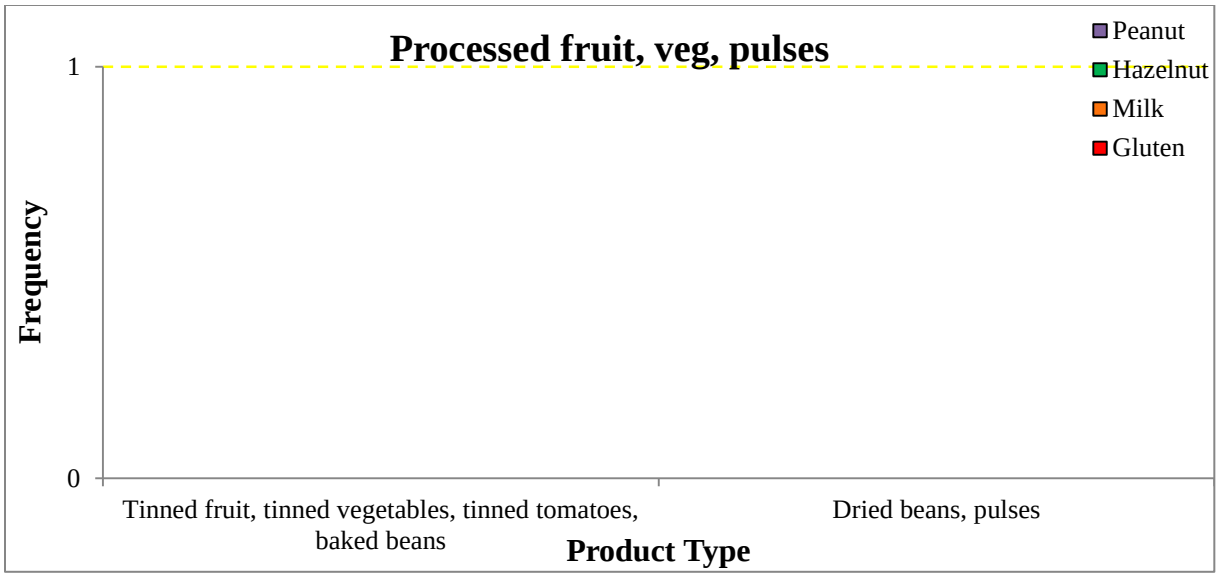


Figure 41. Total number of positive samples per allergen per product type for processed fruit, veg, & pulses product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

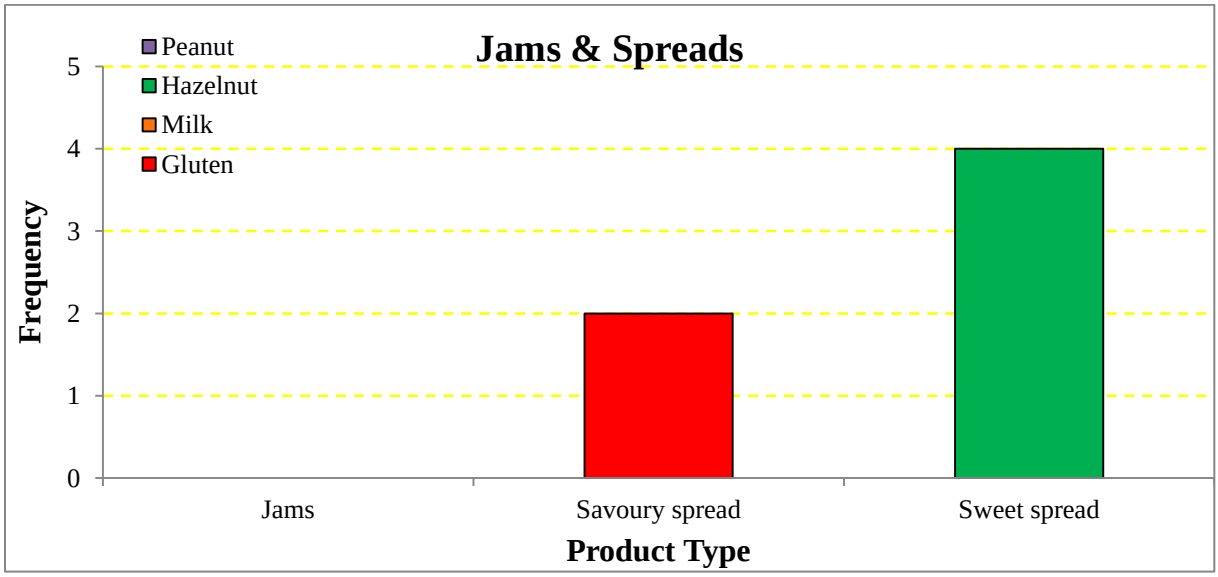


Figure 42. Total number of positive samples per allergen per product type for jams & spreads product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

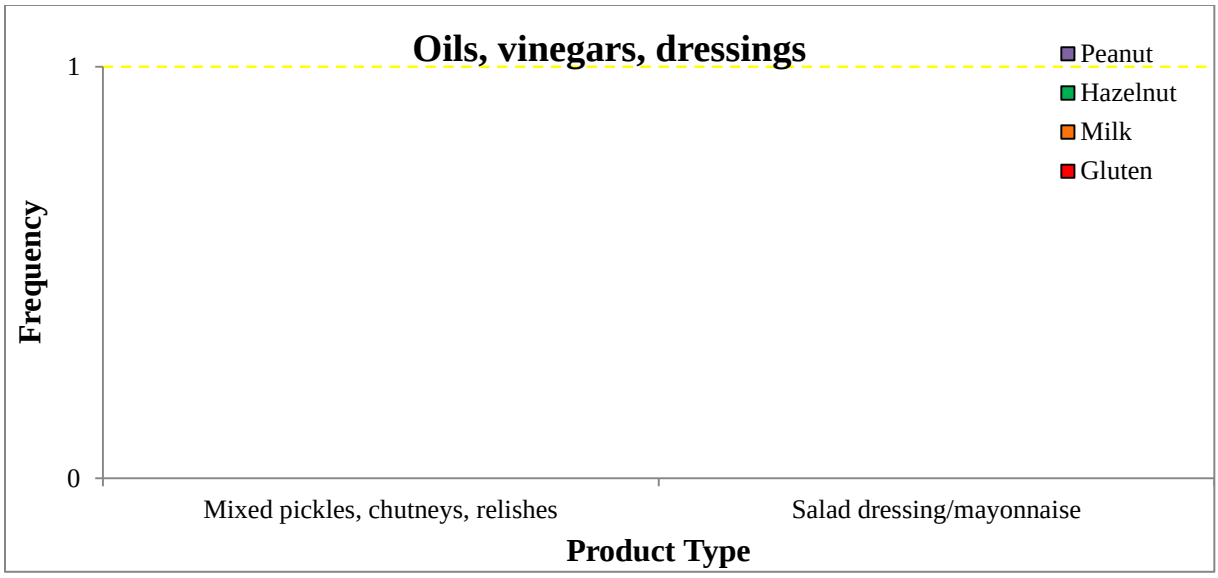


Figure 43. Total number of positive samples per allergen per product type for oils, vinegars & dressings product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

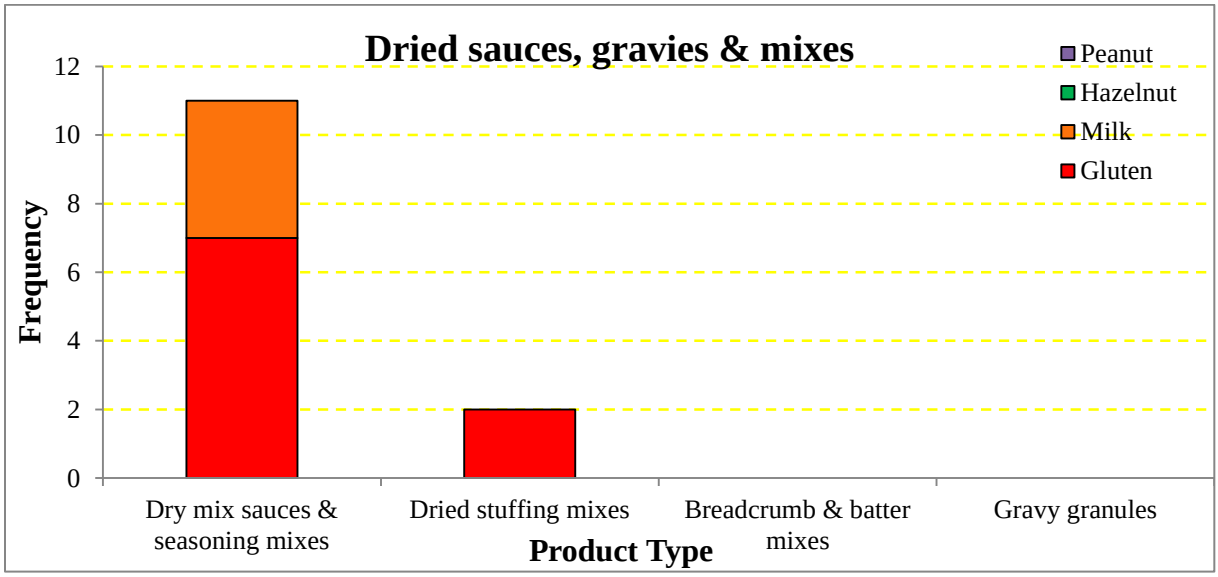


Figure 44. Total number of positive samples per allergen per product type for dried sauces, gravies & mixes product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

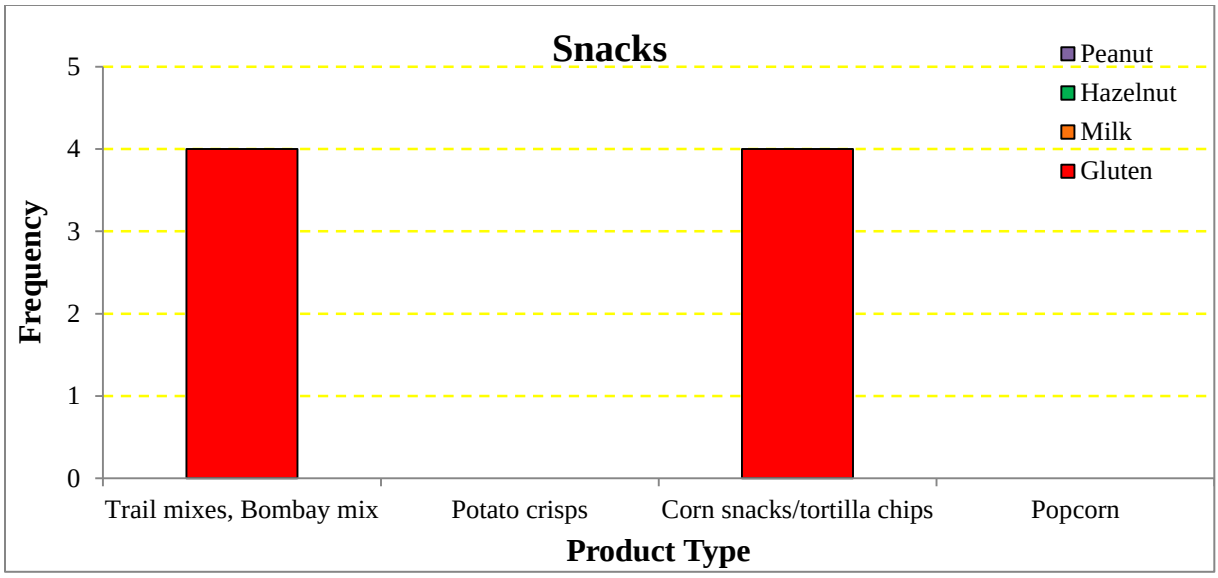


Figure 45. Total number of positive samples per allergen per product type for snacks product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

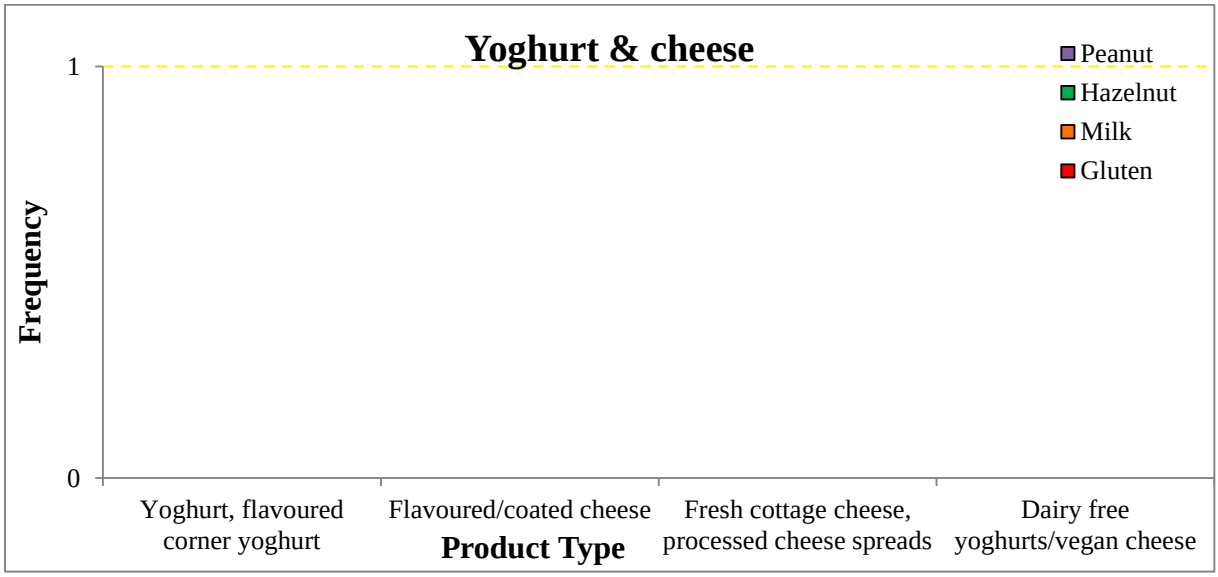


Figure 46. Total number of positive samples per allergen per product type for yoghurt & cheese product category – this figure shows the total number of positive results obtained above the reporting limit within this product category for the four allergens.

Annex 7.

Review of the range of advisory labels used – RSSL carried out a review of all product labels and advisory statements used on products selected for this survey.

There was a wide range of advisory labels used on the products selected for this survey. They were broadly grouped into the following categories of advisory labelling:

1. A simple "contains" message: where the allergen has been listed as an ingredient but that this additional information is contained in an allergens statement and under current regulations is voluntary and re-enforcing the message.
    a. Contains A, B and C
    b. This product contains A, B and C
    c. Allergens: contains A, B and C
2. A "contains" message with extra information about the source of the allergen:
    a. Contains Soya Bean oil (Soya) (P12-04786-119) - Authentic Asia Red Thai chicken curry with jasmine rice
    b. Contains gluten from wheat flour (P12-04790-63) - Jamie Oliver Lemon & spring herb stuffing
3. A "contains" message with either extra warning or just an allergen list without distinction between ingredient level or advisory level:
    a. Warning: Contains milk products (P12-04786-191) - Mister Daves Chicken tikka masala
    b. Allergen Info: Fish, milk, mustard (P12-04785-19) - The Saucy Fish Co. Davidstow Cheddar & chive sauce on smoked haddock
4. A simple "may contain" message:
    a. May contain A, B or C
    b. May contain traces of A, B or C
5. A "may contain" message with additional information
    a. May contain a trace of: gluten, soya, milk, egg, celery, mustard (P12-04790-41) - Flava-It Hot & spicy marinade
    b. May contain traces of hazelnuts and almonds (P12-04782-171) - Lindt Lindor Milk chocolate truffles with a smooth filling
    c. May contain traces of other nuts and gluten (P12-04782-105) - Guylian Artisanal Belgian chocolates
6. A simple "contains" message with a "may contain" following:
    a. Contains gluten and milk. May contain soya (P12-04781-92) - Morrison's Fig rolls
    b. Contains gluten, soya, wheat. May contain barley, celery, milk, egg, mustard (P12-04790-59) - Co-op Simply Value Gravy granules
7. A "may contain" message with a "contains" message following:

a. Ingredients: May contain traces of nuts and/or seeds. Allergen Information: Contains wheat, gluten, soya, mustard, maize. (P12-04786-117) - Mayflower Chinese style chicken curry

Table 11: Other advisory labels - a wide variety of advisory labels did not fit naturally into any of the categories above. These are not displayed in any particular order.

