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Final Conference: Circular Bioeconomy & EU Policy Innovation in Agriculture

Wednesday, 26th March 2025

Donostia / San Sebastián (Spain)
& online
14:30 to 18:00

Organised by

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BBI JU Bio-based Industries Consortium

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The European vision for Circular Economy in the Agri-Food sector

Simone Maccaferri, Project Officer - CBE JU

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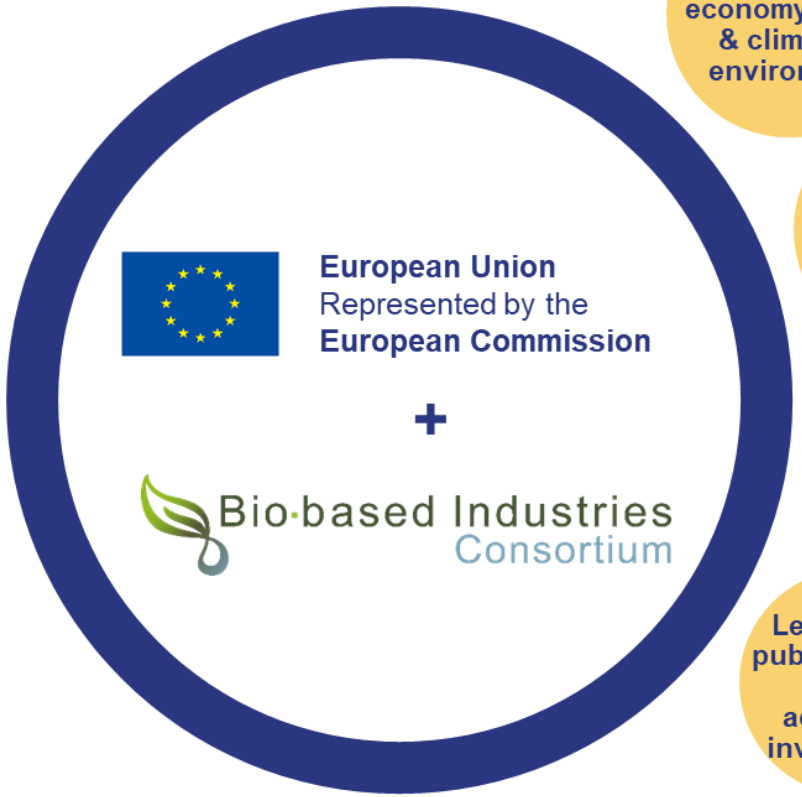
Circular Bio-based Europe Joint Undertaking: an overview

Co-funded by the European Union

Launched in 2021, operates until 2031

Successor of BBI JU (2014-2021)

€2 billion public-private initiative



- Public interest: competitiveness economy & jobs & climate & environment
- Private interest: address challenges of the industry
- De-risking private investments
- Leverage of public funds & trigger additional investments

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Circular Bio-based Europe Joint Undertaking in numbers

CBE JU is a central pillar in establishing Europe's bio-based sector as a global leader

192 projects

1.550 beneficiaries

35% SMEs

25% Universities and research centres

43 countries

For every euro of CBE JU funding the programme attracts €3.23 in private investments

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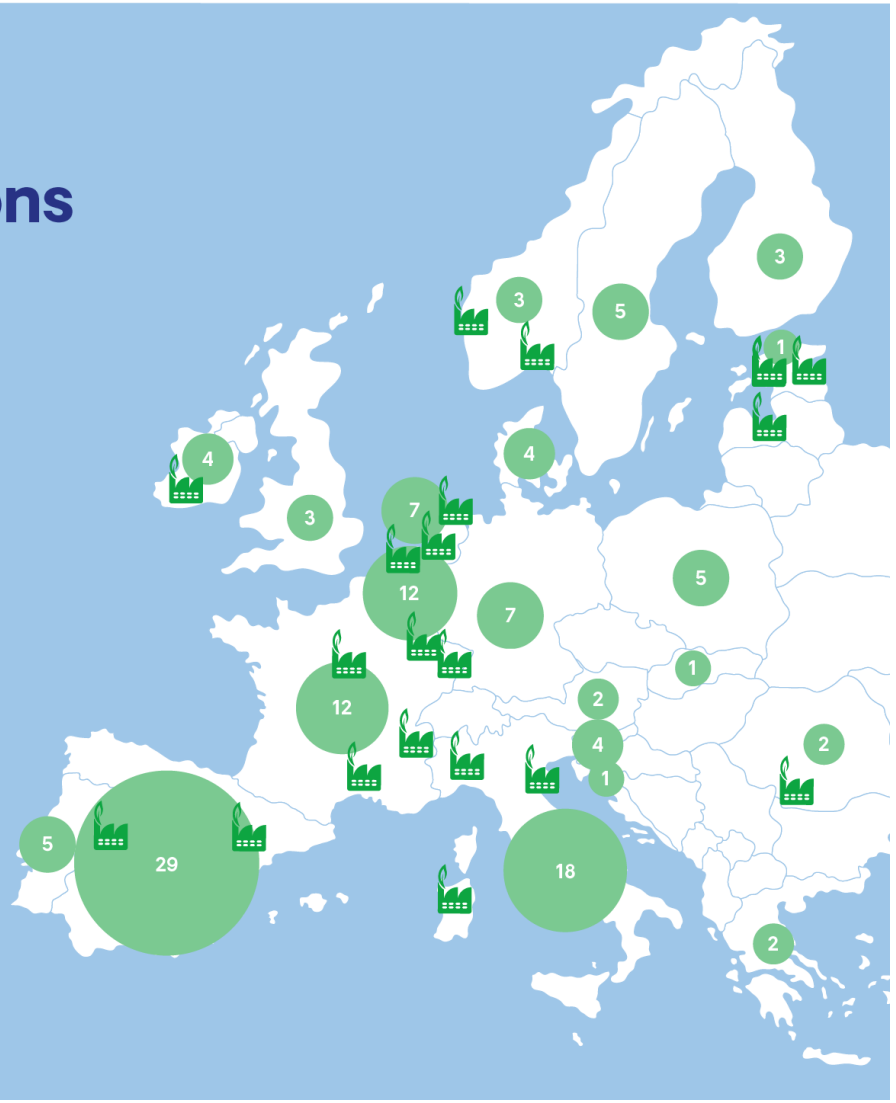
Circular Bio-based Europe Joint Undertaking in numbers

CBE JU-funded Innovation Actions

- Flagship biorefinery
- Demonstration plants



Number of plants per country

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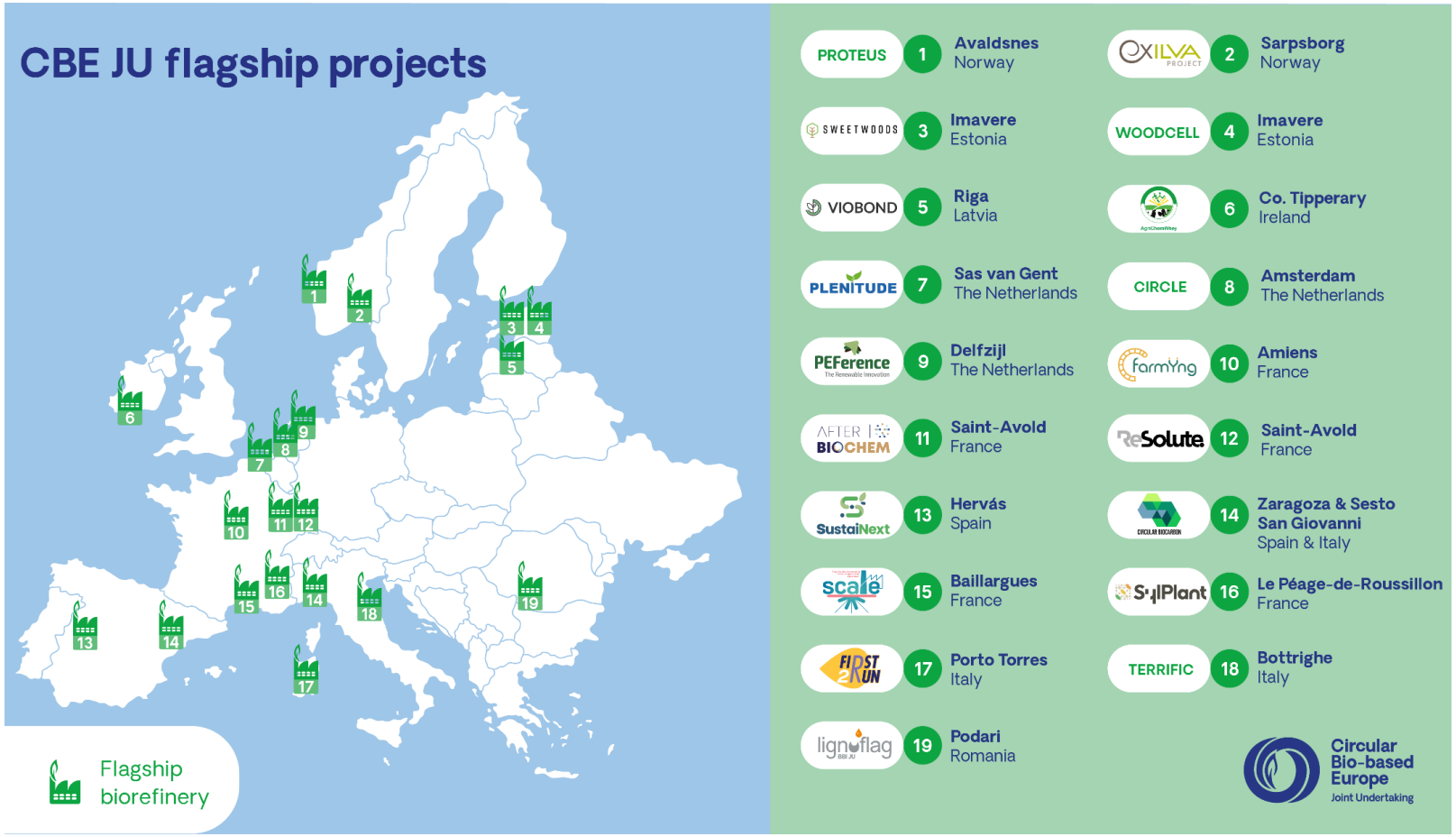
Circular Bio-based Europe Joint Undertaking in numbers



