



## Cover Delivery Report

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The research was undertaken as part of the project called 'SYSTEMIC: Systemic large-scale eco-innovation to advance circular economy and mineral recovery from organic waste in Europe. <https://systemicproject.eu/>

*This project has received funding from the European Union's H2020 research and innovation programme under the grant agreement No: 730400. SYSTEMIC started 1 June 2017 and will continue for 4 years.*

The following SYSTEMIC dissemination materials were completed between 1 October 2019 and 31<sup>st</sup> May 2020

[Newsletter issue 4](#) (October 2019)

[Newsletter issue 5](#) (March 2020)

Groot Zevert plant poster illustrating the technology, process and products

# Newsletter issue 4 (October 2019)

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SYSTEMIC – Systemic large scale eco-innovation to advance the circular economy and mineral recovery from organic waste in Europe – is a project funded by the European Commission, under its Horizon 2020 programme. It aims to demonstrate the economic viability of recovering and recycling nutrients from biowaste, such as animal manure, food waste and sewage sludge, for agricultural production. The project involves 15 consortium partners and was launched in June 2017.

### SYSTEMIC business case evaluation

Explore the new SYSTEMIC [business case evaluation report](#) addressing the current EU policy, legal and economic frameworks, and analysing six individual biogas plants in terms of their respective policy, agricultural and food industry environments.

The report reveals that:

- Current and future investors can expect favourable policy and legal frameworks to provide continuous or higher support to biogas (anaerobic digestion) businesses via national support schemes.

- The economic framework provides for a solid growth potential for biogas plants even though they will continue to need support schemes due to them usually being SMEs and relying on storage and transport options for continuous supply.
- Finally, Nutrient Recovery and Re-use (NRR) could have a significant impact on the biogas plants' business cases and there is untapped potential for improving those through upgrading NRR products.

Read the [full report](#) to find out more.

### SYSTEMIC at ManuREsource

Don't miss out on SYSTEMIC sessions at [ManuREsource](#) (27-29 November 2019 - Hasselt, Belgium) – the international conference for exchange on policy measures for coping with manure surpluses, both in terms of manure management and manure treatment.

The event will also give an overview of current developments and innovations in manure treatment technologies and explore various valorisation strategies for manure, such as energy production and nutrient recovery.

SYSTEMIC will hold a session on 'Digestate valorisation across the language border in Belgium' – in French and Dutch only ([register here](#)) – which will discuss:

- legislation, treatment, processing and application of digestate;
- relevant case studies;
- marketing and application of end products.

In addition, SYSTEMIC will be represented at the research parallel session and the round tables on 'Nutrient recovery in wastewater treatment' and the one dedicated to the SYSTEMIC outreach locations, all taking place on 28 November.

Finally, the conference site visits on 29 November will include SYSTEMIC outreach location [Biogas Brice](#) and associated plant [Arbio beta](#).



### Updated SYSTEMIC demonstration plant factsheets

Explore the [updated factsheets](#) of the SYSTEMIC demonstration plants, including updated monitoring data, status of construction and summaries on performance. Additionally, the factsheets feature descriptions of elements specific to each plant, such as:

- the RePeak system for processing of the P-rich solid fraction of digestate ([Groot Zeverij](#));
- the system for processing of the liquid fraction of digestate via vacuum evaporator ([AM-Power](#));
- the anaerobic digestion process, including the side-stream N stripping unit ([Acqua & Sole](#));
- the anaerobic digestion process, including the FiberPlus process ([Remas](#));
- the envisaged anaerobic digestion and nutrient recovery system description data ([Orléans Etoys](#)).

### SYSTEMIC Gent workshop – presentations available online

The SYSTEMIC project organised a workshop on biogas installations, energy and nutrient recovery from biobased residues and waste streams on 18 September 2019 in Gent, which featured an excursion to the largest biogas plant in Belgium, [AM-Power](#). The workshop discussed:

- the potential of biogas plants as producers of renewable energy and fertilisers;
- nutrient mass flow analysis in digestate treatment processes;
- precision fertilisation of biobased fertilisers; and
- nutrient recovery and fertiliser industry.

Explore the presentations from the event, available [here](#).

### Fill in our survey on treatment of digestate and spread the word!

Help us put together information on digestate treatment to feed into a database and calculation tool providing cost-benefit analyses of existing technologies – fill in our [survey](#)! The calculation tool will be made publicly available at the end of the SYSTEMIC project in 2021.

You can fill in the survey in Dutch, English, German, French, Spanish and Italian. Please complete the survey as fully and correctly as possible. Your anonymity is guaranteed.



