



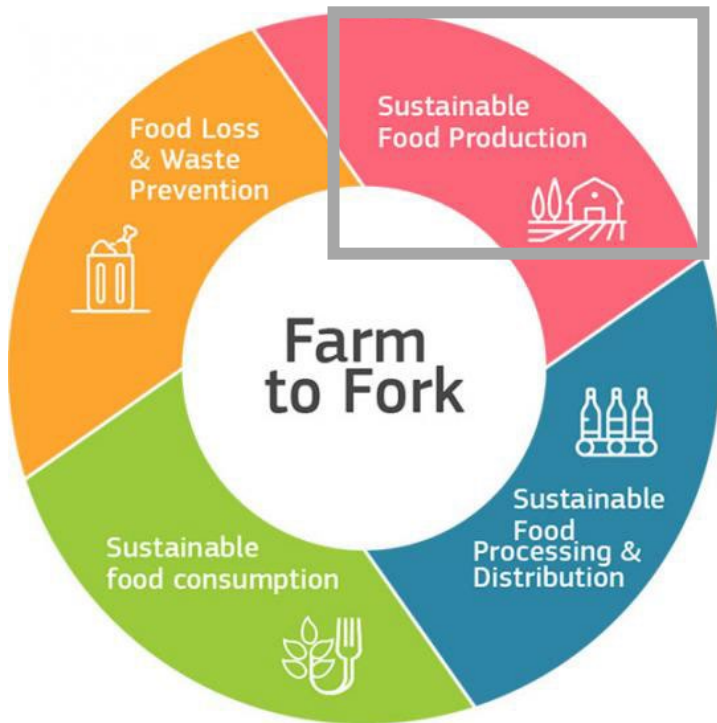
## Livestock waste management as a key towards a sustainable food production

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# Farm to Fork Strategy – Ensuring Sustainable Food production



The **circular bio-based economy** is still a largely untapped potential for farmers. The Commission will take action to **speed-up market adoption of circular bio-based solutions** to achieve the sustainability of the food chain.



The **use of pesticides in agriculture** contributes to pollution of soil, water and air. The Commission will take actions to:

- ✓ Reduce by 50% the use and risk of chemical pesticides by 2030
- ✓ Reduce by 50% the use of more hazardous pesticides by 2030



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- ✓ **Reduce nutrient losses** by at least 50%, while ensuring no deterioration on soil fertility
- ✓ **Reduce fertilizer use** by at least 20% by 2030

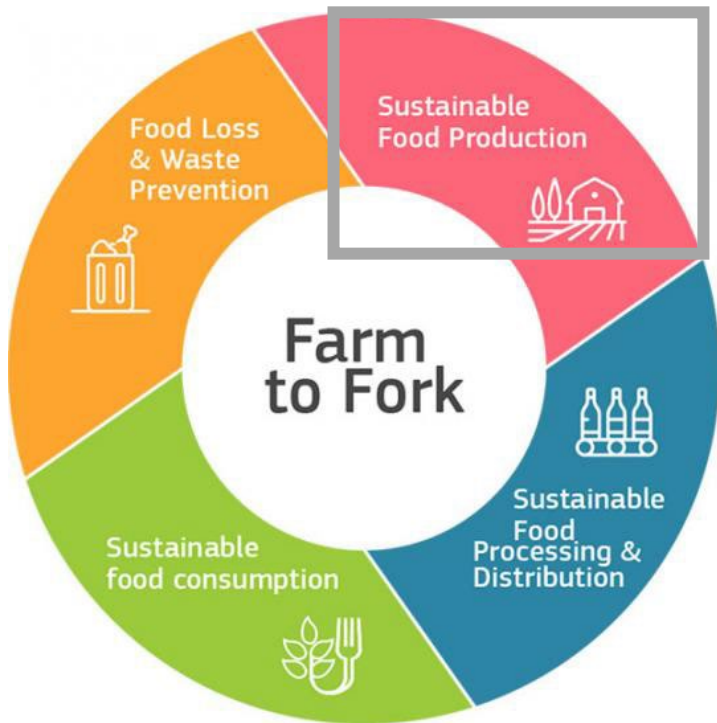


**Antimicrobial resistance** linked to the use of antimicrobials in animal and human health leads to an estimated 33,000 human deaths in the EU each year. The Commission will **reduce by 50% the sales of antimicrobials** for farmed animals and in aquaculture by 2030



