

Challenges in allergen management - a case study



Lion Nathan's view

- LN will comply with legislation and industry codes of practice in allergen control and labelling.



Allergen Risk Assessment Project



Food Safety Plans



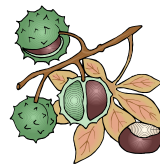
- When developing or reviewing a FSP we look at three areas;
 - Chemical
 - Physical
 - Microbiological
- We either add a fourth – “allergens”.
- Or we consider allergens under the chemical heading.



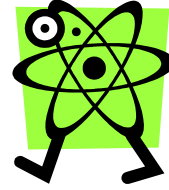
This leads us into Allergen Control



- There are eight main groups of allergens;
 - Cereals containing Gluten and their products.
 - Crustacea and their products.
 - Egg and egg products.
 - Fish and fish products.
 - Milk and milk products.
 - Peanuts, soybeans and their products.
 - Added sulphites in concentrations of 10mg/kg and more.
 - Tree nuts, sesame seeds and their products.



The ones which concern brewers are:



- Cereals containing Gluten and their products.
- Fish and fish products.
- Added sulphites in concentrations of 10mg/kg and more.



Cereals containing Gluten and their products :

Obviously beer is made from grain – usually barley. In Australasia we do not have to label our beers as containing barley as we have a specific exemption under the food code from doing so.

Some of our beers are made from wheat – usually these are labelled as “Wheat Beers” but not always.



Voluntary **I**ncidental **T**race **A**llergen **L**abelling



Allergen Risk Assessment

- VITAL is standardised allergen risk assessment tool for food producers to use when assessing the impact of allergen cross contact and in provision of appropriate precautionary labelling

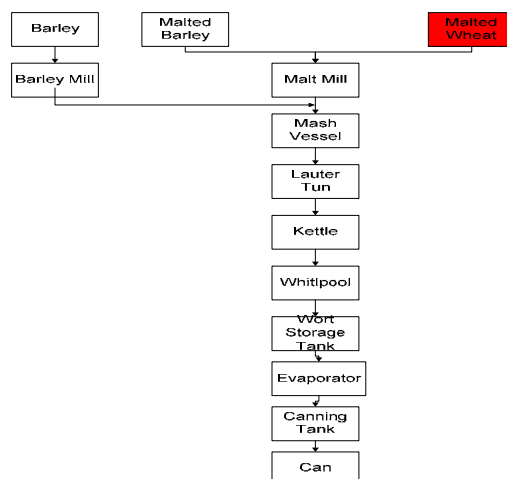


Canterbury Brewery - Malt Extract

- Malt extract (product A) that does not contain wheat is manufactured on a line that also produces malt extract made from wheat (product B).
- This calculation discounts the fact that barley is used as a raw material and focuses on wheat contamination.



Process Flow Diagram



Review the ingredient and processing allergen impacts.

- Ingredient Impact-Assess allergen status of raw materials.
- Does the Raw Material Specification from the supplier indicate the possibility of cross contact with allergen/s and the level of cross contact?
- No – raw materials for each product indicate no cross contact. The raw materials used in product A are sourced from a NZ supplier, the wheat used in product B is sourced from Australia. All suppliers are required to certify that their products are allergen free (obviously except for wheat).



Processing Impact – Review the production line used to manufacture the product.

- Determine the allergens present on the line through cross contact that are not formulated into the product.
 - **Where is/are the allergen/s being introduced?**
 - *When malt extract containing wheat is produced prior to the malt extract not made from wheat.*
 - **Is the source of the cross contact through line/people/tools etc.**
 - *Production equipment – mill etc.*
- **Are there any hang up points in the process?**
 - *Yes, the mill rollers and surrounding area.*



Determine the amount of protein in the wheat. and calculate in ppm.

- Wheat contains 12% protein (wheat gluten)
- Therefore in 1 kg wheat there is 120g of wheat “gluten”
- To calculate ppm in the subsequent batch(5000kg)
 - $(120\text{g}/1000)*100=12\%$
 - $12*10000=120000\text{ppm}$
 - $1\text{kg wheat crossed with a }5000\text{kg batch} = 0.02\%$
 $((1/5000)*100)$
 - *Therefore 0.02% of the 120000ppm=24ppm of the raw materials.*



Determine the amount of protein in the wheat and calculate in ppm.

