

From ADVAGROMED to CIPROMED: two projects introducing insect farming in the MED region

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Workshop

“Insects on the plate - Edible insects for food and feed”



Food sources ...

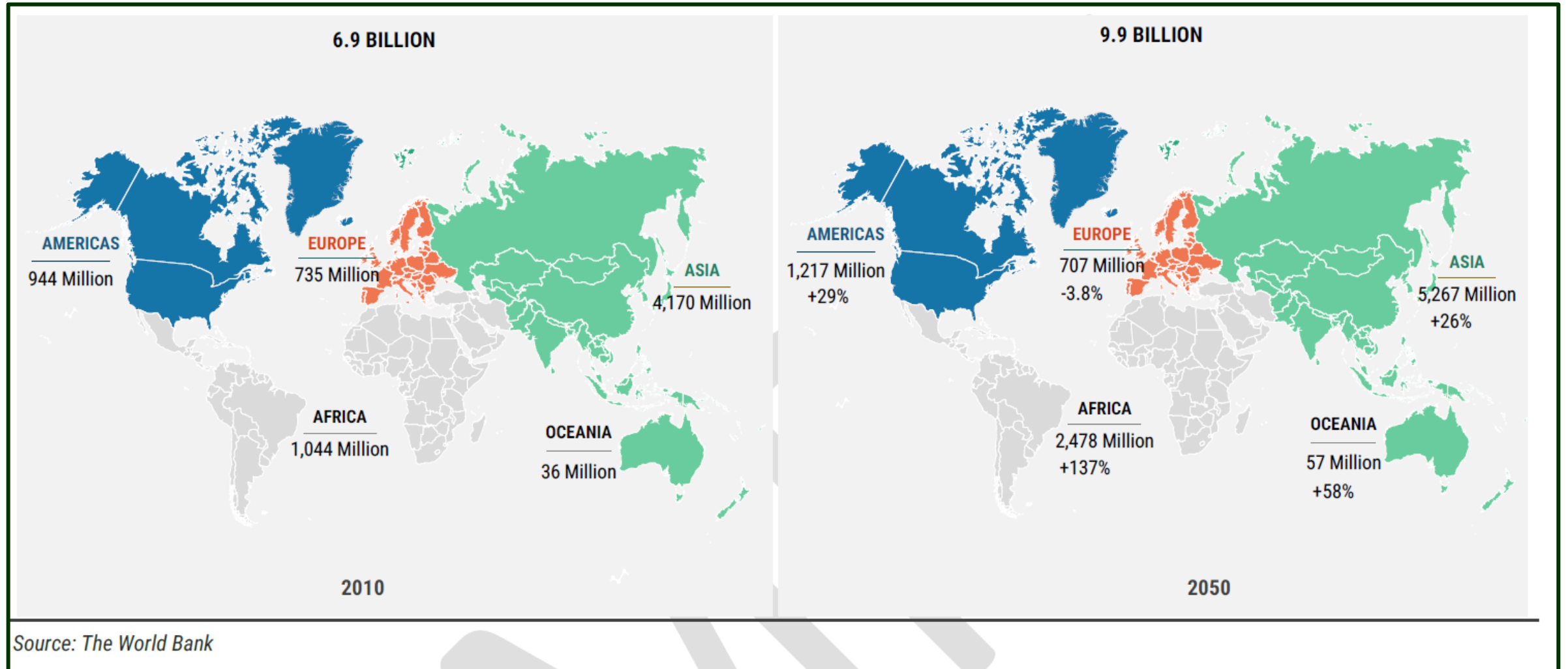


75% of our food comes from
12 plant and 5 animal
species – imagine the
diversity of thousands of
different crops!

