



FERM4FOOD

Nourishing the future



info@ferm4food.eu



**Funded by
the European Union**

The project is supported by the European Union's Horizon Europe programme under Grant Agreement No 101262970. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.



**WHAT IF
EMISSIONS
COULD
HELP US?**

PROBLEM & PROJECT

The European food and drink industry is responsible for 15% of the EU's industrial CO₂ emissions, more than 100 million tonnes every year.

Fermentation processes alone, in breweries, wineries and bakeries, already account for over 10% of that total.

Most of this CO₂ is simply released into the air, while the ingredients our food system depends on keep coming from land and fossil-based sources under growing pressure.



FERM4FOOD demonstrates the first integrated, scalable EU platform that converts industrial CO₂ emissions into high-value, food-grade ingredients through precision fermentation with engineered microorganisms, targeting lactic acid, single cell protein and microbial oils.

At demonstration scale, real CO₂ emissions captured from an operating brewery are converted through advanced fermentation and purification, ensuring food-grade quality and safety. The resulting ingredients are validated in two consumer products: a protein-rich barista beverage and a functional beauty food pouch.

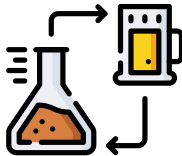
Throughout the process, digital twin modelling and sustainability assessment are used to optimise performance and support scale-up across the food sector.

**CAPTURE
FERMENT
CREATE**

RESULTS & IMPACTS



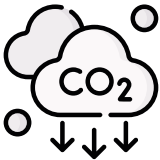
3 engineered microbial platforms:
lactic acid, single cell protein, microbial oils



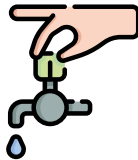
Real industrial CO₂ valorised at an operating brewery, at demonstration scale (TRL7)



2 vegan consumer products validated with real consumer panels



≥45% CO₂ emissions reduction vs. conventional ingredients



≥30% water savings and ≥20% energy savings vs. conventional processes



≥60% land use reduction vs. conventional ingredients



≥25 highly qualified jobs created or safeguarded



1.

CO₂ EMISSIONS

Real brewery emissions, TRL7 demo

2.

CO₂ CAPTURE

On-site capture unit

3.

FERMENTATION

Three ingredients in parallel

4.

