Importance of high-quality biowaste

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30.04.2024

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The European Compost Network

ECN
Compost and Digestate for a Circular Bioeconomy

Vision — Living well within the limited resources of the planet and respecting the organic cycle

Mission — Leading the organic recycling industry through our focus on separate collection of biowaste, quality assurance for compost and digestate and to keep our soils healthy

Values — Care; Internet & Networking; Simplicity

Pillars — Quality Assurance; Advocacy; Market; Innovation

Circularity & Sustainability is at the heart of everything we do

67 Members from 28 European Countries

≈ 48 M tpa Treatment Capacity

> 4.500 Composting & Anaerobic Digestion Plants

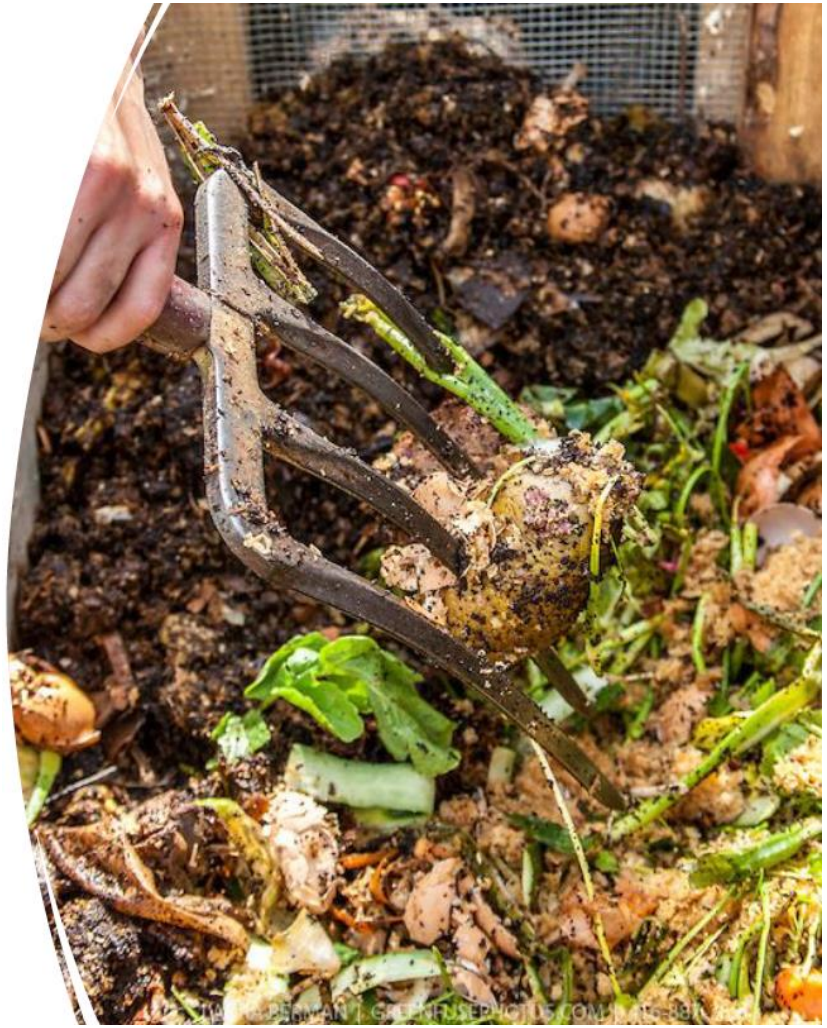
EU LIFE BIOBEST project

“Guiding the mainstreaming of best biowaste recycling practices in Europe“

LIFE BIOBEST

Co-funded by the European Union

Preparing the basis for **EU guidance and standardization** on closing the gap in the biological cycle to enrich soils with high quality compost from collected organic waste in support of nature and biodiversity



EU Interreg project CORE

Best practices in biowaste treatment

‘Composting in Rural Ecosystems’

Objectives

- Mainstreaming composting in rural areas
- Develop best practices
- Promoting circular bioeconomy

- Project website https://www.interregeurope.eu/core-0#
- Social media: **#COREinterreg**

Interreg Europe Co-funded by the European Union

CORE

Agenda

The importance of high quality biowaste

Main challenges in collection and treatment

Policies aiming at improving biowaste quality

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Why do we need high-quality biowaste?

