

# SECURING THE HARVEST: POST-HARVEST STRATEGIES TO INCREASE RESILIENCE

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## PRESENTATION CHAT TRANSCRIPT

**APRIL 30, 2020**

### PRESENTERS

*Ahmed Kablan, USAID Bureau for Resilience and Food Security*

*Jagger Harvey, Kansas State University*

*Georgina Bingham, Vestergaard SA*

*George Opit, Oklahoma State University*

### MODERATOR

*Julie MacCartee, USAID Bureau for Resilience and Food Security*

Adam Ahmed: Greetings Everyone, we will get started in about half an hour. In the meantime, please fill out our polls, and let us know where you are joining from today

Bismark Opoku: Hello, Bismark from Ghana

Tijani Abdulhamid Ahmed: Hello, Ahmed from Nigeria

Adam Ahmed: Greetings Bismark and Ahmed

Shafqat Ullah: hi from Pakistan

kebba ngumbo sima: kebba - from Gambia

Kayode Idode: Hello, Kayode from Nigeria

Raj Dravid: God evening Dr Raj Dravid from India

Lusike Wasilwa: Lusike Wasilwa from Kenya Agricultural & Livestock Research Organization

Adam Ahmed: Happy to have all of you with us today!

Pauline Gitonga : Pauline from Kenya

Eva Kyereboah: Hello . Eva Kyereboah from USAID/METSS, Ghana

Adam Ahmed: Pauline and Eva, Welcome!

Tijani Abdulhamid Ahmed: Thanks Adam Ahmed

Kayode Idode: Thanks Adam

Marilyn Balderas: Hi from the Philippines

Brighton Mvumi: Hi From Zimbabwe

Johnson Kagoye: Hi every one. Greetings from Kampala Uganda.

&#39;Dele TOLOGBONSE: i am glad to be on line with you all. I am Prof dele Tologbonse from Zaria, Nigeria.

Samson Opiyo: Hi Everyone.Samson from Uganda

Katherine Patterson: Hi Katherine from Washington, DC; Returned Peace Corps volunteer Tanzania

Norah Josephine Samupunga: Greetings from Zimbabwe

Mildred Irungu: Hi everyone, from Kenya

Birhan Abdulkadir: Greetings from Ethiopia.

Mariama Ashcroft: Hi, I am Mariama Ashcroft, joining from The Gambia. I currently work for a GIZ-ECOWAS project as Microfinance Advisor

Kayode Idode: I work with the IFAD assisted Value Chain Development Programme. I used to be the Asst.M&E Officer but now work as the Head, Partnerships/Management Informatios System/Technology Unit

Eoin Hickey 2: Benders, South Sudan

Astrid van Rooij: Hi, this is Astrid from Van Hall Larenstein University of Applied Sciences in the Netherlands

Eoin Hickey 2: Welcome Astrid

Dick Tinsley: Dick Tinsley stuck across the river in Dunn Loring Virginia unable to return to Colorado

Eoin Hickey 2: Sorry Dick

Adam Ahmed: Hi Dick, glad to have you with us again

Andrea Allen: Hi everyone - I'm Andrea Allen at Michigan State University.

Kate Longley: Hi Everyone, this is Kate from CRS, based in UK.

Kothai Seshathri: Hello everyone. I am Dr.Kothai Seshathri Professor of Agroecology, from SRM University,India

Julie MacCartee: Welcome, everyone! We'll get started soon! Thanks for introducing yourselves.

Anna Brenes: Good morning, afternoon, evening everyone. This is Anna from Florida, USA

DAWN DRAKE: Dr. Dawn Drake, associate professor of geography at Missouri Western State University in St. Joseph, MO, USA

Srinivas Bandirala: Hello Evry one , I am Srinivas Bandirala from India, working with Vestergaard

Dave Hoisington: Dave Hoisington, Peanut Innovation Lab, Athens, GA

Robert Lenaghan: Tom Lenaghan, DAI based in Clermont-Ferrand, France

Diba Wako: Diba Dida from Kenya

Amar Mahapatra: Hello, this is Amar from India. I am a freelance consultant working in the agri and rural markets arena..

Roberto Saballero Jr: Roberto Saballero here from Philppines

Stevie Kloeber: Stevie Kloeber calling from Minnesota w. Bountifield International

Tijani Abdulhamid Ahmed: I work with Kogi state university, Anyigba, Nigeria

Diba Wako: I work for usaid somalia

Joseph Akowuah: Joseph Akowuah from KNUST, GhanaHi

Daniel Otwani: Daniel Otwani -MSc Student, The University of Western Australia - Perth

Ann Oden: Hi everyone! this is Ann Oden from PYXERA Global, Nigeria

Modibo Traore: Hello every one. I am Modibo Traore from USAID Mali

Roberto Saballero Jr: working with Samaritan's Purse

steven hansch: Steve Hansch from IBTCI in Virginia

Holiance Odhiambo: Holiance Odhiambo, MSc student University of Nairobi, Kenya

Allan Mortensen: Hi Team PHL - Allan from Vestergaard here - online from Denmark.

Gloria Odoom: Gloria Odoom - USAID/Ghana

Loretta Byrnes: Loretta Byrnes here from Germany.

Muhumed Mohamud: I'm Mohamud From Mercy Corps Somalia

Sarah Schwartz: Hello, Sarah Schwartz from ADM Institute for the Prevention of Postharvest Loss, University of Illinois.

Jane Ambuko: Jane Ambuko, University of Nairobi, Kenya

Anna Brenes: Hi Adam - the audio is not working

Tanya Stathers 2: Hi. Tanya Stathers, NRI, UK

Norman Siekman: Norman Siekman, Board of Directors, Iringa Hope, Minneapolis, Minnesota, U.S.A.

Femke Gordijn: Hi there, Femke from Wageningen Centre for Development Innovation, Wageningen UR, The Netherlands

Isabelle McMahon: I am a M&E consultant in Charlottesville Virginia

Jagger Harvey: Good morning everyone and thanks for joining us. We look forward to an important and engaged discussion today!

