Welcome

The session will start shortly.

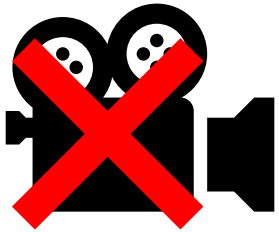
In the meantime….

We would love to know a bit more about you…

CLICK HERE

To access our welcome poll, all answers will remain anonymous and no personal data will be collected.

Before we start…



BIO PLASTICS EUROPE

Welcome

"Bioplastics are either bio-based, biodegradable, or feature both properties."

Plastics are becoming increasingly problematic.
Linear system | fossil feedstock | low re-use / recycling | environmental leakage

At the European Level:

- EU Circular Economy Action Plan
- EU Green Deal
- Bioplastics may play a crucial role
- Global market for bioplastics is growing
- By 2021, the EU will have ¼ of the worlds bioplastic production capacity

What about the UK…

BIO PLASTICS EUROPE

Agenda

WELCOME
Dr Carly Fletcher
Post-Doctoral Research Associate | Manchester Metropolitan University (MMU)

Introducing Bio-Plastics Europe
Dr Jelena Barbir
Bio-Plastics Europe Lead Project Manager | Hamburg University of Applied Sciences (HAW)

Insights from industry + Q&A
David Newman
Managing Director | Bio-based and Biodegradable Industries Association UK

Insights from waste management + Q&A
Dr Adam Read
External Affairs Director | Suez Recycling and Recovery UK

Final thoughts and close

Manchester Metropolitan University

HAW HAMBURG

BBIA BIO-BASED AND BIODEGRADABLE INDUSTRIES ASSOCIATION

suez

BIO PLASTICS EUROPE

HAW HAMBURG Coordinator

Presented by: Dr. Jelena Barbir
(Lead Project Manager)

BIO-PLASTICS EUROPE

This project has received funding from the European Union's H
BIO-PLASTICS EUROPE project website: www.bioplasticseuro

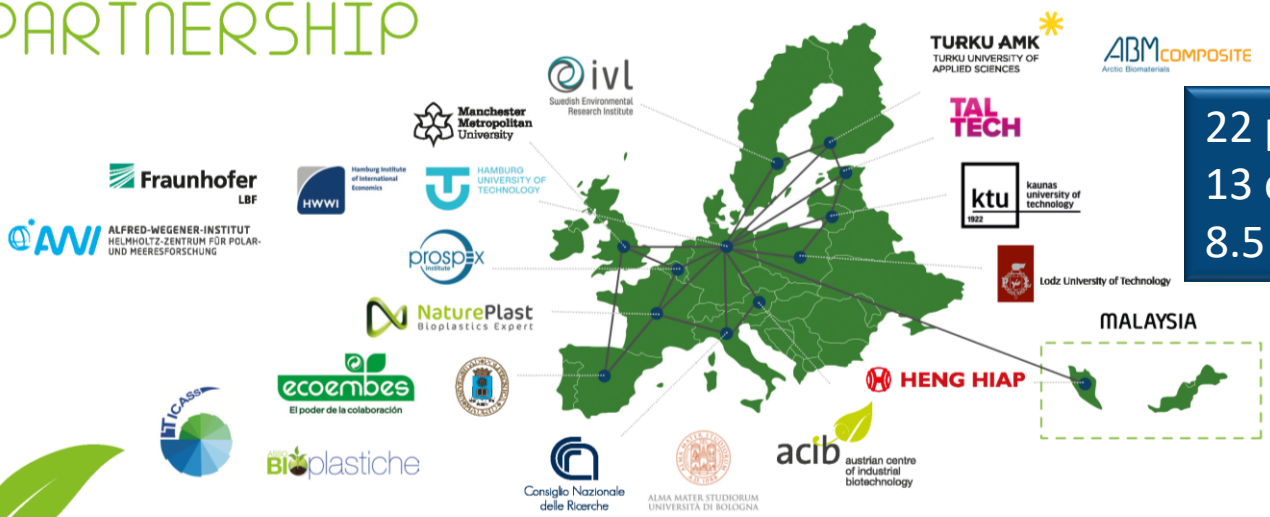
BIO-PLASTICS EUROPE

Developing and Implementing Sustainability-Based Solutions for Bio-Based Plastic Production and Use to Preserve Land and Sea Environmental Quality in Europe

October 2019 – September 2023

Project kicked-off in October 2019

PARTNERSHIP



22 partners
13 countries
8.5 million Euros

CONTACT INFO

HAMBURG UNIVERSITY OF APPLIED SCIENCES
Research and Transfer Centre „Sustainability and Climate Change Management“ (FTZ-NK)
Ulmenliet 20, 21033 Hamburg, Germany
E-mail: bioplastics@ls.haw-hamburg.de, www.bioplasticseurope.eu

SCAN ME

CO2 NEUTRAL DE201680959X01 by flyeralarm

BIO PLASTICS EUROPE

The main objective:

To develop sustainable strategies and solutions for bio-based plastic products, as well as the to develop approaches focused on circular innovation for the whole bioplastics system. These may be deployed to support policy-making, innovation and technology transfer.

