

14
partners

10
countries

6.4 M €
EU-funds



Value4Farm

RENEWABLE ENERGY SOLUTIONS
FOR SUSTAINABLE FARMING



Welcome to our
project presentation
campaign!

Stay tuned!



This project has received funding from the European Union's Horizon Europe Research and Innovation programme under Grant Agreement No. 101116076 (VALUE4FARM)



Value4Farm

Project Presentation

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Value4Farm Context

Despite reducing its GHG emissions by 19% between 1990 and 2017, the agriculture sector still generates 10% of total greenhouse gas emissions in the EU.

- This is largely due to the reliance on **fossil energy**, the widespread use of **chemical inputs into crops**, and the **mismanagement of waste** such as manure.
- While **chemical fertilisers and pesticides** improve food security, they also have a **negative impact** on human health, biodiversity and soil quality, as well as being expensive and mostly dependent on imports.

This is why we urgently need to significantly reduce the dependency of our agricultural systems on fossil energy and chemical products.

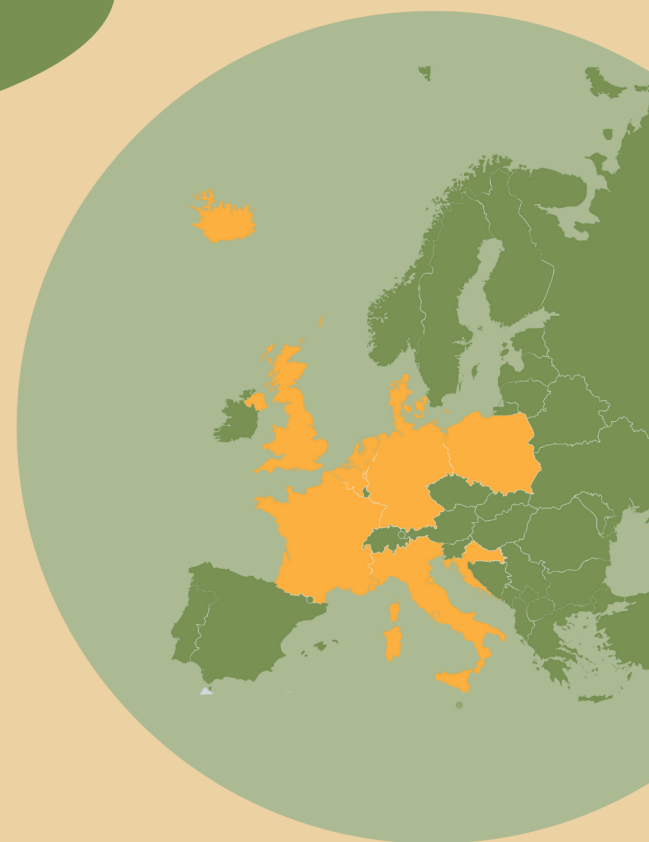
Alongside these key environmental challenges, **gaining energy independence would be highly beneficial for farmers**, who face growing volatility in fossil energy prices. Public policies are expected to incentivise these trends in the coming years.





Value4Farm

Project Presentation - Value4Farm Objective



Gathering **14 partners** from **10 European countries**, Value4Farm is an **EU-funded** research and innovation (**R&I**) project aimed at providing **farmers** across Europe with **innovative and competitive solutions** to **combine** renewable energy generation with sustainable food production on their land – and **defossilise agriculture**.





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Value4Farm Concept

Value4Farm partners will demonstrate innovative value chains in **Denmark, Belgium, and Italy** adapted to the needs of different types and sizes of farms. The technologies deployed will be:

- **Agrivoltaics:** associating advanced new field solar panel installations and configurations of horizontal and vertical **Photovoltaic Technology** with innovative, beyond state-of-the-art **crop rotation** methods,
- **Anaerobic Digestion (AD):** producing **biogas/biomethane** from agricultural waste for grid injection or on-site use,
- **Flameless Microturbines:** innovative, efficient & low-emitting micro-turbines transforming biogas into electricity.

Farmers will be able to use the **energy** produced to power their premises and machinery, **and substitute chemical soil fertilisers** with the biofertiliser generated through AD applied through using **nutrient recovery** techniques.