Janelle Larson: Penn State

Suneeta Chandorkar: Suneeta Chandorkar from India

Charles Adam King'eti: I am Charles Adam

Cody Kiefer: Hello--Cody with ECHO in Florida, USA.

Charles Adam King'eti: joining from Tanzania East Africa

CUI WANG: Greetings! Cui Wang from Mars Global Food Safety Center.

Austen Moore: Austen Moore from Catholic Relief Services, based in Baltimore USA

Don Van Atta 2: Good afternoon from Kyiv, Ukraine (USAID's AGRO activity)

Tara Clerkin: Hi all! Tara with IRC, based in NYC

Russell Prior: Russell Prior Lagos Nigeria

Ivan Rwomushana: From CABI Africa, Nairobi, Kenya

Madlaina Bruderer: hello joining from Morocco

Guillermo Gonzalez: Good morning to you all, Guillermo González from Guatemala, good to see some familiar names and also a great attendance.

Penina Muoki : Penina Muoki- Nairobi, Kenya

Million Gebreyes: Hi everyone Million from ILRI Addis Ababa Ethiopia

A Yarmah: Abu Yarmah, Food for the Hungry.

Kiruba Krishnaswamy: Hello Everyone- I am Kiruba Krishnaswamy, Assistant Professor (Sustainable Food Engineering), University of Missouri

Tom Shaw: Tom Shaw, CRS from Catonsville, MD.

Juan Luis Jurat-Fuentes: Hello from Knoxville, Tennessee

Maarten van den Dool: Maarten van den Dool: Good day to all of you. I work with NGO "Woord en Daad" (Word and Deed) from the Netherlands.

Giriraj Amarnath: Giriraj Amarnath, International Water Management Institute (IWMI), Sri Lanka

Julie MacCartee: Hi everyone! We are working to get one of our presenters connected - should be any moment now. Thanks for your patience!

Olalekan Paul Akande: Hello everyone, this Paul from Nigeria

Nqabayezwe Moyo: Hello joining from Zimbabwe

Meredith Jackson-deGraffenried: Hi Everyone - Meredith with Helen Keller joining from Zambia today

Charles Adam King'eti: Charles Adam from Tanzania- Africa

Phil Greiner: Phil Griener: Mercy Corps Jordan

Isabelle Vandeplass: Hello from Montréal Canada

John Ruberson: Hello from Nebraska in the US!

Shahana Begum: I am Shahana

Edna Ogwangi: Hi everyone, Edna Ogwangi, Rise Against Hunger, NC-USA

Mellen Tanamly: Mellen Duffy Tanamly from New Hampshire, US

Julia Chodyla: Hello from Florida!

Bill Thomas: Bill Thomas, RFS BEO, Washington, DC

Jane Ambuko: Willis Owno, Jomo Kenyatta University of Agriculture and Technology, Kenya

Farbod Youssefi: Greetings to all, from the World Bank in Washington DC

Kevin Voss: Hello from Louisville, Kentucky ... home of the Kentucky Derby

Dan Strempeke : Hello from Field of Hope

Pranata Barua: Hello from Ottawa

Brian Oakes: Hello from Haiti

Ben Parkes: Hi, Ben Parkes from University of Manchester, UK

Chalachew N Agonafir 2: Hi all, Chalachew here, freelance consultant from Addis Ababa

Ananth Gudipati: Annath Raj, 10Agrow

Brian Dotson: Hello from Washington, DC

Jonathan Schofield: CRS, in Baltimore

Michael Omodara: Hello, Michael Omodara from University of Kentucky

Douglas Steinberg: Has it begun yet?

Shahana Begum: Hi everyone

Ekanath Khatiwada: This is Ekanath joining from Myanmar

Emily Hermann: Hello everyone, this is Emily Hermann from World Wildlife Fund in Washington, DC

Lucy Swain: Devon, UK -Ethical Tea Partnership

Malini Tolat: Malini Tolat from save the Children

Jane Ambuko: Hi all, University of Nairobi, Kenya

Newton Ochanda: Hello, This is Newton from Manhattan Kansas

Julie MacCartee: Welcome! Glad to see many familiar names and some new ones on the webinar today

Nqabayezwe Moyo: Joining from CRS Zimbabwe

Julian Peach: Hi. Julian Peach living in Malaysia.

Alexandre Doyen: Hello everyone. Alex logging in from Nairobi. Working with Vestergaard - ZeroFly hermetic storage bags

Ashfaque Ahmed: Good evening from Pakistan. Ashfaque Ahmed Nahiyoona from CAB International here.

Shahana Begum: I am from Dhaka Bangladesh

Annette Scarpitta: Hello from Washington, DC (Maryland) and from Mavuno Congo

Bennet Ansong: Joining from Ghana

David Fischer: greetings from ACDI/VOCA in Washington DC.

Brighton Mvumi: Brighton Mvumi, joining from University of Zimbabwe, Zimbabwe

Ananth Gudipati: logging in from Nairobi. Working on IOT enabled hermetic BINS

Dick Tinsley: is the Agrilinks staff managing the webinar above to do so from home or are you in the office

Bennet Ansong: Working with Root Capital Inc

Laurore Antoine: Joining from Haiti

Christine Sainvil: Joining from Haiti.

Ann Oden: Has the Webinar started? Can't hear anything. Admin please chime in.

Eddah Nangole: Hello. Joining from Nairobi, Kenya

Kaitlin Sampson: Hello, I'm joining from Vermont. Working with the Sustainable Food Lab.

Raphael Dischl 3: Raphael Dischl, Helvetas / Switzerland

Carl Wahl: Carl Wahl, Concern Worldwide Agriculture Advisor, Baltimore USA

Brian Oakes: Joining from Haiti

Craig Jamieson: Craig joining from the Philippines

Francois Tsafack: Dr Francois Tsafack, from Medair Switzerland

Douglas Steinberg: Douglas Steinberg from the National Cooperative Business Association CLUSA International

Kizito Nishimwe: Kizito Nishimwe joining from Rwanda

Jessica Dittmar: Hi! This is Jess Dittmar from CRS' Central Africa Regional Office

Abdoulie Jallow: Greetings from Banjul, The Gambia.

