

A woman with long brown hair tied in a bun, wearing an orange sweater, is standing in a grocery store aisle. She is holding a clear plastic bottle with a red cap and looking at it. The shelves are filled with various products, and another person is visible in the background. An orange banner is overlaid on the bottom left of the image.

Plastic packaging in the food sector

Six ways to tackle the plastic puzzle

Contents

Preface

Plastic is popular...

For food producers and retailers, plastic is an indispensable packaging material. Compared with other materials such as cardboard, cans or glass, plastic is light, flexible and inexpensive. It also promotes food safety and shelf life and facilitates the transport and use of products.

...but its use is also problematic

Plastic packaging also contributes to environmental problems; it is made from oil and gas and hardly decomposes when it ends up in the environment as litter. Since only some of it is recycled, valuable raw materials are lost and the burning of packaging leads to CO₂ emissions. Due to the increase in the amount of (non-reusable) plastic packaging, these problems are becoming increasingly pronounced. The environmental impact of and negative consumer attitudes towards plastic are powerful incentives for food producers and retailers to strive to use less packaging and better plastic packaging.

What can food producers and retailers do?

The popularity of and problems caused by plastic have created a 'plastic puzzle'. Companies, consumers and government share responsibility for the problem and each has a piece of the puzzle in their hands. This study focuses on the role of companies. What can food producers and retailers do to reduce the use of plastic and improve their packaging? This report answers these questions based on desk research, expert interviews and results from the ING International Survey.

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Summary

Plastic poses a challenge to the food sector

The food sector is struggling with negative consumer attitudes towards plastic. The sector is striving for less packaging material, better packaging and more recycling. That is a phenomenal task. Worldwide, plastic production is growing by 4% every year. In Europe, the amount of plastic packaging waste is growing by 2% annually.

Increase rather than decrease in plastic use

The total amount of packaging is set to increase further in the coming years. In most European countries, the population is growing and the use of packaging per person is also increasing. This is due to trends in consumer behaviour, such as the growth in the use of convenience products, and the increasing use of plastic as a substitute for other packaging materials.

Solutions are available, but not perfect

There are six ways in which the food sector can reduce the amount of plastic required, promote recycling and reduce the environmental impact of packaging. However, there are limitations to each of these solutions (for example, because they are more expensive or can only be used on a small scale). No solution is enough to solve the plastic problem on its own, which means that a combination is necessary.

The use of plastic packaging is on the rise due to:



More people and more households



More convenience products



More plastic instead of other materials

The plastic debate is often still too black and white

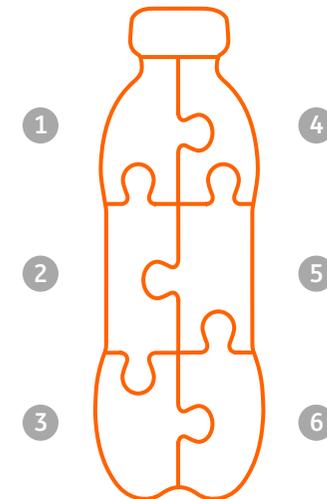
Generalising packaging materials as good or bad does not reflect reality. In practice, things are not black and white. There is good plastic packaging and bad cardboard packaging. More knowledge about packaging, among food companies and consumers, can take the public debate to a higher level.

Food companies need a holistic approach

To reduce and improve plastic packaging, several areas of expertise need to work together and create a strategy and measurable goals at company level. Within food companies knowledge of recycling systems and the plastic chain is also required. It also means that food producers and retailers will have to review their packaging case by case and be able to justify their choice of material to their customers.

Six things that the food sector can do to solve the plastic puzzle

1. Lighter packaging
2. More recycled plastic in packaging
3. Improve recyclability
4. Bio-based and/or biodegradable plastic
5. From non-reusable to reusable packaging
6. From plastic to other materials





Chapter 1 | The use of plastic packaging is increasing

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How much plastic is used for food and beverage packaging?

1.1 Eight million tonnes of plastic used for food and drink packaging in Europe

Food packaging accounts for a large proportion of plastic demand

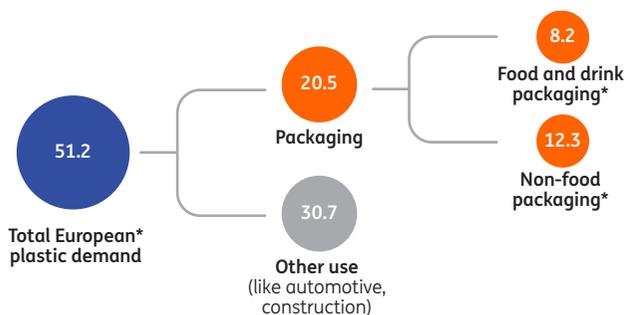
Of the total demand for plastic in Europe, more than 20 billion kilos are used for packaging. An estimated 8.2 billion kilos of this is used for food products. That weight is the equivalent of more than 8 million cars.

More plastic packaging and more plastic packaging waste

In comparison with other food packaging materials such as glass, cans and cardboard, the use of plastic is growing relatively strongly. On average, plastic packaging has a relatively short useful life and is disposed of after one use. Plastic packaging therefore makes up a relatively large proportion of plastic waste. The trend points towards an increase in the total amount of plastic packaging waste in the EU.

