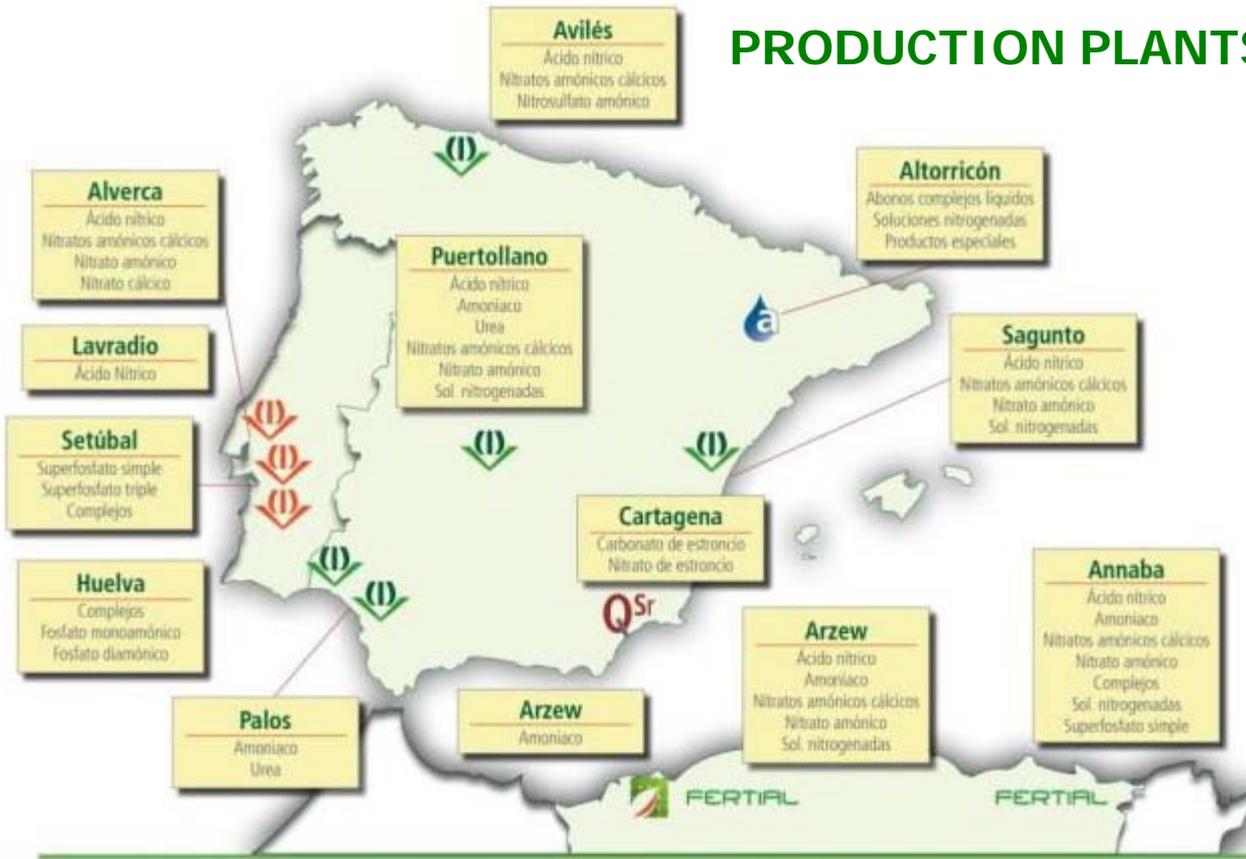




A fertiliser company in the most relevant of the bioeconomy initiatives in Europe

PRODUCTION PLANTS



14 fertilizer and chemical plants:

9 in Spain

3 in Portugal

2 in Algeria

Production capacity
8 million tons



The objectives of the BBI JU are to contribute to a more resource efficient and sustainable low-carbon economy and to increasing economic growth and employment, in particular in rural areas, by developing sustainable and competitive bio-based industries in Europe, based on advanced biorefineries that source their biomass sustainably

(<http://www.bbi-europe.eu/about/objectives#sthash.mbKNowNj.dpuf>)



