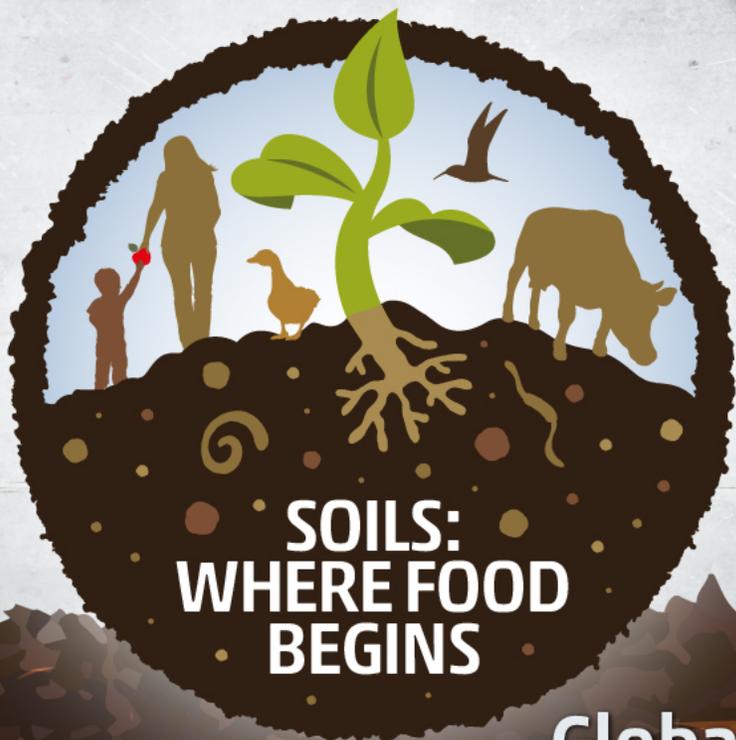




FERTIMANURE



Generalitat de Catalunya  
Departament d'Acció Climàtica,  
Alimentació i Agenda Rural



# FERTIMANURE: Upcycling animal manure into improved fertilizing products

*Laura Díaz-Guerra*

Global Symposium on Soils for Nutrition | 26-29 July 2022





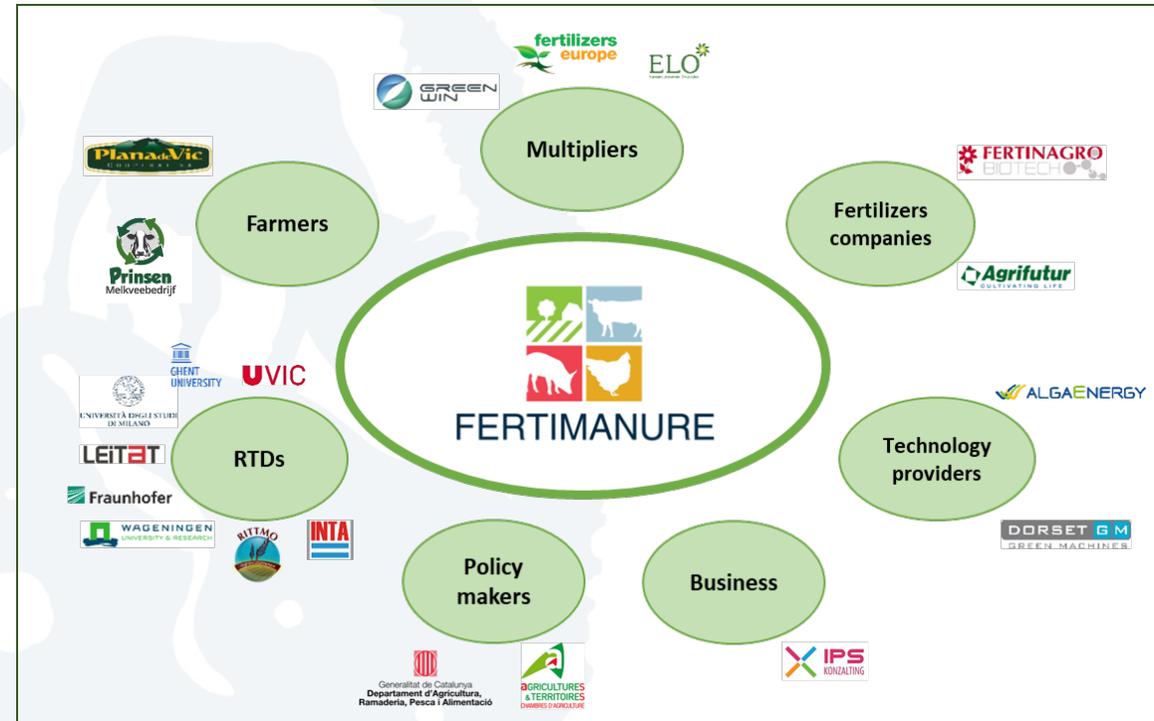
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# FERTIMANURE project

