



The importance of partnerships for a sustainable industry

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The Bio-based Industries Consortium



Bio-based Industries Consortium

biconsortium.eu



The Bio-based Industries Consortium (BIC) is a non-profit organisation connecting industry, academia, regions and citizens to transform bio-based feedstocks into novel sustainable products and applications, and create circular bioeconomy ecosystems through investments, innovation and know-how.

300+

industry (full) members

large companies and SMEs

240+

associate members

research organisations, academia and trade associations



1 CBE JU	2 Business
② BIC represents the private sector in a public-private partnership with the European Commission called the Circular Bio-based Europe Joint Undertaking	② Facilitating connections and providing market intelligence through activities including networking events and commissioned reports/studies
3 Finance	4 Society
② Mobilising public and private finance and investors through services such as a regional funding platform and a pitching event	② Increasing awareness, knowledge, acceptance and education through activities such as a student competition (BISC-E) and positive impact stories on the BIC Investment Portal



BIC also carries out specific activities to achieve a favourable policy, regulatory and financing framework for the bio-based industries, such as representing our members interest vis-à-vis the EU Institutions.

BIC Industry members

Plus 120+ SMEs represented by national or regional clusters

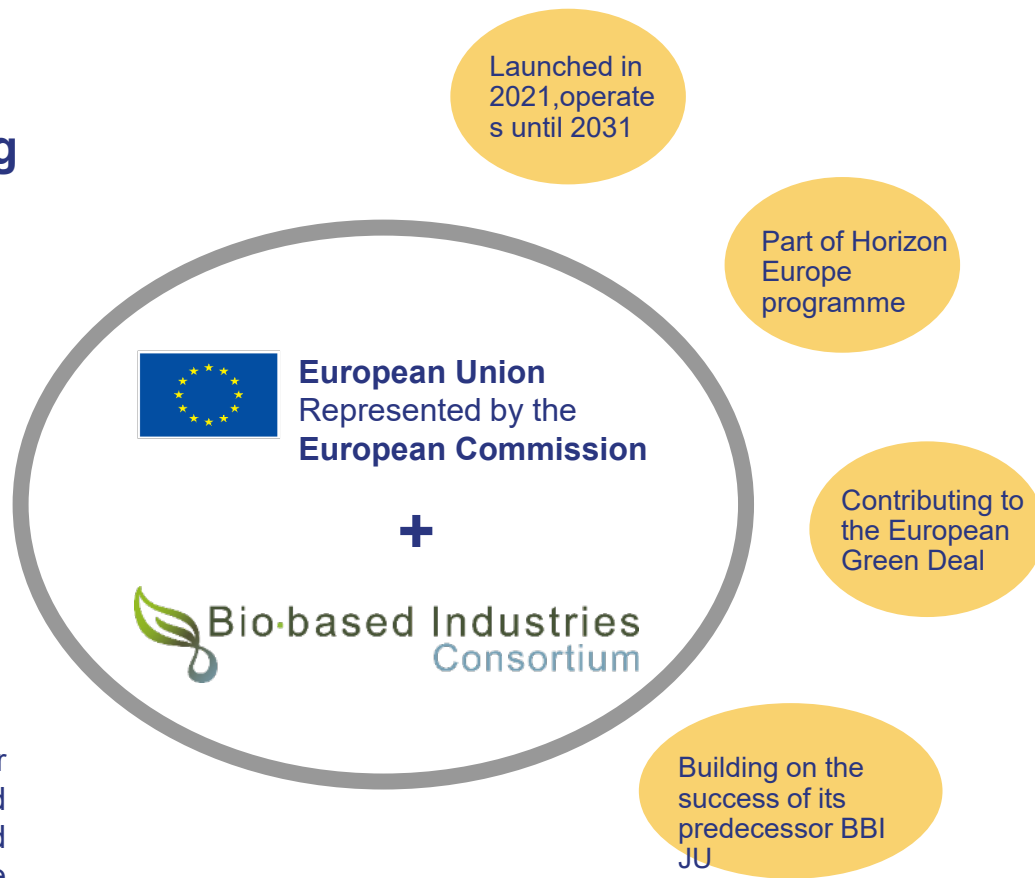




The CBE JU: a public private partnership & examples

Circular Bio-based Europe Joint Undertaking

€2 billion public-private initiative



CBE JU is funding projects that deliver bio-based solutions – materials and products made from waste and biomass – in an innovative, sustainable and circular way



