



From Biowaste to Fertilizers & Biomethane: an Italian success story of integration

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CIC - Italian Composting and Biogas Association

www.compost.it

Italian Composting and Biogas Association

CIC is a non profit organization with

128 members:

- **77 Ordinary Members**

(Operators of AD and/or composting plants)

- **49 Associated Members**

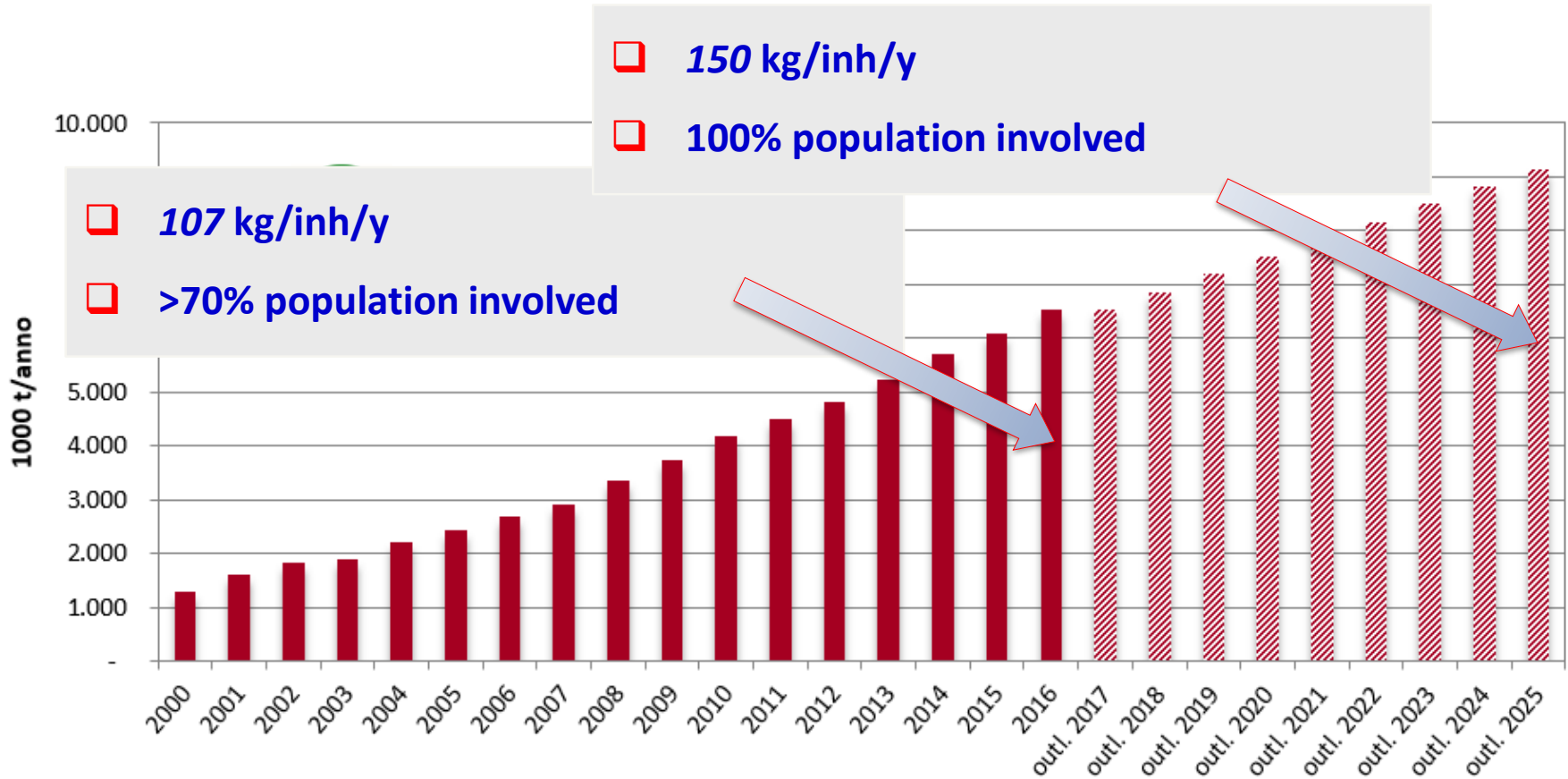
(Consultancies, Enterprises, Labs, Public and research entities etc.)

