

A glowing lightbulb and a small green plant growing from soil held in two hands. The lightbulb is on the left, glowing with a warm yellow light. The plant is on the right, with two leaves and a thin stem. The hands are cupped together, holding the soil. The background is a soft, out-of-focus green and yellow bokeh.

**Subgroup on Innovation &
Knowledge Exchange (SolKE)**
7th meeting

12 November 2024



Funded by
the European Union



Activities targeting the uptake of Operational Group projects (OGs) outcomes

Victor Carbajal Perelló
Horizon thematic network 'Nutri-Know'





NUTRI•KNOW

Activities targeting the uptake of Operational Group projects (OGs) outcomes

7th SoiKE meeting

Coordination team

Victor Carbajal Perelló (BETA TC, UVIC/UCC)

12th November 2024





Contextual Challenge: NUTRIENT MANAGEMENT

[Home](#) / [News](#) / [Agrifood](#) / [CAP reform](#) / EU is too dependent on animal feed and fertiliser imports, warns Parliament study

EU is too dependent on animal feed and fertiliser imports, warns Parliament study

By [Sofia Sanchez Manzanaro](#) | Euractiv | Est. 3min

📅 7 mar 2024

MEPs want to bring down their prices

"EU should be less dependent on imported fertilizers"

The European Parliament urges the Commission to ensure the supply of fertilisers, take action to bring down prices, and increase the EU's strategic autonomy in fertilisers.

Europe's fertilizer demand struggling amid high gas costs, cheaper imports



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Oct. 9, 2023

By [Deepika Thapliyal](#) (Deputy Managing Editor, Fertilizers), [Sylvia Tranganida](#) (Senior Ammonia Editor) and [Aura Sabadus](#) (Senior Journalist), ICIS

02 February 2024 by [Diego Giuliani](#)

Reuse or let die. Crucial for life but threatening if in excess: the nutrient challenge



Essential for life but threatening for the environment if in excess. The nutrient challenge and the circular response: turning them from waste into biofertilizers to tackle pollution and feed the world's growing population



Recovering Nutrients To Save The Planet: The Fertilizer Challenge

📅 July 31, 2023 0 Comments

By [Eurasia Review](#)

[Home](#) / [News](#) / [Agrifood](#) / [Sustainable food systems](#) / EU stalls on strategy to curb nutrient losses

EU stalls on strategy to curb nutrient losses

By [Julia Dahm](#) | Euractiv.com | Est. 4min

📅 8 nov 2023 (updated: 📅 13 nov 2023)

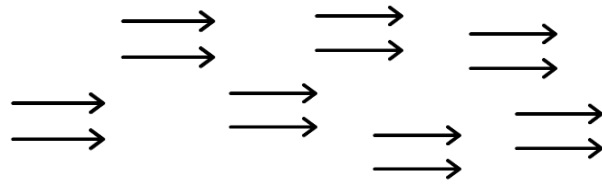


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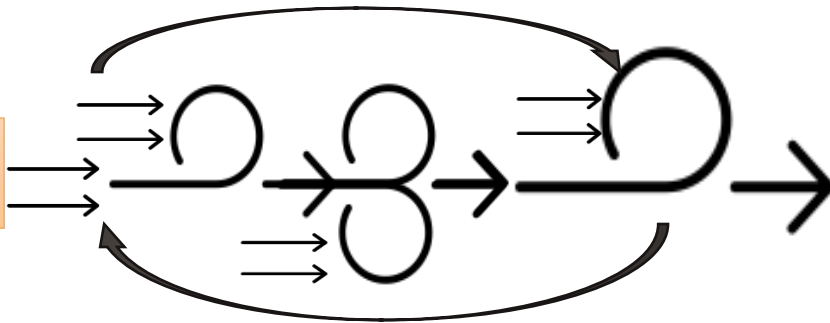


Knowledge Paradigm

Knowledge Linearity Approach



Knowledge Circularity Approach



ADDED VALUE

- Considering Experience
- Aggregating Knowledge
- Identifying New Challenges
- Increasing Lifespan of Innovations



Capitalisation

Process Overview

Combines research outcomes to broaden impact

Involves knowledge sharing and raising awareness

Maximises impact through new knowledge generation

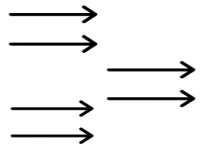
Supports policy development and circularity

Promotes re-use, knowledge transfer, and improved performance



Knowledge Challenge

EIP-AGRI
Operational
Groups



KNOWLEDGE

What we know



Recommendations
Innovative Technologies
Products
Tools



NUTRI•KNOW



Collecting, translating, and
sharing **easy-to-understand**
and **practice-oriented**
knowledge

