

# Community of Practice (CoP) on Food Loss Reduction

Forum Digest #1 (October 2014)

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## Ongoing online discussion on losses occurring along the maize supply chains: levels, causes and solutions promoted / (October 2014 - January 2015)

What are your experiences related to the levels of grain losses, particularly in the maize chain? How were they measured? What solutions can be/were implemented to reduce these losses? What success stories can you share with the Community?

The results of this online discussion will be summarized in a report and published on the Community of Practice website ([www.fao.org/food-loss-reduction](http://www.fao.org/food-loss-reduction)).

Useful reference: SAVE FOOD series of field studies in Kenya (pages 31-50, available at: <http://www.fao.org/save-food/resources/casestudies/en/>).

### NOTE FROM THE COP MODERATOR (31/10/2014)

The first CoP online discussion launched on 13<sup>th</sup> October 2014 has collected inputs mainly from FAO members of the Save Food initiative. Albeit the discussion based on the Kenya case study, several contributions have integrated with their experience from Rwanda, Tanzania and in general the maize value chain.

The *Kenya case studies of the SAVE FOOD Initiative* assessed and evaluated the magnitude of food losses, the main causes, and the cost- effectiveness of food loss prevention measures specific to four food supply chains: bananas, dairy, fish, and maize. The **findings on maize** highlighted that 3% of grain losses occur at the drying stage on farm, and 8 to 10% are caused by weevil damage during storage. Other causes of losses have been identified and assessed along the supply chain. Higher losses in the maize supply chains take place among the less skilled chain actors, who lack awareness of the importance of the losses and what can (easily) be done about them. In many cases adequate supervision of unskilled labour would reduce losses. However, the cost of supervision is an obstacle for small-scale farmers and rural traders.

Several **measures to reduce losses** included the following 1) mobile grain driers and improved storage at community level, 2) small metal silos for grain storage, 3) mechanized harvesting, 4) producer sensitization and training, 5) equipment calibration, 6) grain drying centres, and 7) grain consolidation centres. Furthermore, the identified **loss reduction strategies** are 1) awareness raising combined with training and organization of smallholders to build supply chain actors to recognize the effect of food losses on food security and on their economic benefits, and the need for upgrading and developing the supply chain for better performance and higher margins, 2) value chain development and organization, and, 3) centralisation and contract services.

According to the experiences shared, in particular from Rwanda and Tanzania, in the different threads of discussion (see complete list below), I would like to highlight the following points for your further elaboration and thinking:

- *Cephas Taruvinga* (FAO) mentioned the need to differentiate between long term (actions at multiple levels, including policy and standards) and short-medium term solutions (technologies and training to farmers at community level).
- *Camelia Bucatariu* (FAO) proposed some useful links referring to maize losses in Rwanda, which illustrate that the huge investments by the government in the sector (13% of the national budget) would come to nought if there is no mechanism to contain the production losses. The produce worsens hugely when there is poor cleaning, drying and storing of the yields. Realizing this, the Ministry of Agriculture established a post-harvest handling and storage task force with the mission to reduce losses, ensure proper storage, and improve market linkages for farmers ([2011 MinAgri strategy](#)). Despite this commitment a survey conducted last year indicated a loss of 18.9% of maize production compare to 30% in 2009. The target is to reduce the loss of maize production to maximum 5% ([read the article](#)).
- *Joseph Mpagalile* (FAO) reported from his 10-year experience in Tanzania the need to strengthen and facilitate communication and exchange between the different stakeholders involved in the maize chain, information and knowledge sharing on regular basis would contribute in effectively address post-harvest issues.
- Re. to the strategies to reduce losses, *Stéphane LAKO* from Cameroon, wanted to emphasize that when training and sensitising, instead of focusing too much on capacity building, it is good to look at impacts of communication on the farmers' thinking, habits and practices. Furthermore, mid- to long-term sensitization and education programmes should be considered despite their costs (e.g. demonstration sites play an important role in transferring the knowledge).
- The above mentioned issue is also touched by *Danilo Mejia* (FAO), who refers to traditional operations undertaken by farmers when harvesting and storing maize. These practices are crucial to limit losses and reference is made to a very useful [FAO compendium](#), which illustrates post-harvest operations for maize.

We will be grateful if you could share this digest with interested colleagues and invite them to further contribute in the discussion, through the Community of Practice forum at [www.fao.org/food-loss-reduction](http://www.fao.org/food-loss-reduction) .

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Food Loss Reduction Community of Practice, moderator / AGS-FAO

## COMPLETE LIST OF CONTRIBUTIONS (October, 2014)

### **1. Critical Control Points on Post-harvest Losses of Maize (10-10-2014)**

Maize losses occur in some extent in each operation from the field until consumption. However, some inappropriate traditional operations used by farmers have a significant negative impact on maize losses. For instances, when the maize cob get the total development on the plant is very common among farmers they fold the plant and let it drying on the field for some time, before they harvest. This drying usually take long time (2 or 4 weeks or even more) and is precisely during this time when the maize is seriously affected qualitatively and quantitatively since it is exposed to contamination by diverse fungus, bacteria, insects, birds, rodents and others animals, moisture absorption etc. so that when the grain is stored the grain has the conditions to continuing losing quality. Once the maize is harvested they store it in inadequate structure which allows the loss continues since the storage structures are not hermetic. Thus, is very important that farmers put attention on these operations during the harvest and postharvest of maize. Each postharvest operation for maize is important, but avoiding long drying time on the field and using adequate hermetic storage structure is crucial. A good and recommendable reference to read is the document at:

[http://www.fao.org/fileadmin/user\\_upload/inpho/docs/Post\\_Harvest\\_Compedium\\_-\\_MAIZE.pdf](http://www.fao.org/fileadmin/user_upload/inpho/docs/Post_Harvest_Compedium_-_MAIZE.pdf)

*Danilo Mejia*

AGRO-INDUSTRY OFFICER, AGS-FAO

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### **2. Stakeholder collaboration and communication is important (15-10-2014)**

I wish to share my experience on maize postharvest handling which I gained while working as a researcher in Tanzania between 2000 and 2010. During this time, I observed that success in the reduction of postharvest losses (PHL) in maize supply chain depends, among other factors, also on how stakeholders in the maize supply chain collaborate and communicate to share and exchange information and good practices toward PHL reduction. It is difficult to effectively reduce postharvest losses if stakeholders work in isolation.

Farmers, seed suppliers, agrochemical dealers, transporters, processors, researchers, extension officers, consumers, development partners etc. who are the main stakeholders need to share information and knowledge on regular basis in order to effectively address the postharvest losses problems. However, it was evident at that time that communication on postharvest aspects within the domains e.g. researchers from universities and those from the National Agricultural Research System (NARS) etc. and between different domains e.g. farmers and agro-dealers or researchers and extension officers was very low. For example, it was common to find that stockists of packaging materials or agro-dealers were not communicating with farmers or processors to identify the types and amount of packaging materials or storage pesticides needed in the following season.

One of the key lessons learnt was that it is important for stakeholders to maintain continuous collaboration and communication to share information in order to efficiently reduce maize postharvest losses. I believe this observation is still valid today.

*Joseph Mpagalile*

AGRO-INDUSTRIES OFFICER, AGS-FAO

### 3. Maize losses (9-10-2014)

Contribution for maize losses in Rwanda:

- from MINAGRI  
National Post Harvest Staple Crop Strategy , Oct 2011  
[http://www.minagri.gov.rw/fileadmin/user\\_upload/documents/Publications/National%20Post%20Harvest%20Strategy%20-%20Nov%202022.pdf](http://www.minagri.gov.rw/fileadmin/user_upload/documents/Publications/National%20Post%20Harvest%20Strategy%20-%20Nov%202022.pdf)
- from the media  
<http://focus.rw/wp/2013/02/minagri-registers-reduction-in-post-harvest-losses/>

*Camelia Bucatariu*

CST for Food Waste Issues and Policy Development, AGS-FAO

→ Reply:

*These are good references. The material shows the strides Rwanda has made in reducing post-harvest losses.*

*Cephas Taruvinga*

Food Losses Technical Officer / AGS-FAO

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### 4. My experience in Rwanda (6-10-2014)

Maize harvested at high moisture levels and sold to traders without being sufficiently dried to safe moisture levels lost its quality later in storage. Whole consignments in storage were downgraded to ‘‘unsuitable for human consumption’’ This downgraded maize was later sold to the public for household use through informal markets. Because the grain went through two different market channels it was difficult to quantify the loss directly. The cause of this loss was not only due to poor storage management by the warehouse operator, but also due to lack of awareness by farmers, lack of quality testing facilities by traders and the lack of a national policy on grain quality standards. Since in the long term the solutions were required at multiple levels of the supply chain, to address this in the short to medium term, drying facilities were provided at community levels and farmers were trained to use them.

*Cephas Taruvinga*

Food Losses Technical Officer / AGS-FAO

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### 5. Some key points to consider for reduction of losses at small or household farms (24-10-2014)

I’m a Cameroonian Agricultural Engineer. I have been working with small farmers groups and household farms for 5 years, and this is what I noticed.

It’s true that it is among unskilled actors that the losses are higher. This is because they are not aware of the extent to which various factors can affect the quality and quantity of grains and the rate at which these could decrease. Also, whenever those are trained on simple techniques to improve handling and conservation of maize grains, sometimes they think that’s too much extra work.

So thinking at sensitization as a measure joint with raising awareness is a good strategy. But the challenge is to find good ways of giving the information such that it has impact on their understanding of the problem and their practices. For example saying to a farmer that “40 cobs of maize leave on-farm, lost during transportation, or lost during storage will cost five litres grains” will surely have a better impact than to explain to him the various factors that could influence the loss of grain quantity and quality. So, when training and sensitising, instead of focusing too much on capacity building, it is good to look at impacts of communication on the farmer thinking, habits and practices. Training and sensitisation should then consider all the factors influencing grain quality and quantity over time: harvesting technology and method, transportation facilities, storage facilities, etc.

In order to reach great impact on farmers, trainers and engineer would need a mid- to long-term sensitization and education program. Despite the heavy cost of this, advantages and potential positive impacts can be valued in most of other agricultural products. Generally demonstration sites are good bases to convince farmers on practical issues.

Stéphane LAKO (Cameroon)