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Beta Biodiversity, Ecology, Environmental & Food Technologies

UNIVERSITAT DE VIC
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CIRBIOWASTE · THIRD ONLINE TRAINING · 9 OCTOBER 2026

Community composting at municipal level

The case of Les Masies de Roda (Catalonia): from DECOST to MEDWISE

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THE CONTEXT

The rules push municipalities to treat their organic waste.

36%

of household waste, by weight, is organic: the largest fraction.

Landfill is paid per tonne, so treating organic waste at source saves real money.

EUROPE

Separate collection of bio-waste since 2024. By 2035, max. 10% of municipal waste to landfill.

SPAIN

Every municipality must collect bio-waste separately. Small towns: since the end of 2023.

CATALONIA

By law, all municipalities, whatever their size, must collect organic waste separately.

THE TAX

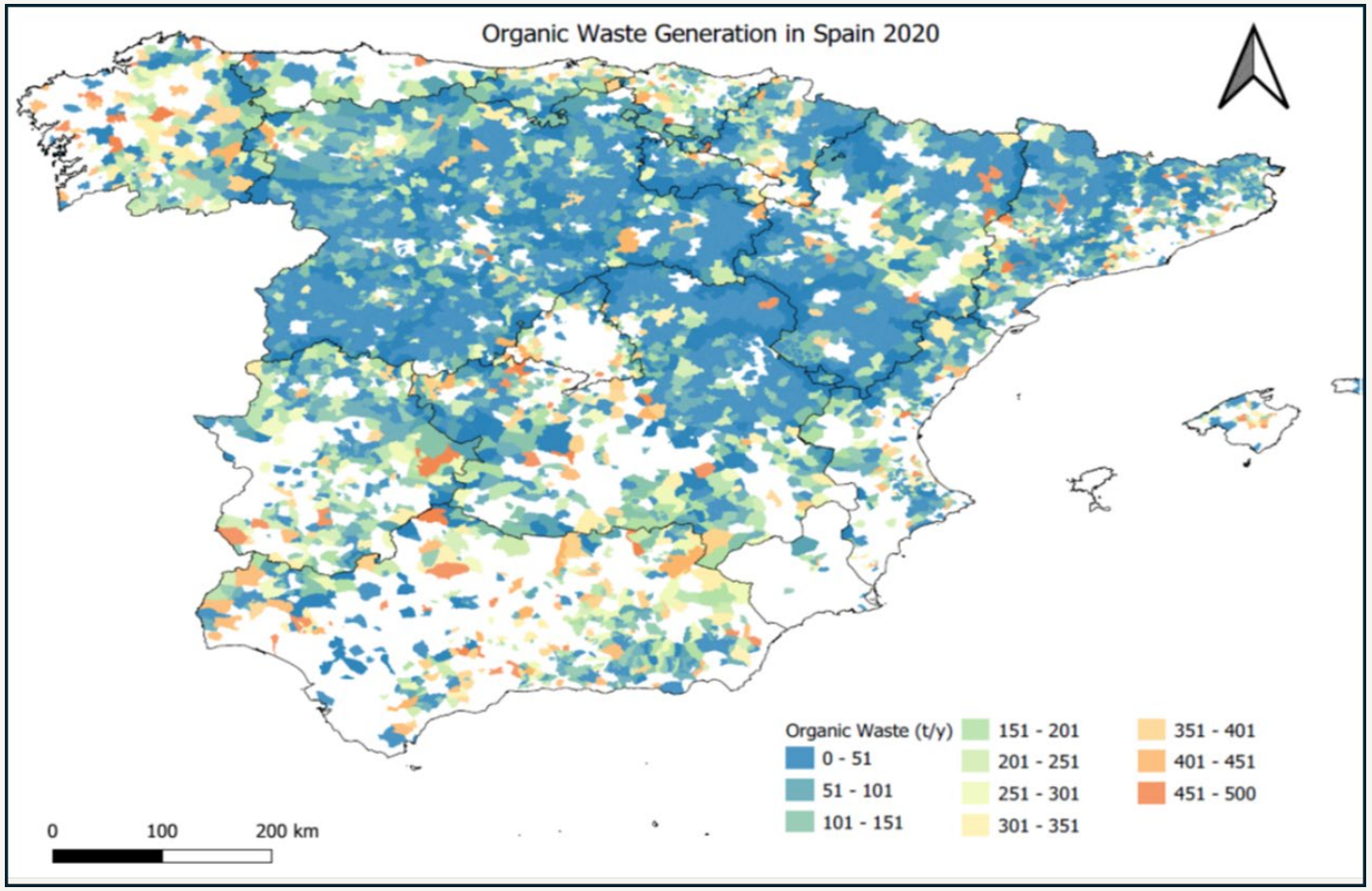
€75 per tonne of untreated waste sent to landfill or incineration in 2026, rising to €100 from 2031. The money goes back to municipalities that manage waste better.

