

Answer to call for evidence

NUTRIENTS ACTION PLAN FOR A BETTER MANAGEMENT

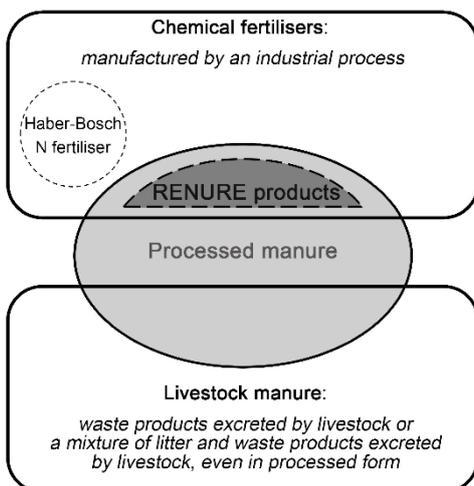
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CALL FOR EVIDENCE REPLY

Nutrients – action plan for better management

H2020 Project [Nutri2Cycle](#) welcomes the European Commission's commitment to draw up an integrated nutrient management action plan to help reduce nutrient losses by at least 50%, reducing the use of fertilisers by at least 20% while ensuring that there is no deterioration in soil fertility and stimulating the market for recovered nutrients. An integrated nutrient management plan should adopt a systemic approach, tackling misalignments with the Circular economy actions Plan. Currently, the use of mineral nitrogen (N) fertilizers in the European Union (EU) agricultural sector corresponds to 10.2 million tons of N consumed in 2018, increased compared to 10 years before. Mineral fertilizers are energy intensive; with synthesis of NH₃, based on the Haber-Bosch process being responsible for about 2% of the world's energy consumption and 2.5% of the global fossil-fuel-based carbon dioxide emissions.¹

The concept of a circular economy highlights the importance of nutrient recovery, and aims at preventing environmental impacts such as soil acidification and eutrophication of water bodies, and release of greenhouse gases (GHG). The Fit for 55 includes EU-wide binding targets to cut GHG emissions by at least 55% and increase the share of renewable energy by at least 40% in the final consumption by 2030. Anaerobic digestion (AD)—which produces renewable power, heat, and fuel from organic waste—will play a key important role in achieving the goals. However, AD will also play a crucial part in the sustainable management of organic waste streams such as manure by simultaneously providing renewable energy, closing nutrient loops, and reducing GHG emissions.



Digestate, a co-product of biogas production used as organic fertiliser, has the potential to transform Europe's agricultural sector offering an alternative to commonly used chemical fertilisers. such as nitrogen, are fully preserved in the AD process.

The adoption of the new Fertilising Products Regulation (FPR) ((EU) 2019/1009) includes organic and waste-derived fertilisers under the EU internal market. However, FPR is a product regulation and in itself does not consider limitations or constraints on product application. More specifically, under the current definitions of the Nitrates Directive, those products derived from processed manure retain the legal status of animal manure, including the restrictions that come with it such as the current limit of 170 kg N ha⁻¹ y⁻¹ in Nitrate Vulnerable Zones applies to any fertilising product derived from livestock manure. Consequently, this threshold negatively impacts the use of bio-based fertilising materials

such as digestate based on (co-)digested animal manure, although this often bears no resemblance to the manure from which their nutrients were extracted, as they can contain high amounts of mineral N (N_{min}), effectively bringing them

¹ Saju et al (2022) [Applied Sciences | Free Full-Text | Digestate-Derived Ammonium Fertilizers and Their Blends as Substitutes to Synthetic Nitrogen Fertilizers \(mdpi.com\)](#)



closer to chemical fertilisers in terms of plant nutrient uptake. As regulation was not updated with the latest technical advancements, farmers tend to top up with energy-demanding chemical fertilisers as a result of the 170 kg N ha⁻¹ y⁻¹ limit not meeting most crop requirements.²

Nutri2Cycle urges the European Commission to address the anachronistic requirements of the Nitrate Directive and allow digestate and recovered fertilizers to actively reduce the utilisation of chemical fertilisers, effectively closing the nutrient loop and enabling carbon storage. **Nutri2Cycle** is concerned that the Nitrates directive makes no distinction and defines livestock manure under article 2(g) as: “waste products excreted by livestock or a mixture of litter and waste products excreted by livestock, even in processed form”. This implies that all digestate from animal manure origin retains the status of animal manure in spite of its new “processed form” which increases nutrient use efficiency. The Nitrates Directive in its current form is based on the same definitions and wording (including Art. 2(g)) and does not take into account three decades of research & innovation and the technical advancement that allows manure refinery (a.o. via anaerobic digestion as key enabling technology) into fertilizing products that can act as technical alternatives to synthetic chemical fertilisers produced based on fossil resources (*in casu*, natural gas used to produce N synthetic fertilisers using the Haber-Bosch chemical process). The land application of organic materials needs to be carefully managed to maximize their crop available nutrient value and minimize their impact on the wider environment. Studies demonstrate that NH₃ emissions are on average lower for digested than untreated slurry due to a lower dry matter contents that increase the infiltration rate. N₂O losses are also generally lower when using digestate rather than raw slurry.³

Moreover, the role of digestate as a contributor to SOC build up should be considered⁴: organic matter in digestate can build up the humus content in the soil; this is a benefit unique to organic fertilisers which is particularly crucial for arid and semi-arid lands with low carbon content.⁵

About Nutri2Cycle: The Nutri2Cycle project will be running between 2018 and 2023. The Nutri2Cycle project assesses the current Nitrogen (N), Phosphorus (P) and Carbon (C) flows looking into existing management techniques in different farms across Europe and analysing their related environmental problems.

Project partners: Universiteit Gent, Università Degli Studi di Milano, Politechnika Czestochowska, United Experts, Fundación Cartif, Johann Heinrich Von Thuenen-Institut, Soltub, Trade And Service Providing Limited Liability, Stichting Wageningen Research, Instituto Superior de Agronomia, Kobenhavns Universitet, Terra Humana, Chambre Departementale d’Agriculture, Zuidelijke Land- En Tuinbouworganisatie Vereniging, Institut de Recerca i Tecnologia Agroalimentaries, Teagasc - Agriculture And Food Development Authority, European Biogas Association, Ips Konzalting Doo Za Poslovne Usluge, Inagro, Consorzio Italbiotec.

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² Reuland et al (2021) [Agronomy | Free Full-Text | The Potential of Digestate and the Liquid Fraction of Digestate as Chemical Fertiliser Substitutes under the RENURE Criteria | HTML \(mdpi.com\)](#)

³ [Gaseous Nitrogen Emissions and Forage Nitrogen Uptake on Soils Fertilized with Raw and Treated Swine Manure - Chantigny - 2007 - Journal of Environmental Quality](#)

⁴ Reuland et al. (2022) [Agronomy | Free Full-Text | Assessment of the Carbon and Nitrogen Mineralisation of Digestates Elaborated from Distinct Feedstock Profiles | HTML \(mdpi.com\)](#)

⁵ [Digestate-paper-final.pdf \(europeanbiogas.eu\)](#)

