

# Food waste collections and the unintended consequences of plastic contamination to soil

22 September 2020, 14:00 – 15:30 CEST

Online event

Hosted by MEP Franc Bogovič

Co-Chair of the Bioeconomy Working Group of the  
European Parliament Intergroup on 'Climate Change, Biodiversity & Sustainable Development'

## Food waste collection and recycling in Italy



MR – 9.2020

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Vice Chair - European Composting Network  
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# About myself



**Altereko sas** – consulting for circular economy

CEO

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**CIC Italian Composting and Biogas Association**

Senior Expert

[www.compost.it](http://www.compost.it)



**ISWA International Solid Waste Association**

Chair of the Working Group on Biological Treatment of Waste

[www.iswa.org](http://www.iswa.org)



**ECN European Compost Network**

Chair of the Task Group on Compostable Bioplastics

[www.compostnetwork.info](http://www.compostnetwork.info)

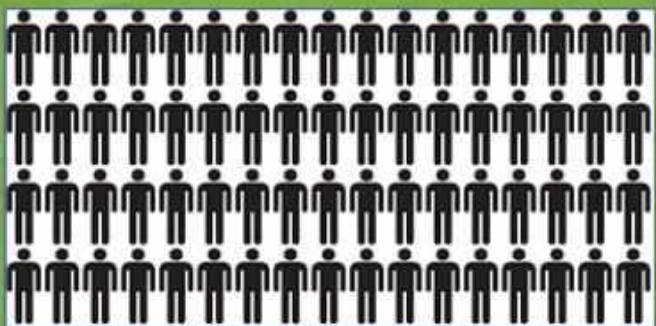


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# About CIC

## Italian Composting and Biogas Association

125 ORDINARY AND ASSOCIATE MEMBERS



Our members are public and private companies designing or managing composting and/or anaerobic digestion plants, waste-management companies, R&D-companies, machinery and equipment producers, laboratories, local authorities

2 GENERAL ASSOCIATION MEMBERS



# CIC: what we do

## NATIONAL CIC ACTIVITIES



*Agreements with local Authorities and trade Associations*



*National and EU legislative proposals*



*Promotion of high-quality organic Fertilizer production also by means of the CIC Quality Label*



*Technical and legislative assistance to recycling-plants (CIC's members only)*



*Organization of regular training courses*



# CIC: what we do



# KEY DATA: ITALY'S RECYCLING SECTOR FOR BIOWASTE



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# Separate collection and recycling

(elaborazione CIC da dati ISPRA 2017)

**4.600.000 t/a**  
of Food waste  
75 Kg/inh/yr



**2.000.000 t/a**  
of Green waste  
32 kg/inhab/yr



**6.600.000 t/yr**

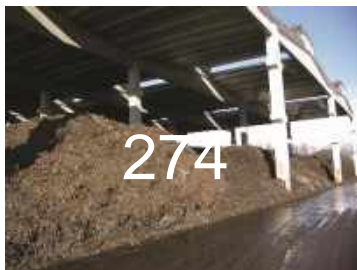
**Biowaste (organic waste)**

**108 Kg/inh/year**



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# Biowaste treatment and Compost production in Italy 2017



