



The Italian experience in foodwaste management

November 19th, 2019

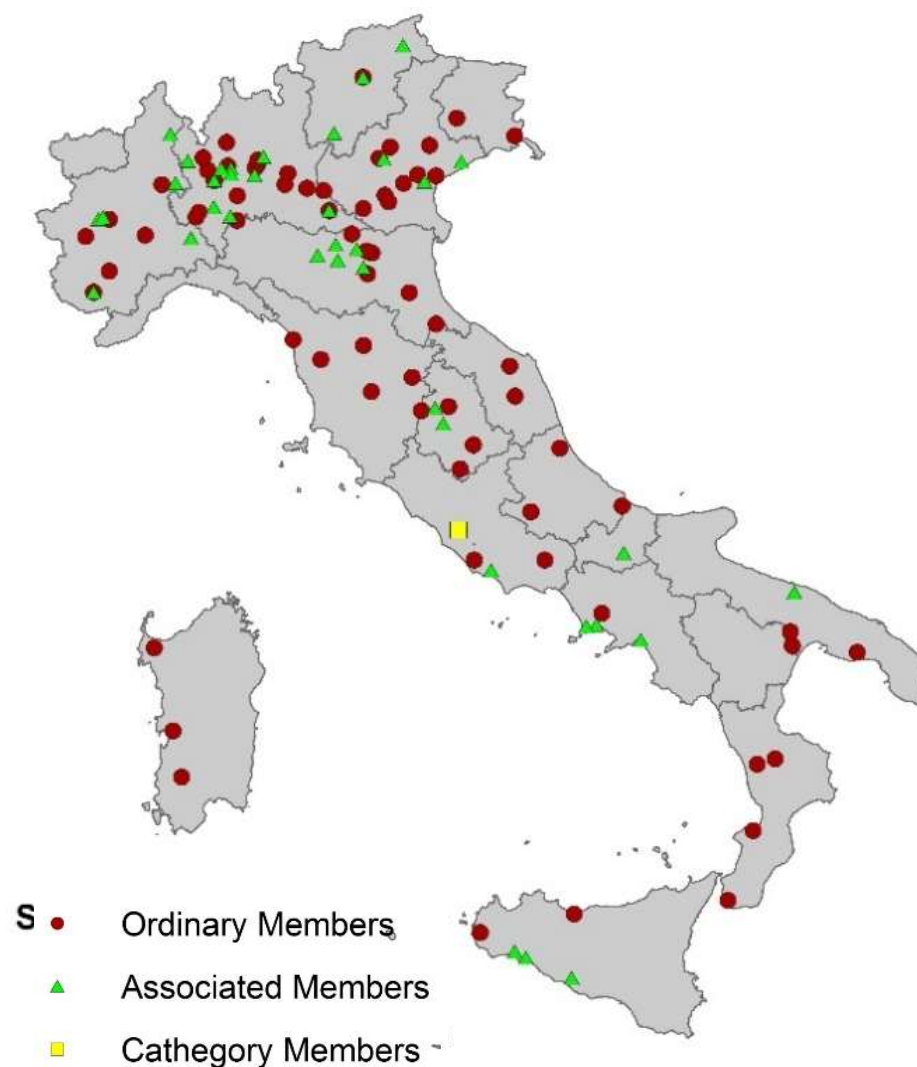
Alberto Confalonieri
CIC - Italian Composting and Biogas Association

www.compost.it

Italian Composting and Biogas Association

CIC is a non profit organization with
127 members:

- **78 Ordinary Members**
(Operators of AD and/or composting plants)
- **47 Associated Members**
(Consultancies, Enterprises, Labs, Public and research entities etc.)
- **2 General Category Members**
(Associations)



What we do

Il **CIC** è impegnato in numerose iniziative per la crescita della raccolta differenziata e la valorizzazione del **RIFIUTO ORGANICO** attraverso la produzione di **FERTILIZZANTI ORGANICI** e Biogas, dal quale si può ottenere un **BIOCARBURANTE AVANZATO**, il Biometano.



Partnerships



Member of ECN (European Compost Network)



Member of ISWA International



Embassador of Ecomondo in the world



Partner Sustainable Development Fundation



Member of the National Council of Green Economy



Founder Member of the Word Biogas Association



Partner of the Bioplastics Association



Founder of the Mediterranean Compost Network



What we do: CIC Quality Labels



Manages since 2006 certification system for compostable bioplastics

www.compostabile.com

CIC manages since 2003 National Quality Standards for Compost and develops Regional Q Labels

