

Postharvest losses along the cooking banana, potato and cassava fresh value chains in Uganda

APHC, SAFARI PARK HOTEL, NAIROBI,
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Research
Program on
Roots, Tubers
and Bananas

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Rationale

- Cassava, cooking bananas and potatoes are the main sources of calories in Uganda
- Highly perishable and very short shelf-life
- Rapid postharvest deterioration, leads to direct food and income losses for value chain actors
- Lack of reliable information on the extent of PHL along the value chains makes difficult to design appropriate interventions and policies



Example: PHL in cooking banana

- Bananas have a short shelf-life and are highly vulnerable to postharvest deterioration
- Visible signs of deterioration are shown within a few days after harvest
- Main causes of PHL are bruising, ripening and rotting (and browning for peeled bananas)



Example: PHL in cassava

- Main cause of PHL is the rapid Postharvest Physiological Deterioration (PPD) of the root
- This deterioration set off rapidly after harvest mainly due to damages during uprooting
- Visible signs of PPD (blackish-blue colour strikes in the tissues) appear within 24–48 h after harvest



Objective of the study



To estimate and compare the extent of postharvest losses in the cooking banana, cassava and potato fresh value chains

For this purpose:

- PHL at farm, collection, wholesale and retail levels were estimated (but not at consumption stage)
- A distinction was made between:
 - **Physical losses:** product becoming unfit to human consumption
 - **Economic losses:** product partially deteriorated sold at discounted price

Data collection (Aug-Sep 2015)



Tools

- Structured questionnaire administered to producers and retailers
- Checklists to gather information from key informants (including market masters, collectors and wholesalers)

Sample

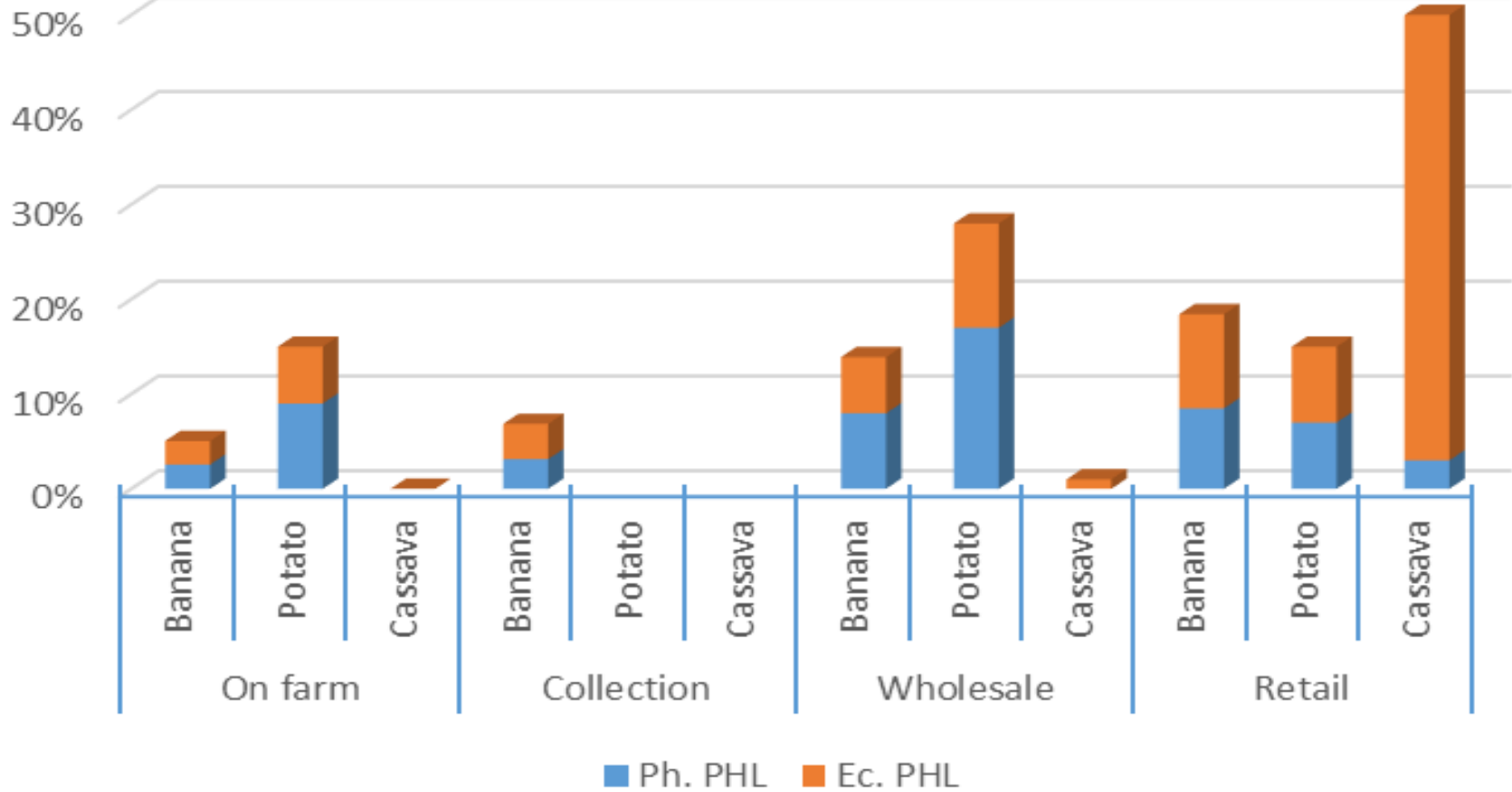
	Producers	Collectors	Wholesalers	Retailers	Total
Banana	100	17	10	40	167
Cassava	60	3	7	115	185
Potato	116	0	34	38	188
Total	276	20	51	193	540



