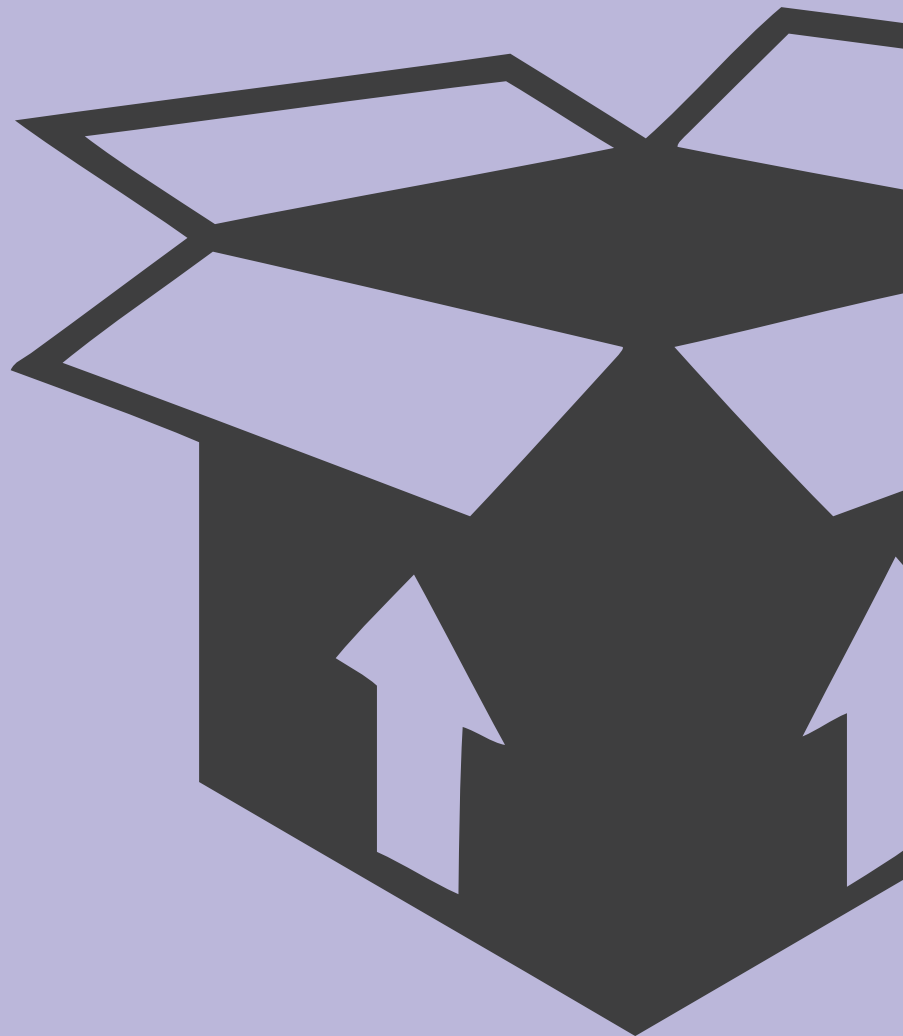




A Packaging Optimisation Guide

for Food & Drink
businesses in
Northern Ireland





Executive Summary

For many food and drink businesses in Northern Ireland optimising packaging use is an attractive goal, but in practice, many companies do not know where to start. This simple, practical guide is designed to offer food and drink businesses in Northern Ireland advice on how to handle packaging and packaging waste, using the right amount for what is required and reducing costs, by working through a packaging optimisation checklist.

Through optimising the use of packaging in your business, you will realise benefits such as saving money, reducing your carbon footprint, preserving natural resources and enhancing your status as a green supplier.

Invest Northern Ireland is committed to helping your business optimise packaging use and reduce costs through the application of relevant good practice techniques. Invest NI offers free support to eligible companies to help them identify and implement packaging optimisation opportunities.

Please do not hesitate to contact us if we can be of further assistance to support your business on the journey to optimised packaging use.

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1.0 Introduction to Packaging Optimisation

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1.1 Background

Packaging fulfils an important role in our businesses. It protects food and drink raw materials and finished products on their journey from farm to factory to consumers. Packaging reduces the amount of wastage through damage in the supply chain and in the home. Packaging also reduces spoilage and increases shelf life for the customer and allows consumers to keep food and drink fresher for longer. Other key roles packaging plays include providing product information – often required by law – enabling easy handling, opening and re-closing, identifying product tampering and enhancing hygiene and safety of the contents.

This Invest NI good practice guide is designed to offer food and drink businesses in Northern Ireland advice on how packaging optimisation could be integrated into the way they use and handle packaging and packaging waste. The term packaging optimisation essentially means using the right amount of packaging for what is required. Optimising use of packaging materials aims to reduce material use, waste generation and therefore make cost savings and support conservation of our natural resources.

Packaging optimisation makes perfect business sense; it can save money, enhance the reputation of a business and preserve natural resources. Whilst packaging optimisation is an attractive goal, the reality is many businesses in Northern Ireland (NI) do not know where to start. This guide is designed to be a first practical stage towards your company implementing packaging optimisation and saving money by working through a packaging optimisation good practice checklist (see **Appendix A**).

Your business should always be seeking ways to be more efficient but packaging optimisation can be complex. There is a wide choice of different packaging materials, sizes and formats to choose from, as well as other factors to consider such as brand recognition, quality and competitors. Through this guide you will be provided with some quick wins at no/low cost but also other solutions that will take more customer collaboration, capital investment, research and development, material sourcing and time to realise packaging optimisation.

1.2 Drivers and Barriers

There are a number of drivers (benefits) and barriers to implementing packaging optimisation in your business. One of the objectives of this guide is to support businesses in NI to understand the drivers and overcome the barriers to realising packaging optimisation.

It is easy to take packaging for granted but the many precious natural resources that we use for packaging are a key asset for almost any business in NI. Whether you are a customer receiving a packaged material or a supplier protecting your finished product, there are many benefits of implementing packaging optimisation. These include:

- **Saving Money:** Optimising packaging use can reduce the overall cost of a final product. Furthermore, if you reduce the amount of packaging in your supply chain you can directly reduce the amount of waste packaging you generate bringing a double benefit to your bottom line!
- **Good for the Environment:** Preserving natural resources supports your business corporate social responsibility efforts in protecting the environment for future generations to enjoy.
- **Meeting Legal and Other Requirements:** Packaging optimisation can help your business obtain compliance with packaging legislation and other relevant external or internal requirements. More detail on meeting legal and other requirements is provided in section 1.3.
- **Supply/Value Chain Pressure:** There is a growing trend of green consumerism seeking more environmentally friendly products and brands as well as increased transparency of business environmental performance. Through improved packaging optimisation your company can demonstrate its commitment to being a green supplier/producer and meeting customer/consumer demands.