Knowledge-to-
application

GAP

PRACTICE

What we practice



NUTRIENT MANAGEMENT

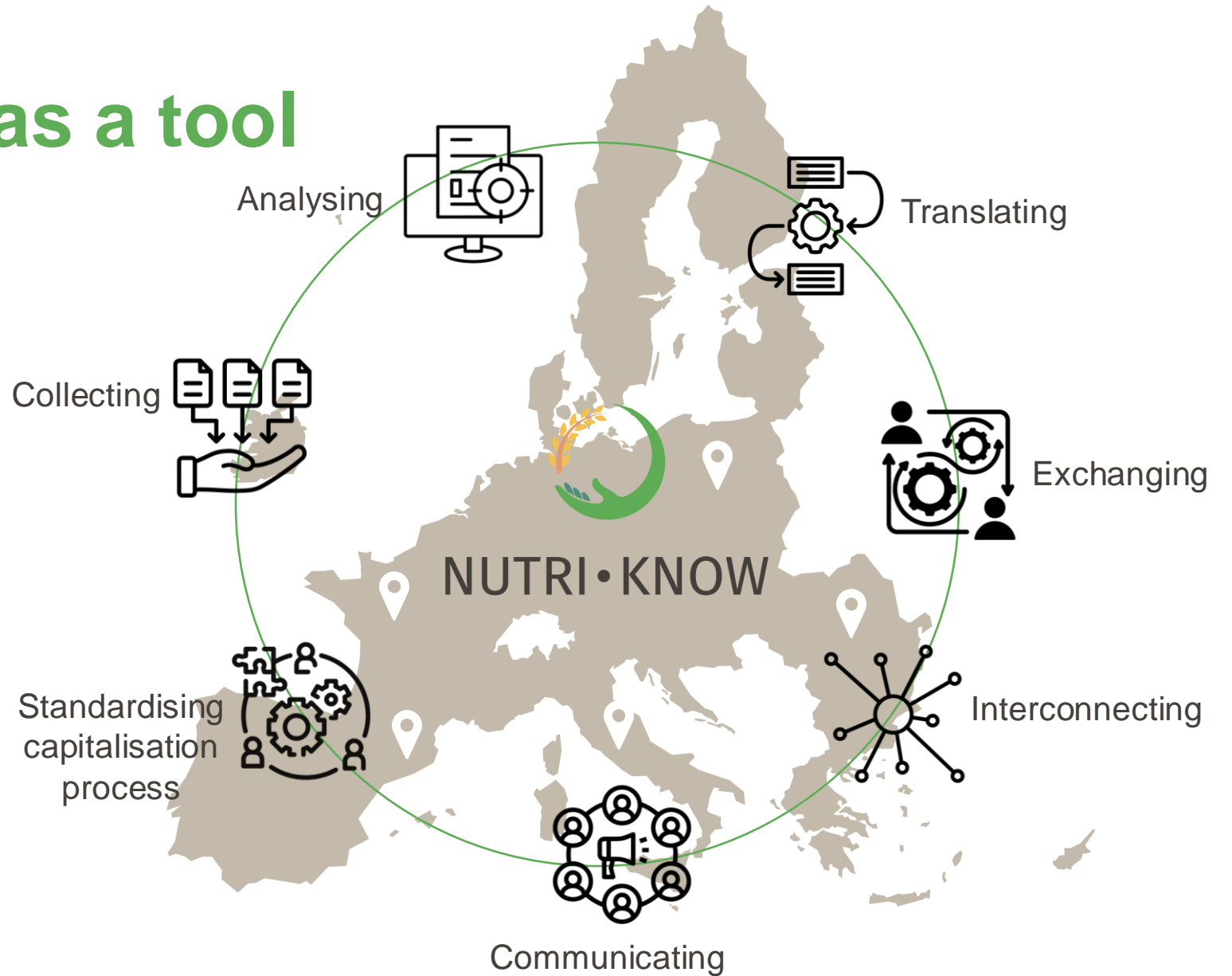
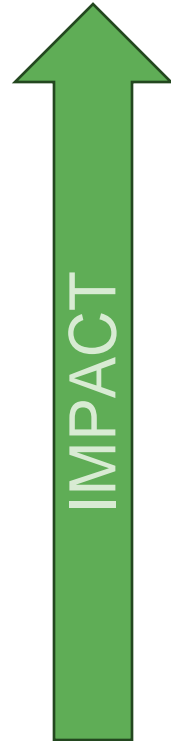


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NUTRI-KNOW as a tool

Increase the **impact** of research and innovation on nutrient management



Funded by
the European Union



NUTRI-KNOW Project

Call: HORIZON-CL6-2022-GOVERNANCE-01 (Innovative governance, environmental observations and digital solutions in support of the Green Deal)

Topic: HORIZON-CL6-2022-GOVERNANCE-01-13

Type of Action: HORIZON-CSA

Proposal number: 101086524

Duration: 3 years (36 months)

Budget: € 1 999 962,50

Project Information

NUTRI-KNOW

Grant agreement ID: 101086524

DOI

[10.3030/101086524](https://doi.org/10.3030/101086524) 