- **2 General Category Members**

(Associations)



Separate collection of food and garden waste in Italy



9.150.000 t/yr

of Source Separated Biowaste in 2025



Success of Foodwaste collection in different types of context

- High foodwaste capture rates
- High quality



Urban centres



Suburbs



Historical centres



**Remote Areas
or
Outlying Areas**



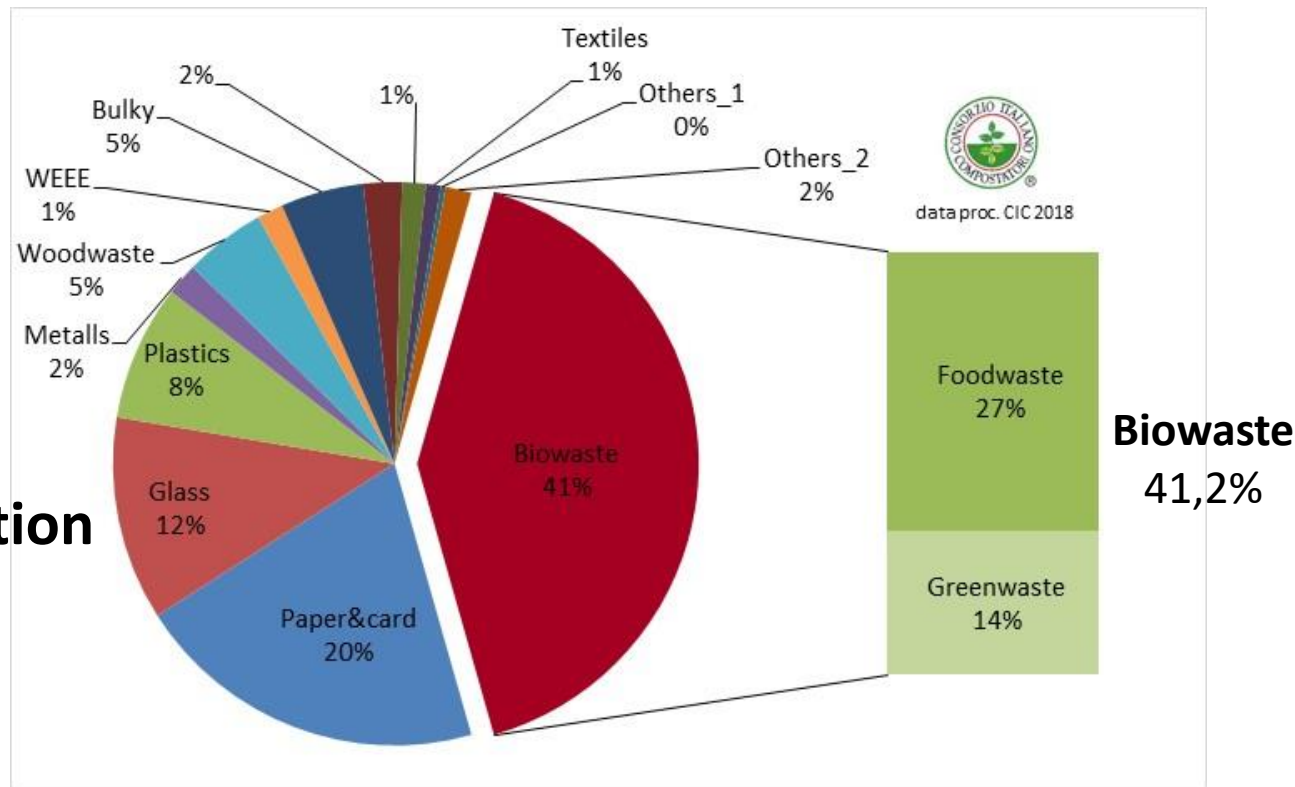
Separate collection of MSW in Italy - year 2016