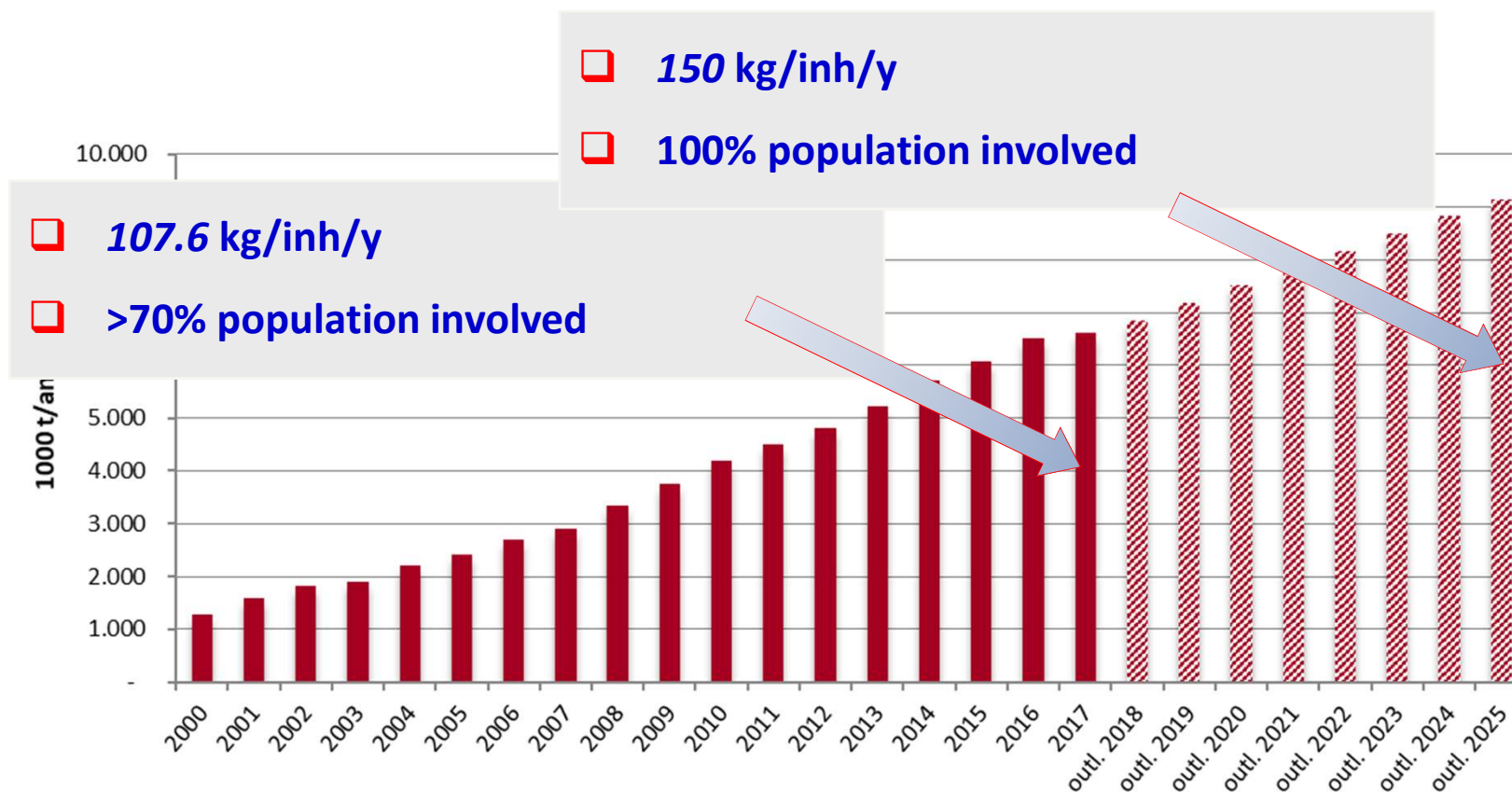
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CIC is working on a certification scheme for BioMethane from biowaste



Separate collection of food and garden waste in Italy



9.150.000 t/yr
of Source Separated Biowaste in 2025



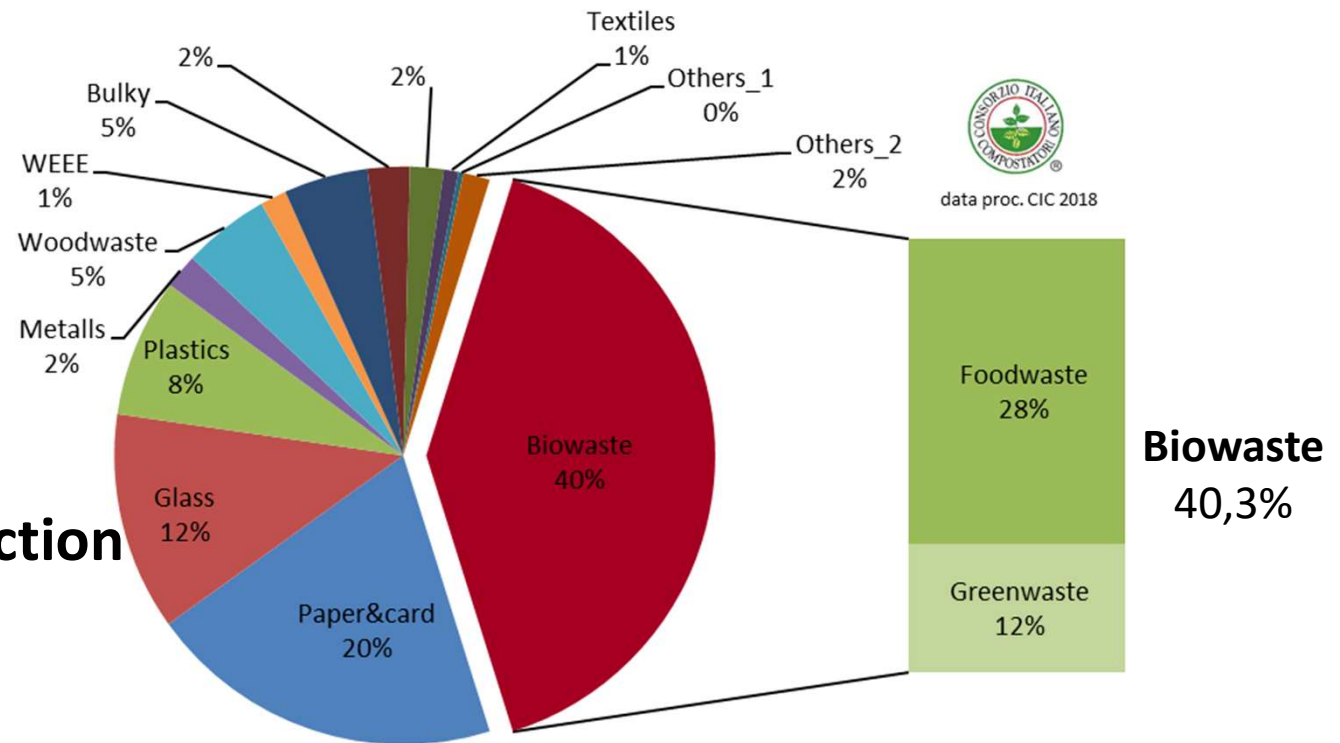
Separate collection of MSW in Italy - year 2017

MSW production

- 29,6Mtons
- 1,33kg/inh/day

MSW Separate Collection

- 55,5%



Biowaste separate collection

(CIC elaboration on ISPRA data, year 2017)

