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# WASTE2FUNC

<b>Project Acronym:</b>	WASTE2FUNC
<b>Project Title:</b>	Lactic acid and biosurfactants sourced from sustainable agricultural and industrial (food) WASTE feedstocks as novel FUNcTional ingredients for consumer products
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## Deliverable D7.12

### Report of Stakeholder Focus Group Workshop 5

(Version 1.0, 28/11/2024)

Deliverable 7.12: Report of Stakeholder Focus Group workshops 4 & 5

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## 1 Introduction

In these series of workshops, we aimed to gather general insights on using second-generation feedstocks and the LCA and regulatory hurdles that were encountered in general biotech-related processes in order to also streamline our input to policy makers at the end of the project. For GDPR reasons, the attendee list is not added in these minutes.

## 2 Workshops

Two workshops were centred around the same theme: barriers towards feedstock valorisation. The first workshop (i.e. workshop no. 4, deliverable D7.11) was an initiative organised during the Plant Based Summit Conference in June 2023 in Lille, France, and was called “Help, I have a waste stream”. The workshop was hosted by Sofie Lodens and Esthère Goure from BBEPP. The second workshop (i.e. workshop no. 5, the present deliverable, D7.12) took place in Marseille, France during EUBCE conference in June 2024 and was called “Waste stream on the table”. The workshop was hosted by Esthère Goure (Waste2Func) and Tanja Meyer (LUCRA project) from BBEPP. As the questionnaires were the same, the results from both workshops were collated.

## 2.1 Workshops overview: Plant Based Summit (June 2023) and EUBCE (June 2024)

**Plant Based Summit:** “Help, I have an agri-food waste stream!” room 2.3 – 9h30-10h15

Participants number: 42

**EUBCE:** “Waste stream on the table” room Sugiton – 14h-15h30

Participants number: 27;

**Total number of participants: 69**

## 2.2 Presentation of the project (in both workshops)

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

The WASTE2FUNC project aims to resolve supply chain hurdles towards the efficient conversion of food (crop) waste into two types of biobased functional molecules for use in home- and personal care applications: lactic acid and microbial biosurfactants, functionally outperforming or equalling their respective fossil-based and/or 1G bio-based benchmarks.



The integration of the biomass supply chain with new value chains based on the cost- and eco- efficient conversion of the waste biomass into market ready functional molecules for home- and personal care applications is being demonstrated at pilot scale level.

The project started in 2021 and has already reached some great milestones. [The latest prototype consumer products](#), containing the WASTE2FUNC targeted molecules with other bio-based ingredients, have been launched by Ecover in May 2023. You can find our latest news on our [website](#) and [LinkedIn](#) page.

The project is possible thanks to the collaboration of several research institutes and companies. You can find more information in the presentation shared by the Plant Based Summit and EUBCE teams.

## 2.3 Summary of the surveys (both workshops)

At both occasions, the organisers first asked audience members to put themselves in one of 2 categories: feedstock providers (and associated organisations) and technology providers (and associated organisations). The workshop discussion were then first targeting the *feedstocks providers* and then crosslinking it to the *technology providers*.

Combining the outcome of the questionnaires from both workshops with the results obtained during the Waste2Func project, 4 pillars are recognizable and can be highlighted:

### 1) Availability of the feedstock at required volumes: the main concern for any 2G shift

From our understanding of our project and from the participants inputs, the availability of the coproduct is the first key driver when implementing 2G feedstock. Feedstock providers that are looking to valorize their co-products at industrial scale (1G -> 2G) would need to evaluate precisely the volume available per annum and assure continuous supply.

For feedstock providers, this means the quantities, quality and the availability scheme. For the technology owner, this means geographical distribution, seasonality and influence on their processes, quantities needed in volume and timing. This is key information for sitting at the same table. There is no consensus on how each party defines a 'continuous supply' of feedstock, but transparency between feedstock suppliers and technology owners would help technology owners to plan around availabilities and understand what other streams to investigate to secure a robust supply.

For feedstock providers that are looking to valorise their residues streams at industrial scale, the key message is that they would need to evaluate precisely the volume available per annum and assure continuous supply in specs.

