

# Projects presented during the EU CAP Network cross-visit

## Use of agricultural and forestry residues for creating alternative resources of income for farmers and foresters

26 – 27 June 2024 | Vic, Spain



Funded by  
the European Union



# 1. Plant residues

**EU CAP Network cross-visit  
Use of agricultural and forestry residues for creating alternative  
resources of income for farmers and foresters**

**26 – 27 June 2024 | Vic, Spain**



Funded by  
the European Union



# OG Entomoponics

Simon Craeye (greenhouse) or Carl Coudron (insects)  
 +32 51 27 33 01 – +32 51 27 33 99  
[simon.craeye@inagro.be](mailto:simon.craeye@inagro.be) – [carl.coudron@inagro.be](mailto:carl.coudron@inagro.be)

Website: <https://inagro.be/projecten/entomoponics>

LinkedIn: <https://www.linkedin.com/company/inagro-vzw/>

Testimonial: <https://tinyurl.com/Entomoponics>



## GEOGRAPHICAL LOCATION

Demo @Agrotopia (Roeselare)  
 Pilot @ 5 Flemish greenhouses



## TYPES OF PARTNERS INVOLVED:

Practical research station: Inagro  
 Five greenhouse growers:  
 - Tomco (tomato)  
 - Husagro (tomato)  
 - Neegro (tomato)  
 - Gemapa (bell pepper)  
 - Agrokom (cucumber)

## PROJECT BUDGET:

€71.000

## CHALLENGES:

- 1) Valorization of unused, climatized space in greenhouses and increasing energy efficiency
- 2) Valorization of organic rest streams from the vegetable cultivation and reducing waste cost
- 3) Contribute to the Green Deal protein shift
- 4) Create additional source of income for the grower

## INNOVATIVE SOLUTION:

- Installation of insect rearing facility underneath cultivation gutters resulting in simultaneous production of mealworms and fruit vegetables.
- Feeding mealworms organic waste (leaf prunings, malformed fruits) as wet feed source.
- Mealworms produce heat and CO<sub>2</sub> while being a source of essential amino acids and rich in fat

## MAIN ACTIVITIES:

- Organization of network-events bringing together insect and vegetable sector for co-creation
- Development, optimization and customization of pilots in professional greenhouses
- Supporting growers (internship, on-site coaching)
- Expanding knowledge: checking suitability of various feedstocks and analyzing effect of greenhouse climate on mealworm development
- Evaluation of technical and economical feasibility
- Dissemination of project results (magazine, demo)

## MAIN OUTCOMES (so far):

- 6 customized pilots to co-produce
- Insights in operational requirements and technical limitations of Entomoponics
- Economical analysis for specific set-ups
- 2 testimonial video's
- A broadened network of vegetable growers, insect breeders, supply chain, market actors,... with interest to collaborate in the future
- Study document with all experiences bundled (to be finalized)

## TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- Keen on discussing the challenges of evolving **from pilot to commercial scale**. How to convince entrepreneurs to invest in a young and dynamic sector?
- Eager to discover innovative ways to improve profitability of greenhouse farms by **high-quality valorization** of organic residues
- Interest in **collaboration** on the aspect of **closing nutrient cycles over companies** (e.g. fisheries, insect farms, greenhouses) aiming for a mutualistic relationship
- Open for **demonstration** of smart solutions @Agrotopia or @Inagro





## GEOGRAPHICAL LOCATION

Sant Sadurní d'Anoia (Barcelona, Spain)

## TYPES OF PARTNERS INVOLVED:

Federació de Cooperatives Agràries de Catalunya

COVIDES

CEVIPE Grup Cooperatiu

BETA Tech. Center

## PROJECT BUDGET:

151.982,69€

## CHALLENGE:

Promote the grape harvesting and wine processing organic wastes to be valorized in situ for producing biofertilizers, contributing to closing the carbon and nitrogen loop

## INNOVATIVE SOLUTION:

Decentralized composting to produce high-quality biofertilizers beneficial for the vineyard.

## MAIN ACTIVITIES:

- Characterization of the waste and by-products generated
- Optimization of the operational parameters that affect the composting process
- Characterization of the biofertilizing product obtained
- Pot test to evaluate the performance of the biofertilizers produced
- Techno-economical and environmental assessment

## MAIN OUTCOMES (so far):

The sludge humidity and stability have a major impact on the composting process. Alternative input mixtures are being assessed, adding other agrifood waste and by-products as co-substrates in the process.

## TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

Nutrient management

Agro-industrial sewage sludge treatment and management

Low-cost decentralized solutions

Application of biofertilizers

Soil health







#### GEOGRAPHICAL LOCATION

Poland, Małopolska, Trzciana,  
Poland, Wielkopolska, Szamotuły  
Poland, Wielkopolska, Złotniki

#### TYPES OF PARTNERS INVOLVED:

Agrismart  
University of Life Sciences in  
Poznań,  
Agriculture Advisory Centre in  
Brwinów, Poznań Branch,  
Agricultural Farm in Szamotuły

#### CHALLENGE:

Adapting ginger cultivation techniques to the geographic and environmental conditions of Poland.

Refining the germination process for ginger rhizomes under controlled conditions.

Managing the processing costs and logistical challenges associated with new technology.

Ensuring the economic viability of ginger production.

Integrating ginger products into the supply chain and market.

#### INNOVATIVE SOLUTION:

Refining the germination process for ginger rhizomes to accelerate growth and maturation.

Developing innovative technology specifically tailored for producing ginger juice, aimed at functional beverages.

**Creating biodegradable packaging and other products from ginger residues.**

#### MAIN ACTIVITIES:

Conducting experiments and refining techniques for the germination and growth of ginger rhizomes under controlled conditions.

Developing and implementing new technology for extracting high-quality ginger juice.

**Creating and testing new products such as biodegradable packaging and bioenergy sources.**

Analyzing market potential and integrating these products into the supply chain.

#### MAIN OUTCOMES (so far):

Achieving promising growth rates for ginger in Polish climatic conditions.

Development of a new method for extracting high-quality ginger juice.

Creation of biodegradable packaging and bioenergy products from ginger residues.

Gathering valuable data on the adaptation of ginger rhizomes to local conditions.

Implementing improvements in planting and irrigation processes based on the first year's experiences.

#### TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

Addressing the geographic and environmental adaptation of ginger cultivation.

Overcoming technological and logistical barriers in the production and processing of ginger.

Leveraging innovative solutions to create new income sources for farmers and foresters.

Exploring market opportunities for new ginger-based products.

Sharing best practices and research findings with other operational groups.

Forming partnerships for joint development and market integration of innovative agricultural products.



## EIP OG ChicoryRePowered

Hannes Naeyaert (hannes.naeyaert@inagro.be)

Tine Vergrote (tine.vergrote@biogas-e.be)

Jasper Somers (jasper.somers@vlaamsbrabant.be)

Jelina Terriijn (jelina.terriijn@vlaamsbrabant.be)

<https://inagro.be/projecten/chicoryrepowered>



**GEOGRAPHICAL LOCATION**  
Flanders, Belgium

**TYPES OF PARTNERS INVOLVED:**

Inagro vzw

Praktijkpunt Landbouw Vlaams-Brabant

Biogas-E vzw

**PROJECT BUDGET:**

€3 333

### CHALLENGE:

- Chicory farms have high energy demands
- Chicory farms produce an almost year-round stable residual flow
- While roots from chicory farms can be used as cattle feed, there is currently no market for the leaves

### INNOVATIVE SOLUTION:

- Invest in a pocket digester that converts chicory roots and leaves into biogas and digestate

### MAIN ACTIVITIES:

- Determine the biogas potential for various input ratios
- Conduct ensiling tests to determine the retention period of residues
- Pilot scale anaerobic digestion tests
- Perform a feasibility study to perform an economic assessment on a company-specific level

### MAIN OUTCOMES (so far):

- The biogas potential of leaves alone is insufficient for digester profitability.
- When ensiling the roots, a loss of 20% in biogas potential after 2 months can be expected
- Preferably, the roots and leaves are supplemented with another residual flow like corn

### TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- The input for the digester is highly dependent on environmental factors
- Not all the heat produced by the digester may be utilized on the farm and an alternative market might be necessary for a sufficient valorization of the residual heat
- Excess digestate that can't be used as a fertilizer has a high treatment cost in Flanders





#### GEOGRAPHICAL LOCATION

Poland; kujawsko-pomorskie

Main location (NUTS3):

Bydgosko-toruński - PL613

Additional location (NUTS3):

