



In pursuit of guilt-free packaging

Paul Jackson, Director, National Resource Consortium

Public outrage against single use plastic is placing positive pressure on businesses of all types to reconsider their use of plastic products. But the growing desire for greener alternatives to petroleum-based materials is at odds with the reality of currently available 'bioplastic' alternatives.

The term 'bioplastic' is being widely used to describe a diverse range of products. But what is not made clear to end users is that 'bio' refers only to a product's provenance. It gives no indication of the item's end-of-life behaviour. 'Bioplastic' can refer to materials designed to be recycled, to biodegrade, compost, or none of these. The UK is seeing a rapid rise in the popularity of compostable bio-based packaging, manufactured from plant-derived polymers, which is raising important questions.

The majority of bio-based plastics now entering our waste stream are designed to break down under industrial composting conditions. As more composting facilities extend their capabilities to include bio-based plastic, suitable treatment is increasingly available for commercial and industrial (C&I) waste. Working alongside innovators, such as Vegware, organisations are able to route their bio-based plastics appropriately.

That said, this is not without its challenges. One such issue has been highlighted by Countrystyle Recycling managing director, Chris Howard, who explains:

"We find that compostable packaging designed to certified standards can disappear completely in the composting process and is much preferable to plastic, which causes us significant costs to remove from the process. However, the onus is on the processor to verify that incoming waste complies with EN31342, or an equivalent standard, to ensure that it will break down as intended.

"To support the future sustainability of composting, we need a greater understanding across the value chain to ensure that packaging meets the necessary standards, which will help to manage processing costs and safeguard the quality of the compost end product."

Under mounting pressure from consumers to demonstrate their environmental credentials, many businesses are making the switch to compostable packaging, particularly in their catering operations. Replacing traditional plastics with compostable cups, straws, plates and cutlery is a strong PR move that wins approval from customers. Diners and shoppers go about their day with a clear conscience, comforted by the perception that their waste is more environmentally friendly.

But within the industry, we acknowledge that the vast majority of this non-recyclable bio-based material ends up in the general waste stream. Despite the increasing availability of

composting, many businesses are finding that the cost of an additional waste stream and separate composting collection is commercially unviable. Bio-based plastics are placating customers with a guilt-free quick fix while increasing general waste volume and costs, and side-stepping the urgent issue: the 9 billion tonnes of plastic already in existence.

So, what of the bio-based plastic that does make it to composting?

Compostable bio-based plastics can be processed in-vessel and are now being trialed at windrow facilities. For food-contaminated bioplastic waste, in particular, composting is undeniably the preferable treatment option. However, we must remember that bioplastics add no nutrient value to compost. As they enter the composting process, the component materials and energy value of compostable bio-based plastics are irretrievably lost. Where bioplastics are concerned, composting is not treatment, but disposal.

Compostable (and biodegradable) bio-based packaging is single-use plastic.

Founder of Simply Cups, Peter Goodwin, unpicks the dilemma: “We know that compostable packaging offers no value to commercial composters so we must ask ourselves the difficult question: can this material ever deliver sufficient end-of-life value to sustain a market for collection?”

“For instance, we can currently achieve £125 per tonne for standard PE-lined coffee cup waste, 95% of which is the highest quality fibre available. With appropriate treatment, which is becoming more widely accessible, these resources can be processed into new, useful products. By contrast, a compostable cup costs more to buy and has nothing to give back at the end of its life. It makes no sense to forcibly mould the waste industry around new, low value materials when we could be supporting established and emerging markets for recycling and reprocessing existing materials.”

With this in mind, can we currently accept compostable bio-based packaging as a desirable alternative to traditional and largely recyclable petrochemical plastics?

The use of organic by-products is one of the key marketing messages behind bio-based packaging, contrasting this with the use of fossil fuels. But we must remember that petroplastics are also a by-product; of the oil refining industry. While proponents of compostable packaging may point to the lower end-of-life emissions produced by those products when processed via composting, for example, what is not currently clear is the carbon footprint over the whole lifecycle.

Life Cycle Assessment is not a straightforward process; it takes time and complex data. But if we want to support businesses to make the most environmentally responsible decisions, it is information that we need.

WRAP’s recent report *‘Understanding plastic packaging and the language we use to describe it’* is a highly readable look at alternative plastics. According to WRAP, the extraction and production phases of bio-based plastic manufacturing are generally less carbon-heavy than the same activities producing traditional plastics.

But this is only half of the story.

It's true that bio-plastics are also lower impact when they are disposed of by energy from waste or composting (note: not by landfill). But when the value of the material is destroyed, new resources are required to continue production. This particular loop is far from closed.

Ultimately, we should be pursuing the development of recyclable bio-based plastics that harness the benefits of existing bio-plastics and processing infrastructure, produces lower CO2 emissions throughout the product lifecycle, and keep resources in circulation. But our immediate problem is that currently available bio-based packaging is creating additional waste while failing to address the challenge of existing plastic.

Compostable bio-based packaging is well intended, as it aims to move manufacturing away from a total reliance on petroleum-based polymers. But consumers and businesses are at risk of being swept away on a wave of premature enthusiasm that will leave in its wake more problems than it solves.

Is now the right time to create new materials that require specialist treatment? With those 9 billion tonnes of plastic already cluttering our planet, shouldn't we instead be working to close the loop on existing plastic?

Before we rush to create new challenges for ourselves, we should be demanding greater regulatory support to meet the market demand for high-quality resource. The UK needs better capture and segregation systems, and measures to compel manufacturers to use more recycled polymers. We fully support initiatives intended to reduce single use plastic but encourage industry colleagues - and their clients - to take a holistic view of the situation.