



PEF President's Message

2018 was a very busy year for our PEF board members, e-learning graduates and volunteers, packed full of activities, events and research. We have published two new White Papers (and soon will have two more) on postharvest loss assessment practices and innovative technologies to share with our network. WFPC recently announced the “2nd All Africa Postharvest Congress and Exhibition” to be held in Addis Ababa, Ethiopia in October 2019, hosted by the African Union (more information will be shared in our next newsletter).

I wish you all a Happy New Year and look forward to hearing from all of our e-learning graduates and sharing your news!

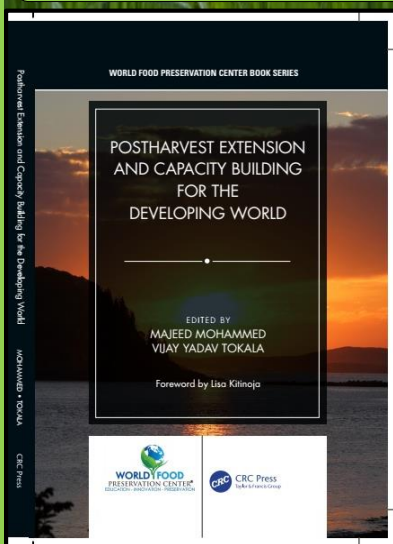


Dr. Lisa Kitinoja
President & Founder
kitinoja@postharvest.org

Postharvest Extension And Capacity Building

The book **"Postharvest Extension and Capacity Building for the Developing World"** highlights recent advances in postharvest extension/outreach programs, capacity building and case studies of practical methodologies from different corners of world. It is suitable for postharvest extension professionals and food science teachers, food processing trainers and outreach specialists who work in the field.

The book was edited by **Majeed Mohammed and Vijay Yadav Tokala**, Board of Directors, The Postharvest Education Foundation (PEF). It has been published as a part of **'World Food Preservation Center'** book series.



We hope that the information on the postharvest extension/outreach programs, capacity building and practical methodologies provided in this book will facilitate postharvest extension professionals, trainers and outreach specialists working in this field to create a cadre of well-trained postharvest specialists.

The book is now available for purchase at [CRC Press \(Taylor & Francis Group\)](http://www.crcpress.com) website.



The Postharvest Education Foundation

Website: www.postharvest.org E-mail: postharvest@postharvest.org

2018 Kader Award in Postharvest Training



Kader working with Kitinoja in India (2008)

The PEF Kader Award is announced on December 10, awarded annually on the anniversary of the passing of **Dr. Adel A. Kader** to the outstanding postharvest e-learner or a team of e-learners after successful completion of one-year PEF e-learning program, who has had the greatest impact by involving in postharvest training activities and capacity building, after the successful completion of the course.

The awards honor the late Professor Adel A. Kader, who we believe contributed more to the knowledge and understanding of postharvest technology of fruits and vegetables than any other individual in the field. Dr. Kader's knowledge, experience and generosity of spirit continue to inspire us today through PEF and the Kader Awards ([http://postharvest.org/kader awards.aspx](http://postharvest.org/kader%20awards.aspx)).

Congratulations to **Mr. Vijay Yadav Tokala** on winning 2018 Kader Award in Postharvest Training. ([2018 Kader Award Announcement](#))

Vijay is serving on the board of directors for The Postharvest Education Foundation, a non-profit organization committed to reducing global postharvest losses and food waste by organizing and managing postharvest e-learning programs and training activities for the participants from more than 25 different nations. As a volunteer Vijay has developed and is editing quarterly PEF newsletters, has represented PEF at a postharvest conference in Mauritius, edited a CRC Press book on Postharvest Capacity Building with Dr. Majeed



Mohammed, and assisted Dr. Lisa Kitinoja with journal articles and chapter writing, plus editing and reviewing for PEF White Papers and the upcoming e-book "100 under \$100: Tools for Reducing Postharvest Losses" (author Betsy Teutsch).