2014-2021

1 billion EUR



2,7 billion EUR

2022-2029

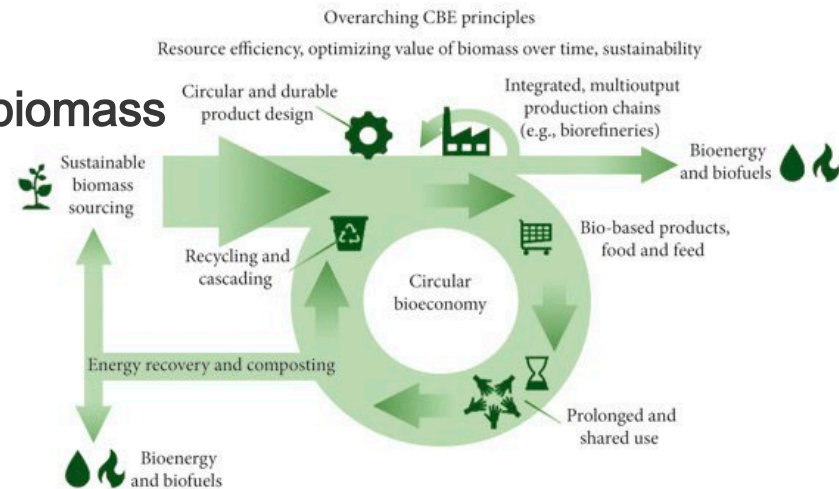
1 billion EUR



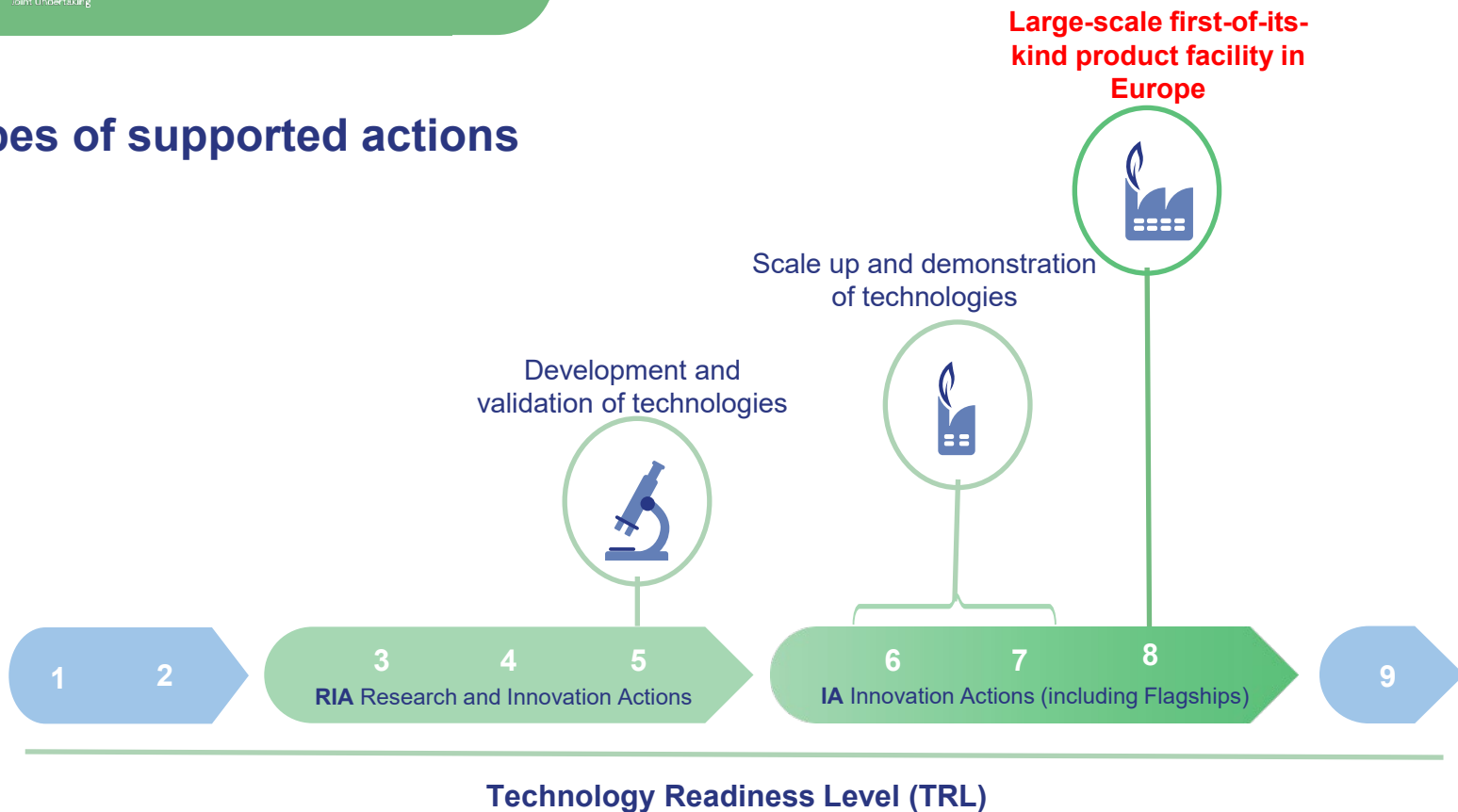
1 billion EUR

CBE JU basic principles

- Creating and supporting local **bio-based value chains** :
 - Multi-actor approach– integration of all stakeholders (including primary producers & brand owners) from a value chain
 - Regional dimension
- Developing **sustainable and circular** solutions
- Co-production and **industrial symbiosis**
- Cascading principle and **full valorisation** of biomass
- **Multi -input and multi -output** biorefineries
- Solid **business case** for innovations



Types of supported actions



CSA: Coordination and Support Actions (no link with TRLs)

Bio-based value chains envisioned in the BBI JU / CBE JU

Biomass and organic waste

From the agro-based industries

- Feedstock originating from the agriculture and agro-food industries
- Agricultural crops such as flax, hemp and fibre
- Co-products, side streams, and residues from the agriculture, including animal manure and from the agro-food industries, including residues from food processing plants

