The ROCKEFELLER FOUNDATION

YIELDWISE Initiative

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A third of the world's food is either lost or wasted

The Global Problem Is Significant

470M smallholder experience **15% income reduction**

1.6B could be fed with food lost each year

25% of freshwater and 20% farmland wasted on unconsumed food

Post-Harvest Loss Is Particularly Acute in Sub-Saharan Africa

50%
of fruits and vegetables

40%
of roots and tubers

20%
of cereals

Opportunity

Market dynamism in the food system coupled with changing consumer preferences and rising incomes is leading large buyers to seek ways to *responsibly* source from local SHFs

- Large food buyers will likely increase local sourcing to improve access to supply
- Catalyse the process by including SHFs in supply chains ***while addressing PHL and maximizing positive impacts for rural lives, food security and natural resources***
- RF will intervene in a representative set of value chains to demonstrate the value proposition of the model in catalysing system change

Two sides of the same coin: Loss & Waste

Reduce the amount of good food going into waste

If successful, this initiative will have demonstrated an innovative model for change that catalyzes global impact.

Indirect Impact "contribution"

- **Secure rural livelihoods** *in other value chains and geographies*
- **Increased value placed on natural capital** by farmers, and in corporate and public sector decision-making
- **Advanced health** through increased **food security**

Direct Impact "contribution"

- **Stable and growing SHF livelihoods** and improved rural lives
- **Less vulnerable ecosystems** through **efficient value chains**, sourcing from SHFs with **minimal PHL**
- Increased **food availability** of high quality, nutritious , non-toxic foods

Accountability Line

Initiative Goal "Attribution"

*"Reduce **food losses** by at least 50% in **representative value chains**, **improving millions of rural lives**"**

Outcomes "Attribution" and **Intermediate Outcomes "Attribution"**

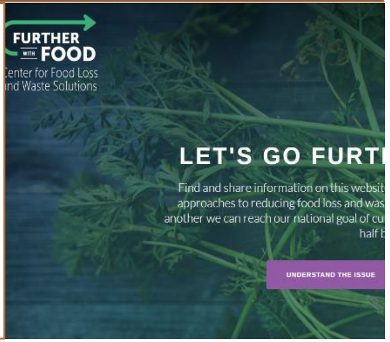
Buyers Demand Products Sourced from SHFs	Farmers Trained & Aggregated to Meet Market Demand	Value Chain Actors have Necessary Access to Finance	PHL Technology Prevents Loss + Spoilage	Ag. Sector Values and Prioritizes Loss Prevention
Large buyers are able to source locally and sustainably from aggregated SHFs.	Aggregated SHFs able to participate in and adapt to local and multinational chains.	Processors, traders and SHFs have access to finance to purchase technologies or to fund working capital.	Technologies are accessible and affordable for SHFs and other value chain actors.	PHL becomes a core business focus for private + public sector and implementation partners.
SHFs are linked with assured, predictable demand from large buyers and alternative markets.	Buyers, processors and traders incentivized to invest in farmer training, aggregation, and market links.	Funders, gov'ts and private sector invest in loss prevention.	SHFs, processors and traders permanently adopt and effectively use PHL technology.	PHL is measured and reported across the value chain.

*Possible alternative: "Reduce food losses by at least 50% in *diverse* value chains, improving the lives of millions of *smallholder farmers*."

Food Waste: Toolkit, Awareness & Networks

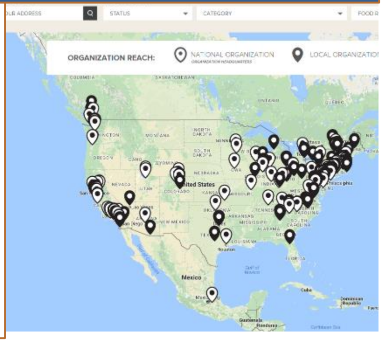
KEYSTONE POLICY CENTER: ***Further with Food Center for Food Loss and Waste Solutions***

Online hub that aggregates a range of food waste research, tools and case studies for the U.S.