Ackson Mwanza: Ackson J. MWANZA joining from Zambia (Self Help Africa) & (Te Harvest Fund)

Isabelle McMahon: Is the sound supposed to be working?

Victor Bushamuka: Victor Bushamuka: Joining from Baltimore, Maryland

Jerry Brown: Good morning ! Jerry Brown in Washington, DC

Kenel Cadet: Kenel Cadet, joining from Haiti on behalf of FONHDAD

Claus Recktenwald: Good afternoon from Lusaka/Zambia

Wilm van Bekkum: Wilm van Bekkum Self Help Africa UK

Cephas Taruvinga: Greetings from Rome Cephas

Cecilia Benda: Cecilia Benda Agriculture Adviser, Concern Worldwide UK

Russell Prior 2: Russell Prior; Bagco Nigeria ,we have partnered with Vestergaard to produce Zero Fly bags on a large scale

Uddhav Shirsath: Uddhav Shirsath Knowledge Transfer Manager

Aly Dagang: Hi joining from SIT Sustainable Development Panama

Bello I. Galoji: Bello I Galoji Bauchi. State Nigeria

J. Camacho 2: Good Morning, afternoon, evening to all from Miami, FL. USA. J. Camacho from Eneidine Capital Resources here

elsie black: Elsie Black with Global Good from WA, USA

Joshua Mwanguhya: Good morning, Joshua from East West seed international Uganda

Casey Harrison: Greetings, Casey Harrison from Nuru International in D.C.

vincent roger: bonjour a tous de Dakar!

Markendy Desormeau: Good morning I am Markendy from Dominican Republic

Dinakaran Elango: Good morning, I am Dinakaran from India.

Arshad Pal: Good morning, I am Arshad from WorldVeg India

Don Humpal: Hi, Joining from DAI from Sacramento, CA.

Nqabayezwe Moyo: no audio

Xavier Matro: Greetings, Xavier Matro from GBioS, Benin

Jasmine Mesidor: Good morning Im Jasmine Mesidor from Haiti

MARY LEUCI: Hello from University of Missouri, USA

Roy Ryniker: Roy Ryniker - Reorganization Alternatives Group- New York

Zia Ahmed: Hi I am Zia Ahmed joining from Vienna, VA

Funmilayo Oloyede : Oloyede Funmilayo Mary from Nigeria

Seid Kemal: Hi from Rabat

HOLLY TASSI: Good morning from New York. Our organization is called Believe in Bambara.

Ahmed Alhourani: Greetings from Jordan, I research Business-driven Landscape restoration :)

Tesfaye Tadesse 2: Hi Every one Tesfaye from Ethiopia

Julie MacCartee: For those who cannot hear - please hover over the Hosts Tyler Wellman or Adam Ahmed and "Start Private Chat". You will see a flashing tab below this chat box where you can troubleshoot.

Julie MacCartee: We apologize that Adobe has been having some bandwidth issues with greatly increased demand for virtual meetings. But on the whole the platform has been operating smoothly.

ASSA BALAYARA: Hello from Dakar, Senegal. This is Assa Balayara

Holli Jordan 2: Wendi Bevins, Lutheran World Relief/Corus International, USA

Seydou Samake: Greetings to all of you from Washington, DC area

Julie MacCartee: Please post your questions here at any time! We'll collect them to answer after the presentations.

Chad Bowman 5: Hello everyone, Chad Bowman from Belize

Ackson Mwanza: Apart from the 95% production and 5% postharvest investment, what proportion accounts for investment in value addition/food processing in SSA?

Ian Bennett: Ian Bennett The Harvest Protection Network [hpn.africa.com](http://hpn.africa.com)

Stephen Walsh: Yield gap analysis has been a useful framework for assessing where to invest on production side; is there a corollary for post harvest loss?

Mina Lassey: Hi everyone, Mina from Ghana

Manisula Bernadeta Nagita: Hallo Everyone. Bernadeta from Nascent Solutions Inc.

Markendy Desormeau: What is the alternative for small scale farmers in post-harvest management of perishable products which require cool storage?

Funmilayo Oloyede : We will be grateful to have the presentation for further and more thorough studies. Thank you.

Martyn Cowsill: Hi Markendy. mini-grids based on the use of commercial refrigeration as the "anchor client" [martyn@microgenrenewables.com](mailto:martyn@microgenrenewables.com)

Paradzayi Hodzong: Will be grateful to receive the presentation as we are losing the voice during the presentation

Julie MacCartee: Thanks for your questions, Ackson, Stephen, and Markendy

Beatrice Egulu 2: Hello from Addis Ababa, Ethiopia

Adam Ahmed: Hi Paradzayi, we will be sending out a recording of the webinar in about a week

Stephen Walsh: Thanks Julie.

Pauline Gitonga : Q. Please give examples of alternative uses of grain contaminated with mycotoxins?

Arshad Pal: Drying is the simplest method of processing to keep fruits and vegetables for longer period of time and reduce postharvest losses. But, there is a significant amount of nutritional loss during the drying process. How we can reduce the nutritional loss during drying process using simple solar dryers?

William Brent: Markendy, email [william@powerforall.org](mailto:william@powerforall.org) if you or anyone is interested in learning more about renewable energy and solar solutions for cold storage

William Brent: Martyn, you should get in touch too. We'd like to hear about your work

Sharon Mayienga: I can't hear him

Sharon Mayienga: Never mind, all good now

Funmilayo Oloyede : Both the recordings and slides of all presentations will be needed. Thank you.

Paradzayi Hodzong: How long do the zerofly bags last? How many times can they be used? In Southern Africa is there a producer of similar bags?

Julie MacCartee: PHLIL = Feed the Future Innovation Lab for Post-Harvest Loss

Markendy Desormeau: thank you William

Adam Ahmed: Hi Funmilayo, you can access the slides to download from the files pod under the presentation slide deck. We will be sending out the recordings next week.