In India, he has worked as Horticulture Officer in the government of Andhra Pradesh with the roles of field consultant and extension officer, with the main job objective of enhancing quality horticulture production and encouraging farmers towards safe postharvest handling and processing in both rural and urban areas. He completed his PEF e-learning program in 2012, won the prestigious International Postgraduate Research Scholarship (IPRS)-2016 and Australian Postgraduate Award (APA). Currently Vijay is pursuing a PhD in postharvest horticulture at Curtin University, Western Australia, and studying the effect of novel ethylene antagonists to increase the storage life of fruits in different storage environments.



12th International Working Conference on Stored Product Protection



Julius Kühn Institute, Federal Research Center for Crops organised the “12th International Working Conference on Stored Product Protection” (IWCSPP) from October 7-11, 2018 in Berlin, Germany.

Dr. Deirdre Holcroft, PEF board member, attended the conference and presented the poster giving an overview of the education and trainings provided by the PEF and suggested that a similar training programs could be developed to reduce postharvest losses and ensure food safety during storage of agronomic crops (grains and legumes). [\[Click on the picture to download poster\]](#)

Mycotoxins in food – Dr. Deirdre Holcroft

Mycotoxins are toxic compounds produced in grain and other crops particularly in maize and groundnuts as a result of infection by certain *Aspergillus*, *Penicillium* and *Fusarium* species. These toxic compounds can be produced during production but increase rapidly during storage especially under suboptimum conditions.

The mycotoxins of greatest concern are aflatoxins, fumonins, ochratoxins, deoxynivalenol, zearalenone, T-2 toxins and T-2 like toxins (trichothecenes). Exposure to these compounds causes both chronic and acute health problems including liver cancer, greater susceptibility to other diseases, stunting of children and in extreme cases death.

Mycotoxin regulations have been established in about 100 countries and the concentrations allowed range from 4-30 ppb, depending on the country involved. The limits are often based on a European diet where the average maize (corn) consumption is 10 g/day. In many African countries the average maize consumption is 400 g/day. Very little of the maize consumed within the continent is actually tested for mycotoxins. Of those samples tested 40% of maize exceeded the allowed limits, and in groundnuts 71% of the samples tested positive. In an outbreak of aflatoxicosis in Kenya in 2004 levels as high as 4400 ppb were measure in maize. High mycotoxin levels result in a lost export opportunity which is valued at US\$ 670 million. The product that is rejected for export is sold and consumed locally.

Recommendations to reduce mycotoxins after harvest include:

- Drying of harvested produce to optimally low moisture content. (Maize: $\leq 15.5\%$ moisture; Groundnuts $\leq 6.6\%$ moisture). Solar drying is a useful method to dry products.
- Improved storage conditions to prevent contact with water from the ground or rain e.g. the mobile storage unit developed by William Lanier:
<https://sites.google.com/site/neveridlefarmsandconsulting/> .
- Using **Aflasafe**, a biocontrol agent based on selected *Aspergillus* species, which outcompete the aflatoxin-producing fungus, and which can reduce aflatoxins levels by as much as 80%.
- Sorting product before storing to remove moldy or damage product and preventing insect damage which can increase fungal contamination.
- Low temperature storage and controlled atmospheres can also reduce fungal growth but tend to be expensive.

#Interesting resource: Partnership for Aflatoxin Control in Africa: www.aflatoxinpartnership.org.



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2018 AACC International Annual Meeting – Cereals & Grains 18

AACCI Annual Meeting - Cereals & Grains 18 was organised at London, United Kingdom from October 21-23, 2018. **Emmanuel Ayua (Kenya, 2014 PEF e-learning graduate)** presented his work on optimisation of extrusion conditions for cereal processors in Africa (Kenya, Niger, Senegal). Emmanuel is presently doing his PhD in Food Science from 'Whistler Center for Carbohydrate Research, Department of Food Science, Purdue University, West Lafayette, USA'.