WP1: Ethics

WP2: Project Management

WP3: Identification and tests of innovative product design

WP4: Plastic waste collection, recycling, and littering

WP5: Pre-normative research and field tests

WP6: Bio-based plastic safety components

WP7: Replication, policy-making, capacity-building and upscaling

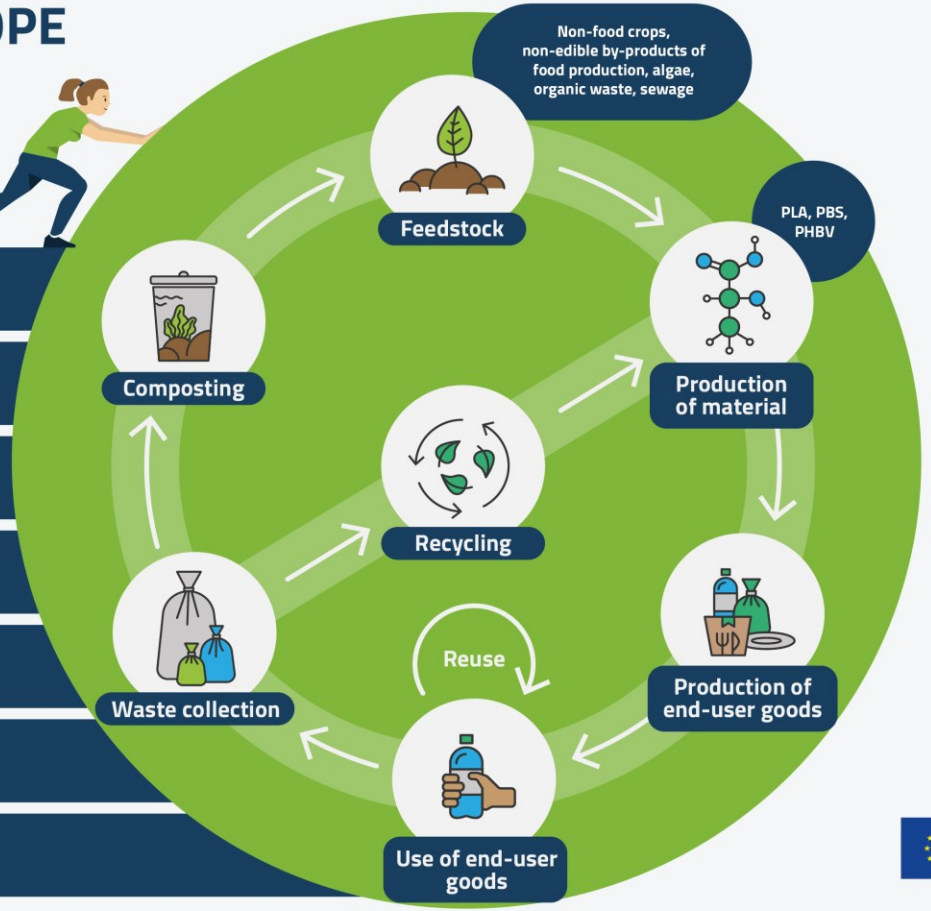
WP8: Environmental and economic assessments of product life cycles and business models

WP9: Information, communication and dissemination of the results

BIO-PLASTICS EUROPE

Pushes towards circular economy

- **WP3** Identification and test of innovative product design
- **WP4** Plastic waste collection, recycling and littering
- **WP5** Prenormative research and field tests
- **WP6** Health and environmental safety
- **WP7** Replication, policy-making, capacity-building and upscaling
- **WP8** Life cycle assessment environmental and economic
- **WP9** Information, communication, and dissemination of results



HAW HAMBURG

EXPECTED RESULTS

FOCUS
Cutlery, Soft and Rigid Packaging,

Agricultural Mulch Film, Toys and Aquatic Materials

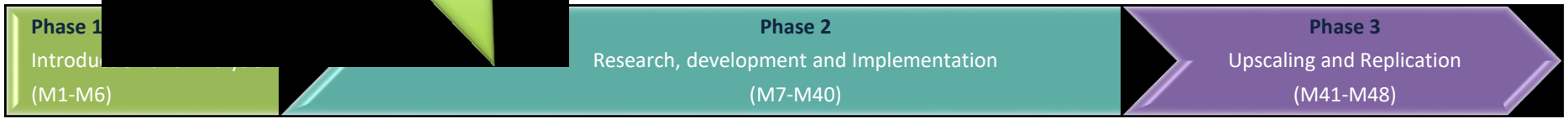
INNOVATIVE MATERIALS
to foster and encourage deployment of innovative bio-based and biodegradable materials

STAKEHOLDERS ENGAGEMENT
to ensure strong commitment of producers, politicians, industrial and private consumers

BUSINESS MODELS
to experiment with innovative business models by incorporating circularity and sustainability
to maximize the value of materials along the entire value chain

SAFETY PROTOCOLS
to ensure the safe use and end-of-life management on innovative bio-based plastics

Where we stand now….



Within the BIO-PLASTICS EUROPE project, the following end-products are experimented:

- **PACKAGING (rigid and flexible)**
- **TOYS**
- **AGRICULTURAL MULCH FILM**
- **CUTLERY**
- **AQUATIC MATERIALS: geo-membrane, fishing baits, fishing cradles**

First group of 5 materials developed

5 MATERIALS:
The materials under investigation are:

1. **BPE-FP-PBS**
2. **BPE-RP-PLA**
3. **BPE-T-PHBV**
4. **BPE-AMF-PLA**
5. **BPE-C-PLA**

From this list mainly PLA is already commercially in use and well available according to very recent application notes from various companies.

SENT FOR LABORATORY AND FIELD TESTS

- **Samples prepared-received**
- **Test Protocols finished**
- **Tests started 1st of September**
- **First preliminary results obtained**

MODIFICATION of the materials after 1st round tests

2nd round of TESTS

Besides focusing on research….

STAKEHOLDER ENGAGEMENT

12 ONLINE STAKEHOLDER PROMOTION EVENTS

September – December 2020

PROMOTE PROJECT CLUSTER stakeholders FUTURE INVOLMENT

BIO PLASTICS EUROPE

NETWORKS

2nd event
4th of
November

LinkedIn: over 230 members
Preparing events
Foster communication
Share experience

Connect cities
Preparing events
Exchange experience
Offer solutions

2nd event
15th of
December

BIO PLASTICS EUROPE

HAMBURG UNIVERSITY OF APPLIED SCIENCES

Research + Transfer Centre „Sustainability & Climate Change Management“ (FTZ-NK)
Ulmenliet 20 / 21033 Hamburg / Germany
T +49 40 428 75 6362 (Mon - Fri 8AM-3PM)
Email: bioplastics@ls.haw-hamburg.de
Website: https://bioplasticseurope.eu/

HAW Hamburg

Horizon 2020

BIOPLASTIC SEMINAR

November 25th , 2020

Manchester Metropolitan University

- David Newman
- Managing Director BBIA UK ->2015
- President World Biogas Association -> 2016
- Past President ISWA 2012-2016
- Advisor to Minister of Environment Italy 2013-2014
- Managing Director Italian Compost Association 2003-2014
- Managing Director Italian Bioplastics Association 2010-2015

We are in a time of great transition, everywhere. Transition takes time.

To get a system that is stable and flowing, we need time and need to understand the variables to get the cogs and wheels turning together.

