TERRASAFE

Cultivating resilience, restoring the earth.



Innovations for empowering communities in Europe and North Africa to combat desertification

Innovation brochure



Funded by the European Union

UK Research and Innovation

Agrodit sensors

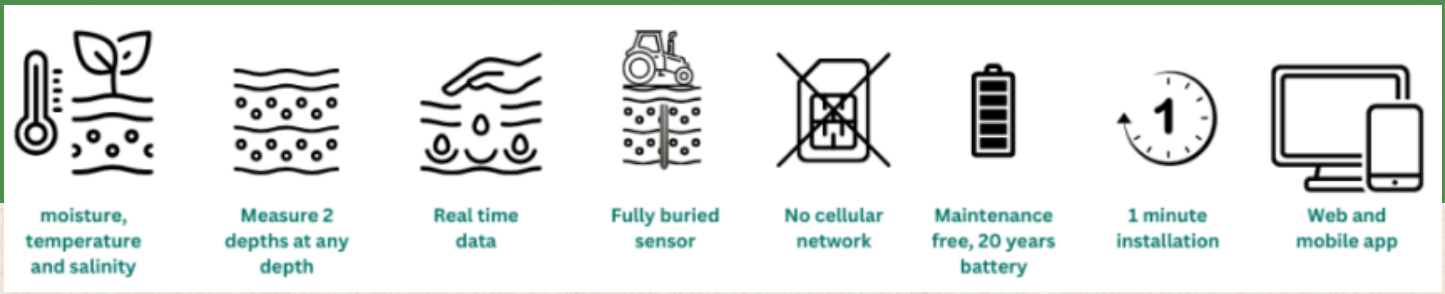
Agrodit

Technological solution

Introducing Agrodit

Agrodit provides its users with real-time data direct from their soils, allowing them to respond to sub-optimal environmental and soil conditions before visual symptoms appear.

Farmers or land owners/managers have installed Agrodit sensors at the start of each crop cycle to track moisture, salinity and temperature throughout the growing season. The sensors stay in place throughout the crop cycle, with users receiving alerts when soil or plant stress occurs.





Find out more... www.agrodit.com

WATCH NOW

Scan here to watch a short video about Agrodit –>

Retentis® lignin-based hydrogel

agrobiogel™

Nature-based solution

Introducing Retentis®

Agrobiogel's Retentis® is a unique and innovative solution to increase water holding capacity, organic matter and soil fertility. Retentis® is registered for conventional farming across Europe and approved for organic farming in Austria and Germany.



Comparison between lawn treated with Retentis® gel (left and right boxes) vs not treated (middle box). These boxes had not been watered in 10 days, with the gel-treated boxes remaining healthy and continuing to grow.

Main functions

1 Protects plants from drought

Retentis® gel is made from 100% wood, which absorbs and stores water from rain or irrigation and slowly releases it back to the plants during dry periods.

2 Reduces irrigation water requirement

Retentis® improves water holding capacity, reducing the need to irrigate soils.

3 Conversion into productive soils

As a natural humus precursor, Retentis® can transform poor soils such as those with high sand content into productive cropland by increasing soil organic matter, improving soil microbial activity, and reducing soil compaction.



Retentis® can increase the formation of fine roots (left: untreated; right: treated)



Retentis® agrobiogel can improve soil structure (left: untreated; right: treated)

Find out more...

WATCH NOW

< Scan here to watch a short video about Retentis!

