

A glowing lightbulb and a small green plant growing from soil held in two hands. The background is a soft-focus green bokeh.

**Subgroup on Innovation &  
Knowledge Exchange (SolKE)  
7<sup>th</sup> meeting**

12 November 2024



Funded by  
the European Union





# GoEffuents vs LivingLab Effluents and coproducts of the livestock activity

Regina Menino  
EIP-AGRI OG GO Effluentes and Living Lab Effluents





# Go-Effluents vs. LIVING LAB Effluents and Coproducts of the Livestock Activity

**R. Menino, I. Rehan, O. Moreira**

SoIKE Meeting, 12th november 2024





## Practical Problem:

- Livestock production is concentrated in certain regions, some without enough area for land spreading valorisation of effluents.
- Therefore, in order to be competitive and comply with legal requirements, the sector should promote a circular economy, pursuing new alternatives for effluents management.



## Objectives:

- **Valorise livestock effluents** as a resource, focusing on the production and integrated management of the different flows generated
- Optimize effluents use as secondary raw materials, **recovering energy and nutrients**, improving farm nutrient balances and promoting sustainable management.



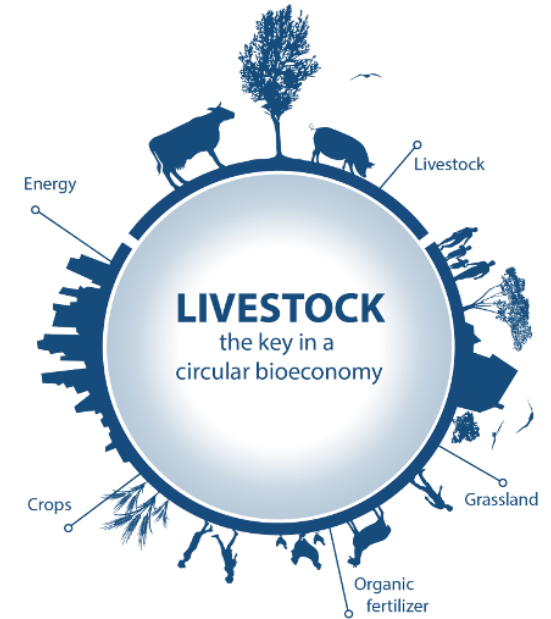
## ➤ CIRCULAR ECONOMY

## ➤ ZERO RESIDUE

- Characterisation of the production systems
- Measures to mitigate GHG emissions
- Valorisation
  - Composting cattle manure
  - Bio-remediation by BSF larvae
  - Anaerobic digestion
  - Agronomic
  - Georeferenced platform
  - Dissemination



**CLOSING NUTRIENT CYCLES**





## Outputs



### Process Innovation

- Bioremediation by BSF
- **Biochar addition to slurry storage pits** to reduce gas emissions

### Product Innovation

Two product lines: insect larvae and biofertilizer fertilisers (Frass)

- Crédito Agrícola Entrepreneurship and Innovation Award Innovation in Partnership Category: Operational Groups

<https://www.youtube.com/watch?v=Cn8CiIz6G4>

Nominee EIP-AGRI Innovation Awards – Climate Change Mitigation and adaptation

[https://www.youtube.com/watch?v=3Ggf\\_wAI66M](https://www.youtube.com/watch?v=3Ggf_wAI66M)

### Dissemination

- Project site <https://projects.inia.pt/goeffluentes>;
- Divulgaion vídeos [https://www.youtube.com/watch?v=3Ggf\\_wAI66M](https://www.youtube.com/watch?v=3Ggf_wAI66M)
- Georeferenced Platform;
- Final Publication **“Roteiro para a gestão dos fluxos gerados na atividade agropecuária”**;
- 3 *Workshops*
- 8 participations in international seminars and meetings
- 9 participations in national seminars and meetings
- 8 participations in exhibitions
- 4 publications in indexed journals
- 5 publications in peer-reviewed journals
- 10 publications in conference proceedings and abstracts
- 6 academic degree theses: 1 PhD, 3 MSc, 2 University Degrees.



# Operational Group vs TERRA FUTURA vs LIVING LAB



## Operational Group

GoEffluents – Flows of the Livestock Activity

And next...