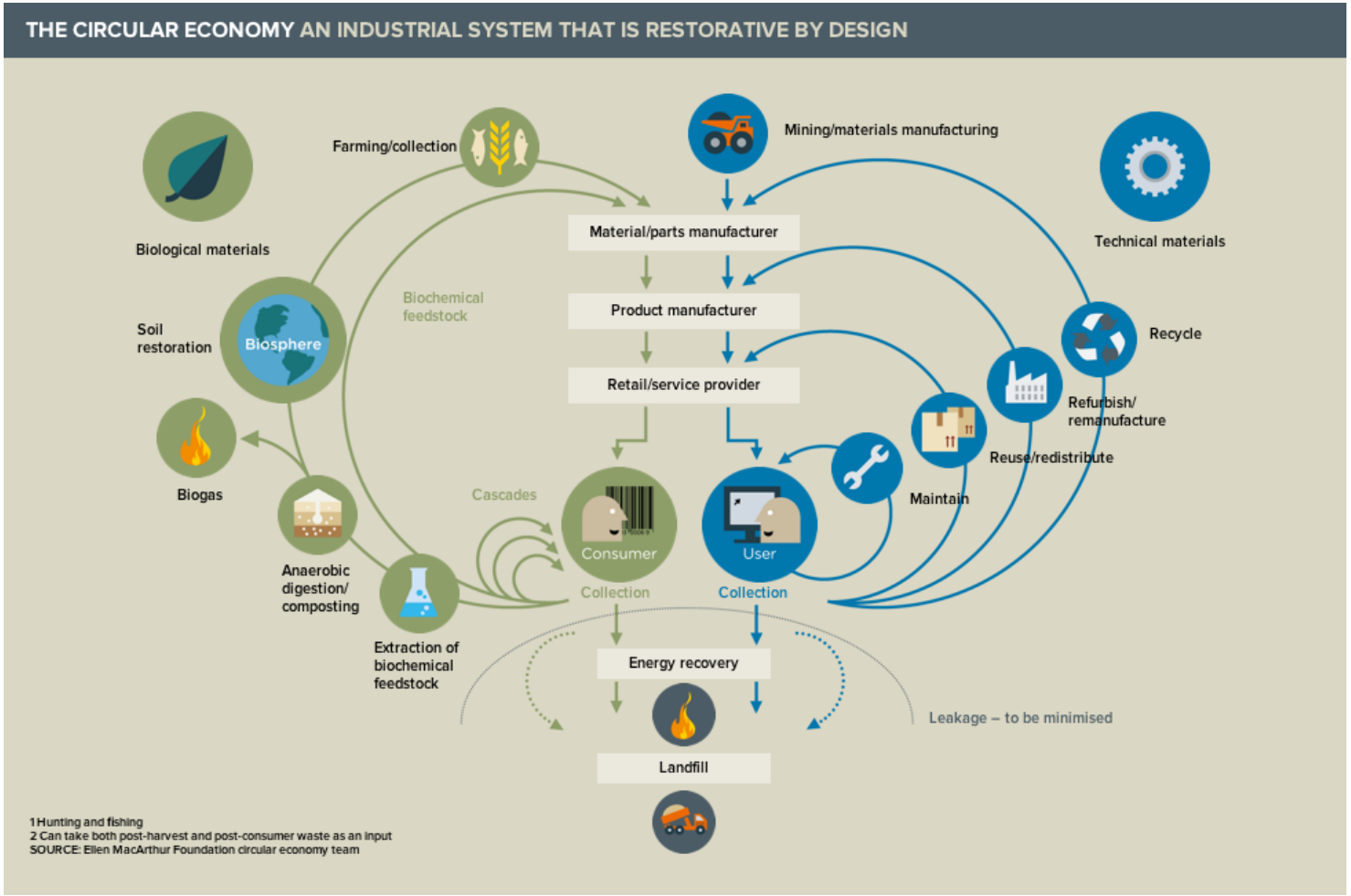
Confusion is normal during transition.

Confusion slows change and is often a deliberate strategy.

We need to sort out our ideas.

Where do we want to go ?

Not sexy, hard to understand because we are not farmers any more,
but this is where life and food comes from



Sexy, nuts and bolts, like Lego, easy to understand because we are live in cities -
but not life sustaining

The biosphere is our sphere.
It is the sphere of life support systems, health, food, water and air.
Natural Capital.

Mechanical systems, mechanical recycling and plastics

DO NOT FIT INTO THE BIOSPHERE

Biosystems, organic recycling and bioplastics

DO NOT FIT INTO THE MECHANOSPHERE

The two are separate,

BUT THE BIOSPHERE IS MORE IMPORTANT

The biosphere feeds us, mechanical recycling of plastics does not.

What we put into the Biosphere has to mimic Nature.

One example of this nexus is the collection and treatment of food waste post 2023.

Urbanisation broke the bond between Man and the Biosphere

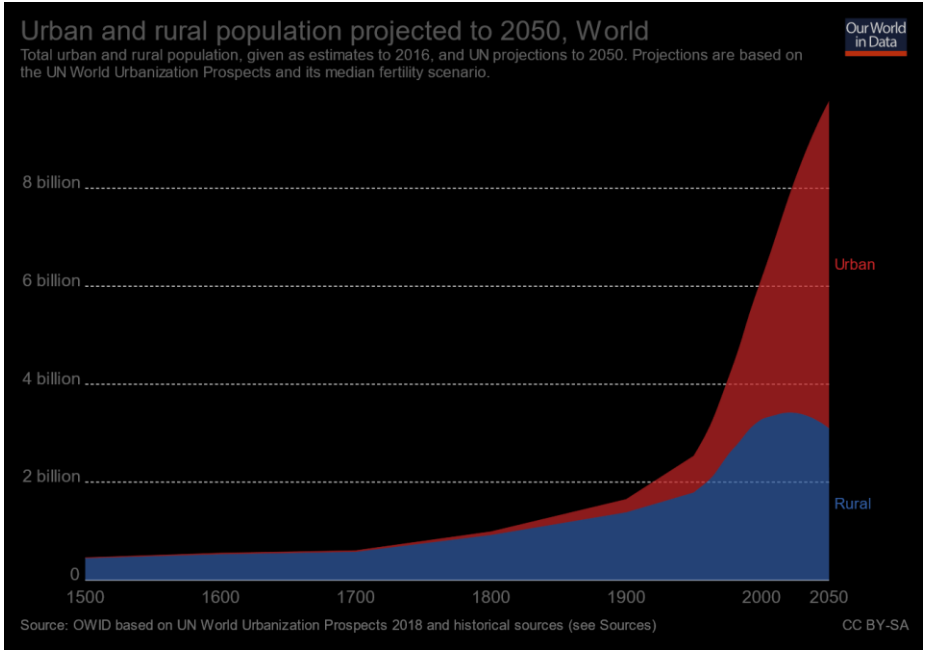
Our biowaste is now mostly in cities and does not go back to the Biosphere.

