

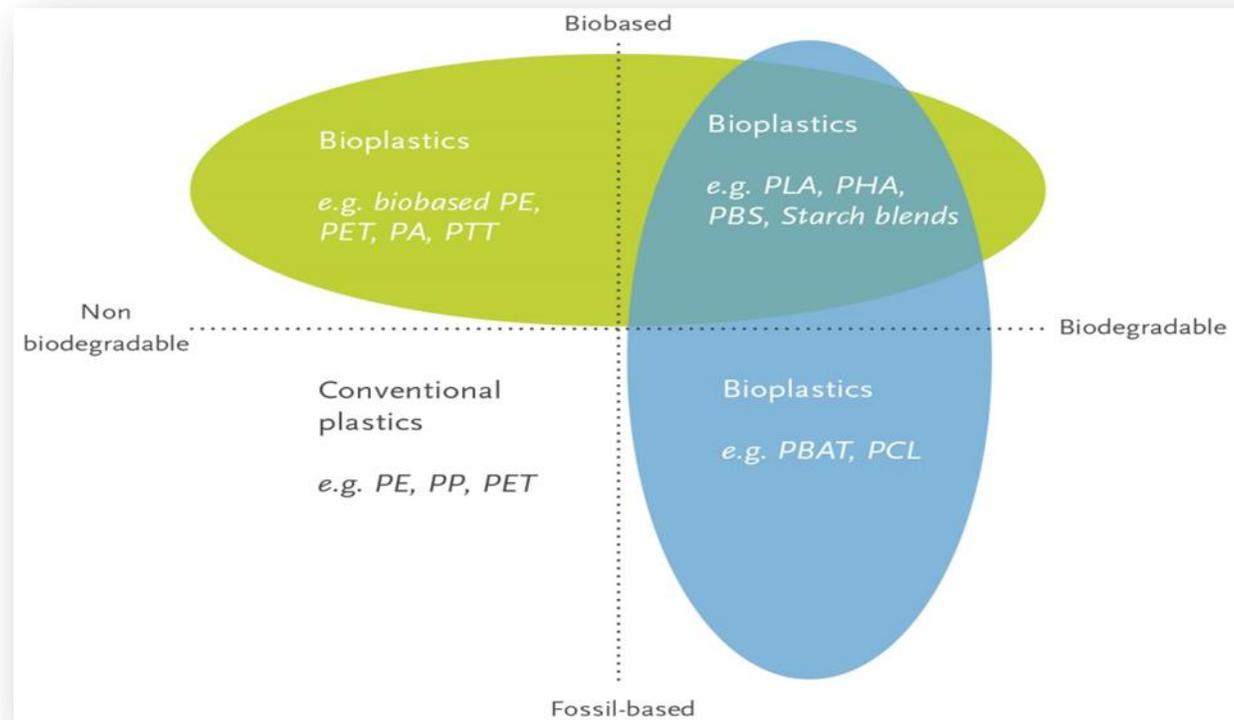
A large, stylized logo for BBIA (Bio-based and Biodegradable Industries Association) is centered in the background. The letters 'B', 'B', and 'I' are rendered in a light green color with a white outline, while the 'A' is a solid medium green. The letters are bold and blocky.

