



CIRCALGAE

Food • Feed • Cosmetic

Food • Feed • Cosmetics

Final Achievements

Four years of circular innovation for a sustainable European algae bioeconomy

Final General Assembly & Closing Event

21–22 September 2026 · Gothenburg, Sweden

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CIRCALGAE at a Glance

Across Europe, algae are cultivated and processed for valuable compounds used in food, feed, cosmetics and other applications. Yet after the primary product is recovered, significant biomass remains underused — still rich in proteins, carbohydrates, fibres and other valuable components.

Over four years, CIRCALGAE explored how these side-streams could become **resources rather than residues** — connecting algae producers, researchers, technology developers and companies across the food, feed and cosmetics sectors to build a full circular value chain, from biomass to market.



€10.3M

Horizon Europe
Innovation Action

21

Partners

11

Countries

48

Months
(Oct 2022 – Sep 2026)

Our Circular Journey

CIRCALGAE developed an integrated cascade biorefinery approach — investigating what remained after primary processing, what could be recovered, what functionality could be preserved, and where each fraction could create the greatest value.



Understand the Resource

Species, cultivation, season, geography



Characterise the Side-Stream

What remains after primary processing?



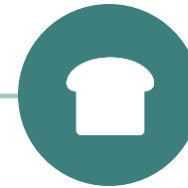
Recover Value

Green extraction & fractionation



Verify Function

Composition, bioactivity, safety



Create & Validate Applications

Food, feed, cosmetics



Assess Real-World Value

Sustainability, economics, policy

“ The goal was not to extract everything. It was to find the right value for the right fraction. ”

From Side-Streams to Market-Ready Value



Resource & Processing

- 100+** algae sources mapped
- 10+** algal species studied
- 30+** side-streams characterised
- 20+** extraction trials optimised



Biorefinery Outputs

- 3** blue biorefinery schemes
- 6+** Protocols transferred to TRL 7
- 600 kg+** solid residues valorised
- >80%** resource efficiency target



Ingredients & Prototypes

- 25+** ingredients characterised
- 20+** bioactivities evaluated
- 12** product prototypes developed
- 8** ingredients at demo scale



IMPACT 1 — TECHNOLOGY & DEMONSTRATION

Three Blue Biorefineries at TRL7

From laboratory research to pilot-scale demonstration, ready for real-world uptake



TRL 7 · PILOT SCALE

P. tricornotum -Enriched Extruded Snack

A technically strong food demonstrator combining Laminaria-derived functional ingredients with an established, familiar snack format.

- Successful pilot-scale extrusion processing
- Promising sensory results at ~4–8% ingredient incorporation
- Nutritional enrichment alongside sensory acceptance
- Strong scale-up potential and competitive positioning

FOOD





Marine-Derived Body Lotion

A high natural-origin formulation built around fucoidan- and algae-derived functional ingredients from Laminaria and Nannochloropsis.

- 97% Natural Origin Index
- Antioxidant functionality retained after formulation
- Limited estimated production-cost increase (~0.7%)
- Premium marine & circular market positioning



