

Tomato post harvest losses in Nigeria

From pioneering to a paradigm shift to behavioural change

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Nigeria, Ibadan market

- Parties : Partnership Agrofair/Taste, IFDC, WUR
- Focus : Nigeria, post-harvest losses (PHL) tomato
- Actors : producers, hauliers, traders, retailers (VC)
- Period : 2018 & 2019
- Intervention : How to reduce PHL in tomato-VC?
- Finance : KB, A4NH, Worldbank

Domain	Components	Outcomes
1 Scoping	<ul style="list-style-type: none"> Context & VC analysis 	<ul style="list-style-type: none"> Sector, regional choices Scope & actors
2 Intervention design	<ul style="list-style-type: none"> Living Lab approach Experimental Potential business plans North & South Nigeria 	<ul style="list-style-type: none"> Definition actors & intervention Commitment Rules of the game
3 Intervention PHL	<ul style="list-style-type: none"> 2 trials north & south Nigeria 	<ul style="list-style-type: none"> Testing interventions
4 Monitoring & evaluation	<ul style="list-style-type: none"> Actual effect on losses Games Drivers & enablers Participatory reflection Participatory appreciation 	<ul style="list-style-type: none"> 2x measurement protocol Trust, risk and collective action Validation results
5 Outlook	<ul style="list-style-type: none"> Upscaling Business plan Agent based modelling 	<ul style="list-style-type: none"> Sustainability Parameters business plan Scenario analysis, ex ante Policy & practice recommendations

Results & conclusion

- Commitment, ownership & trust via living lab approach
- Measurement protocol tested & validated
- Loss reduction tomato, increase quality & monetary value
- Implementation & adoption requires system change and inclusion all value chain actors
- Time and resource intensive but value for money

2/5. Intervention design: Living lab

- Small scale: approx 25 participants
- Across the value chain
- Living Lab approach
- Various interactive workshops & assignments
- Participatory & Bottom up

Results & conclusion

- Commitment & ownership
- Trust via living lab approach
- High appreciation
- Time and resource intense

3/5. Intervention & piloting

Two trials north & south of Nigeria

North:

- Drying tomato facility
- Transportation in crates Kano to Lagos

South:

- Farm shed
- Transportation in crates to Ibadan and Lagos (+ scale use)

4/5. Monitoring & evaluation (M&E)

Four components:

1. Tomato measurement crate vs basket

2. Participatory evaluation VC actors

3. Measuring behavioural aspects with games

Trust, Risk attitude, Collective Action

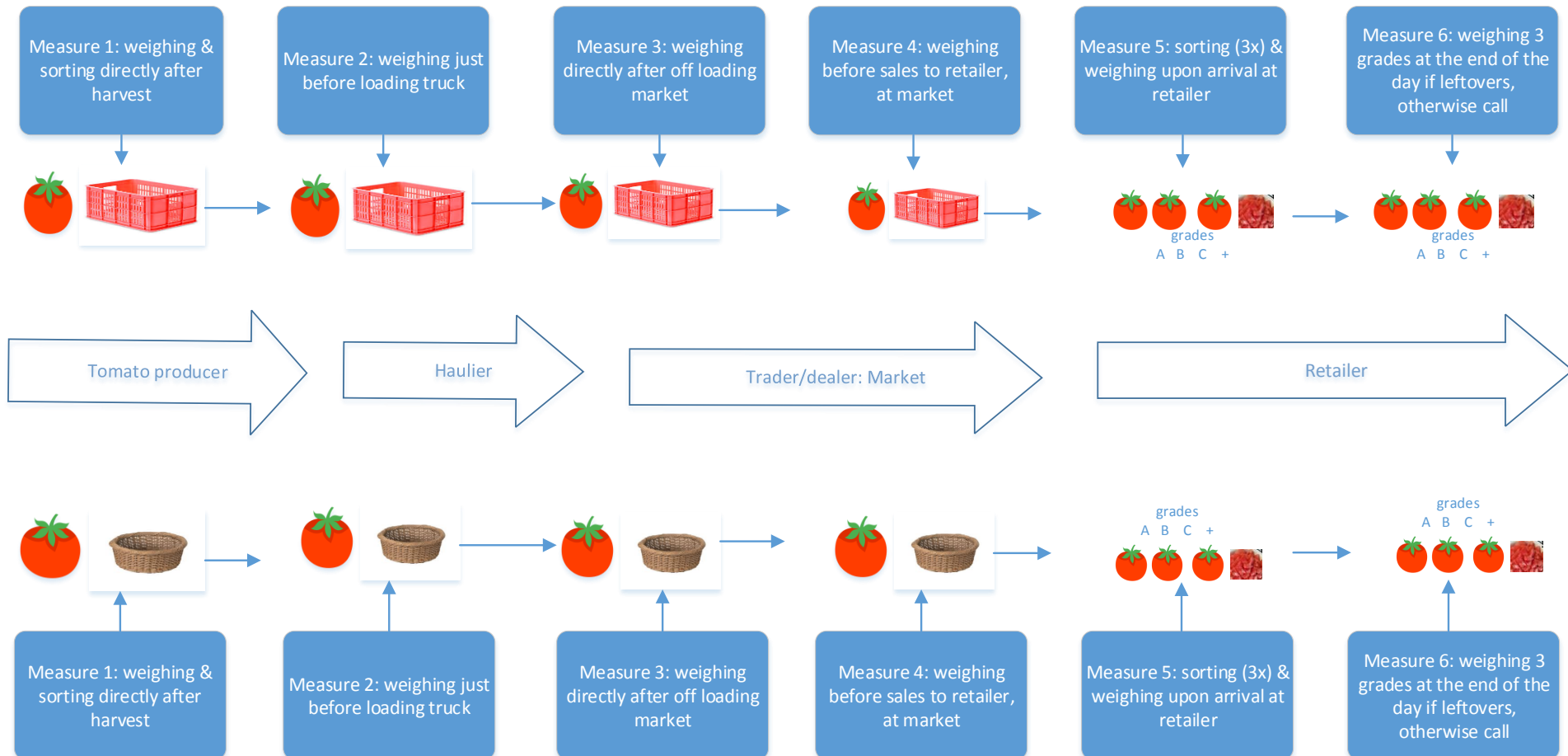
4. Agent based modelling (ex ante)