EC signature date

17 October 2022

Start date

1 January 2023

End date

31 December 2025

Funded under

Food, Bioeconomy Natural Resources, Agriculture and Environment

Total cost

€ 1 999 962,50


EU contribution

€ 1 999 962,50



Coordinated by

FUNDACIO UNIVERSITARIA BALMES

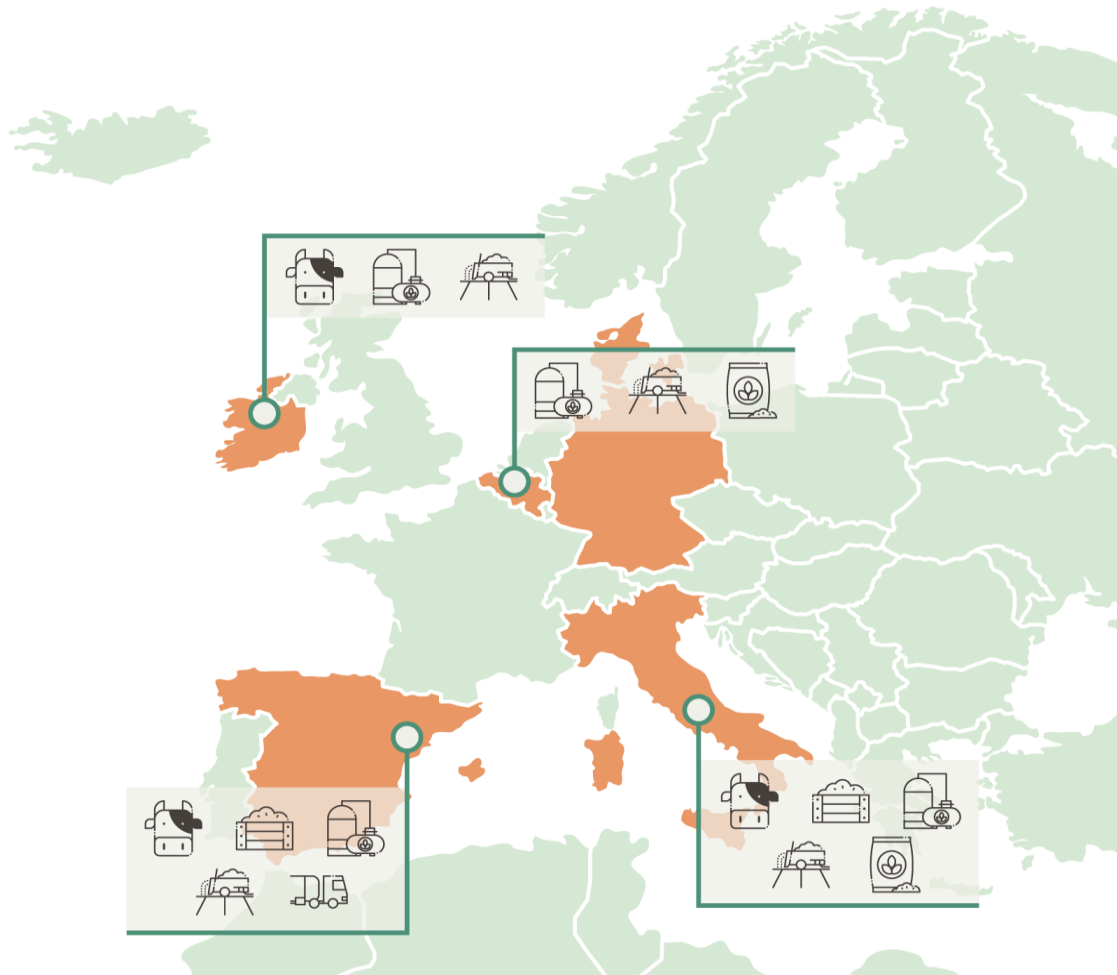
 Spain



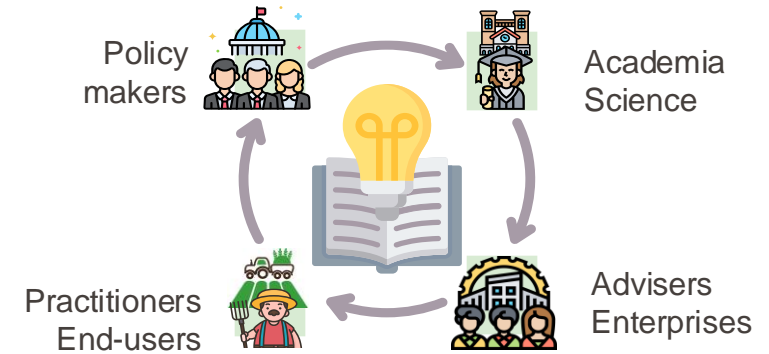
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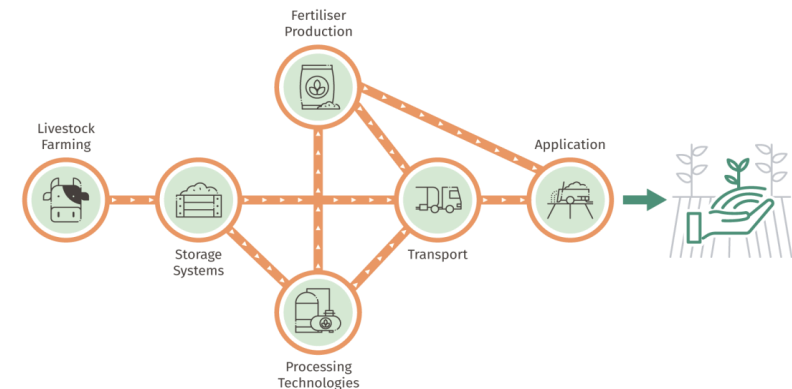
NUTRI-KNOW APPROACH