Despite these clear benefits, many businesses in NI do not have a pro-active approach to packaging optimisation. Often there are perceived barriers to implementing packaging optimisation which include:

- **Lack of Commitment:** Optimising packaging use will only be successful if everyone involved is motivated and committed. Involving everyone from the start of a packaging optimisation review will encourage ownership and increase the likelihood of success. This guide provides advice on engaging key staff to support your packaging optimisation goals.

- **Lack of Understanding:** Many businesses in NI lack a basic understanding of their packaging and waste packaging use and costs but more importantly how they can use this knowledge to realise potential cost savings. This guide provides information on packaging and waste packaging costs and takes you through the process to optimising packaging use.
- **Lack of Resource:** The current economic climate requires businesses to be even leaner than before and so your business may lack the necessary resource to support a packaging optimisation review or project. The Invest NI Sustainable Development Team is here to assist and can provide free packaging optimisation audits and implementation support to eligible companies to identify and realise packaging optimisation benefits. **Please see Section 7.1 for further information on the services provided by the Invest NI Sustainable Development Team.**
- CEN, the European standards organisation, has developed a set of standards to support legislation and ensure your business complies with the Essential Requirements. Using the standards has the advantage of meaning that enforcement officers have to prove that you are not in compliance as opposed to your business needing to prove that it is. For more information see www.cen.eu
- (2) The Producer Responsibility Obligations (Packaging Waste) Regulations require businesses that produce 50 tonnes of packaging and have a turnover of more than £2million a year to pay a financial contribution to the recovery and recycling of used packaging.
- To comply, your business must either join a compliance scheme or follow the allocation method. A registered packaging compliance scheme takes on your business's statutory recovery and recycling obligations. Once you or your compliance scheme have calculated your obligation, you need evidence that an amount of packaging waste equivalent to your obligation has been recycled or recovered on your behalf. This evidence is in the form of electronic packaging waste recovery notes (ePRNs) and electronic packaging waste export recovery notes (ePERNs). To find out more see the Netregs website www.netregs.org.uk
- (3) The Finance Act and the Landfill Tax Regulations impose a tax on waste disposed of to landfill. The landfill tax is currently £80 per tonne (2014/15) incentivising your business to divert packaging wastes from landfill. Landfill tax rates can be found on the HMRC website www.hmrc.gov.uk

1.3

Legal Compliance and Other Requirements

Packaging Legislation: There are three main pieces of packaging legislation which food and drink businesses in Northern Ireland should be aware of when considering their business packaging use.

- (1) The Packaging (Essential Requirements) Regulations require businesses to ensure they use packaging in an efficient manner in the UK, including those related to packaging volume and weight. This is based on a minimum adequate amount of packaging for consumer acceptance whilst being fit for purpose, hygienic and safe.
- Essentially if your business over-packs your product unnecessarily, you may be reported to Trading Standards by your customers or consumers and be fined. As such it is recommended your business reviews your packaging efficiency on a periodic basis and maintains good communication with your value chain. This also promotes identification of opportunities to further optimise your packaging use by checking if there are new methods to overcome old barriers and implement packaging efficiency.
- In addition to this requirement, the components that make up your packaging must contain less than 100 parts per million (ppm) of the combined concentrations of lead, cadmium, mercury and hexavalent chromium, and only the minimum necessary quantities of substances identified as noxious or hazardous. Your business should request this information from your packaging supplier/producer.
- **British Retail Consortium:** Many food and drink firms in Northern Ireland are members of the British Retail Consortium (BRC). Section 5.4 of the BRC Global Standard for Food Safety sets out product packaging requirements which packaging optimisation actions should not conflict with. These BRC requirements are as follows:
 - Product packaging shall be appropriate for the intended use and shall be stored under conditions to minimise contamination and deterioration.
 - When purchasing or specifying food contact packaging, the supplier of the packaging materials shall be made aware of any particular characteristics of the food (e.g. high fat content, pH or usage conditions such as microwaving) which may affect packaging suitability. Certificates of conformity or other evidence shall be available for product packaging to ensure it conforms to relevant food safety legislation and is suitable for its intended use.

- Where appropriate, packaging shall be stored away from raw materials and finished products. Any part-used packaging materials suitable for use shall be effectively protected from contamination and clearly identified before being returned to an appropriate storage area. Obsolete packaging shall be stored in a separate area and systems shall be in place to prevent accidental use.
- Product contact liners (or raw material/work-in-progress contact liners) purchased by the company shall be appropriately coloured and resistant to tearing to prevent accidental contamination.

Voluntary Agreements: Your business may sign up to a voluntary agreement which may require certain packaging optimisation commitments. An example of this is The Courtauld Commitment, which is a voluntary agreement aimed at improving resource efficiency and reducing waste within the UK grocery sector. One of the specific goals is to improve packaging design through the supply chain to maximise recycled content as appropriate, improve recyclability and deliver product protection to reduce food waste, ensuring there is no increase in the carbon impact of packaging by 2015. The agreement is funded by Westminster, Scottish, Welsh and Northern Ireland governments and delivered by WRAP. It supports the UK governments' policy goal of a 'zero waste economy' and climate change objectives to reduce greenhouse gas emissions. WRAP is responsible for the agreement and works in partnership with leading retailers, brand owners, manufacturers and suppliers who sign up and support the delivery of the targets. It was launched in 2005 and is now in its third phase, Courtauld Commitment 3 (2013-2015). For more information see the WRAP website – www.wrap.org.uk

1.4

Maintaining 'Fit For Purpose' Packaging

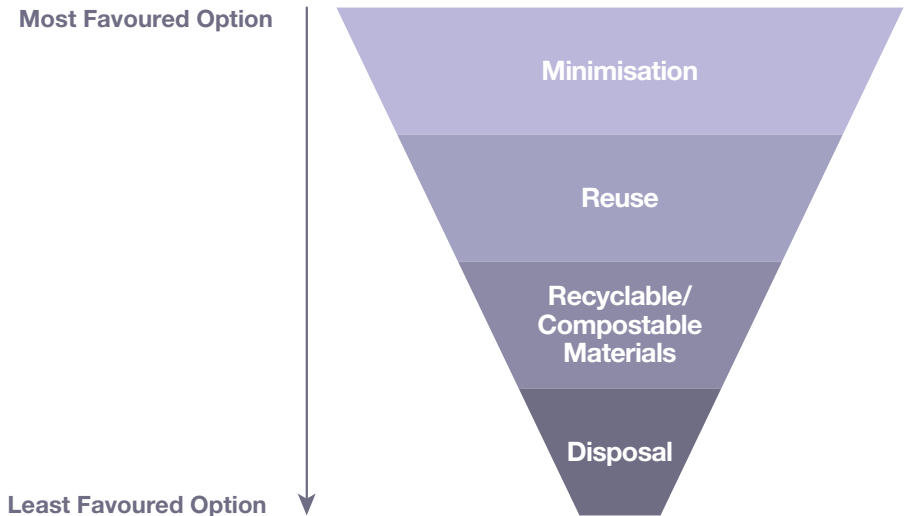
The food and drink packaging businesses in Northern Ireland have a number of essential functions which must be considered when implementing any packaging optimisation action to ensure the packaging is 'fit for purpose'. Maintaining fit for purpose is critical as the gains made with packaging optimisation can be lost if the changes lead to larger waste down the supply chain e.g. damaged product, spoiled product or un-sold product. The essential functions to consider include:

- Allow for easy access/ opening and carrying by the end-user.
- Attractive packaging to enhance its saleability.
- Hazard protection (from exposure to hazards such as dirt, dust, heat, moisture, odour, pests, sunlight and vibration).
- Leak prevention (spills from the product).
- Product condition protection (during storage, distribution and customer/consumer handling).
- Product information (providing the end-user with information on handling, use and disposal).

Your business needs to balance reducing the environmental impact of its packaging against the need to ensure that it meets all relevant fit for purpose requirements.

1.5 Packaging Optimisation Hierarchy

The packaging hierarchy is a framework designed for prioritising the most preferable options for packaging management and optimisation, and is at the heart of any packaging optimisation review. Levels of the hierarchy from the highest to the lowest in terms of the priority for packaging optimisation include: minimisation, reuse, recyclability and recycling, compostability, recovery (energy from waste) and finally disposal (landfill). Businesses in NI that apply the packaging management hierarchy to their packaging – using activities will improve their packaging optimisation.



| Packaging Hierarchy Level | Items to Consider |
|--|---|
| Minimisation | Educate your staff to avoid or minimise packaging where appropriate. Consider use if the packaging is actually required. Can the quantity (by volume or weight) of packaging used be minimised? Can you reduce the thickness/weight of the packaging? |
| Reuse | Can packaging optimisation be increased through its reuse? Consider if the reused packaging needs to be cleaned or reconditioned prior to reuse. |
| Recyclable/Compostable Materials | Can supplier or dispatch packaging be made of recyclable or compostable materials to divert waste from landfill?* |
| Disposal | Always dispose of packaging in a legal and environmentally responsible manner to avoid environmental pollution and/or regulatory offences. |
| * Note it is not always considered that a recyclable/compostable material will have a lesser environmental impact than a non-recyclable or compostable material over the life cycle of the material. | |

1.6 Obtaining Commitment

| Critical Step |
|--|
| Engage all staff and senior management in your packaging optimisation project. |

The critical first step to realising packaging optimisation in your business is to gain commitment from your staff and senior management team. This is required to ensure you have the necessary authority (or access to it) to commit company resources to the packaging optimisation project as well as a team of motivated staff to support your packaging optimisation project.

Involving all of your staff and senior management from the start encourages ownership and increases the likelihood of the packaging optimisation project success. Nominating or asking for volunteers to become involved in packaging optimisation to co-ordinate activities, providing information and updating staff and senior management will provide a focus for your business. If your business is large or complex consider building a team to support the key packaging optimisation staff across the company and include staff from senior management, shop floor, environment and finance/procurement.

Motivating your staff to actively participate in a packaging optimisation project will maximise its success. Consider implementing a staff suggestion and incentive scheme for rewarding positive ideas and regularly update staff on packaging optimisation activity and performance.

1.7 Packaging Use in Your Organisation

Once you have received the necessary commitment from the senior management team the next stage is to begin to identify some basic aspects of packaging use in your business by considering the following questions.

| Questions |
|--|
| What types of packaging are there to consider? What are the main packaging materials used within your business in the food and drink sector? |
| Where is packaging used in my business? What packaging is purchased for use by your business? Where is this packaging used within the business operations? |
| What packaging waste is produced in my business? Do you dispose of waste packaging? What types and waste packaging materials do you handle? |

When answering these questions consider the following list of information for your business as a starting point. Remember there may be others in your business.

| Packaging Types Used in Your Business |
|---|
| Primary Packaging – the packaging the consumer takes home. |
| Secondary Packaging – supporting packaging such as inner layers, separators, trays and boxes. |
| Tertiary (Transit) Packaging – the outer packaging material such as pallets and stretch wrap, that supports and protects the product in transit conditions. |



Primary Packaging

Secondary Packaging

Transit Packaging

| Typical Packaging Materials and Uses in NI Food and Drink Sector Businesses | |
|---|---|
| Material | Example Use and Considerations |
| Cardboard and Paper | Corrugated cardboard boxes are one of the most common packaging materials used, especially for secondary packaging. There are many suppliers of corrugated boxes, which are considered inexpensive, are stackable and available in a large range of sizes and thicknesses. |
| | Sulphate paper (strong) is used as paper sacks (e.g. sugar and flour) and sulphite paper (weak) is used as sweet wrappers. This packaging is lightweight and usually used as primary packaging. |
| Glass | Glass, typically used in jar and bottle form for containing food, is impervious to gases, odours and moisture. Its rigid nature can offer stacking benefits but it is heavier than other packaging materials and therefore more costly to transport. |
| Textiles | Woven jute sacks are often used to package a variety of bulk foods such as coffee, flour, grains, salt and sugar. They can be chemically treated to increase flame retardant properties and prevent rotting. They can be non-slip, have a high tear resistance, and good durability in general. |
| Metal | There are two main types of metal packaging; aluminium which is lightweight and can be flexible, and steel that is heavier but stronger. Metal containers such as cans, foil pouches and trays etc. provide excellent protective qualities and often a longer shelf-life. Although they are one of the heavier material types and are comparatively more expensive, they can be easily recycled retaining their properties. |
| Plastics | Expanded polystyrene (EPS) is a plastic foam-like material that is commonly used for transporting frozen food e.g. fish. It is a lightweight material but not always readily reusable or recyclable. |
| | Flexible films, also known as shrink wrap or stretch wrap, are made from a number of materials including cellulose (biodegradable), polythene (less expensive than alternatives so therefore widely used), polypropylene (a clear glossy film) and polystyrene (clear, brittle, sparkling film). They are typically used as secondary packaging e.g. to secure pallet loads. |
| | Various types of laminate films are available for mainly food primary packaging including crisp packets, dried foods and confectionary. Laminate films are made up of two or more films improving the appearance, barrier properties or mechanical strength of a package. They are not readily recyclable but are a lightweight form of packaging. |
| | Polyethylene (PE) is a dense, strong, light-weight plastic used in a variety of densities and thicknesses. |
| | Low-density polyethylene (LDPE) is heat sealable, inert, odour free and shrinks when heated. It is a good moisture barrier but has relatively high gas permeability, sensitivity to oils and poor odour resistance. It is less expensive than most films and is therefore widely used. |
| | High-density polyethylene (HDPE) is stronger, thicker, less flexible and more brittle than low-density polyethylene and has lower permeability to gases and moisture. |
| | Polypropylene (PP) and polystyrene (PS) are plastics commonly used for fruit and vegetable trays. These materials are lightweight and can be readily recycled. Polystyrene (foam) chips are also used as secondary packaging (fillers). |
| Wood | Wood packaging is typically used in crate and pallet form with some businesses using it for presentation style boxes. Other examples include barrels. Forms of wood packaging have good durability and stacking characteristics and offer good protection and recyclability. |