MSW production

- 29,5Mtons
- 1,33kg/inh/day

MSW Separate Collection

- 52,5%



Toward a circular economy concept

I° scenario

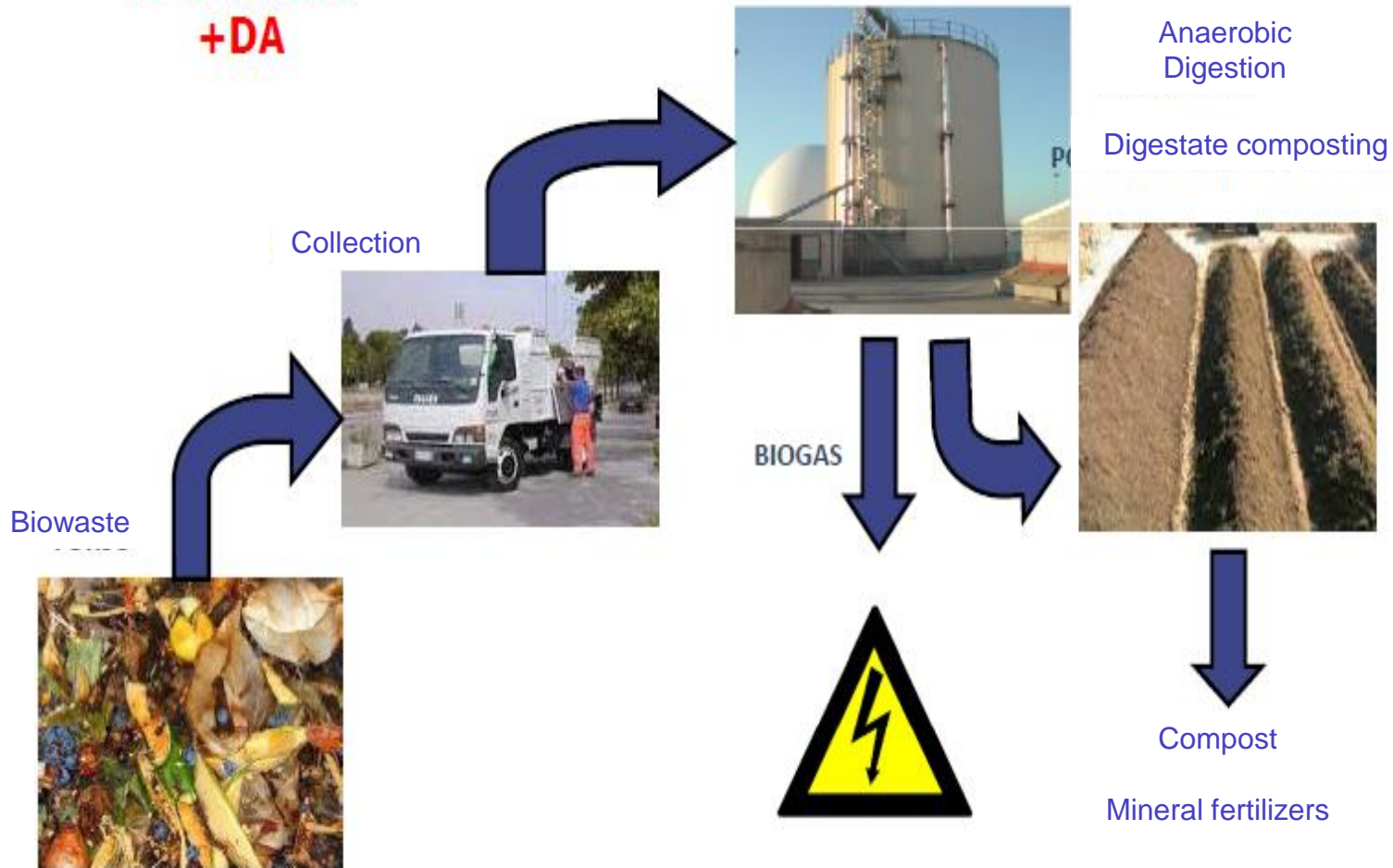


Source: Italian Composting Association



Toward a circular economy concept

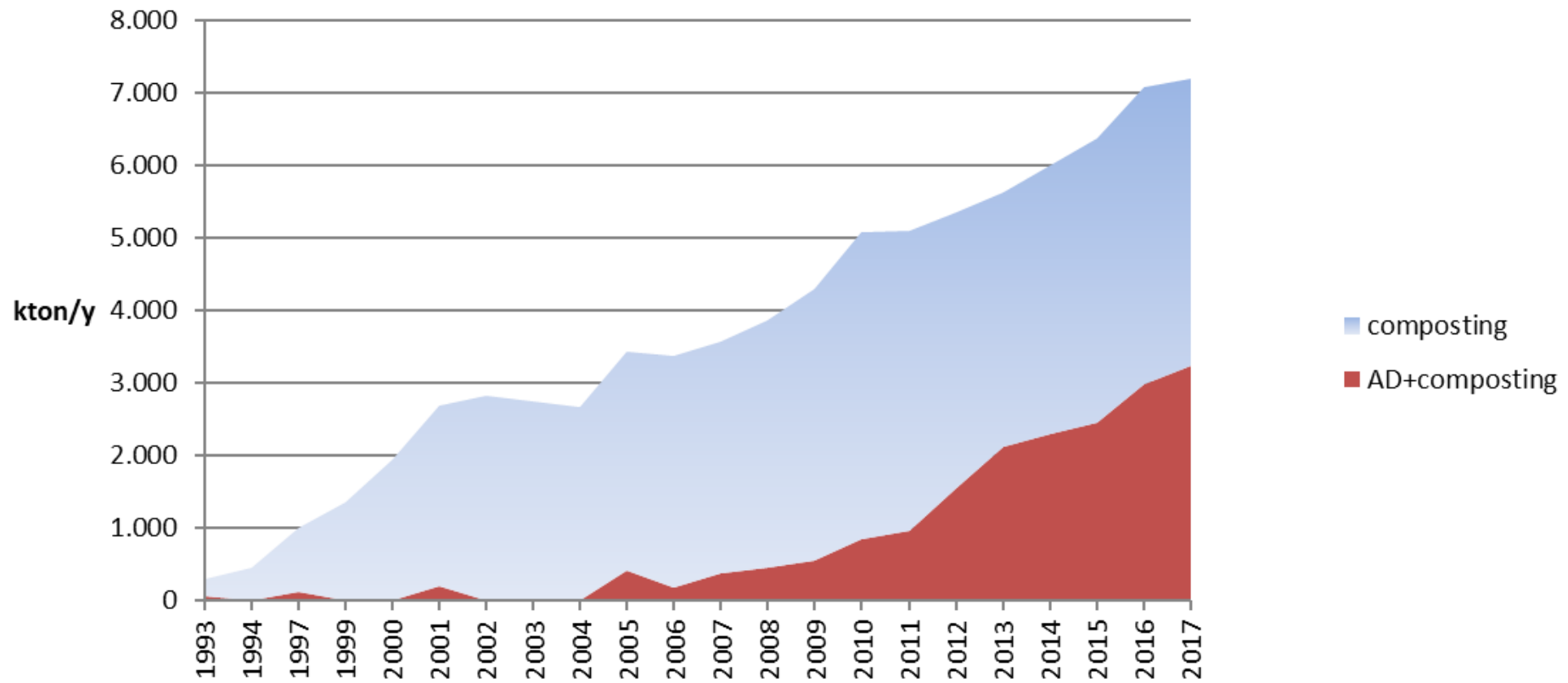
**II° scenario
+DA**



Source: Italian Composting Association



Biowaste recycling profile



Source: CIC - ISPRA



Biowaste recycling in 2017



Composting

AD&Composting

Total facilities: 338

Waste treated: 7,4 mln t:

- ✓ 4,3 mln t foodwaste
- ✓ 1,6 mln t garden waste
- ✓ 0,9 mln t sludges
- ✓ 0,6 mln t other

Total facilities: 282

Waste treated : 3,9 mln t:

- ✓ 1,8 mln t foodwaste
- ✓ 1,3 mln t garden waste
- ✓ 0,5 mln t sludges
- ✓ 0,3 mln t other