From the forest-based industries

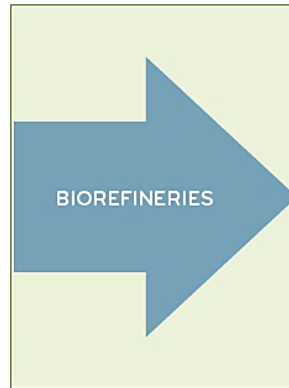
- Feedstock originating from the forest and forest-based industries
- 'Woody and non-wood forest feedstock'
- Co-products, side streams, and residues from the forest and forest-based industries, including the wood industry, saw mills, Paper and Pulp

From the aquatic-based industries

- Feedstock originating from the aquatic and aquatic-based industries, including aquaculture, the fish and fish processing industries
- Co-products, side streams and residues from the aquatic and aquatic-based industries

Bio-waste and CO₂

- Biodegradable garden and park waste
- Food and kitchen waste from households, restaurants, caterers and retail premises
- Waste water and sludge
- CO₂



Bio-based products & markets

- Bio-based chemicals
- Bio-based plastics, polymers, materials, packaging
- Specialties (for example bio-based surfactants, lubricants, pharmaceuticals, nutraceuticals, cosmetics)
- Textiles
- Food ingredients and feed
- Advanced biofuels



