



2021 joint call project Newsletter



Dear Reader,

We are pleased to share news about the 2021 Joint Call project on 'Circularity in mixed crop and livestock systems with a focus on climate change mitigation and adaptation'.

Join us as we explore the different projects, each a beacon of creativity and resilience, contributing to the common goal of promoting a harmonious relationship between agricultural practices and the environment. From circular farming techniques to innovative climate adaptation strategies, these projects are examples of collaboration and progress.

This newsletter is a glimpse into the transformative work taking place in our community. Together, we are

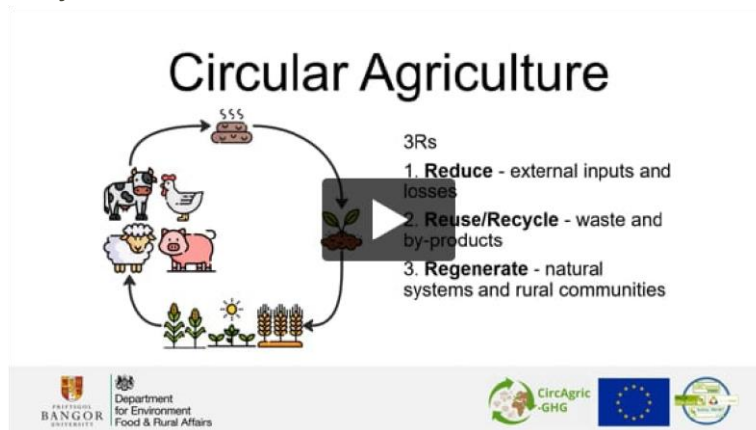
sowing the seeds of change and cultivating a more sustainable, climate-resilient agricultural landscape.

We look forward to hearing about the interim results of the nine 2021 Joint Call projects at the Mid-term Project Seminar in Potsdam, Germany on 10-11 January!

Enjoy reading and here's to the future of circular agriculture!

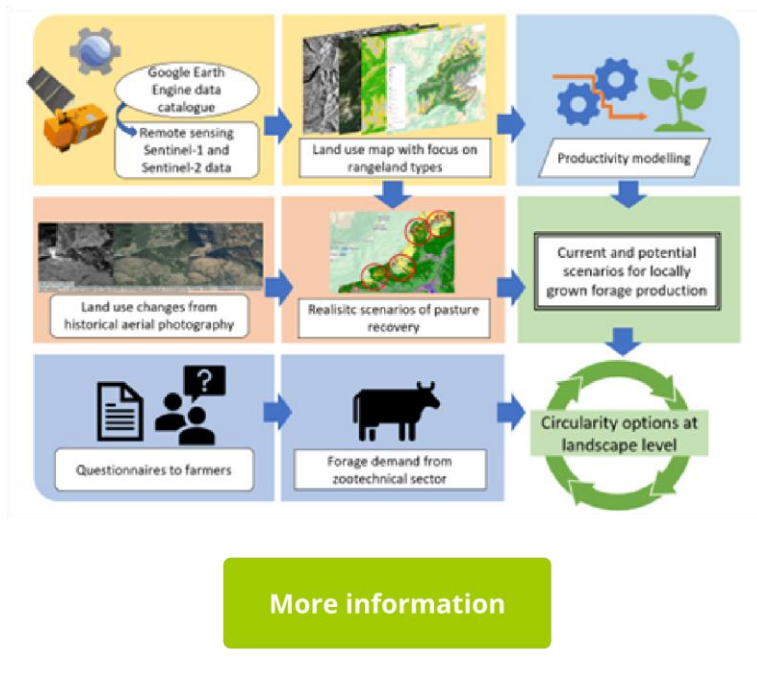
CircAgric-GHG: Circular agriculture to improve sustainable food production

In the past mixed crop livestock farming, a system that grows crops and raise livestock on the same farm, was common. However, driven by economy competitiveness and agricultural policy, production has become more specialized and less connected. This video summarize how circular agriculture can improve sustainable productions compared to more intensive farming systems.



Are bakery by-products a sustainable feed ingredient and will farmers adopt more circular practices?

These are some of the questions CircAgric have been working on the past year. The project has dented a list of circular practices which address the 3Rs of circularity. The list is used in discussion with farmers and stakeholders in workshops across the institutes participating in the project.



ConnectFarms: Improving circularity in agroecosystems - The ConnectFarms Research Project

ConnectFarms on the world stage in 2023

The project was presented in June 2023 at the 31st EUBCE held in Bologna, Italy. It was discussed in the session "2AV.3 - Environmental impacts of biomass and biofuels". Participants had access through the conference website to the e-poster and to a 3 minute audio narration about the main concepts.

IMPROVING CIRCULARITY IN AGROECOSYSTEMS – THE ConnectFarms RESEARCH PROJECT

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ConnectFarms project is a developing approach to increase a sustainable way integrated crop and livestock production systems to benefit soil and reduce farm stress and climate change adaptation, and to integrate an emissions from animal farming. This will include a final result of integrated system for farmers and stakeholders, addressing crop-livestock integration, pasture farming, state of readiness for organic amendments production in the framework of circular economy and sustainability requirements of farming practices. A set of recommendations for sustainable strategies leading to environmentally sound production systems will be the final result of the project. ConnectFarms is open to new approaches based on science and nature-based solutions to tackle crop, livestock, soil and green-related issues to maximize positive ecological interactions and enhance ecosystem services. These approaches will depend on farmers' willingness, resources, climate and animal systems to strengthen agroecosystem processes. ConnectFarms experiment is working in experimental sites in different countries across Europe: Bulgaria, Estonia, Italy, Lithuania, Poland, Spain and Turkey. The project is coordinated by the University of Bologna (EUBCE) and funded by the European Union (ERC-ETN-101019101) and the Italian Ministry of Agriculture (MIPAF).