Where is Packaging Used or Packaging Waste Generated in Your Business?

| | |
|---|---------------------------------------|
| Goods in (raw materials) | Raw material storage |
| Internal material/ product movements | Quality control |
| Customer samples | Maintenance purchases/ activities |
| Product despatch | Final product storage/ warehousing |

Action

Consider the above information to begin to understand the key types, materials and uses of packaging in your business and how you receive packaging and dispose of waste packaging.

2.0 Packaging Minimisation

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2.1 Background

Significant savings can be realised from very small changes in packaging, as these changes multiply across each production output/unit over the year. Such reductions are good for businesses (they reduce input costs) and the environment.

2.2 Packaging Minimisation Opportunities

This guide has highlighted the following considerations for minimising packaging.

Elimination of Packaging

It is worth asking whether the product needs packaging at all. For example, would a simple label suffice in place of a larger, more expensive packaging choice?

It is often the case that one element of the packaging system can be eliminated altogether, i.e. one part of the primary, secondary or tertiary packaging.

Common examples include:

- Unnecessary use of secondary packaging e.g. stretch wrap or inner bags in a cardboard box being typically wasteful.
- Could an informative leaflet be replaced with printing information on the primary packaging e.g. onto the outside and/or inside of the cardboard box packaging?

Light-weighting and Downsizing



Light-weighting packaging has been successfully implemented throughout the food and drink sector. Essentially light-weighting involves reducing the thickness or weight of the packaging material. Examples can be seen below:

| | |
|---|--|
|  <p style="text-align: right; font-size: small;">Source: WRAP</p> | <p>Could you reduce the thickness and weight of your glass containers? Several soft drink producers have light-weighted their glass bottles to reduce both the cost of glass packaging but also the cost of transporting the final product to the retailer.</p> |
|  | <p>Could your triple walled corrugated box be replaced with a double walled corrugated box? Corrugated cardboard boxes are an example of where light-weighting options are readily available as your business can choose to use a single walled, double walled or triple walled corrugated box thickness.</p> |
|  <p style="text-align: right; font-size: small;">Source: WRAP</p> | <p>Could you lightweight by changing the packaging material without compromising the fit for purpose needs of packaging? The new Heinz fridge pack is an example of light-weighting (changing from metal to plastic packaging) whilst also extending the shelf-life of a product (by allowing consumers to reclose their container).</p> |

| | |
|---|---|
|  | <p>Could you offer your product in a concentrated form to reduce packaging size? The Co-operative's squash brand has recently been introduced in a concentrated blend which means downsized packaging but the same product.</p> |
|  | <p>Could you consider minimising the size of labels whilst still retaining legibility and the information required by law? Mash Direct provide a good example of minimising labelling without compromising product information requirements, eye-catching imagery and branding.</p> |

Reduce Void Space and Fillers

Can void space be eliminated inside your primary, secondary or tertiary packaging? Void space is a sign of over-sized packaging and this should be reviewed. Designing a smaller packaging unit may allow elimination of void space and filler.

| | |
|---|--|
|  | <p>Could you shrink wrap your product to remove void space and reduce packaging needs? Meat and fish products have seen a move from standard plastic trays to a skin pack wrapped tightly around the meat product.</p> |
|  | <p>Can you replace secondary filler with pressurised air? A classic example of this is in crisp packets.</p> |

Strengthening Packaging

Strengthening one element or system of packaging can often mean a reduced requirement for another element or system of packaging. An example would be through the use of an adhesive to facilitate a reduction in the use of the main packaging material.

2.3 Packaging Minimisation Checklist

| Have you considered the following to minimise packaging for each of your packaging uses? | Yes/ No |
|--|---------|
| Can you eliminate packaging altogether? | |
| Can you light-weight and/or downsize your packaging? | |
| Can you reduce void space and filler use? | |
| Can you strengthen packaging thereby reducing the amount used? | |

| Action |
|--|
| <ul style="list-style-type: none"> • Open discussions with key internal staff about minimisation opportunities to identify significant barriers. • Approach your packaging supplier to discuss your ideas. • Approach alternative packaging suppliers if your existing supplier cannot assist. • Once supplier agrees to assist contact downstream customer chain to ensure they approve. • Conduct minimisation trial and report results to customer(s). • Roll out if successful and customer(s) is satisfied. |

3.0 Packaging Reuse

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3.1

Background

In the packaging hierarchy identified in this guide, reuse comes after minimisation as the most beneficial way of optimising packaging and managing packaging waste.

Reusing packaging reduces and conserves our natural resources and can reduce your business costs whilst reducing the need for landfill. There is a great number of examples of reusable packaging systems within the food and drink sector and supply chain including beer kegs, crates, metal roll-cages, pallets, plastic crates, jute and polypropylene sacks, trays for bread and other products.

As a business, reusable or returnable packaging can be utilised by you as a supplier or a customer. As a supplier you are reducing the costs of purchasing single use packaging and as a customer you are reducing the volume and cost of packaging waste handling and disposal.

Another benefit comes in the form of The Producer Responsibility Regulations, which requires that packaging counts against a producer's obligation only the first time it is put on the market. Therefore a producer who buys re-usable packaging will only have to pay towards its recovery and recycling once.

It's important to note, however, that reusable packaging may not always be an appropriate solution for your business. The advantages of single use packaging versus reusable packaging are very much dependent on the specific circumstances of your business including consideration of your customer, logistics, your product's packaging format and your supply chain.

3.2

Packaging Reuse Opportunities

This guide has highlighted the following considerations for reuse of packaging in your business.



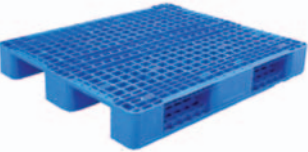
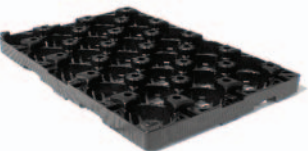
Returnable Packaging Systems

There are many examples of packaging materials used only once by businesses, which could have been returned for reuse. These include cardboard boxes, plastic containers and wooden pallets.