**Main objective** → To develop, integrate, test and validate innovative Nutrient Management Strategies to efficiently recover mineral nutrients and other relevant products with agronomic value from animal manure

*FERTIMANURE focuses on “How to improve the agronomic use of recycled nutrients from livestock manure”*

20 Project Partners



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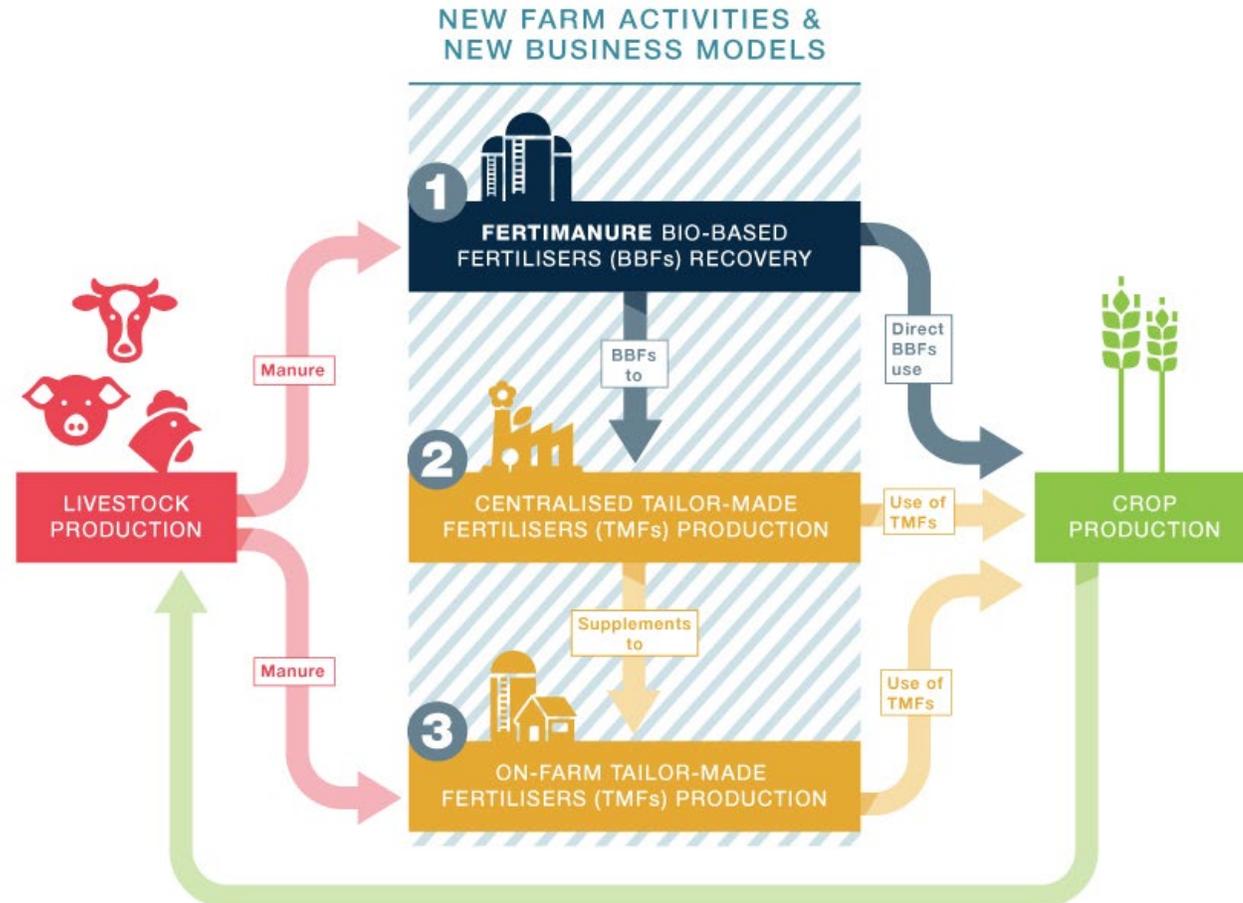