www.agrobiogel.com

CETIM: Artificial soil

Technological Centre

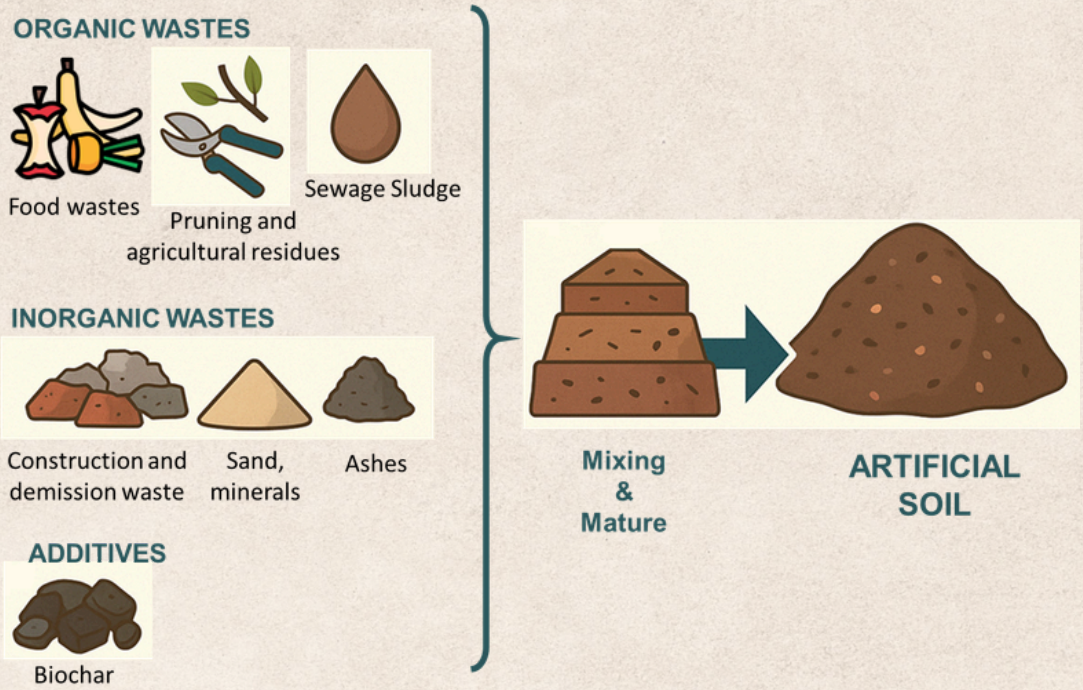
Nature-based solution

Introducing CETIM

Founded in 2011, CETIM is a leading technological centre dedicated to meeting the innovation needs of both industry and public administration. As a recognised scientific partner, CETIM creates value through research and the development of advanced technologies. Its work centres on applying knowledge and science to deliver cross-sector solutions for a sustainable future. With a strong focus on circular economy and sustainability, CETIM's expertise lies in three key areas: eco-bio technologies, advanced materials, and digital industry.

Within the TERRASAFE project, CETIM is developing artificial soils. These artificial soils are customised blends of organic and inorganic waste materials designed to replicate the functions of natural soils under local conditions.

These innovative soils help restore degraded land by increasing organic matter, improving water retention, and supplying essential nutrients. Over time, they not only boost agricultural productivity but also reduce dependence on irrigation and synthetic fertilisers, contributing to a resilient and sustainable circular economy.



Find out more...

www.cetim.es

WATCH NOW

Scan here to watch a short video about CETIM –>

Imflorestal: Biochar-compost mixture

imflorestal
renewable green energy

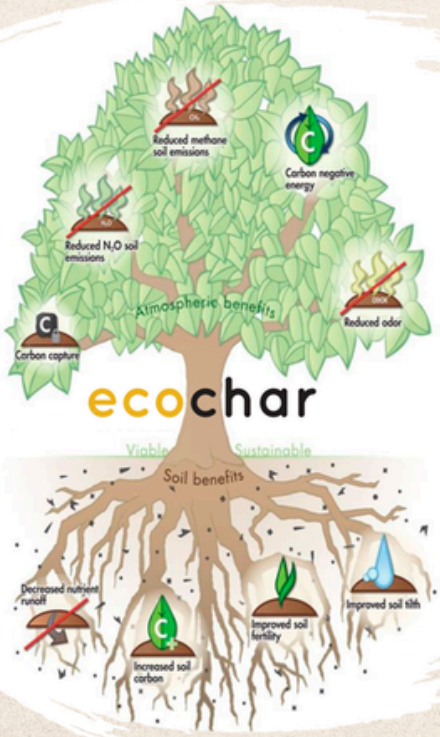
Nature-based solution

Introducing Ecochar

Ecochar is created by transforming agricultural and forestry biomass into biochar through a process call slow pyrolysis.

Ecochar is a highly porous carbon material used for improving soil structure.

When mixed with compost or manure can increase soil productivity, acting as prolonged slow-release fertilizer, which will help the rehabilitation of forest and agricultural degraded lands.

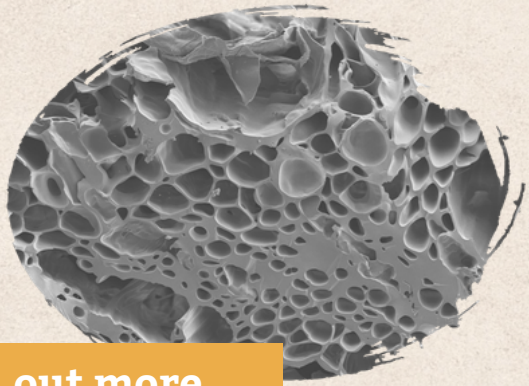


Key features

1. **Suitable for use in organic farming**
   Nature-based solution without any additives

2. **Only one application is needed**
   Ecochar is a highly stable product that remains intact in soil for decades or even centuries, requiring only a single application. It reduces water and fertilizer needs over time by improving soil health.

3. **Carbon sequestration**
   Biochar can sequester carbon in the soil. As such, Ecochar can contribute to addressing climate change.