<http://www.fao.org/docrep/007/y5609e/y5609e02.htm>

Human Population increase

- Human population is continuously growing





**ADVanced AGROecological approaches based
on the integration of insect farming with local
field practices in MEDiterranean countries**



Funding agent: **PRIMA Section 2**

Starting date: **1 September 2022**

End date: **31 August 2025**

Total budget: **€ 1.296.161,20**

PRIMA contribution: **€ 1.082.391,19**

Consortium: **7 partners from 6 countries [6 RTOs and 1 SME]**



ADVAGROMED Consortium



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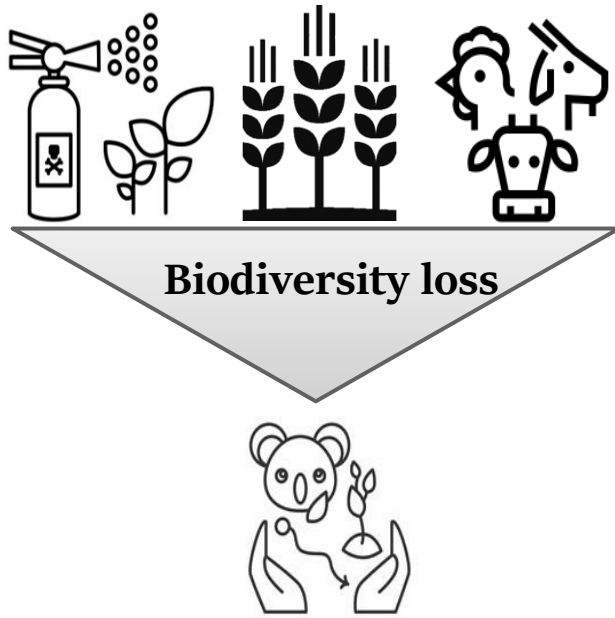
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The problem



The expansion and intensification of agriculture and animal production systems are major drivers of biodiversity loss

The solution

To integrate agroecological practices with current agricultural farming systems

The solution



How to reduce the risk?



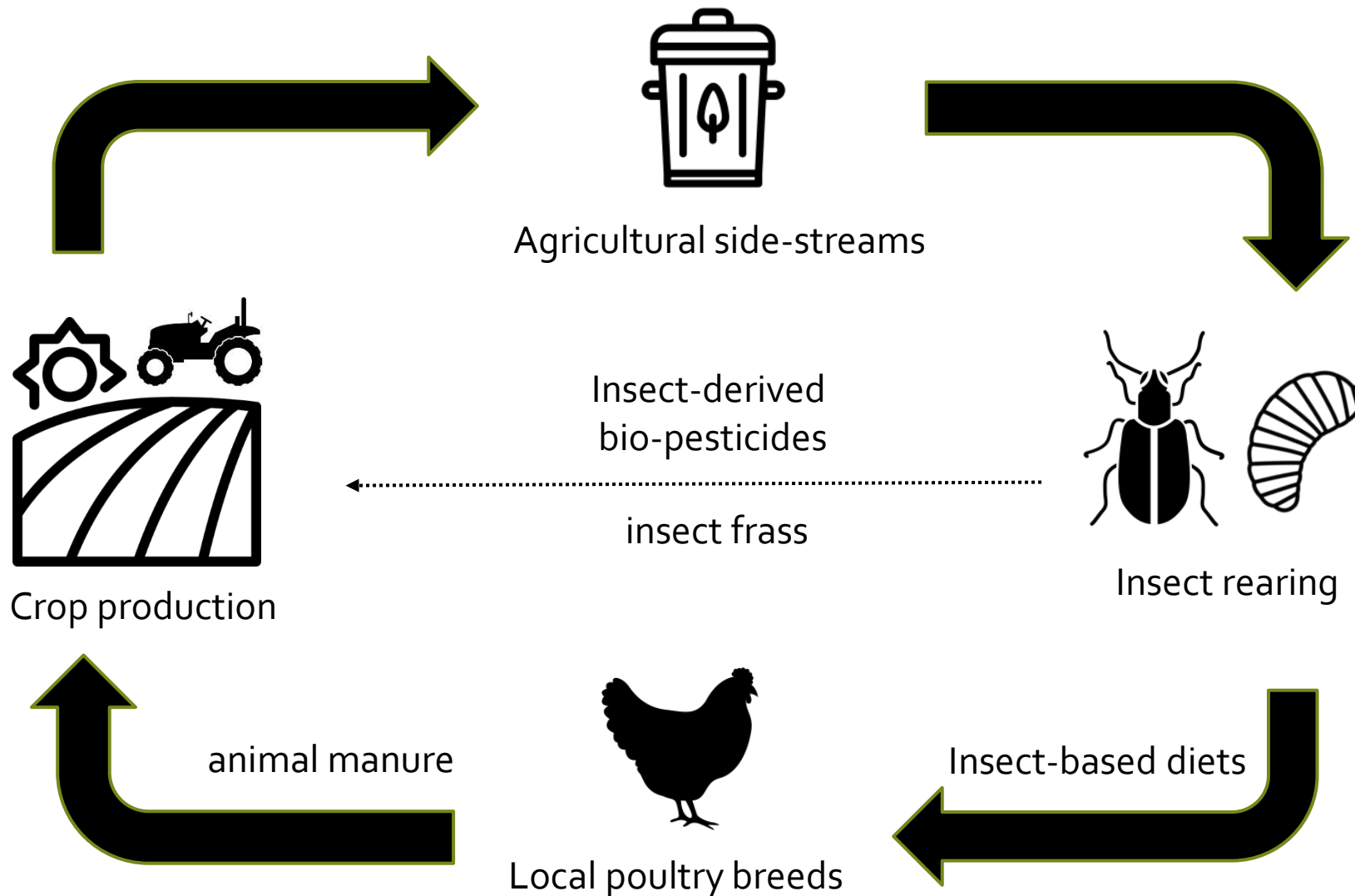
Sustainable agricultural farming systems

