



package sustainability report





As garbage islands in the ocean, microplastics in the soil, and carcinogens in the air become an even bigger threat to the environment, wildlife, and humans, consumers in the modern marketplace demand alternative packaging options to plastics. The call to eliminate single-use plastics is no longer a choice, but a growing requirement set by most countries, regulatory organizations, and companies to maintain customer loyalty and reverse the damage created by excessive consumption and irresponsible waste management.

Government and corporate responses to this consumer demand is driving a global rise in sustainable packaging initiatives, as companies seek competitive advantage by addressing ecological concerns in a way that respects both cost and consumer expectation. In turn, the packaging industry has embraced the inevitable transition by innovating creative solutions to sustainable packaging that address environmental concerns, health concerns, and global and corporate regulations.

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environmental and health concerns with plastics

Whether current concerns focus on water pollution, soil pollution, air pollution, or energy issues, all research recognizes similar effects: wildlife and humans are directly impacted. The problem is that even though plastics are typically recyclable, very little of the plastics people use every day are recycled or incinerated in waste-to-energy facilities.

Much of the plastic we discard ends up in oceans, creating large plastic “islands” like the Texas-sized patch located between California and Hawaii, which is one of five plastic patches of similar sizes around the world. Studies have shown that as these plastic-dominated garbage islands swirl around the ocean, they break down into smaller pieces a little at a time until they become microplastics, which are pieces of plastic smaller than five millimeters.

Marine life that looks for food around these patches are more likely to have a diet that largely consists of these plastics. For example, sea turtles who forage for food near these patches have been found to have diets consisting of as much as **63% plastic**.¹ According to oceanographer Julia Reisser:

Ocean plastics contain harmful substances known as Persistent Bio-accumulative Toxic chemicals (PBTs). “Bio-accumulative” means that these pollutants can amass in the body of organisms, up to a level that can become detrimental to them and to the health of entire food webs. Since ocean plastics possess a wide range of sizes, animals as small as plankton and as big as whales can ingest them.

Human consumption of fish is also a growing concern, since certain types of fish, like trout and perch, have ingested these plastics.² If PBTs and other plastic by-products build up in fish and stay in their systems, when humans consume these affected fish, they are also affected.

Of course, the millions of tons of plastic dumped into the world’s oceans each year have attracted considerable attention, but recent research has proven that plastic pollution poses a bigger threat to plants, animals, and humans through the soil.

The discarding of plastics into landfills is actually higher than discarded plastics in the oceans. Once discarded into landfills, it takes plastics up to 1,000 years to decompose. Much like in the oceans, plastics slowly break down into microplastics and through rain and wind, it makes its way to places it was never intended to go. It is estimated that one third of all plastic waste (in the form of microplastics) ends up in soil or freshwater. The problem is that, much like affected marine life, these particles are entering the food chain through terrestrial wildlife, plants, and water; therefore, humans are directly affected as well.

In a recent **Science Daily article**, researchers found that surfaces of tiny fragments of plastic may carry “disease-causing organisms and act as a vector that transmits diseases in the environment.”³ Microplastics can also interact with soil, affecting their health and the way they function. Earthworms, for example, burrow differently when microplastics are present in the soil, affecting the earthworm's fitness and the soil condition. Once the fitness of the soil is affected, there is a kind of domino effect at play.

As with ocean and land pollution, there are also concerns regarding air pollution and how plastics contribute to climate change and airborne toxins because they use oil and gas for production and petrochemical plants release carcinogens that accumulate in wildlife and humans. Even “safe” plastics have been discovered to not be as safe as advertised and because certain chemicals used in the process are not chemically bound to plastics, it makes them easy to **migrate into our foods and offgas into the air** we breathe.⁴

According to a **2018 report** “The Link Between Fossil Fuels, Single-Use Plastics, and Climate Change,” a main cause of air pollution comes from the production and incineration of plastics.⁵ The report explains, “Conventional plastic **is made from fossil fuels**, and is a product of the oil and gas industry.”⁶ Any time these resources need to be extracted, it creates pollutants to groundwater and air.

Furthermore, the manufacture and incineration of single-use plastics uses considerable energy, and the by-products created from these processes are a serious health risk to the workers regularly exposed to it. Petroleum plastics production also releases air pollutants and toxins that, sooner or later, end up in our rainwater, affecting the ecosystem as a whole.