Brighton Mvumi 2: cant see r

Pauline Gitonga : Q. Quantify long term storage of grains (how many months)?

Ackson Mwanza: What is the difference between the ZFH bags and the PICS bags?

Dick Tinsley: With your Hermetic bags are they designed for moving up the value chain or retained at the farm? If moving up the value chain and thus farmers have to pay full price for single use? If single use by farmers what percent of the value of a 100kg bag of maize is the cost of the bag?

Brighton Mvumi 2: the presentation

Tom Shaw: How do the GrainMate and ZFH bags compare to the PICS bags introduced by Purdue University several years ago in East and West Africa?

Jan Low: For scaling, could you video the storage demo process and use it on the TV and portable video shows to get faster update?

Carl Wahl: Please describe what you mean / what tests were conducted to assess the quality.

Ananth Gudipati: would be keen to understand how grainmate is different from other moisture probes available in china. The price points seems similar

Ackson Mwanza: What has been the adoption rate of the GrainMate and the ZFH Bags in Ghana?

Julian Peach: I am anticipating hearing about the value for money assessment of this work.

Paradzayi Hodzonge: Thank you managed to download the slides

Cecilia Benda: Did you subsidise the purchase of the equipment? did you include an element of financial support?

Guillermo Gonzalez: Great presentation George, what is the profit per bag for these intermediaries or Marketing agents for the ZFH bags?

Robert Lenaghan: I second Tom Shaw's Question--what is difference with PIC bags?

Paradzayi Hodzonge: Thank you managed to download the slides

Carl Wahl: What is reusability / lifetime of bags?

Markendy Desormeau: Thank you Martyn Cowsill

Maria Isabel Cartagena: Hello from Ecuador. Any experiences on cocoa? I'm sorry I couldn't login earlier

Jane Ambuko: While governments have committed to reduced postharvest losses to meet the SDG 12.3 target of halving postharvest losses by 2030, allocation of resources to this cause (including research - just 5% compared to 95% allocation to production). What strategies can be used to get more resources allocated to PHL reduction?

Paradzayi Hodzonge: At \$1 usd the bags are expensive for the poor farmers that experience heavy post harvest loses, Are there any cheaper options

Michael Omodara: George, when do you think Africa will move away from bag storage? Despite the success stories recorded with the use of PICS and ZFH and other, majority of farmers still use the wooven PPE. Don't you think the bag storage system in itself needs to be changed?

Loretta Byrnes: So in this example, they are both maize and poultry farmers. But, who is turning the maize into poultry feed?

Brighton Mvumi 2: is there any data on the economic analysis using hermetic bags. would you consider large capacity hermeti containers?c

Dick Tinsley: are the hermetic bags effective against rats or mostly insects?

AFIA AGYEKUM: Is there any plan to have a manufacturing unit in Ghana to support the production of these hermatic bags?

Stephen Walsh: CRS did a comparative analysis of post harvest storage for small holders and this included technical briefs on hermetic storage for small holders and on doing econ analysis to determine return on investment. These materials were on CRS website as of 2016.

Arshad Pal: How effective are the hermetic bags for reducing the bruchid damage for long term storage of mung bean?

Funmilayo Oloyede : I please need contact of distrubutors of ZFH bags in Nigeria.

Stephen Walsh: CRS work was done with support from PURDUE / PICS and with a post harvest economist from U. Florida.

Nqabayezwe Moyo: PICS bag use in Zimbabwe is affected by supply chain issues, farmers have to get them from Zambia, is there a possibility to have them manufactured locally?

Dena Bunnell: Hi all, thanks for your great questions. Many of your questions about the ZeroFly bags will be addressed by our next speaker, Gerogina Bingham.

Brighton Mvumi 2: thanks Stephen W. would check your website

Kwaji Barka Peter: What are advantages of the Hermetic bags and the PICSs Bags?

Jonathan Schofield: Thanks Steve Walsh: <https://www.crs.org/sites/default/files/tools-research/seed-storage-briefs.pdf>

Guillermo Gonzalez: Thanks for the information Stephen W.

Anna Brenes: Please speak louder

Julian Peach: Thanks for the link!

Dick Tinsley: can't farmers purchase the components of the her,etic bags and assemble them at home

AFIA AGYEKUM: There is a slight different between the zero-fly hermatic bag and the PICS bag. Maybe George can explain that briefly

Charisse Tillman: Are you able to speakup?

Ian Bennett: [hpn.africa.com](http://hpn.africa.com) Ian Bennett

&#39;Dele TOLOGBONSE: what about the use of 'AflaSafe' in maize production in reduction of mycotoxin contamination.How efective and safe is the use of Aflasafe'

Kwaji Barka Peter: How is the hermetic bags different from PICS bags in terms of effectiveness in reducing post-harvest losses and reuse?

Julian Peach: Is there anyone from GrainPro here? They make a good storage solution.

Carl Wahl: Any research on non-grain food items (such as gari ) with hermetic bags?

Stephen Walsh: Dick, indeed. For seed this is the ubiquitous plastic water bottle... which was one of the technoligies that CRS proposed in a seed storage activity they carried out in Burundi about ten years ago. A central challenge for small holders is to keep the seal on the container.

Lindsay Alemi: Is there a difference between Nofly and PICS bags or are they just different brands?

Julian Peach: Are zero-fly bags rat-proof?

Michael Omodara: Collecting data on PHL, Mycotoxin and other related issues is a major problem in Africa. What are the various Innovation labs doing in that regard?

Julie MacCartee: We will definitely address the difference between PICS and ZeroFly - thanks for the question!

Lusike Wasilwa: What percentage of poultry farmers were engaged in this project? Of those farmers participating in the study, what was the adoption rate of the zero-fly bags?

Markendy Desormeau: Can we find zero-fly bags in Dominican Republic?

Stephen Walsh: Thanks Jonathan Schofield for the link. You have always been amazing at retrieving information quickly!

Vincent Roger: Please speak louder Georgina

Berguete Mariquela 2: How are the interventions engaging private sector to ensure that the bags are available in remote areas?