Packaging accounts for a substantial part of the demand for plastic...

Plastic demand by segment, 2018, million metric tonnes



Source: Plastics Europe, Europe is EU28, Norway and Switzerland.

* ING estimates, based on the assumption that 40% of all plastic packaging is used for food and drink packaging

...and for the majority of plastic waste ...

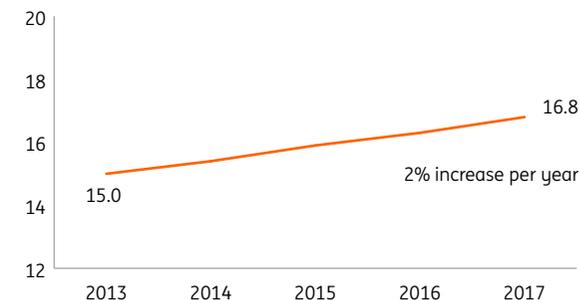
Share in plastic waste by segment, 2015



Source: Eunomia, edited by ING Economics Department

...and the total amount of plastic packaging waste in Europe is increasing

Billion kilos



Source: Eurostat, edited by ING Economics Department

What do European consumers think of plastic packaging?

1.2 Plastic waste is top of mind for many Europeans

Consumers think plastic waste is a major problem

Most of the food products that consumers buy every day is packed in plastic bags, containers, film or bottles. According to the ING International Survey¹, Europeans dispose of an average of three pieces of plastic waste every day. Despite the practical benefits, consumers also see the downsides to using plastic. In the ING International Survey, one in three Europeans (34%) identified plastic waste as the biggest environmental problem. Consumers responded that this problem is on a par with climate change.

Why plastic is a top priority

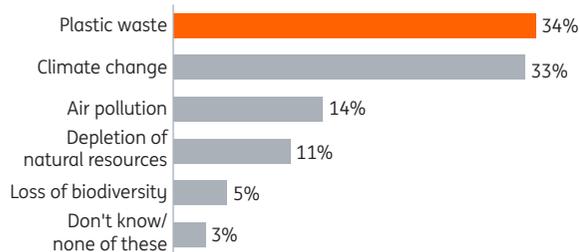
Plastic waste is a very tangible environmental problem that people come face to face with on a daily basis. Partly because of this, the issue is a top priority among consumers. In that respect, the ING International Survey also shows that climate change is mentioned relatively often in southern countries such as Italy and Spain, while air pollution scores above average in Poland and Romania.

Majority expects decrease in plastic use

When asked what they thought would happen to the amount of plastic used for food packaging, 7 out of 10 Europeans say they expect to see a decrease in the next two years. Elderly people are more likely to think this than young people. Despite this mood, the question remains as to whether this expectation is realistic. Among other things, demographic developments and changing consumption patterns will serve to increase future plastic use.

Plastic waste and climate change are considered as the most pressing environmental problems

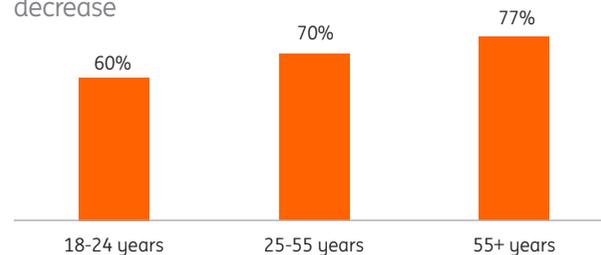
Question: What do you see as the most pressing problem for the environment? % of respondents



Source: ING International Survey, 13.137 respondents

Older Europeans in particular expect a decrease in the use of plastic food packaging

Percentage of respondents who (strongly) agree with statement: In the next two years I expect that the amount of plastic used to package food products will decrease



Source: ING International Survey, 6.683 respondents

¹ See page 21 for more information on the ING International Survey.

How will the use of plastic packaging develop in the coming years?

1.3 The amount of plastic packaging continues to grow

Trends point to an increase rather than a decrease

Demographic developments, changing consumption patterns and packaging trends are contributing towards a growing demand for plastic packaging.

1. More people and more households = more packaging

The amount of packaging is on the rise due to demographic developments. Population growth is a stimulus in most EU countries. In addition, the number of single-person households is increasing. As a result, there is an increasing demand for small packaging. This translates into more packaging with relatively more packaging material per unit of product.

2. Evolving demand for convenience

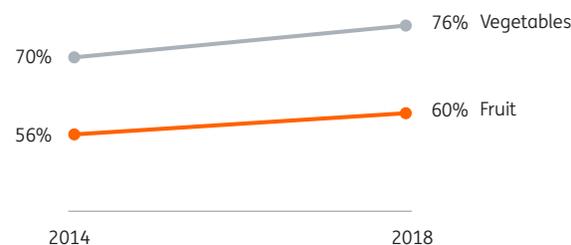
Consumption patterns are changing and as prosperity increases, consumers are buying more luxurious convenience products such as prepared fruit and vegetables and fresh meals. These products are often packaged in plastic. In addition, an increase in prosperity stimulates on-the-go consumption and increases demand for convenient take-away packaging. Finally, people are buying more and more of their groceries at supermarkets, and online sales of food and drinks are also on the rise. In general, more protective packaging is needed here than in other retail channels.

