



Management of organic waste in the Mediterranean *from policies to implementation*

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Marco Ricci-Jürgensen



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About myself



CIC Italian Composting and Biogas Association

Senior Expert

www.compost.it



Altereko sas – consulting for circular economy

CEO

www.altereko.it



ISWA International Solid Waste Association

Vice-Chair of the Working Group on Biological Treatment of Waste

www.iswa.org



ECN European Compost Network

Chair of the Task Group on Compostable Bioplastics

www.compostnetwork.info



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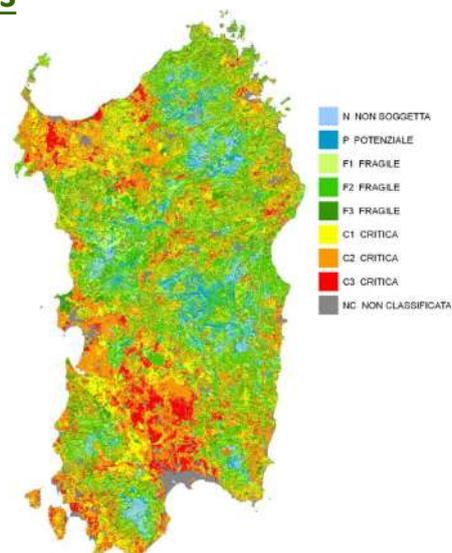
THE CHALLENGES ...



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A typical situation for mediterranean soils

- 54% of Sardinia's soils have a critical level of pre-desertification
- Compost obtained from organic waste can play a key-role to fight desertification and restore fertility of soils
- compost produced from high-quality biowaste, collected separately



Carta delle aree sensibili alla desertificazione in Sardegna fonte: <http://annuario.isprambiente.it>, 2011



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Make City's aware about the pivotal role of organic waste in MSW management

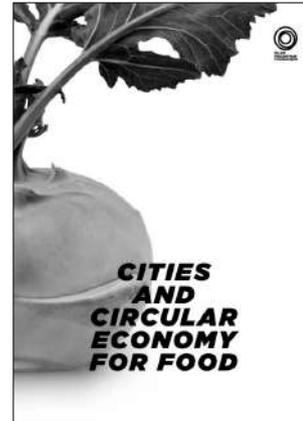


- 935 M tpa of organic waste generated globally
- 53% of MSW of a city is organic waste
- 37 megacities: MSW generated equivalent to the amounts generated in the EU-28
- by 2050 80% of all food to be consumed in cities

Typical MSW production of a city



MSW in cities - kg/capita/day: 0.90
 Organic waste - kg/capita/day: 0.48



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Benefits of Food waste diversion

- Separate collection of biowaste converts a

WASTE into a RESOURCE



Impacts



Benefits



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Reduce and dispose MSW better



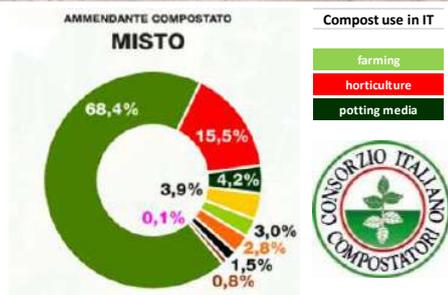
- Reduce quantities of waste disposed
- Less putrescibility inside MSW → lower methane and leachate from landfills

→ Enhance residual waste management and separate collection of dry recyclables



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Compost production in Italy, 2019



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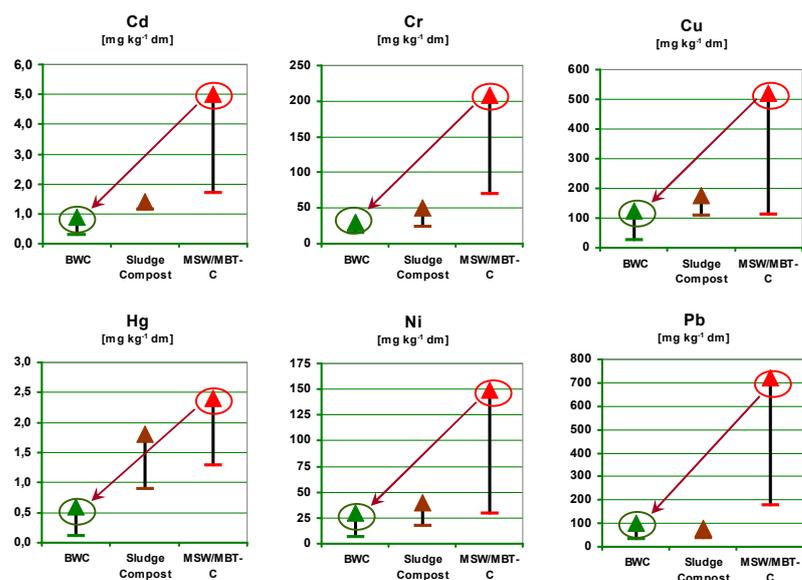
What policies to promote compost production and use?

