



# The Postharvest Education Foundation's Role in Reducing Postharvest Losses

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[www.postharvest.org](http://www.postharvest.org)

## Problem:

**30-40% of all food produced is lost or wasted**



**Loss:** unintended spills, spoilage, reduction in quality.  
**Waste:** food that is of good quality but is not consumed.

## Approach: The Postharvest Education Foundation (PEF)

**Mission:** provide innovative programs that motivate and empower people to reduce food losses and waste.

### Education & Training:

E-learning program which includes:

- Selecting a crop
  - Conducting a CSAM (example below)
  - Designing training courses
  - Conducting return on investment studies (examples below)
  - Designing a Training and Services Centre.
- [www.postharvest.org/postharvest\\_elearning\\_program1.aspx](http://www.postharvest.org/postharvest_elearning_program1.aspx)

### Website:

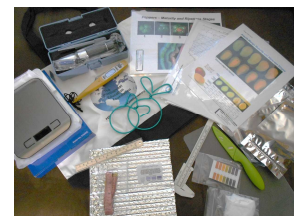
- Training material including videos
- Educational links
- White papers
- Postharvest innovation plan series

### Hands on workshops

### Mentoring via LinkedIn

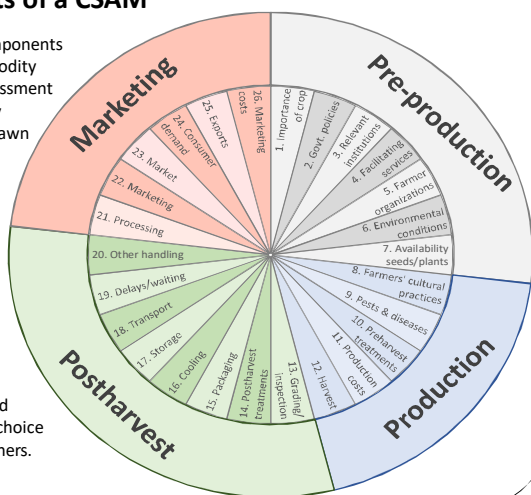
### Postharvest toolkits i.e.:

- Temperature probe
- Refractometer
- pH test strips
- Chlorine test strips
- Digital scale
- Calipers
- Fruit sizing rings
- Color charts



## Elements of a CSAM

Principal components of the Commodity Systems Assessment Methodology (CSAM) (redrawn from La Gra et al., 2016).



CSAMs are conducted on a crop of choice by the e-learners.



## Return on investment: Maize crib for drying in Uganda

Table: Cost of materials.

Materials	Total
Timber	1,000,000
Welded mesh	416,000
Poles	300,000
Iron sheets	500,000
Nails, wire, clips	200,000
Gutters	98,000
Cement	250,000
Sand, Aggregate	230,000
Labour	2,000,000
Subtotal	4,994,000
Overhead costs	499,400
<b>Total (UGX)</b>	<b>5,493,400</b>
<b>Total (US\$)</b>	<b>\$2,113</b>



Table: ROI (in US\$) on a maize crib.

Factors	Current Practice	New Practice
Crib		2,113
Handling (to and from store)	791	
Sacks (107 @ \$0.38 each)	41	
Tarpaulin	58	
<b>Relative costs (\$)</b>	<b>890</b>	<b>2,113</b>
Initial amount (kg)	30,000	30,000
Losses (%)	15	3
Amount for sale (kg)	25,500	29,100
Value\$/kg	0.23	0.31
<b>Market value (\$)</b>	<b>5,865</b>	<b>9,021</b>
<b>Profit (value-costs)</b>	<b>\$4,975</b>	<b>\$6,908</b>
<b>Relative profit (profit new-current)</b>		<b>\$1,933</b>

## Return on investment: Solar dryer for maize In Bhutan



Table: ROI on a solar dryer for maize.

Factors	Current Practice	Solar dryer
<b>Cost of practice (Nu)</b>		<b>5840</b>
Initial weight (kg)	400	400
Marketable maize (%)	37%	75%
Amount for sale (kg)	150	300
Value (Nu)/kg	90	90
<b>Market value (Nu)</b>	<b>13500</b>	<b>27000</b>
<b>Profit (Nu) (value-cost)</b>	<b>13500</b>	<b>21160</b>
<b>Relative profit (Nu)</b>		<b>7660</b>
<b>Relative profit (US\$)</b>		<b>\$108</b>

Typical postharvest losses of maize in Bhutan are high, e.g. in this case losses were 63%.

The solar dryer reduces postharvest losses to 25%, minimizes fungal decay and protects the crop from pests (Yangden, 2016).

**Current Practice:**  
Drying maize in the sun

**New Practice:**  
Drying and storing maize in the crib.

**Benefits:**  
Excludes rodents, minimizes fungal decay, minimal discoloration, higher nutritional value, less losses and higher value (Muyomba, 2013).

## Impact of the PEF:

154 graduates and 65 currently enrolled from 33 countries.



A high global impact with a limited budget resulting in graduates that train others, and training through the website and mentoring services.

Although the focus of The Postharvest Education Foundation is on fruits and vegetables, similar principles can be applied to improved handling, drying, packing, pest protection, storage and processing of grains and cereals.