4.600.000 t/a

Food Waste

76 Kg/inhab/y



2.000.000 t/a

Garden Waste

33 kg/inh(y



6.600.000 t/a

Biowaste

107,6 Kg/inhab/y



Foodwaste collection in different types of context



Urban centres



Suburbs



Historical centres



**Remote Areas
or
Outlying Areas**

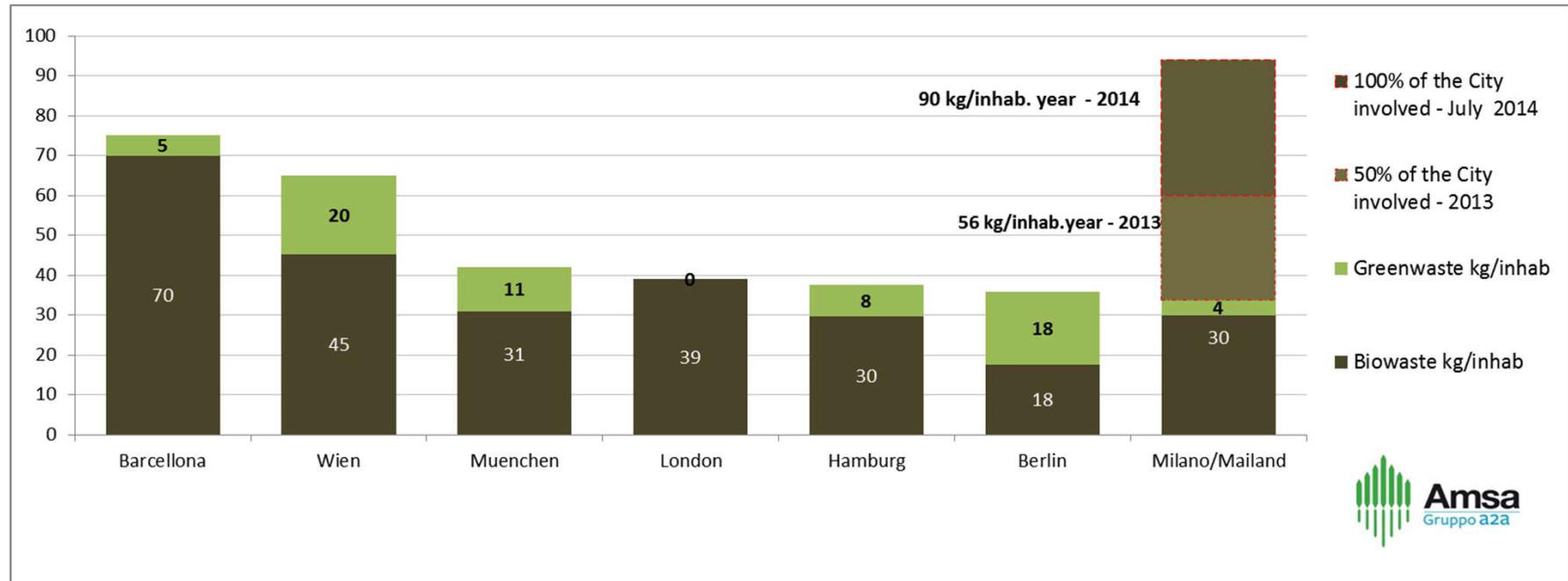


Source Contarina 2014

Up to large cities: the case of Milan



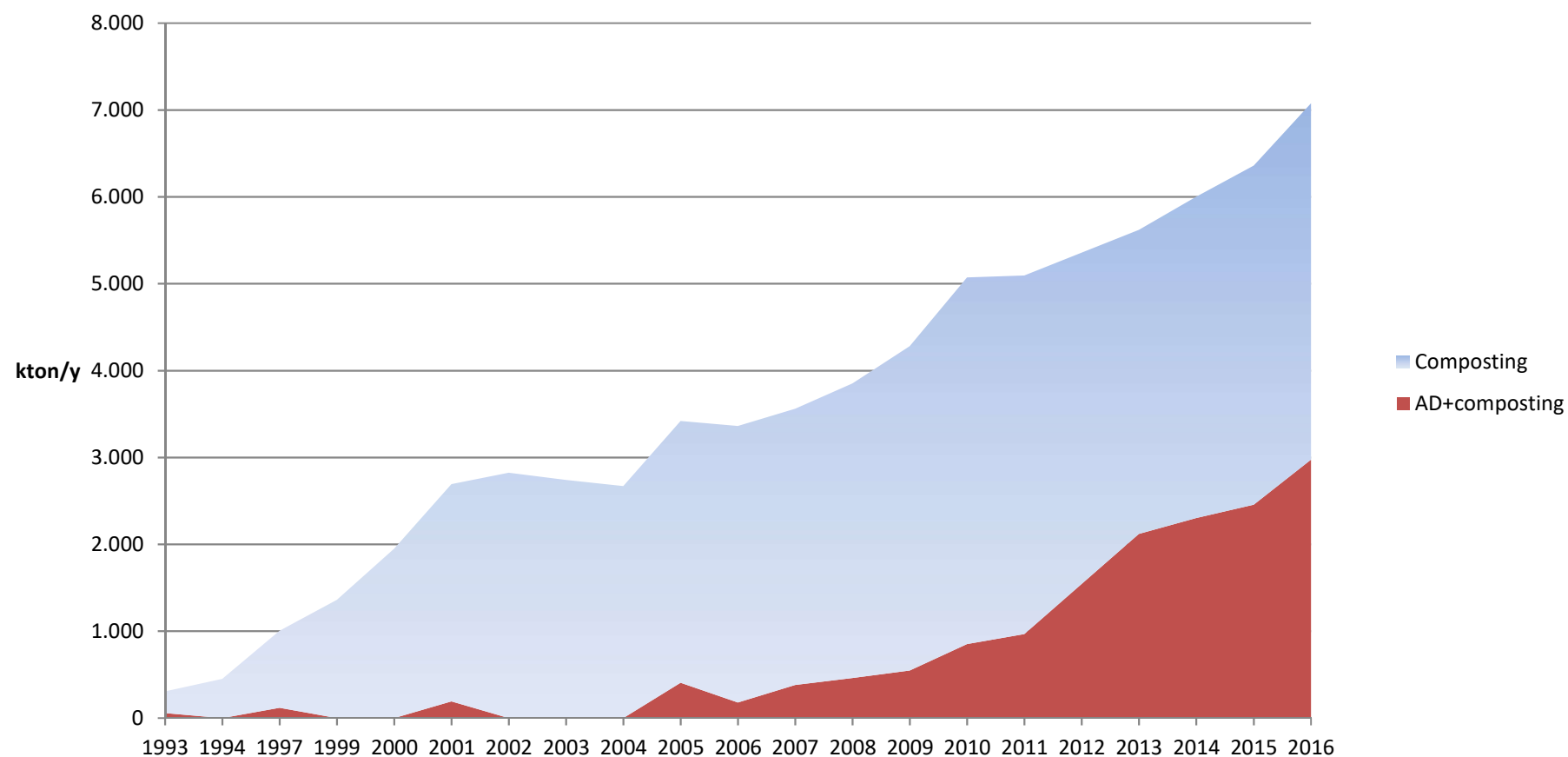
Comparison with other Cities in Europe



- Milan : data include forecast or year 2014
- Milan: Biowaste is 100% food waste
- München, Berlin, Hamburg and Vienna: Biowaste contains significant amounts of green waste
- Barcelona: bring-schemes (large road containers)