- *But only about 40% of the protein is water soluble, which reduces the level to 10ppm, and the majority of that is degraded during the boiling stage of the process.*
- *Hence the final amount is somewhat less than 5ppm.*
- *But the liquid is concentrated into a syrup so the amount in the final product would be approximately four times that - say 20ppm.*



Determine the amount of cross contact allergen in the product

- $\leq 20\text{ppm}$ (< 20) thus action level 1 or 2 of the Vital matrix)
- **Level 1** – Cross Contact allergen labelling is not required.
- **Level 2** – Cross Contact allergen labelling IS required.
- (on the borderline so better to do something about it!)



Review and Reduce Cross Contact Contributors

- Determine if it is feasible to reduce the level of allergen cross contact.
 - *Production can be scheduled so that product containing wheat is produced at the end of the week, immediately before a full CIP*
 - *Production can be scheduled so that wheat free product is produced at the start of the week, immediately after a full CIP*
 - *Milling of the wheat containing product can be programmed so that the last part of the grind is non wheat, reducing the risk of residual flour being wheat*
 - *SOP can include inspection of the mill after CIP to ensure it is clean*



Solution

- These procedures eliminate the risk



Fish and fish products:

We used to use isinglass finings which were made from fish.



By installing a centrifuge to remove yeast from the beer we no longer have to use this material so it is not an issue for us.



Solution

- These procedures eliminate the risk



Added sulphites in concentrations of >10mg/kg

We were in a situation where many of our beers contained SO₂ added as an anti-oxidant.

The limits in beer are 10mg/kg for most export markets and 25mg/kg in Australasian domestic markets. (Some SO₂ is produced naturally by the yeast).

Even within these limits we must not **add** more than 10 mg/kg – **if we do, we have to say so on the label.**



Solution

- The main use of SO₂ is as an anti-oxidant
- The area of oxygen pickup is bottling
- New fillers do a double pre-evacuation of the bottle and a purge with CO₂
- With lower levels of oxygen we can cease using SO₂



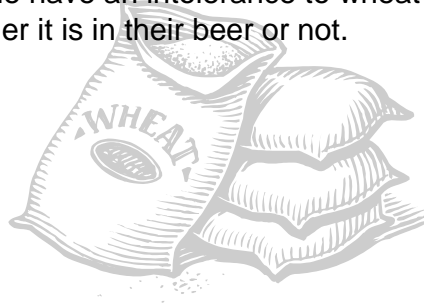
Solution

- **These procedures eliminate the risk**



Beers containing wheat

- Some people have an intolerance to wheat and need to know whether it is in their beer or not.



Summary

- The food safety plan needs to recognise the possible use of or cross contamination with allergens
- Measures must be taken to reduce the risk
- Consideration may need to be given to labelling, using the Vital grid
- Elimination is the best way

It's not rocket science!



Project Everest

- Natural Beers.
- No artificial additives.
- No preservatives.

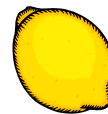


Food Code Constraints on Brewing & Packaging

MARKETING CLAIMS / FAIR TRADING ACT CONSEQUENCES

Marketers want to differentiate our beers by creative language

- “finest ingredients”
- “all natural ingredients”
- “natural brewing”
- picture of a lemon