The solution

ADVAGROMED is based on the **integration of insect farming** with **local field practices in MEDiterranean countries**. This could offer a sustainable means to conserve and enhance the endangered farming biodiversity and increase ecosystems services.

ADVAGROMED aims to develop **innovative and holistic food system** based on agro-ecological principles and circular economy practices, to **increase the resilience of the agro livelihood systems**.

ADVAGROMED Infographic



Collection and nutrient composition analysis of agricultural by-products

By-product composition: report on the nutritional composition of by-products
Deliverable 2.1

2.1.2. By-product selection

For the selection of the by-products that will be evaluated and valorized within the ADVAGROMED project, the UTH research group took into consideration the main crops that are cultivated in the Region of Thessaly. Moreover, in order to enhance the sustainability of the use of these side-streams as insect feed ingredients by UTH, care was taken so that the selected agricultural by-products that will be used within the project are produced within a maximum distance of 100 km from the UTH facility (Laboratory of Entomology and Agricultural Zoology) (Figure 4). The by-products selected for further evaluation are presented in Table 2 and Figure 5.

Table 2. The by-products that will be evaluated within the ADVAGROMED project by UTH.

1. Lupin by-product ¹	9. Hempseed press cake (meal) ⁷
2. Triticale by-product ²	10. Hempseed by-product (class I) ⁸
3. Oat by-product ³	11. Hempseed by-product (class II) ⁹
4. Barley by-product ⁴	12. Hempseed by-product (class III) ¹⁰
5. Pea by-product ⁵	13. Cotton by-product (class I) ¹¹
6. Rice bran	14. Cotton by-product (class I) ¹²
7. Rice hulls	15. Cotton cake
8. Spent mushroom substrate ⁶	16. Cotton gin trash

¹ by-product of the lupin seeds cleaning process (small and broken seeds)

² by-product of the triticale seeds cleaning process (small and broken seeds)

³ by-product of the oat seeds cleaning process (beards hairs, husks and small and broken seeds)

⁴ by-product of the barley seeds cleaning process (beards hairs, husks and small seeds)

⁵ by-product of the pea seeds cleaning process (small and broken seeds)

⁶ waste remaining after the harvest of mushrooms

⁷ from ground pellets, by-product of the hempseed oil extraction process

⁸ by-product of the hemp buds production process (grinded buds remains, hempseeds)

⁹ by-product of hemp production (hemp stalks, leaves and stems, plant biomass leftovers on the field)

¹⁰ by-product of hemp seed cleaning process (small and broken hempseeds)

¹¹ by-product of cotton production (cotton seeds with lint hairs; fuzzy cotton seeds)

¹² by-product of cotton production (delinted cottonseeds or black or slick cottonseeds)

By-product composition: report on the nutritional composition of by-products
Deliverable 2.1