As populations urbanised so material flows became linear.

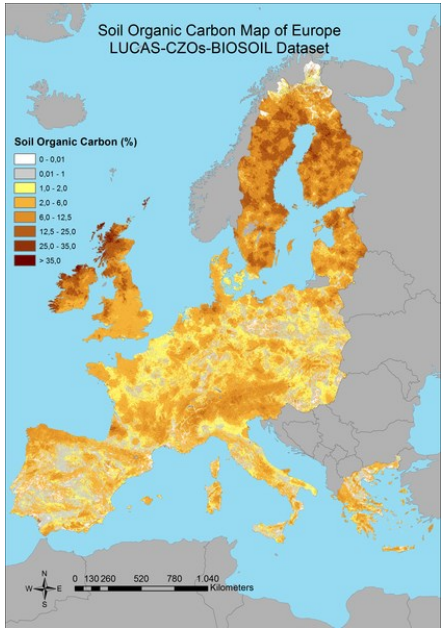
Materials and products entered cities where they were consumed and the wastes remained there.

So we landfilled, incinerated and tried lately to recycle some of these materials.

But we get very little back to the Biosphere and when we do, we bring other wastes with it.



Returning biowaste from cities to the biosphere is our major challenge and opportunity



The challenges

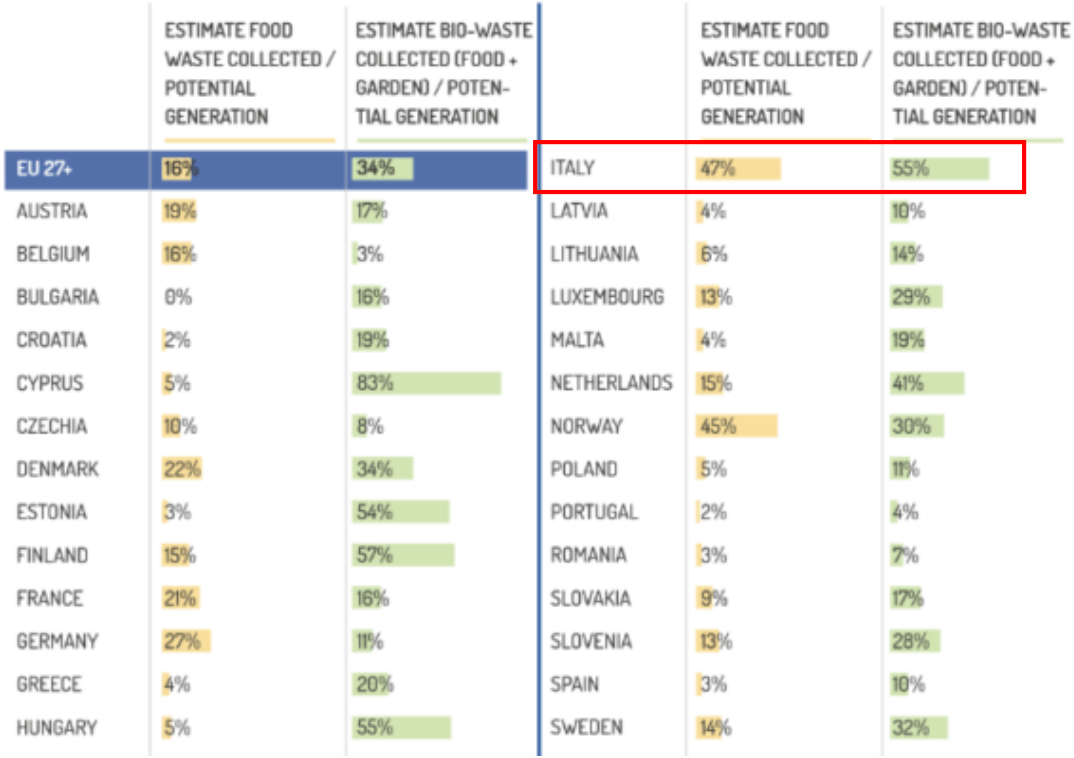
- We are losing circa 15m tons/year topsoil from crop harvesting
- EU sends 50m tons of food waste to incineration and landfill instead of into treatment. This contributes to climate change emissions.

The opportunities

- By treating food waste, we can generate biogas, biomethane, compost, organic carbon, digestate and extracted CO_2
- We can meet targets to reduce GHG emissions, produce renewable energy, return nutrients to soil, restore the soil to soil loop that urbanisation has broken.

