



PRIMARY empowers farmers and cooperatives in rural areas to create new business opportunities through local upcycling solutions that utilise underused agricultural feedstocks, fostering innovation capacity and driving sustainable economic growth across the European Union.

Project details

DURATION: May 2025 – April 2029 (48 months)
FUNDING: € 5M (Horizon Europe)
COORDINATOR: VTT Technical Research Centre of Finland

PRIMARY works towards five main goals by partnering with farmers, cooperatives, SMEs, and research institutions:



SMART FEEDSTOCK MANAGEMENT

Using advanced sensing and simulation technologies optimises harvesting, logistics, and stabilization for diverse agricultural feedstocks.



INNOVATIVE PROCESSING TECHNOLOGIES

Convert agricultural biomass into food and feed ingredients, biomaterials, biofuels, and fertilisers – six pathways will be developed and piloted in Finland and Greece.



SUSTAINABLE BUSINESS MODELS

Create locally profitable business opportunities for farmers and cooperatives, transforming waste disposal costs into value creation.



PROVEN IMPACT VALIDATION






Ensures sustainability and regulatory compliance through, verifying environmental benefits and economic viability.



EUROPEAN SCALING AND REPLICATION

Through a **€900K open innovation call** and a **stakeholder platform** support rural communities and climate goals.

PRIMARY's innovation portfolio pilots and optimises value creation by prioritizing highest-value applications first, ensuring maximum economic and environmental benefits:

-  A **grass biorefinery** separates protein and fibre fractions from grass for food and feed ingredients and biobased materials
-  **Fermentation** converts agricultural feedstocks into food and feed protein ingredients through submerged biomass and precision fermentation, and solid-state fermentation
-  **Foam forming** processes fibres for sustainable packaging and construction materials
-  **Pelletisation** compresses cotton and olive byproducts into standardised solid biofuels
-  **Gasification and pyrolysis** generate electricity coupled with biochar production for fertilisers and materials

PRIMARY's impact:



Economic benefits

- Creates new income opportunities for farmers and cooperatives
- Unlocks tens of thousands of future jobs in the European bioeconomy
- Generates added value through circular value chains **contributing to €50 billion EU bioeconomy growth**



Environmental benefits

- Reduces greenhouse gas emissions across agriculture and processing by introducing the new scalable solutions for Europe's 380+ million tonnes of underutilised agricultural materials
- Restores soil health with biochar-compost applications, reducing EU dependency on 17 million tonnes of imported mineral fertilisers
- Reduces waste burning and landfill disposal of agricultural residues



Social benefits

- Strengthens rural communities and farmer livelihoods
- Enhances the appeal of agricultural careers for young people
- Preserves workforce and skills in rural regions

Consortium excellence

RESEARCH AND INNOVATION LEADERSHIP:

VTT (Finland), LUKE (Finland), CERTH (Greece), ELGO (Greece)

INDUSTRY AND COOPERATIVE PARTNERS:

Valio (Finland), Fiberwood (Finland), ESEK (Greece), MINOA (Greece)

AGRICULTURAL STAKEHOLDERS:

MTK (Finland), NEA ENOSI (Greece)

EXPLOITATION AND COMMUNICATION SUPPORT:

CIVITTA (Estonia), RFF (Greece)

Opportunities for engagement

OPEN CALL FOR INNOVATION

PRIMARY will launch a €900K open innovation call to support external partners in testing and scaling new solutions, ensuring broad replication across Europe.

PRIMARY STAKEHOLDER PLATFORM

An online collaboration space connecting farmers, cooperatives, researchers, and industry to share knowledge, align practices, and foster long-term cooperation.

Discover more

www.primary-project.eu

www.linkedin.com/company/primary-project-eu

Project coordinator

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