Composting

**3.965.000 ton**



Composting&Anaerobic Digestion

**3.471.000 ton**

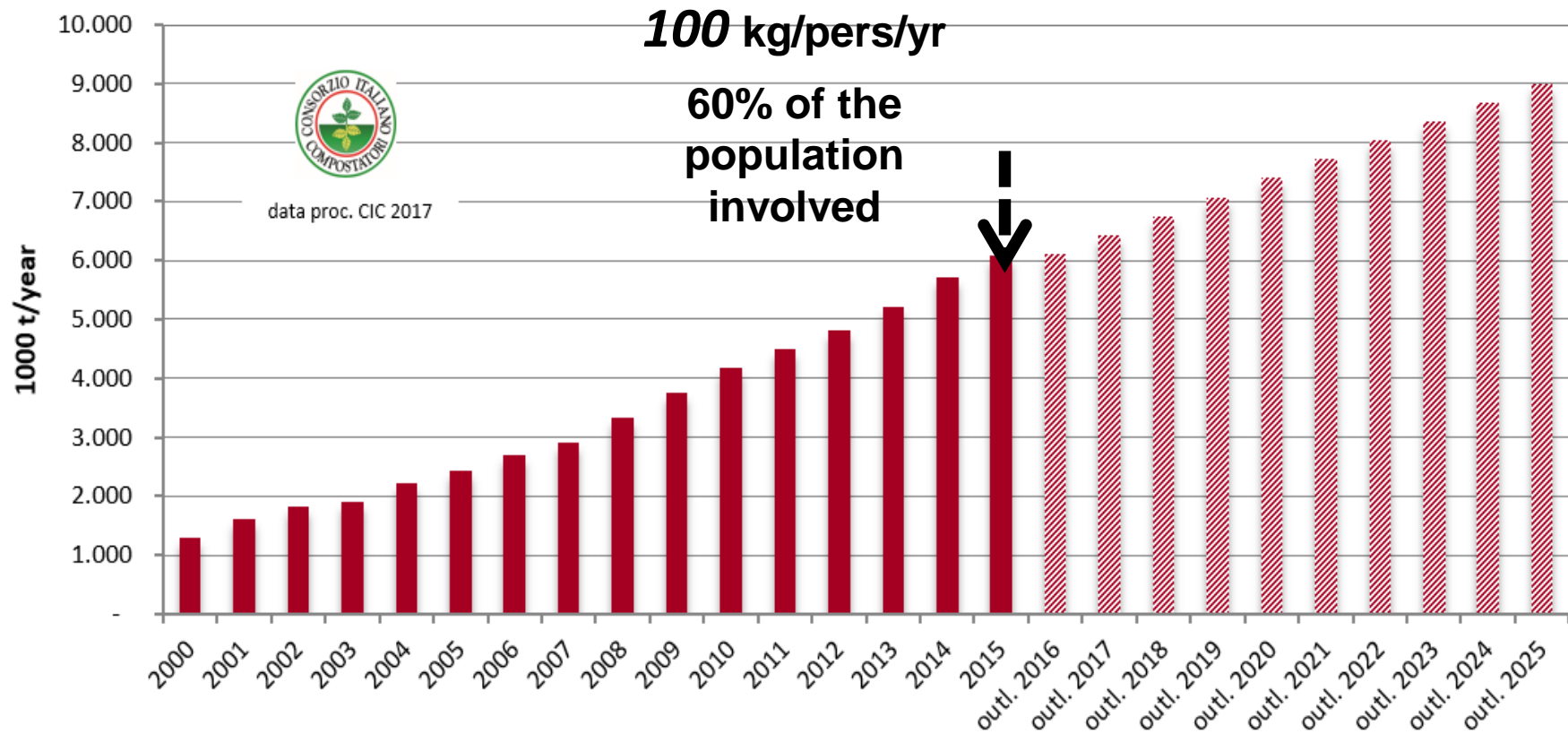


**1.950.000<sub>ton</sub> COMPOST**





# A focus on Italy: a successful management begins from separate collection



# CIC's national initiatives in Italy



CIC started in 2003 to developed a system **and Label for Compost Quality**, so to certify the quality of Compost produced by its members.



CIC started in 2006 a **certification scheme on biodegradable materials** and - in particular - on compostable products, named **“compostabile CIC”**..



CIC has developed and is now implementing a Biomethane Label **“Biometano Fertile”** to assess the quality of Biomethane produced in composting and anaerobic digestion plants.