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KEY RESULTS AND METHODOLOGICAL INSIGHTS

Reported PHL along the value chain

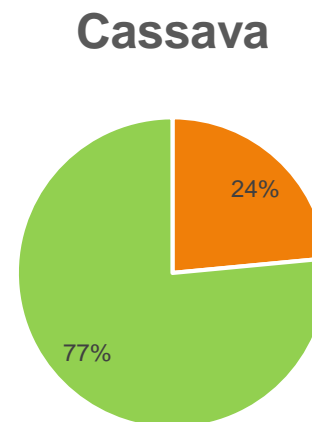
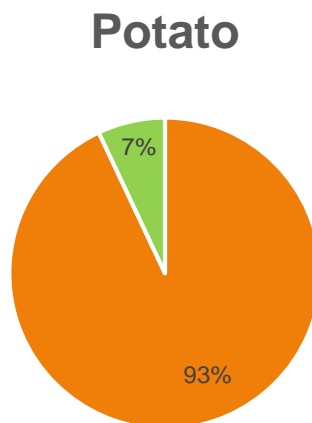
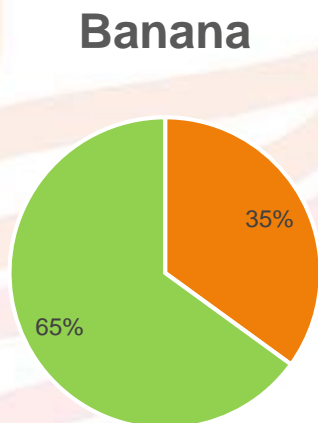


Key considerations in PHL estimations

In order to estimate losses along the value chain, several studies simply sum up losses at each stage

THIS IS WRONG

1) Losses at VC other than on farm affect only the proportion of produce that is actually marketed along the chain