However, to nurture and restore the Biosphere we need clean feedstocks

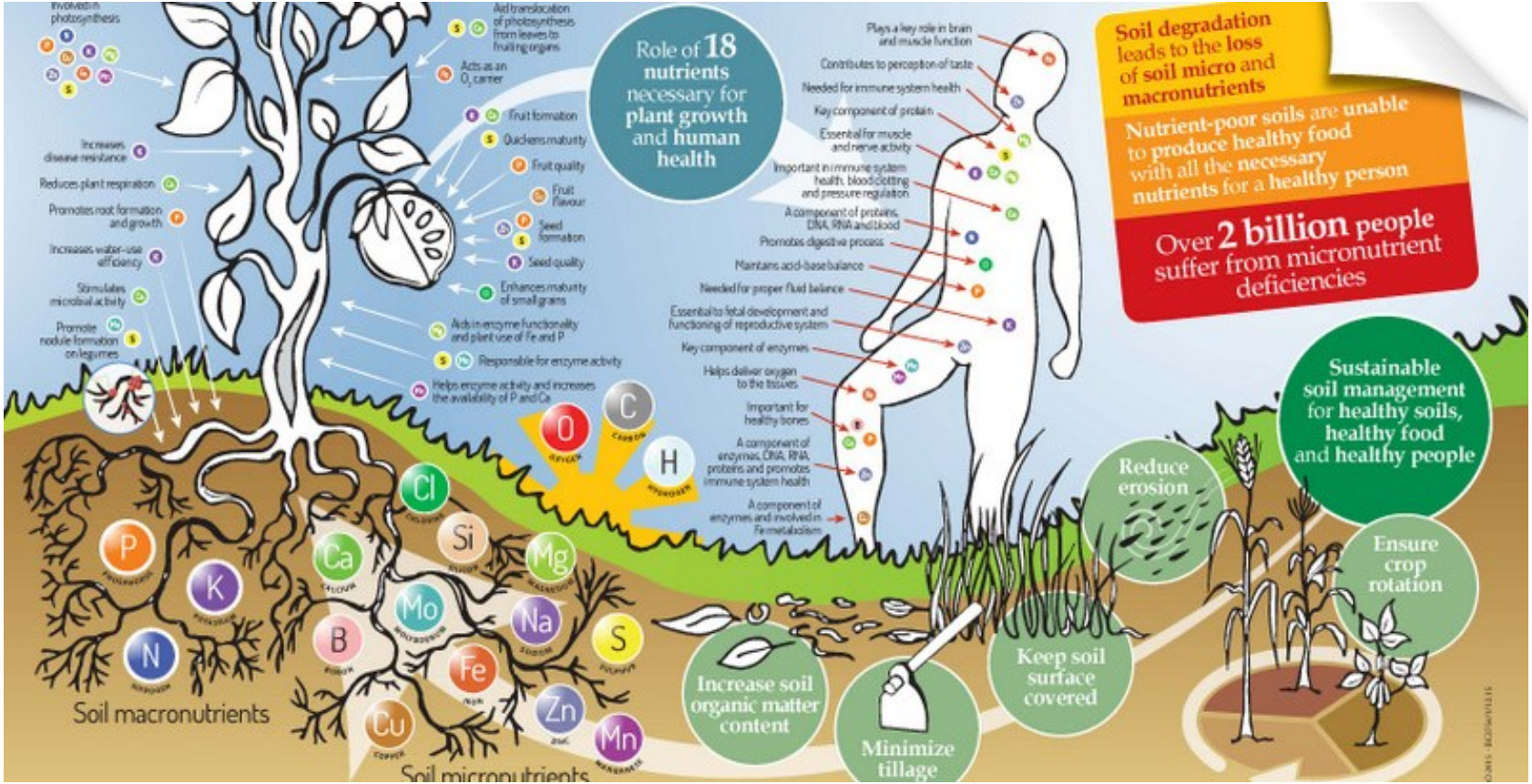
There is a huge amount of biowaste to treat- ZWE/BIC July 2020



	ESTIMATE FOOD WASTE COLLECTED / POTENTIAL GENERATION	ESTIMATE BIO-WASTE COLLECTED (FOOD + GARDEN) / POTENTIAL GENERATION
EU 27+	16%	34%
AUSTRIA	19%	17%
BELGIUM	16%	3%
BULGARIA	0%	16%
CROATIA	2%	19%
CYPRUS	5%	83%
CZECHIA	10%	8%
DENMARK	22%	34%
ESTONIA	3%	54%
FINLAND	15%	57%
FRANCE	21%	16%
GERMANY	27%	11%
GREECE	4%	20%
HUNGARY	5%	55%
ITALY	47%	55%
LATVIA	4%	10%
LITHUANIA	6%	14%
LUXEMBOURG	13%	29%
MALTA	4%	19%
NETHERLANDS	15%	41%
NORWAY	45%	30%
POLAND	5%	11%
PORTUGAL	2%	4%
ROMANIA	3%	7%
SLOVAKIA	9%	17%
SLOVENIA	13%	28%
SPAIN	3%	10%
SWEDEN	14%	32%

The report shows that biowaste management remains an untapped potential for the European Union to further transition to a Circular Economy. Only 16% of the potential is currently captured and, through proper initiatives, this number could be multiplied by 5 so as to reach 85%. This shows the need for the EU and Members States to **maintain and strengthen their effort in biowaste collection and treatment as key steps towards soil regeneration, circularity and climate neutrality**

Healthy soils, healthy food, healthy Mankind, healthy Planet



A role for innovative packaging- nourishing the biosphere

- Food waste collections mandated through the UK/EU by 2023
- How to get the food waste to treatment and soil without plastic contamination ?
- How to ensure the long term productivity of farming without pollution from plastics, chemicals and top soil loss ?
- Packaging can fit into this nexus and play a role if it is compatible with the processes and soil quality.

So the materials we use to get biowaste back to soil MUST mimic Nature, they must be compatible with soils.

They are lubricants for replenishing soil with organic carbon.

- Ask yourselves one simple question: how are we going to get 50 million tons of biowaste back to soil cleanly, without plastic pollution?
- We need materials that can mimic Nature and guarantee this process
- These are the materials known as compostable. They do not harm soil.
- This is the role of these materials, not to enter the Mechanosphere, but to mimic Nature and return to the Biosphere bringing with them biowaste.

Remember this number: 2%

2% of plastic packaging will be compostable because it is needed to collect and return biowaste to treatment and back to soil without plastic contamination.

The amount of compostable packaging needed to get food/garden waste cleanly to treatment and back to soil is a ratio of 1: 50

1000 kilos of food waste = 20 kilos of biobags, shoppers, F&V bags, teabags, coffee pods, wrappers etc containing that biowaste.

The environmental problem compostables avoid

Spanish food waste collections, 22% plastic contamination

Photo from the England Environment Agency
10%+ plastic contamination

The environmental problem compostables avoid

AD and compost plants already extract **99.5%** of plastics from contaminated food waste. They do a fantastic job but they should not have to. They are biowaste plants, not plastic waste plants.

But as more plastics enter the system, the more difficult it will be to extract them.

Plastics are going to soil.

Studies from the UK Environment Agency, EEA, Bayreuth University Germany, already show worrying levels of plastic contaminating farmlands, more than to the oceans.

Some of this derives from compost and digestate.

Where compostable packaging plays the role of lubricant to biowaste treatment

KEY POTENTIAL APPLICATIONS

Firstly, consider if the packaging/item is needed at all.