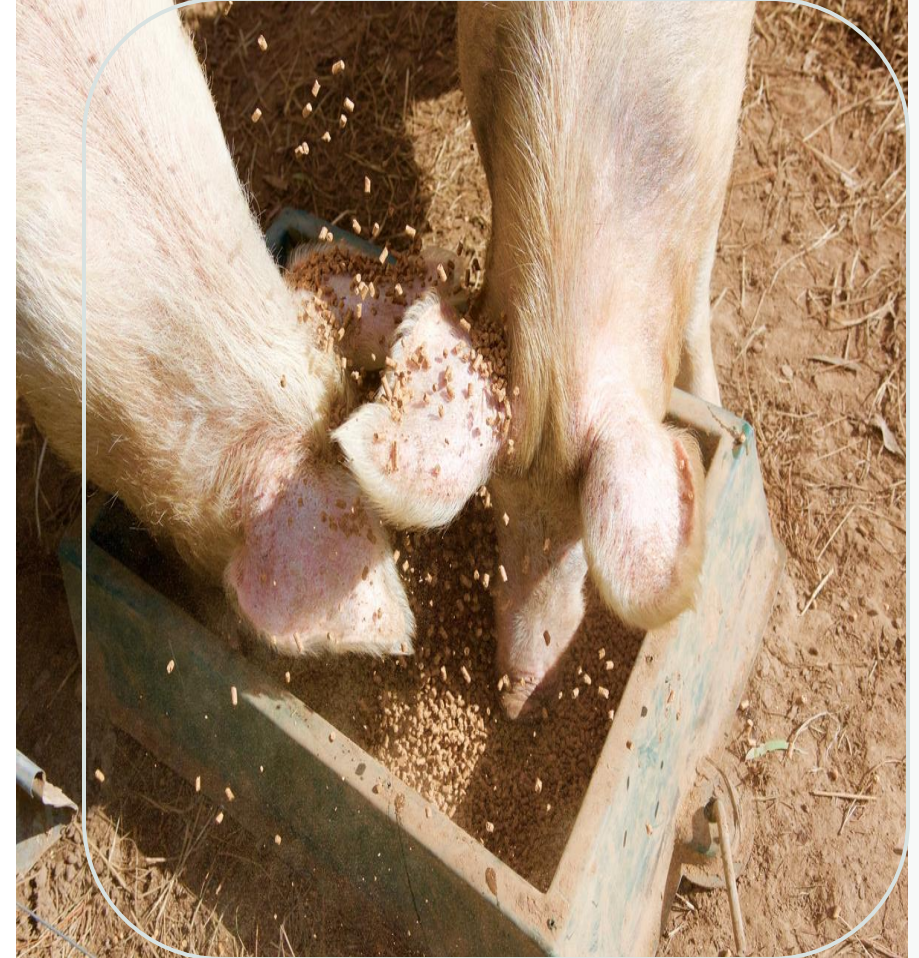
TRL 7 · PILOT SCALE

FEED

Gelidium Side-Stream Circular Feed

A circular route for bringing residues from agar processing back into productive use, integrated into existing feed-production systems.

- Valorises an existing industrial residue stream
- Compatible with existing feed-production infrastructure
- European sourcing and full circular integration
- Circular value created without relying on an added health claim



Sustainability & Business Evidence



Life Cycle Assessment & Costing

7 applications assessed through LCA/LCC across food, feed and cosmetics value chains.

- Extraction & ingredient production can shift the environmental footprint
- Benefits are not uniform — they depend on the specific application
- Improving one impact category can raise another: trade-offs must be measured

Key lesson: Circular does not automatically mean lower impact.



What It Will Take to Scale Up



Scale

Efficient, reliable processing for competitive production



Consistent Supply

Dependable biomass availability, quality & traceability



Clear Value

A compelling case — functionality, nutrition, natural origin, circularity



Market & Regulation

Right positioning, regulatory pathway & value-chain partnerships



IMPACT 2 — POLICY & GOVERNANCE

Shaping European Policy

Bringing biorefinery evidence from the pilot plant to Brussels

European Synergies — Working together to greater impact



CIRCALGAE did not work in isolation. The project actively built synergies with fellow European algae and circular-bioeconomy initiatives sharing knowledge, aligning messages, and amplifying impact at EU level.

CIRCALGAE

SeaMark

REALM



Joint European Maritime Day 2026

CIRCALGAE co-organised a joint session with SeaMark and REALM at EMD 2026, presenting complementary results from three algae and blue-bioeconomy projects to a shared European audience.



Shared Regulatory Input

The three projects jointly compiled the regulatory bottlenecks encountered across their biorefinery work, sharing this evidence with the European Commission and feeding it into the European Parliament policy event.

Taking CIRCALGAE to the European Parliament

In its final year, CIRCALGAE brought its results directly to European policymakers — presenting demonstrator products and translating four years of project experience into concrete policy recommendations for the European algae sector.

Parliamentary
Session June 2026

2
Policy
Briefs

8
Stakeholder
Surveys

From evidence to recommendation

Project experience — from biomass characterisation to demonstrator validation — was translated into policy recommendations addressing barriers that technology alone cannot solve, from End-of-Waste criteria to harmonised safety standards.



FOUR YEARS OF IMPACT

CIRCALGAE by the Numbers

COMMUNICATION & DISSEMINATION

68

Conference presentations

18+

Scientific publications

2,800+

Followers

45,000+

Digital impressions

STAKEHOLDER ENGAGEMENT

718+

Stakeholders engaged

8

Workshops & trainings

13

Newsletters

17,470+

Website visits

POLICY, COORDINATION & INNOVATION

2

Policy briefs

1

EU Parliamentary session

19

Key exploitable results

38

Deliverables submitted

What Europe Needs Next



Clearer Rules

Predictable European pathways:
End-of-Waste criteria,
harmonised safety & quality
standards, efficient regulatory
procedures.



Support for Scale-Up

Stronger investment in pilot and
demonstration infrastructure to
move technologies from lab to
commercial implementation.



Stronger Markets

Procurement, certification,
consumer communication and
industry collaboration to
stimulate demand for algae-
derived products.



Integrated Biorefineries

Continue developing cascade
technologies that extract
multiple forms of value from the
same biomass.



People & Knowledge

Strengthen European algae
networks, training and skills to
build the workforce for an
expanding blue bioeconomy.

The end of the journey or a starting point....





THANK YOU

for being part of the CIRCALGAE journey

“The legacy is not one algae product. It is a more complete pathway from side-stream to value.”

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