

# Experiences from Rwanda and Burkina Faso

## Building Horticultural Postharvest Capacity and Entrepreneurship

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Theory of Change

Increase resilience through Postharvest Interventions

Decrease malnutrition

High quality, nutritional F&V crops available year round

Trial seeds – Focus on nutrition, counter-seasonal production and processing

Decrease food insecurity

PH Losses decreased. Supply of fresh and processed F&V increased. Prices stabilize

Build capacity of agronomists in PH. Adaptive research on PH – disseminate results

Increase income

HH incomes increase as quantity and quality of saleable produce increased

Inc adoption of PH solutions through PH Center Farmers and Entrepreneurs (workshops & competitions)

# Approach

- 1) Gain understanding of postharvest losses, constraints and opportunities in a given chain - modified Commodity Systems Assessment Methodology (CSAM), Value Chain Analysis and Environmental Lifecycle Assessment
- 2) Create and embed the Postharvest Center with a local institution – home of research, field trials, training, demonstrations and retail shop
- 3) Stimulate entrepreneurship in the value chain – business development workshop, hands on mentoring, Innovation Competition, Learning Conference

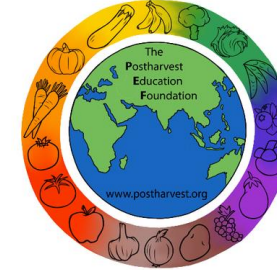
# Partner Selection



Rwanda



Burkina Faso





# Focus Crops

- **Exports/high value crops**
  - Green chili
- **Domestic/regional markets**
  - Tomato
- **Local/domestic markets**
  - Orange fleshed sweet potato
  - Green Bananas/Plantain





# Findings from CSAM

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# Quality Loss - Relative Perishability

1: Low; 3: Medium; 5: Highly Perishable

Crop (Price Range – RWF/kg)	Farm	Collection Point	Wholesale market	Retail market
Tomatoes (100 – 500)	3	3	5	5
Green Chilies (200 – 700)	3	-	3 (packhouse)	-
Green Bananas (250 – 320)	3	-	3	3
Orange Fleshed Sweet Potatoes (150 – 300)	3	-	1	-

# Quantity Loss - % sorted out

Crop (Price Range – RWF/kg)	Farm	Collection Point	Wholesale market	Retail market
Tomatoes (100 – 500)	21%	11.5%	10%	13.6%
Green Chilies (200 – 700)	No sorting out	-	3% (packhouse)	-
Green Bananas (250 – 320)	No sorting out	No sorting out	No sorting out	No sorting out
Orange Fleshed Sweet Potatoes (150 – 300)	10%	-	-	5%





Main causes of  
Postharvest loss

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Over maturity or mixed maturity

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Rough and unsanitary handling

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Poor Quality  
Containers







Rough transportation



# Lack of Temperature management

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Lack of Processing  
Options