By filling in the survey, you can win an invitation to one of the SYSTEMIC Living Labs meetings in 2020-2021. Find out [more!](#) Thank you in advance for your contribution to this project!

### Acqua & Sole opens its doors to visitors

The SYSTEMIC demonstration plant [Acqua & Sole](#) held its annual open doors day on 21 September 2019, giving a broad, interested audience an opportunity to learn about the Nutrient Recovery and Re-use and Anaerobic Digestion carried out at the plant. In particular, biowaste – such as food from the production and consumption cycles – is processed through thermophilic anaerobic digestion to recover the nutrients and produce renewable fertilisers, including digestate and ammonium sulphate. See an [illustration](#) of this process.



## Green Mineral Mining Centre of SYSTEMIC demo plant opened by Queen Máxima

The Green Mineral Mining Centre of [Groen Zilverd Scheiding \(GZV\)](#) – one of the five SYSTEMIC [demonstration plants](#) – was officially opened by her majesty Queen Máxima of the Netherlands on 4 September 2024.

The GZV plant works to convert pig manure and livestock manure into mineral concentrate, precipitated phosphoric acid and organic acid impurities.

The method to separate phosphorus was developed by the SYSTEMIC project partner [Wageningen Environmental Research](#).

In April 2024, Wageningen started monitoring GZV's product quality, energy production, energy and chemicals consumption, as well as the effectiveness of the individual steps of the process. The results of the plant's performance and benefits of the implemented processes will be published soon.



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## SYSTEMIC welcomes new associated plants

SYSTEMIC has recently welcomed new host-plants as [‘associated plants’](#), giving them the opportunity to exchange experience on nutrient recovery of biomass streams with the project's [demonstration plants](#) and [outreach locations](#), and receive exclusive newsletters and reports.

The new associated plants are:

- [Agro Energie Industriële Groei B.V.](#), Germany
- [Sinty Inba](#), Belgium
- [Sturmsauer](#), Ireland ([article](#))

To express an interest in becoming an associated plant, fill in this [template](#) and send it to [marika.vorbeck@emc-modernfarming.be](mailto:marika.vorbeck@emc-modernfarming.be).



This project has received funding from the European Union Horizon 2020 research and innovation programme under grant agreement No 101019719.



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# Newsletter issue 5 (March 2020)

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SYSTEMIC – Systems large scale co-ordination to advance the circular economy and mineral recovery from organic waste in Europe – is a project funded by the European Commission, under its Horizon 2020 programme. It aims to demonstrate the economic viability of recovering and recycling nutrients from biowaste, such as animal manure, food waste and sewage sludge, for agricultural production. The project involves 15 consortium partners and was launched in June 2017.

## New date for SYSTEMIC workshop!

26 October 2020  
13:00 - 18:00  
Brussels, Belgium



Developing a Stimulating and Harmonised Policy Framework for Biogas-based Nutrient Recovery\*

\*Funded by the European Union under the Horizon 2020 programme (101017697) under the Marie Skłodowska Curie grant agreement (101017697)



Due to the ongoing measures regarding COVID-19/Corona Virus, the date of the event has now been moved to 26th October. You will therefore need to re-register.

[REGISTER HERE](#)

In this workshop, SYSTEMIC will bring together policy makers, academics, business owners and end users to discuss how to develop an enabling framework to boost the development and investment in this sector. This SYSTEMIC workshop will discuss ways in which European policy frameworks can better enable the financial viability of nutrient recovery from waste in Europe. The European Union's Communication on the Circular Economy has recognised Nutrient Recovery and Re-use (NRR) from waste as a crucial element in advancing the Circular Economy. However, whilst great strides are being made in the development of technology to enable nutrients to be recovered at biogas plants, the financial viability of nutrient recovery remains a major stumbling block to its expansion.



Watch the NEW video of the Biogas demonstration plant and find out how, thanks to their participation in SYSTEMIC, they have expanded and optimised their FiberPlus technology, leading to increased nutrient recovery and biogas production and reduced costs for digestate disposal and transport.

The resulting bio-fertilisers from the process can restore the nutrient balance in the soil and reduce environmental pollution, such as excessive nitrate levels in groundwater. The FiberPlus technology enables the production of the so-called 'biogas fibers': with low-nitrogen content and wood-like properties, these can be used as an alternative material in the wood and paper industries.

## Second SYSTEMIC Living Lab meeting

\*Due to the ongoing measures regarding COVID-19, travel will likely remain severely restricted throughout May. Therefore the Living Lab meeting with SYSTEMIC biogas plants will be set up as a webinar end of April/beginning of May.

A second SYSTEMIC Living Lab meeting will bring together the project's demonstration, outreach and associated plants.