ReFED: *Food Waste Innovator Database*

Database of non-profit and for-profit innovators by sector and geography



ARABELLA ADVISORS: *Reducing Food Waste by Changing the Way Consumers Interact with Food*

For packaging, retail & home kitchens sector leaders to understand waste solutions that need to be piloted, validated or scaled

ZERO POINT ZERO: *WASTED! The Story of Food Waste*

To raise consumer awareness about the global problem of food waste and the solutions that exist to address it

FEEDBACK GLOBAL: *Feeding the 5000 Toolkit*

For localities/orgs to host Feeding the 5000 events to engage their communities and tackle food waste

UNIVERSITIES FIGHTING WORLD HUNGER & CAMPUS KITCHENS PROJECT: *Trash Hunger, Not Food: A Guide to End Food Waste on Campus*

To mobilize student leaders to fight food waste and hunger on campus and in surrounding communities

Also completed (or nearing completion): NRDC's Municipal Food Policy Toolkit for cities,

Food Loss: Structuring Value Chains

Bringing structure and making value chains more predictable to give smallholder farmers—and other actors—access to finance and PHL-reducing technology

STRUCTURING MARKET DEMAND

- Linking **large anchor buyers** demand for fresh and processed crops to smallholder supply and local **alternative markets** to excess crops
- Linkages can include traditional market relationships or newer procurement and sourcing arrangements.

SHF TRAINING & AGGREGATION

- **Aggregation of SHFs** into farmer groups is essential to meet the quantity, quality and consistency of requirements of buyers
- **Capacity-building and other adoption measures** are important to ensure SHFs uptake technology and other interventions.

TECHNOLOGIES

- Distribution and utilization of loss-reducing **technologies** for improving handling, storage and processing of crops (many of which exist today).
- In some instances, we see opportunities for supporting targeted **breakthrough innovative technologies** in specific value chains (e.g., cold storage).

FINANCING

- **Financing** will generally be required to facilitate manufacturing, distribution and acquisition and adoption of technologies e.g. loans and leasing models.
- **Investment capital** is also required to fund the scale-up of promising technologies and innovative distribution models.

Prior post-harvest loss interventions have failed by only deploying one or two of these components in isolation. This process innovation is a unique approach which recombines existing elements to generate outsized impact.

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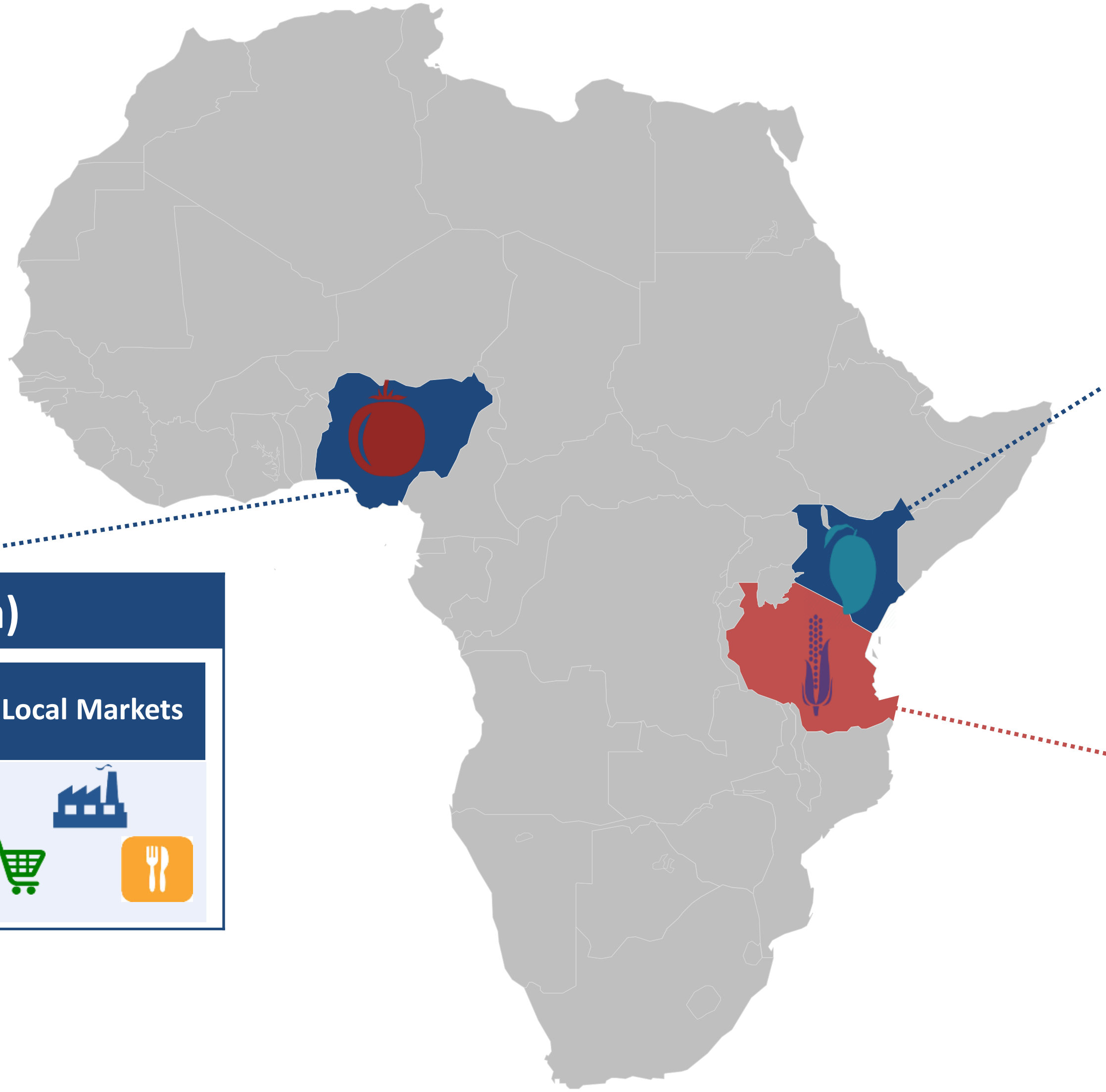
Demonstrate an innovative model that catalyzes global impact