Production of amendments: Farmers are producing amendments from livestock and biomass available in the different sites. Compost in pellet, Biochar, Bedding mixture of biochar and wood chips, Wheat straw and cow manure composted. AMENDMENTS ARE ANALYSED ACCORDING TO STANDARDS.

Barley cultivar selection: Barley multiplication plots in experimental sites. In the experimental plots of the project, a multi-resistant green barley (multi-resistant green barley) is being tested. Barley free available for animal feed. Beta glucan is a component of barley grains with functional properties that make it useful for human consumption but, on the contrary, not desirable for animal nutrition and breeding. In the project, a pale green barley mutant has been crossed with lines differing in beta-glucan content. BARLEY UNITS ARE USED IN GREENHOUSE EXPERIMENTS.

Common greenhouse experiment: Greenhouse experiments performed in Italy have included soil, biomass and amendments from the common cowshed.

Databases: Collection of all results in databases; Life Cycle Analysis performed for all the proposed solutions after selection of appropriate indicators.

ConnectFarms partners: Warsaw, Poland; Tartu, Estonia; Kadania, Lithuania; Plovdiv, Bulgaria; Rome, Italy; Milan, Italy; Denia, Spain.



ConnectFarms

INTEGRITY: Integrated crop-ruminant livestock systems as a strategy to increase nutrient circularity and promote sustainability in the context of climate change

Mixed crop-ruminant livestock systems around the world were characterized

Diverse mixed crop-ruminant livestock production systems worldwide vary based on agro-climatic and socio-cultural factors. To enhance nutrient circularity and production efficiency while reducing the carbon footprint, the INTEGRITY project researchers investigated representative systems in different regions. This initiative, part of Work Package N°1, involved studying farm typologies using data from various national bodies, local statistics, stakeholders, and experts. Characteristics of these systems encompassed biotic and abiotic factors, management practices, historical records, crop rotations, tillage, fertilization, pest control, herd management, grazing, and supplementation methods.



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MI BICYCLE: Management and circularity of organic matter in Ariège, France

In Northern and Western Europe, farms are generally highly specialized, with little interaction between crop and livestock production. However, better integration, whether at the level of the farm or the territory, offers substantial potential for greater circularity of byproducts (e.g. crop residues, compost, livestock manure and slurry, and biogas digestate) and soil carbon storage. In Ariège, France, such a strategy is being developed with stakeholders to jointly improve soils and to create added value for both suppliers and users of by-products as part of the MI BICYCLE project.



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SENSE: Uruguayan farm shares his experiences with silvopastoral systems

The Annual Meeting of the SENSE project was held in early May 2023 in the Netherlands. The meeting was organized by the project partner Wageningen University & Research (WUR). During the meeting, the members discussed the progress made in the project and also

visited two Dutch case studies. During this visit, farmers shared their experiences, challenges, and motivations with integrated systems in the Netherlands. A photo was taken at one of the case studies (see Photo 1 below). In late October, the project members will meet again, this time in Uruguay, at the XII Congreso Internacional de Sistemas

Silvopastoriles. They will give talks and present studies conducted in the project. Our partner, the Instituto Nacional de Investigación Agropecuaria (INIA), is one of the organizers of this conference. Additionally, INIA is coordinating the activities at the Uruguayan case study, which is described in the video link below.



In this video, Viterbo Gamarra, an Uruguayan farmer, shares his motivations, experiences and challenges with the implementation and management of silvopastoral systems in areas of natural grasslands in Uruguay.

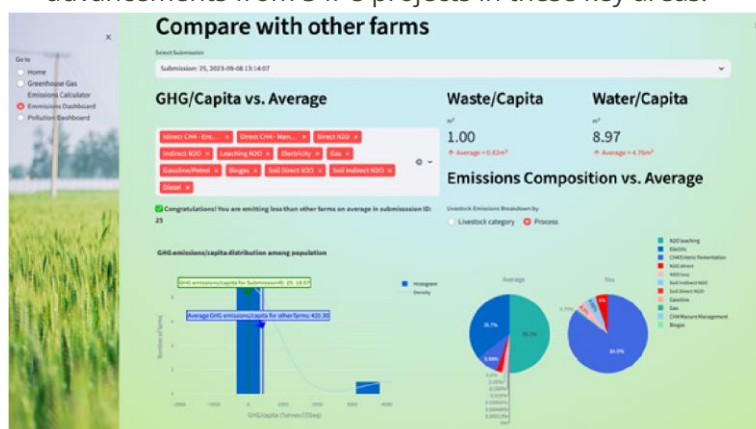
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Solution4Farming: Unlocking Sustainable Farming with Solution4Farming (S4F)

Climate change, driven by carbon emissions from sectors including agriculture and livestock practices, endangers farming and food supply. Solution4Farming offers a resilient, eco-friendly agricultural future.

Navigating the challenges of climate change, S4F adopts a three-pronged strategy: innovating in fertilizer technologies, empowering farmers with intelligent decision tools, and endorsing circular farming practices.

In the article, we spotlight recent outcomes and advancements from S4F's projects in these key areas.



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DairyMix: Annual DairyMix meeting 2023 in the autumn sunshine of Milan, Italy

During the meeting, partners reviewed progress across project work packages. Data collection at case study farms was completed by August 2023. Currently, Teagasc, INRAE, and UNIMI teams are conducting quality control and validation of the data. UNIMI and Ruralis have dened the modeling framework, utilizing Italian farms for testing. Sustainability indicators and a multicriteria assessment framework were collaboratively developed by Teagasc, INRAE, ATB, and UZ under INRAE's coordination. The modeling approach will expand to additional case studies in the coming months, encompassing the calculation of sustainability and circularity indicators.



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