- **Dependency of product quality on feedstock quality → The lower the impurities in the input material (e.g., plastics) the higher the potential for high-quality products**

- **Treatment technology can partly remove impurities, however, also organic material is removed**

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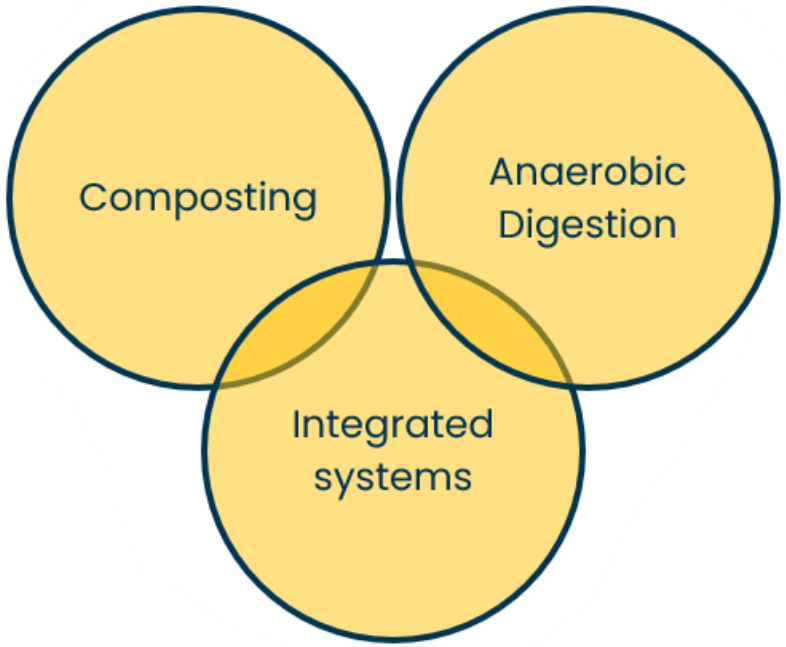
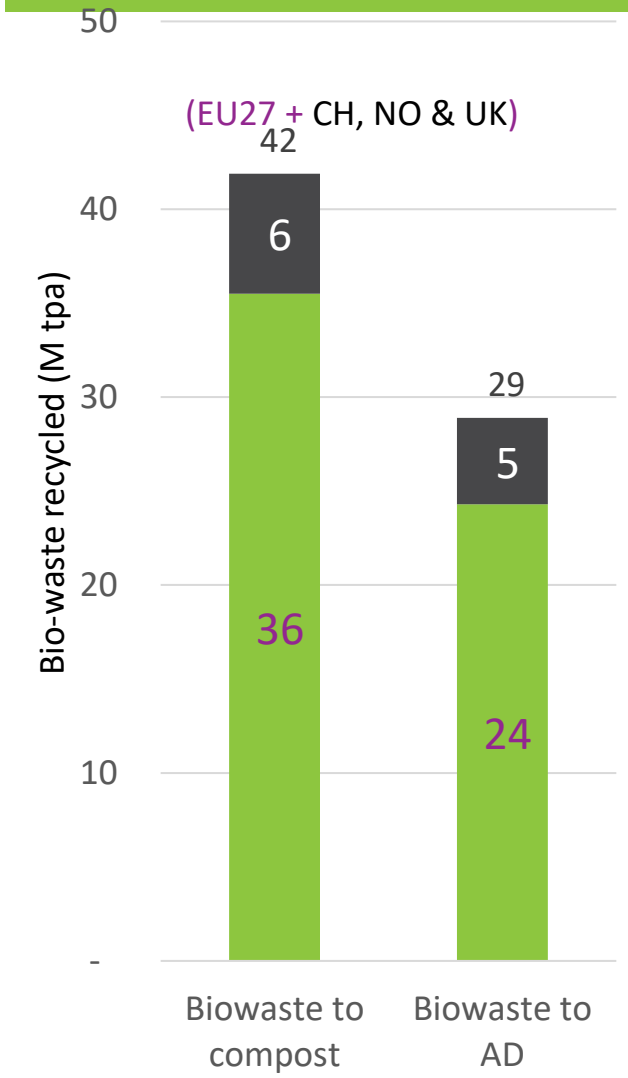
General process options for biowaste treatment



