



Waste biorefinery technologies for accelerating sustainable energy processes

Waste Nutrients Recycled for use in Urban Farming

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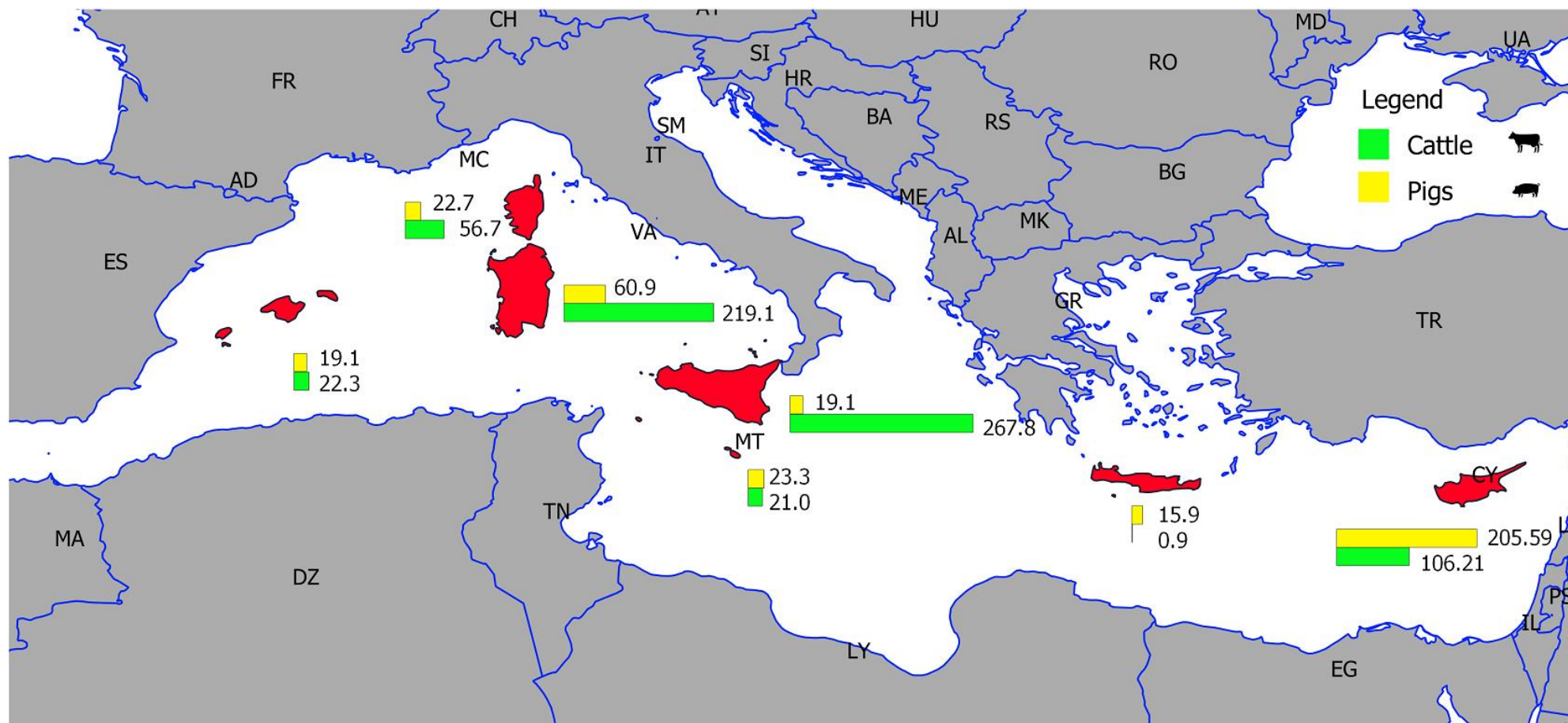
MCST-TUBITAK 2022 Joint Call for R&I Proposals

Project aims: to enhance the quality of life of citizens and enhance the local production system.

Farm to Fork Strategy, states : “a reduction of nutrient losses by at least 50% while ensuring that there is no deterioration in soil fertility. This will reduce the use of fertilizers by at least 20% by 2030.”