David Newman
Managing Director
BBIA
Finland August 2018

Subject of today's presentation

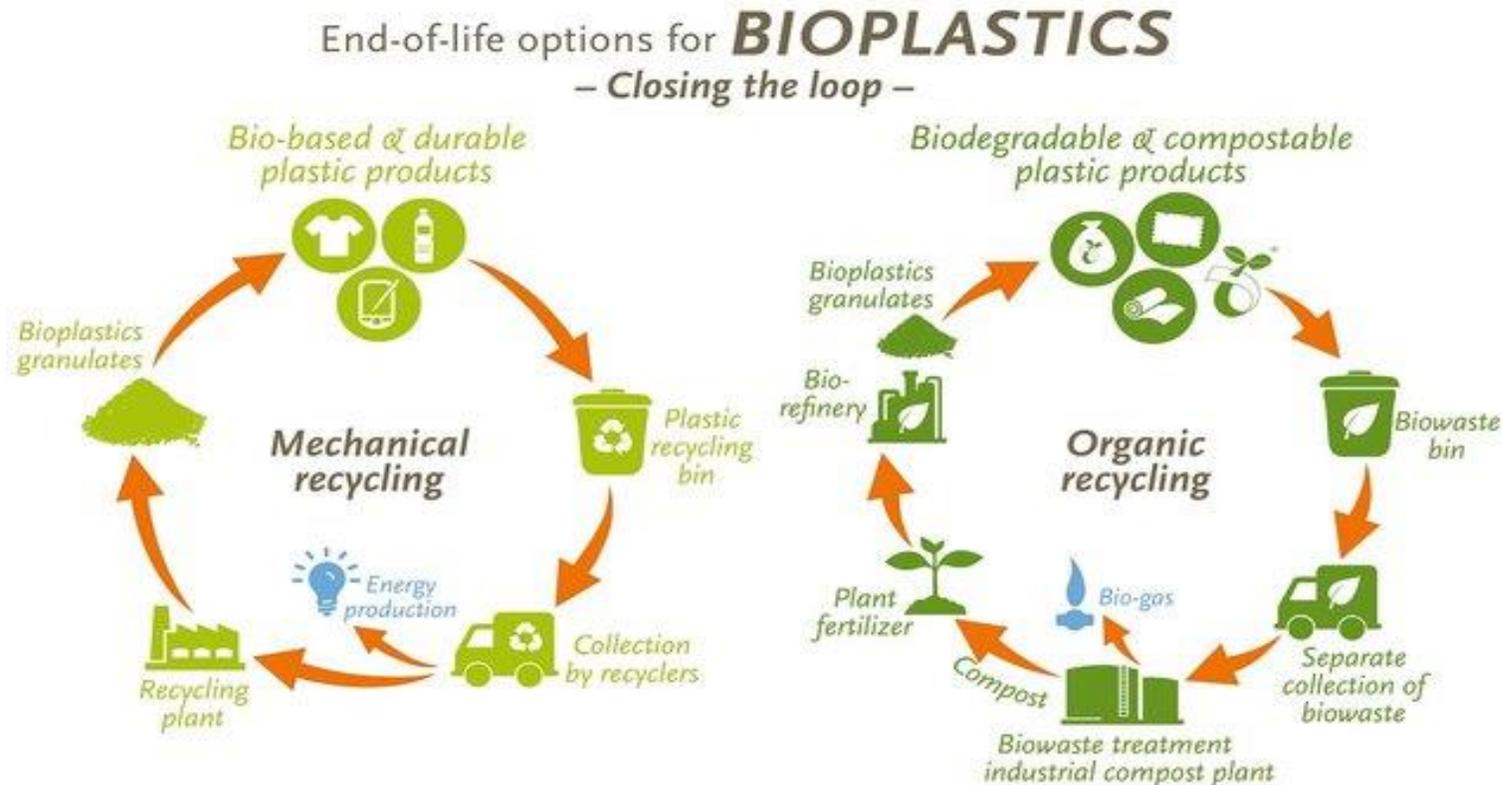
- What are bioplastics and what is their role ?
- What are NOT bioplastics ?
- What bioplastics do not claim to do
- Uses of bioplastics in packaging
- Standards (EN13432)
- Composting
- Knowledge gaps

- *Bioplastics are about end of life processes as much as the feedstock they are made with*
- Bioplastics can be biodegradable and compostable after use (meeting strict norms such as EN13432, ASTM D6400...) STANDARDS ARE ESSENTIAL TO DEFINE THE PRODUCTS END OF LIFE
- Bioplastics can also be totally non compostable and function as drop – ins for conventional plastics



The roles of bioplastics are

1. to make certain types of recovery and recycling easier and raise very low plastics recycling levels
2. to reduce use of fossil fuels in the production using renewable sources
3. to increase and improve food waste collections reducing plastics pollution

