



The WASTE2FUNC project: from food waste to microbial biosurfactants and lactic acid

Esthèle Goure
Project Acquisition Coordinator
esthele.goure@bbeu.org

Bio Base Europe Pilot Plant VZW



Multi-purpose pilot facility for process development, scale-up and custom manufacturing of biobased products and processes



 Open access piloting facility

 Not-for-profit organization

 No industrial shareholders

 Independent

2008

2010

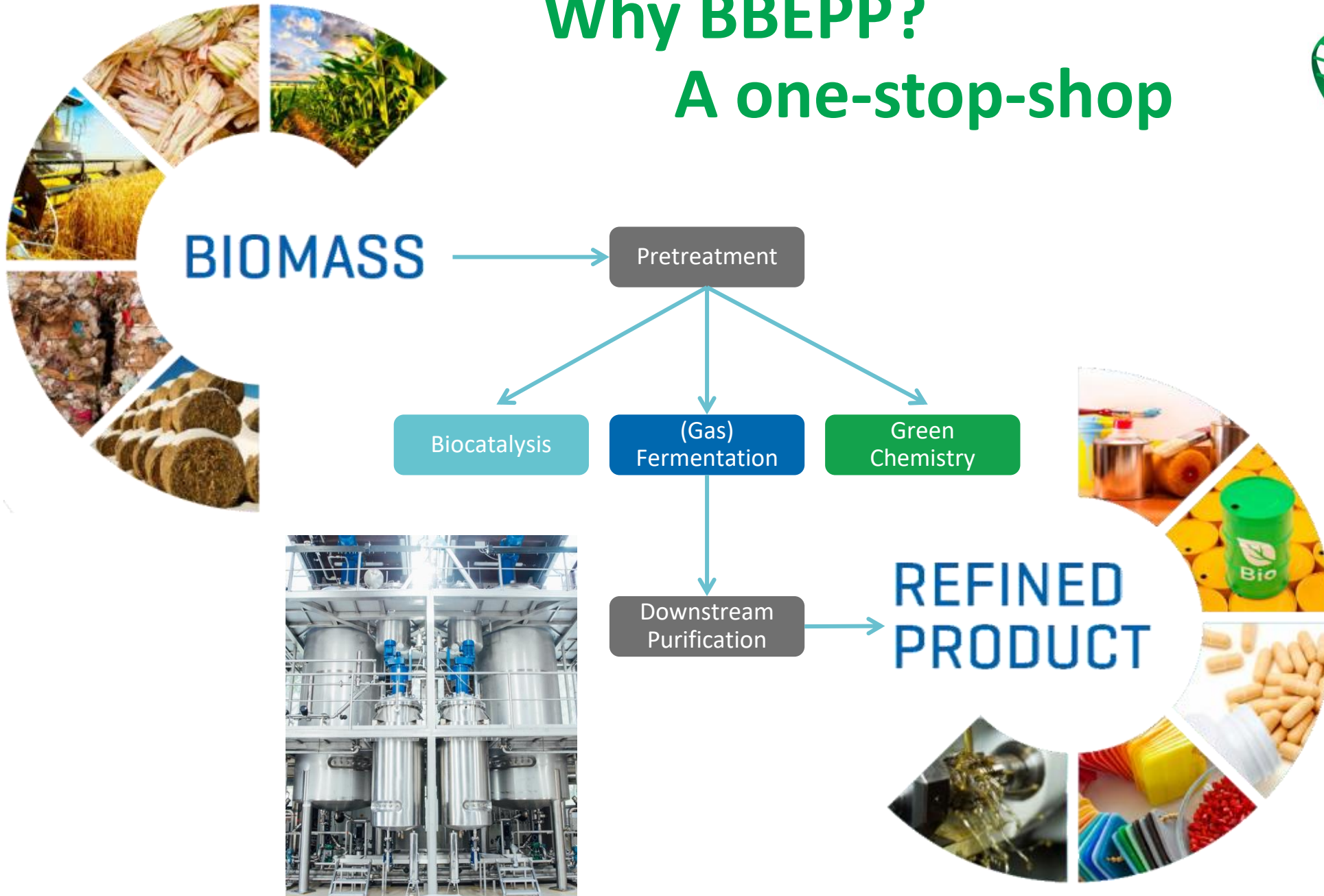
2024

Founded in Ghent, BE

Plant operational

>180 employees

Why BBEPP? A one-stop-shop



How to collaborate?