3. Plastic growing at the expense of other packaging materials

Plastic is gaining ground in several areas of the shop, with sauces, soups, pulses, frozen vegetables and other products increasingly packaged in plastic instead of in glass, cans or cardboard. The ambition to reduce food wastage also plays a role. In the Netherlands, for example, the proportion of unprocessed fruit and vegetables in packaging has increased over the past five years, partly in order to increase shelf life. Plastic is the most commonly used packaging material for fruit and vegetables.

Fruit and vegetables increasingly sold in packaging

Proportion of unprocessed fruit and vegetables sold in packaging in the Netherlands



Source: Groente FruitHuis

Price of plastic is not an obstacle to usage

The price of plastic has hardly risen in the last ten years. Recent multi-billion investments to increase the production capacity of plastic raw materials in Europe, the United States and China will ensure that plastic remains widely available and affordable in the future.

Despite fluctuations, the price of plastic has remained fairly stable over the long term

Composite price of plastics, in euros per metric tonne



Source: CPB: the circular economy of plastics, processing by ING Economics Department



Chapter 2 | No single solution for the plastic puzzle

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How can the food sector find a solution?

2.1 The food sector will have to combine several approaches

Complex problem requires more than one solution

There is no clear solution for the plastic puzzle. This is because there are several problems associated with the use of plastic. The main ones are the growing amount of plastic (including plastic litter), dependence on fossil raw materials for the production of plastic and limitations in plastic recycling. Each problem requires its own approach. The use of bio-based plastic, for example, reduces dependence on fossil raw materials but does not reduce the total amount of plastic. To come up with a comprehensive solution, companies need to combine several approaches.

Not all approaches are equally popular

The expert interviews show that reducing the weight of packaging is the most common way of tackling the plastic problem in the food sector. Methods that lead to a reduction in the amount of plastic packaging, such as switching to other packaging materials, are much less common. In Chapter 3 we will discuss each approach separately.

Regulation is evolving

Regulation is a key driver for change in the plastic dossier. The current EU regulations on packaging focus on the prevention of waste and the minimisation of the environmental impact. This includes the target of recycling half of all plastic packaging by 2025. There are signs that policymakers are increasingly keen to steer the plastic issue, for example, by ensuring that the use of unwanted packaging and materials is more expensive for producers and by introducing regulations that make the use of recycled plastic compulsory.

Six ways that can help solve the plastic problem

Contribution to the solution: + = positive, ○ = no effect, - = negative

		1. Reduce the amount of plastic		2. Reduce the use of fossil raw materials	3. Improve recycling	
		number of kilos	amount of packaging			
Most common	↑	1. Reduce the weight of packaging	+	○	+	○
		2. Use more recycled plastic in packaging	+	○	+	+
		3. Improve the recyclability of packaging*	+	○	+	+
Least common	↓	4. Use more bio-based and/or biodegradable plastic	○	○	+	-
		5. From non-reusable to reusable packaging	+	+	+	○
		6. Switch to other packaging materials	+	+	-	+

* Improving recyclability goes hand in hand with increasing the use of recycled plastic

Where do food companies and policymakers stand?

2.2 Focus on less new plastic and better recycling of packaging

Plenty of ambition to tackle plastic problems

More and more food companies are formulating targets for plastic. On the initiative of the Ellen MacArthur Foundation, these have been bundled in the 'New plastics economy global commitment'. In addition, in 2018 the EU launched its 'European strategy for plastics in a circular economy', and in the United Kingdom and the Netherlands, as well as other countries, joint agreements were made between governments and companies in a 'Plastic pact'.

There is a clear direction...

The pursuit of fewer kilos of plastic, including new plastic (1), better packaging and more recycling (2 & 3) are key to these ambitions. That has been the case for many years. In many European countries, for example, Extended Producer Responsibility schemes have been in place since the 1990s, whereby companies that bring packaging onto the market contribute to the costs of waste collection and recycling.

...but measuring progress is proving difficult

The availability of detailed data on the use of plastic packaging at country, industry and company level is limited. This makes it difficult to measure objectives (where are we now?) and to monitor progress (is everyone involved?). In addition, in practice it is difficult for policymakers to enforce changes when too little is being done.

A selection of companies' and governments' ambitions for 2025 and 2030

1 Reduce the amount of packaging (not limited to plastic)	
Who	Ambition
Signatories of Dutch plastic pact (e.g. plastic producers and food companies)	20% fewer kilos of plastic packaging per kilogram of product, in 2025 (compared to base year 2017).
Food companies and retailers	Individual company targets As more and more companies are disclosing their plastic packaging use, some are also committing to reduction targets. Recent examples include Unilever and British retailer Sainsbury's.

2 Improve the recyclability of packaging	
Who	Ambition
EU commission: European strategy for plastics in a circular economy	100% recyclability By 2030, all plastics packaging placed on the EU market is either reusable or can be recycled in a cost-effective manner.
	Recycle capacity By 2030, EU sorting and recycling capacity has increased fourfold since 2015.