Consider the following when:

1. Understanding if a returnable packaging system is feasible for your business.
2. Selecting a returnable packaging system appropriate to the nature and scale of your activities.
 - Ensure that the packaging design/format chosen is robust enough for reuse.
 - Consider the number of reuses you would want from the packaging to be cost effective and whether this is realistic. The producer of the returnable packaging should be able to provide feedback on this.
 - The producer or seller of the returnable packaging may be able to point to existing customers or case studies illustrating the packaging's robustness.
 - Check that your customers and relevant stakeholders will accept the packaging as reusable and will agree to returning it within a certain timeframe.
 - Collection arrangements need to be in place to maximise return rates.
 - The customer needs to consider their storage requirements and facilities to ensure the packaging avoids damage (exposure to weather, vehicle/staff movements etc.).
 - Ensure that there is a cleaning, repair or reconditioning service available (on or off site) for the returnable packaging system.
 - This may be required for food hygiene and safety reasons before the packaging can be reused.
 - Reconditioning will improve the packaging's durability and lifespan.
 - It is advised that your business obtain written confirmation from the packaging producer/supplier that the packaging is indeed capable of reuse.
 - It is highly recommended that your business obtains written and signed confirmation from your customer(s) that they will retain the packaging for return to your business for reuse.
 - This can take the form of a contract whereby lost returnable packaging units will be charged at a cost to the customer.
 - Review return rates and take preventative and corrective action where return rates fall below an acceptable level.
 - This contract will maximise return rates ensuring the returnable packaging system is a financial and logistical success.

Examples of returnable packaging systems are provided below.

| | |
|---|---|
|  | <p>Returnable plastic containers are often used to replace single use cardboard boxes.</p> |
|  | <p>Collapsible plastic bulk containers are often used to replace the use of a system of wooden pallets, cardboard boxes and stretch wrap.</p> |
|  | <p>Plastic pallets are often used to replace single use wooden pallets.</p> |
|  | <p>Returnable, stackable beverage holder trays replace cardboard boxes.</p> |
| <p>Remember! Reusable packaging saves money and improves your environmental impact if it is actually returned for reuse.</p> | |

Reuse of Incoming Supplier Packaging

As you receive essential materials through your supply chain you may find reuse potential in the accompanying packaging. This may allow you to reduce your virgin packaging costs as well as diverting packaging waste from recycling or landfill reducing the waste management cost to your business.

Consider opportunities to reuse the primary, secondary and tertiary packaging around your goods-in for sending out products to your customers. Reusability is more likely with robust packaging materials such as wooden or plastic containers or triple walled corrugated cardboard boxes so prioritise a review of these opportunities.

Secondary packaging (often referred to as fillers) is normally always reusable and should be stored internally where despatch / goods out packaging is completed.

| | |
|--|-------------------------------------|
|  | <p>Reusable air pockets</p> |
|  | <p>Reusable polystyrene peanuts</p> |
|  | <p>Reusable bubble-wrap</p> |

Consider the following when understanding the reusability of incoming supplier packaging:

- Is the packaging in good condition for reusing, i.e. does it compare favourably with new packaging that would have been used normally?
- Does the reusable packaging comply with applicable food hygiene and safety standard requirements or packaging standards required of your business?
- Does the reusable packaging have other markings or labelling that would displease your customer or cause issue for postal services?
 - If yes, could you ask your supplier to limit over-use of tape, labels etc?
- Does your supplier supply materials in packaging which your business cannot reuse? Could this packaging be changed for a material which you could reuse? Review your packaging use and identify where in your supply chain reusable packaging could be obtained. Discuss these synergies with your supplier and see how they can help.
- Is the incoming packaging in great condition for reuse but is either too small or too large? In this case you could request the supplier of the product using this packaging to make changes to facilitate reuse of the packaging by your business. This may come at a higher cost to your business as the supplier needs to pay more for larger packaging dimensions, however, this cost may be dwarfed by the savings made in reusing the packaging.

Sometimes the packaging your supplier uses has already been reused several times and its durability and presentation may not be sufficient for your business use. If the incoming supplier packaging is not fit for use in supplying to your customers it may be of use in-house. For instance, could you reuse transport packaging in-house? For example, staff could use this packaging to collect reusable items or recyclable waste.

Return of Packaging to Supplier

It is often the case that incoming goods and/or raw materials are packaged in materials which your business cannot reuse. Common examples are expanded polystyrene, foam materials, plastic inserts. As a result this packaging may be collected internally and stored for recycling or disposal at a cost to your business. To limit this cost and enhance reusability consider the following approach:

- Review your business packaging waste and understand where it is originating.
- Consider if this packaging could be returned to and reused by the original supplier.

- Is it in a similar condition to when it arrived? If not could staff handle it better to ensure that it is returnable?
- Consider the logistics and how the packaging could be returned at no/little cost to your business.
 - Could the packaging be returned through incoming deliveries from the supplier?
 - How much space would you need to store the packaging and how often could it be returned?

Besides the reduced waste management costs to your business, your supplier might provide a small reduction in price for the item that is packaged if taking back packaging is economically beneficial to them.

3.3 Packaging Reuse Checklist

| Have you considered the following to reuse packaging in both a supplier and customer sense? | Yes/ No |
|---|---------|
| Can you replace single use packaging with a returnable packaging system? | |
| Can you reuse supplier packaging (either internally or externally)? | |
| Can you return packaging to the supplier? | |

| Action |
|--|
| <ul style="list-style-type: none"> • Open discussions with key internal staff about packaging reuse opportunities to identify significant barriers. • Approach your packaging suppliers to discuss your ideas. • Approach alternative packaging suppliers if your existing supplier cannot assist. • Once the supplier agrees to assist, liaise with customers to ensure they approve. • In the case of returnable packaging systems, produce a contract obliging customers to take responsibility for maximising return rates. • Conduct reuse trial and report results to management and customer(s). Include considerations of condition of reusable packaging and requirements for reconditioning. • Roll out if successful and customer(s) is satisfied. |

4.0 Packaging Recyclability and Recycling

| | | |
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4.1 Background

After minimisation and reuse, recyclability becomes the next priority towards packaging optimisation in order to maximise the economic and environmental return on your business's packaging use and waste.

Increasing recycled content uses less virgin material and supports closing the recycling loop, which creates market opportunities for recycled materials. Designing with recyclability in mind is also crucial to reduce waste going to landfill.

The packaging materials most widely collected for recycling from businesses in Northern Ireland are cardboard boxes, plastics, metal banding and timber (pallets, crates etc.).

