#EUCircularTalks

Circular Bioeconomy Value Chains: Insights and Best Practices

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copa*cogeca european farmers european agri-cooperatives

Beta UVIC UNIVERSITAT DE VIC

upna IS-FOOD Research Institute for Innovation & Sustainable Food Chain Development

CIRCULAR WEEK 2022

alchemia nova

European Circular Economy Stakeholder Platform

FERTIMANURE General information

FERTIMANURE
Innovative nutrient recovery from secondary sources – Production of high-added value FERTIlisers from animal MANURE

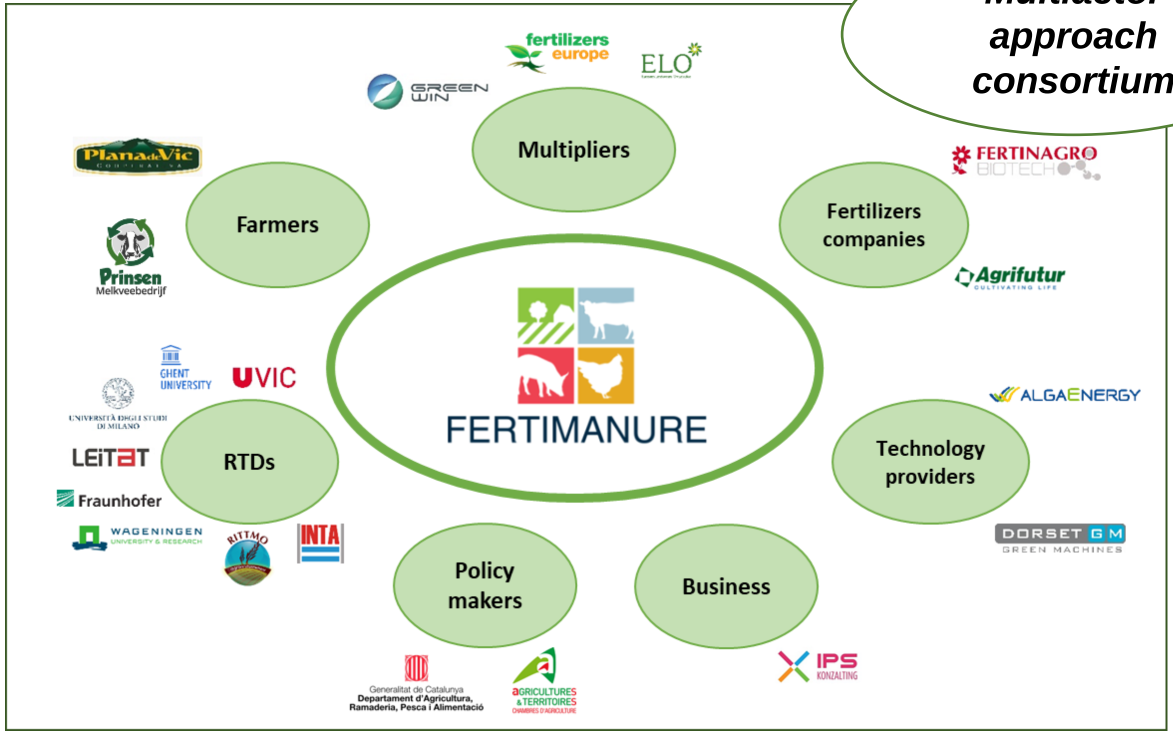
CE-RUR-08-2018-2019-2020: Closing nutrient cycles
Subtopic B – Bio-based fertilisers from animal manure

01/01/2020
31/12/2023

Total project costs: 8,419,670,75€
Total EU Contribution: 7,784,512,25€

20 Project Partners

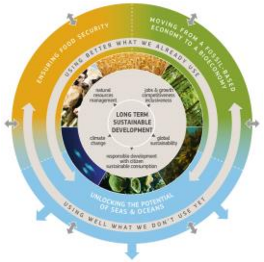
Multiactor approach consortium



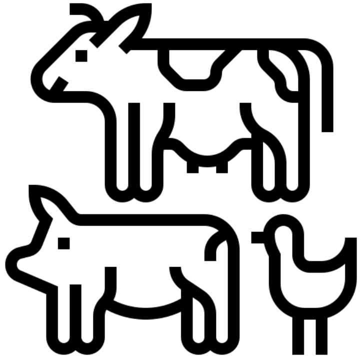
Some context in nutrients at EU level

- Increasing global demand for mineral fertilisers
- Resource Depletion
- Regional Nutrient Imbalances

Let's consider the wastes rich in nutrients as an opportunity!