Collection and nutrient composition analysis of agricultural by-products

By-products of the Seed Cleaning process

1. Lupin by-product¹

2. Barley by-product²

3. Triticale by-product³

4. Oat by-product⁴

5. Pea by-product⁵

¹ by-product of the lupin seeds cleaning process (small an broken seeds)

² by-product of the barley seeds cleaning process (small an broken seeds)

³ by-product of the triticale seeds cleaning process (small an broken seeds)

⁴ by-product of the oat seeds cleaning process (beards hairs, husks and small seeds)

⁵ by-product of the pea seeds cleaning process (small an broken seeds)

Protein: 33,5 %



1. Lupin by-product

Protein: 9,1 %



2. Barley by-product

Protein: 8,5 %



3. Triticale by-product

Protein: 12,3 %



4. Oat by-product

Protein: 28,2 %

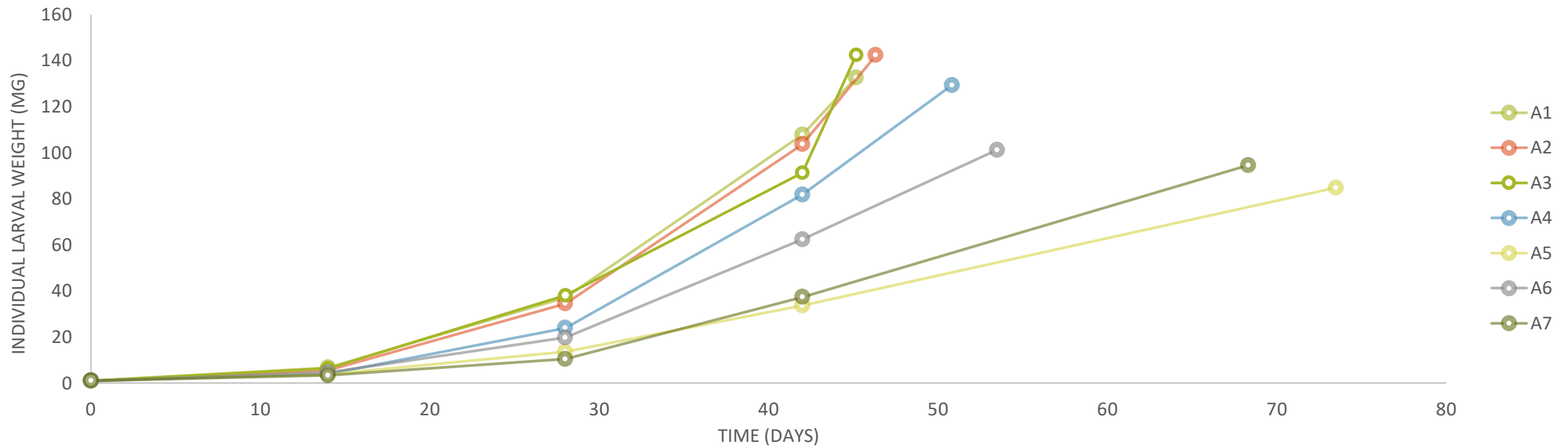


5. Pea by-product

Evaluation of agricultural by-products as ingredients of insect diets

	CONTROL						
	A1	A2	A3	A4	A5	A6	A7
Wheat bran	100.00						
Lupin byproduct		35.25	23.5	33.6			
Triticale byproduct		64.75			55.30		
Oat byproduct			76.5			68.70	
Barley byproduct				66.40			57.15
Pea byproduct					44.70	31.30	42.85

Protein level: 17.3%



Evaluation of frass as soil fertilizer for pepper



Insect frass



Local poultry breeds fed insect-derived feeds



Turkey local breed



Feeding trial planned for March 2024



CIPROMED

CIRCULAR AND INCLUSIVE UTILISATION
OF ALTERNATIVE PROTEINS IN THE
MEDITERRANEAN VALUE CHAINS



Circular and Inclusive utilisation of alternative PROteins in the MEDiterranean value chains