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# FERTIMANURE project

## FERTIMANURE CIRCULAR ECONOMY STRATEGY

**Bio-based Fertilizers (BBF):**  
fertilizer products obtained on-farm directly from the innovative technologies treating animal slurries and manures





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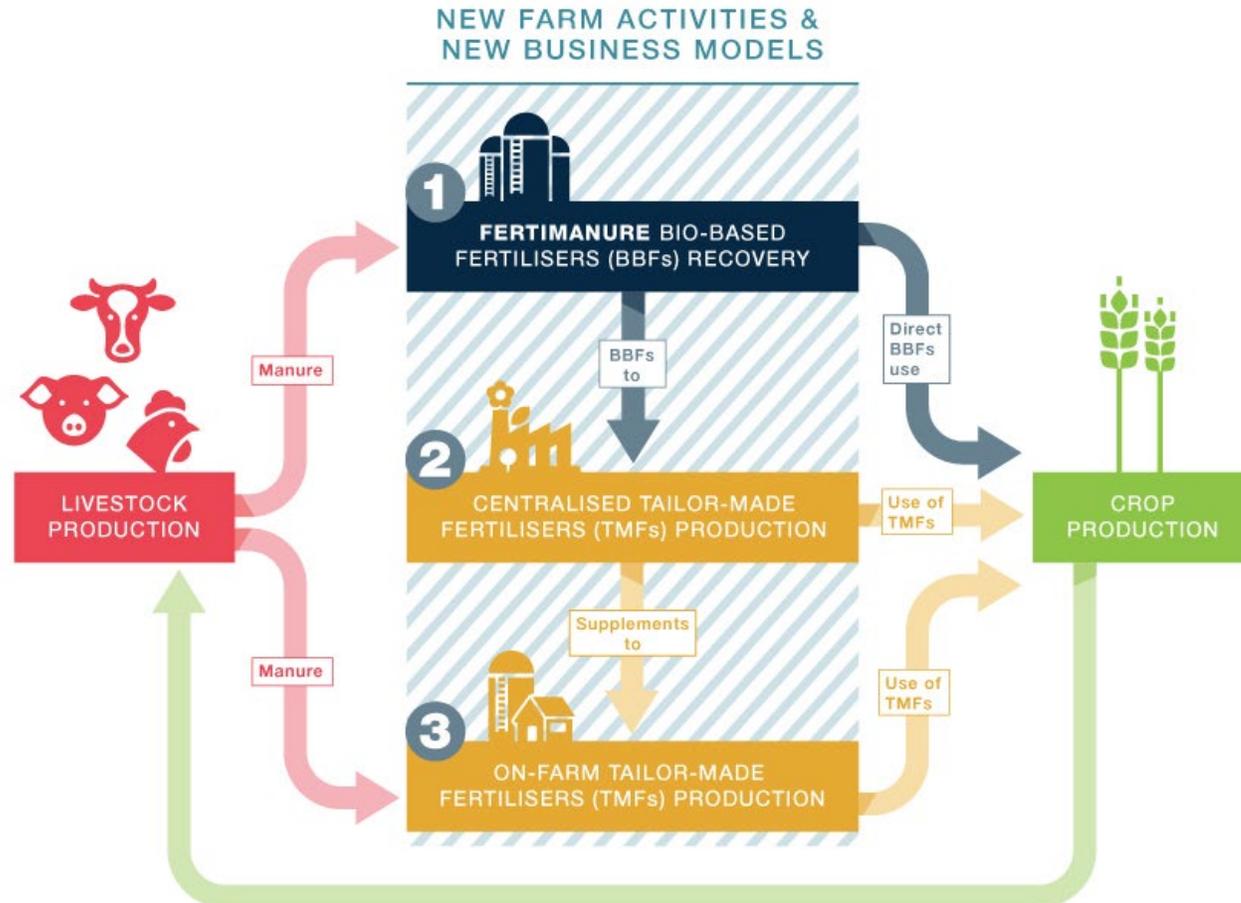
# FERTIMANURE project

