

Upgrading chicken manure with insect larvae at Punta Blanku (BONCIRC)

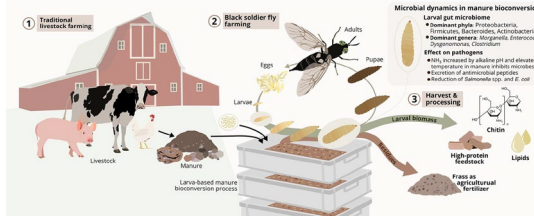
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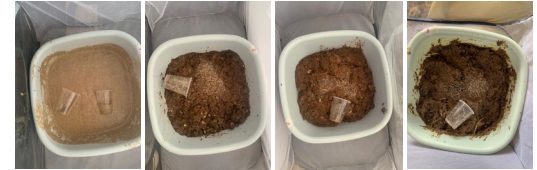
Objectives

- 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

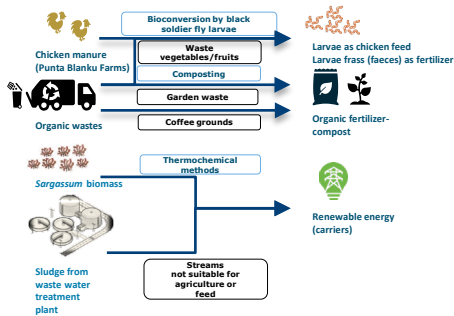
Animal feed from wastes at LVV and Punta Blanku chicken farm



Explanatory figure for bioconversion of manure by insect larvae (Figure from Liu et al, Black soldier fly larvae for organic manure recycling and its potential for a circular bioeconomy: A review, Sci Total Environ. 2022 Aug. 10;833:155122. doi : 10.1016/j.scitotenv.2022.155122).



Nursed larvae are then for a week fed with:
 a) Chicken feed (reference)
 b) Chicken manure
 c) Manure of chicks
 d) A mix of 1/2 chicken & 1/2 chicks manure



Concept of the BONAIRC project for circular use of organic residues/wastes and Sargassum biomass and major tasks and approaches

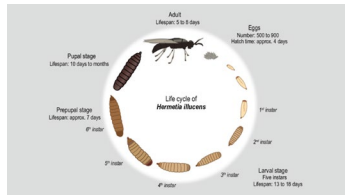
Trials for technical possibilities for production of insect larvae on chicken manure to feed chickens



At Punta Blanku manure is collected from both chicks and chickens



New larvae are first nursed on chicken feed



The lifecycle of the Black Soldier Fly (BSF) (*Hermetia illucens*)

Outcomes

- Chicken manure produced at Punta Blanku is a promising substrate for growth of BSF larvae and production of frass on Bonaire, ambient temperature is perfect
- Business case and legislation have to be further investigated

Acknowledgements

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References

- 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
- 2) De Smet et al., 2018. Chemical Safety of Black Soldier Fly Larvae (*Hermetia illucens*), Knowledge Gaps and Recommendations for Future Research: a Critical Review
- 3) Liu et al, 2022. Black soldier fly larvae for organic manure recycling and its potential for a circular bioeconomy: A review Potential of BSF larvae