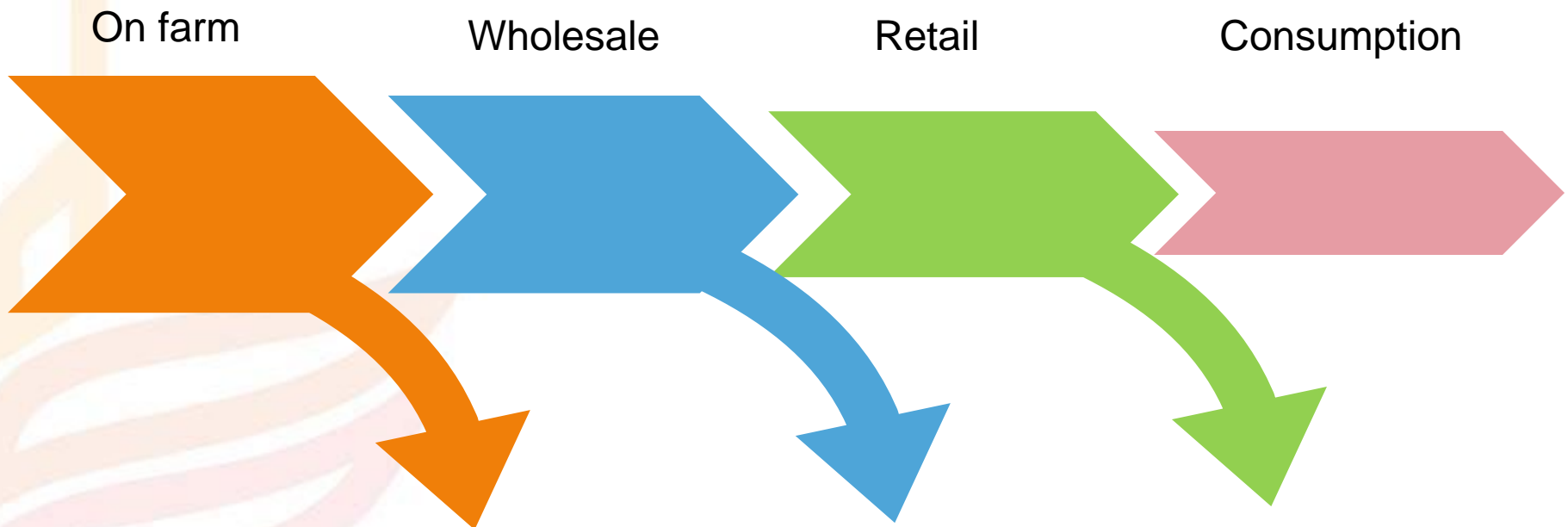


Own consumption

Marketed

Key considerations in PHL estimations

2) It is not possible to simply sum up the proportions of produce affected by physical losses in different nodes of the VC since this would lead to double counting



Produce lost at one VC stage cannot be lost again at the next stages!