MULTI-ACTOR APPROACH

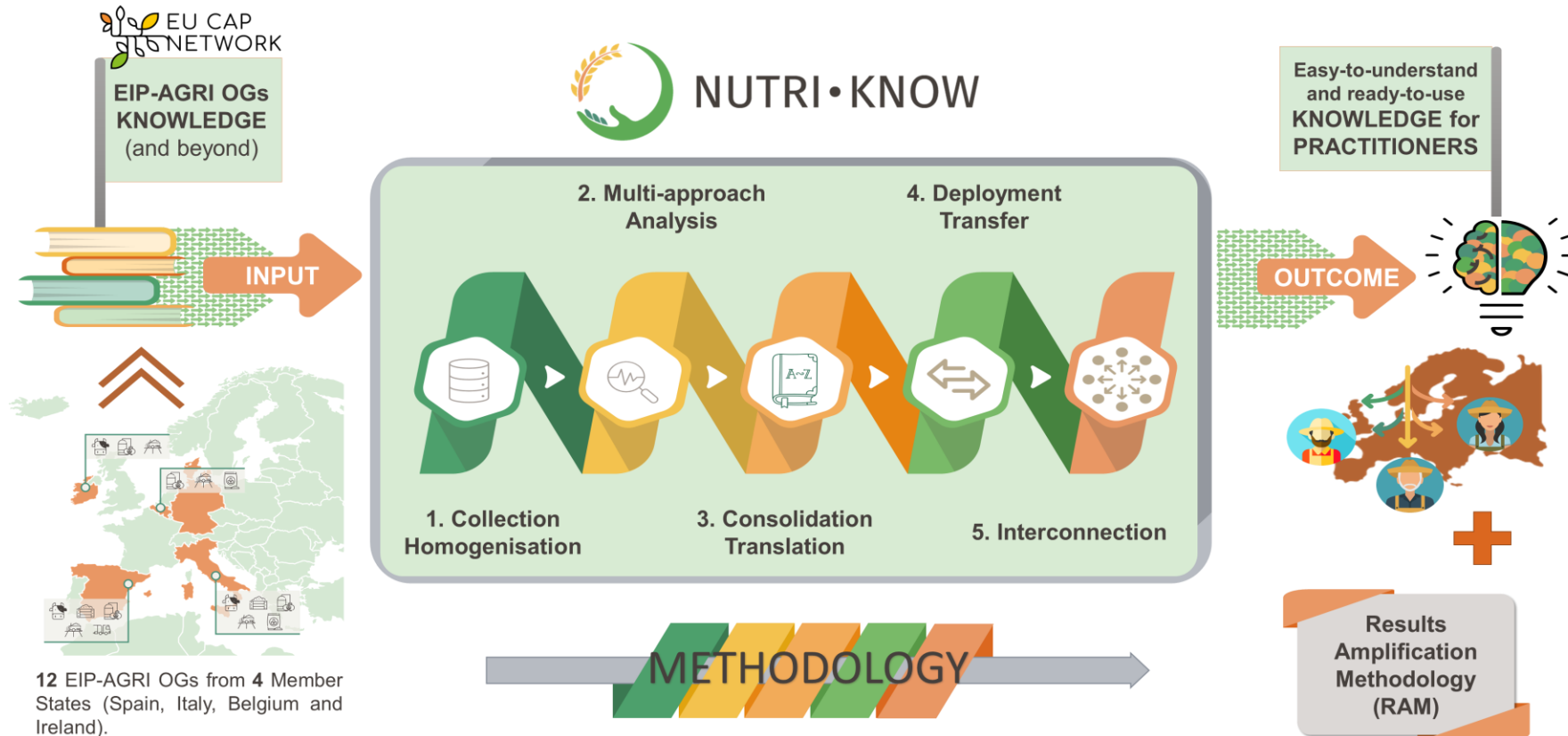


CONCEPTUAL APPROACH





General Project Overview



With this approach, NUTRI-KNOW aims to bridge the knowledge-to-application gap, fostering a sustainable and dynamic agricultural sector.



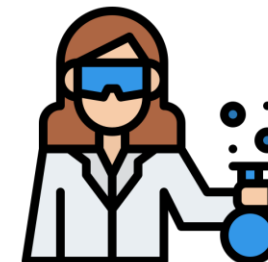
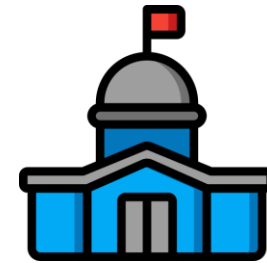
Collection & Homogenisation: Knowledge





Stakeholder engagement

Main Target groups





ACTIVITIES

In-person short trainings





ACTIVITIES

Practice Oriented Material: NUTRI-KNOW Practice Abstracts

EIP-AGRI common format

Show in native language (Italian) ONLINE 2021 - 2022 Innovation, knowledge exchange & EIP-AGRI

PROJECT - EIP-AGRI OPERATIONAL GROUP

Livestock manure and digestates treatment to reduce emissions and produce Struvite

Contacts

To download the project in a PDF format, please click on the print button and save the page as PDF

Overview Practice Abstracts Contacts

1 Practice Abstracts

The results and opportunities that will be achieved are: - reduce ammonia and GHG emissions from the storage and spreading phase of the treated matrices with...

