

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

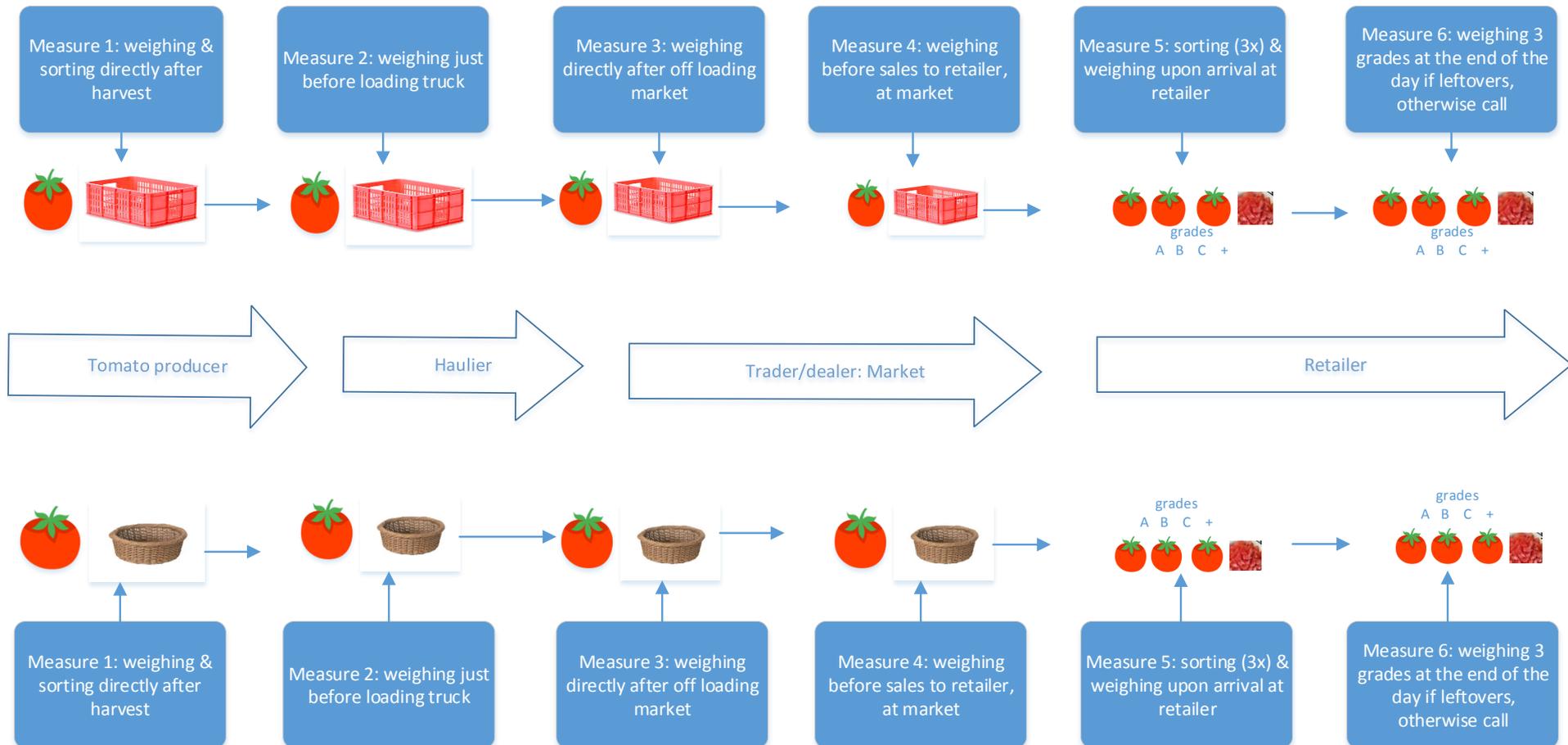
4. Agent based modelling (ex ante)

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: 20-10-17 VILLAGE or CITY: Jpappo NAME WHOLESALER: Aliyu Ohi NAME RETAILER: Omolara Osoyibole

COLOUR LABEL: na WHOLESALE MARKET: Sassa, IB

COLOUR label basket 1: White

0: FARMER (after harvest)	1: FARMER (before loading)	2: WHOLESALER / DEALER	3: RETAILER (at the wholesale market)	4: RETAILER (at arrival at shop)
Time of measurement: 20m/22-12	Time: 30m/22-12-17	Time: 10m/22-12-17	Time: 7:00 am/22-12-17	Time: 10am/22-12-17
QUALITY WEIGHT (kg)	WEIGHT (kg)	WEIGHT: Dealer pays Farmer (NABAS)	WEIGHT: Retailer pays dealer (NABAS)	QUALITY WEIGHT (kg) Buyer pays retailer (NABAS/IB)
A-1 21.0	27.3	27.3 1400	27.3 1400	A-4 15.5 375
B-1 2.2				B-4 7.0 1400
C-1 3.2				C-4 3.3 300
total 27.3	27.3	27.3	27.3	total 25.4