Advisory Label	RSSL Ref Number	Product Description	Comments
Made in premises which produce nut products	P12-04781-25	Kingshill Home Bakery Caramel squares	No nuts specified
May contain traces of wheat and barley due to farming practices	P12-04781-29	Scott's Porridge Oats Thick Scottish milled oats	Farming cross contact specified
Contains wheat, milk. Produced on a line handling soya and in a factory handling egg, hazelnut but on a different line.	P12-04781-35	Hovis Digestive biscuits with wheatgerm	Specifies a risk difference between line and factory by allergen
Packed on a production line that also packs nuts, seeds and cereals that contain gluten. Therefore cannot be guaranteed nut, seed or gluten free	P12-04781-37	Buchanan's Long grain rice	Gluten, nuts and seeds have same level of warning.
Contains milk, wheat, gluten, soya. Recipe: No nuts. Ingredients: Cannot guarantee nut free. Factory: Product made in nut free area, but nuts used elsewhere.	P12-04781-49	Van Souter Dark chocolate butter biscuits	Risk of cross contact from nuts elsewhere in the factory, but no risk from other allergens?
Contains: milk, wheat, gluten. This product contains no nuts. However, we cannot guarantee the ingredients used are nut free.	P12-04781-61	Wall's Sausage roll	Risk of nut cross contact from ingredients, but not other allergens?
Contains eggs, wheat, oats, gluten. Not suitable for cow's milk and sesame allergy sufferers due to manufacturing methods used.	P12-04781-65	Marks & Spencer Soft oatmeal rolls	Milk and sesame specified because of manufacturing method
Contains wheat, gluten. Manufactured in a nut free environment.	P12-04781-77	Rakusen's Digestive biscuits	Is this an advisory or positive label claim statement for nuts?
Contains gluten. Manufactured on equipment that processes products containing milk, soy	P12-04781-89	Bolands Fig rolls	The level of risk from different production environments is

and in a plant processing tree nuts, egg.			qualified.
Contains gluten/milk. Manufactured in a factory that handles nuts and seeds.	P12-04781-93	Cherrytree Bakery Chorley cakes	Does it contain gluten and milk or, gluten or milk?
Contains soya, milk. May contain nuts, cereals. This product contains milk due to the unavoidable cross contamination from milk chocolate made on the same manufacturing line.	P12-04782-41	Bournville Classic dark chocolate	No milk listed as ingredient, Milk specified as contains and then an explanation as to why
Contains: milk. Recipe: No nuts. Ingredients: Cannot guarantee nut free. Factory: Before being prepared for manufacture of this product, the equipment was previously used to make products containing nuts. Product may contain traces of soya.	P12-04782-55	Tesco White chocolate	Detailed risk from nuts, not same level given to soya
Nut free, dairy free, gluten free, egg free.	P12-04782-83	Kinnerton Luxury dark chocolate (55%)	Nut - tree/ peanut? Dairy?
Contains milk and soya products. May contain traces of hazelnuts, almonds and peanuts due to shared equipment.	P12-04782-91	Bochox 30% cocoa milk chocolate	Tree nuts and peanuts separated and specified
Contains milk and soya. Not suitable for nut or wheat gluten allergy sufferers due to manufacturing methods.	P12-04782-93	Sainsbury's Velvety truffle chocolate	What is wheat gluten allergy?
Contains milk. Dietary advice: suitable for vegetarians. Gluten free	P12-04783-11	Brooklea Kids Choc It Chocolate flavour milk dessert	Contains, dietary advice and a positive gluten-free combined in one statement
Contains milk, soya. Recipe contains cashew nuts. May contain traces of other nuts	P12-04786-13	Tesco Indian Chicken Tikka Masala	Cashews not included in contains statement
This recipe contains gluten, egg, fish and milk. We made it in a busy working kitchen so it may also contain traces of nuts and sesame.	P12-04785-21	Charlie Bigham's Fish pie	Variation of production environment description
Any allergies? I contain celery. I've been known to hang around near nuts, peanuts and sesame seeds and I may contain them as well.	P12-04786-53	Glorious! Skinny Soup Fragrant Thai carrot soup	Unusual way of using advisory labelling but may be appealing to a certain consumer?

Food fact: This product may contain traces of nuts and seeds. Allergen advice: Contains - egg, gluten, milk and soya. Manufactured on a site that also handles celery, fish, molluscs, mustard, nuts, peanuts and sulphites.	P12-04786-73	Kershaws Beef dinner	The difference between the contains and may contain is not very clear as the may contain appears twice in between a contain
Contains wheat, gluten & barley. Produced in a factory which handles milk powder. Not suitable for people with nut allergy.	P12-04790-5	Paxo Sage & onion stuffing	Is this also not suitable for wheat allergic / coeliacs and milk allergy sufferers?
This product is manufactured in a factory which uses sesame seeds, lentils, wheat & nuts. Therefore this product may contain trace allergens. This product contains peanuts.	P12-04791-13	Trail mixes, Bombay mix	Trace allergens? May lose fact that peanuts are ingredients
Don't munch if you are allergic to soyabeans & sesame seeds.	P12-04791-31	Munchy Seeds Omega sprinkle	A different way of interpreting the not suitable for?
Our packing house handles nuts and seeds.	P12-04791-33	Urban Fruit Cherries	An unusual description of the production environment
Contains nuts and peanuts. In our makery, we use soya, cows milk and sesame seeds. We can't be absolutely sure they won't find their way into this bar.	P12-04781-153	Eat Natural Brazils, sultanas, almonds, peanuts & hazelnuts	An unusual description of the production environment and level of risk?
Some chocolates contain nuts and soya, but all chocolates contain milk and traces of nuts and soya	P12-04782-139	Milk Tray Assortment of chocolates	Is this clear enough about what is in what and the level of risk?
May contain traces of soya. Manufactured under controlled conditions in our own factory in which no nuts are ever used.	P12-04782-151	Plamil Organics Organic dairy alternative white chocolate	This would be interpreted as no risk from nuts
Contains dairy. May contain nut traces. Vegetarian. Free from gluten, soya, GM, colouring and preservatives. Made in a factory where peanuts & sesame seeds are used.	P12-04782-159	Montezuma's 8 organic white chocolate chunky snowmen	This is a complicated statement with advice other than allergens all mixed together.
Contains: hazelnuts, almonds, milk, soya. May contain: other nuts. Some chocolates contain nuts. All chocolates may contain parts of or traces of nuts.	P12-04782-179	Terry's All Gold Milk A collection of milk chocolates	Is this information easy to interpret by the consumer as to the difference between parts of nuts and traces of nuts?
Allergy advice: see list of	P12-04786-	Kanpur Garden	More in line with

ingredients	103	Chicken balti with pilau rice	FICR?
Allergy advice: Contains egg and milk. Produced in a factory that handles wheat gluten, soya, Nuts (cashew), sesame and mustard .Mycoprotein is high in protein and fibre. This may cause intolerance in some people.	P12-04786-105	Quorn Chef's Selection Tikka masala	Mycoprotein / intolerance? Who should avoid?
This baby is good for everyone	P12-04791-59	Love Da Sweet honey & sea salt popcorn	Unclear as to what message this is conveying
No Nuts but packed in a cave where nuts and seeds are kept	P12-04791-69	Yo Yo's Strawberry fruit rolls	An unusual description of the production environment and unclear as to the level of risk

Annex 8.

Table 12: Process for categorising advisory labels – this table shows the rationale with a few examples of how an advisory statement was categorized into a particular allergen advisory category.

Example A.

Product	RSSL Ref	Allergen advisory labelling statement
Schogetten Milk Chocolate	P12-04782-1	Contains, milk, soya, nuts. May contain traces of peanuts, other nuts, gluten and egg

Ingredient	Declared in ingredient list	Advisory category	Reason
Gluten	No	May contain traces of	
Milk	Yes	No advisory labelling	Milk is present as an ingredient.
Hazelnut	Yes	No advisory labelling	As hazelnuts are ingredients the traces of other nuts is discounted as the survey is specifically for hazelnuts, if listed.
Peanut	No	May contain traces of	

Example B.

Product	RSSL Ref	Allergen advisory labelling

		statement
Blue Diamond Almonds Roasted Almonds with Sea Salt	P12-04791-73	Made in a facility handling other nuts. Not suitable for peanut or sesame seed allergy suffers.

Ingredient	**Declared in ingredient list**	**Advisory category**	**Comments**
Gluten	No	No advisory labelling	Not listed as ingredient.
Milk	No	No advisory labelling	Not listed as ingredient.
Hazelnut	No	Made in the same factory but elsewhere	Almond listed as ingredient, therefore hazelnut considered to be "other nuts".
Peanut	No	Not suitable for	

Annex 9.

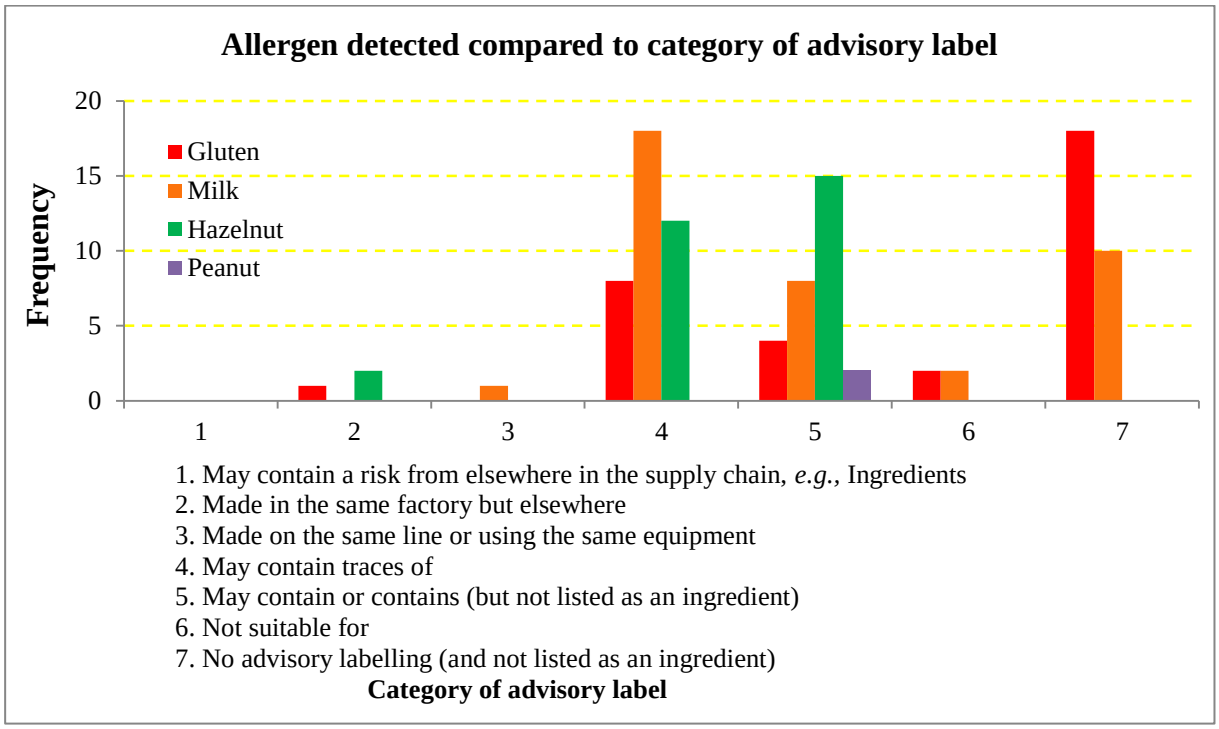


Figure 47. The distribution of detectable allergen when compared to the category of advisory labelling – this figure shows the spread of the four allergens in sample numbers when detected above the reporting limit with the range of different advisory label categories.

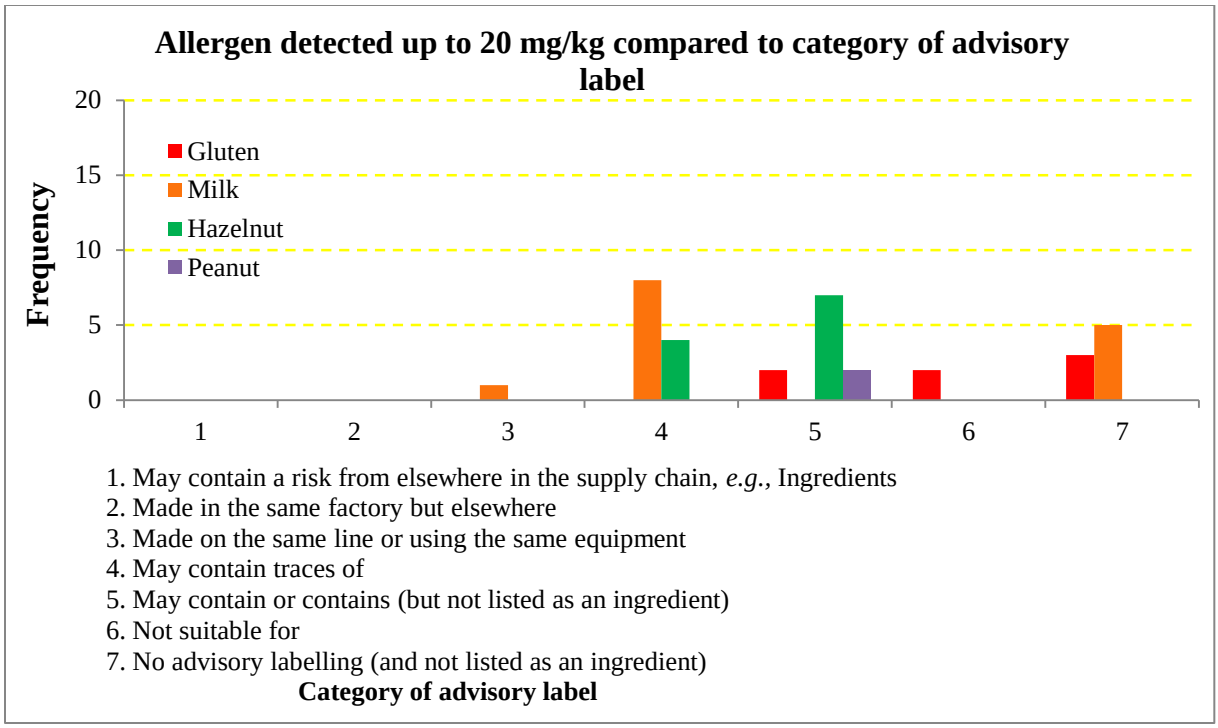


Figure 48. The distribution of detectable allergen up to 20 mg/kg when compared to the category of advisory labelling – this figure shows the spread of the four allergens in sample numbers when detected above the reporting limit but below 20 mg/kg with the range of different advisory label categories.

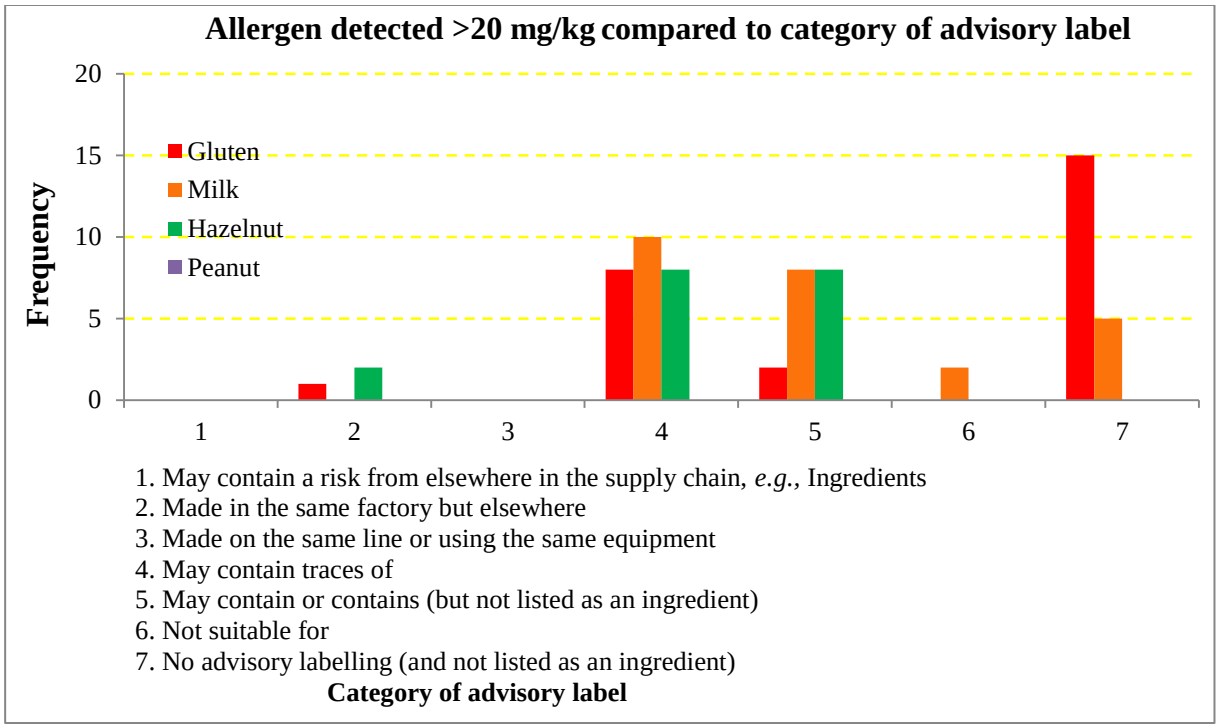


Figure 49. The distribution of detectable allergen > 20 mg/kg when compared to the category of advisory labelling – this figure shows the spread of the four allergens in sample numbers when detected at >20 mg/kg with the range of different advisory label categories.

Annex 10.

Review of the amounts of different allergens detected with the advisory category split by product category

The following charts show the split of the products with detected allergen by product category. Not all charts have been included if there were too few data points for that product category.

1. Cereal and cereal products category

The only products in the cereal and cereal product category that showed detectable allergen >20 mg/kg were those that tested positive above the reporting limit for gluten. All of these four products (8 samples) contained oats as ingredients which were declared. This has been discussed in section 3.1 and these positives were excluded from the positive data set.

Milk was only detected in one sample up to 20 mg/kg and the advisory label applied was "made on the same line". The product was a white bread roll and milk is likely to be common ingredient in this manufacturing environment where cleaning, probably dry cleaning, as an allergen control measure could be challenging. Without a detailed investigation with the manufacturer, this suggestion is impossible to verify.