3 Use more recycled material	
Who	Ambition
EU commission: European strategy for plastics in a circular economy	50% recycling of plastic waste By 2030, more than half of plastics waste generated in Europe is recycled.
Companies who signed the New Plastics economy global commitment	25% recycled content in packaging Consumer packaged goods companies and retailers have committed to an average of 25% recycled content in plastic packaging by 2025. This is roughly tenfold the estimated current global average.

Sources: European Commission, Ellen MacArthur foundation, Dutch Plastic Pact



Chapter 3 | Six ways in which the food sector can tackle the plastic problem

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Lighter packaging

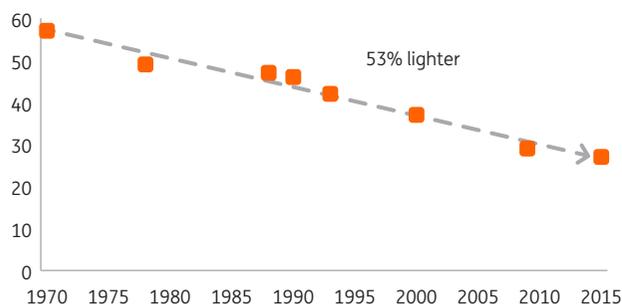
3.1 Gradual improvement possible

Financial incentives stimulate weight reduction

The vast majority of food producers are trying to reduce the weight of their packaging. This is because it is relatively easy to implement within existing processes and it is often financially advantageous to reduce the weight.

Plastic bottle has become more than 50% lighter since 1970

Development of the weight of a 1.5-litre plastic water bottle, in grams



Source: Spadel, processing by ING Economics Department

“Large bottlers seem to have achieved the optimum reduction in weight. Smaller producers still have some scope to improve,” says the Dutch Association for Soft Drinks, Waters and Juices

New technology and designs make packaging lighter

Advances in technology and smart design choices are helping to gradually reduce the weight of packaging. In addition to the use of thinner plastic, packaging can become lighter by:

- replacing plastic lids with film;
- making holes in the packaging; and
- bundling products together rather than packaging them individually.

+ What are the benefits?

- **Lower costs**
Lighter material often helps companies save on purchasing costs and transport costs. Costs may also fall because, in many countries, producers are charged a fee for the packaging they bring onto the market, often based on the number of kilos of packaging material.
- **Reduced pressure on the environment**
Good for the environment because less plastic is needed to make lighter packaging. This also means fewer fossil raw materials during production and transport.

- What are the obstacles?

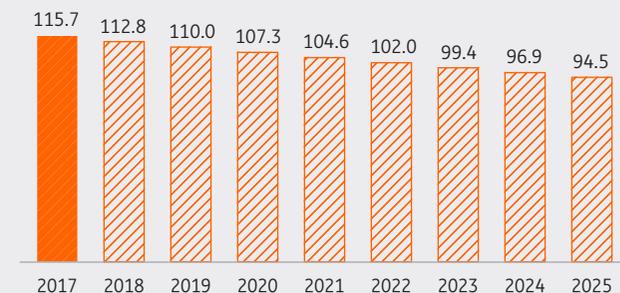
- **Risk of loss of quality of packaging and product**
There is a point at which packaging cannot be any lighter without deterioration of quality. The product may also be less well protected if the packaging is less strong. If this leads to more food wastage, this will result in even more pressure on the environment.

Case: Achieving targets can save millions of kilos of plastic in the Netherlands

A weight saving of a few grams on a bottle of water can save a lot of kilos on an annual basis, as supermarkets sell large quantities of these bottles. Signatories of the Dutch Plastic Pact, for example, have agreed to reduce the weight of plastic packaging by 20% by 2025. If Dutch supermarkets and their own-brand suppliers succeed in meeting this target, they will save an estimated 20 million kilos of plastic packaging material by 2025 compared with 2017.

Achieving the reduction target would mean that Dutch supermarkets would reduce their use of plastic by 3 million kilos each year

Estimated weight of plastic packaging for supermarkets' own-brand products, in millions of kilos



Source: FNLI, CBL, forecast ING Economics Department

More recycled plastic

3.2 Imbalance between supply and demand

Recycled plastic is often not suitable for food packaging

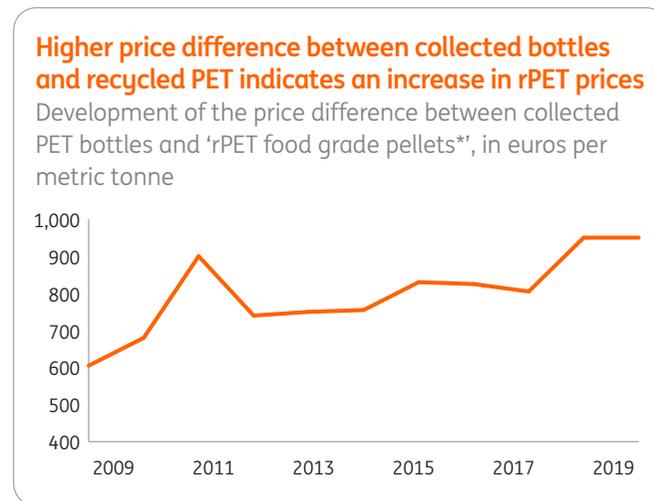
Food producers are the largest consumers of plastic packaging materials, but they cannot use most of the recycled plastic. This is because, due to food safety legislation, they need high-quality plastic that must not interact with food. Recycled plastic often consists of a mix of plastics whose origin cannot be guaranteed and whose quality is insufficient for food packaging.