1. From **lignocellulosic feedstock** to advanced biofuels, biobased chemicals and biomaterials

2. The next generation forest-based value chains

3. The next generation agro-based value chains



Fertilisers are the most powerful agricultural / forestry input to increase biomass production

Agricultural / forestry management

Increased agricultural output

Innovative fertilisers and nutrition products

Fertilisers with added value obtained from biomass



1. From **lignocellulosic feedstock** to advanced biofuels, biobased chemicals and biomaterials

2. The next generation forest-based value chains

3. The next generation agro-based value chains

4. Emergence of new value chains from (organic) waste:
From **waste problems** to **economic opportunities**

Fertilisers are the most powerful agricultural / forestry input to increase biomass production

Reducing waste streams in different organic and inorganic processes in the biorefinery in an appropriate manner

This means an opportunity to find new raw materials for other processes closing industry cycles

Agricultural / forestry management

Increased agricultural output

Innovative fertilisers and nutrition products

Fertilisers with added value obtained from biomass

N, P, K recovery from organic streams

Inorganic salts not needed for biorefinery processes

Biostimulants and other added value compounds




Newfert - Nutrient recovery from biobased Waste for Fertiliser production

Funding: € 1,209,520 BBI JU contribution

Start day: 1 July 2015

End day: 1 January 2019



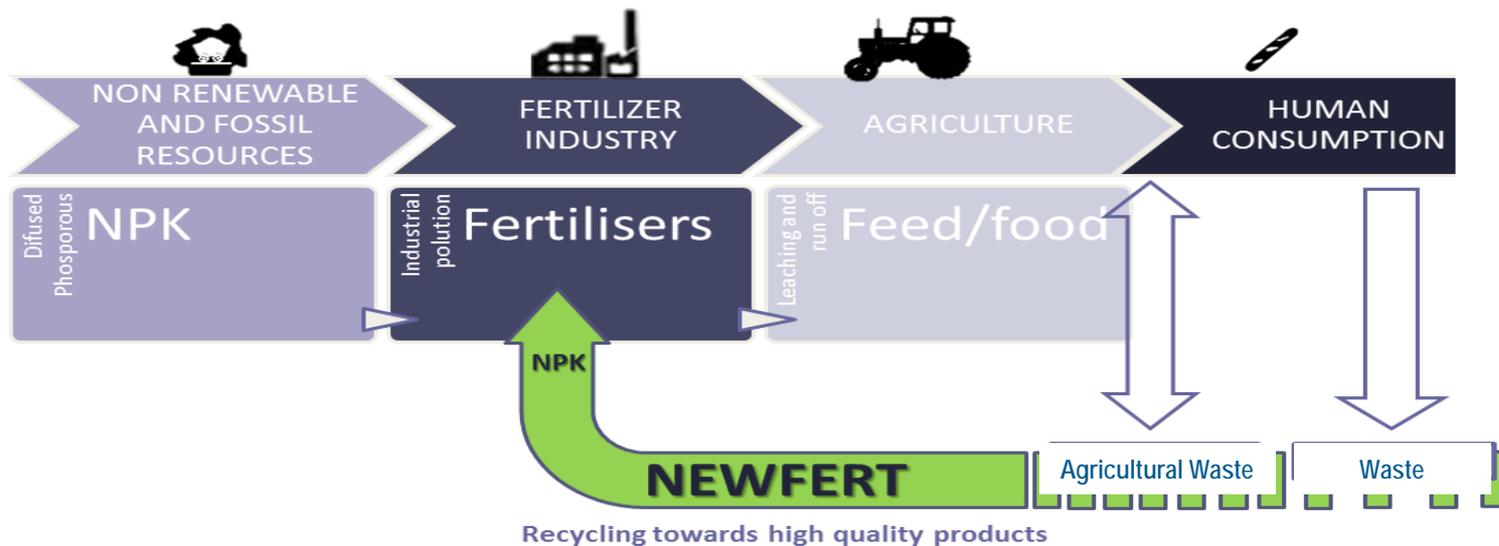
Horizon 2020
European Union Funding
for Research & Innovation