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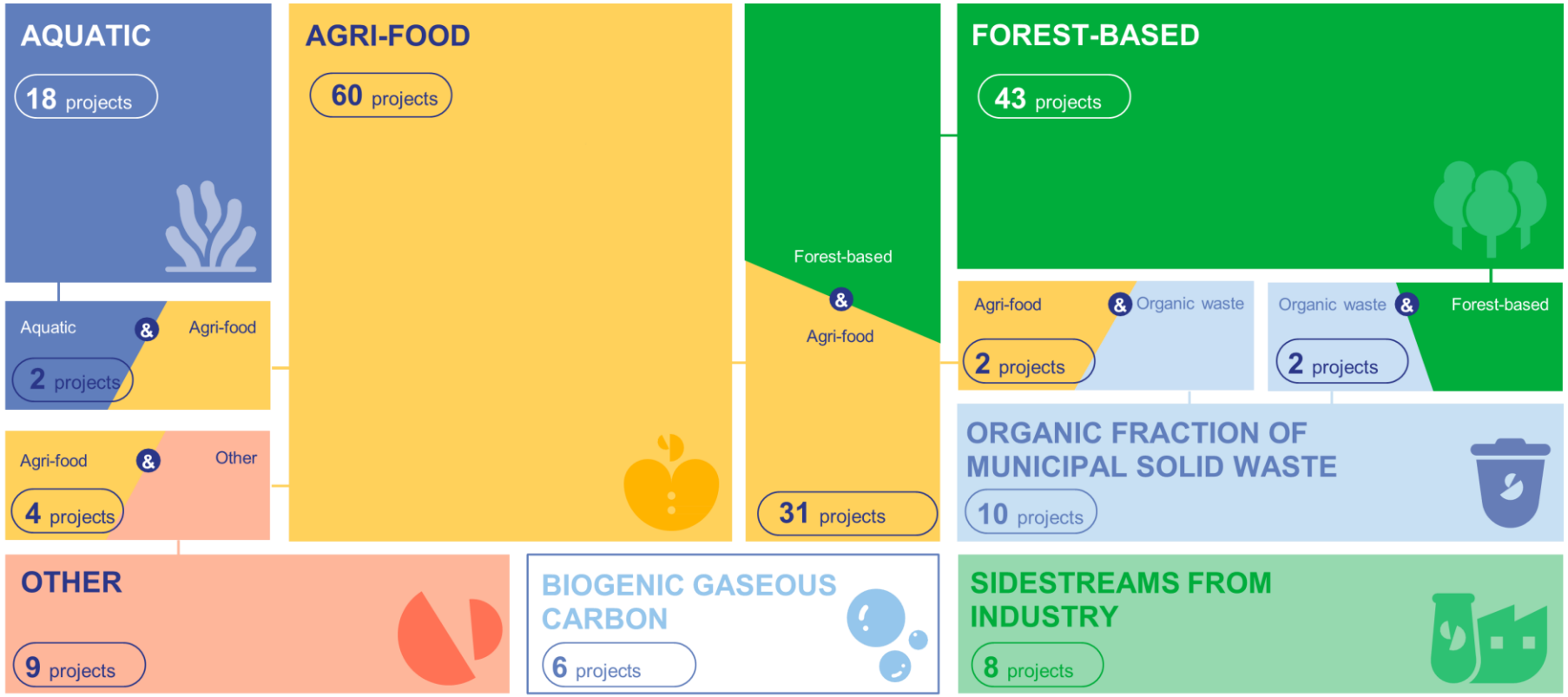
Circular Bio-based Europe Joint Undertaking: main feedstocks



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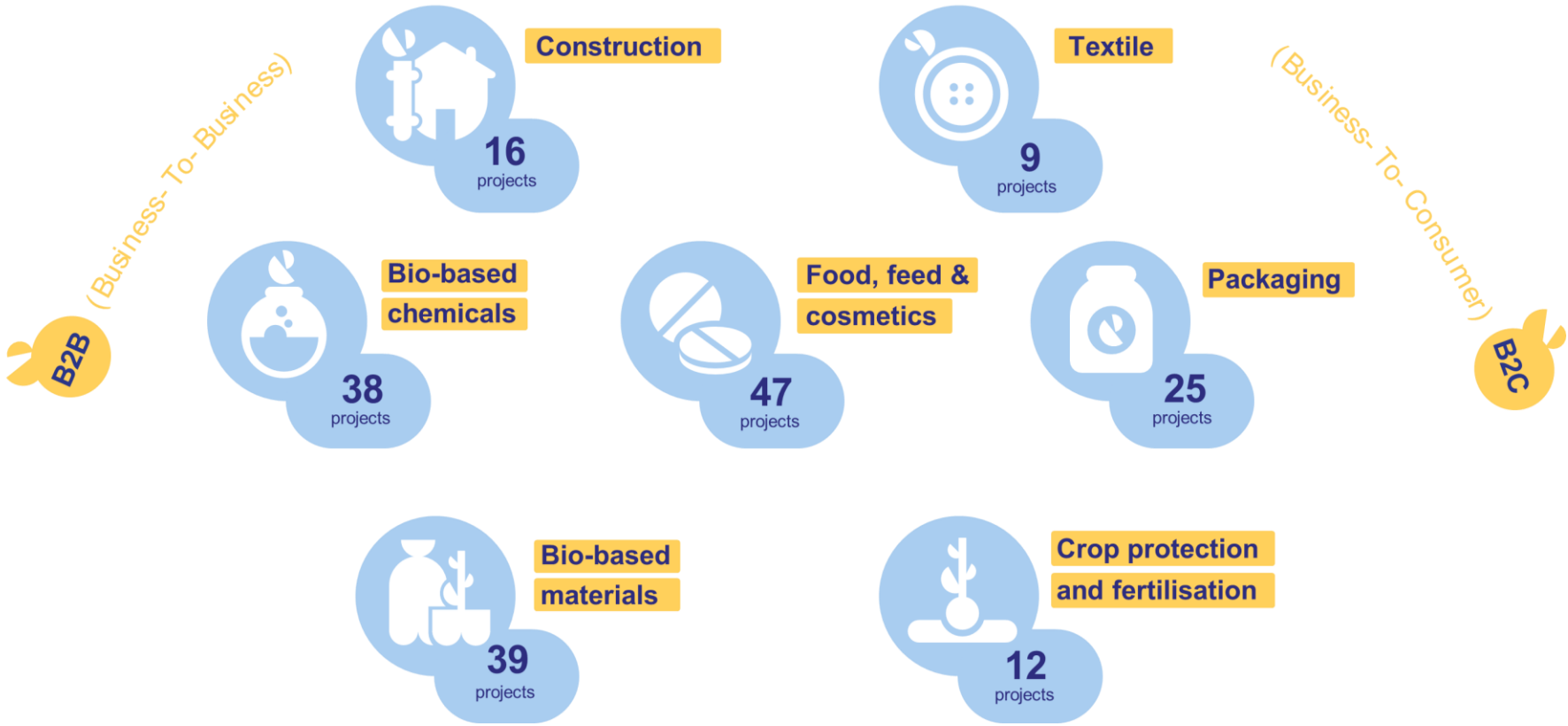
Circular Bio-based Europe Joint Undertaking: main applications



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Circular Bio-based Europe Joint Undertaking: the multi-actor approach

Ensures genuine and sufficient involvement of a targeted **array of actors** throughout the whole course of the project

Researchers, farmers, foresters & fishers, aquaculture producers, relevant businesses, local communities, civil society & consumers, government representatives, etc.