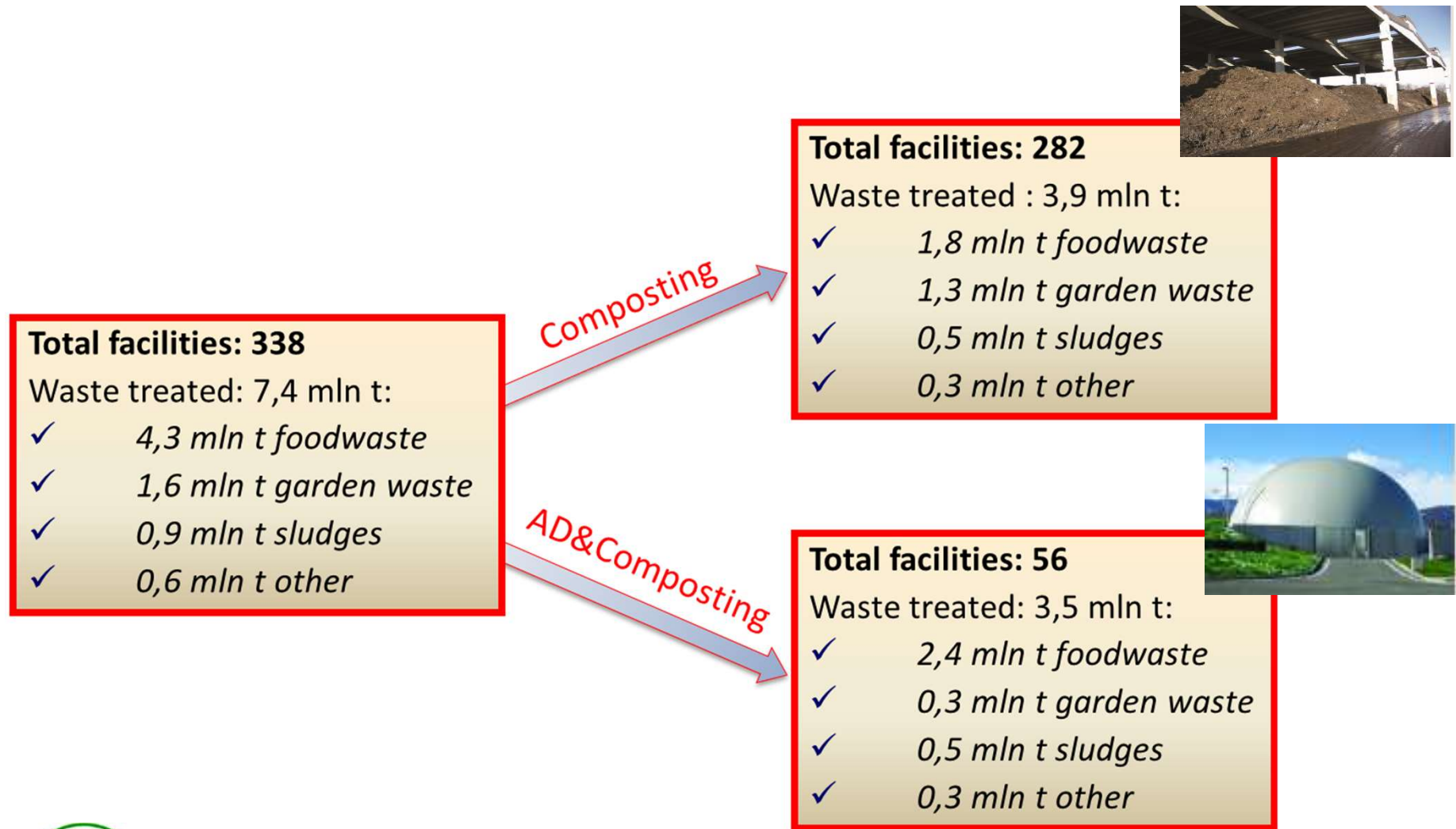


Biowaste recycling profile



Source: CIC - ISPRA

Biowaste recycling in 2017

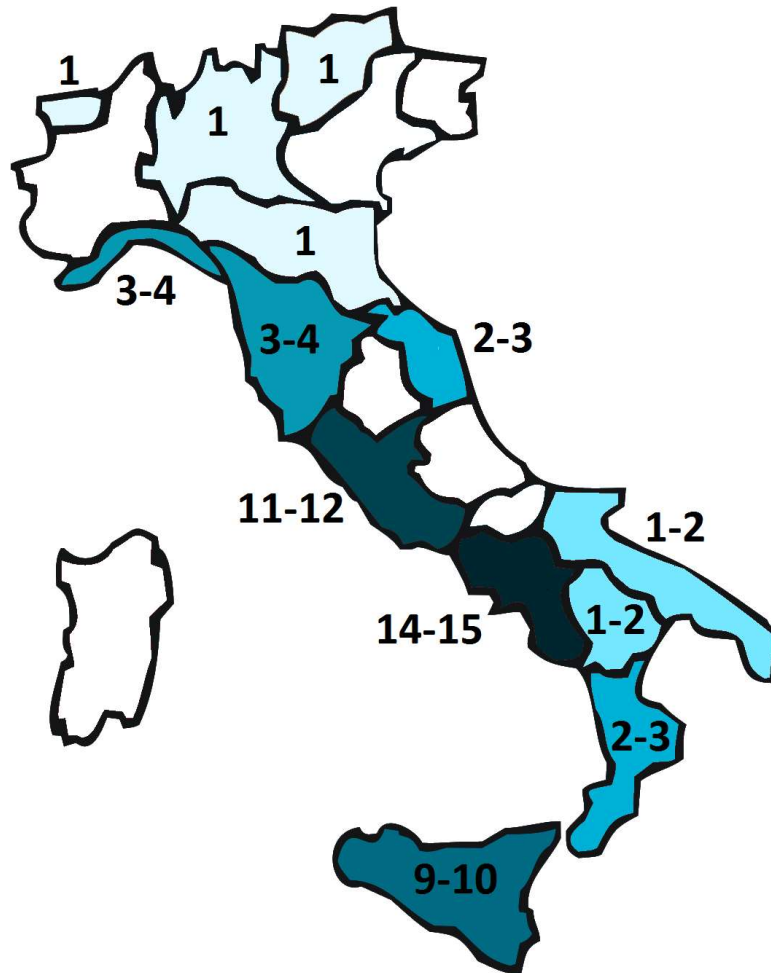


Biowaste recycling* in 2017



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

Biowaste recycling: the future regional demand



Scenario 2: 100% Biowaste coll.