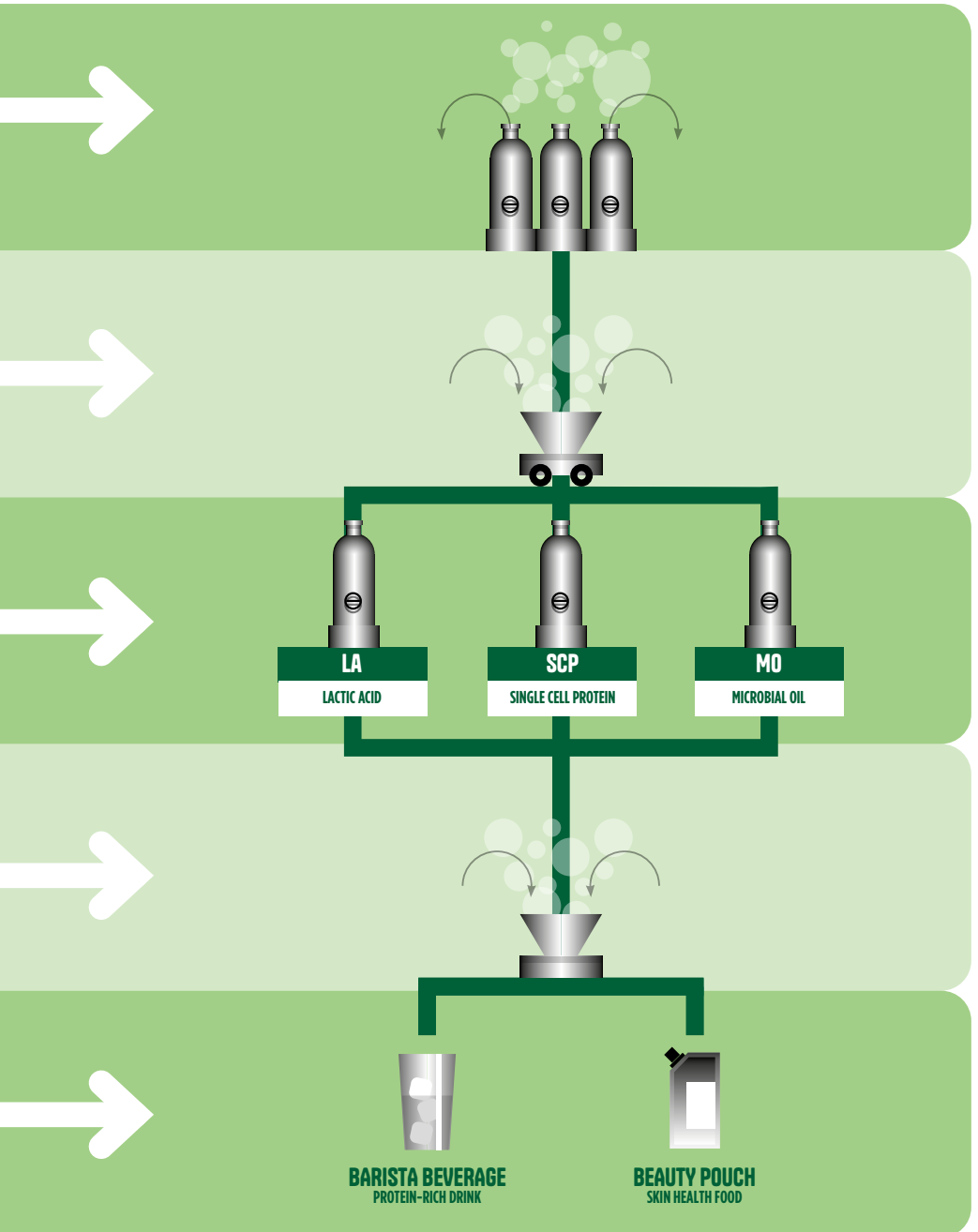
PURIFICATION

Food-grade quality

5.

FINAL PRODUCTS

Barista drink & beauty pouch



CONSORTIUM

15 partners, 8 countries.

1. SPAIN

ainia

fruselva
GROWING UP TOGETHER

food-i
INSTITUTE

INDUTEC
INDUSTRIAL TECHNOLOGICAL CENTER

2. BELGIUM



TripleW³



Bio Base Europe
Pilot Plant

3. ITALY

HYSYTECH
ATHENS-BASED COMPANY



4. AUSTRIA

ecovnutri

RTDS
GROUP

5. DENMARK

**DANISH
TECHNOLOGICAL
INSTITUTE**

6. UNITED KINGDOM

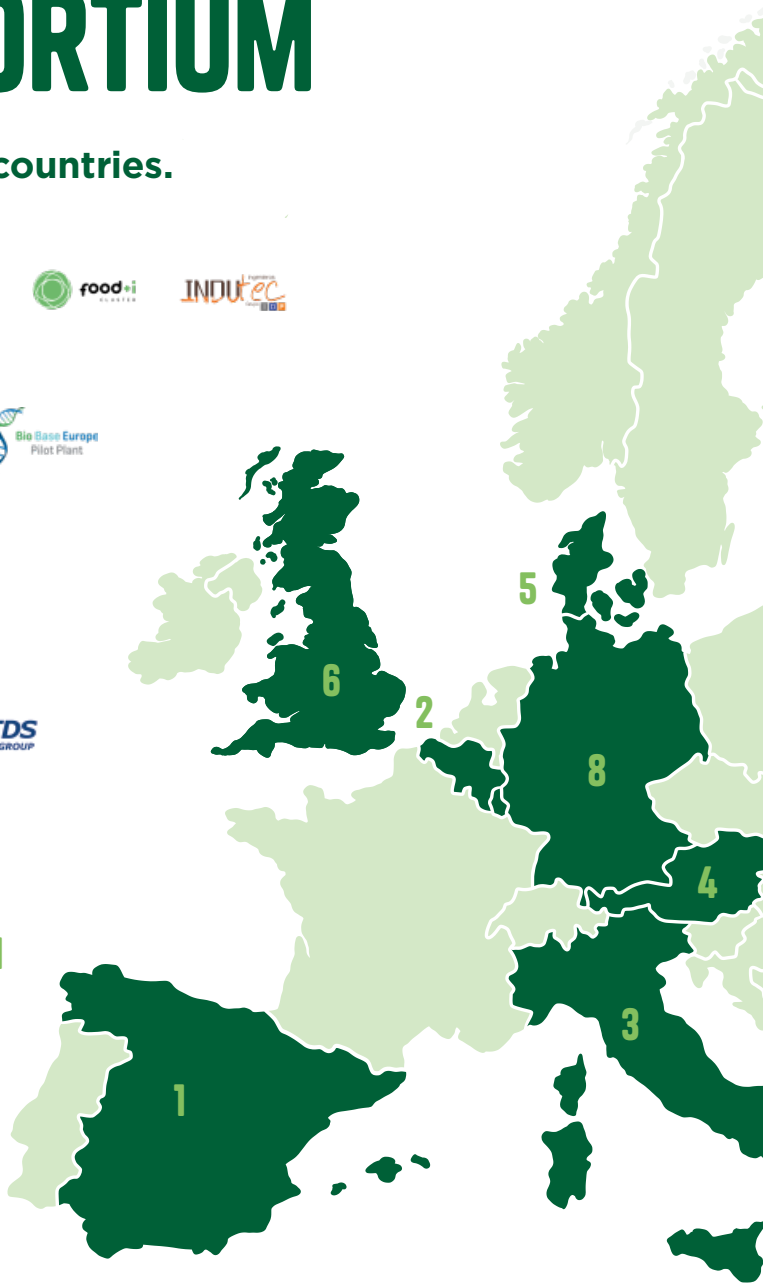
iNeuvo

7. GREECE

ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
AGRICULTURAL UNIVERSITY OF ATHENS

8. GERMANY

COLIPI



WHAT WE EMIT, WE GROW.



4 RTO

Research
and Technology
Organisation



5 SME

Small and Medium
Enterprise



4 IND

Industry



2 ASSOCIATION

Association

7



www.ferm4food.eu

ainia

COLIPI

fruselva
CREATING LIFE TOGETHER



econutri

INDUtec
INDUSTRIAL TECHNOLOGICAL CENTER



HYSYTECH
A NIPPON SANGI COMPANY

RTDS
GROUP



TripleW

