

CIC'S ACTIVITIES

CIC is engaged in a wide range of activities to enhance **BIOLOGICAL TREATMENT** (Composting and Anaerobic Digestion) of Source Separated Organic Waste, Green Waste and other organic waste feedstock, to obtain **ORGANIC FERTILIZERS** and **BIOGAS** and **BIOMETHANE**, an **ADVANCED BIOFUEL**.

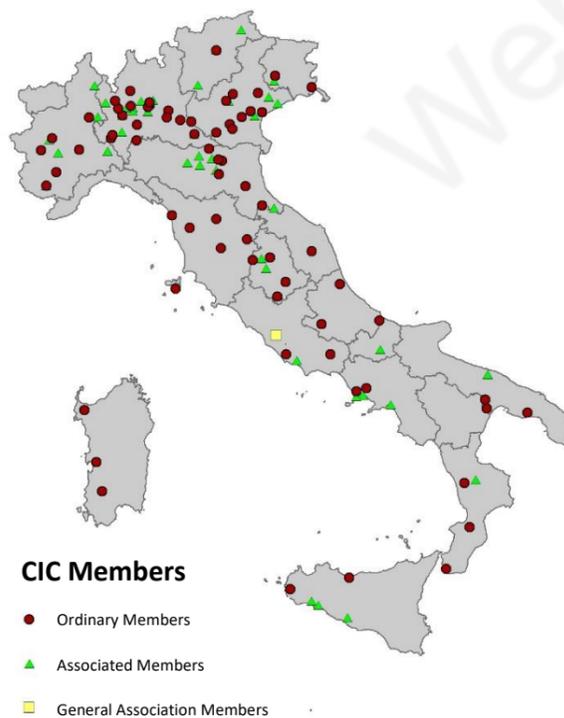


WHO WE ARE

The Italian Composting and Biogas Association is the unique association in Italy for recovery and recycling of the organic waste and, since 25 years, CIC's mission is to promote recycling and prevention of biowaste, enhance compost quality and market, organise technical training for the composting sector and assist government bodies in improving biowaste recycling.

Among 128 Members of CIC there are public and private compost producers, local authorities and others involved in compost productions, such as machinery and equipment constructors, growing media producers, research institutes, etc...

www.compost.it



CONSORZIO ITALIANO COMPOSTATORI

RECOVERY AND RECYCLING OF BIOWASTE: A PRACTICAL EXAMPLE OF CIRCULAR ECONOMY

Italy is one of the EU countries leading the **separate collection of MSW**: in 2016, a quota of 52.5% (including biowaste, packaging waste, WEEs and others) of all MSW was collected separately and sent to recycling. The biowaste accounts for 41.2% of all source segregated waste. Nowadays, in Italy, about 35 million of inhabitants are involved in intensive collection schemes for biowaste (foodwaste + greenwaste) diverting about 6.5 Mtons of biowaste from disposal to recycling.

Hence over the last 25 years, the industrial sector for biowaste recovery and recycling has developed and consolidated in Italy. In the last 10 years the number of recycling facilities increased by 3-4% each year. In 2017, there were **326 composting or AD&composting facilities**, reaching a total treatment capacity of about **9 million tons**.

The revenues from gate fees and the incomes for the trade of compost are estimated in more than 504 million euros (ref. 2016); by Including other activities related to the biowaste recycling (i.e. collection, technical support for planning and building plants, activities to promote the use of compost), in Italy, the turnover of the **recycling sector of biowaste** reaches **1.8 billion of euros per year** (estimation Althesys Strategic Consultant for 2017).

According to **European Compost Network (ECN)**, 1'000 tons of collected biowaste and recycled generate 1.5 jobs: projecting these data on the Italian situation, CIC estimates about **9'800 employees** in the biowaste sector in 2016, with high growth prospects in the future.

Italy is a consistent example of MSW management and shows that the recycling of foodwaste and greenwaste is a binding condition to reach the UE recycling objectives set by the Circular Economy Package.

CIC KEY DATA

| | |
|--|---|
| 128 MEMBERS | 326 FACILITIES recycling 8.7 Mtons of biowaste per year |
| 41,2% Biowaste from SOURCE SEPARATED COLLECTION of Municipal solid Waste | 10% AVERAGE INCREASE PER YEAR of the biowaste collected (in the last 10 years) |
| 1.8 billion euro the turnover of the biowaste recycling sector | 1.9 million TONS OF COMPOST produced every year |
| 3.5 million tons of CO ₂ equivalent saved as avoided disposal in landfill | 36,5% of the Italian total compost production awarded the CIC QUALITY COMPOST LABEL |
| 24 million tons of COMPOST PRODUCED in the last 25 years | More than 7 million tons of ORGANIC MATTER stored into the soil in the last 25 years |
| 0,1% increase of ORGANIC MATTER INTO THE SOIL to reset the national transport CO ₂ | 65 million tons recycled and 100 million cubic meters avoided in landfill in 25 years |
| 44 million tons of CO ₂ equivalent avoided in 25 years | 80% of waste collection vehicles could be fuelled by biomethane from biowaste |

COMPOSTING – MATERIAL RECOVERY



Over the last 25 years, the industrial sector for biowaste recovery has developed and consolidated in Italy. In 2016 there are **274 composting plants** for a total treatment capacity of about 5.4 Mtons/year (ISPRA, 2017).