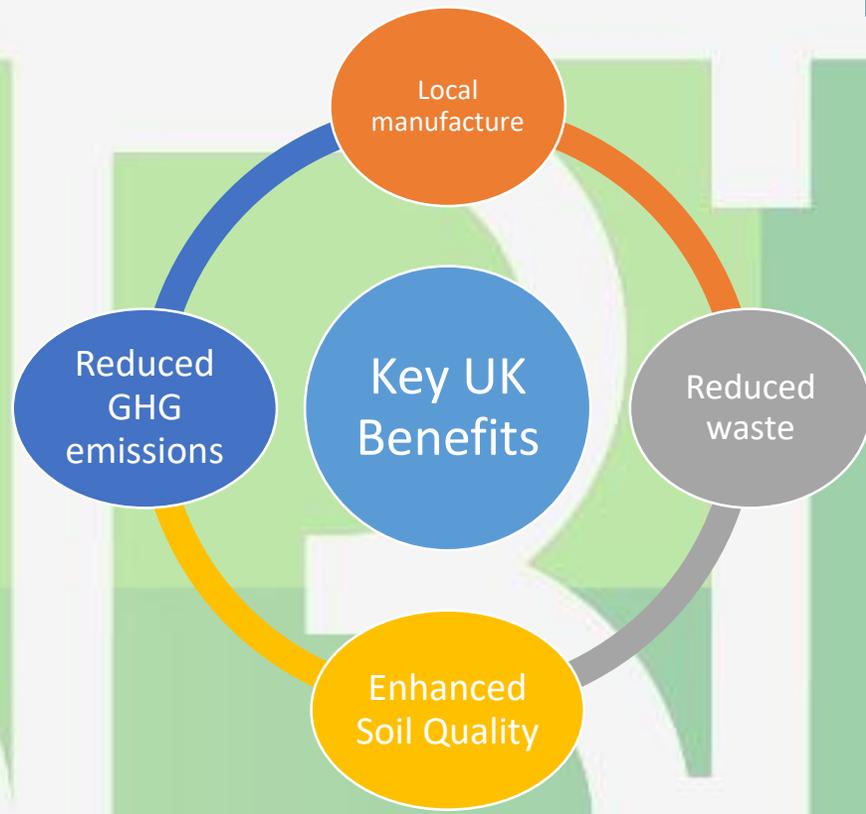
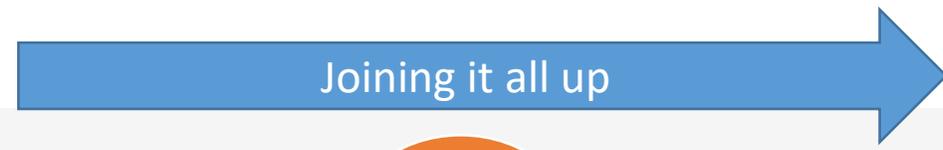




Opportunity: A plastic free aisle. Compostables replacing the non-recyclable plastics



Returns organic carbon and nutrients to soil; resilient UK farming to produce food



Compostable packaging- easy to recycle, made in UK



Collected with food waste



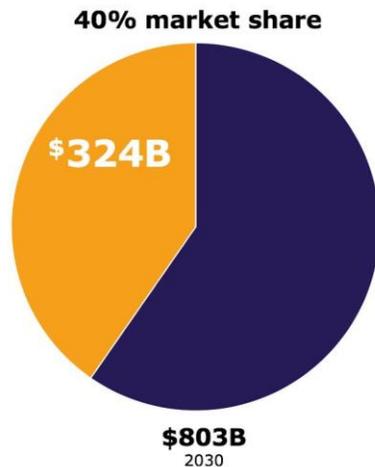
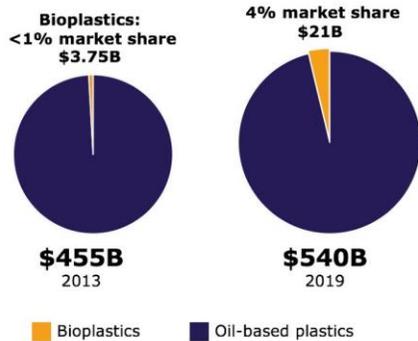
Is industrially composted in the UK Can produce renewable biogas