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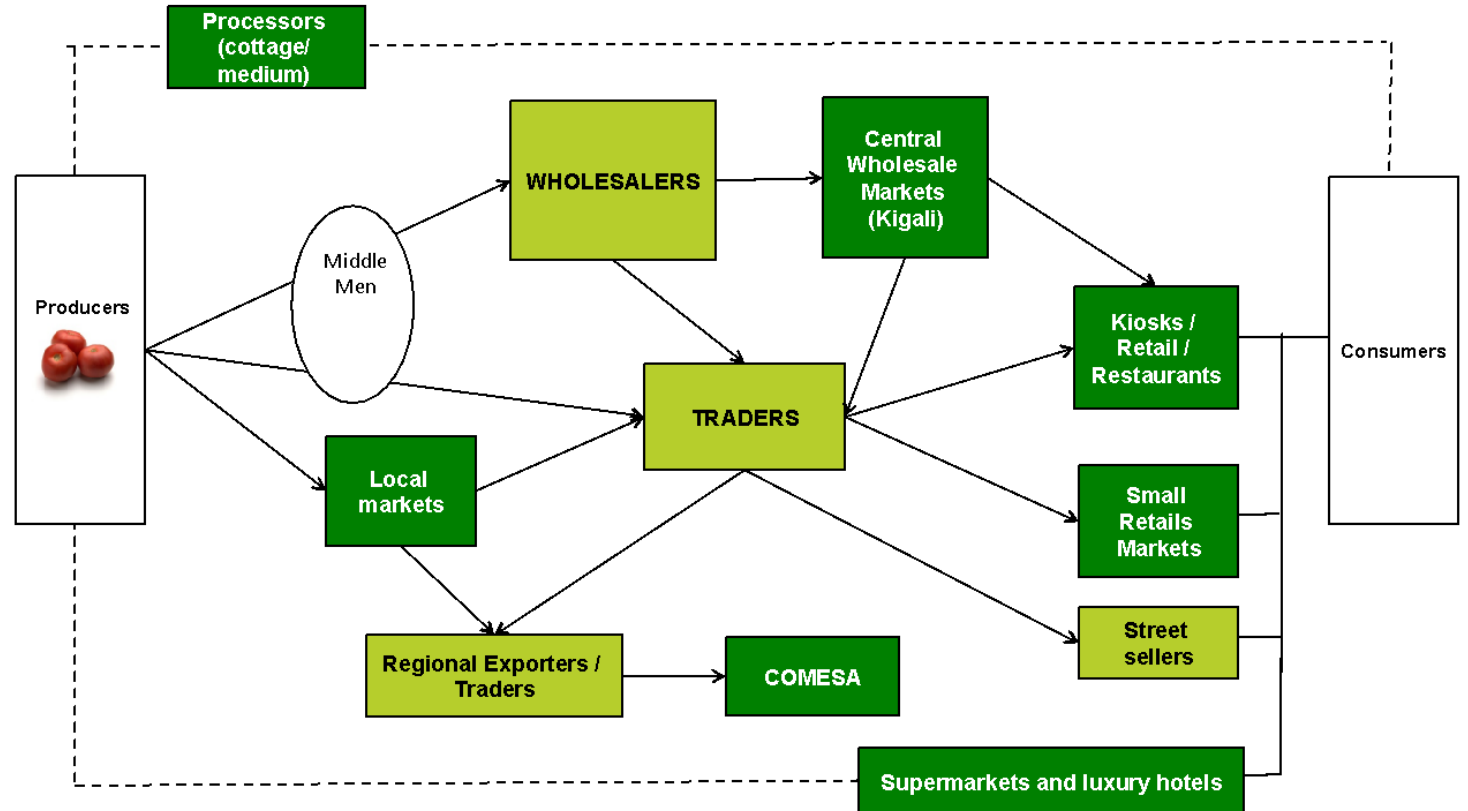


# Findings from Value Chain Analysis

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# Key Findings – Tomatoes (Rwanda)