'Co-creation' process: which key actors are relevant depends on the objective of the project proposal

Results in speeding up the acceptability and uptake of new ideas, approaches and solutions developed by project

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An evolving policy scenario supporting bioeconomy

Council Conclusions (Swedish Presidency) 2023

- *NOTES the risk of **an emerging biomass availability gap** and ACKNOWLEDGES the role of **national and regional strategies for sustainable biomass.***
- *EMPHASISES the role of bioeconomy for vibrant rural areas, for **mobilising primary producers** in climate action and in the green transition*
- *STRESSES the importance of sustainable solutions in rural areas and of ensuring enhanced and **diversified incomes in the bioeconomy sectors for primary producers**,(…)*

> The bioeconomy carries clear potential for addressing the challenges facing the EU today, including climate change, fossil-fuel dependency and food security. Promoting the bioeconomy in rural areas is a priority for Sweden, in particular given the opportunities it presents for job creation and encouraging rural regeneration.
>
> — **Peter Kullgren, Swedish Minister for Rural Affairs**

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An evolving policy scenario supporting bioeconomy

Strategic Dialogue on the Future of Agriculture 2024

- *The **bioeconomy should be of central importance** in combatting climate change, safeguarding ecosystem resilience, and delivering to restore nature.*

- ***Strong public-private partnerships in which rural actors actively participate** can help turn niche into norm to support the development and implementation of bioeconomy initiatives. Collaboration between public and private sectors is necessary.*

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An evolving policy scenario supporting bioeconomy

A Vision for Agriculture and Food 2025

- *Bioeconomy and circularity offer a great potential for agriculture, forestry and the entire food system, as well as for reducing our critical dependencies. The new Bioeconomy Strategy, to be presented by the end of 2025, will aim at positioning the European Union as a global leader in the rapidly expanding bioeconomy market. We* ***must accelerate the commercialization of bio-based and circular solutions****, scale up breakthrough biotechnologies, capture emerging market opportunities and bridge investment gaps.* ***This will be particularly beneficial for the farming community by enabling diversification of value streams, valorisation of farm residues, strengthening the role of primary producers in the value chain and generating new jobs in the rural areas****.*

European Commission

Sustaining our quality of life: food security, water and nature

Shaping together an attractive farming and agri-food sector for future generations

An evolving policy scenario supporting bioeconomy

Recognition

Implementation

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The involvement of primary producers in circular bio-based innovations

26 March 2025, Ana RUIZ, Programme Officer

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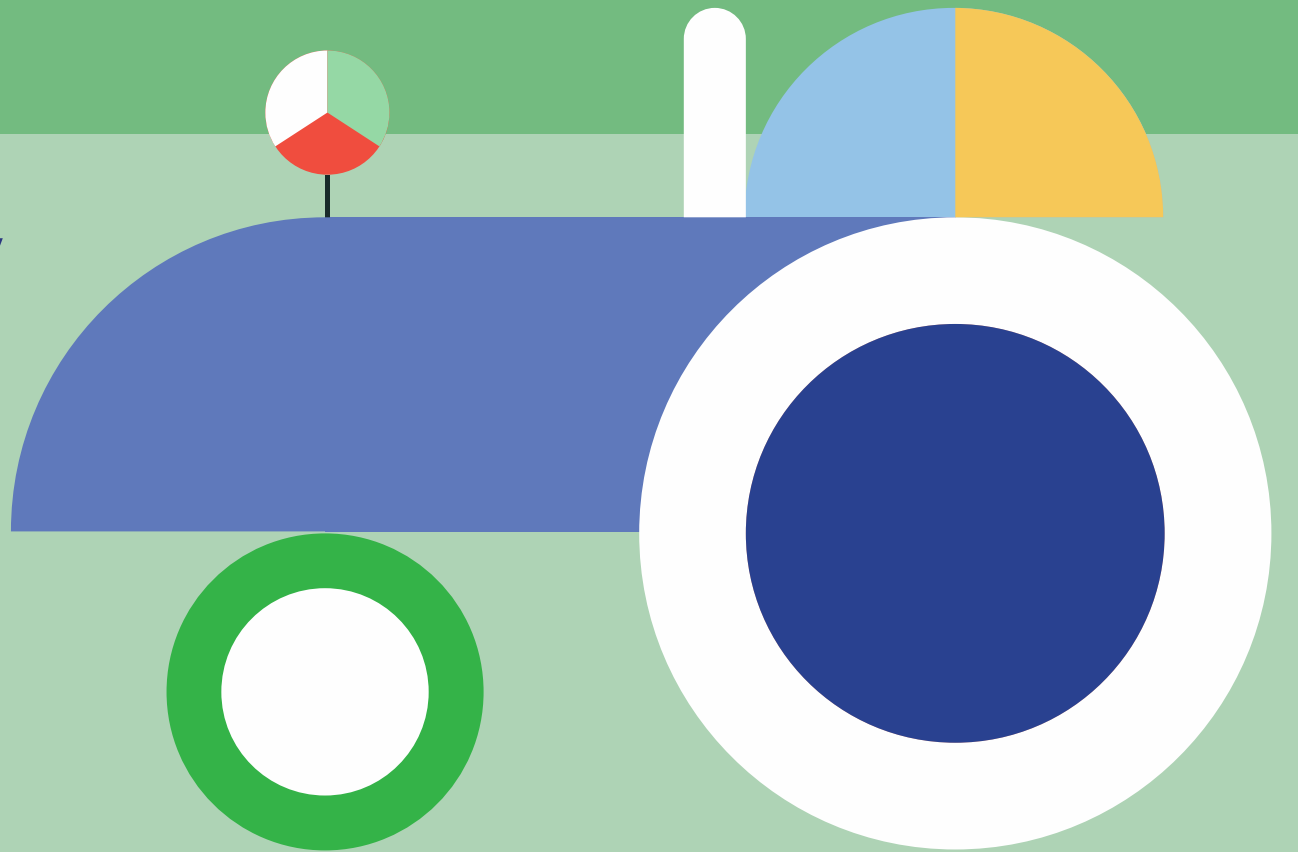
Primary producers are key actors in circular bio-based value chains:
They are not only biomass suppliers, but also rural entrepreneurs and managers of the landscape as well as end-users.
They have a crucial role to play in the sustainable and inclusive development of the bioeconomy.

CBE JU & primary sector

CBE JU aims at strengthening and empowering the primary sector in the circular bio-based systems and value chains

The goal is to **secure a sustainable supply of biomass** while at the same time **creates value in rural areas** delivering jobs, economic growth and development.

The Council Regulation calls for the **mobilisiation and integration of feedstock providers to cooperate in projects**



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Increasing & improving participation in projects

Primary producers are **appropriately involved** in projects and are **represented** to the largest possible extent in the project **consortia**

Real and effective participation of the primary sector in the projects via the implementation of the **multi-actor approach (MAA),** requested in all the topics of interest for the primary sector.

Creating new opportunities for local actors

Revive and revitalise the rural, coastal and peripheral regions through inclusive involvement and **empowerment of local bioeconomy actors (including the primary sector)**

Enhancing their role in the circular bio-based systems

Engage and integrate primary producers in sustainable circular bio-based systems and value chains

Improve involvement of primary producers in the value chains with the aim of ensuring high quality and quantity of feedstock, while they are rewarded with a proper share of the profit.

Monitoring of impact: Key Performance Indicator

KPI 1. Strategic participation and integration of feedstock producers and suppliers
KPI 1.1 N of primary producers


Since 2022,
70 organisations from the
agricultural,
forestry and
aquatic
sectors have received a total of
€7.46 million in CBE JU funding.

Circular Bio-based Europe Joint Undertaking

Circular Bio-based Europe Joint Undertaking

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Call for stakeholders to join the working group on primary producers

CBE JU invites stakeholders to apply to a new initiative focused on addressing challenges faced by primary producers in implementing circular bio-based solutions.

Read more

1st cut-off: 28 February 2025 – but the call remains open

Coordination of Support Action – 3 mill EUR will provide support to this ACTION GROUP

Type of activities/tasks (an action plan will define the concrete actions)

1. Awareness & better understanding

Targeted communication of opportunities & benefits offered by circular bio-based innovations

2. Cooperation with other actors

Action to improve including primary producers, industry, regional stakeholders, advisors, and endusers

3. Business models

Giving benefits to primary producers and Profit is equally/fairly shared among all the actors in the value chain

4. Synergies & knowledge transfer

Capitalise on existing initiatives & networks and facilitate knowledge transfer

5. Advisory services

Filling gaps in the offered services and ensuring wider use of available knowledge

6. Widening actions

Mobilise primary producers from regions with unexploited potential and engage with them in value chains

Circular Bio-based Europe Joint Undertaking

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Bioeconomy and EU projects in the Basque Country

Nagore Guerra Gorostegi (NEIKER)

Unlock Final Conference

Donostia / San Sebastián (Spain)

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Circular Bioeconomy in the Basque Country: Where We Start and Where We Aim

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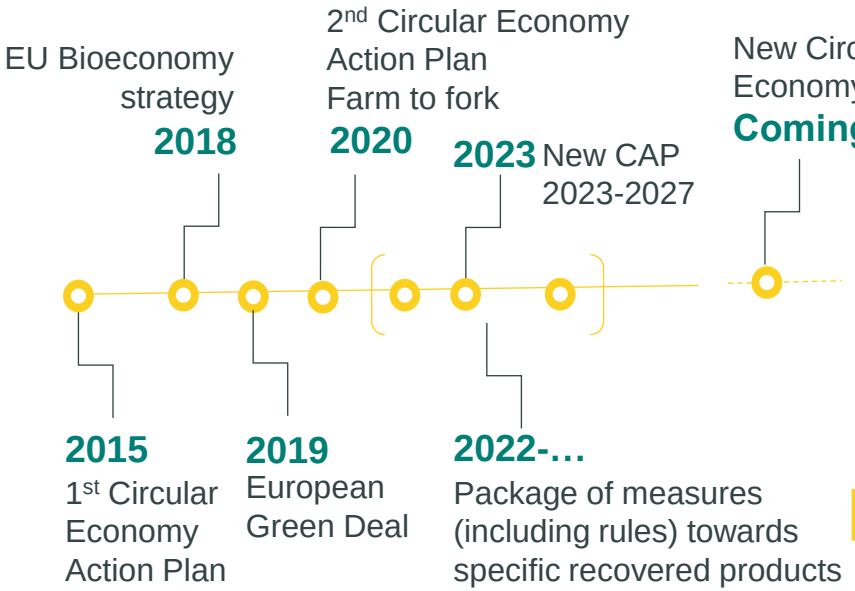
Circular Bioeconomy in the Basque Country: Where We Start and Where We Aim

Circular Economy in Europe… a few words

The EU's transition to a circular economy will **reduce pressure on natural resources** and will create sustainable growth and jobs. It is also a prerequisite **to achieve the EU's 2050 climate neutrality** target and to **halt biodiversity loss**.