- Support the production of quality compost
- EoW status: product or waste?
- Educating farmers: what is compost?
- Supporting the use of compost? The value of organic carbon
- Building the «appropriate» infrastructure
- Setting the correct policy framework



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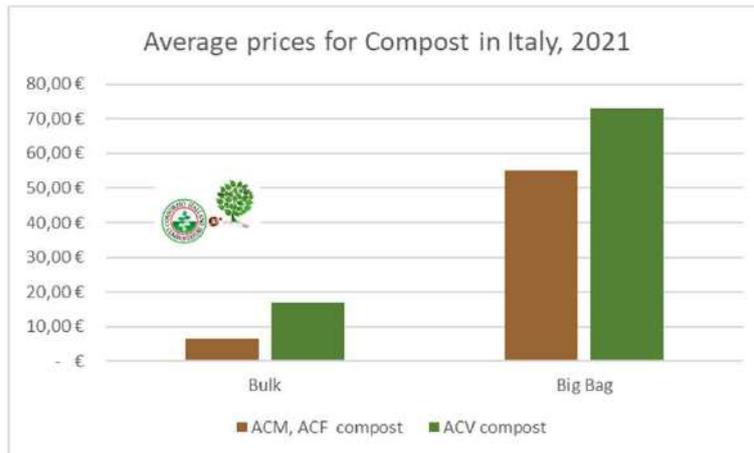
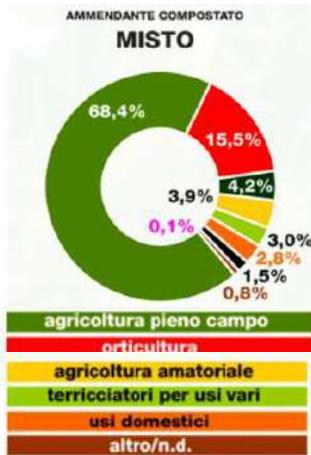
Quality of compost remarkably better if produced from SS feedstock!



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The market for compost



The handbook on compost use

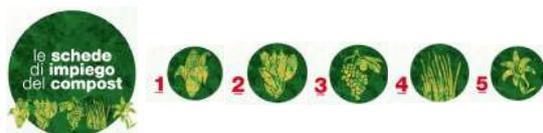


3 **Il compost per vite, ulivo e frutticoltura in generale**

Il compost è un ammendante organico che si ottiene dalla decomposizione di rifiuti organici. È ricco in nutrienti e favorisce la fertilità del suolo, la crescita delle piante e la resistenza alle malattie.

Benefici per la vite, l'ulivo e la frutticoltura:

- Migliora la struttura del suolo e la ritenzione idrica.
- Aumenta la disponibilità di nutrienti per le piante.
- Favorisce l'attività della microflora del suolo.
- Contribuisce a ridurre l'erosione e l'inquinamento delle acque.



consigliare il compost

il compost per acquedotti verdi

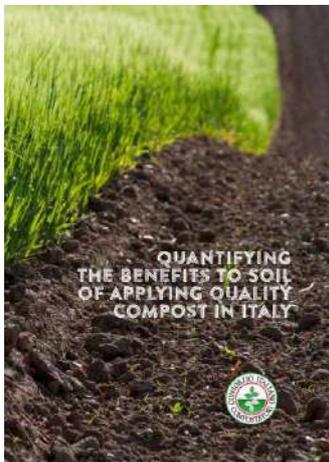
le schede di impiego del compost

scoprire il compost

IDEED GPP

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Composting in Italy and C sequestration



• Bio-waste composted
7,3 million tons/a



• Compost produced
2,2 million tons/a



• 92% to soil
(2 M tpa)

1 ton of compost (fresh mass)



Sequesters between **78 - 130 kg** of CO₂-eq when applied to soil



Value approximately
EURO 4,2 - 7,0 per tonne (FM)



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Compostaje en Italia y Carbono



2 million tons compost to soil
every year



211.000 tons CO₂-eq
sequestered in soil
every year



26 billion smartphone charges



853 million km in a car



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The value of organic C in soil



KEY FINDINGS

- Two million tonnes of compost is applied to soil annually in Italy, sequestering an estimated 211 thousand tonnes of carbon dioxide equivalents a year.
- Italian compost produced from separately collected bio-waste has an estimated monetary value of between EURO 29.46 - 32.27 per tonne of compost (fresh mass) when both its carbon sequestration potential and nutrient values are accounted for.
- The Italian composting sector manufactures compost with an estimated total value of EURO 60 - 65 million annually.