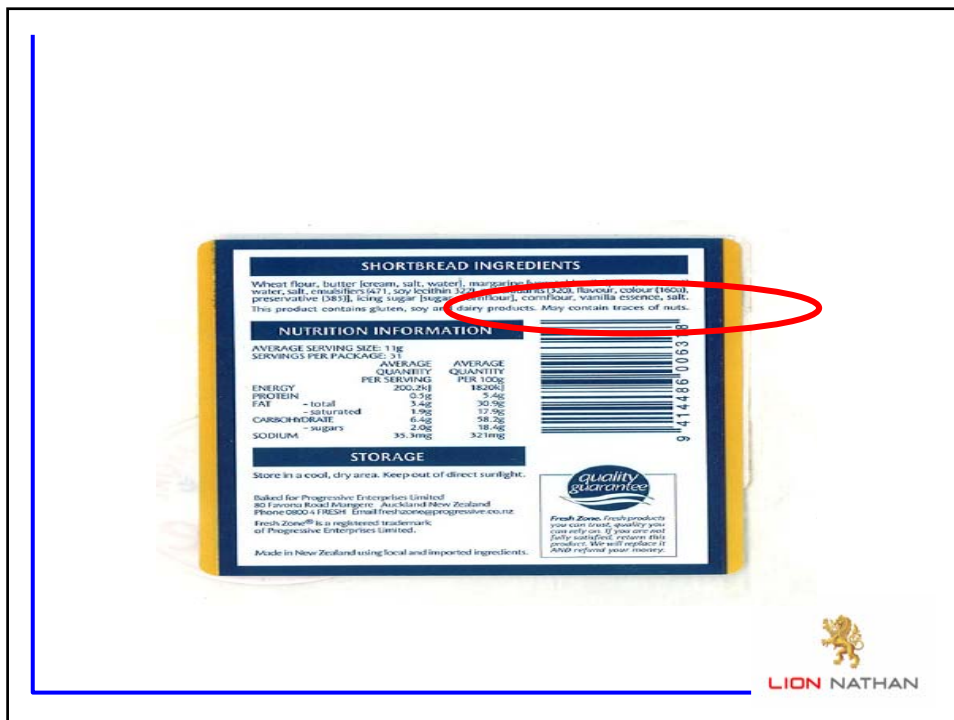


...in doing so we put constraints on ourselves through the Trade Practices / Fair Trading Acts.

Trade Practices / Fair Trading Acts require that

- we must not say anything which “could mislead a consumer”
- nobody has to be misled – just the possibility that someone could be misled





Huntley & Palmers™

Imagine the scene almost 200 years ago... a little bakery in the English town of Reading, proudly run by Joseph Huntley, his son Thomas and their cousin George Palmer. It was an era when 'taking tea' was a gracious affair and only the finest biscuits and crackers, such as Huntley & Palmers, would be served.

Today, we remain faithful to Huntley & Palmers' time-honoured recipes. While our pace of life may have changed, the refined taste of Huntley & Palmers certainly hasn't. Then as now, these crackers are made for those who appreciate the best.

THOMAS HUNTLEY GEORGE PALMER

NUTRITION INFORMATION		SERVING SIZE: 1 PIECE APPROX. 7g	
	QUANTITY PER SERVING	QUANTITY PER 100g	
ENERGY	164kJ	1648kJ	✓ 98% FAT FREE
PROTEIN	0.5g	1.4g	✓ CHOLESTEROL FREE
FAT, TOTAL	0.1g	1.5g	✓ 100% NATURAL INGREDIENTS
-SATURATED	0.0g	0.3g	✓ LOW IN SATURATED FAT
-TRANS	0.0g	0.0g	
-MONOSATURATED	0.0g	0.4g	
CHOLESTEROL	0.0g	0.0g	
CARBOHYDRATE, TOTAL	0.7g	20.8g	
SUGARS	0.1g	1.3g	
SOLUBLE FIBRE	0.1g	1.3g	
SODIUM	20mg	0.6g	

INGREDIENTS
Wheat Flour, Bisc. Malt, Rice Flour, Milk Solids, Sugar, Salt, Wheat Starch, Yeast, Lecithin.

Contains: Wheat (Gluten) and Milk Products.
Produced in a factory handling Soyabean Products, Egg Products, Sesame Seeds, Peanuts, Other Nuts and Honey.

LION NATHAN

meat, as an accompaniment, or as a side dish. Serves 2-3. Serves Chutneys and Raita.

INGREDIENTS Lentil Flour, Salt, Raising Agent (500), Rice Flour, Vegetables, etc.


THESE PRODUCTS MAY CONTAIN TRACES OF PEANUTS AND TREE NUTS

pappadums in a sealed container in cool dry conditions.
Product of India.

www.pataks.co.uk

5 011308 953009 >
A PATAKRISP PRODUCT

LION NATHAN




ALC 9%
1 Pint


LONDON PORTER

WARNING MAY CONTAIN:
COCULUS INDICUS EXTRACT, MULTUM, CAPSICUM,
COPPERAS, QUASSIA, COLOURING AND DRUGS,
MIXED DRUGS, SPANISH LIQUORICE, HARTSHORN SHAVINGS,
LIQUORICE SHAVINGS, ORANGE POWDER,
CARAWAY SEEDS, GINGERROOT..

Brewed by Appleard & Krafft




LION NATHAN




YOU ARE HOLDING IN YOUR HAND
ONE OF THE PUREST BEERS WE
CAN MAKE. NO ADDITIVES,
NO PRESERVATIVES.
WATER, MALTED BARLEY, HOPS
AND YEAST. ALL SOURCED FROM
THE PUREST PLACE ON EARTH,
NEW ZEALAND.


