LUPIN SURVEY

NSW GOVERNMENT Food Authority

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JUNE 2022
FI386/2206

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Glossary

ACP – Allergen Cleaning Program

AFGC – Australian Food and Grocery Council

ASCIA – Australasian Society of Clinical Immunology and Allergy

FSA – Food Standards Agency

FSAI – Food Safety Authority of Ireland

FSANZ – Food Standards Australia New Zealand

g – Gram

LOD – Limit of Detection

LOQ – Limit of Quantification

mg – Milligram

NSWFA – New South Wales Food Authority

PAL – Precautionary Allergen Labelling

PEAL – Plain English Allergen Labelling

ppm – parts per million

VITAL – Voluntary Incidental Trace Allergen Labelling

VSEP – VITAL Scientific Panel

Executive summary

Standard 1.2.3 of the Australia New Zealand Food Standards Code (the Code) specifies the mandatory declaration of certain foods or substances in food including allergens. In 2016 - 2017, the NSW Food Authority (the Food Authority) conducted a survey to determine the prevalence of undeclared allergens in a variety of packaged and unpackaged food sold in NSW. The products were tested for a range of allergens specified in Standard 1.2.3 at the time (i.e. gluten, peanut, tree nuts, milk, egg, fish, sesame seed, soy and crustaceans). The survey report can be found on the Food Authority's website.

Lupin was added to Standard 1.2.3 on 25th May 2017 and from 26th of May 2018, lupin in food must be declared in order to comply with the food labelling requirements. Due to increased interest in products marketed as nutraceutical foods, the number and range of commercially available lupin-based products have increased in the last five years. Consumers with food allergies rely on food labels to disclose the presence of intentionally included allergenic ingredients. However, undeclared allergens can be inadvertently introduced into a food via cross-contact during manufacturing.

Since the inclusion of lupin in Standard 1.2.3 there have only been three documented recalls in foods attributed to lupin overseas. However, the literature review implied that the number of contaminated foods could be higher. It was suspected that lupin testing was not routinely included in food recall investigations, with investigative testing targeted towards allergens like peanut and dairy that have a higher incidence of allergic reactions attributed to them (FSANZ, 2017).

A targeted survey was conducted in September to December 2020 to gather information on the level of lupin in foods and to assess the compliance in the industry after Standard 1.2.3 was updated. Labels on the sampled products were also assessed for compliance with Part 1.2 of the Code.

A total of 123 products were purchased and tested for the level of lupin. Samples included flours, dry pasta, baked goods and sauces. All samples were found to be compliant, meaning they did not contain lupin at a level that would require declaration. Three low level detections were noted. In addition, approximately three quarters of the products had labels that complied with the Code. The most common non-compliances observed were unsubstantiated nutrition claims, absent storage conditions and partial or missing addresses of the manufacturer/importer. When a non-compliance was observed, appropriate follow up action was taken by an Authorised Officer.

Introduction

Standard 1.2.3 of the Code specifies the mandatory declaration of certain foods or substances in food including allergens. In 2016 - 2017, the Food Authority conducted a survey to determine the prevalence of undeclared allergens in a variety of packaged and unpackaged food sold in NSW. The products were tested for a range of allergens specified in Standard 1.2.3 at the time (i.e. gluten, peanut, tree nuts, milk, egg, fish, sesame seed, soy and crustaceans). The survey report can be found on the Food Authority's website.

At that time, Standard 1.2.3 did not include lupin, so it was not tested in the previously mentioned survey. Lupin was added to Standard 1.2.3 on 25th May 2017. Food businesses were given 12 months from this date to meet the mandatory allergen labelling requirements for any food products containing lupin. From 26th of May 2018, lupin in food must be declared in order to comply with the food labelling requirements (FSANZ, 2017).

Australia, more specifically Western Australia, is the largest producer of lupin in the world, with 80% of world lupin production grown there (Government of Western Australia, 2017). Many components or derivatives of lupin are used in a range of food types, for example kernel (made into kibble and flour), fibre, protein isolates and concentrates. Lupin components are commonly used in baked goods.

Lupin seeds contain a high level of protein and dietary fibre and are low in fat and starch. There are also claims that consumption of lupin seeds can have a beneficial health effect on individuals. As a result, lupin seed components are increasingly being used as foods and food ingredients (Smith et al., 2008).

