

2025



# primary

New business for farmers and cooperatives in rural areas by local upcycling solutions using underutilized agricultural feedstocks

**Introduction**



Funded by  
the European Union

# Project overview

- **Name:** PRIMARY - New business for farmers and cooperatives in rural areas by local upcycling solutions using underutilized agricultural feedstocks
- **Grant Agreement No:** 101180167
- **Call:** HORIZON-CL6-2024-CircBio-02
- **Topic:** From silos to diversity - small-scale bio-based demonstration pilots
- **Duration:** 48 months (May 2025 - April 2029)
- **Total Budget:** €5M
- **Coordinator:** VTT Technical Research Centre of Finland (Finland)

**PRIMARY aims to develop and pilot solutions** to produce of food, feed, bio-based materials, bioenergy/fuel and fertilizers by valorizing agricultural biomass feedstocks including grass, greenhouse and cotton by-products, and olive tree pruning that are currently underutilized in Europe.

# 12 partners, 3 countries

Partner	Country	Type
VTT (Coordinator)	Finland	RTO
Luke	Finland	RTO
CIVITTA	Estonia	Foundation
CERTH	Greece	RTO
Valio	Finland	COOP
RFF	Greece	NGO
ELGO	Greece	RTO
MTK	Finland	Association
NEA ENOSI	Greece	COOP
ESEK	Greece	SME
MINOA	Greece	SME
Fiberwood	Finland	SME



# Project specific objectives (SO)

## ➤ **SO1: Harvesting, logistics and stabilization solutions**

- Develop simulation models for feedstock availability, logistics models for harvesting and transportation, stabilization treatments for fresh biomass, and field online sensing systems to predict biomass yield and quality

## ➤ **SO2: Pilot processes and technologies**

- Develop and pilot 6 processes: grass biorefinery, submerged and solid-state fermentation, foam forming technology, pelletizing for biofuel, and gasification with pyrolysis to transform feedstocks into high-value food, feed, materials, and energy products

## ➤ **SO3: Business models and sustainability assessment**

- Develop 4 business model blueprints and conduct comprehensive environmental and socio-economic assessments to ensure sustainable value chains while verifying regulatory compliance

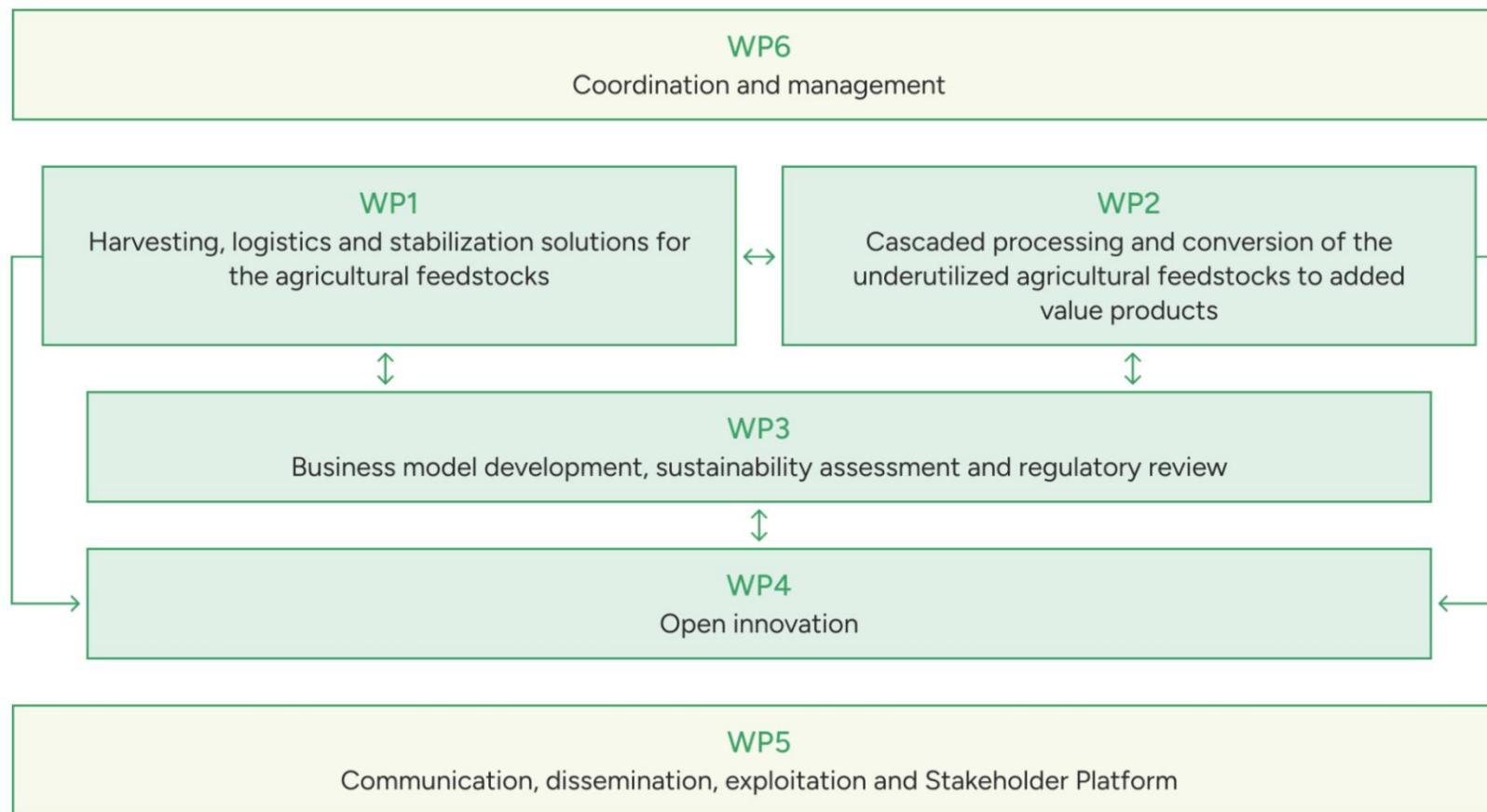
## ➤ **SO4: Open Innovation for replicability**