# FOODWASTE COLLECTION - FACTS



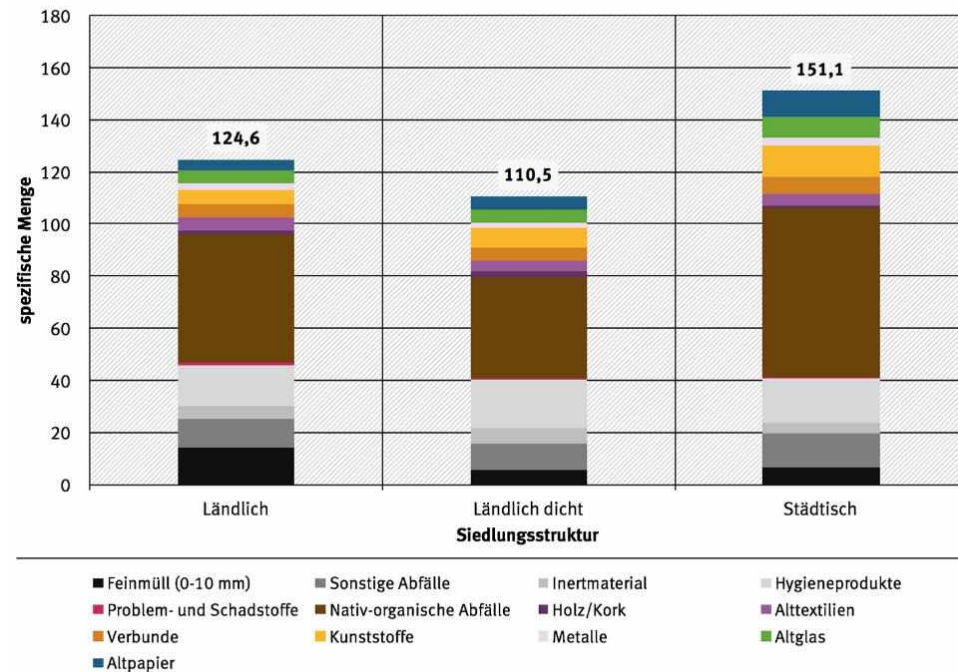
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# Biowaste collection in Cities - DE

- Germany registered a total of 128 kilograms of residual waste per inhabitant and year in 2018
- Biowaste accounts for the largest share (around 39%) of residual waste at around 39 percent
- One third of all biowaste is still disposed of together with household waste

Spezifische Hausmüllmenge in Abhängigkeit der Siedlungsstruktur

Angaben in Kilogramm pro Einwohner und Jahr



Quelle: eigene Darstellung, DNFA GmbH

<https://www.umweltbundesamt.de/en/press/pressinformation/residual-waste-in-germany-has-nearly-halved-in-35>





How can we achieve significant collection rates of food waste in Cities and High-Density areas?



# Separate collection of foodwaste in Parma



- Amounts increased by +100% (2011/2015)
- Impurities reduced from 8,3%f.m. (bring-s.) to 3,3%f.m. (kerb-s.)





Do households separate food waste regularly?



# Caddies and Cities: choose your own one!

London



Milan



München



Vienna



Berlin



Barcelona



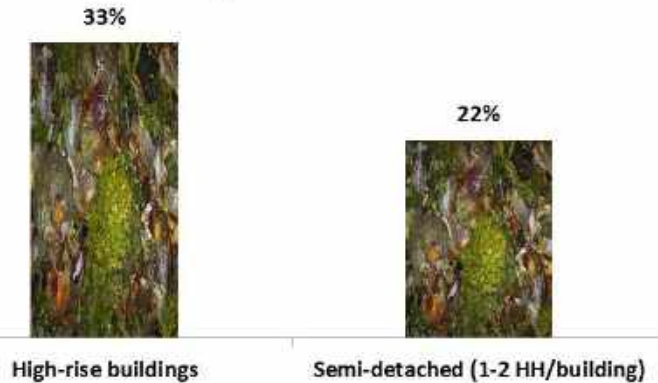


# Participation of Households (Vellmar\D)

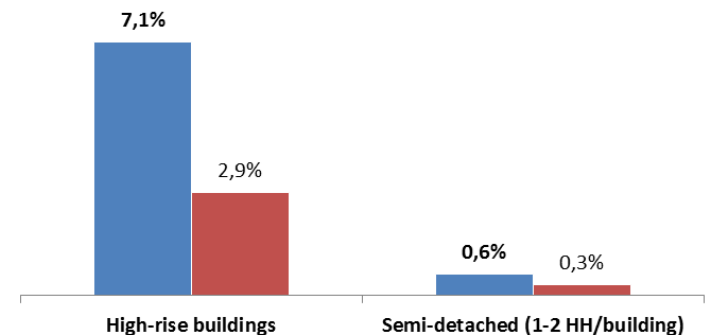


Participation and quantities rise significantly in urban areas if households are provided with the right tools