A significant concern with lupin is the potential for people with allergies to other legumes, such as peanuts, to also be allergic to lupin. The major lupin allergen Lup an1 (β-conglutin) has a similar protein sequence to the major peanut allergen Ara h1. Generally, lupin allergens are resistant to thermal, chemical, and proteolytic degradation. However, the effects of different processing methods on the allergenicity of lupin have not been systematically investigated (ASCIA, 2015).

Undeclared allergens can inadvertently occur in a product through a number of avenues, such as in-process and post-process cross-contamination, improper handling of rework, and insufficient or ineffective equipment cleaning and/or sanitation procedures (Jackson et al., 2008). Incorrect labelling can also result from changes in product formulation without corresponding label changes or inadvertent use of the wrong label or package.

Food manufacturers must give particular attention to lupin components and derivatives to ensure lupin is correctly labelled on food packaging so that it can be easily understood by allergic consumers.

Lupin has been referred to in the literature as a novel food, or a healthy alternative but probably of most concern, as a hidden health risk. Making lupin a notifiable food allergen serves primarily to highlight a food safety risk for allergic consumers.

In Australia, there has been no product recall attributed to lupin since the Standard was updated. However, three product recalls were carried out overseas due to undeclared lupin or improperly labelled declarations in three products manufactured in Europe (Table 1). Literature reviewed implied that the number of recalls or contaminated products might have been higher but it was suspected that lupin was not tested routinely in food recalls, with investigative testing targeted towards allergens like peanut and dairy that have a higher incidence of allergic reactions attributed to them (FSANZ, 2017).

Table 1. Product recalls due to the presence of undeclared lupin

Country	Product	Date of recall	Reason for recall	Reference
Ireland	Kania vegetable stock cubes	20/03/2017	Label was not in English (contained Soy and Celery). Unintentional contaminants included lupin.	Food Safety Authority of Ireland, 2017
Ireland	Duc de Coeur 12 macarons	07/06/2018	Label was not in English (contained Gluten, Egg, Milk and Nuts). Unintentional contaminants included lupin.	FSAI, 2018
England	Booths Honey and Spelt bread	13/10/2018	Barley (gluten), Lupin and Sesame were not mentioned on the label.	UK Food Standards Agency, 2018

VITAL Program

The VITAL (Voluntary Incidental Trace Allergen Labelling) Program is a risk-based tool designed by the Australia and New Zealand Allergen Bureau for food manufacturers to assist in food labelling of allergens (https://vital.allergenbureau.net/). The VITAL Scientific Panel (VSEP) used clinical data points and statistical modelling to set action levels. VITAL aims to standardise allergen risk management process for the food industry to assess the impact of allergen cross contact and to provide appropriate precautionary allergen labelling (PAL) in the form of the precautionary statement 'May be present: allergen x, allergen y.' (Allergen Bureau, n.d). This program was used to help inform on the compliance of products in this survey.

Aim

This survey aimed to:

- Determine the level of compliance of food sold in NSW to Standard 1.2.3 of the Code in relation to mandatory labelling of lupin as an allergen.
- Assess the background information related to the presence of lupin detected in any of these products; whether it was due to manufacturing processes, cross reactivities or supplier issues.
- Assess the labelling compliance against Part 1.2 of the Code.

Materials and Methods

Sampling and testing was conducted from September to December 2020.

Product range

In total, 123 samples[1] were tested. Products tested included flours, baked goods, pasta, plant-based alternative products, vegan/vegetarian products and sauces/marinades.

The foods chosen were those that pose a higher chance of inadvertently containing lupin as highlighted in the literature review. The survey included a variety of products where lupin was thought likely to be used as a substitute for conventional ingredients (e.g. flour), potentially increasing the exposure of allergic individuals. Products that have substituted ingredients are also usually gluten or soy free. Sampling also focused on products marketed featuring healthier alternative ingredients, such as vegan egg replacer and gluten free brownies. Imported products were included as many countries have differing regulatory requirements for mandatory declaration of allergens and what is required to be declared on the labels. In addition, fifteen of the samples had earlier been evaluated for their labeling compliance in the Plant Based Alternative Products Survey (NSW Food Authority, 2021). These products were also included in the lupin survey and tested for the presence of lupin.