- **Private projects**

- Fee for service model
- Confidential
- All IP with client

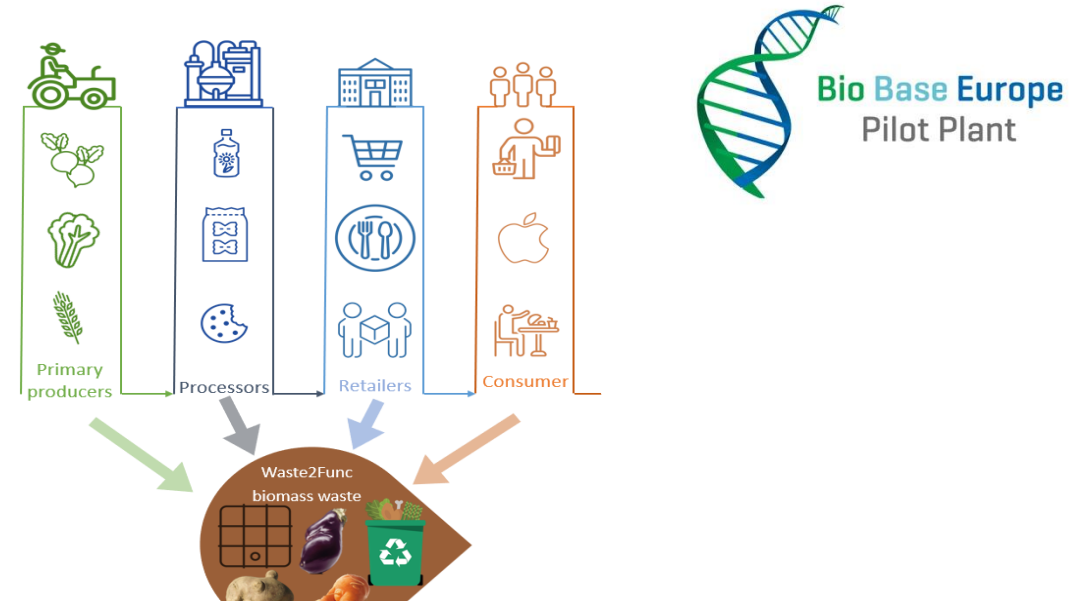
- **Public projects**

- European projects: HEU, CBE-JU
- Interregional projects
- VLAIO, moonshot projects

