

**1ST EASTERN AFRICA AGROECOLOGY CONFERENCE**  
TRANSFORMING FOOD SYSTEMS FOR RESPONSIBLE PRODUCTION,  
CONSUMPTION AND SOCIAL WELLBEING

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*Strengthening Resilience and Sustainability in  
Food Systems for Environmental and Socioeconomic Development*

# The Impact Post-Harvest Response on Sustainable Consumption

“  
When we throw away  
food, we are throwing  
away people”.



# Outline of the Presentation

1. Background of PHL
2. Research Objectives
3. Research Methods
4. Findings
5. Recommendations
6. Conclusion

## Background of PHL

- A huge quantities of food go to waste due **to spoilage and infestation along the path to the consumers**. In some African, Caribbean and Pacific (ACP) countries, due to the tropical weather and poorly designed infrastructure the waste problems is as high as 40-50%

# Background of PHL

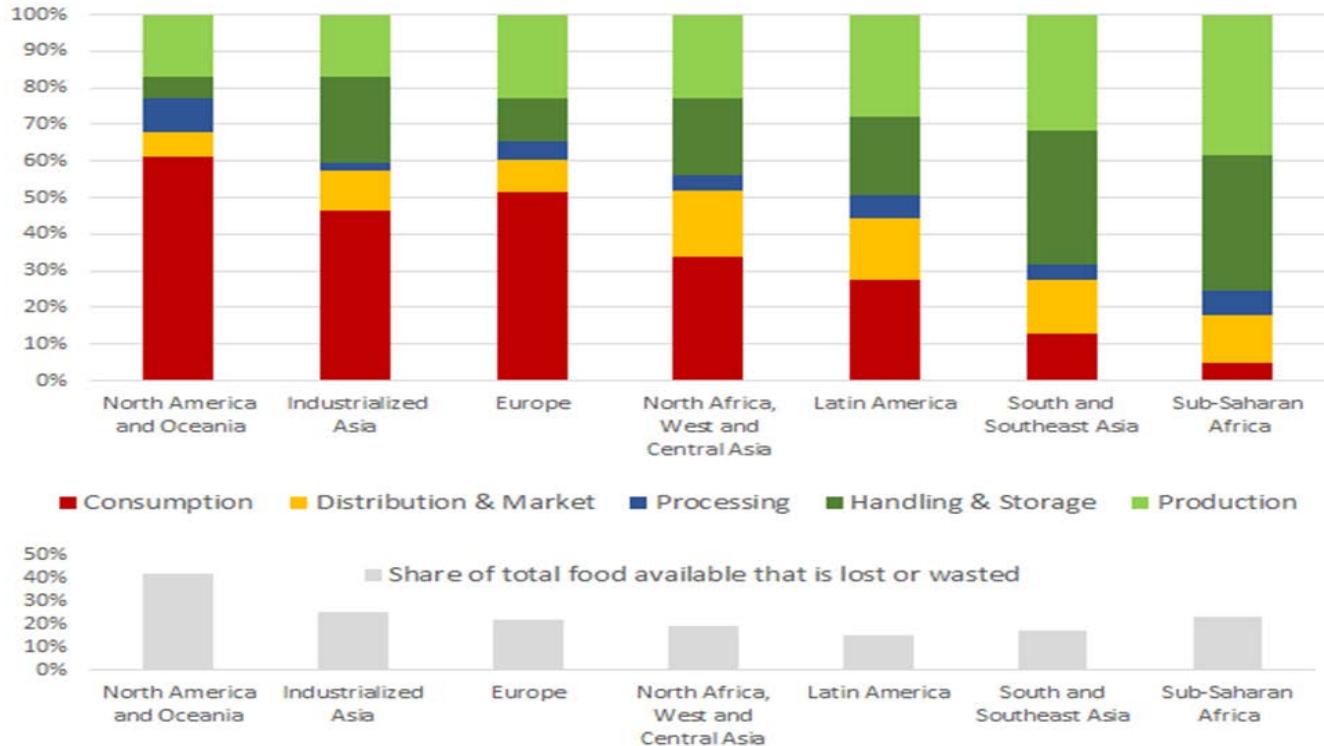
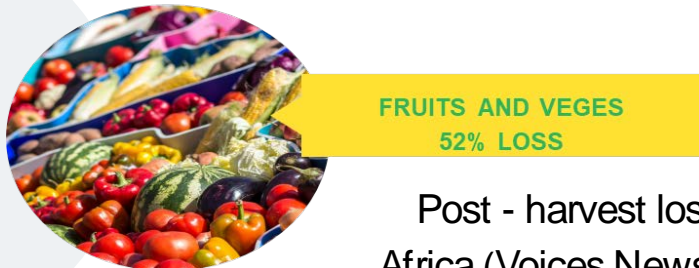
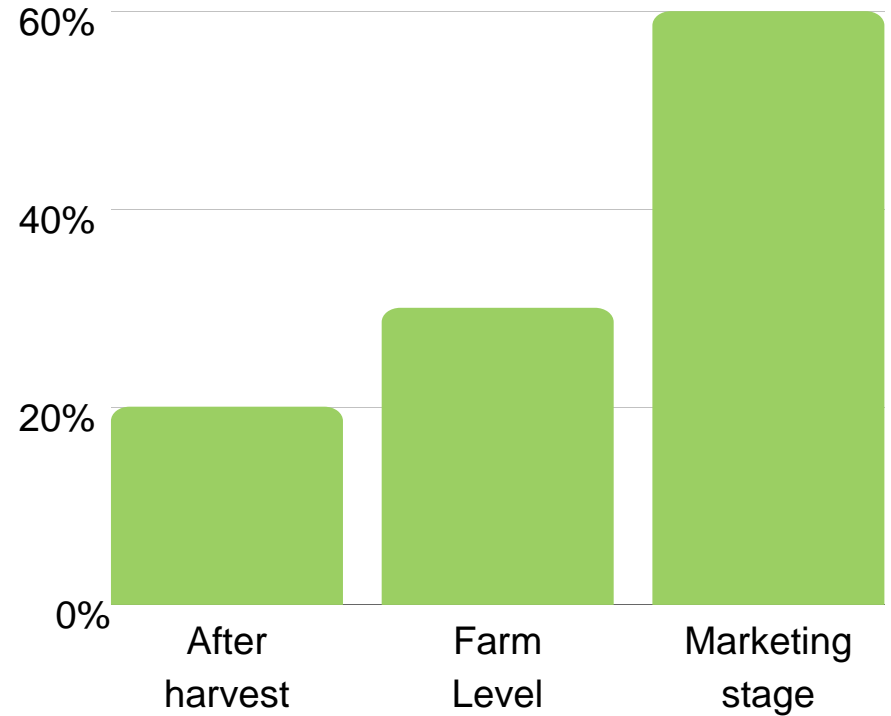