2. Confectionery category

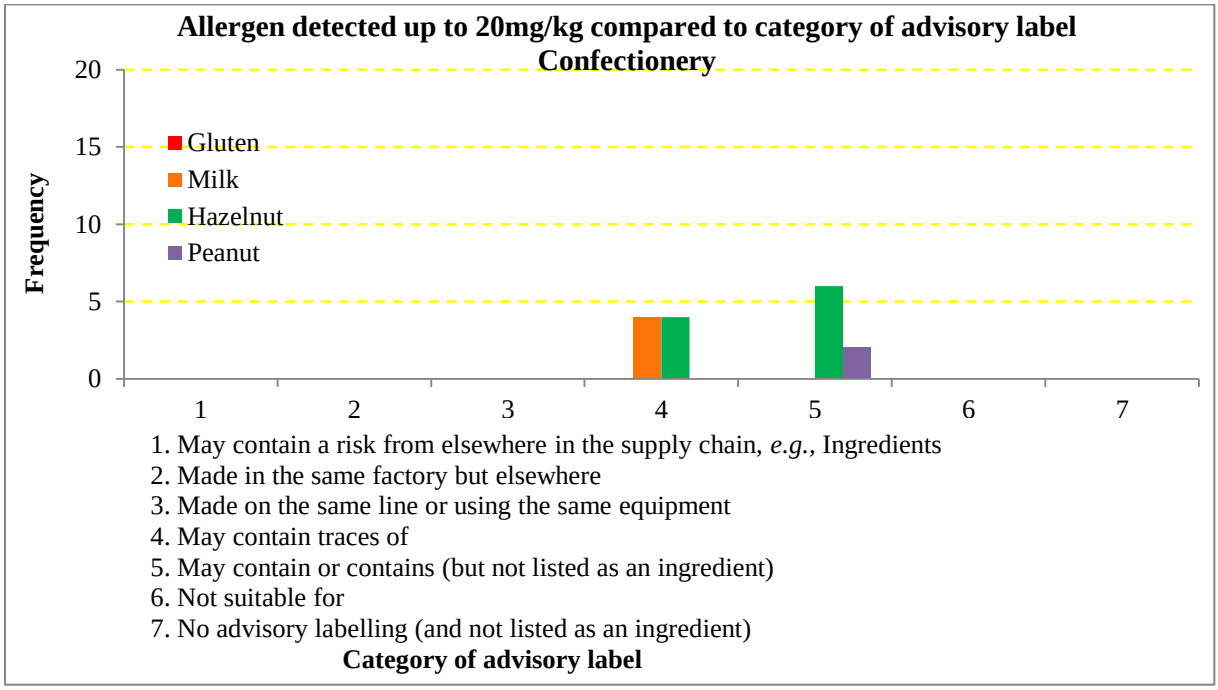


Figure 50. The split of allergen detected up to 20 mg/kg with the different categories of advisory labelling – this figure shows the spread of the four allergens in sample numbers in the confectionery product category when detected above the reporting limit but below 20 mg/kg with the range of different advisory label categories.

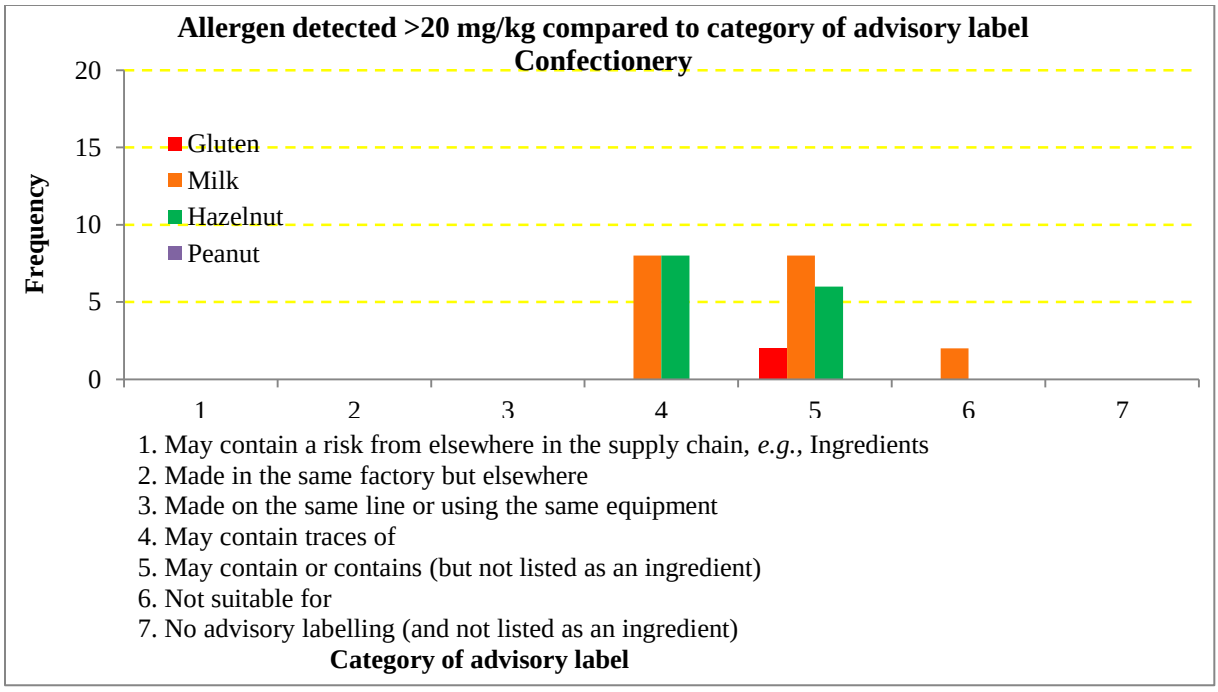


Figure 51. The split of allergen detected > 20 mg/kg with the different categories of advisory labelling – this figure shows the spread of the four allergens in sample numbers in the confectionery product category when detected above 20 mg/kg with the range of different advisory label categories.

Gluten and peanut were only detected in 1 product (2 samples) for each in this category, both in a milk chocolate product and the category of advisory label was "may contain". Hazelnut was detected both at lower levels and also at >20 mg/kg levels and the split of category of advisory labels were distributed between the "may contain traces" and "may contain". All products containing hazelnut were in either milk or dark chocolate where hazelnut is likely to be a common ingredient and therefore a cross contact risk, especially in a non-wet cleaning manufacturing environment such as this in RSSL's experience.

Milk was rarely detected at < 20 mg/kg; in a duplicate product in high cocoa dark chocolate and in a duplicate product in non-chocolate fruit sweets. Milk was detected much more frequently at the >20 mg/kg level in 9 products (18 samples), all in the dark chocolate product type and evenly split between the "may contain traces" and "may contain" advisory categories. The use of "not suitable for" was only used on 1 product (2 samples). The issue of milk cross contamination in dark chocolate manufacturing is well known and a particular challenge with a non-wet cleaning allergen control measure. This was one of the issues identified in the scope for this survey.

One product in duplicate contained detectable levels of gluten (>20 mg/kg), hazelnut (>20 mg/kg) and peanut (up to 20 mg/kg) in the milk chocolate product type.

3. Chilled and frozen desserts category

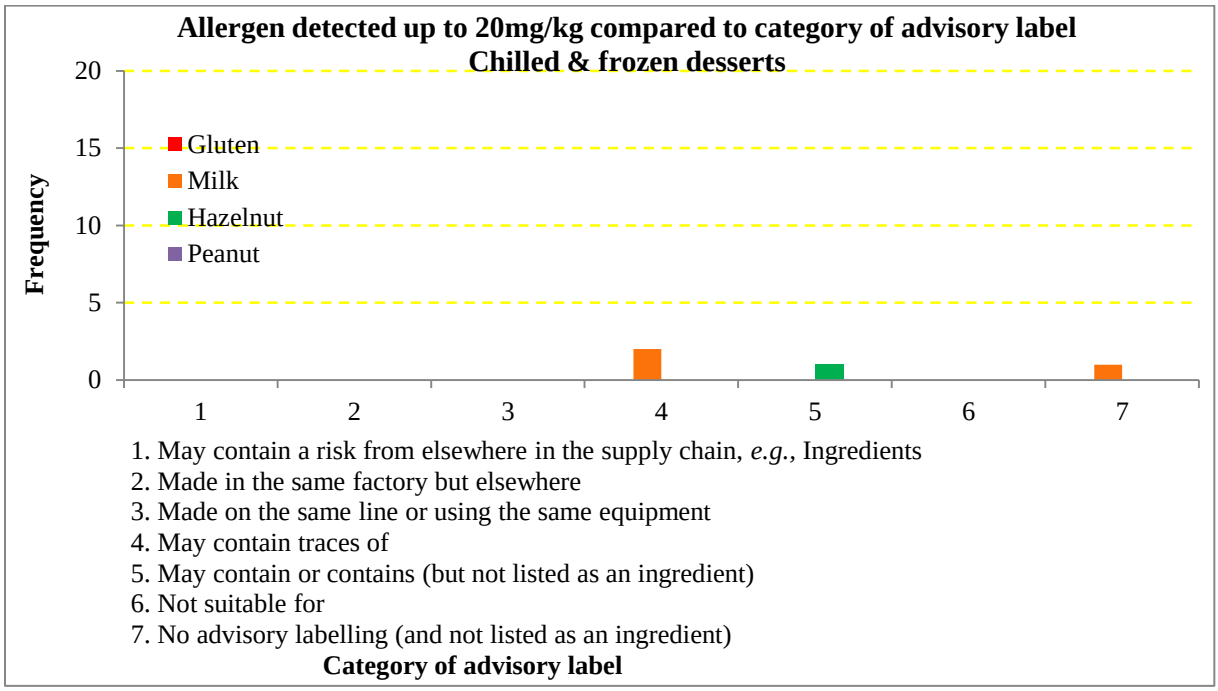


Figure 52. The split of allergen detected up to 20 mg/kg with the different categories of advisory labelling – this figure shows the spread of the four allergens in sample numbers in the chilled and frozen desserts product category when detected above the reporting limit but below 20 mg/kg with the range of different advisory label categories.

There was only 1 product in the chilled and frozen desserts product category that showed detectable milk >20 mg/kg but there was no advisory label at all.

Gluten was not detected in this product category. Milk was detected in 3 products (4 samples); two products carried a "may contain traces" advisory label, but two carried no level of advisory label at all. One was in the fruit pie product type and detected at a low level and not in duplicate and the other in the sorbet product type containing >20 mg/kg milk, again not in the duplicate product. These two instances where the duplicate did not contain milk might suggest a non-homogeneous cross contamination but without a detailed investigation with the manufacturer, this is impossible to verify. Hazelnut was detected just above the LOQ in one product in the cheesecake product type with a "may contain" advisory label.

4. Meat category

There was only 1 product (2 samples) in the meat product category in the ham product type, that showed a low level of detectable milk up to 20 mg/kg and it carried a "may contain traces" advisory label.

5. Fish category

There were no products in this product category where detectable levels of allergens were found.

Milk and gluten could potentially be ingredients commonly used in both the fish and meat product category. Wet cleaning, in RSSL's experience is likely to be employed as an allergen cleaning control practice and these results could support the suggestion that they are effective but without a detailed investigation are impossible to verify.

6. Ready Meals category

There were 2 products (4 samples) that contained detectable allergen at low levels (<20 mg/kg). In the up to 20 mg/kg level, detectable gluten was found in 1 product (2 samples) in the meat alternative product type with a "not suitable for" advisory label. Milk was found in 1 product (2 samples) in the sandwich product type with no advisory label. One product (2 samples) in the Indian product type contained gluten at >20 mg/kg and 2 products (4 samples) contained milk at >20 mg/kg (1 product in the sandwiches product type and 1 in the Indian) but none of these 3 products (6 samples) had any advisory label.

In RSSL's experience, it is most likely that wet cleaning would be the control measure for allergen cross contact management in food production in this category but without a detailed investigation is impossible to ascertain where in the process the allergen cross contact may have arisen, so it is not possible to conclude if ineffective cleaning may have been the cause.

7. Processed fruit, veg and pulses category

There were no products in this product category where detectable levels of allergens were found.

This category is concerned with more single ingredient production and consequently the risk of allergen cross contact could potentially be lower than for other categories but without a detailed investigation, this is impossible to verify.

8. Jams and spreads category

The only products in this category with detectable levels of allergen were all detected at >20 mg/kg. There was one product (2 samples) found in the savory spread product type (yeast extracts) with detectable levels of gluten and with no advisory label for gluten but for nuts. There were two products (4 samples) found in the sweet spread product type (all chocolate spreads) with detectable levels of hazelnut; two carried a "made in the same factory but elsewhere" and two with a "may contain" level of advisory label.

The "made in a factory but elsewhere" advisory label did identify hazelnut specifically. Hazelnut as an ingredient in chocolate spreads would be a common ingredient in RSSL's experience, so cross contact would be a risk and both of the two products in the sweet spread product type did contain detectable hazelnut.

9. Oils, vinegars and dressings category

There were no products in this product category where detectable levels of allergens were found.

Products in this category, in RSSL's experience usually contain highly refined ingredients so the risk of detectable allergen is probably lower as a result but without a detailed investigation of the manufacturing sites, this is impossible to verify.

10. Dried sauces, gravies and mixes category

There was one product (2 samples) with levels of milk detected up to 20 mg/kg in the dry mix sauces and seasoning mixes product type. The following chart (Figure 41) shows the products with detectable allergen >20 mg/kg with the category of advisory label.

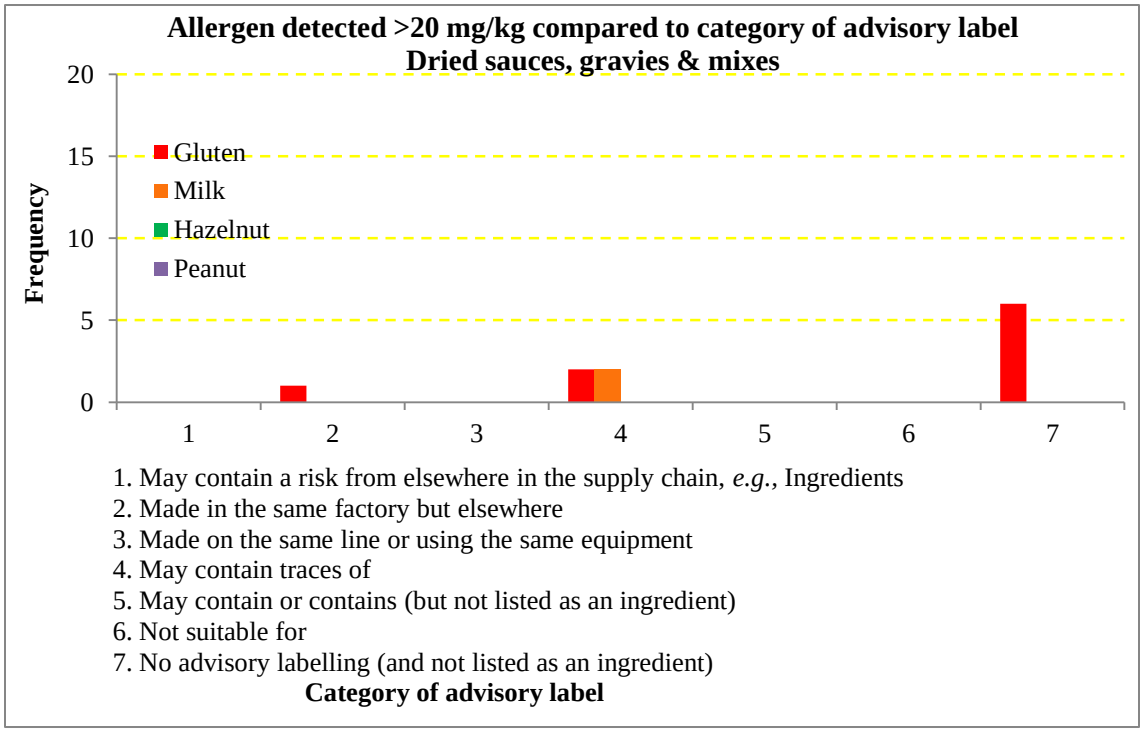


Figure 53. The split of allergen detected > 20 mg/kg with the different categories of advisory labelling – this figure shows the spread of the four allergens in sample numbers in the dried sauces, gravies and mixes product category when detected above 20 mg/kg with the range of different advisory label categories.

Gluten was detected at >20 mg/kg in 5 products (9 samples); 7 samples in the dry mix sauces and seasoning mixes product type with different categories of advisory label but the majority without any (6), and 2 samples in the dried stuffing and mixes product type without any advisory label. Milk was detected at >20 mg/kg in 1 product (2 samples) in the dry mix sauces and seasoning mixes product type with a "may contain traces" advisory label.

In RSSL's experience, these results, albeit from a small sample size, could suggest that milk, and especially gluten allergen control is challenging in this type of production environment but without a detailed investigation, this is impossible to verify. Gluten would probably be a commonly used ingredient in this category and the challenges of dry cleaning would be evident.

11. Snacks category

There were two products (4 samples) that contained up to 20 mg/kg gluten in the corn snacks / tortilla chips product type; one with a "may contain" and one without any advisory label. There were two products (4 samples) in the trail mixes, Bombay mix product type that contained >20 mg/kg gluten; two carried a "may contain traces" advisory label and two carried no advisory label for gluten.

These results, in RSSL's experience also suggest that gluten allergen control is challenging in this category and production environment but without a detailed investigation, this is impossible to verify.

12. Yoghurt and cheese category

There were no products in this product category where detectable levels of allergens were found.

In RSSL's experience, wet cleaning would probably be the method of choice in this category and these results, albeit from the snapshot small number of samples could suggest that allergen control appears to be effective but without a detailed investigation, this is impossible to verify.

Annex 11.

Review of allergens when not detected and the category of advisory label applied

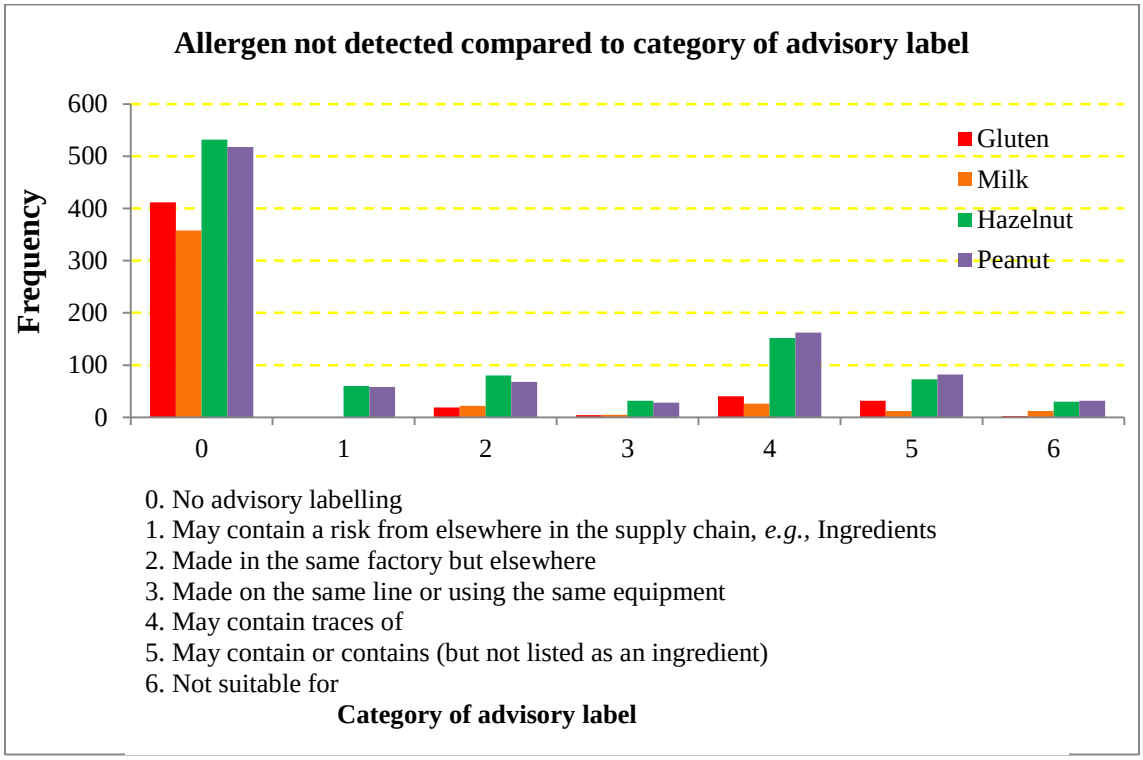


Figure 54. The split of allergen not detected with the different categories of advisory labelling – this figure shows the spread of the four allergens in sample numbers when not detected with the range of the different advisory label categories.