The results and opportunities that will be achieved are:

- reduce ammonia and GHG emissions from the storage and spreading phase of the treated matrices with respect to the effluent not treated;
- obtain a low, if not zero, emissivity of the struvite produced, both in the storage and spreading phase, as a stabilized matrix;
- quantify, using the LCA methodology, the reduction of environmental impacts following the pilot treatment application compared to a standard situation, in line with the objectives of the Emilia Romagna Region Air Plan (PAIR 2020);
- produce a slow-release recovery fertilizer (struvite), which can replace synthetic fertilizers and avoid GHG emissions deriving from their production;
- greater environmental and social sustainability of pig production based on the quantification of avoided ammonia and GHG emissions;
- raise awareness and train the entire sector and all stakeholders on the innovations developed by the GOI through training and dissemination activities.

The monitoring activities carried out will allow to quantify the ammonia and GHG emissions avoided with the prototype treatment of the effluents compared to the existing management. Lower emissions of ammonia, greenhouse gases and odors will produce an increase in the environmental and social sustainability of the farm in the area in which it is located. The reduction of ammonia emissions affects the reduction of the concentration of PM10. The results achieved will facilitate the farms in integrating and / or renewing the Integrated Environmental Authorization (AIA).

Ended, 01/04/2021 - 27/12/2023

Italy, Emilia-Romagna Region

Centro Ricerche Produzioni Animali
Project coordinator - Research Institute - Reggio Emilia (Italy) - info@croa.it

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NUTRI-KNOW format

Farmers' Encyclopedia on Innovative Nutrient Management Solutions

NUTRI-KNOW

EIP-AGRI Operational Group Struvite

Struvite

Livestock manure and digestates treatment to reduce emissions and produce Struvite

https://struvite.croa.it

Activities

The following activities were conducted:

- Laboratory analysis and testing for optimal prototype development
- Development and implementation of the prototype treatment system STRUVITE
- Monitoring of the efficiency of the prototype in reducing the nitrogen and phosphorus content in digestate/slurry
- Monitoring of emissions (ammonia, GHG and odor) from storage and spreading
- Evaluation of the economic and environmental sustainability of the innovation
- Dissemination of the results achieved and training courses

Further details

Total budget € 185,820
Total financed € 171,715
Main funding source: Rural development 2014-2020 for Operational Groups
Rural Development Programme: Rural Development Programme (Regional) Emilia-Romagna - 2014IT06RDRP003 - Italy

Ended, 01/04/2021 - 27/12/2023

Italy, Emilia-Romagna Region

Centro Ricerche Produzioni Animali
Project coordinator - Research Institute - Reggio Emilia (Italy) - info@croa.it

EIP-AGRI Operational Group Struvite

Results

The recovery of phosphorus and nitrogen from agricultural digestate through the prototype Struvite system has proved technically feasible; the precipitate containing struvite must be further refined/evaluated, e.g. by a fertilizer manufacturer, in order to effectively replace phosphate minerals with phosphorus recovered from manure/digestate in accordance with the new European fertilizer regulation.

In tests with acidification, basification and microfiltration, the supernatant is depleted in nitrogen and phosphorus. For this reason the prototype treatment of digestate was effective in reducing emissions of ammonia and greenhouse gases, from the management of digestate. The reduced nitrogen content has allowed ammonia emissions to be reduced by 42% from storage and 19% from spreading, while the limited organic matter content resulted in a reduction of methane emissions from the storage phase by 86%.

The high concentration of solids and organic matter in the digestate, is still a critical issue; the prototype treatment system can and must be made more efficient.

Context

Animal manure is an excellent fertilizer matrix for crops and soils as it is rich in both macro and micro nutrients and organic matter, which are useful for the productivity of agricultural soils. The downside is the ammonia and greenhouse gases emission from slurry during storage and spreading. In fact, the Italian agricultural sector determines about 7% of national GHG emissions, and of this share 18.8% comes from manure management.

Location in the Nutri-Know value chain

Livestock manure and digestate treatment to produce STRUVITE

As for ammonia emissions, the agricultural sector accounts for 94% of national emissions with 49.9% of that share coming from manure management (ISPR, Reports 318/2020 and 319/2020).

In Italy there are areas with a high presence of livestock farms where optimal management of animal effluents and digestates could result in reduced emissions. Not only that, a manure treatment also aimed at recovering the nutrients contained could promote the relocation of nitrogen and phosphorus surplus from high livestock areas to areas instead characterized by chemical fertilizer demand, in conjunction with the principles of Nutrient Recovery and Reuse and the Farm to Fork targets. The Farm to Fork strategy promotes a sustainable food system, the heart of the European Union's Green Deal, one of the main goals of which is to reduce industrial fertilizer use by 20% and nutrient loss by 50% by 2030.

