

# Compostable Packaging Stewardship Scheme

FEASIBILITY STUDY

A collaboration between:

**Super Trash, Go Well Consulting & Pitchblack Partners**

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# Mission

Alongside elimination, reusing and recycling - we believe compostable plastics will play an important role in achieving the New Zealand's zero-waste mission. Right now, compostable plastics lacks the necessary infrastructure.

We want to put that infrastructure in place.

Our mission is to provide New Zealand with a unified product stewardship program for compostable "soft" plastic packaging.

# Plan

To provide unique branding assets to be displayed on authorised packaging making it easy to identify, separate, and return to collection bins with a matching design. The returned packaging will be collected and delivered to a commercial composter, to be composted.

# Executive Summary

## **We believe it is time for a unified stewardship program for compostable plastic food packaging in New Zealand.**

The plastic pollution crisis is well understood and the contribution of plastic food packaging to this crisis is undeniable. The challenge for many businesses and their products is that without a protective light-weight barrier around their product they simply couldn't exist at scale.

As brands look to maintain food safety standards and adopt packaging that is designed for a circular economy the amount of compostable packaging entering the New Zealand market has increased significantly. The vast majority of which is being used to package takeaway food and by FMCG such as coffee, crisps, and chocolate.

For the most part, this increase in compostable packaging usage by brands has been done without a solution for the collection or processing of it at end-of-life. This has caused confusion and frustration for brands and their customers, as well as the waste management industry - a large part of which is due to the contamination of recycling streams.

Composters across the country have also felt under significant pressure to include this packaging as feedstock for their compost systems without the assurance of contamination being avoided.

The Compostable Packaging Stewardship Scheme (CPSS) is a multi-stakeholder collaboration between commercial composter Envirofert, waste management company Super Trash, advertising and communications agency Pitch Black, and sustainability consultancy Go Well Consulting. Our collective approach will provide a collection and processing end-of-life option for compostable packaging - allowing businesses to replace replacing oil-based soft plastic packaging used as safety barriers for food products.

If successful, our scheme will play a significant role in enabling New Zealand to meet the requirements of the comprehensive New Zealand Plastic Packaging Declaration which both include the goals of using 100% reusable, recyclable or compostable packaging by 2025.

In its simplest form, the CPSS involves the labelling of certified compostable packaging as authorised to enter the collection scheme and visually matching collection bins being provided at highly frequented locations such as supermarkets. These bins will be regularly emptied by our waste management partner and delivered to a commercial composter for processing.

Despite the perceived simplicity of such a model, there are complexities and challenges in making stewardship scheme scalable and sustainable. This report outlines how we plan to capture certified compostable packaging on a nationwide scale and ensure it is processed correctly as a feedstock to a commercial composting operation and can be sustained for decades.

In designing this system we looked closely at the learnings from the New Zealand Soft Plastics Recycling Scheme (SPR). Despite its challenges, the SPR proved there is a significant portion of the New Zealand public willing to separate and return a particular packaging material to a designated bin.

In late 2019, the SPR came under huge pressure and ultimately had to pause the collection service due to the massive oversupply of returned soft plastics and the lack of large scale manufacturing applications with uses for recycled soft plastics. This was exacerbated by China's decision to no longer accept the world's plastic waste, overwhelming the Australian based recyclers to the point they could no longer accept New Zealand's soft plastics. Following a period of no service, this oversupply issue has since been rectified by the SPR through the scaling back of the service and partnering with New Zealand based soft plastics recyclers.

Due to the increasing demand for compost in New Zealand and the natural circular model of compost to soil, to plants, we do not foresee the same oversupply issues impacting this compostable plastics stewards scheme. The collected packaging will also be exclusively composted in New Zealand and we will be scaling this scheme up in line with the capacity of our compost partners and the use of compostable packaging.

Our starting compost partner is Envirofert who are based in Tuakau (North Waikato) who have been accepting and processing certified compostable packaging for more than 6 years. One of the founding partners, SuperTrash (formerly WeCompost) have been collecting and delivering certified compostable packaging to Envirofert for over 6 years. Currently, SuperTrash collects almost exclusively from commercial customers. We see an obvious benefit in making this service available to the New Zealand public.

The CPSS will provide New Zealanders with access to composting facilities and enhance the basic premise of the program by:

- Providing specially designed bins at collection / drop-off points in places New Zealanders find convenient e.g supermarkets, shopping malls.
- Providing a scheme logo and branding for participating brands to use on their packaging once authorised to do so.
- Achieving the authorisation to join the scheme will require all packaging to be certified compostable. We aim to work with brands and Scion to make this process as easy as possible.
- We will undertake an extensive communications campaign to engage and educate the public and participating stores and brands to ensure minimal contamination of this scheme and any other collection schemes.

The long term funding of this scheme will be provided by the brands and compostable packaging manufacturers. We are yet to settle on the final pricing model as we continue our conversations with the various stakeholders.

Thanks to funding from Auckland Council, we are starting a 6-week trial across 4 stores (drop-off points) and 8 brands already using compostable packaging in Auckland. This feasibility study details our plan for this trial and how to scale up to service to cover the Auckland region, expanding to Hamilton, finally covering the rest of New Zealand. It details the steps we need to take, problems and solutions we will need to overcome, and financial costs to make this a reality.

We have been investigating this solution for more than 9 months and have had extensive conversations with brands, waste management businesses, composters, certifiers, packaging manufacturers and many others involved in this space. We have learnt a lot and uncovered a pathway to a long term sustainable solution to process compostable plastics in New Zealand.

For this scheme to succeed we require collaboration across industries, between industry peers, and across the private and public sectors.

If you would like to know more or want to support this scheme please contact us at: [jack@gowellconsulting.co.nz](mailto:jack@gowellconsulting.co.nz)

### **COVID Impact**

Although the repercussions of the COVID-19 virus on Kiwis daily life in the coming weeks and months is hard to predict, we believe that as we move down through the alert levels people will be ready for fresh news and keen to assist in positive collaborative projects.

We aim to launch the 6-week trial once it is appropriate to do so and we have the consensus of our stakeholders. We are keeping in close contact with everybody involved and as this is a moving target we reassess our timeline each Monday based on information available.

**“We made plastics.  
We depend on it. Now  
we’re drowning in it.”**

National Geographic. 2019

**There are two important facts about plastic:**

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### **Our packaged food system depends on it**

Plastic plays a critical role in preservation, protection, hygiene, labelling, and transportation. It is cheap, with a multitude of applications throughout the supermarket aisles. Without it, many of the foods would simply not be available in our supermarkets, and food waste would increase dramatically.

### **It is destroying our planet**

98% of all plastic is made from virgin plastic. Greenpeace has estimated by 2050, 20% of all oil reserves will be used for plastic products. Once that plastic is at the end of its life, it's estimated that around 40% goes to landfill - contributing to poor soil and water quality. Another five to 13 million tonnes of plastic is leaked into our oceans each year.

