



BRILIAN
Circular Future for Rural Areas

ADVISORY BOARD OF FARMERS - 2nd meeting

Speaker: CIRCE, BIOEASTHUB CZ, NOVAMONT, DTI, EBB

Online meeting – January 27th, 10:00–11:00 CET



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Advisory Board of Farmers - Agenda



10:00 (10 min)

BRILIAN Intro - CIRCE OR BHCZ

10:10 (15 min)

Pilot sites status (1-2 slides each): Brief about the current status of the pilots and the outcomes we have reach so far. - CIRCE or Pilot partners

- Italian Pilot
- Spanish Pilot
- Danish Pilot

10:25 (5 min)

Policy & Soil Brief summarized - EBB

10:30 (5 min)

Webpage virtual tour :Your guide to find ABF materials, summaries and extended versions - BHCZ

10:35 (10 min)

Quick survey session - BHCZ

10:45 (15 min)

Q&A - BHCZ



BRILIAN aims to support the adoption of **sustainable and cooperative business models** in rural areas in three pilots located in Italy, Spain and Denmark.



Consortium of **13 partners** led by CIRCE (Spain).



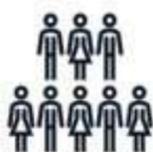
Feedstocks: cardoon, safflower, and sunflower (in **Italy**), potato peel (in **Spain**), and rapeseed (in **Denmark**) as feedstock.



The sustainable business models will encompass a wide range of **high-value-added bio-products**, such as bioplastics, biolubricants, vegan proteins, bioadhesives, bioherbicides, products for animal feed or the cosmetic sector.



BRILIAN will minimise environmental negative potentials of bioeconomy by setting-up and optimising **10 bio-based value chains**.

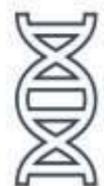


Increase in the products **portfolio of primary production by valorising waste** and by-products will enable primary producers to diversify their income while reducing risk, with associated new jobs creation.

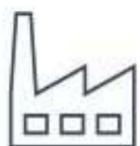
Project lead: CIRCE (Spain)



3 RTOs



3 SMEs



3 Large
Companies



4 Clusters &
Associations



- Currently, rural areas cover approximately 80% of the European Union's territory, containing 30% of its population (137 million people). Therefore, they play a key role in improving sustainable bio-based value chains through various lines of action, such as sustainable food and raw materials, renewable energies, reduced fossil fuel dependence, and biodiversity preservation.
- Motivation:
 - Biobased value chains become crucial to enable the EU to cope with upcoming challenges (crisis of raw materials supply, climate change, etc.).
 - Ensure a just transition and a fair share of benefits all along the new biobased value.
 - Fully aligned with the Common Agricultural Policy (CAP) while addressing also Green Deal and Bioeconomy Strategy objectives.

- Framework/Opportunity:
 - Necessities of raw material for bio-commodities
 - Interesting properties for several markets

- BRILIAN will implement a multi-actor approach for the validation of a group of **Actions for the Bio Innovation**, both at macro and micro level.
 - a) Forging robust rural bio-communities
 - b) Achieving circularity and sustainability
 - c) Integration of short supply chains
 - d) Production of value-added bioproducts

■ CHALLENGES

- Demonstrate the sustainable supply of bio-based feedstock
- Set effective and robust environmental sustainability and circularity criteria for bio-based systems
- Political and legal barriers related with waste valorisation in agriculture
- Economic feasibility of biobased value chains
- Social issues: consumers acceptance, workforce skills, etc.
- TRL improvement for certain technologies (validation at industrial scale)
- Promotion of schemes enabling a decrease of the environmental impact

■ Working Group on Primary producers

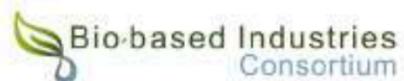
- The new working group on primary producers aims to ensure that the agricultural, forestry, and fisheries sectors benefit from their involvement in innovative biobased value chains while contributing to sustainability and economic growth.
- What organisations can apply?
 -  Primary producers or organisations working closely with them, such as cooperatives and advisory services.
 -  Regional stakeholders and networks representing primary producers.
 -  Entities engaged in fostering innovation in the agriculture, forestry, fisheries, and aquaculture sectors.
- Deadline: 28 February, 12:00 (noon) CET
- Learn more: <https://lnkd.in/dmZYaqSC>

THANK YOU!!!



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Maidier Gómez

CIRCE

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BRILIAN - Pilot Key Results

ITALIAN PILOT →

ITALY
Sunflower
Cardoon
Safflower

Aims to improve the adoption of regenerative agricultural practices through the cultivation of low-inputs oil crops (cardoon, safflower and sunflower) on marginal lands, to be valorised to produce added-value bio-based products.

