

Postharvest Loss in Africa—What Do Farmers Say?

Global estimates of postharvest food losses are alarmingly high. But what do farmers say about their own losses?

The Food and Agriculture Organization (FAO) estimates that 32 percent of global food production is lost after harvest—and up to 37 percent in Sub-Saharan Africa. Why have farmers “tolerated” such losses, and why has the international community not acted more forcefully to reduce them? One answer holds that postharvest loss may not be that high. More than 30 years ago, in the aftermath of the early 1970s world food crisis, Michael Lipton already questioned the premise of high postharvest loss and put on-farm grain losses among smallholders in developing countries in the 5–8 percent range.

Estimating postharvest loss is complex. The overall FAO estimates cover all crops (including more perishable roots, tubers, and fruits and vegetables) and comprise losses during all steps of the food supply chain (harvesting, on-farm handling and storage, processing, marketing, consumption). When confined to cereals and postharvest handling and storage loss only, the FAO estimate for Sub-Saharan Africa is 8 percent. This estimate is definitionally more equivalent and quantitatively closer to Lipton’s numbers.

Nonetheless, the estimates are necessarily based on many assumptions. In a new paper Kaminski and Christiaensen complement the efforts to quantify postharvest loss using

farmer-reported estimates. They obtain these from recent nationally representative household surveys in three African countries—Malawi, Tanzania (two years), and Uganda. They focus on the reported share of harvested maize lost. They also identify the key agroclimatic and socioeconomic drivers of postharvest loss to better understand the factors affecting adoption of improved storage and postharvest handling techniques. Success stories in promoting improved on-farm storage technologies have been rare in Africa, with interventions too often poorly aligned with farmers’ economic incentives.

The authors’ approach in estimating postharvest loss differs from the FAO estimates as well as those from the African Postharvest Losses Information System (APHLIS). The first are based on national food balances and loss fractions defined by experts, the second on national extrapolations from purposively sampled (and often older) in-depth case studies. The authors’ approach has some advantages. First, the use of nationally representative samples avoids overestimation from sample selection bias. Second, harmonization in the survey methodology facilitates comparison across countries. Third, while subjective, and thus prone to measurement error, self-reported loss estimates are also more likely to reveal the losses that matter—and more likely to be incentive compatible. Finally, the survey design was exploited to obtain annualized loss estimates.

Among maize farmers, only between 7 percent (Malawi) and 22 percent (Uganda) report on-farm postharvest loss, averaging 21–27 percent of their harvest. This adds up to 1.4–5.9 percent of the national maize harvest being lost on-farm (figure 1). This is still quite a bit lower than the FAO postharvest

handling and storage loss estimate for cereals in Sub-Saharan Africa of 8 percent and much lower than the APHLIS estimates of 14–18 percent for maize (all postharvest loss before marketing but without processing).

Multivariate analysis of the 2008 Tanzanian experience further shows that economic incentives, especially the seasonal price gap (and access to the market), substantially reduce postharvest loss. Climatic factors (particularly the combination of heat and humidity) substantially increase it. Households’ wealth or poverty status does not appear to be associated with postharvest loss, and loss tends to be lower among female-headed households and those whose heads have postprimary education. Some of these factors probably work through the adoption of improved storage technologies, which remains limited. Between 0.6 percent (Uganda) and 11.5 percent (Tanzania) of maize farmers use improved storage technologies. The prevalent postharvest treatment method remains smoking or spraying.

The authors conclude that there must be proper contextualization of the widely cited high and aggregate estimates of postharvest loss, with farmer-reported estimates arguably more relevant indicators of demand for better storage and postharvest handling techniques. They argue that interventions should be incentive compatible and carefully targeted, not “one size fits all.” And they call for wider use of nationally representative surveys in studying postharvest loss. Nationally representative estimates help elucidate the granularity in postharvest loss and storage behavior; they can also be used to fine-tune the algorithms underpinning postharvest loss information systems such as APHLIS and to help update their annual estimates.

Jonathan Kaminski and Luc Christiaensen. 2014. “Post-Harvest Loss in Sub-Saharan Africa—What Do Farmers Say?” Policy Research Working Paper 6831, World Bank, Washington, DC.

Figure 1. Estimated Postharvest Loss for Maize in Three African Countries