Funding agent: **PRIMA Section 1**

Grant Agreement number: 2231

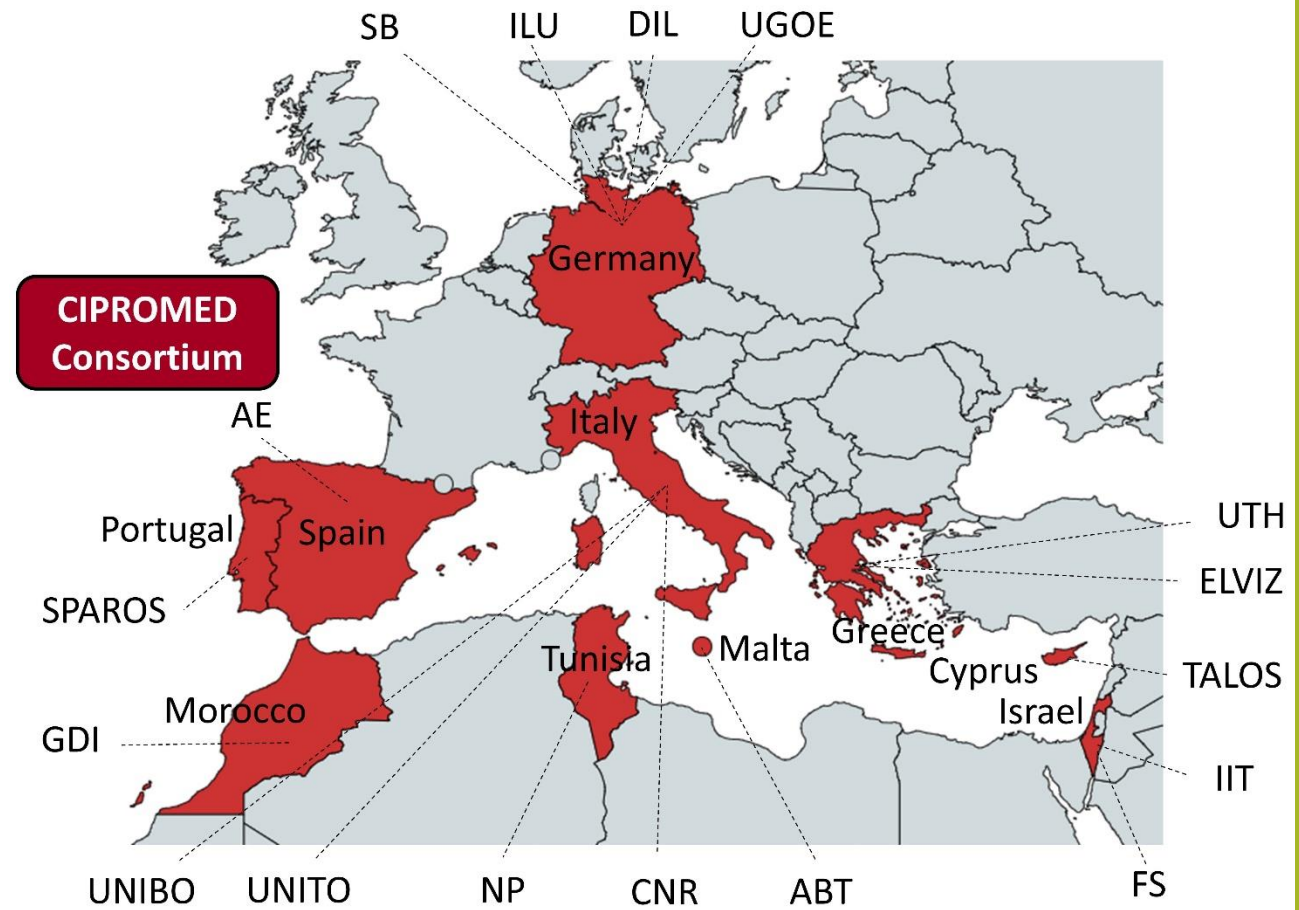
Starting date: **1 May 2023**

End date: **30 April 2026**

Total budget: **€ 4.738.918,81**

PRIMA contribution: **€ 4.054.641,69**

Consortium: **17 partners from 10 countries [8 RTOs, 8 SMEs & 1 NGO]**



CIPROMED CONSORTIUM



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The problem

Current European **agricultural production systems** are **heavily dependent on protein imports** to cover the nutritional needs of aquaculture and livestock production, but also for human consumption.