Selecting packaging materials that are 100% recyclable or consist of a portion of recyclable content may not always be the cheapest option from the outset but the overall benefits can outweigh those initial added costs.

As a customer handling packaging through the supply chain, your goal is to move up the packaging hierarchy to limit packaging waste management costs. Once you have exhausted means of minimising packaging and maximising reusable/returnable packaging from your supply chain, stipulating recyclable packaging from your suppliers will help reduce packaging waste costs for disposal (through incineration and landfill).

This is something that your customers will also be asking of your business where you use packaging on goods provided to them.

The general principles you should consider when specifying recyclable content in packaging are:

- Always specifying the technical performance of the recycled material over its actual origin.
- Adding an element of post-consumer waste and post-industrial (offcut) material as these components count towards your waste packaging recovery targets if you are a producer.
- Guarding against any potential contamination, especially if your business packages food.
- Following the Green Claims Code to make it clear what percentage of recycled materials has been used in your packaging.

You can find information about the **Green Claims Code** from the Department for Environment, Food and Rural Affairs (Defra) at www.gov.uk

4.2 Packaging Recyclability and Recycling Opportunities

General Opportunities

Consider the following when you are reviewing how you (as a customer and supplier) can maximise recyclability of packaging associated with your operations and finished products.

- Could the use of 100% recyclable material be considered? Or simply an increase in the recycled content (without compromising fit for purpose qualities of the packaging)?
- Could you limit packaging materials or combinations of packaging materials which may create problems in collecting, sorting or recycling?
 - Could you or your customer/the consumer easily disassemble the packaging for recycling?
- Could you limit the use of substances or materials that may create problems or inefficiencies in the recycling process?
 - Consider reducing the need for adhesives, wax or foam-like substances or residues within the packaging system.
- Could you request a reduction in the use of substances or materials that might have a negative influence on the quality of the recycled material?
 - A common example is the use of coloured dyes in plastic. Could the coloured dye be replaced with a striking label or stamp?
- Try to ensure that compatibility problems do not occur if you alter the use of sealing materials (adhesives, coatings, labels, closures etc.).
- Try to select packaging which limits product residues when the waste packaging is recycled.

Specific Material Considerations

Use of Recycled Cardboard and Paper

- If corrugated cardboard, carton-board or paper is used, does it contain a high percentage of recycled material?
 - Ask your packaging supplier if this could be increased (whilst keeping in line with food packaging standards).
- Where certain recycled content restrictions lie, would use of a laminate or plastic inner bag allow recycled card or carton-board to be used?
 - Would this allow a higher percentage of recyclable material to be used?

- Could a recycled micro-flute board be used where printing is required?
- Ensure recycled content packaging is tested for contamination (e.g. metals) where used for food products.

Use of Recycled Glass

- Could you specify clear glass as a first option, with brown as a second, as the UK already imports large quantities of green glass?
- Could you specify green or brown glass if your products are manufactured in the UK as this will use the supply of cheap glass waste that is constantly available?
- Could plastic shrink sleeves or organic coatings be selected to enable you to use any colour of recycled glass in your packaging?

Use of Recycled Plastics

- Consider using the least amount of plastic allowed by your packaging specification.
- Consider the use of co-extruded plastic bags or containers.

4.3

Maximising Recycling and the Benefits

Recycling is taking a waste no longer any use in its present form, and processing this in some way to change its form for further use. Recycling consumes energy – energy to transport the recyclate and energy to change its form.

Many wastes can be recycled and a financial rebate received (or a free uplift of the waste at a minimum), but it is always more financially attractive to eliminate or prevent the waste in the first place. Hence recycling should be considered only once prevention and reuse options have been exhausted.

Most of the packaging that protects the raw materials that the food and drink businesses in Northern Ireland purchase from suppliers will be recyclable. The most common packaging materials used include cardboard (corrugated boxes) and timber (pallets, crates etc.).

Where these recyclable materials cannot be minimised or reused further then maximising recycling of packaging waste is recommended to divert this recyclable waste stream from landfill and increase recycling revenues from waste contractors who uplift the packaging waste.

Maximising recycling of packaging waste can be facilitated in a number of ways including:

- Conduct awareness sessions for staff to educate them on what packaging waste can be recycled and how to do it effectively e.g. flat-packing, baling etc. Focus on those staff most likely to handle packaging waste streams e.g. goods in, yard and warehouse staff.
- Provision of colour coded and picture led signs or labelling at recycling receptacles.
- Provision of easy to access indoor recycling receptacles in areas where waste packaging will be handled.
- Provision of adequately sized outdoor/yard containers for collecting recycling packaging wastes. Containers with covers or lids are recommended to reduce litter as well as ingress of contaminants and moisture.

The recyclable waste stream (also known as recyclate) has a value determined by the marketplace based on supply and demand. Where recyclate is in high demand and short supply quantities are available, the rebate for the recyclate will be maximised. Conversely, when recyclate is in low demand and large quantities are available, the money-back potential may be very low or even non-existent.

To help gain maximum rebate, ensure the packaging recyclate is:

- Segregated from other waste and non-waste materials, i.e. don't mix the waste and don't contaminate it!
- Clean e.g. free of dirt, residues, adhesives, labels etc.
- Consistent material e.g. the same type of packaging material including colour in some cases e.g. plastics and glass.
- Packaged in a way which is easy for the waste management site to handle, e.g. baling packaging waste for recycling yields a better revenue return than loose recyclate.

To find out the general rebate potential of different recyclable waste streams (recyclate) refer to the prices section in www.letsrecycle.com

4.4

Packaging Recyclability and Recycling Checklist

| Have you considered the following to incorporate recyclability and recycling in your packaging systems? | Yes/ No |
|--|---------|
| Can you increase the recycled content of your packaging without compromising fit for purpose requirements? | |
| Can you remove contaminants in your packaging which reduce your packaging's recyclability? | |
| Can you use laminates or other secondary layers to allow recycled content in your food packaging? | |
| Have you maximised recycling of packaging waste and recycle revenue? | |

Action

- Open discussions with key internal staff about packaging recyclability opportunities to identify significant barriers.
- Approach your packaging suppliers to discuss your ideas.
- Approach alternative packaging suppliers if your existing supplier cannot assist.
- Once the supplier(s) agrees to assist, liaise with customers to ensure they approve.
- Conduct trial and report results to management and customer(s).
- Roll out if successful and customer(s) is satisfied.

5.0 Compostable Packaging

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- 5.3 Packaging Compostability Checklist 25

5.1

Background

Driven in part by industry and consumer demand for 'greener' packaging, compostable packaging offers several benefits, arguably the most beneficial being the environmental benefits through (if managed correctly) a closed loop resource use.