## New Zealanders are uniquely bad at plastic waste:

Each New Zealander generates 159g of plastic waste/day, making us the fifth worst country in the world

TABLE 2 | Total solid municipal waste and plastic waste estimates as calculated in the World Bank report *What a Waste 2.0* using their data adjusted to 2016 for cross-comparability.<sup>32</sup>  
Note: data collection varies between countries, see World Bank report for more information.

COUNTRY	WASTE GENERATION RATE (g/person/day)	PLASTIC IN WASTE STREAM (%)	PLASTIC WASTE PER CAPITA (g/person/day)
Norway	1160	2.25	26
Denmark	2160	1.6	35
Canada	1940	3	58
Japan	950	11	104
Spain	1190	9	107
Australia	1540	7.6	117
France	1370	9	124
New Zealand	1990	8	159
Ireland	1610	12.4	199
Germany	1720	13	224
United Kingdom	1330	20	266
United States	2220	12.9	286

Source: World Bank 2016

## But we're desperate for change:

# 65%

of New Zealanders are highly concerned with **build-up of plastic in the environment.**

This is the country's second highest concern (behind child poverty and ahead of climate change and the pollution of lakes and rivers).

The 2020 Colmar Brunton 'Better Futures' report surveyed 1,000 New Zealanders on a wide range of environmental and social issues and has been released in partnership with the Sustainable Business Council.

There are big opportunities for brands that respond to consumer needs to have a 'planet positive' impact

## 48%

of consumers have deliberately switched to a brand/service provider which is more sustainable

## 83%

of consumers agree businesses aren't doing enough to reduce environmental impact

## 70%

of consumers look for claims/labels that choices I make are environmentally/animal friendly

## 67%

of consumers will make eco-conscious choices, even if its more expensive

# Background on Compostable Plastics

## What is Plastic?

Plastic is material consisting of a wide range of synthetic or semi-synthetic organic compounds that are malleable and can be moulded into cold objects. Its use has exploded in the last 60 years. It has become ubiquitous across virtually every sector of our economy.

Common plastics include polyethylene, polypropylene, polystyrene and polyvinyl chloride (PVC). These plastic polymers are formed from monomers, such as ethylene and propylene, which are typically derived from fossil hydrocarbons.

## What is compostable plastic?

Compostable plastics are the next generation of plastics - they primarily come from renewable materials and can biodegrade through composting. Biobased feedstock such as corn, potato starch, and soy make up the majority of the compostable plastics used, but there are fossil-fuel based feedstocks that are also compostable. (See appendix 1)

To achieve compostable certification a plastic is typically tested across four properties:

- Chemical analysis of the starting material: this involves checking the components to ensure they do not contain unacceptable levels of harmful chemicals such as heavy metals.
- Biodegradation test: measuring how much of the carbon present in the starting material has been consumed and respired by microbes in the compost.
- Disintegration: this involves checking that large fragments do not remain.
- Toxicity of the compost: testing if the resulting compost will have any impacts on living organisms such as earthworms or germinating plants.

## What are compostable plastics not?

Despite the name, lots of people are under the false impression that they can treat compostable plastic the same way they would petroleum-based plastic.

Compostable plastic cannot be recycled with traditional plastic as they are not made from the same material, and could actually taint full batches, making it impossible for the batch to be recycled after all. Basically, compostable plastic is not currently recyclable. It needs to be composted.

## What is compost, and how does it work?

Composting is a natural biological process, carried out under controlled conditions. In this process, various microorganisms, including bacteria and fungi, break down organic matter into simpler substances.

Composting is not a mysterious or complicated process. Natural recycling (composting) occurs on a continuous basis in the natural environment. Organic matter is metabolised by microorganisms and consumed by invertebrates. The resulting nutrients are returned to the soil to support plant growth.

## What is the difference between home and commercial compost?

Seven factors influence the quality of compost: Carbon. Nitrogen. Size of particles. Moisture. Aeration. Time. Temperature.

Commercial composters are carefully operated to balance these factors to ensure efficient breakdown within a hotter environment. Home compost heaps allow less control over these factors, and operate at lower temperatures. This is fine for grass clippings, and food scraps, but often fails to break down compostable plastics. Because of this, many of the compostable packaging products are only compostable in a commercial facility.

**“Imagine a world in which everything could be easily broken down and turned into something useful again Unfortunately, and much like a rubbish bin itself, the deeper you dig into it, the murkier it gets. It’s a problem of not just environmentalism, but also infrastructure and economics.”**

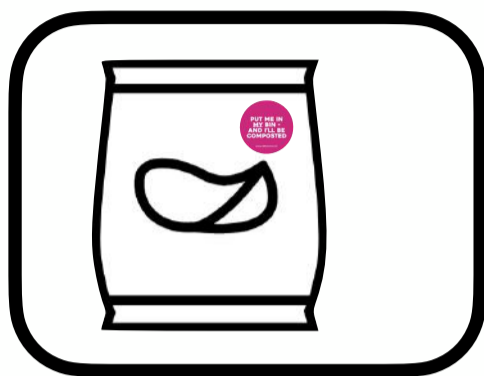
Ending the Magical Thinking on Compostable Packaging  
Alex Braae, Spinoff 2019

## Do compostable plastics compost?

The answer is yes, but only under certain circumstances. Those circumstances are a commercial compost environment. Many have criticised compostable plastics for not being a silver bullet to the plastic problem. Some of these criticisms are valid, and have helped shape our response. The main reason it hasn’t worked until now comes down to infrastructure and economics. That’s the problem we want to solve. One thing remains clear, the current system isn’t working, and we need to redesign New Zealand waste system around principles of cradle-to-cradle sustainability.



# How will the CPSS work?



All participating packaging must be certified compostable and authorised by the CPSS to be in the scheme. It must clearly display our authentication mark allowing for easy identification



Participating products will be displayed in stores as usual. To help communicate the scheme, stores will be provided with matching shelf wobblers and posters.



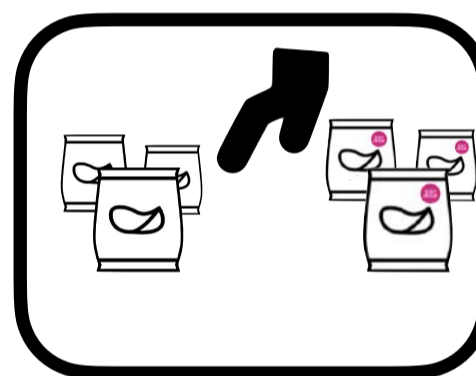
Customer returns used packaging (displaying authentication mark only) to any participating store and places in the CPSS branded collection bins. (No cleaning of packaging required)



Collection bins managed day to day by the store staff. (See Store Participation Requirements for more details)



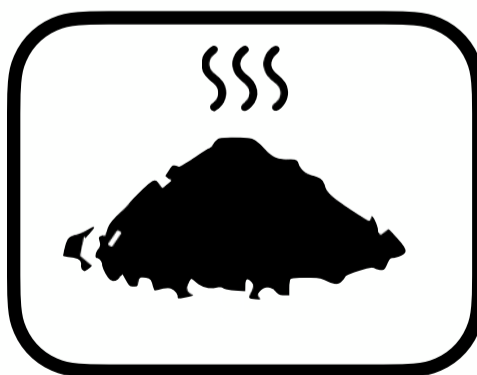
The collector will pick up the returned packaging on an agreed schedule.