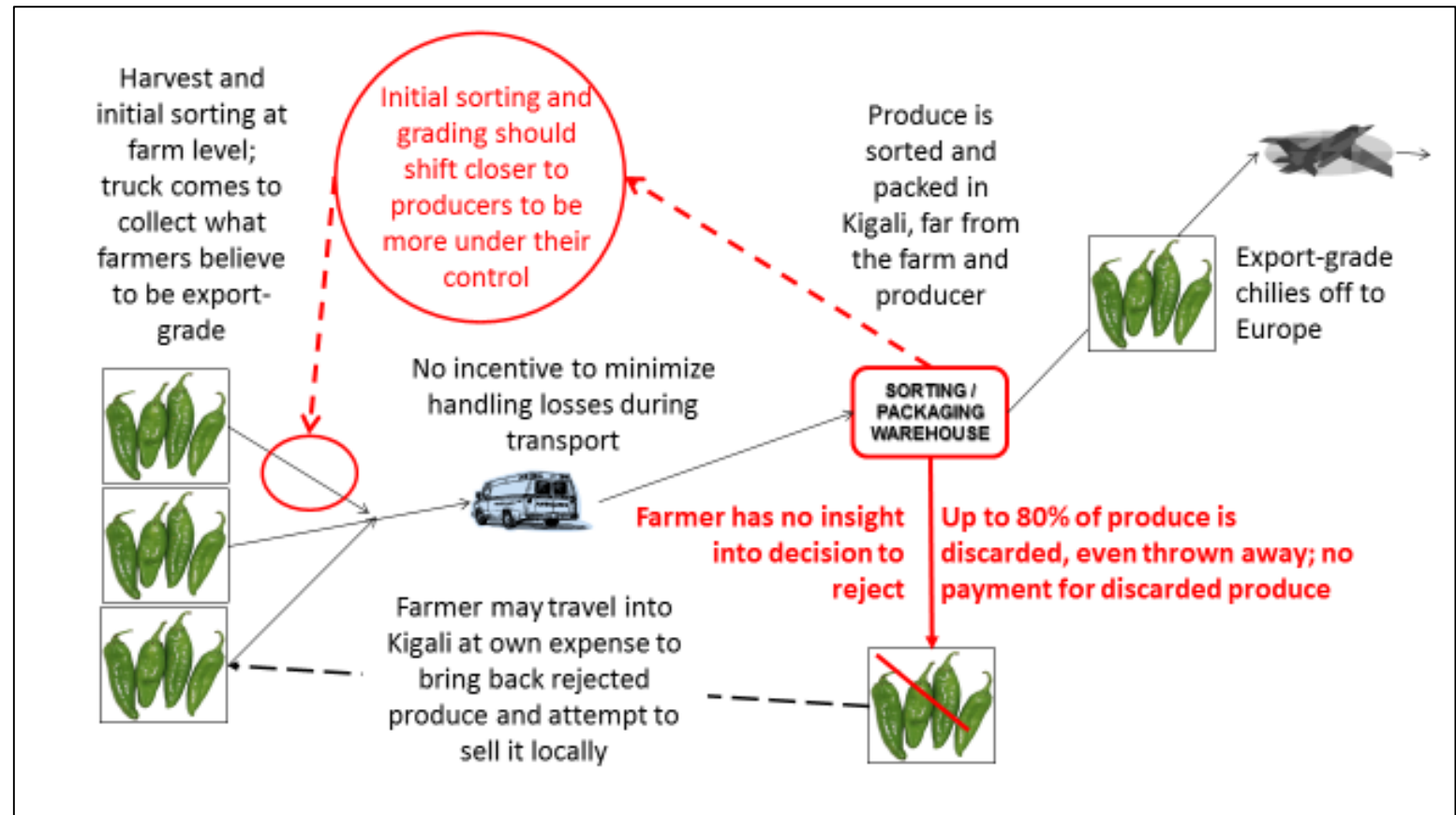
- Tomato sales and distribution is a very fragmented system
- The market rewards bigger players
- Aspirations of forward integration by producers must be balanced against the reality of producers
- Preferred markets for smaller farmers mean wholesalers or larger traders
- Price fluctuations based on demand and supply imbalances are the key challenge for all players in the chain