SPANISH PILOT →

Aims to recover starch from the process water and potato rejections, which would otherwise be lost while contributing to decrease the levels of organic matter by physical methods without the need to add chemicals therefore minimizing water consumption required in the potato processing and the environmental footprint of the potato processing industry.

DANISH PILOT →

Aims to develop a process for protein extraction from hot and cold rapeseed cake, aiming at a protein product suitable for food applications and for bio-based adhesive applications.



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Bio herbicides
Bio lubricants

Bio plastics
Cosmetics

Farmers engagement procedure

Cooperation agreement established between Novamont, Coldiretti (Italian farmers' union), Filiera Agricola Italiana (Italian Agricultural Supply Chain) and Consorzi Agrari d'Italia (Italy's Agricultural Consortium) to disseminate the cultivation of drycrops among farmers.

Farmers engagement procedure:

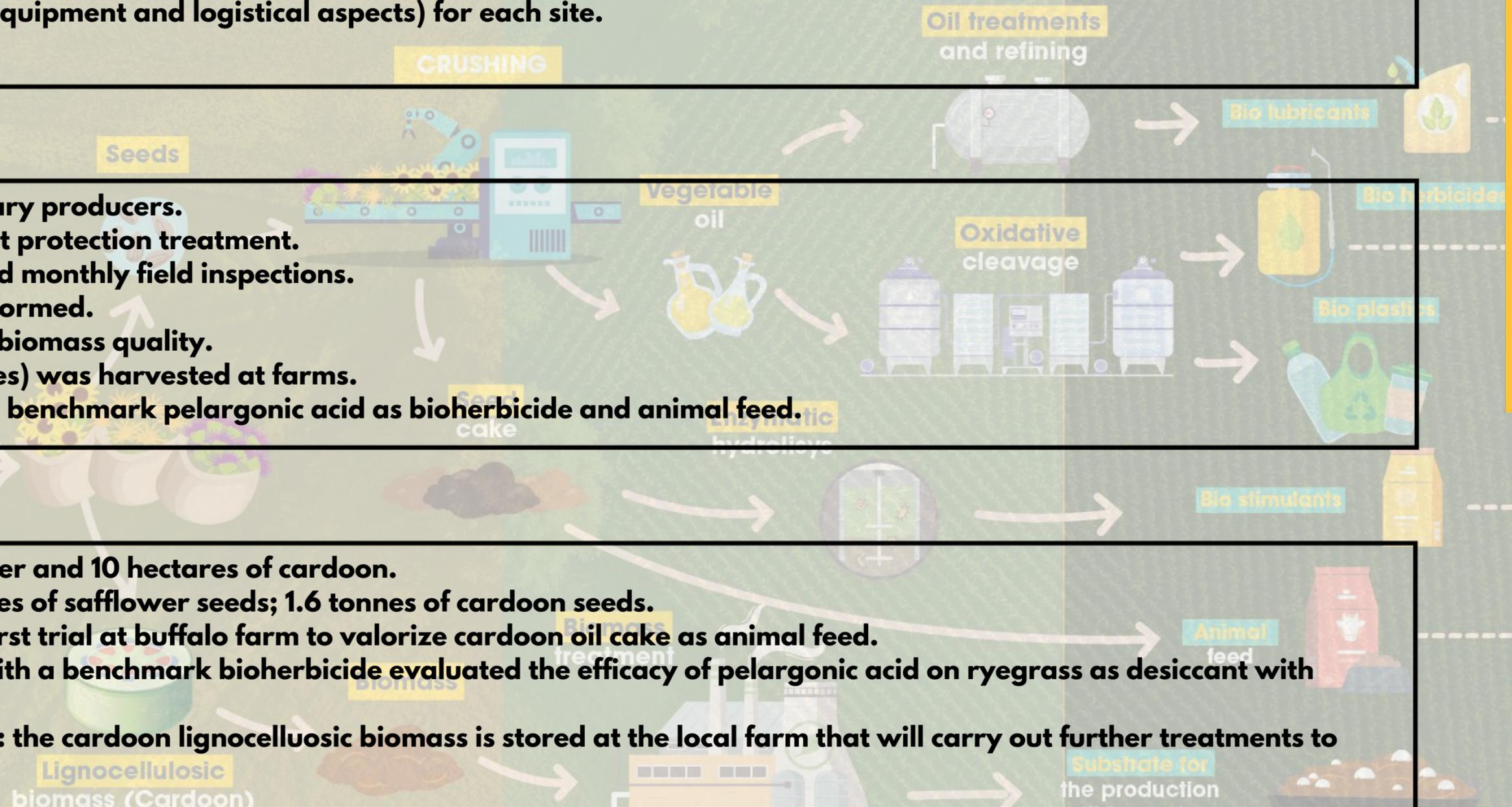
- 1) Meetings and site visits of each agricultural land.
- 3) Sharing cultivation protocols with the interested farmers, adapted based on pedo-climatic conditions of the growing areas.
- 4) Assessment of technical issues (eg quipment and logistical aspects) for each site.
- 5) Signing cultivation agreements.

