19 January 2023
Nitrogen Recovery
Brussels & hybrid

Increasing recycling of biowaste and challenges and opportunities for N recovery

Presented by

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ECN
Compost and Digestate for a Circular Bioeconomy

European Compost Network

@ECNnetwork

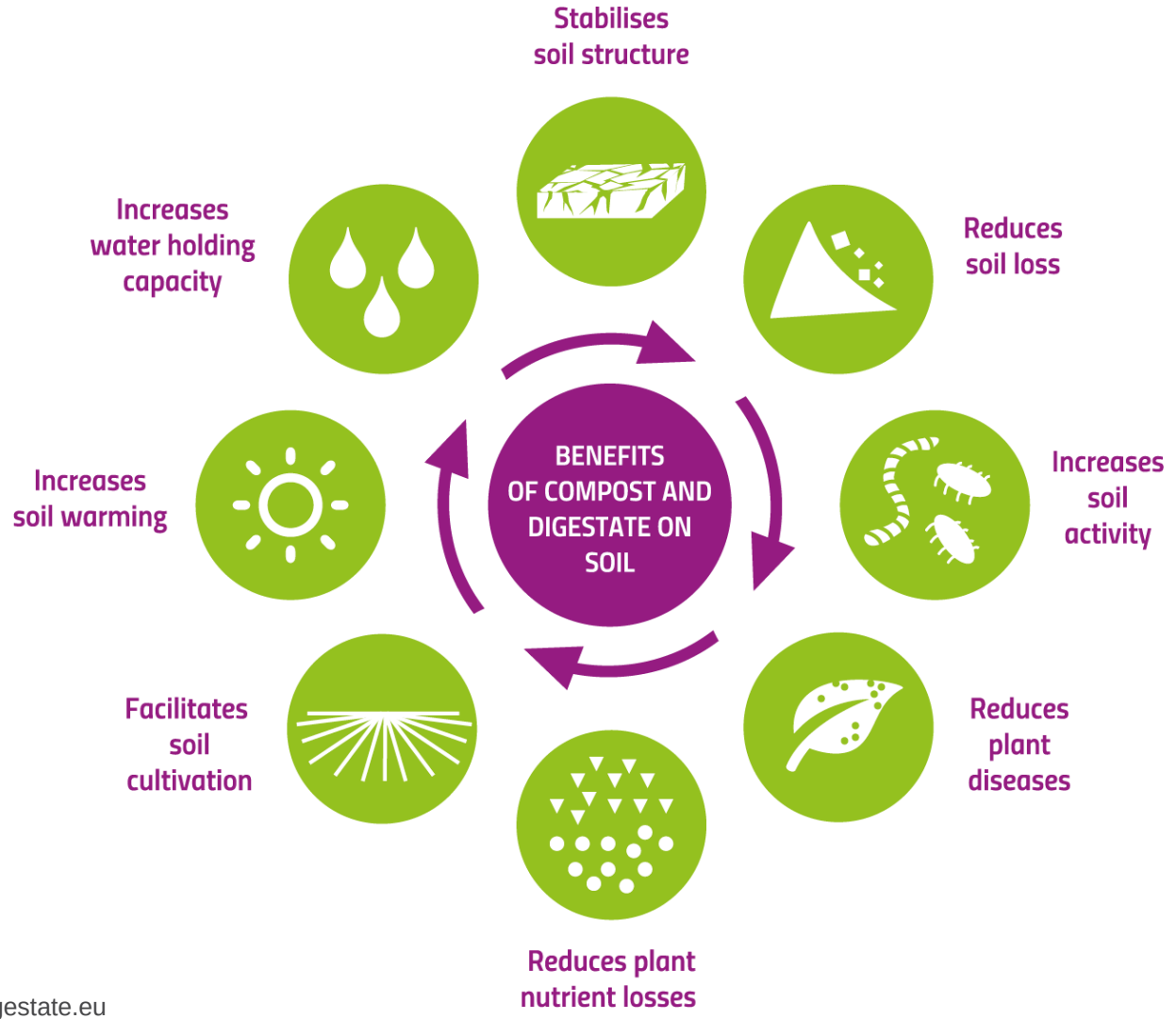
European Compost Network

ECN is the leading European membership organization promoting sustainable recycling, practices of separately collected biowaste and organic resources through composting & anaerobic digestion.