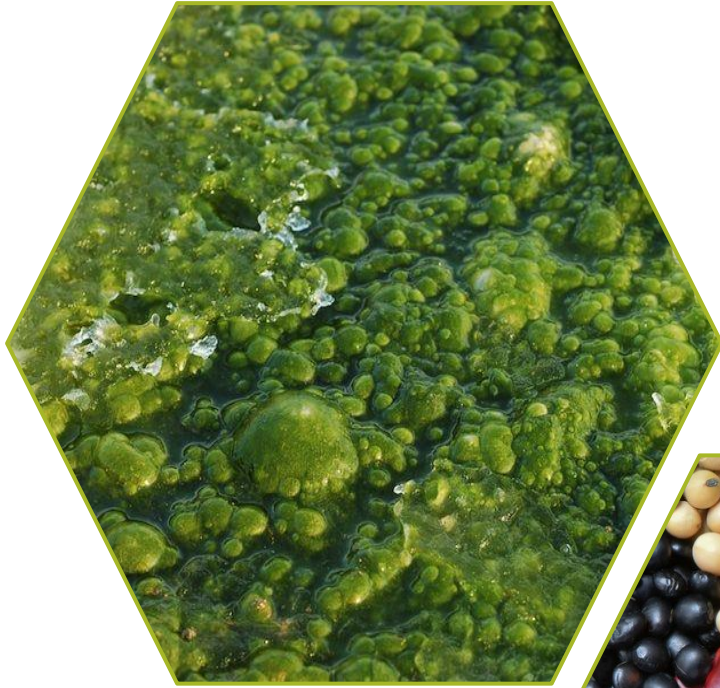
EU need

Need for **efficient, viable and locally produced alternative protein sources!**

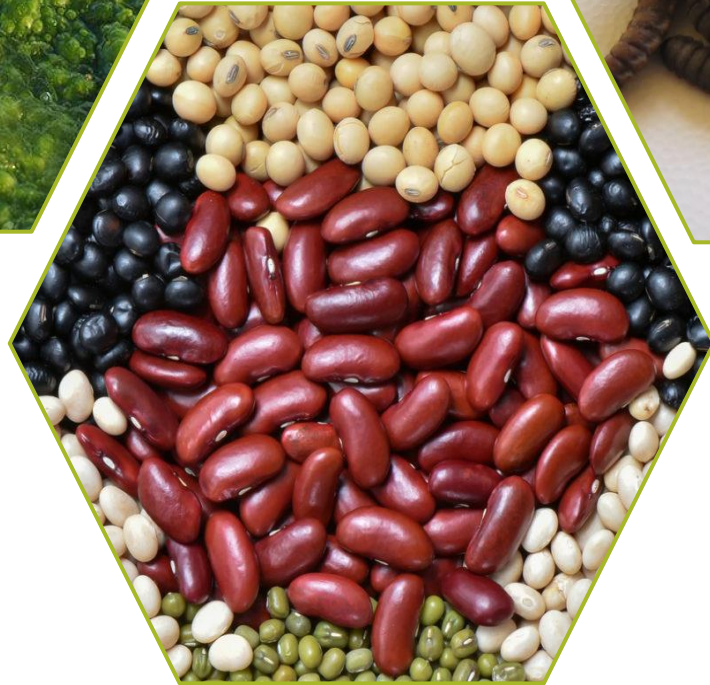
Overall objective

- to increase the stability and resilience of Mediterranean agri-food production systems through direct exploitation of **locally produced traditional crops**, as well as **by valorising the proteins from locally generated agri-industrial side-streams** (e.g., brewer's spent grain, oilseed presscakes), and the upcycling and bioconversion of their **extraction residues** to **protein produced by insects, legumes, microalgae and fermentation products**

