# Nutri2Cycle

## Transition towards a more carbon and nutrient efficient agriculture in Europe

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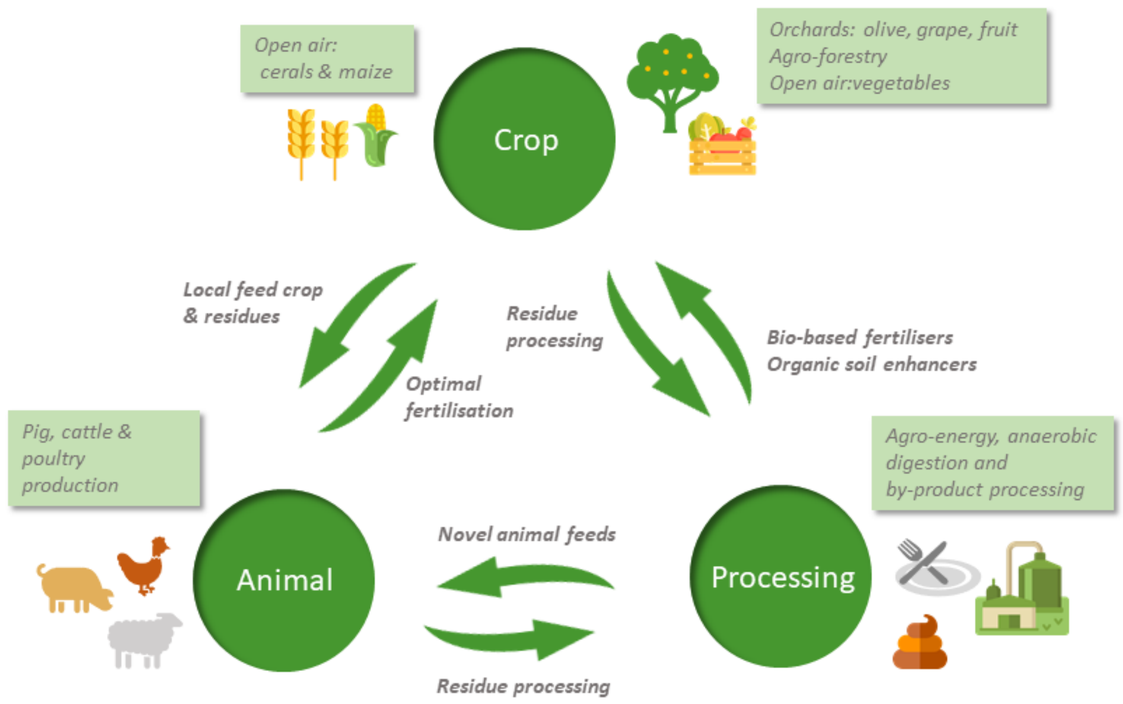
## CLOSING NUTRIENT LOOPS

The Nutri2Cycle project will be running from 2018 to 2022. It will provide an essential contribution to circular economy by closing nutrient loops.

European agriculture is still characterized by a high overall contribution to greenhouse gas emissions and inefficient recovery of carbon and re-use of major plant nutrients (nitrogen and phosphorus).

The Nutri2Cycle project will assess the current Nitrogen (N), Phosphorus (P) and Carbon (C) flows looking into existing management techniques in different farms across Europe and analysing their related environmental problems. Tackling the existing nutrient flow gaps in Europe will help decrease greenhouse gas emissions, reduce soil degradation and improve EU independence for energy and nutrients.




## NUTRI2CYLE WILL...

1. Map and comprehensively present the current flows and gaps in C, N and P cycles in 8 investigated agro-typologies over three major agricultural pillars:
· livestock: pig and poultry production and cattle farming
· plants: cultivation of cereals and maize, arable cultivation of vegetable crops in open air and orchards
· agro-energy systems with focus on anaerobic digestion

2. Implement a toolbox for stakeholders with comprehensible indicators to measure sustainability & evaluate trade-offs between the current practice and innovative, optimized farming systems for the investigated typologies.

3. Boost innovation (innovation funnel):
· Assess 60 proposed optimized farming systems, aimed at closing nutrient loops and efficient mitigation measures (longlist).
· Shortlist top 24 innovations from the acquired longlist, exhibiting most potential for reduced GHG emissions and nutrient losses, while enhancing or maintaining productivity and overall sustainability.
· Prioritize 1 to 2 innovations per agro-typology (12-16 in total) for further full-scale demonstration and in-depth impact investigations.

4. Develop and test at least 1-2 prototype per farm typology taking into account the different agro-climatological and socio-economic aspects.

5. Impact calculation at regional & EU level, extrapolating the potential GHG abatement and nutrient recycling/upcycling/re-use from farm-level to regional and European level.

6. Evaluate how agro-products obtained via more sustainable processes can aim for ecolabelling, and how this could affect consumer behavior (willingness to pay).

## NUTRI2CYCLE WILL INTERACT WITH ALL ACTORS INFLUENCING NUTRIENT CYCLES TO:

- Create more efficient and sustainable farm business models for nutrient recovery and recycling.
- Spread the results at regional, national and European level throughout a comprehensive network of regional operational groups, National Task Forces and European stakeholders.
- Assess how the products obtained through the identified business models can aim for labelling and reach end-users.
- Provide scientific support on effective regulatory frameworks to reduce emissions and increase self-reliance of Europe for food, energy and nutrients in the next century.

## PROJECT PARTNERS: 19 ORGANISATIONS FROM 12 EU COUNTRIES

- Chambre Departementale d'Agriculture de la Charante-Maritime
- Consorzio Italbiotec
- European Biogas Association
- Fundacion Cartif
- Inagro
- Institut de Recerca i Tecnologia Agroalimentaries
- Instituto Superior de Agronomia
- Ips Konzalting
- Johann Heinrich Von Thuenen-Institut
- Kobenhavns Universitet
- Politechnika Czestochowska
- Soltub
- Stichting Wageningen Research
- Teagasc
- Terra Humana
- United Experts
- Universita Degli Studi di Milano
- Universiteit Gent
- Zuidelijke Land

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