Flexible packaging likely to be food contaminated could be particularly useful as well as the following applications, provided the appropriate design, labelling and treatment infrastructure are in place.

FOOD CADDY LINERS

and other bags such as compostable carrier bags or fruit and veg bags that could be used as food caddy liners.

FRUIT AND VEG STICKERS

It is particularly beneficial for stickers to be compostable in cases where the skin is unlikely to be eaten.

TEA BAGS

packaging labels should clear
advise consumers to dispose
in their food waste caddy.

COFFEE PODS

(where there is clear labelling and clearly distinguishable from conventional pods)

READY MEAL TRAYS

where they will be food contaminated.

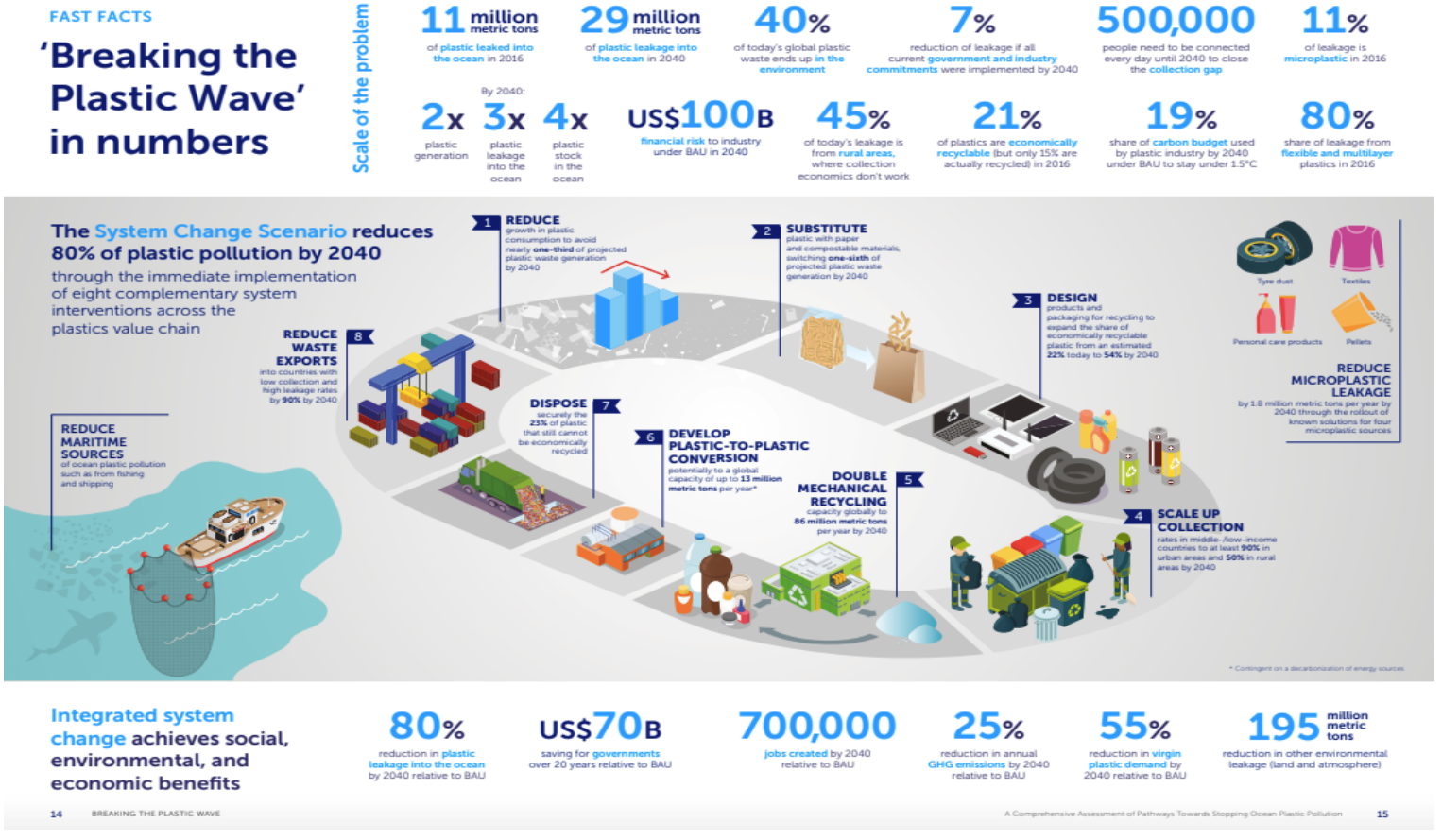
CLOSED LOOP SITUATIONS

for example at festivals, within
individual buildings or coffee
Key to success is the control
other materials to ensure tha
is no contamination of the org
collection points, which would
then condemn all of it for disp
Reusable alternatives should
be prioritised where possible
crockery and cutlery that can
washed and reused.

The UK Plastic Pact, use compostable materials where they make sense- that is where food waste is involved

Compostables fit here

Further, compostable materials can contribute to reduce plastic waste



We misallocate our spending and privilege the Mechanosphere

Subsidies to fossil fuels therefore also to plastics

Subsidies to energy production therefore also against material recovery eg incineration in many countries.

Subsidies to farmers to use chemical fertilisers, therefore to assist soil degradation

No subsidies to (for example) saving our soils from erosion

No subsidies to (for example) using organic carbon to soil

No subsidies to the biocycle beyond biogas (energy again)

The Circular Economy has a cost, *it is not for free,* but it is still cheaper to be linear

And the policy consideration for the biocycle does not valorise it

A brighter future ? We need some urgent rethinking

We need to much more vocal to support the restoration of the biosphere.

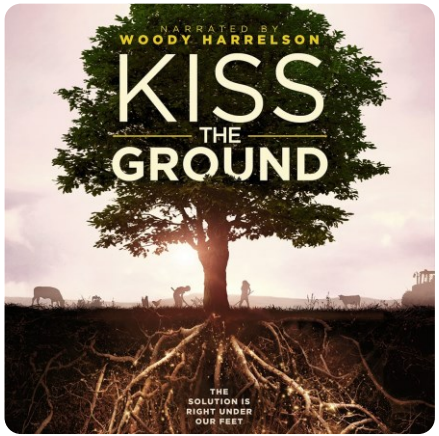
As a brand or packaging expert, decide where you want to be by (say) 2025. Do you want plastics to go into the Mechanosphere ? Or do you want to enhance biowaste returning to the Biosphere ? Both choices are legitimate as long as you see them through and the collection/treatment systems work.