In a 2014 National Institutes of Health **peer reviewed report**, it is argued that although there are some benefits to using plastics, the possible health dangers outweigh the benefits.⁷ Citing multiple studies, the report further explains the toxicity of BPA and DEHP plastics, commonly used in food packaging, and how younger and older populations have been negatively affected by these products. Some of the effects of exposure to certain plastic chemicals include low fertility, hormonal disruptions, increased asthma and allergies, low birthweight, and behavioral changes.

As of 2016, world plastics production totaled around **335 million metric tons**, with roughly half destined for single-use products.⁸ In the U.S., only 23% of plastic bottles are recycled, and 52% of all plastics thrown away are packages, with 32% of the 78 million tons of plastic packaging we produce annually being left to contaminate oceans land, and air.

Plastics are not going away, despite the growing resistance against plastic in developed countries. Many corporations are moving forward with plastic packaging to sell their products to more underdeveloped, impoverished countries that usually do not have the proper facilities to recycle what they consume. Thus, the cycle repeats itself; however, there is hope on the horizon and many communities, organizations, companies, and countries are putting more pressure on these detrimental behaviors. The news is spreading and people are listening.

government and industry regulations and the rise of sustainable packaging

Achieving economic growth and sustainable development requires that countries urgently reduce their ecological footprint by changing the way they produce and consume goods and resources.

Governments are not only banning plastic, but mandating recycling and reusable materials. California was a recent trend-setter, finally initiating a ban on plastic bags from major retail stores after the November 2016 elections. Dozens of North American cities have followed suit. In the United States, during the 2017-18 legislative season, more than **70 bills have been introduced in state legislatures** regarding plastic bags, requesting bans, fees, and recycling programs.⁹

In Australia, national, state, and territory environment ministers have agreed on an admirable target: **100% of Australian packaging** is to be recyclable, compostable or reusable by 2025.¹⁰ This is only a few short years away, and a major opportunity for the food packaging industry.

Vancouver, the first major Canadian city to ban plastic straws (effective in 2019), has also adopted a ban on the distribution of polystyrene foam cups and containers in that year--so users of food packaging are looking for sustainable solutions now.¹¹ Vancouver also adopted restrictions on disposable cups and plastic shopping bags. And the city aims to completely eliminate the disposal of solid waste by 2040.

In 2017, Sri Lanka announced large **sustainability goals** in many areas, with improving waste management and decreasing consumption as a top priority, along with poverty and gender equality.¹² They aim to substantially reduce waste generation through prevention, reduction, recycling, and reuse by 2030, with an aggressive 10-year goal for educating people on their direct global impact based on their consumption patterns. The goals embraced by Sri Lanka are in alignment with European Union initiatives and has been recognized by the United Nations as a "high human development" achieved country in 2018.

global and corporate goals for sustainable packaging

The market for sustainable packaging is expanding globally, and market research has concluded that it will continue to do so at a rate of **5.3% until at least 2026**.¹³ Presently, the countries of the EU are leading the rest of the world, while Australia, New Zealand, and Canada are close behind. Both governments and industries of Australia and New Zealand have committed to bold initiatives in support of sustainable packaging and are already seeing positive results early on. Singapore has recently climbed the sustainability ladder quickly due to improvements in its messaging, governance, and environmental initiatives. Although the United States is making considerable progress, it trails behind because its per capita consumption of packaging is the highest in the world.

Packaging is a resource-intensive sector in an increasingly resource-constrained world. The call for recyclable, biodegradable, sustainable packaging has created an opportunity to add value to a product while driving customer loyalty. Increased consumer exposure to environmental issues and advances in materials technology are the primary drivers of growth in sustainable packaging initiatives, according to 79% of the global packaging value chain players surveyed by **Smithers Pira**.¹⁴

Corporate initiatives currently span the entirety of the food market. Walmart announced their “zero waste” initiative in a **2017 report**, claiming that they have “extended our zero waste aspiration to include the whole supply chain, from farming and manufacturing, consumption to end of life.”¹⁵ Pepsico and Coca-Cola are developing bottles made of mushrooms and seaweed, and DanonWave/Nestlé Waters have committed to an initiative developing water bottles manufactured from wood products, like cardboard and sawdust.

DB Packaging is a New Zealand company that makes dissolvable plastic packaging, as well as a 100% organic, naturally compostable material, while Biopak, Vegware, and GoGreenWorld are global makers of compostable containers geared toward the food service industry. Sambriolo, which became well known for plastic clamshell packaging for produce, has recently made bold commitments to roll out the 100% recyclable packaging brand ReadyCycle, which provides sustainable packaging for a variety of produce and is the first of its kind in the industry.