- In Europe, 1400 Mt/year of manure
- 7-9 Mt N/year + 1.8 Mt P/year
- More than 90% of manure is currently returned to agricultural fields

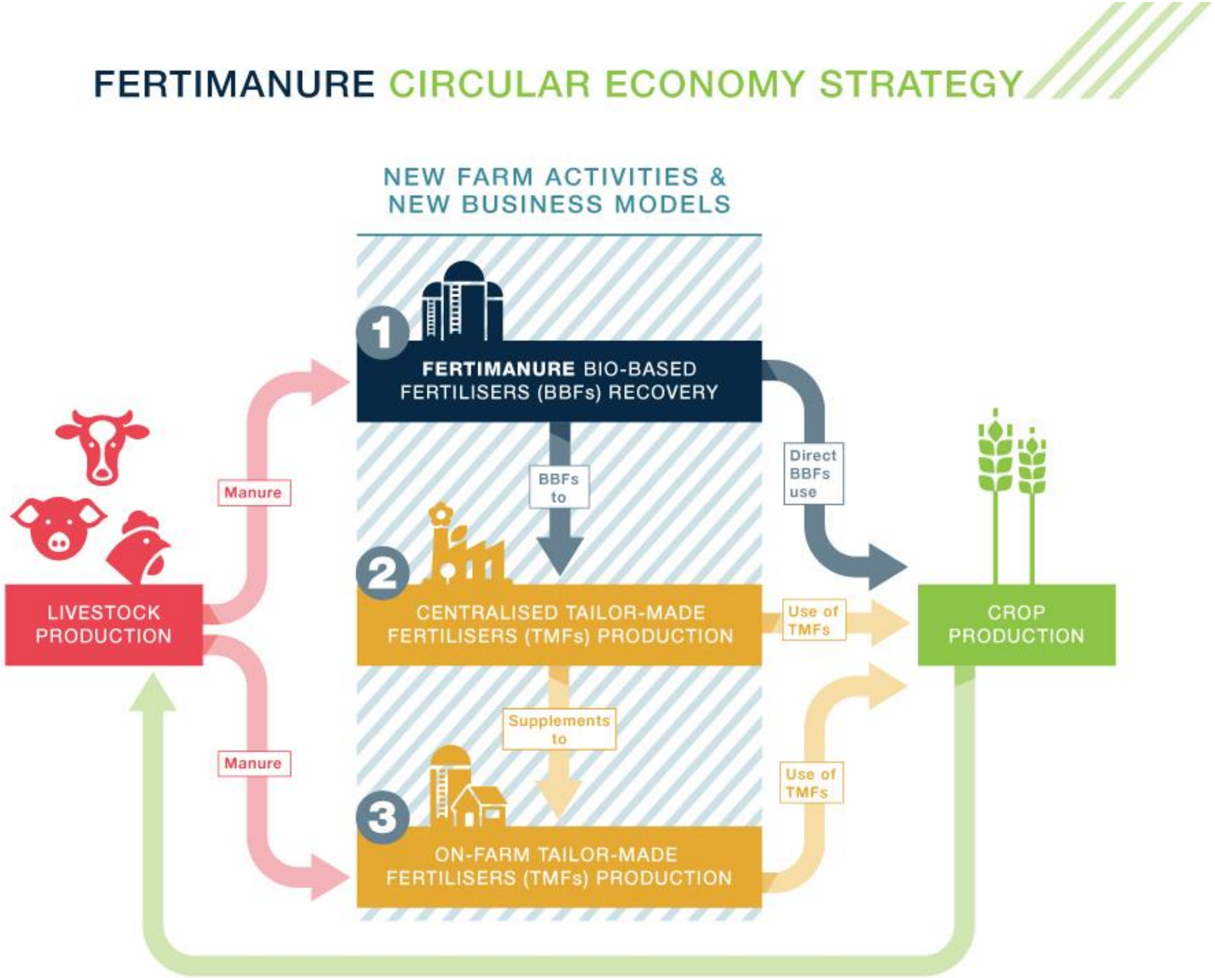


Nutrients – A business opportunity!