63 members from 27 European countries

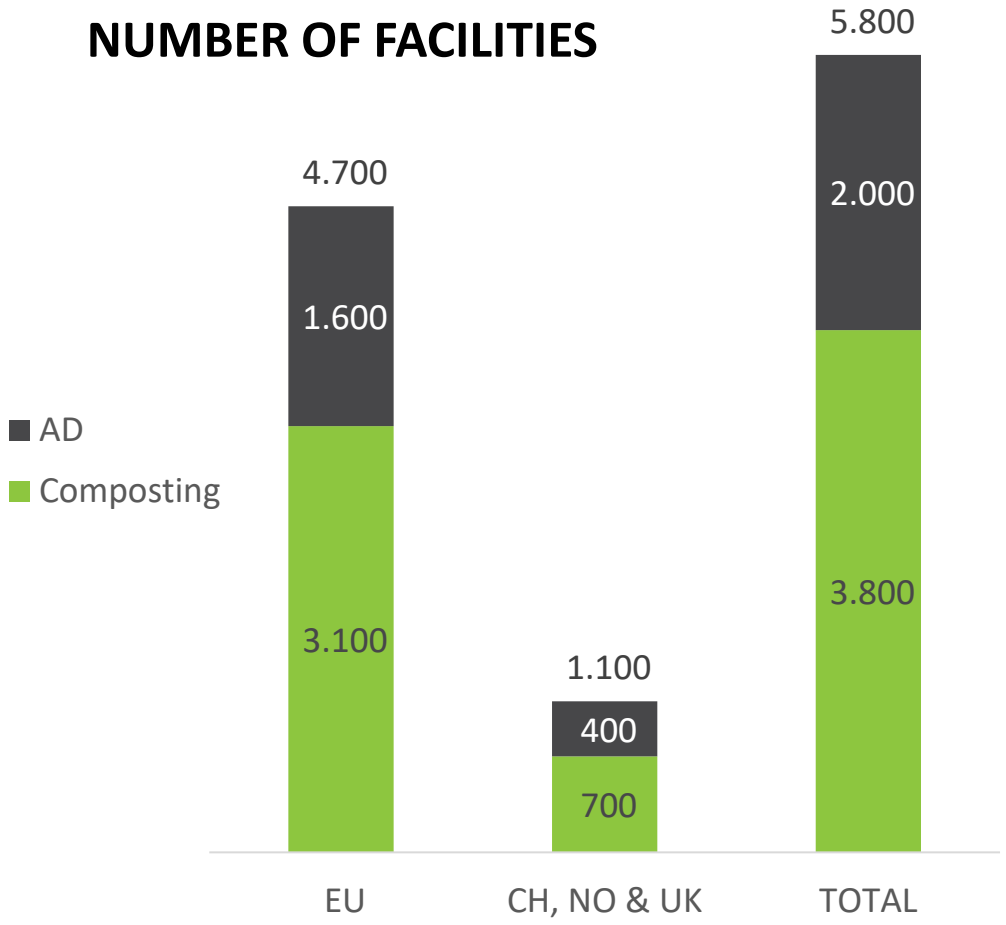
48 M tpa treatment capacity

4.500 treatment plants (composting & AD)