2022-…

Revision on the Rules on Packaging and Packaging waste + developing policy framework for biobased, biodegradable and compostable plastics

Expected to be included in eco-design requirements for sustainable products + funding programmes

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Circular Bioeconomy in the Basque Country: Where We Start and Where We Aim

What about circular bioeconomy?

An agrifood model promoting biological innovation, responsible consumption and production, and zero waste

Key aspects:

- **bio-based solutions** (including packaging), sustainable food production, and reducing **waste and emissions**
- sustainable food systems and valorization of **agricultural by-products**
- **circular business models** in the food supply chain

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Circular Bioeconomy in the Basque Country: Where We Start and Where We Aim

Circular Bioeconomy in the Basque context

Extracted from the Waste Prevention and Management Plan

Main organic materials generated in the region (data from 2018)

- *Agricultural wastes* (including livestock and forestry) 2.666.255 t/y
- *Bio-waste* (municipal or analogous) 307.154 t/y
- *Municipal Sewage Sludge* 160.000t/y*
- *Pulp and Paper Mill Sludge* 60.000t/y*

***Non-official internal data from NEIKER (2003)**

The plan considers **bioeconomy** as an **important driver** towards Basque **innovation and economic competitivity**. Focuses in the potential of…

- Selectively collected biowaste
- Agro-food sector wastes
- Agricultural and livestock sector
- Biological sludges
- Digestate
- Lignocelulosic wastes

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Circular Bioeconomy in the Basque Country: Where We Start and Where We Aim

Circular Bioeconomy in the Basque context

Strategies launched towards bioeconomy

Basque Green Deal (BGD) (2021)

- Includes as important backbone the "farm to fork": support (and economic instruments) towards organic farming and KM0 food, rural development
- Basque Circular Hub: towards Ecodesign

BASQUE GREEN DEAL

EUSKO JAURLARITZA
GOBIERNO VASCO
EKONOMIAREN GARAPEN, JASANGARRITASUN ETA INGURUMEN SAILA
DEPARTAMENTO DE DESARROLLO ECONÓMICO, SOSTENIBILIDAD Y MEDIO AMBIENTE

Status of the Environment in the Basque Country (2020)

- **Resources:** expected 30% increase in ecodesigned products by 2030 (vs.2016)
- Foresees Specific Actions in the **agro-food value chain**
- 30% increase of **materials from circular origin** by 2030 (vs. 2016)
- Promotion of a **secondary raw materials' market**
- Promotion of sustainable economic models, **sustainability as a driver** for economic development

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Circular Bioeconomy in the Basque Country: Where We Start and Where We Aim

Circular Bioeconomy in the Basque context

Strategies launched towards bioeconomy

Circular economy and bioeconomy plan 2014 (2021)

- Sets **specific objectives** for each of the 4 strategic axis and identifies their **impact** → sets 11 lines of action
- Defines some **economic incentives** (foreseen yearly budget for each of the 11 lines) towards the development of **specific actions and sets some KPIs** in terms of new companies generated, circular marketed products, attraction of private investment…

Circular economy and bioeconomy plan 2014 (2021)

Strategic Lines of Action: 4 strategic axis

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Practical Application of Bioeconomy-Based Solutions in the Basque Country

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Practical Application of Bioeconomy-Based Solutions in the Basque Country

- LANALAND
- SEALAND
- Interreg POCTEFA — Cofinanciado por la UNIÓN EUROPEA — Cofinancé par l'UNION EUROPÉENNE — REAL-MAC
- LANDFEED

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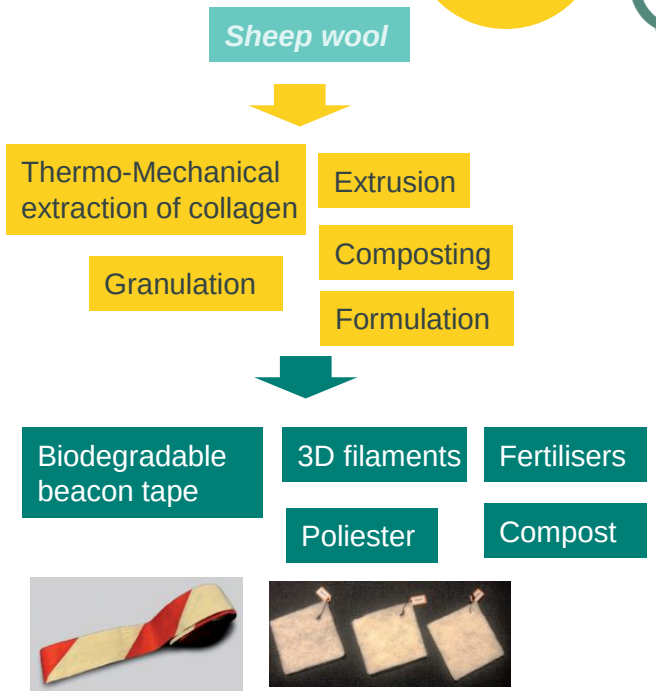
Practical Application of Bioeconomy-Based Solutions in the Basque Country

A 3-year Interreg POCTEFA project Jan 2024-Dec 2026

- Assessment of various solutions towards value-added products obtained from sheep wool
- Sustainable pre-treatment: Bio-cleaning of the wool
- Development of innovative plastic materials from sheep wool
- Zero waste: maximisation of the use of the resource, fertilisers production
- Market studies
- Identification of barriers (normative etc.) and opportunities

+835K €



ESTE PROYECTO ESTÁ COFINANCIADO POR EL FONDO EUROPEO DE DESARROLLO REGIONAL (FEDER)

Technological cooperation for alternative uses of wool: replacement of plastic materials and other pollutants

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Practical Application of Bioeconomy-Based Solutions in the Basque Country

A 4-year collaborative EU H2020 Innovation Action(IA) Jan 2021-Dec 2024

- 6 pilots in demo regions to validate >9 technologies to recover bio-based fertilising (BBF) products from fishery and aquaculture by-products
- Agronomic performance of the obtained BBFs at different scales and environmental conditions (tested in 5 regions)
- Thorough quality and safety assessment of BBFs
- Complete sustainability assessment of the solutions (LCA, LCC, sLCA)
- Development of specific business models, and exploitation and replicability strategies

Fisheries: *fish, mollusc and crustacean by-products, tuna canning by-products and brines*

Aquaculture: fish sludge, fish processing by-products

Bokashi fermentation
Granulation
Freeze concentration
Pyrolysis
Twin Press Extrusion
Enzymatic hydrolysis and autolysis
Biodrying
Membrane systems

N-fertilisers
Organic pellets
Plant biostimulants
Liquid NPK fertilisers
Biochar
Organic and organo-mineral amendments
Liming agent
Protein extrudates

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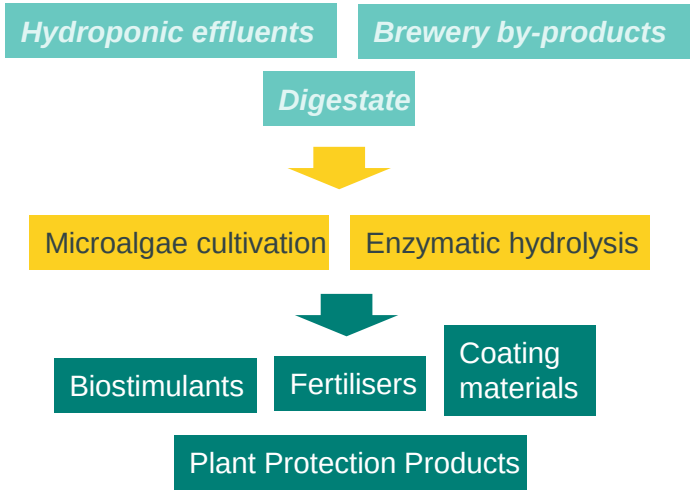
Practical Application of Bioeconomy-Based Solutions in the Basque Country

A 3-year Interreg POCTEFA project Jan 2024-Dec 2026

+1M€

- Development of microalgae-based prototypes for agricultural use: biostimulants, fertilisers, coating materials, plant protection products
- Cultivation of microalgae over agro-food wastes (hydroponic agriculture, brewery by-products, digestate from agro-food sector)
- Thorough assessment of expected biostimulation/ protection/other effects in plants



Interreg POCTEFA
Cofinanciado por la UNIÓN EUROPEA
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REAL-MAC

Reuse of Agri-Food Effluents for Microalgae Production and its Application in Circular Agriculture for the Territory

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Practical Application of Bioeconomy-Based Solutions in the Basque Country

A 4-year CBE JU Project Innovation Action – Demonstration Set 2024-Oct 2028

- Under-exploited agro-food waste and biowaste innovative transformation in 5 regions
- Production of 10 new BBFs at competitive prices + tailored and coated BBFs
- Agronomic assessment with a focus on nutrient loses and soil health
- Safety and sustainability assessment (human health, environmental, economic and social assessments)
- Industrial symbiosis platform + product passport tool
- Development of 5 communities of practice and Living Labs