* The production process for food grade plastic is fundamentally different because, due to health risks, it ensures that additives used for packaging do not interact with the food product.

Recycled PET increasingly popular

To be recycled into new, high-quality food packaging, you must be able to demonstrate that 95% of the material used was previously used as food packaging. This is currently possible for PET, but with other types of plastic this is still a major stumbling block. Recycled PET (rPET) often comes from returnable bottles that are collected separately, crushed, washed and processed into new bottles and packaging. Since more and more soft-drink and food producers use packaging made fully or partially from rPET, prices are going up and there is also increased capacity for recycling PET (see also p. 15).



Source: ICIS, processing by ING Economics Department

* these are plastic particles that are used, among other things, for new packaging

+ What are the benefits?

- **Reduced pressure on the environment**
Better for the environment, since less new plastic is needed and less plastic packaging ends up in waste incineration plants.
- **Increased sorting and processing capacity**
Increased demand is leading to higher investment at waste processors and recyclers and is stimulating the development of new technologies that convert used plastic into food grade plastic.

- What are the obstacles?

- **Price and quality**
Differences in quality between new and recycled material is one reason why food producers choose not to use recycled plastic. This is accentuated when the price of oil, and therefore the price of new plastic, is low.
- **Limited supply**
The supply of high-quality recycled material will have to grow in order to meet the growing demand for recycled food grade plastic from food producers*.

* For example, by setting up deposit systems in countries such as Spain, France and Poland or by investing in technology to convert used plastic into food grade plastic.

Improve the recyclability of packaging

3.3 By modifying the packaging...

Plastic packaging is not one-size-fits-all...

Plastic packaging comes in all kinds of materials, shapes and colours. This diversity is partly due to the properties required of specific packaging. For example, different materials are used for packaging that needs to be particularly strong than for packaging that needs to be light-proof and airtight.

...which makes sorting and recycling more difficult

For waste processors and sorters, the challenge is to process the wide range of plastic waste into (more or less) homogeneous streams. Combinations of plastic (such as a PE milk carton with a PP lid) and combinations of paper and plastic (such as coffee cups) make this more difficult. Packaging that is too large, too small or too contaminated is

also left over after sorting. This leads to a waste stream (mix) that is partly recycled with low-quality results, but in Europe often ends up in an incinerator or at a landfill.

Design packaging so that it can be recycled

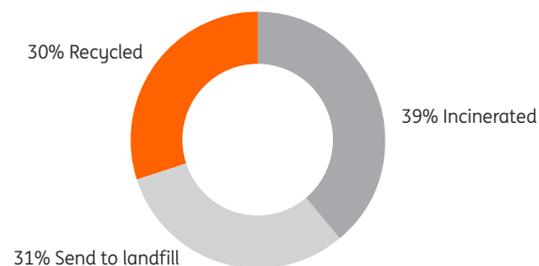
Given the desire to recycle more, food producers' material and design choices are becoming increasingly important. The recyclability of plastic packaging can often be improved by 1: choosing a common type of plastic (such as PE, PP or PET); 2: choosing a common colour (white or transparent); and 3: avoiding combinations of materials, such as plastic windows in cardboard packaging. Watermarking technology is also being developed so that packaging can be more easily recognised by sorters.

What are the obstacles?

- **The need for specific properties**
Food producers will always need combinations of materials for certain products because these often offer additional benefits in terms of functionality.
- **Higher costs for food producers**
Switching to new packaging costs time and money. Producers are not always able to pass on the cost of more expensive packaging to their customers and consumers.

30% of all plastic waste in the EU is recycled

What happens to plastic waste, 2016



Source: European Parliament

What are the benefits?

- **Better sorting results at waste processors**
If food producers design packaging with recycling in mind, it will be easier and more financially attractive to sort.
- **Encourage the use of recycled plastic**
Improved sorting results mean cleaner recycled plastic, which increases sales opportunities.
- **Stand out from the crowd**
The use of highly recyclable packaging enables food producers to fulfil sustainability ambitions and can be a response to the needs of their retail and other customers.

When is plastic packaging 'recyclable'?

- i. **It can be collected**
The composition of the packaging means it can be collected by accredited waste collectors.
- ii. **It can be sorted**
The packaging must be sorted and bundled into predefined streams for recycling processes.
- iii. **It can be processed**
The packaging can be processed on an industrial scale and recycled into a raw material.
- iv. **It can be used as raw material for new products**
The recovered raw material can be used to produce new packaging or products.

Sources:

Ellen MacArthur Foundation, Plastic Recyclers Europe, Guideline 94/EG/62.