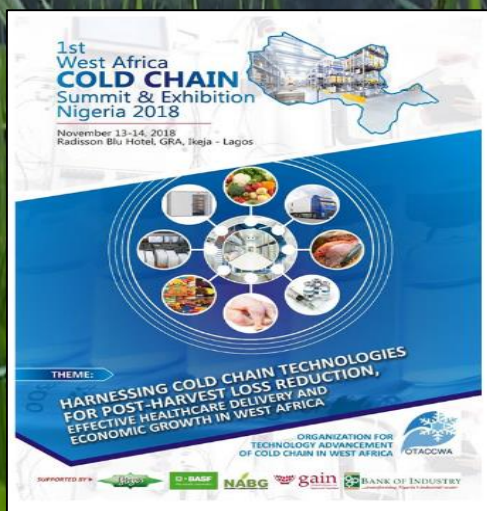
Download : [\[Abstract\]](#)

[\[Continuous single screw extruder - Details\]](#)



Emmanuel in the lab at Purdue University, USA.

1st West Africa Cold Chain Summit & Exhibition



The 1st West Africa Cold Chain Summit & Exhibition 2018 organised by The Organization for Technology Advancement of Cold Chain in West Africa (OTACCWA) from November 13-14, 2018 in Lagos, Nigeria. The theme for event being "Harnessing Cold Chain Technologies for Post-Harvest Loss Reduction, Effective Healthcare Delivery and Economic Growth in West Africa."

Dr. Olubukola Odeyemi (Nigeria, 2013 PEF e-learning graduate) travelled to Lagos to represent PEF.

1st Latin America/ Caribbean Food Loss and Waste Reduction Congress

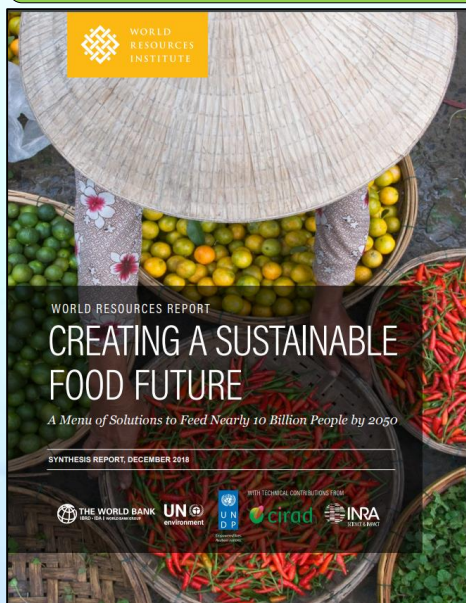
The First Latin America/ Caribbean Food Loss and Waste Reduction Congress is being organised at Bento Gonçalves, Brazil from April 1-5, 2019. The theme of the congress is 'A Sustainable Path for Substantially Reducing Food Loss and Waste in Latin America and the Caribbean'.



Dr. Majeed Mohammed, PEF board member, has been invited as a keynote speaker in this congress. For further details about congress visit: <http://www.foodloss2019.com/>



Creating a Sustainable Food Future – World Resources Institute (WRI)



World Resources Institute (WRI) in partnership with the World Bank, UN Environment, UN Development Programme, and the French agricultural research agencies CIRAD and INRA published a *World Resources Report: Creating a Sustainable Food Future - A Menu of Solutions to Feed Nearly 10 Billion People by 2050*.

This report presented a five-course menu of solutions to ensure global food security without increasing greenhouse emissions, deforestation or worsening poverty. The 22 items on the menu were formulated following intensive research and modelling examining the nexus of the food system, economic development, and the environment.