The following charts (Figures 60 to 83) detail product category by product category, advisory label where no allergen was detected.

1. Cereal and cereal products category

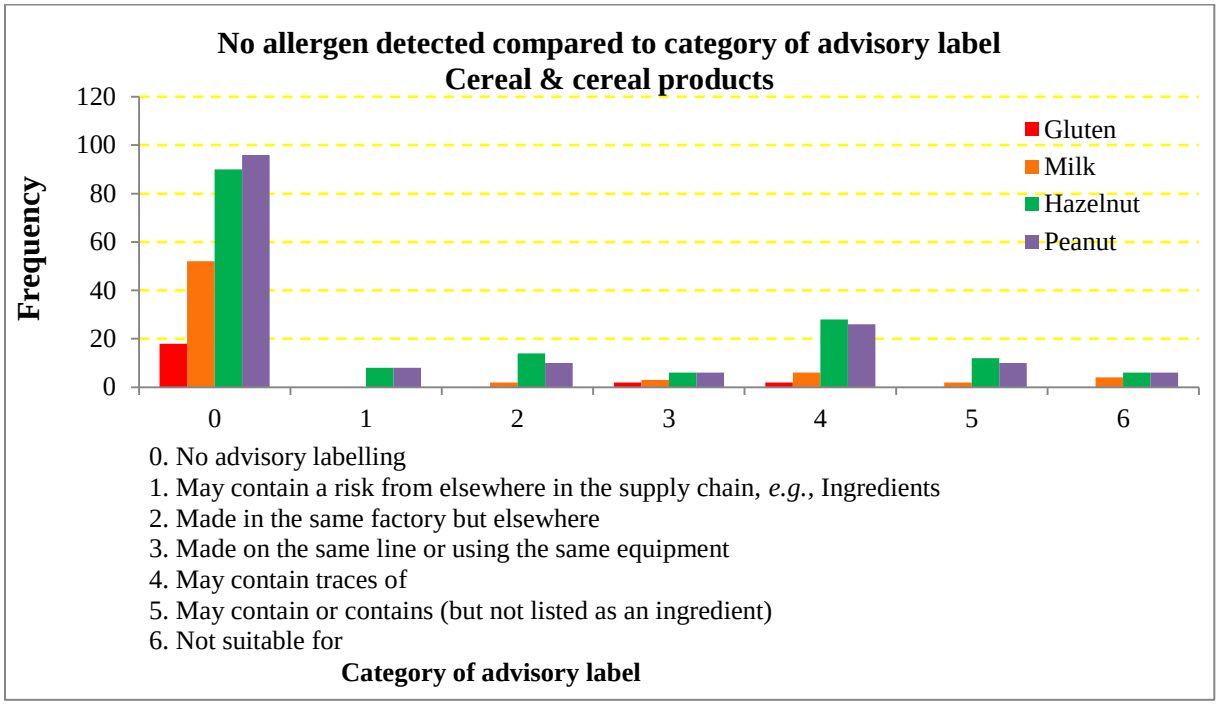


Figure 55. The split of allergen not detected with the different categories of advisory labelling for cereal and cereal products – this figure shows the spread of the four allergens in sample numbers in the cereal and cereal products category when not detected with the range of the different advisory label categories.

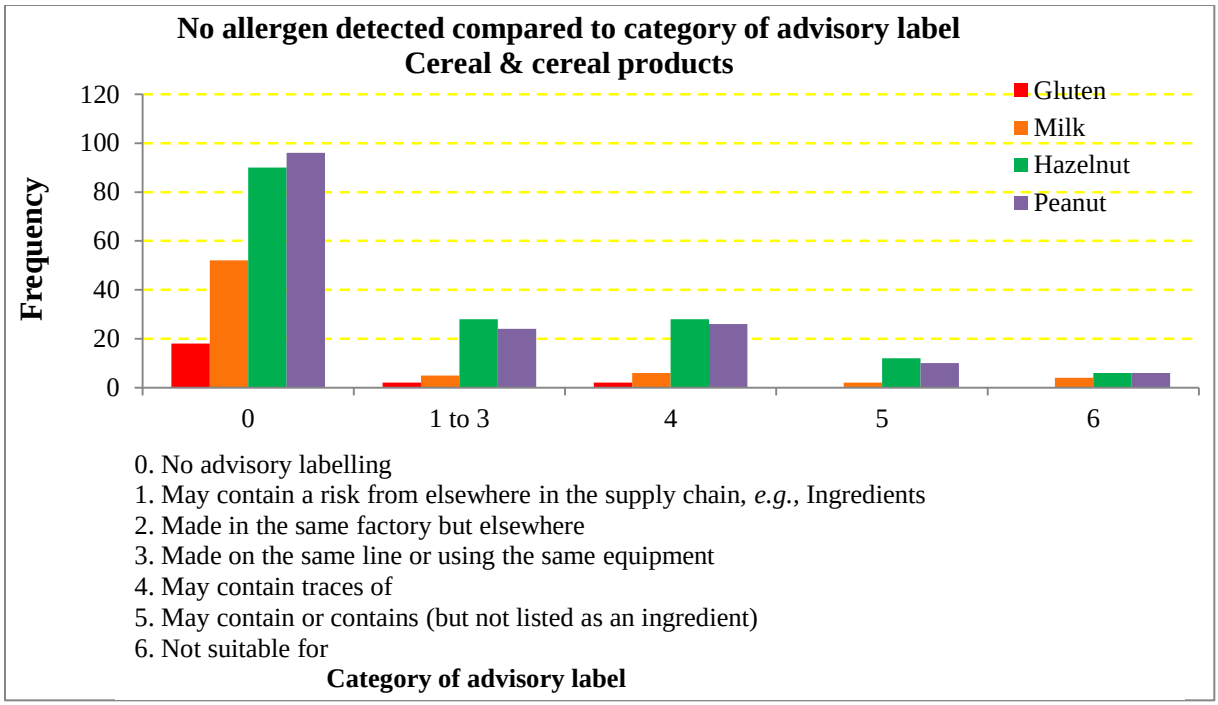


Figure 56. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for cereal and cereal products – this figure shows the spread of the four allergens in sample numbers in the cereal and cereal products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

The frequency of "no advisory labelling" for hazelnut and peanut is at a much higher level than for gluten and milk, especially when compared to the distribution of all products in this survey. The profile of the other advisory labels is similar in distribution when compared to all products in this survey. There were 2 products (4 samples) for milk, 3 products (6 samples) for hazelnut and 3 products (6 samples) for peanut that carried the category of advisory label of "not suitable for". The use of milk and gluten in this product category is widespread and therefore could help to explain why the use of advisory labelling for these allergens is lower. In this product category, the only allergen detected at higher levels was gluten; however the use and range of categories of advisory labelling for gluten was considerably lower than for the other allergens.

2. Confectionery category

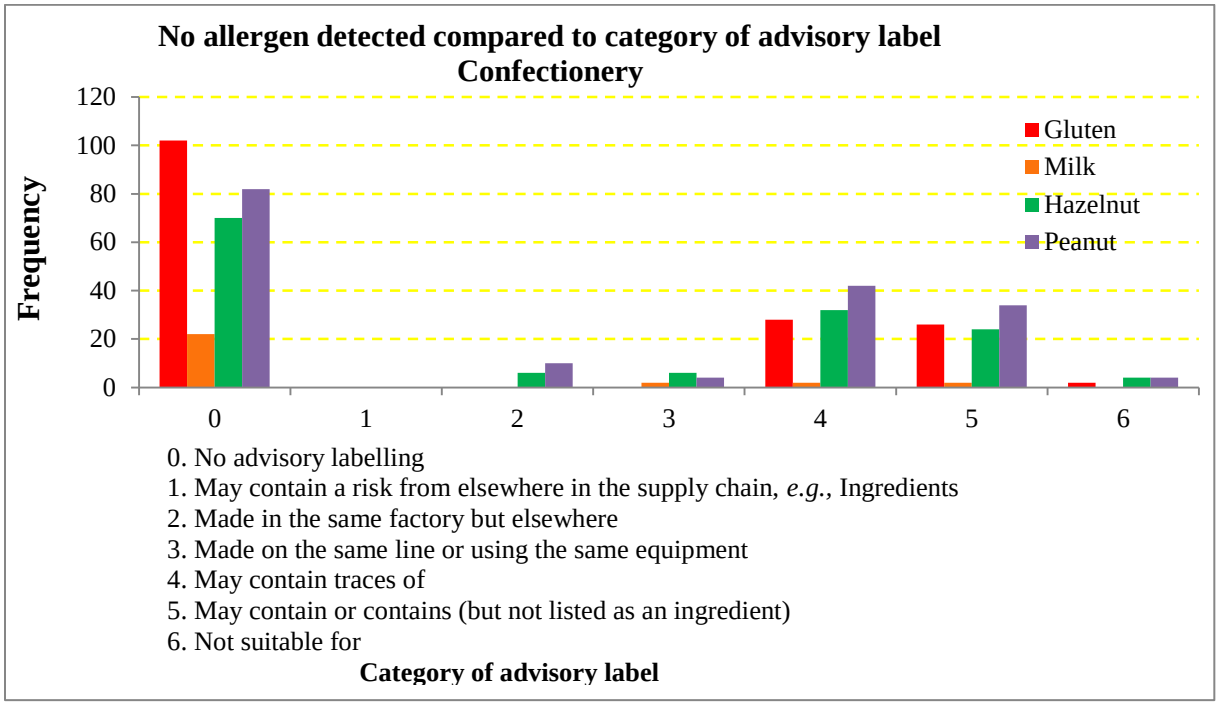


Figure 57. The split of allergen not detected with the different categories of advisory labelling for confectionery products – this figure shows the spread of the four allergens in sample numbers in the confectionery products category when not detected with the range of the different advisory label categories.

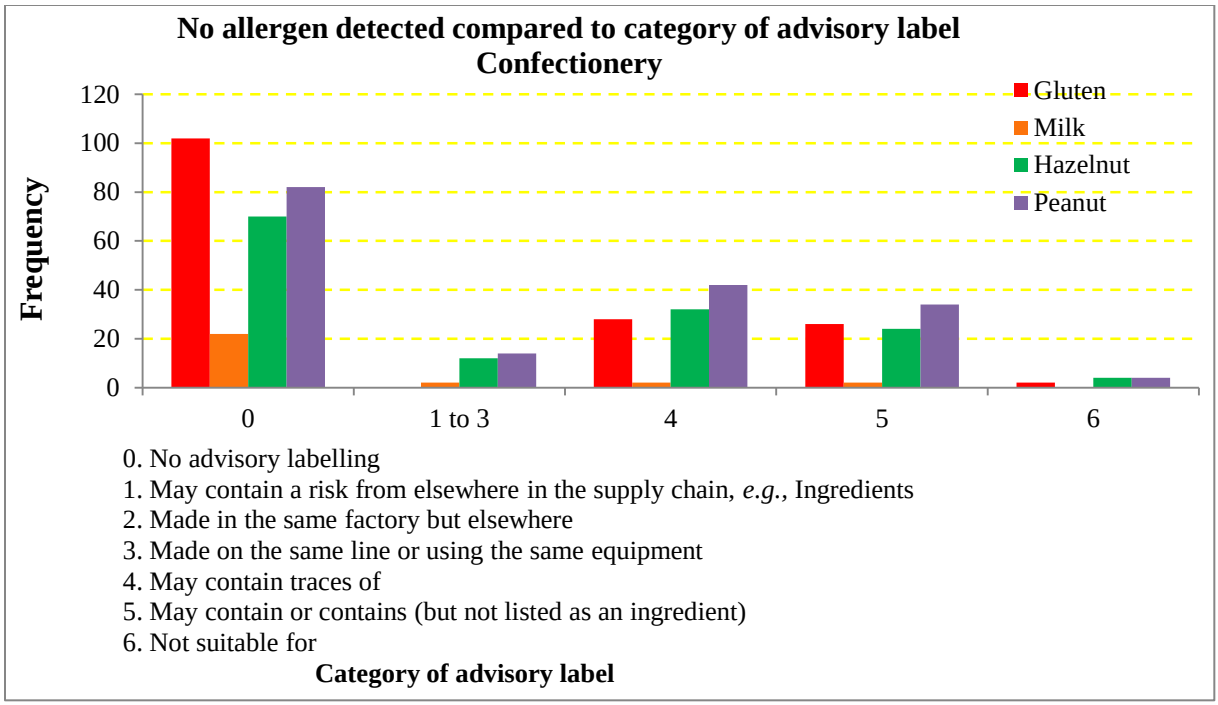


Figure 58. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for confectionery products – this figure shows the spread of the four allergens in sample numbers in the confectionery products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

The high frequency of "no advisory labelling" for all the allergens except milk when no allergen was detected is likely to be a reflection of the common use of milk either as a deliberate ingredient, or the well know challenges of managing milk so effectively that no advisory labelling is required. The category of no advisory labelling for gluten when it was not detected is very high compared to the other allergens. There are no instances of the category of advisory label of "may contain a risk from elsewhere in the supply chain" for any of the four allergens is this product category. This only happens in one other product category – oils, vinegars and dressings. The category of "not suitable for" is only applied when no allergen was detected for gluten, hazelnut and peanut; not for milk. This may be indicative of milk having been detected frequently in this category but without a detailed investigation, this is impossible to verify. There are many cases of products carrying a "may contain" or "may contain traces" for gluten, hazelnut and peanut where no allergen was detected and for the nuts especially, this may be partly because these allergens would typically be heterogeneously distributed in RSSL's opinion but without a detailed investigation, this cannot be verified.

3. Chilled and frozen desserts category

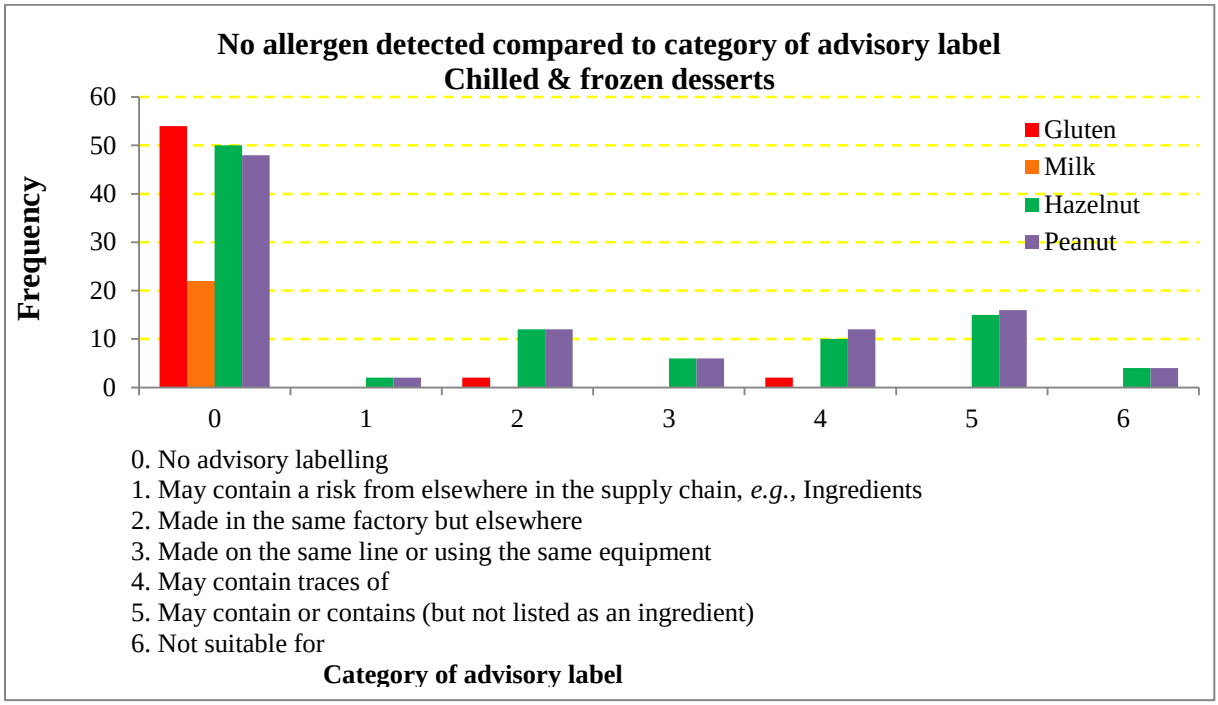


Figure 59. The split of allergen not detected with the different categories of advisory labelling for chilled and frozen desserts products – this figure shows the spread of the four allergens in sample numbers in the chilled and frozen desserts products category when not detected with the range of the different advisory label categories.