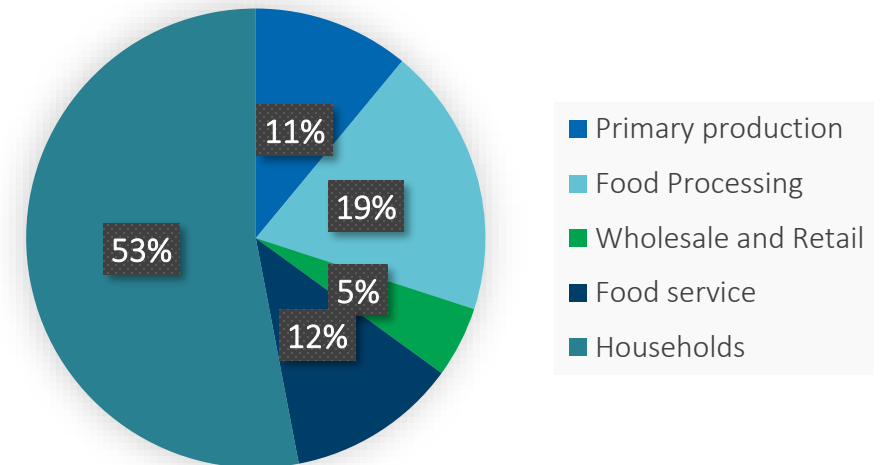


Background

- 88 million tonnes of food waste per year in the EU28 → Cost of €143 billion (2013¹)
- New numbers (2022²): 153.5 tonnes food waste per year in the EU
- Scattered
- Not continuously available
- No guarantee on volumes
- Difficult to build supply chains
- Not utilized or towards low value products
- Landfilling, incineration



Food waste (%)



¹ Fusions project: Estimates of European food waste levels

²<https://feedbackglobal.org/wp-content/uploads/2022/09/Feedback-EU-2022-No-Time-To-Waste-report.pdf>

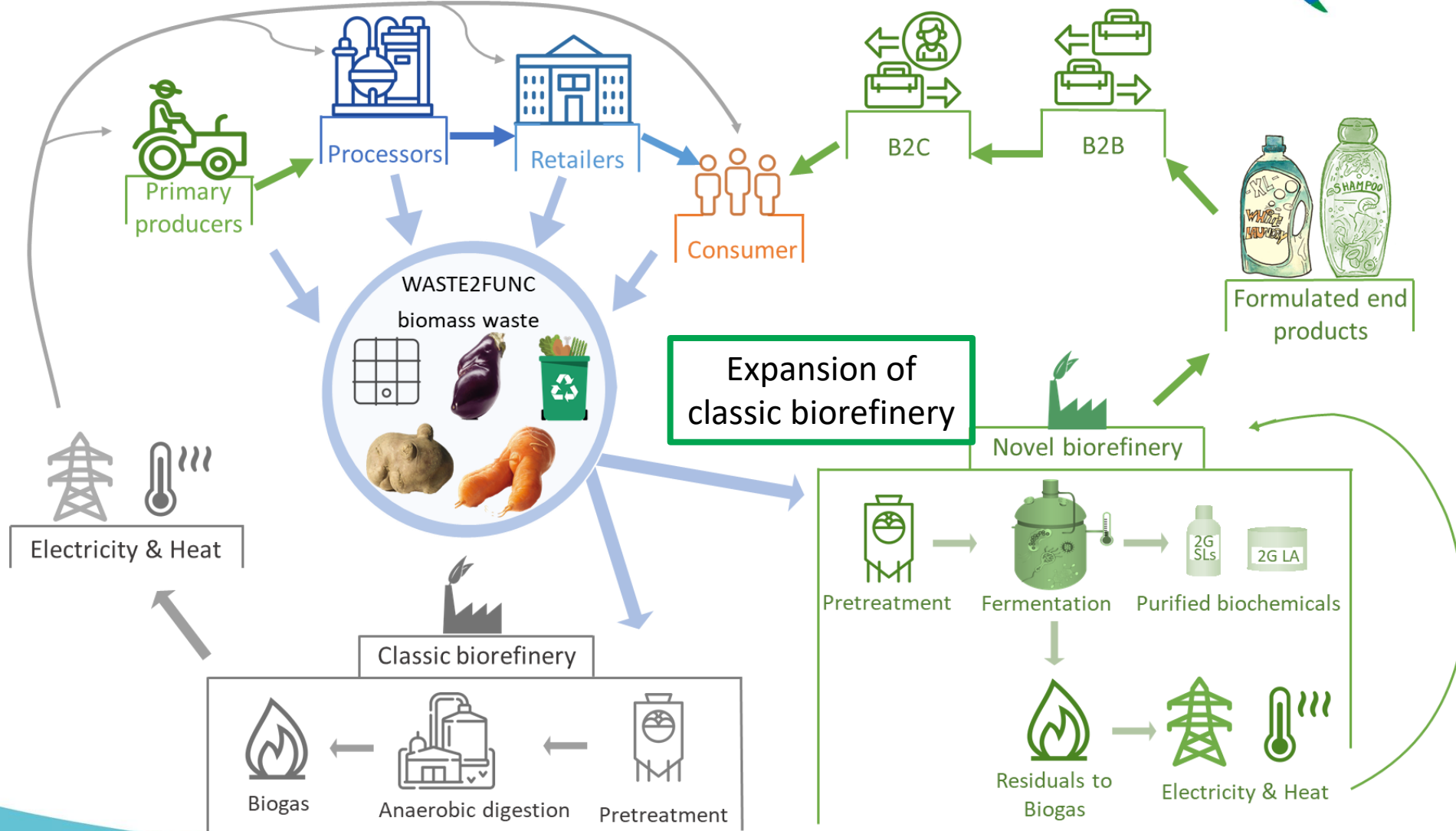
(Food) waste based lactic acid and biosurfactants