BW collected – plants capacity

2.000.000 t

50-59 plants 50.000 t/y each

- 7-8 NORTH
- 16-19 CENTER
- 27-32 SOUTH



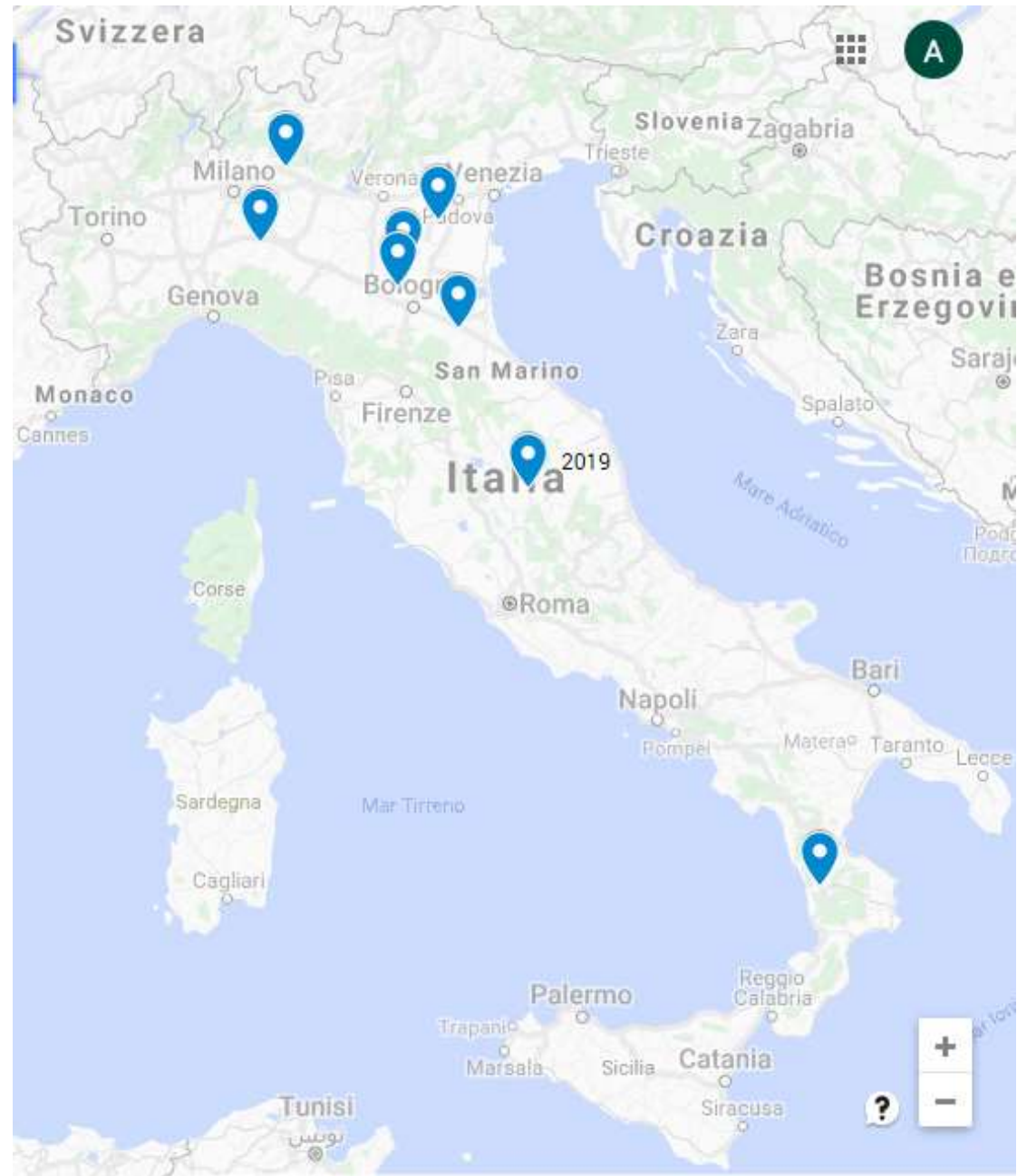
AD implementation and developement timeline