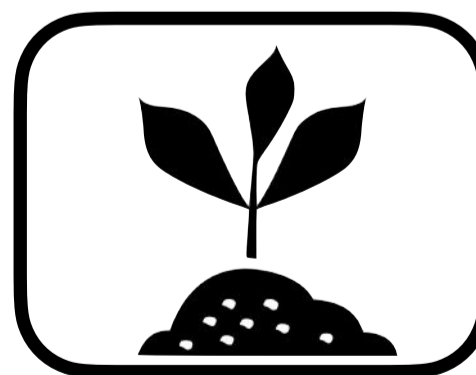
For the early stages of the roll-out, returned packaging will be manually screened by collection service to remove contamination and data recorded.



Screened packaging will be delivered to the commercial composter.



Packaging will be combined with mixed organic waste and processed by commercial composters (3-4 months).



Finished compost product will be sold to NZ horticultural and agricultural sector, returning nutrients to the soil.

# Details on the CPSS

## Why have a Compostable Plastic Stewardship Scheme?

- To share the costs means the program will be cheaper than setting up individual collection systems for each brand as some brands are beginning to offer.
- To assist New Zealanders on the path to a Zero Waste lifestyle.
- To eliminate confusion and cross-contamination of discarded materials.
- To assist businesses and governments in achieving their 2025 packaging pledge.
- To provide a range of business with an end-of-life option for their packaging.
- To engage a range of businesses and their customers into the circular economy solutions.
- To reduce littering rates and help solve plastic pollution.
- To allow businesses the confidence to invest in the research and development of compostable plastics, and other compostable packaging materials.
- To support the shift away from petrochemical feedstock for packaging.
- To enhance the NZ Inc. brand and reputation.

## Key Differences from SPR

With the Soft Plastics Recycling scheme (SPR) proving there is a significant portion of the New Zealand public willing to separate and return a particular packaging material type, our scheme will follow a similar bring-back model.

However, there is a key difference between this proposed collection scheme and the SPR. The packaging must be certified compostable and authorised by the scheme (see certification requirements for more details), and there is a big job to engage and educate the New Zealand public on what can and can't go into the collection bins. We are also very mindful of not interfering with the SPR or adding to their levels of contamination or that of any other waste collection scheme. See Communication for more details.

A designated collector will pick up the collected compostable material as required (along with any other compostable material the store has e.g. spoilt produce) assessing and separating contamination (non-compostable plastic and other materials), and deliver it to the commercial composter.

The packaging will be processed by a commercial composter as feedstock to their finished compost product.

The SPR was negatively affected by returned contaminated plastic i.e. plastic with food traces, that then went rotten. Because compostable plastic is designed to breakdown organically, this will not be a problem for the CPSS.

## Funding the program

We are starting with a 6-week trial using 4 Auckland drop-off points (supermarkets and retail stores) and 8 packaged food brands already using compostable plastic packaging. Funding for this was provided by Auckland Council.

The long term funding of this product stewardship scheme will need to come from the brands and compostable plastic packaging manufacturers who will benefit from it. We are working through different cost structures to strike the right balance between fairness, simplicity, affordability, and collecting adequate amounts of funding. We are yet to settle on the final pricing model but we are aware that keeping costs low is important to everyone and we aim to meet this need.

As we navigate the funding model we are aware of the variety of product types using or looking to use this packaging, and the various profit margins associated with those products. The cost to members will be heavily impacted by the scheme's membership numbers. As the membership base increases we expect to decrease the costs per brand / packet as they are distributed across more members. To launch stages 2, 3 and 4 we will need to land on a critical mass of members to afford the expansions. This could also be funded by grants from local and central governments. There are marketing and branding opportunities for founding members. We are keen to hear from anyone with ideas or points of view on the best funding model.

### The ongoing costs of such a the scheme will include:

- collection fees;
- drop-off / processing fees (paid to composters);
- FTE to manage the scheme;
- a communications budget;
- new bin and communications assets for each new drop-off site;
- maintenance costs.

### The capital cost requirements include:

- design of branding assets;
- design and delivery of communication assets;
- design and manufacture of collection bins;
- FTE to set up the scheme (communicating with participating brands, packaging manufacturers, stores and volunteers and / or PTEs, investigating the expansion of the scheme);
- recruitment and training of 'bin minders';
- research / evaluation of scheme;
- report writing.

We will release detailed cost estimates at the end of the trial once we following a review of Stage One and further engagement with our participating stakeholders and other interested parties. At that point we will have a clearer understanding of flexible costs - collection frequency, volume, per site servicing and capital requirements. It is important to understand this will be a fully functioning product stewardship scheme to service brands using compostable plastic packaging and therefore funding will be sourced from those who plan to use and benefit from it.

After the conclusion of the trial, it is critical brands using compostable packaging begin to support the project financially. We see the potential for increased goodwill and buyer preference shifting towards participating brands as the main reason for brands to provide funding. We can also see how it will be far cheaper and more effective than individual brands each providing their own stewardship programs. Choosing to use compostable packaging is a powerful decision and financing this stewardship program to assist in its collection is the next exciting step.

We are actively looking for funding and founding partners to help us deliver each stage of the roll out and would like to hear from anyone who would like to help us bring this product stewardship scheme to New Zealand.

## Key Points

### **The scheme is focused on soft compostable plastic**

This type of plastics is used in grocery bags, bread bags, bubble wrap, plastic wrappers of products such as biscuits, chips, basically any packaging that may be scrunched up in the hand.

### **We are not encouraging single-use packaging and our packaging scope is relatively narrow**

We will encourage customers to appropriately dispose of their compostable packaging and brands to take responsibility for their packaging at the end of life, but we will not encourage or validate the use of single-use packaging. We are focusing on replacing soft plastic packaging used as safety barriers for food products. We recognise this scheme is not a silver bullet to our plastic pollution crisis but an additional solution.

For this reason, we have focused our attention on “soft” certified compostable plastic packaging. We do not plan to accept other compostable packaging products at least until we achieve national coverage. This messaging will be effectively communicated to the public.

### **We do not want to transition easily recyclable packaging products to compostable packaging.**

It is important to us that compostable packaging is only used where it is appropriate. This is why the program has a narrow scope focusing on soft plastic food barriers.

This means ensuring that other widely recycled materials plastics 1 and 2 are not swapped to compostable plastics.

## Further Notes

### **Fibrous compostable packaging**

Whilst these products can be certified under the above certifications we have made the decision to exclude this material at this time due to the difficulties branding these materials and additional complexity when educating the public. We will look to add fibrous packaging at a later date once we can be sure there will be no effect to the program’s success.

### **Materials used in compostable packaging**

Compostable materials are generally derived from Cellulose (tree pulp), PLA (GMO Corn or NON-GMO Tapioca starch) or Petrochemical carbon sources. Most products use a portion of all of these materials in the makeup of a compostable packet. It is important to understand that some compostable materials do come from petrochemicals and are still compostable and that some other materials come from GMO feedstock. These two sources are damaging to the environment and efforts should be made to minimise their use in the packaging brands use.