### 2) Characterization of the co-product, the motor of the 2G feedstock implementation

As well as feedstock availability and volume, the feedstock characteristics were also a major concern. For the Plant Based Summit, only 18% of the feedstock providers responded that they had fully characterized their co-products, whereas from the technology provider perspective, the technical specification of the feedstock and the fit to their processes are the second most relevant attributes (2/3 of the participants). With regards to the EUBCE workshop, similar percentage of the feedstock providers in the room had fully characterized their co-products; however, 75% of them consider that they characterized it partially. Notably, they had already some ideas on the routes of valorisation by the technology owners and the processes that their residues would have to undergo. A certainty is that, from the technology provider perspective, for both groups, **the fit to their processes are the second most relevant attributes (after availability) and characterization of the residues streams (i.e. specs) along with costs would also be included in the main drivers for initiating trials and proof-of-concept.**

Surprisingly for us, co-location/supply chain of the feedstock seemed not a decision factor when switching from 1G to 2G feedstock. We could assume that it is linked to the fact that the feedstock provider group still bears most of the cost (50% find it costly to handle). From our experience, this aspect could be linked to the stability of the chosen co-products (i.e. spoilage) but also strongly linked to the maturity of the process/technology deployed (early-stage focus on feasibility but late-stage development aims to drive down costs).

### 3) Regulatory aspects, best practices mutualization to overcome gaps

Based on the collated results, it seems that more than 60% of both feedstock and technology providers have experienced regulatory hurdles.

Unfortunately, during the 'Plant Based Summit' workshop it was difficult to gain qualitative insight during the workshop and pinpoint the exact regulatory pain points, which is most likely attributed to the participants inability to disclose more information due to projects confidentiality. From our experiences in the bioeconomy, a lot of hurdles could be linked to GMO usage. What we also note is that depending on the end-product, regulations will be different and unfortunately maturity of the policies differs strongly by the addressed market (for instance biofuels vs biomaterials).

In EUBCE workshop, the feedstock owner group suggested that the main struggle is **the waste legislation and the difficulty to grasp a clear outlook of the waste status assigned to their streams** and linked to this aspect, the administrative burden is troublesome for something already costly to handle.

For the technology owner group, their policy interest is driven by the quality grade assigned to their product if they use specific residues streams (technical vs food) and the impact on the novelty of their end product that impact dossiers constitution and investors interest.

A strong comment from the audience was : **make "outcomes-based" policy** rather than prescriptive policy. **The overall message relates to a streamline of the "waste" regulations to clear out the residues streams that can be valorised.** Additionally, clearing out any grey area of the legislation with a simplification in the implementation at state member level will decrease the investor risk and boost the collaboration between feedstocks owners and technology owners and foster innovation.

To push these hurdles forward, BBEP is actively participating in the European project named Shaping Bio. This project aims to provide evidence-based and concrete information and recommendations for better policy alignment and stakeholder actions. <https://www.shapingbio.eu/get-involved/>

### 4) Life-Cycle Assessment, an important tool difficult to deploy

Collating results from both workshops showed that only around 17% of the feedstock providers had completed LCA whereas none of the technology providers had done so up to that point in time. However, a partial LCA is often enough to start with for informing investors and customers on the sustainability of your approach and more than half of the participants in the technology provider group, from both workshops, had managed to do so up to that point. Less than half the participants of the feedstock provider group had achieved a partial LCA.

From our Waste2Func perspective, we can just emphasise the relevance of working on your LCA to inform investors and customers but also the relevance to make this difficult exercise in order to get public subsidies. Partial LCA is already a good first step as a silo approach, but you will gain credibility once it is complete and peer reviewed. By this means your LCA will be considered full and validated.



## 2.4 Recommended quick actions to workshop participants after the discussion

### Feedstock owners:

- Clear proposition to valorise co-products: Set in place characterization datasheet of your feedstock with availability details and specifications.

If you need guidance, you can find on [Tech4Biowaste database](#) some indications on what is expected as technical information from feedstock perspective.

- Helping you out with our network: Don't hesitate to promote your feedstock to us, maybe we can connect the dots of your feedstock with new CBE or H EU projects that we could have or aim to set up!

### Technology providers:

- Available free co-product database: [Tech4Biowaste project](#) developed an open access tool that can help you connect your process needs to the right co-products valorisation path.
- Scalability is an important step to launch your technology/product:

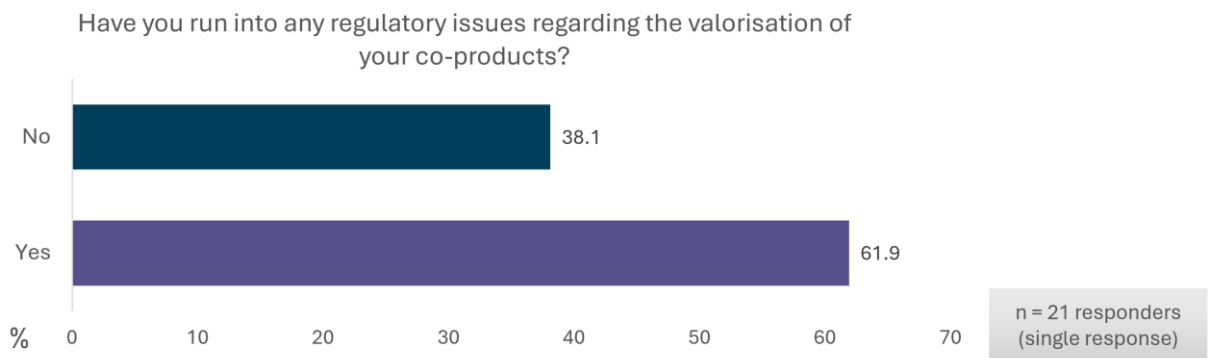
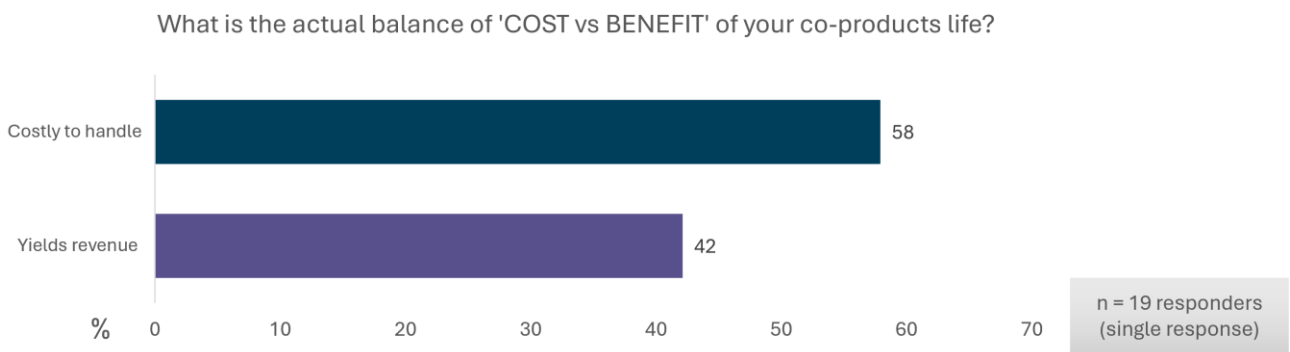
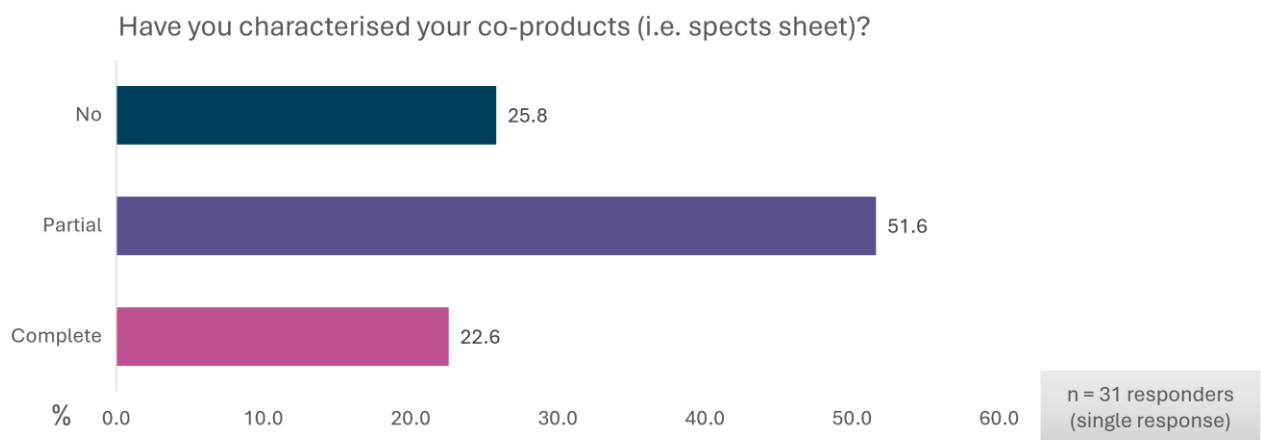
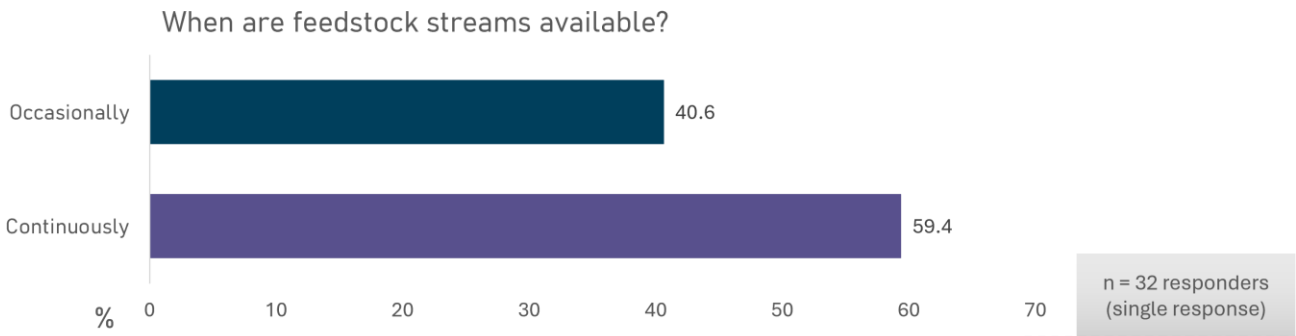
Co-location aspect should be on your reflexion list even at an early stage of the development of your technology, don't forget to take some time to evaluate this.