Mango (Kenya)

Corporate Buyer	Implementing Partner	Local Markets
Coca-Cola	TECHNOSERVE	

Tomato (Nigeria)

Corporate Buyer	Implementing Partner	Local Markets
DANGOTE	PYXERA GLOBAL	

Maize (Tanzania)

Corporate Buyer	Technical Partner	Local Markets
WFP	AGRA	

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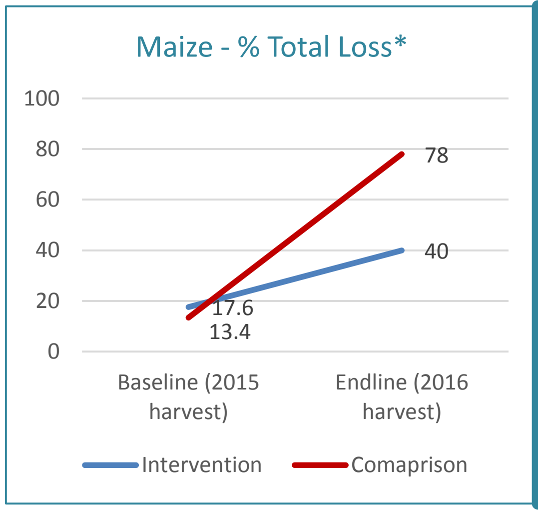
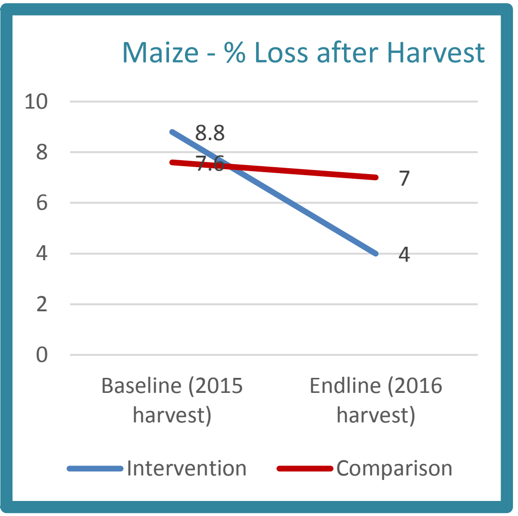
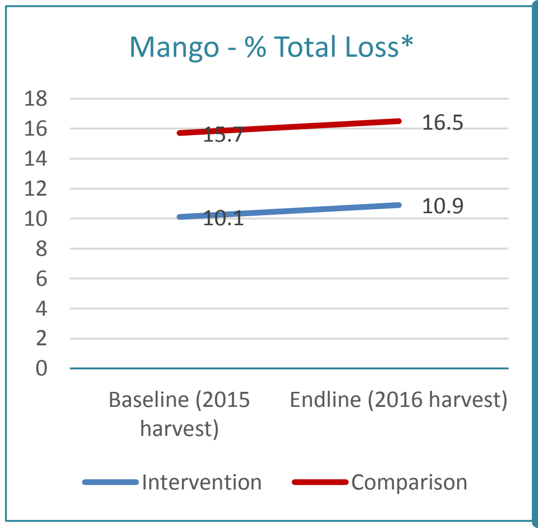
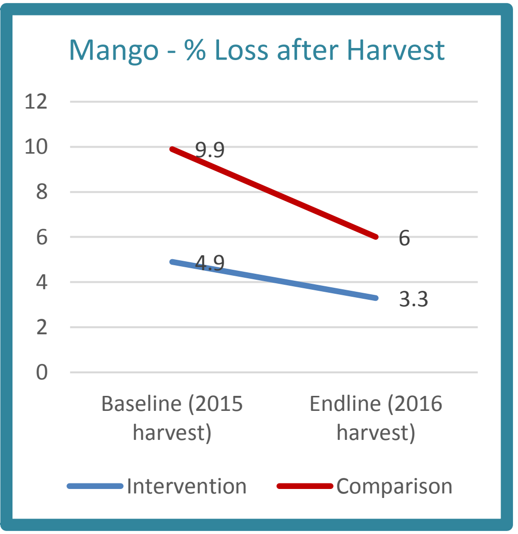
Early signs of PHL reduction in catalytic demonstrations*