&#39;Dele TOLOGBONSE: there is need for coordinated research and knowing why most small scale farmers don't adopt PHL technologies.

Jane Ambuko: There is need to ramp up awareness about hermetic storage bags for greater adoption - especially among small holder farmers. Such awareness should promote all the available hermetic storage options including bags (PICS, ZeroFly, A to Z, Supergrain etc), metal silos and plastic silos

Tesfaye Tadesse : Is there any test result done on zero-fly bags in Ethiopia?

Samson Opio: What is the shelf life of Maize kept in ZFH bags

Joshua Mwanguhya: Are those bags readily available in Uganda?

Brian Dotson: Does the deltamethrin in the NoFly bags also reduce mosquitoes in the building where the grain is stored?

Brighton Mvumi 2: how do you manage the cost of measuring aflatoxins or pesticide residues in grain. the costs are atrocious hence food or feed safety is extremely expensive in Africa

Brighton Mvumi 2: also applies to feeds

Emerson Eggers: Proper drying below 35% RH will kill the insects just the same and prevent fungi.

Xavier Matro:

[https://www.researchgate.net/publication/328756954\\_Moisture\\_adsorption\\_isotherms\\_and\\_quality\\_of\\_seeds\\_stored\\_in\\_conventional\\_packaging\\_materials\\_and\\_hermetic\\_Super\\_Bag](https://www.researchgate.net/publication/328756954_Moisture_adsorption_isotherms_and_quality_of_seeds_stored_in_conventional_packaging_materials_and_hermetic_Super_Bag)

Ackson Mwanza: Anyone interested to partner on the adoption of the different technologies by farmers : please feel free to reach out to : [ackson@theharvestfund.org](mailto:ackson@theharvestfund.org) or check out our website on some of the work we are doing in Zambia on [www.theharvestfund.org](http://www.theharvestfund.org)

Dick Tinsley: does the \$0.50 cost represent just the manufacture cost? is so what is the cost for delivery to farms in a comercial operation and not vis NGO facilitation?

Loretta Byrnes: Since the bags are chemically treated can they be reused?

Julian Peach: Good question Dick Tinsley!

Abraham Ogwu: are these bags available in Nigeria, if yes where can one get it. Agric ministries?

Juan Luis Jurat-Fuentes: Any cases/concerns with resistance to deltamethrin?

Stephen Walsh: Dick, I see the PICS bags retailinh at 2-3 USD. A challenge is that if they are opened - the de-oxidization is lost - a challenge we found with small farmers. The returns on post harvest storage technologies is generally not done.

Sivakumar Rajagopal: Can these bags used for Millets storage

Bismark Opoku: Is there any recycling policy from Vestergaard after usage?

Michael Omodara: Abraham Ogwu , the bags are available. Contact any NSPRI office in Nigeria

Kayode Idode: For greater adoption of ZF bags and its other variants, the most important factor is cost and awareness. What is been done in the reduction of the costs per unit of these bags, seeing we are talking about the majority of food producers in the world who conversely/ironically are also the poorest. Also, adoption requires that these bags are ubiquitous in supply and availability, with the realization that these bags are very essential in addressing the challenges of PH losses, what are the limiting factors against the ready availability of these bags across the world?

Dick Tinsley: another overall question is are you expecting farmers to market full bags or partial bags and what is the overall time over which farmers will market a crop

Tijani Abdulhamid Ahmed: technology dissemination is as important as technology development, what are you doing to reach out to the farmers

Daniel Otwani: Do you have any examples from the chombo model

Lucy Swain 3: Farmer Field schools offer a good opportunity for raising awareness of hermetic sacs through demos and also offer vehicle for distribution

George Awuni: Where in Ghana can one find the bags

Liana Calegare: What about the environmental impact? How have the used hermetic bags been disposed?

Mariama Ashcroft: I am interested to know if any tests hve been done on the safety and efficacy of hermetic bags in general, and specifically Zero/Fly

Stephen Walsh: It warrants a reminder that storage loss account for a fraction of post harvest loss. Post harvest technologies that are easily fundible - like bags, storage containers - tend to draw more interest than knowledge transfer.

Kwaji Barka Peter: I have a concern on the insecticide coating on the bags, it cant get into the grains?

Srinivas Bandirala: milests it work very well

Marilyn Balderas: are these bags available in the Philippines? Can it be used in rice?

William Brent: FYI, we're pulling together a technology spotlight on solar cold storage which should be completed in May

Pauline Gitonga : Can we extrapolate the bag for use in pulses and rices?

Srinivas Bandirala: Millets it work very well

Kwaji Barka Peter: How would make esnure trust and transprancy between entrepreneurs like Chombo and farmers?

Ananth Gudipati: how many times can a zerofly bags be used?

Sivakumar Rajagopal: Thanks Srini

Lusike Wasilwa: I might have missed it but are these bags rodent-proof???

Michael Omodara: I think there is a missing link in the research on bag storage. A lot of research on marketing end which is the primary factor . Farmers and grain aggregators sell grains in Polypropylene (PPE) bags the buyers go away with those bags

Dena Bunnel: ZeroFly bags can be used multiple times and the insecticide coating remains effective for 2 years

Sivakumar Rajagopal: Pl send the further details to email : agrivaluehain@gmail.com

Jonathan Schofield: Not sure if it has been stated, but are the ZeroFly bags manufactured?

Sivakumar Rajagopal: sorry agrivaluechain@gmail.com

Srinivas Bandirala: thanks Shiva , sure i will send

Jonathan Schofield: sorry - where are the ZeroFly bags manufactured?

Sivakumar Rajagopal: we work with millet growers from south India

Srinivas Bandirala: srb-contracted@vestergaard.com

Dick Tinsley: do your hermetic stored bag command a bonus price when marketed based on improved quality or less decline in quality

Alexandre Doyen: for ZeroFly technical/marketing related questions for Africa you can contact me ad@vestergaard.com

Carl Wahl: how well do you think the Chombo model work in an environment less digitally enabled than Kenya?