Figure : Geography of post-harvest loss and food loss (Lipinski et al 2017).

# Background of PHL



Post - harvest losses data in Africa (Voices Newsletter, 2006).




Post - harvest losses during handling in Kenya

# Causes of Post-Harvest Losses

1. Lack of affordable techniques
2. Insufficient post-harvest quality management materials
3. Variations in climatic conditions
4. Infrastructure – Transport
5. Poor packing methods
6. Insufficient storage facilities
7. Poor post-harvest handling

(Gogo et al., 2016)



“Farmers find it a better to sell their produce at a loss to intermediaries **than letting it to rot**. This translates into extremely low income for farmers' leading to economic stagnation”.



# Post-harvest solution

- ❖ Use of metal bins
- ❖ Preservation methods (salting, fermenting, and pickling)
- ❖ Heat treatment and hot water quarantine
- ❖ Solar drier and dehydrators

# BioAfriq Energy



BioAfriq Energy is a **social enterprise** based in Kenya that develops **solar dehydrators** for drying farm produce **reducing post-harvest losses**.

Biomass briquettes and biomass pellets produced by recycling agricultural waste biomass are used to fuel the dehydrators.

# Target Audience

BioAfriq primarily targets small and medium-scale farmers, agricultural processing plants, and catering and educational institutions in Kenya.



