POLE DE COMPÉTITIVITÉ IAR
Industries & Agro-Ressources

Bioeconomy’s French network
&
Innovative Ecosystem
LES POLES DE COMPÉTITIVITÉ

IAR a CLUSTER Located in Champagne-Ardenne and Picardie

3 million hectares of land.

1st French producer of Sugar beet, Barley, Potatoes, Protein’s crop, Alfalfa, Hemp...

Major producer of Wheat, Rapeseed, Barley, Potatoes...

- Barley 31%
- Wheat 23%
- Sugarbeets 53%
- Rapeseed 25%
- Potatoes 57%
- Hemp 47%
- Flaxseed 13%
- Alfalfa 80%

Ref: Agrieste 2011
LE PÔLE INDUSTRIES & AGRO-RESSOURCES

A Cluster dedicated to Biomass valorisation within the Biorefinery’s concept.

Founded by French AGRO-INDUSTRIES

Representing more than 25 billion € of turnover and active in the first and second transformation.
LE PÔLE INDUSTRIES & AGRO-RESSOURCES

Our members

More than 270 members, including major corporations, SMB, start-ups, universities, colleges, local authorities throughout France.

Members covering the entire value chain of bio-based products:

- SME's, Startups
- GROUPS
- Universities & Technical centers
- Others

Find our members skill's directory on our website.
IAR: An innovative Ecosystem to valorise Biomass

LIPIDS – PROTEINS – CARBOHYDRATES - LIGNOCELLULOSE

3 Open innovation Platforms
BRI in the hearth of production’s field

Biorefinery Researches and Innovations

Industrial Biotechnologies
&
Carbohydrates Valorisation
The European Institute of the Biorefinery (IEB)

Scaling Up and Industrialisation of your fermentation processes
P.I.V.E.R.T. Institute for Energy Transition: The Oilseed Biorefinery of the Future
Renewable Agriculture and Chemistry

Compiègne, Picardie
An open Platform organized around 4 pillars

- A R&D program: The GENESYS Program conducted by a nationwide academic consortium (more than 150 public researchers over 10 years)

117 m€ over 10 years
GENESYS Program

WP1. New crop systems
WP2. Fractionation and thermochemistry processes
WP3. Catalysis and biocatalysis
WP4. Microbial productions of lipids and derivatives
WP5. Dispersed media physico-chemistry
WP6. Nutrition and Health

Biomass production
Fractionation & transformation
Bioprodutcs

WP7. Biorefinery: towards the industrial metabolism
An open Platform organized around 4 pillars

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- A Club of Industrial to valorise Genesys results
An open Platform organized around 4 pillars

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- A Scaling Up Center: The BLOGIS Center is a flexible, multi technologies, open platform to facilitate technology transfer to Industry.

57 m€ investments over 10 years
BIOGIS Center

- 4600m² full of state of the art technologies, 3 Pilot cells of 250m² each, 600m² of lab (for partners and customers)
- BIOGIS Center allows to work at scales ranging from 1 to 100kg of biomass/hour:
  - Pretreatment area (Fractioning, Separation, Micro-waves)
  - Thermochemical area (Torrefaction, Pyrolysis, Gaseification...)
  - Oleochemistry
  - Biotechnologies (Fermentation, Bioconversion, enzymatic processes...)
  - Extraction / purification / concentration
  - Physico-chemical and functional characterisation, Formulation and Conditioning
  - Show-room for equipment manufacturers
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- A Private company the **SAS PIVERT** to manage and coordinate the platform and offers the services of the platform to customers
MUTUALIZED INSTITUTE FOR VEGETABLE PROTEINS
The Ambitions of the platform

- IMPROVE is the first Open European platform fully dedicated to Plant based Proteins
- IMPROVE is a Public Private Partnership
- Major French Agro-Industries representing more than 25 billion € turn over are partners of IMPROVE.
- Academic partners like INRA, UPJV, LaSalle Beauvais, UTC, ESCOM bring to the platform a high level of scientific expertise
The objectives are:
• to accelerate innovations and to boost market uptake of Plant Based Proteins
• to foster “radical innovation”, from R&D and deployment to market pull,
• to deliver Plant based proteins with better, or at least comparable characteristics (performance, price, availability, and sustainability) than animal or existing proteins,

IMPROVE propose a unique combination of competencies and equipment in one place, boosting innovation and added value generation.
Business model is based on 3 pillars

- **Applied R&D for partners:** long term partnership in the protein sector
- **Technical support for customer:** on market pull driven subjects in 4 sectors of Applications

- **Internal R&D** – generating IP – leverage to develop know how and fame.
A technological road map to develop our expertise in six essential domains for the proteins:

1- Native Protein extraction: Properties assessment

2- Protein functionalities: Aggregation, Crosslinking, Interaction with other proteins or polysaccharides

3- Enzymatic Hydrolysis and fractionation for functional, nutritional and biological properties:

4- Biological properties: Mechanism of interaction with Human and animal metabolism: Bioactive peptides, allergenicity and digestibility

5- Proteins modifications
   - Chemicals: Sustainable chemistry
   - Enzymatic
   - Thermochemical

6- Market, societal & Economical Studies
   - To identify and anticipate hurdles to increase plant based proteins in food
   - To make proposals to address those hurdles:
MUTUALIZED INSTITUTE FOR VEGETABLE PROTEINS
A Technical Centre