These are broken down as follows:

- One tonne of Italian compost (fresh mass) can sequester between 78 and 130 kg of carbon dioxide equivalents when applied to soil.
- This can be valued at between EURO 4.2 - 7.0 per tonne (FM).
- One tonne of compost contains a total nutrient value of approximately EURO 25 per tonne (FM).
- It would take an estimated 5.9 tonnes of compost (FM) per hectare to raise the receiving soil's organic content by 0.4%.



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Do households separate food waste regularly?



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MSW collection schemes

Bring schemes

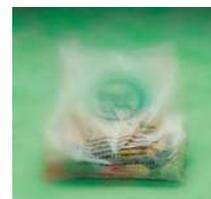


Kerbside collection (stepwise)



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Kitchen-caddies & compostable bags



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It's difficult to make compost from plastics



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Frequencies of collection for food waste

CALENDARI DE RECOLLIDA

Els residus es poden treure a partir de les 20h.
La recollida es realitza el dia següent de 5.00 a 11.00h.



ELS BOLDOERS, LES COMPRESSES I ELS EXCREMENTS D'ANIMALS DOMESTICS ES PODEN TREURE CADA DIA DE RECOLLIDA EN UNA BOLSA A PART.

RESTES DE JARDINERIA ES PODEN TREURE FINS A 50 LITRES ELS DIES D'ORGANICA, DINS UN RECIPIENT PROPI, SENSE BOLSA DE PLASTIC.

MODEL D'APORTACIÓ

Els dos cubells porten TAG, per tal de controlar la participació i automatitzar les incidències



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Communication



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A practical case: Sardinia

- Island in the Mediterranean Sea, Region of Italy
- Special regulatory regional power
- 1.700.000 inhabitants, 377 municipalities, 8 Provinces
- Scarcely populated (70 inhabitants / km²)
- Very high tourism in summer



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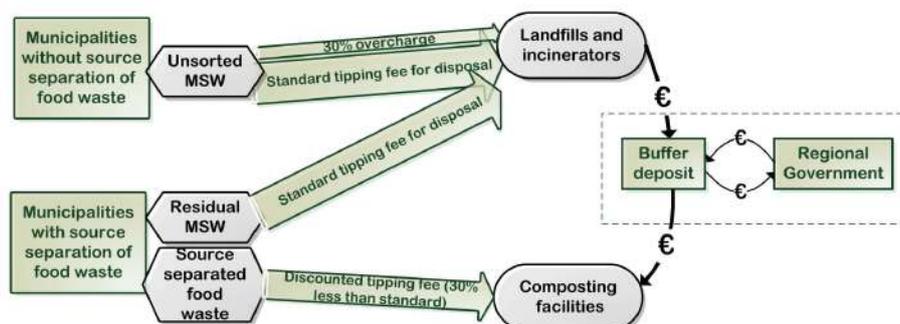
Sardinia's MSW Master Plan

- Year 2004: separate collection of MSW: 5%
- reduce residual waste to less than 35% of total MSW by 2012
- Develop separate collection of biowaste (food waste)
- Management and tenders for MSW to be done at district level (i.e. including more municipalities)
- **Introduce an economical driver → incentive scheme**
- **2004: Start of Incentive deposit/financing scheme**
- Support the realization of composting plants
- Promote quality and market for compost
- Cooperation with the Italian Composting (and Biogas) Association CIC



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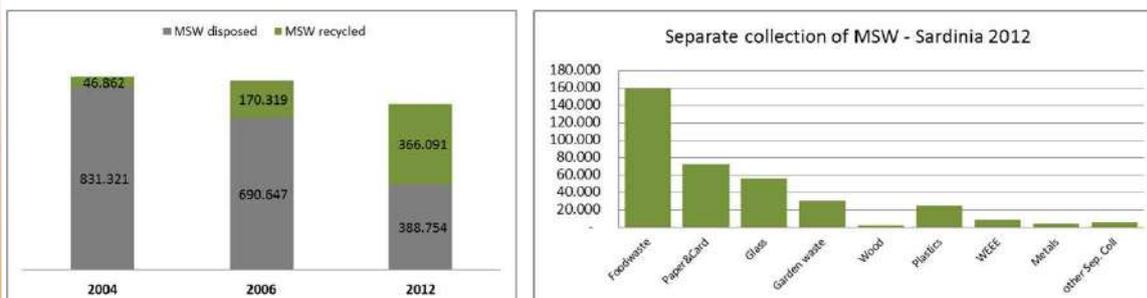
The basic incentive scheme



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Key data about MSW management in Sardinia