Phases accomplished

- 1) Selection and involvement of primary producers.
- 2) Soil preparation, sowing and plant protection treatment.
- 3) Monitoring of agricultural data and monthly field inspections.
- 4) Seed harvesting and crushing performed.
- 5) Monitoring of agro-feedstock and biomass quality.
- 6) Cardoon biomass (stems and leaves) was harvested at farms.
- 7) Valorisation phase started for the: benchmark pelargonic acid as bioherbicide and animal feed.

Outcomes

- Cultivation of 46 hectares of safflower and 10 hectares of cardoon.
- Seeds yield season 2024: 45.4 tonnes of safflower seeds; 1.6 tonnes of cardoon seeds.
- Animal feed application: Ongoing first trial at buffalo farm to valorize cardoon oil cake as animal feed.
- Plant protection application: trial with a benchmark bioherbicide evaluated the efficacy of pelargonic acid on ryegrass as desiccant with promising results.
- Substrate for mushroom cultivation: the cardoon lignocellulosic biomass is stored at the local farm that will carry out further treatments to produce mushrooms bales



Value chain steps

- **Starch Extraction:** Installation of starch extraction facility to recover starch from potato rejections and process water. This facility significantly contributed to reduce water consumption and COD of the water used in the potato processing industry.
- **Starch Valorisation:** The extracted starch is then processed into thermoplastic starch (TPS) through extrusion processes.
- **Bioproduct Development:** The TPS will be used to develop bio-based blends for shrink films, and in a second step mulching films

Phases accomplished

- 1) Defining piping and instrumentation diagrams
- 2) Installation and commissioning
- 4) Plant operation and fine tuning
- 5) TPS production at AITIIP facilities: pretreatment, TPS production and testing.

Outcomes

After two batches of testing, the following key findings were reached:

- **Starch Recovery:** The extraction plant is fully operative. The starch extraction process enabled to achieve a significant reduction in water consumption and COD (decreased 62%), BOD (decreased 78%) and suspended solid (decreased 93%), demonstrating its potential for improving the environmental sustainability of the potato processing industry.
- **TPS Production:** TPS with good processability was successfully produced from potato starch. The TPS exhibited good thermal stability but further assessment on processability must be performed to optimize the process. TPS will be used to develop bio-based blends for: shrink films and mulching films

Value chain steps

Pilot tests have been performed to validate and optimize protein extraction from rapeseed cake. Although the two tests were very promising, the final products did not meet the objectives of protein content and protein yield (neither for CPR nor HPR). Therefore, a set of experiments in lab scale, in which different conditions during enzymatic hydrolysis are tested, were designed to optimize the parameters that can increase the efficiency of protein extraction from the raw material. The protein powder obtained is also tested to manufacture protein-based resins aiming to reach the highest phenol replacement ratio possible while fulfilling the standard comparing to a reference formulation.

Phases accomplished

- 1) Rapeseed harvesting and dried for long-term storage.
- 2) Oil pressing performed: hot pressing and cold pressing. Agroindustry provided these 2 types of rapeseed cake for the biotransformation activities.
- 3) Aqueous extraction with or without enzymatic hydrolysis aiming at a scalable process.
- 4) Several process optimization activities have been done: pilot scale validation and lab-scale optimization of enzymatic hydrolysis with both types of cake.
- 5) Manufacture of pilot scale plywood panels to evaluate the performance of protein-based phenolic resins. 5 rounds of laboratory experiments have been accomplished testing various levels of phenol replacement (20%, 40% and 50%).
- 6) Physicochemical properties measured to determine if the plywood panels fulfill the standards requirements

Outcomes

- Two pilot trials have been conducted in the BRILIAN project to validate and optimize the process with HPR and CPR.
- There are slight differences in the protein and fat content between HPR and CPR, both at the starting material and the final product.
 - >CPR: Protein yield was lower, 18.6%, compared to 28% when using HPR. The protein content (48.6g protein/100gDM) still needs further optimization (targeted at 90g protein/100gDM).
 - >HPR: tprotein content on the first pilot trial (45.9 g protein/100gDM) very close to the target (50 g protein/100gDM), and the protein yield was only 12% lower than the target.
- The centrifugation step was tested to remove any remaining oil in the liquid and small particles that could hinder the filtration process.
- An enzyme-assisted aqueous extraction was tested in pilot scale.



