ECN
Compost and Digestate for a Circular Bioeconomy

ECN Position
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ECN's position on the Bioeconomy Strategy

The European Compost Network (ECN), the European umbrella organisation representing the bio-waste recycling sector, welcomes the initiative of the Commission to update its 2012 Bioeconomy Strategy to promote a more circular, regenerative and competitive bioeconomy. As the recycling of bio-waste into fertilising products (i.e., compost and digestate) is essential to achieving a circular economy and generates new market opportunities, the ECN believes it should be recognised as a truly bioeconomy activity.

Composting and anaerobic digestion are the best available techniques for recovering separately collected bio-waste from households, industries and companies, and transforming it into high quality fertilising products. When regularly applied in or on soils, the compost and digestate produced can help improving soil health by increasing soil organic matter, soil biodiversity and soil water holding capacity, and can also act as a carbon sink by storing carbon. Therefore, they represent an opportunity to reduce dependencies on fossil-based fertilisers and peat mainly produced outside of Europe.

To incentivise the production of fertilising products from recycled nutrients, clear and effective bio-waste management policy should be implemented at European level. The ECN believes the Bioeconomy Strategy should focus on creating markets for secondary raw materials and unlocking new investments, lifting regulatory barriers, and improving acceptance of the use of recycled biobased material in agriculture.

The need to efficiently enforce bio-waste separate collection

The mandatory separate collection of municipal bio-waste was introduced by the revision of the Waste Framework Directive (WFD) in 2018 and is in force since 1st January 2024. It represents an essential step towards increasing the recycling of this valuable resource. However, the ECN has observed that implementation is still lacking in many countries. To monitor progress in establishing efficient bio-waste collection systems, the ECN suggests monitoring the bio-waste diversion rate from residual waste. This could be achieved by frequent analysis of the bio-waste left in residual waste.

Regulatory and market barriers to be lifted

The Bioeconomy Strategy should consider the regulatory barriers caused by the inconsistencies in EU legislation, but also the lack of implementation at national level and the inconsistencies in the implementation of EU legislation between Member States.

EUROPEAN COMPOST NETWORK
OFFICE ADDRESS Im Dohlenbruch 11 - 44795 Bochum (Germany) **PHONE** +49 234 438 944 7 **FAX** +49 234 438 944 8 **EMAIL** info@compostnetwork.info
WEBSITE www.compost-digestate.info / www.ecn-qas.eu **UST-ID-NR.** DE813811932 **TAX-NO.** FA Bochum-Süd: 350/5705/4233 **REGISTERED AT** Amtsgericht Bochum VR 4604
REGISTERED PLACE OF ASSOCIATION European Compost Network ECN e.V., Bochum **EU TRANSPARENCY REGISTER NUMBER** 509941347594-30

One regulatory barrier specific to compost and digestate derived from bio-waste is related to the End-of-Waste status. The Fertilising Products Regulation (FPR) provides for harmonised End-of-waste criteria but only optional, meaning waste operators and manufacturers of fertilising products must comply with these End-of-Waste criteria only if they want to introduce their product on the single market. This renders End-of-Waste criteria ineffective since products traded nationally only have to comply with national rules and it creates fragmentation within the single market. To harmonise the market, an End-of-Waste criteria for compost and digestate should therefore be defined under Article 6 of the WFD.

Furthermore, under the Animal By-Product Regulation (ABPR), to which the FPR refers, the end point in the manufacturing chain of fertilising products derived from ABP materials (i.e., kitchen waste) can only be reached if the composting and anaerobic digestion processes fulfil strict transformation requirements (70°C, 1h, 12mm) that are unsuitable for composting and anaerobic digestion. To place ABP-derived compost and digestate on the market, Member States have recognised validated processes or laid down alternative time-temperature profiles in their national regulations. Therefore, the ECN suggests to revise the parameters under the ABPR, and to recognise the national validated processes and the derogations granted to Member States.

Another regulatory barrier concerns the input materials for fertilising products under the FPR. Sludges from the processing of food, beverages, pet food, animal feed, or dairy products, and from other comparable technical processes, are excluded as input materials while they are common waste streams that contain valuable nutrients.

In addition, compost and digestate face competition from fossil-based fertilisers due to their lower price but also from the overproduction of agricultural residues such as manure. This is exacerbated by the fact that although compost and digestate contain valuable nutrients, their nutrient value is not reflected in their market price.

Unlock investments to reveal the full potential of bio-waste

The bio-waste sector offers huge potential for growth in terms of quantities treated and local jobs created. Indeed, the ECN estimated that to achieve the recycling target of 65% of municipal waste by 2035, an additional 40 million tonnes per year of municipal bio-waste will need to be separately collected and treated[1]. This means that the number of composting and anaerobic digestion facilities is set to double from 5,800 today to 11,600. As these facilities are generally located close to where the bio-waste is generated, they create local and not relocatable jobs. In order to reach the 2035 recycling target, the number of full-time equivalent employees would need to increase from between 8,500 – 15,500 to 17,000 – 31,000. Overall, it was estimated that the bio-waste processing sector contributes between 1 – 2 billion euros to the European economy every year and has the potential to rise to 2 – 4 billion euros, should the projected increase in bio-waste processing be realised.

[1] ECN Data Report 2022, link.

Compost and digestate produced from the recycling of bio-waste also has the potential to replace fossil-based nutrients and peat in growing media, thereby reducing EU's dependencies on imports.

Although composting and anaerobic digestion processes are long-standing technologies that are fully operational, there is still a constant need for further research and innovation for new improvements (e.g., co-composting process, pelletised digestate etc.). Therefore, the Bioeconomy Strategy should also focus on unlocking new investments to support the scaling up of the bio-waste sector, and on supporting the development of new markets at national and European level.

Encouraging the use of compost and digestate on soils

Repeated applications of high-quality compost and digestate increase soil organic matter, which does not only improve soil's productivity and ability to carry out ecological services but can also increase carbon sequestration in soil. Given the economic, environmental and climate benefits of compost and digestate, ECN believes their use on agricultural soils should be incentivised as a carbon farming practice and be rewarded for farmers. Moreover, the organic carbon input to soils through the application of high-quality compost and digestate could be listed as a mandatory measure under the EU standards for good agricultural and environmental condition of land (GAECs) and within the eco-schemes.

In addition to agriculture, the use of compost and digestate should also be encouraged in urban carbon farming (e.g., in the management of green spaces by municipalities in urban areas), for the production of substrate, growing media or fertilisers.

Inclusion of compost and digestate in Green Public Procurement

Green Public Procurement gives Member States the possibility to use environmental criteria for products and services. As compost and digestate can be qualified as circular products that bring key ecosystem benefits to soil, their use should be taken into account in public procurement contracts and be incentivised. In addition, a mandatory minimum recycled content for nutrients could be introduced. This would be particularly relevant for the management of green spaces by municipalities.

About the ECN

The ECN is the leading European membership organisation promoting sustainable recycling practices by composting and anaerobic digestion of organic resources and guarding over the quality and safe use of the recovered organic fertilisers and soil improvers. With 67 members from 27 European countries, ECN represents more than 4,500 experts and plant operators with more than 45 million tonnes of biological waste treatment capacity.