** Total Loss = Pre + Post-harvest Losses*

** Preliminary Results-YieldWise team undertaking further analysis*

Maize

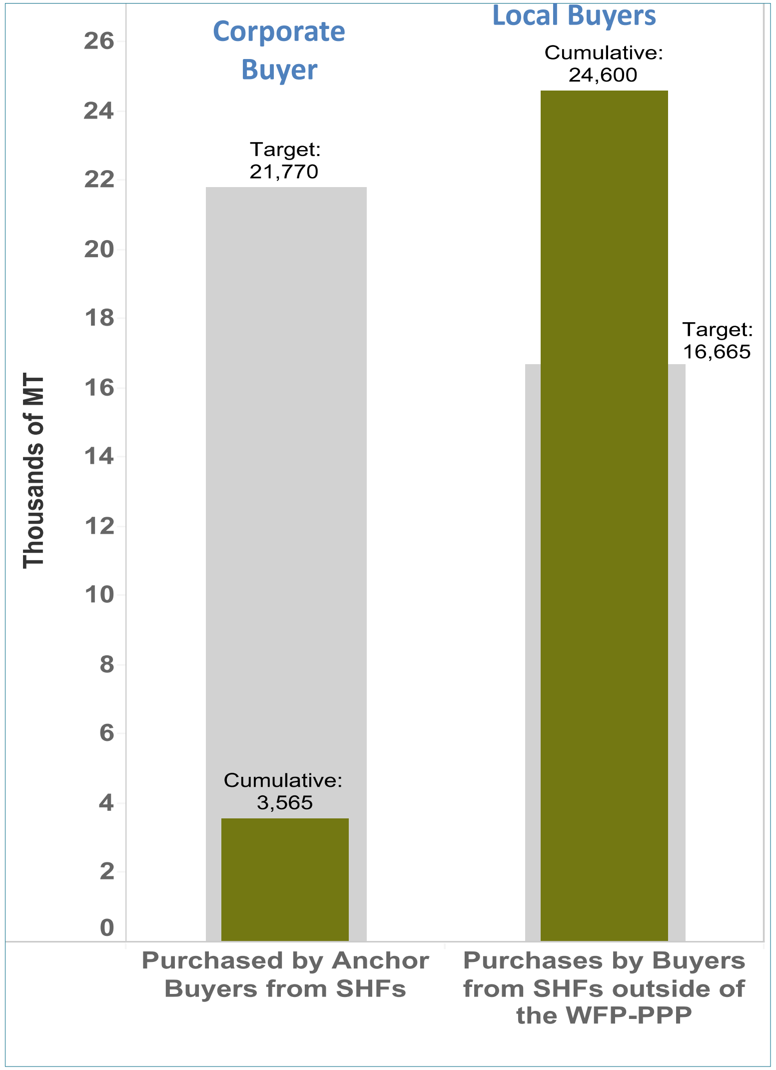
- When compared with comparison group, the Initiative drastically ***slowed down total production losses.***
- There is a ***54% reduction in post-harvest loses*** in the intervention areas
- Adverse weather conditions account for about half of the pre-harvest losses