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Policy Brief

David Newman, EBB
27/01/2025

Soil Health

Under the EU biodiversity strategy for 2030, part of the European Green Deal, in July 2023 the European Commission presented a **new EU soil strategy for 2030**, with the aim of having all EU soil ecosystems in a healthy condition by 2050. To achieve this objective, on 5 July 2023 it tabled a proposal for a soil monitoring and resilience directive, laying down **measures for monitoring and assessing soil health, based on a common definition of what constitutes healthy soil, for managing soils sustainably, and for tackling contaminated sites**. The EU Parliament adopted its position at first reading. MEPs voted a more cautious position than the Envi Commission's proposals. Parliament voted to exclude raw material deposits from the definition of soil.

It added **flexibility for monitoring and assessing soil health**, allowing Member States to apply the soil descriptors that best illustrate the soil characteristics of each soil type at national level. Parliament decided not to retain the mandatory timeline proposed in the ENVI report for upgrading soil status. It voted to remove Member States' obligations to define sustainable soil management practices, regularly assess the effectiveness of the measures taken, and review and revise them if necessary. It therefore also **deleted the proposed list of sustainable soil management principles**. Parliament deleted the proposed provisions on penalties. Conclusions: **it is unlikely we will see significant legislation relative to soil health in this Parliamentary term** (until 2029).

Bioeconomy Strategy

The last Bioeconomy Strategy was issued in 2018 and is due for revision in 2025.

This will probably be delayed until 2026.

The strategy **should go hand in hand with a Biomass Strategy**, in our opinion, to create a level playing field for the use of biomass both for energy as well as for materials, to help defossilise some sectors of our economy such as the chemical industry.

We have time to work this year on **formulating ideas and alliances** with other groups.

CAP

The CAP will be renegotiated in 2025 and is a **Commission priority**. Working groups are being formed across the DGs. The **first proposals** for reform will be known **April/May**. The reform will be based largely on the Strategic Review of Future of EU Agriculture delivered on September 4th, 2024, to the President of the Commission by an independent panel involving associations, industry and NGOs and which made 14 recommendations to change the CAP when it comes for renegotiation before implementation in 2027. **It is important all groups give their opinions when consultations arise.**

Nature Restoration Targets

Regulation, part of the Biodiversity Strategy

An ambitious law was approved in June 2024, and now we shall see how this is implemented. By mid 2026 EU countries should present plans to the Commission showing how they will achieve the targets. They are:

Targets based on existing legislation (for wetlands, forests, grasslands, river and lakes, heath & scrub, rocky habitats and dunes) - improving and re-establishing biodiverse habitats on a large scale, and bringing back species populations by improving and enlarging their habitats

Pollinating insects – reversing the decline of pollinator populations by 2030, and achieving an increasing trend for pollinator populations, with a methodology for regular monitoring of pollinators

Forest ecosystems – achieving an increasing trend for standing and lying deadwood, uneven aged forests, forest connectivity, abundance of common forest birds and stock of organic carbon

Nature Restoration Targets

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Urban ecosystems: no net loss of green urban space and tree cover by 2030, and a steady increase in their total area from 2030

Agricultural ecosystems: increasing grassland butterflies and farmland birds, the stock of organic carbon in cropland mineral soils, and the share of agricultural land with high-diversity landscape features; restoring drained peatlands under agricultural use

Marine ecosystems: restoring marine habitats such as seagrass beds or sediment bottoms that deliver significant benefits, including for climate change mitigation, and restoring the habitats of iconic marine species such as dolphins and porpoises, sharks and seabirds.

Nature Restoration Targets

Regulation, part of the Biodiversity Strategy

An ambitious law was approved in June 2024, and now we shall see how this is implemented. By mid 2026 EU countries should present plans to the Commission showing how they will achieve the targets. They are:

River connectivity – identifying and removing barriers that prevent the connectivity of surface waters, so that at least 25 000 km of rivers are restored to a free-flowing state by 2030

For farmers it presents great opportunities and also challenges as much land will be set aside for nature regeneration.