REFUND

The levy is returned to municipalities that recover bio-waste, weighted by its quality (share of impurities).

Sources: Directives (EU) 2018/851 and 2018/850 · Spanish Law 7/2022 · Catalan Law 9/2008 · Catalan Decree-Law 3/2026 · ARC (PROGREMIC)

From Global Challenge to Local Opportunity:
¿Why Focus on Rural Areas?



Urban areas matter are important, but **rural municipalities play a key role in organic waste valorization**.

In Spain, many small towns are far from treatment facilities and **produce low-volume organic waste**: According to the map categorized by organic waste generation, the autonomous communities that show a generation **like that of LMR, that is, between 50 and 150 tons / year** are: Castilla y León, Castilla la Mancha, Catalonia, Valencia and Extremadura.

Rural areas often have **gardens, green spaces, and agricultural practices** — ideal for compost use.

These regions represent a **huge untapped potential** for closing the loop locally.



THE PLACE

Les Masies de Roda

Osona, Catalonia, 90 km north of Barcelona. A rural village: farming and livestock.

704	inhabitants
4	neighbourhoods
250	homes, 50 of them scattered farmhouses
2–3	people per home

THE STARTING POINT

A mayor who wanted to change things

The open street containers attracted waste from neighbouring towns. The mayor wanted a new collection system.

We proposed community composting to several municipalities. *Masies de Roda said yes.*



~50%

of the organic waste mixed with general waste: High costs and landfill burden

€17,000

net cost of the organic fraction per year

18-20 km

by truck to the treatment plants

Waste tourism

from neighboring towns increases pressure.

2020 · DECOST PROJECT (ENI CBC MED)

Can decentralized community composting work as a municipal solution?

Technical, economic and environmental viability

To test this model, the municipality changed the collection system and created local composting infrastructure.

Project support

Initial investment and first years of operation supported by DECOST.

Collection model

From curbside to door-to-door collection for organics and glass.



Local treatment

Community composting areas installed close to waste generation.

Main question: could this model work technically, economically and environmentally?



Community composting area installed close to households

This local infrastructure made it possible to treat the organic fraction near the point of generation.

Sizing and configuration of the community composting system

Designed for ≈90 t/year of organic waste plus dry material; capacity validated from installed volume.

Sizing inputs and installed capacity

55 t already separated + **32 t** still in residual waste = **≈90 t/y** organic waste + **10–25 t/y** dry material

→ 116 t/year
installed capacity
232 m^3/y × 500 kg/m^3

116 t/year is the nominal installed capacity, not a direct sum of input streams.

The system built from that sizing

Distributed composting areas



Composting points were placed where street containers used to be, keeping walking distance similar for residents.

58 composters · **14** areas · **4** neighbourhoods

Different modular layouts (3–6 modules per area)

Post-processing area



After maturation, compost was centralized for screening, handling and final preparation.

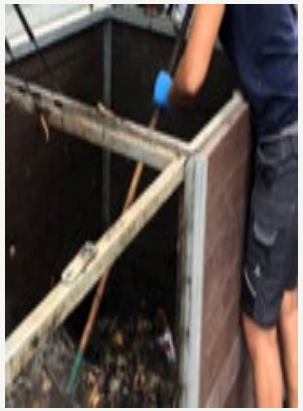
1 shared post-processing area

trommel screening · conveyor · big bags

From manual work to mechanisation

The system evolved from manual to mechanised operation, reducing material transfers, working time and physical workload.

1 Manual operation





2 transfers · manual aeration and loading

1A–1B: fully manual operation

2 Semi-manual operation





1 transfer · manual aeration and mechanised loading

2A–2B: one material transfer

3 Mechanised operation







0 transfers · mechanised aeration and loading
lower physical workload

3A · Mechanised operation
Mixer for aeration and material handling

3B · Mechanised operation
Metal drums with bottom discharge
Lower working time, but reduced composter capacity

Key operational impact

Working time: **~1,100 → 663 → 531 h/year**

Scenario 3A operating cost: **~€15,000/year**

Future improvement: *A new composter design that keeps the full treatment capacity.*



COUNCIL AND RESIDENTS

Everyone on board, before the first composter opened

The council: political will, its own staff to run the system, and support from DECOST and BETA.

