



PEF President's Message

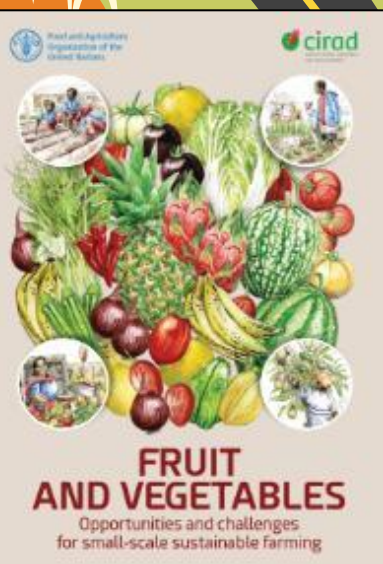
Despite uncertain situations caused by COVID-19 pandemic, 2021 has still been a significantly productive year for postharvest food loss reduction strategies and actions. There were several interesting studies published with economic and environmental consequences of losses, innovative solutions to reduce losses, food loss metric systems, cold chain management and capacity building.

The 3rd All African Postharvest Congress and Exhibition (AAPHCE) was filled with wonderful discussions and concluded with a great set of goals and lots of work to be done in innovation, policies and capacity building to reduce postharvest losses. Though we missed meeting in person, we were happy to meet everyone virtually. Glad to see a lot of presenters, moderators, rapporteurs and other organizers from The Postharvest Education Foundation family. We wish everyone a successful time ahead and we are looking forward to the upcoming events in 2022.



Dr. Vijay Yadav Tokala
President
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Opportunities and challenges for small-scale sustainable farming



The United Nations designated 2021 as **International Year of Fruit and Vegetables** advocating importance of healthy diets and lifestyles through sustainable food systems. It also seeks to strengthen the role of small-scale and family farmers in sustainable farming and production practices, accountable for the livelihoods of millions of rural families, and raise awareness of the nutritional benefits of fruit and vegetables and also of the high levels of food loss and waste in fruit and vegetables.

This publication focuses on **opportunities and challenges for small-scale farmers**, for further developing the fruit and vegetable sector towards achieving the United Nations Sustainable Development Goals (UNSDGs).

PEF board members Dr Lisa Kitinoja and Dr Majeed Mohammed contributed to the work.

Download the documents: <https://doi.org/10.4060/cb4173en>

Available in English, French and Spanish languages.



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3rd All Africa Postharvest Congress and Exhibition




3RD ALL AFRICA POSTHARVEST CONGRESS AND EXHIBITION

Theme: Postharvest Loss Reduction for Sustainable Food Systems

A VIRTUAL EVENT HOSTED BY THE AFRICAN UNION COMMISSION

13TH - 16TH SEPTEMBER 2021

ORGANIZING PARTNERS





3RD ALL AFRICA POSTHARVEST CONGRESS AND EXHIBITION

Theme: Postharvest Loss Reduction for Sustainable Food Systems

A Virtual Event Hosted by the African Union Commission
13 - 16 September 2021

REGISTER NOW
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Session Moderator
Dr. Jean-François
Harvest Advancing Institutions

PLENARY SESSION 3: 15/09/2021 at 1.00 - 2.30 PM (EAT)
Topic: Scaling out of innovative postharvest technologies in sub-Saharan Africa: lessons and progress

SPEAKERS



Dr. Lina Kitinoja
Postharvest Education Foundation

Dr. David Holcroft
Holcroft Postharvest Consulting

Dr. Annette Gertzel
Global Development Initiator

Mr. Mohamed Elmaghrabi
Gulfair Ltd

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3rd All Africa Postharvest Congress and Exhibition (3rd AAPHCE), a Pan-African convening was successfully organized from the 13th to 17th September 2021, hosted by the African Union Commission (AUC). The 3rd AAPHCE is a follow-up to the 2nd AAPHCE and 1st AAPHCE which were held in 2019 and 2017 respectively. The event was organized by diverse partners, including development partners, private sector actors, academic/research institutions, and civil society. Since its inception in 2017, the AAPHCE has evolved into an important event to create awareness about food loss and waste and showcase sustainable solutions in the African context.