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WEB VIRTUAL TOUR

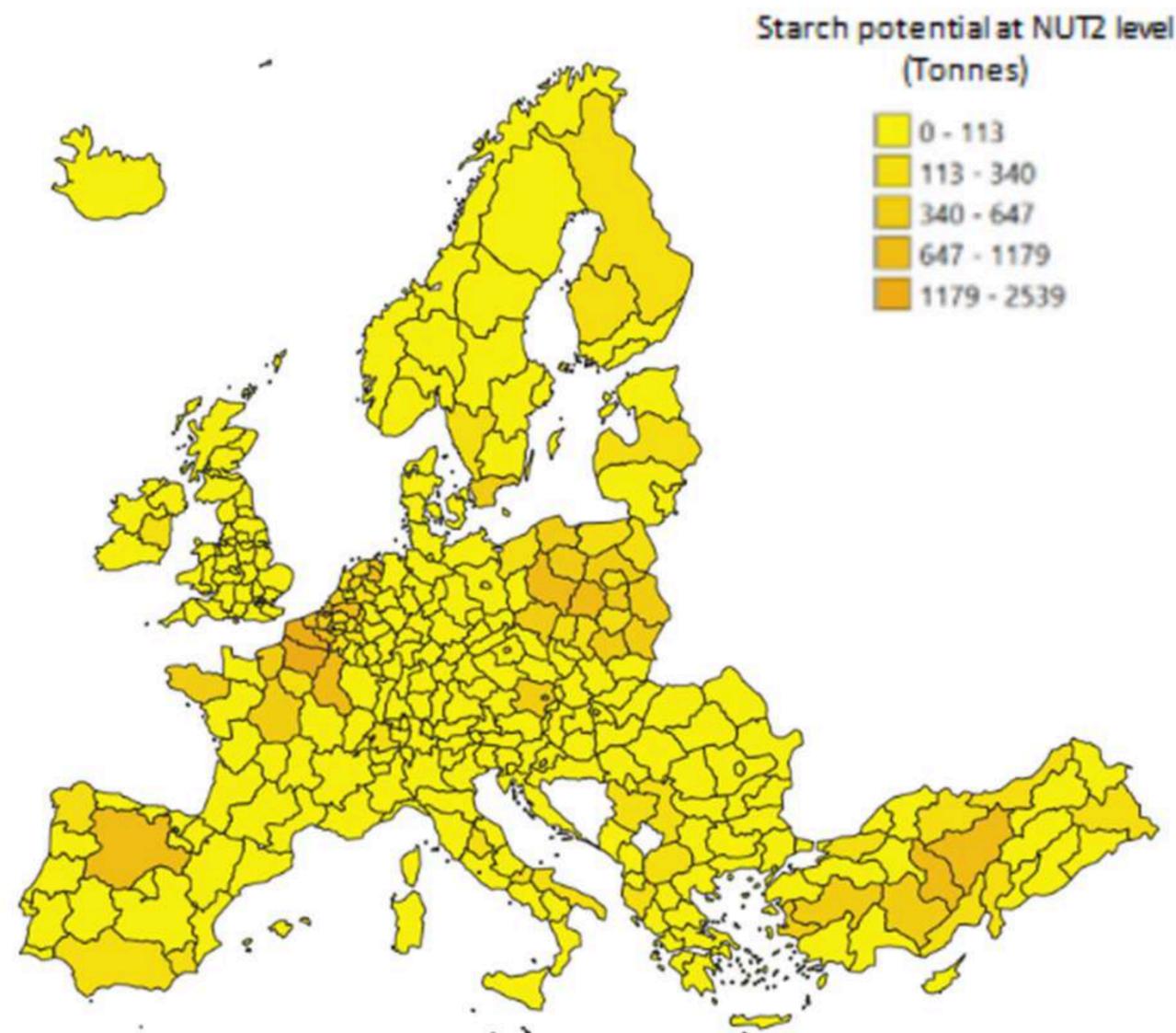




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REPLICATION ACTIVITIES

SPAIN



DENMARK

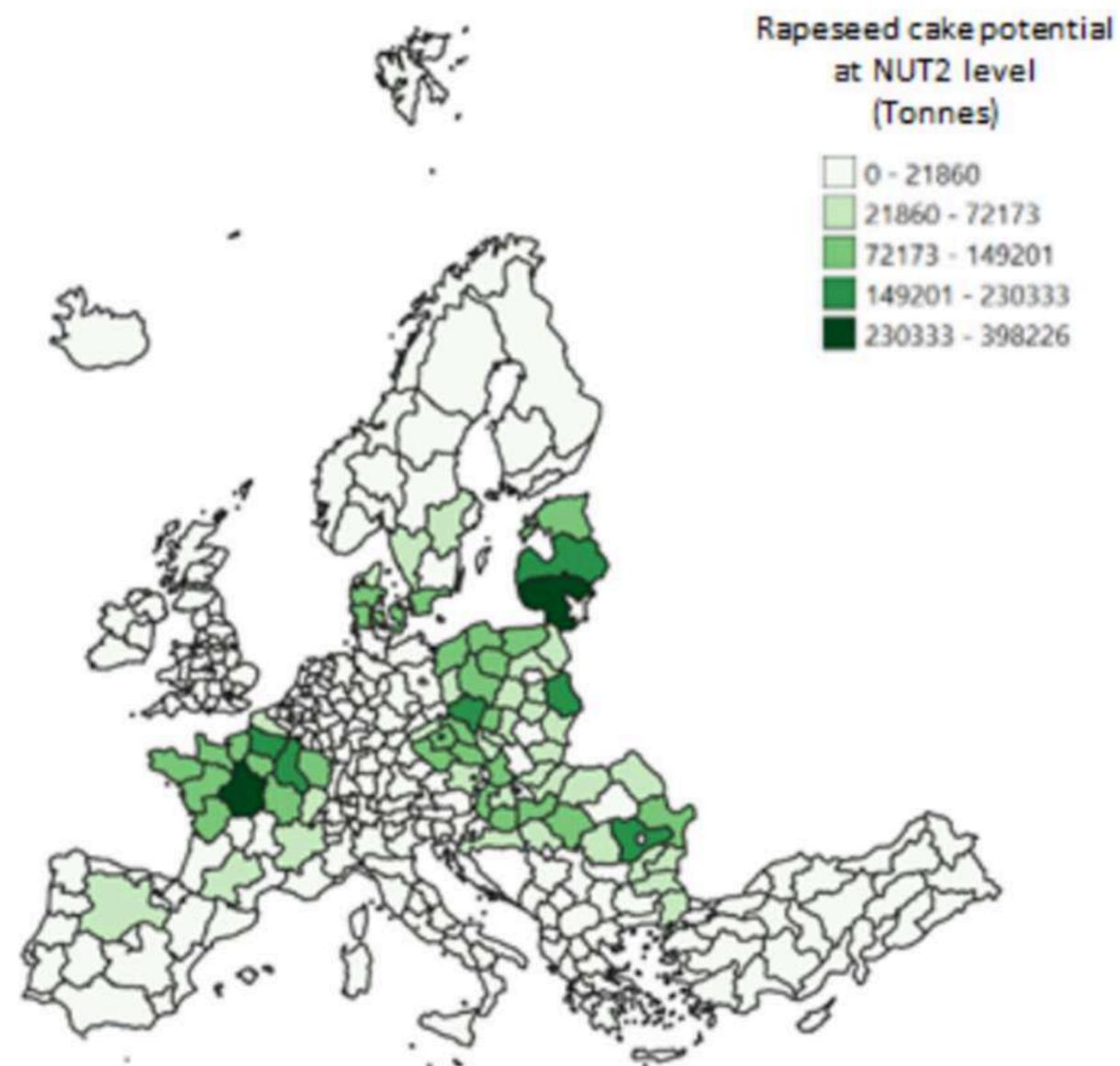


Figure 28. Rapeseed cake potential

ITALY