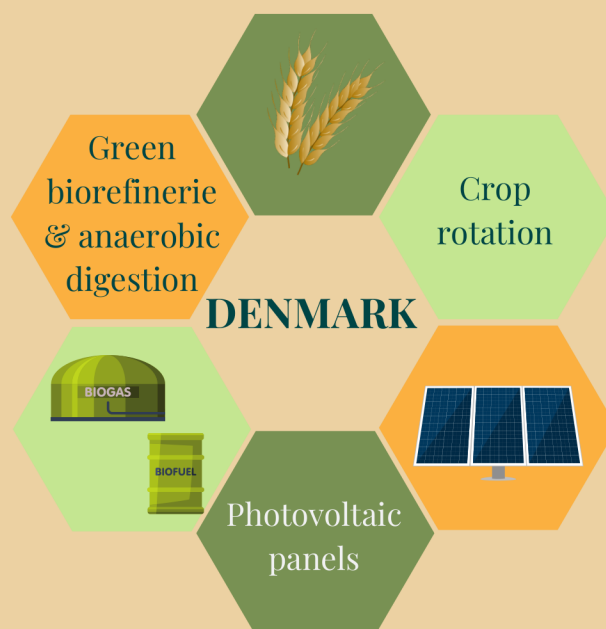


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Value4Farm Value Chain 1



In **Denmark**, Value4Farm will demonstrate a value chain adapted to local large-scale farms: **vertical photovoltaic panels** will be used alongside improved **crop rotation** to protect against the wind; a **green biorefinery** will enable the extraction and valorisation of proteins from crops, and a large-scale **biogas facility** will transform the agricultural waste into biogas/biomethane.

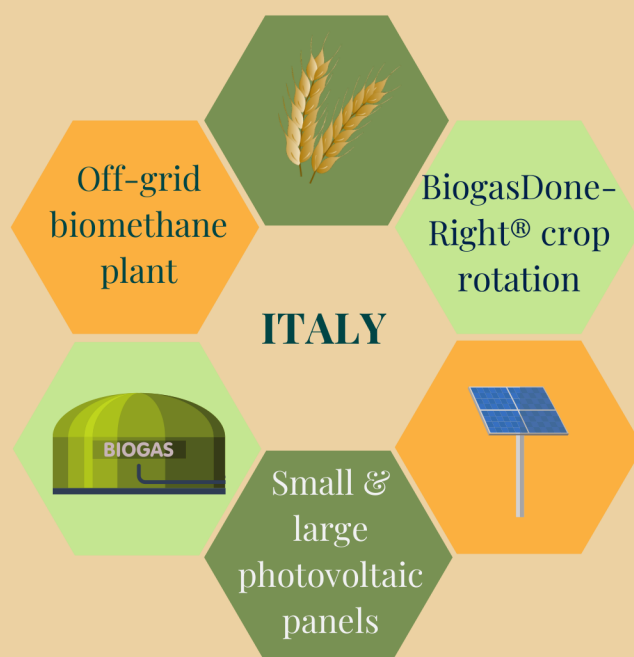


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Value4Farm Value Chain 2



In **Italy**, Value4Farm will develop a value chain adapted to the Mediterranean region that will combine **horizontal agrivoltaics** with **crop rotation** to protect against the sun and drought and investigate **agrivoltaics** as an energy source to provide **electricity** for upgrading biogas to biomethane on small-scale farms. Or in the case of large-scale ones, further feeding energy to the grid.



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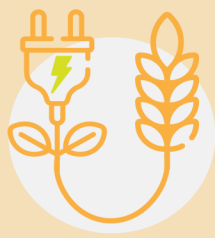
Project Presentation

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Value4Farm Value Chain 3



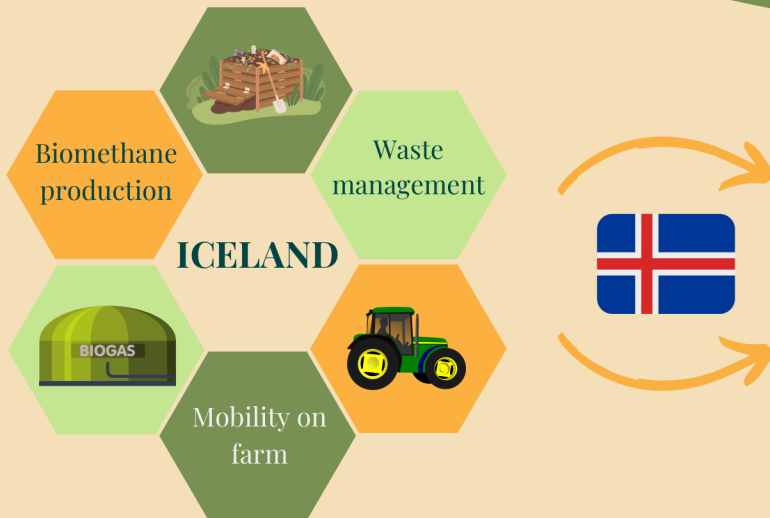
In **Belgium**, Value4Farm will focus on **autonomous production of energy on small-scale farms**, demonstrating several **valorisation options for biogas**, including the microturbine and biomethane production as an alternative to fossil fuels to power tractors.