### **Polylactic acid (PLA)**

PLA is used in some types of compostable packaging and is produced using GMO corn grown in the USA or Non-GMO tapioca starch from Thailand, this is worth keeping in mind given New Zealand’s position on GMO product. We will be following WasteMinz guide for advertising compostable packaging and will expect members to do the same - [Guide to advertising the plastics used in compostable products and packaging](#).

# Conversion and Certification

Although the system sounds simple in principle those who have looked into the composting of packaging will appreciate the complexities that are needed to overcome to ensure a sustainable long term solution. Below we detail these challenges and our solutions.

When a brand enters the program each unique product packet they offer must be authorised by the CPSS to participate in the program and receive the CPSS branding and marketing assets this is an important quality assurance for our commercial composting partners.

Authorisation requires two steps, converting existing packing to a compostable plastics alternative, and attaining certification from independent body, for the WHOLE packet.

## Compostable packaging converters

Compostable packaging converters transform the basic sheets of compostable plastic material into the packaging products we use in food retail. We are lucky in New Zealand as we have some world-leading compostable packaging converters.

These companies have been applying compostable packaging to new use cases or interesting designs. They have large amounts of expertise and having them local means great communication and service. There are also many great converters working out of China who provide quality packaging with the correct certifications and performance. These can be accessed directly or through an importer. All of these options mean the market is becoming more price competitive, it is still important to understand the basic materials being used and the certifications each converter is working under.

If you're interested in finding the right convertor for your needs, contact [Jack@gowellconsulting.nz](mailto:Jack@gowellconsulting.nz).

## Certification

Please note, protecting the integrity of the finished compost is very important to the sustainability of the scheme therefore compostable certifications must be gained for the complete packaging product i.e. the whole packet.

Use of certified compostable feedstock and / or films used will not be sufficient due to the risk posed to the compostability of the final packet by adhesives, inks, and the breakdown of thick layers and components such as valves / zip locks.

The CPSS will provide support and guidance on this whole packaging product compostability certification process.

We are working with compostable packaging manufacturers/convertors to develop a catalogue of whole certified packets that brands can select from to join the scheme and reduce the length and expense involved in certifying a whole packaging product.

Awarding of the CPSS branding assets will be based on: the compostability certification outlined above;

- Agreement to our branding guidelines (still to be finalised);
- Agreement to our funding terms (still to be finalised);
- Agreement to all our terms and conditions (still to be finalised).

Due to the cost and timeline of certifying the compostability of a whole packaging product, packaging that contains certified films may be accepted for the early stages of the scheme subject to review by Envirofert and the CPSS. In such instances, the compostable sticker will be provided only. Only packaging products with whole certification will receive the branding assets to be printed on packet. This is a transitional solution to ensure the continuation of the scheme through the phases (see below) and allow brands to participate in the CPSS whilst completing the whole packet certification process.

To achieve authorisation packaging must gain one of the following certifications inline with Wasteminz best practice: [Wasteminz Compostable Packaging Guidelines](#).

The CPSS will accept both home and commercial compostable packaging certification with one of the independent compostable certifications presented on the next page.




## Certifiers of compostable packaging

Scion is a Crown research institute based in Rotorua that specialises in research, science and technology development for the forestry, wood product, wood-derived materials, and other biomaterial sectors. Scion have a compostability facility that is accredited to carry out compostability testing to internationally recognised standards aligned with DIN CERTO (see below diagram), and is the only testing facility accredited in Australasia. Scion test the packaging on behalf of the certifying body in line with their criteria, they do not certify the packaging as compostable. This is done by the certifying body (see below table) upon review of the testing results. (See appendix 2 for certification details).

## Commercial Compostable Certifications:

	<p><b>Australasian Seedling Industrial Compostable</b>  <b>Region:</b> Australia/NZ  <b>Verification:</b> Australasian Bioplastics Association / DIN CERTCO  <b>Overarching standard:</b> AS4736 or ABAX 9999</p>
	<p><b>Seedling Industrial Composting</b>  <b>Region:</b> Europe  <b>Verification:</b> DIN CERTCO  <b>Overarching standard:</b> EN 13432</p>
	<p><b>OK Compost Industrial Composting</b>  <b>Region:</b> Europe  <b>Verification:</b> TÜV AUSTRIA  <b>Overarching standard:</b> EN 13432</p>
	<p><b>DIN Industrial</b>  <b>Region:</b> Europe  <b>Verification:</b> DIN CERTCO  <b>Overarching standard:</b> EN 13432</p>
	<p><b>Biodegradable Products Institute / US Composting Council</b>  <b>Region:</b> USA  <b>Verification:</b> DIN CERTCO  <b>Overarching standard:</b> ASTM D 6400 or ASTM D 6868</p>

## Home Compostable Certifications:

	<p><b>Australasian Seedling Home Compostable</b>  <b>Region:</b> Australia/NZ  <b>Verification:</b> Australasian Bioplastics Association / DIN CERTCO  <b>Overarching standard:</b> AS 5810</p>
	<p><b>OK Compost Home Composting</b>  <b>Region:</b> Europe  <b>Verification:</b> TÜV AUSTRIA  <b>Overarching standard:</b> Variation of EN 13432</p>
	<p><b>DIN Home</b>  <b>Region:</b> Europe  <b>Verification:</b> DIN CERTCO  <b>Overarching standard:</b> AS 5810</p>

# Challenges: Conversion and Certification

We are aware of the challenges facing brands to transition to certified compostable packaging and certifying that whole packaging product. Below we have identified some of these challenges and provided available solutions.

Challenge	Solution
<p><b>Time</b> - It takes 6 - 12 months for packaging to be independently certified.</p>	<p>Compostable packaging suppliers are working to provide a catalogue of pre-certified products with criteria relating to ink and adhesive usage. This will allow brands an off-the-shelf solution. Packaging that contains certified films may be accepted for the early stages of the Scheme upon review by Envirofert and the CPSS. In such instances, the compostable sticker will be provided only.</p>
<p><b>Cost</b> - Cost of compostable packaging is currently higher than petrochemical-based packaging.</p>	<p>The cost for brands who have already transitioned has been between 2 and 4 times their prior packaging cost. We expect the price of compostable packaging to decrease as the competition among converters and general economies of scale grow. When considering the true cost of packaging and including environmental damage compostable packaging is a cost-effective packaging choice. As legislation related to mandatory product stewardship requirements continues to develop the cost of individual product stewardship programs run by brands will be considerably more onerous than sharing the costs through the CPC. Increased marketing potential and growing customer preference towards compostable packaging will create brand value.</p>
<p><b>Performance</b> - Performance (durability, weight, high barrier protection) of compostable packaging compared to petrochemical-based packaging.</p>	<p>Compostable packaging has already been proven to perform well in a variety of applications from coffee grounds to raw chicken packaging. New Zealand is home to some of the world's top compostable packaging experts, as a result, performance or production line requirements can usually be met with relative ease. Compostable packaging technology is still in its infancy when compared to the R&amp;D of its petrochemical counterpart and we expect it to improve with the security of a sustainable end of life option such as the CPSS.</p>

# Communication, Engagement, and Contamination

Due to compostable plastics looking and feeling identical to conventional (non-compostable) plastics the risks of contamination and customer confusion are our biggest challenges to solve. Our goal is to reduce the contamination of the CPSS scheme and to also ensure compostable plastics do not contaminate the Soft Plastics Recycling program or any other material streams, and further confusing the public.