In a May 2018 report published in **Sustainability**, it explains that companies in the last decade have learned that realigning their strategy to address responsible business activities can offer a competitive advantage and contribute to the organization’s success in the long run.¹⁶ While many businesses have changed their practices to meet the needs of the modern “green consumer,” some have exploited this “green market” for their own success. Thus, among the green trends, companies can also consider packaging that “encourages reuse” or creates social consciousness. Packaging that uses less material and is made of the reusable or biodegradable material is popular as well.

consumer demand for sustainable packaging

Consumer expectations are a primary driver for sustainable packaging changes. For example, a 2014 Horizon Media study found **81% of millennials** expected companies to make public commitments to corporate sustainability.¹⁷ The study further revealed that **66% of consumers** are willing to pay more for products from companies that commit to better sustainability packaging.¹⁸ So, to put it simply, sustainable practices and packaging is good business.

An **Asia Pulp & Paper study** published in 2017 found that packing waste is a major environmental concern for more than half of US consumers, placing it in the top five of all environmental concerns.¹⁹ Furthermore, one third of shoppers are more likely to support brands that use sustainable packaging, and one quarter of the buying population is willing to pay between 21% and 30% more for a product packaged sustainably. Millennial respondents were twice as likely as baby boomers to pay more for sustainable packaging-- a portent of future demand as that generation reaches its peak earning and spending years.

The study also found that more than half of US consumers are confident in their own ability to judge the recyclability of packaging. While almost half of those surveyed believe sustainability in food packaging design is important, the most important property any food packaging can have remains quality.

Sustainable products provided by Ecologic, TemperPak, Envirolife, and ReadyCycle all are created with the goal of maintaining equal, if not better, quality in their packaging options as their plastic counterparts. Since all food packaging must meet FDA and industry regulations, these products could not be introduced to the market without regulatory approval--this includes how packaging contributes to the health of produce and its shelf life.



sustainable packaging innovation

There is a global rise in sustainable packaging initiatives because of consumer demand and corporate responses to those demands, which include plastic reduction and more sustainable packaging. Removing single use plastics from market shelves has become a part of many companies because their end goal is to maintain customer loyalty and industry responsibility.

Public and private sector momentum has created space for innovative food packaging products and thinking. A key food packaging trend has been toward recycled and recyclable materials, partly in response to the stunning media reports that exposed the growing concerns of the **Great Pacific Garbage Patch** (which, combined, is three times the size of France).²⁰

Leading beverage and restaurant brands have also announced major sustainability-oriented commitments in 2018. These larger, companies include Coca Cola, which stated that **by 2030** it will collect and recycle one bottle or can for each one it sells,²¹ and McDonald's announced a commitment to have 100% of its guest packaging made from renewable, recycled, or certified sources **by 2025**.²²

As these companies respond to more demands for sustainable options, everyday consumers and committed environmentalists are pleased with these eco-friendly initiatives, which in turn have trickle-down effects that encourage other companies to follow.

Innovative recycled and recyclable food packaging materials are emerging as sustainable alternatives to plastics and other environmentally-unfriendly materials. A few notable examples:



Ecologic paper bottles are made from recycled corrugated cardboard and newspapers, and already popular for products like wine, pet food, and protein powders.²³ They are now being used by L'Oréal USA in a new line of body-care products called Seed Phytonutrients, which is a step in the right direction to better, more sustainable options.

TemperPack supplies **insulated packaging made from jute and material recycled from burlap bags** to companies like Plated, one of the leaders in the fast-growing meal kit industry.²⁴ Their products keep perishables chilled during shipping, and after use it is compostable.





USDA researchers have developed an **edible, biodegradable packaging film** made of casein, which is a milk protein that can be wrapped around food (like meat, bread, and cheese) to prevent spoiling.²⁵

EnviroLife is made from recycled fiber and claims to be the only 100% post-consumer recycled fiber that is FDA-compliant for direct food contact under all conditions of use, allowing food service brands to serve customers with environmentally-friendly paper cups and meal boxes.²⁶



ReadyCycle® is the first 100% sustainable packaging in the market that provides products that specifically caters to more sensitive produce like berries, mushrooms, tomatoes, cherries, and kiwis.²⁷ These products are approved by government and industry regulations and protect sensitive produce during the packaging and shipping process, as well as maintain visual appeal and sustain shelf life.