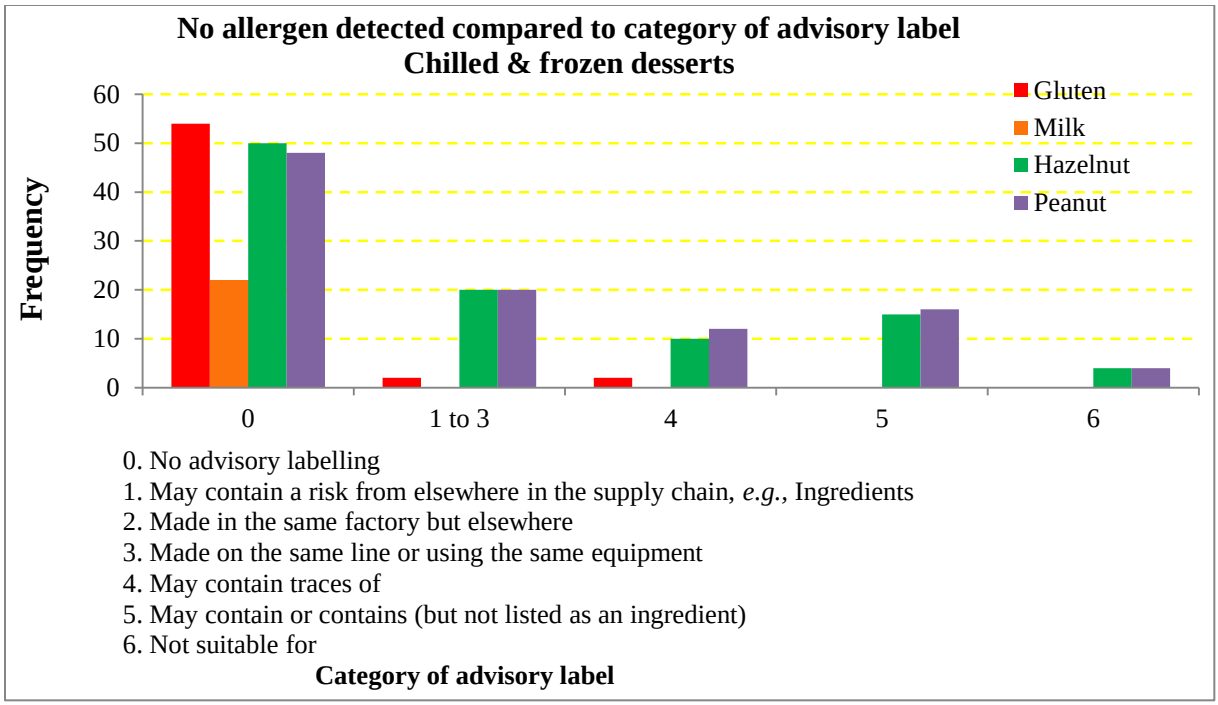


Figure 60. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for chilled and frozen desserts products – this figure shows the spread of the four allergens in sample numbers in the chilled and frozen desserts products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

This is an interesting category because of the lack of advisory labelling when no allergen was detected for gluten and milk. For milk, there were no products that carried advisory labelling that did not contain milk, and very few for gluten. This was also the case for milk in processed fruits, jams and yoghurts product categories. However, there were many across all the categories of advisory labelling for hazelnut and peanut.

4. Meat category

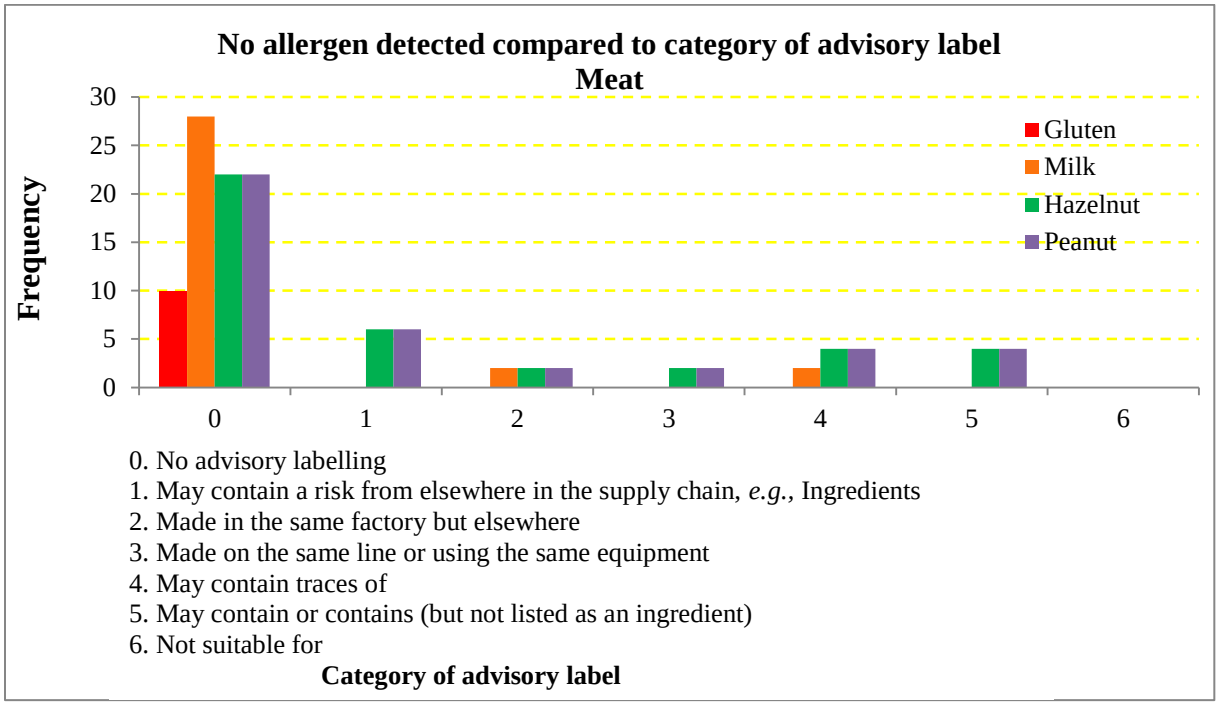


Figure 61. The split of allergen not detected with the different categories of advisory labelling for meat products – this figure shows the spread of the four allergens in sample numbers in the meat products category when not detected with the range of the different advisory label categories.

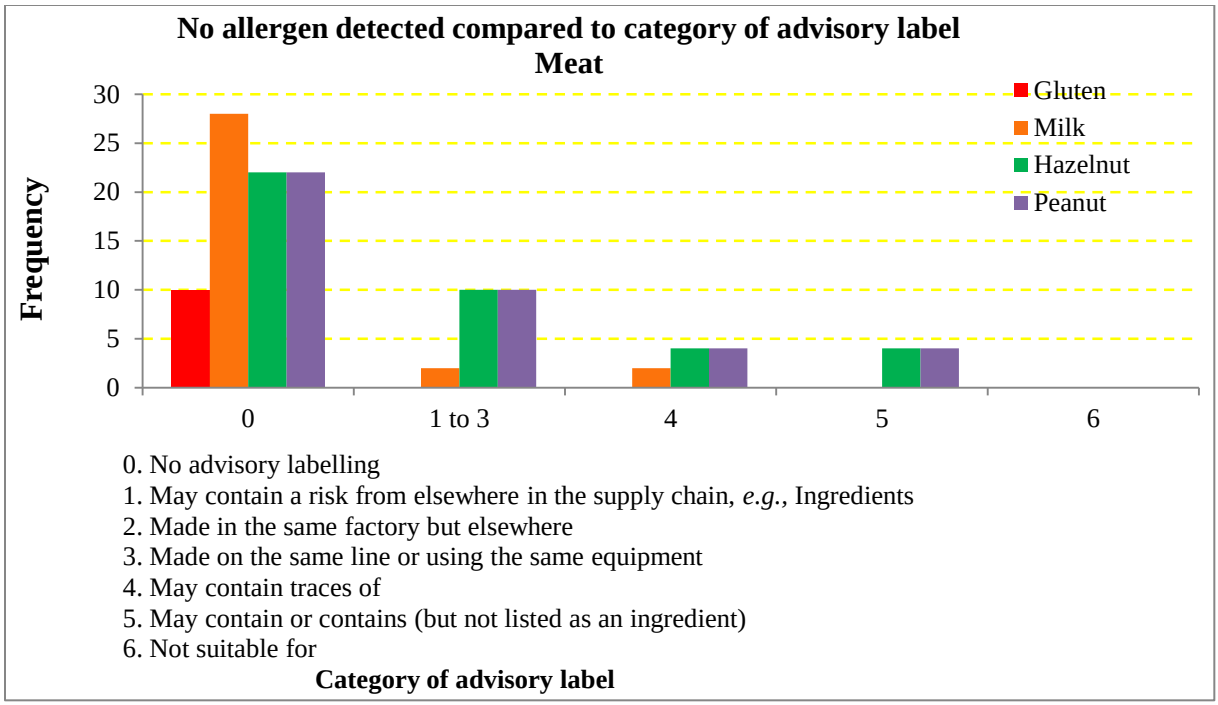


Figure 62. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for meat products – this figure shows the spread of the four allergens in sample numbers in the meat products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

There were no products in this product category where gluten was not detected and an advisory label applied; this only occurred in one other product category – jams. Milk was most commonly not detected when no advisory label was applied compared to the other allergens.

5. Fish category

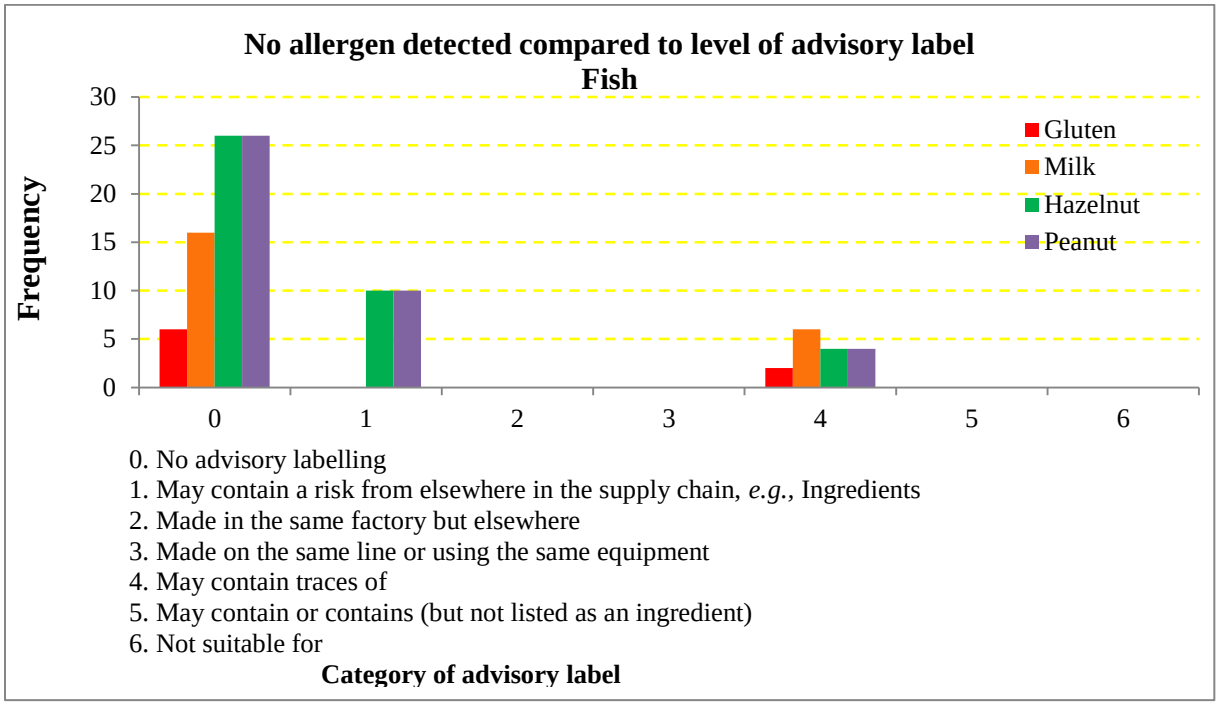


Figure 63. The split of allergen not detected with the different categories of advisory labelling for fish products – this figure shows the spread of the four allergens in sample numbers in the fish products category when not detected with the range of the different advisory label categories.

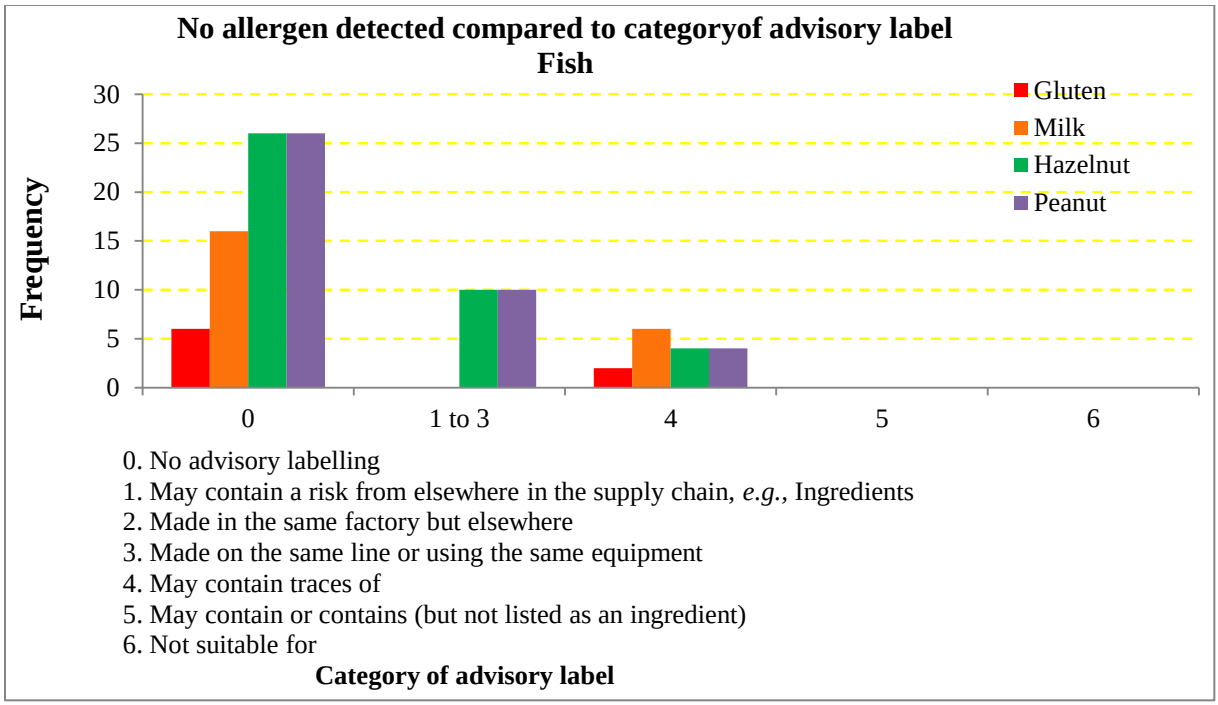


Figure 64. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for fish products – this figure shows the spread of the four allergens in sample numbers in the fish products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

The results for the fish category when no allergen was detected have a different profile than for most other categories. The advisory labelling only falls into 3 categories – none at all, "may contain a risk from elsewhere in the supply chain" or "may contain traces". The "may contain traces" category is found on products for all four allergens when they were not detected. The "may contain a risk from elsewhere in the supply chain" is only used for the hazelnuts and peanuts. It is not clear why this product category should be different to the meat category when allergen was not detected without a detailed investigation of the manufacturing sites.

6. Ready meals category

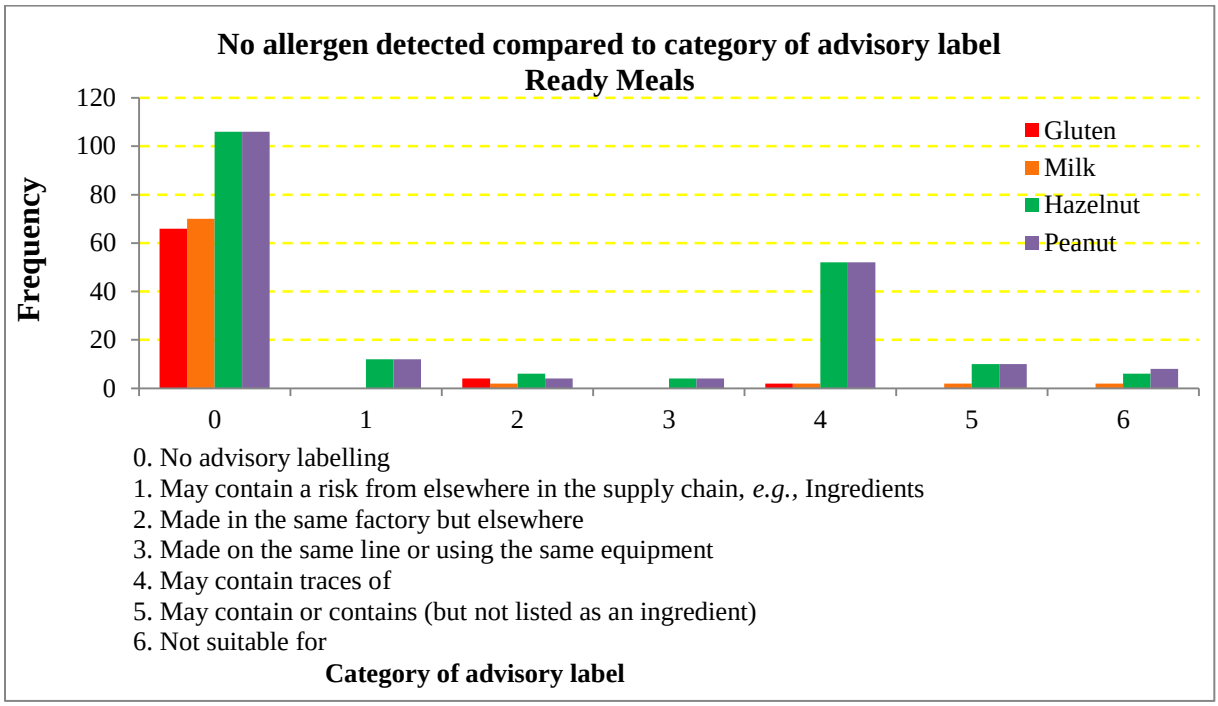


Figure 65. The split of allergen not detected with the different categories of advisory labelling for ready meal products – this figure shows the spread of the four allergens in sample numbers in the ready meals products category when not detected with the range of the different advisory label categories.