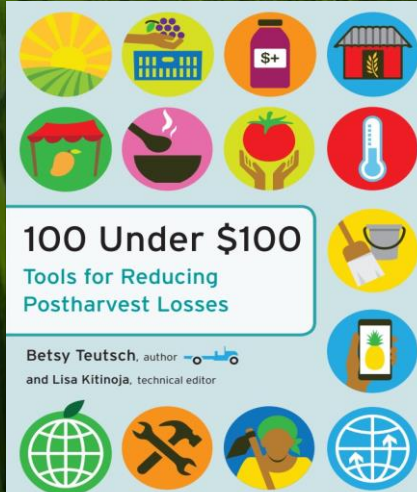
Dr. Lisa Kitinoja has been working with WRI for the past five years on the food loss/waste aspects of this synthesis report. Download : [\[Full Report\]](#)

100 under \$100: Reducing postharvest losses

'100 under \$100: Tools for reducing postharvest losses' is collection of 100 different tools from different corners of globe, each of which costs under \$100. (e-Book publication date expected in early 2019)

Recently PEF organised a fundraiser on Facebook to print full colour book and disseminate the hard copies. We received wonderful response and are thankful to everyone for their support and special thanks to ABA Inc., GCCA, PI LLC.

Check and like new Facebook page for this book:
<https://www.facebook.com/100PostharvestTools/>



DEHYTRAY – low cost solar device



Man pouring shelled corn into a DEHYTRAY and woman drying banana slices in another tray.

The DEHYTRAY is a multipurpose solar dehydrator developed at Purdue University, USA, which can dry products faster than the traditional open-sun drying technique. Dr. Klein Ileleji, a professor at Purdue's Department of Agricultural and Biological Engineering, believes the technology could be the answer for small-scale farmers.

For more details click [\[DEHYTRAY\]](#)



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28 Inspirational People Working to Reduce Food Waste – ‘Food Tank’ Lists

‘Food Tank’ has listed 28 food waste warriors including inspiring chefs, scientists, activists, academics, entrepreneurs, and others who are working to prevent food loss and waste across the globe.

5 out of 28 people listed belong to our PEF family: Lisa Kitinoja, Jane Ambuko, Edoh Ognakossan Kukom, Roseline Marealle and Bertha Mjawa.

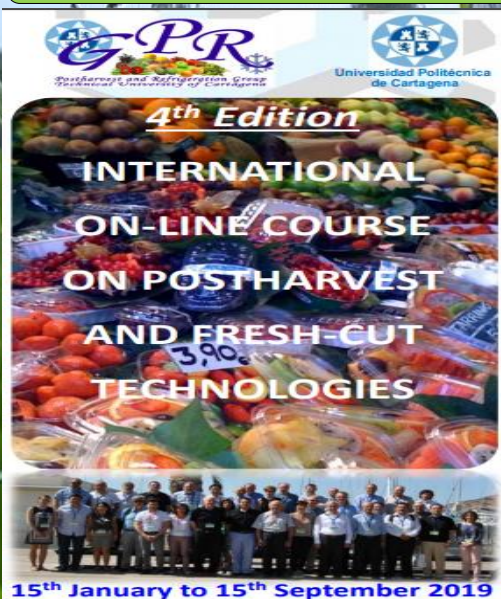
[\[Click here for complete list of 28 people\]](#)

FOOD TANK LISTS

28 Inspirational People Working to Reduce Food Waste



4th International on-line Course on Postharvest & Fresh-cut Technologies



4th International on-line Course on Postharvest & Fresh-cut Technologies’ that will be soon offered by the Universidad Politécnica de Cartagena, in Spain. Instructors for the program are 41 prestigious professors from 20 countries and 30 universities/research centers. The course material consists of 50 recorded videos of 30 min length each. Each participant can watch them at their convenience as many times as needed, learn at your own pace and finish the course from 15th January to 15th September 2019.

More information: <http://www.upct.es/gpostref/>

Contact: postharvest@upct.es

SAWBO - Call for volunteers

Scientific Animations Without Borders (SAWBO) creates scientifically accurate animated videos for teaching all kinds of topics in science, agriculture and health, which have been translated into more than 100 languages in different dialects and accents.