FERTIMANURE CIRCULAR ECONOMY STRATEGY

## Bio-based Fertilizers (BBF)

### Tailor-made Fertilizers (TMF):

Customized fertilizer formulations adapted to specific crop/soil needs. FERTIMANURE TMF will be produced by combining (i) FERTIMANURE BBF and, if necessary, (ii) supplementary products (mineral nutrients, micro and macro elements, biostimulants, etc.) directly provided by the fertilizer companies





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# FERTIMANURE project

ON-FARM PILOTS

**5** ON-FARM PILOTS

**3** FEEDSTOCKS



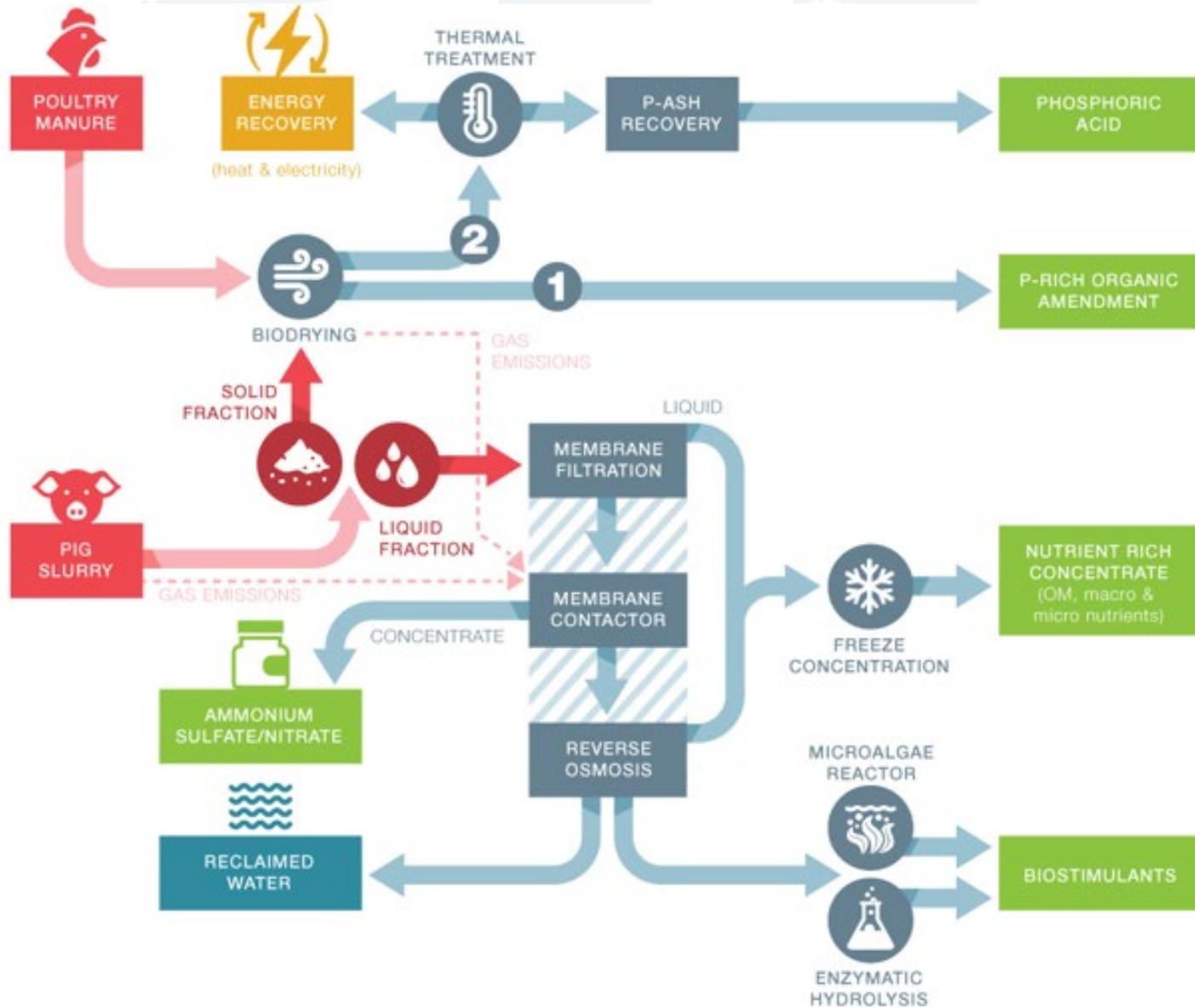
**Spanish pilot**  
(Cal Ros farm)