- **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

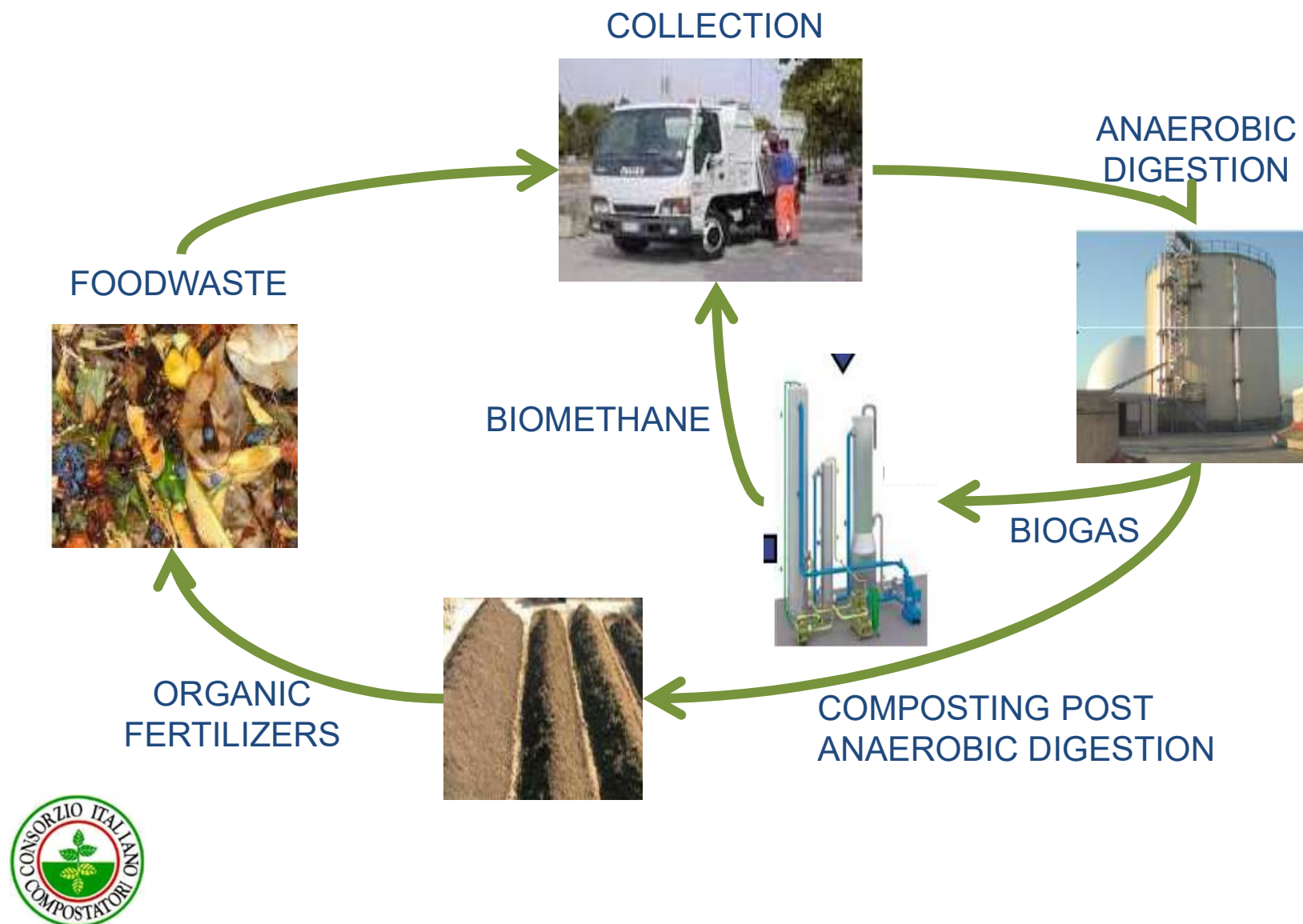


AD implementation and development timeline

- 8 plants in operation on biowaste
- All 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)

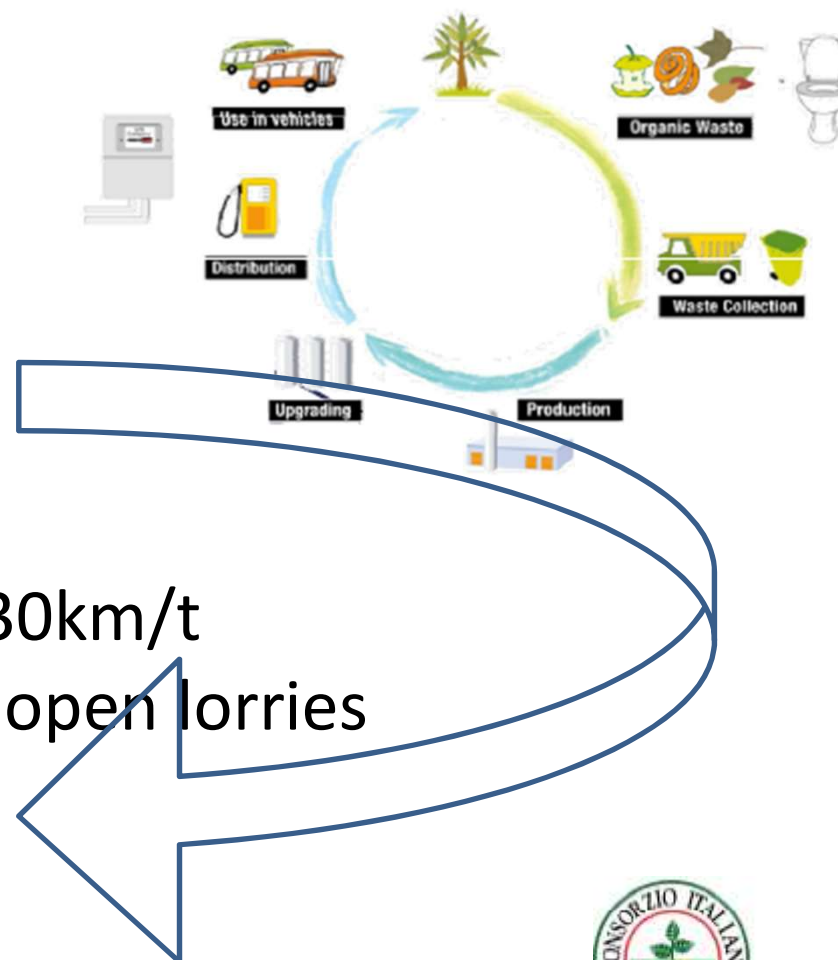


Back to future: closing the loops



Biomethane: the opportunity to close a cycle

- 5.771.992 t Food Waste
- 110 Nm³/t biogas
- 381.000.000 Nm³/y
- 275.000.000 kg/y methane
- MSW collection in Italy
- 30.000.000 t/y
- Average transport distance 30km/t
- 50% waste compactors 50% open lorries
- 266.000.000 kg /y
(if all fuelled by methane)



Focus: AD technology diversity (2017) (52 out of 56 plants in operation)