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## The importance of Livestock sector in EU



- The **EU livestock sector** is the largest in the world.
- Meat, milk and eggs make up 40% of the EU's agricultural value and it accounts for 48% of total EU agricultural activity, with an **estimated €130bn output value annually**.
- Total farm livestock population in Europe excrete around **1400 Mt of manure annually**.
- Total N and P excreted by livestock in the EU27 are estimated at **7-9 Mt N/year** and **1.8 Mt P/year**.
- The livestock manure produced is larger than the amount that can be used in local agriculture.

**More than 90% of manure produced in EU27 is currently returned to agricultural fields**



**Clear role in current Nutrient imbalances at EU level**



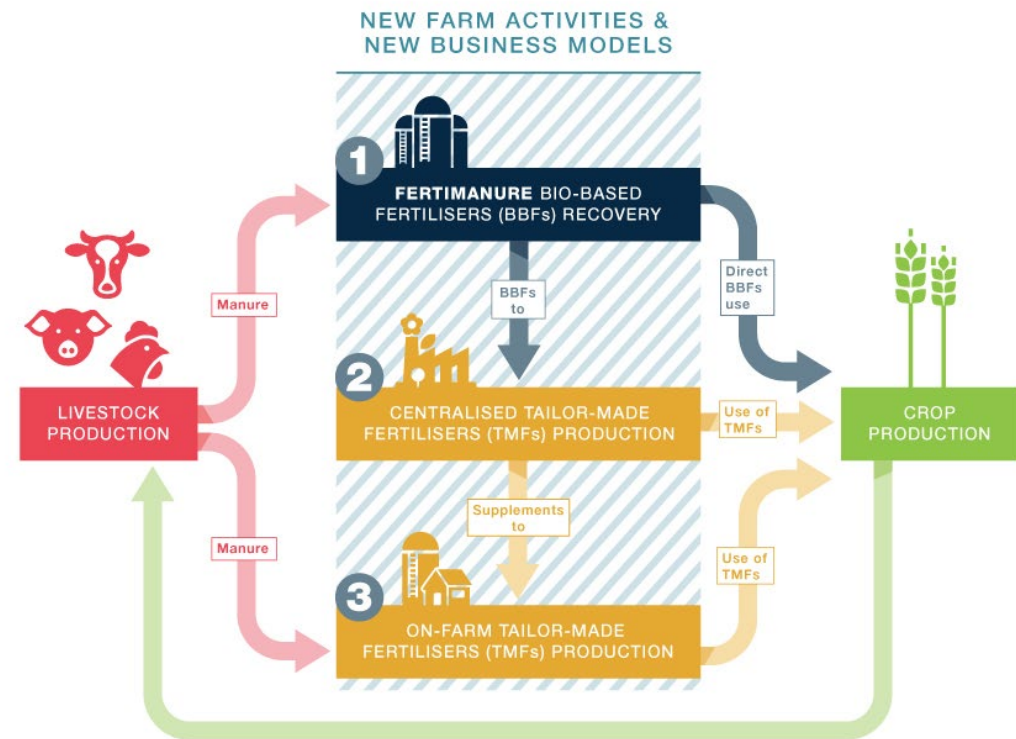
## Nutrient recovery from Livestock waste



It is necessary to transform part of nitrogen and phosphorus from animal manure sources into high-added value **bio-based fertilizers** that can be distributed throughout different regions and countries, and thus reducing importation and usage of mineral sources.