## Food waste capture rate increase



## Contamination of bio-waste (D)



# Salacea \ Romania

Romania - Salacea

|                       |            |
|-----------------------|------------|
| <b>Recycled waste</b> |            |
| <b>Originally</b>     | <b>1%</b>  |
| <b>after 9 months</b> | <b>40%</b> |

**Contamination** **8%**



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# Spotligh on cities: Geneva - CH

- Test area with caddy & bioplastics (381'000 p)
- start in 2017
- Biowaste increased by 31%



source: <https://ogy.de/te8m>



# Catalunja & Bask Country (Spain)

- Compostable liners and door to door collection
- RFID systems to trace services and verify the participation of HH



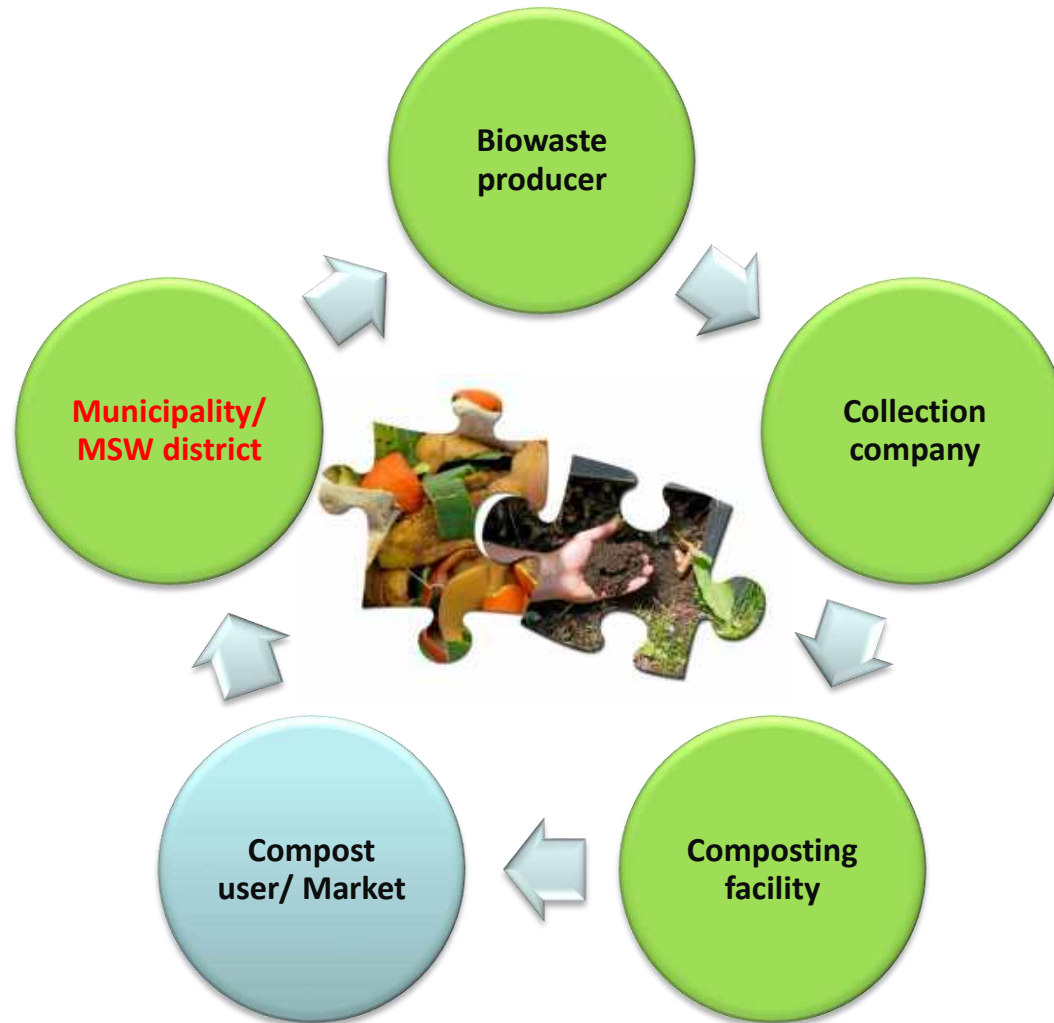


# Quality of feedstock for a quality compost/product



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# The supply chain for compost production