Using compostable packaging reduces your business's reliance on fossil fuel based packaging, and the customer or consumer can compost the packaging rather than disposing of it in landfill. Compostable packaging materials are attractive to the food and drink sector and its stakeholders because businesses can avoid the somewhat resource intensive process of separating the packaging from out-of-date or spoilt foodstuff.

Biodegradable and compostable are two terms that are used interchangeably but there is a difference to understand. Compostable packaging is essentially made up of biodegradable materials known as biopolymers. Biopolymers are polymers derived from biomass, either natural (e.g. corn, sugarcane, cellulose) or man-made (synthetic) polymers (e.g. corn-based polylactic acid).

Compostable packaging is designed to break down over time into carbon dioxide, methane and water through the action of naturally occurring micro-organisms. It is important to understand that biodegradable (meaning capable of being broken down by bacteria and other living organisms) materials don't biodegrade in a standard process or timescale whereas the term 'compostable' means that the biodegradable material will break down under set conditions (set out in the relevant European Committee for Standardisation (CEN) standard) producing a usable compost end product.

Traditionally many compostable materials have been price competitive with paper-base packaging, whereas plastic packaging products such as polystyrene (Styrofoam) packaging were hard to beat on price. In recent times the rising cost of oil has increased the price of petroleum-based products, making compostables more mainstream and increasingly competitive with traditional plastic packaging products.

The British Standards Institution (BSi) has a requirement for all compostable packaging to comply with either the CEN composting standard BS EN 13432:2000 or ASTM D6400. Both these standards relate to composting in an industrial-scale facility but don't apply to home composting.

Each pack, packaging material or packaging component must adhere to key requirements:

- Meet the criteria and pass levels laid down in BS EN 13432:2000
 - Be inherently biodegradable as demonstrated in laboratory tests

- Disintegrate in a biological waste treatment process without any observable negative effect on the process; and
- Have no demonstrable negative effect on the quality of the resulting compost after introduction to the biological waste treatment process.

5.2

Packaging Compostability Considerations

The environmental and cost benefits of compostable packaging may not all be realised if it is not compatible with the product it is packaging, or doesn't end up being composted. So there are several matters to consider to ensure your business makes the correct choice:

- Is compostable packaging a good fit for your product?
 - Is the product insensitive to moisture and/or oxygen, does it have a short shelf life, is it non-carbonated and doesn't require heating in-pack?
- The use of biopolymers can in some instances have an adverse effect on the contents of your packaging.
 - Will the compostable packaging reduce the product's shelf life or require additional cooling or heating (e.g. in storage)? If so, some of the environmental and cost benefits may be lost.
- Consider if your compostable packaging will be lighter or heavier than the packaging it replaces. Heavier packaging means higher transport fuel consumption and costs which can offset some of the environmental benefits of the compostable packaging. For instance polylactic acid derived biopolymers are lighter than traditional fossil-fuel derived alternatives.
- If the packaging is to be composted, are the most appropriate biodegradable materials used and does the biodegradable material meet the criteria and levels in BS EN 13432:2000?
- Are you confident that the majority of the packaging will actually be composted? For instance, could your customer or end user's local authority or waste management contractors take packaging waste for composting? If not, then this may not be the best option from an environmental point of view.
 - Ensure you make provisions to label the packaging as compostable. This is essential to help avoid the compostable packaging being landfilled by the end-user. Landfilling biopolymers can increase the generation and release of greenhouse gases such as methane gas.

- Ensure the packaging destined for composting doesn't contain anything that might harm the environment (e.g. heavy metals) during the biological treatment process.
 - As an example, the evaluation criteria in the CEN standard include threshold levels for 11 heavy metals.
- Will the end-user/consumer know what to do with the compostable packaging and what are the chances of it being mixed up with material for recycling?
 - Unfortunately some biopolymers used in compostable packaging may adversely affect recycling, and plastics contaminate compost.

5.3 Packaging Compostability Checklist

| Have you considered the following to incorporate compostable packaging into your packaging systems? | Yes/ No |
|---|---------|
| Is your product(s) compatible with compostable packaging? | |
| Have you labelled your packaging as compostable to maximise composting rates by the end-user/consumer? | |
| Does the consumer/end-user of your product have the facilities available to them to enable compost of your compostable packaging? | |

| Action |
|---|
| <ul style="list-style-type: none"> • Open discussions with key internal staff about compostable packaging opportunities to identify significant barriers. • Liaise with customers to ensure they approve of compostable packaging in principle and will have composting facilities available to them • Approach your packaging suppliers to discuss compostable options and feasibility with your product. • Approach alternative packaging suppliers if your existing supplier cannot assist. • Conduct trial and report results to management and customer(s). • Roll out if successful and customer(s) is satisfied. |

6.0 Packaging Optimisation Good Practice Northern Ireland Case Studies

| | | |
|-----|--|----|
| 6.1 | Musgrave Retail Partners GB (Budgens, Londins) | 27 |
| 6.2 | Moy Park Ltd | 27 |
| 6.3 | Mash Direct Ltd | 27 |

6.1 Musgrave Retail Partners GB (Budgens, Londins), Belfast, Co. Antrim

Musgrave Retail Partners Great Britain, which operates the Budgens and Londins franchises, has made considerable progress in reducing the environmental impact of packaging throughout its supply chain, whilst ensuring that it is fit for purpose by protecting the product and preventing waste, as well as being cost effective. One of the company’s key sustainability principles is to focus on waste prevention by using resources more efficiently and eliminating unnecessary layers such as outer labels, cartons and sleeves. In addition, new product packaging is designed in relation to packaging and product weight ratios using benchmarking data held by the organisation. Any improvements in packaging and the associated cost reductions and sustainability benefits are clearly communicated to customers, suppliers and other stakeholders through the Group’s Sustainability Reports, helping to demonstrate any positive packaging changes.

An example of the improvements is one made to the packaging of its sugar snap peas – the packaging format has been changed from over-wrapped trays to lightweight plastic pouches. The overall material weight reduction following this design modification was more than 81%, saving more than 2.5 tonnes of materials each year and associated costs. The company estimates that through packaging optimisation, reductions in packaging weight across its current range of fruit and vegetables of over 100 tonnes has been achieved.

6.2 Moy Park Ltd, Craigavon, Co. Armagh

Moy Park has removed the tray from its whole bird packaging and is using flow-wrap that is hermetically sealed. This particular method protects consumers from packaging leaks. The special ‘high barrier’ properties of the film and its use of ‘modified atmospheres’ can increase the shelf-life of the product from 8 days to 10.