But a word of warning....we have to contextualise

Optimistic outlook

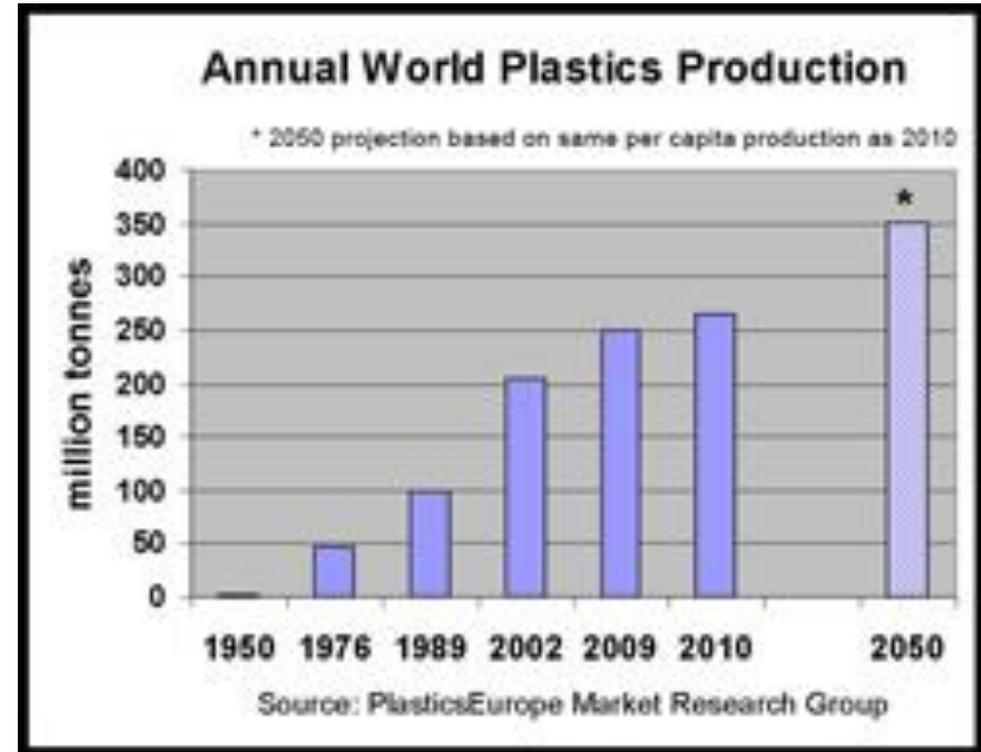
GLOBAL PLASTICS MARKET

- Bioplastic market expected to grow at **30% CAGR 2013-2030**
- Traditional plastics expected to grow 3% annually



Source: Grand View Research 2014, European Bioplastics 2013, BCC Research 2014, Nexant Inc. 2012

The harsh reality- these figures may be an understatement



What are not bioplastics ?

Bioplastics have nothing to do with oxo-degradable plastics.

EUROPEAN COMMISSION Brussels, 16.1.2018 COM(2018) 35 final REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the impact of the use of oxo-degradable plastic, including oxo-degradable plastic carrier bags, on the environment

Concludes:

...EU wide measures should be considered. Therefore, in the context of the European plastics strategy, a process to restrict the use of oxo-plastics in the EU will be started.

BIOPLASTICS NEED TO BE DEFINED BY STANDARDS OTHERWISE WE HAVE NO MEANS OF REALLY MEASURING THEIR EFFECTIVE END OF LIFE

What bioplastics cannot do and do not claim to do- solve littering



Litter is a societal problem that needs to be tackled through:

Education

Waste Management Infrastructure

Financial Resources especially in 3rd World

Penalties

MATERIALS ARE NOT DESIGNED TO SAVE THE WORLD'S OCEANS

(although we have many members researching marine degradable materials we are not there yet, no standards, no common methodologies- time, depth, temperature)

It's a car, would it win a Formula 1 race ?



Role of bioplastics in food packaging

Why food ?

1. Short shelf life for fresh products
2. Contaminates packaging with food
3. Lightweight (normally) impossible to recycle
4. Plastics recycling in the UK only 9% - compostables can raise this
5. Can be collected together and recycled organically (composting)
6. Hard to separate out from other materials if comingled
7. Food waste heavily contaminated by plastics going to soil and water
8. We are losing topsoil at the rate of 3 mn tonnes a year

Policy drivers in the EU and the UK

- food waste collections to be obligatory across the EU by end 2023
- Recycling calculation to change from «collected for» to «final treatment point». UK actually has around 32% recycling with new calculation methodology, not 44%
- Recycling target to be 55% by 2025, 60% by 2030, 65% by 2035. We have giant steps to make in six years
- Plastics recycling target 55% in 2030, currently “collected for” = 34%, effectively recycled in the UK 9%
- Fertiliser Regulation being finalised.
- Bioeconomy Strategy being renewed

100% reusable, recyclable or compostable plastic packaging by 2025

follow their lead



BBIA is signatory to the Plastic Pact which sees compostables as part of the solution

Valid applications – compostables suitable for organic recycling



THESE COMPOSTABLE PLASTICS ARE DESIGNED TO COMPOST,
THE STANDARD IN EU IS THE EN 13432

Key indicators of the EN13432

The material must be able to decompose naturally in the presence of micro-bacteria to at least 90% of its volume in 180 days in an industrial composting facility (the 10% represents loss of moisture mostly)

The material needs to be non toxic to soil and plant life.

The product has to undergo eco-toxicological tests including on the materials, adhesives, inks.