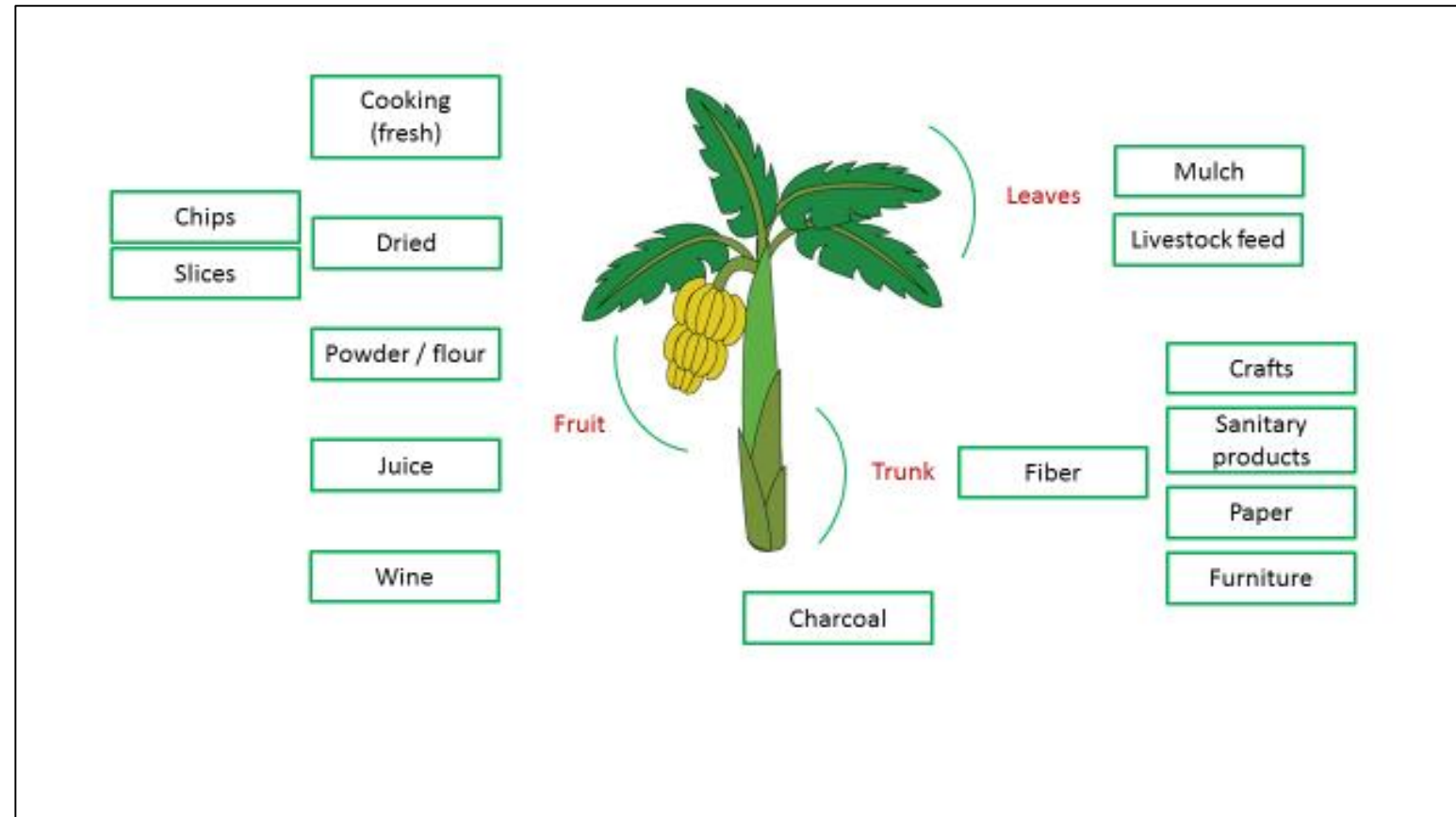
# Key Findings – Green Chilies

- Chilies are a high-value fresh export crop that is currently in its infancy as an industry in Rwanda.
- The main challenge of the current chili fresh export sector is that there exists only one buyer / exporter (a classic monopsony) with a non-transparent purchase and post-harvest sorting system.
- A key need for the industry to evolve is to attract other investors into fresh chili exports.



