Healthy Soil Healthy Life

H2020 **Nutri2Cycle** welcomes the call for evidence of the European Commission for the impact assessment of the Soil Health Law (SHL).

Current production of biogas and **biomethane** is 4.5 % of the natural gas consumption. By 2030, biomethane must double[1] and by 2050 it could supply **30-40 % of our gas demand**[2]. Compost and digestate are produced annually in Europe and are projected to grow with the expansion of biomethane production and swift implementation of separate collection of biowaste (BW) from households.

The German Biogas Association[3] accounted **128 million tonnes of digestate** were produced in Europe in 2018. This figure includes a large feedstock base, comprising not only materials from separate collection but also manure and crop residues. The market for recycled fertilisers can grow to 67% of the total fertiliser market by 2050[4].

Organic fertilisers and soil improvers (OF&SI) are very important mineral fertilisers substitutes that provide stable organic carbon which helps to maintain and in replenish the content of **soil organic matter (OM)**. This recycled OM delivers a diverse range of micro-organisms that form an essential part of a healthy soil ecosystem.

Soil that are low in OM are less productive, retain less water and store less carbon. Soils with low levels of OM can be improved by regular applications of OF&SI. On the contrary, OM rich soils improve the N use efficiency, i.e. less N is needed to obtain a given potential crop yield[5]. Their correct use in agriculture **will reduce** the need for **nutrients** in the first place and the subsequent **losses**. Ratios of DOC:TOC are reliable predictors of the stored carbon one year after digestate incorporation and thus could be used as simple quality parameters to denote the C sequestration potential of digestates prior to their use in the field[6].

Nutri2Cycle welcomes the exploration of measures that can contribute to reducing nutrient losses by at least 50% without deterioration in soil fertility (resulting in the reduction of fertiliser use by at least 20%) in the impact assessment. It is suggested to assess the impact of **a target on soil organic carbon minimum annual concentration in agricultural soil**, supported by resources for farmers to carry out such monitoring.

Next to the target, **an EU scheme of carbon-crediting linked to carbon farming** is needed. Carbon stocking has a value not only to reduce pollution but also to climate mitigation. The SHL could contribute to climate objectives and ensure policy coherence. The value of climate actions should be converted via carbon crediting into incentives[7].

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[1] COM(2022) 108 final
[2] EBA's Statistical Reports 2021
[3] German Biogas Association (2018) Link
[4] European Commission (2021) Link
[5] Schjønning et al. (2018). Link
[6] Reuland et al. (2022) Link
[7] Not doing biogas first but spreading on land 'as is' (e.g. raw manure) results in mineralization of the rapidly degradable OC – turning this in CO2 emissions. So setting up schemes in which residues are passed over biogas before brining to land result in a better overall balance.

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We expect that linking the target to the existing obligation of BW separate collection will generate the following **impacts**:

- Sequestering from 1.32 to 4.7 **Mt CO_2e a year**[8]
- Creating 1 **job** per 1380 tonnes of BW in rural areas and 1 job per 4500 tonnes in urban areas[9]
- Increasing the available **water capacity** by 38 cubic meters per hectare in the top 0-30 cm of soil. This is equivalent to 3.8 litres of water over one square meter of soil (in the top 0-30 cm horizon)[10]
- Preventing that a decrease by 1% in soil organic content will require an increase by 7000 tonnes of **nitrogenous fertilisers**[11]

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, Universita Degli Studi di Milano, Politechnika Czestochowska, United Experts, Fundación Cartif, Johann Heinrich Von Thuenen-Institut, Soltub, Trade And Service Providing Limited Liabilty, 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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[8] Gilbert et al (2020). Link
[9] ECN (2017) Link
[10] Gilbert et al (2020). Link
[11] Brady et al (2015). Link

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