CIPROMED raw materials/methods



Microalgae



Legumes

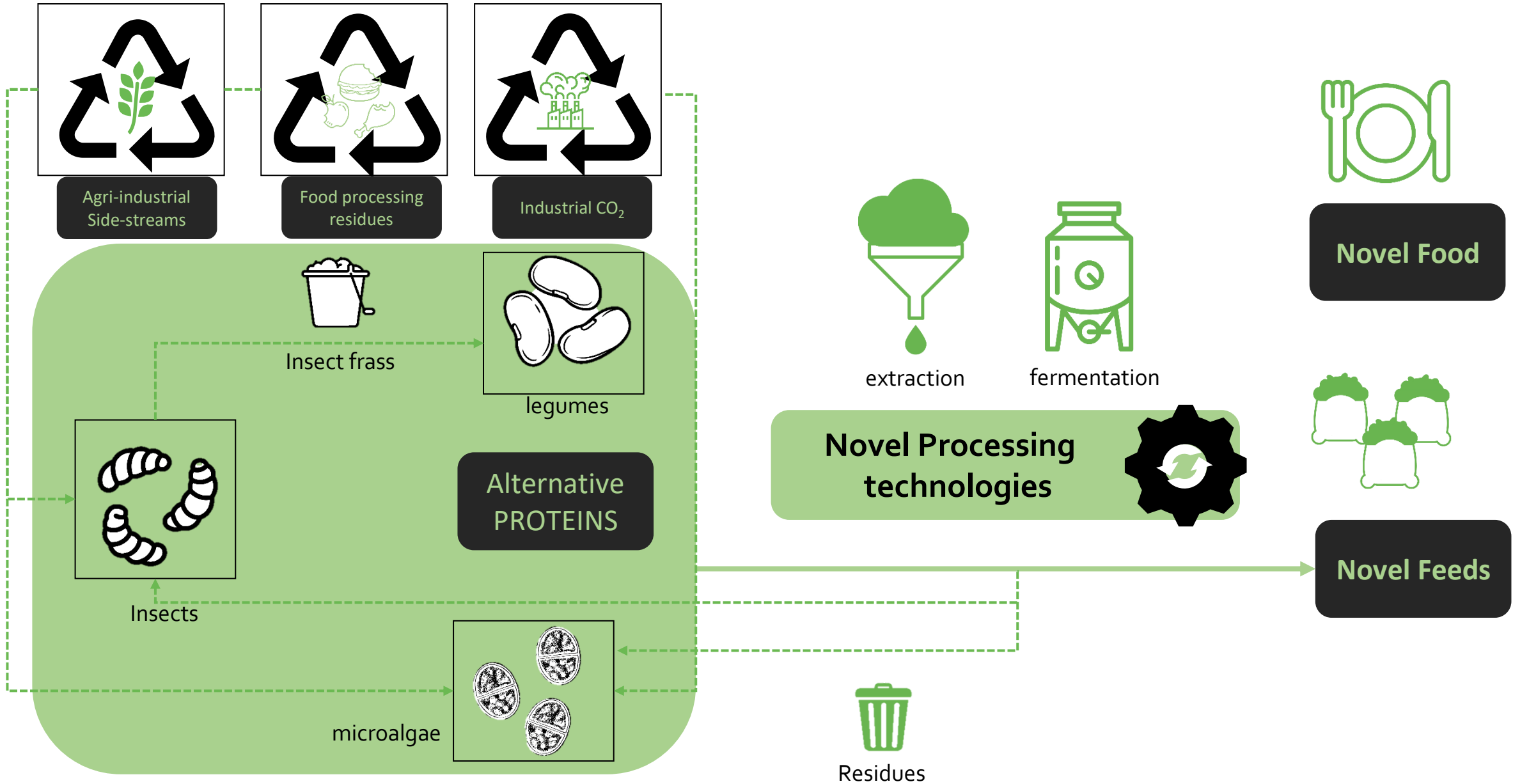


Insects



Fermentation

CIPROMED concept



Specific Objectives

- Extract **high-quality protein ingredients for food and feed** from agri-industrial residues, insects, legumes, and microalgae using sustainable processes
- **Formulate and validate new prototypes of food and feed products** using advanced processing technologies
- Conduct **feeding trials with livestock and fish** to evaluate the effects of new protein ingredients

Specific Objectives

- Conduct **human clinical trials** to assess the impact of foods containing novel proteins on health and safety
- Demonstrate the **safety, regulatory compliance, and sustainability of processes and products**
- Investigate **psychological, cognitive, and emotional attitudes** and responses towards new food
- Develop a **business model** and **exploitation plans**



CIPROMED

CIRCULAR AND INCLUSIVE UTILISATION
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MEDITERRANEAN VALUE CHAINS



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Thank you for your attention!

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