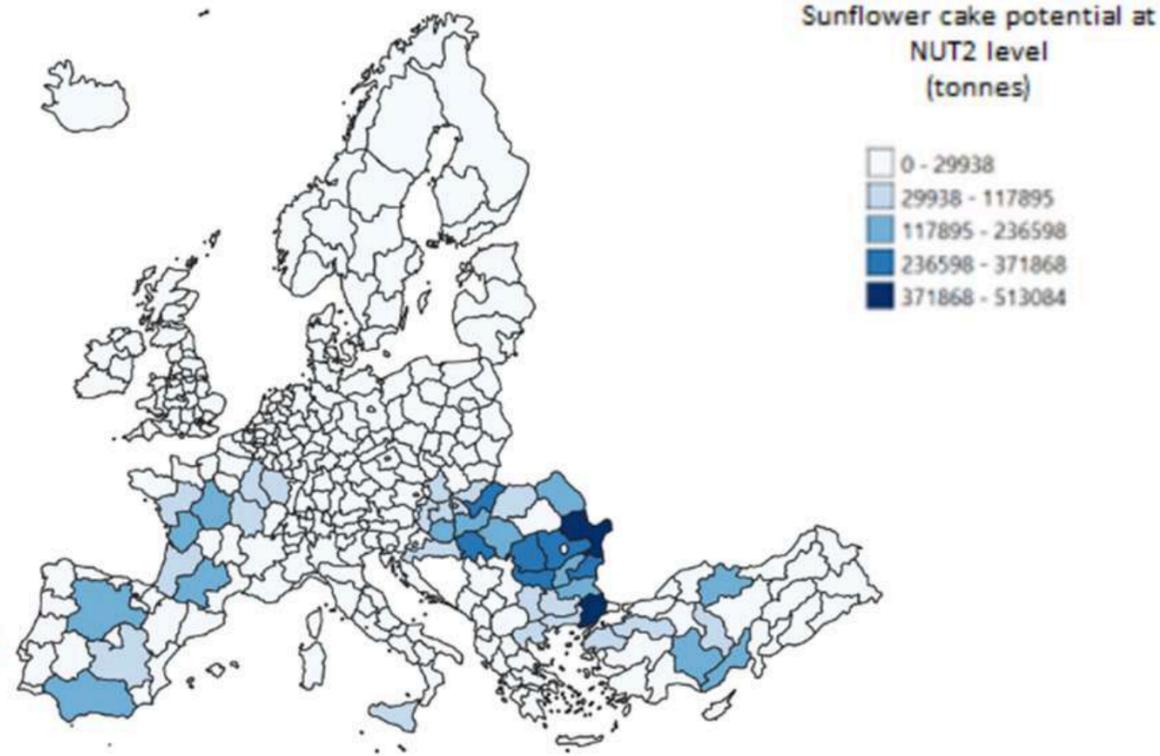


Figure 29. S

ITALY

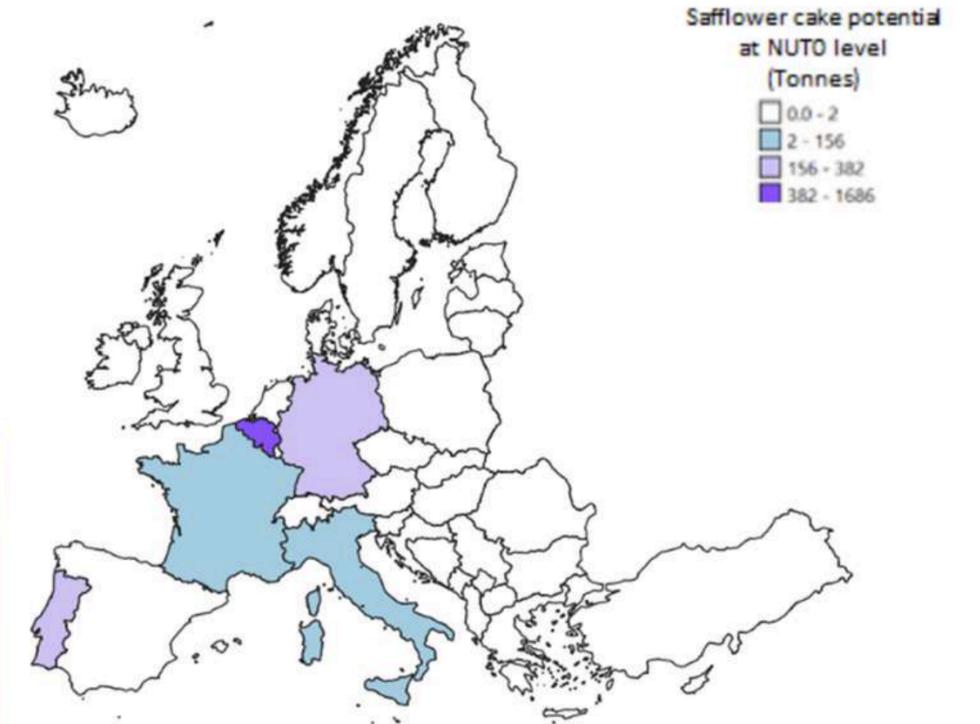


Figure 30. Safflower cake potential

CENTRAL & EASTERN EUROPE

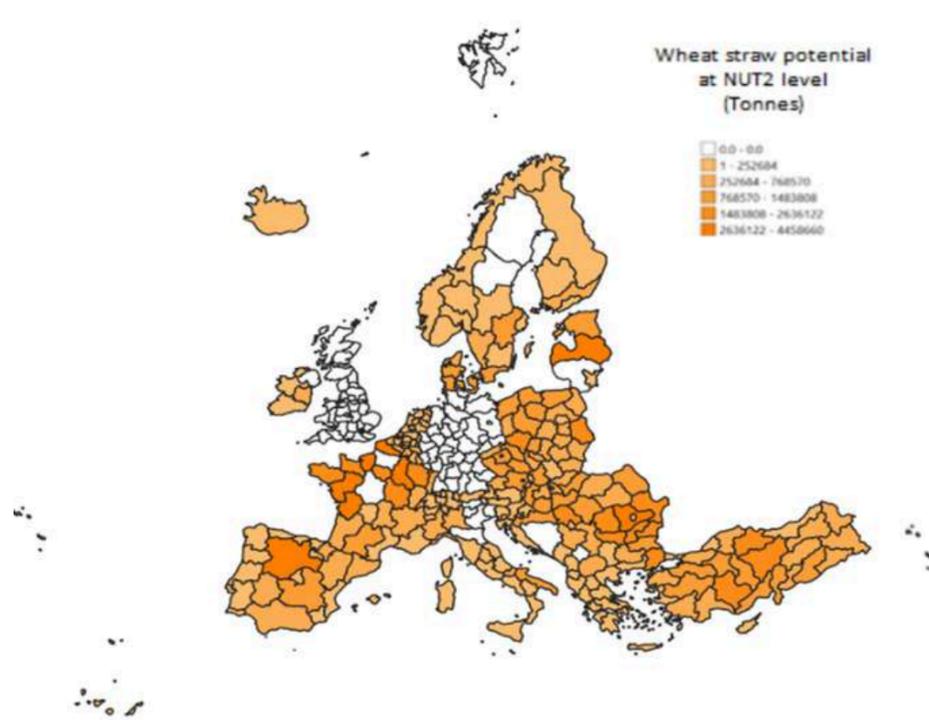


Figure 31. Wheat straw potential

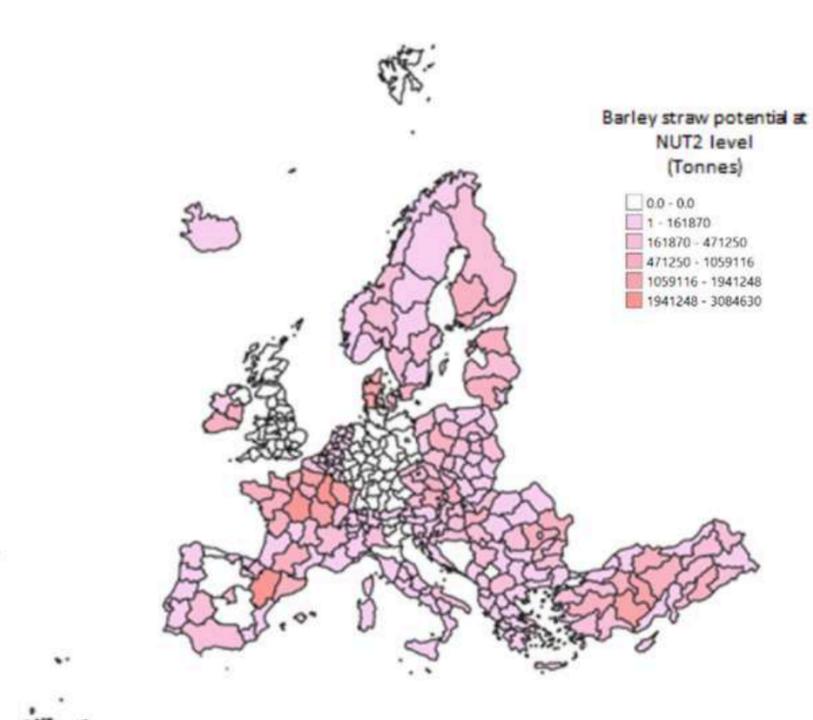
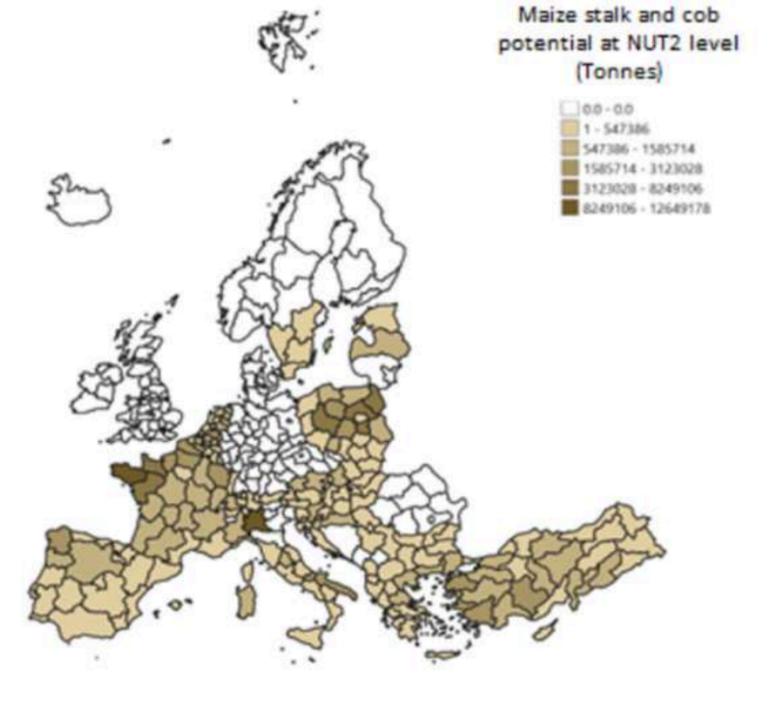


Figure 32. Barley straw potential



ROADMAP FOR REPLICATION



Taking into account:

- Strategic objectives (policy framework, objectives, guiding principles, etc.)
- Overall objectives and goals with description of implementation measures
- Market description, swot analysis, and proposed pilot actions
- Cross-cutting topics (education & funding)
- Stakeholder engagement and awareness raising concept, including capacity-building actions and workshops development (as discussed, projects by the end of the project)
- Governance management and monitoring

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