Less packaging means that more chickens now fit into transport containers and on-shelf in shops. The extended shelf-life means less time is spent on re-stocking in store, and transportation efficiencies. Removing the tray has realised about a 70% packaging weight reduction.

6.3 Mash Direct, Newtownards, Co. Down

Mash Direct is a perfect example of a company minimising labelling without compromising product information requirement. It uses eye catching imagery to promote the brand.

Mash Direct was one of the first companies to adapt and pioneer the front of pack labelling standards set by the Food Standards Agency (FSA) and has recently signed up to the new consistent labelling system. Gerry Mc Curdy Director of FSA said: “It is my vision for more local food companies to follow the lead of Mash Direct by signing up to and using the recommended food standards label.”



7.0 Signposting

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The following signposting information is provided to identify key sources of guidance on packaging related matters relevant to businesses in NI.

7.1

Invest Northern Ireland Sustainable Development Team

Invest NI is committed to supporting your business to implement packaging optimisation through the use of packaging optimisation good practice techniques. Please do not hesitate to contact us if we can be of further assistance.

Invest Northern Ireland – Sustainable Development Team

Telephone: 028 9069 8868

Email: sustainabledev@investni.com

Invest NI offers the following support to businesses in NI:

- Impartial advice and information is delivered by Technical Advisors (Invest NI and external) and also through the Invest NI website (www.investni.com) and the NI business information portal www.nibusinessinfo.co.uk. Invest NI can provide tailored support to qualifying businesses to assess and reduce energy, packaging and materials costs.
- Invest NI **provides a wide portfolio of support for Northern Ireland businesses with a total annual expenditure of more than £30,000 on packaging, energy, waste and raw materials**. The aim of this support is to improve the competitiveness, productivity and sustainability of local businesses through identification and achievement of cost savings in the consumption of packaging, energy and raw materials.
- A free audit can identify and prioritise projects to reduce the cost of packaging, energy or materials in qualifying companies. These companies can also **access up to five days of further free technical consultancy** to help them take forward projects that will realise cost savings in a timely and cost-effective way.
- This technical support can address a wide range of questions to help firms progress suitable projects to the point of implementation and can include for example: identification of cleaner processing technologies; opportunities for using renewable energy or improving energy efficiency; accessing more sustainable packaging sources; minimising product losses; reviewing packaging requirements or use; environmental or energy management systems; equipment specification and identification of suppliers of more efficient equipment.
- Finance from Invest NI to help companies install new equipment is also available. **Interest-free energy efficiency loans of between £3,000 and £400,000 are available through Carbon Trust**. The size of loan available will depend on the energy saving potential of any particular project – please see: <http://www.carbontrust.com/client-services/northern-ireland> for further information.
- Invest NI also provides “**industrial symbiosis**” services which generate opportunities to identify and match excess resource in one business – like waste, transport, storage, skills, production capacity or energy – with another where it could be profitably used. Industrial symbiosis activities include business workshops to identify potential matches between business participants along with follow-up visits and engagements with individual businesses to progress matches.
- Invest NI will periodically open calls for applications for **Capital Grants of up to £40,000 to support those SME businesses already being supported by Invest NI** to purchase/install new equipment to reduce their packaging and materials costs.
- Support is mostly provided on a “**De Minimis Aid**” basis. This is aid that may be provided to businesses by EU Member States without the Member States having to notify the EU of the provision of the aid. Under the current rules an upper threshold of €200,000 of aid can be provided to any business in a rolling three year period. For further information see Commission Regulation (EC) number 1998/2006 of 15 December 2006 or visit the EU Europa website www.europa.eu

7.2 Other Information Sources

| Source | Description |
|--|--|
| www.investni.com | Provides information on the Invest NI Sustainable Development services. |
| www.netregs.org.uk | Provides information on packaging legislation. |
| www.nibusinessinfo.co.uk/ content/product-and- packaging-design | Provides information on packaging use and optimisation. |
| www.wrap.org.uk | Provides information on packaging optimisation and access to a wide range of case studies. |
| www.doeni.gov.uk | Provides information on NIEA services including packaging legislation and waste information. |
| www.brcglobalstandards.com | Provides information on the BRC requirements for food and drink manufacturers. |
| www.incpn.org | Provides information on research into packaging and the environment. |

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Appendix A:
Packaging Optimisation Checklist

| Have you considered the following to minimise packaging for each of your packaging uses? | Yes/ No |
|---|---------|
| Can you eliminate packaging altogether? | |
| Can you light-weight and/or downsize your packaging? | |
| Can you reduce void space and filler use? | |
| Can you strengthen packaging thereby reducing the amount used? | |
| Have you considered the following to reuse packaging in both a supplier and customer sense? | Yes/ No |
| Can you replace single use packaging with a returnable packaging system? | |
| Can you reuse supplier packaging (either internally or externally)? | |
| Can you return packaging to the supplier? | |
| Have you considered the following to incorporate recyclability and recycling in your packaging systems? | Yes/ No |
| Can you increase the recycled content of your packaging without compromising fit for purpose requirements? | |
| Can you remove contaminants in your packaging which reduce your packaging’s recyclability? | |
| Can you use laminates or other secondary layers to allow recycled content in your food packaging? | |
| Have you maximised recycling of packaging waste and recycle revenue? | |
| Have you considered the following to incorporate compostable packaging into your packaging systems? | Yes/ No |
| Is your product(s) compatible with compostable packaging? | |
| Have you labelled your packaging as compostable to maximise composting rates by the end-user/consumer? | |
| Does the consumer/end-user of your product have the facilities available to them to enable compost of your compostable packaging? | |

Appendix B:

Packaging Optimisation Action Plan – Summary Template

| Improvement Action Number and Title | Estimated Annual Saving | | | Implementation Cost £ | Payback Period Years |
|-------------------------------------|-------------------------|--------------------|--|--------------------------|-------------------------|
| | £ | tCO ₂ e | Environmental | | |
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |
| 7. | | | | | |
| 8. | | | | | |
| 9. | | | | | |
| 10. | | | | | |
| TOTAL | | | m ³ (packaging) Tonnes (packaging) | | |

Appendix C:

Packaging Optimisation Action Plan – Improvement Action Business Case Template

Improvement Action No: _____ Title: _____

| Estimated Annual Saving | | | Implementation Cost £ | Payback Period |
|-------------------------|--------------------|---|--------------------------|----------------|
| £ | tCO ₂ e | Environmental | | |
| | | m ³ (packaging) Tonnes of waste | | |
| Description | | | | |
| Rationale | | | | |
| Project Risks | | | | |
| Next Steps | | | | |
| Guidance | | | | |



If you require this leaflet in an alternative format (including Braille, audio disk, large print or in minority languages to meet the needs of those whose first language is not English) then please contact:

Invest NI Equality Team

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