Bio Base Europe
Pilot Plant



WASTE2FUNC biorefinery concept



Project overview and consortium



Coordinator: BIO BASE EUROPE PILOT PLANT

Duration: 01.06.2021 – 30.11.2024



BBI JU contribution: €6 703 878.85



2 RTOs



7 SMEs



3 Large Companies



WASTE2FUNC Project Lines



SUPPLY CHAIN



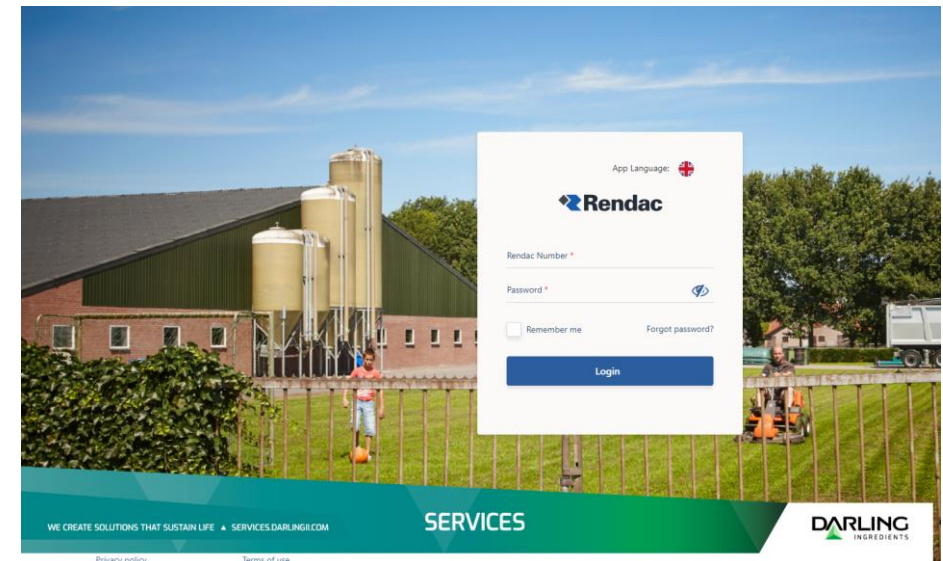
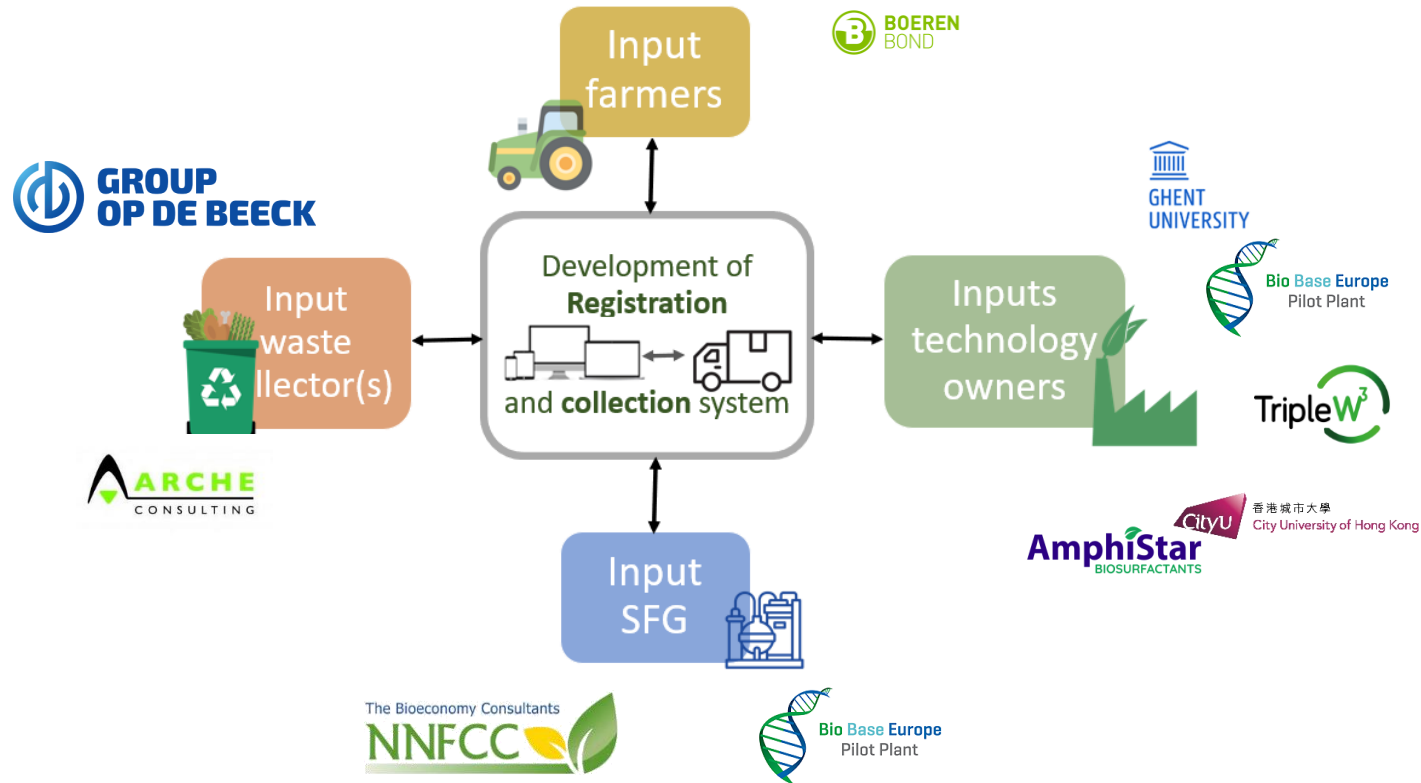
LACTIC ACID