Sivakumar Rajagopal: noted

Ananth Gudipati: sivakumar-what r the problems for millet growers in south india-pest attack during storage/

Sarah Schwartz: ADMI researchers have done some work on the economic impact of hermetic storage.

Sarah Schwartz: [https://postharvestinstitute.illinois.edu/wp-content/uploads/2020/03/Hermetic-Storage-Policy-Brief-2019\\_08.pdf](https://postharvestinstitute.illinois.edu/wp-content/uploads/2020/03/Hermetic-Storage-Policy-Brief-2019_08.pdf)

Lusike Wasilwa: I find that these bags are not gender friendly - senior, female citizens find them so hard to use. Has some gadget been developed to make them more gender friendly

Stephen Walsh: Dick - there are different qualities - thickness of plastic. Counterfeiting.

Alex Winter-Nelson: In India there are locally manufactured hermetic options like:

Sophie Lusungu Chitedze: Will you kindly share this excellent presentation?

Kayode Idode: I would really be interested to know Hi Georgina, when you do come to Nigeria.

Daniel Otwani: Have you considered the Chombo model relative to the cooperative model in Kenya and what you can learn from the negative farmer experiences in the coop model?

Alex Winter-Nelson: <https://savegrainbags.com/>

Ananth Gudipati: who takes of the chombo risks in case price crash or does not rise sinificantly

Kwaji Barka Peter: After two years, the Zeroflybags becomes like normal storage bags?

Berguete Mariquele 2: For Georgina, how can we implement the same project in Mozambique? We are currently working with PICS and AgroZ bags, but want to increase option for the SHF

Ananth Gudipati: and logistics on selling to buyer from chombo- is it mostly for local retailing?

Alex Winter-Nelson: What are best practices for disposing of plastic hermetic bags after the end of their useful life?

Dick Tinsley: becareful of cooperatives to make certain thier overhead cost don't exceed the benefits so relying on cooperatives will be more apt to enhance poverty than alleviate poverty

Sivakumar Rajagopal: will connect through email for furthe details

Julian Peach: Please answer the point about what % of post-harvest losses are solved by storage solutions.

Tom Shaw: The actual profit of \$210 cannot be accurate as there are storage costs (even if the rent for storage was zero for the pilot) as someone has to take care of the warehouse, palets, transport to storage, labor to unload bags and stack in the warehouse, etc. What is the real profitability?

Cephas Taruvinga: We now have a lot of innovations and technologies to address PHL at speciffic points and along value chains. What seem to be lacking are strategies at national or program levels developed or being implemented to address PHL. How can this be addressed?

Brighton Mvumi 2: the profit margin from the Chombo model consider other costs related to the storage

Julian Peach: What is the net margin for a farmer using the Chombo service?

Brighton Mvumi 2: ?

Ananth Gudipati: chombo model seems is more a micro version of WRS- needs analysis on various other costs to ascertain profits

Alexandre Doyen: hi Brighton the model is made to capitalize on the existing storage spaces at community level.

Srinivas Bandirala: Ananth ycan have your mail id

Kwaji Barka Peter: After 2 years, the bags becomes like normal bags?

Annette Scarpitta: Thanks for checking on availability in DRC

Alexandre Doyen: Annette Scarpitta please contact IMA WORLD HEALTH

Alexandre Doyen: for DRC

Eddah Nangole: What are the risk sharing strategies for the Chombo model (who bears the higher risk)?

Arshad Pal: Are ZeroFly bags available in India?

Sivakumar Rajagopal: chambo model is different used for potato storage

Jane Ambuko: @Cephas Taruvinga I asked the same question - that we have technologies like the hermetic bags for grains but the problem is getting our governments to commit resources towards programs to enhance greater adoption of technologies to reduce PHL

Alexandre Doyen: Eddah the biggest risk is the seasonality. It requires a seasonal price increase

Srinivas Bandirala: for Zero fly Bags Aisa market contact srb-contracted@vestergaard.com

Ackson Mwanza: Thanks Jagger!

Godfrey Ejimakor: Where can one get Zerofly bags in Nigeria?

Edward Dixon: Are there other techniques and strategies that you can speak to for different crops. The presentation was focused largely on grains. What about other crops, such as vegetables.

Dick Tinsley: You might want to visit the smallholderagriculture website with specific reference to the pages: <https://smallholderagriculture.agsci.colostate.edu/>

<https://smallholderagriculture.agsci.colostate.edu/financial-management-strategy-retain-assets-in-kind/>  
: <https://smallholderagriculture.agsci.colostate.edu/1st-value-added-clean-bag-of-grain/> :  
<https://smallholderagriculture.agsci.colostate.edu/enhancing-value-chains/>

Dena Bunnel: @Julian Peach I don't know that we have an exact number for the amount of loss from storage - it is dependent on a number of factors and different PH practices fit together (e.g. improper drying will impact storage) ; however, one assessment we did in Ghana estimated that 23% of loss was from storage

Stephen Walsh: African Post Harvest Loss Analysis:<http://archive.aphlis.net/>

Emerson Eggers: Jagger - did I hear you right that the Hort IL @ Davis is now finished? That is news to me..

Russell Prior: For Nigeria please feel free to contact me @ [russellprior@bagco-ng.com](mailto:russellprior@bagco-ng.com)

Alexandre Doyen: @Jane Ambuko we are working with microfinance organisations . In Kenya the government and private sector (Mastercard) is helping with programs like KECP

Stephen Walsh: Excellent objective source of information for post harvest loss in Africa - showing differences between crops and different elements.

Kwaji Barka Peter: Chombo Model seems great!

Dieudonne Baributsa 2: For those who have questions about PICS bags, they are available in several countries in Africa and Asia- see link below. Each dot has contact of distributor in each country-  
[https://picsnetwork.org/where-we-work/?tab\\_id=distributor](https://picsnetwork.org/where-we-work/?tab_id=distributor)

Funmilayo Oloyede : Is ZFH bag warterproof?

Stephen Walsh: Thank you Jagger.