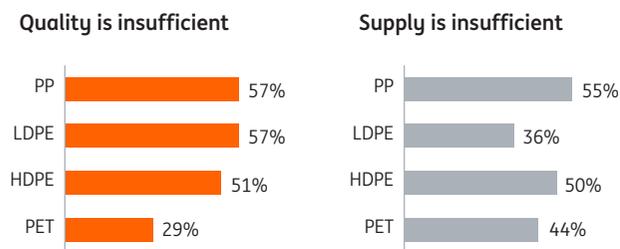
Improve the recyclability of packaging ...and investments in the recycling system

Increased processing capacity and new technology...

Highly recyclable packaging is of little benefit if it is not disposed of correctly. To maximise its potential, the EU is committed to achieving a fourfold increase in plastic waste processing capacity between 2015 and 2030, i.e. 500 new processing sites. Existing mechanical recycling systems are being improved and chemical recycling is being introduced. This requires investment and innovation since quality and availability are still often a stumbling block for companies to use recycled plastic.

Insufficient quality and supply are preventing plastic converters to use recycled content*

Percentage of plastic converters who qualify quality and/or supply of recycled plastic material as insufficient



Source: European Plastic converters

* results shown for the most used polymer types in food and drink packaging

...thanks in part to food companies

Every year, packaging companies in most European countries are charged a fee for the packaging they bring onto the market. This fee is intended to cover some or all of the costs of collection, sorting and recycling. Since the recycling of plastic packaging costs more than it yields, companies will benefit from a more cost-effective system.

+ What are the benefits?

- **Save raw materials and energy**
Improved recycling means more material returns to the chain. If these inputs are used this reduces the need for new plastic and the use of raw materials.
- **Reduced dependence on primary plastic producers**
Cooperation with recycling companies provides food producers with access to an alternative source of material for new packaging.

- What are the obstacles?

- **What are the obstacles?**
A considerable amount of public and private money is needed to further improve collection systems and recycling facilities. Revenues are often insufficient to cover the costs.

▪ Differences between countries

The huge differences in waste collection worldwide can partly offset producers' efforts to use better packaging. Something that's easy to recycle in theory is not always recycled in practice.

Chemical recycling is taking off

Within the chemical industry, there are several examples of techniques that can improve the recycling of plastic waste. These are an addition to the existing mechanical recycling systems in Europe.

1. The technique: Depolymerisation. This process is used to recycle coloured PET into new food packaging. Who's behind it? Start-up Ioniqa, with Coca-Cola as one of the investors. For whom? Coca-Cola and Unilever (among others)
2. The technique: Pyrolysis. This process can be used to recycle multiple plastics and produces an oil that can be mixed with virgin material during the production of food grade and non-food grade plastics. Who's behind it? A consortium of Sabic, Renewi and Plastic Energy. For whom? Unilever is one of the prospective users of the more sustainable plastics produced by this process.
3. The technique: Gasification. This process can be used to convert domestic waste into bio-methanol. This can be used as a raw material in the chemical industry or as a fuel. Who's behind it? A consortium of Nouryon, Enkern, Air Liquide, Port of Rotterdam and Shell.

Bio-based and biodegradable plastic

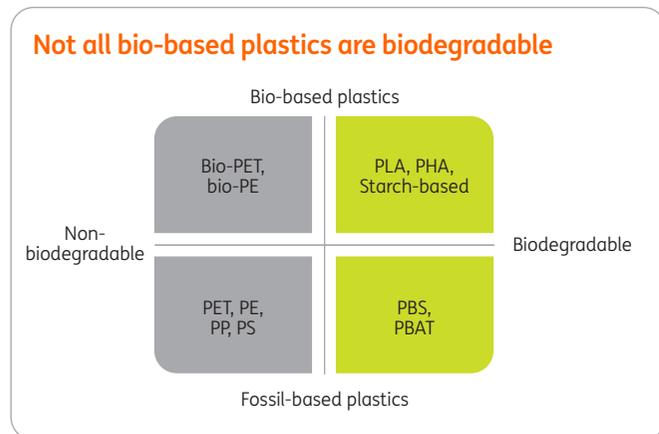
3.4 Fast-growing but not universally embraced

Bio-based plastic is a fast-growing niche

An alternative to fossil-based plastics are plastics based on biomass (such as sugar). The most commonly used bio-based plastics are bio-PET (e.g. for soft-drink bottles) and PLA (e.g. used for meat trays and vegetable packaging). Bio-based plastic is growing rapidly, although its share of the total plastic production is still small and its availability is also more limited.

Biodegradable is a niche within a niche

Biodegradable plastic can, under the right conditions, be broken down by microorganisms into water, gases and biomass. There are both carbon-based and bio-based plastics that are biodegradable. These plastics can be useful for packaging that still contains food waste, such as tea bags or coffee cups, which would otherwise be disposed of as residual waste.



Source: Bloomberg

Opinions on bio-based are strongly divided

By no means do all food producers use bio-based or biodegradable plastic, or do they expect to do so. Some producers think it is a step in the right direction, while others mainly see the problems associated with its use.

+ What are the benefits?

