ECN
Compost and Digestate for a Circular Bioeconomy

Circular Economy Act - ECN Feedback

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The ECN's top 12 policy recommendations for an EU Circular Economy Act

The European Compost Network (ECN), the European umbrella organisation representing the bio-waste recycling sector, would like to share with the European Commission its 12 key policy recommendations for an EU Circular Economy Act.

Introduction and background

The contribution of bio-waste recycling to the Circular Economy when producing high-quality organic fertilising products

The ECN represents the bio-waste recycling sector and, as such, the organisation advocates for the sustainable use of the limited resources of the planet and the respect for the organic cycle. The mandatory separate collection of municipal bio-waste, introduced by the revision of the Waste Framework Directive (WFD) in 2018 and in force since 1st January 2024[1], represents an essential step towards the large-scale recycling of this valuable resource and hopefully will prevent it from ending up in incineration or landfills in the near future. However, the ECN has observed that implementation is still lacking from the municipal to the national level. More than a year after the introduction of mandatory separate collection, many countries still lack a national bio-waste collection policy, or have implemented alibi systems which have proven to be ineffective in achieving high levels of separately collected bio-waste[2,3]. In 2022, the ECN estimated that about 38 million tons of municipal bio-waste were separately collected and treated per year[4]. This represents 17% of the overall municipal solid waste, while to meet the target of recycling/re-using 65% of municipal waste by 2035[5], the separately collected bio-waste should represent around 35%. This finding was confirmed by the Early Warning Report published in June 2023[6]:

[1] Directive 2008/98/EC on waste, Article 22.
[2] Brambilla V., Confalonieri A., Krutova I., Lopez E., Giavini M. & Ricci M. (2024). LIFE BIOBEST D3.1 Guidelines on the separate collection of bio-waste, link.
[3] LIFE BIOBEST D5.2 Policy brief including the regulatory barriers, link.
[4] ECN Data Report 2022, link.
[5] Directive 2008/98/EC on waste, Article 11(2)(e).
[6] Early Warning Report, 8 June 2023, COM(2023) 304 final.

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> *'Biowaste is the most important waste stream for which action is needed, since it constitutes on average 34% of municipal waste. Focus should be given to introducing or expanding effective capacity for the separate collection and treatment of biowaste.'*

Indeed, although bio-waste represents the largest fraction in municipal solid waste, the key performance indicator of bio-waste left in residual waste still reveals a large proportion well above one third of residual waste, mainly food waste, in relation to high quantities of total residual waste[7]. Also, illegal dumping of green waste generates uncontrolled emissions of greenhouse gas and nutrient loss in soil and water. This leads to the loss of valuable resources for the production of organic fertilisers and soil improvers, namely compost and digestate, and for the production of biogas.

Considering that over 60% of European soils are degraded, the use of high-quality organic fertilising products can be an effective solution to improve soil health. Degraded soils that have low organic matter content are less productive, retain less water and store less carbon. It has been demonstrated that repeated applications of compost and digestate can help improving soil health and fertility[8]. In this context, organic fertilising products produced from recycled nutrients have the capacity to substitute fossil-based mineral fertilisers and peat, thereby contributing to the Circular Economy while reducing the EU's dependencies on mineral fertilisers, peat and critical raw materials imports. This has been highlighted by the Commission in its Communication on the Clean Industrial Deal presented on 26 February 2025[9]:

> *'The example of fertilisers illustrates the potential of the Clean Industrial Deal across sectors. It showcases circularity agenda as a security agenda. The domestic production of fertilisers, including of low-carbon fertilisers and fertilisers from recycled nutrients, reduces dependencies on fertiliser imports and emissions, promotes circular business models, and should reduce input prices for farmers.'*

In addition, the anaerobic treatment of bio-waste produces - besides digestate - biogas that contributes to the aim of the Commission to reach 35 billion cubic meters of biomethane by

[7] Jourdan M., Favoino E., LIFE BIOBEST D5.4 Comprehensive Guidance for effective bio-waste management in the EU, link.
[8] J. Gilbert, M. Ricci-Jürgensen and A. Ramola, Benefits of compost and anaerobic digestate when applied to soil, ISWA, 2020.
[9] European Commission, The Clean Industrial Deal: A joint roadmap for competitiveness and decarbonisation, Communication, 26 February 2025, COM(2025) 85 final.

2030[10]. By producing biogas from bio-waste, the bio-waste recycling sector plays a key role in the decarbonisation of the European economy and in the EU's strategic autonomy.