CBE JU flagship projects



Flagship
biorefinery

PROTEUS

1

Avaldsnes
Norway



2

Sarpsborg
Norway



3

Imavere
Estonia

WOODCELL

4

Imavere
Estonia



5

Riga
Latvia



6

Co. Tipperary
Ireland

PLENITUDE

7

Sas van Gent
The Netherlands

CIRCLE

8

Amsterdam
The Netherlands



9

Delfzijl
The Netherlands



10

Amiens
France



11

Saint-Avoid
France



12

Saint-Avoid
France



13

Hervás
Spain



14

Zaragoza & Sesto
San Giovanni
Spain & Italy



15

Baillargues
France



16

Le Péage-de-Roussillon
France



17

Porto Torres
Italy



18

Bottrighe
Italy



19

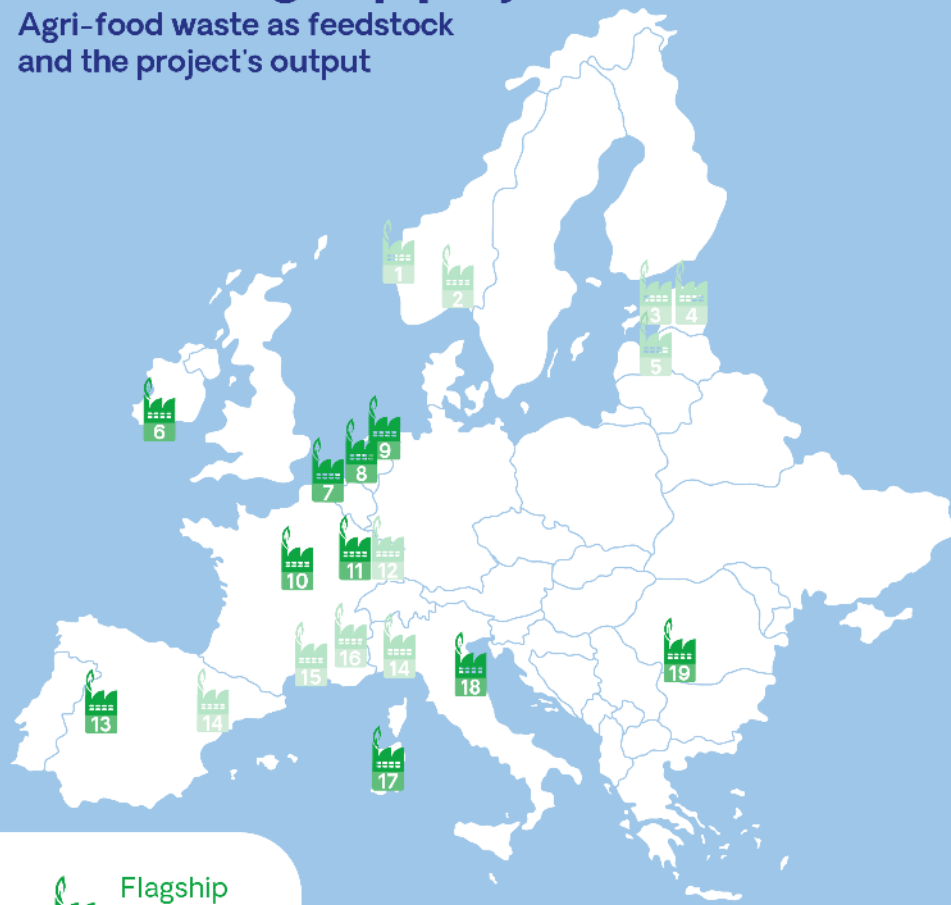
Podari
Romania



Circular
Bio-based
Europe
Joint Undertaking

CBE JU flagship projects

Agri-food waste as feedstock
and the project's output



Flagship
biorefinery



6 AgriChemWhey
Dairy sidestreams
↳ Lactic acid, minerals
for food and fertilisers



8 CIRCLE
Food waste
↳ Lactic acid (LA) and
Polylactic acid (PLA)



7 PLENITUDE
Residues of cereal crops
↳ Mycoproteins



9 PEFerence
Crop residues
↳ FDCA for bio-based
materials



13 SUSTAINEXT
Crops & agro-industrial
sidestreams
↳ Ingredients for food, feed,
cosmetics & fertilisers



18 TERRIFIC
Waste from agriculture
and food industry
↳ Bio-based packaging



19 LIGNOFLAG
Crop residues
↳ 2G bioethanol biofuel -
building block



10 FARMYNG
Mealworms & agri-food
sidestreams
↳ Proteins for animal feed
& organic fertiliser



11 AFTERBIOCHEM
Sidestreams from sugar beet
↳ Flavourings, fragrances, hygiene
products, pharmaceuticals,
antimicrobials & polymers