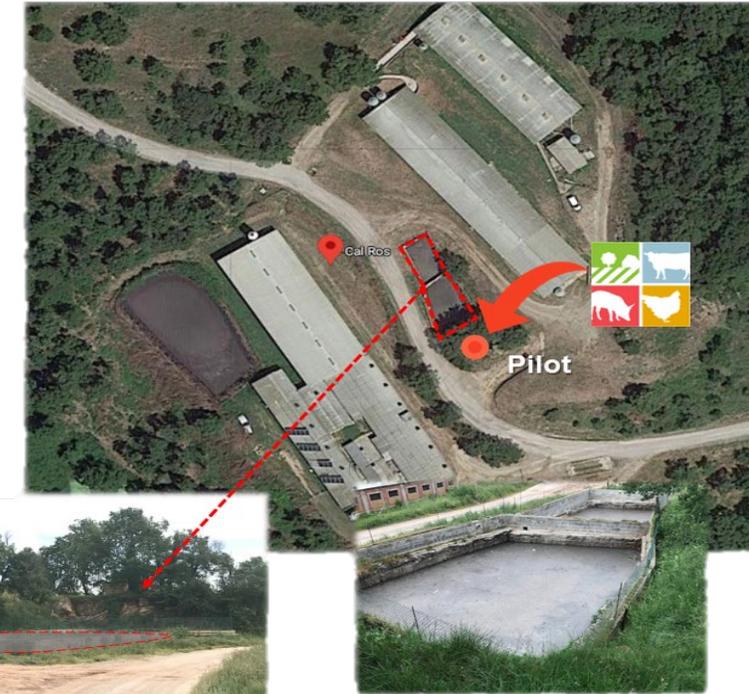


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# Spanish pilot



## Cal Ros farm



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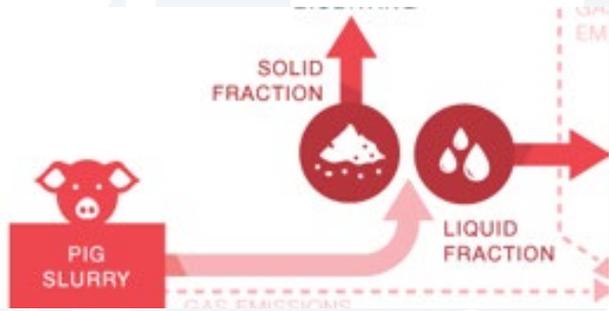