Learn more about the project at www.nutri-know.eu

NUTRI-KNOW

Follow us on social media: @nutri-know, nutri-know, @nutriknoweu

Financed by the European Union

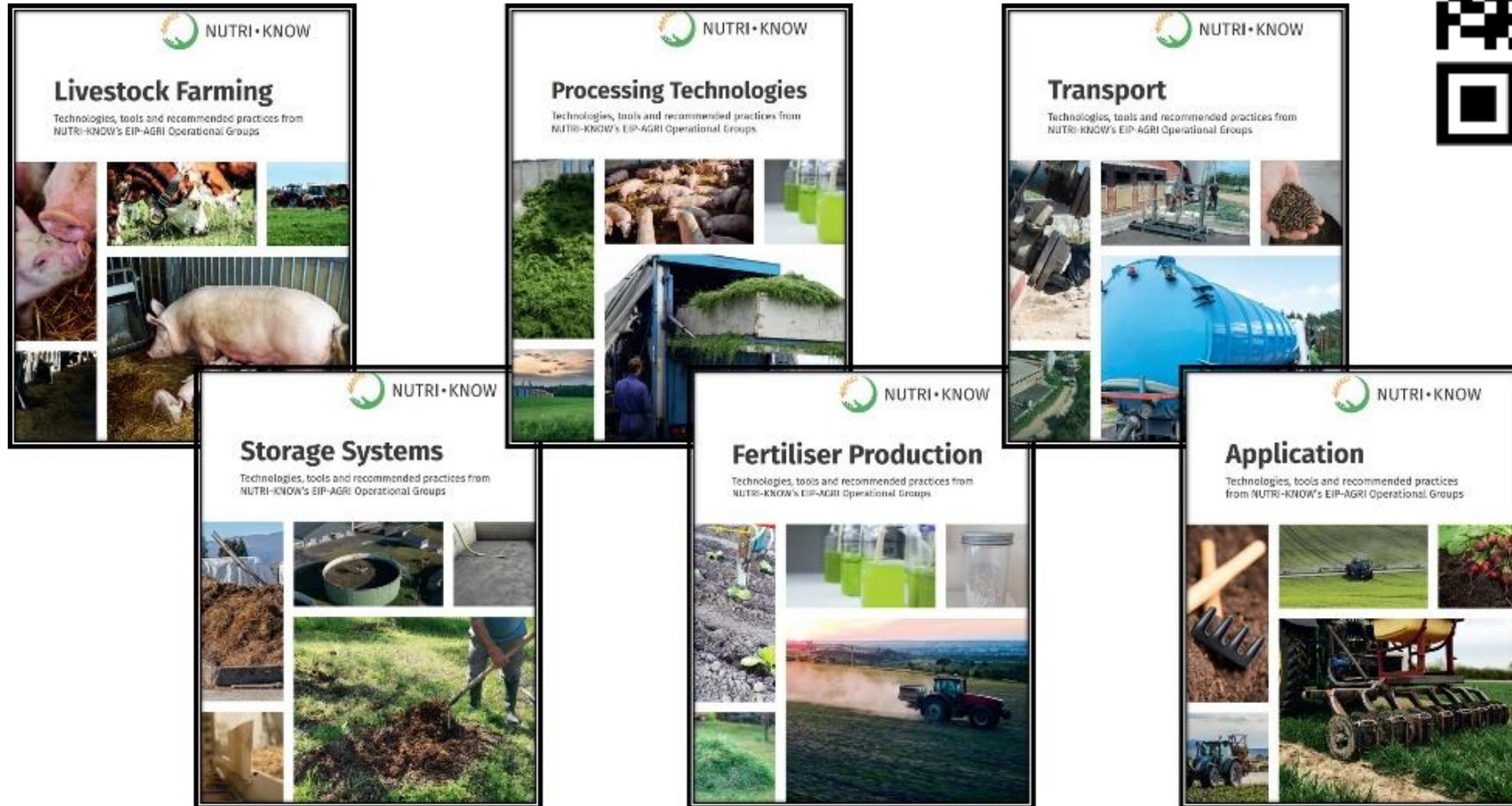
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Logos of partner organizations: Biogas, CRPA, TERA, Beta, etc.



ACTIVITIES

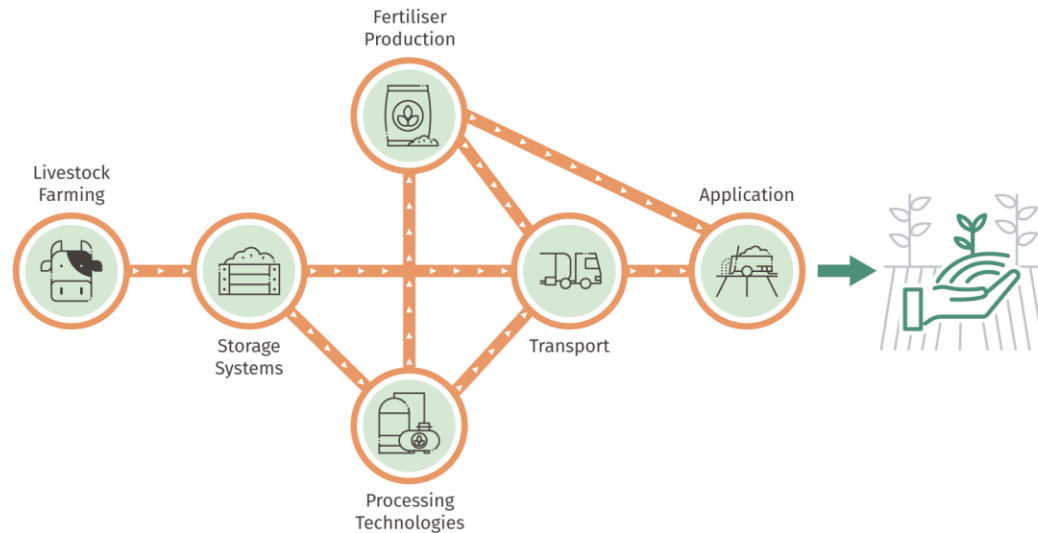
Practice Oriented Material: NUTRI-KNOW Booklets