- In general, the 3 most applied treatment technologies are composting, anaerobic digestion and a combination of both
- All of them have their specific benefits, depeding on the local circumstances and national/regional targets
- Each process offers different levels of technical complexity, reaching from low-tech, e.g., open windrow composting to high-tech, e.g., indoor composting with automated ventilation and pile turning.

Guideline to promote quality compost and digestate
(LIFE BIOBEST Project, to be published soon)

Compost and Digestate production from separately collected biowaste



71 M tpa
BIO-WASTE RECYCLED

21 M tpa
COMPOST PRODUCED

Surface area (million ha)	Fraction of Arable Land	Fraction of Mod./ Severely Eroded Land
2.1	2%	16%

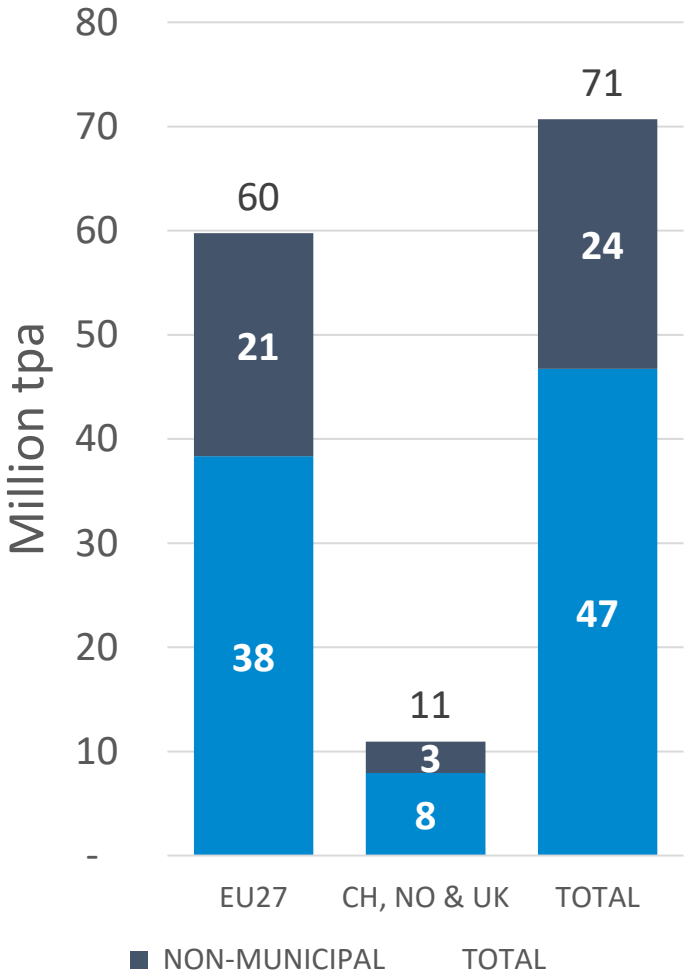
1.2 M t CO_2-eq sequestered on agricultural soils every year =

19.1 million urban tree seedlings grown for 10 years

Main challenges in collection

- Only **43% of municipal biowaste was collected separately,** while 57% of it ended up in mixed municipal waste (EEA), **Food waste only 16% collected separately** (BIC)
- **Residual waste still comprises 39% biowaste,** mostly food waste (UBA)
- Out of 60 Mio t a^{-1} of **food waste** generated in the EU, **50 Mio t a^{-1} are not delivered to high-quality recycling (ECN)**
- **Contamination** (e.g. Plastics) can be very high, especially in user-unfriendly collection systems such as open street containers (bring points) as opposed to door-to-door systems
- Many EU-MS still haven't introduced a nationwide collection system