Mango

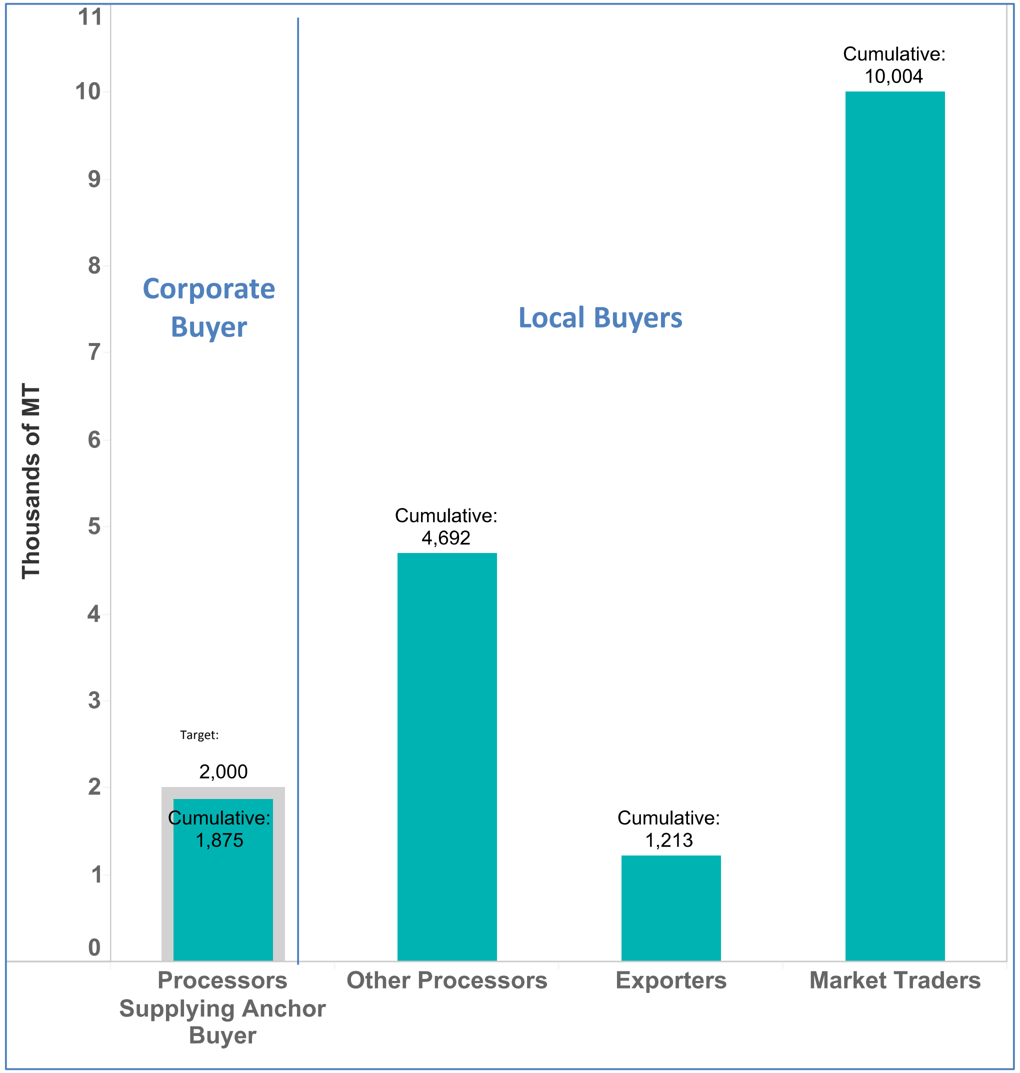
- These are results for the short-season—high domestic mango demand & lower expected losses—and for 2 production areas: (1) Coast (high volume), & (2) Lower Eastern (low volume).
- While comparison group have higher total loss rates, results indicate ***no change in terms of loss rates*** in intervention areas.
- There is a ***32% decrease in post-harvest losses*** in intervention areas.
- ***Positive externalities might exist*** as post-harvest losses are being reduced in comparison areas.