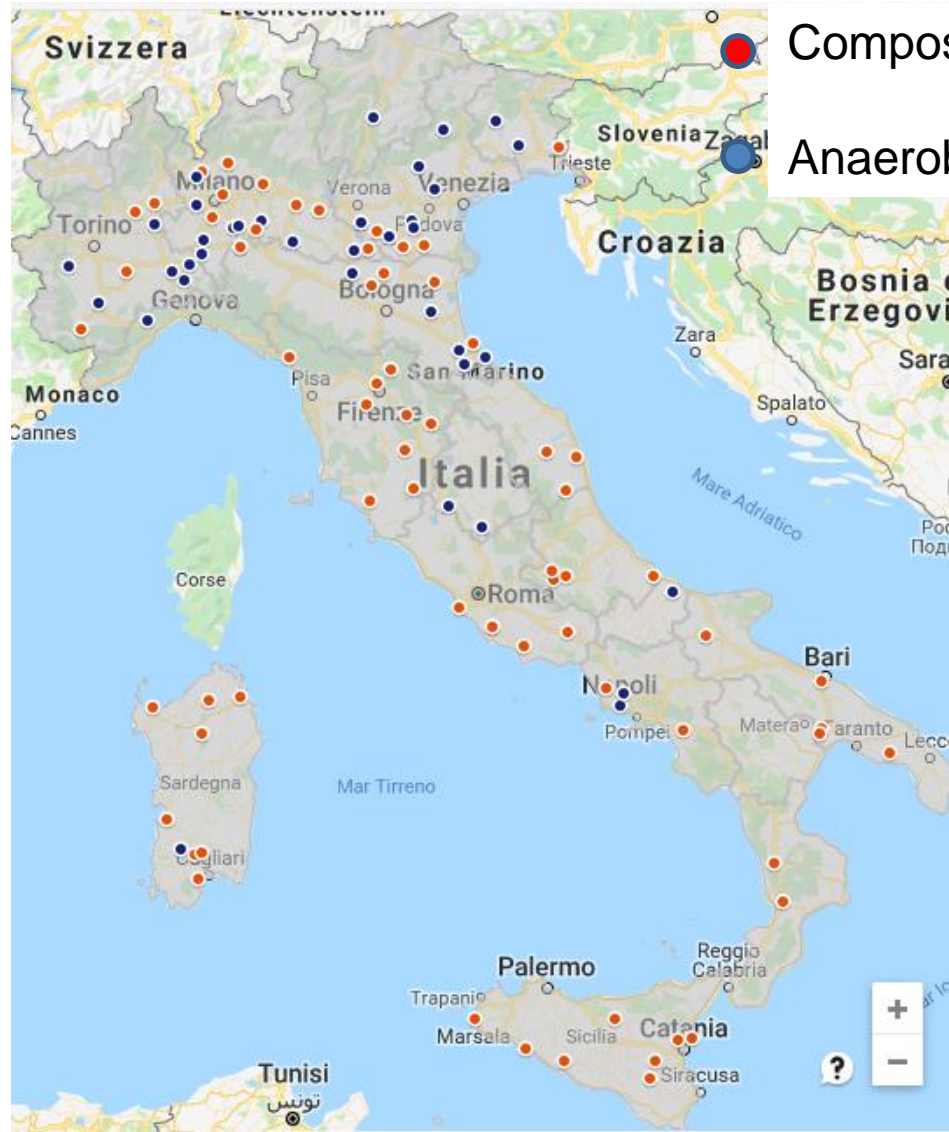
Total facilities: 56

Waste treated: 3,5 mln t:

- ✓ 2,4 mln t foodwaste
- ✓ 0,3 mln t garden waste
- ✓ 0,5 mln t sludges
- ✓ 0,3 mln t other



Biowaste recycling* in 2017



Composting

Anaerobic Digestion



**Foodwaste treatment only having treated > 10.000 t of biowaste*

Recycling is the keyword:
different types of soil improvers from biowaste
(2017)

1.950.000 t/y COMPOST



295.000 t

GREEN COMPOST

1.655.000 t

FOODWASTE COMPOST (30% FROM AD)