Municipal Biowaste – Potentials to achieve 65% recycling target



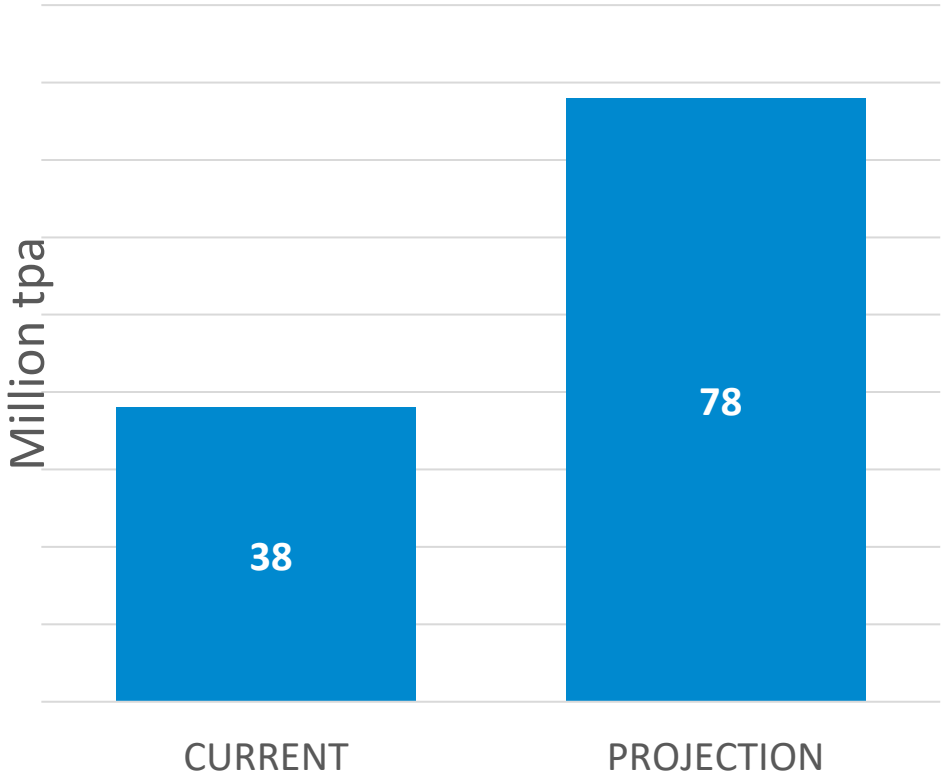
EU TARGET TO RECYCLE 65% MSW BY 2035

17% to 35% needed through bio-waste

Extra 40 M tpa

<u>MUNICIPAL BIOWASTE</u>

has to be separately collected!

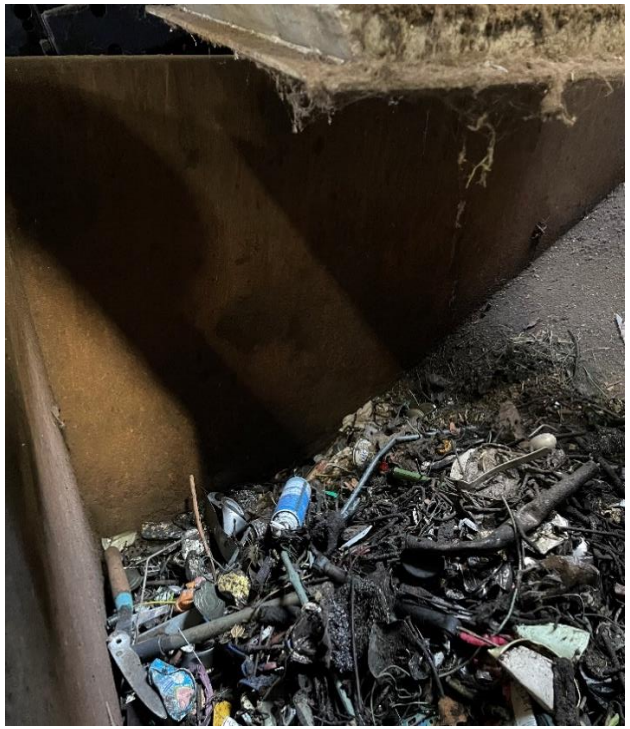


Main challenges in treatment

- Depends on the feedstock composition, especially the level of impurities
- Intense pre- and post-treatment may be required
- The issue of biodegradable plastics: Degradation time often longer than actual treatment time

