PROJECT?S OUTCOMES

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To provide new insights and knowledge in ensuring the wider and more efficient use of proteins from alternative sources. This will contribute to tackling the deficit in the EU's soybean imports

To establish three new crosssectoral interconnections in the biobased econ-omy

To create 14 new bio-based value chains. Two in the green algae-based sec-tor, six in brown algae-based sector and a further six in the legume byproduct sector ALEHOOP will boost the innovation capacity for the companies involved while creating new market opportunities in different sectors: legume and algae processing, feed and functional food industries

ALEHOOP will reduce food wastage and thus reduce unnecessary water and energy consumption and loss of biodiversity

To contribute to developing six new products in the food and beverage sector and two in the animal feed sector

ALEHOOP

BIOREFINERIES FOR THE VALORISATION OF MACROALGAL RESIDUAL BIOMASS AND LEGUME PROCESSING BY-PRODUCTS TO OBTAIN NEW PROTEIN VALUE CHAINS FOR HIGH-VALUE FOOD AND FEED APPLICATIONS



Horizon 2020 European Union Funding for Research & Innovation



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CHALLENGE

ALEHOOP addresses 2 main challenges:

To satisfy the deficit of protein supply in Europe through alternative protein sources in a sustainable way and meeting expected requirements

- 1. Proteins extracted from green seaweed incorporated into animal feed.
- 2. Proteins extracted from green seaweed incorporated into aquafeed.
- Legume and brown seaweed byproducts as an alternative source of protein for food products.

To find an economical & sustainable management of aquatic and terrestrial residual biomass

- Residual biomass by seaweed processors à brown seaweed-based biorefinery.
- 2. Residual biomass in legume processing industry à legume-based biorefinery.
- 3. Aquatic biomass from algal blooms à green seaweed-based biorefinery.

Legume

_ivestock &

farmers

KEY VALUE PROPOSITION

ALEHOOP proteins	Animal feed containing ALEHOOP proteins	Food products containing ALEHOOP proteins
Lowe carbon footprint (-30% vs current conventional protein production process)	Better digestibility of selected extracts	Enhanced nutritional profile
	Good balance between aminoacids and minerals, vitamins, etc. in selected raw materials	Enhanced techno-functional properties
Low-price feedstock (-25%) that is available in large quantities: durable protein supply	Pairing different materials will help compensate the unbalanced aminoacid profile of one type of plant-based protein"	Affordable and healthy
	Replacement of part of imported soy	Animal-free protein foods suitable for specific population groups, such as celiac people
	Lower Exworks price (-5%)	

THE CONCEPT

The Alehoop project provides the demonstration at pilot scale of both sustainable macroalgae (commonly known as seaweed) and legume-based biorefineries for the recovery of low-cost dietary proteins from alga-based and plant residual biomass and their validation to meet market requirements of consumers and industry in the food and feed sectors

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VALIDATION BY END USERS OF PROTEINS BIOMASS MANAGEMENT SEAWEED BIOREFINERY **Target animal** reen cast Farmed fish Pretreatment of seaweed Extraction Downstream of proteins processing Green and Protein from brown Pigs & Chickens Brown residual macroalgae eaweed b Food matrix Healthy snacks bars Smoothfood LEGUME-BASED BIOREFINERY Meat analogues Extraction of proteins Downstream processing from legume products Sports drinks by-products Meal replacements Fruit preparations LEGEND







Proteins and amino acids are the building blocks of life, plaving a critical biological role in living organisms due to their nutritional and physiological properties. in addition to their biofunctionality, proteins also play important roles in foods affecting their appearance, texture and stability because of technofunctional properties such as solubility, viscosity, foaming, emulsification and gelation properties