Presentations and video's will be made available for the participants on the following topics:

- Business case evaluation and KPI's
- Market Research in Europe
- Introduction to the NUTRICAS tool for cost-benefit analysis and technology selection.

The NUTRICAS tool was specifically developed to give biogas plant operators the possibility to assess the product quality of different types of bio-based fertilisers, based on the composition of their digestate.

Most of the bio-based fertilisers can be produced by combining different types of technology units. Each combination is called a cascade.

In this first version 0.1, pre-defined cascades have been set, described and will be evaluated by the outreach and associated plants.

The SYSTEMIC plants will be able to test the tool in advance and during the webinar, they can feedback their experience with the tool and discuss the outcome and opportunities for their own situation and region. This will lead to a further improvement of the tool.

The webinar will also include:  
- a short presentation of each plant participating  
- experiences from Demo plants working with NRR technologies

The planned site visit will be rescheduled to the autumn.



Horizon 2020

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017697



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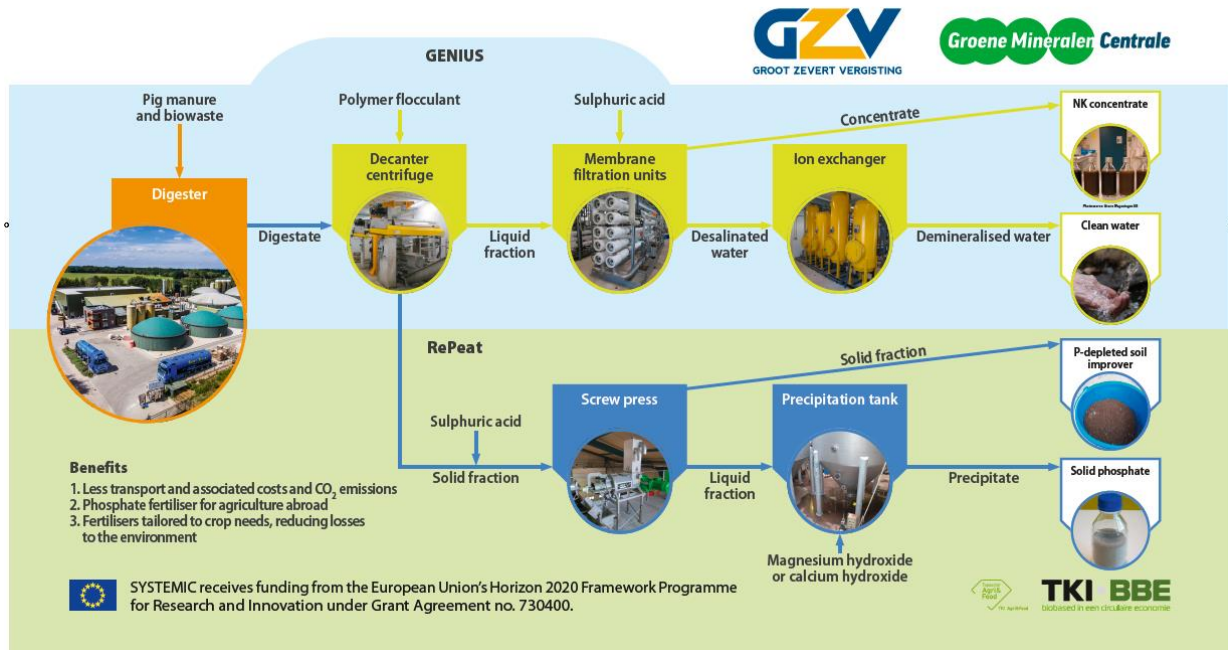
➤ Groot Zevert plant poster illustrating the technology, process and products (English and Dutch)



Groot Zevert Vergisting is part of the Horizon 2020 SYSTEMIC project which is demonstrating a variety of technologies for the recovery of mineral nutrients (N, P, K) and works on the production of a number of (nutrient-depleted) organic soil improvers and fertilisers. The implementation of nutrient-recovery technologies allows plant owners to process biowaste into user-specific products for the regional market.

[www.systemicproject.eu](http://www.systemicproject.eu)

@systemic\_eu



Groot Zevert Vergisting is onderdeel van het project 'Horizon 2020 SYSTEMIC'. Dit project ontwikkelt en demonstreert technologieën voor het terugwinnen van minerale nutriënten (N, P en K) en de productie van (nutriënten-verarmde) bodemverbeteraars en meststoffen. Door toepassing van technologieën om nutriënten terug te winnen kunnen eigenaren van vergisters bioafval omzetten in producten voor de regionale markt.

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