What all of these innovations confirm is that global, industry, worker, and consumer concerns are driving companies forward into a new way of thinking about sustainable packaging and its commitment to reducing the human footprint on the environment and community health.

pros and cons of plastics

Despite the growing concerns of the effects of plastics on the environment, there is still considerable support for the material and its multiple uses in a variety of industries. Part of the hesitation to transition from plastics to more sustainable packaging are the systems that have been created around the material and its widespread applications.

There was a time when plastic was the best option, providing the necessary material for multiple industries, including food, medical, clothing, fishing, and construction. One primary argument for plastic packaging is that it is currently affordable and lightweight, which makes it less expensive to ship. Plastics have also proven to prevent food waste, extend the shelf life of products, and protect products against damage caused through shipping. The clothing industry uses plastics to create durable fibers and the fishing industry uses plastics to create strong netting. Construction companies use plastics for insulation and claim that these materials reduce heating and cooling costs, which further reduce energy usage.

Anton Hanekom, Executive Director of Plastics SA, a South African plastics company, argues that plastics offer up to 52,000 jobs to collectors in South Africa “who collect waste that is mechanically recycled into new raw materials (more than 313,700 tons of plastic materials in 2017 alone).”²⁸ He argues that plastics don’t litter, people do, so it is more about educating people on the importance of recycling more than eliminating plastics.

Many argue, though, that the negative impacts of plastics far outweigh the benefits. Proponents for sustainable packaging options explain that plastics not only have a negative impact on the planet and those who live on it, traditional single-use plastics also require the use of non-renewable resources like natural gas, oil, and coal. Because these resources are sensitive to price fluctuations, the costs of plastic production is not always as affordable as plastic industries claim. The extraction of oil and natural gas and the processing of plastics counteracts much of the energy saved during shipping.

Those who are proponents of sustainable packaging argue that there are multiple benefits to reducing the consumer eco-footprint. Not only does sustainable packaging improve brand image and competitive advantage, but businesses are more likely to comply with new regulations imposed by governments and industries.

Sustainable packaging also minimizes carbon risks and health issues caused by plastic pollution, improves energy efficiency, and reduces the waste created by consumption. There is an endless amount of evidence and research that supports the need to reduce plastics and replace them with better, safer options (please see the Environmental and Health Concerns section for more detailed information).

The arguments against sustainable packaging claim that sustainable products usually require actions of consumers to actually recycle their waste, and that compostable packaging requires a very specific environment in which to decompose.

Arguments against the full embrace of sustainable packaging are based on the premise that many new sustainable products have not been around long enough for their methods of sustainability to be proven truly effective. Some even question if these new inventions may actually have a negative environmental impact. There has also been controversy around “greenwashing,” which is when a company claims sustainability, but their products do not meet true sustainable criteria.²⁹ Such practices can hurt the reputation of a business if it turns out the packaging is not what it is initially touted to be and it can also be detrimental to the movement as a whole. Consumers need to be able to trust companies when they claim sustainability.

Most arguments against sustainable packaging rally around conversion expenses, costlier products (higher up-front costs), long-delayed savings, and the inconvenience of packaging that no longer embraces “convenience” options.

Eco-conscious supporters refute these cost-and convenience-focused criticisms by demonstrating increasingly affordable ways sustainability is winning in multiple industries and why alternative packaging solutions are more economically stable than plastics.

sustainable packaging industry wins

Europe has been leading the way in sustainable packaging lately. German company BIO-LUTIONS won “Bio-based material of the year 2017” at the **International Conference on Bio-Based Materials** held in Cologne, Germany.³⁰ They were recognized for their sustainable packaging by breaking down agricultural waste into “self-binding nano cellulose fibres” for package production. This material is recyclable, completely compostable, and can even be burned with minimal carbon footprint. These newly developed products, using impressive innovative techniques, are seriously paving the way for more sustainable options, especially in food and produce packaging.

BillerudKorsnäs, a Swedish packaging company, creates sustainable products for China and Southeast Asia. **Their research and case study reports have revealed the following:**

Freight Savings	Production Protection	Packaging Reuse	Unit Cost Reduction
15% ocean freight savings and 30% air freight savings thanks to compact, lightweight packaging and better space utilization.	50% improved product protection with fewer damaged goods.	80% improvement in packaging reuse at distribution centers.	15% unit cost reduction. ³¹

Alfredo Morales, regional head of Latin American beauty care retail for Henkel, says his team redesigned a variety of processes in the beauty care production plant in Bogota, Colombia.