Miasto Poznań - PL415

Bydgosko-toruński - PL613

TYPES OF PARTNERS INVOLVED:

Entrepreneur: Central Business Consulting Institute

Scientific and Research Unit: Poznań University of Life Sciences

Advisory entity: Agricultural Advisory Center in Brwinów, Branch in Poznań

Farmer: Waldemar Bloch

PROJECT BUDGET:

2 238 582,00 zł

#### CHALLENGE:

The main objective of the operation is to develop and implement a technology for obtaining and preserving an innovative vegan food ingredient based on oak nuts. The mass obtained from oak nuts will be bittered using the vacuum infusion method. Thanks to the starch present in oak seeds, their crushed form will be a natural technological additive with stabilizing/thickening properties for the structure of vegan products and an ingredient that enriches the nutritional value and health-promoting properties.

#### INNOVATIVE SOLUTION:

- prototype acorn dryer (storage of acorns)
- innovative ways of debiting acorns using the vacuum infusion process and fixing the embittered mass of oak nuts
- designing a complete technological line for the production and preservation of pulp obtained from oak nuts, as well as verification, optimization and implementation of technological assumptions in industrial conditions.

#### MAIN ACTIVITIES:

Physicochemical and microbiological analysis of the raw material and the main technological innovation - development of a method of oak nut bitterness using vacuum infusion.

Selection of the parameters of the bitterness process in order to obtain favorable physicochemical properties of the mass of oak nuts.

Development of a method for preserving the bitter mass of oak nuts in laboratory conditions, and evaluation of its quality during storage.

Design and commissioning of an industrial line for the process of bitterness of oak nuts and preservation of bitterness mass.

Evaluation of the quality of the mass obtained industrially immediately after its receipt, preservation and during 6 months of storage.

#### MAIN OUTCOMES (so far):

- Floating alone does not eliminate all damaged nuts
- Pulp of deembittered acorns - the color of coffee with milk, aromatic, taste - with a slightly noticeable aftertaste of bitterness
- Liquid after decanting – aromatic, amber-tea color, tart taste. It has the potential for further use due to the content of valuable ingredients. Due to the chemical load and high costs of water/sewage utilities, the amount of fluid generated must be optimized during subsequent tests.
- In the 4th washing cycle, the starch is washed out

#### TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- Possibility of using other forest tree nuts to produce products, including vegan ones
- Improving the technologies used in the project and comparing solutions used in other projects





# Discussion sheet

**EU CAP Network cross-visit**  
**Use of agricultural and forestry residues for creating alternative resources of income for farmers and foresters**

26 – 27 June 2024 | Vic, Spain



Funded by  
the European Union



## 2. Animal residues

**EU CAP Network cross-visit  
Use of agricultural and forestry residues for creating alternative  
resources of income for farmers and foresters**

**26 – 27 June 2024 | Vic, Spain**



Funded by  
the European Union



# OG, BIOFERTI+

Production of a tailor-made pelletized bio-fertilizer for woody crops as a strategy for the valorization of composted manure and other organic by-products

Laura Diaz-Guerra, Marius Simon, Ricard Carreras



## GEOGRAPHIC LOCATION:

- Osona, Alt Penedès, Gironès (Catalonia, Spain)

## PARTNERS INVOLVED:

Leader: Coop Plana de Vic

Coordinator: Catalan federation of agricultural cooperatives (FCAC)

Other members:

- Grans del Lluçanès, SL
- Covides, SCCL
- BETA Technological Centre
- Girona Fruits, SCCL

## BUDGET:

Own funding: 36,642.86 €  
EU funding: 67,752.66 €  
DACC funding: 89,811.66 €  
**Total budget: 194,207.18 €**

## CHALLENGE:

- ❑ **By-product valorization** from cattle manure and other organic waste.
- ❑ To create new business model based on the **circular bioeconomy**.
- ❑ To raise awareness in the livestock sector to **improve the management of animal manure** and in the agricultural sector to **use organic fertilizers as a substitute of mineral fertilizers or raw manure**.
- ❑ To promote an agriculture and livestock sector that is more **resilient to climate change**.

## INNOVATIVE SOLUTION:

- ❑ **Modifications in the composting process have been developed** to prevent an excessive retention of moisture and to avoid the product's compaction.
- ❑ **Formulation of a tailor-made pelletized bio-based fertilizer** that meets the specific nutritional needs of the target crops.