# Research Objectives

1. Assessing the **effectiveness of the solar dehydrators** in reducing post-harvest losses;
2. Determining the **effects of post-harvest management solution** on farmers income;
3. Demonstrating how post-harvest management solution contributes to **improved family nutrition**;
4. Assessing post-harvest solution **to job opportunities and employment creation**;

# The Rationale for the Impact Assessment

BioAfric has designed a **dehydration solution** to address the **post-harvest losses** for **small scale farmers**.

The solar dehydrator has a **digital control system** for controlling the drying temperatures, providing optimal drying conditions **while maintaining the nutritional value of the end product**.

# The Rationale for the Impact Assessment

The impact assessment considers BioAfriq contribution to achieving **SGD Number two**: ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture.



# Research Methodology

- **Case study:** a comprehensive understanding of the impact of Bio Afriq on post-harvest solution to the community.
- **Mode of data collection:** In-depth interviews done and participant observations

# Research Methodology

- Respondents: Key informants from eleven organisations who purchased and used the BioAfriq solar dehydrators for at least two years.

: 9 farmers were interviewed as key informants - they had supplied BioAfriq with various products including root tubers, cassava, sweet potatoes, and rice.



# Research Methodology

- **Scope of the study:** the farming services provided by BioAfric, farm input distribution structure, and monitoring of the progress, output, and outcomes.

# Findings

1. Many farmers reported the solar dehydrators **were easy to use, cost effective, and reduced drying time** resulting in greater production.

*“The period for drying has been shortened now, within **1-2 days** most of the products are ready, previously I would take **3-5 days** drying in the direct sun and sometimes I would incur losses due to the weather which is not happening “(K1.3)*

# Findings

2. Cost effectiveness, and reducing drying time resulting in **greater production** and **significant improvement on income for farmers**

*“I am able to produce more initially sometimes I would only do **100 kgs** a month now I can do **500 kg** per month of flour like the cassava”  
(KI 1).*

# Findings

3. The research showed that there were **job opportunities** created along the value chain through the introduction of the solar dehydrator.

*“If I was inputting on the dryer **twice a week** now I can input, three times or four times a week, that calls for more labor. So by just installing the drier translates to increasing labor. We expanded the **size** of the farm and with expansion of the size of the farm we have all the time **several workers** at the farm... In essence it has contributed to the unemployment crisis”(KI 5)*

# Findings

## 4. The research showed that Post-harvest management and its impact on nutrition.

*“with reduced post-harvest losses, then, of course, we have more food and we have better nutrition”(KI 3)*

*“When you don't have a good dryer, some nutrients are affected. As for our business, without a good dryer, vitamin C will be affected. With a good dryer, our final product will have higher levels of vitamin C. So with that, then we are able to sell a product with good nutrition and we are helping fight malnutrition or have a better product. The drier give us an opportunity to develop products that can also address malnutrition”(KI 6)*

# Findings

5. From the initial model, they have **improved the efficiency of the dryer** which has significantly **decreased the time for drying.**



# Study's Recommendations

- To address PHL, we must focus on the **household level**, where significant losses still occur.
- Taking a **multi-stakeholder** approach can have far-reaching benefits.
- Establishing **small-scale technologies**, particularly at the village level is very important.
- **Sharing knowledge** on post-harvest interventions is crucial to small-scale farmers.
- **Prioritize** PHL, develop more effective policies and interventions

# Conclusion

The study provided empirical evidence of **post-harvest solution on farmers' livelihood, nutrition and employment.**

The finding confirmed the **contribution of Bioafriq to the improvement of communities livelihood, and sources of income.**



“

Food security is not just about production. It is also about conservation, distribution, and access. It is about reducing waste and loss in the entire food system, from the farm to the table”

*Wangari Mathai*



# Thanks!

## ANY QUESTIONS?

You can find us at

- Tangaza University College
- [bnasyaw@gmail.com](mailto:bnasyaw@gmail.com)
- [shirosunwangi2009@gmail.com](mailto:shirosunwangi2009@gmail.com)