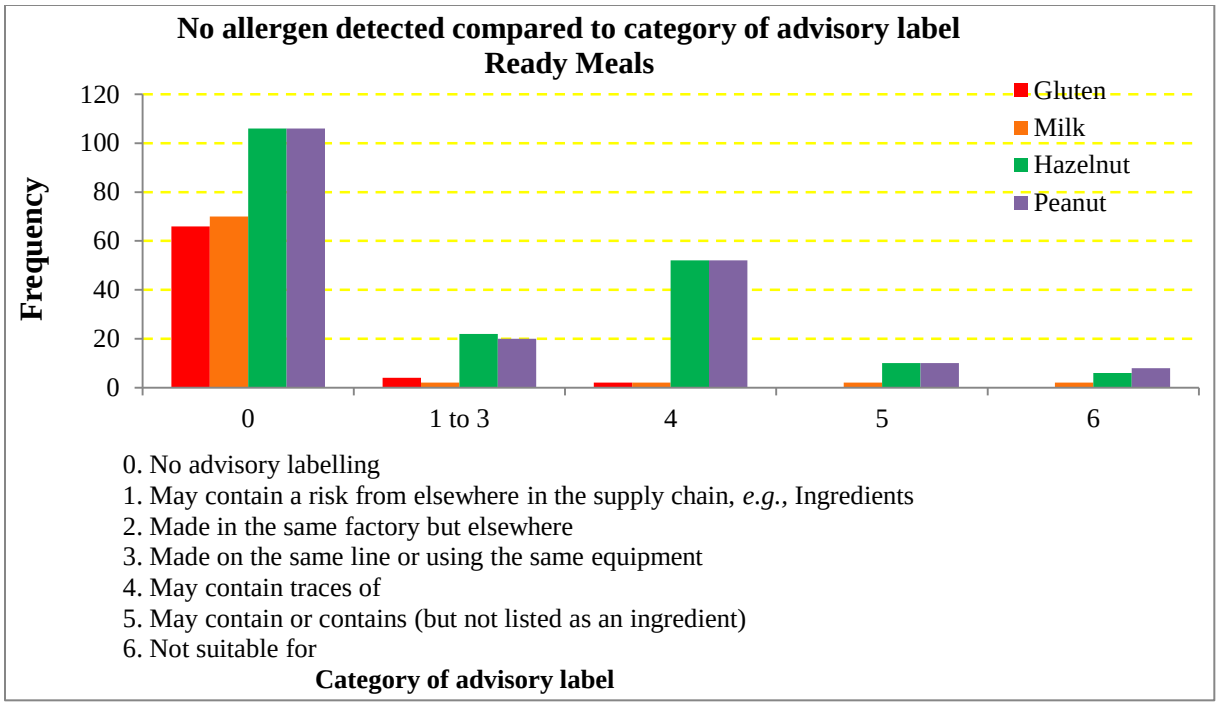


Figure 66. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for ready meal products – this figure shows the spread of the four allergens in sample numbers in the ready meals products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

The distribution of categories of advisory labelling when allergen was not detected in this product category fits the same pattern as the whole survey. Peanut and hazelnut advisory labelling has been used more frequently when not detected compared to milk and gluten. The advisory category of "may contain traces" was the most common category for the allergens except gluten where "made in a factory but elsewhere" was used slightly more when gluten was not detected.

7. Processed fruit, veg and pulses category

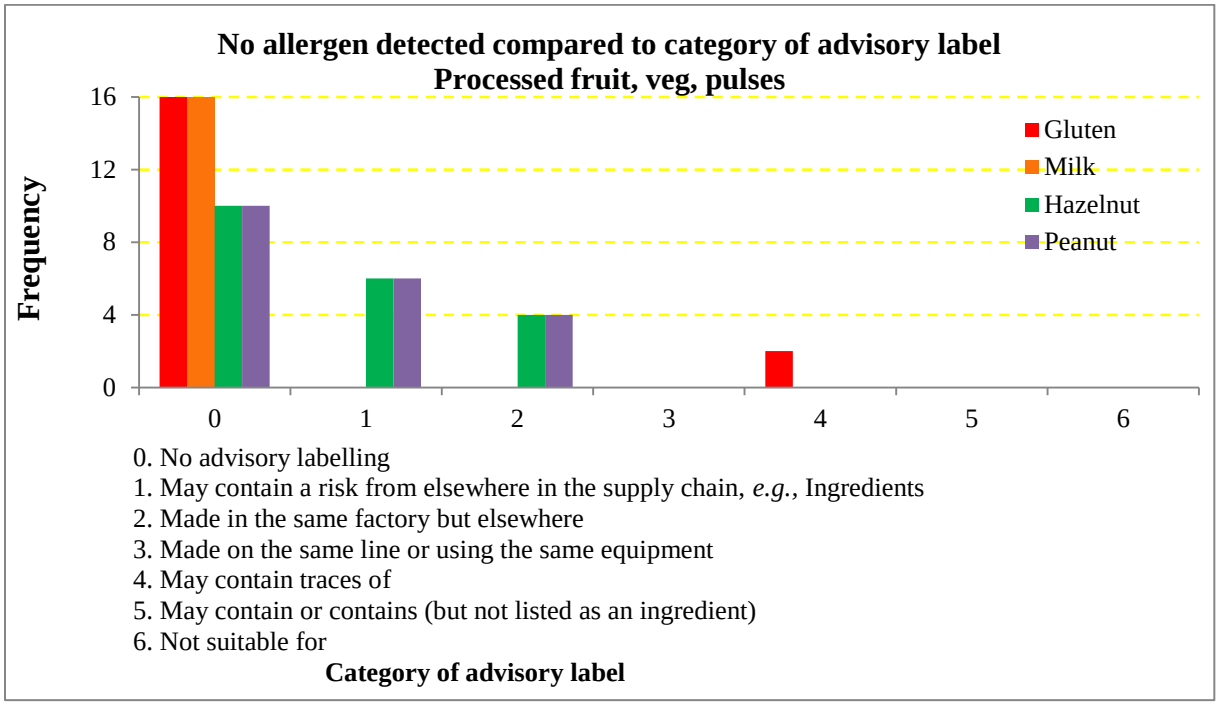


Figure 67. The split of allergen not detected with the different categories of advisory labelling for processed fruit, veg and pulses products – this figure shows the spread of the four allergens in sample numbers in the processed fruit, veg and pulses products category when not detected with the range of the different advisory label categories.

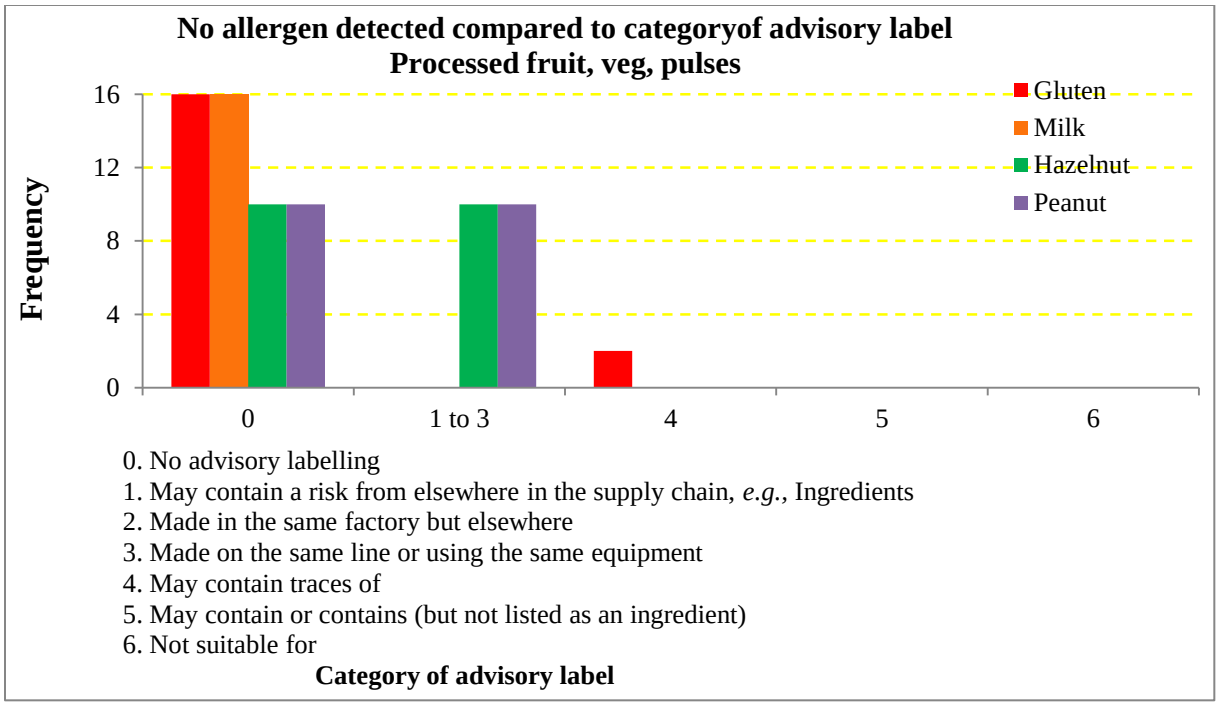


Figure 68. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for processed fruit, veg and pulses products – this figure shows the spread of the four allergens in sample numbers in the processed fruit, veg and pulses products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

The profile in this product category is different to the others because the instances of no advisory labelling when allergen was not detected for milk and gluten were much higher than for hazelnut and peanut. The categories of advisory labelling in the "may contain a risk from elsewhere in the supply chain" and "made in the same factory but elsewhere" is common for hazelnut and peanut and in fact no other category of advisory labelling is applied where these allergens are not detected in this product category. The only case of gluten not detected with an advisory label is in the category of "may contain traces".

8. Jams and spreads category

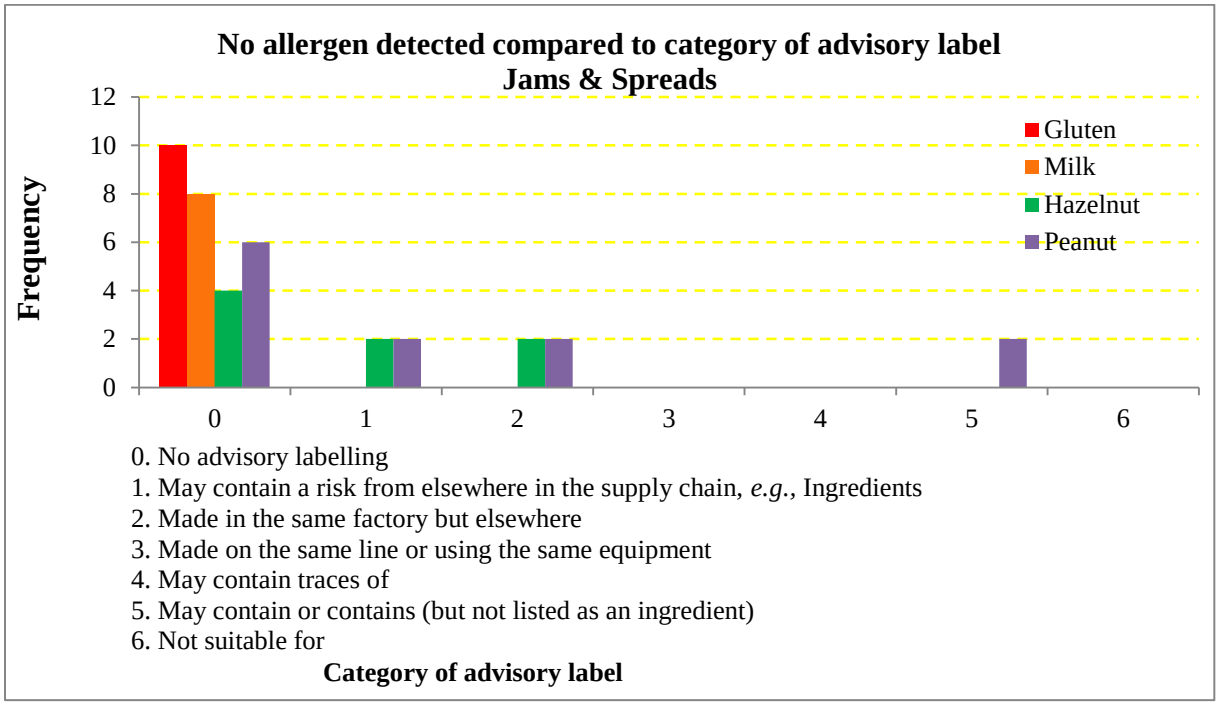


Figure69. The split of allergen not detected with the different categories of advisory labelling for jams and spreads products – this figure shows the spread of the four allergens in sample numbers in the jams and spreads products category when not detected with the range of the different advisory label categories.

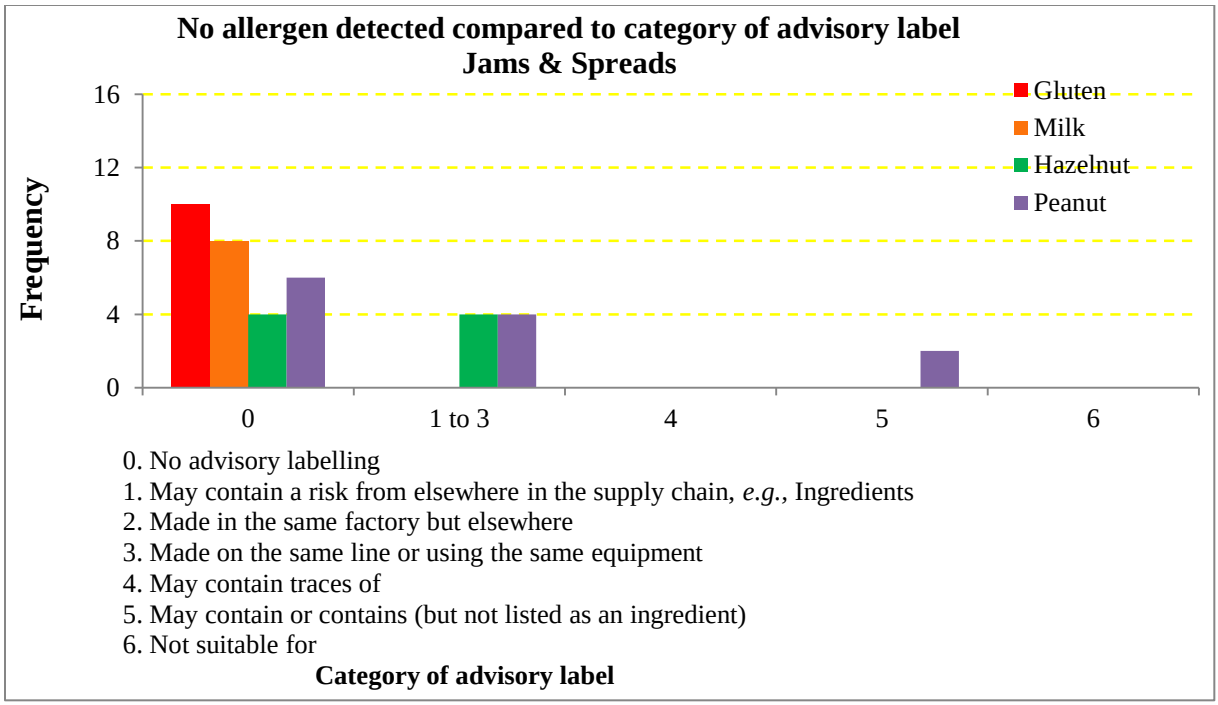


Figure 70. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for jams and spreads products – this figure shows the spread of the four allergens in sample numbers in the jams and spreads products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

This is the only product category where neither milk nor gluten were not detected and an advisory label was applied. Also the "may contain traces" was not used when allergen was not detected for all four of the allergens, when for most other product categories, this was the most common category of advisory label applied when allergen was not detected.

9. Oils, vinegars and dressings category

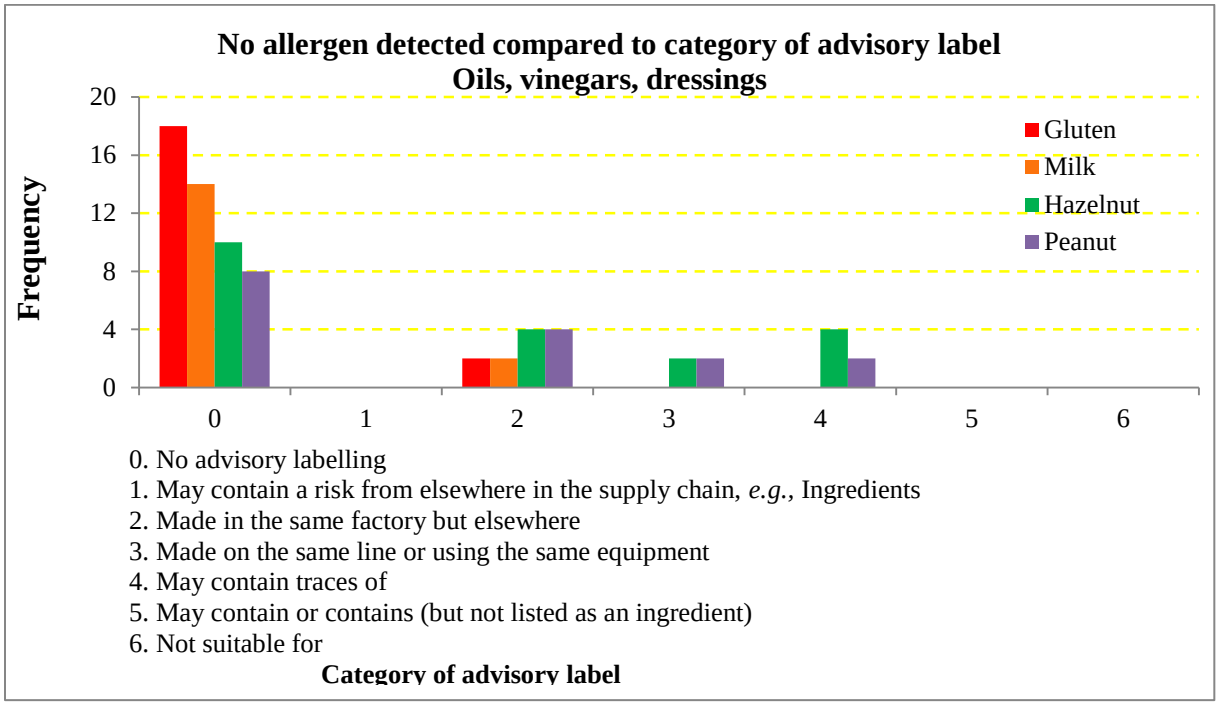


Figure 71. The split of allergen not detected with the different categories of advisory labelling for oils, vinegars and dressings products – this figure shows the spread of the four allergens in sample numbers in the oils, vinegars and dressings products category when not detected with the range of the different advisory label categories.