- Launch an Open Innovation Call (€900K) to validate PRIMARY solutions in other EU regions and promote ecosystem development for valorizing agricultural biomass across Europe

## ➤ **SO5: Dissemination, communication and exploitation**

- Ensure wide visibility and adoption of PRIMARY solutions through a joint Stakeholder Platform, multi-actor engagement, and targeted guidance to farmers, SMEs, and policymakers

# Project work-flow



# Four underutilised agricultural feedstocks

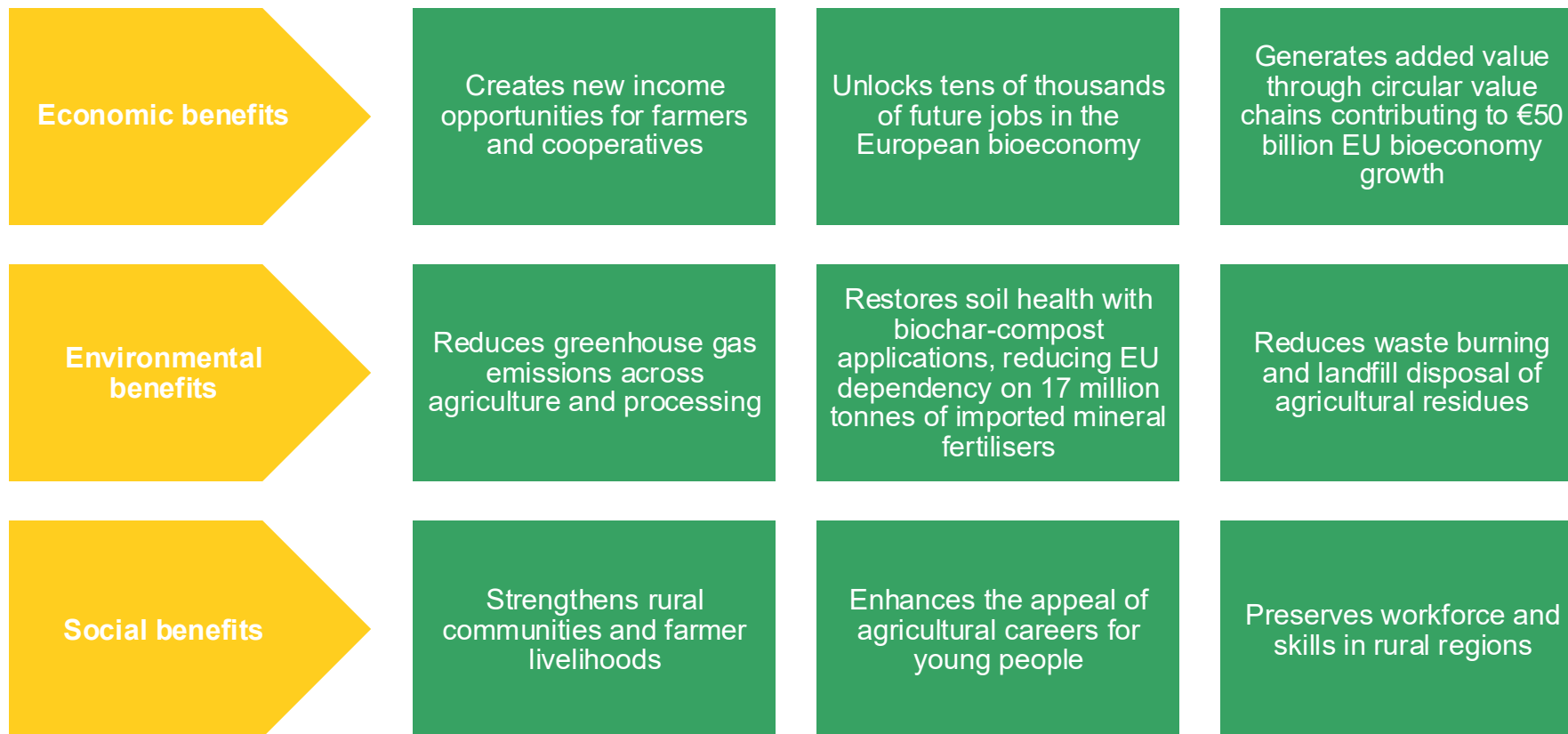
Grass biomass	Greenhouse byproducts	Cotton byproducts	Olive tree byproducts
370 million tons DW/year (Europe)	4.5 million tons DW/year (Europe)	1.4 million tons DW/year (Europe)	5.95 million tons DW/year (Europe)
<p>Gramineous and leguminous forage plant biomass from permanent and temporary grasslands.</p> <p>Current use: Ruminant feed, green manure, biogas</p>	<p>Tomato and cucumber stems and leaves from protected cultivation.</p> <p>Current use: Incinerated or composted</p>	<p>Cotton stems and leaves remaining after harvest.</p> <p>Current use: Mostly burned in open fires, buried</p>	<p>Prunings and leaves from olive cultivation.</p> <p>Current use: Mostly burned in open fires, mulched</p>

# PRIMARY's innovation portfolio

*PRIMARY 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