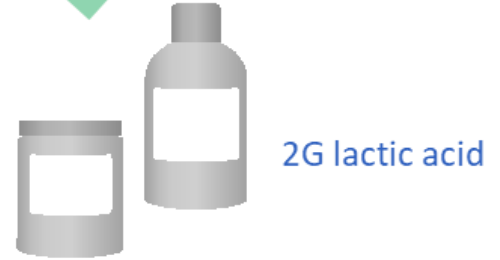
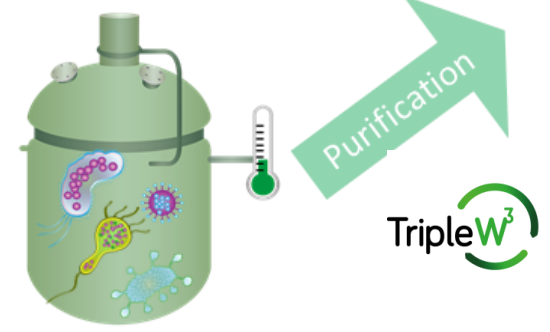
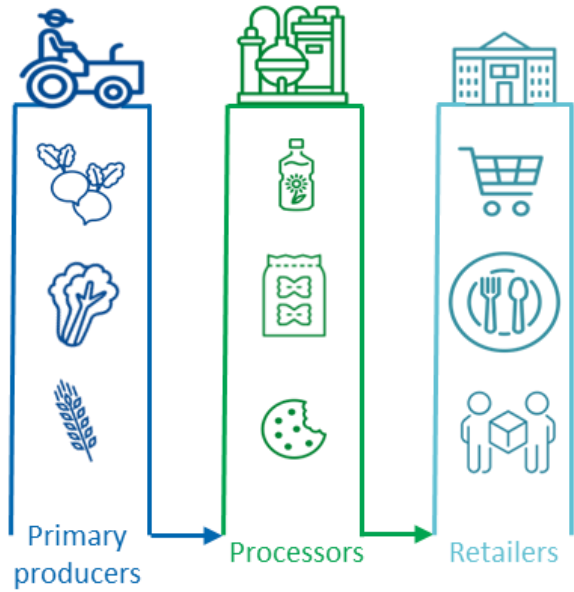
BIOSURFACTANTS