Key considerations in PHL estimations

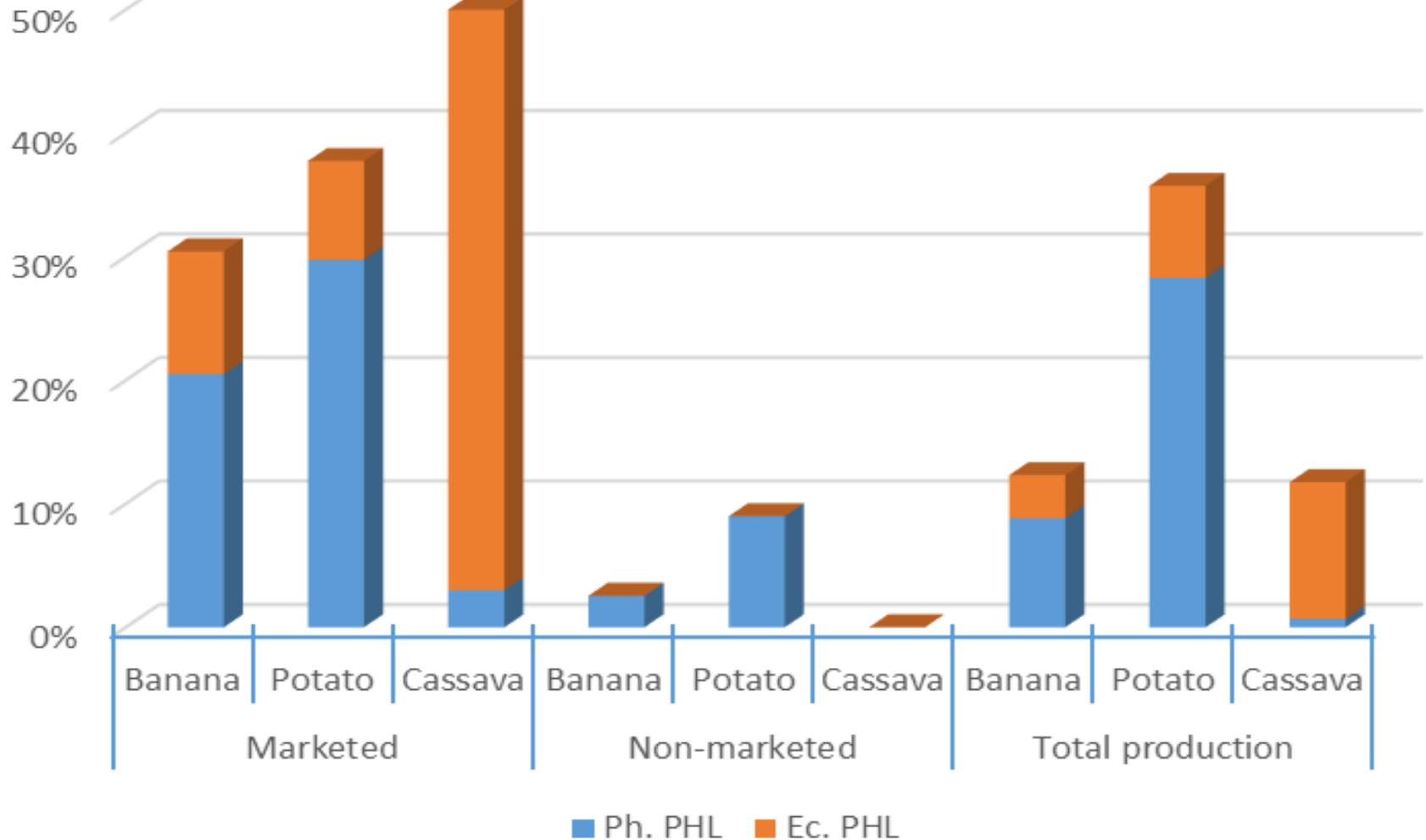
3) In theory the proportion of produce affected by economic losses (sold at price discount due to partial deterioration) should increase along the chain since the quality cannot recover. However, the opposite was sometimes reported by VC actors.

This is likely to be due to further quality deterioration leading to complete rejects