“It starts with thinking out of the box,” he explains in a **2017 Guardian article**. “You can save costs to the supplier and also the company, while at the same time thinking of protecting the environment and social responsibility.”³² Additionally, the business asked suppliers to use sturdier corrugated boxes, set up quality-checking, and reused each box 15-20 times. “We saved the equivalent of 3,300 trees and reduced 640 tonnes of CO2 emissions,” Morales claims.

United States-based company **Ecologic Brands** also produces impressive sustainable packaging options for markets and consumers.³³ With the world’s “only commercially-viable paper bottles made from recycled materials,” Ecologic Brands has five years of success by diverting 350 tons of plastic from oceans and landfills with their available option of recycled paper water bottles. Their product designs and custom solutions are vigorously tested for durability during packaging, transportation, and retail environments that need packaging for personal care, wine and spirits, food and powder, pet care, and home care purposes. The packaging is both recyclable and compostable and research shows that these packaging options are affordable for companies and consumers.

President and Founder **Julie Corbett explains** that “you have to make baby steps to make improvements in the packaging industry in order to innovate from within.” She further explains that it is important to understand design constraints based on regulations and the packaging process and find creative ways to address those constraints.

These sustainable company wins show that committing to a sustainable product life cycle pays for itself and alleviates initial concerns of increased packaging costs.

agriculture and sustainable packaging

Sustainable produce packaging is still in its early stages, but as innovative packaging research grows, so does its demand. Those who work with fresh produce are seeing the effects of sustainable packaging through small and medium farms. These farms, both organic and non-organic, are seeing the benefits of sustainable packaging through supply chain savings and consumer appreciation.

“The consumer is willing to pay a little more for packaging to alleviate the guilt of buying produce in plastic containers,” says Peter Cousineau, who owns **Four Pillar Farms** in Vermont.³⁴ The farm embraces eco-friendly packaging through regional farmers markets, grocery stores, and restaurants. It provides a level of industry ethos that communities, workers, and consumers want to support. Because of this commitment, Four Pillar Farms is regionally recognized as one of the few small farms that have committed to sustainable packaging and is being rewarded for their efforts.

Larger farms have a harder time transitioning from current packaging methods to more sustainable ones because there are just more parts to move and more people to satisfy. Before larger farms make sustainable commitments, they want to see how other companies are succeeding. Of course, larger farms recognize the consumer demand, but are still hesitant until there is more evidence of how others benefit from sustainable packaging commitments. A recent article from **Raconteur** explains that packaging affects the entire supply chain, “starting with the material producer to the converter, to the brand owner and retailer, to the waste and recycling organisations.³⁵ And then back to the material supplier again.” This is a case where the industry sees concerns based on conversion costs and delayed savings.

Given the intricate complexities and changing tides of public opinion, the challenge starts with determining what sustainable materials are the best, proven investments. Despite some hesitance with certain industries, sustainable packaging options are growing and many realize they will transition sooner or later because it is an inevitability. Watching small to medium farms, and larger corporations, succeed in their commitments is a great first step.

This does not necessarily mean companies will summarily drop plastics completely for sustainable packaging, at least not at first. The transition is typically a slow one because many companies find it difficult to uproot intricate alliances and are uncomfortable with the idea of disrupting “business as usual.”

With growing government and industry regulations, considerable evidence demonstrating the dangers of plastics on the environment and health, and consumer demands for safer and more sustainable packaging, companies are becoming more aware that business as usual is unacceptable. Many companies now recognize an opportunity to move in the right direction and are setting firm missions that commit to the transition. These small steps will create great changes, and as companies in several other industries watch these positive changes happen, they will respond with larger commitments. As the rewards for these committed companies grow, other companies who have been waiting will follow. We are already seeing this rippling through the market.

ReadyCycle's contributions to the sustainable movement

ReadyCycle® has made bold commitments to move more towards sustainable packaging to ensure businesses and consumers reduce their environmental impact and ecological footprint with a continuing process of improvement. We aim to not only maintain innovative approaches to sustainable packaging, but also aim to become cost effective and eliminate materials toxic to consumers, workers, and the environment.

We recognize that change creates progress, not only for business, but also for communities and greater global concerns. Transitioning from plastic to ReadyCycle® packaging creates one more step to making our planet and communities a better and safer place to live.

ReadyCycle® was currently recognized at the 2018 Produce Marketing Association Fresh Summit by winning the Best Packaging Promo award for our 100% recyclable packaging that uses water-based coating, vegetable-based ink, design flexibility, food-grade adhesives, and has no wax or added adhesives.



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