We have itemised our communications strategy into the following:

- **Packet Labelling:**  
Packet Labelling: Every packet that has been authorised to be a part of this scheme must display the CPSS branding as specified in branding requirements (see image 1)
- **Matching Bins:**  
Every collection bin will be branded to mirror the look of the authorised packets (see image 4)
- **Bin Signage:**  
Every collection bin will be accompanied by signage to clearly communicate the scheme and what can be deposited in the bins (see image 5)
- **In-store Signage:**  
Every participating store will be provided with communication assets such as posters, and 'shelf wobblers' (see image 3 & 5);
- **Human Bin Minders**  
It is crucial for the success of this scheme that a person is present intermittently for the first 2 weeks at each new collection point during peak times to engage and inform customers. These individuals will be trained on how the scheme works and able to answer questions to ensure optimal engagement and communication. This will further extend the engagement of the scheme through users personal networks.
- **Informed Store Manager(s):**  
Managers of each participating store will be fully trained and informed on the scheme.
- **Website:**  
An informative branded website would be provided to engage and communicate with the public as well as listing the authorised product packaging.
- **Social Media:**  
A variety of social media platforms will be used to provide engagement and two-way communication.

## Packet Labelling

Once a brand has had their packaging authorised to be accepted by the scheme (see Required Packaging Specifications and Certifications) they will be provided with strict branding guidelines that must be adhered to. These are to be finalised as we continue our discussions with the various stakeholders and evaluate the differing packaging shapes and sizes but the following criteria has been identified to date.

- The CPSS branding must be on the front of the packet and easily visible to the customer;
- Brand/logo designed by Pitchblack Partners will be simple and designed not to interfere or detract from the design and branding already in use.;
- The colour of the branding will be light and bright so as to stand out;
- This branding will simply indicate a packet can be placed into the collection bins. It will not communicate that the packaging is compostable. Brands are free to communicate this on their packaging as they wish. This is to minimise contamination and avoid non participating brands from having the packets collected by the scheme.
- Brands are free to add additional information on their packaging detailing its compostability e.g home compostable, as long as it doesn't interfere with the CPSS branding.

## Brand Design and Artwork

### Connect the dots

The Compostable Packaging Stewardship Scheme will only work if the public can be taught a new waste behaviour: Identification, Separation and Return. Getting this right ensures high uptake and low contamination. The 'connect the dots' concept is born from the current waste issue of people putting the right products in the wrong places. When people put the right things in the right places, the system works and waste is reduced. Thus, the dots are connected. With that in mind, we have designed our branding concept to be bold, engaging and directive. We've chosen pink as our lead colour, rather than the typical environmental green, and featured a fungi-style artwork aesthetic, highlighting the revolutionary process behind compostable plastic.



1. On-product stickers



3. Shelf wobblers



2. Stickers example



## Collection Bins

The collection bins will be located in areas of the retail store that are highly visible and convenient to access. These bins will be designed and branded to match the branding on the CPSS accredited packaging.

For Stage 1 of the trial, these will just be stickered bins, but for Stages 2 and 3 we would like to investigate the options of installing the bins with relatively simple technology that allows the customer to scan their packaging. This would add to the user experience and allow opportunities for further engagement, communications and data collection. Funding dependent.

For each new store to join the scheme we propose an individual 'bin minder' is provided to engage with and educate the public for the first week of its operation. This will help educate and create role model users of the program.



4. Bin Stickers

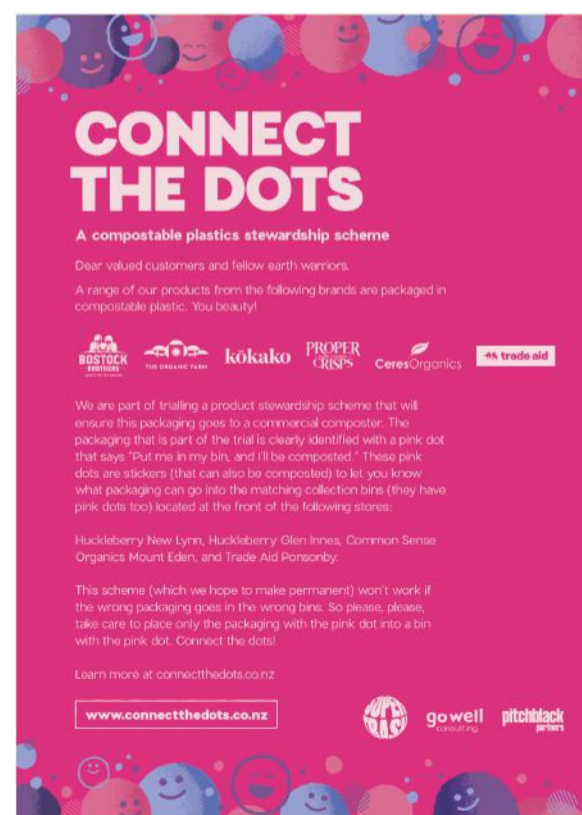
## Store Participation Requirements

Participating stores will be supplied with a CPSS branded bin and certified compostable bin liners. The store staff will be required to notify the Collector when their bin is full and ready for collection. If bin requires emptying before the Collector can collect, the store is expected to lift out the full bin liner, tie-off, and place it where it can easily be collected (a stores existing externalised material collection site is recommended).

Stores will be provided with communication collateral such as posters and 'shelf-talkers' to help customers clearly identify the packaging that is part of the scheme and can be placed in the collection bins.

The CPSS will also provide educational material and FAQ's to ensure the store staff (especially managers) are fully informed of the scheme and able to answer questions from customers. Unanswered questions can be directed to the CPSS team and / or website.

Stores will be required to sticker the participating packaging until brands have printed the branding on their packaging (we are anticipating Stage 3, see below). The CPSS will offer to provide this service during Stage 1 if untenable for the stores.



5. A0 Store posters

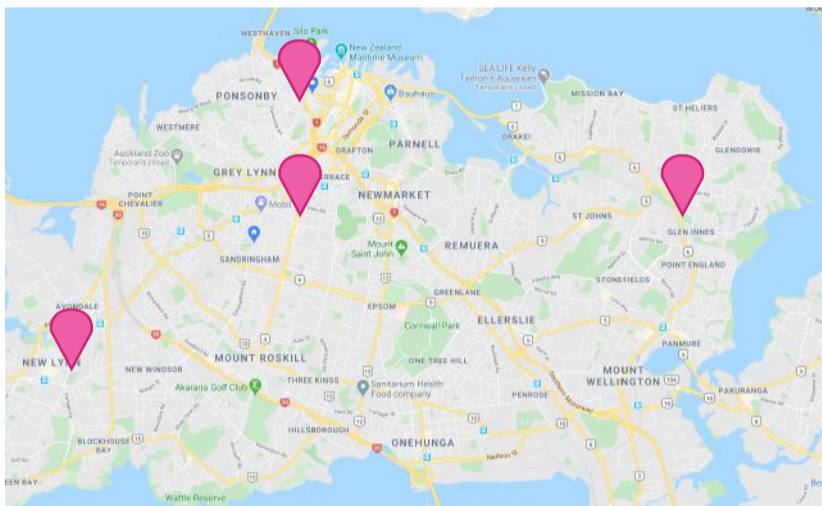
# Staged Rollout

A staged rollout will allow us to scale up the project at a manageable speed while also providing learnings to help us optimise the impacts of the scheme.