A good Nutrient Management should provide real benefits and solutions / **opportunities** to all those facing challenges related to their inefficient use.

- **Livestock sector**: Diversify the revenue sources. New farm activities bringing **new business opportunities** in the current fertilizers market.
- **Agricultural sector**: Well-defined and **standardised fertilizers** achieving the same consistency in performance than conventional mineral fertilisers.
- **Chemical Industry**: **Diversify nutrient sources** to produce fertilizing products. On-farm and centralised Tailor-Made Fertilizers production.
- **Technology providers**: **New market opportunities** for technological companies providing efficient & effective technologies for nutrient recovery.
- **Policy makers:** Providing **policy relevant information** to support new policies and legislations that enhance circular bioeconomy.
- **Society**: Alternative internal secondary nutrient sources that will, in the long-term, ensure **food security and sustainable agriculture**.

FERTIMANURE – Circular Economy Strategy



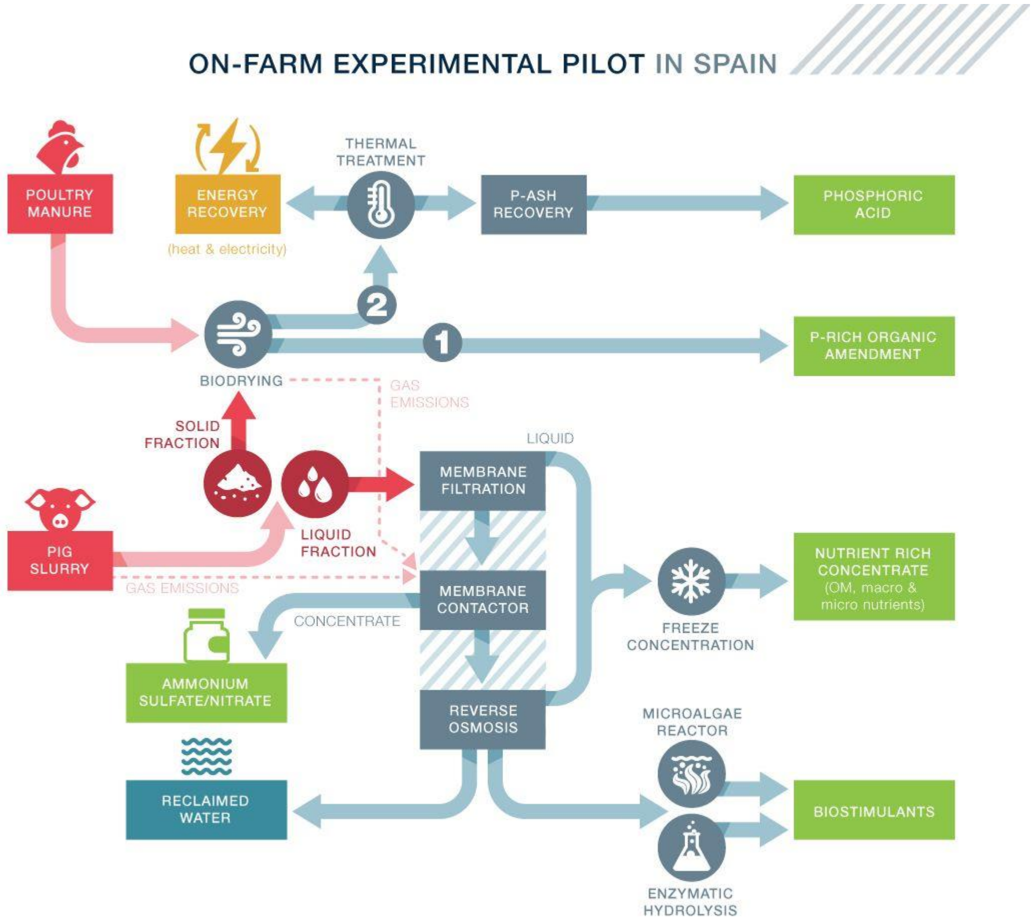
What is FERTIMANURE about?