## MAIN ACTIVITIES:

- ❑ **Optimization of the composting process** to obtain a product with a great fertilizing capabilities.
- ❑ **Formulation and production of tailor-made bio-based fertilizers (TMF)** for vineyards and apple orchards.
- ❑ **Agronomic trials to test the TMFs** in vineyards and apple orchards, and incubation assays to study the nutrient release of the product.
- ❑ **Technical, economic and environmental feasibility study** of the developed system.

<https://betatechcenter.com/projects/bioferti/>

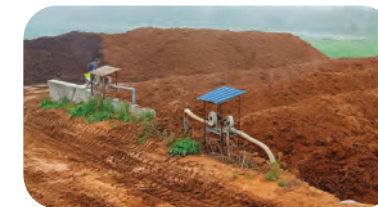
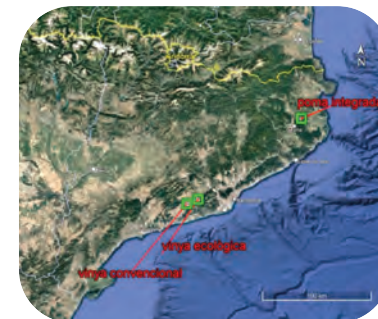
<https://www.cooperativesagrarias.cat/ca/innovacio/l/11039-go-bioferti.html>

## MAIN OUTCOMES (so far):

- ❑ The **excess of moisture** in the composting piles **hampering the process, was solved** by the operative modifications applied
- ❑ The **composting process has been improved** monitoring temperature and humidity, to obtain a final product with relevant nutritional characteristics .
- ❑ The **TMFs for vineyard and apple orchard were formulated** using the compost produced with the addition of a nitrogen supplement (biochar), based on the nutritional composition of the soil and the nutritional requirements of the crops.

## TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- ❑ How to **improve composting processes** with simple operative modifications.
- ❑ How to **scale up this technology** and achieve a **sustainable business model** to promote the circularity and development of rural areas.





## GEOGRAPHICAL LOCATION

Catalonia, Spain (see the image above)

## TYPES OF PARTNERS INVOLVED:

### Organic livestock and Vineyard Farmers (OVF):

- L'Agraria de Torelló, coop.
- Betara coop.
- Juvé & camps (OVF)

### Conventional livestock and vineyard farmers (CVF):

- Selecció Deseuras s.l.
- Granges Terragrisa
- ADV Sant Martí (CVF)

### Research Institutions:

- BETA Technological Centre
- Catalan Institute of wine and vineyard

### Advisors:

- Catalan wine cluster

## PROJECT BUDGET:

185 871,74 €

## CHALLENGE:

Enhance the circular bioeconomy of livestock and vineyard farmers in Catalonia.

Develop new technologies to produce new fertilisers derived from manure, such as a solar biodrier from the solid fraction of the pig slurry.

Evaluate the agronomic application of different organic fertilisers in commercial vineyard plots.

Analyse the technical needs on advice about organic fertilization .

## INNOVATIVE SOLUTION:

A solar biodrier for the solid fraction of the pig slurry.

## MAIN ACTIVITIES:

**Biodried fertiliser** from solid fraction of pig slurry: Evaluation and monitoring.

**Fertilisers characterisation** from conventional and organic livestock manure and other organic by-products.

**Agronomic evaluation** of in-situ fertilisation with conventional and organic products in vineyards.

**Technical and economic analysis** of the creation of a pilot technical advice service on organic fertilisation in Catalonia.

**Technical, economic and environmental feasibility study** of the project.

## MAIN OUTCOMES (so far):

Five different organic fertilisers are already applied in the field (3 for conventional, 2 for organic agriculture).

Given the drought conditions affecting the Mediterranean region, no significant differences are observed in soils and plant productivity. No matter the fertiliser type (organic and conventional) and the control treatment (no fertiliser added).

There exist soil physic-chemical differences among the conventional and the organic management .

Fertilisers' physic-chemical characterisation is associated to the original materials.

A solar biodrier for the solid fraction of the pig slurry is already set in the farm.

## TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

The development of technologies to revalorize far residues into fertilizer products.

The use of manure-derived fertilisers under Mediterranean conditions.

Organic fertilization in vineyards.





