RECOMMENDATIONS
Publication of the Integrated Nutrient Management Action Plan

28th March, 2023

Integrated Nutrient Management Action Plan: an opportunity for an holistic approach to nutrient flows and losses. The Role of RENURE

In the aftermath of Russia's invasion of Ukraine, soaring energy prices and fertilisers shortages have contributed to disruptions in the fertilisers market. The Integrated Nutrient Management Action Plan (INMAP) represents an opportunity to take a holistic approach to nutrient flows and losses. If well designed, this strategy can help delivering on the EU Green Deal's targets to reduce nutrient losses by at least 50% and fertiliser use by at least 20% by 2030 in Europe. Organic fertilisers partially or entirely derived from animal manure through processing, known as REcovered Nitrogen from manURE (RENURE), represent a **key tool to substitute chemical fertilisers and make food systems resilient as they depend on locally available resources**. Digestate and digestate-derived products **contribute to reducing nutrients losses and, when managed correctly, improve soil fertility**.

However, digestate and other manure-based fertilisers role is restricted due to the 1991 Nitrates Directive[1]. The 170 kg per hectare per year limit of nitrogen from livestock manure imposed on vulnerable areas was set to avoid negative environmental impact related to the spreading of unprocessed manure. Member States should be able to use RENURE products outside the limited quantities of livestock manure in vulnerable areas. To reach crop requirement, farmers are currently using synthetic fertilisers in those areas leading to suboptimal utilisation of locally available resources.

Taking into consideration the clear digestate related benefits summarised below, EBA proposes two main recommendations to the European Commission:

1. **Apply the RENURE criteria developped by the Joint Research Centre[2] in order to allow use of sustainable input above the mentionned limit.**
2. **Complete the RENURE criteria with a guidance on agronomic practices to ensure the efficient and safe use of RENURE**.

The guidance on agronomic practices should be addressed Member States so that, when granting exemptions for RENURE use on the same basis as they do for synthetic fertilisers use, they ensure that those products are safely used. This set of agronomic practices, flexible enough to be adapted to the diversity of local conditions in Europe, should be related to monitoring, precision farming and crops rotation. Regarding the use of digestate from manure, such recommendations should include the following:

- Adjust spreading of different digestate fractions to time period and growth state of the fields to prevent risk of nitrogen leaching or evaporation.

[1] Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC)
[2] Science for Policy report "*Technical proposals for the safe use of processed manure above the threshold established for Nitrate Vulnerable Zones by the Nitrates Directive (91/676/EEC)*" by the Joint Research Centre.

- Favour the use of high efficient and precision systems of distribution coupled both with conservative technique and during the crop cycle.
- Avoid using nozzles to spread the liquid fraction of digestate since it favours ammonia volatilisation.
- Use covered digestate storage tanks or flexible storage bags to minimise ammonia losses or dilution.

A group of EU experts should be set up to propose an appropriate set of agronomic practices.

A FOCUS ON DIGESTATE

Digestate is a nutrient-rich substance produced by anaerobic digestion that can be used as a fertiliser. Whether used directly on fields or processed into digestate-derived products, digestate has a strong potential to contribute to reduce nutrients losses by 50% by 2030 while enhancing soil fertility. As an alternative to synthetic fertilisers, its utilisation delivers on four main benefits:

1. **Digestate-derived fertilizing products have a high nitrogen availability which makes them efficient alternatives to synthetic fertilisers.** During anaerobic digestion, bio-chemical reactions take place which transform the organic compounds in which the nutrients are present and enhance their availability to crops. A part of the organic nitrogen supplied by the feedstock is converted to ammonium which is a readily available source of nitrogen for plants and which is more stable into the soil. This percentage of readily available minerals will be higher in digestate than in the same organic material in its raw form such as manure. After the mechanical separation of raw digestate, evidence indicates that the liquid fraction of digestate or concentrates from liquid fractions (via membrane filtration or evaporation) may also substitute synthetic nitrogen fertilizers without crop yield losses. It must be noted that digestate has also interesting properties in terms of phosphorus and potassium availability.

2. **Digestate use is contributing to maintain soil fertility in contrast to using synthetic fertilisers.** Digestate contains relevant amounts of humus-effective carbon. In the long term it is also key in maintaining soil fertility as well as soil microbiota and to ensuring high crop yield lands that can be sustainably utilised. The Effective Organic Carbon (EOC) related to stable organic material in digestate effectively contributes to soil organic carbon build-up strategies in a frame of carbon-farming and carbon sequestration.

3. **Adequate agronomic practices are already proven useful to mitigate nutrient losses**. Specific practices to store and apply digestate (dribble bars on maize and cereal crops, trailing shoe in grasslands system), as well as monitoring techniques (fertilisation plan, flow meters and GPS application mapping) exist and can efficiently mitigate nitrate pollution to water and to the air. National guidelines[3] related to the use of digestate are available to farmers. Digestate can also be used to produce various digestate-derived products such as digestate pellets, blend of digestate and biochars, and compost or single nutrients can also be extracted from digestate. These novel products are an alternative path able to mitigate any negative environmental impacts and improve the nutrient recycling.

4. **Digestate is a circular product and can displace greenhouse gas (GHG) emissions and natural gas consumption inherent to the production of synthetic fertilisers.** Recycling the digestate back to soil and completing cycles of nutrients such as nitrogen (N), phosphorus (P) and potassium (K) for plants to grow is a unique benefit of digestate, which contributes to the circular economy concept. In Europe, GHG emissions due to the production of nitrogen synthetic fertilisers represented 19,9 Mt

[3] Report by the German Biogas Association "Digestate as Fertilizer"; Joint French guidebook on the use of digestates in agriculture.

of CO2 equivalent in 2018. Taking into consideration that 10-11% of the nitrogen synthetic fertiliser could be replaced with digestate in 2030, the emission reduction could represent at least an average of 21 Mt of CO2 equivalent per year based on 2030 potential digestate production[4]. Furthermore, an average consumption of 1,1 bcm of natural gas could be saved per year by 2030[5]. This number is not negligible in regard of the EU's need to secure energy supplies.

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About EBA

The European Biogas Association is the voice of renewable gas in Europe since 2009. EBA advocates the recognition of biomethane and other renewable gases as sustainable, on demand and flexible energy sources that provide multiple knock-on socio-economic and environmental benefits. Supported by its members, EBA is committed to work with European institutions, industry, agricultural partners, NGOs and academia to develop policies which can enable the large-scale deployment of renewable gases and organic fertilisers throughout Europe, supported by transparent, well-established sustainability certification bodies to ensure that sustainability remains at the core of the industry. The association counts today on a well-established network of over 200 national organisations, scientific institutes, and companies from Europe and beyond.

[4] According to EBA Statistical Report 2022, 455 to 492 Mt of fresh matter of digestate will be produced in 2030.
[5] EBA Statistical Report 2022.