GLOBAL SOIL PARTNERSHIP



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# Spanish pilot



Separation unit

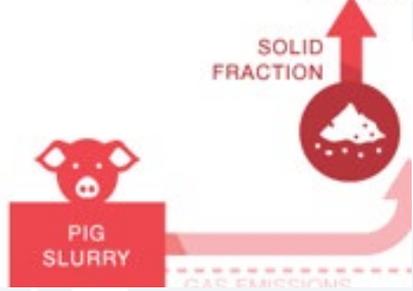
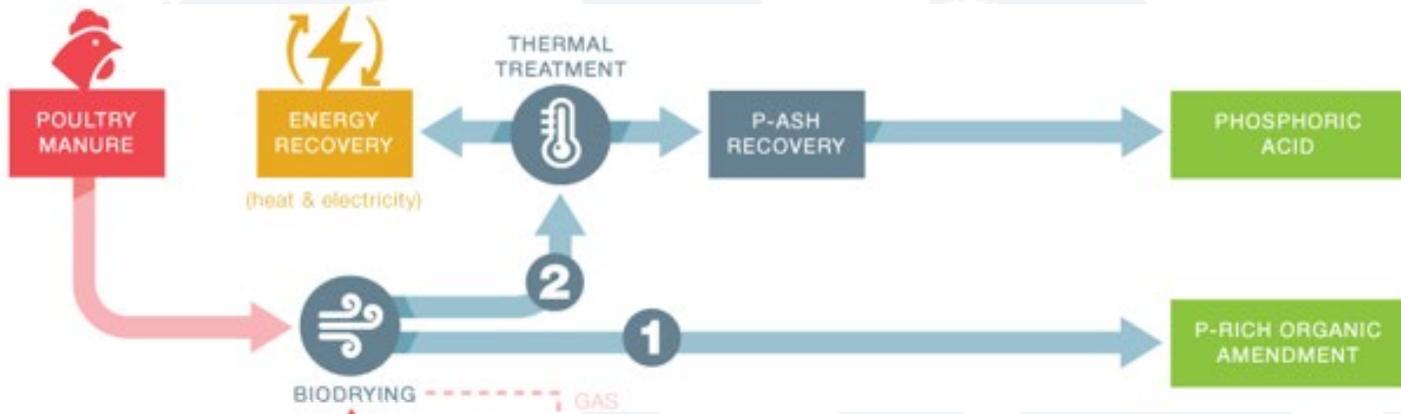
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# Spanish pilot