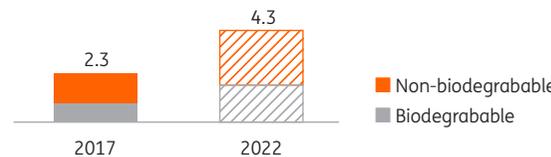
- **Reduced dependence on oil and gas**
Bio-based plastic contributes to the transition to a 'low-carbon' society.
- **Lower carbon emissions**
On average, bio-based plastics produce fewer carbon emissions than fossil-based plastics. How much less depends on the type of biomass and the production method.

- What are the obstacles?

- **Higher costs**
On average, bio-based plastic is more expensive than fossil-based plastic. Only when retailers and consumers see added value will they be prepared to pay that price.
- **Different functionalities**
Many producers are reluctant to use bio-based plastics because they have different properties.
- **Recycling not optimal**
Consumers often don't know how to dispose of biodegradable plastic, waste processors are struggling (for the time being) with this plastic at composting facilities and the same is true for recycling facilities.
- **Competition with food production**
If edible biomass from food crops is used to produce bio-based plastic, more arable land will be required to avoid competing with food production.

The production of bio-based plastic is growing...

Global production capacity of bio-based plastics, million metric tonnes



Source: IfBB, Bloomberg, Statista

* They often end up as by-products in other plastic streams. Although they are causing any problems here for the time being, this may change if use increases sharply.

...but was still less than 1% of total global plastic

Production in 2017

Production of biobased plastics: 2.3 million metric tonnes



Total plastic production: 348 million metric tonnes

From non-reusable to reusable packaging

3.5 Think beyond the packaging

Thinking outside the box

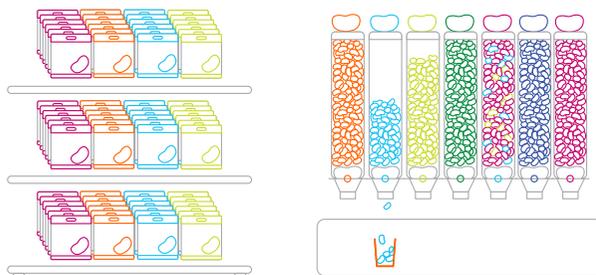
For many food products, non-reusable packaging is the starting point. Food producers then work within this framework to find ways to optimise further. However, products can also be distributed in different ways so that packaging can be used more than once.

Supermarkets are trialling dispensers

Both supermarkets and premium-brand producers are testing reusable packaging. Dispensers are becoming increasingly common in supermarkets, where customers can tap or spoon the product themselves. They can also use their own containers. Unilever and Nestlé, among others, are also trialling the online sale of fully reusable packaging that is collected when empty.

Growing interest in 'packaging-free' products

Searches for the term 'packaging free' in the United Kingdom, on a scale of 0 (no interest) to 100 (high interest), period January-July



+ What are the benefits?

- **Less non-reusable packaging**
It is also good for the environment because it contributes to a reduction in the amount of plastic required.
- **Raises awareness among consumers**
Other ways of selling products can increase awareness of the impact of non-reusable packaging. It can prompt consumers to choose reusable packaging, especially if such behaviour is encouraged*.

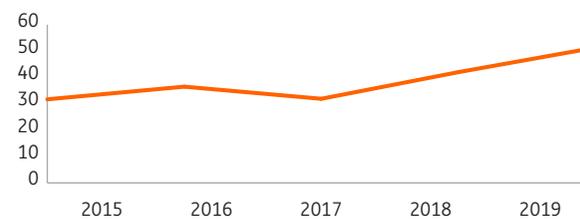
* Here there are parallels with making people pay for a plastic bag, which encourages people to bring their own bag more often.

- What are the obstacles?

- **Only suitable for part of the range**
Dispensers are particularly suitable for own-brand, long shelf life products and their use is also limited due to allergies and food safety. This is one of the reasons why British supermarket Waitrose is 'only' trialling 50 products (from a range of more than 20,000 products).
- **Less convenience for the consumer**
If consumers have to bring or buy their own packaging, this reduces convenience. Completely 'packaging-free' stores have not yet been a great success, partly due to compromises in convenience and range.
- **Higher prices for the consumer**
Variants with home delivery and the collection of reusable packaging are a relatively expensive solution for consumers and that limits the size of the target group.
- **Increased risk of loss**
Offering food products in bulk systems (such as dispensers) can increase the risk of loss due to restrictions on shelf life or food contamination.

Dispensers can trigger a change in the use of packaging

From pre-packed products to customised refillable packaging



Source: Google Trends, processing by ING Economics Department

Switching to other packaging materials

3.6 Often means shifting the problem

Search for alternatives

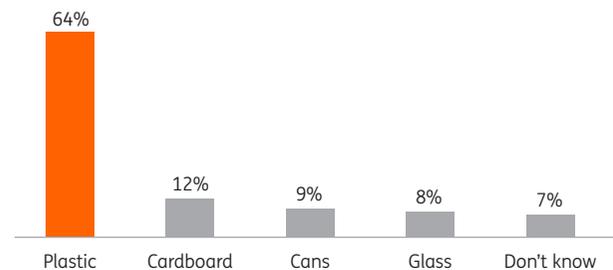
Negative attitudes towards plastic are fuelling interest in other materials. Because if using plastic causes problems, why don't producers use cans, cardboard, paper or glass instead? The majority of Dutch consumers believe glass and cardboard are the most sustainable options. Almost two thirds think plastic is the least sustainable option. However, reality is much more complex.