When checking labels during sampling, it was kept in mind that lupin is sometimes labelled as lupin flour, lupin flakes, lupinus, lupine, lupini or lupine beans (ASCIA, 2015).

Key sample ingredient attributes noted during the collection of information from products purchased for this survey:

- There are many flour varieties currently used in products marketed as healthy alternative products that have an increased risk of cross contamination due to the possibility of co-mingling. These flours include whole wheat, buckwheat, rice, chickpea, tapioca, spelt, lentil, and pea protein.
- Some unusual ingredients that may cause cross reactivity and/or affect the recovery analysis in testing such as coconut extract, beetroot, sprouted flours [quinoa & chia], fava beans, mineral salts, white wine, etc.
- Unique ingredients found in the plant-based ingredients such as tofu, mycoprotein, soybean fibre, rapeseed oil, etc.

All samples were pre-packaged and were collected from a variety of premises, including supermarkets, green grocers, delicatessens and online shops. A majority of the samples were shelf stable with only a limited number of samples being refrigerated or frozen (i.e. the plant-based alternative products). The products were stored according to the manufacturer's instruction at all times, up to and including when being transported to the laboratory for testing.

The labels of these products were photographed and used in the labelling assessment against Part 1.2 of the Code. Sample information and their corresponding testing results were recorded in an Excel spreadsheet specifically developed for this project.

[1] One sample, a muffin mix, with lupin as its primary ingredient was purchased but only for labelling assessment as it was deemed to be outside the scope of the survey for testing requirements.

Lupin testing

All samples were tested for lupin according to the method in Table 2.

Table 2. Test and method

Tests	Method
Biofront Monotrace Lupin Elisa Kit	ALLE430719

The testing kit (Biofront Monotrace Lupin Elisa Kit) has a limit of detection (LOD) of 0.13 ppm with a range of quantification of 1 to 40 ppm. It has no known cross reactivities that may account for any low level detections. The kit has been used to test recovery of lupin in a large variety of products that cover most, if not all the samples in the survey (BioFront Technologies, n.d.).

Where lupin was reported as “detected” by the kit, the principles of the VITAL assessment were applied as follows:

Action Levels are the concentrations (of protein) which define the labelling outcomes for each concentration of cross contact allergen in a VITAL assessment. Action Level concentrations (ppm) are calculated using the Reference Dose (mg allergen protein) and a Reference Amount specific to the food.

Action level concentration = reference dose (mg) x (1000/reference amount (g)).

– reference dose for lupin is 2.6 mg protein

– reference amount (100g used as serving size)

– action level is calculated as: 2.6 x (1000/100) = 26ppm

Action Level 1 – Low concentration of the relevant allergen under evaluation, low chance of adverse reaction and no precautionary allergen labelling statement required.

Action Level 2 – Significant concentration of relevant allergen under evaluation, significant chance of adverse reaction and a precautionary allergen labelling statement is required.

Reference Dose – the milligram protein level (total protein from an allergenic food) below which only the most sensitive (1% for VITAL 3.0 and between 1% and 5%, depending on the quality of data, for VITAL 2.0) of individuals in the allergic population are likely to experience an adverse reaction.

Reference Amount – the maximum amount of a food eaten in a typical eating occasion. This may be the same as the “serving size” on the nutrition information panel or it may be appropriate that the reference amount is considered to be the whole product as presented to the consumer. The Reference Amount should never be less than the “serving size”.

Results

Types of products

Many samples can fit into multiple categories, but for simplicity, each product was allocated to the category most appropriate to the nature of the sample and its corresponding ingredients list. The breakdown of the sample types is shown in Table 3.

Table 3. Types of products

Food type	Number of products
Baked goods – bread, muffins, cookies, cakes	30
Flour – white, wholemeal, specialty (lentil, quinoa, tapioca, etc)	29
Allergen free products – free from gluten, dairy, egg, etc	16
Pasta products – dry pasta	15
Plant-based alternative products	15
Sauces and marinades	8
Vegan/vegetarian products	10
TOTAL	123

Analytical results

Testing results showed a 100% compliance rate for the lupin allergen. No significant or actionable levels of lupin were detected in any of the products.

Three products had detectable levels of lupin but the levels were below the level requiring action (Table 4 and Table 5).