Supply Chain line



Lactic acid from (food) waste



Lactic acid: Results

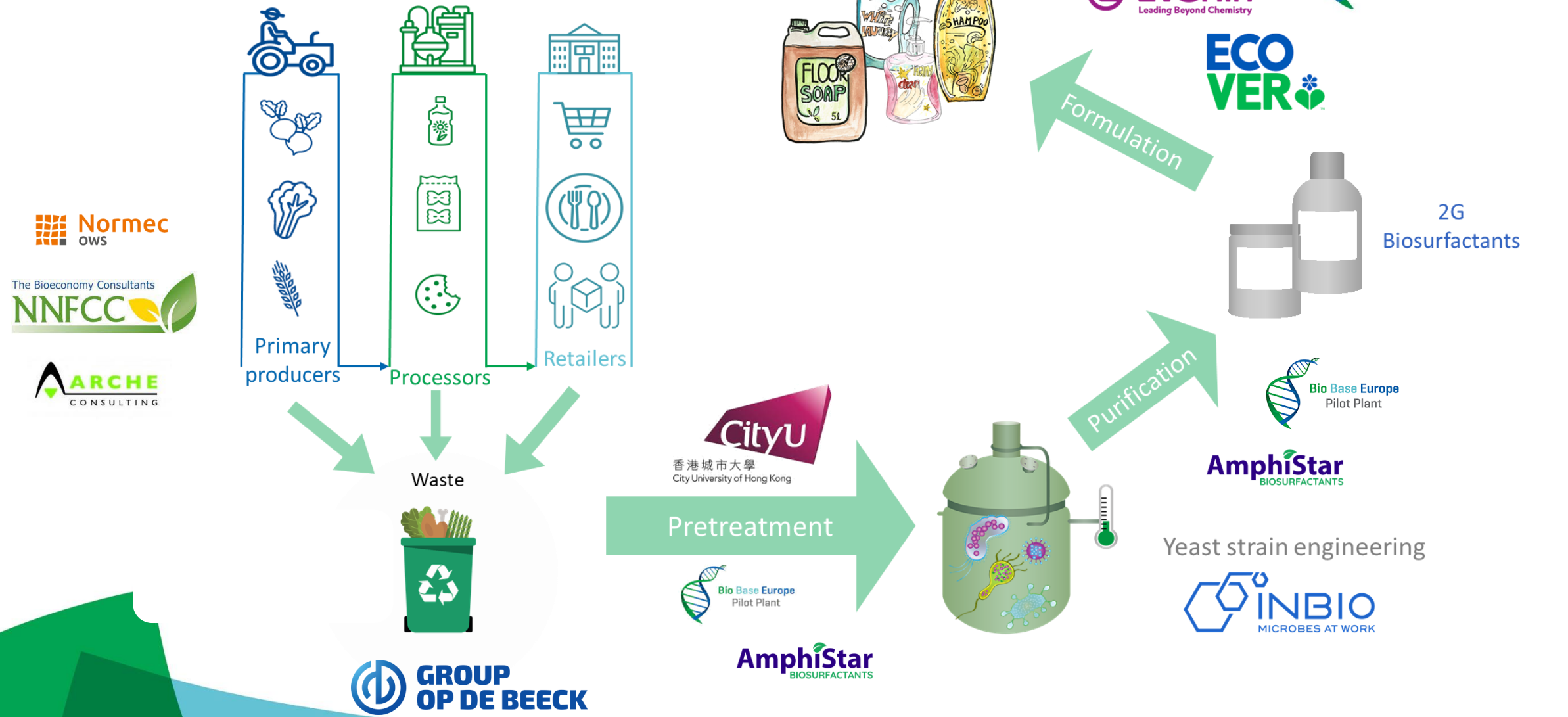


- Microorganism optimization to optimize its activity
- Test different purification methods