# Open innovation call

## Our goal:

- Validate PRIMARY processes and business models
- Test replicability in other EU countries
- Develop new value chains for PRIMARY feedstocks
- Demonstrate economic feasibility

Total budget: 900€K

Number of projects funded: 6-9

Launch: March 2026

# Stakeholder platform

## Our goal:

- Foster collaboration and knowledge sharing among bioeconomy stakeholders to advance circular bioeconomy solutions and promote adoption of PRIMARY innovations across EU regions.

Built on: BioRural Toolkit + ERBN network

Users: Primary producers, SMEs, policymakers, researchers, NGOs

Features: Project hubs, collaboration tools, knowledge materials

# Keep in touch!

## Project coordinator

VTT Technical Research Centre of Finland

Contact: Emilia Nordlund, [emilia.nordlund@vtt.fi](mailto:emilia.nordlund@vtt.fi)

## Project DEC

CIVITTA Foundation

Contact: Liis Livin, [liis.livin@civitta.com](mailto:liis.livin@civitta.com)



[www.primary-project.eu](http://www.primary-project.eu)



[www.linkedin.com/company/primary-project-eu](http://www.linkedin.com/company/primary-project-eu)



# primary

Emilia Nordlund, [emilia.nordlund@vtt.fi](mailto:emilia.nordlund@vtt.fi)



Funded by  
the European Union