Solids content			
Wet	Semi-dry	Dry	n.a.
34	2	14	2

Temperature		
Mesophile	Thermophile	n.a.
24	19	9

Number of stages		
Single-stage	Two-stages	n.a.
26	13	13

Batch/continuous	
Continuous	Batch
42	10



Focus: Quality of Foodwaste



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Plastics



Nappies

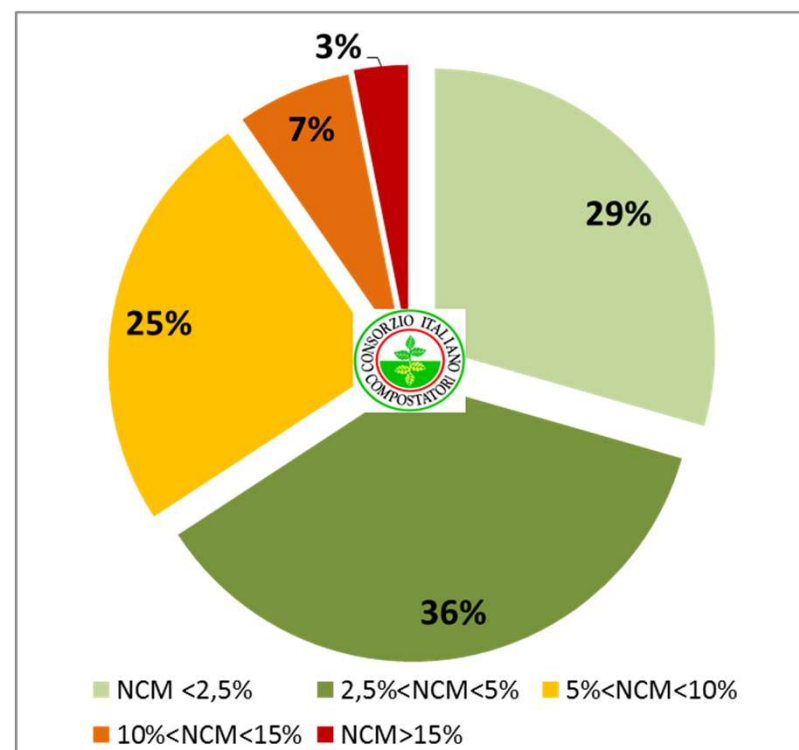


**Other non
compostable**

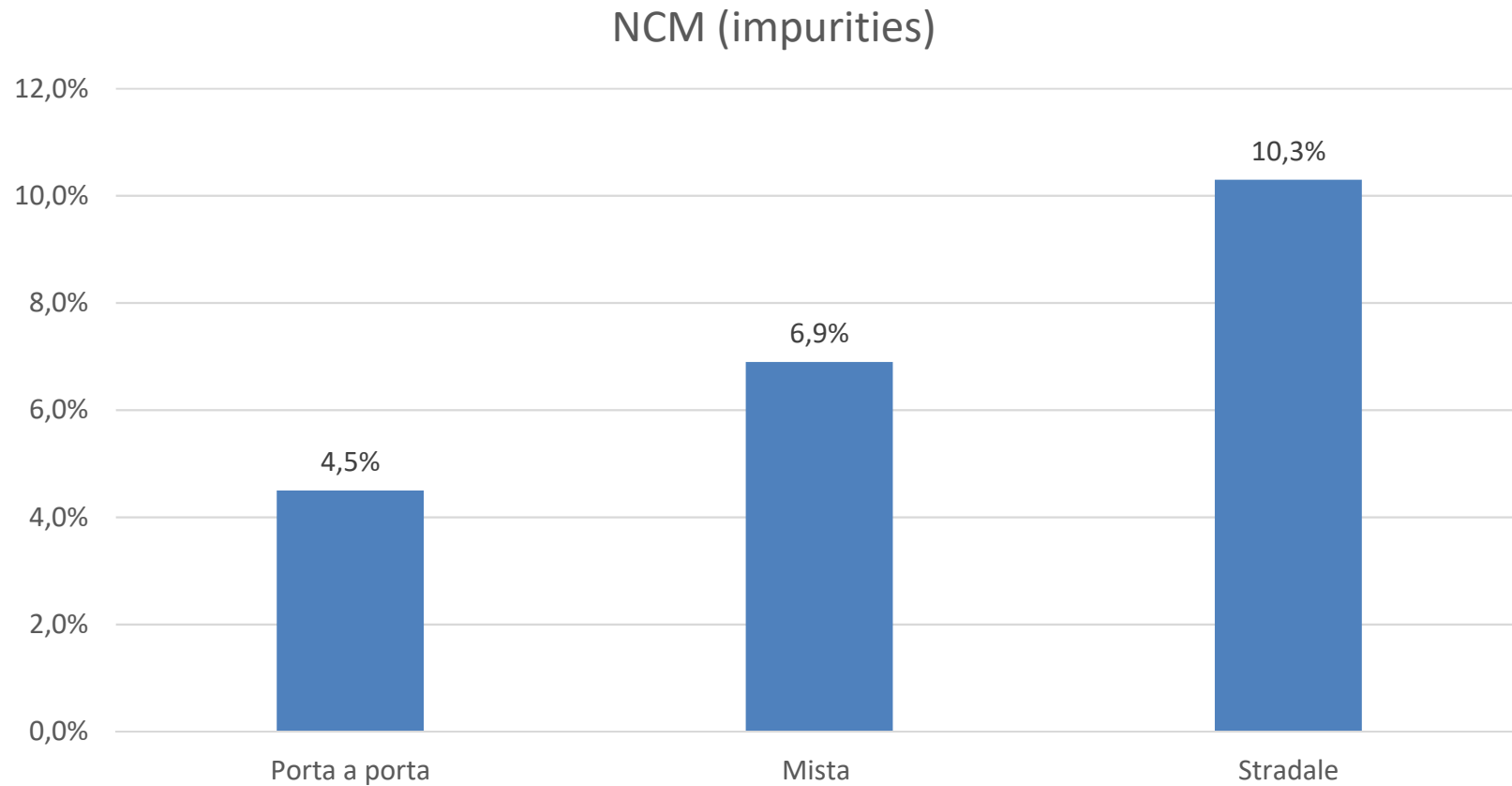


The quality of Italian food-waste in 2018

- 828 waste- composition analyses performed in 2018 throughout the Country
- Average “non-compostable-quota” 5,1% in weight
- Compostable bags must comply to EN13432 Standard