WATCH NOW

< Scan here to watch a short video about Ecochar/Biochar

Find out more...

en.imflorestal.com/ecochar

Isotech: Circular green waste management scheme

isotech
environmental research and consultancy

Social solution

About the scheme

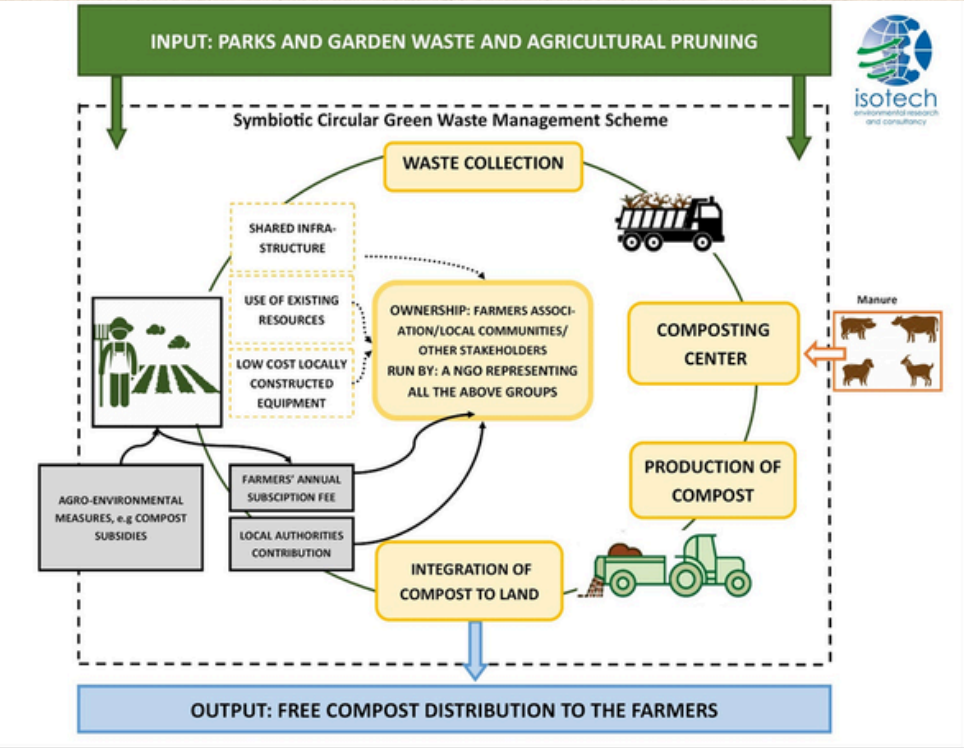
With 30 years of experience in composting, Isotech offers a symbiotic solution transforming green waste from parks, gardens and agriculture into high-quality, low-cost compost. The scheme, adaptable to the needs of the specific rural area, thrives on a circular economy model.

The scheme is co-owned by local farmers who provide green waste and animal manure, while enjoying waste collection from their field, compost production and high-quality compost application to their land. Local authorities are also co-owners of the scheme.

Benefits include handling of municipal green waste, supporting local farmers, transforming unutilized green waste to a product contributing to soil health. Due to the local ownership feature, the scheme allows for the autonomous and continuous production of compost, eliminating the need to rely on third parties for handling green waste and compost.

Key features

- Compost production adapted to the local area
- Transfer of Scientific Expertise
- Monitoring of compost production
- Seasonal mapping of green waste, collection, storage and mixing/co-composting different substrates, including animal manure, to ensure high quality compost production.
- Monitoring of compost quality.
- Ability to adjust qualitative characteristics of compost based on intended specific application/crops.
- Solving the green waste problem by using a locally owned, simple to operate, low-cost composting plant.



Find out more...

www.isotech.com.cy

WATCH NOW

Scan here to watch a short video about the scheme

Community Cooperative & Zero Kilometre School Canteen

Social solution

About social innovations in Italy

In Italy, biophysical pressures are part of the desertification equation. Yet, over time, demographic decline and land abandonment have assumed a growing influence, reshaping the conditions under which these physical processes unfold.

The thinning of local populations, the ageing of rural communities, the gradual withdrawal of essential services, and the retreat of agricultural and pastoral practices, collectively weakens the everyday forms of land stewardship that historically mitigated environmental risk. In this altered socio-ecological landscape, vulnerabilities linked to soil degradation, hydrogeological instability, and biodiversity loss tend to become more pronounced.

Because of this distinct socio-economic pathway, the Italian pilot focuses on social innovation as the main solution domain capable of revitalising local resilience, rebuilding relationships between communities and landscapes, and disrupting the abandonment–degradation cycle.

SETA area – Community Cooperative



The Community Cooperative is a multi-purpose social enterprise managing local services, cultural and tourism initiatives, resource stewardship, and small-scale welfare or mobility services.

The project was selected because it addresses service fragmentation, limited opportunities for young people, and the need for new multi-actor governance models.

The key actors involved are municipalities, citizens, local businesses, farmers, cultural associations, and LAG/territorial development bodies.

Potential impacts identified by stakeholders are to strengthen social cohesion, support economic diversification, enhance community governance and to promote the stewardship of local assets.

MOMA Area – Zero-Kilometre school canteen



Zero-Kilometer school canteen is a school-based community service integrating local food supply chains, healthy nutrition, sustainability practices, and active involvement of families and local farms.

The project was selected because it builds on strong agricultural resources, existing school facilities, and local interest in healthy, sustainable food practices.

Involved are schools, municipal administrations, families, local farmers and food producers, associations promoting sustainability and education.

Potential impacts are to reinforce educational and social capital, support local agriculture, promote sustainable behaviours and improve community cohesion through shared responsibility.