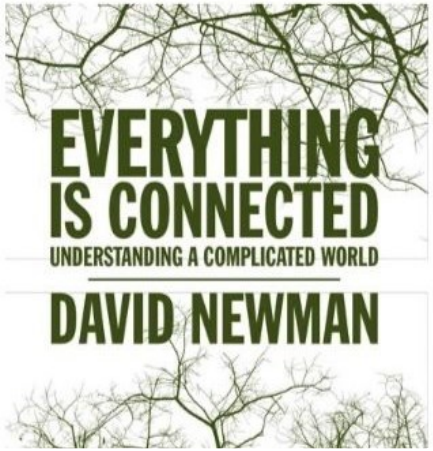
Currently they do not, for either.

Confusion helps the status quo. Get real and focus before it is too late. Plastic recycling is a scam to convince us to keep consuming it. Move on, realise this and stop playing with Lego, we're adults.

When you look at compostables, look at restorative systems for soil not the materials which are simply a function of the system. This is where materials from projects like compostables fit in. Food waste + packaging = composting.

China made the use of compostables a national legal obligation from 2021. Why ? Because it has began to understand the biocycle and has seen the failure of plastic recycling. We have not yet understood this.





https://kisstheground.com/

https://www.systemiq.earth/breakingtheplasticwave/

https://www.amazon.com/dp/B08GGCSHHL

David Newman

dn@bbia.org.uk

www.bbia.org.uk

What may limit or foster uptake of bio-based plastics within the UK?

Dr Adam D Read

Director of External Affairs

SUEZ recycling and recovery UK

IS BIOPLASTIC A GOOD IDEA?

Today = No!

Next 5 years = Probably!

Longer term = Almost Definitely!!!

TODAY

- **Our system?**
- **Design / Operational Parameters?**
- **The user interface?**

Confusion

Digestable
Compostable
Degradable
Bio

contamination

- CLARITY ON MATERIALS
- CLARITY ON LABELLING
- CLARITY ON BINS
- CLARITY ON END MARKETS

Getting it right …

MRFs are designed with target materials in mind (common packaging)

So where do bio-polymers fit?

The majority of current systems are designed to recognise different materials by sorting by colour and density

If a compostable plastic bottle looks and feel like a traditional PET bottle, a recycling system will think that it is a PET bottle

Just a small amount of compostable material can contaminate standard plastic recycling streams

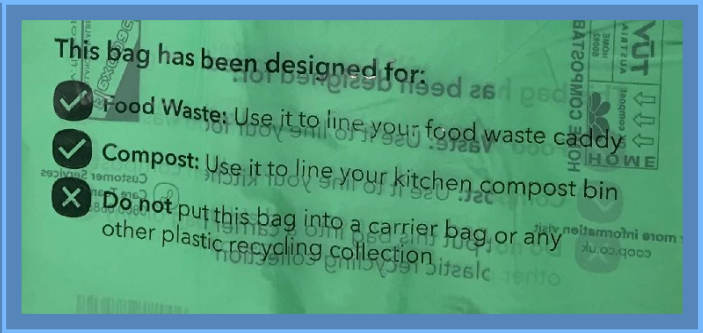
Leading to the waste of huge quantities of recyclable material

Which bin should it go in?

1. Recycling
2. Food Waste
3. Residual

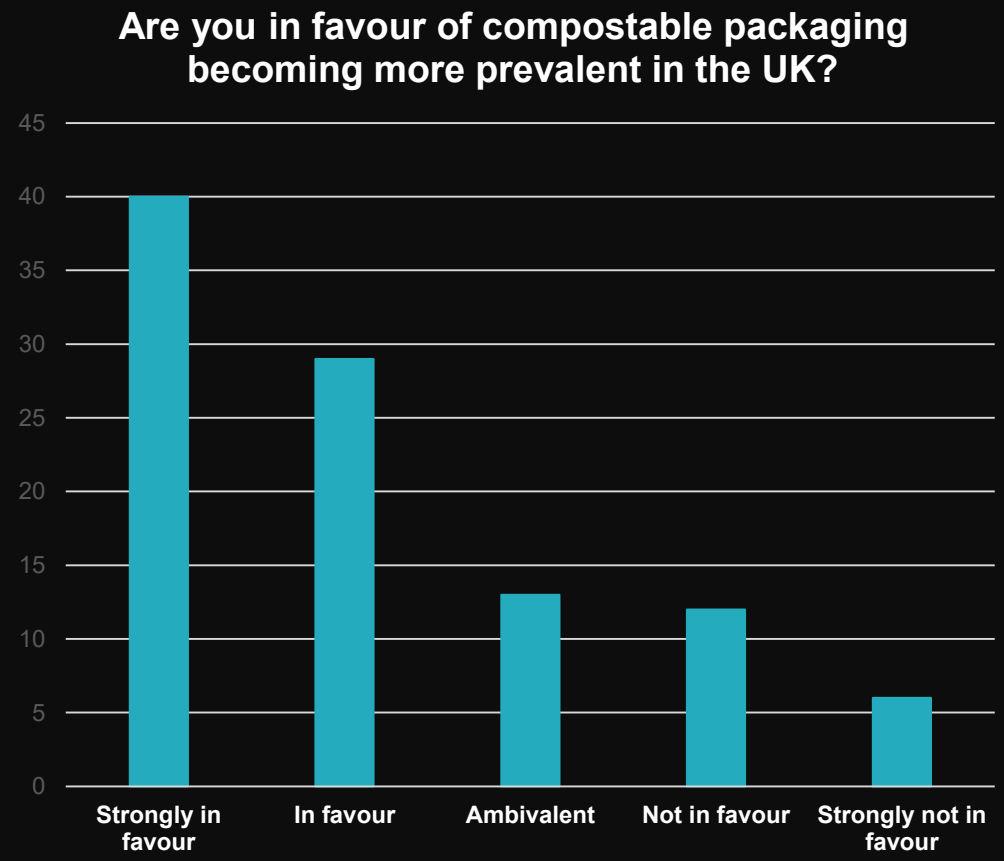
MOVING FORWARD

Labelling is key ….

