Stakeholder perceptions for adoption and profitability of black soldier fly farming for organic waste management in Kenya

Teresia G. Wamwondwe*, Dennis Beesigamukama, Shaphan Y. Chia, Zewdu Abro, Fridah Chepchirchir, Perpetual Gakeni, Chrysantus M. Tanga, Subramanian Sevgan

[1]International Centre of Insect Physiology and Ecology (*icipe*), P.O.Box 30772-00100 Nairobi, Kenya. *twamwondwe@icipe.org

1. INTRODUCTION

- Circular biowaste recycling using black soldier fly (BSF) is emerging as a promising solution[1].
- Poultry farmers adopting BSF-based feeds achieved higher profit margins and return on investment compared to conventional feeds[2].
- Despite the environmental and economic potential, the adoption of BSF innovations is still low and can vary greatly depending on perspectives on their usefulness and feasibility.
- Knowledge on the perceptions and socioeconomic factors influencing BSF innovations is limited.

2. OBJECTIVES

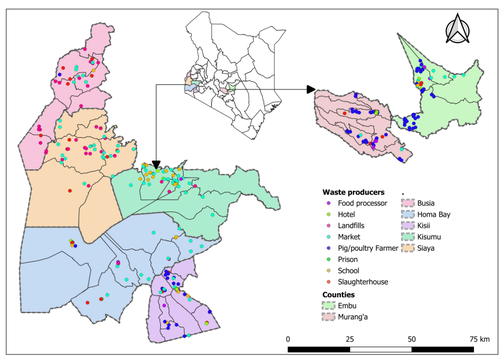
1. To assess stakeholder perceptions of black soldier fly (BSF) farming for organic waste management.
2. To evaluate BSF Farming and conventional composting profitability

3. METHODS

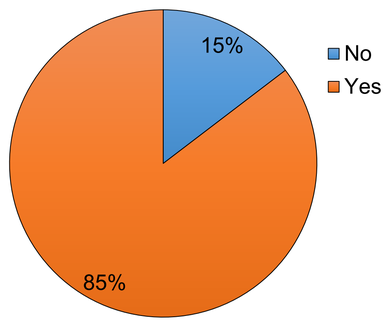
- Multistage sampling to select 328 organic waste producers in 7 counties of Kenya (Busia, Siaya, Kisumu, Homa Bay, Kisii, Murang'a, and Embu).
- Technology adoption model to assess perceived usefulness, ease of use, and attitude towards use of BSF.
- Gross profit margin analysis

4. RESULTS

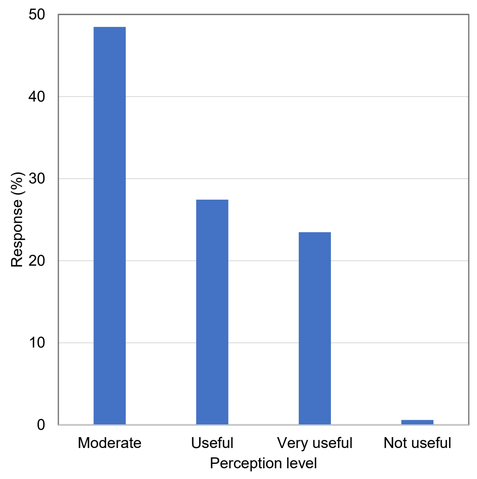
4.1:Map showing the distribution of organic waste producers.



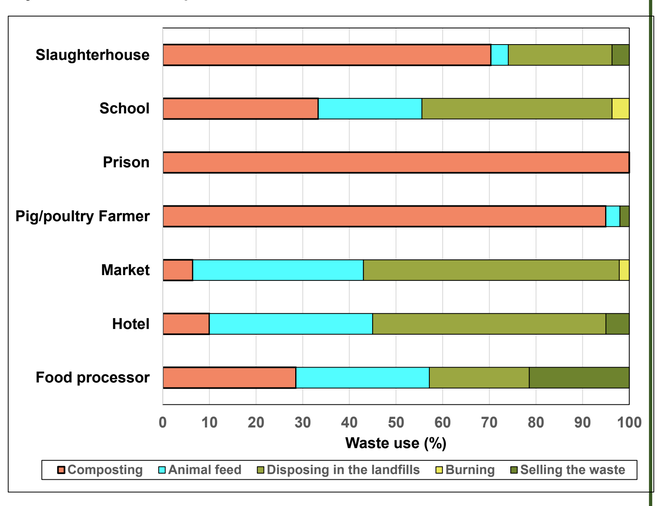
4.2: 85% of the respondents were willing to use BSF for organic waste management.



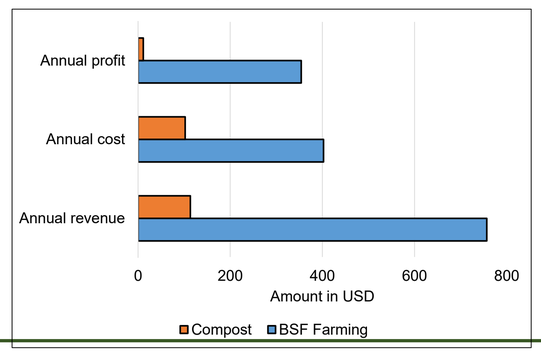
4.3: Majority of the respondents (48%) were unsure of the usefulness of BSF for organic waste management.



4.4: Composting and disposing on landfills is the most common practice of waste handling by most waste producers



4.5: BSF farming is profitable compared to conventional composting methods



5. IMPACT

- Findings from study will guide strategies for improving perceptions and scaling of BSF innovations for circular waste management.
- Evidence generated informs policymakers to mainstream BSF innovations with national development policies.
- Promotion of BSF innovations among the interested communities will improve waste management, income and food security through circular economy.

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusion

- There is high willingness to adopt BSF by more than 80%
- Awareness creation is low
- There is wide diversity of waste for BSF production across different counties in Kenya
- Use of BSF is profitable

Recommendation

- There is diverse waste streams for BSF with potential for job creation
- There is need for sensitization, awareness creation and training on BSF among youth

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1. Kasima et al. (2025). Sustainable Environment. 11(1). https://doi.org/10.1080/27658511.2025.2478704
2. Roy et al. (2024). Discover Agriculture. 2, 71. https://doi.org/10.1007/s44279-024-00064-9

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International Centre of Insect Physiology and Ecology
P.O. Box 30772-00100, Nairobi, Kenya
Tel: +254 (20) 8632000. E-mail: icipe@icipe.org