Marketshare (2017 interview to plants under the CIC QAS) *(% of the total amount placed on the market)*

Foodwaste Compost

- FIELD SCALE CROPS
- HORTICULTURE
- GROWING MEDIA - NURSERY SECTOR
- AMATEUR AGRICULTURE
- GROWING MEDIA - OTHER SECTORS
- HOUSEHOLD
- FRUIT GROWING
- LANDSCAPING
- GARDENING
- OTHER/N.A.



Foodwaste compost market

*Compost selling price
(€/ton)*



	Foodwaste compost		
	Bulk	Big BAG	packaged
MIN	0	40	64
MAX	15	40	166
AVG	5	40	116



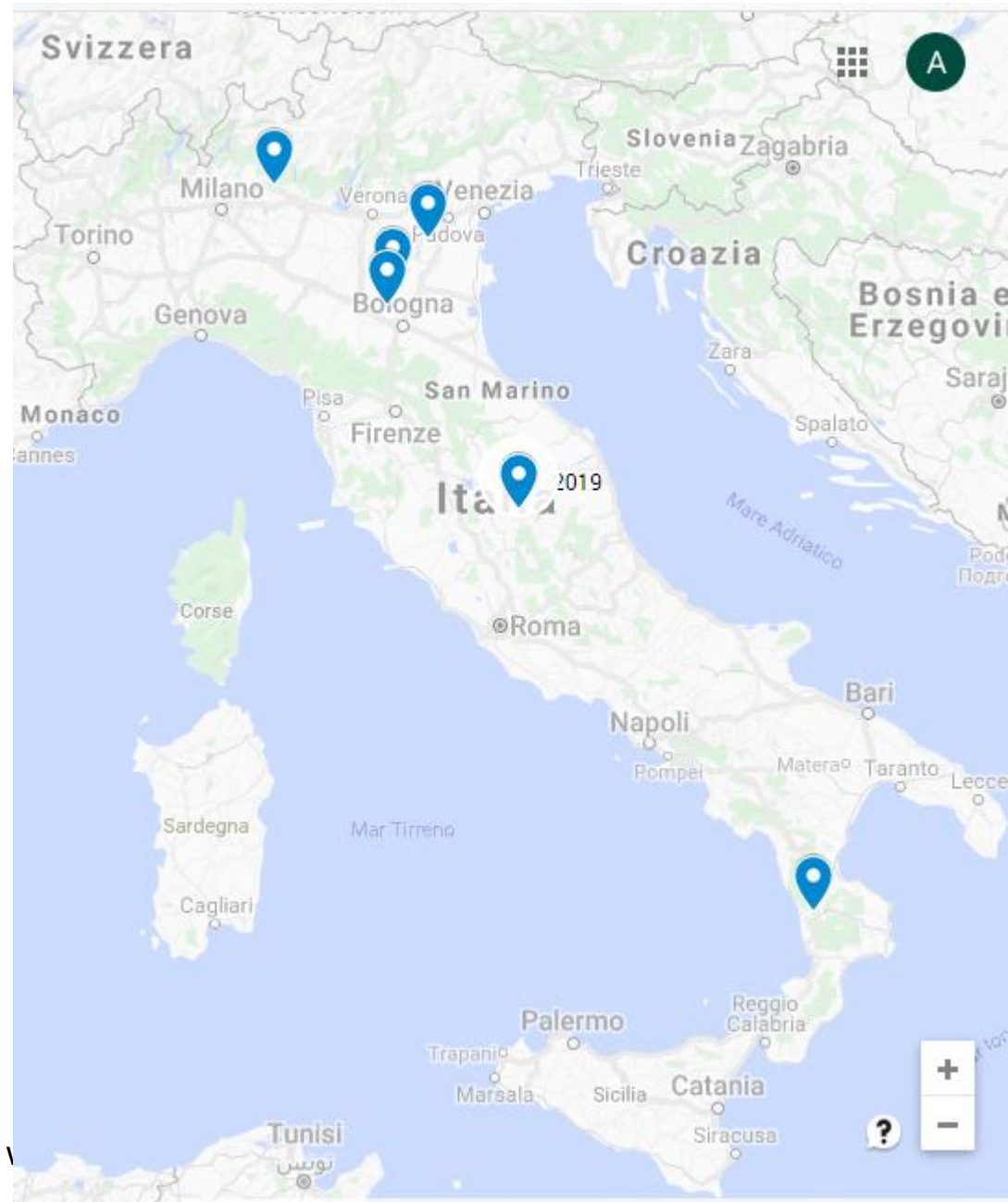
AD implementation and development timeline