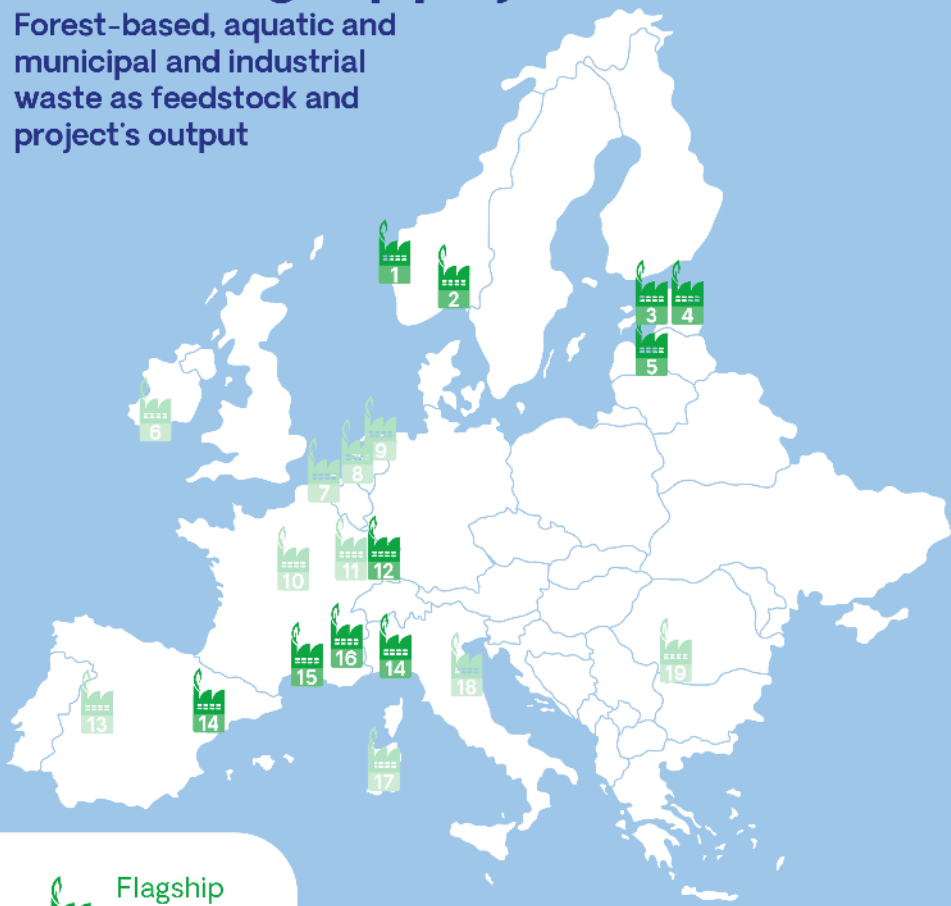
17 FIRST2RUN
Underutilised oil crops
↳ Building blocks for polyester
production



Circular
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Europe
Joint Undertaking

CBE JU flagship projects

Forest-based, aquatic and municipal and industrial waste as feedstock and project's output



Flagship
biorefinery



1 PROTEUS

Brown alga
↳ Bio-based Ingredients for food, feed, personal care products and industrial applications



15 SCALE

Microalgae
↳ Nutritional Ingredients for food, feed & cosmetics



2 EXILVA

Cellulose
↳ MFC - MicroFibrillated Cellulose



3 SWEETWOODS

Lignin & hardwood residues
↳ High-quality C5/C6 sugars & dried lignin



4 WOODCELL

Locally sourced wood waste
↳ MCC - Microcrystalline Cellulose



16 SYLPLANT

Agri-based & wood based
↳ Alternative protein sources for food & feed ingredients



12 ReSolute

Sidestreams from pulp & paper industry
↳ Biodegradable, harmless & bio-based solvent: Cyrene