Markets: Local & Regional Markets are Dynamic

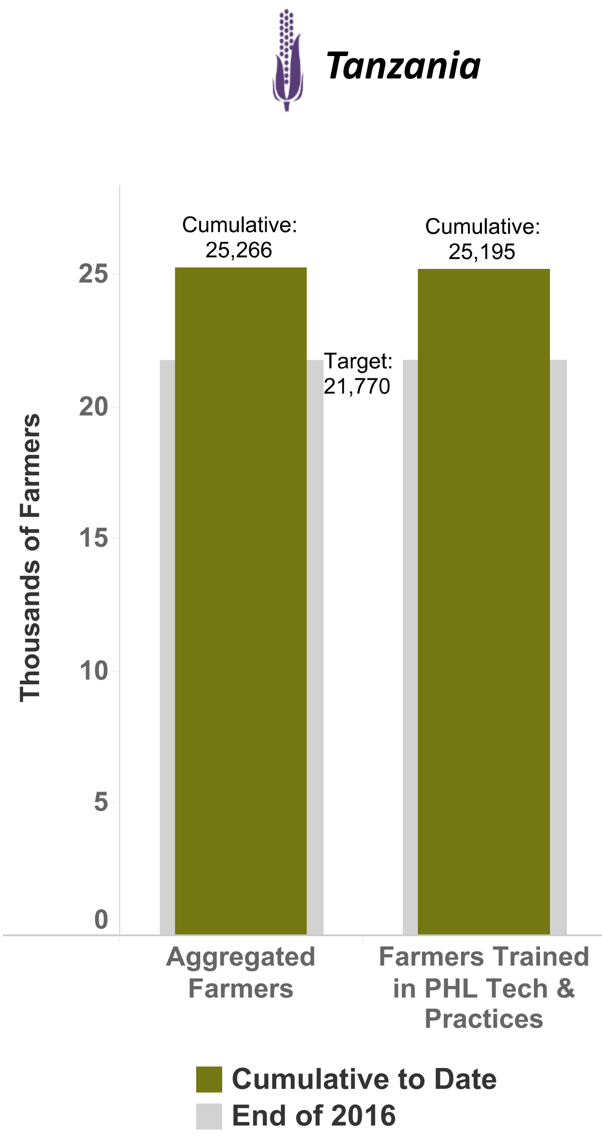
Tanzania

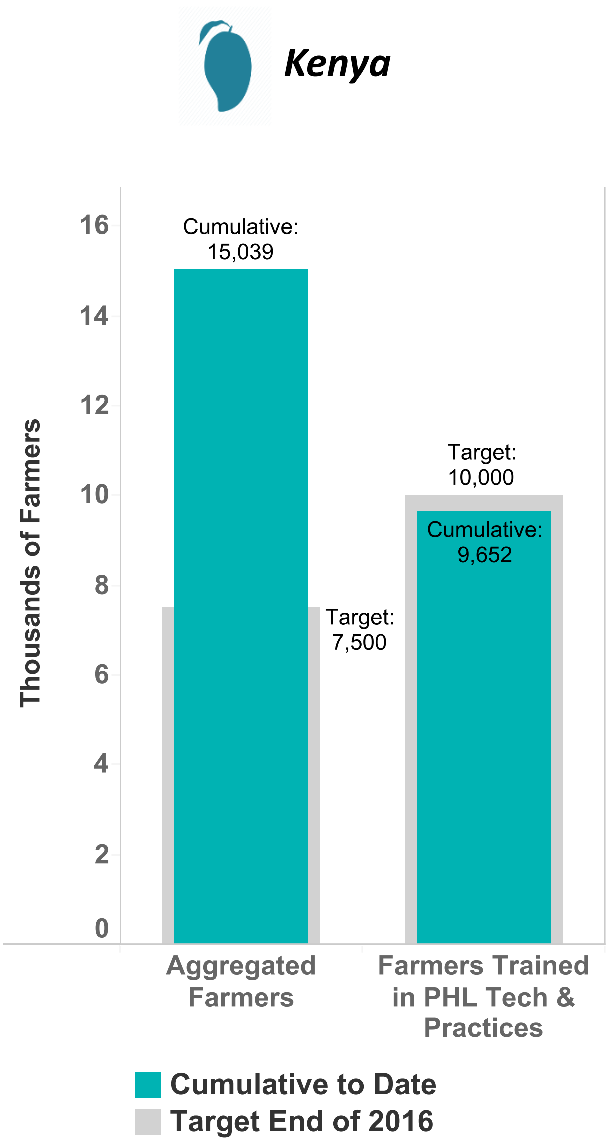


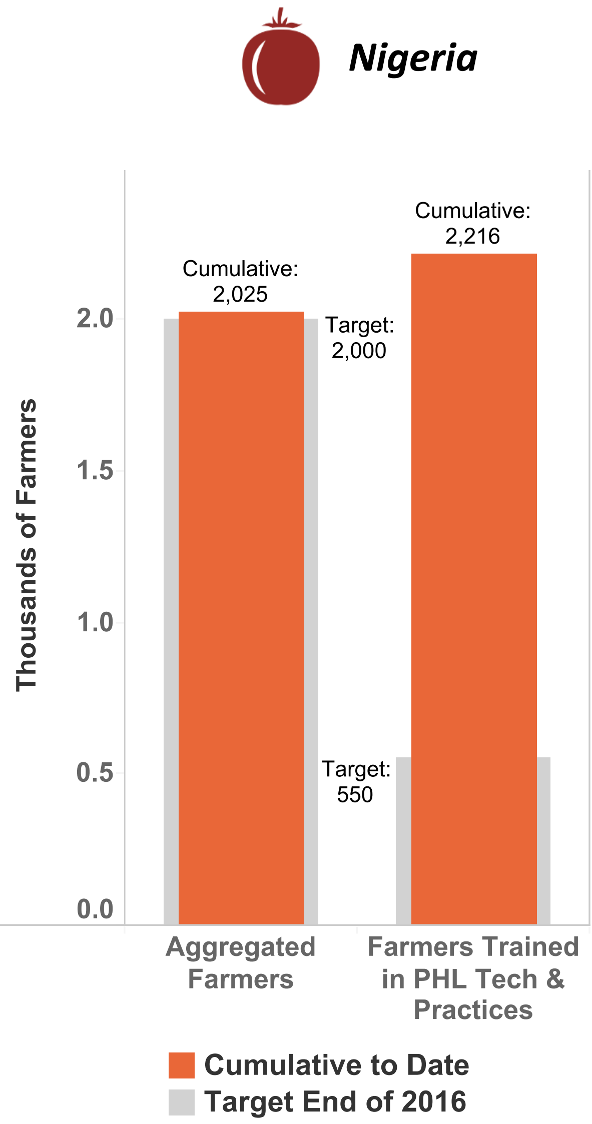
Kenya



Farmer Aggregation: High Demand for Training & Aggregation





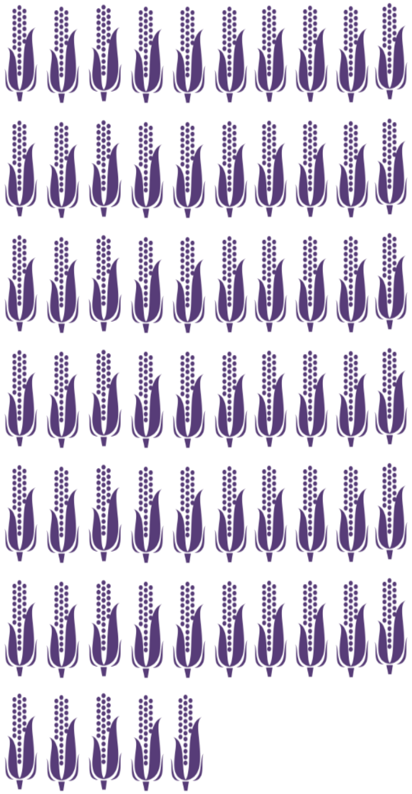


Finance: Mismatch between demand and supply

Tanzania

Total Value: $639,317

6,497 Farmers Receiving Finance



Kenya

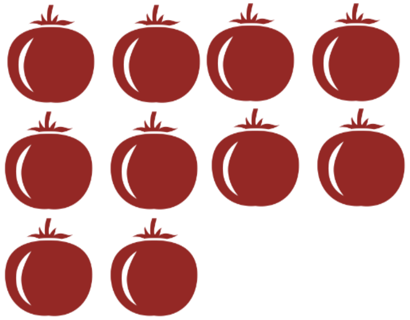
Total Value: TBD

797 Farmers Receiving Finance

Nigeria

Total Value: $27,900

100 FBOs Receiving Finance



Tech: High uptake of PHL-reducing techs & practices