4/5. Monitoring & evaluation (M&E)

Field measurements:

- load tracking from farmer to retailer
 - 2 measurement rounds (seasonality)
 - 2 markets, 5 value chains
 - 2 types of packaging: raffia basket and plastic crate
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- Recording of data & observations in the field
 - Analysis of data by WFBR and WEcR
 - Feedback and validation of results

Parallel measurement: basket vs crate



Parallel measurements

VALUE CHAIN NR.: 2 NAME FARMER: Hassan Zachariya

DATE: 26-12-17 VILLAGE or CITY: Ippapo NAME WHOLESALE: Aliy Oni NAME RETAILER: Omolara Osoibole

CLOUR LABEL: na VILLAGE or CITY: Sasa, IB WHOLESALE MARKET: Sasa

Colour label basket 1: White

0: FARMER (after harvest)		1: FARMER (before loading)		2: WHOLESALE / DEALER		3: RETAILER (at the wholesale market)		4: RETAILER (at arrival at shop)	
Time of measurement: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 7:00 am/22-12-17		Time: 10am/22-12-17	
QUALITY	WEIGHT (kg)	WEIGHT (kg)		WEIGHT:	Dealer pays Farmer (NARS)	WEIGHT:		QUALITY	WEIGHT (kg)
A-1	21.0	27.3		27.3	1000	27.3	1000	A-1	15.1
B-1	2.2							B-1	7.0
C-1	0.3							C-1	0.3
total	23.5	27.3		27.3		27.3		total	22.4

Colour label basket 2: Red

0: FARMER (after harvest)		1: FARMER (before loading)		2: WHOLESALE / DEALER		3: RETAILER (at the wholesale market)		4: RETAILER (at arrival at shop)	
Time of measurement: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 7:00 am/22-12-17		Time: 10am/22-12-17	
QUALITY	WEIGHT (kg)	WEIGHT (kg)		WEIGHT:	Dealer pays Farmer (NARS)	WEIGHT:		QUALITY	WEIGHT (kg)
A-1	20.8	23.8		23.8	1000	23.8	1000	A-1	15.1
B-1	1.6							B-1	7.0
C-1	0.2							C-1	0.3
total	22.6	23.8		23.8		23.8		total	22.4

Colour label basket 3: White

0: FARMER (after harvest)		1: FARMER (before loading)		2: WHOLESALE / DEALER		3: RETAILER (at the wholesale market)		4: RETAILER (at arrival at shop)	
Time of measurement: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 7:00 am/22-12-17		Time: 10am/22-12-17	
QUALITY	WEIGHT (kg)	WEIGHT (kg)		WEIGHT:	Dealer pays Farmer (NARS)	WEIGHT:		QUALITY	WEIGHT (kg)
A-1	20.5	22.6		22.6	1000	22.6	1000	A-1	15.1
B-1	0.3							B-1	7.0
C-1	1.2							C-1	0.3
total	22.0	22.6		22.6		22.6		total	22.4