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# QAS schemes approved by the ECN

## Approved Quality Assurance Organisations by the European Quality Assurance Scheme (ECN-QAS)



**KBVÖ Austria**



**BGK Germany**



Meer halen uit de biologische kringloop

**VLACO Belgium**



**CIC Italy**



# Waste composition analysis on biowaste (IT)

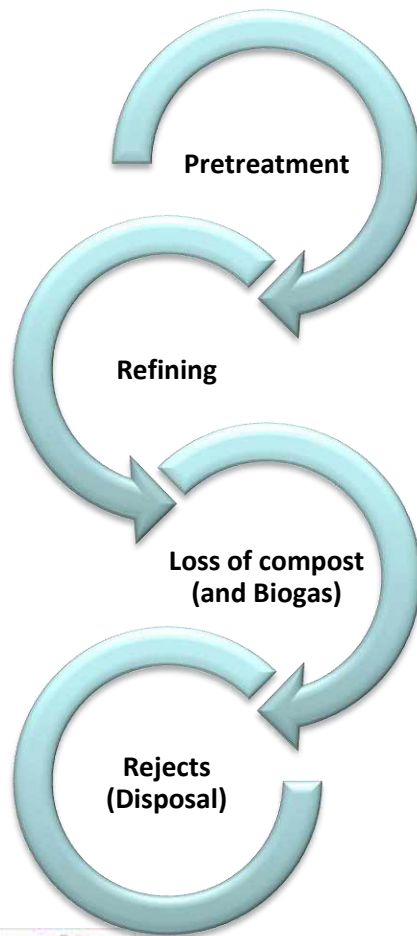
- Regular composition analysis on biowaste performed by CIC
- N = 850 >> 1000 per annum
- Plastics represent 60% of the feedstock impurities
- Impurities are 5,2% of all food waste (**plastics = 3,1%**)



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# The cost for removing plastics from food waste as a feedstock for composting (and AD)



Plastics contamination (and rejects from composting) do affect Italian Composting sector affected for about 90 – 100 million €/year

→ Prevention is needed



# The Italian Composting sector committed to minimize impurities inside finished compost

- **REMOVAL** → CIC facilities remove 99% of the plastic during the recycling process (pre- and post-treatment)
- **CIC-COREPLA National survey 2019** about plastics in composting
  - content of physical impurities 40% below (i.e. 3,2 g/kg vs 5g/kg d.m.) the limit value for organic fertilizer/soil conditioner (IT Law n° 75/2010)
  - **0,6g/kg d.m. of plastic impurities in compost**
  - **EU Reg 1009/2019: limit for plastics d> 2mm 3 g/kg d.m.**



# Scope of the Italian survey (IT 2017, 2019)

- Verify the fate of plastics and bioplastics at composting and AD+C facilities in Italy
- Verify the acceptance of different types of compostable bioplastic-items at composting and AD&C facilities associated to CIC

- **27 weeks of Monitoring**
- **N°16 Composting Plants**
- **N°11 Facilities combining Composting & AD**
- **Facilities treating 2.6 Millon tpa**



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# About the output (compost) from the recycling process



- **Zero compostable plastics:** at the end of the composting or AD&post-composting process no compostable material could be found in any of the examined samples, i.e. the material was fully degraded
- **Rejects generation:** impurities in food waste do affect recycling efficiency (dragging effect)



# Conclusions

- Recycling targets/obligation for biowaste must consider **food waste** (from households and commercial activities) as a **pivotal MSW fraction** to be collected separately
- **Towns and Cities** in Europe have proven to be successful in collecting food waste (quality, quantity, participation)
- **Quality of the output** (compost/digestate) depends strictly on **the feedstock's impurities**
- **Compost is a victim of plastics** and the composting sector is committed to maximize efforts for quality
- **Compostable bags** (paper, “bioplastics”) represent a proven, useful tool for enhance participation of users in sep. collection





**Grazie**  
**Thank you**

**Marco Ricci**

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