Table 4. Testing results

	Not Detected (<LOQ)	<26 ppm[2]	>26 ppm[2]
Sample numbers	120 (97%)	3 (2%)	0 (0%)

[2] The action level (threshold) is determined by using the Reference Dose and the Reference amount. The calculation uses the Reference Amount and the allergen's Reference Dose and will change depending on the product's Reference Amount. In this instance, the threshold amount, 26ppm is calculated using a Reference Dose of lupin of 2.6 mg of protein and a Reference amount of 100g (Allergen Bureau, 2019).

Table 5. Products with detectable level of lupin

Product name	Results - Lupin (ppm)	Comments	Significance
Muffin mix	<LOQ^	^ means there was a detection between the 0 ppm standard and the first standard of 1ppm (also known as the LOQ – Limit of Quantification). The LOD (Limit of Detection of this kit is 0.13 ppm). This means that the sample had at least 0.13 ppm in it but after the calculation based on the serving size (65g) was carried out, it falls well below the Action Level 1.	At this level, it is hard to determine what caused the signal of detection, as it is too low to be quantified. This result would warrant repeating the testing if previous testing of the same product returned consistent results that were clear negative or <LOQ. However, only one sample was tested in this survey, so testing was not repeated.
Oatmeal	3.9	Low level of lupin was present.	This product would most commonly be used as an ingredient in baking and cooking and would therefore have other ingredients added to it. This would alter the concentration of allergen in the final product (e.g. a muffin, biscuit, bread roll, and sauce/gravy). The calculation would need to be based on muffin, biscuit or slice of cake serving size.
White Self Raising Flour	2.2	Low level of lupin was present.	This product would most commonly be used as an ingredient in baking and cooking and would therefore have other ingredients added to it. This would therefore alter the amount of allergen in the final product (e.g. a muffin, biscuit, bread roll, and sauce/gravy). The calculation would need to be based on muffin, biscuit, and slice of cake serving size.

Country of Origin

The country of origin for each product was recorded (Table 6) and shows that products came from a diverse range of countries.

Of all the products surveyed, 56% (70/124) were made in Australia and of those, 53% products (42/70) were manufactured or packed (6) in NSW. An additional 19 products were imported into NSW. The remaining fifty-four (46%) products were manufactured overseas. One product stated that it was made in Canada or USA depending on sourcing of ingredients and is therefore counted twice.

A company relying on imported ingredients must have a robust allergen management program that includes effective supplier verification procedures. Importers of recalled foods are often small to medium sized companies that import specialty foods or ingredients as found in the Allergen Management for Importers project (NSWFA, 2017).

Table 6. Country of origin for products surveyed

Country of origin	Number of products
Australia	70
NSW	42
Queensland	3
Victoria	25
Canada	1
China	4
Croatia	1
Belgium	1
Bolivia	1
Germany	4
Greece	2
India	2
Ireland	3
Israel	1
Italy	8
Malaysia	1
New Zealand	3
Peru	1
Romania	1
South Africa	2
Spain	1
Taiwan	1
Thailand	5
The Netherlands	1
United Kingdom	6
United States of America	4
Unknown	1

General labelling analysis

All samples collected were packaged and labelled. The label of each sample was assessed against Part 1.2 of the Code. The level of compliance of the sampled products to the labelling requirements are set out in Table 7 below.