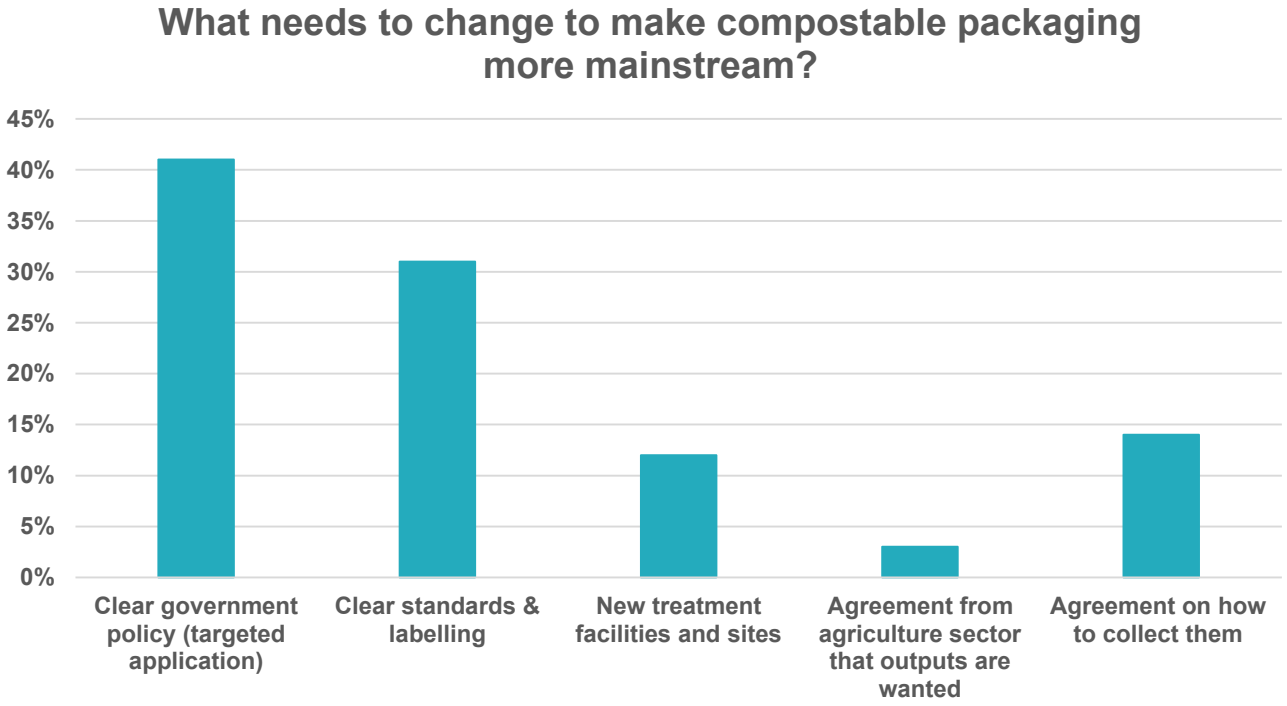


Recent CIWM webinar on compostable packaging

‘problem & opportunity’



What is needed?

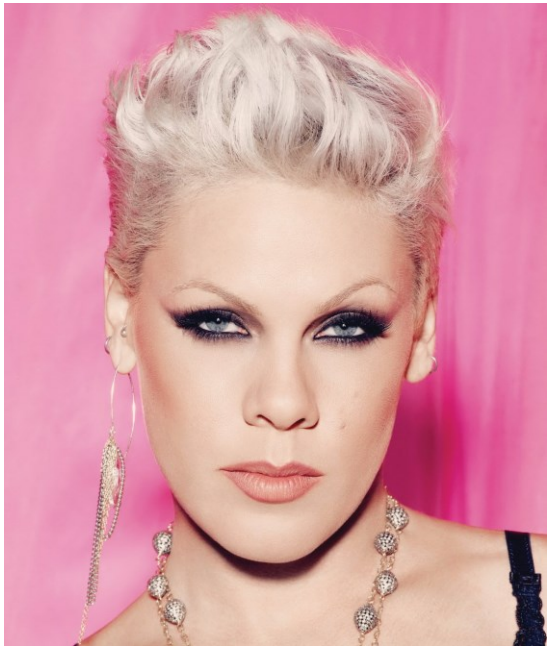


WRAP GUIDANCE

CONSIDERATIONS FOR COMPOSTABLE PLASTIC PACKAGING

HTTPS://WWW.WRAP.ORG.UK/SITES/FILES/WRAP/CONSIDERATIONS-FOR-COMPOSTABLE-PLASTIC-PACKAGING.PDF

Keep it simple!



Lets go pink!

But only if we have a clear set of agreed standards

Then we can pick it out as contamination

And we can track as it becomes more prevalent = trigger point for system design change…..

Mandated Food Waste Collections

Is this the trigger point?

From 2023 every household & business will get a weekly collection ….

An obvious window for food contact bio-polymers

New outlets (AD / IVC) will be coming on line & designed with these new feedstocks in mind …..

opportunities

- **HEAVILY SOILED POTS, TUBS, AND TRAYS**
- **FLEXIBLE FOOD CONTACT PACKAGING (CRISP PACKETS / FILMS)**
- **ITEMS DESTINED FOR THE COMPOST (TEA BAGS ETC.)**
- **COFFEE PODS**
- **DISPOSABLE ITEMS IN CLOSED-LOOP SYSTEMS (FESTIVALS ETC.)**

The UK Research and Innovation (UKRI) has awarded £8 million of funding to ten university-led research projects that aim to tackle plastic waste in the UK

University College London
Compostable plastics: unlocking existing barriers to systems change

Loughborough University
Perpetual Plastic for Food to Go (PPFTG)

University of Strathclyde
Biocomposite design for food packaging

Any questions?

Prof. Adam Read
External Affairs Director
SUEZ recycling & recovery UK

+44 (0)7973 863 979
adam.read@suez.com
@Adam Read74

Final thoughts…

- Opportunities for the UK market regarding bio-based and biodegradable plastics.
- Number of barriers that need addressing.
- There is a need for systems-level thinking and joined-up action.

Meeting close

Let us know what you think – CLICK HERE

Look out for a post-event email

Thank you to our speakers and participants for joining us today.

BIO PLASTICS EUROPE