It is looking for translators and people that can provide voice overs for their animations. All animations are made freely available to anyone to use them for educational purposes. If interested, you can contact [<seveadames@sawbo-animations.org>](mailto:seveadames@sawbo-animations.org) for further details. All volunteer translators and those that provide voice overs are credited in the animations that they contribute to.



SAWBO

Scientific Animations
Without Borders



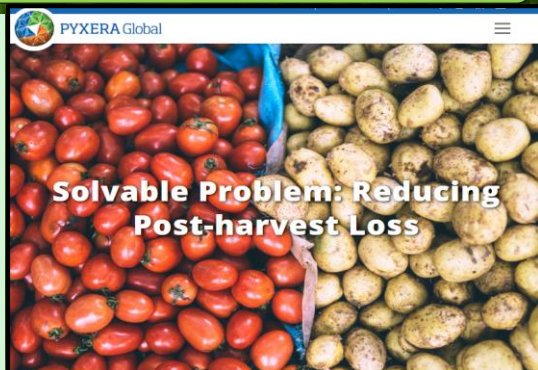
New Publications

- Two new journal articles were published from the literature reviews on measurements of postharvest losses and loss reduction strategies in plant based crops conducted by PEF and WFLO for World Bank. The full versions of the published articles can be downloaded from 'Journal of Postharvest Technology' website
1. Kitinoja, L., V.Y. Tokala and A. Brondy. 2018. **A review of global postharvest loss assessments in plant-based food crops: recent findings and measurement gaps.** Journal of Postharvest Technology. 6(4): 1-15. [[Download Full Version](#)]
- (+) Databases and Full versions of original references (hundreds of studies), used for the review. [[Download](#)]
2. Kitinoja, L., V.Y. Tokala and A. Brondy. 2018. **Challenges and opportunities for improved postharvest loss measurements in plant-based food crops.** Journal of Postharvest Technology. 6(4): 16-34. [[Download Full Version](#)].
- Ognakossan, K. E., Mutungi, C. M., Otieno, T. O., Affognon, H. D., Sila, D. N., & Owino, W. O. 2018. **Quantitative and quality losses caused by rodents in on-farm stored maize: a case study in the low land tropical zone of Kenya.** Food Security, 1-13. [[Abstract](#)]

Pyxera Global Engagement Forum 2018

Pyxera Global organised Engagement Forum 2018 from October 10-11, 2018, with motto of 'Solving the Solvable', framed from UN Sustainable Development Goals (SDGs). **Dr Majeed Mohammed**, PEF board member, represented PEF in the event discussion on the topic "Reducing Post-Harvest Losses."

Download: [[Solvable Problem Expert Expo Posters](#)]



Congratulations to our newest PEF graduates!

- **Aloys HAKIZIMANA** - Rwanda Agriculture Board, Rwanda.
- **Delphin Mpoza** - MINAGRI, Rwanda.
- **Elizabeth Ojetayo Abiola** - Federal Univ of Agriculture, Abeokuta, Nigeria.

Congratulations Armachius James!!

- **Armachius James (Tanzania, 2013 PEF e-learning graduate)** started his PhD program at Beijing Technology and Business University. His research topic is on postharvest management of fruit and vegetables with the focus on microorganisms. We wish him best luck for his future endeavours.



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*Wish you a cheerful year ahead filled with
beautiful moments, joy and abundance.
Happy New Year 2019*

Chamarel Waterfalls - Mauritius

The Postharvest Education Foundation



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_earning_program1.aspx

Postharvest Queries:

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

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%.

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

1. Postharvest tool kit: For e-learners from developing country who complete their training (US\$400 each).
2. 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).
3. Kader Awards: Awarded annually in honour of Dr Adel A. Kader to PEF Alumni, who show greatest impact in providing trainings for clientele at different levels (\$500).

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.

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

Contact Us:

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