## **Stage One - Small Scale Trial - Funded by Auckland Council**

Thanks to funding by the Auckland Council we are trialling the collection scheme across four retail stores in Auckland. This will provide us the chance to research its effectiveness, the buy-in from customers, the impact on the store and its staff, and the levels of contamination.

Currently, four bins are being designed to be placed at two Huckleberry (Glenn Innes and New Lynn), one Commonsense (Dominion Road), and one Trade-Aid store (Ponsonby). The bins will be provided by Super Trash along with compostable certified bin liners. Individuals will be recruited to manage the bins during the busiest times to engage with and educate shoppers.



Stage 1 will run for 6 weeks with a focus on feedback and learnings. We have 8 brands in each store who already sell products in compostable packaging and have agreed to take part in the trial. Their packaging will be stickered to communicate to customers that it can be returned and placed in the collection bins.

Due to the time and cost restraints relating to certifying a whole packaging product as compostable we are allowing brands with certified compostable films to partake in this stage. The packaging will be assessed by Envirofert and us before it is cleared to participate.

The returned and collected packaging will be weighed and transported to Super Trash's headquarters in Mangere Bridge where the collected materials will go through a manual screening process to remove contaminants and measure contamination rates. Given the limited volumes of returned packaging due to it being a trial, we expect the sorting of contaminated items to be relatively quick and easy.

After sorting, the packaging will be mixed with general organic material collected from other Super Trash clients and transported to Envirofert, in Tuakau, for processing (see The Composters for more details on the composting process).

During this trial period, we will be surveying the participants of the scheme for their feedback. We have engaged with research consultancy Folkl to ensure the data we collect is accurate and provides the relevant insights we need.

A report will be produced by Go Well Consulting at the end of the trial evaluating success, our learnings, and recommending next steps. Data will be collected through staff and customer interviews, the sorting and weighing of collections, and feedback from brands and stores.

## Challenges and Solutions

Challenge	Solution
It will be too expensive and impractical to rebrand packaging for a trial in 1-3 stores. How will customers know what packaging can be brought back to store?	Compostable stickers will be stuck onto each pack for the trial so actual rebranding can be avoided. This allows those brands using certified home compostable packaging to be part of the scheme without compromising their home composting certification.
Many of the brands currently using compostable packaging haven't yet had their whole packaging product certified.	Due to the time and cost restraints relating to certifying a whole packaging product as compostable, we are allowing brands with certified compostable films to partake in this stage. The packaging will be assessed by Envirofert and us before it is cleared to participate.
Customer confusion, and potential contamination of the compost collection bins with other materials?	<ol style="list-style-type: none"> <li>1. Bins will be clearly branded to match the stickers and be accompanied with very clear signage and messaging;</li> <li>2. Staff in store will be educated on the system;</li> <li>3. We will recruit 'Bin Minders' to stand by the bins at the busiest times to engage with customers;</li> <li>4. We will have clear communications on a website to detail the project;</li> <li>5. We will provide a closely managed social media platform for customers to engage with us.</li> <li>6. We will regularly be in contact with the stores and brands throughout the trial stage.</li> </ol>

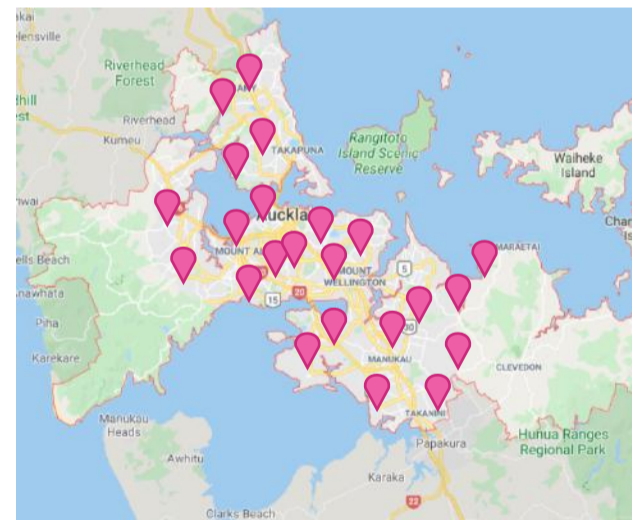
## Stage Two - Auckland Wide - Funding required

Following Stage 1 we propose to roll the collection scheme out across Auckland. We will expand our number of collection points across a larger group of participating stores and we will begin to engage larger food retailers. We will continue to use Super Trash as our Collector and Envirofert as our Composter. Due to this stage still being Auckland-only we anticipate the continued use of our compostable branded stickers on participating brand packaging, although qualifying brands (see Required Packaging Specifications and Certifications) are welcome to print our branding assets on their packaging if they wish. The CPSS will continue to communicate to the public through our own communication channels and that of the participating stores/businesses.

### Expanded Communications:

As the reach of the scheme expands for this stage we will further expand our communication offering to include:

- Website with mapped bin locations, participating brands and educational material
- Depending on budgets - radio advertisements; social media engagement and promotion, potential customer rewards eg. spot prizes for bringing packaging back;
- Bin Minders during busiest times at each participating store.



\* Stores not locked in

### Challenges and Solutions

Challenge	Solution
The branding of all packaging when the scheme only covers Auckland.	<p>Brands with CPSS authorised packaging can use our brand assets on the packaging if they wish. They may want to communicate on the packaging that the scheme is only available in Auckland.</p> <p>Brands can communicate this through their own channels as they see fit.</p> <p>The CPSS will clearly communicate the serviced areas to the public.</p> <p>Brands can sticker their packaging at their own cost as was done for Stage 1 to avoid printed CPSS branding.</p>
It is costly and time-consuming to certify a whole packaging product as compostable and this stage only covers Auckland.	<p>Multiple brands could collaborate and share costs to create a unified packing product e.g chip packet, that is then sent for certification (Scion) and made available to all those who contributed.</p> <p>We can apply for funding to help brands through the certification process.</p> <p>Note, due to the time frame involved (6-12 months) to certify the whole packaging product as compostable it would align well with the further roll-out of this scheme (see Stage 3 and 4)</p>