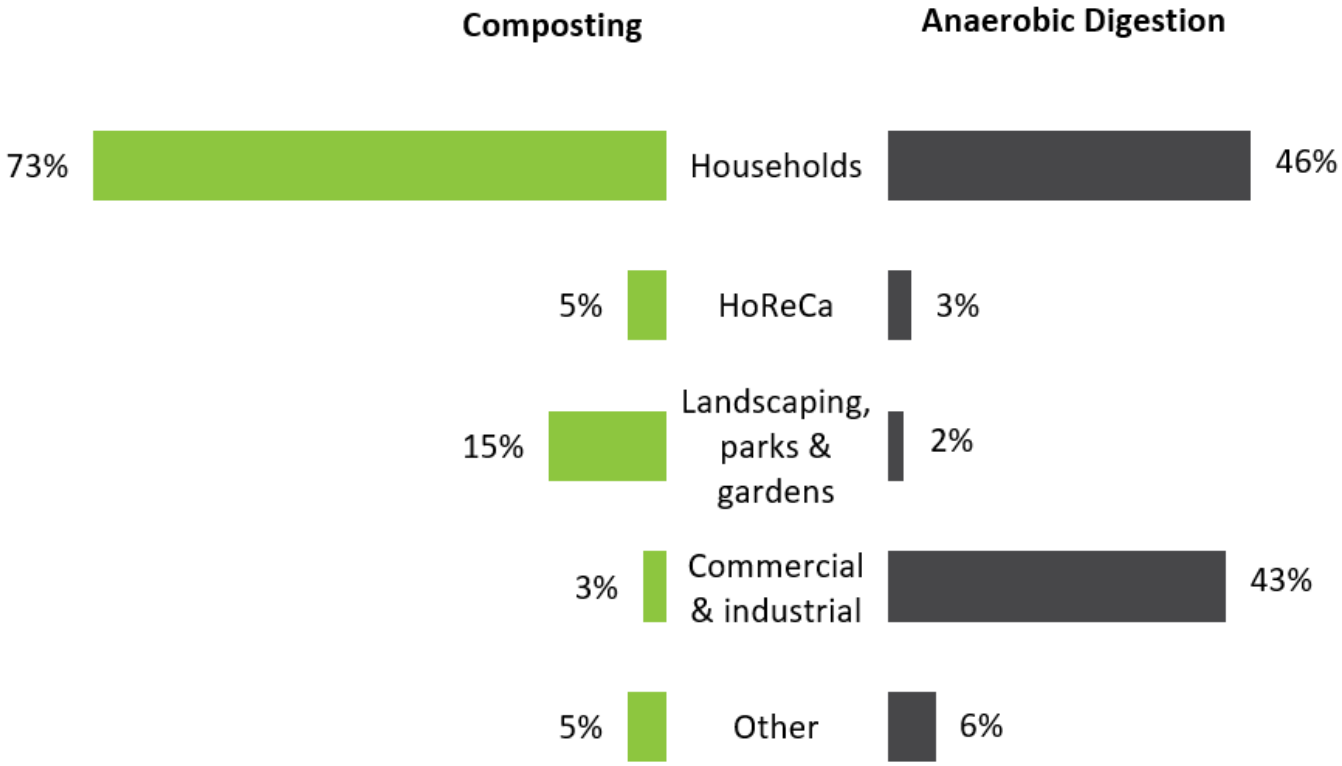


Biowaste Treatment – FACILITIES & SOURCES OF BIO-WASTE

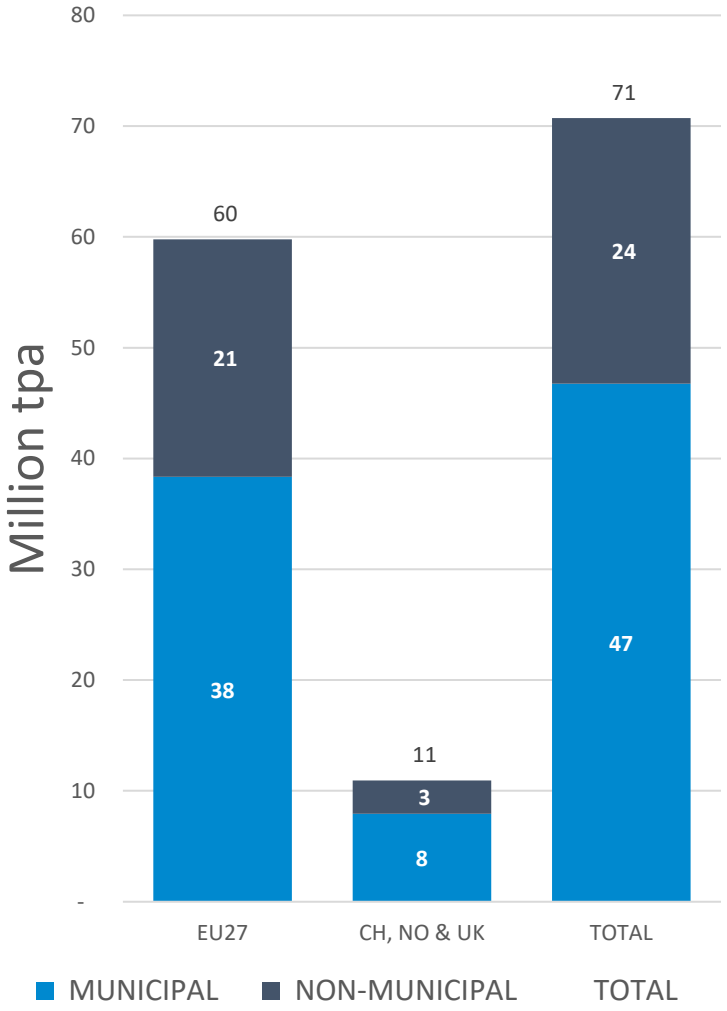
NUMBER OF FACILITIES



SOURCES OF BIO-WASTE



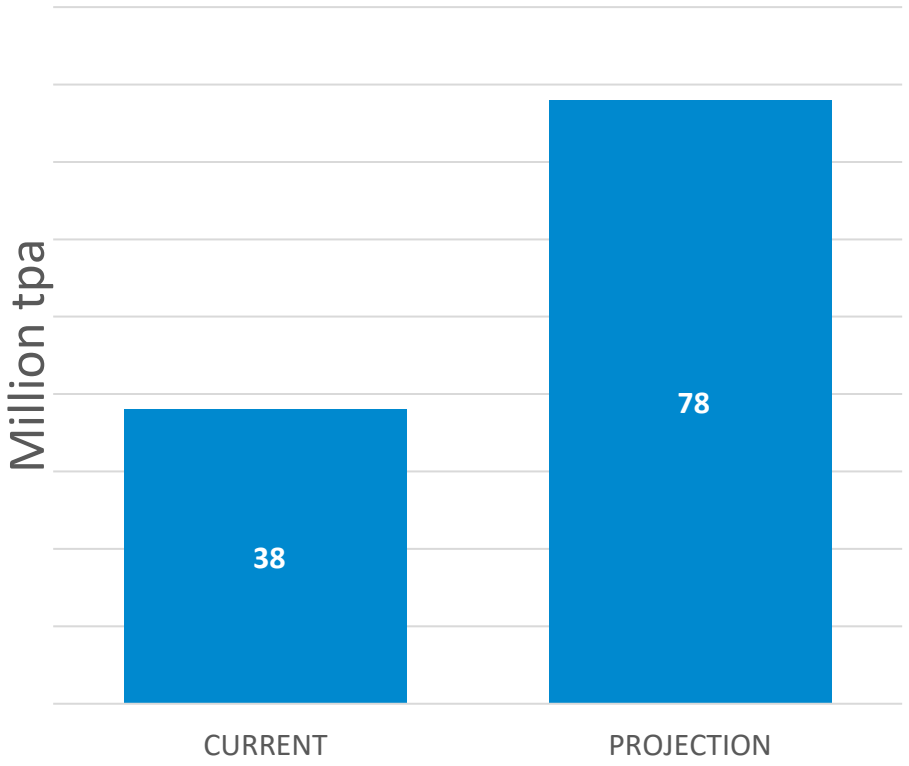
Municipal Biowaste – RECYCLING POTENTIAL