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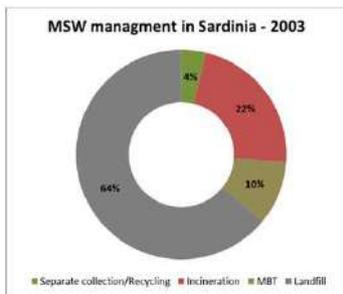
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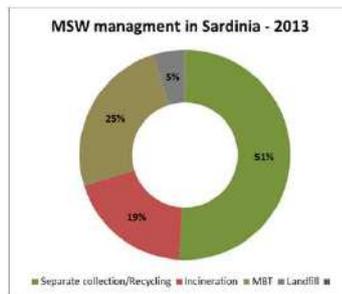
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Island of Sardinia, IT

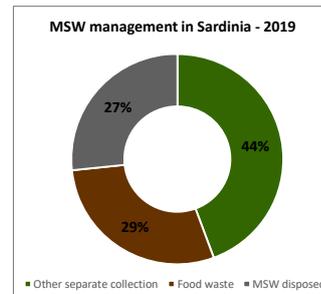
Situation in year 2004



Situation in year 2013



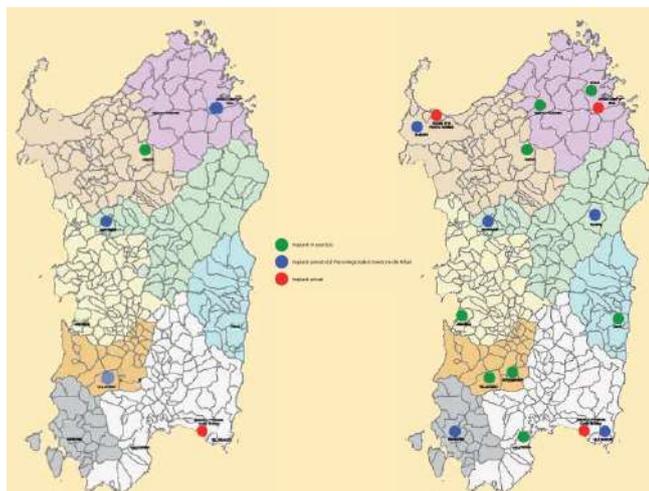
Situation in year 2019



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Composting plants – Sardinia

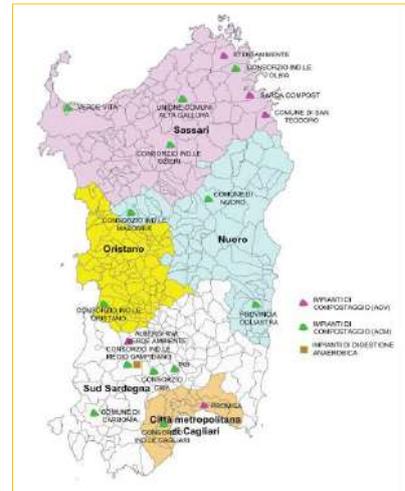
2004



2012



2017



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Composting plants – Sardinia

2004	2012	2017
2 plants (+3)	11 plants	18 plants + 1AD
5200 tpa collected	204'000 tpa treated	230'000 tpa treated
		52'000 tpa compost



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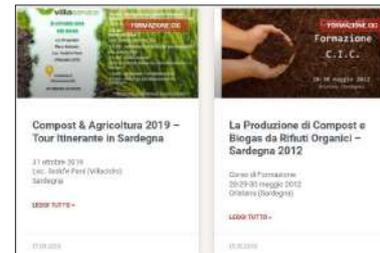


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Compost and Sardinia



www.compost.it



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ISWA Soils project

Quantify the Benefit of Organic Matter in Compost and Digestate When Applied to Soils'

Started in 2018 & completed Q1 2020



Copies available to download at: www.iswa.org



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Cooperating across borders
in the Mediterranean

Project funded by the
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SIRCLES

Supporting Circular Economy Opportunities for
Employment and Social Inclusion

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Setting the policy framework

4. SCENARIOS AND POLICY RECCOMENDATIONS

LESSON LEARNT	BENEFITS
Direct involvement of local institutions since the beginning of the project/idea	<ul style="list-style-type: none"> • Navigate legal requirements • Ensure compliance with regulations • Foster a supportive policy environment
Engagement of the private sector by promoting public-private partnership	<ul style="list-style-type: none"> • Provide a constant supply of bio-waste • Having compost buyers • Financial sustainability of the project
Promotion of public awareness for the success of the initiatives	<ul style="list-style-type: none"> • Encourage individuals to adopt circular practices in their homes and communities • spread knowledge and create a culture of responsible waste management • Improve the quality of the final compost

<https://www.enicbcmcd.eu/sircles-policy-toolkit-circular-economy-employment-and-training>



www.compost.it

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Thank you

Marco Ricci - Jürgensen
ricci@compost.it

CIC – Consorzio Italiano Compostatori - Rome-Italy



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