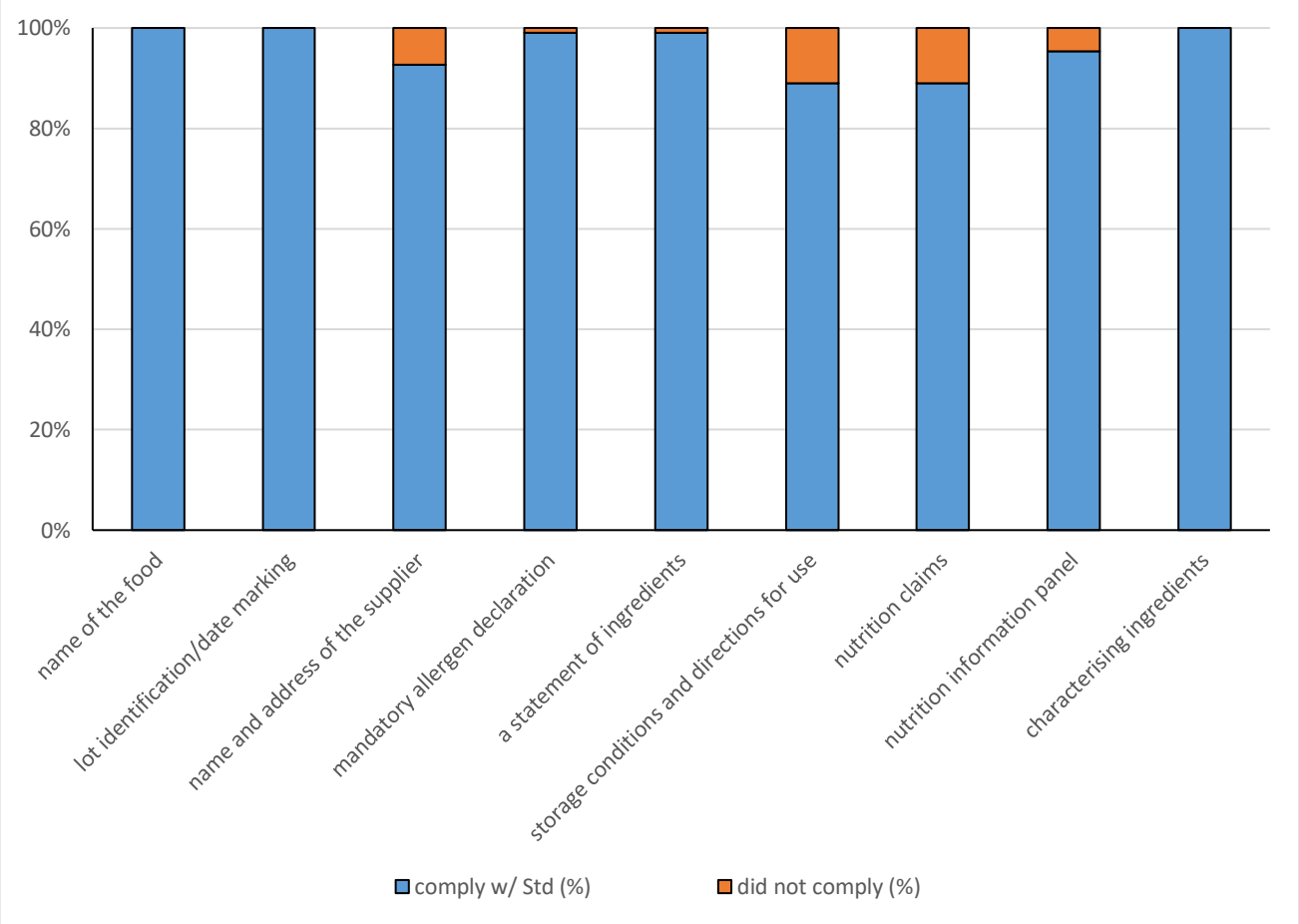
Fifteen samples had already had their labels assessed as part of another survey (i.e. plant-based alternative products survey) and non-compliant labels for those samples were followed up as part of that survey. The report for the plant-based alternative products survey is available on the Food Authority's website. To avoid duplication, the labels for these products were not assessed in this survey.

For the remaining 109 products, 83 labels were found to be compliant. Eleven labels were found to be non-compliant with minor issues (i.e. issues that did not impact on consumer safety or on the product quality). As a result, no follow up action was required. Fifteen labels were found to be non-compliant with major or multiple issues and required follow up actions.

Table 7. Labelling assessment results

Labelling assessment status	Number of samples
Compliant	83
Non-compliant – no follow up action required	11
Non-compliant – follow up action required	15
Previously assessed in another project	15
Total	124

Figure 1. Labelling assessment of products surveyed



The top three non-compliance issues with the labels:

1 – The nutrition claims either do not comply with the requirement in the Code and/or the nutritional value is absent from the nutrition information panel (e.g. gluten free claim made on the packaging but no gluten value in the nutrition information panel).

2 – The storage condition for the product is absent, allowing for incorrect temperature storage. For shelf-stable products, the absence of storage condition labelling may cause quality deterioration as opposed to a food safety risk. As a result, a non-compliance on storage condition labelling alone did not require any follow up action.