This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 668128

The objective

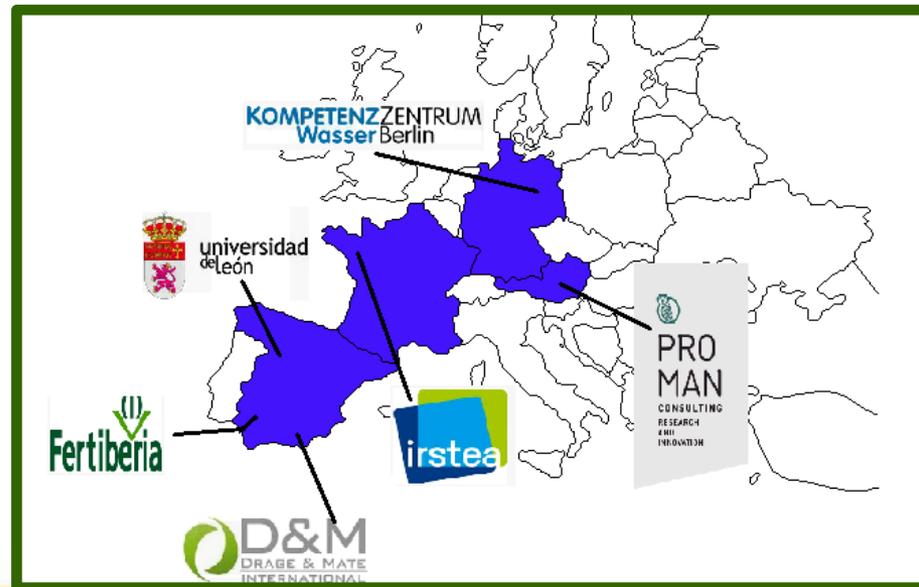
NEWFERT project tackles the design and development of different enabling technologies to allow the re-use and valorisation from biowastes making them suitable as a secondary raw material in the fertilizer industry: a new brand of cost-effective, eco-friendly and healthy advanced fertilisers. NEWFERT targets highly plant available combination of specific organic and mineral components and sets up ranges of their concentration in NPK fertilisers.



Partners



universidad
de León



2015-2018

Methodology

Two main waste ways for nutrients recovery:

1. Design new process to recover nutrients from **solid biowaste** (sludge from sewage, manure and household waste, etc.) modifying existing industrial processes, development of new chemical nutrients extraction technologies and scale-up of the integrated system.
2. Involving different technologies of nutrients recovery from **liquid biowaste**.
 - Chemical acidification, separation, struvite crystallisation, etc.
 - Bioelectrochemical system.

The fertilisers obtained with these biowastes will be validated in an agronomic demonstrative environment.

Economic impact

Large parts of Europe depend on natural gas from Russia, Argeria and others
>60% import dependence

Gas as % Total Cash Cost:

AMMONIA	84%
NITRIC ACID	74%
AN	66%
UREA	62%

EU annual imports of phosphate rock:
 $\approx 6200 \text{ kton} \rightarrow \approx 90\% \text{ of consumption}$

Phosphate rock will become more and more rare and expensive on the global market

K₂O reserves in Europe
2% of total reserves worldwide

America, Russia and Belarus which owns 90% of global reserves

Nutrient mining countries will reduce their exportations and sell final fertilisers. Jobs in Europe Fertilizer industry will be at stake, if no substitute for this critical raw material can be found and utilised

- ✓ contribution to Europe's independency and nutrient supply safety.
- ✓ create a considerable number of net jobs by substitution of imported resources on one hand and by local value generation on the other hand
- ✓ increasing the strength of the European fertilizer industry

Barriers

1. **Regulatory barriers.**
2. **Technological issues that affect the recovery of the NPK nutrients** in terms of feasibility and efficiency
3. **Quality barriers** related to the recovered nutrients: composition, size and shape of the particles, hazardous materials, organic pollutants, solubility, etc.
4. **Market design issues**, affecting the biowaste recovered nutrients supply
5. **Economical barriers:** high price of the recycled nutrients
6. **Social barriers:** social acceptance of the developed products for the end users
7. **Technical and technology issues that affect the industrial integration** of the recovered nutrients, regarding their chemical status, incompatibility with raw materials and their processing.

Future investments

Investments will be necessary in the fertilizer plants in such a way that existing equipment can be reconfigured at low cost so needs are minimised

Javier Brañas

jbl@fertiberia.es




Fertiberia