FERTIMANURE – From Farm to Market: Upcycling Manure to improved fertilising products

- Is not only about innovative technologies.
- Needs to solve regional and inter-regional nutrient imbalances (export nutrients in a high-added value form).
- Will obtain high-quality, safe and marketable fertilising products from animal manure. The fertilising products include: mineral, organic and biostimulants.
- Will develop specific and complementary business models and exploitation strategies, covering all actors of the value chain.
- Needs to be in line and have an impact to all those EU initiatives linked to nutrient management and fertilising products use (including policies and legislation).

TECHNOLOGY + NUTRIENT MANAGEMENT + QUALITY/SAFETY + BUSINESS + ACCEPTANCE

FERTIMANURE on-farm pilots



The infographics for the other on-farm pilots can be found in our website (www.fertimanure.eu)

FERTIMANURE BBFs

BBF		BBF category
1	NL- AS	Ammonium sulphate solution
2	ES- AM	
3	BE - AS	
4	FR - AS	
5	NL- LK	Liquid K- fertiliser
6	FR- LK	
7	NL-SC	Soil conditioner
8	NL-WP	Wet organic P-rich fertiliser
9	NL- DP	90% Dried organic P rich fertiliser (calc)
10	ES-NC	Nutrient-rich concentrate
11	ES-DSC	Bio-dried solid fraction
12	ES-PA	Phosphorus (ashes) / Phosphoric acid
13	ES-AA	AA-based biostimulants
14	DE- BC	Biochar
15	FR - BC	
16	DE-AP	Ammonium phosphate on perlite (solid)
17	BE- AN	Ammonium nitrate
18	BE-AW	Ammonium water

Complete **product characterisation** (Regulation 2019/1009)

Agronomic assessment (incubations, pot tests, field trials)

Sustainability assessment (LCA, LCC, sLCA)

Formulation of TMF

FERTIMANURE main outputs

The project outputs should target the relevant stakeholders

STAKEHOLDER GROUP 1 (SG1)	agricultural producers	1) livestock farmers 2) arable farmers, crop growers 3) agro SME´s 4) agro associations 5) sustainable agriculture associations
STAKEHOLDER GROUP 2 (SG2)	fertilisers processing industry	1) Fertiliser companies (manufacturers and sellers, both mineral and organic) 2) chemical industry 3) manure processors 4) public investors in bioeconomy 5) private investors in bioeconomy 6) technology providers 7) fertiliser association
STAKEHOLDER GROUP 3 (SG3)	academia and research	1) research institutions 2) EU subject related networks and clusters (agro - industry, sustainable chemistry) 3) EU R&D neighbouring projects and consortiums 4) nutrient recycling research community
STAKEHOLDER GROUP 4 (SG4)	business and financial advisors	1) business consultants 2) financial institutions 3) agricultural banks 4) funding agencies
STAKEHOLDER GROUP 5 (SG5)	policy makers & authorities	1) ministries of agriculture 2) paying agencies for agriculture 3) agro-connected intermediaries established by government (extension service, LAGs) 4) local council 5) regional government 6) Waterboards 7) standardization body
STAKEHOLDER GROUP 6 (SG6)	public entities & general public	1) non- governmental organisations 2) media 3) general public – rural communities

- 6 stakeholder groups identified
- We want to understand end-users needs and hear their voice in order to create business plans/models that suit the real case scenarios
- The project outputs should be tailored for the relevant target groups

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FERTIMANURE main outputs

FERTIMANURE catalogue of BBFs

- Targeted stakeholder: fertilisers industry
- Aims to present in an easy and understandable way all the relevant information about FERTIMANURE BBFs
- Alignment of the BBFs with the EU Fertilising products regulation

→ **Support Tool for Fertilisers industry to have new source of nutrients**

FERTI – Manure Mangament Package

- Targeted stakeholder: farmers
- Aims to help farmers on a better management of manure, considering direct manure use, nutrient recovery, as well as environmental, legal and economic aspects.