**Let's consider the wastes rich in nutrients as a business opportunity!**

### FERTIMANURE CIRCULAR ECONOMY STRATEGY



**Circular bio-based economy**

# Bio-based Fertilisers from FERTIMANURE project



## ON-FARM PILOTS



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

# Bio-based Fertilisers from FERTIMANURE project



ON-FARM PILOTS



**We are willing to obtain marketable products...**

- Technical barriers
- Economic barriers
- Social barriers
- **Political barriers**

BBF		BBF category
1	NL- AS	Ammonium sulphate solution
2	ES- AM	
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		Liquid K- fertiliser
		Soil conditioner
		Wet organic P-rich fertiliser
		90% Dried organic P rich fertiliser (calc)
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## Alignment of FERTIMANURE BBFs with the Regulation 2019/1009



BBF		Tentative Product Function Category (PFC)	Potential Component Material Category (CMC)
NL- AS	Ammonium sulphate solution	PFC 1 (C) (I) (b) (i) Straight liquid inorganic macronutrient fertilizer	CMC 5 – Digestate other than fresh crop digestate (for the products from BE and NL) CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009 CMC 15 - Recovered high purity materials
ES- AM			
DE - AS			
BE - AS			
FR - AS			
BE- AN	Ammonium nitrate	PFC 1 (C) (I) (b) (i) Straight liquid inorganic macronutrient fertilizer	CMC 5 – Digestate other than fresh crop digestate CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009 CMC 15 - Recovered high purity materials
BE-AW	Ammonium water	PFC 1 (C) (I) (b) (i) Straight liquid inorganic macronutrient fertilizer	CMC 5 – Digestate other than fresh crop digestate CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009 CMC 15 - Recovered high purity materials
DE-AP	Ammonium phosphate on perlite (solid)	PFC 1 (C) (I) (a) (ii) Compound solid inorganic macronutrient fertilizer	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009 CMC 12 – Precipitated phosphate salts and derivatives CMC 15 - Recovered high purity materials
NL- LK	Liquid K- fertiliser	PFC 1 (A) (II) liquid organic fertiliser	CMC 5 – Digestate other than fresh crop digestate (for the product obtained in NL) CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009
FR- LK			



## Alignment of FERTIMANURE BBFs with the Regulation 2019/1009



BBF		Tentative Product Function Category (PFC)	Potential Component Material Category (CMC)
ES-NC	Nutrient-rich concentrate	PFC 1 (A) (II) liquid organic fertiliser	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009
ES-PA	Phosphorus (ashes) / Phosphoric Acid	PFC 1 (C) (I) (a) (i) Straight solid inorganic macronutrient fertilizer (in the case of phosphorus rich ashes) PFC 1 (C) (I) (b) (i) Straight liquid inorganic macronutrient fertilizer (in the case of phosphoric acid)	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009 CMC 13 – Thermal oxidation materials and derivatives (for the ashes)
NL-SC	Soil conditioner	PFC 1 (A) (I) Solid organic fertiliser; PFC 3 (A) Organic soil improver; PFC 4 Growing medium.	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009
NL-WP	Wet organic P-rich fertiliser	PFC 1 (A) (I) Solid organic fertiliser; PFC 3 (A) Organic soil improver; PFC 4 Growing medium.	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009
NL- DP	90% Dried organic P rich fertiliser (calc)	PFC 1 (A) (I) Solid organic fertiliser; PFC 3 (A) Organic soil improver; PFC 4 Growing medium.	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009
ES-DSC	Bio-dried solid fraction	PFC 1 (A) (I) Solid organic fertiliser; PFC 3 (A) Organic soil improver; PFC 4 Growing medium.	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009
DE- BC	Biochar	PFC 3 (A) Organic soil improver	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009
FR - BC			CMC 14 - Pyrolysis and gasification materials.
ES-AA	AA-based biostimulants	PFC 6 (B) non-microbial plant biostimulants	CMC 10- Derived products within the meaning of Regulation (EC) No 1069/2009

## And what about Organic Farming?



**Organic farming** is an environmentally-friendly practice that needs to be further developed. The Commission will boost the development of EU organic farming area with the aim to **achieve 25% of total farmland under organic farming** by 2030

01.01.2022

*Regulation on organic production*

EU Reg. 834/2007

EU Reg. 2018/848

*List of allowed substance for organic fertilizer*

Implementing regulation (EU) 2021/1165

Relevant for FERTIMANURE products:

- Farmyard manure (even dried and dehydrated)
- Composted animal excrement
- Biogas digestate containing animal by-products
- Algae and algae products
- Biochar applied as soil conditioner



**Factory farming origin  
manure forbidden**

**In terms of quality of the products: EU Regulation 2019/1009**

## And what about Organic Farming?



### The reality of the EU Livestock sector

- The EU is one of the world's largest consumers of meat. EU meat production is expected to reach 47.5 million tonnes by 2030<sup>1</sup>
- Global meat consumption is estimated to increase by an average of 1% per year between 2017 and 2030<sup>1</sup>
- 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<sup>1</sup>
- 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 – from 8.3 million hectares in 2010 to 13.8 million hectares in 2019. 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.



