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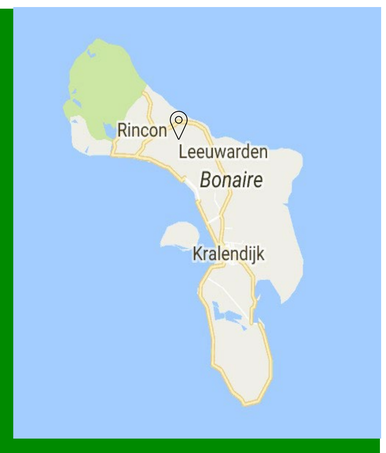

Optimizing composting of manure and plant waste on Bonaire (BONCIRC)

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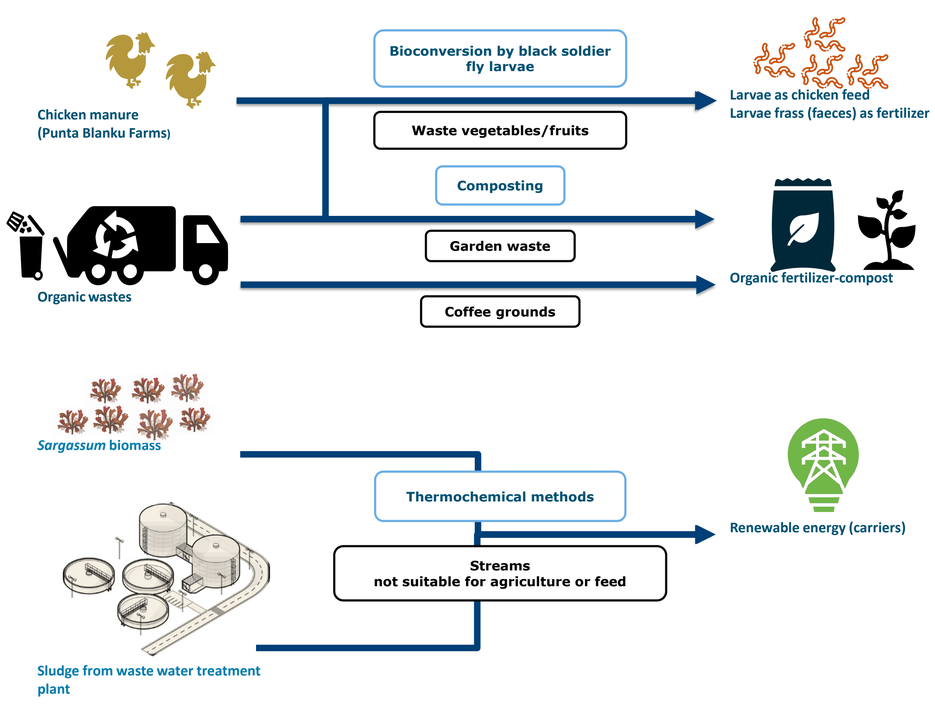
Objectives

- **To develop circular systems to manage organic wastes** and Sargassum **on Bonaire increasing sustainability of waste management, decreasing landfilling and environmental damage while adding value**
- **To evaluate and develop circular applications for organic wastes in agriculture** and for energy, with positive impacts on nature, economy and society in Bonaire. The streams (**chicken manure**, *Sargassum*, vegetable, food and garden waste) will be assessed for direct applications for high value products (**feed**) as well as for applications as substrates for compost and energy
- Investigate how the project results can be combined with similar activities and establish or reinforce interactions on knowledge and networks in the Caribbean region
- Compost production is being developed at LVV by Agritera together with SELIBON. In collaboration with the project, the compost preparation and application tests have been performed in 2024