The specific objectives of the 3rd AAPHCE included: 1) Raise awareness about food losses and waste as a problem contributing to unsustainable food systems; 2) Demonstrate the importance of good postharvest management and food loss/waste reduction in line with the continental/global challenges and agenda; 3) Showcase effective policy interventions, strategies, technologies, practices, investment/business opportunities towards postharvest food loss/waste reduction; 4) Monitor and review progress by AU Member states on postharvest loss reduction initiatives to achieve the set targets under the Malabo Declaration (2014); 5) Build and strengthen linkages and partnerships (including private sector engagement) for resourcing food loss and waste reduction initiatives.

Congratulations to all who made the 3rd AAPHCE a successful event. PEF board members, e-learning graduates, postharvest colleagues and supporters contributed as organizers, speakers, moderators, rapporteurs and presenters in the congress. PEF e-learners Regine Kamga (Cameroon), Mekbib Seife (Ethiopia), Francis Appiah (Ghana), Jane Ambuko (Kenya), Christine Kasichana Masha (Kenya), Charity Wangari Gathambiri (Kenya), Olubukola Odeyemi (Nigeria), Elizabeth Abiola Ojeleye (Nigeria), Edoh Ognakossan Kokum (Togo), Himoonga Bernard Moonga (Zambia) and Courtney Jallo (USA) presented their work in the congress. PEF board members Deirdre Holcroft, Lisa Kitinoja, and Vijay Yadav Tokala were part of technical committee and plenary discussion group.

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Guidelines on the Measurement of Harvest and Postharvest Losses

The 'Food and Agriculture Organization of United Nations' in collaboration with the 'Division of Sample Surveys Indian Council of Agricultural Research (ICAR)-Indian Agricultural Statistics Research Institute (IASRI), India' and the 'Instituto Nacional de Estadística y Geografía, México' published a technical report with the findings of field tests conducted in identified states/districts/municipalities/study area in Mexico. The report focused on the basis of sampling methodology for estimation of postharvest losses of horticultural crops (fruits and vegetables) developed by the team led by Dr. Tauqueer Ahmad, Head, Division of Sample Surveys, ICAR-IASRI, New Delhi, India. It is expected that this report will help the users from different countries in designing surveys for measurement of postharvest losses of horticultural crops (fruits and vegetables).

Download : <http://www.fao.org/3/cb1511en/cb1511en.pdf>



Guidelines on the measurement of harvest and post-harvest losses

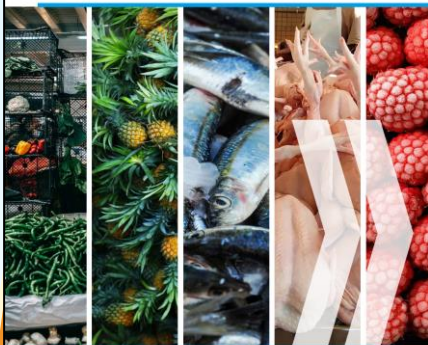
Findings from the field test on estimating harvest and post-harvest losses of fruits and vegetables in Mexico

FIELD TEST REPORT



Status of the Global Food Cold-chain: Summary Briefing

STATUS OF THE GLOBAL FOOD COLD-CHAIN: SUMMARY BRIEFING



The UNEP-led Cool Coalition in collaboration with the Climate & Clean Air Coalition (CCAC), United Nations Environment Programme (UNEP), Food and Agriculture Organization of United Nations (UNFAO), OzonAction and the Ozone Secretariat, with the support of the Italian Government, are producing a status report on the global food cold-chain, which will include case studies to show the current state and development across areas such as technologies, design approaches, finance and business models, policy, and planning.

The aim of the study is to help better identify and accelerate solutions to simultaneously feed the world, support smallholder and marginal farmers, and protect our environment. The short summary of the full report to be published in December 2021 is now available for download.

Download: <https://www.unep.org/resources/assessment/status-global-food-cold-chain-summary-briefing>

International Symposium - Postharvest Pathology 2022

VI International Symposium on Post-harvest Pathology: Innovation and advanced technologies for managing postharvest pathogens is being organized under the aegis of the International Society for Horticultural Science (ISHS) and the International Society for Plant Pathology (ISPP) from the 29th May till 2nd June 2022 in Limassol/Lemesos, Cyprus.



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Driven to Waste: The Global Impact of Food Loss and Waste on Farms



Driven to Waste :Global Food Loss on Farms, a new report from WWF and Tesco, reveals an estimated 2.5 billion tonnes of food goes uneaten around the world each year. That is an increase of approximately 1.2 billion tonnes on the established estimates of 1.3 billion tonnes wasted each year. These new estimates indicate that of all the food grown, approximately 40% goes uneaten, which is higher than the previously estimated figure of 33%.