- **Early 2000s** Green certificates
- **2008 -2012** All-inclusive tariff (2008-2012, 0.28€/kWh for 15 years)
- **2012 -** Reduction of Incentives to e.e. (D.M. 2012, 2016; 0.14-0.18€/kWh for 20y)
- **2013-2018** 1st Biomethane Decree, ineffective
- **2018-** 2nd Biomethane Decree (march 2018), specifically meant to subsidize biomethane as a fuel for vehicles

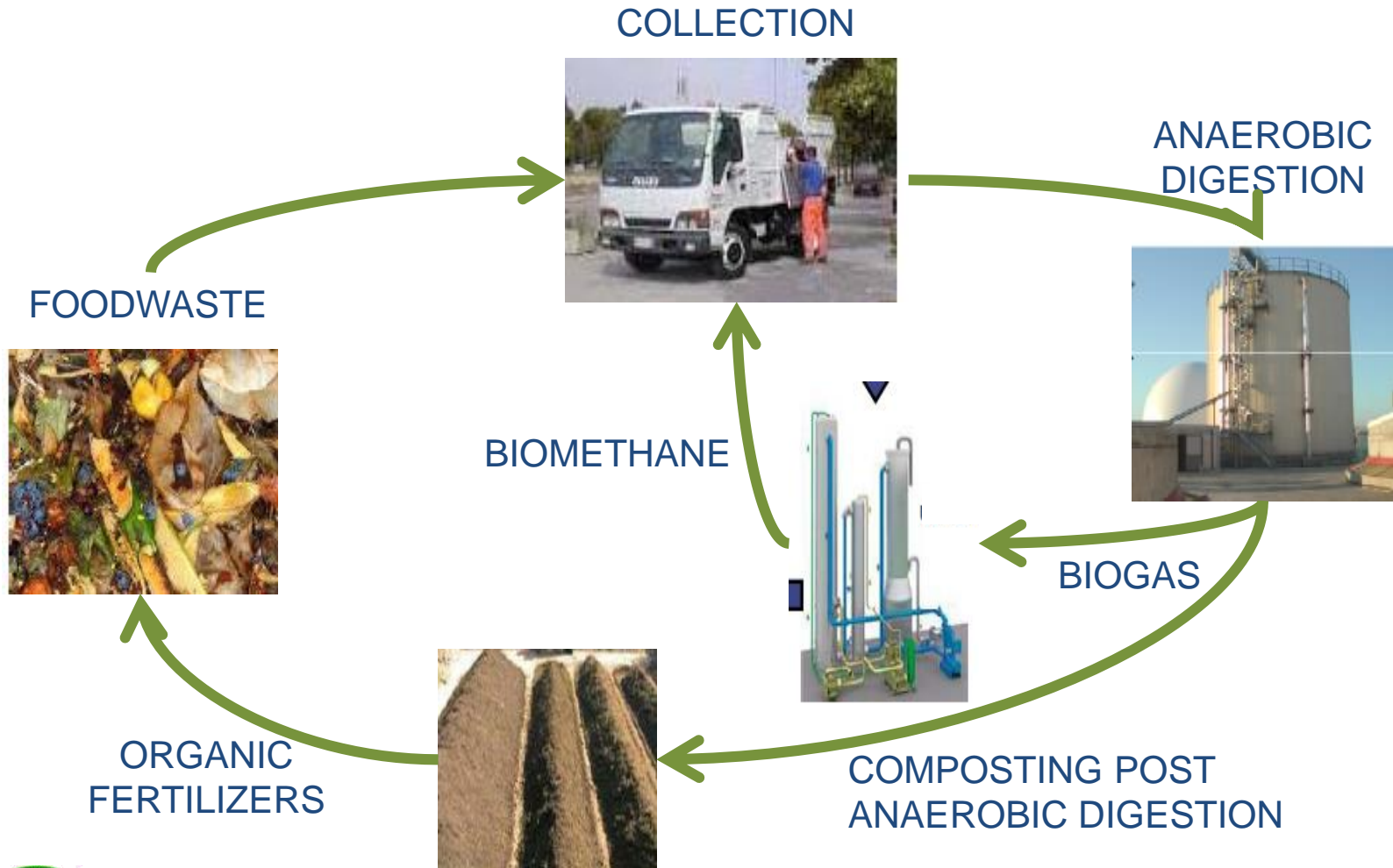


Biomethane state of fact

- 6 plants in operation on biowaste, 80Mm³/y of biomethane
- Mostly based on previous AD or composting facilities
- Several new planned
- Potential: (up to 750Mm³/y on the long term; around 200Mm³/y on the short term)



Back to future: closing the loops



A first step towards Quality: the assesment of Non Compostable Materials in foodwaste