STEINLAGER.
Keep it pure



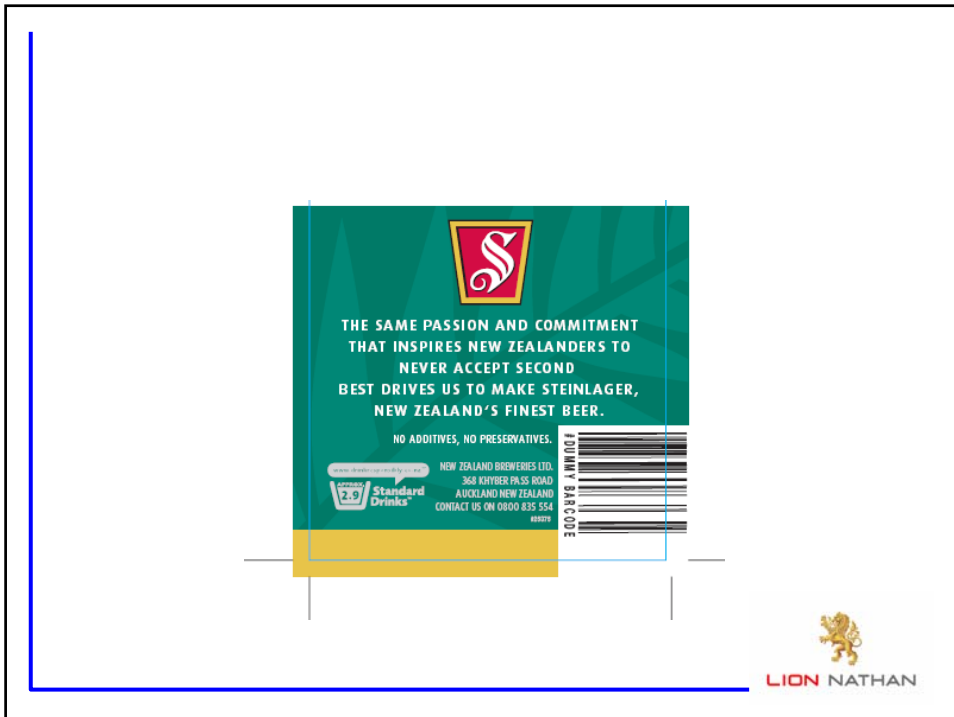
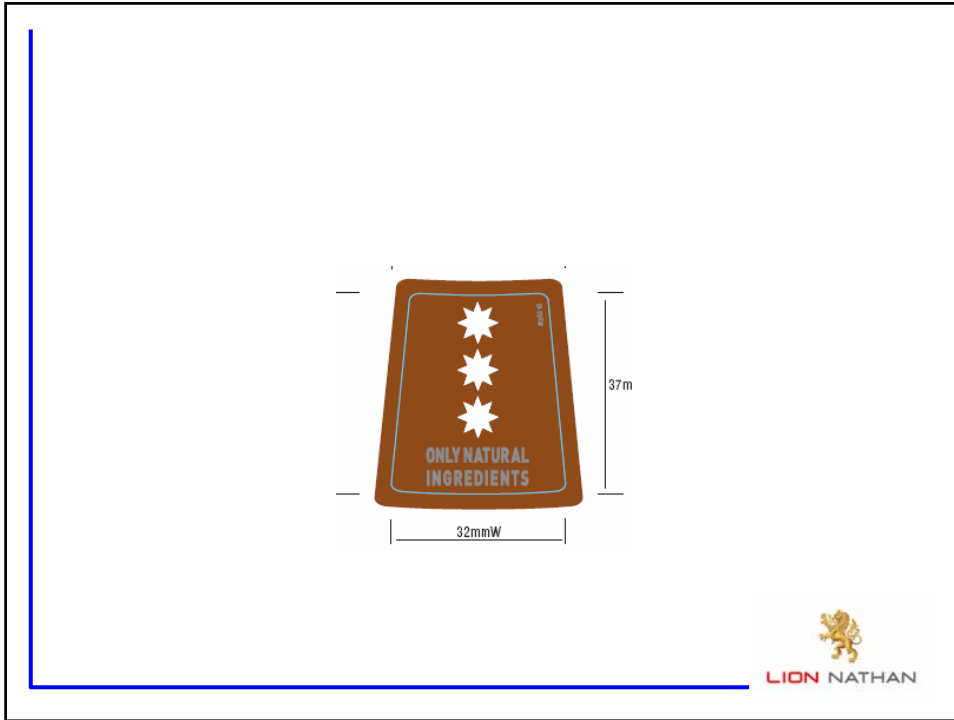
www.steinlager.co.nz NEW ZEALAND BREWERIES LTD,
368 KHYBER PASS RD,
AUCKLAND, NEW ZEALAND.
CONTACT US ON 0800 835 554



Standard
Drinks



LION NATHAN



What is allowed to go into a beer?