### Stage Three - Expansion to Hamilton

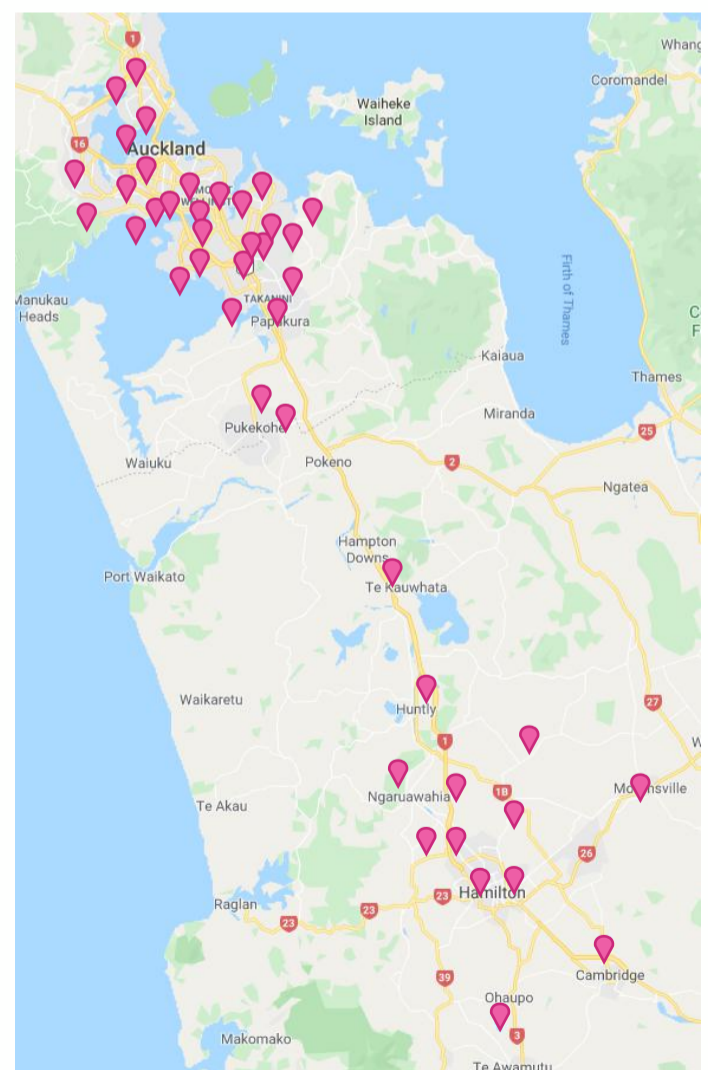
Stage 3 will replicate Stage 2 but in Hamilton.

Expansion to Hamilton is the next logical next step due to its proximity to Envirofert (Tuakau) ensuring Supertrash can continue as our primary collector and it requires very little adaptation to the Auckland program. It is also one of New Zealand's most populous cities and by covering Auckland and Hamilton we will reach approximately 40% of the NZ population.

Based on our conversations with brands to date we expect this coverage would be satisfying enough for them to print our branding assets on their authorised packaging ensuring stickers are no longer required.

Between Super Trash and Envirofert we have the capacity and capability to collect and process compostable packaging from across the wider Auckland and Hamilton region.

Beyond these regions, we are yet to ascertain who will provide the collection and delivery service in place of Super Trash, and whether we can work with another commercial composter or will need to transport the collected material to Envirofert. We are mindful of our carbon footprint and we will carry out cost-benefit analysis of any reverse logistics relative to the carbon benefit of composting the packaging.



\* Stores not locked in

## **Stage Four - New Zealand Wide Rollout**

Assuming the success of Stage 3 we will look to expand the collection scheme out across the rest of New Zealand. The speed and range of this will largely depend on the logistics of delivering the collected material to Envirofert and/or finding other commercial composting, and collection, partners around the country.

We are extremely mindful of the increasing carbon cost of moving packaging around the country and the trade-off we must balance of overall environmental impacts.

Each new collection site will be communicated to the local community, added to our online map, and provided with a temporary bin minder to ensure optimal uptake of the scheme.

## **Challenges and Solutions**

Challenge	Solution
<p>Currently we only have one commercial composter, Envirofert, willing and able to process the collected compostable plastic material. They are based in Tuakau, North Waikato.</p>	<p>We will engage with other commercial composters across New Zealand to find other composting partners. Multiple locations may be necessary to serve the nation.</p> <p>We will engage with logistics experts to help us understand how we can transport the collected materials to Tuakau with a priority on minimising GHG emissions. We are hesitant to increase carbon emissions through an extensive logistics program.</p> <p>Supertrash is CarbonZero certified by Toitu NZ so carbon emissions in Auckland and Hamilton will be offset.</p>
<p>Many composters around NZ have BioGro Organic certification for their compost. The criteria for this certification does not allow the processing of “synthetic” materials of which compostable plastics are classified as.</p>	<p>We will collaborate with our compost partners to ensure we work within their certification requirements. The demand for compost is increasing as the horticulture industry increases its use of compost.</p> <p>We will investigate the opportunities of a replica Envirofert site being built in a suitable region of NZ, or existing commercial composters operating an alternative compost stream that is not certified organic.</p>

## **Stage Five - Continue service**

The program will be maintained by the CPSS through stages 1,2,3,4 and beyond. This will include organising new sites to join, assisting brands to convert to compostables and get certified, managing and policing logo use and messaging around the program and continuing to improve customer education. The CPSS will also facilitate the continued funding of the operation and collect these funds from participating brands.

## Summary

We started this project as a collaboration between parties wanting to use our skills, knowledge, and resources to help solve the plastic pollution crisis in New Zealand. We looked deeply into compostable plastic packaging and soon realised there is a desperate need to create a product stewardship scheme to provide an end of life solution for compostable soft plastic packaging. We have spent months researching the landscape and talking to a wide range of stakeholders allowing us to build on our existing knowledge. Getting the scheme up and running is by far the hardest part but once we meet that critical mass this is a product stewardship scheme that would provide a sustainable solution to many councils, businesses, communities, and individuals while playing a major part in evolving New Zealand to a zero-waste and circular economy.

We would appreciate your assistance in sharing this with any individuals or organisations that may benefit from understanding this project. We are also interested to hear from brands that may want to be involved in the trial at stage two.

Please register your interest with Jack if you would like a copy of the report detailing the results of the trial. You can get in touch to share your thoughts on this feasibility study or more generally about what we are doing at [Jack@gowellconsulting.nz](mailto:Jack@gowellconsulting.nz).

## Operational Partners

### Go Well Consulting



Go Well is a sustainability consultancy founded to help lead and influence New Zealand in the evolution to a circular, regenerative, and inclusive economy. We make the concepts and values of sustainability, circularity, and systems thinking more accessible and more understandable for New Zealand businesses and everyday Kiwis. We make New Zealanders more mindful of the impacts of their business and lifestyle choices on other human beings and the natural world. We deeply understand the issues and collaborate with others to deliver the solutions.



### SuperTrash

Super Trash are Auckland's leading commercial compostable waste collection service. Each week they collect over 40,000kg of organic waste and divert it from going to landfill. Since 2012, they have saved over 5.3 million kg of waste going to landfill. If it can be composted, they can collect it!