#### GEOGRAPHICAL LOCATION

Poland, Malopolska, Stare Bystre

Poland, Malopolska, Krakow

#### TYPES OF PARTNERS INVOLVED:

Actinata

University of Agriculture in Krakow

Farmers

#### CHALLENGE:

Developing and refining new methods for processing milk and whey products.

Overcoming the logistical challenges associated with the transportation and collection of milk to ensure quality and efficiency.

Ensuring the economic viability of new dairy products and integrating them into the market.

Addressing environmental impacts through efficient resource management and promotion of local sales to reduce CO2 emissions.

#### INNOVATIVE SOLUTION:

Researching the use of slurry for biogas production as an innovative approach to utilizing agricultural waste.

**Converting whey from waste into a valuable resource, demonstrating a novel approach to waste management.**

**Using heat from hot whey to improve energy efficiency and resource management.**

#### MAIN ACTIVITIES:

Conducting advanced research on the use of agricultural waste for biogas production and the transformation of whey into a resource.

**Developing new food products utilizing whey, such as protein-rich drinks, healthy desserts, and high-nutritional-value cheeses.**

Providing education and training on sustainable waste management and production methods to local communities and other Operational Group members.

Promoting local sales and optimizing digital marketing tools to integrate new dairy products into the market.

Improving methods of milk transportation to ensure better quality and freshness through optimization of the cold chain and reduction of delivery times.

#### MAIN OUTCOMES (so far):

Creation of a new range of whey-based food products that have gained popularity for their taste and health benefits.

Successful utilization of heat generated in the whey processing process for energy efficiency.

High interest and demand for products both in direct sales and online, supported by the region's tourism potential.

Significant interest from individuals and institutions in joining and collaborating with the project.

#### TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

**Addressing the technological and logistical challenges of new dairy product development and market integration.**

Ensuring the economic viability and investment support for innovative solutions.

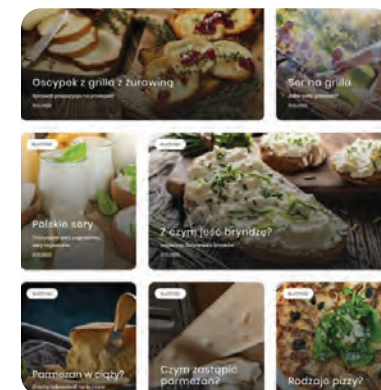
Exploring the potential of biogas production from slurry and the transformation of whey into valuable resources.

Leveraging local sales to promote environmental protection and reduce CO2 emissions.

Sharing best practices and innovative solutions with other Operational Groups.

Forming partnerships to enhance educational initiatives and knowledge transfer on sustainable waste management and production.

Discussing new methods of natural resource management, including water conservation and efficient soil use, to benefit agricultural communities.







#### GEOGRAPHICAL LOCATION

Portugal

#### TYPES OF PARTNERS INVOLVED:

- 4 Research institutes and Universities
- 3 Agri Associations
- 6 Agri enterprises.

#### PROJECT BUDGET:

€509 980

#### CHALLENGE:

Livestock production is concentrated in certain regions, some without enough area for land spreading valorisation of effluents.

#### INNOVATIVE SOLUTION:

Valorise livestock effluents as a resource, focusing on the production and integrated management of the different flows generated.

Using a cross-cutting strategy and a multi-actor approach, partners participated in the proposed actions according to each area of activity. Therefore, it was possible to answer three key areas, namely: characterization of the sector, mitigation of GGE and valorisation of livestock effluents.

#### MAIN ACTIVITIES:

Optimise effluents use as secondary raw materials, recovering energy and nutrients, improving farm nutrient balances and promoting sustainable management.

#### MAIN OUTCOMES (so far):

Two new processes were developed:

- Biorremediation by insect larvae via an effluent recovery system;
- The use of biochar in livestock manure storage pits to reduce methane emissions.

Biorremediation allows the reintroduction of nutrients into the value chain, closes nutrient cycles, and origins two product lines: larvae for biorefinery and frass - a new organic fertiliser.

The value of biochar in reducing emissions in septic tanks in intensive production units was successfully demonstrated.

The new products answer to the sector, as a solution in the valorisation of effluents and as a new economic resource.

#### TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- Share the objectives of the OG involved in the visit
- Discussion of the used methodologies for the studied/ processes and products and the associated innovation
- To observe the impacts of those OG and understand the scalability at farm or industrial level



# OG, FERTIECO Implementation of the hiperthermophilic for the production of organic crop fertiliser from the solid fraction of pig manure

Esther Vega, Pol Griful

<https://betatechcenter.com/projects/fertieco/>



## GEOGRAPHICAL LOCATION

Osona, Bages, La Garrotxa,  
Vallès Oriental (Catalunya, Spain)

## TYPES OF PARTNERS INVOLVED:

Leader: Agropecuària Catalana  
SCCL (Agrocat)

Coordinator: INNOVACC

Other members:

- Grup Gepork
- Selecció Batallé
- Embotits Salgot
- Agrària Plana de Vic i Secció de Crèdit SCCL
- BETA Technological Centre
- Catalan Water Research Institute (ICRA)

## PROJECT BUDGET:

199.996,18€

## CHALLENGE:

- ❑ **Valorisation** from cattle manure for use on organic crops
- ❑ **Demonstrate** that biofertilisers obtained from pig slurry have equivalent veterinary medicines and resistance gen content to fertilizers currently suitable for fertilizing organic farming
- ❑ To **promote the circular bioeconomy** using livestock manure to obtain high quality and proximity biofertilizers to improve the soil and the productivity of organic crops in Catalonia.

## INNOVATIVE SOLUTION:

- ❑ **Hiperthermophilic composting process** to obtain organic fertilizers from intensive livestock farming with a low content of veterinary medicines, which has a good agronomic quality and is suitable for application on organic crops

## MAIN ACTIVITIES:

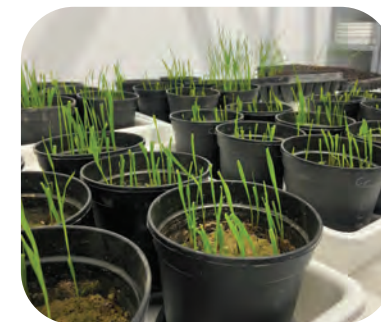
- ❑ **Optimization of the composting process** to obtain products with fertilizing capabilities for organic farming.
- ❑ **Comparative** study of manure and compost suitable and unsuitable for organic farming
- ❑ **Technical, economic and environmental feasibility study** of the developed system.

## MAIN OUTCOMES (so far):

- ❑ Production of **nutrient-rich fertilizer** products
- ❑ High degradation efficiencies of veterinary pharmaceuticals and even **complete degradation** of some at the end of the hyperthermophilic composting process.

## TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- ❑ How to improve the **solid-liquid separation** of some livestock manures and digestates.
- ❑ To understand the **degradation kinetics** of some pharmacological compounds present in solid fractions





# Discussion sheet

**EU CAP Network cross-visit**  
**Use of agricultural and forestry residues for creating alternative resources of income for farmers and foresters**

26 – 27 June 2024 | Vic, Spain



Funded by  
the European Union

### 3. Agroindustry and other residues

**EU CAP Network cross-visit  
Use of agricultural and forestry residues for creating alternative  
resources of income for farmers and foresters**

26 – 27 June 2024 | Vic, Spain







subpromais

subprodutos da agroindústria  
na alimentação animal

## GEOGRAPHICAL LOCATION

Ribatejo and Alentejo regions in Portugal

## TYPES OF PARTNERS INVOLVED:

- Instituto Nacional de Investigação Agrária e Veterinária IP (INIAV) - PDR2020-101-030988

- Carlos & Helder Alves Agro-Pecuária Lda - PDR2020-101-030997

- Centro de Biotecnologia Agrícola e Agro-alimentar do Alentejo - PDR2020-101-030993

- Tagus Valley - PDR2020-101-030991

- Ruralbit Lda - PDR2020-101-030990

## PROJECT BUDGET:

122 032.16 €

## CHALLENGE:

The use of agro-industrial by-products as animal feed is an alternative to reduce imports, food waste, promote a clean and circular economy, turning worthless raw materials into high-quality and low-cost animal feeds, which does not compete with human food.

## INNOVATIVE SOLUTION:

- The first Portuguese database of the chemical and nutritional composition of feedstuffs was produced. The database is open-access and provides information on the chemical and nutritional composition of 314 raw materials.
- Diets with silage based on by-products were defined to replace concentrated feed for use in feeding in lambs and lactating ewes.