Top 12 policy recommendations to improve bio-waste management in Europe

The ECN welcomes the Commission's intention to amend several pieces of European waste legislation and is pleased that the Commission appears to recognise the need to further implement existing legislation on the collection and use of bio-waste. In this context, the ECN proposes 12 measures, described below, to support a more ambitious policy.

1. Set up compositional surveys for determining the share of bio-waste in residual waste in order to support the implementation of separate collection *[Waste Framework Directive]*

Member States shall ensure full implementation of the separate collection of bio-waste and its recycling into compost and digestate products, based on the available information and the ongoing communication campaigns throughout EU territory.

To monitor progress in establishing efficient bio-waste collection and treatment systems, the ECN suggests implementing a mandatory monitoring and reporting scheme, covering a frequent analysis at least every five years of the bio-waste left in residual waste, in conjunction with the updating of waste management plans. This already exists in the German State of Rhineland-Palatinate and Baden-Wuerttemberg, where compositional analysis of residual waste is performed every five years by each entity responsible for waste management, i.e. districts and cities[11]. The ECN's proposal is to expand the scope of the compositional surveys of residual waste introduced by the revised WFD[12] for textile waste, in order to include bio-waste. Such compositional surveys, which shall include a unified EU-wide methodology that also distinguishes green waste from food waste as bio-waste fractions, would not only facilitate cross-comparisons of the efficacy of various collection systems, but would also ideally pave the way for a long-term evaluation of the quantity and share of organic matter lost to the Circular Economy. Introducing compositional surveys is therefore a prerequisite for establishing the necessary binding targets (i.e., a target value of maximum bio-waste in residual waste in kilogram per capita).

[10] European Commission, Communication, REPowerEU Plan, 18 May 2022, COM(2022) 230 final.
[11] Nohales, G. & Stinavage, M. (2024). LIFE BIOBEST D3.2 - Guideline on governance and economic incentives, link.
[12] Directive (EU) 2025/1892 amending Directive 2008/98/EC on waste.

2. Introduce a recycling target for municipal bio-waste *[Waste Framework Directive]*

Efficient separate collection of bio-waste is essential to ensure the production of high-quality organic fertilising products that can effectively replace mineral fertilisers, thereby significantly improving soil health and reducing GHG emissions, and for providing a substitute for peat, for example in growing media. Considering that more than half of the bio-waste and nearly 75% of the food waste generated in the EU are still not collected separately[13], the ECN believes introducing a recycling target for bio-waste is a necessary step forward. This would contribute to reduce the amount of bio-waste remaining in residual waste and, ultimately, the overall amount of residual waste. The introduction of an ambitious target would also help reaching the overall recycling target of municipal waste of 65 % by 2035. Such target could be set at national or regional level, depending on local conditions. For example, the State of Rhineland-Palatinate in Germany has set a specific target for the reduction of bio-waste left in residual waste (20 or 28 kg per inhabitant per year, depending on the regional cluster)[14]. Also in Portugal, a specific target for reducing bio-waste in the residual waste has been set, stating that bio-waste should not account for more than 35% of waste sent to landfill[15].

3. Ensure the quality of the collected bio-waste *[Waste Framework Directive]*

In order to control the quality of bio-waste, a harmonised monitoring methodology should be set up for bio-waste as input for biological recycling, which may lead to minimum quality targets, in order to minimise physical impurities (e.g., plastics, glass, metal). This methodology should allow the identification of waste generators (e.g., citizen, housing association) and assign responsibility for bio-waste quality to them. Furthermore, this would enable Member States to establish control values and targets on impurities in the collected bio-waste, combined with the application of variable gate fees based on the bio-waste quality. Treatment plants could therefore have the right to reject feedstock that has a level of impurity exceeding the value set by the competent authority. For instance, Germany has set a rejection value for the total impurities in separately collected bio-waste from households (controlled during collection or upon delivery), and control values for plastics contained in the bio-waste controlled upon delivery and before entering the biological process. Visual inspections and batch analysis to detect the amount of impurities are also put in place.

[13] Zero Waste Europe (ZWE) and Bio-based Industries Consortium (BIC), Bio-waste generation in the EU: Current capture levels and future potential – Second edition, link.
[14] Nohales, G. & Stinavage, M. (2024). LIFE BIOBEST D3.2 - Guideline on governance and economic incentives, link.
[15] Decreto-Lei n.º 102-D/2020.

In addition, the ECN believes that communication and awareness campaigns carried out by municipalities can help citizens sort their bio-waste more effectively in terms of quantity and purity. These measures constitute an effective solution to address concerns regarding the quality of bio-waste, and provide more clarity and certainty to operators, citizens and municipalities about their responsibilities.