3 – The address of the manufacturer or importer is absent. For example, some products only had a PO Box or an international address, which are not permitted according to the Code.

Allergen labelling analysis

Currently, the food industry uses a variety of allergen statements on food packages. These statements can be unclear and confusing to allergic consumers. Table 8 shows the allergen statements found in this survey.

The Allergen Bureau states that carrying out a VITAL risk assessment using the VITAL tools – including VITAL Online – assists a food company to thoroughly review the allergen status of all the ingredients and the processing conditions that contribute towards the allergen status of the finished product. This voluntary tool allows for consistency and confidence for allergic consumers.

Table 8. Allergen statements for lupin on packaging included in this survey

Product Type	Allergen statement (for lupin only)	VITAL APPLIED
Baked good 1	May be present	YES
Baked good 2	May be present	YES
Baked good 3	May contain	NO
Flour 1	Packed in a facility that also process (allergen x)	NO
Flour 2	May contain traces	NO
Flour 3	Contains	NO
Pasta 1	May contain	NO
Pasta 2	May contain	NO
Pasta 3	May contain traces	NO
Plant based alternative 1	May contain	NO
Sauce 1	May contain	NO
Sauce 2	May contain traces	NO
Vegan/vegetarian 1	May contain	NO
Vegan/vegetarian 2	Manufactured on equipment (as allergen x)	NO

A general labelling assessment was not conducted in the previous allergen survey (NSW Food Authority, 2018), but the allergen labelling was assessed. The issues identified in that survey were found to continue in the current survey, including contradictory allergen labelling at the front and the back of the packaging and the use of multiple precautionary allergen labelling statements. The Plain English Allergen Labelling requirement that was introduced in February 2021 (FSANZ 2021) might solve the latter issue.

Appendix 1, Table A. 1 provides a summary of the allergen labelling assessment in this survey, summarized as Precautionary Allergen Statements.

Follow-up Actions

A total of fifteen products had non-compliant labels and required follow-up actions.

One product with labelling non-compliance and two products with low level lupin detection were manufactured or distributed by a business based in another jurisdiction. These issues were referred to the appropriate regulatory body in that jurisdiction for follow up.

For products manufactured in or imported into NSW, the follow up actions involved sending an advisory letter or an inspection.

To determine whether labels had been updated between the initial sampling and the completion of the report, fourteen products manufactured in or imported into NSW that had been found to be non-compliant underwent label re-assessment in March 2022.

Of the fourteen remaining non-compliant products, eight (8) product labels remain unchanged, four (4) product labels had been updated but still had non-compliant elements, and one (1) product had updated packaging and the label was found to be compliant. One (1) sample could not be found for repurchase and reassessment.

An advisory letter was sent to businesses with labelling non-compliance in breach of Part 1.2 of the Code that did not affect the health and safety of the consumer. A total of 13 advisory letters were sent.

When the labelling non-compliance might affect the health and safety of the consumer or when there were multiple issues identified, the business was visited by an Authorised Officer. One business was visited and the issue was addressed.

Discussion

The survey shows that manufacturers in Australia and importing from overseas generally comply with the mandatory labelling requirement for presence of lupin in foods.

Sample selection was guided by information from the literature review. This allowed targeted testing of products thought to be more prone to contamination. Flour was highlighted as a particular cause of concern for allergic consumers due to its widespread use in the food industry and the ease of dissemination leading to the possibility of cross contamination in a factory environment.

In this survey, two of the three products that were found with a low level detection of lupin were flours. These products would generally not be consumed in the form in which they are sold and would be used predominantly in baking or cooking. The concentration of allergen would therefore be altered by the addition of other ingredients in a recipe. The action levels should only be applied to the final product and serving size or 100g dependent on final product.

Lupin flour is seen by some to offer a healthier alternative to wheat flour and may therefore be included in products aimed at vegetarians/vegans and customers with food intolerances or preferences. Thirty-six samples contained wheat flour as one of their main ingredients and approximately forty-two samples had flours from other sources as one of their main ingredients (i.e. rice, chickpea, soy, tapioca). The presence of flours in the product increases the chance of containing allergens due to cross contamination and co-mingling.