# Key Findings – Green Bananas

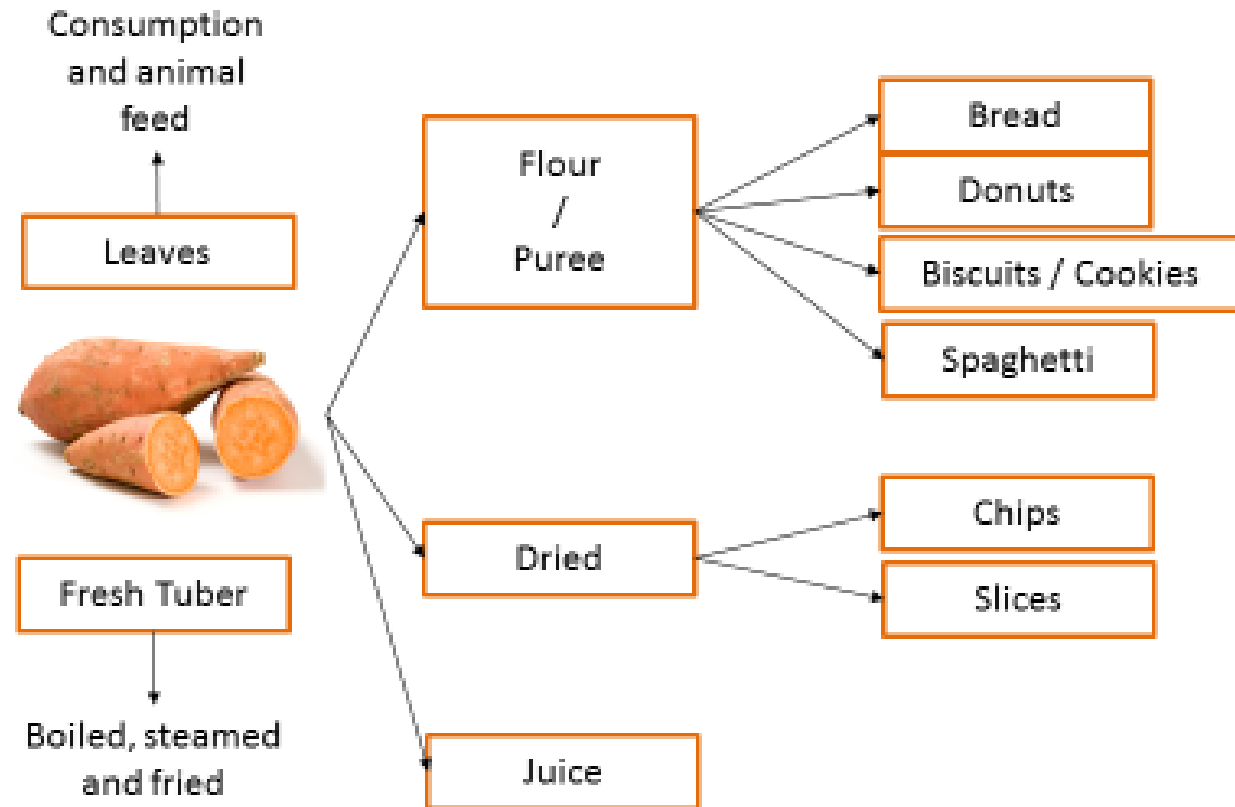
- Key challenges in the banana segment include disease ('Kirabiranya' disease or Xanthomonas wilt), perishability and cost of transport.
- Almost all green bananas are damaged by the time they reach retail markets
- Post-harvest loss in general was less of an issue for this crop than for the others, as all qualities are saleable (except the inedible), but price lowered for poor quality
- Improve processing options





# Key Findings - OFSP

- Orange Fleshed Sweet Potato (OFSP) is a relatively new crop for Rwanda with two decades of significant support from the NGO community.
- The crop is primarily grown as a livelihoods / food security crop with a strong nutritional component.
- The main challenges for OFSP include uncertain market demand and uncertain supply issues for processors, both of which are linked: due to the lack of a local fresh market, farmers may be reluctant to engage in OFSP production, while processors cannot engage in processing without assured supply.





# Findings from Lifecycle Assessment

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# Post-harvest losses impacts and resource use (Rwanda – Tomatoes)

<b>Category</b>	<b>Units</b>	<b>Post-harvest loss impacts per tonne</b>	<b>Loss impacts total Rwanda Tomato Production</b>
Greenhouse gas emissions	kg CO2 eq.	161	3,000,000
Water volume	m <sup>3</sup> H2O	86	13,000,000
Water equivalents	M <sup>3</sup> H2O eq.	7,073	1,080,000,000

# Solutions – Capacity Building of Farmers and all other handlers

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- Maturity indices – Demonstrated here →
- PH handling
- Hygiene
- Use of improved containers
- Sorting/grading
- Use of shade
- Safe chemical use and postharvest internals
- Curing and storage methods
- Farming as a business





# Low Investment Solutions

- Zero energy cool chamber
- Improved transportation – tricycles, bicycle trailers, covered cargo bicycles
- Shade
- Picking bags or aprons for harvesting (green chilies) – Demonstrated here →



# Medium to High Investment Solutions

- Small scale processing –
  - Tomatoes - solar drying, sauce making, juices, powder
  - Green bananas – solar drying, green banana flour
  - Green chilies – solar drying, sauce making, chili oils, paste, dried powders
  - OFSP – baking – breads and cakes, biscuits
- Cooling technology such as coolbot – Photo from construction phase installed in Agrishow Complex, Mulindi



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# Stimulate Entrepreneurship

- Business Development Training
- Mentoring
- Innovation Competition
- Learning Conference





# Thank you!

**Please connect:**

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*This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the Horticulture Innovation Lab and do not necessarily reflect the views of USAID or the United States Government.*