## INNOVATION AGENDA



Topic  
**CIRCULAR  
AGRICULTURE**

## ACTIONS

①

Integrated animal and agricultural production systems

②

Valorization of agro-industrial products

③

Organic fertilizers

④

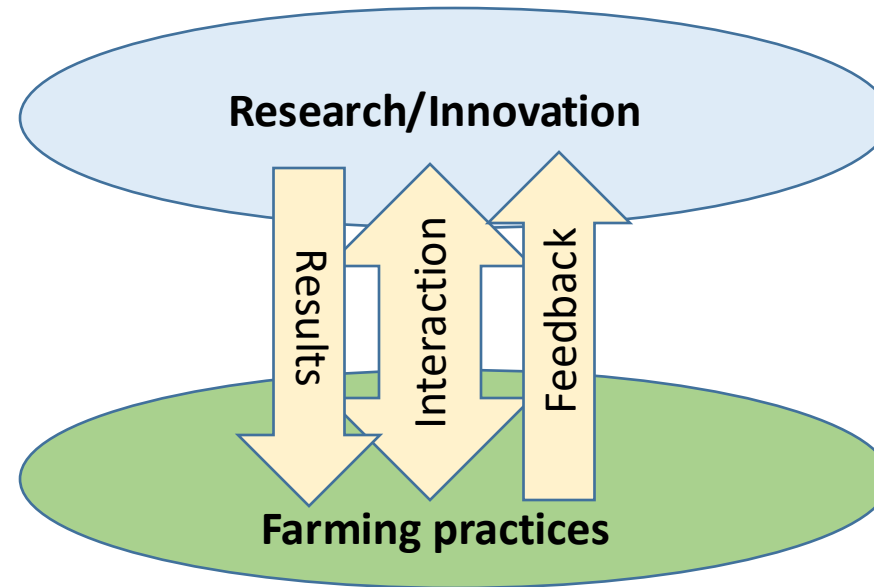
Manure management

⑤

Transition to bio refineries



- ✓ **'Living Labs' (LL)**, are dynamic initiatives, adapted to local, regional or national needs.
- ✓ The innovation paradigm is a priority geared towards the sustainable application of resources, with multidisciplinary and co-creative approaches.
- ✓ They are relevant innovation agents in the context of the **Circular Economy, digital transformation and self-sufficiency.**

