

Urban food markets in Africa: Incentivizing food safety using a pull-push approach

Stakeholder workshop on interventions to reduce damage of tomatoes during transportation and storage in Harar, Ethiopia

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Executive summary

Foodborne diseases are public health threats, causing considerable morbidity and mortality and substantial socio-economic impacts. To address a range of food safety challenges in Ethiopia and elsewhere in Africa, the International Livestock Research Institute (ILRI) in collaboration with national and international partners is implementing a food safety project named 'Urban food markets in Africa – incentivizing food safety using a Pull-Push approach (Pull-Push project).'

This 'Pull-Push' project aims to improve food safety in urban informal markets in Burkina Faso and Ethiopia, specifically in vegetable (tomatoes) and poultry value chains. The project investigates if greater consumer-demand for safer food can be generated and drive improvements in the hygiene and safety of the foods being sold. It also builds the capacity of market-level value chain actors and of regulators in food safety. Building the capacity of market-level vegetable value chain actors consists of different activities including short training and/or information dissemination and start-up provision of simple low-cost technologies that help them supply safer food to consumers.

In Ethiopia, almost all tomato market value chain actors use wooden boxes to transport and store tomatoes. However, use of wooden boxes could contribute to unsafe food as they are suitable for bacterial growth that can cause illness especially diarrhoeic disease in children below five years of age. Wooden boxes also cause physical damages to tomatoes affecting the income of traders. To aid value chain actors to supply safer food and to reduce the negative effects of using wooden boxes for tomato transportation, the project will provide wholesalers with plastic crates to transport and store tomatoes.

We conducted a stakeholder workshop in Harar on 14 December 2021 with participants from the Trade and Promotion Office of the Harari People's Regional State, Harar tomato wholesalers, Meki-Batu Vegetables and Fruits Growers Cooperatives Union, College of Veterinary Medicine and Agriculture (CVMA) of Addis Ababa University (AAU) and Haramaya University (HU). The workshop was organized to discuss how to link tomato market transaction between wholesalers in Harar and the union, and how to use plastic crates for tomato transportation. This report summarizes the findings of this workshop.

Introduction

The International Livestock Research Institute (ILRI) in collaboration with national and international partners is implementing the 'Urban food markets in Africa – incentivizing food safety using a Pull-Push approach'. The project is funded by the Bill & Melinda Gates Foundation (BMGF) and the Foreign, Commonwealth and Development Office (FCDO) of the UK Government.

The project aims to improve food safety in urban informal markets in Ethiopia and Burkina Faso, specifically in vegetable (tomatoes) and poultry value chains. As well as investigating if consumer demand can provide the same incentive ('pull') for food safety in low and middle-income countries as it has in high-income countries, the project also builds the capacity of market-level value chain actors to respond to demand (e.g., by improving practices or adapting technologies) and of regulators to provide an enabling environment ('push'). In work package 5 of the Pull-Push project, the empowerment of market-level vegetable value chain actors consists of different activities including short training and/or information dissemination and start-up provision of simple low-cost technologies that help them supply safer food. As part of this activity, the Pull-Push project plans to provide wholesalers in Harar in eastern Ethiopia with plastic crates to transport and store tomatoes.

Despite several disadvantages related to use of wooden boxes for transportation of vegetables including tomatoes, almost all tomato market value chain actors in Ethiopia use wooden boxes for tomato transportation and storage. In addition to carrying bacteria and organisms, and limiting air circulation, wooden boxes lack stackability because of their non-uniform architecture causing mechanical damage to tomatoes, which accelerates spoilage and contributes to unsafe food conditions. In contrast, plastic crates can decrease both nutritional and physical loss by eliminating overloading with better stackability and nestability, improved aeration, and smoother sides and edges that reduce mechanical damage, and hence, contribute to maintaining safer food supply. Furthermore, plastic crates can have wider systemic benefits for the overall value chain such as introducing standardized measurements, which may improve transaction fairness. In addition to the above advantages, plastic crates are smaller than wooden boxes which makes them easier to handle, load and maintain.