ACTIVITIES

NUTRI-KNOW series of Webinars



List of webinars

- 1- Introductory webinar (08/10/24)
- 2- Livestock Farming (15/10/24)
- 3- Storage Systems (19/11/24)
- 4- Processing Technologies (29/10/24)
- 5- Fertiliser Production (05/11/24)
- 6- Transport (12/11/24)
- 7- Application (22/10/24)

October 29: Processing Technologies

During this session, we will discuss different nutrient recovery methods, such as separating manure into nutrient-rich and low-nutrient fractions, enabling more efficient transport and application. We will also talk about recovery of ammonium salts from manure through stripping and scrubbing and a farm-scale prototype for recovering struvite from agricultural digestate. We'll also explore small-scale biogas production from on-farm

November 5: Fertiliser Production

Join us for a webinar exploring our insights on fertiliser production technologies and practices. This session will cover the transformation of agricultural by-products like manure and grass into valuable fertilisers. It features methods such as stripping-scrubbing, struvite precipitation, and the use of grass juice for algae cultivation.

[Register now](#)

Air washing system

Fattening pig rooms for Parma Ham DPO from 45 to 175 kg of pig weight (heavy pig)

- ✓ Air flow treated: 1800 – 2000 Nm³/h
- ✓ process pH: 4.5
- ✓ washing acid solution of sulphuric acid (H₂SO₄)

GAS LOOP

IN: Ammonia rich-air
OUT: Ammonium sulphate
OUT: Air washed from ammonia

Ammonia Washing Machine layout

Funded by the European Union

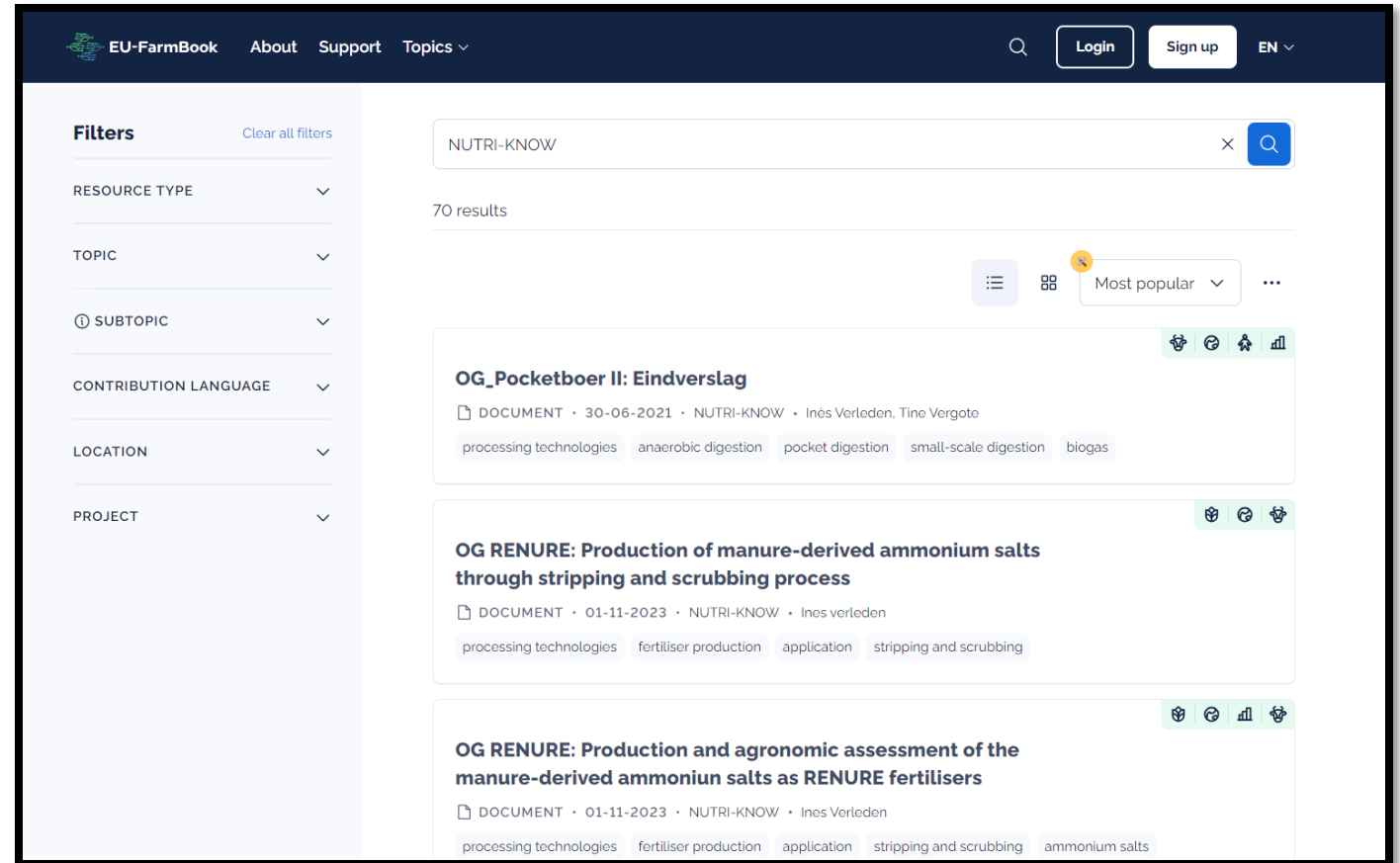
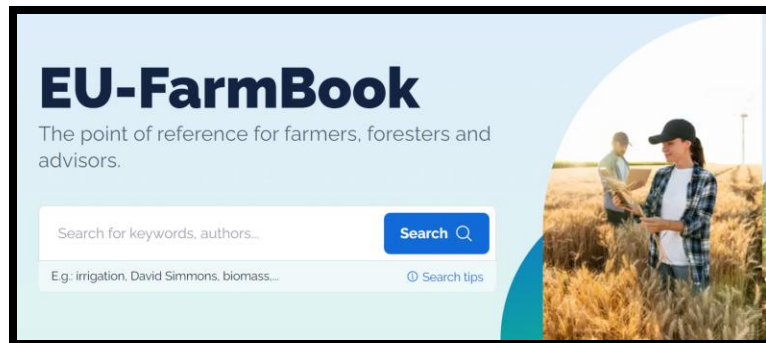
NUTRI-KNOW webinar series – October 15, 2024