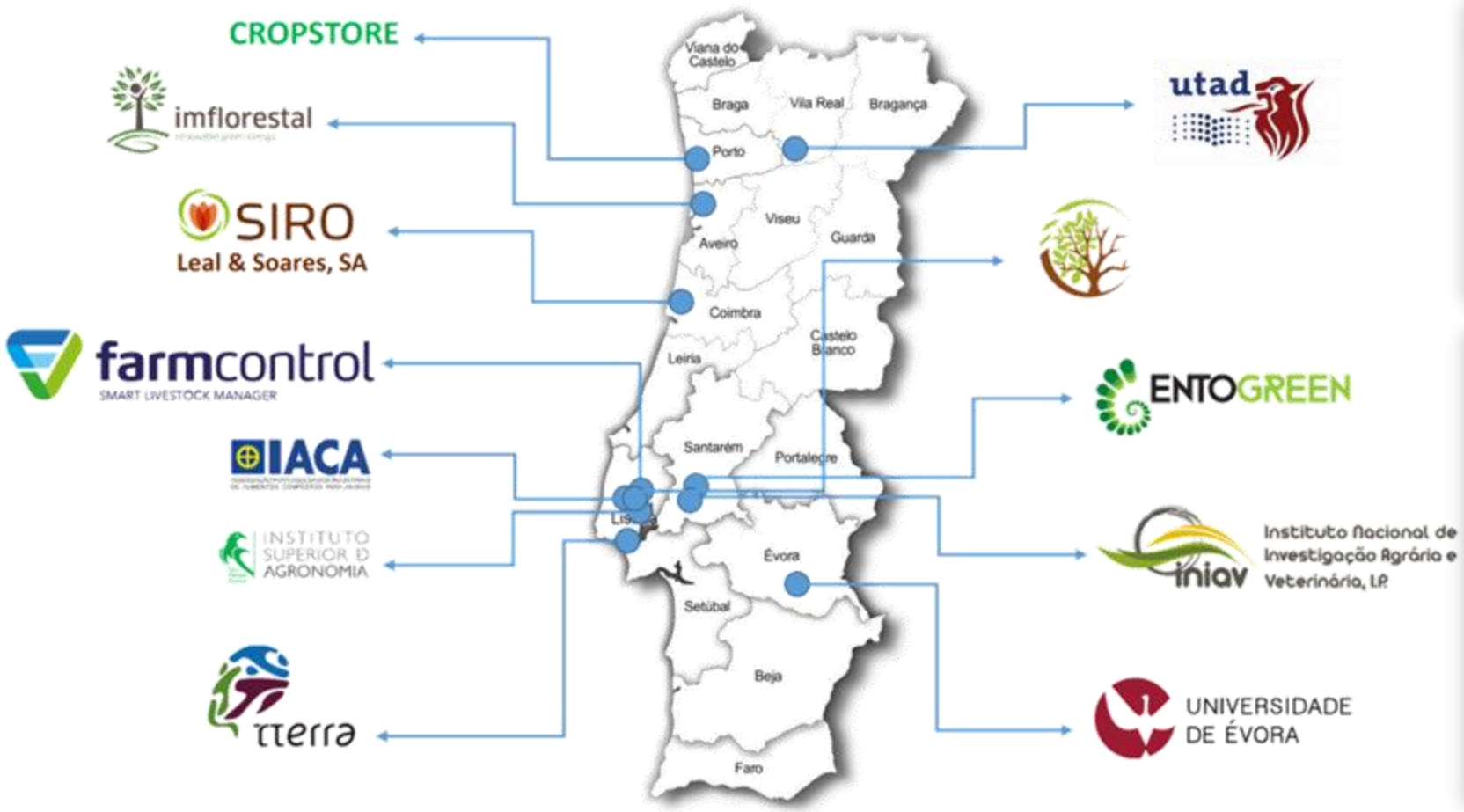






## Objectives

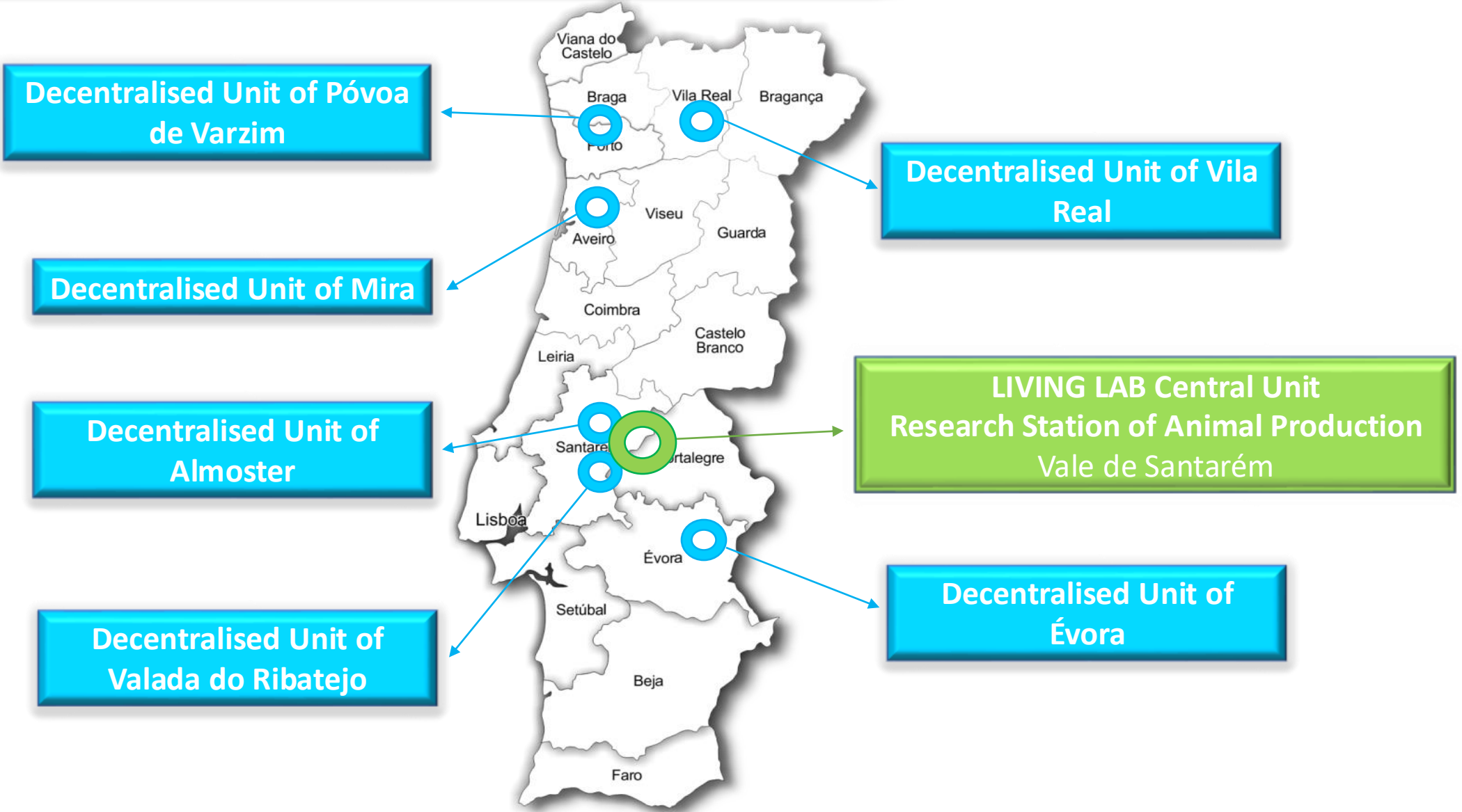
- Implementation of a **centralized LL** at the Fonte Boa Experimental Station (Experimental Station for the Circular Agriculture Initiative), and development of **Pilot Experimental Development and Demonstration Units** (decentralized LL hubs) that respond to specific issues of effluent and co-product management.
- **Scale-up** approach for the valorization of effluents and co-products from agricultural activities.
- Evaluation of the **impact of emerging solutions** on the different processes to be developed and at different levels.
- Evaluation of **substrate quality scenarios** vs. **developed technologies** vs. **valorization of resulting by-products** and impacts on the value chain.



## PARTNERSHIP:

- 4 R&D entities
  - 6 SMEs
  - 1 Industry Association
  - 1 Competence Center
- 
- 4 national cooperation entities:
    - Process and product demonstrations
  - 1 transnational cooperation entity (UNITED EXPERT):
    - Socio-Economic Consulting