Solid state fermentation

Microalgae cultivation

CO_2 valorisation from off gas

Twin-screw extrusion

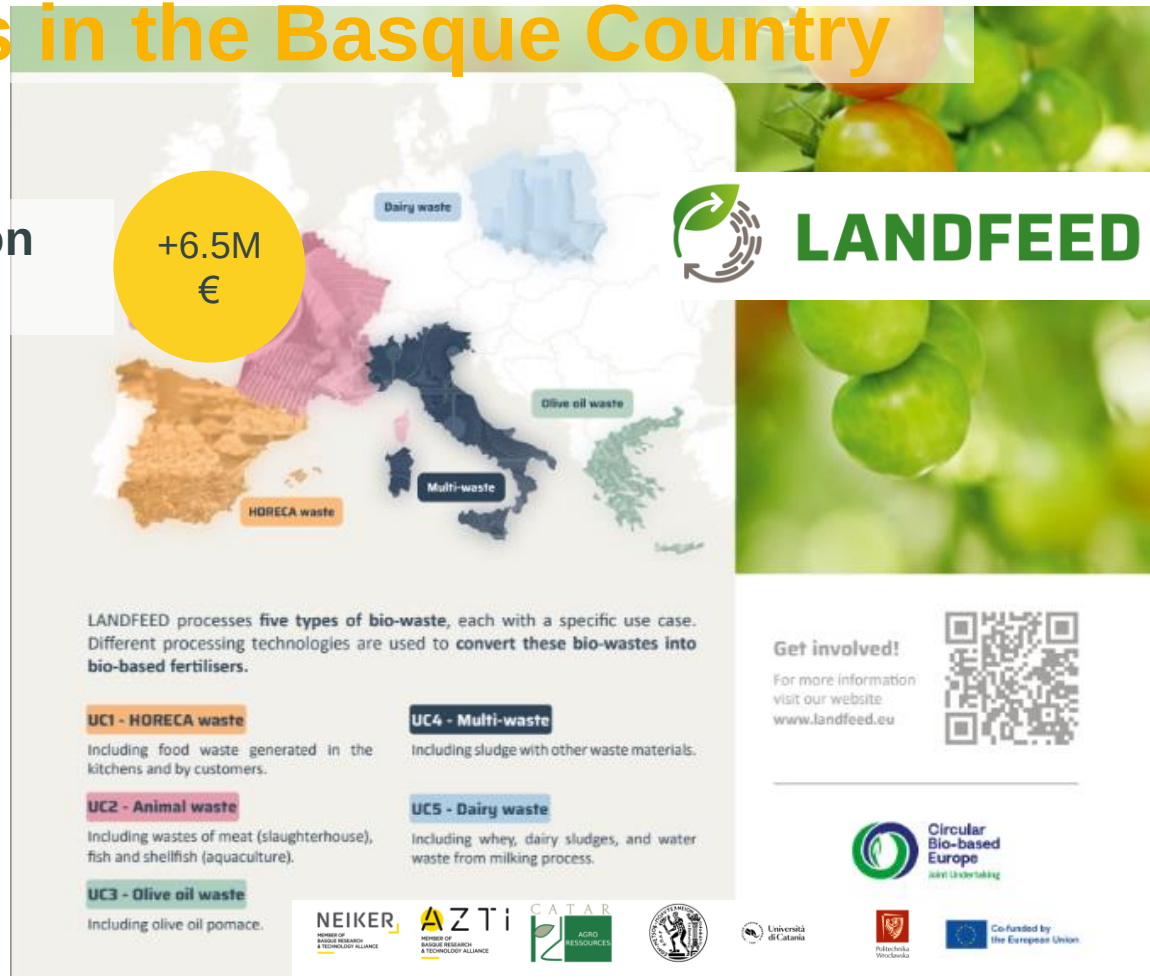
Chitosan extraction

Sequential enzymatic hydrolysis

10 BBF candidates

Formulation

2 Biodegradable coatings



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Roundtable Discussion

UNLOCK Value Chains

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Farrelly Mitchell – Role in UNLOCK

Stakeholder Mapping

Process Simulation

TEE Analysis

Regulatory Review

FARRELLY MITCHELL
Food & agribusiness specialists

Value Chain Analysis

- Stakeholder engagement
- Current practices
- Present challenges
- UNLOCK's value chains
- Barriers to the novel value chains
- Solutions

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Roundtable Discussion

CEDROB

Damian Gajdarenko

bio-mi
SUSTAINABLE SOLUTIONS

Filip Miketa

FARRELLY MITCHELL
Food & agribusiness specialists

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UNLOCK products and market potential

Productos del proyecto UNLOCK y su potencial de mercado

Manel Casserres (ACUDAM)

Wednesday, 26th March 2025

This project has received funding from the BBI-JU under the H2020 programme grant agreement Nº 101023306

Products overview

Unique

Only products that include keratin from feather waste (proprietary technology).

Biodegradation testing

Conducted testing in various normalized environments:

European standard EN 13432

Home composting

Soil biodegradability

Target market

Agricultural applications.

Authentic

Developed and produced by experts in the field.

HYDROPONIC FOAMS

Biodegradable Foams for Hydroponic Crops – Keratin pebbles

Composition

Foamed biodegradable plastic with treated feathers (microbial fermentation and/or steamexplosion treated feathers).

Manufacturing

Produced by gas assisted extrusion.

Application

Substrates for hydroponic crops. It replaces clay pebbles current substrates.

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Product benefits

Biodegradable Foams for Hydroponic Crops – Keratin pebbles

Circularity

Keratin pebbles are made from renewable and biodegradable raw materials. They can be composted at the end of their lifecycle, promoting a circular economy.

Ad hoc end of life

Depending on the formulation, these pebbles can be composted under industrial conditions or naturally degrade in the soil.

Fertilizing effect

As they degrade, the pebbles release organic nitrogen into the substrate, enhancing plant growth.

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Market overview

Biodegradable Foams for Hydroponic Crops – Keratin pebbles

€

- Emerging market in sustainable agriculture and hydroponics
- Increasing demand for eco-friendly and biodegradable substrates
- Growing investment in circular economy solutions for agriculture

Market opportunities

- Sustainable alternative to non-renewable clay pebbles in hydroponics
- Biodegradable and naturally decomposable
- Hydroponic growth in urban and vertical farming

Market drivers

- Sustainable regulations driving renewable growing mediums
- Few competitors in biodegradable hydroponic substrates
- Waste valorization through keratin-based circular economy products

MULCH FILMS

Mulch films

Composition

Blend of biodegradable plastics with steam explosion treated feathers.

Manufacturing

Produced by extrusion film blowing.

Application

Soil protection in different crops (prevents the growth of weeds, loss of moisture, etc.).
Replaces polyethylene (PE) film.

Product benefits

Mulch films

Circularity

Unlock mulch films are biodegradable in soil following ISO17556.

Zero waste in soil.

Fertilizing effect

Keratin-based mulch films help crops by weed control, reduction of use of water and pesticides, and reducing fertilizer use due to their contribution of nitrogen to the soil.

Ad hoc end of life

UNLOCK mulch is designed for short-term crops (3-6 months)

Fossil-based products replaced

Keratin-based biodegradable mulch films deliver enhanced agronomical effects.

Easier logistics: not necessary to manage the waste.

Market overview

Mulch films

€

80,000t/ year are placed on the market in Europe

20,000t/ year are used in Spain

Market opportunities

- **EU Fertilizers Regulation: New regulation compliance for mulch films.**
- **Strategic partnerships with agricultural supply chains.**
- **Establishment of closed-loop agricultural systems.**

Market drivers

- **Increased scrutiny of microplastic contamination in agricultural soils**
- **Growing consumer awareness of sustainable practices and soil health.**
- **Ease to integrate into existing industrial and agricultural machinery (easy to process and good performance)**

NONWOVEN GEOTEXTILES

Non-woven geotextiles

Composition

Biodegradable fibers (synthetic and natural) combined with mechanically ground feathers.

Manufacturing

Produced by needle punching
Complete process for geotextiles manufacturing.

Application

Crop protection, avoiding soil erosion, weed growth prevention. It replaces polypropylene Geotextiles.

Production process

Treated feathers: mechanical griding → Needle punching with feathers → Calendering with pressure

Product benefits

Non-woven geotextiles

Circularity

Waste from the poultry industry is a valuable raw material in plant food production

Fertilizing effect

Feathers contain about 15% nitrogen, so each m^2 of nonwoven fabric can deliver up to 15 g of nitrogen to the soil

Ad hoc end of life

Nonwovens are partially biodegradable in soil and fully biodegradable under composting conditions. Decomposition products in soil are not harmful to microorganisms and plants.

VALIDATION IN FIELD

DISINTEGRATION IN SOIL ENVIROMENT

Initial

After 24 weeks

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Market overview for nonwoven

Non-woven geotextiles

€

Opportunity to build

Fully inclusive market

Total addressable market

Market opportunities

Freedom to invent new technology

Selectively inclusive market lack of natural competitors

Serviceable available market huge potential of business partnership

Market drivers

Few competitors huge and growing demand

Specifically targeted market diversion of suppliers

Serviceable obtainable market growing ESG regulation increasing demand

Or

Increasing environmental awareness among farmers. Organic food production. Searching for alternatives to nonwoven fabrics made from petroleum-based raw materials.

SEED TRAYS

Composition

Blend of biodegradable plastics with steam explosion treated feathers.

Manufacturing

Produced by thermoforming.

Application

Containers of seed growth for plants and flowers.
Containers of seed growth for shrubs and trees

Product benefits

Seed trays

Circularity

Chicken feathers turs into Nitrogen in soil

Ad hoc end of life

Compostable in industrial conditions

Fertilizing effect

Enriches the soil with nitrogen.

Ongoing development

Under development biodegradable in soil materials.