5 VIOBOND

Forest-based
↳ Bio-based resins



14 CIRCULAR BIOCARBON

Municipal solid waste
↳ High-value products from fertilisers to 5G technology

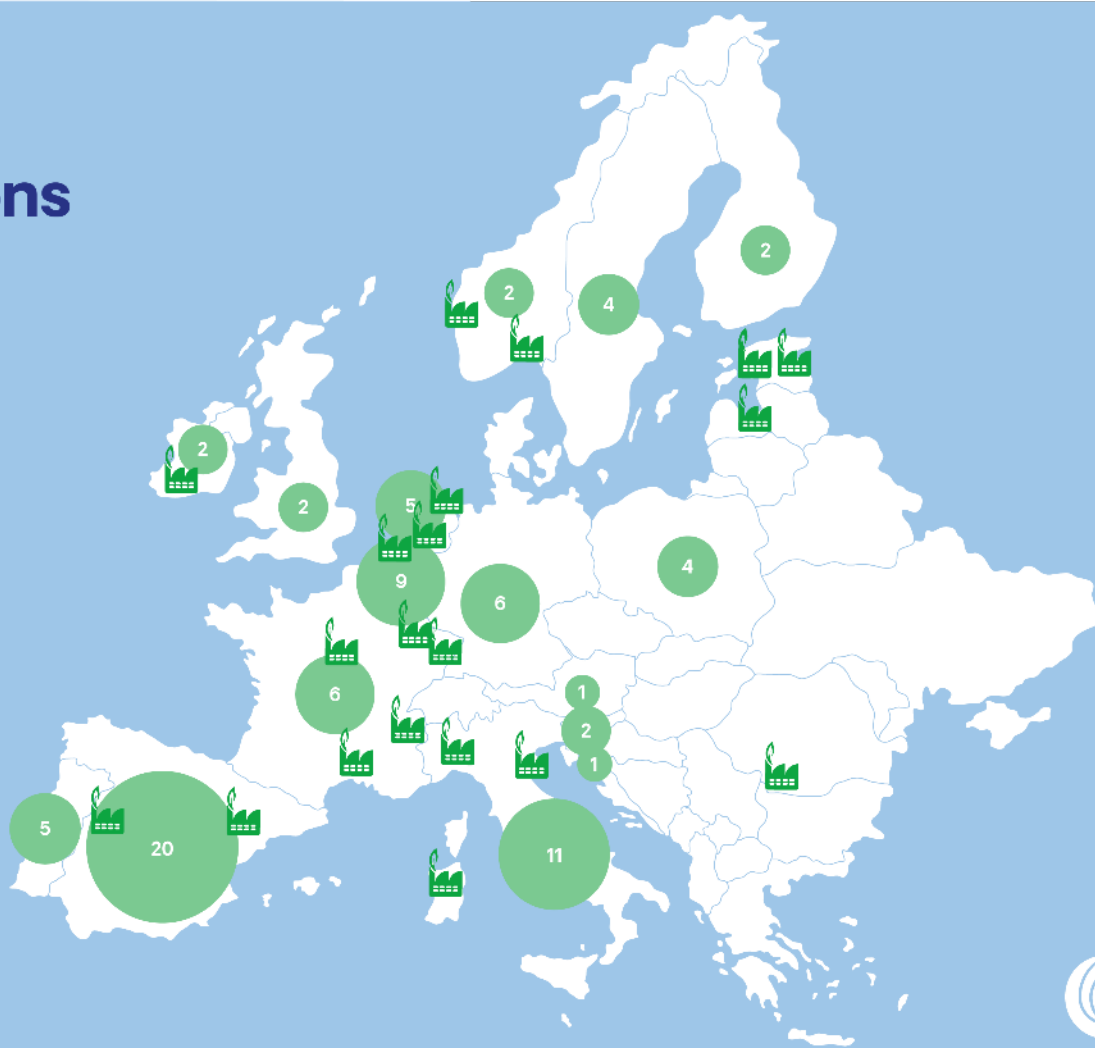


Circular
Bio-based
Europe
Joint Undertaking

CBE JU-funded Innovation Actions

 Flagship biorefinery

 Demonstration plants





EXILVA – Sarpsborg, Norway



SWEETWOODS - Imavere,
Estonia



FARMYNG – Amiens, France



PEFerence – Delfzijl, NL



PLENITUDE - Sas van Gent, the
Netherlands



LIGNOFLAG - Podari, Romania



AFTERBIOCHEM - Saint-Avold,
France



FIRST2RUN - Porto Torres, Italy



Flagship biorefinery



Flagship biorefinery Call 2020



CBE JU funding

€14.3 million

Biorefinery location

 Baillargues, France

Coordinator

Microphyt, France

Project focus



Food & feed



Cosmetics & personal care

What if we could grow renewable resources in very reduced space to free soil for agriculture and forests? What if we could even capture CO₂ from the atmosphere to feed this resource?