Residents: letter and leaflet, information sessions, a kitchen caddy for every home, and compost given back.

97%

are satisfied

100%

find it easy

94%

say it is better for the environment

Resident survey

RESULTS

~100%

of the organic waste is now treated in the the village. Before, only about half became became compost.

STABILITY

The thesis monitoring showed a stable compost.

SAFE

Heavy metals and pathogens within legal limits. Mostly Class A.

USED LOCALLY

Farmers and residents with gardens use it. In spring, residents come to ask for it.

Source: A. Oviedo Ospina, PhD thesis, UVic-UCC, 2026

AFTER THE PROJECT

DECOST ended in 2023. The municipality kept the system running.

ENI CBCMED Cooperating across borders in the Mediterranean

Project funded by the EUROPEAN UNION

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

DECOST

2019
DECOST starts

2020
Composters open

April 2023
DECOST ends

2023
The council builds two composting bays and buys a tractor

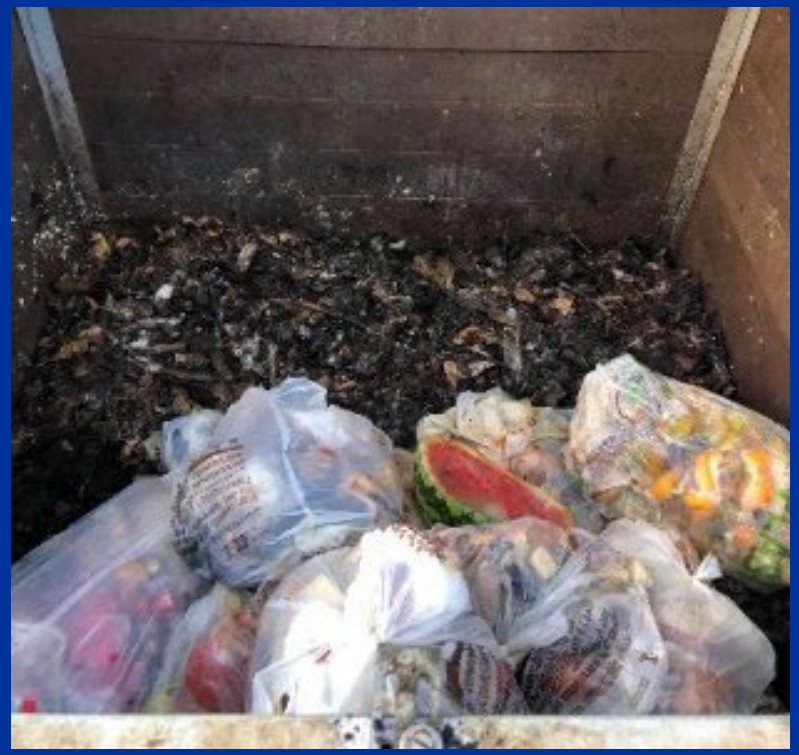
2026
58 composters in use, run by the council

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WHAT WE SEE TODAY

Points to improve



Organic waste arrives in bags. Staff open them by hand.

Source: diagnosis of the composting system, BETA, 2026

WITH RESIDENTS

01 Separation
Some wrong materials, and some waste from outside the village

02 Bags
Many people still use bags, and staff open them by hand

IN DAILY OPERATION

03 Daily routine
Routines have changed over time

04 Records
No daily records

05 Smells and flies
In some areas, in summer

06 Maturing
In some cases, the compost does not fully mature

NEXT STEP

MEDWISE: improving a system that already works

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#	POINT	WHAT WE WILL DO	
01	Separation	Information sessions for residents, clear signs, access control	With residents
02	Bags	No bags: closed, reusable buckets, explained to residents	
03	Daily routine	Regular training for the operators	In Daily Operation
04	Records	Test the simplest way for operators to record data (for example, a mobile app)	
05	Smells and flies	A better mix of wet and dry material, a dry cover layer	
06	Maturing	Regular turning and a minimum maturing time	

With residents: information sessions, open days, and a simple way to report problems.

We will share data and experience with partners in Italy, Lebanon, Jordan, Türkiye and Palestine, with a common way of recording, to learn from different systems and reach more municipalities.

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WHAT WE LEARNED

01 The municipality’s commitment is key.

02 Machines make the system last.

03 Training must be constant over time.

04 Residents are part of the system.

Sharing knowledge between countries and systems helps us make better decisions. Spaces like this one make it possible.

Thank you

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Thesis: A. Oviedo Ospina, UVic-UCC, 2026·

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