Considering the advantages of plastic crates to reduce post-harvest losses and to improve food safety, the Pull-Push project plans to provide plastic crates to wholesalers in Harar to facilitate their use in the transportation of tomatoes along the tomato market value chains. As part of this plan, we conducted a stakeholder workshop in Harar on 14 December 2021 to discuss how to link tomato market transactions between wholesalers in Harar in eastern Ethiopia and the union, and how to use plastic crates for tomato transportation. This report summarizes the findings of the workshop.

Workshop proceedings

Objectives

The objectives of the workshop were to:

- Discuss how to create market linkage between Harar tomato wholesalers and Meki-Batu Vegetables and Fruits Growers' Cooperatives Union.
- Discuss the advantages of plastic crates to reduce damage of tomatoes during transportation and storage compared with wooden boxes.

Approaches

A brief presentation was provided of the summary, activities and results so far, and future activities of the Pull-Push project. Then, a presentation was made comparing the advantages of using plastic crates and wooden boxes for tomato transportation and storage. The union also presented on their experiences in using plastic crates for transportation and storage of vegetables, and business modalities with their clients. The roles of different stakeholders in supporting the uptake of plastic crates in vegetables market value chain was also presented. We created a very relaxed environment, for example, using local languages during discussion to welcome ideas from all participants. Questions and comments from participants were answered and discussed at the end of each presentation.

Participants

The workshop participants were from Harari People's Regional State (trade promotion office), Harar tomato wholesalers (hereafter called wholesalers), Meki-Batu vegetables and fruits Growers Cooperatives Union (hereafter called union), College of Veterinary Medicine and Agriculture (CVMA) of Addis Ababa University (AAU) and Haramaya University (HU) (Appendix 2).

Workshop content

In this workshop, we discussed activities and results so far, and future activities of the Pull-Push project. The advantages of using plastic crates for tomato transportation and storage, and the roles of different stakeholders in supporting the uptake of plastic crates in vegetables market value chain (Appendix I) and related issues were also discussed.

Points of discussion

- **Market linkage between the wholesalers and union**

Participants from the Harar Trade Promotion Office emphasised that there existed scarcity of supply of tomato in Harar compared with the demand. The market linkage with the union would increase supply and stabilize tomato price inflation in Harar. Participants said they wished they had initiated this linkage even before they and the union were brought together at the workshop saying they had responsibilities to do so. They thanked the project for taking the initiative of linking them, and committed to be actively involved in linking the wholesalers and the union.

Wholesalers explained that the market linkage with the union would solve the lack of trust problems between brokers and wholesalers. They believed that brokers often wanted to get unfair profits. Wholesalers asked the union to supply sufficient tomatoes throughout the year to ensure sustainability of their businesses. They also mentioned that tomatoes produced in and around Harar have usually been supplied in plastic crates and these tomatoes are expensive. In connection with this, wholesalers raised concerns that clients might think that tomatoes in plastic crates are locally sourced (in and around Harar), and some might fear to buy thinking these are expensive. They suggested creating awareness in the community regarding the use of plastic crates in tomato transportation and storage.

Participants from the union stated that they had experiences in establishing market linkages with different clients. They also indicated that their practices consider food safety and post-harvest issues, which align with Pull-Push project objectives to tackle food safety problems. They confirmed that they could supply tomatoes of high-quality throughout the year (there should not be much worry about tomato supply problems). They explained that their union had three business modalities: paying 100% of the price in advance; paying 50% of the price in advance and the other 50% upon receiving the tomatoes, and credit-based paying (on monthly basis). However, the latter would be practiced only after trust has been built with their clients after working together for long and testing each other. The union participants said they were keen to create the market link with the wholesalers and agreed to review their agreement form in consultation with the wholesalers to aid the signing of market linkage agreements.

- **Use of plastic crates in tomato transportation and storage**

Participants from the Harar Trade Promotion Office confirmed that they were convinced of the advantages of plastic crates over the wooden ones. They said they would work to increase the number of wholesalers that would use plastic crates based on the lesson learned from the three wholesalers that would begin using them in the pilot phase. As well as involving the wholesalers, they informed us that they would involve consumer cooperatives in Harar in creating preference for use of tomatoes brought in plastic crates. They further assured that they would move towards developing a public statement to enforce the use of plastic crates in the tomato market value chain depending on

the lesson learned from the pilot users and the recommendations from the experimental study. They recommended creating awareness for the community regarding the advantages of plastic crates over the wooden boxes to facilitate its adoption in tomato transportation and storage.