The report focuses on food losses on farms, around and during harvest and slaughter as well as after. This is the first quantification of total on-farm food loss since 2011. When combined with updated data on loss in supply chains and waste at retail and consumption, a clear picture of the scale of food loss and waste from farm to fork is available. Website: <https://wwf.panda.org/discover/our focus/food practice/food loss and waste/driven to waste global food loss on farms/>

Stewardship Index for Specialty Crops: Food Loss Metric Guide



The *Food Loss Metric Guide* is intended for growers to track and report the amount of food grown to the point of maturity but not used; in other words crops that were “ready for harvest” but did not enter the supply chain for human consumption. Understanding this amount of product ‘loss,’ or product left in the field or culled out at various other stages in the supply chain i.e., fields, packinghouse/processing facility, storage, and transport between each link, will provide growers and associated buyers with useful data on where and why loss is occurring within the boundaries of a single farm operation. This metric also tracks destinations for loss, drivers for loss, product loss excluding a change in moisture content, and opportunity cost for returning to the field to harvest what would otherwise become loss.

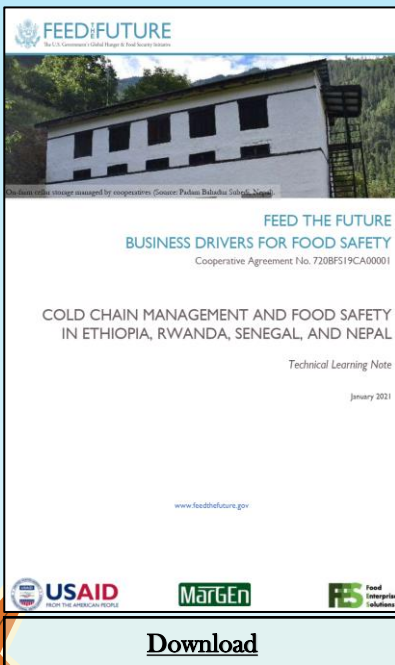
The sections in the report are designed to logically walk through the metric calculation process, with each step of the Metric Calculator.

Click to download: [Food Loss Metric/Food Loss Metric Guide, Food Loss Metric calculator in Excel](#)

For other details: <https://www.stewardshipindex.org/working-metrics>

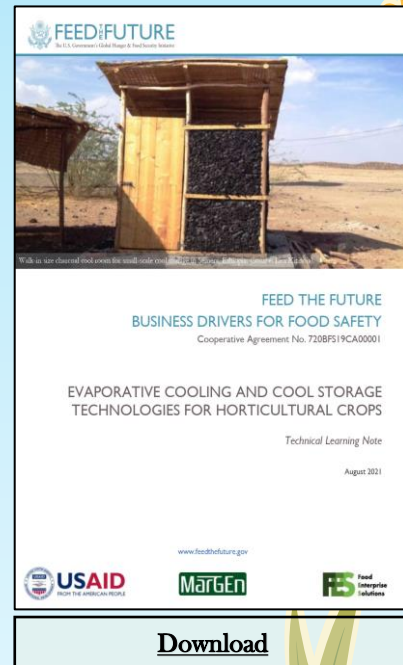


Feed the Future Technical Reports



Based upon the immediate necessity for interventions to reduce food losses and ensure food safety, Feed the Future Business Drivers for Food Safety (BD4FS), funded by USAID and implemented by Food Enterprise Solutions (FES), initiated research focused on Senegal, Nepal, Rwanda, and Ethiopia.

MarGen with help of The Postharvest Education Foundation and local consultants Gerefa Sefu (Ethiopia); Padam Subedi (Nepal); Bernard Rwubutse (Rwanda); Dieng Elhadji Omar (Senegal) conducted the study and developed Technical Learning Notes.

[Download](#)[Download](#)