SEED TRAYS: Market overview

€

Dynamic Market: 5% Yearly growth

Submarkets: Trees, shrubs, plants and flowers

Market lead by distributors and large farmers companies

Market opportunities

Target: Focus on niche markets

Ecologycal agriculture

High added-value products

Forest trees

Market drivers

Eu regulatories

Awareness of non-use of fossil resources

Innovation: antimicrobial and/or antifungal properties by including functional additives

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cidetec surface engineering

CEDROB

T.A. Terra Aquatica

Bioextrax

bio-mi SUSTAINABLE SOLUTIONS

Tecnpackaging

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UNLOCK

Final Conference: Circular Bioeconomy & EU Policy Innovation in Agriculture

Wednesday, 26th March 2025

Donostia / San Sebastián (Spain)
& online
14:30 to 18:00

Organised by

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Exploitation

Nada Panayiotou

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What we achieved

Key Exploitable Result (KER)	Interested Partner for Exploitation
Seed trays	ACUDAM
Geotextiles	Ł-IBWCh, PROCESSUM, CIDETEC, BIOEXTRAX
Hydroponic foams	AIMPLAS, GHE (Terra Aquatica now)
Keratin-based polymer compounds (eg. Pellets)	BIO–Mi, CIDETEC
Mechanical grinding	CEDROB
Mulching films	Tecnopackaging
Scaling up of microbial fermentation technology for feather treatment	BIOEXTRAX
Scaling up of steam explosion protocols for feather treatments	PROCESSUM, CEDROB
New production processes, databases and protocols.	Technology partners
Communication, dissemination and demonstration material	All partners

Why Unlcock is worth further exploitation and development.

Our Value Proposition

- Provides an alternative income stream to waste feather producers (slaughterhouses)
- Biobased – all end products
- Biodegradable in soil – mulching films and non-woven geotextile
- Industrially Compostable – all end products
- High circularity
- Equal or superior mechanical properties compared to conventional alternatives
- Improves soil quality and plant growth
- Eliminates soil pollution risk from plastic
- Reduced waste generation. Eliminates need to remove and dispose of plastic materials from the field

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Exploitation of project results

Business Models

Partner Organisation	Unlock product / process	Business Model
CEDROB	Ground feathers	Own feather source. Production and sale directly to the Unlock Value Chain and other potential end users.
PROCESSUM	Steam Explosion	Supply the steam explosion technology to third parties on a license base. Sell the steam explosion machine.
Ł-IBWCh	Non-Woven geotextiles	Licensing or technology transfer
BIOEXTRAX	Microbial fermentation, hydrolysed protein, keratin microfibers	Licensing the Process to third parties.
Bio-Mi	Compound materials	Source Unlock primary materials. Production and direct sale of compounds mainly to the Unlock Partners.

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Task 7.2 Exploitation and business plan

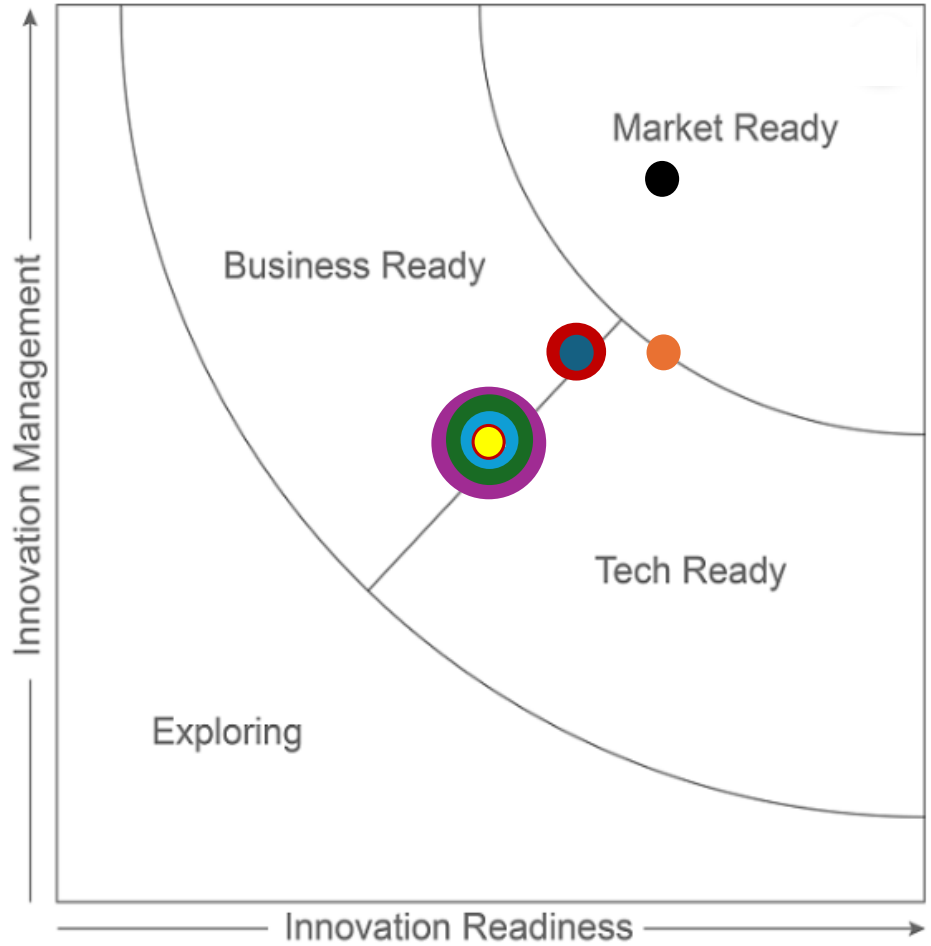
Business Models (*cont.*)

Partner Organisation	Unlock product / process	Business Model
Techno	Mulching films	Licensing the technology to industrial manufacturer.
Terra Aquatica/ AIMPLAS	Hydroponic Foams	AIMPLAS aims to transfer the technology to a third party. Terra Aquatica aims to purchase the Foams from manufacturers and resell to its existing client base.
ACUDAM	Seed / Forest Trays	Source Unlock Polymers from downstream partners (BIO-MI). Production and direct sale of trays through the existing client base.

WP7 Task 7.1 Replicability / Innovation Radar

Innovation Radar Score diagram

- Ground Feathers (CEDROB)
- Steam Explosion (PROCESSUM)
- Seed and Forest Trays (ACUDAM)
- Non-Woven Geotextiles (Ł-IBWCh)
- Mulches (TECHNO)
- Hydroponic Foams (Terra Aquatica / AIMPLAS)
- Microbial Fermentation/hydrolysed (BIOEXTRAX)
- Compound Materials (Bio-Mi)



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Overall Replicability

Factor	No go factors present	Driver / barrier rating	Comments / degree of confidence
Innovation Radar Score	No	Medium	Rating ranges from High to Low for the various organisations along the value chain.
Regulatory and Policy Barriers and Drivers	No	High	Favourable policy environment (But no firm decision to phase out the traditional plastics)
Business Plan Conclusions	No	Medium	The Business Plan indicates good potential for some of the End Products but significant constraints for others, due to high production cost.
Stakeholder Readiness Level _ Market	No	Medium	Given the conclusions of the market study and market validation, including feedback from partners and the Advisory Committee, the market is willing positive toward the products but reluctant to pay a premium price for it.
Stakeholder Readiness Level _ Policy	No	Medium - high	The policy environment is very positive. Nevertheless, it is uncertain whether there will be adequate financial support (subsidies) or regulatory enforcement (e.g. ban on plastics).
Stakeholder Readiness Level _ Industrial Partners	No	Medium	Industrial manufacturers still need to be engaged.

Task 7.2 Exploitation and business plan

Exploitation Roadmap

Action	Responsible	Timeline											
		Year 1				Year 2				Year 3			
Setup and preparation		X	X										
Finalise MOU for cooperation among partners	CIDETEC, All relevant partners	X	X										
Each partner to allocate team repsonsible for the Exploitation Plan	All Partners	X											
Completion of the Value Chain		X	X	X	X	X	X	X	X				
Identify and set up agreements with industrial manufacturers for Hydroponic Foams, Steam Explosion, Non Woven Geotextiles and Microbial fermetation	IP owners	X	X	X	X	X	X	X	X				
Planning for scaling up should be further refined when industrial partners enter the value chain.	All partners					X	X	X	X	X	X	X	X

Task 7.2 Exploitation and business plan

Exploitation Roadmap

Action	Responsible	Timeline											
		Year 1				Year 2				Year 3			
Joint research		X	X	X	X	X	X	X	X	X	X	X	X
Each partner to allocate team repsonsible for the Exploitation Plan	All partners	X											
Monitoring funding opportunities	Joint Research Team		X	X	X	X	X	X	X	X	X	X	X
Preparation of Joint Reseacrh Proposals	Joint Research Team		X	X	X	X	X	X	X	X	X	X	
Other		X	X	X	X	X	X	X	X	X	X	X	X
Maintain the Unlock website for 3 years	AIMPLAS	X	X	X	X	X	X	X	X	X	X	X	X
Participation in Conferences, preparation of scientific papers	Technical Partners	X	X	X	X	X	X	X	X	X	X	X	X
Utilise data, results and documents to promote the Unlock results	All Partners												
Communication of Unlock data, results and documentation to decision makers to promote promote policy development	All Partners												

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CEDROB

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POLICY UPTAKE

Giorgio Alessandro & Laura Nieto, Greenovate! Europe

San Sebastian, 26th March

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Outline of the presentation

1. EU Policy Framework
2. EU regulation for UNLOCK's innovative products
3. Policy Recommendations
4. Interactive session
5. Discussion and wrap up

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EU Policy Framework in the Circular Bioeconomy