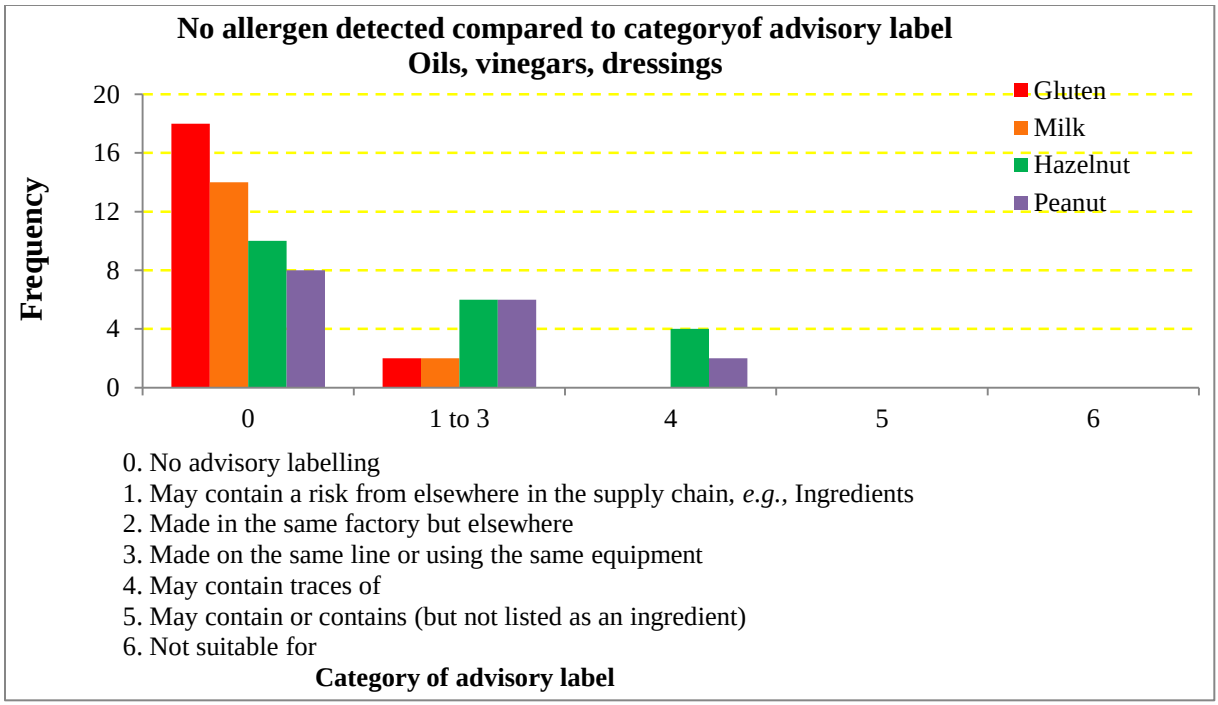


Figure 72. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for oils, vinegars and dressings products – this figure shows the spread of the four allergens in sample numbers in the oils, vinegars and dressings products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

This product category, similar to processed fruit and jams product category had more instances where no advisory was applied and no allergen detected for milk and gluten than for hazelnuts and peanuts.

10. Dried sauces, gravies and mixes category

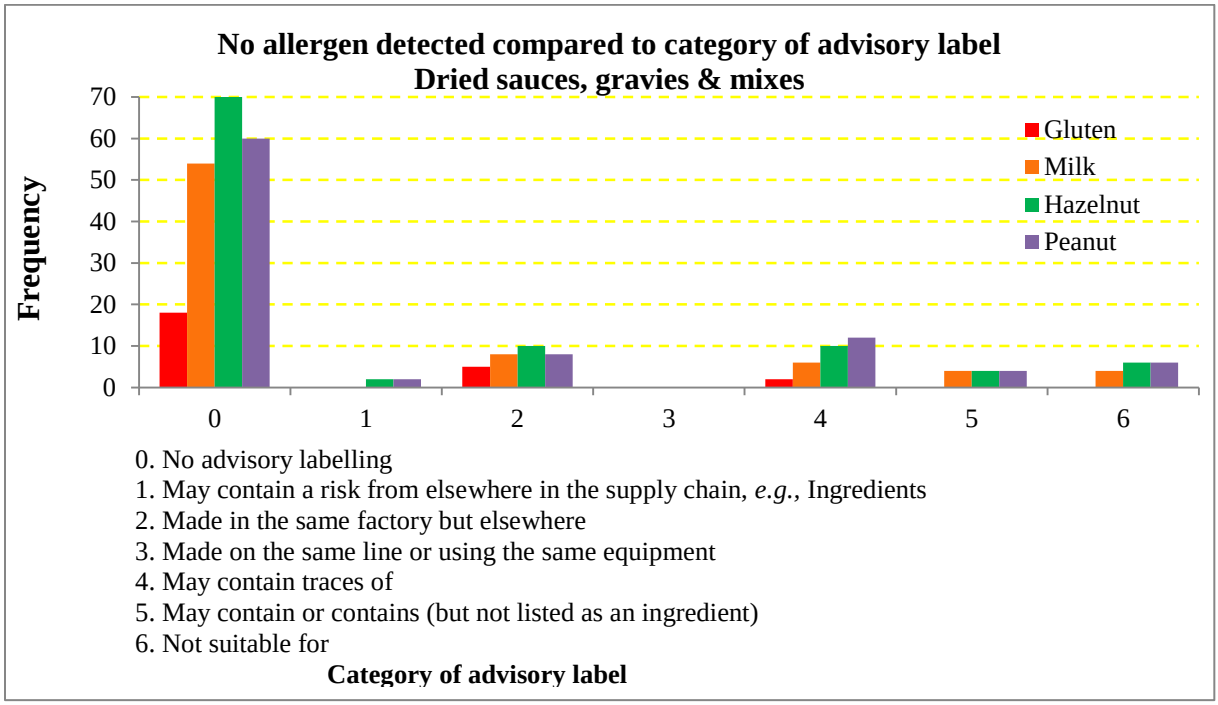


Figure 73. The split of allergen not detected with the different categories of advisory labelling for dried sauces, gravies and mixes products – this figure shows the spread of the four allergens in sample numbers in the dried sauces, gravies and mixes products category when not detected with the range of the different advisory label categories.

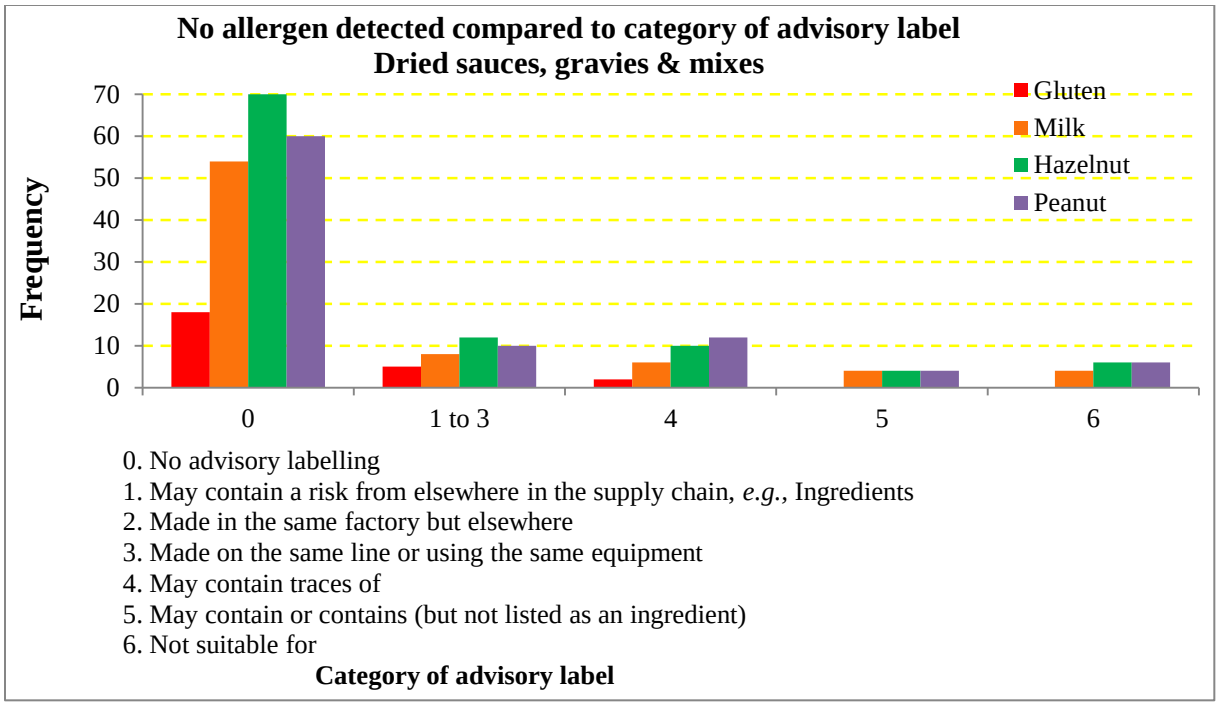


Figure 74. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for dried sauces, gravies and mixes products – this figure shows the spread of the four allergens in sample numbers in the dried sauces, gravies and mixes products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

This product category contains fewer instances where advisory labelling for gluten was used but no allergen detected than other product categories.

11. Snacks category

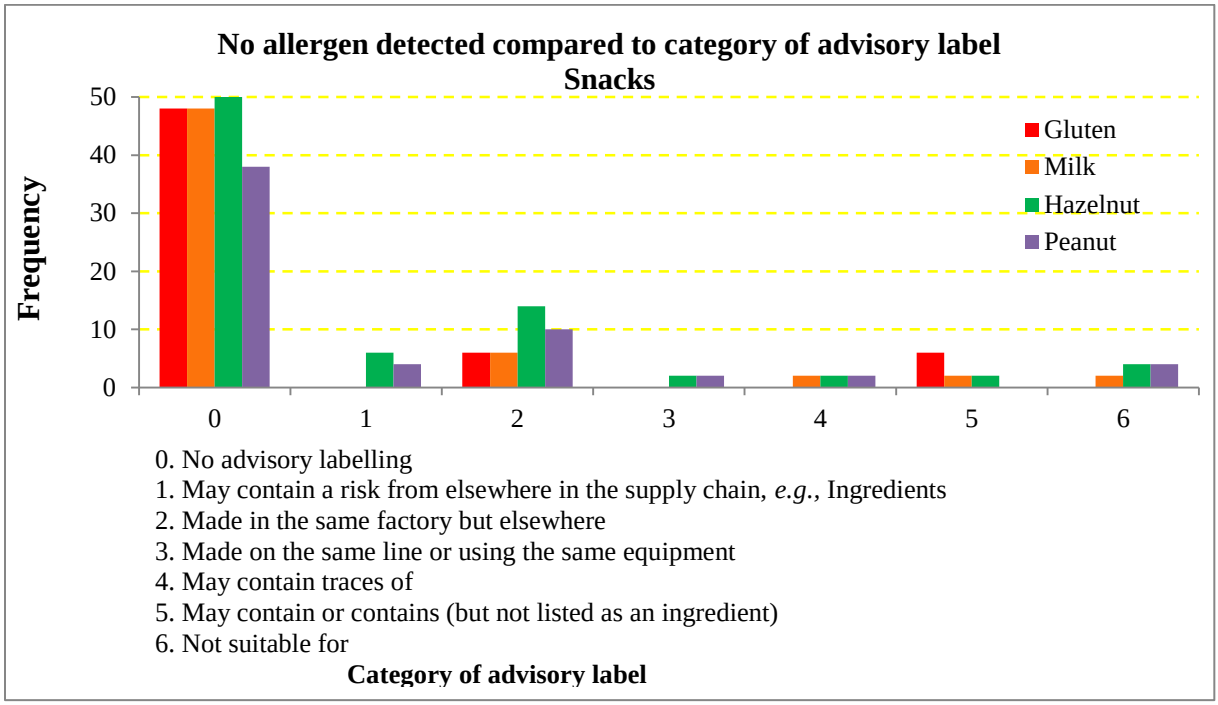


Figure 75. The split of allergen not detected with the different categories of advisory labelling for snack products – this figure shows the spread of the four allergens in sample numbers in the snacks products category when not detected with the range of the different advisory label categories.

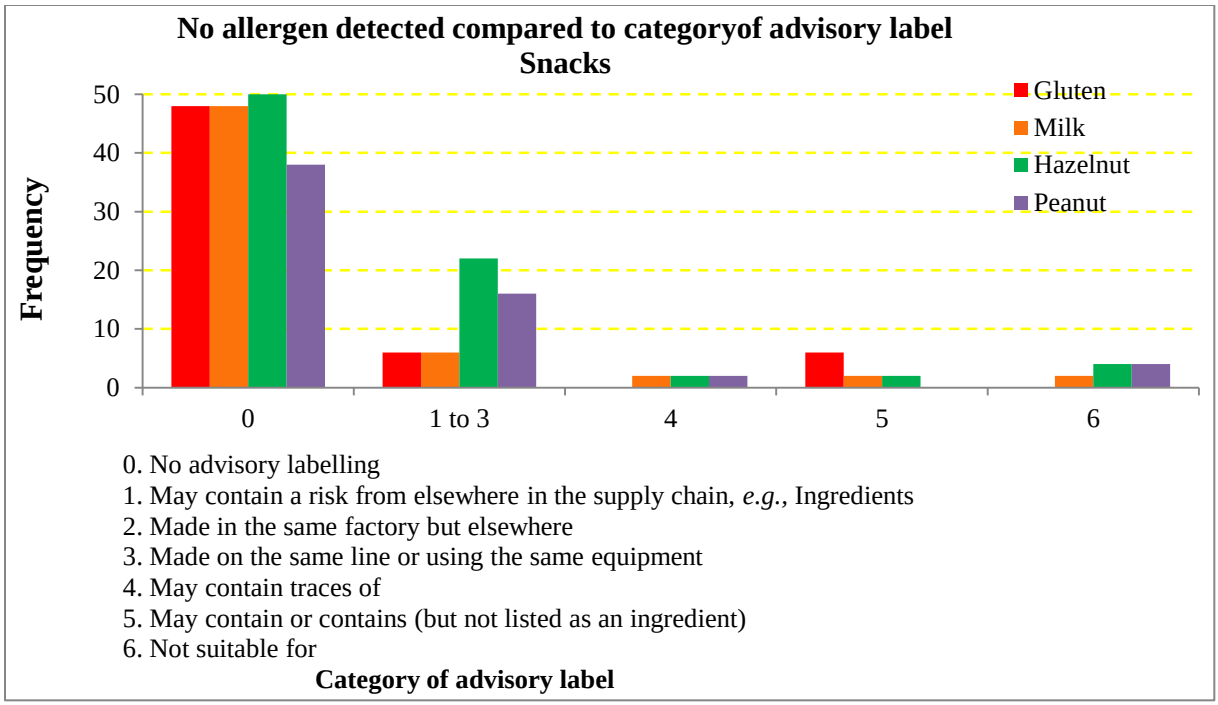


Figure 76. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for snack products – this figure shows the spread of the four allergens in sample numbers in the snacks products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

The most commonly used category of advisory label when allergen was not detected for all four allergens was "made in the same factory but elsewhere". The only other category where gluten was not detected but an advisory label applied was "may contain".

12. Yoghurt and cheese category

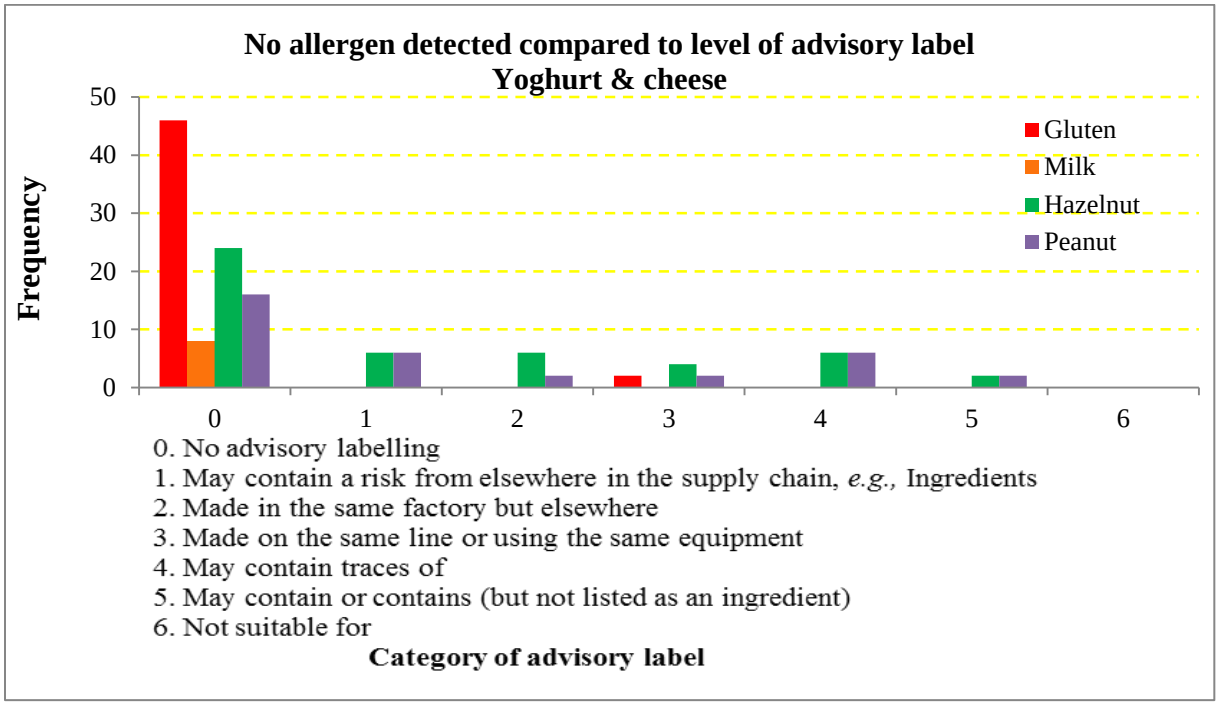


Figure 77. The split of allergen not detected with the different categories of advisory labelling for yoghurt and cheese products – this figure shows the spread of the four allergens in sample numbers in the yoghurt and cheese products category when not detected with the range of the different advisory label categories.