Separate collection scheme and foodwaste quality

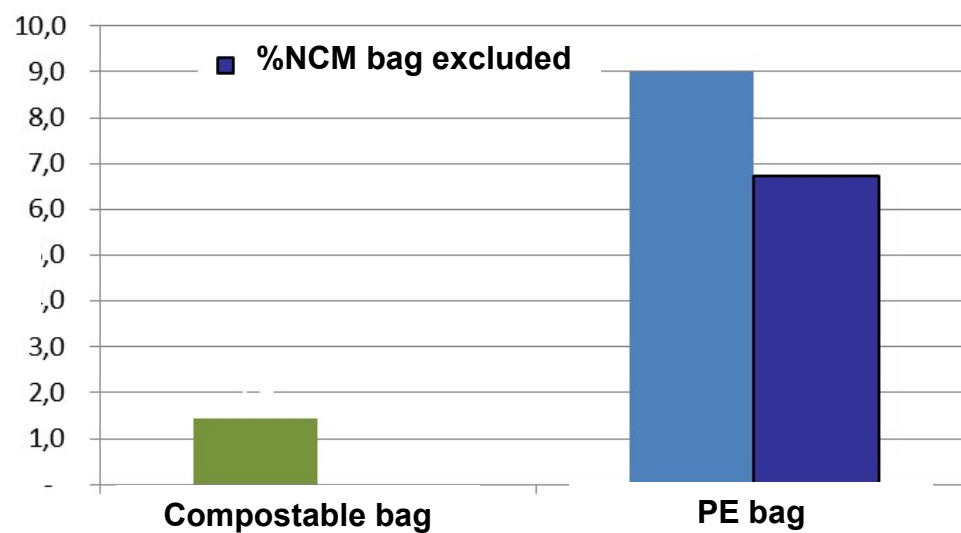


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Compostable bags vs foodwaste quality

Non Compostable
Materials



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
MIXED COMPOST (30% FROM AD)



CIC Compost Quality Label

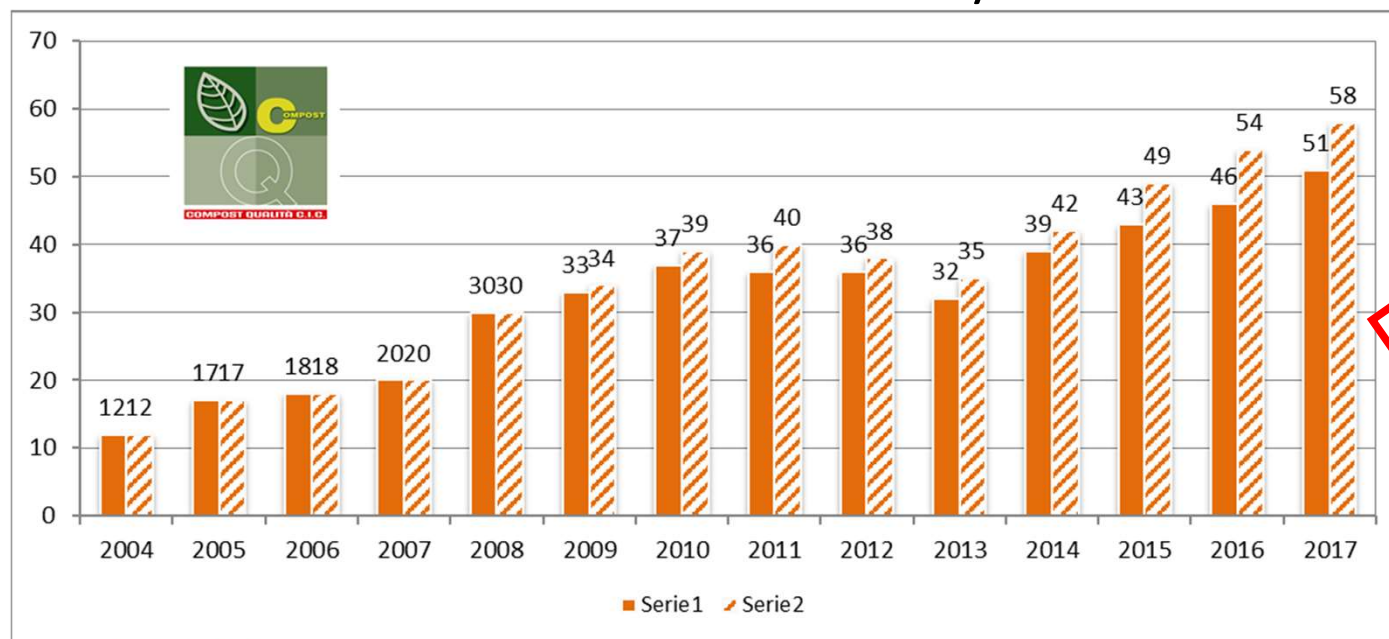
- Based on Italian fertilizer law – D.Lgs 75/2010
- Promotes Italian compost quality production
- Assists producers to meet specific product characteristics by law
- Helps customers to visually identify quality compost.
- Improves safety, transparency and quality of compost production along the supply chain.





Voluntary Programme

- Scheduled constant analysis
- Compost sampling made by specialists
- Analysis made by Accredited Labs chosen by CIC



Since
2003
More than
3.300
analysed
samples



720.000 t/y Compost (37% of National production)



ECN-QAS



Kompostgüteverband Österreich (KGVÖ) – **Austria**



Vlaco – **Flanders, Belgium**



Bundesgütegemeinschaft Kompost e.V. (BGK) – **Germany**



Consorzio Italiano Compostatori - **Italy**



Compost: 2017 figures from the programme “CIC Quality Label”

Parameter	Compost from biowaste	Compost from sludge	Compost from greenwaste
	(N= 98)	(N= 11)	(N=33)
pH	7,8	7,8	7,9
Conductivity (dS/m)	3,9	3,4	1,2
Moisture (% f.m.)	24,2	23,0	35,0
N total (% N d.m.)	2,3	2,4	1,8
N organic (% N tot)	90,4	89,6	95,1
O.M. (% d.m.)	51,4	53,6	46,1
Phosphorous (% P ₂ O ₅ d.m.)	1,5	1,4	0,6
Potassium (% K ₂ O d.m.)	1,6	1,1	1,2
Organic Carbon (% C d.m.)	25,7	26,8	23,8
Humic Acids (% d.m.)	9,3	9,5	9,1
C/N	11,2	11,5	13,7



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.



Compost market

*Compost selling price
(€/ton)*

	Foodwaste compost			Garden waste compost	
	Bulk	Big BAG	packaged	Bulk	packaged
MIN	0	40	64	10	64
MAX	15	40	166	25	120
AVG	5	40	116	16	92



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





Thanks

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