- What goes into beer is formally regulated by Food Standards Australia New Zealand (FSANZ) - an independent statutory agency which sets food standards for both countries. Beer is regarded as a type of food by FSANZ.
 - FSANZ defines beer as 'the product, characterised by the presence of hops or preparations of hops, prepared by the yeast fermentation of an aqueous extract of malted or unmalted cereals, or both'.
- So what is an ingredient?**
- The FSANZ definition of an ingredient is 'any substance, including a food additive, used in the preparation, manufacture, or handling of a food'. For beer, that includes malted barley, hops, cane sugar, yeast and water.
- So what's an additive?**
- FSANZ also defines which additives may be used when making beer. An additive is defined as "any substance not normally consumed as a food in itself, and not normally used as an ingredient in food, but which is intentionally added to food to perform a technological function".
- What is a preservative?**
- A preservative is defined as an additive which "retards or prevents the deterioration of a food by micro organisms" We don't use any preservatives in our natural beers.



- **Natural Ingredients** Our ingredients are natural. They consist of malted (or unmalted) grains, hops, yeast, water and cane sugar.
- **Brewed Naturally** We define "brewed naturally" as the transformation of a grain mash into beer, through yeast fermentation without adding enzymes, artificial additives, colours, preservatives or modified hop extracts to the wort or finished beer.
- Because quality yeast is vital to the process we need to maintain the yeast's condition, through the addition of mineral supplements and pH adjustment - before it is added to the beer. We also adjust our water's pH, calcium, chloride and sulphate levels to achieve our consistent quality.
- The beer may be clarified and filtered through carageenan, diatomaceous earth, silica, PVPP or agarose. None of these filter aids are present in the final product.
- Pasteurisation is allowed to ensure the shelf life of the finished beer.
- **No artificial additives or preservatives** The only additive we sometimes use is CO₂, a naturally occurring gas. We occasionally add this to top up the CO₂ bubbles naturally created during fermentation. We don't add caramel, sulphur dioxide or any other additives - and we certainly don't use any preservatives in our natural beers.



Standard and Natural Beers

- Can use VITAL techniques to estimate likelihood of cross contamination.



Special Certification

- Similarly can use same thing for Kosher certification.
- And now going for Halal (for Malt Extract).



Summary

- VITAL technique originally used to estimate cross contamination with wheat.
- Company policies resulted in total elimination of allergens
- Labelling claims gave the opportunity to use VITAL as a tool to estimate likelihood of other “mixing”.
- In fact it’s the best thing since.....



..... Sliced Bread



Sliced Bread

Homo Brand brings you a range of everyday products at value-for-money prices. If for any reason you are not 100% satisfied with this product, please return it to your nearest store for a full refund or replacement.

Nutrition Information		Quantities stated below are averages only.	
Servings Per Package: 0.5 (17 slices + 2 crumbs) Average Serving Size: 63g (2 Slices)		Per Serving (63g)	Per 100g
Energy		882kJ	1393J
Protein		5.4g	8.5g
Fat - Total		1.0g	1.5g
- Saturated		0.2g	0.3g
- Trans	Less Than 1g		
- Polyunsaturated	Less Than 1g		
- Monounsaturated	Less Than 1g		
Carbohydrate		31.8g	50.5g
- Sugars		1.5g	2.7g
Dietary Fibre		1.7g	2.7g
Sodium		320mg	506mg

Ingredients
Wheat Flour, Water, Yeast, Salt, Crumbs (0), Egg Flour, Citric Acid (E310), Acidity Regulator (E330).

Contains Soy and Wheat.

We take great care in the preparation of this product. However due to the nature of processing, trace amounts of Sesame Seed may be present in some packs.

Storage Instructions
Store in a cool, dry place.
To freeze, store at or below -15°C. Recommended frozen life, 6 months. On thawing, consume within 5 days.
Please dispose of empty packaging thoughtfully.

Made in New Zealand from Local and Imported Ingredients.
Packed for Woolworths
80 Ferriss Road
Mangere Auckland
New Zealand
0282510

9 414742 036240