Tanzania

~39K hard-working SHF
accessing PHL reducting techs & practices

Hermetic bags:
141,950 orders

Metal silos:
191 orders

Hermetic cocoons:
8 orders

Kenya

~21k hard-working SHF
accessing PHL reducting techs & practices

Fruit fly traps:
1,594 orders

Tarps:
1,514

Harvesting tools:
215 orders

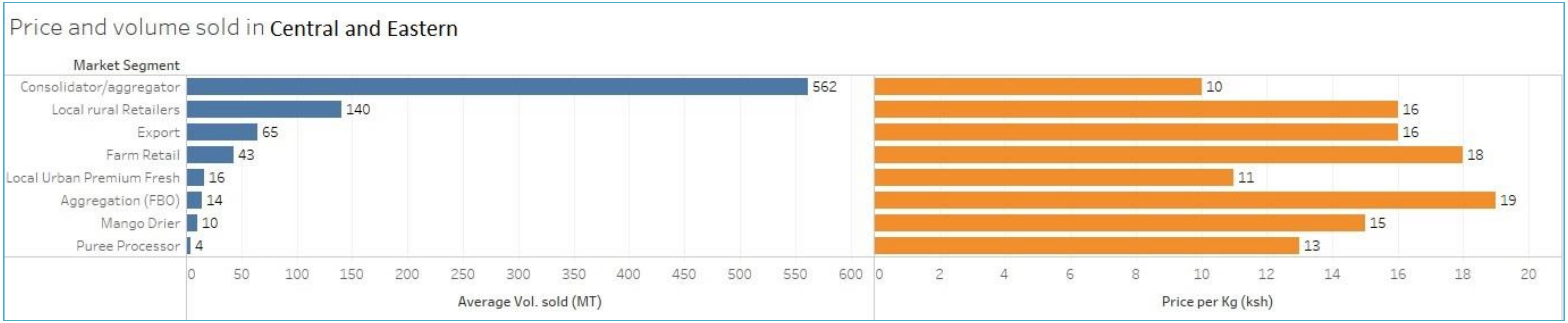
Nigeria

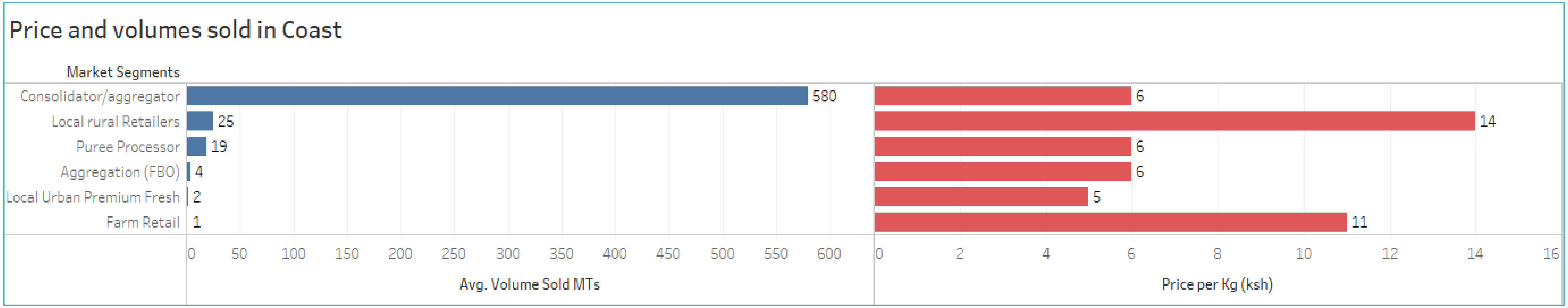
~17k hard-working SHF
accessing PHL reducting techs & practices

Aggregation center:
91 SHF farmers selling through 5 of them

Plastic crates:
10 piloted

Actors: Consolidators/aggregators procured 70-90%





Learnings and Implications for Ag Food Systems

1. Global food systems need to cater for post-harvest loss reduction and sustainability – but don’t
2. Influencing behaviors and lifestyles will bring the change we want to see
3. Post-harvest loss is a symptom of an inefficient value chain. Understanding how farmers’ define “crop loss” is key to both targeting interventions and measurement of crop loss reduction
4. It will take multi-stakeholder partnerships for greater impact (e.g. private sector, government, FBOs, NGOs)
5. The kind of market systems innovation that will help will take time to mature