MS 33



ACTIVITIES

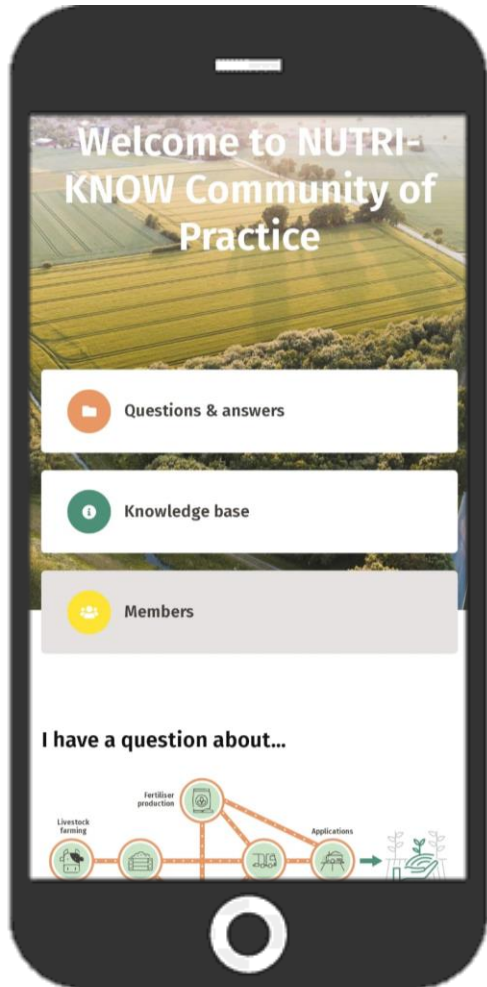
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ACTIVITIES

NUTRI-KNOW CoP



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cop.nutri-know.eu

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I accept the Code of conduct

I accept the Privacy policy

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NUTRI-KNOW
Community of Practice

Search Forum English Victor

Transport ENGLISH

Transport of bio-based materials

Thomas 13 Jun

The successful adoption of bio-based fertilisers often requires the transport of these materials over long distances. It is often not...

Members

Q&A

What are the benefits of utilizing manure as a nutrient source for crops on my farm?

Knowledge base

Post type: Knowledge base

Categories: Category 1, Category 1, Category 1

What are the benefits of utilizing manure as a nutrient source for crops on my farm?

What are the benefits of utilizing manure as a nutrient source for crops on my farm?

What are the benefits of utilizing manure as a nutrient source for crops on my farm?

What are the benefits of utilizing manure as a nutrient source for crops on my farm?

Ask a question



NUTRI•KNOW

Thank you!

Victor.carbajal@uvic.cat

12/11/2024

Learn more about us at www.nutri-know.eu



Subgroup on Innovation and Knowledge Exchange (SolKE)

7th meeting

12 November 2024

All results and presentations are available on the event webpage:
[Subgroup on Innovation and Knowledge Exchange \(SolKE\) - 7th meeting | EU CAP Network](#)