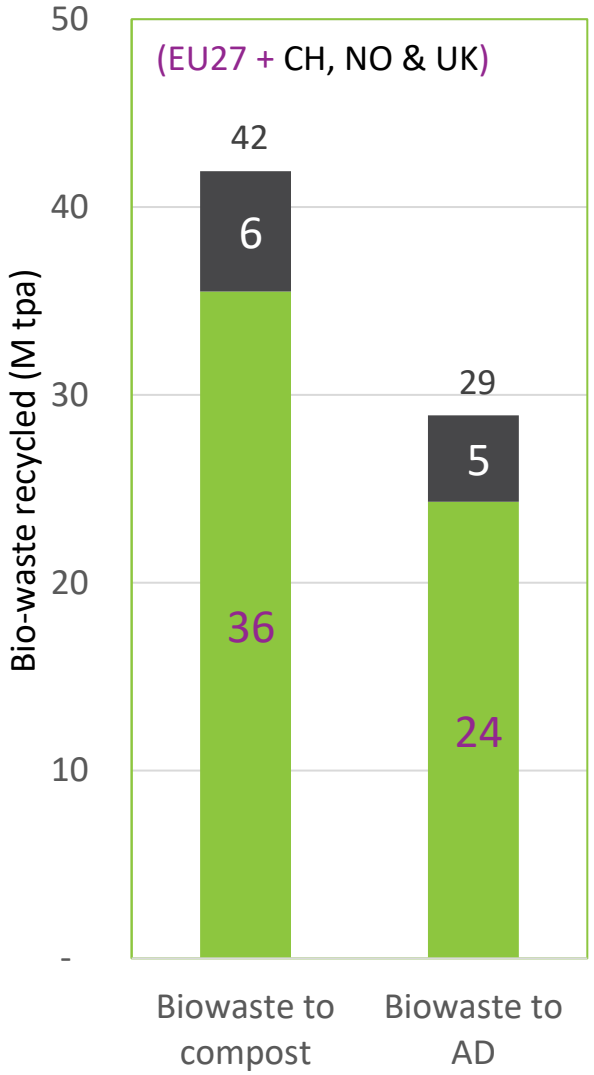
EU TARGET TO RECYCLE 65% MSW BY 2035

17% to 35% needed through bio-waste

Extra 40 M tpa MUNICIPAL BIOWASTE has to be separately collected!



Biowaste Collection – COMPOST & DIGESTATE PRODUCTION



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%

ESTIMATION FOR 2035

46 M tpa

COMPOST PRODUCED

Compost & Digestate – NUTRIENT COMPOSITION

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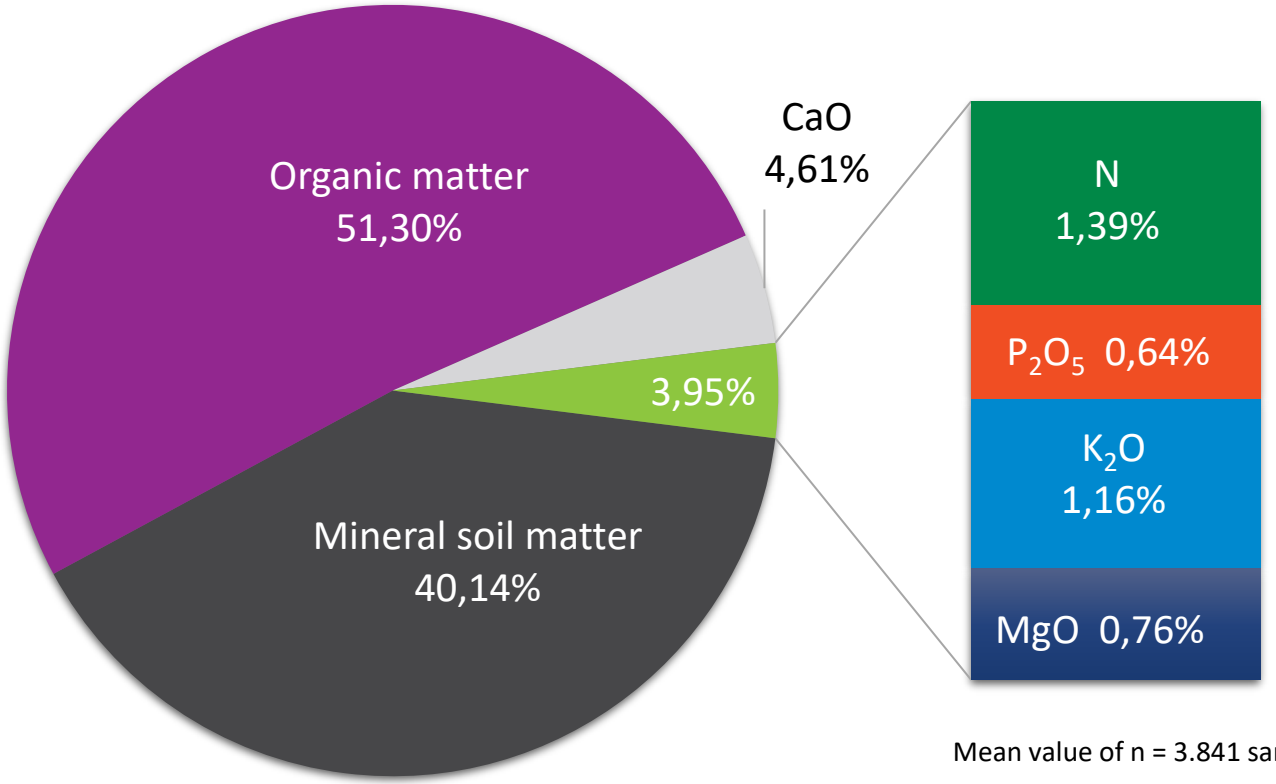
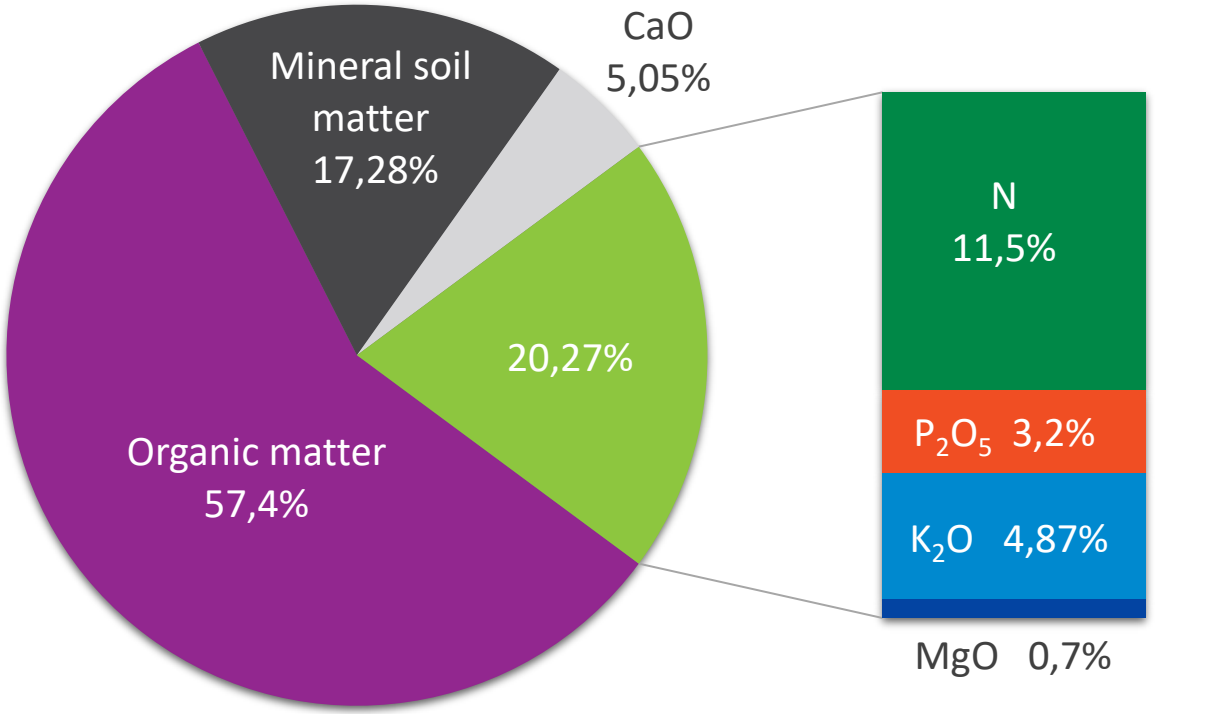
Compost