Every year, these plants treat more than 4 Mtons of organic waste from the Source Separated collection (57% foodwaste and 43% green waste) together with other organic waste, such as sludges and agroindustrial residues.

Composting plants produce **compost**, a soil amendment according to Italian legislation. About 80% of compost is used in agriculture, while the remaining 20% is sold for gardening or landscaping purposes.

Compost is a **renewable organic fertilizer** with a good content of organic matter and of the main nutritive elements, such as nitrogen, phosphorous and potassium. The use of compost can help to contrast, in a sustainable way, soil erosion, maintaining high level of biodiversity and nutrients.

ANAEROBIC DIGESTION – ENERGY AND MATERIAL RECOVERY

Currently, in Italy there are **52 anaerobic digestion and composting (AD&composting) facilities**, with a total treatment capacity of more than 3.3 Mtons (ISPRA, 2017).

These facilities recycle about 2.9 Mtons/year of organic waste, of which 2 Mtons are biowaste (91% foodwaste and 9% greenwaste).

AD&composting facilities combine material recovery with energy recovery, producing both **biogas** and **compost**.

The **upgrading of biogas to biomethane** is an important contribute to reach the targets established by the EU Directive 2009/28 on renewable energies, with the aim to reduce greenhouse gases emissions and promote a “green” transport system. CIC estimates that, if the biowaste produced nowadays were fully recycled through AD, the biomethane produced could be used as fuel for the 80% of the waste collection vehicles and it will reach the 100% if the Source Separated biowaste collection will be fully implemented.

If the Source Separated Collection of waste would be extended to all the Italian municipalities, 9 Mtons of organic waste would be separated and sent to the composting and AD&composting plants. CIC estimates that from the separated biowaste about 2.6 Mtons of compost and 0.8 billion Nm³/year of biomethane can be produced. The use of compost and biomethane could help to contrasting the desertification, taking back to the soil 400,000 t/year of Organic Carbon, and improving a sustainable mobility. In the end, recovery and recycling greenwaste and foodwaste can help to avoid the production of more than 7 Mtons of CO₂ eq every year, comparing to the disposal in landfill.



QUALITY DURING THE PROCESS: FROM BIOWASTE TO COMPOST

MONITORING THE QUALITY OF ORGANIC WASTE

The high quality of organic waste is fundamental to optimize the whole treatment process, reduce the rejects to be disposed of and increase the yield and the quality of the products.

CIC's technical staff continuously surveys the quality of the organic waste: yearly about **850 composition analysis on organic waste** have been done, from more than **550 Italian municipalities**. CIC's surveys show the high quality of the foodwaste, characterized by a content of **Non-Compostable Materials (NCM) below 5%** (in waste) of the waste collected. A significant source of impurities (23% of the total amounts of non-compostable materials) are traditional plastic bags, still used for the biowaste collection.



CIC estimates that the separation and disposal of Non-Compostable Materials inside organic waste costs to the biowaste sector about 52 M€/year. These costs do not include the losses in terms of biogas and compost production and the revenues from these products.

GUARANTEEING BIODEGRADABILITY AND COMPOSTABILITY OF MATERIALS AND PRODUCTS

CIC started in 2006 a certification scheme, according to the EU regulation EN:13432 on compostable packaging, named “**Compostable CIC**”.

Nowadays, more than 40 products are certified and labelled with the CIC's compostability scheme and thus are compatible with the industrial composting process without affecting the quality of the obtained compost.

The label helps citizens to recognize and use biodegradable and compostable shopper and bags (made of paper or bioplastic) and other compostable products.



58 AWARDED PRODUCTS



51 PLANTS IN THE QAS

VERIFYING THE QUALITY OF COMPOST: CIC'S QUALITY ASSURANCE SCHEME

CIC's Quality Assurance Scheme named “**CIC Quality Compost Label**” is the final step of the monitoring activity of the Consortium, closing the biowaste recycling chain.

This Label is aimed to assess the quality of compost produced by CIC's Members. CIC's QAS procedures are a useful instrument both for the producers of compost, as a way of monitoring the recycling process, and for the consumers, who get and use a quality compost.

At the end of 2017, the 58 labelled products represent about 36.5% of the total compost production in Italy.