- Performing the process with harsh feedstocks: repeatability, high yield +>88 DEMO runs

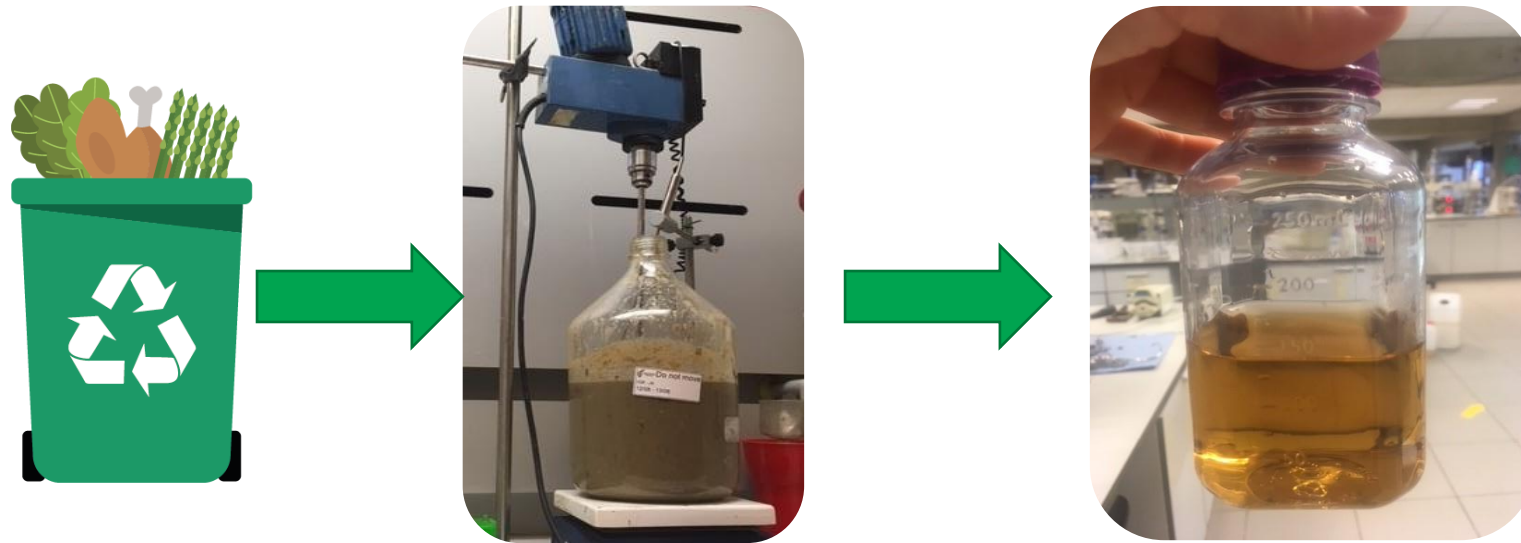
Demo plant lactic acid operational in Port of Antwerp



