

## What is digestate?

Digestate is the anaerobic digestion effluent. Besides energy generation from biogas, it is considered one of the most attractive by-products of the anaerobic digestion process due to its excellent properties as soil fertilizer since it contains high N-P-K values.

## Which is the bottle-neck of using digestate?

Considerably high costs of transport and application to the soil decrease the efficiency of the process of making digestate suitable as a cost-effective fertilizer.

## Who would be interested in the new technology developed in this Project?

Any livestock farm or food company which manages their organic waste (livestock waste, vegetable waste, etc.) in a agro-industrial biogas plant aiming to sustainably and economically optimize the exploitation of their digestate. Also, medium sized farms which want to improve the valorization of their livestock waste.

## Which countries could be interested?

If your biogas plant or your farm is settled in a European country and you want to produce a green fertilizer with a high value on the market through a low cost technology, then you are interested in this Project.

## Which are the benefits of the Project?

- The preservation of natural resources through nutrient recovery (N, P, K, among others) from organic renewable sources.
- An increase in the economic sustainability of small/middle sized biogas plants.
- Lower needs of digestate capacity storage, hence lower costs of storage facilities.
- The valorisation of digestate into green fertilizers will lead to marketable products with a high value on the market.

DIGESMART solution aims to **reduce the environmental impact of European farms or biogas plants** by facilitating the market uptake of innovative solutions for the treatment, recycling and valorization of digestate.



French farmer uses digestate to fertilize  
Source: [www.bioenergie-promotion.fr](http://www.bioenergie-promotion.fr)

In this project we set out to bring together all stakeholders for the installation of a new process to **minimize spreading digestate flows** and to **economically valorize the minerals** (N, P, K, among others). By using digestate instead of synthetic fertilizers, it is possible to save energy, limit consumption of fossil fuels and reduce our carbon footprint.

Contract number: ECO/12/332882

## DIGESMART PROJECT- DIGESTATE FROM MANURE RECYCLING TECHNOLOGIES

*Digesmart Project is co-founded by the Eco-innovation Initiative of the European Union and promotes...*

- Development of a low-cost digestate treatment solution adapted to the size of small/middle farms
- Development of green fertilizers with low carbon footprint and high agronomic value
- Reduction of energy consumption and avoid mineral fertilizer purchase

Visit: [www.digesmart.eu](http://www.digesmart.eu)

Coordinator of the project:

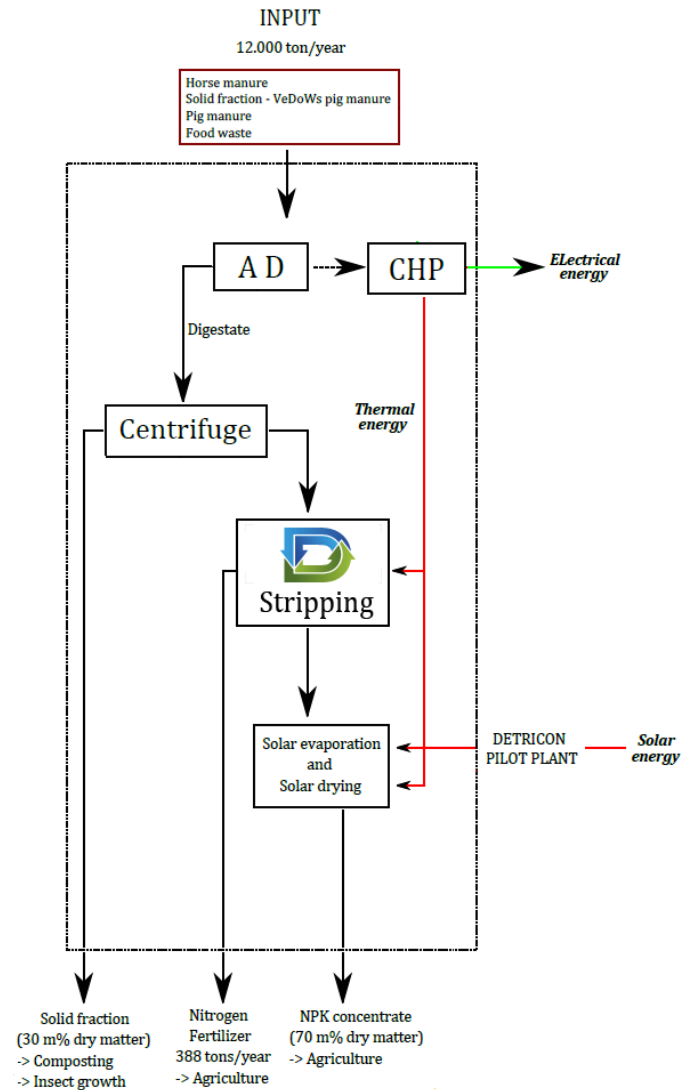


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## Process overview



## Low cost technology

DETRICON, a Belgian SME, is proposing innovative low-cost solutions to produce green fertilizers with stripping technology and an optional module of

solar drying. These nutrient recovery technologies will allow for solutions adapted to the farmers needs in terms of capacity, available spreading surface and treatment costs.

## The process

Digested material obtained at the end of the anaerobic digestion process is centrifuged to separate the solid from the liquid fraction. Solid fraction will be composted whereas liquid fraction will be treated through a high temperature stripping process (80°C) in order to obtain mineral fertilizers. The heating process will be done using thermal energy produced by the cogeneration unit of the biogas plant. Optionally, the residue from the stripping could be further dried using solar energy and thus used as a concentrate of N-P-K in agriculture.

## Ammonium fertilizer

The main product from the stripping plant is the ammonium nitrate which a valuable ammonium fertilizer. The agricultural use of this product is similar to the ammonium fertilizer from non renewable sources.

The strong points are:

- Renewable origin of raw materials to produce it
- Marketable: possible to register as green fertilizer
- High nitrogen content: Ammonium nitrate 18m% N
- Liquid fertilizer: system of transport in trucks similar to synthetic fertilizers

## INVOLVED PARTNERS IN THE PROJECT



### Project Partners:

- DETRICON (Belgium)
- BIOGAS-E (Belgium)
- AINIA (Spain)
- UNITO-DISAFSA (Italy)
- SATA (Italy)



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