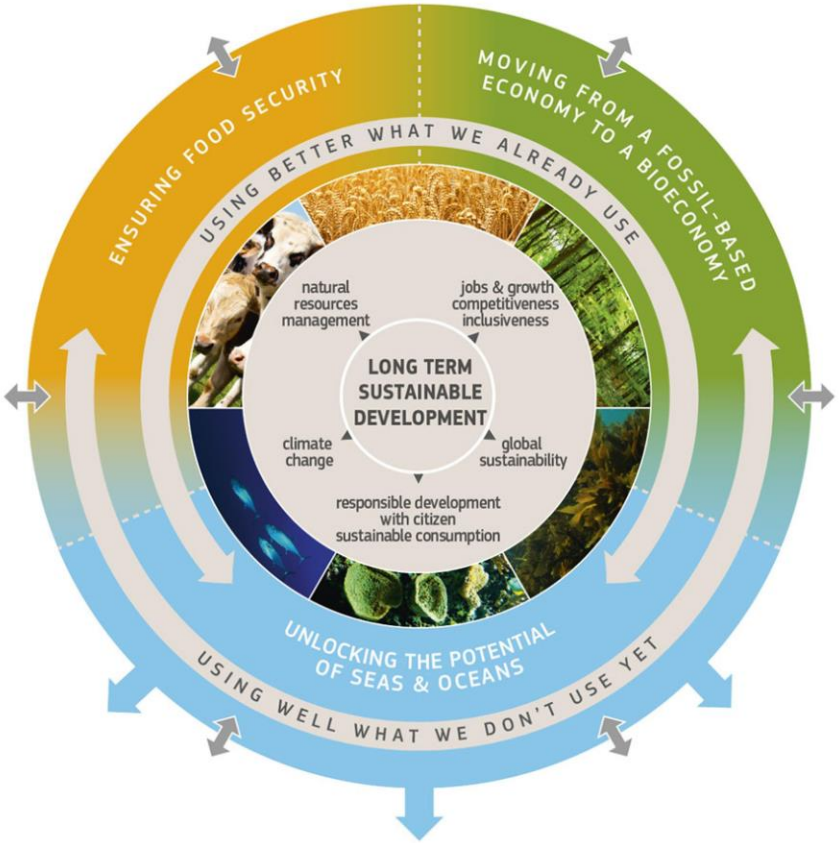
UNLOCK aligns with EU initiatives for the construction of a **circular bioeconomy**, such as:

The EU Circular Economy Action Plan

- EU Plastics Strategy, EU Strategy for Circular Textiles
- Circular Economy Act – expected in 2026

• The EU Bioeconomy Strategy

- Revision of the EU Bioeconomy Strategy by end of 2025



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EU Bioeconomy Strategy

- **Circular economy principles**: ensuring the sustainable use of biomass, including animal by products, to support a **bio-based economy**
- **The new EU bioeconomy strategy - by end of 2025**
  - Need to reinforce the bioeconomy's industrial dimension - links to biotechnology and biomanufacturing (**Communication on biotechnology and biomanufacturing**)
  - **A circular and resource efficient bioeconomy** – making more value from less resources
  - **Call for evidence and public consultation:** Have Your Say Portal (expected in Spring 2025)

UNLOCK contribution to the EU Bioeconomy Strategy development

- **Soil protection** and **soil enhancement:** removing the the feather landfilling threat to soil ecosystems and fertilising effect
- ***Sustainable Resource Management:*** using feather waste to create sustainable bio-based products
- ***Reducing dependence on non-renewable resources****:* alternative to substitute fossil materials in agricultural applications
- ***Job Creation:*** *creating jobs in the bioeconomy, UNLOCK fosters long-term competitiveness*

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EU regulations for UNLOCK's innovative products

Compliance with specific **EU regulatory frameworks** is crucial:

- **EU framework for animal by-products – ABP Regulations**
- **The EU policy framework for bioplastics**
- **EU standards for biobased products**
- **Compliance with Chemical Regulations by ECHA** (e.g., Registration, Evaluation, Authorisation and Restriction of Chemicals - REACH)

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EU policy framework: Biobased, biodegradable, and compostable plastics

- The **EU Communication** (**November 2022, not legally binding)**
  - More clarity on *biobased, biodegradable and compostable plastics*
  - Conditions to ensure that the environmental impact of their production and consumption is positive
  - Guide future EU Policy or legislation on such matters

- **No EU law in place** applying to biobased, biodegradable and compostable plastics in a comprehensive manner (only specific laws: **directive on single-use plastics** and **directive on plastic bags**).

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EU Standards for bio-based products

- **Harmonised EN standard** for industrially compostable packaging, and for one biodegradable in soil mulch firms
- Sets of **European standards for Biobased products**
- **No comprehensive standard** for the certification of biobased products

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Policy Recommendations

4 groups of recommendations

- Regulatory & Policy Support
- Economic & Market Incentives
- Technical Development & Value Chain Optimisation
- Stakeholder Engagement & Awareness

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Regulatory & Policy Support

- Regulate the Use of Conventional Plastics in Agriculture
- Create an Overarching Sustainability Standard
- Establish Clear Biodegradability Standards & Certifications
- Encourage Circular Economy Models

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Economic & Market Incentives

- Introduce Financial Incentives for Bio-Based Materials
- Expand Investment Support for Emerging Bio-Based Solutions

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Stakeholder Engagement & Awareness

- Enhance Farmer Engagement through Clustering & Demonstration Activities
- Educate Farmers and End-Users on the Benefits of Biodegradable Mulch Films & Products
- Create Awareness of Economic Benefits of Biodegradable Products

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Have your say!

How important do you consider each of the following recommendations for supporting the bioeconomy?

Scan this QR Code or go to mentimeter.com and write **5323 3067**

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Thank you!

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UNLOCK

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& online
14:30 to 18:00

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BEYOND UNLOCK

KATARZYNA RULL QUESADA (KOWALSKA)

26/03/2025

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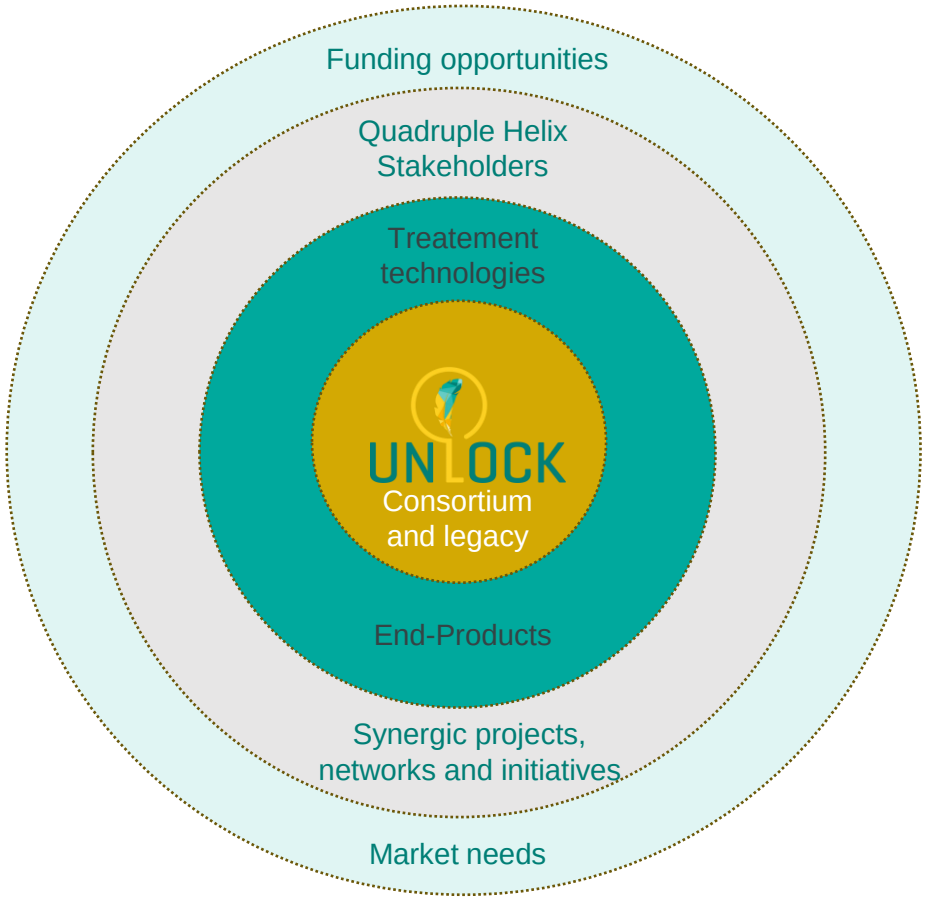
Beyond UNLOCK

STRATEGIC AXES

1. Support the uptake UNLOCK solutions
2. Clustering for partnerships and interconnections
3. dentify and seize funding oppprtunities
4. Excellence, skills and competence building
5. Exploring, experimenting and co-creating



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Stakeholder mapping, empowerment and synergy building