Mean value of n = 3.841 samples

DM 70,9 %; pH 8,6; Salt content 4,4 g/l

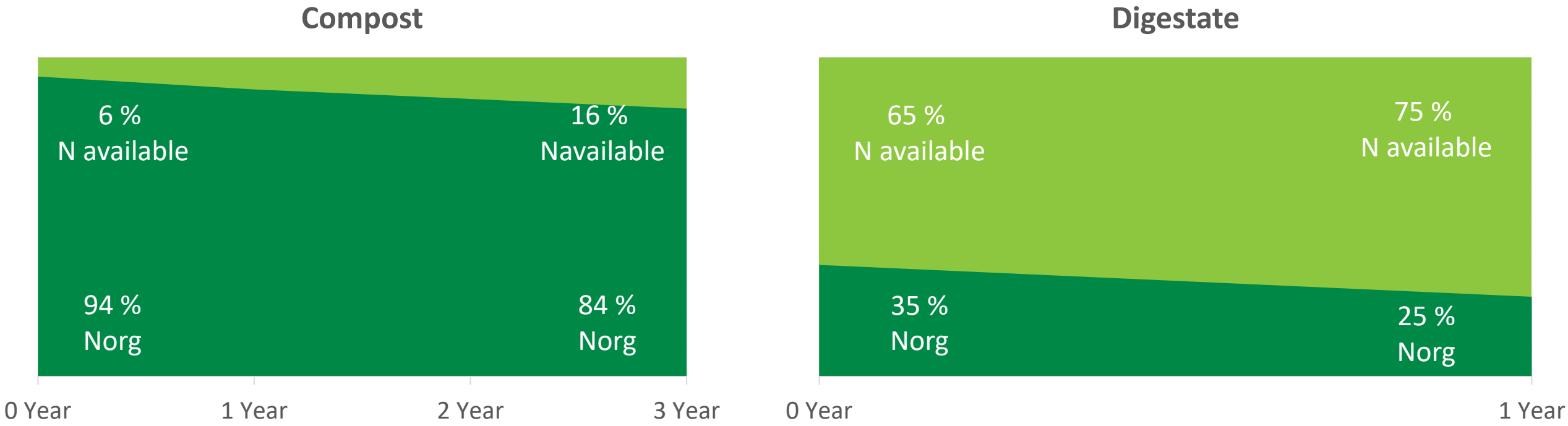
Digestate liquid



Mean value of n = 1.192 samples

DM 4,6 %; pH 8,5; Salt content 16,1 g/l

Compost & Digestate – Nitrogen availability



1) Countable Nitrogen for first application of compost (N-soluble plus 5% of N-organic). 2) Countable Nitrogen for continuous fertilisation with compost (N-soluble plus 25% of N-organic). 3) For application for the whole crop rotation (basic fertilisation) the annual application ratios can be accumulated for needs of 3 years (max. 5 years) Source: BGK 2022