Colour label basket 4: Red

0: FARMER (after harvest)		1: FARMER (before loading)		2: WHOLESALE / DEALER		3: RETAILER (at the wholesale market)		4: RETAILER (at arrival at shop)	
Time of measurement: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 7:00 am/22-12-17		Time: 10am/22-12-17	
QUALITY	WEIGHT (kg)	WEIGHT (kg)		WEIGHT:	Dealer pays Farmer (NARS)	WEIGHT:		QUALITY	WEIGHT (kg)
A-1	19.0	20.0		20.0	1000	20.0	1000	A-1	15.1
B-1	1.0							B-1	7.0
C-1	0.2							C-1	0.3
total	20.2	20.0		20.0		20.0		total	22.4

Colour label basket 5: White

0: FARMER (after harvest)		1: FARMER (before loading)		2: WHOLESALE / DEALER		3: RETAILER (at the wholesale market)		4: RETAILER (at arrival at shop)	
Time of measurement: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 1pm/22-12-17		Time: 7:00 am/22-12-17		Time: 10am/22-12-17	
QUALITY	WEIGHT (kg)	WEIGHT (kg)		WEIGHT:	Dealer pays Farmer (NARS)	WEIGHT:		QUALITY	WEIGHT (kg)
A-1	19.0	20.0		20.0	1000	20.0	1000	A-1	15.1
B-1	1.0							B-1	7.0
C-1	0.2							C-1	0.3
total	20.2	20.0		20.0		20.0		total	22.4

Observations Research Team

at FARMER	at WHOLESALE
Weight of the empty BAG/ET	2.3kg
Weight of the empty CRATE	1.5kg
Time of HARVESTING of the product	4 hours
Way of product HANDLING: with care, yes/no	Yes
Time of LOADING of the product (in minutes)	60
Method of STAKING in vehicle: scale 1-3 (1 = worst; 3 = best)	3
Ambient (air) TEMPERATURE (°C) (Forecast for specific)	35
Tomato VARIETY	local
Presence of a SHED (yes or no)	Yes
WEATHER: raining (no/little/heavy)	No

Observations Research Team during

at FARMER	at WHOLESALE
Vehicle type (pick-up, van, open/covered)	pick-up
Vehicle loading capacity in tons	1.5
Transport DISTANCE (km)	10
Transport TIME (minutes)	30
Waiting TIME at farm after harvest (in minutes)	10
Quality of the ROAD village to high way	3
Quality of the ROAD: scale 1-3 (1 = worst; 3 = best)	3
Are the tomatoes loaded to another BAS	Yes
61: B2-0-Farmer quality A	1000
62: B2-0-Farmer quality B	1000
63: B2-0-Farmer quality C	1000
64: B2-1-Farmer (before loading)	1000

Observations

at FARMER	at WHOLESALE
61: B2-0-Farmer quality A	1000
62: B2-0-Farmer quality B	1000
63: B2-0-Farmer quality C	1000
64: B2-1-Farmer (before loading)	1000



At the trader



M&E: Results parallel measurement

July 2018

- More Grade A remains when using crates

Baskets: 73%
Crates: 98%

- Less weight loss

Baskets: 7% loss
Crates: 2% loss

- Monetary value increase 6%

December 2017

- More Grade A remains when using crates

Baskets: 65%
Crates: 85%

- Less weight loss

Baskets: 11% loss
Crates: 5% loss

- Monetary value increase 5%

M&E: Reflection & challenges

All participants

All very positive

87% prefers crate use at all stages

Cycle & transport

Returning of crates & ownership

Transportation: volumes & sizes

Measure and pricing

Different weighing measure / units

Weighing: pricing in kg ?

Part of the pie?

Trickle down?

Who benefits from the increased value?

Results & conclusion

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Discussion

- What is (if anything new) the new insight that you gained from it?
- Who can use it? Policy/NGOs/Practitioners. Others?
- Where and how can you use it?
- What would help further? What do you need / recommend?

Thank you

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Participants, IITA Ibadan Nigeria



Harvesting



Living lab



Transportation in raffia baskets



Practicing and weighing







Sorting at farm level