Poor quality biowaste

Drum screen (size separation)



Removed metals

Best practices in biowaste treatment

Small-scale composting plant of Mancomunitat La Plana (Catalonia, Spain)

Opened in 2023
Serves ca. 34,000 inhabitans

Input: 1.500 t/yr
Output: 18 – 20% of input

Input quality: <1% impurities

Quality analysis	Bio-waste compost
Sample size	1
Particle size [mm]	<10
Total Impurities [%]	-
Glass [%]	<0.1
Plastics [%]	<0.1

Best practices in biowaste treatment

Large-scale anaerobic digestion and composting plant of Borken district (Germany)

Gescher bio-waste treatment facility (EGW, n.d.)

Serves around 1,6 Mio. Inhabitants (3 districts)

Input: ca. 105,000 t/yr
Output: Biogas + Compost: ca. 38,000 t/yr &
Woody biomass: ca. 6,500 t/yr

Input quality: 2-3% impurities

Quality analysis	Limit threshold	Garden waste compost	Bio-waste compost
Sample size		35	30
Particle size [mm]	-	15	10
Total Impurities [%]	0.5	0.04	0.05
Glass [%]	-	0.01	0.05
Plastics [%]	0.1	< 0.01	< 0.01
Surface index [cm²/L]	15	0.6	1.7

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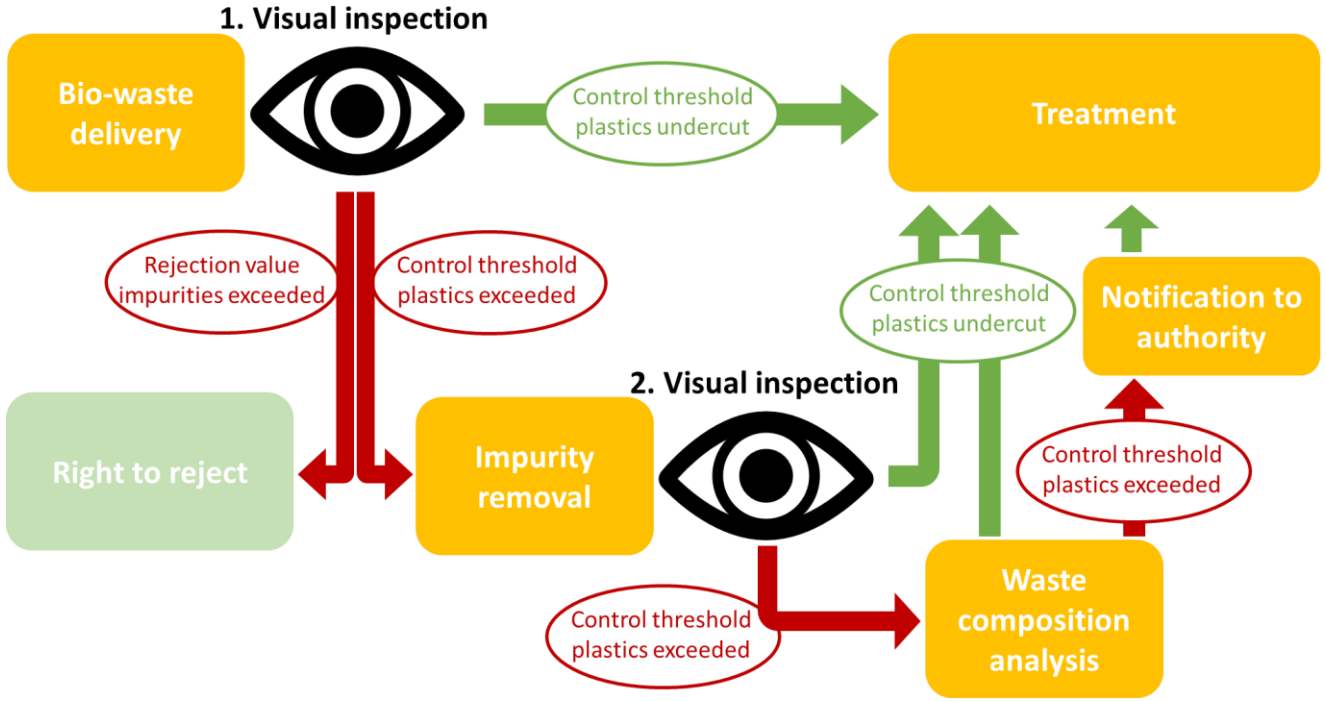
Policies to improve quality