Compost – FERTILISER RESOURCE & VALUE

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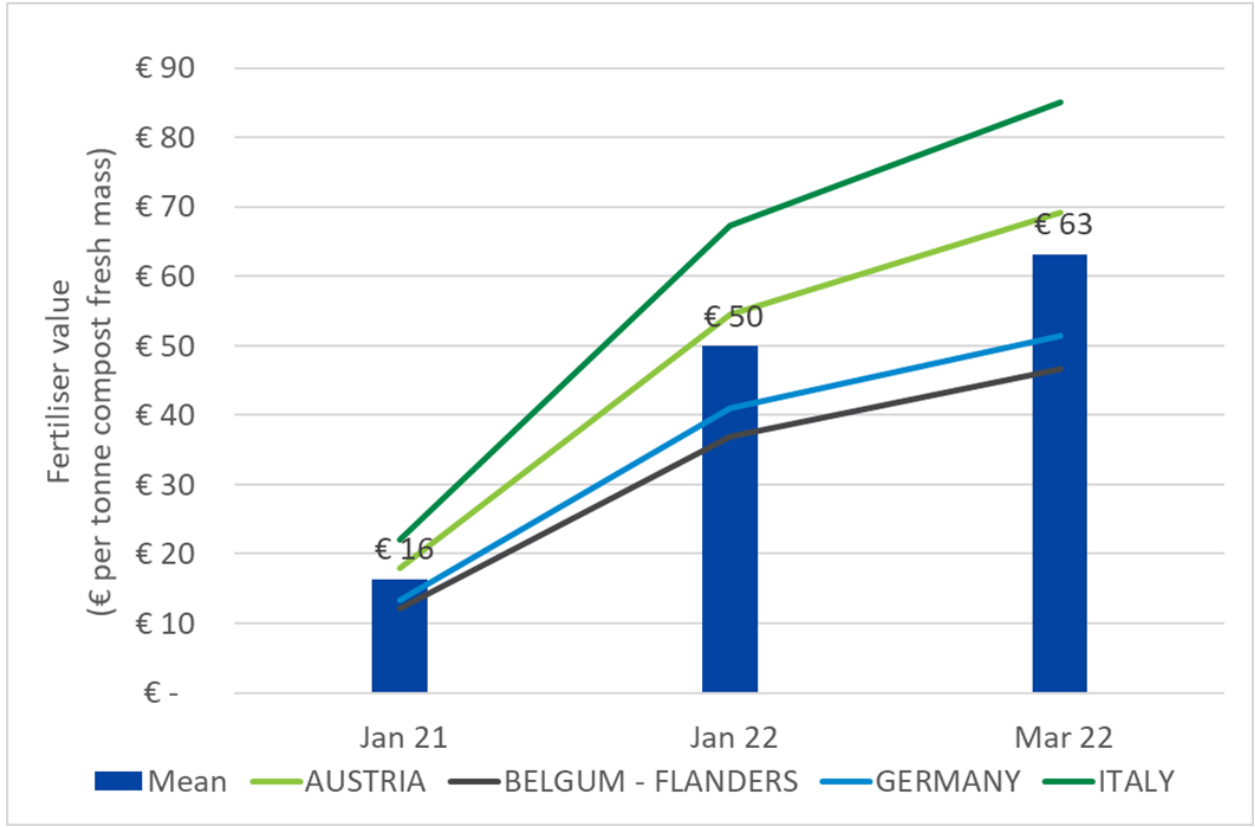
Estimated Quantities of NPK Fertilisers in Compost

	N	P as P_2O_5	K as K_2O
	(thousand tonnes)		
EU27	142	53	84
CH, NO & UK	28	10	16
TOTAL	170	63	100