Interesting publications on agri-development and postharvest handling

- Odeyemi OM, Kitinjo L, Dubey N, Musanase S, Gill GS (2021): Preliminary study on improved postharvest practices for tomato loss reduction in Nigeria, Rwanda and India. African Journal of Science, Technology, Innovation and Development, <https://doi.org/10.1080/20421338.2021.1961986>
- Nordhagen S (2021). Gender equity and reduction of post-harvest losses in agricultural value chains. Global Alliance for Improved Nutrition (GAIN). Working Paper #20. Geneva, Switzerland. <https://www.gainhealth.org/sites/default/files/publications/documents/gain-working-paper-series-20-gender-equity-and-reduction-of-post-harvest-losses-in-agricultural-value-chains.pdf>
- Hosking S, Amin M, Zena Z, Yalch T, Nordhagen S (2021) Business Models for Reducing Post-Harvest Loss of Fresh Vegetables: An Assessment of Reusable Plastic Crates in Ethiopia. Geneva: Global Alliance for Improved Nutrition (GAIN). Working Paper #17. Available from: <https://doi.org/10.36072/wp.17>
- Benson OB, Ambee IA, Osegbo AN, Okonkwo EU (2020). Re-useable plastic crates as a veritable tool for handling of fresh fruits and vegetables: Lagos State as a case study. Journal of Stored Products and Postharvest Research. 2020;11(1). <https://academicjournals.org/journal/JSPPR/article-full-text-pdf/98E007363481.pdf>
- Johnson N, Balagamwala M, Pinkstaff C, Theis S, Meinzen-Dick R, Quisumbing A (2018). How do agricultural development projects empower women? Linking strategies with expected outcomes. Journal of Gender, Agriculture and Food Security. 2018;3(2). <https://ageconsearch.umn.edu/record/293596/>

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International Day of Awareness of Food Loss and Waste



Globally, around 14 % of food produced is lost between harvest and retail, while an estimated 17 % of total global food production is wasted (11 % in households, 5 percent in the food service and 2 % in retail). Food loss and waste undermine the sustainability of our food systems. When food is lost or wasted, all the resources that were used to produce this food – including water, land, energy, labour and capital – go to waste. Our food systems cannot be resilient if they are not sustainable.

The UN General Assembly designated 29 September as the International Day of Awareness of Food Loss and Waste. With nine years left to reach SDG goal 12, target 12.3; there is an urgent need to accelerate action to reduce food loss and waste.

Key messages:

1. No room for food loss and waste!
2. Reducing food loss and waste strengthen the sustainability of our food systems and improve planetary health.
3. Increasing the efficiency of our food systems and reducing food loss and waste, necessitates investment in innovation, technologies and infrastructure.
4. Recovery and redistribution make good use of surplus food and contribute to improving access to food for the food insecure, preventing food waste and ensuring economic, environmental and social benefits.
5. Diverting food waste to composting is better than sending it to a landfill, but preventing food from being wasted in the first place is an even better way to lessen the impact on the environment.
6. Realizing and maximizing the positive impacts of reducing food loss and waste, requires good governance and human capital development, as well as collaboration and partnerships.

Website: <https://www.fao.org/international-day-awareness-food-loss-waste/en/>

USAID Awards UC Davis \$15 Million for Global Horticulture Research Program

The U.S. Agency for International Development (USAID) will provide a base \$15 million investment over the next five years, with up to \$34.5 million total funding possible, to support a global research program led by the University of California, Davis, that advances fruit and vegetable production, handling, and consumption. The Horticulture Innovation Lab will focus their efforts in West Africa, East Africa, South/Southeast Asia and Central America.

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The UN Food Systems Summit - 23 September 2021



UNITED NATIONS
FOOD SYSTEMS
SUMMIT 2021

The UN Food Systems Summit organized on 23rd September 2021, served as a historic opportunity to empower all people to leverage the power of food systems to drive our recovery from the COVID-19 pandemic and get us back on track to achieve all 17 Sustainable Development Goals (SDGs) by 2030. Over the past 18 months, the Summit has brought together all UN Member States and constituencies around the world – including thousands of youth, food producers, Indigenous Peoples, civil society, researchers, private sector, and the UN system – to bring about tangible, positive changes to the world's food systems.

Watch the recorded sessions : <https://www.unfoodsystems.org/ondemand-summit.php>

Ceres 2030 - Sustainable Solutions to End Hunger

Ceres2030
Sustainable Solutions to End Hunger

Sustainable Solutions
to End Hunger

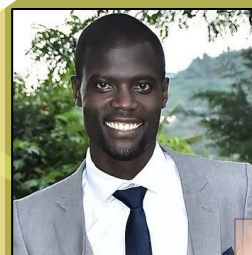


Ceres2030 was an experiment designed to help with the challenge of ending hunger. The project team, employing a complex and rigorous economic model and cutting-edge machine-learning tools, made a partnership with Nature Portfolio that focused on answers to two linked questions: First, what does the published evidence tell us about agricultural interventions that work, in particular to double the incomes of small-scale producers and to improve environmental outcomes for agriculture? And second, what will it cost governments to end hunger, double the incomes of small-scale producers, and protect the climate by 2030? Dr Lisa Kitinoja and Dr Deirdre Holcroft worked on this project during 2019-20 as PEF volunteer postharvest scientists.