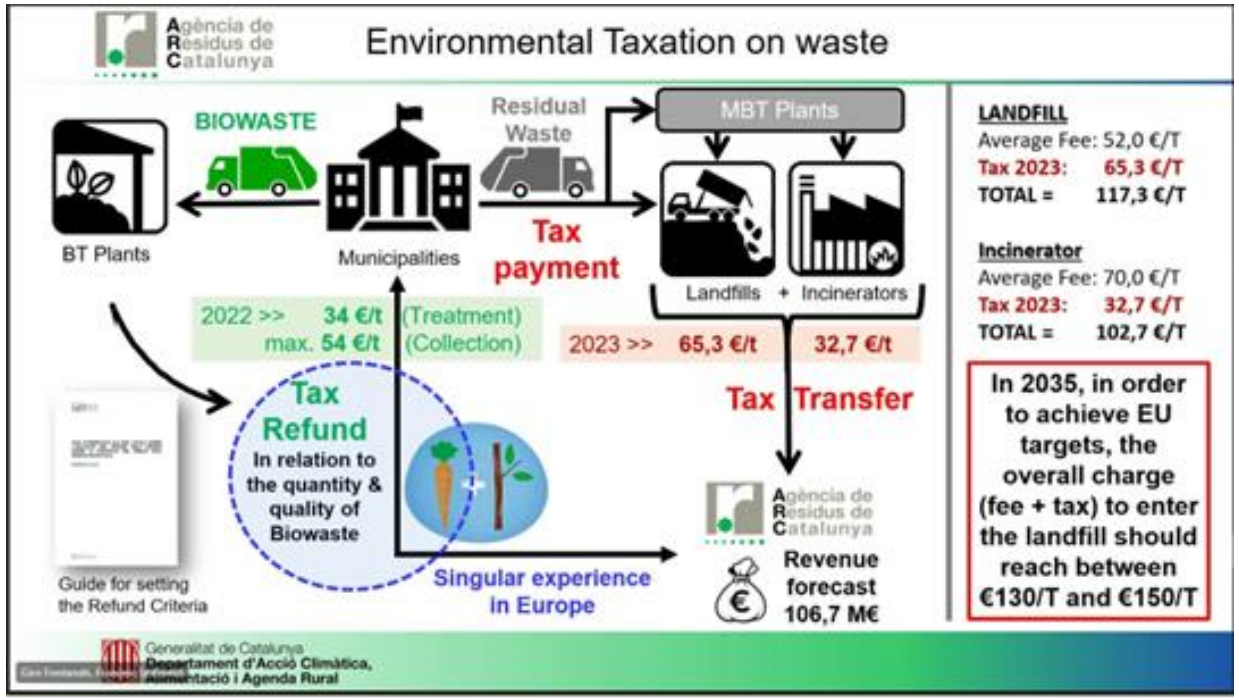
Germany – Biowaste ordinance

- Limit value for overall impurities (3%) and plastic impurities (1%) at gate of treatment
- Allows the plant operator to reject a delivery with highly contaminated biowaste
- Methodology for a visual inspection implemented by the national body for quality assurance (Bundesgütegemeinschaft Kompost)



Policies to improve quality

Catalonia (Spain) – Biowaste monitoring scheme



- Economic instrument integrated into the regional waste policy
- Landfill tax and refund system
- Municipalities pay a tax on landfill and incinerations
- A factor in the calculation of the refund for the landfill tax depends on the quantity and quality of separately collected biowaste
- Limit for max. contamination decreases annualy

Many thanks for your attention!

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