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

<sup>(1)</sup> [https://www.foodandwatereurope.org/wp-content/uploads/2020/10/Factoryfarms\\_110920\\_web.pdf](https://www.foodandwatereurope.org/wp-content/uploads/2020/10/Factoryfarms_110920_web.pdf)

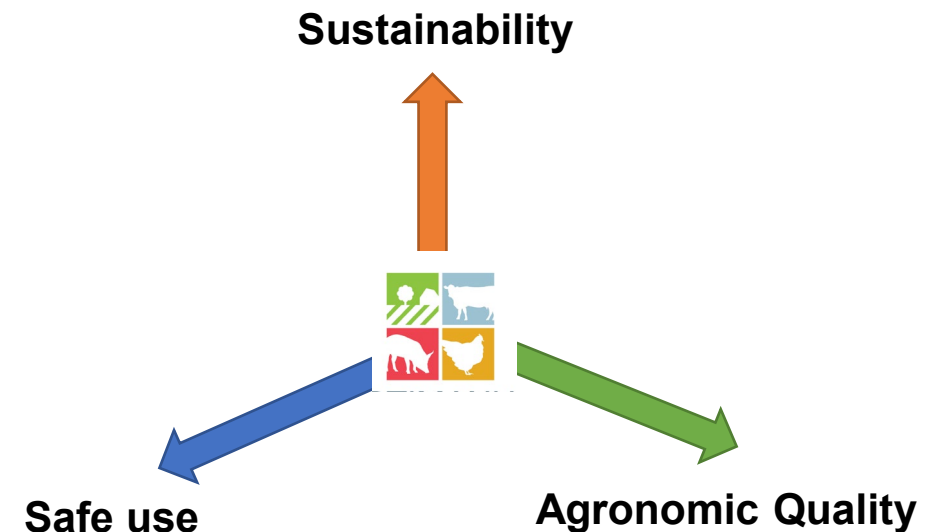
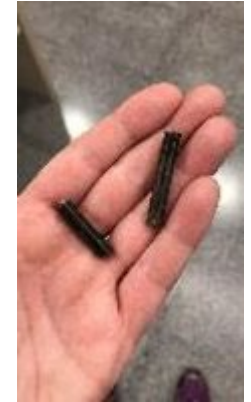
## And what about Organic Farming?

**Bio-based Fertilizers (BBFs)** are fertilising products or a component to be used in the production of (Tailor-Made) Fertilisers that are derived **from biomass-related resources**. The BBFs of FERTIMANURE are “obtained through a **physical, thermal/thermo-chemical, chemical, and/or biological processes for the treatment** of manure or digestate that result into a change in composition due to a change in concentration of nutrients and their ratios compared to the input material(s) in order to get better marketable products providing farmers with nutrients of sufficient quality”. However, just separation of manure in a solid and liquid fraction (as first processing step) is excluded. These products are not conceived as a BBF, although they are valuable sources to supply nutrients on agricultural land.

### Which relevant data will FERTIMANURE provide?

- Complete **sustainability** assessment (processes & products)
- **Quality and safety** check of the 19 BBFs with Regulation 2019/1009 and beyond (member state level).
- Thorough evaluation of ARGs and their dynamics when the BBFs are applied in crops
- Comparison of FERTIMANURE BBFs with raw manure and with commercial fertilising products

<sup>(1)</sup> [https://www.foodandwatereurope.org/wp-content/uploads/2020/10/Factoryfarms\\_110920\\_web.pdf](https://www.foodandwatereurope.org/wp-content/uploads/2020/10/Factoryfarms_110920_web.pdf)





# Thank you

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