The SCALE project strives to build and operate the world's first fully integrated microalgae biorefinery to produce natural active ingredients of high nutritional value for the food, food supplements, feed, and cosmetics sectors.

Led by a French small business, this project aims to **reduce the dependency on fossil-based resources**, replacing them with bio-based alternatives.



CBE JU funding

€17 million

Biorefinery location

Sas van Gent,
the Netherlands

Coordinator

3F BIO Ltd.
United Kingdom

Project focus

Food & feed

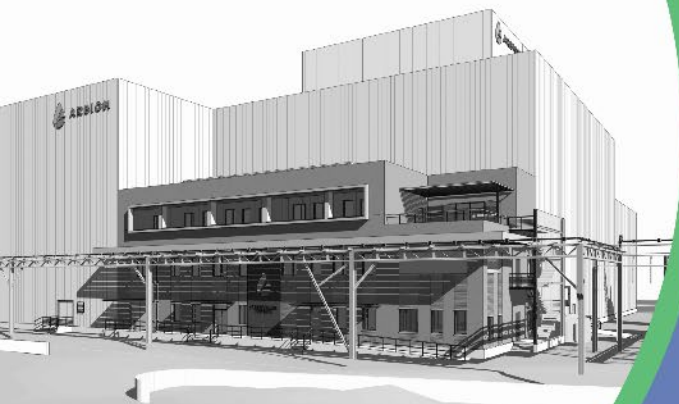


The European Union is by far the biggest importer of food worldwide. At the same time, there is an increased need for plant-based and sustainable alternative proteins.

The PLENITUDE project aims to produce affordable plant-based proteins for human consumption.

Their process **reduces substantial amounts of CO₂** per year and consumes significantly less water compared to beef farming while using waste from agriculture as the main resource.





CBE JU funding

€14 million

Biorefinery location

 Le Péage-de-Roussillon,
France

Coordinator

Arbion, France

Project focus

 Food & feed

The world faces the challenge of feeding a growing population sustainably. Additionally, the EU ought to reduce its large protein imports.

The SYLPLANT project will produce protein-rich ingredients from underutilised resources, like agricultural and forestry residues.

Building on the success of the CBE JU-funded SYLFEED demonstration project, SYLPLANT is constructing a commercial biorefinery to produce 10,000 tons of protein-rich ingredients for food and feed per year. It sets a roadmap for larger plants in other locations, showing how to use underused local resources to produce food and feed ingredients.

17 partners

3 years project

€14M funding

BUILD THE FUTURE OF SUSTAINABLE PROTEIN PRODUCTION IN EUROPE

Deploy Arbiom's first industrial plant to deliver highly nutritional, functional and sustainable protein-rich ingredients for food and feed markets.

FEEDSTOCK SOURCING

Wood by-products
Fibenol

Sustainable sugars & agricultural by-products

PLANT BUILDING & RAMP-UP OPERATION

Protein-rich ingredients production by yeast fermentation
ARBIOM

PRODUCT DEVELOPMENT & MARKET VALIDATION

SYLPRO **yusto**

PETFOOD
NORMANDISE Pet Food
AQUAFEED
BioMar
MOULIN DE LA MARCHE

FOOD
agro Roussiquaires
SAYENS
CENTIV
bel for all the good
biozoon

END-USER ENGAGEMENT

Consumer insights
lyfe

Exploitation
PNO

Dissemination
BIOECONOMY FOR CHANGE

Quality control **eurofins**

Sustainability assessment **ifeu** INSTITUTE FOR ENERGY AND ENVIRONMENTAL RESEARCH HEIDELBERG



Demo project: ALEHOOP

Biorefineries for the valorisation of macroalgal residual biomass and legume processing by-products to obtain new protein value chains for high-value food and feed application.