**PARTNERSHIP: 7 participants coming from GO-Effluents (INIAV, UTAD, ISA, Entogreen, SIRO, Tterra, and UÉvora)**



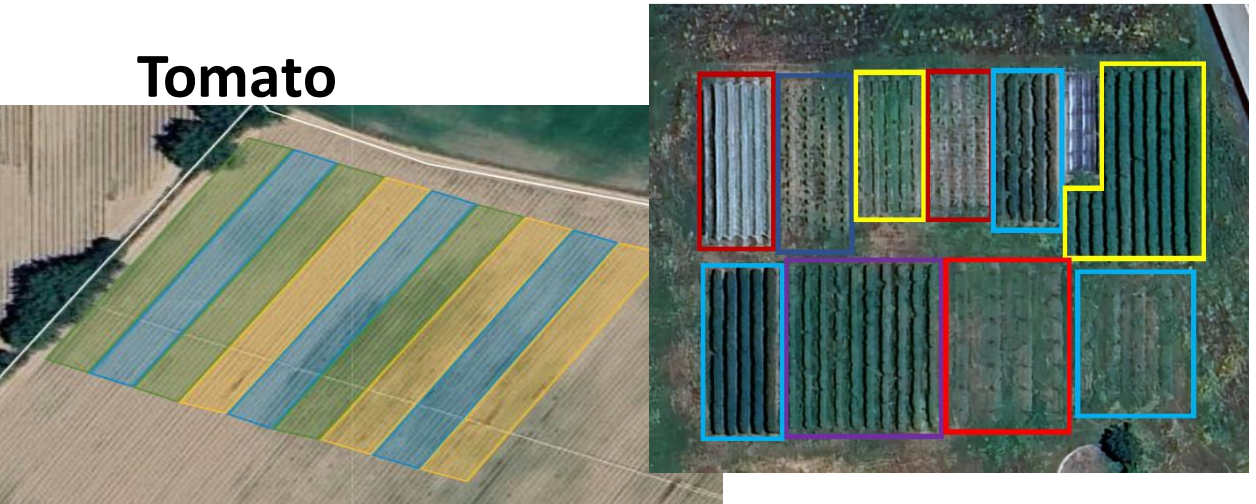


## Valorization of new products

### Composting



### Tomato

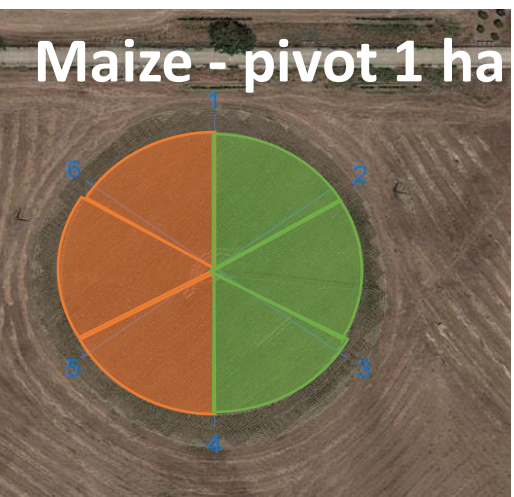


### "Mini" orchards

### Maize - pivot 8 ha



### Maize - pivot 1 ha



## Mitigation and sanitization



## What the contribution?

**Demonstration units** (promoting sustainable processes and products at different levels)

## Communication plan for technical training with the valorization and dissemination of knowledge

**Training/Visit** to LL's Central Hub and decentralized Pilot Units

**Dissemination** and **transfer** of technology



**DIA DE CAMPO**

**16 Maio 2024**

**LOCAL:** Mouchão do Estola Vacas, Valada do Ribatejo

**ATIVIDADE 5.1 – FERTILIZANTES ORGÂNICOS**

**PROGRAMA**

- 09:30 Receção dos participantes
- 10:00 Boas Vindas  
- Nuno Canada, Presidente do INIAV
- 10:10 Apresentação do Projeto LivingLab: Efluentes e Coprodutos da Atividade Agropecuária  
- Olga Moreira
- 10:20 Apresentação da Atividade 5.1 Fertilizantes Orgânicos  
- Henrique Trindade, David Figueiro e Catarina Esteves
- 10:45 Atividades de Demonstração
  - Modalidades de fertilização e aplicação em tomate (filme de demonstração)
  - Modalidades de fertilização e aplicação em milho
- 13:00 Almoço
- 14:30 Visita aos pomares experimentais

**EFLUENTES E COPRODUTOS DA ATIVIDADE AGROPECUÁRIA**

- LL 5.1: Fertilizantes
- LL 5.3: Biogás
- LL 5.4: Biorrefinaria
- LL 5.5: Subprodutos

Programa financiador:  
PRR - Plano de Recuperação e Resiliência

Medida:  
RE-COS-03 – AGENDA DE INVESTIGAÇÃO E INOVAÇÃO PARA A SUSTENTABILIDADE DA AGRICULTURA, ALIMENTAÇÃO E AGROINDÚSTRIA

PRR REPÚBLICA PORTUGUESA Financiada pela União Europeia

Iniciativa:  
**AGRICULTURA CIRCULAR**

iniav Instituto Nacional de Investigação Agrária e Veterinária, I.P.



<https://youtu.be/HIBZ8HTV8GM>

<https://youtu.be/JmgdG0Zq3I>

<https://youtu.be/E-Cn7w-zdo>

<https://youtu.be/8MtGsH9NMUw>



thank you!



SCAN ME



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National Institute for  
Agrarian and Veterinary  
Research



REPÚBLICA  
PORTUGUESA



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NextGenerationEU

# 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](#)