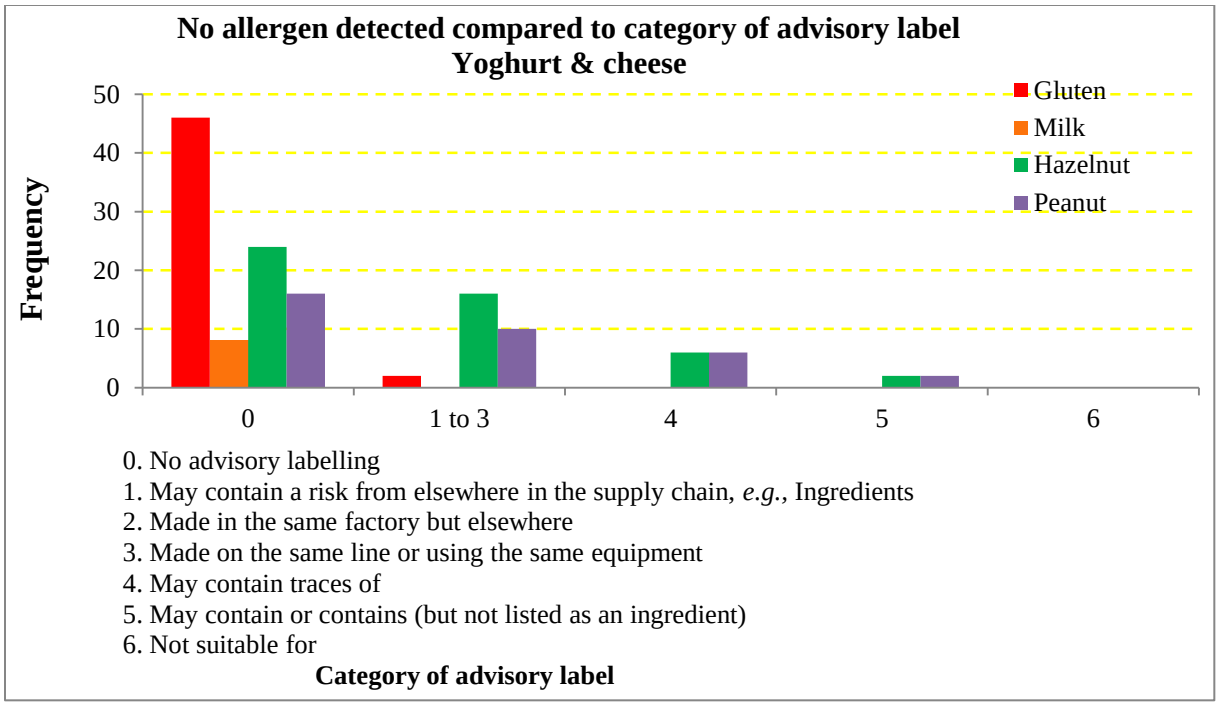


Figure 78. The split of allergen not detected with the different categories of advisory labelling (with categories 1, 2 and 3 combined) for yoghurt and cheese products – this figure shows the spread of the four allergens in sample numbers in the yoghurt and cheese products category when not detected with the range of the different advisory label categories. For ease of graphical depiction, the numbers of samples in categories of "may contain a risk from elsewhere in the supply chain", "made in the same factory but elsewhere" and "made on same line or using the same equipment" have been combined.

As for both the chilled desserts and processed fruit and jams product categories, there were no instances where milk was not detected and an advisory label applied. Gluten was only not detected with an advisory label of "made on the same line" in one product (2 samples), otherwise it was not detected when no advisory label was applied.

Annex 12

Example letter to brand owners

www.food.gov.uk

Name
Address
Email

05 September 2014

Dear

As you may be aware, a snapshot survey was conducted as part of a Food Standards Agency-funded allergen advisory labelling research project. The survey aimed to better understand the type of allergen advisory labelling present on processed prepacked foods sold in the UK. It also aimed to quantify the level of allergens, namely milk, gluten, peanut and hazelnut, present in the food as a result of cross contamination and establish whether the type of advisory labelling used relates to the level of allergen present.

We are writing to those companies whose products were sampled as part of this snapshot survey to provide the results for your company's products for your information.

These findings do not require any immediate action on your part, instead you are invited to send us any comments (maximum 200 words) that you would wish to see published when the full results of the survey are released by the Food Standards Agency shortly. We will need to receive these by 3 weeks from the date of this letter if they are to be included with the survey results.

The analysis was conducted at Reading Scientific Services Ltd using a validated method for the determination of the allergenic protein in question. A duplicate sample of the product has been retained by the laboratory and is available should you wish to undertake your own analysis.

In line with the Food Standards Agency's policy on openness, a list of all the products sampled including details of brand, type of product and the retail outlet from where it was purchased, will be published with the results.

Please do not hesitate to contact me at the following email address if you have any queries: allergenadvisorylabellingsurvey@foodstandards.gsi.gov.uk

Please can you send an acknowledgement email to this email address to confirm that you have received this letter.

Yours sincerely

Sarah Hardy

Food Allergy and Intolerance Research Programme Manager

Results of analysis

Date of purchase	Use by / Best before Date	Product description and Brand name	Batch codes	Gluten test result (mg/kg)	Milk protein test result (mg/kg)	Hazelnut protein test result (mg/kg)	Whole peanut test result (mg/kg)	Peanut protein test result (mg/kg)	Allergen advisory labelling statement

Product selection

A detailed sampling plan was developed by RSSL and this was used a guideline for product selection.

A decision tree outlining how products were sampled and the analytical tests that need to be conducted can be found in Annex 1.

Measurement uncertainty

Uncertainty of the method was measured using the standard deviation data obtained from the precision test (repeatability). Using a minimum of 10 data points from current analytical data (reproducibility and repeatability studies) the standard deviation of the mean was calculated. The standard deviation was then divided by the mean.

The level of confidence was obtained by multiplying the estimate of the standard deviation by a coverage factor k. In accordance with the international practice UKAS recommended the factor k=2 to be used. When the standard deviation is multiplied by the factor k=2, it is then referred to the expanded uncertainty and will give a confidence level of approximately 95%.

Uncertainty is re-calculated annually to ensure that the uncertainty value being used is representative of the current performance of the method. This is achieved using data collected from positive QC samples and recorded in Shewhart charts.

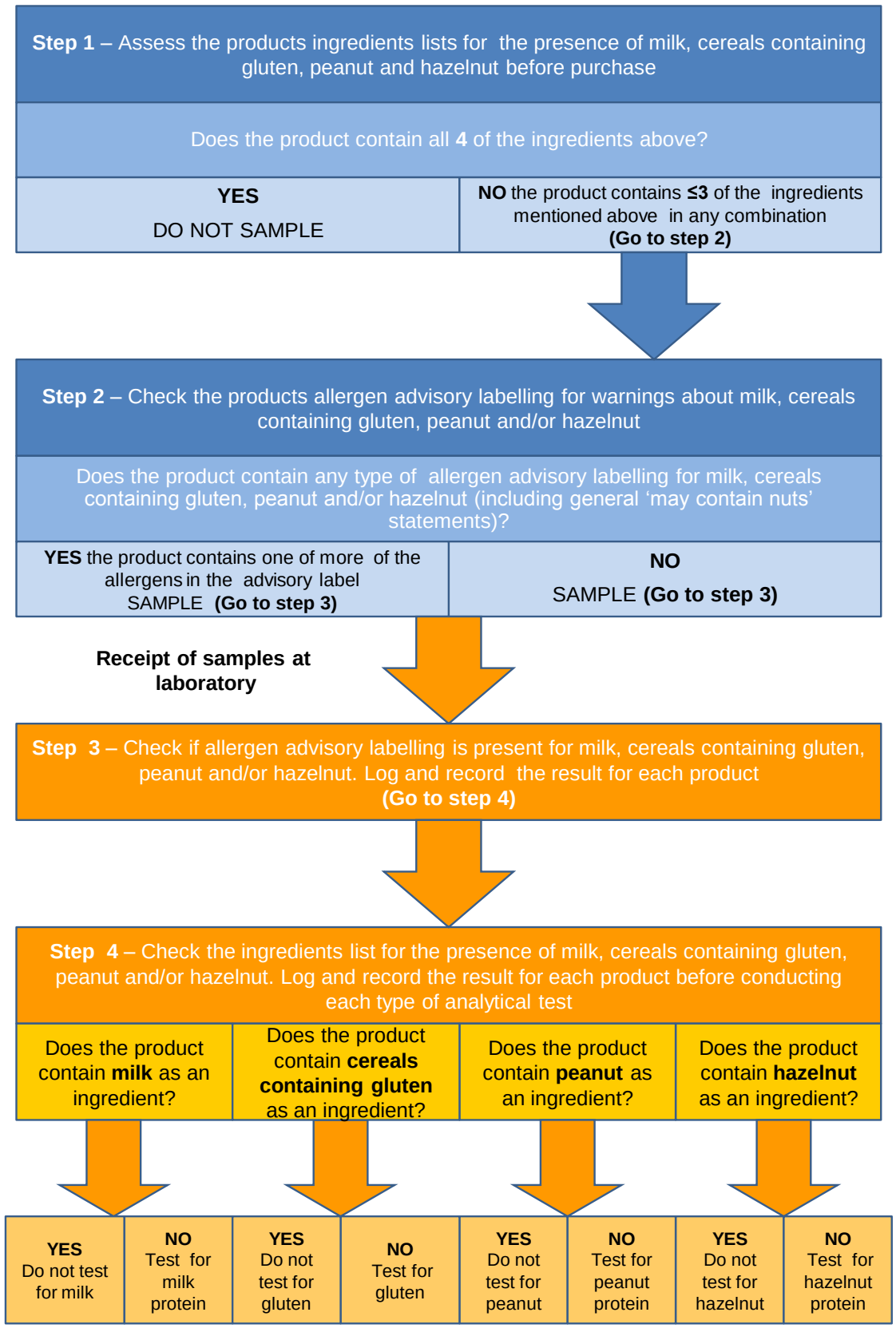
Method

Analysis of samples was performed using commercially available ELISA kits for the detection of allergen protein and all results were quantified. Each kit used was a sandwich type ELISA which is based on an antigen-antibody reaction.

The gluten, hazelnut and peanut ELISA kits had been previously validated by RSSL and are currently RSSL's methods of choice for routine ELISA analysis. For milk, a new ELISA test kit that detects both casein and beta-lactoglobulin, which are the predominant milk proteins (i.e. whole milk kit) were selected and validated for use.

RSSL has a UKAS Flexible Scope of Accreditation for allergen testing by ELISA and have validated numerous commercial ELISA kits for a wide range of allergens. The ELISA methods chosen for this project have been extensively validated to cover a wide range of different matrices for each of the target allergens.

Annex 1: Decision tree outlining how pre-packed processed food products were sampled and the type/(s) of analytical tests that were conducted



Annex 13

Comments received in response to brand letters

Brand /Brand Owner	Comment
Asda Stores	At the time of manufacture the ASDA Dark Chocolate BB 19/12/13 shared key manufacturing equipment with Milk Chocolate products so a 'may contain milk' statement was included on the packaging. The manufacturing sites process records have confirmed the line was cleaned for 8hrs prior to the manufacture of the Dark Chocolate. The site was also certified under the BRC Global Food Standard V6 which includes a review of the sites allergen management and hygiene, no issues were raised in the year of manufacture (2012) relating to these clauses. Due to the length of time between the product testing and notification to ASDA the product life has expired (19/12/13) and all retained samples have now been disposed of. Therefore, we have not been able to test any product to verify the FSA results. The product has also since moved manufacturing sites in August 2012 and the recipe has been reformulated and now contains milk as an ingredient and is labelled as such.
Blue Diamond, California	The survey results reaffirm the allergen statements made on the labels of the Almond Milk. i.e. these allergens can be considered "absent "/ not detected within the detection limits of current methods. This is also in line with previous analysis. In general some cases of free from claims are maintained by good manufacturing practises , some via total absence in the production site and risk assessment however the methodology used to detect allergens is a developing field where detection limits are decreasing,. In light of this our view is that the FSA should propose threshold limits for specific allergens, this would be a welcome addition to help clarify "free from" statements.
Bon Bon Buddies Ltd	We have comprehensive procedures and controls in place for allergen control and are based on proven practices. The report identifies trace elements as declared on the packaging, which confirms the risk analysis carried out is correct. However this does not negate the need to minimise the risk and we will review our cleaning and segregation procedures even further to drive these levels down wherever possible

	Key elements include: • People • Raw material and supply chain • Storage • Sieving • Manufacturing premises, equipment and process • Staff training • Supplies • Purchase and delivery of goods • Storage of goods(dry/chilled) • Handling and preparation • Cooking • Further handling • Cooling and chilling • Washing up and general cleaning • Cleaning • Packaging • Re-work • New product development • Reformulating products • Extending brands into another product line • Factory trials and consumer testing • Allergen free foods • Allergen risk review
Burton's Biscuit Company	Our tested products include a "May Contain Nuts" warning as there is the potential for nut presence as a result of other processes at our manufacturing and supply chain facilities. Consumer well-being is of the upmost importance to Burton's Biscuit Company and we therefore advise that consumers who are sensitive to nuts to avoid those products which carry this advice
Cadbury UK (Mondelez UK Ltd)	Presence of Milk in Dark Chocolate In line with FSA advice, where we may have unavoidably high levels of Milk in Dark Chocolate (due to Milk Chocolate products made on the same manufacturing line), we now use the following allergen advisory warning: 'Not suitable for someone with Milk Allergy'. May contain hazelnuts The levels of hazelnuts found in Mondelez products with a 'May contain Nuts' warning did not exceed 100mg/kg. This is consistent with our expectations.

COPACK Tiefkühlkost	Until 13/12/2014, we will change the allergen declaration on the Paella packaging: Allergen-containing ingredients will be highlighted and we will print additional allergen information on the packaging: May contain traces of gluten, eggs, soya, celery and mustard.
Golden Wonder (Tayto)	The allergen statement "contains milk" is on pack with regards the allergen information provided to us by our flavour suppliers – the flavour contains cheese powder and as such does contain milk. It is possible that the method used to analyse the product is unable to detect the denatured protein in cheese powder – we have found that this can be an issue when carrying out validation protocols
Iceland	All Iceland Own Label suppliers must not only pass an approval audit by one of our Food Technologists but must also achieve BRC Global Standard for Food Safety, grade A or B. This standard, which is independently audited against, includes "Management of allergens – the company shall have a developed system for the management of allergenic materials which minimises the risk of allergen contamination of products and meets legal requirements for labelling." In addition Iceland own label suppliers must adhere to the Iceland labelling & allergens policies. Iceland labels highlight any allergens in bold and underline in compliance with EC labelling regulations. We will only provide additional "may contains" information on labels, where suppliers have risk assessed and highlighted the possibility of cross contamination. Whilst we are conscious of not over labelling risks, customer safety remains our highest priority and we need to ensure our customers are aware of potential allergen risks that may be present; in order that they can make an informed choice.
Kate's Kitchen	These products have not been on sale since December 2012. We have no plans to sell these products in the future.
Meridian's Foods Ltd (3V Natural Foods Ltd)	Meridian Organic Peanut & Oat Bar This product was delisted in 2012 and sample taken was from one of the last productions. As the bars were manufactured using standard organic oats where there is a risk of cross contamination during farming and processing, while the bars were manufactured in a small scale factory alongside wheat flour products and on shared equipment, we were aware that there was a real risk of cross contamination and included an allergen statement to reflect the real risk.

	Our risk assessment shows Peanut butter is manufactured in a dedicated nut and seed factory on the same equipment nut and sesame. There is a real risk of cross contamination with nuts and sesame.
Musgrave Retail Partners NI (formerly known as Musgrave SuperValu Centra NI)	We have reviewed in store practices and found that this sandwich had been buttered. Butter was not on the ingredient list and therefore milk was not listed as an allergen. The store in question has been informed of this issue and will make the appropriate amendments to their labels. We are reviewing our labels as part of the new Food Information to Consumer Regulations to ensure all information on allergens is available for the introduction of the legislation in December 2014
Tropical Wholefoods (Fullwell Mill Ltd)	We are very pleased to hear that FSA is looking at this issue. Local interpretation of this legislation has to say the least been inconsistent. To us it had seemed the state had effectively outsourced compliance with allergen legislation in medium and large scale food manufacture to the large food retailers. Local authorities do not have the financial or human resources to effectively keep up with let alone police the highly complex legislative environment or the equally complex systems used in modern food manufacture. The supermarkets having profited from driving a fast moving market do have the resources to keep well ahead of the pace of change. We know from experience that for own label products they require absolute best practice and full compliance with the legislation by their suppliers. From knowledge of practices in the industry the supermarkets do not appear to apply a fraction of the diligence they use on their own label with branded goods. It seems that the big retailers feel no obligation to discover where manufacturers are not likely to be producing in compliance with legislation or act on any such knowledge. Indeed if doing so has a cost or would lead to a loss of sales there is a strong financial incentive not to do so. At worst this means that members of the public may be at risk and at best food manufacturers, and their clients who comply with the legislation are at a significant commercial disadvantage. To protect public safety and create a level playing field for business the state has to either police it's complicated legislation properly, pay the retailers to police it for them and / or make the retailers at least partly responsible for the full legal compliance of all the goods which they sell.

Wholebake Ltd	With regards to the tested product and the packaging used at the time, we have now re-designed the packaging and since June 2013 new pre-printed film is used with updated allergen information