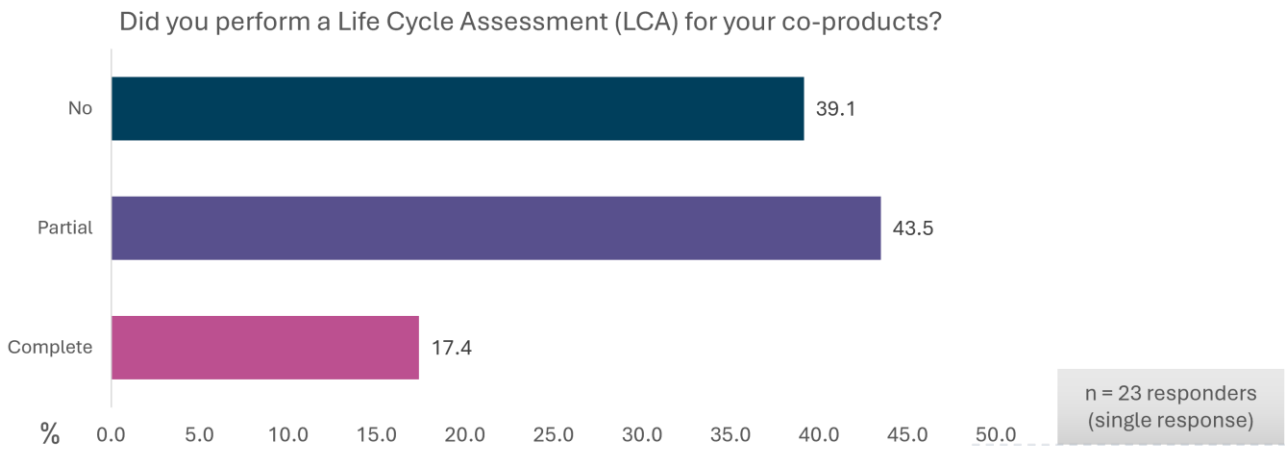
If you want to decrease the cost of the 2G implementation for your process, piloting can be a good alternative (cheaper and faster). [Pilots4U](#) initiative is a great database to help you choose your pilot partner like Bio Base Europe Pilot Plant.

- Regulatory struggles? Check the shaping bio initiative as their target is to bundle hurdles and push for policies at EU level
- Don't push too long the LCA activity, it will be strongly beneficial for your next public and private investments