Tests are undertaken in lab and field tests

Also available for use as biodegradable soil mulch



Plastic Film Covering 12% of China's Farmland Pollutes Soil

Bloomberg News 5 September 2017, 22:00

Plastics in agriculture: entry point for carcinogens to food chain

Fragments of plastic film have been shown to release potentially carcinogenic substances into soil

<https://www.downtoearth.org.in/blog/plastics-in-agriculture-entry-point-for-carcinogens-to-food-chain-60778>



Looks the same but is made from BASF ecovio biodegradable plastic, new EU standard EN17033 to certify biodegradability and is approved under the new Fertiliser Regulation as an acceptable component of soil fertilising inputs. BUT it costs more !

Composting, just in case you don't know...

1. Recognised under EU law as organic recycling, any material recycled here counts towards recycling targets
2. Aerobic process, 90/180 days normal time
3. Food waste is treated in vessel (closed containers) to avoid odour issues
4. The key to greater recovery of food waste and use of compostables is to extend food waste collection across households and businesses



ENVAR composting, Huntington

105,000 tonnes green and food waste treated annually

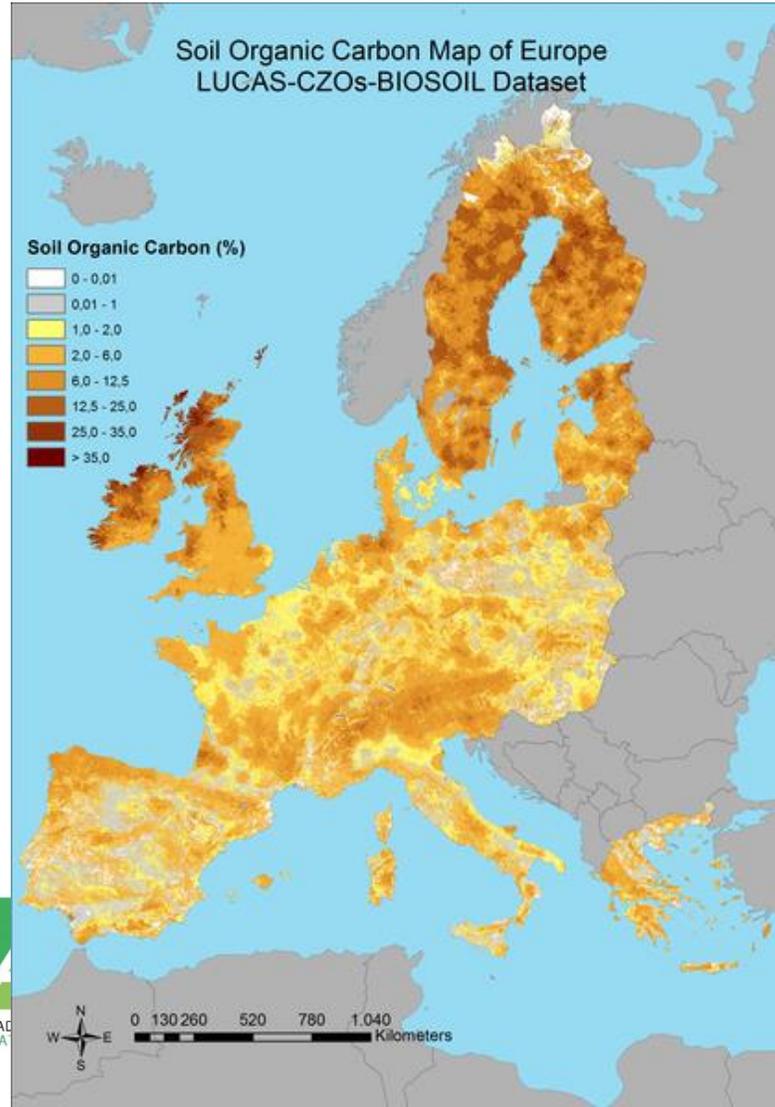
Compostable packaging accepted

Major contamination from plastic waste #1 problem

Several AD as well as 53 compost plants nationally accept bioplastic packaging

We need to collect, treat and manage food waste.

This is the challenge. This is also the opportunity.



We are losing 3 million tonnes a year of topsoil

UK sends 7.5 million tonnes of food waste to incineration and landfill instead of into treatment.

By treating food waste we can make biogas, biomethane, compost, digestate, extracted Co₂.

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 ensure soil quality we need clean feedstocks, i.e. plastics free food waste

Plastics, food, waste, soil, air, water, energy
everything is connected

Thanks

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