By developing an optimised seaweed biorefinery for obtaining proteins from green and brown macroalgal biomass to reach maximum yields of protein extraction



Research project: AQUABIOPRO-FIT

Aim: to develop high-quality proteins and bioactives from European aquaculture, fisheries and agriculture side streams for applications in fitness, health and animal feed.

AQUABIO
PRO-FIT



Nofima AS (Norway)
Universitat de València (Spain)
Aristotelio Panepistimio Thessalonikis (Greece)
Panepistimio Kritis (Greece)
Fundación Centro Tecnológico de la Carne (Spain)
Stichting Effost (Netherlands)
Biognosis Astiki Etaireia (Greece)
Marin Biogas Sverige AB (Sweden)
Pelagia AS (Norway)
Tsentar Za Izsledovatelska I Razvojnna Deynost Biointech
(Bulgaria)
Seagarden AS (Norway)

Other BBI/CBE projects

To prove the concept of the cascading marine macroalgal biorefinery. This is a production platform that covers the whole technological chain for processing sustainable cultivated macroalgae biomass – also known as seaweed – to highly processed value added products.



Other BBI/CBE projects



To develop and test new concepts, which will ensure that side-streams from aquaculture, fisheries and aquatic processing industries can be exploited for production of new products and ingredients.



COORDINATOR



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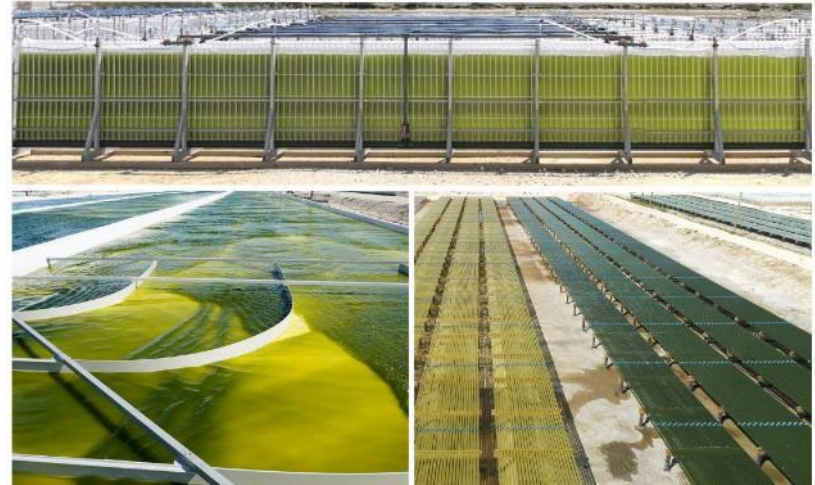
PARTNERS



Other BBI/CBE projects



To develop novel proteins from underexploited marine sources, including marine invertebrate and macroalgae discards and industrial biowaste and by-products, through fermentation (RIA project)



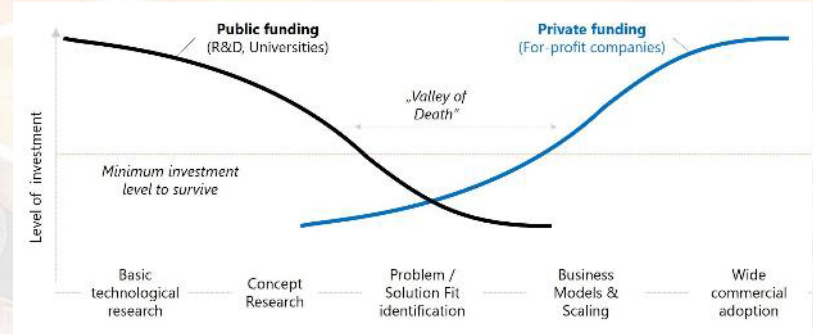
A sustainable multi-biorefinery for microalgae integrating industrial side streams to create high-value products (demo project)



Conclusions

Why are partnerships important

- Helping innovations to **progress through the valley of death**



- **Collaboration** is crucial: partnering with other industries (large & small, different sectors along the value chain, ...) & academia to set up new bio - based innovative value chains and eco-systems
- **De-risking** investments (demo & flagship)
- **Multidisciplinary** partnerships with complementary skills are needed

Thank you!

