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ECN Feedback

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European Commission – Call for evidence for an Evaluation on 'Protecting waters from pollution caused by nitrates from agricultural sources'

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The ECN welcomes the evaluation of the EU Nitrates Directive and expresses its support for sustainable agricultural management practices that promote the use of recycled nutrients from organic resources, especially bio-waste. There is a need for a proper assessment of fertilisers from organic resources, such as compost, with a high content of stabilised organic carbon and organically bound nitrogen. When calculating nutrient balances in crop production, both soil quality and plant nutrition need to be considered together in order to improve soil health by building soil organic carbon and to ensure adequate fertilisation of crops.

Bio-waste plays a key role in the circular economy. Bio-waste can be transformed through organic recycling (composting and anaerobic digestion) into high quality compost and digestate, which are used as organic soil improvers and organic fertilisers on land. Today, 21.1 million tonnes of compost and digestate are recycled from biowaste, which can replace 170,000 tonnes of nitrogen, 62,000 tonnes of phosphate and 100,000 tonnes of potassium per year. In addition to replacing nutrients, 314.000 tonnes of organic carbon per year can be sequestered in soil[1].

Organic carbon is an essential component of healthy soils. The sustainable use of recycled organic fertilisers and soil improvers (such as compost and digestate) should therefore be

[1] Gilbert, J. & S. Siebert 2022: ECN DATA REPORT 202. Compost and Digestate for a Circular Bioeconomy. Overview of Bio-Waste Collection, Treatment & Markets across Europe. - @European Compost Network ECN e.V. 2022, ISBN 978-3-9820825-1-6 https://www.compostnetwork.info/download/ecn-status-report-2022/

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given greater consideration. Sustainable agriculture is based on healthy soils and nutrient recycling. This is not only common sense, it is the basis of the EU's Circular Economy Strategy and the Farm to Fork Strategy set out in the European Green Deal.

However, many arable soils have declining soil organic carbon levels due to erosion and unsustainable farming practices, reducing their productivity and resilience.

We therefore advocate not only focusing on (mineral) nutrient balances, but also recognising the role of organic carbon in soils. Nutrients from recycled organic fertilisers and soil improvers should be taken into account when calculating nutrient balances, taking into account the need to build up soil organic matter and its differentiated nutrient availability to plants. In particular, compost has a high content of stable organic carbon, a high content of organic nitrogen and a low content of plant-available nitrogen in relation to total nitrogen. In the first year of compost application, between 5-7 % of the nitrogen is available to plants, and over the duration of a 3-year crop rotation, only 15-20 % of the nitrogen is released. More than 80 % of total organic nitrogen is bound in amide/peptide nitrogen and stabilised to clay minerals and incorporated into the soil biomass[2]. This must be taken into account when formulating 'adjusted' nutrient balances for plant nutrition and soil fertility requirements. Focusing only on arithmetic balances to assess nitrogen surplus will lead to inadequate assessments of nitrate release and leaching. It can be assumed that other carbon farming activities that maintain and increase the soil organic carbon pool will also require such an adaptation of nutrient balance calculations.

The soil organic nitrogen pool provides a controlled, slow release of nitrogen that is detectable over time and available for plant development and growth. It is important to consider these properties in the different nitrogen availability of recycled organic fertilisers and soil improvers, such as digestate and compost.

Repeated applications of quality assured compost and stabilised digestate products can help improve the health and productivity of agricultural and horticultural soils. Compost and digestate products do this in a number of ways. They can

- Increase soil organic matter, which helps to store carbon and nitrogen.
- Improve soil structure, reducing compaction.
- Increase the water-holding capacity of the soil, reducing the need for irrigation and storing water during heavy rainfall events.
- Increase the number and diversity of organisms in the soil.

[2] Siebert, S. 1998: Charakterisierung des Stickstoffpools in Böden nach der Anwendung von Kompost. Ergebnisse von Labor- und Feldversuchen. - Berichte aus der Geowissenschaft. Shaker 1998, ISBN 3-8265-4501-x

- Increase plant nutrient levels, reducing the need for mineral fertiliser.
- Increases the buffering capacity of the soil, helping it to retain nutrients for longer.

Recycling nutrients in compost and stabilised digestate and returning them to the soil in a sustainable way benefits the environment in a number of important ways:

- It reduces the need for chemically produced nitrogen fertiliser - as the production process is very energy intensive, this significantly reduces greenhouse gas emissions, which are thought to be around 1% of total global emissions.
- It reduces emissions to water - the organic matter in compost and digestate helps to bind plant nutrients, preventing them from leaching into the environment. In addition, because nitrogen in compost is bound with other compounds, it is released slowly over the growing season, making this nutrient available for plant growth for a longer period of time.
- It reduces the need to mine elements such as phosphorus, potassium and lime - as phosphorus is an EU Critical Raw Material, recycling P helps to conserve this valuable resource in Europe.

For more information, the ECN Data report 2022 report and the fact sheets on the sustainable use of compost 'Soil Fertility and Productivity' & 'Soil Structure and Carbon storage' are available on our website: www.compost-digestate.eu

About the ECN

The ECN is the leading European membership organisation promoting sustainable recycling practices through composting and anaerobic digestion of organic resources and safeguarding the quality and safe use of recovered organic fertilisers and soil improvers. With 64 members from 27 European countries, ECN represents more than 4500 professionals and operators with more than 45 million tonnes of biological waste treatment capacity.