4. Introduce a recycling target for non-municipal bio-waste (i.e., food waste from industries)

[Waste Framework Directive]

Alongside the recycling target for municipal bio-waste, we call for the introduction of a dedicated recycling target addressing non-municipal and industrial food waste. Indeed, although this stream is not covered under the definition of municipal waste of the WFD, it provides a significant resource for organic soil improvers and fertilisers, biogas and other bio-based applications. Increasing the recycling of non-municipal bio-waste would contribute to climate change mitigation by diverting this stream from landfill or incineration.

5. Introduce new waste codes for the separate collection of bio-waste from households

[Commission Decision establishing a list of wastes]

According to the existing definition of bio-waste in the WFD[16], separately collected bio-waste from households as well as similar commercial, industrial and institutional bio-waste is covered in the term 'bio-waste'.

The European List of Waste[17] includes a dedicated Chapter for municipal waste, the Chapter 20 'Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fraction'. Under this Chapter, the sub-Chapter 20 01 'Separately collected fractions' contains the waste code 20 01 08 'biodegradable kitchen and canteen waste' covering only food waste. Green and garden waste are listed separately in the sub-Chapter 20 02 'Garden and park wastes (including cemetery waste)' under the waste code 20 02 01 'biodegradable waste'. The List of Waste also lists waste from markets under another sub-Chapter, the 20 03 'Other municipal waste' under the waste code 20 03 02 'waste from markets', which is often used for bio-waste.

The current classification does not value the high relevance of collecting municipal bio-waste separately as it does not contain separate waste codes distinguishing between bio-waste

[16] Directive 2008/98/EC on waste, Article 3(4) "'bio-waste' means biodegradable garden and park waste, food and kitchen waste from households, offices, restaurants, wholesale, canteens, caterers and retail premises and comparable waste from food processing plants."
[17] Commission Decision 2000/532/EC.

from households and commercial bio-waste from companies and industries. Consequently, we found that in some countries, the waste codes are proving difficult to use as they now stand.

In addition, for calculating the recycling target for municipal waste (which includes mixed waste and separately collected waste from households), the reporting is based on the European waste codes. As the waste code 20 01 08 'biodegradable kitchen and canteen waste' covers commercial food waste from restaurants and canteens, a correct calculation of the recycling target only for separately collected bio-waste from households (municipal waste) is impossible. A dedicated waste code for bio-waste from household would also be necessary in order to calculate the quantity of bio-waste which is currently left in municipal waste, and thereby to quantify the potential for municipal bio-waste to be recycled.

ECN therefore recommends to introduce an accurate waste code for separately collected bio-waste from households.

6. Introduce a mandatory EU-wide End-of-Waste status for compost and digestate

[Waste Framework Directive]

The 2019 revision of the Fertilising Products Regulation (FPR) introduced for the first-time harmonised End-of-Waste (EoW) criteria for bio-waste derived fertilising products applying to all Members States. Although such measure represents a significant breakthrough that has broadened market opportunities for organic fertilisers and soil improvers as they can be traded freely on the EU single market, it remains optional. This means waste operators and manufacturers of fertilising products must comply with these EoW criteria only if they want to introduce their product on the single market. This could render EoW criteria ineffective since products traded nationally only have to comply with national rules. Indeed, Member States can develop their own criteria, or not develop any at all, which creates fragmentation within the EU single market and hampers market access for products due to legal uncertainties. To harmonize the market and to push the bio-waste collection and treatment, an End-of-Waste criteria for compost and digestate should therefore be defined under Article 6 of the WFD.

7. Incentivise the use of compost and digestate as a carbon farming practice

[Implementing Regulation for the Certification Framework for Carbon Removals and Carbon Farming Regulation]

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 (e.g., reduce compaction, improve water holding capacity, increase soil organisms' diversity) but can also increase carbon removals or reduce emissions in soils. Against this background,

ECN believes there is a need to incentivise the scaling up of the use of compost and digestate as a carbon farming practice to tackle the climate crisis together with other environmental and social pressures. Rewarding the use of quality assured organic amendments would improve the health and productivity of agricultural soils by promoting the widespread adoption of sustainable carbon farming practices across all regions in Europe.

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 organic soil improvers, fertilisers, or growing media.

8. Include the organic fertilisers and soil improvers in the Green Public Procurement
[Public Procurement Directive]

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 and incentivised in public procurement contracts. In addition, a mandatory minimum recycled content for nutrients and organic matter could be introduced. This would be particularly relevant for the management of green spaces by municipalities.