Biosurfactants from (food) waste



Food waste as feedstock for biosurfactants



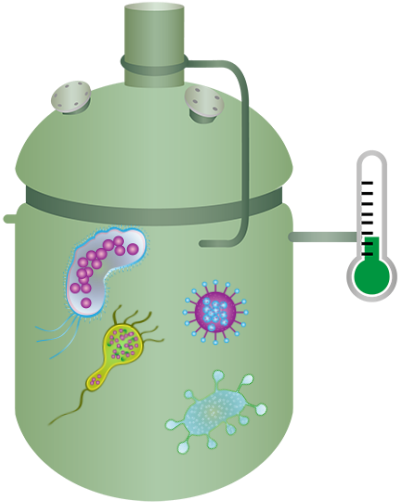
Optimisation of
conditions

Biosurfactants production

- Optimisation of process at lab scale and scale-up
- Performed several 150L fermentations
- Material sent to end users
- Performance equally well or slightly better compared to benchmark



Scale-up at BBEPP and TripleW



Waste based lactic acid



DEMO Plant TripleW

Waste processing hall BBEPP



Waste based biosurfactant

First of a kind product
Launch to market EU: May2023
<https://www.ecover.com/action/too-good-to-waste/>



Too good to waste



Video: <https://www.ecover.com/action/too-good-to-waste/>

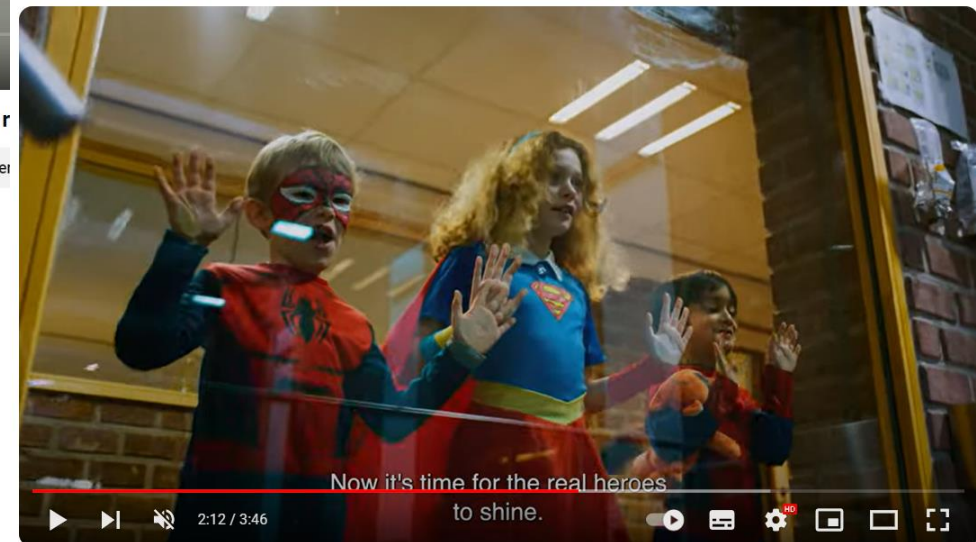
Waste2Func: From Waste to Wonders.



Waste2Func: From Waste to Wonders.

Video: The technology is ready, are we?

With this video it wants to **strengthen the bioeconomy narrative in general while explaining the project: converting food waste into molecules to make cleaning agents, personal care products or packaging and this at industrial scale!**



(EN; EN SUBS) Waste2Func: From Waste to Wonders. The technology is ready, are we?

1 months to go....



- Logistic and collection system finalisation
- Final formulation testing
- TEA & LCA

The end ? No, It's only the beginning



2015-2018

BBEPP scale-up partner
RIA

Biosurfactants & Specialty Carbohydrates



2021-2024

BBEPP coordinator and scale-up
partner
IA

Biosurfactants and Lactic Acid



Acknowledgements



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