Stakeholder mapping and relationships building

Mapping of related projects and synergies

Clustering

Spain

Poland

France

Pan-European level

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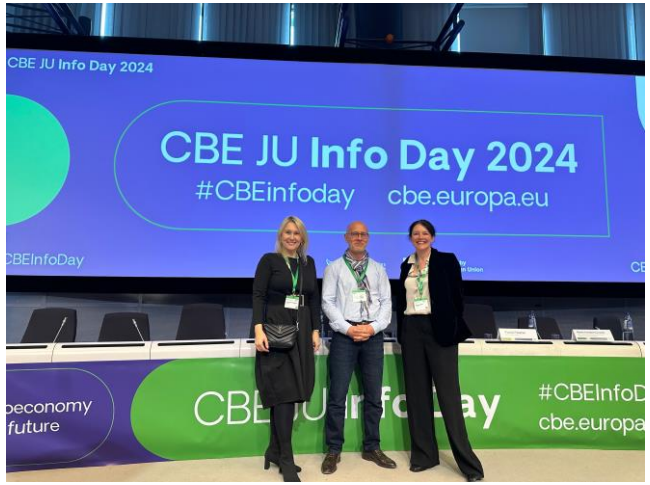
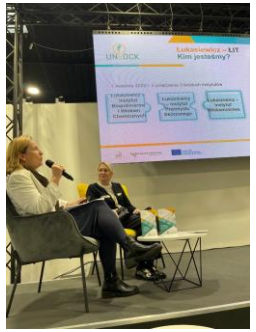
Pan European clustering, dissemination and engagement





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Regional and cross-regional clustering with tangible and actionable approach

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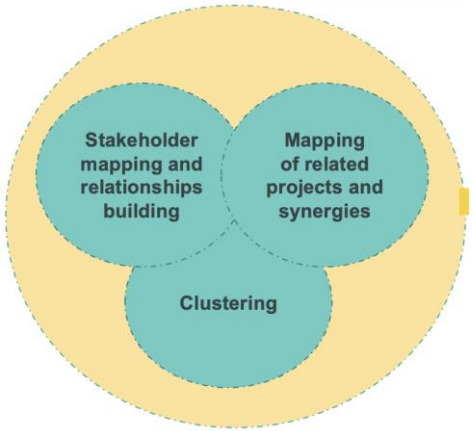
Clustering to promote feather-based bioeconomy



Quadruple Helix
Network and clustering approach
Dynamic capabilities
Interproject connections
Cross-regional, cross-sectoral and cross-industry dimensions
around shared area of interest

Concept	Country/ activity	UNLOCK Collaborative workshop	Pan-European and networking events	UNLOCK Roadshow	Pan-European and networking events	UNLOCK Dissemination Events
New feather-based bioeconomy clusters	**Poland**	**UNLOCK Cross-sectoral workshop - Warsaw, Poland** 29 February 2024	**European Cluster Conference 2024 Brussels, Belgium** 8 May 2024 **UNLOCK Networking Event Warsaw, Poland** 15 October 2024 **UNLOCK Networking Event Brussels, Belgium** 23 October 2024	**Poultry Fair and BioAgro Fair - Warsaw, Poland** 13-15 October 2024	**BIO-BOOST Final** Conference **Brussels, Belgium** 23 January 2025 **BIC Matchmaking Event Brussels, Belgium** 11 February 2025 **BIOKET Brussels, Belgium** 12-14 March 2025	**Bioeconomy Conference and CBE JU - Warsaw, Poland** 05 March 2025
	France	**UNLOCK Cross-sectoral workshop Reims, France** 20-21 March 2024		**Bio360 Nantes, France** 5-6 February 2025		**SIA Pro / Salon D´Agriculture Paris, France** 23-25 February 2025
	Spain	**UNLOCK Cross-sectoral workshop Granada, Spain** July-August 2024		**Expo AgriTech 4.0 Malaga, Spain** 26-28 November 2024		**Foro Transfiere Malaga, Spain** 12-14 March 2025
	Starting month	M34		M40		M46

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Leveraging Pan-European clustering network and stakeholders

Regional Clustering approach

Pan European clustering approach

Thematic / Sectoral Approach

Poland

POULTRY TECH

BIOAGRO POLSKA

Spain

EXPO AGRITECH
LA FERIA DEL CAMPO 4.0

Transfiere
European Meeting on Science, Technology and Innovation

France

bio360 expo le salon bioénergie - bioéconomie

11-12 février Nantes 2026 PARC EXPO

SIAPRO 23>25 FEV 2025 Paris Expo Porte de Versailles

CBE JU Info Day 2025
3 April, Brussels
Register now!
#CBEInfoDay

EUROPEAN CLUSTER CONFERENCE 2024

BIC MATCHMAKING EVENT
12 FEBRUARY 2025

Bio-based Industries Consortium
BIOKET
The global conference dedicated to PROCESSES AND TECHNOLOGIES APPLIED TO BIOMASS

NEW GATES FOR A NEW ERA

PACT FOR SKILLS

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STRATEGIC AXES

1. Support the uptake UNLOCK solutions
2. Clustering for partnerships and interconnections
3. Identify and seize funding oppprtunities
4. Excellence, skills and competence building
5. Exploring, experimenting and co-creating

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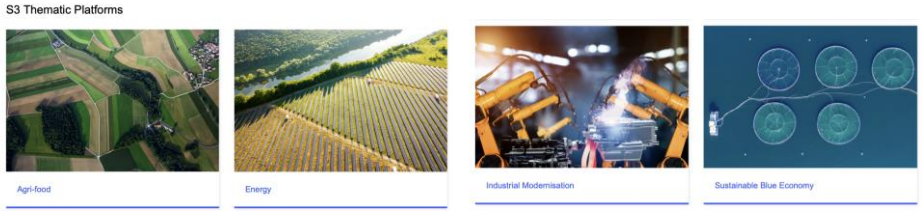
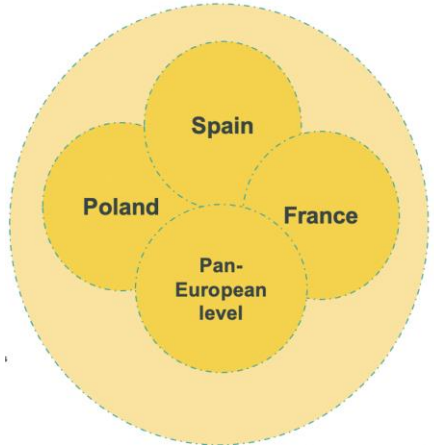
Pan-European S3 Community of Practice platform to disseminate UNLOCK results beyond project

S3 COMMUNITY OF PRACTICE



Ingredients
for **circular economy**
and biosolutions



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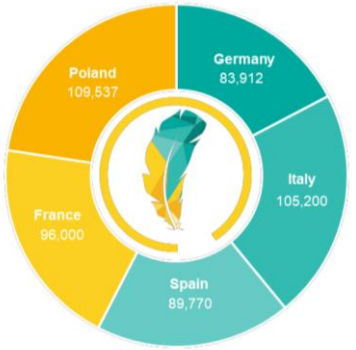

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Keep boosting synergies between ongoing and future European projects and networks

UNLOCK

AURORA

SCALE UP community-driven bioeconomy development

BIO-Boost

UNLOCK

bioSoilutions

suave URBAN AGRICULTURE

BRILIAN Circular Future for Rural Areas

Engagement of cross-sectoral communities

BEAGLE

BResilient

BIOPYRANIA

EURO CLUSTERS

Circular Bio-based Europe Joint Undertaking

Screening funding opportunities

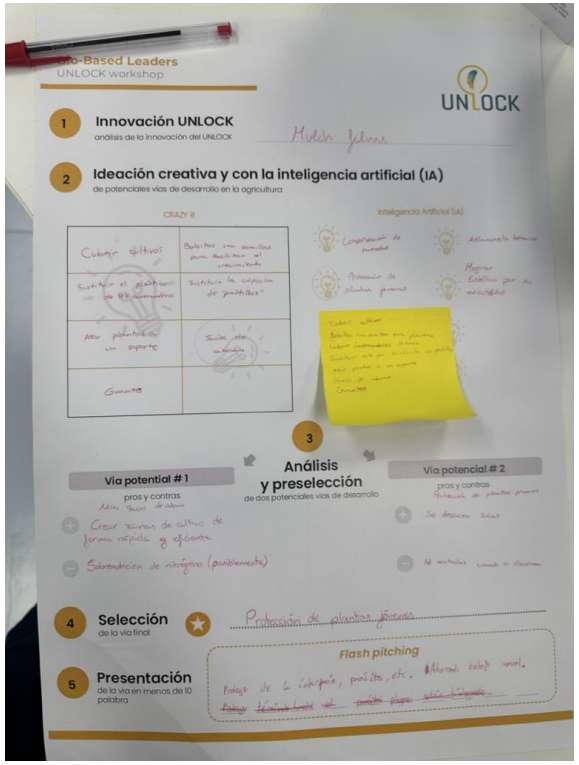
CASCADE FUNDING open calls

Regional and national funding opportunties

4. Excellence, skills and competence building

Replicate participative workshops based on UNLOCK cases, digital and agile methodologies

Concept	Workshop # 1	Workshop # 2	Beyond UNLOCK
Pilot participative workshops on UNLOCK cases	Poland, Radom 17.10.2024	Spain, Granada - 22.11.2024	Online and in-person collaborative formats
	Startup your bio-based business! Vocational education institute with experimental fields	Local Bio-based Leaders Vocational education institute with garden school	For PhD students For Young Entrepreneurs For Local Leaders For wider audiences interested in circular agriculture
	Clustering Poland	Clustering Spain	Other regions and countries



Promote actionable collaborative initiatives using UNLOCK developments as tangible inspirations

Conduct pilots, experiments and collaborative initiatives working with UNLOCK developments

ON THE GROUND

with cross-sectoral, cross-industry and/or cross-regional approaches

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THANK YOU

AND LOOKING FORWARD TO COLLABORATING WITH YOU!

KKOWALSKA@UNIMOSALLIANCE.COM

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UNLOCK

Final Conference: Circular Bioeconomy & EU Policy Innovation in Agriculture

Conclusions by Sarah Montes – UNLOCK's coordinator

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