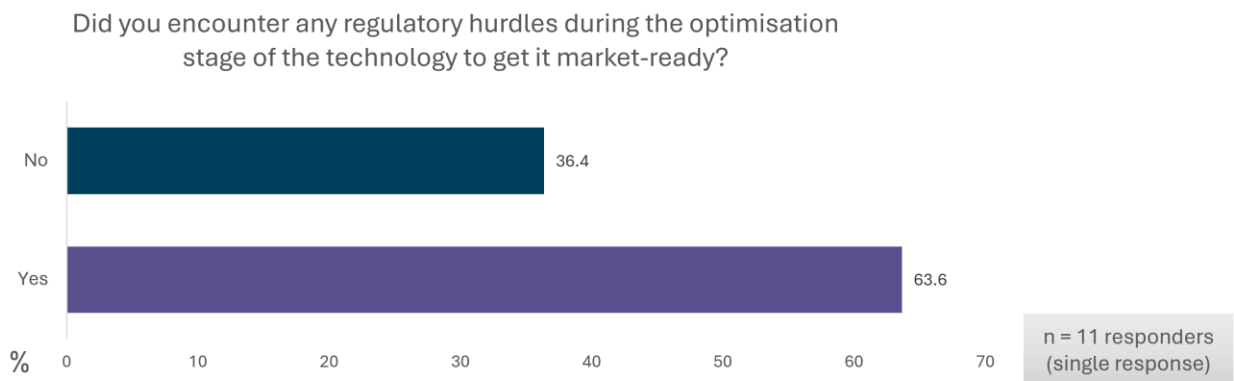
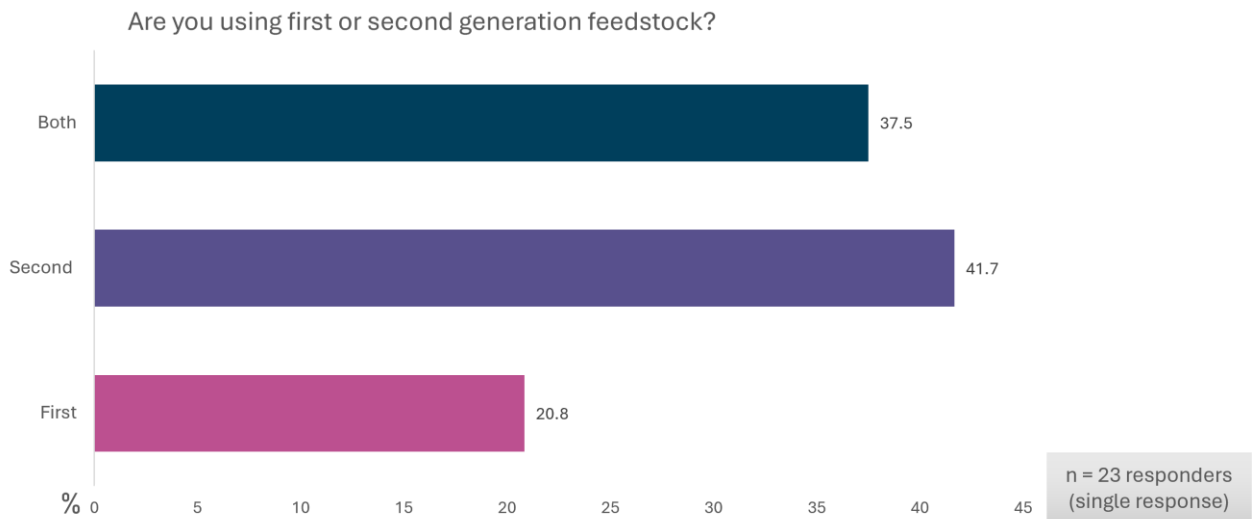
## 2.5 Poll data

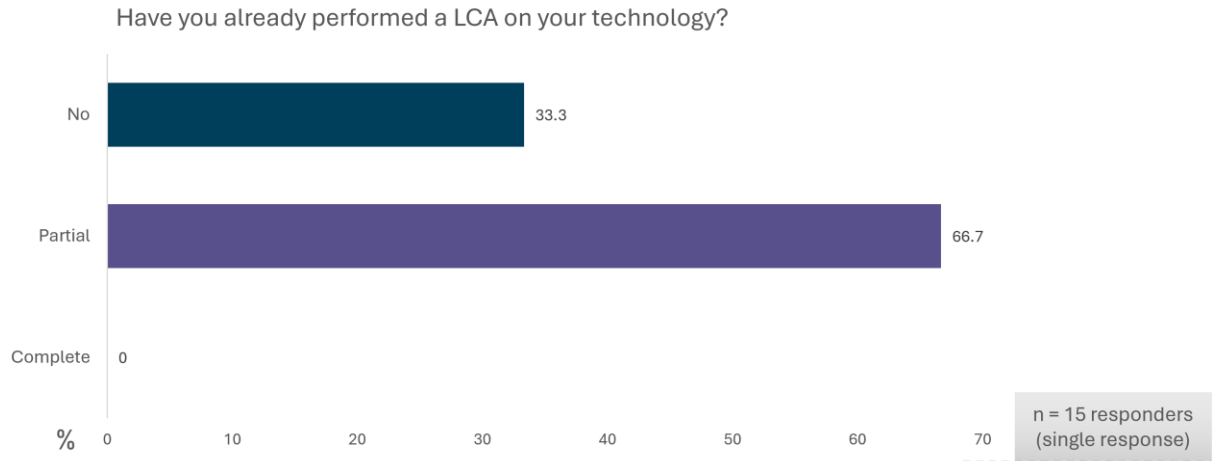
### Feedstock owners:





**Technology owners:**





What are some key concerns that influence your decision towards a second generation feedstock?