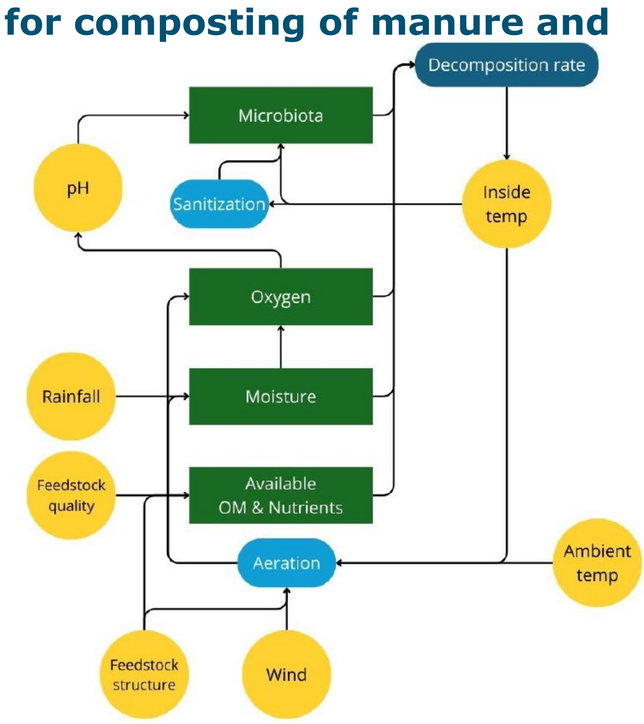


Concept of the project and major tasks and approaches

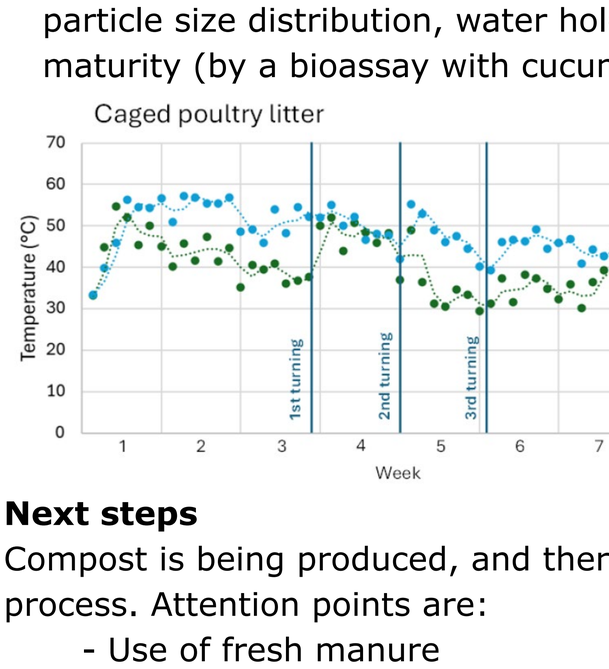
Impression of the composting area.

Optimizing conditions for composting of manure and plant waste

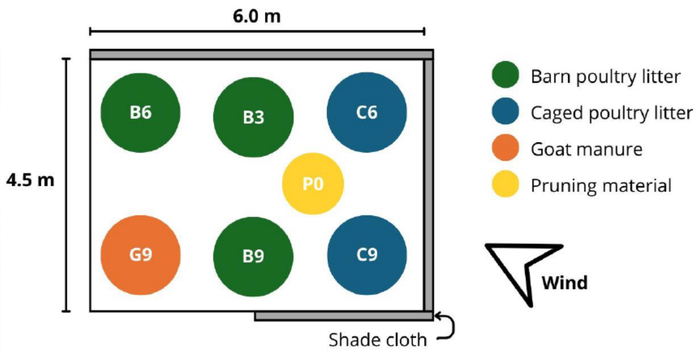
Overview of several interlinked factors that are related to the decomposition rate. Decomposition requires microbiota, oxygen, moisture and substrate (green boxes). Which are in turn related to several variables (yellow circles) and processes (blue boxes).



Setup for testing composting conditions and substrates



Experimental composting heaps



Experimental set-up of the compost trial. Barn poultry litter (B) was mixed with pruning material in three different ratios (1:9, 1:6, 1:3). Caged poultry litter (C) in two (1:9, 1:6). Goat manure (G) in one (1:9). A control of pruning material without manure was added (P0).

Analyses

Analyses performed during and after the trial were: compost analysis (Eurofins, Netherlands), temperature, moisture content, bulk density, particle size distribution, water holding capacity, CO_2 respiration and maturity (by a bioassay with cucumber and Chinese cabbage).

Temperature development in caged poultry litter mixed with pruning material in a ratio of 1:9 (C9) and 1:6 (C6).

Next steps

Compost is being produced, and there is room for improvement in the process. Attention points are:

- Use of fresh manure
- Avoidance of mixing with soil or other impurities
- Optimise C/N ratio
- Evaluate compost performance

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Reference

1) A. M. López-Contreras, et al., 2021. "Opportunities for valorisation of pelagic Sargassum in the Dutch Caribbean" WUR report 2137, DOI: 10.18174/543797