COLOUR label basket 2: Red

0: FARMER (after harvest)	1: FARMER (before loading)	2: WHOLESALER / DEALER	3: RETAILER (at the wholesale market)	4: RETAILER (at arrival at shop)
QUALITY WEIGHT (kg)	WEIGHT (kg)	WEIGHT: Dealer pays Farmer (NABAS)	WEIGHT: Retailer pays dealer (NABAS)	QUALITY WEIGHT (kg) Buyer pays retailer (NABAS/IB)
A-1 20.0	23.8	23.8 2000	23.8 2000	A-4 15.5 375
B-1 1.2				B-4 7.0 1400
C-1 2.0				C-4 3.3 300
total 23.8	23.8	23.8	23.8	total 25.4

COLOUR label basket 3: White

0: FARMER (after harvest)	1: FARMER (before loading)	2: WHOLESALER / DEALER	3: RETAILER (at the wholesale market)	4: RETAILER (at arrival at shop)
QUALITY WEIGHT (kg)	WEIGHT (kg)	WEIGHT: Dealer pays Farmer (NABAS)	WEIGHT: Retailer pays dealer (NABAS)	QUALITY WEIGHT (kg) Buyer pays retailer (NABAS/IB)
A-1 20.5	22.6	22.6 1400	22.6 1400	A-4 15.5 375
B-1 0.8				B-4 7.0 1400
C-1 1.2				C-4 3.3 300
total 22.6	22.6	22.6	22.6	total 25.4

COLOUR label crate 1: White

0: FARMER (after harvest)	1: FARMER (before loading)	2: WHOLESALER / DEALER	3: RETAILER (at the wholesale market)	4: RETAILER (at arrival at shop)
QUALITY WEIGHT (kg)	WEIGHT (kg)	WEIGHT: Dealer pays Farmer (NABAS)	WEIGHT: Retailer pays dealer (NABAS)	QUALITY WEIGHT (kg) Buyer pays retailer (NABAS/IB)
A-1 19.0	20.0	20.0 1400	20.0 1400	A-4 15.5 375
B-1 1.0				B-4 7.0 1400
C-1 0.0				C-4 3.3 300
total 20.0	20.0	20.0	20.0	total 25.4

COLOUR label crate 2: Red

0: FARMER (after harvest)	1: FARMER (before loading)	2: WHOLESALER / DEALER	3: RETAILER (at the wholesale market)	4: RETAILER (at arrival at shop)
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total 20.0	20.0	20.0	20.0	total 25.4

OBSERVATIONS: RESEARCH-TEAM at FARMER # WHOLESALER

Weight of the empty BASKET	1.2kg	na
Weight of the empty CRATE	2.5kg	na
Time of HARVESTING of the product	4 hours	na
Way of product HANDLING: with care, yes/no	yes	no
Time of LOADING of the product (in minutes)	60	30
Method of STACKING in vehicle: scale 1-3 (1= worst; 3 = best)	3	3
Ambient (air) TEMPERATURE (°C) (Forecast for specific)	35	28
Tomato VARIETY	local	na
Presence of a SHED (yes or no)	Yes	na
WEATHER: raining (no/lotte/heavy)	No	na

OBSERVATIONS: RESEARCH-TEAM during

VEHICLE type (pick-up, van, open/closed)	91	48	E2-0-Farmer quality B
VEHICLE loading capacity in tons	92	49	E2-0-Farmer quality C
Transport DISTANCE (km)	93	50	E2-1-Farmer (before loading)
Transport TIME (minutes)	94	51	E2-2-Wholesaler/Dealer Nars
Waiting TIME at farm after harvest & before loading	95	52	E2-2-Wholesaler/Dealer Nars
Transport DELAYS during transport (yes/A)	96	53	E2-4-Retailer at arrival shop quality A kg
Quality of the ROAD: village to high way	97	54	E2-4-Retailer at arrival shop quality B kg
Quality of the ROAD: scale 1-3 (1= worst; 3 = best)	98	55	E2-4-Retailer at arrival shop quality C kg
Are the tomatoes loaded to another BAS	99	56	E2-4-Retailer at arrival shop quality B N/kg
	100	57	E2-4-Retailer at arrival shop quality C N/kg
	101	58	E2-4-Retailer at arrival shop quality A N/kg
	102	59	E2-4-Retailer at arrival shop quality B N/kg
	103	60	E2-4-Retailer at arrival shop quality C N/kg
	104	61	E2-0-Farmer quality A
	105	62	E2-0-Farmer quality B
	106	63	E2-0-Farmer quality C
	107	64	E2-1-Farmer (before loading)



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?

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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