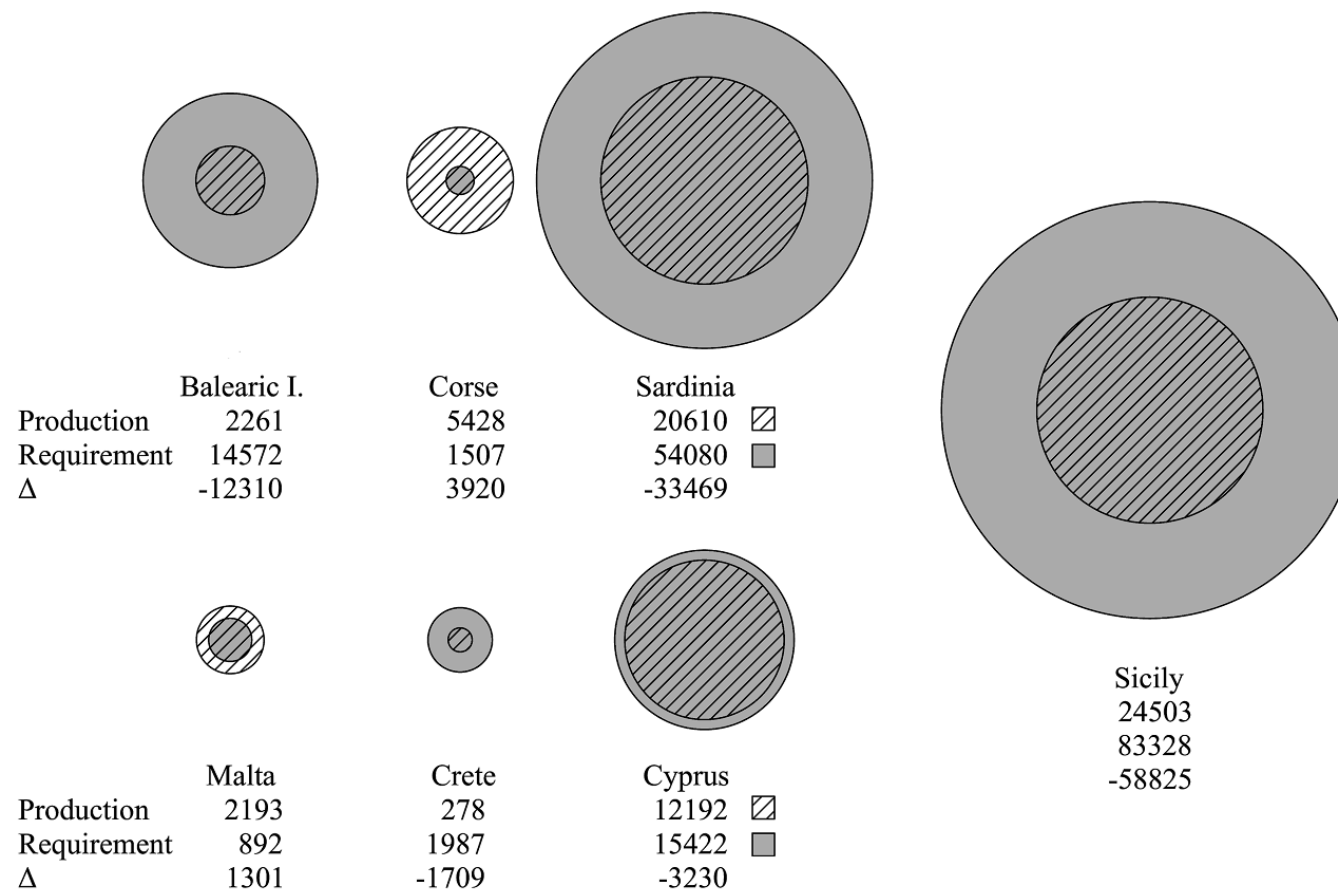
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Livestock Units by species (10^3) in the selected Mediterranean Islands (2018 data)



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Nitrogen balance from applying digestate on soils used for forage and cereal production



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Nitrogen from anaerobically digested manure, agricultural area utilised for forage and cereal production and sufficiency of nitrogen requirement by wheat

Islands	Nitrogen from cattle (t)	Nitrogen from pigs (t)	Agricultural area utilised for forage and cereal production (ha)	Nitrogen from AD / nitrogen requirement (%)
Balearic Islands	2,023.10	238.50	92,230	15.52
Corse	5,144.27	283.75	9,540	360.11
Sardinia	19,849.55	760.75	342,280	38.11
Sicily	24,264.49	238.25	527,390	29.41
Malta	1,902.60	291.25	5,647	245.89
Crete	78.82	199.37	12,580	14.00
Cyprus	9,622.63	2,569.87	97,612	79.06
Total	62,885.46	4,581.75	1,087,279	39.27

Note: Manure Nitrogen from Sheep. Goats, Poultry, Rabbits and Horses not included

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Dewatering of slurry

Cattle



Swine



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Laying Hen Manure



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FAST FERMENTATION SYSTEMS

IN 1 DAY
FERMENTED FEED AND
ORGANIC FERTILIZER



BIOEX



Funded by
the European Union

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The Fast Fermentation System helps to reach ZERO food, vegetable and organic WASTE by providing ready-to-install composting solutions in the volume they need for all types of businesses and institutions.

FAST FERMENTATION / COMPOSTING SYSTEMS

- The system consists of an Activator, which accelerates the fermentation, and the reactor that will provide the appropriate environment for this activator to work.
- Organic waste is fermented within 24 hours and converted into organic fertilizer, fermented feed or biomass;
- While completing the sustainability cycle, a contribution is made to the economy.

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Development of suitable containers made of compostable materials



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Irrigation System



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Urban farming using balconies in cities and towns



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Participation of Civil Society (about 5% of population)

facebook



Green Patches - Gardening In Malta

 Private group · 20.5K members



About

Discussion



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- The compost will be corrected to have adequate plant nutrients
- This system allows the use of excess nutrients for plant production by moving them out of conventional agricultural systems
- Spent compost (depleted of nitrogen) will be collected and used as a soil conditioner
- Maltese soils have low organic matter

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Urban Concrete Jungle to Urban Farming