Tanya Stathers: See the new APHLIS site here, which also includes nutritional and financial value of PHL for cereal crops, workign towards adding legume PHLs too

Tanya Stathers: [www.aphlis.net](http://www.aphlis.net)

Zia Ahmed: May I have the contact point(s) of the persosn/office iin Bangladesh?

Julian Peach: Thanks Stephen

Emerson Eggers: <https://www.sciencedirect.com/science/article/pii/S092422441730482X>

Diba Wako: can you change the zeroflybags to new ones to prolong the storage period?

Alexandre Doyen: @Diba Wako the woven PP bag no matter the supplier or technology realistically last 2 years in field conditions

Dena Bunnel: @Julian Peach - clarify - 23% of 30% total loss

Cephas Taruvinga: Thats the issue @Jane. There is need to move to strategic interventions without that PHL technologies will remain "idle"

Srinivas Bandirala: for Bangladesh contact srb-contacted@vestergaard.com

Alexandre Doyen: @Liana there are some manufacturers (TexPlast Kenya) which have invested heavily into recycling plants

vincent roger: CNFA experience prompting PICS bad in the cowpea VC is that a main constraint is that bags need careful handling not to torn and leak and lose hermetic properties. Careful handling is not how bags are typically handled in Africa. What is your experience with usage of bags by multiple actors who may not have incentive to do careful handling along supply chains?

Dinakaran Elango: Thank you, Srinivas!

Liana Calegare: Thanks, Alexandre Doyen!

Jagger Harvey: @Emerson Eggers: yes, the HortLab completed their full 10 year cycle late last year.

Jared Klassen: In the Chombo model, why did you decide to structure it so the Chombo owner purchases the grain, rather than just charging a fee to store the grain? If there was only a fee for storage, the farmers would still own their grain and could use it as collateral for securing loans or other forms of financing.

Abdoulie Jallow: JAred Klassen, brilliant question!

Dan Strempeke : multi use, but will the second use after 24 mo have any hermetic value remaining?

Ananth Gudipati: @jared: I think buying model works better for risks for farmers

Ananth Gudipati: the concern in the model more on how chambo handles the risks

Cephas Taruvinga: @vincent roger: I agree with you PICs are okay for household food security but for trade handling, this is a challenge.

Abdoulie Jallow: Farmers need to be provided the opportunity to accrue the larger part of the profit!

Dena Bunnell: @Jared Klassen - it was done this way to address farmers who have immediate need for cash at harvest - the agrilinks blog on this is a good explainer:

<https://www.agrilinks.org/post/improving-livelihoods-smallholder-farmer-communities-through-innovative-post-harvest-storage>

Alexandre Doyen: @Jared Klassen, The model allows entrepreneurs to set up micro warehouses at the community level. This decentralizes the storage. Storage at a fee requires larger quantities to be profitable. This is the warehousing receipt system. The charges are very high for farmers

Pierre Silvie: Are plant extracts definitively useless to protect the grains inside the bags ?

Pierre Silvie: \*extracts

Caroline Chepkemboi: Is the chemical used safe to use continuously since we harvest several times a year.

Dieudonne Baributsa 2: @Cephas- Hermetic bags such as PICS were designed for HH storage not for transport. Most farmers treat them as granaries

Stephen Walsh: Vincent, you raise a critical issue as per 'applying the technology'. We tend to have huge focus on moving inputs but less so on focusing on adherence on use guidelines. PICS has done an outstanding job showing this in their research and in the training videos.

Alexandre Doyen: @Caroline Chepkemboi. The concentration of insecticide is very low and the residual levels below USEPA standards. Furthermore there is a liner inside the bag that separates the insecticide treated bag from the grain or seeds

elsie black: Are there any tools provided with the chombo model to ensure that the grain being stored is of good quality?

Ananth Gudipati: any data on total cost for chombo? storage, financing, logistics etc

Julian Peach: In the Chombo pilot area, did you observe an effect during the season on the wider market price? Did chombo disrupt the market?

Zia Ahmed: Can the ZFH Bags be recycled like plastic?

Alexandre Doyen: @Elsie Black the CHOMBO manager is expected to gauge the quality of the grain using visual standards and to check the moisture level using a humidity meter

Srinivas Bandirala: YEs ZFH are recycleble

Shafqat Ullah: In Concern Pakistan we have used both Hermetic bag and drum to store wheat seed. We found drums more effective but they are bit expensive. However the results were remarkable.

Brighton Mvumi 2: for livestock farmers storing large quantities can we have facilities for bulk storage instead of using hermetic bags

Abdoulie Jallow: Small holder system is what needs to be improved and connected to cooperative systems who take responsibility of PH with capital to invest beyond the bagging system.

Dick Tinsley: What size of operation is needed to make your own feed realistic and is this above the concept of smallholder operations

Cephas Taruvinga: @Dieudonne. This is a gap that needs filling

Jerry Brown: what kind of assistance do farmers receive/access to make tiheir own feed? Producing feed is not an easy process to learn. Is there any assistance the faremrs receive?

Georgina V Bingham: @tanya strathers APLIS is such a fantastic resource thank you so much!

&#39;Dele TOLOGBONSE: whats the difference between Zerofly hermatic bags and PIC bags?

Dieudonne Baributsa 2: @ Cephas. That is where I see GrainPro filling this space with their transliners and their other products.

Farbod Youssefi: Interesting presentation on a valuable tool. JaneAmbuko & CephasTaruvinga are putting forward a key point that is important for this discussion: a framework or strategy which addresses different policy levers, integrates different tools and practices, draws on different stakeholders, covers a range of value chains, and integrates with other components within a food system, is critical for a holistic and sustainable solution to food loss.

Jared Klassen: Thanks for the responses Dena, Alexandre, and Ananth. Agreed that warehouse storage fees may be high, but in this model the Chombo owner is keeping 85% of the profits from the higher price by selling later (arbitrage). Also, access to finance would help address short-term liquidity needs of farmers. However I do appreciate the decentralized/micro-level approach of the Chombo model! :)

Brighton Mvumi 2: Suggest let's have another forum to discuss policy issues affecting PHM in developing countries such as SSA

Juan Luis Jurat-Fuentes: Any issues/concerns with resistance to deltamethrin in the ZFH bags and ways to address it?