Final compilation report for *Ceres2030* Project: Sustainable Solutions to End Hunger is now available for download. <https://ceres2030.org/wp-content/uploads/2021/07/ceres2030-nature-portfolio-.pdf>

Congratulations to Desire Mugisha, new PEF E-learner

Congratulations to Desire Mugisha on completion of PEF E-learning course and welcome to PEF family. He has a bachelor's degree in Soil and Environmental Management from The University of Rwanda. Desire is eager to continue his support to stallholder farmers' cooperatives in postharvest handling techniques and cost/benefit analysis with the skills and expertise learned from PEF.





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Clay Pot Coolers



Clay pot coolers are simple and inexpensive technologies that can be made with locally available materials. By providing a cool humid environment, clay pot coolers can improve the shelf life of many common fruits and vegetables in dry regions. MIT D-Lab is currently working with the World Vegetable Center and Institut d'Economie Rurale (IER) to evaluate the performance of clay pot coolers and other similarly-sized storage devices in a laboratory setting.

For more details: <https://d-lab.mit.edu/research/evaporative-cooling-vegetable-preservation/clay-pot-coolers>

Food Systems – Game Changers lab

The Rockefeller Foundation's Food Initiative supported the creation of the Food Systems Game Changers Lab, an interactive program that aimed to support food systems innovators to develop their ideas and bring them to life. The Lab supported 505 participants from 85 countries who spent 13-weeks immersed in systems thinking curriculum, coming together to design game changing, collective food systems solutions borne of collaboration.

24 Action Agenda Compendium were launched on September 23, 2021 so that individuals, businesses,

non-profits, governments and others can learn from the Food Systems Game Changers Lab so that they can continue the critical work of food systems transformation.

For more details: <https://drive.google.com/file/d/1mmTPJL1zwd9x1EF42ALP6l4i4uW6dh/view>



Congratulations Dr. Emmanuel Ayua



Emmanuel Owino Ayua (2014 PEF E-learning graduate) completed his PhD in Food science at Purdue University. His research focused on the health impacts of whole grains processed via extrusion. His research findings suggest that food-to-food fortified instant porridge flours have the potential to be adopted and can be used as a vehicle to deliver micronutrients to worldwide populations and that extrusion somewhat enhances fermentation of whole grain fibers by the gut microbiome. Through the Food Processing and Postharvest Handling Innovation Lab (FPIL) project, a cereals processing incubation center was established in Eldoret, Kenya.



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Cold Chain Management for the Fresh Produce Industry in the Developing World

The development of a resource-efficient and energy-smart food supply chain to reduce losses requires a well-integrated evaluation and development of the cold chain. *Cold Chain Management for the Fresh Produce Industry in the Developing World* edited by PEF board members Dr Vijay Yadav Tokala and Dr Majeed Mohammed provides a comprehensive review of the benefits of an unbroken cold chain in developing countries and focuses on the critical role of extension education in the implementation of cold chain management.

The book is now available for pre-order.

PEF's 'Global Postharvest E-learning Program' is FREE to all!

Check the website for further details and register by completing Assignment #1:

http://postharvest.org/postharvest_elearning_program1.aspx

SUPPORT OUR WORK

The Postharvest Education Foundation is a 501(c)(3) non-profit public charity with aim to reduce global food losses, which are as high as up to 50%.

General donations to The Postharvest Education Foundation are used for 3 major program activities:

- Postharvest tool kit: For e-learners from developing country who complete their training (US\$400 each).
- Postharvest Closing Workshops for e-learning graduates (Estimated as \$1200 per e-learner).
- Travel Support: To pay for the travel expenses to attend international postharvest training programs (air tickets, hotels, food, local transport costs) (Estimated as \$1500-\$2000 per e-learner).

Kindly check our website (<http://www.postharvest.org/donate.aspx>) for other alternate ways to donate.

Thanks in advance for your tax-deductible donation, which will be used to train young horticultural professionals via low cost internet based programs, with reading assignments, fieldwork on improved practices for postharvest handling, storage, processing and marketing.

Mail us at postharvest@postharvest.org any postharvest related questions you wish to be answered.

Email us at newsletter@postharvest.org to subscribe to the PEF newsletter

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