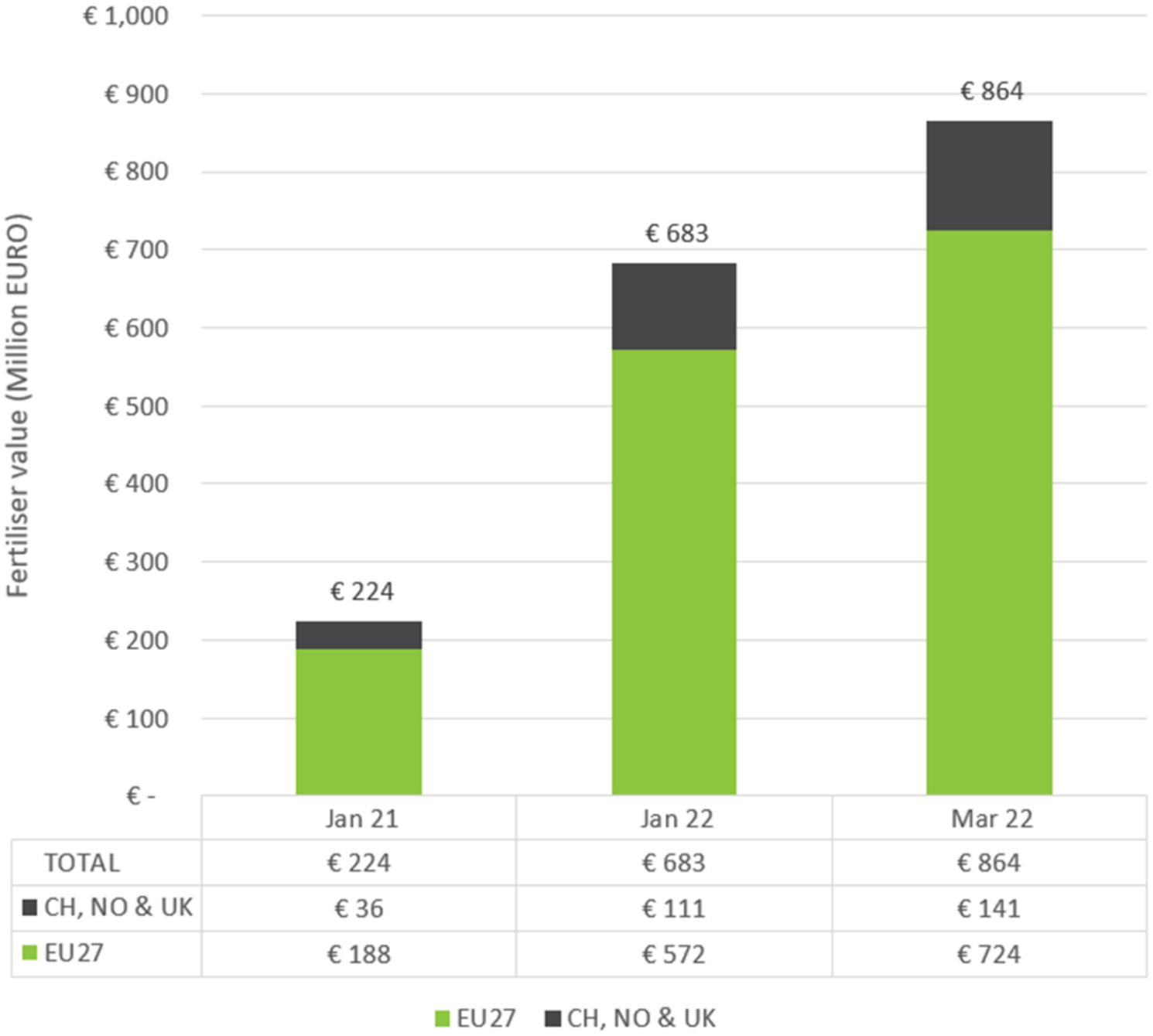
N % FM	P as P_2O_5 % FM	K as K_2O % FM
1.2	0.5	0.7