Dieudonne Baributsa 2: For those asking about recycling- i feel like most hermetic bags would follow the same route as regular woven bags and plastic liners used in packaging rice, sugar and salt. Here is a reference <https://www.sciencedirect.com/science/article/pii/S0022474X14000253> and <https://extension.entm.purdue.edu/publications/E-264.pdf>

Arshad Pal: Thanks Ahmed for the clarification.

Bismark Opoku: There are a lot of pending orders of ZFH bags in Ghana, assembly plant might be needed in Ghana is there a way out from Vestergaard?

Carl Wahl: @Bismark Opoku ... yes, esp. now in Corona time

Dena Bunnel: @Brighton Mvumi 2 - great idea! It is definitely a topic that merits further and detailed discussion

Alexandre Doyen: @ Juan Luis this is an issue with mosquitoes and Vestergaard has adressed with a new type of mosquito net. So far (Georgina can elaborate) we are not seeing this with common storage pests. we will have to plan for this in the future great point

Cephas Taruvinga: @Brighton the medium farmers storage needs are yet to be met.. Farmers who graduate from HH food security to trading and diversify to enterprises that require larger storage face storage challenges?

Brighton Mvumi 2: @Cephas, agreed. there is still a huge knowledge gap

Juan Luis Jurat-Fuentes: Thank you @Alexandre Doyen

Jane Ambuko: @Farbod Youssefi, that is exactly what is required. We cannot leave this to development partners, private sector etc. governments must be at the forefront of PHL reduction efforts, others can only back up government efforts

Kwaji Barka Peter: Great presentation!

Nataly Merino: Great presentation!

Sivakumar Rajagopal: Thanks for useful information on grains storage

Arturo Solorzano : Re

Emerson Eggers: Thanks for the engaging webinar

Akson Mwanza: Great Webinar. Thank you!!!

Funmilayo Oloyede : Many many thanks

Dick Tinsley: Thank you for a good webinar and please stay safe and healthy

Lelia Lubin: Great presentation!!

Caroline Chepkemboi: Just recently i came a cross a maize harvester combined with asolar dryer. i think these kind of technologies cave save on post harvest loss

Modibo Traore: Thank you

Jane Ambuko: Thank you @ Jagger for your answer - spot on!

Arturo Solorzano : Really interesting presentation in order to protect local grain production. Thanks to all presenters

Allan Mortensen: jared Klassen - if you wish to learn more and influence business model moving forward please feel free to contact me amo@vestergaard.com

Annette Scarpitta: thanks so much! I look forward to follow-up opportunities

Ann Oden: Good job presenters and Agrilinks for planning and moderating this webinar!

Cephas Taruvinga: Thank you for the Webinar. Met a lot of PHL great mind here

Stephen Walsh: Excellent webinar. Thank you and wishing everyone safety and health.

Markendy Desormeau: Thank you for this webinar very useful

Dena Bunnel: Thank you all for joining us! We look forward to a continued conversation and work on these issues!

Dena Bunnel: Thank you all for joining us! We look forward to a continued conversation and work on these issues!

Ajay Jha: great presentation! technology portfolio you all are working can you please share

Georgina V Bingham: @Juan Luis Resistance has not been an issue so far - but we have several new insecticides we are trialling in order to provide good and responsible pesticide stewardship of this product

Arshad Pal: Thank you so much for the informative webinar.

Samson Opio: Great presentations and questions raised and answered

Julie MacCartee: Thank you for joining! We will wrap up after this question

Adam Ahmed: Thank you for all of your great questions and engagement!!

Julie MacCartee: Be on the lookout for an email with the recording and other resources

Michael Omodara: Great to hear from Jagger and George again. Hopefully, we will have the opportunity to meet in another forum when this pandemic is over. great work guys

Abdul Wahab Jamal Sessay: thanks for this presentation. this help us to also train our outgrowers

Stephen Okoth: Thanks Julie

Alexandre Doyen: Thanks Jagger Juliette George Georgina

Funmilayo Oloyede : We look forward to recordings and slides. Many thanks

Ajay Jha: can we have early warning system or forecast of post harvest losses of produce so we can find alternate way to mitigate or do some alternative way of conversion

Joshua Mwanguhya: Thank you for the wonderful presentations

Kayode Idode: Thanks tho the organizers and the different presenters in this webinar! Kudos

vincent roger: thanks for the presentation. I would like to share a feedback. I was hoping a presentation that would have spent more time on an overview of various technologies developed and business model for marketing and adoption, less on very limited number of tech (moisture meter, bags)

Srinivas Bandirala: Thanks to all presenters

Mariama Ashcroft: Thank you

Jane Ambuko: Great Webinar, I have learnt a lot

john bowman: great job!!

David Mbugua: Thank you.

Shafqat Ullah: very informative webinars, presenters. thanks

Katherine Patterson: Thank you! Excellent and timely

Guillermo Gonzalez: Great webinar, thanks so much!

Said Ali: Thank you. Great Webinar

Arturo Solorzano : Thank you Julie for excellent time mangement

Sarah Schwartz: Nice job, thanks!

Diba Wako: Thank you

Shafqat Ullah: thanks

Jagger Harvey: thank you!

John Ruberson: Thankyou!

Mina Lassey: Thank you

Jared Klassen: @allan morensen thanks, I'll reach out by email

Sevak Amalyan: thank you!

Marilyn Balderas: thank for the informative presentations

Connie Formson : Thank you!

Caroline Chepkemboi: Thank you

Joseph Akowuah: thanks

Seydou Samake: Thank you

Amir Marin: Thank You

Bismark Opoku: Thank you

Mama Toure: thanks

Zia Ahmed: Kindly send the email contact list of the prseenters and participants.

Roberto Saballero Jr: thanks

Roberto Saballero Jr: tnx