## MAIN ACTIVITIES:

- Collect information on agro-industrial by-products available for use in animal feed.
- Characterize the by-products chemically and nutritionally and study methods of conservation and integration into animal feed.
- Evaluate their impact on the productive performance of animals and the quality of the end product;
- Produce a computer database of the chemical and nutritional composition of by-products;
- Disseminate the results obtained to the entire community.

## MAIN OUTCOMES (so far):

The by-products produced in Ribatejo and Alentejo, the quantities produced and the place and time of production were identified.

The by-products were analyzed for chemical and nutritional characteristics.

Methods for preserving the most perishable by-products by dehydration and ensiling have been established.

Diets with silages based on by-products to replace concentrated feed were defined for use in the feeding of lambs and lactating ewes

A database ([www.subpromais.pt](http://www.subpromais.pt)) with all the information obtained was created and made available online, free of charge.



## TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- Conservation methods
- Bioactive compounds of the by-products, extraction and application due to their properties:
  - Anti-parasitic
  - Anti-methanogenic.
  - Antioxidant.



**RAPESEED MEAL IN PIG NUTRITION**

Rural Development Program me 2014-2020

<https://srutarzepakowa.odr.net.pl>



**GEOGRAPHICAL LOCATION:**  
POLAND

**TYPES OF PARTNERS INVOLVED:**

Silesian Agricultural Advisory Centre (leader)

Silesian Chamber of Agriculture (partner)

Farmer involved in primary production of agricultural products (partner)

Institute of Agricultural and Food Biotechnology – State Research Institute (partner)

**PROJECT BUDGET:**  
780 000 EUR

**CHALLENGE:**

Reduction of anti-nutritional factors and improvement of nutritional value of rapeseed meal

Impact of fibers status on nutrient digestibility by animals

Impact of rapeseed meal feeding on animal's gut microbiota

**INNOVATIVE SOLUTION:**

Development of innovative technology for fermentation of rapeseed meal as feed for pigs by applying isolated starter culture

**MAIN ACTIVITIES:**

Development of starter culture for meal fermentation

Analysis of weight gain in animals fed with fermented meal compared with control group fed with traditional feed

Metagenomic analysis of microbiome of both groups of animals

Qualitative and quantitative assessment of obtained pork meat

Production of meat products, and their qualitative evaluation as well as storage durability tests

**MAIN OUTCOMES (so far):**

Development of innovative feed alternative for pigs to replace genetically modified soybean meal

Reduction of feed costs with no impact on performance and meat quality

Reduction of carbon footprint

**TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:**

Building trust and fostering more active collaboration among members of consortium (farmer, scientific institution, advisory center)

Ensuring clear communication among consortium members

Setting up of long-term vision and clear objectives of consortium accomplishments.

**Contact person:**

**Ms. Anna Szosland-Faltyn**  
[anna.szosland@ibprs.pl](mailto:anna.szosland@ibprs.pl)



## OG RE-PEAT reuse of growing media for a circular horticulture

Hanne.denaeghel@viaverda.be  
Bart.vandecasteele@ilvo.vlaanderen.be  
Simon.craeye@inagro.be

<https://inagro.be/projecten/re-peat-hergebruik-van-teeltsubstraten-voor-een-circulaire-tuinbouw>



**GEOGRAPHICAL LOCATION**  
Flanders, Belgium

**TYPES OF PARTNERS INVOLVED:**

- Research centers and institutes
- Ornamental and strawberry growers
- Growers' association

**PROJECT BUDGET:**  
€83 000

### CHALLENGE:

- How can we reuse growing media derived from strawberry, vegetable and ornamental crops?
- How can we increase the adoption in practice of these recycling loops?

### INNOVATIVE SOLUTION:

- Provide database with characteristics of spent growing media from different crops
- Demonstrate the reuse of growing media from strawberries, vegetables and ornamental crops
- Take advantage of residual nutrient levels in the spent growing media during reuse

### MAIN ACTIVITIES:

- Physical and chemical analysis of spent growing media
- Demonstration trials in strawberries and ornamentals at trial stations and in practice at growers' locations
- Feedback from reuse to improve quality for reuse purposes
- Cooperation with Public Waste Agency of Flanders

### MAIN OUTCOMES (so far):

- Growing media can be reused several times, making horticulture more circular and sustainable
- General raw material declaration from Public Waste Agency to make reuse possible
- Dissemination and demonstration towards growers, increasing the knowledge and interest for reuse

### TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

- Grower to grower, or via growing media producers?
- Hygienization against pests and diseases
- ...







