



Summary of Recycled Packaging Food Safety Risks New Zealand Research

September 2022

Introduction

United Fresh is actively supporting the New Zealand Fresh Produce industry navigate the concept of sustainability and how we can all work towards the United Nations 17 Sustainable Development Goals. Recent work has been the completion of a Reusable Plastic Crates (RPC) compilation document, and ongoing work relating to fruit labels composition and the impact on the industry.

United Fresh recently supported a Recycled Packaging Research Project initiated by the New Zealand Food Safety Science and Research Centre (NZFSSRC), which was supported by the wider food industry.

NZFSSRC in a series of six recently released papers, explored the current state of the recycled packaging industry in New Zealand, predominantly cardboard and plastic packaging. It surveyed stakeholder perceptions and developed guidelines to enable more effective recycled packaging use.

Six documents were released which provide a very good overview of the complexity and challenges posed. We recommend anyone who is utilising recycled packaging, read the detailed reports. The stakeholder perceptions and guidelines report in particular provide practical guidance for business.

The two following definitions/explanations are necessary to follow the discussion in the reports.

1. Non-Intentionally Added Substances (**NIAS**) in recycled packaging are normally attributed to previous use or misuse of the material.
2. The occurrence of Intentionally Added Substances (**IAS**), e.g., inks or other additives, at higher-than-normal concentrations, has the potential to impact on the safety and quality of the packaged product.

Key Stake Holder Perception Conclusions Reached by NZFRSSC

- It is important that brand owners implement product specifications to mitigate the risks identified when using recycled packaging.
- It is important that recycled packaging manufacturers hold a strong understanding of the material they are recycling, and work within a safety and quality framework to monitor and control identified risks. Recycled packaging can have greater diversity and concentration of NIAS and IAS over virgin packaging.
- The number and concentration of NIAS or IAS in recycled packaging materials increases with every recycling evolution.

- The migration rate of NIAS and IAS into food depends on the nature & concentration of the substances present, packaging material, food type, and storage conditions.
- Product safety and quality is impacted by the presence of NIAS and IAS in recycled packaging.
- The physical quality of plastic packaging is impacted by contaminants.
- The lack of guidelines for recycled packaging within New Zealand is problematic. Some brand owners stated that they were required to ensure that critical safety steps in the production of recycled packaging by their suppliers were being controlled.
- The NZFSSRC found that brand owners were implementing risk assessment approaches to identify critical packaging parameters, and to generate acceptable quality limits for the control of the identified risks, when using recycled packaging.

Ten Key Recommendations Based on The Insights from Stakeholder Interviews:

1. Provide guidelines or standards for recycled packaging in New Zealand

The lack of NZ specific regulation, standards or guidelines for recycled packaging was identified as problematic. Clarity on regulations, standards or guidelines, would help in progressing the adoption and increasing use of recycled packaging.

2. Packaging companies must better communicate on the process/steps they have in place to ensure the safety of recycled packaging

The adoption of a risk assessment-based approach is needed. Stakeholders expressed a desire for packaging companies to take a risk assessment approach and to implement processes that are common in the food industry, e.g., HACCP plans.

3. Invest in training packaging technologists

Given the complicated nature of the recycled packaging landscape, it would be beneficial for brand owners to have in-house capabilities. However, technologists with the relevant background and expertise are in short supply.

4. Find feasible solutions to recycle pre-consumer materials

Demand for recycled packaging in New Zealand is considerable and is expected to increase as companies scramble to meet ambitious sustainability targets. It is therefore critical to ensure that quality recycled feedstock is sourced. This is important, as pre-consumer materials are considered to be 'cleaner' than post-consumer materials.

5. Improve waste management systems for recycling post-consumer materials

Purely relying on pre-consumer materials for the recycling process will not meet the demand for recycled packaging and using of post-consumer materials will be necessary. New Zealand's collection systems therefore need to improve, so that post-consumer material of the appropriate quality is collected.

6. Increase government investment in waste management

Improvements to the waste management infrastructure will be costly. Significant government investment is likely to be required.

7. Collaborate

Mechanisms that allow different stakeholders to work together towards developing better recycled packaging are essential. Gathering materials at suitable quantities and qualities is difficult, due to potential conflicts between different stakeholders and vested interests.

8. Research market demand for recycled packaging

Market insight information is needed, to inform accurate decision making. NZFSSRC assumes that there is demand for recycled packaging, but it is not yet understood whether consumers are willing to buy such packaging at a sustainable price.

9. Communicate recycled packaging needs

Brand owners need to discuss their potential future recycled packaging needs with suppliers.

10. Advocate for global harmonisation of recycled packaging regulations

New Zealand needs to advocate for the harmonisation of regulations surrounding the use of recycled packaging on a global scale and in particular, the use of recycled material in direct contact with foods. Harmonised regulations will enable New Zealand exporters to understand and progress towards sustainability targets, and to better integrate recycled packaging into their product lines.

Closing Comments

The NZFRSSC papers provide useful guidelines and analysis of the issues that using recycled packaging materials may bring. It highlights the structural issues that need to be worked on. In addition, it provides guidelines for individual businesses who are seeking to use recycled packaging.

The following six papers are summarised as follows:

1) Project Summary: Recycled Packaging: Definitions, Descriptions, Challenges and Solutions (6 pages)

This project summary explains why the New Zealand food industry, food processors and recycled packaging manufactures/suppliers should work together to develop a shared understanding of the safety and quality risks associated with each product/packaging application and to design appropriate safety and quality assurance programmes.

2) An Introduction to Recycled Packaging: Definitions, Descriptions and Challenges (26 pages)

The sources, occurrence, and challenges of non-intentionally added substances (NIAS) in recycled packaging is outlined. How the nature of the NIAS, the packaging material, food and its storage conditions impact on the migration of substances and their impact on product safety is discussed.

3) Guidelines for the Use of Recycled Packaging in New Zealand (11 pages)

The guidelines are designed to provide a framework that New Zealand food and beverage companies can implement to ensure that the use of recycled packaging is not adversely impacting on the safety and quality of the products they produce.

4) The Potential Impacts of The Use of Recycled Packaging on Food Quality (39 pages)

This paper discusses the complexity of the interactions between recycled packaging and its contents and how this may impact on product quality (and safety). It

outlines how suitable mitigation process requires a good understanding of the recycled packaging/product “system” and the development of a quality framework that identifies critical packaging parameters and generates acceptable quality limits (taking the form of a product specification) that can be used to control the identified risks.

5) Stakeholder Perceptions on the Challenges Associated with the use of Recycled Food Packaging (20 pages)

Stakeholder's (food industry, regulators and packaging suppliers) perceptions of the challenges associated with the use of recycled food packaging are outlined and ten key recommendations are made.

6) Non-Permanent Primary Food Packaging Materials Assessment: Identification, Migration, Toxicity, and Consumption of Substances (13 pages)

This systematic review compiles information regarding substances detected in non-permanent food packaging materials, focusing mainly on plastics, paper and paperboards. The compilation of literature studies (110 research articles) on the presence of intentionally added substances (IAS) and non-intentionally added substances (NIAS) in food packaging materials, their migration, toxicity and dietary exposure has been summarized, evaluated and discussed.

The full reports and summaries are available at:

<https://www.nzfssrc.org.nz/resources/recycled-packaging-page/#/>

Later this year a symposium will be held which will pull together industry leaders thinking on what sustainability means for the International Fresh Produce Industry. This has been driven by The International Federation for Produce Standards (IFPS) and United Fresh is heavily involved.