### Pitchblack Partners



Pitch Black Partners are a creative advertising and design company based in Auckland, known for their ability to create and produce highly effective video, design and digital content across all media - faster and more competitively than traditional agencies. They work with clients such as Goodman Fielder, Air New Zealand, Part-time Rangers and Burger King.

### Envirofert



Envirofert is a commercial composting facility based in Tuakau, Auckland. They currently compost much of Auckland's green "waste", collected food "waste" and compostable plastics, and are willing and able to process more. Envirofert complies with certification by AsureQuality who test the final product for toxicity levels and micro-plastics. Finished compost is sold to local farms and orchards.

## Key Team Members



### Jack Brown

Jack is the CPSS Project Lead and the conductor who keeps all the various stakeholders connected and in tune. Prior to the CPSS, Jack worked at Supertrash where he gathered an extensive knowledge of New Zealand's waste management industry, commercial composting, and compostable packaging. Jack's work at Supertrash was recognised last year when he was made a finalist of the 'Millennials on a Mission' category at the 2019 Sustainable Business Network Awards. Jack is also on the Board of The Now Crowd, a professional network for young people focused on sustainability in corporate New Zealand.



### Nick Morrison

Nick Morrison founded Go Well Consulting on the belief that New Zealand should be leading the world in sustainable living and sustainable business practices, yet businesses needed better access to expert help and guidance to navigate the transition. Prior to founding Go Well, Nick spent two and a half years working as the National Sales and Sustainability Manager at the compostable packaging business, Innocent Packaging. Nick has successfully completed studies in The Circular Economy, Sustainable Packaging, and the Sustainability Reporting - GRI Certified Training Course. Nick is the consultant behind the nationwide, plastic bag, behavioural change campaign - Bags Not



### Craig McLeod

Craig has spent nine years as a strategist in the marketing industry (Australia and New Zealand) working on a range of commercial client's projects - including Microsoft, Air New Zealand, Sanitarium, Public Transport Victoria, Australia Post, SKY Television, and Goodman Fielder. He has collaborated with range of pro-bono clients Extinction Rebellion, We Compost, and Good Nature - designing advertising campaigns that cut through the clutter and prompt positive behaviour change.

# Acknowledgements

The following people and organisations have provided their experience and guidance to the CPSS project. We are truly grateful.



**James Griffin**  
General Manager  
SBN



**Jenny Marshall**  
Senior Project Manager  
WasteMinz



**Kelly Maclean**  
Sustainable Packaging Manager  
Foodstuffs



**Owen Embling**  
Managing Director  
Convex Plastics



**Paul McGuire**  
Technical Director  
Envirofert



**Steve Rickerby**  
Founder  
Super trash & We Compost



**Ben Grant**  
Co-Founder  
Grounded Packaging



**Jon Reed**  
Director  
Compostic



**Mike Murphy**  
Managing Director  
Kokako Coffee



**Ben Bostock**  
Co-Founder  
Bostock Chicken



**Phil Donnelly**  
Key Account Manager  
Trade Aid



**Morgan Maw**  
Founder  
Bonnie Good



**Duncan Kerr**  
Commercial Manager  
Proper Crisps



**Dr. Thomas Neitzert**  
Mechanical Engineering  
AUT



**Dr. Joya Kemper**  
Sustainability Marketing  
Auckland University



**Chris Purchas**  
Director, Sustainability  
Taylor + Tonkin



**Al Keating**  
CEO  
Supreme Coffee



**Dr. Marie-Joo Le Guen**  
Research Leader  
Scion Research



**Commonsense**



**Huckleberry  
Organics**

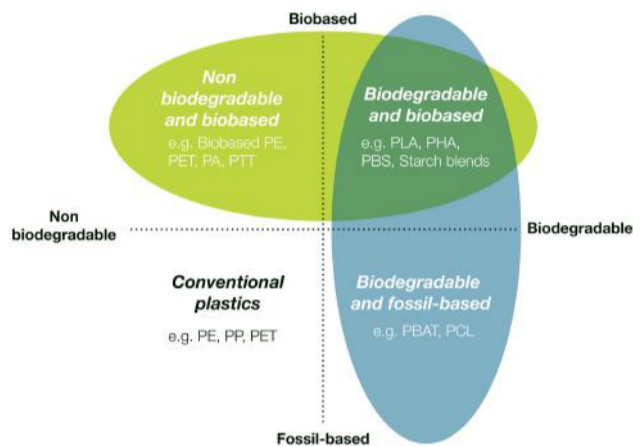


**Ceres Organics**



## Appendices

### Appendix 1 - Bio-based Plastics Grid



Source = PlasticsNZ



### Appendix 2 - Overview of Scion Testing Criteria:

#### Home compostability testing scope:

The standard test method has four main requirements. All requirements must be met to be fully accredited.

1. The material must not contain unacceptable levels of fluorine and heavy metal (e.g. zinc, copper, nickel, cadmium, lead, mercury, chromium, molybdenum, selenium, arsenic) and the sample must contain at least 50% volatile solids, which is an indicator of organic content.
2. While in a composting environment 90% of the materials carbon content must be converted into carbon dioxide within a 12-month period. This test is conducted at  $25\pm 5^{\circ}\text{C}$ . The constituents of a material (e.g. polymers, inks, adhesives) can be tested independently for this requirement, so may have already passed this requirement. FTIR is used to confirm the constituents in the starting material and compare against available data.

3. The materials in its finished form (including inks) must disintegrate during the composting process and at least 90% must be smaller than 2 mm within a 6-month time frame. This test is also conducted at  $25\pm 5^{\circ}\text{C}$ . If the material is available in a range of thicknesses, then the results from its thickest form can be used to represent all thicknesses.
4. Finally, the resulting compost from the disintegration trial is tested to ensure the degraded material will not affect the compost quality and thus plant growth and earthworm health.

#### Commercial Compostability Testing scope:

1. The standard test method has four main requirements, which all must be met to be fully accredited;

The material must not contain unacceptable levels of fluorine and heavy metals (e.g. zinc, copper, nickel, cadmium, lead, mercury, chromium, molybdenum, selenium, arsenic), and the sample must contain at least 50% volatile solids, which is an indicator of organic content.

2. While in a composting environment 90% of the materials carbon content must be converted into carbon dioxide within a 6-month period. This test is conducted at  $58\pm 2^{\circ}\text{C}$ . The constituents of a material (e.g. polymers, inks, adhesives) can be tested independently, so may have already passed this requirement. FTIR is used to confirm the constituents in the starting material and compared against available data.
3. The materials in its finished form (including inks) must disintegrate during the composting process and at least 90% must be smaller than 2 mm within a 3-month time frame. This test is also conducted at temperatures which simulate an industrial composting environment. If the material is available in a range of thicknesses, then the results from its thickest form can be used to represent all thicknesses.
4. Finally, the resulting compost from the disintegration trial is tested to ensure the degraded material will not affect plant growth and for AS4736 also earthworm health.

Further information can be sourced from Scion Crown Research ([www.scionresearch.com](http://www.scionresearch.com)) and WasteMINZ ([www.wasteminz.org.nz](http://www.wasteminz.org.nz)).