## GEOGRAPHICAL LOCATION

Kecskemét, Hungary

## TYPES OF PARTNERS INVOLVED:

Agricultural consultant  
University  
Farmers

## PROJECT BUDGET:

471 433 EUR

## CHALLENGE:

- The EU target is to replace up to 30% of chemical fertilizers using bio-based fertilisers.
- There is no current standard for mechanical stability of granulated or pelletized fertilizers however standards of biomass-based fuel pellet exist in the European Union.
- Precision agriculture requires value-added organic fertilizers and their economical use in arable crop farming.

## INNOVATIVE SOLUTION:

GRANOFARM Group developed the GRANOPRES integrated solution that includes both a procedure for production formulated organic and organo-mineral fertilizers and their use in precision farming:

- new fertilizers prepared from biogas digestate,
- optimising characteristics of pelletized and granulated organic fertilizers are available on the global market,
- application of fertilizers at the same pass of sowing.

## MAIN ACTIVITIES:

Organic and organo–mineral fertilizer development  
Precision fertilization in arable crop farming

## MAIN OUTCOMES (so far):

- ✓ New know-how: precision application of organic fertilizers
- ✓ Value chain related to renewable energy production: using agricultural biogas digestate for fertilizer development
- ✓ Value-added product: procedure to produce precision organic fertilizers that includes coating of organic and organo-mineral fertilizers with bio-based components

## TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

How to integrate more biomass-based input materials into precision farming in solid and liquid form:

- arable land,
- grassland,
- forest and forest nursery management.







#### GEOGRAPHICAL LOCATION

AGIOS ATHANASIOS,  
REGION OF CENTRAL  
MACEDONIA,  
GREECE

#### TYPES OF PARTNERS INVOLVED:

LABORATORY QLAB G.P.  
INSTITUTE ELGO DEMETER  
PRODUCERS' GROUP  
"AGROTIKES EPICHRISEIS  
AGIOU ATHANASIOU A' PC"  
FARMER PANAGIOTIS GOUTAS

#### PROJECT BUDGET:

150.000,00 €

#### CHALLENGE:

The SUSRICE project addresses the challenge of managing rice cultivation residues, aiming to reduce environmental impact, prevent air pollution from burning residues, and enhance soil health through innovative composting techniques and biofertilizer application, promoting sustainable agricultural practices.

#### INNOVATIVE SOLUTION:

The SUSRICE project implements an innovative method for managing rice cultivation residues by developing biofertilizers and compost from rice bran and other by-products, using beneficial microorganisms to improve soil health and reduce environmental impact

#### MAIN ACTIVITIES:

The SUSRICE project includes activities such as developing and applying biofertilizers from rice bran, implementing composting techniques with beneficial microorganisms, training farmers in innovative residue management practices, and conducting field trials to compare the effectiveness of these methods against traditional practices

#### MAIN OUTCOMES (so far):

The SUSRICE project has successfully developed biofertilizers from rice bran. The biofertilizers has been tested in pilot plants and test samples has been taken for analysis.

A first stage presentation of the project has been made during the 17th International Conference of the Hellenic Association of Agricultural Economists ETAGRO 2023.

#### TOPIC TO DISCUSS IN THE MCV IN TERMS OF CHALLENGES, OPPORTUNITIES AND COLLABORATION:

##### Challenges:

- Managing the decomposition of rice cultivation residues without environmental harm.
- Addressing soil health issues while maintaining crop productivity.

##### Opportunities:

- Utilizing biofertilizers and composting techniques to enhance soil fertility.
- Reducing greenhouse gas emissions by preventing residue burning.

##### Collaboration:

- Engaging with local farming communities and agricultural organizations.
- Partnering with research institutions for ongoing innovation and validation.



# **EU CAP Network cross-visit**

## **Use of agricultural and forestry residues for creating alternative resources of income for farmers and foresters**

**26 – 27 June 2024 | Vic, Spain**

All information on the cross-visit is available on the event webpage:  
<https://eu-cap-network.ec.europa.eu/events/eu-cap-network-cross-visit-use-agricultural-and-forestry-residues>



Funded by  
the European Union