Plastic bags



Rigid Plastics



Glass, metals, other

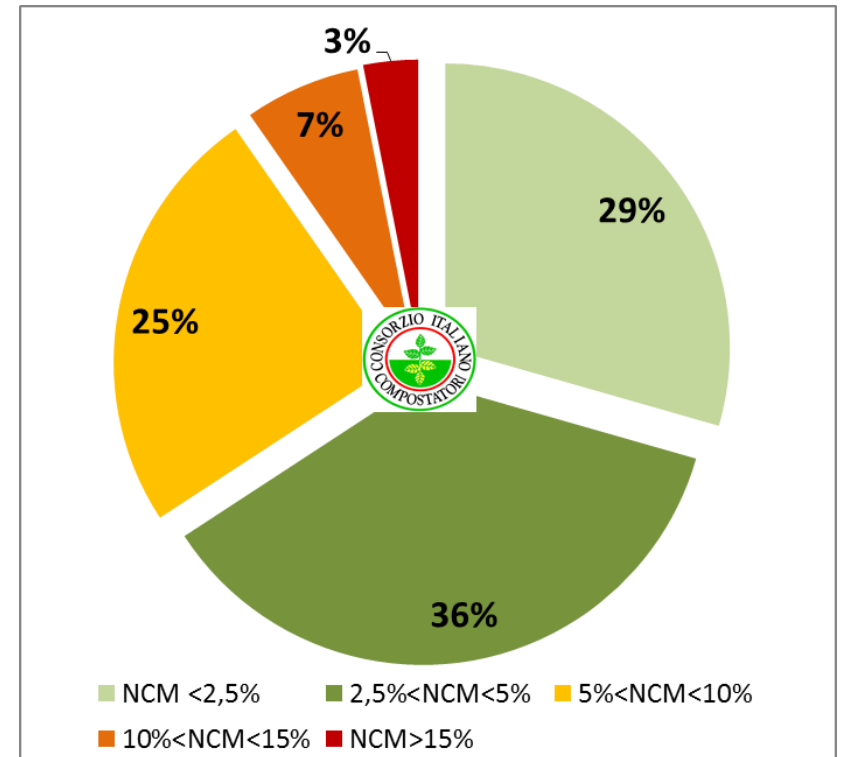
66%

34%



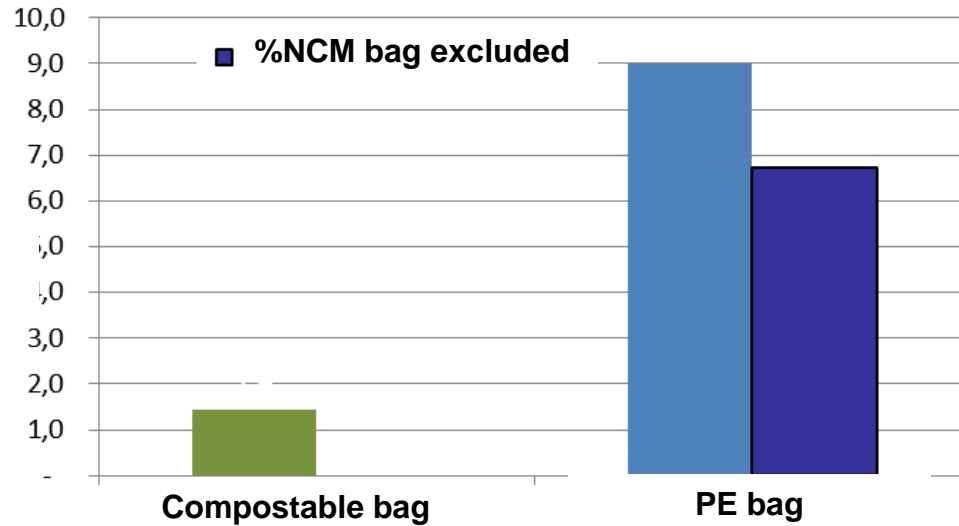
The quality of food-waste in 2018

- 828 waste- composition analyses performed in 2018
- Average “non-compostable-quota” 5,1% in weight
- Still more than 40% bags not compostable



Compostable bags vs foodwaste quality

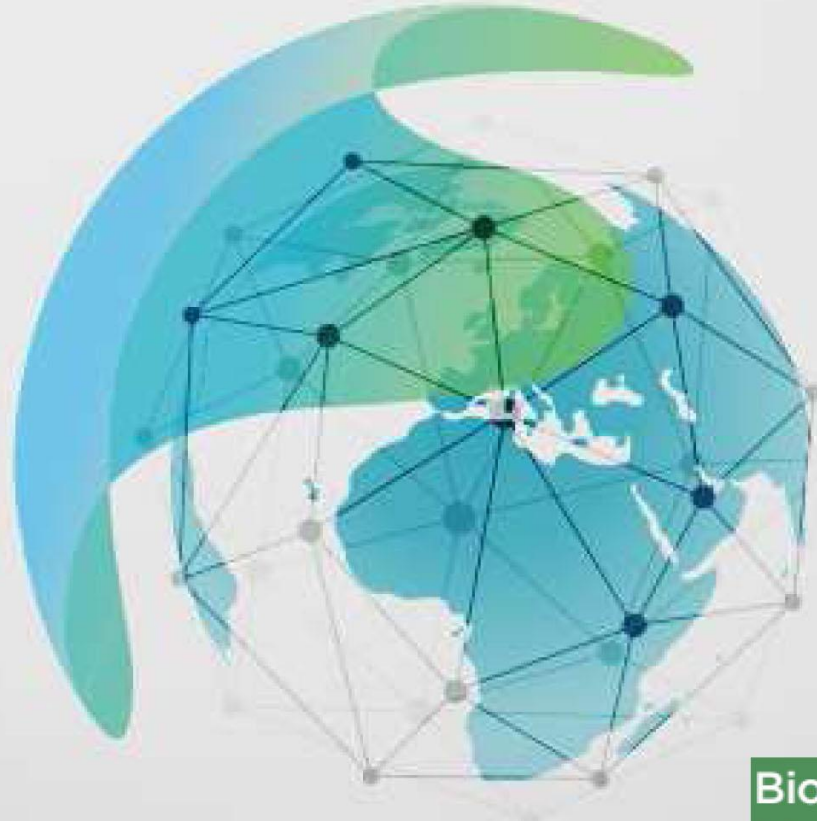
Non Compostable Materials



Perspectives

- Increase of FW source separation and recycling due to:
 - Transposition of WFD:
 - increasing recycling targets (including specific provisions for biowaste)
 - Increase recycling facilities (expected growth of AD with biomethane production)
 - Long term effects of biomethane granting scheme
- Output diversification and improvement:
 - new EC Regulation on Fertilizers:
 - both compost and digestate included as EoW, pending on a proper categorization (soil improver, organic fertilizer, growing media)
 - transposition of WFD:
 - Accounting as recycling only if the output used on land results in benefit to agriculture or ecological improvement





industry 4.0
new frontiers in recycling
plastic and bioplastics
drinking water resource
biorefineries
food waste
air quality
hydrogeological risk

Highlights
2019.

Platform for the
Green & Circular Economy.

Bioenergy - from biomass to
biogas and biomethane

Ecodesign - Raw Materials

Global Water Expo

ECOMONDO

THE GREEN TECHNOLOGY EXPO

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Thanks

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