Case study sites



CATALONIA, SPAIN
Pig manure valorisation for organic fertiliser and bioenergy production, assessment of changes in soil organic carbon & phosphorus accumulations in soils, precision feeding in dairy cows & production of fodder crops.

BRANDENBURG, GERMANY
Testing organic N fertiliser application strategies, studying genotype differences in mechanisms contributing to N efficiency of plants, management of treated residue application & application strategies & the impact of gaseous emissions and manure characteristics.

LUNGAU, AUSTRIA
Closing N-P & P-Cycles at organic dairy farms (feeding strategies, gaseous emissions and manure characteristics - using a respiration chamber).

EMILIA-ROMAGNA, ITALY
Conservation tillage and cover crops, digestate treatment (microfiltration) with application via drip line fertigation.

GELDERLAND, THE NETHERLANDS
Testing plant diversity impacts on soil P and mitigating GHG emission, investigating the relationship between earthworms and P availability of plant growth, testing fertiliser ability of several novel biosolid amendments.

SOUTH MORAVIA, CZECHIA
Recovery of carbon-rich compounds from food production for use in improving carbon content of soils.

Our partners

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Horizon 2020

Circular Agronomics receives funding from the European Union's Horizon 2020 Framework Programme for Research and Innovation under Grant Agreement no. 773649



Circular Agronomics

Circular solutions for carbon and nutrient management

The challenge

Carbon, nitrogen, phosphorous and potassium are crucial in agriculture to maintain fertile and healthy soils, and allow adequate plant growth and development. Yet, in our current system, soils are being depleted of carbon and valuable nutrients being lost, leading to the pollution of our rivers and air and contributing to GHG emissions.

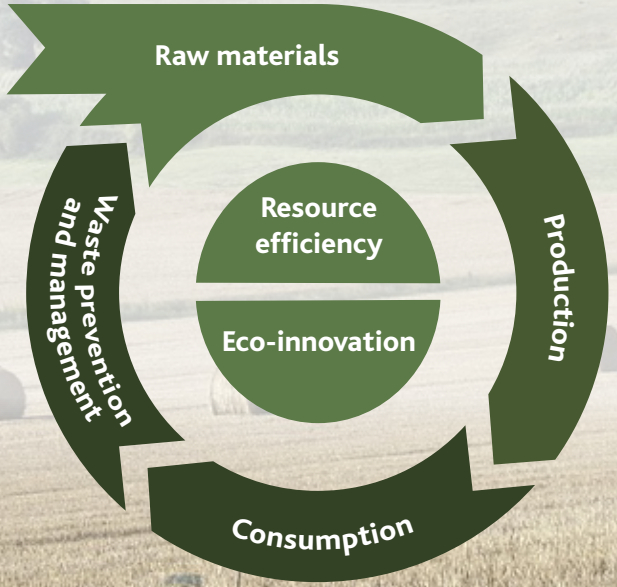
This is because nutrient use in our system is inefficient.
Over half of the nitrogen and phosphorus entering our agricultural system is coming from non-renewable sources and yet only one tonne of every five tonnes of nitrogen entering the EU agri-food chain is actually converted into food for human consumption; the story is similar for phosphorus and potassium.

In addition, poor soil management practices are leading to loss of carbon in soils which is exasperating the situation.

The solution

Circular Agronomics applies the principles of the **circular economy** to agriculture.

In a circular economy, the aim is to extract the maximum value from resources (such as nutrients) whilst in use, then recover and regenerate products and materials at the end of their lifecycle (waste). Therefore, Circular Agronomics is working to find new, innovative solutions at the farm level to use nutrients more efficiently, reduce nutrient waste, and recover and re-use nutrients from biowaste.



The project

The project will investigate and test a wide range of measures to improve nutrient and carbon use in the EU, including:

- The production of novel organic soil amendments from agricultural and industrial by-products;
- The investigation of cropland and grassland management practices to optimise GHG emissions and optimise manure characteristics;
- The testing of multiple manure, digestate and food waste valorisation techniques for fertiliser recovery;
- The investigation of food industry wastewater treatment for the recovery of carbon-rich compounds.