What is OLIVEBIOME?

OLIVEBIOME is a supra-autonomous Operative Group whose goal is to promote an innovative initiative aimed to develop sustainable biotechnological solutions for animal feed, primarily in the poultry and swine sectors. These solutions leverage agricultural by-products, such as olive pomace (a by-product of olive oil extraction), and other horticultural by-products like green asparagus and. These by-products, often considered waste, will be transformed through fermentation processes into functional ingredients (prebiotics and probiotics) that will target to enhance animal resilience and the quality of the meat produced.

The project will pursue a significant environmental and social impact by redirecting the entire value chain toward sustainable resource management based on a circular economy model. This will substantially contribute citizens' quality of life through the sustainable consumption of healthier and safer agricultural and livestock products. The project is directly linked to the Sustainable Development Goals (SDGs) and the European Union's Green Deal objectives, particularly the "Farm to Fork" strategy. This strategy focuses on creating smart and efficient agri-food systems that environmetally friendly food to the population.

What are the Supra-Autonomic Operative Groups?

Operational Groups are the main actors implementing the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-Agri), and one of the key tools of the Strategic Plan of the Common Agricultural Policy (PEPAC) 2023-2027. They aim to drive innovation in the agri-food and forestry sectors across Europe.

These groups bring together agents from diverse backgrounds with common interests, including farmers, ranchers, companies, research centers, training and dissemination entities. They collaborate to launch an innovation project that provides a joint and multi-sectoral response to a specific problem or need.

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Want to know more about OLIVEBIOME?

You can send an email to **feuga@feuga.es** or call **+34 981 534 180**.

For more information about the project, visit the website:

olivebiome.es

The OLIVEBIOME operational group is responsible for this content.

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MINISTERIO DE AGRICULTURA, PESCA Y ALIMENTACIÓN

Olivebiome

Biotechnological development of prebiotics and probiotics for animal feed (poultry and swine) derived from olive pomace fiber and other horticultural by-products.

Total project budget: 550,110.66 € **Total grant:** 550.110,66 €

The OLIVEBIOME project falls within the framework of the Strategic Plan of the Common Agricultural Policy (PEPAC) 2023-2027, funded 80% by the European Agricultural Fund for Rural Development (EAFRD) of the European Union and 20% by the Ministry of Agriculture, Fisheries, and Food (MAPA). The Directorate General for Rural Development, Innovation, and Agri-food Training (DGDRIFA) is the authority responsible for implementing these funds.

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What are the objectives of OLIVEBIOME?

The primary objective of **OLIVEBIOME** is the biotechnological development of prebiotics and probiotics for animal feed (poultry and swine), using olive pomace fiber and other horticultural by-products.

In alignment with the project's work plans, the following specific objectives have been defined:

1. **Chemical characterization** of olive fiber and horticultural by-products, assessing their prebiotic and fermentative capacities with probiotics.
2. **Establishment of a fermentation model** to optimize the growth of probiotic strains under laboratory conditions, using by-products/raw materials from olive and other horticultural species.
3. **Design and scaling** for the semi-industrial production of probiotics from by-products/raw materials and selected strains.
4. **Evaluation of the impact** of the developed prebiotics and probiotics on the resilience and welfare of farm animals (swine and poultry).
5. **Promotion of sustainable management** of olive by-products through the implementation of a circular economy model within the Spanish olive industry.

What results are expected?

The expected outcomes of the **OLIVEBIOME** project are as follows:

- **Comprehensive chemical characterization** of olive and other horticultural species: Analysis of its antioxidant capacity, sugar composition, proteins, amino acids, and prebiotic properties of the fiber.
- **Development of prebiotic and probiotic products** from olive pomace and horticultural by-products, with validation of their fermentative capacity.
- **Design and scaling** for semi-industrial production of probiotics, including stabilization and viability of the cultures.
- **Impact on experimental farms** Assessment of performance in piglets and chickens, as well as changes in their gut microbiome after using these products in their diet.
- **Validation under thermal stress conditions** Determining how prebiotics and probiotics influence animals under heat stress, comparing their impact on welfare and productivity.
- **Preparation of a sectoral report** on the olive pomace industry to establish its production potential as a resource for sustainable animal production in Spain.

Activities of OLIVEBIOME

The **OLIVEBIOME** project includes a series of key activities to achieve its objectives:

01 **Characterization of olive pomace fiber and horticultural by-products:** Components of olive fiber and other vegetables, such as asparagus and, will be analyzed to identify their prebiotic properties and their ability to ferment probiotics useful for animal production.

02 **Development of semi-industrial fermentation systems:** from raw materials selected as a result of the prebiotic activity of its fibers, semi-industrial fermentation conditions will be optimized to produce probiotics at a large scale. These conditions will be evaluated for their ability to produce compounds beneficial for animal welfare and resilience.

03 **Evaluation of effectiveness in animal feed:** The prebiotics and probiotics produced will be tested on animals, specifically pigs, and chickens, to assess their impact on supporting animal resilience to production challenges, and enhancing meat quality.

04 **Study of environmental and social impact:** In addition to improving animal production, the project focuses on redirecting the value chain toward a circular economy model. This will enable sustainable management of by-products, reducing ecological footprints, and promoting the use of local resources.

05 **Project dissemination plan**

The dissemination plan will be divided into two parts:

1. **Communication and dissemination:** Creating materials and content, organizing activities to present the project, and sharing updates with a general audience, including target sectors, consumers, and the general public.
2. **Engagement and result transfer activities:** Developing materials and conducting activities specifically designed to encourage implementing innovative solutions developed during the project.

Who are the target groups of OLIVEBIOME?

The **OLIVEBIOME** project targets its results to all stakeholders in the agri-food sector, as well as the general public:

- Farmers, cooperatives.
- Production companies.
- Companies involved in increasing olive productivity.
- Business associations in the industry and clusters.
- Denominations of Origin/Protected Geographical Indications.
- Public administrations related to agriculture, the environment, and/or rural development.
- Universities, Research Groups, and Technological Centres.
- End consumers and the general public.

To maximize the impact of the results and the transfer of knowledge generated, **OLIVEBIOME** will conduct an intense outreach effort at the regional, national, and European levels through articles, press releases, webinars, informative events, and talks, among other actions.

Who are the members of OLIVEBIOME?

Beneficiaries: he Supra-regional Operational Group **OLIVEBIOME,** covering the Autonomous Communities of Madrid, Cantabria, Andalucía, Galicia, Comunidad Valenciana, and Cataluña, is coordinated by the Galician Business-University Foundation (FEUGA) and technically coordinated by Masline. It also includes the participation of San Miguel Arcángel, and Lucta.

AINIA, Instituto de la Grasa-CSIC, Microomics Systems, and the Institute of Agrifood Research and Technology (IRTA) are a **subcontracted members.**

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ig Instituto de la Grasa CSIC

microomics Small things that matter.

IRTA Instituto de Investigación y Tecnología Agroalimentarias

Generalitat de Catalunya Gobierno de Catalunya