Wholesalers stated that tomato damage is a common problem, which affects their profit margins. One of the wholesalers shared the experience that some traders had stopped tomato business because of the losses associated with tomato damage and subsequent spoilage.

Being convinced with the uses of plastic crates to reduce mechanical damage of tomatoes and to increase the shelf life of tomatoes, wholesalers confirmed that they would use plastic crates for tomato transportation and storage. They also told us that they would create awareness among other wholesalers to encourage the use of plastic crates provided that the plastic crates in the experiment bring good results. They also recommended labelling the plastic crates with the names of different owners for tracking.

Participants from the union explained that they have had experiences in the use of plastic crates for several years for the transportation and storage of vegetables including tomatoes. They indicated the advantages of plastic crates over wooden boxes including that plastic crates have better stackability and nestability, improved aeration, and smoother sides and edges that reduce mechanical damage and smaller size that make them easy to handle, load, and maintain. They strongly recommended using plastic crates to prevent post-harvest loss and to tackle food safety problems.

In conclusion, both the union and the wholesalers agreed to participate in the experiment (use of plastic crates in transporting tomatoes from Meki to Harar and evaluating the difference).

Reflections

Participants from government organizations appreciated being invited to the workshop saying that their participation at different stages of the project implementation would improve their understanding on the overall activities of the project. They also added that their understanding of the project's activities and its potential benefits for improving food safety in Ethiopia would help in the successful uptake of the project food safety activities and outputs by the government. Engagement of stakeholders at different stages of the project would also improve their involvement in, and support for, the project's activities.

What is next?

Table 1 shows the actions items identified during this workshop and those responsible for carrying out the action plans.

Table 1: Action items identified at stakeholder workshop on interventions to reduce damage of tomatoes during transportation and storage, 14 December 2021, Harar, Ethiopia

Topic	Responsible/owner	Due Date
Draft market linkage agreement form	Union	24 Dec 21
Review and sign the agreement	Union, Wholesalers	31 Dec 21
Finalise the experimental study protocol	ILRI and HU	31 Dec 21
Submit the study protocol to IREC	ILRI	6 Jan 2022
Conduct baseline microbial survey in tomatoes in Harar	ILRI and HU	3rd week Jan 2022
Start using plastic crates to transport and store tomatoes	Union, wholesalers, HU, ILRI	1st week Jan 2022

Appendices

Appendix I: Program for stakeholder workshop on interventions to reduce damage of tomatoes during transportation and storage, 14 December 2021, Harar, Ethiopia

Time	Topic	Owner
09:00-09:30	Quick refreshments on arrival (tea, coffee)	Hotel
09:30-09:45	Participants self-introduction	Participants
9:45-10:00	Pull-Push project objectives: <ul style="list-style-type: none"> • Highlight on its packages • Activities so far in Harar related to tomatoes • Tomato damage reduction: plastic crates • Microbiological analysis experiment: food safety issues 	Kebede Amenu, CVMA
10:00-10:20	Comparison of the advantages of plastic crates and wooden boxes for tomato transportation and storage	Sisay Girma, HU
10:20-10:40	Union presentation: experiences in use of plastic crates and business agreement modality with clients	Biru Melka, Union
10:40-11:00	Plastic crate provision and related issues	Getachew Dinede, ILRI
11:00-11:15	Roles of the stakeholders in uptake of plastic crates for tomato transportation and storage	Getachew Dinede, ILRI
11:15-12:30	Discussions	All participants
12:30-12:35	Workshop summary and closing remarks	Kebede Amenu, CVMA
12:35	Lunch	Hotel

Appendix 2: List of participants of the stakeholder workshop on interventions to reduce damage of tomatoes during transportation and storage, 14 December 2021, Harar, Ethiopia

Name	Institution
Kebede Amenu	CVMA, AAU
Getachew Dinede	ILRI
Sisay Girma	HU
Million Tsige	Harar trade promotion office
Mohammed Yusuf	Harar trade promotion office
Ashenafi Roba	Union
Biru Melka	Union
Ayisheshim Endale	Wholesaler
Anis Jemal	Wholesaler
Arafat Tuya	Wholesaler