FM Fresh Matter



Compost

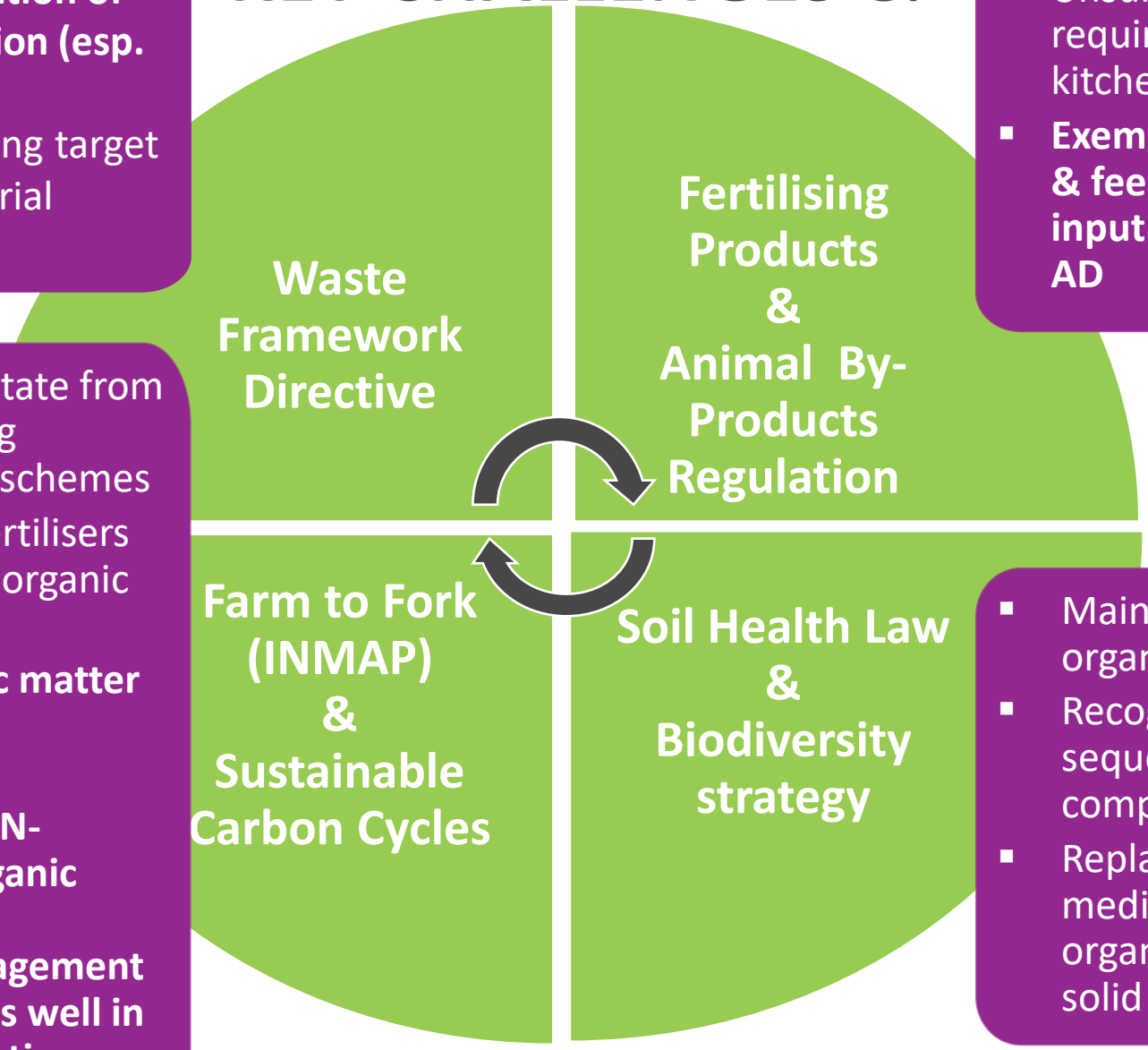
FERTILISER RESOURCE & VALUE



KEY CHALLENGES & OPPORTUNITIES

- **Enforcement: implementation of biowaste separate collection (esp. food waste)**
- Separate collection/recycling target for commercial and industrial biowaste

- Unsuitable ABPR treatment requirements for food waste from kitchen (Cat. 3)
- **Exemption of sludges from food & feed processing industries as input material for composting & AD**



- Including compost & digestate from biowaste in carbon farming practises, carbon removal schemes
- Replacement of mineral fertilisers with high-quality recycled organic materials
- **Recognition of soil organic matter in the Integrated Nutrient Management Action Plan**
- **Acknowledgement of the N-availability of recycled organic fertilisers in balanced and sustainable nutrient management practises of farmers and as well in the digital nutrient calculation tools (e.g. FaST)**

- Maintaining & improving soil organic matter
- Recognition of carbon sequestration potential of compost and solid digestate
- Replacement of peat in growing media with high-quality recycled organic materials (compost & solid digestate)

Further information

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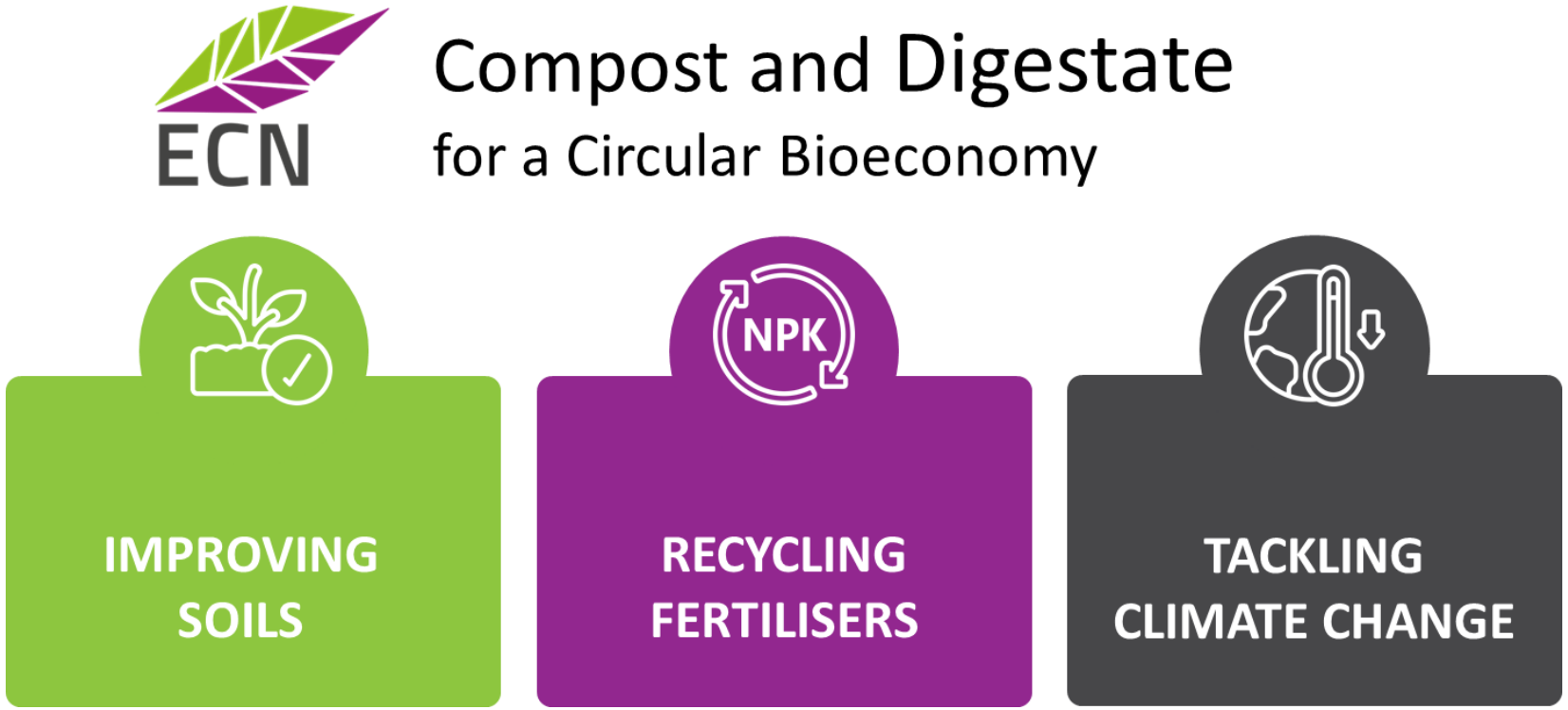
for a Circular Bioeconomy



www.compost-digestate.eu

https://cutt.ly/D1ceQ2u