LOGISTICS TOOL

DECISION SUPPORT SYSTEM

TMF Nutrition Tool

→ **Tailored business models for farmers**

FERTIMANURE main outputs

Acceptance of FERTIMANURE BBFs – Market Landscape Analysis

Share of farmers willing to accept BBFs from the following sources (%)

	Croatia	Argentina	Italy	Spain	France
manure	**70,00**	**56,92**	**62,00**	**47,00**	**61,11**
sewage sludge	7,00	16,15	4,00	6,00	1,85
ash from sewage sludge	5,00	16,92	2,00	6,00	-
household waste	19,00	25,38	18,00	8,00	1,85
food industry waste	10,00	33,85	23,00	12,00	7,41
green waste	-	-	18,00	16,00	5,56
ash	-	-	2,00	10,00	3,70

What farmers wants to see in BBFs?

	Croatia	Argentina	Italy	France	Spain
The **nutrient ratio** that fits with crop nutrient demand	x	x	x		x
High **organic matter** content	x		x		x
Basic pH – lime value					
Easy **application**	x				x
Price per unit of N or other nutrients		x	x	x	x
Ability to use the same **machinery**	x	x	x	x	
Availability to **buy** at fertiliser supplier/trader		x			
Certification				x	
Storage (packaging size etc.)					

612 **responses were collected**

Obstacles for BBFs acceptance

Financial/economic effects		
Croatia	🇭🇷	50,58 %
France	🇫🇷	35,71 %
Argentina	🇦🇷	37,70 %
Spain	🇪🇸	29,63 %
Italy	🇮🇹	49,48 %

Legislative framework		
Italy	🇮🇹	20,83 %
France	🇫🇷	22,62 %
Spain	🇪🇸	29,63 %

Technical equipment for application of bio-based fertilisers		
Croatia	🇭🇷	27,24 %
Italy	🇮🇹	21,35 %
Argentina	🇦🇷	30,05 %

FERTIMANURE main outputs

FERTIMANURE Impact at Policy/Regulation Level

European Fertilising Products Regulation (EU Reg 2019/1009)

The main aim is to evaluate which of the FERTIMANURE products could potentialy be **CE marked products**.

Component Material Categories: CMCs — BBF

Product Function Categories : PFCs — BBF, TMF

Final products that can be traded in European market as CE-fertilising products in framework of regulation 2019/1009

- They can contain only authorized raw materials (CMCs)

- They should respect specifications on both efficiency and innocuousness parameters

FERTIMANURE main outputs

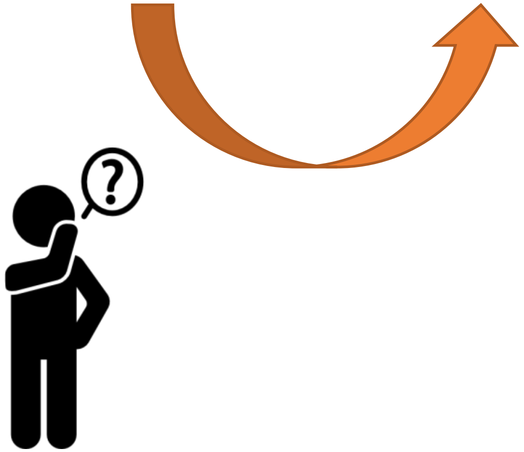
❖ FERTIMANURE products in Organic Farming framework

The reality of the EU Livestock sector

- Global meat consumption is estimated to increase by an average of 1% per year between 2017 and 2030[1]
- Very large farms now account for 72.2% of all the animals being reared in the EU. In the Benelux countries and Denmark, more than 90% of animals are reared on very large farms[1]
- Animal manure is the main secondary source of nutrients.

Organic farming targets and limitations

- The area under organic farming has increased by almost 66% in the last 10 years. It currently accounts for 8.5% of the EU's total 'utilised agricultural area'.
- By 2030, at least 25% of the EU's agricultural land under organic farming.
- Nutrients coming from factory farming manure are forbidden.



FERTIMANURE

We are willing to provide policy relevant information and technical guidance on the way forward for assuring adequate fertilizer supply for organic agriculture.

Thank you!

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laia.llenas@uvic.cat

www.fertimanure.eu