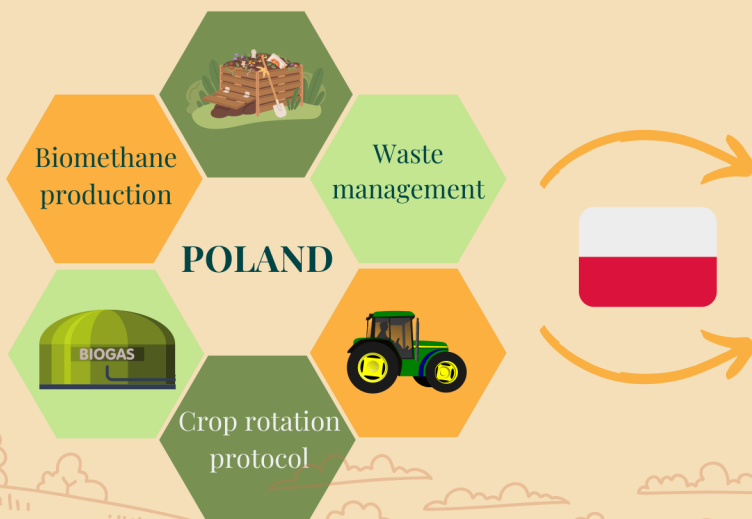
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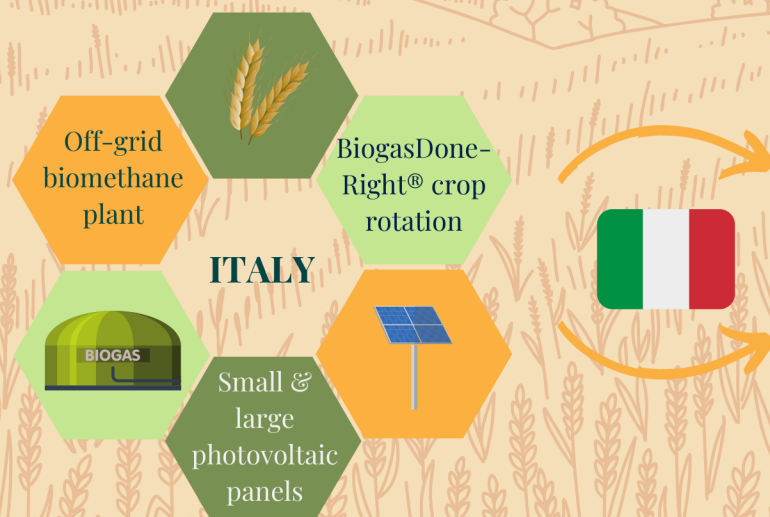
Three Replicators



In **Iceland**, Value4Farm partners will **replicate their Value Chain for small-scale farms** demonstrated in Belgium, while **adapting** it to Iceland's particular features, namely abundant and inexpensive heat and electricity; animals, horticulture and vegetables as the main residual bioresources. Hence, a small biogas plant will be built in the agricultural community of Reykholt, using all these organic streams.



Value4Farm will investigate the **best option** to facilitate the **biogas development in Poland and Eastern Europe**, where the current utilisation of agricultural and residues biomass potential is far from optimal, considering whether to implement small, self-sufficient units (like in the Belgian Value chain) or large-scale clusters (like in the Danish Value chain).



In **Italy**, Value4Farm will implement its value chain **coupling agrivoltaic panels** (demonstrated also in Italy) **with biomethane plant**. The optimal design and size of the photovoltaic plant to satisfy the energy demand of the biomethane plant will be determined, and cost-efficient solutions to meet the farm's overall energy needs will be investigated. Besides, partners will advise on the **most appropriate crops to grow under the photovoltaic plant**.



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Working with and for farmers



Value4Farm is a project **dedicated to farmers in Europe**. Our solutions will therefore be developed in **close cooperation** with local farming communities to ensure their actual **needs** are met. In addition, a free **Decision Support Tool (DST)** will be provided to help farmers choose the right combination of options demonstrated by Value4Farm for their farm.