As flours and similar ingredients that may contain lupin are largely used in baking and cooking, it is important to note that if the allergen is present in high levels, it can cause an issue since lupin allergens are resistant to normal cooking procedures, including boiling and microwave heating (ASCIA, 2015).

There are cross contamination and co-mingling opportunities with grains and flours when they are milled. This may have been a cause of the positive detection with the oat flour sample (products were re-packaged in the presence of other flours/grains leading to unintentional cross contamination). Cross contact allergens occur when a residue or other trace amount of an allergen is unintentionally added (AFGC, 2021).

According to Jackson et al. (2008), the important points to consider when setting up an Allergen Cleaning Program (ACP) for a manufacturing facility include:

- Segregation of allergenic foods or ingredients during storage, handling, and processing,
- Supplier control programs for ingredients and labels,
- Prevention of cross contact during processing,
- Product label review; label and packaging usage and control,
- Validated allergen cleaning program, and
- Training.

Conclusion

Although food allergies are believed to be on the rise, the lack of data on their prevalence—and just how quickly it is increasing—makes it difficult for governments and health services to respond accordingly (Hadley, 2006).

Lupin can be a hidden allergen. That is a cause for concern in an industry that has many new types of foods marketed as healthy alternatives, and innovative foods, as well as foods that include ingredients that may have lupin in them (either from an imported ingredient or possible cross contamination).

This targeted allergen survey found no lupin levels that would pose a health risk to allergic consumers.

A high level of labelling compliance was also recorded across the wide range of products collected, and non-compliant labels were followed up.

The most important control measures for ensuring the ongoing safety of these products include:

- Thorough and reliable information on packaging (in accordance with Standard 1.2.3),
- Clear and consistent allergen statements (Plain English Allergen Labelling rules – FSANZ, 2021), and
- An effective allergen management program and robust supplier verification program.

Recommendation

- Lupin should be included in testing requests for future allergen complaint investigation sample submissions. The increased use of lupin in the food industry is a concern as a hidden/missed cause of allergic reactions.
- Targeted survey testing for lupin should be repeated if a rise is seen in products being recalled for lupin detection, if any low levels of lupin are detected in routine testing and if additional research identifies concerns in the domestic and international food industry.
- Conduct a smaller survey on unpackaged products similar to those sampled in this survey.

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Appendix 1. Precautionary Allergen Labelling (PAL) Statements

The Australian Food and Grocery Council's latest allergen management and labelling document has some clear and concise direction on what is appropriate and why, when it comes to allergen labelling language on packaged products. While precautionary allergen statements are not mandatory, this document also outlines the reason why they are important and how best to convey the danger to consumers. Precautionary Allergen Labelling (PAL) is a voluntary statement displaying allergens that may be present due to a cross contact. A PAL statement is not considered to be a mandatory allergen declaration as described in Standard 1.2.3 of the Code (AFGC, 2021).

Below is a summary of allergen labelling statements used for lupin on packaging from products collected in this survey. These are representative of labelling statements used on packaging throughout the food industry.

Table A.1. Precautionary Allergen Labelling (PAL) Statements identified in the survey

PAL	Definition	# of samples with this PAL
Contains	An ingredient. This is most often directly reflective of the list of ingredients.	1
May Contain/May contain traces	These are voluntary statements made by food manufacturers and the Code does not regulate them (FSANZ, 2020). This statement may cause confusion for an allergic customer.	9
May be present	A risk assessment of the product and the environment has been carried out and the VITAL tool has been used to evaluate and give a more targeted allergen statement for the allergic consumer.	2
Packed in a facility that also processes / Manufactured on equipment	A generic allergen statement that is not consistent and fails to communicate the risks presented by such product to the allergic consumer. There is no intrinsic reason why a production line that makes products containing an allergen cannot also make a product free of the same allergen. In these cases, specific validated cleaning steps at changeover may be an appropriate inclusion in the allergen management plan (Allergen Bureau, n.d.).	1

To address the issue of confusing allergen statements, the Plain English Allergen Labelling was introduced on 25 February 2021. These new rules were made to make allergen statements clearer and more consistent for allergic consumers. Businesses were given three years to make the adjustments to align with the new requirements.

In summary, FSANZ (2021) states that these requirements include that allergen information is to be declared:

- in a specific format and location on food labels, and
- using simple, plain English terms in bold font.