9. Revise the parameters for sewage sludge spreading
[Sewage Sludge Directive]

The ECN believes that sewage sludge can be used as a fertiliser on agricultural soils, primarily after biological treatment like composting and/or anaerobic digestion, if it is safe and quality controlled. However, given the risk of the presence of potential contaminants, it is imperative that guarantees are put in place regarding the quality of the sewage sludge used as organic fertiliser for special agricultural use. For this reason, the ECN would like to propose a revision of the parameters laid down in the Sewage Sludge Directive for the land application of treated sewage sludge.

More specifically, phosphorus recovery from sewage sludge needs to be improved in order to encourage direct land application of recovered nutrients (i.e., monoammonium phosphate, struvite). This can also contribute to the objective of reducing the EU's dependence on imports of fertilisers and critical raw materials.

10. Closely monitor home and community composting
[Waste Framework Directive]

According to the WFD, bio-waste can be recycled either through separate collection or at source[18], for example via home composting or community composting. Home composting is encouraged in many Member States but it is mainly suitable for green waste from private gardens. Quantities treated within these systems are usually based on an estimation, for example of the volume of the home composting equipment provided directly by the municipality or the waste management authority. This way, home composting plays a role in increasing bio-waste recycling and reducing the amount of residual waste to be collected. It appears as a complementary solution to separate collection of food waste from households, but should not be regarded as a substitute for such.

However, the ECN would like to stress that in order to be truly effective, home and community composting should be closely monitored by national or local authorities to assess the quantities effectively treated, their quality, the safety of the process and the sustainable use of the compost produced. Additionally, local authorities should appoint master composters[19] to supervise the composting and to verify that there is sufficient space in the surrounding area to spread the compost produced, in order to avoid any risk of nutrient loss.

11. Require the hygienisation of green waste
[Waste Framework Directive]

In recent years, the ECN has observed a trend towards classifying green waste as by-products. The problem this poses is that, as they are not considered as waste, they are not subject to waste regulations. Therefore, they are exempt from undergoing appropriate treatment and hygienisation to eliminate plant pathogens or invasive species. In addition, they are not required to comply with all the traceability requirements. This is the reason why the ECN recommends that all green waste undergo a hygienisation step before being placed on the market and used on soil, in order to prevent the spread of any plant pathogens.

[18] Directive 2008/98/EC on waste, Article 22.
[19] See for example Interreg Europe, CORE project, The use of Master Composters to help implement Home Composting in Flanders, link.

12. Implement a biofuel database that is favourable to bio-waste operators in order to not hinder nutrient recycling
[Delegated Regulation extending the scope of the Union Database for Biofuels]

The Renewable Energy Directive provides for the establishment of a Union Database for biofuels (UDB)[20] which applies to biogas and biomethane produced from bio-waste. This UDB requires all economic operators to report their inputs and outputs into the database and to be certified. This could create an additional administrative burden for bio-waste operators, especially when they collect bio-waste from households. As a result, it could hinder the separate collection of bio-waste and the recovery of energy, nutrients and organic matter, and impede biomethane development across the EU. Therefore, ECN calls for the implementation of business-friendly requirements and to take into account the systems already in place at national level to avoid any additional constraints.

More generally, it should be avoided to circumvent the waste hierarchy by separating valuable bio-waste or green waste fractions for heat or electricity production through incineration as primary biofuel. Energy recovery from bio-waste and biomass can only be accepted if the cascading principle and the waste hierarchy are respected (material recycling being above energy recovery), as resources need to be used sustainably.

Final remarks

The ECN welcomes the parallel work undertaken by the Commission to update the Bioeconomy Strategy and hopes that the Commission will ensure consistency between its proposals on the Circular Economy Act and on the Bioeconomy Strategy. The ECN believes that bio-waste management plays a central role in the EU circular bioeconomy and should therefore be supported by concrete actions to improve the implementation of existing legislation in order to promote bio-waste recycling and sustainable use of compost and digestate.

As a partner in the LIFE BIOBEST project[21], which aims to close the organic loop of municipal bio-waste, ECN is pleased to share the Comprehensive Guidance for effective bio-waste management in the EU[22], developed by the project consortium.

[20] Directive 2018/2001, Article 31a.
[21] The LIFE BIOBEST project, link.
[22] Jourdan M. & Favoino E. (2023). LIFE BIOBEST D5.4 – Comprehensive Guidance for effective bio-waste management in the EU, link.

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About the European Compost Network (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.