There's no such thing as the perfect packaging material

When producers compare materials, they consider price, functionality, environmental pressure and other factors. Like plastic, other packaging materials have advantages and disadvantages. For example, no material scores well on all environmental aspects (see box).

Dutch consumers think plastic is the least sustainable option

Responses to the question: Which food packaging do you consider to be the least sustainable?



Source: ING Question of the Day, 3 September 2019, 26,874 respondents

Producers reluctant to replace plastic

The interviews showed that few food producers are switching to other materials. Producers that are making the switch are for example active in product categories such as vegetables, fruit and organic products.

From an environmental point of view, switching from plastic to other materials is not always a good thing

Some general differences



- Using paper and cardboard instead of plastic adversely affects water consumption. The production of paper and cardboard requires a relatively large amount of water.



- Using cans instead of plastic adversely affects energy consumption. High temperatures are required to produce metal and aluminium, which makes the production process very energy intensive.



- Using glass instead of plastic adversely affects energy consumption. Glass is heavy, and a relatively large amount of packaging material is needed per unit of product. Melting glass also requires a lot of energy.

+ What are the benefits?

- **Decrease in the amount of plastic packaging**
Especially for packaging that is likely to end up in the environment, this can reduce the amount of plastic litter.
- **Improved recycling figures**
Since other materials have higher recycling rates than plastic, switching to other materials will result in more packaging being recycled.

- What are the obstacles?

- **Disputed environmental benefits**
Switching to another material does not reduce the environmental impact of packaging if, for example, more energy, land or water is required for the material and production.
- **Long-term investments**
Switching to another packaging material has a huge impact on the production process. In many cases, packaging machines need to be replaced. This is only financially feasible if the current machines have been written off.
- **No alternative available**
For many fresh products, such as most meat products, cheese, fish and prepared vegetables, there are no suitable alternative packaging materials.

The plastic strategy of food companies

3.7 Albert Heijn, FrieslandCampina and Harvest House

Practical examples at food companies

For this study, fifteen interviews were held with packaging experts. The general insights from these discussions have been incorporated throughout this report. The interviews also lead to useful insights at the company level. This page includes three specific examples of food companies that are trying to solve the plastic puzzle. Although these are largely based on the Dutch situation they also offer useful general take-aways for other food companies even if they are operating in different geographies or markets.

FrieslandCampina

Its own tool offers in-depth insights into the global packaging portfolio

At dairy company FrieslandCampina, the ambition to make business operations more sustainable is reflected in all aspects of their operations, including the packaging strategy. The focus on recycling instead of incineration or dumping waste at landfill sites means that packaging is viewed in a different light. The development of its own packaging tool (Respackt) has made it much easier to compare factors such as recycling rates, carbon footprint and the use of fossil fuels. The baseline measurement of the portfolio, which coincided with this, is the starting point for an internal discussion with marketers and designers about what the most suitable packaging is.

Harvest House

Switching to recycled materials

Harvest House is a Dutch growers' association that specialises in the cultivation of tomatoes, cucumbers and peppers. The tomato market is moving towards smaller varieties such as cherry plum tomatoes and cherry vine tomatoes. However, these are also more vulnerable, which increases the need for adequate packaging. The widely used plastic trays were difficult to recycle due to the material chosen (oriented polystyrene). Partly as a result of discussions about plastic packaging in the sector and in society, alternatives have been identified and analysed. The cooperative therefore decided to switch to PET trays made from recycled material (rPET), which are also recyclable. Harvest House is also focussing on the reduction of material weight and the use of monomaterials. In doing so, Harvest House has taken clear steps towards making its packaging more sustainable, is meeting the wishes of large retail customers and is preparing for future legislation.

Albert Heijn

Using the full spectrum of options to reduce plastic

At the Albert Heijn supermarket chain, each product category (e.g. meat or dairy) has its own packaging targets. The four Rs – Reduce, Reuse, Recycle and Renew – are at the heart of this strategy. These four Rs, in this order, are the benchmark for evaluating packaging. They also offer suppliers of Albert Heijn's own-brand products a framework within which they are encouraged to come up with innovations. For plastic packaging, but also for other materials, 'reduce' is a continuous process. Replacing the lid of soft fruit packaging (such as strawberries) with film is one of the best-known examples. If it is not possible to reduce (further), the next step is 'reuse'. For example, the introduction of reusable bags in the fruit and vegetable section. If this is also not an option, recycling comes into play, for example PET packaging is used for salad bowls, which are largely made from recycled material. If the packaging doesn't lend itself to this, Albert Heijn is moving towards renewable materials such as bio-based plastic, so that at least no fossil raw materials are needed for its production.

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ING International Survey

The ING International survey took place in 13 European countries with 1.000 adults over 18 in each country. Ipsos conducted this survey between 16th and 30th of August 2019. Sampling reflects gender ratios and age distribution, selecting from pools of possible respondents furnished by panel providers in each country. European consumer figures are an average, weighted to take country population into account. More results can be found on <https://think.ing.com/consumer/ing-international-survey/>

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