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**SOLID FRACTION**



1 P-rich organic amendment



2 Phosphorous ash



Phosphoric acid





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# Spanish pilot

## LIQUID FRACTION



M. filtration

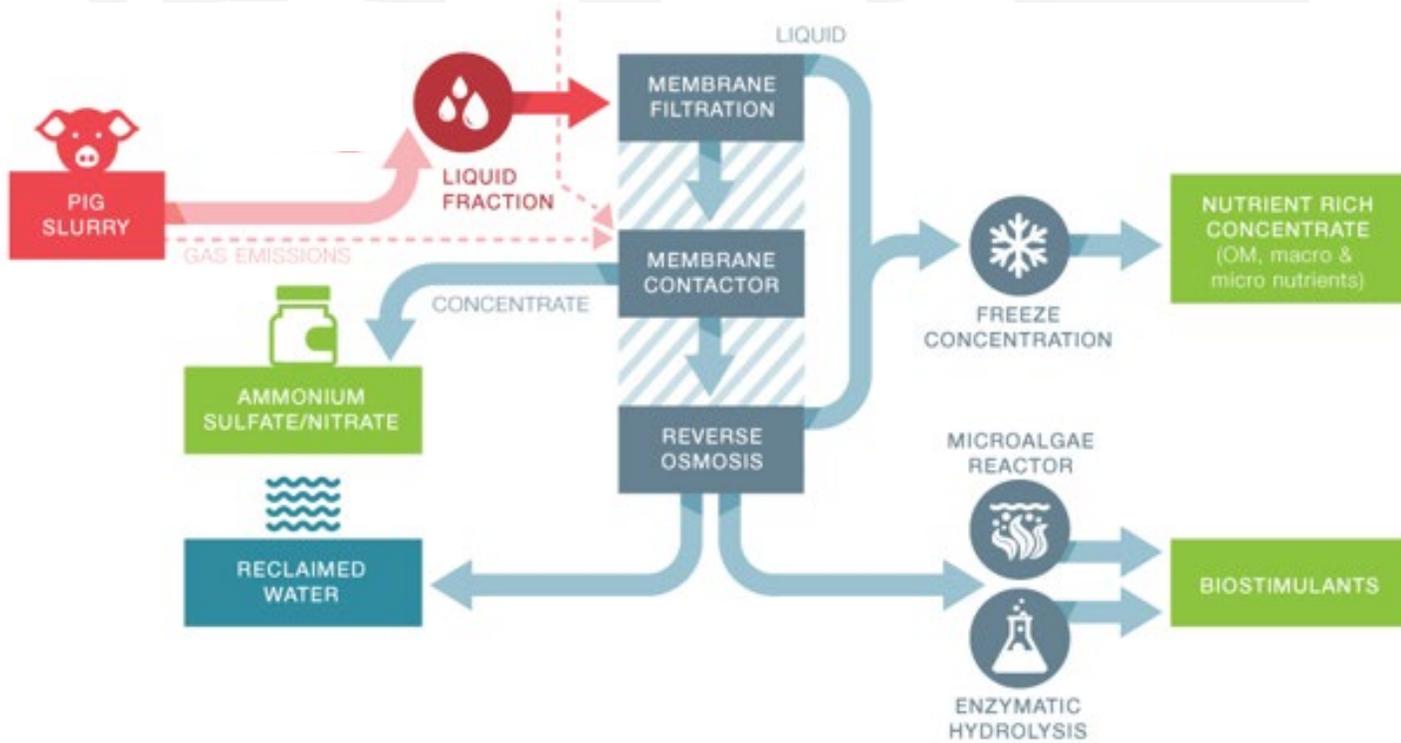


M. contactor



Reverse osmosis

Ammonium sulphate



Nutrient rich concentrate



Biostimulants

26-29 July 2022





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# BBFs characterization

		N (g/kg)	P (g/kg)	K (g/kg)	OM (g/kg)	Protein (g/kg)	Free aminoacids (g/kg)
	<b>Organic amendment</b>	<b>11</b>	<b>3</b>	<b>6</b>	<b>350</b>		
	<b>Phosphorous ash</b>	-	<b>73</b>	-	-		
	<b>Ammonium sulphate</b>	<b>16</b>	-	<b>0.5</b>	<b>&lt;1</b>		
	<b>Nutrient rich concentrate</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>3</b>		
	<b>Biostimulants</b>				<b>45</b>	<b>5</b>	<b>1187</b>

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# Agronomic trials

Assessment of **BBFs** and **TMFs** for their ability to substitute current mineral fertilizers

## Soil Incubations

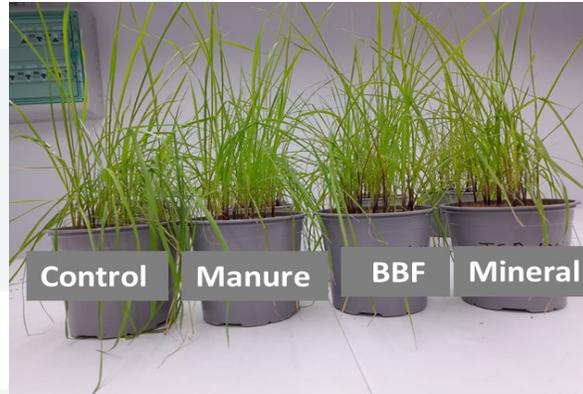
Assessment of nutrient release patterns from all BBFs

## Pot trials

P dynamics using ray grass

TMF with spinach & tomato under stress conditions

Effectiveness of biostimulant under stress conditions





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# Agronomic trials

## Experimental field (ongoing)

Crop: Wheat

Evaluation of TMF and Biostimulants

BBFs used for the TMF:

- ❖ P-rich organic amendment
- ❖ Ammonium sulphate
- ❖ Biostimulant

Assessment of GHG and ammonia



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**FERTIMANURE  
products**



# Expected Impacts

**New generation of commercial, sustainable and safe fertilizers from livestock waste**

**Replacement of conventional and non-renewable mineral fertilizers, reducing the high dependence of EU on fossil-based fertilizers**

**Reduction in the environmental impacts linked to the emissions and dispersion of nutrients**

**Replication of the experimental pilots in different contexts at the EU level, but also internationally**

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Thank you for your attention!



This project has received funding from the EU Horizon  
2020 Research and Innovation Programme under grant  
agreement No. 862849.



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