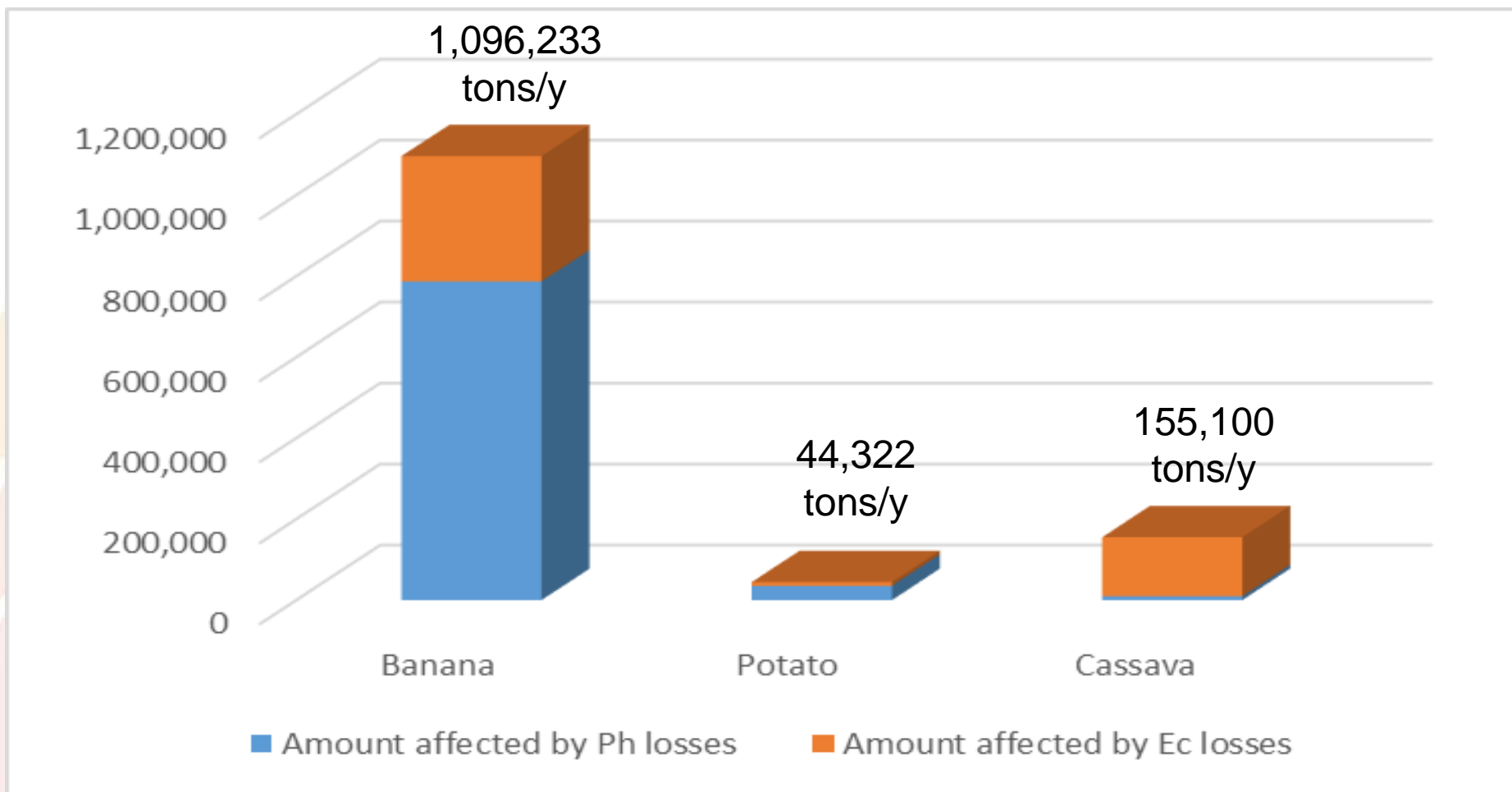
Assumption: the economic losses along the whole VC consist of the ones incurred at the last stage where market transactions occur, e.g. at retail stage

Extent of PHL along the value chain (%)



Extent of PHL along the value chain (tons/y)

Annual production in Uganda: banana 8.9 mln tons, potato 124k tons, cassava 1.3 mln tons



On the methodological aspects

- Reliable estimation of PHL along the chain depend not only on the quality of data collected (often a big challenge) but also on taking into proper account specific VC characteristics
- We have shown that a solid estimation that aims at helping prioritize interventions and policy making cannot:
 - ✓ Overlook the end-use destination of the crop (market vs own-consumption)
 - ✓ Focus on physical losses only since economic losses often affect a higher proportion of traded produce
 - ✓ Simply sum up physical and economic losses along different stages of the chain
 - ✓ Neglect the overall relevance of a crop to the production system

Conclusions

Key findings of the study

- Substantial losses found along the VC but lower than what commonly reported in literature
- The extent of PHL at different VC nodes is highly variable across the studied crops (much more than in durable crops)
- Physical losses affect about 30% of **marketed** potatoes, 21% of bananas and 3% of cassava
- Cassava VC shows much higher economic losses (47% of cassava sold at discounted price due to the rapid PPD) than bananas and potatoes (10% and 8%, respectively)
- Overall, out of the total marketed output, 50% of cassava, 38% of potatoes and 30% of bananas incur either physical or economic losses
- Except for potatoes, losses for **non-marketed** crops are minimal (bananas) to negligible (cassava)

Conclusions

Key findings of the study

- Potato is the only crops produced primarily for the market, resulting into a much higher **proportion of total production** incurring PHL (36%) than the other two crops (~12%)
- Due to the impressive annual production, the **quantity** of bananas affected by PHL is about 7 and 25 times higher than the one of cassava and potato, respectively
- Banana and cassava retailers - primarily women - are the value chain actors incurring the highest losses while, for potato, wholesalers are the most affected
- The findings contribute to policy prioritization and show that a diverse set of interventions is required to tackle PHL.

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